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Urban Transformation - a feasibility study of Bodø.

How Bodø's current airport facilities can be used to inter-grade the residents of Bodø, its commercial sector and the faculty and students at Nord University more strongly when the area are transformed to new uses.

Trygve Ellef Lind

Landscape Architecture for Global Sustainability



Figure 1. Photo of Brevika and Lille Hjærtøy, northwest of the city centre. Bodø, 11 May, 2022.

11/05/2022

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Trygve Ellef Lind
Master's thesis autumn 2022
Faculty of Landscape and Society
The Norwegian University of Life Sciences



Figure 2. An airplane goes for landing at Bodø airport. Photo taken from the east end of the runway. Bodø, 12 May, 2022.

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ABSTRACT

The city of Bodø in Nordland county has, over the last decades, grown to a medium sized city in Norway. It is an important urban centre in Norway, being the second largest urban centre north of Trondheim.

Bodø is expected to grow further in the years to come. Based on this, the Municipality of Bodø has set an aggressive growth target for the period up until 2030. An increase in the population from today's level of approx. 52,500 to approx. 70,000 is the basis on which they are planning the city's development in this period.

A key factor in achieving this target is the reuse of the acreage now occupied by Bodø's airport. This will be moved to a new location at some point during the next 5-8 years, releasing a huge area close to the city for alternative use.

This thesis is focusing on how the transformation of this area from airport to a new, mainly residential district in Bodø can be facilitated by reusing the current terminal building and control tower complex on the airport in a manner which can make these facilities and the surrounding outdoor area a "connector" between the city and Bodø's main suburb, Mørkved, where Nord University is located.

Drawing the students and faculty at the Mørkved campus closer to the city and the residents of and business community in Bodø closer to each other is considered a key success factor for a development of Bodø towards the goals set by the Municipality.

This thesis will explain how the theoretical concepts "the Creative Class" by Richard Florida and "Triple Helix", from Henry Etzkowitz & Loet Leydesdorf and support the importance of this.

The thesis will, furthermore, present various proposals for the short and longer term upgrading of the outdoor area adjacent to the terminal building and the control tower at the current airport.

PREFACE

It has now dawned on me that this thesis will be my last and, by far, the largest I have ever produced during my time as a student. This journey has been long and spectacular, with both ups and downs. From my first lecture at a university back in 2015 until today, it is strange to think that this journey is now over. It feels somewhat sad to know that you will no longer be part of the university (Knock on wood), but at the same time, it also feels like a relief and freedom.

Relief at having managed to finish all subjects, exams and semesters. Relief to tell yourself that "you have done it"! The freedom of being able to look out into the big world and explore the possibilities that exist! This will be strange to think about at first, but later on very exciting!

I want to thank my supervisor, Kathrine Omnia Strøm, for the fantastic follow-up and motivator throughout this work.

A big thank you to my contact person in Bodø, Kristoffer Larsen Seivåg, for excellent communication and assistance in collecting facts and information about Bodø, the airport and other relevant data.

To my family and friends who have cheered me on to the finish line.

Finally, I would like to thank my grandfather, who gave me the idea and inspiration about the topics around aviation and Northern Norway. I hope and know that you would be proud. Rest in peace, dear grandpa.

Trygve Ellef Lind
NMBU, Ås
15. December 2022

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BACKGROUND

Bodø, the administrative capital of the county of Nordland, is facing its natural harbour and the open ocean behind it. This is a consequence of its history as an important port, both for the regional fishing industry and the coastal communications in Nordland.

In modern times, i.e., during the last 50-75 years, Bodø has gradually grown eastwards. This has been driven by the development of its airport situated close to and almost integrated in the city and the establishment of important institutions such as the Regional Hospital, the Norwegian Air Museum and Nord University to the east of its historical centre (Dalfest & Thorsnæs, 2022b).

The University is located at Mørkved, approximately 8 km from the current eastern perimeter of Bodø. This distance has led to the University campus not being fully integrated in Bodø.

Bodø's population is expected, to continue to grow. An increase of close to 40% of its population is thus a goal for the Municipality by 2030 (Bodø kommune, 2014).

A rare opportunity for the further development of Bodø as an important regional and, possibly, national urban centre has occurred as a consequence of the decision to move the existing airport to a new location. Most of the acreage used by the existing airport, including the terminal building and the control tower, will, as a consequence of this, be available for re-use.

This thesis will discuss how the terminal building, the air traffic control tower and the immediately surrounding areas can be re-used in a manner which will contribute to pull Nord University and the city closer together so as to serve as a positive catalyst in the future development of Bodø.

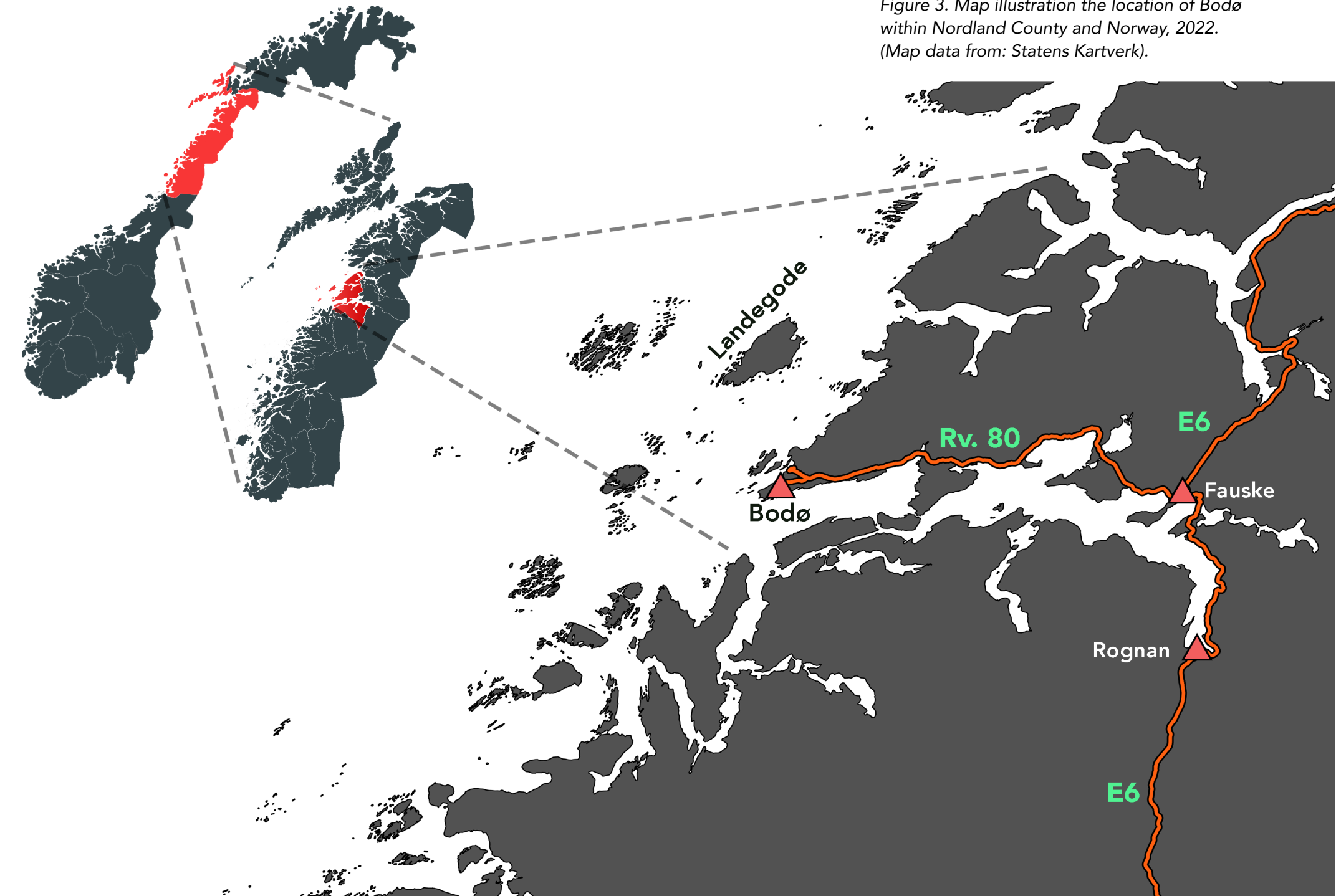


Figure 3. Map illustration the location of Bodø within Nordland County and Norway, 2022. (Map data from: Statens Kartverk).

RESEARCH QUESTION

How can the main buildings at the current airport be re-used so as to become a new and stronger urban meeting point for the residents of Bodø?

SUB - GOALS

How can a strengthening of the city's connection with Nord University at Mørkved contribute to realise this goal?

How should the Municipality's goals and ambitions to evolve as a circular, compact and sustainable city be applied when the airport acreage is transformed?

GOAL AND FOCUS

The focus of this thesis is the possible programming and re-use of the Terminal Building, The Air Traffic Control Tower and the outdoor areas surrounding these at Bodø's existing airport.

The aim is to present a feasibility study for the re-use of these buildings, and the adjacent outdoor area, which aligns with the overall goals the Bodø Municipality has set in their long-term development plans.

The proposal is also intended to pull the residents of Bodø and the faculty and students at Nord University, closer together.

METHODE

GENERAL

I have used a number of approaches and methods to gain knowledge of the research area. I first gathered information through digital meetings with representatives of Bodø Municipality and other, local agencies. Secondly, I identified and reviewed relevant literature and plans. Further, a survey was made among the students at Nord University to get a sense of their views.

I have, during the process, gained a more comprehensive understanding of the Municipality's plans for the area covered by the existing airport. I have also, through the feedback from local inhabitants with whom I have discussed the possible re-use of the existing buildings thereon, developed a more in-depth understanding of their expectations. Information have also been found in construction drawings and through an on-site inspection of the buildings.

FIELDWORK

I did field work from the 10th to the 13th of May 2022. The purpose was to conduct a detailed inspection of the airport area, the city and its green spaces. I used a digital camera to take pictures and document perspectives for the purpose of mapping all relevant areas. The airport was visited every day.

INTERVIEWS

Personal interviews were also conducted with representatives of the Municipality. Each interview had a duration of 30–60 minutes. Among the responders were three current and one former employee of the

Municipality. Further, an employee at Asplan Viak and a newly graduated architect from Bodø were interviewed. The latter expressed his views as an inhabitant. I also wanted to conduct interviews with representatives of Avinor, Forsvarsbygg, Henning Larsen Arkitekter AS and NORDIC office of architecture, but these could, unfortunately, not be arranged neither when I visited Bodø nor afterwards. All the interviews followed a semi-structured design. The interviews took place in an informal structure based on predetermined questions, known as an interview guide. Using the guide as a tool was a helpful approach. (Hay, 2016).

The informants have been anonymised and, throughout the thesis, are presented as "Informant 1, 2," etc. The table, with all informants (see figure 4), gives each individual a number that distinguishes them. Questions, asked of each of the informants have been added as an appendix at the end of this thesis (see Appendix 3).

Unfortunately, most of the questions were less relevant to what I have landed on. Therefore, I requested more appropriate information later on through emails and digital meetings on Microsoft Teams.

LITERATURE

I have been studying relevant literature and historical texts during the process. I have chosen to focus on compact urban development research, notable the ideas of Jane Jacobs. As the thesis also deals with students and Nord University, it has been important

to learn more about the "creative class" described by the American author Richard Florida (Florida). Additionally, the theory and concepts known as "circular economy" have been relevant as large parts of the area I am discussing with the require re-use of existing buildings and concepts. Further, it has been necessary to review relevant theory on the use of green areas and spaces, including the impact this has on people in an urban space.

ILLUSTRATIONS

It was easier to understand the airport area and the landscape surrounding it when I used my own photos as documentation. Historically, Bodø is a well-documented place. A large number of historical photos are available on the websites of the National Library and the Digital Museum. The airport's history and development is well documented on the website of Avinor.

A book on the airport's recent history, written by Statsbygg in 1991 is also highly relevant. Both have been useful in my general investigation of the airport facilities and the terminal and the control tower. Other photos used in the thesis have been found on the internet.

DIGITAL TOOLS

I have used QGIS to design overview maps of relevant areas. Furthermore, Adobe Photoshop, Illustrator and InDesign have been used to develop and create illustrations, models and other layouts for the thesis.

SURVEY

An online survey was made among the students at Nord University to get a sense of their views regarding the future transformation of the airport acreage. Furthermore, I presented some of my proposals regarding the airport acreage so the participants could share their thoughts and feedback. All participants were anonymous. Answers have been used as a tool for later design proposals.

The results have been added as an appendix at the end of this thesis (see Appendix 2).

SOURCES OF ERROR

Sources of error and other disadvantages have been identified during the work of this thesis.

During the last ten years, several studies have been carried out, mainly through municipal sub-plans and action plans. Some of these may therefore contain information changed in updated plan programs, mapped by other external actors such as The Norwegian Public Roads Administration, Avinor, private industry, or the Nordland County regarding the airport area.

The thesis will be characterized by not having a complete overview of all plans, those that have either been rejected or those that are valid for further development regulations.

Responders:	Job	Date	Length
1	Employer in the municipality	11.05.22	45:26
2	Employer in the municipality	12.05.22	1:03:36
3	Former employer in the municipality	18.05.22	30:43
4	Employer in the municipality	11.05.22	28:37
5	AV employer	04.05.22	26:44
6	Graduated architect	11.05.22	33:24

Figure 4. List of informants, duration and their profession.

STRUCTURE OF THE THESIS

This thesis have 8 main parts:

1 - INTRODUCTION

This chapter will provide a basic overview of Bodø and thus provide context for my proposals.

2. AREA DESCRIPTION

This chapter provides a more detailed description and history of the airport area, Nord University and the current communication options between Bodø and the University campus.

3. THEORY AND EMPIRICAL RESEARCH

This chapter presents the literature on the creative class compact urban development, circular economy, urban transformation and other relevant theory witch I have used. Empirical studies used in my project are also presented. The chapter forms the knowledge base which I later apply to my design proposals.

4. ANALYSIS AND REGISTRATION

This chapter presents the registrations made through the fieldwork. The information has provided a deeper understanding of the area, which is also implemented in my design proposals.

5. APPROACHES AND PRINCIPLES

This chapter presents the central design concept with my own principles as guidelines for the proposals.

6. PROPOSALS

This chapter will present my specific proposals for the reuse of the terminal building, the control tower and the surrounding outdoor area.

7. DISCUSSION

This chapter will discuss the proposals made.

8. REFLECTION AND CONCLUSION

1 - INTRODUCTION

BODØ - STATUS 2022

Bodø is the 14th largest city in Norway measured by population. It is the largest city in the Nordland County, having approx. 42,400 inhabitants within its natural boundaries. The Municipality of Bodø covers a large area, including, in particular, the suburb of Mørkved. This adds approx. 10,000 inhabitants to the total taking the Municipality's current population to approx. 50,000. The city is furthermore the centre in a region comprising the adjacent municipalities of Beiarn and Gildeskål. Taken together, the total population looking to Bodø as its urban centre is thus approx. 52,803 (Dalfest et al., 2022a).

The Norwegian Parliament decided, in 2012, to discontinue the military use of the airport in Bodø by moving the operational bases for The Norwegian Air Force from Bodø to Ørlandet and Evenes. This, combined with the need for an improved runway to service the civilian traffic led to a decision to move

the entire airport to a location approximately 900 meters southwest of today's airport. The 300 hectares, used by the existing airport together with the buildings and infrastructure thereon will thus be released for alternative use when the new airport becomes operational (Bodø kommune, 2019).

The main premise for Bodø's long-term planning is a projected increase in the population in the Municipality of approx. 70,000 inhabitants by 2030. This will require a considerable amount of new housing, business activity and the infrastructure required by this. Hence, the Municipality's main priority for the use of the area used by the existing airport is to build approx. 15.000 homes in what will be a new district of the city. Furthermore, 20,000 new jobs will need to be established in and adjacent to the new district (Bodø kommune, 2013).

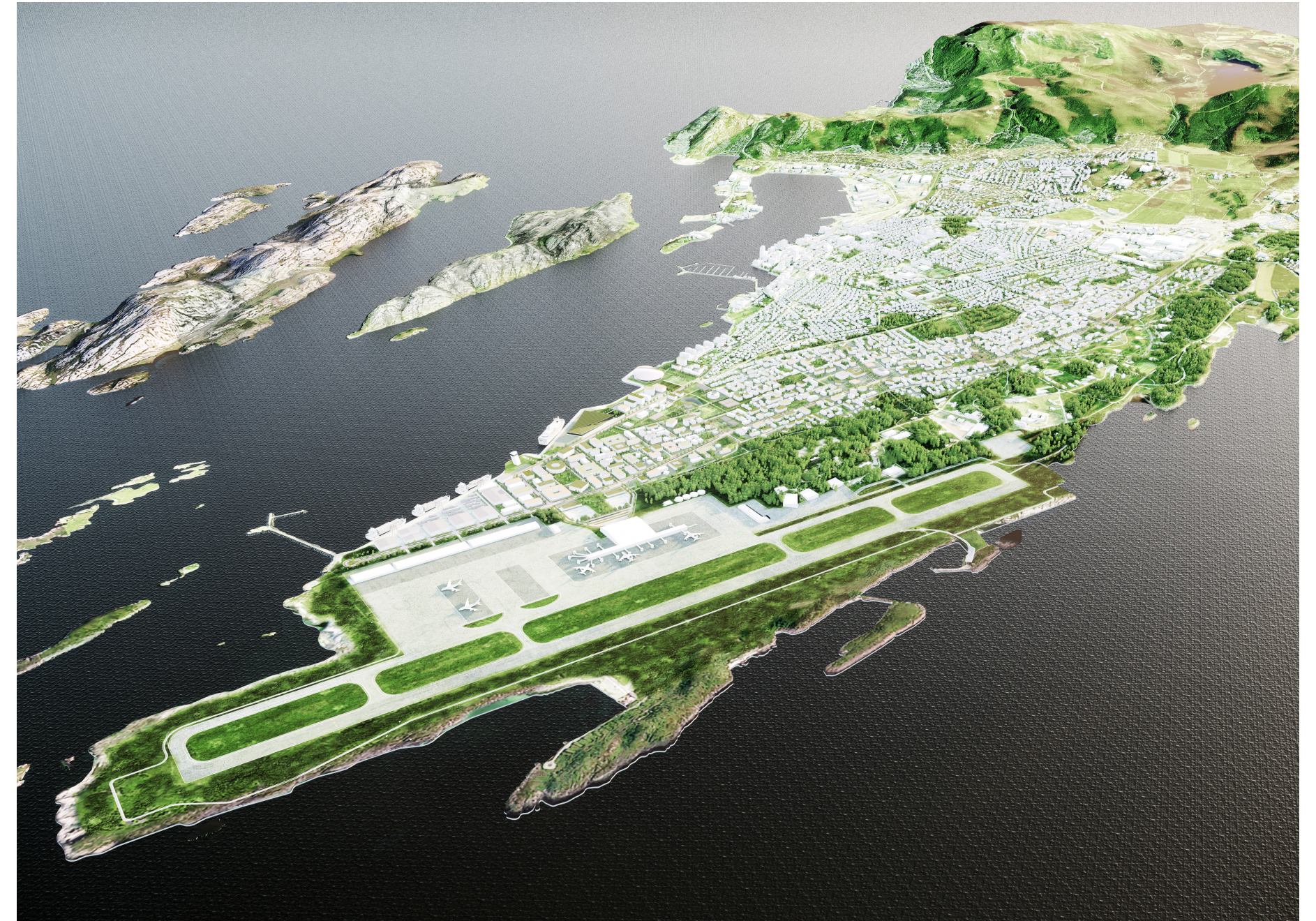


Figure 5. Illustration of the new airport with new urban district, 2022. (Illustration: Bodø Kommune and NORDIC).

GENERAL INFORMATION

GEOGRAPHY

Bodø is situated at approx. 67 degrees north of equator. The city can thus be labelled an “arctic city”. The city is located at the tip of the Bodø Peninsula which forms the northern gatepost to the Salten fjord. The city’s location is a function of the natural harbour between the shore of the peninsula and two islands, Store and Lille Hjartøya creating a protected bay. Bodø can also be seen as the eastern gatepost to the much larger Vestfjorden, running north-east. The Lofoten islands forms the western boundary of this fjord (Bodø kommune, 2022c).

The city is defined to the west by the general shoreline. The historical and commercial part of the city is located just inside of the shoreline which is defined by a continuous quay. The railway station is an intergraded part of this. The city’s administration buildings and its main cultural institutions are also found here.

The residential part of the city is located south and east of the commercial district at a plateau slightly above the commercial district. This area includes the city’s football stadium, Aspmyra, and is otherwise dominated by the combined military and civil airport to the south-west. Both the Norwegian aviation museum and the Regional Hospital are located some distance to the east of the main residential areas. The city’s border to the north is defined by a line of hills going eastward towards Fauske. The natural border to the south is the Salten fjord. However, the airport located between the shoreline of the fjord and

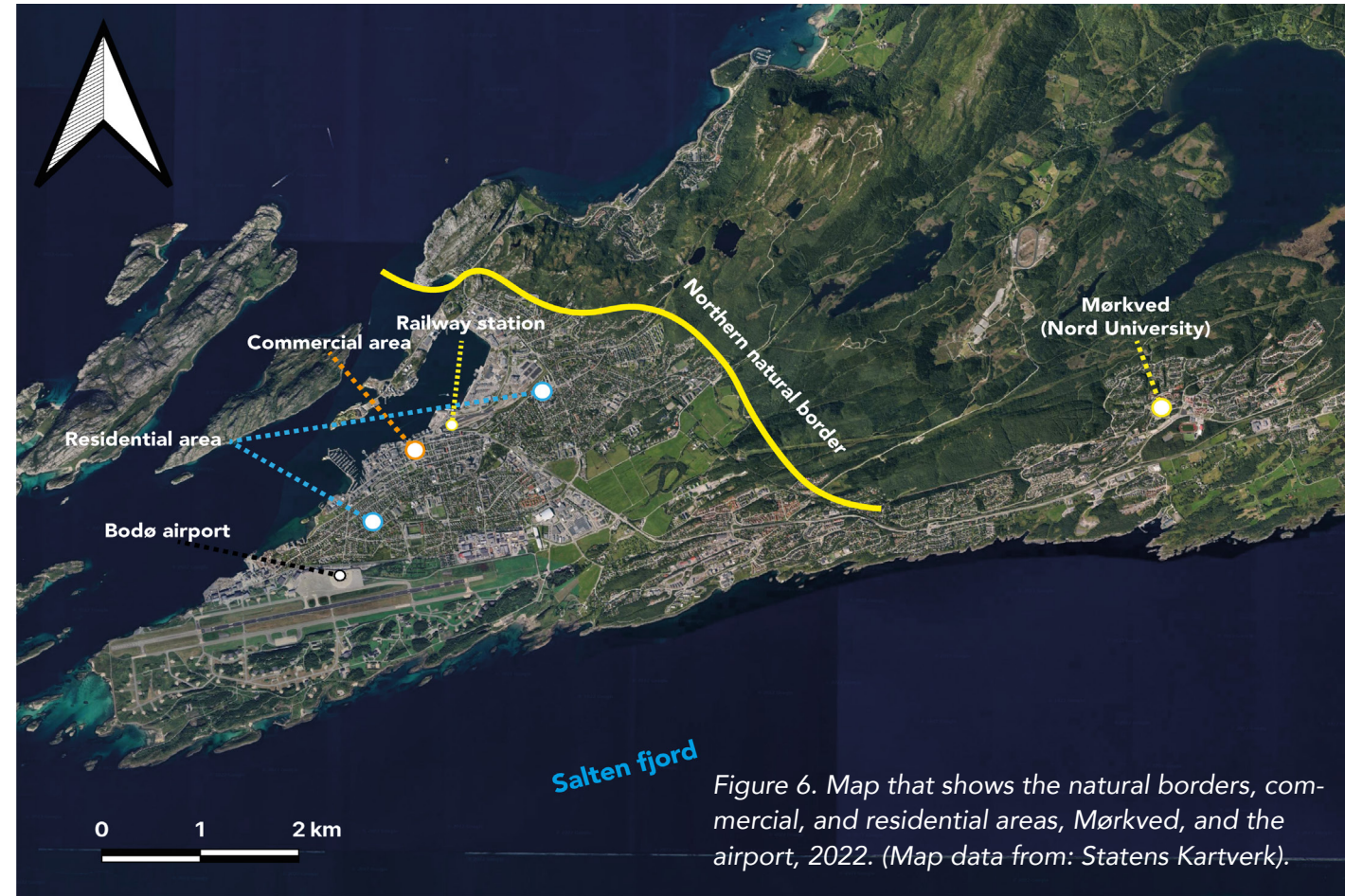


Figure 6. Map that shows the natural borders, commercial, and residential areas, Mørkved, and the airport, 2022. (Map data from: Statens Kartverk).

the city defines, de facto, its southern border. There is no natural obstacle to the east whereafter the municipality gradually converts to farmland as one moves inland. The direction of the city’s growth will, as a consequence of its natural borders and the land-based communication line defined by the railway and highway 80 connecting Bodø to the main north/south road in Norway, E6, thus be eastwards.

The closest urban centre is Fauske, approx. 50 minutes’ drive from Bodø. An important part of the city in a broader context is Nord University.

Its campus is located at Mørkved, approx. 8 kilometres from the city along Highway 80 to Fauske. While Bodø is the natural urban centre to which the campus and its students relate – the geographical distance from the city centre and the “barrier” created by the primarily farming area between them leads to the University not contributing fully to Bodø’s urbanity today.

DEMOGRAPHY

Bodø’s population has, over the last 75 years, gradually risen to today’s level. Between 2011 and 2021, the population increased by an annual average of 1%. Bodø had the highest growth rate among the municipalities in Nordland during this period. Approx. 86% of the population lives in the city centre (Dalfest & Thorsnæs, 2022b).

The population is relatively young with the largest age groups being 25 – 29 years and 30 – 34 years (see figure 7). The projected population in 2030 is approx. 54,000. This is expected to remain flat at approx. 56,000 towards 2050 (Statistisk Sentralbyrå, 2022). This projection is much more conservative than the Municipality’s stated goal of 70,000 inhabitants in 2030.

The population data may not be entirely correct as there is a significant number of students living within the city’s borders who, most likely, are not recorded as permanent inhabitants.

Bodø, like most of Norway, is gradually becoming a more multicultural society. The current population includes, as an illustration, a noticeable number of immigrants from Poland, Eritrea, Somalia and Iraq (Statistisk Sentralbyrå, 2022). Furthermore, it is significantly more females than males in the population. The population density is 38 inhabitants per square kilometre.

There are thus almost limitless possibilities for urban development within the borders of the Bodø Municipality (Statistisk Sentralbyrå, 2013).

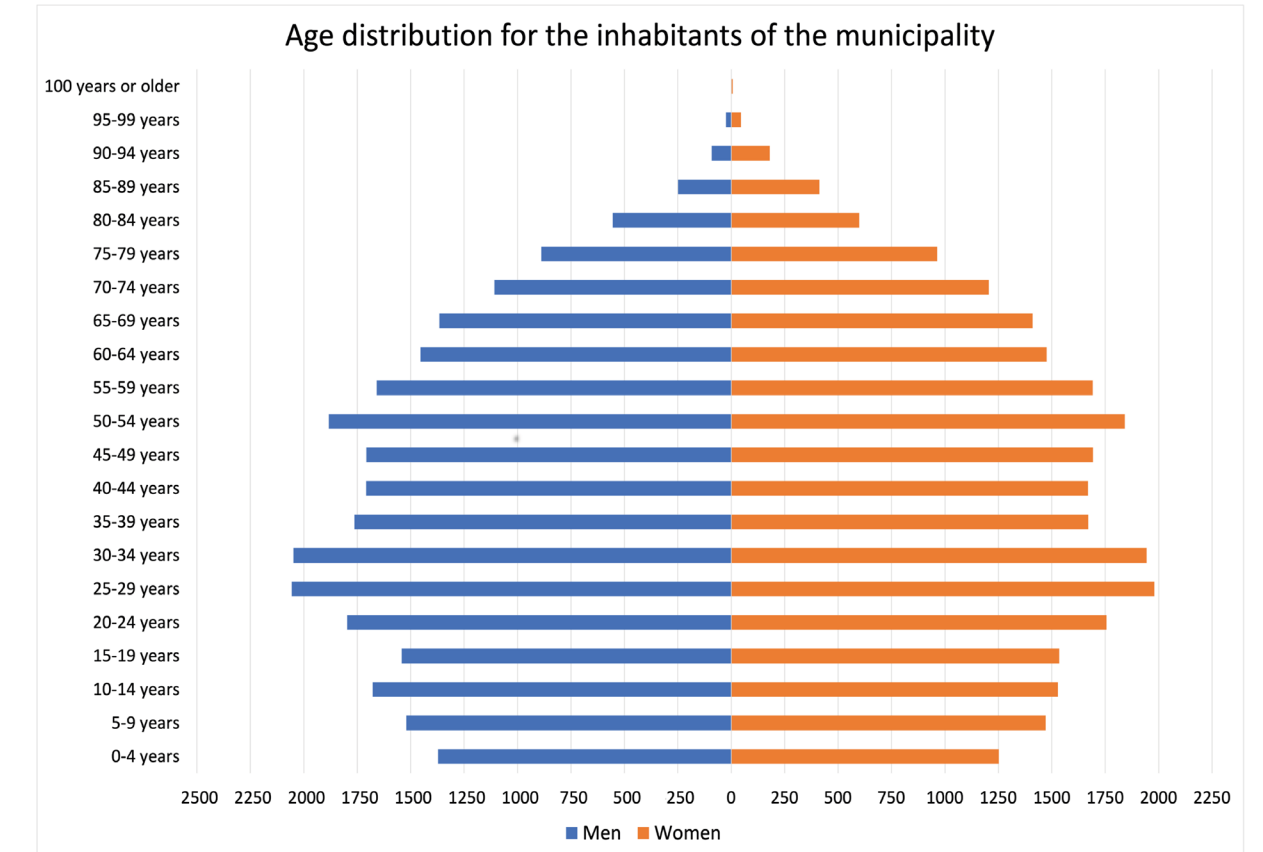


Figure 7. List of the population in Bodø Municipality made in Microsoft Excel, Oslo July 12, 2022. (Source: SSB).

CLIMATE

Bodø’s climate is defined by its status as an arctic city. It means, among other things, that it enjoys a period of midnight sun, between May 31st and July 12th. Consequentially, there is a similar period throughout the winter (referred to as the polar night) from December 15th to January 29th when the sun does not rise above the horizon (Aksnes & Hammerstrøm, 2022; Dalfest & Thorsnæs, 2022b).

Like the rest of Norway, Bodø owes its climate to the effects of the Gulf Stream flowing along the full length of the Norwegian coast. The climate is, generally, coastal with few periods of very low, or high temperatures. The lowest temperature ever was measured in 1966 at -18.5 degree Celsius, while the highest was measured in 2019 at 30.7 degree Celsius. Annual rainfall is around 900 millimetre in the city.

This will, due to an expected change in the climate, increase in the future (Dalfest et al., 2022a).

HISTORY

Bodø traces its history as a city back to 1816 when it, on May 20th, was officially granted city status. Prior to this, Bodø had evolved from a minor trading post to a more comprehensive collection of service providers, serving its agricultural hinterland and the coastal traffic. The population grew slowly during the 50 years following the granting of city status. Then, within the next 20 years, the population increased fivefold. This was primarily driven by the growth in the annual cod fisheries in Lofoten and the seasonal herring fisheries in the fjords north and south of Bodø (Coldevin, 1966 225 and 241; Dalfest et al., 2022a; Lauritzen, 2022).

A square based regulation plan for the city was approved in the late 19th century. This applied both to the area along the harbour and the plateau above.

During the period from 1900 until the commencement of World War II, commercial activity in the city increased, primarily driven by the industrialization of the fisheries and improved communications. Bodø became an important port of call for the coastal steamer – Hurtigruten. This period was also marked by Bodø become the financial centre for the Nordland region (Coldevin, 1966 258, 266, 278-279).

Bodø suffered two successive bombing raids at the beginning of World War II. A substantial part of the city was destroyed in these attacks. This led to a severe reduction in the population, initially by evacuation but later more permanently due to lack of housing. The city was, however, rebuilt in the post war years. Two architects, Herman Munthe-Kaas and Gudolf Blakstad, developed a strict design manual for the

reconstruction, focusing on building heights, roof design etc. Sverre Pedersen, professor of urban planning from The Norwegian Institute of Technology, late NTNU, led the work on the reconstruction. The old square based city plan was retained beyond the escarpment while the commercial part retained its main characteristic, i.e. followed the shoreline. Concrete was the dominant building material for commercial buildings whilst wood, in line with Norwegian traditions, was used for residential buildings (Berre, 2016; Coldevin, 1966; Kleve & Bergum, 2020).

Three independent developments have defined Bodø's growth in the years following the end of World War II. The first is the general urbanisation in Norway. People have consistently moved from more remote areas where they subsisted as combined farmers and fishermen to urban areas where they could work in industries, whether locally based or locally managed (fishing, commercial shipping). Bodø benefitted from this as the main urban area in northern Nordland.

Second, the Norwegian government and NATO (of which Norway was one of the founding members) designated Bodø as the site for their operational headquarters for the North Atlantic/Arctic and, as part of this developed Bodø airport- primarily for fighter plane use.

The central position of Bodø's military airport during the 1950'ies and 1960'ies is best illustrated by the U2-affair where the US used it in take-off and landing location for intelligence gathering aircraft crossing the landmass of the Soviet Union. (Kleve & Bergum, 2020; Store Norske Leksikon, 2021).

Civilian air traffic has increased gradually since the mid 1960'ies, using the same facilities as the military airport. Bodø Airport is, today, one of the two main civilian airports north of Trondheim and among the most important civilian airports in Norway.

Third, the educational institutions in Bodø have evolved into what is now Nord University. The origins of this were the nurse- and teacher colleges established in 1920 and 1951 (Haukland, 2015). This has made Bodø a "university city" on the outset and is, gradually, changing Bodø's identity.



Figure 8. Bodø seen from Lille Hjartøy, 1892. (Photo: Andvord, R.).



Figure 9. Sketch from the regulatory plan in 1943 of Bodø, 1943. (Photo: Nasjonalmuseet).

Figure 10. Two military aircraft takes off from Bodø airport, 2021. (Photo: Prouty, R. K.).

Figure 11. Photo of the inner city, with the pier in front. Bodø, 12 May, 2022.



MAJOR INSTITUTIONS

Bodø is hosting several major, public institutions which support its status as an major city in Norway.

One of these is the Norwegian Civil Aviation Authority which was re-located from Oslo to Bodø in 2003.

This institution is responsible for the regulation and supervision of all aviation activities in Norway.

The move was made to counter the overall centralisation of public institutions in Norway.

A number of similar public agencies were moved out of Oslo at the same time. The overall purpose was to strengthen the society in cities like Bodø by adding a significant number of highly qualified personnel working in national administrative institutions to the general population (Store Norske Leksikon, 2018).

Bodø is the seat of the Nordland County Administrator. Its responsibilities are the public administration of the upbringing, education, health and social, environmental and agricultural sectors in the County. The state administrator is the national government's representative in the County. (Hansen & Tjernshaugen, 2022).

Nord University has its campus at Mørkved, approx. 8 km to the east of the city. Nord University was created in 2016 through a merger between the University of Nordland, the University of Nesna and the University of Nord-Trøndelag, making it Norway's youngest university. Campus Bodø at Mørkved is its headquarter and main campus. Professional studies are a central part of the university's programmes. This includes health related topics and teacher education.

Topics outside the education of professionals which are popular are bioeconomy and aquaculture.

Lule Sami and South Sami languages and culture are important parts of the cultural department.

The university has around 11,705 students in total for all campuses, with the majority of them belonging to campus Bodø (Hansen, 2021).

Another large institution in Bodø is the Nordland Regional Hospital, the second largest hospital in Northern Norway. It has over 4,000 employees and serves around 20 municipalities in the Salten, Lofoten and Vesterålen regions. The hospital is also a major educational and research institution (Nordlandssykehuset, n.d.).

COMMERCIAL AND ADMINISTRATIVE ACTIVITIES

The commercial and administrative activities undertaken in Bodø today are varied.

While the private sector remains strong, the public sector has grown the most during the last 20 – 30 years. The private sector comprises various businesses engaged in the ocean industries, typically service providers to the fish farming industry and the pelagic fishing fleet. Tourism and transportation are other important sectors. So is financing as Bodø is the seat of the major banks in Nordland County (Meinich & Thommasen, 2022).

While there are a number of start-ups in the private sector, Bodø's commercial sector does not seem to have benefitted as much as could be expected by its proximity to a university campus. It will thus be important to the city's growth that the potential here is utilised better.



12



13



14



15

Figure 12. The Nordland regional hospital in Bodø, 2020. (Photo: Finstad, V.).

Figure 13. The County Hall with the activity park, Kvartal 99, in foreground. Bodø, 12 May, 2022.

Figure 14. Nord University, campus Bodø, 2005. (Photo: Hansen, L. R.).

Figure 15. The main office of The Norwegian Civil Aviation Authority in Bodø, 2012. (Photo: NRK).

COMMUNICATIONS

Bodø is a communication hub not only in the county of Nordland, but also at the national level. Bodø's civilian airport is an important hub for air travel to and from Northern Norway, both nationally and internationally. Bodø is the northernmost city connected to the Norwegian rail system whereby both passengers and freight can embark in Bodø and, in principle, travel anywhere connected to the European rail system.

Highway 80 connects the city to "E6" at Fauske. This is Norway's longest highway running the length of the country. Highway 80 is the main communication line between the University campus at Mørkved and the City. Several local bus-routes use this road. None of these are dedicated to the communication between the city and the University alone!

Maritime communication has been a cornerstone for Bodø throughout the history. The city remains an important stop for Hurtigruten today. Further, several express boats and ferries connects Bodø with its surrounding districts. Locally, public transport is based on busses, primarily serving the east/west axis along Highway 80 (Dalfest et al., 2022a).

CULTURE

Bodø prides itself on the quantity and quality of its cultural life. This is illustrated by its successful bid to become a European cultural capital in 2024. This is expected to be a major boost for Bodø's cultural life and, more importantly, Bodø's identity in a longer perspective. The main cultural institution in Bodø is Stormen Culture Quarter, a multifunctional

building offering a wide range of cultural activities. The building and its surroundings were designed by DRDH Architects in London and officially opened in 2014. It is located in the centre of the commercial part of the city. Bodø and its surrounding areas are also the home of several museums. The most important of these is the Air Museum. There are also a number of galleries and other small-scale institutions available. Given its proximity to the Nord University and its students, Bodø has a vibrant restaurant and nightlife scene.

Two music festivals are arranged each summer. The first, "Nordland Musikkfestuke", usually runs during weeks 31 and 32 and lasts for ten days. Classical music dominates the festival, and it is one of the more noteworthy festivals in Norway within this music genre. The second, "Parkenfestivalen", is located at Rensåsparken and is arranged for two days in August. The festival has been staged for several years with a wide offer of well-known Norwegian musicians and some international artists performing (Grønmo, 2020).

SPORTS AND LEISURE

The city's football team, Bodø/Glimt, plays its home matches at the Aspmyra stadium, which is located midway between the airport and the City Hall. The distance from the airport is less than fifteen minutes' walk. In the last two seasons, the team has won the national league twice and knocked out big teams from Europe in the UEFA Conference League. They have made a name for themselves with entertaining football both in and outside Norway. Such success further strengthens the club's finances, status, and fan base (Holm, 2022).

Bodø's surrounding area offers spectacular nature, whether in the surrounding hills, the Børrvasstindan mountains, across the Salten-fjord or the ocean just outside Bodø's harbour.

SUMMARY

Summarising the above, Bodø has, today, a clear identity, history and all of the modern infrastructure expected in an urban centre. It is, in particular due to closeness of the Nord University campus, rich in "soft" infrastructure such as cultural institutions, restaurants, etc. Bodø is well positioned to grow in size and importance in the years to come. Such growth will, however, be challenging as it will have to be based on a sizeable increase in available jobs, new housing and a substantial number of new residents.

The main driver of such a development will, as matter stands today, be Nord University. If Bodø succeeds in being a preferred place to settle for a growing number of the students graduating from the University, the city will benefit. Even more important, if the city – notably its business community – can foster and cooperate with entrepreneurially minded students and the University faculty, the jobs which, ultimately, will form the basis of growth, can be created. The challenge for Bodø today is to integrate Nord University and its campus better in the city as it develops and thus ensure that both the University as such and its students feel a stronger bond to the city.

The opportunity provided by the release of the current airport for alternative use is extremely important in this context.



Figure 16. The Norwegian Aviation museum. Bodø, 11 May, 2022.



Figure 17. Stormen library. Bodø, 13 May, 2022.



Figure 18. Photo of Parkenfestivalen at Rensåsparken, 2016. (Photo: Avis Nordland).

BODØ - STRENGTHS AND WEEKNESES

All cities and urban areas will have a set of strengths and weaknesses when considered from the point of view of its inhabitants, possible new inhabitants and its business community. It is essential to identify both strengths and weaknesses when further development is considered. This also applies to Bodø. Both the Municipality and the city have a lot of strengths and some apparent weaknesses that must be investigated.

STRENGTHS - IDENTITY

Bodø's identity is, as is the case of most cities, complex. A central element is its historical position as one of two principal cities in Northern Norway. Another is its connection to the sea and the fishing industry. A further component is its strong tie to the military in general and the air force and air travel in particular. This connects further to all matters relevant to commercial flying based on the airport's proximity to the city. Lastly, the growth of Nord University provides Bodø with an increasing profile as a university city. This is, however, nowhere near fully utilised due to the location of the campus firmly outside the city's perimeter today.

STRENGTHS – POPULATION

Due to the many public institutions located in Bodø, the population contains a strong middle class who supports the city's cultural life and contributes to a vibrant third sector. The recent inflow of inhabitants having migrated to Norway from other countries will also, over time, be a boost to the cultural diversity of the city.

STRENGTHS – BUSINESS POTENTIAL

As the second biggest city in Northern Norway, the service industry is the largest sector with almost 86% of all jobs within the Municipality. Tourism, hotel- and restaurant services are the biggest.

With a significant number of mountains surrounding the city, the Lofoten island a short ferry trip away and the glacier "Svartisen" a bit south, Bodø is a gateway for tourism in the north of Norway (Dalfest et al., 2022a).

STRENGTHS - CULTURE

Bodø has a strong cultural identity evolving, to a large extent, around the "Stormen"- building complex. This identity will, likely, be strengthened in 2024 when Bodø will enjoy the status as a "cultural capital" in the EEA. In a broader cultural perspective, Bodø's professional football club is an important and valuable component. The same applies to the many and varied qualities of outdoor activities (Dalfest et al., 2022a).

WEAKNES – CLIMATE

Being in the country's northern region usually means a varied weather and climate. Since Bodø is at the far end of a peninsula and directly facing the ocean, the weather, especially the wind, will sometimes be a challenge.

A lot of rainfall and wind is not favourable when you encourage more residents to be outdoors. Cycling in bad weather is probably avoided by many residents. Hence, it will be easier to choose a car or a bus. This will lead to more vehicles in the city centre,

traffic jams and more emissions of greenhouse gases, which the Municipality wants to avoid. It will therefore be a decisive factor in organizing urban development based on weather and wind.

All this said, the climate can, in the longer term, become a strength as temperatures are expected to rise.

WEAKNES – UNIVERSITY RELATION

The Municipality has struggled to utilize the potential represented by the students at Nord University. Despite the fact that the Municipality (2014) mentioned the students, as well as university in Mørkved as important elements in their future development, weak communication and the geographical distance continues as barriers between the institution and the city today.

The University remains, on balance, a considerable strength to Bodø with its faculty and student population. There is, however, a potential for a larger contribution to the city's development than what is provided today.

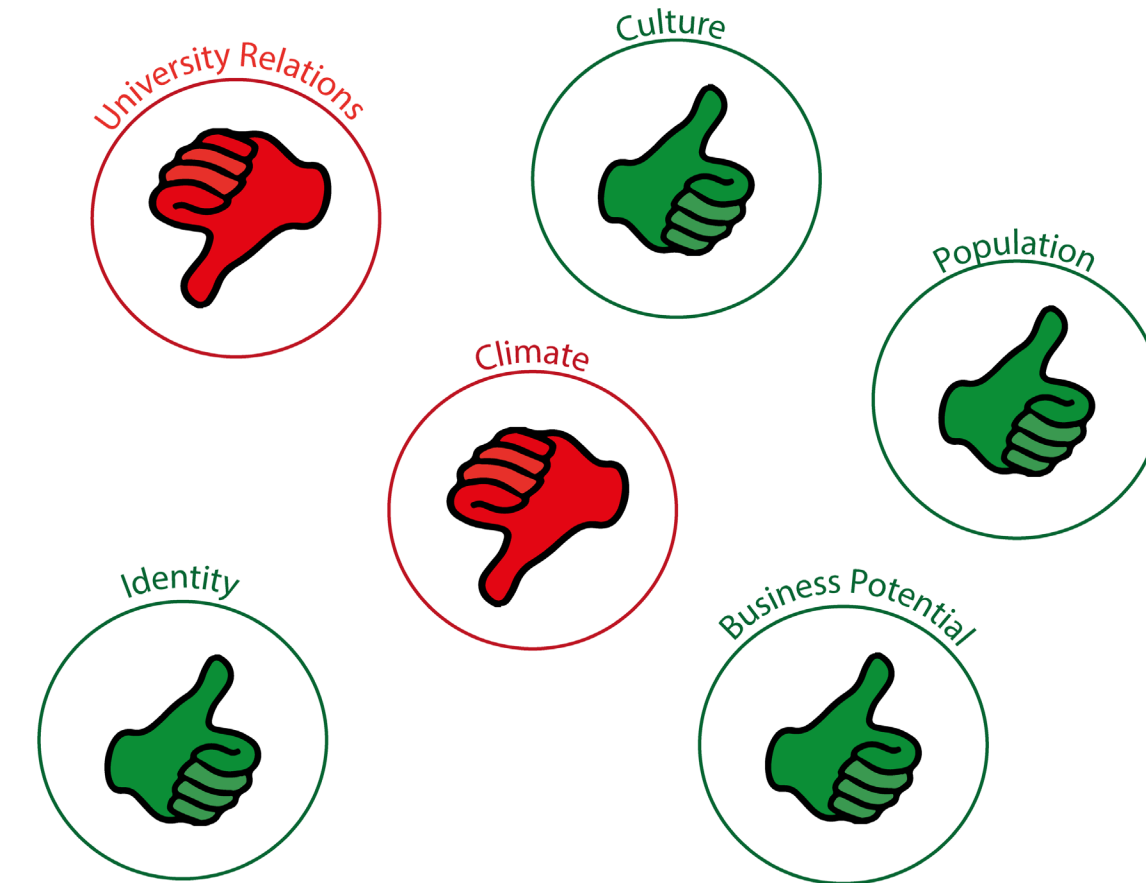


Figure 19. Illustration of Bodø's strengths and weaknesses.

RELEVANT TRENDS

RESPONSE TO CLIMATE CHANGE - GREEN PROFILE

Few will argue against a statement that climate change and how to counter it is the most important and pressing political issue in the world today. The manner in which the nations of the world deal with this has consequences at every administrative level, whether within or outside of national borders. The same applies to the overall protection of the environment and the available resources sustaining mankind. The planning of land use including the construction of new or the reuse of existing buildings must, therefore, consider how to reduce or avoid the emission of greenhouse gases caused by such use or reuse and the general sustainability of the use or reuse planned. Further, all such planning must take likely climate changes and their consequences into account.

The fundamental framework for the world's approach to climate change and how to counter it is the UN's Climate Convention of 1992 followed by the Kyoto-protocol of 1997 and the Paris agreement of 2015 and subsequent protocols from the annual climate conventions. These agreements unite close to all of the nations in the world in a system where, among other things, greenhouse gas emissions at the national level shall be measured and goals for reduced emission levels reported (FN-sambandet, 2021b).

Based on this, regional (such as the EU) and national authorities seek to implement such measures as are required to reach the set goals in their regulations and

laws. These ambitions then find their way into regional and local planning procedures such as the case is for Bodø. This can be expressed as medium to long term political ambitions or as rules and requirements which must be observed in planning processes or even at the singular building level.

SUSTAINABILITY

Sustainability is a broader principle or, rather, set of principles to which the vast majority of the countries of the world has agreed to adhere. The essence of this is that we should organise our societies in a manner where we minimise or ideally avoid using the world's non-renewable resources to the detriment of future generations. This include the reuse of materials and waste whenever possible. This principle is often referred to as the "circular economy" (Miljødirektoratet, 2022).

The concept of sustainability has been developed over a long period. It was first introduced in the "Brundtland"- report in 1987. This was a report commissioned by the UN. Its formal title is "Report to the World Commission on Environment and Development" (FN-sambandet, 2021a).

Its message evolved over the years subsequent to its publication and culminated, so far, in the UN's general assembly's adoption of 17 specific goals for sustainable development in 2015.

The intent is for the world at large to reach these goals by 2030. The zero-emission and sustainability goals are expressions of will, i.e. the collective

ambition of the countries of the world (FN-sambandet, 2022b).

Achieving these is a monumental task requiring a fundamental change in the manner in which we live our lives. To encourage this change, a multitude of political initiatives have been taken. Examples are:

THE EUROPEAN GREEN DEAL

This is a comprehensive plan developed and approved by the EU in 2019. The aim is to develop the EU's economy into a greener, resource-efficient, sustainable state. Sustainable development and the transition to a circular economy are central elements in the plan. Across policy areas, the EU wants to be climate neutral by 2050. Cooperation between municipalities, regions and businesses will be essential to reach the goal of becoming a carbon-free society. The goal is to reduce greenhouse gases by at least 55% by 2030 (European Commission, n.d.a; Regjeringen.no, 2020).

URBACT

This is a network of cities which shares knowledge. The aim is to promote sustainable urban development by improving cities' action plans and strategies. There are no minimum requirements to join the programme. Municipalities, districts, universities and research institutions can apply for support. This is only given to institutions with expertise in urban development (Interreg.no, n.d.).

THE EUROPEAN BAUHAUS

As European countries and cities must be able to follow up on the green deal, an interdisciplinary initiative called "The European Bauhaus" has been launched to strengthen the development of urban spaces with the central message that these shall contribute to a more sustainable and inclusive urban development. Furthermore, it is desired to deliver renewable goods and services from nature, where biological diversity is prioritized and protected (European Union, n.d.)

The initiative can be divided into three main objectives:

- Beautiful, where art and culture should be a more significant source of inspiration for creating quality
- Sustainable, where development must be done in terms of nature and the environment.
- Inclusive, where dialogue between different cultures, gender and age can be encouraged.

URBAN DEVELOPMENT NETWORK

This is a network of over 500 cities within the EU where strategies within sustainable urban development are implemented and followed. The EU's regional development fund, ERDF, is made available to member states. A minimum of 5% of the funds to be distributed from this shall be used for sustainable urban development. European cities who wish to participate in the collaboration must "do more with less". This means that land use must be limited.

More innovative solutions must be presented to meet cities' challenges, preferably through pilot projects. Over seven years, a total of EUR 371 million will be allocated to finance innovative ideas in sustainable development. In this way, cities can more easily find out what works and what doesn't work at a low cost.

Cities selected for pilot projects are chosen through tenders with a cost limit of 5 million euros per project (European Commission, n.d.c.).

NORWAY AND THE UN

Both global and regional guidelines and strategies for sustainable development and circular economy apply in Norway. The country is a member of the UN and is therefore obliged to follow the "Sustainable Development Goals", defined by the UN.

National responsibility for coordinating the sustainable development goals rests with the Ministry of Local Government and District Affairs. If all the goals are to be achieved, closer cooperation between national, regional and local authorities, private and public businesses and academia will be required (FN-sambandet, 2022b).

NORWAY AND THE EU

Norway has access to the EU's internal market through the EEA agreement. This is balanced by an obligation on Norway to incorporate the EU's standard regulations and guidelines, especially in the fields of climate, environment, development and education in Norwegian law (Trondal, 2022).

Alongside the Ministry of Foreign Affairs, the Norwegian Environment Agency is responsible for ensuring that Norway follows the Green Deal targets set by the EU Commission. The Environment Agency is focusing on action plans within the circular economy, zero pollution, and climate adaptation. Furthermore, there is close cooperation between the directorate and other government ministries, e.g., Ministry of Climate and the Environment (Miljødirektoratet, 2021).

COUNTY AUTHORITY - NORDLAND

The County of Nordland is responsible for follow up of significant development projects determined and regulated by the government. The sustainable development goals are the fundament for most of the development work (Nordland fylkeskommune, 2020b).

MUNICIPALITY LEVEL - BODØ

The last link in this global-regional-local scale is the municipal level. If municipalities, e.g., Bodø, want future social, economic or environmental development, this takes place through a long-term action plan called a municipal plan. Such plans are adopted by the municipal council, and covers administration, development, and planning within the municipality (Fladmark, 2022).

Along with the county of Nordland and the rest of Norway, Bodø essentially wants to develop the municipality based on the UNs sustainable development goals. These are incorporated in the municipal plans and serve as guidelines for how Bodø wants to be able to develop. Municipal plans and sub-plans relevant to this thesis will be described later in more detail in the sub-chapter “Municipal Sub-Plans for Bodø”.

WATER MANAGEMENT - BLUE PROFILE

Surface water management will be a critical issue for Bodø going forward. In October 2017, Norges Vannlag held a seminar where “Blue-green urban development” was announced. A similar concept is “Green Structure”, which includes networks of ecosystems and natural features. However, water will be an equally or even more critical element (Braskerud & Paus, 2018).

The City Council discussed the management of surface water in their latest municipal plan, «Municipal sub-plan for Hernes». The Municipality announced, in this plan, its ambition to “connect with nature” by combining infiltration and science to reduce drainage and surface water. The desired result is to ensure that more precipitation diverts away from the inner city (Bodø kommune, 2021).

Among other things, Bodø uses vegetation to manage surface water. This helps to improve natural diversity and well-being. From the Municipality’s thematic plan on surface water (Elveos et al., 2022), one of the city’s significant challenges is the lack of an overview of the condition of rivers and streams. To handle such challenge, the Municipality, with assistance from

Asplan Viak and Norconsult, has devised a three-step strategy for the downtown area in Bodø. Here there are denser surfaces and established pipelines, but at the same time also some limitations.

BODØ’S STRATEGIC PLAN 2014 - 2026

The Municipality of Bodø develops the city in accordance with plans. These define certain targets, goals or ambitions and cover a set period. They are developed by the Municipality’s administration and approved by the locally elected council.

There are many levels of these plans. To exemplify – there is a plan for how to develop bicycle tracks, another for Bodø’s green areas, etc., etc. The highest level is the Municipality’s strategic plan. This sets out the main development goals during a given period. The current strategic plan covers the period 2014-2026 (Bodø kommune, 2014).

This plan has three primary goals:

- 70,000 inhabitants in 2030
- Quality of life for inhabitants
- Becoming Norway’s capital for society, security and preparedness.

It is the first goal – getting to 70,000 inhabitants by 2030 – which will be of relevance to this thesis.

The city of Bodø, excluding its suburbs, had approx. 42,400 inhabitants in 2021. Getting to 70,000 by 2030 is very ambitious – it means a growth of almost 40% (Dalfest & Thorsnæs, 2022b).

This means an annual net increase of approx. 2,800 inhabitants. This will also require the construction of a large number of new homes – 10-15,000 units is the number discussed. Further, it will require a large number of new jobs (Bodø kommune, 2014).

The new homes and jobs is meant to be created on and around the acreage which will be released when the existing airport is moved.

This – if successful – will tip the city’s “centre of growth” eastwards towards Mørkved and Nord University’s campus. The Municipality emphasises the importance of Nord University and its development in its strategic plan. The campus is expected to grow to 10,000 students by 2030. Making a substantial number of these students stay in Bodø after graduation will be an important element in the Municipality’s strategy. Further, encouraging those of the students that are entrepreneurs to start their businesses in Bodø will be of crucial importance if the overall goal shall be achieved (Bodø kommune, 2014).

A COMPACT CITY

Bodø has defined “compact urban development” as an ambition for the future. This means a concentrated city with good infrastructure – in particular public transport – and short distance between homes, jobs and leisurely activities. A detailed description of this term will come later in the theory chapter.

SUMMARY – CHAPTER 1

- Bodø is the 14th largest city in Norway measured by population.
- During the last 50-75 years, Bodø has gradually grown inland to the east.
- Approx. 86% of the population within the municipality lives in the city district.
- Major institutions such as the Norwegian Civil Aviation Authority, the State Administrator and Nord University are all located in Bodø.
- The Norwegian Parliament decided in 2012 to wind down all military operations on Bodø military airport.
- A new airport will be developed 900 m southwest, and a new district will be in the current airport area.
- The municipality has an ambitious goal of getting approx. 70,000 inhabitants by 2030.
- Bodø is the 14th largest city in Norway measured by population.
- The city must be able to build approx. 15,000 new homes, as well as create approx. 20,000 new jobs to reach its growth targets.
- Communications between the city centre and the Nord University students at Mørkved are a significant weakness.
- Identity and culture are strengths that can contribute to a positive future for the Municipality’s development.
- International guidelines such as the UN’s sustainable development goals and the EU’s green agreement leave their mark on the Municipality’s future development.
- The Municipality wants a closer connection to nature through a more extensive blue-green infrastructure for the airport area.

2 - AREA DESCRIPTION

GEOGRAPHICAL DELIMITATION

The geographical delimitation of the area which is the focus of this thesis covers the terminal building, the air traffic control tower and the adjacent outdoor areas at Bodø's current airport.

The first map (see figure 20) shows this area marked with a red line. The control tower is marked with a blue dot. The map on the next page (see fig 21) shows Hernes in relation to the city centre.

The blue grid defines the area where the new airport will be developed. The area above indicates where the new district will be located. Further, The commercial area, with cultural and healthcare-offers and services are shown in the upper section.

Mørkved, where Nord University is located, is outside the area.

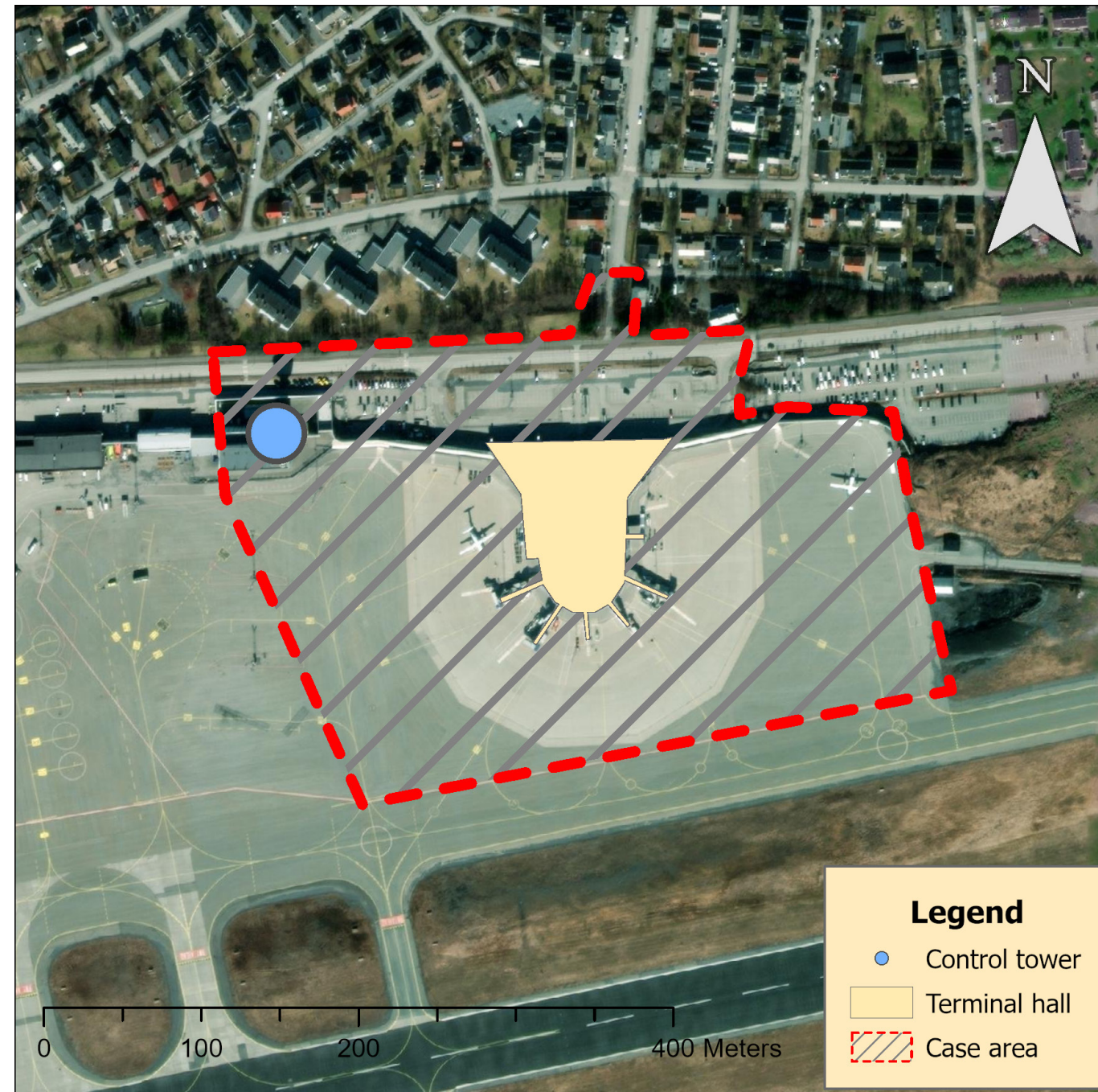


Figure 20. Map of the airport area within the delimitation grid, 2022. (Map data from: Statens Kartverk, ESRI, Norkart).

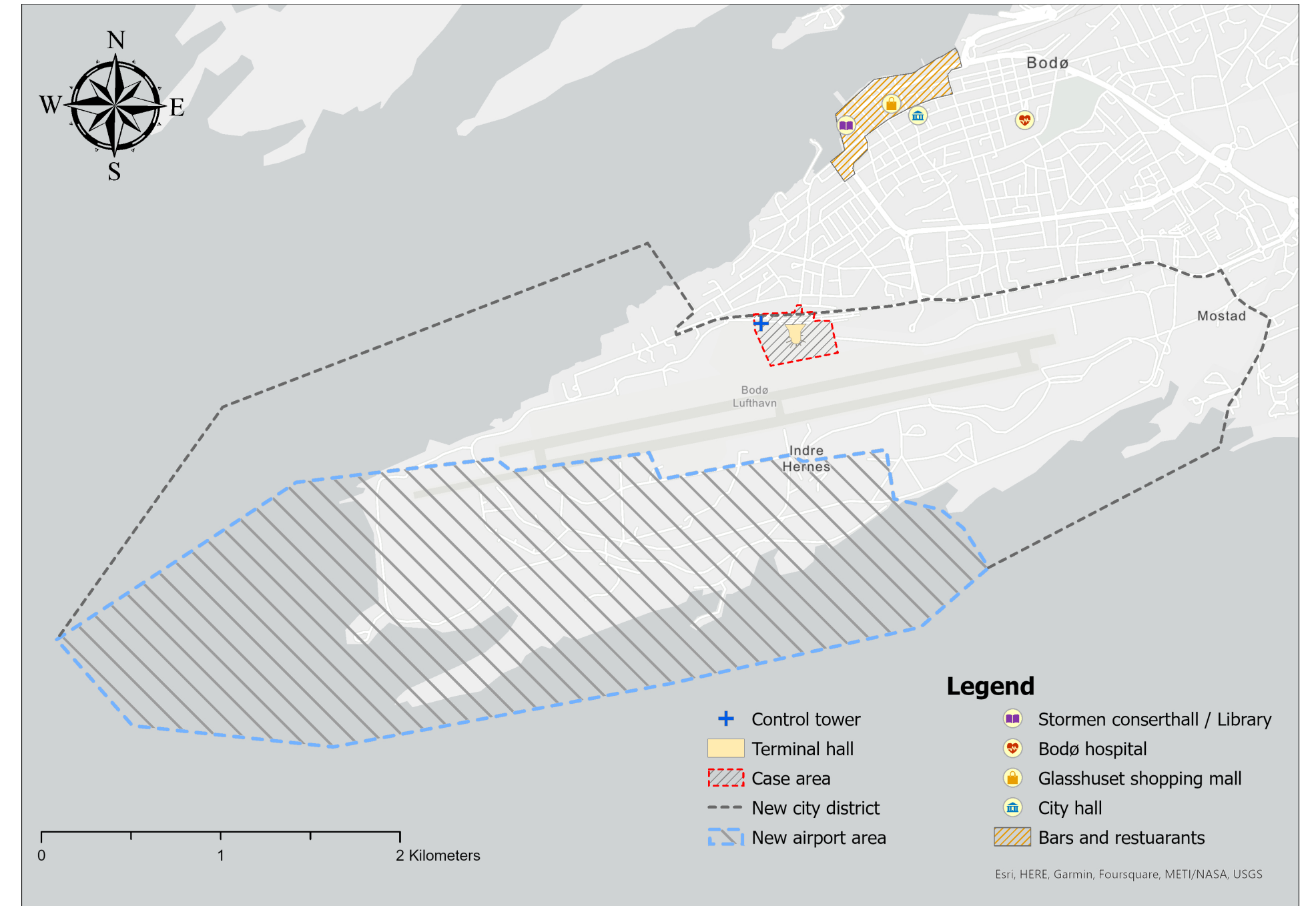


Figure 21. Map of Bodø Peninsula, with the new airport area and the new distritc area, 2022 (Map data from: Statens Kartverk, ESRI, Norkart).

PRESENTATION OF THE HERNES AREA

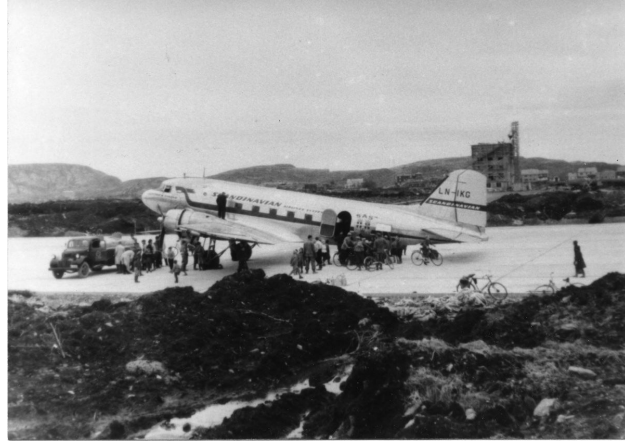


Figure 22. First landing on the new runway, 1952. (Photo: SAS-Museet).



Figure 23. Older control tower and terminal building, 1959, (Photo: SAS-Museet).



Figure 24. An airplane from Braathens takes off from Bodø airport, n.d., (Photo: Norsk Luftfartsmuseum).

The area where Bodø's existing airport is located is known as Hernes. It covers the area southeast of the city.

Historically, most of the acreage at Hernes was farmed. Apart from individual farms, a small village called Hernes was located on the peninsula. Aviation activities commenced in the late 1930's on the flat farmland. This limited beginnings of a proper airport was accelerated during the German occupation of Norway in 1940-45. The Germans expanded and improved the somewhat crude landing strip and used it for their air force (Den forsvunne bygda, 2013).

Following the end of the Second World War, Norwegian authorities decided to continue to use the facilities built by the Germans for both military and civilian purposes. To implement this, approx. 63 hectares of land was formally expropriated for the purpose of constructing the runway. This was followed

by a further expropriation of 368.4 hectares covering the surrounding area. This included the southern shoreline and the area covered by the Hernes village. A consequence of this was the re-settlement of the villagers to the city of Bodø and/or other surrounding areas (Den forsvunne bygda, 2013).

The airport facilities were developed gradually through the 1950's and 1960's. Civilian traffic was limited in the beginning. The annual number of passengers in the 1960's was around 30,000 (Avinor, 2013).

The military part of the airport was completed in 1955. Fighter squadrons 331 and 334 were then located to Bodø. The gradual improvement in weapon technology led to a steady upgrading of the installations protecting the planes. These developments were not straight forward.

A hangar of considerable size was, as an example, constructed inside the terrain. Relatively soon after completion, it had to be replaced by a number of shelters taking one plane each. The reason was that the hangar doors could be blocked by a successful attack trapping all the planes inside the hangar. The new shelters were financed by NATO funds and were completed in the 1980's (Forsvarsbygg, 2015).

Civilian traffic increased from the 1970's and onwards. Due to the closeness of the airport to the city, noise pollution gradually became an issue. When an expansion of the airport and its facilities was completed in the 1990's, a 7-meter-high noise protection screen was constructed on both sides of the terminal building (Avinor).

The general timeline for the development of the airport is illustrated on Fig 25.

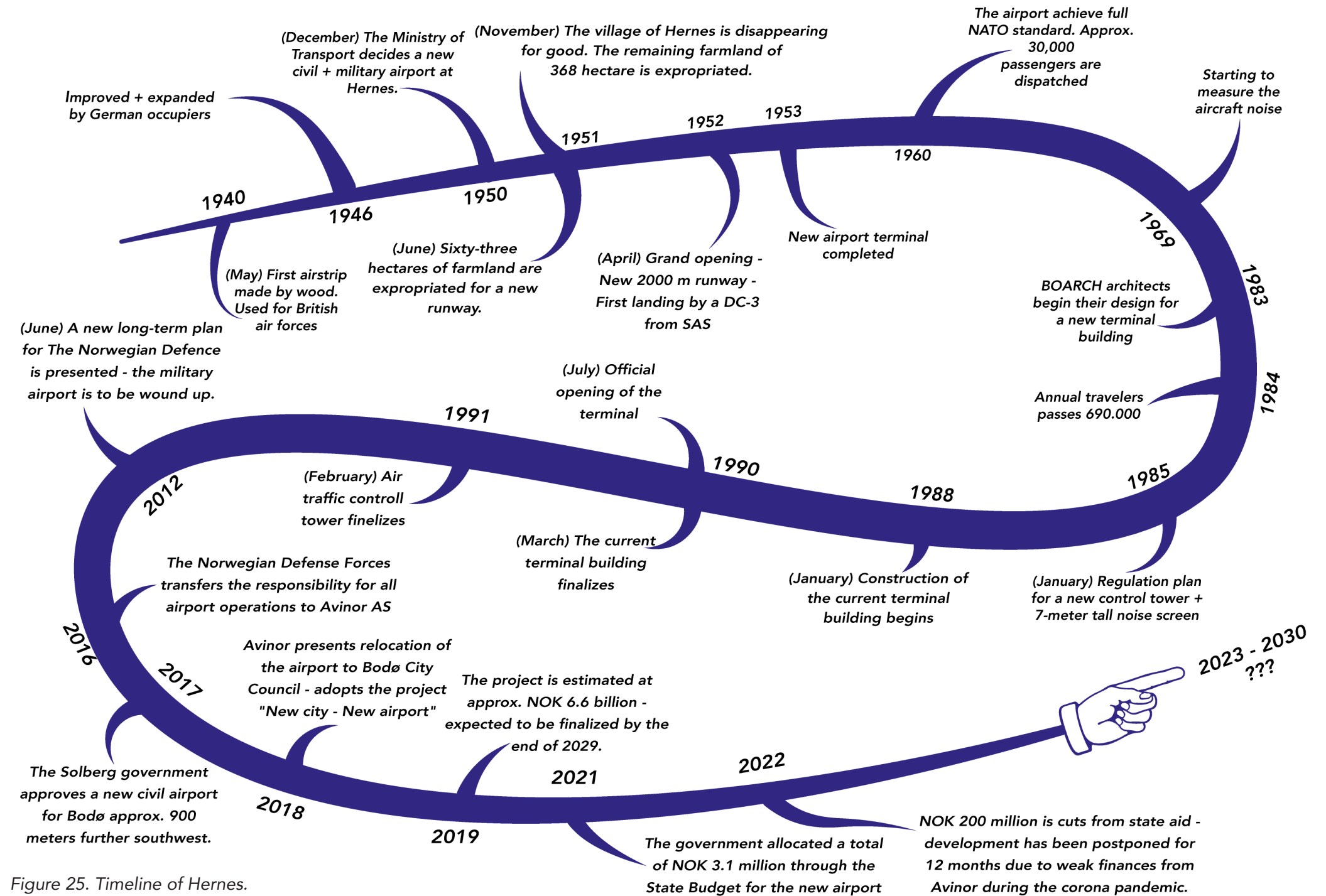


Figure 25. Timeline of Hernes.

THE TERMINAL BUILDING



Figure 26: Inside the Departure/Arrival Hall. Bodø, 13 May, 2022.

The basement contains technical and service functions together with various storage rooms. The first floor is where passengers arrive and depart the building and contains the check-in area, baggage handling and various service functions for passengers and visitors. The waiting and departing areas are located on the second floor together with security checking areas and service functions. Lastly, the third floor contains office space for the airport staff and airlines, the main canteen for employees and a kitchen serving the same (BOARCH arkitekter, n.d.).

The main material used for the construction is reinforced concrete. The outer walls are covered by aluminium sheets. The interior walls and ceilings are white to avoid glare from the sun. The building is characterised by its semi-circular footprint and the jet-bridges to which planes dispatching and receiving passengers are attached.



Figure 27. The terminall hall seen from the southern side, n.d, (Photo: Engerengen, L.).

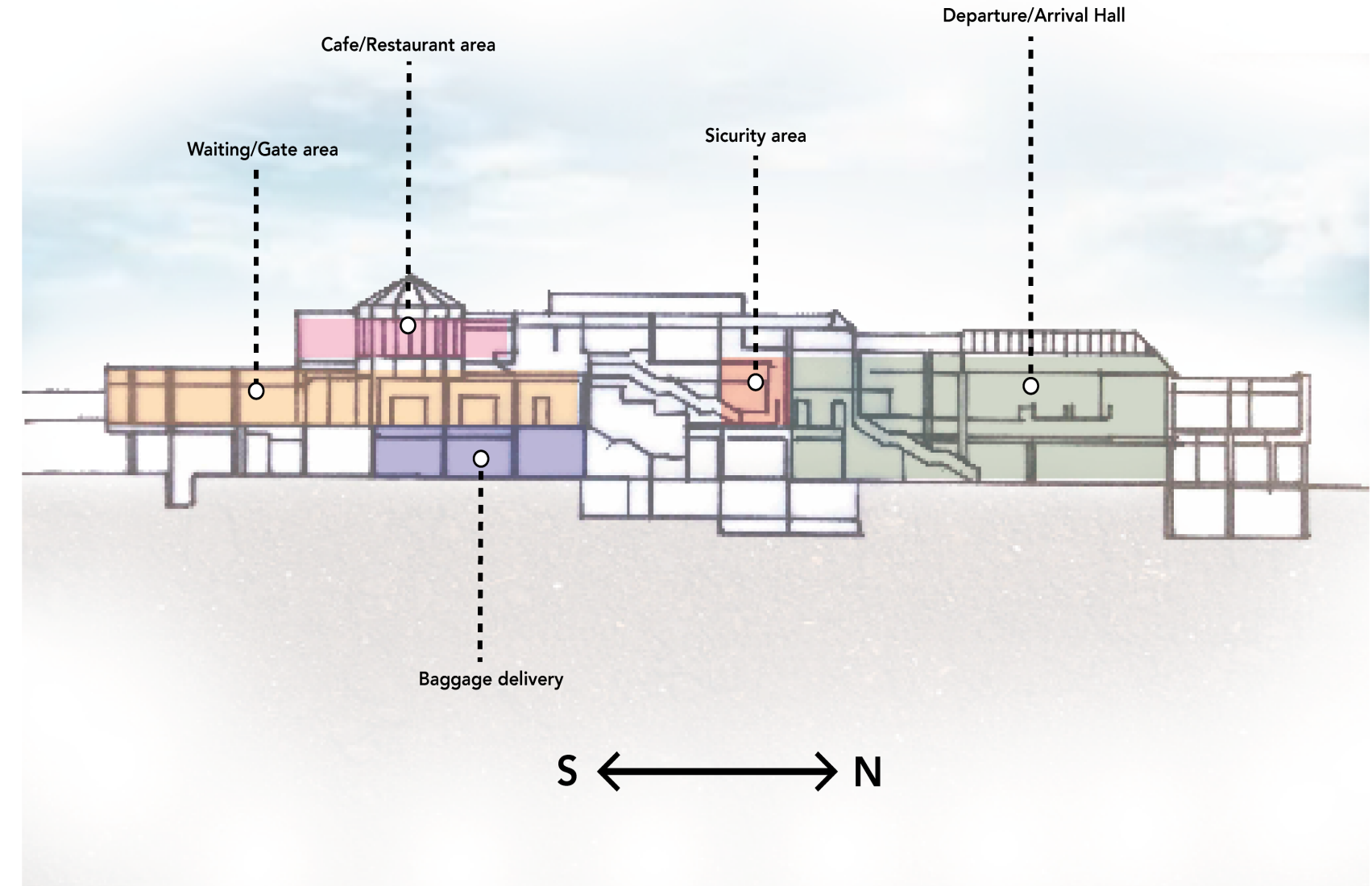


Figure 28. Section of the terminall with different functions.

THE AIR TRAFFIC CONTROLL TOWER



Figure 29. The controll tower and noise screen behind the parking area. Bodø, 11 May, 2022.

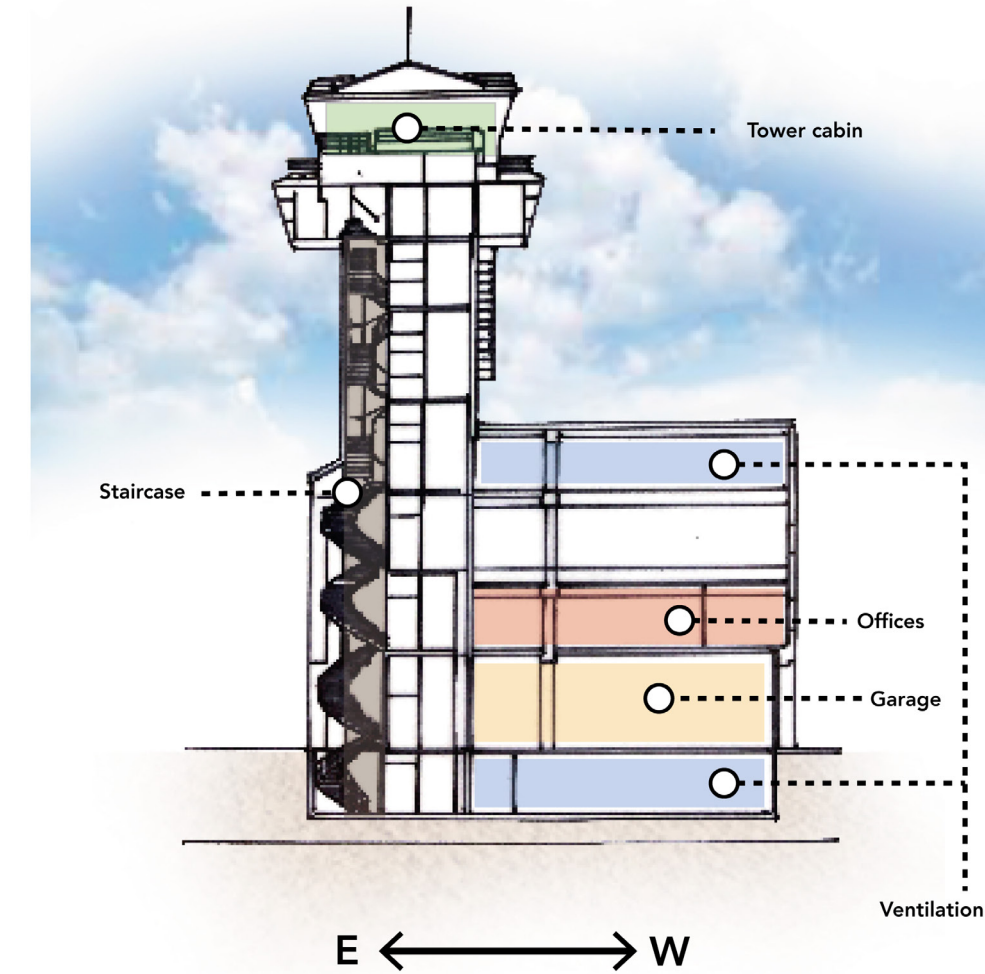


Figure 30. Section of the tower, with different functions.



Figure 31. The air traffic control tower seen from Olav 5 gate. Bodø, 11 May, 2022.

The control tower is a signature building for all airports. It is usually high and sleek to ensure optimal visibility for the air traffic control functions at the airport.

The control tower at Bodø airport was designed by Statsbygg, at the same time as the terminal building. It was opened for use in February 1991, a couple of months prior to the opening of the current terminal building. The tower itself is supplemented by a lower, administrative building surrounding its base. The construction is somewhat constrained as it is placed between the main road to the terminal building and the runway (Bodø lufthavn: ny driftsbygning med kontrolltårn, 1991).

The tower and the administrative building covers approx. 3,460 square meters of space. This is used by the aviation traffic centre and the airport's

administrative section. The tower itself reaches a height of approx 36 meters and has eight floors. The main elements in the construction are prefabricated concrete elements attached to reinforced concrete columns. Plastic cast concrete is used around the main stairwell (Bodø lufthavn: ny driftsbygning med kontrolltårn, 1991)

The top part of the tower is characterised by 360-degree window panels. These are constructed by aluminium insulated glass. The use of primarily reinforced concrete and steel is a reflection of the harsh (wet and windy) climate conditions around Bodø (Bodø lufthavn: ny driftsbygning med kontrolltårn, 1991).

The main feature of the control tower is, as a consequence of its use, an extraordinary view from where to see the Hernes area, Bodø and its surroundings.

THE OUTDOOR AREA



Figure 32. The eastern part of the runway, Bodø May 12, 2022.

The outdoor areas which, in total, comprise the existing airport have different characteristics.

The northern area between the buildings and Olav 5 gate running in parallel with the landing strip is mainly used for access to the airport in general and the terminal building in particular. This is thus, largely, paved and contains access roads, short term parking areas for dropping off or picking up passengers, bus and taxi stands and a long term parking area. The paved areas are mixed with limited green spaces, largely grassed but with some additional vegetation.

The “airside” area between the tower building and the terminal is almost entirely paved and is used by arriving and departing planes and the general servicing and despatch of these. This area connects with the runways and thus the larger are covered by



Figure 33. One of the future blue-green areas in the background of Olav 5 gate, Bodø May 11, 2022.

the airport. From the plan description (Bodø kommune, 2021), the Municipality underlines the importance of access to larger green spaces and landscapes for the city’s urban transformation. Access to more nature, e.g. the coastline south and west of the airport, can be incorporated into the Municipality’s future green structure. In addition to green areas, the Municipality wants to create an open stormwater management through Hernes to implement a significant blue-green structure.

The area is mostly flat with only minor differences in height. Several blue-green corridors will be established across Hernes. From east to west, the width of the entire corridor will be a minimum of 50 meters and the length approx. 100 meters from north to south. The width is a basis for strengthening biological diversity, efficient stormwater management

and creating new recreational areas (Bodø kommune, 2021). Figure 35 shows a map of the future blue-green structure development at Hernes. The horizontal blue-green corridor will follow the current runway. It starts just south of the Aviation Museum in the east before ending up on the peninsula’s northwest coast. The vertical will connect Bodø cemetery with Vasshaugen and the heights in the south between the airport and the Salten fjord. The central axis of each corridor points out the future pedestrian and cycle paths that connect the area to the city centre.

PROTECTED AND CONSIDERATION AREAS

Avinor classifies both the control tower and the terminal as areas of concern.

Their report “Landsvernplan” from 2009 refers to the tower’s southern facade and the interior of the stairwell as the most significant elements to protect. The report claims that it is not permitted to demolish the exterior form or said building parts. (Mjaaland, 2021)

From the same report, the terminal, with its interior and exterior, was classified as protected in 2009. The terminal building, with both roofs, the southern airside, the northern parking area, and noise screens, are included in, among other things, the consideration zone. Therefore, demolishing any of the structures mentioned above is not permitted.

If a rebuild is to take place, it will be necessary to preserve the works of art that hang along the walls. However, it is permitted to develop along the aircraft side as long as this is necessary for aviation (Mjaaland, 2021).

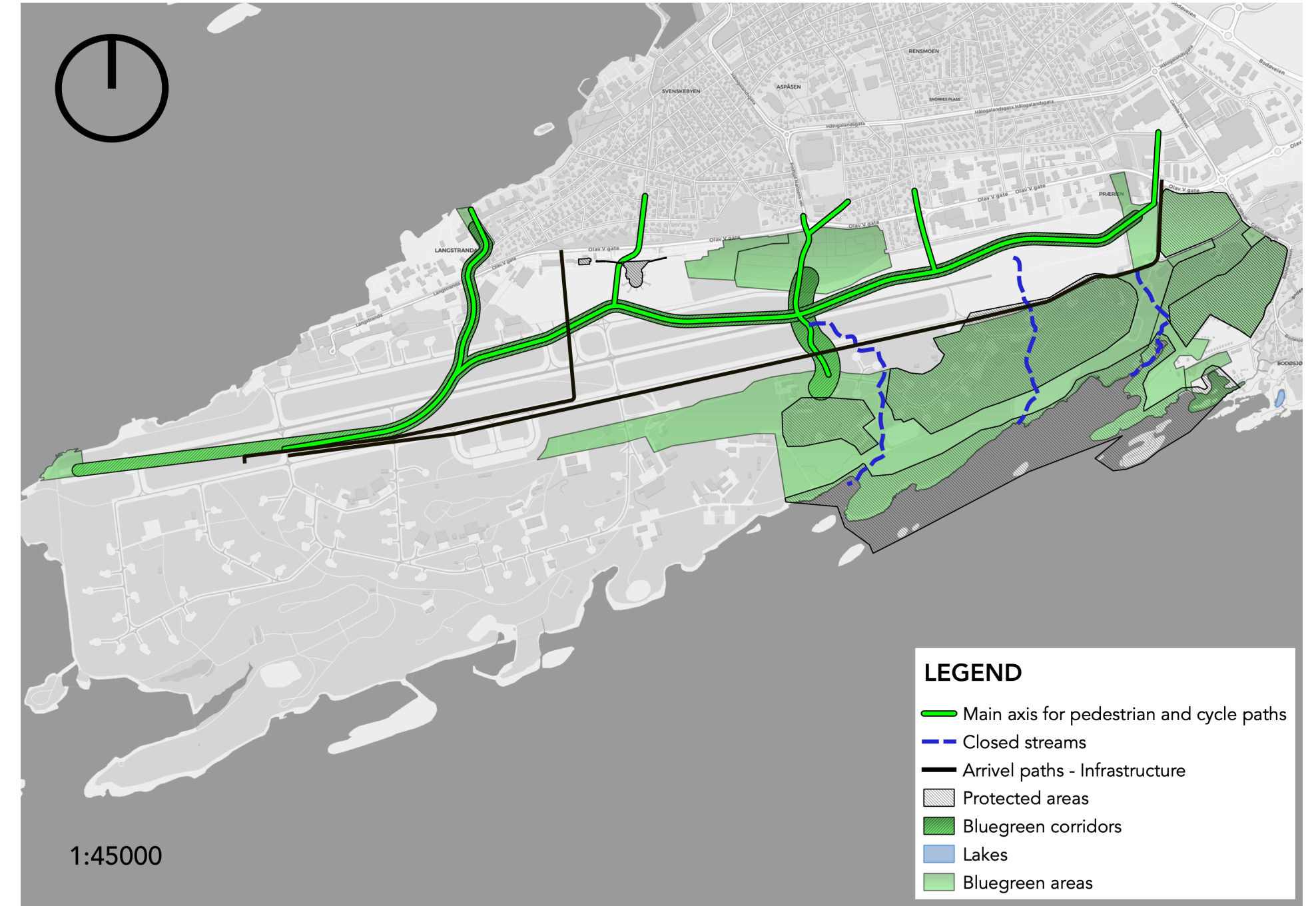


Figure 34. Map of the planned blue-green structure on the airport acreage, 2022. (Map data from: Geovekst, Norkart AS).

COMMUNICATIONS

Bodø's communications today are generally road-based. The single-track train running from the central station in Bodø's harbour to Fauske and southwards supplements this.

Communications generally run along the east/west axis defined by Highway 80 and the train. This axis is supplemented by a network of secondary roads, both in the east/west and north/south direction.

The airport area cannot be serviced by the train as the track runs north of and in parallel with Highway 80. The distance to the airport is thus too long for the train to be a meaningful communication option for the new Hernes district. The airport is, today, primarily serviced by busses, taxis and cars. Olav 5 gate, the access road to the airport, is efficiently connected to the main east/west axis, i.e., Highway 80.

The Municipality, Nordland County and the Norwegian Public Roads administration agreed, in 2015, to a four-lane highway between Hunstadmoen and Thallerkrysset as part of the infrastructure project called "Bypakke Bodø". This will involve a new tunnel, various roundabouts to direct traffic efficiently, and a separate bicycle and pedestrian path. This aims to improve road safety and communication in the east/west corridor. The first part of this was finalised in 2019 (Statens Vegvesen). There are no plans for any material improvement of the rail line at present.

Figure 37 indicates three transport options from the city centre or airport to Nord University. The distances are between 9.5 and 11.5 kilometres for car and public transport. The railway is the fastest

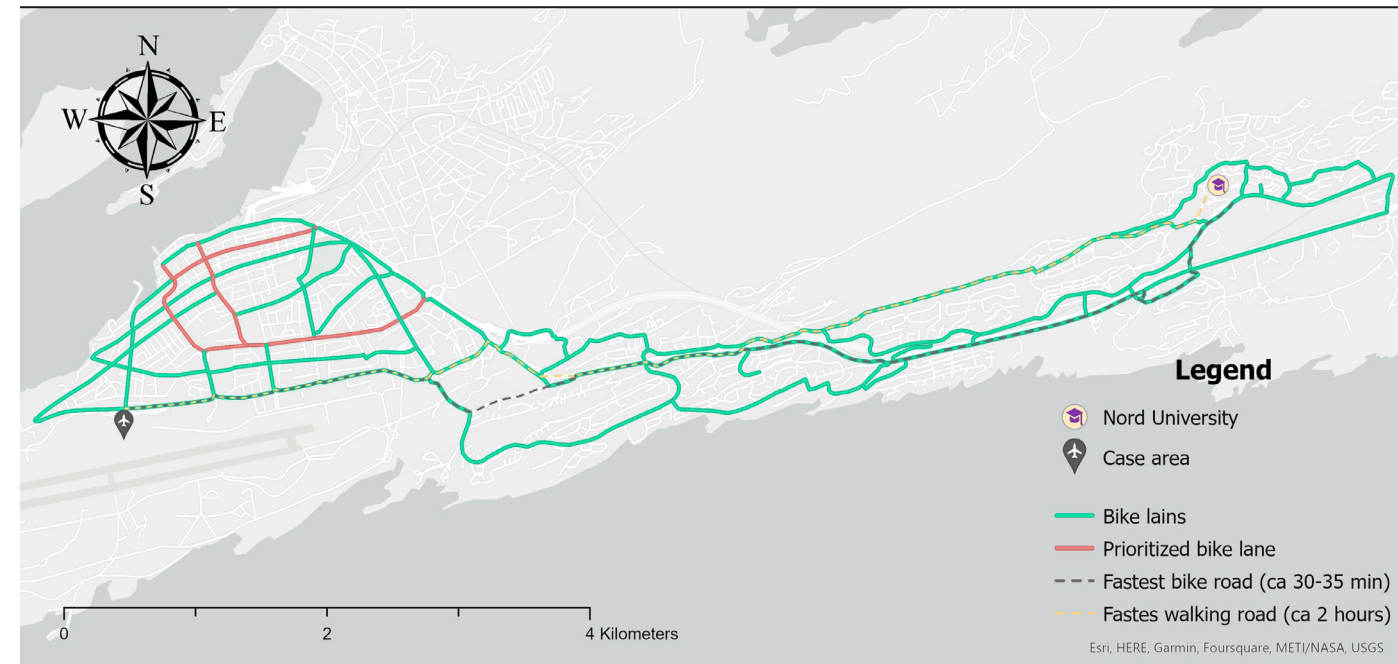


Figure 36. Map of the planned cycle route network through the centre of Bodø and east towards Mørkved, 2022. (Map data from: Statens Kartverk, ESRI, Norkart).

option, with a journey time of less than 10 minutes between the central station and Mørkved.

Bodø has, apart from areas that has been included in "Bypakke Bodø", not developed any extensive network of bicycle lanes. Those that exist are attached to main roads. Nevertheless, through a comprehensive cycling plan (Bodø kommune, 2018b), the Municipality wants to prioritize cycling as a means of transport in the future, especially in the city centre. Four necessary premises have been presented for the development of the Municipality's bicycle network:

- As many direct connections as possible between the city centre, districts and other critical target points.

- Relevant target points are educational institutions, sports, workplaces and business areas.
- The cycle network must be easily connected to the new district of Hernes.
- Cycle paths must mainly follow school and bus routes where snow can quickly be ploughed in winter and thus be year-round roads.

Figure 36 illustrates planned cycle routes. Red lines indicate priority routes that are developed within a four-year perspective according to the Municipality's cycling plan (2018b).

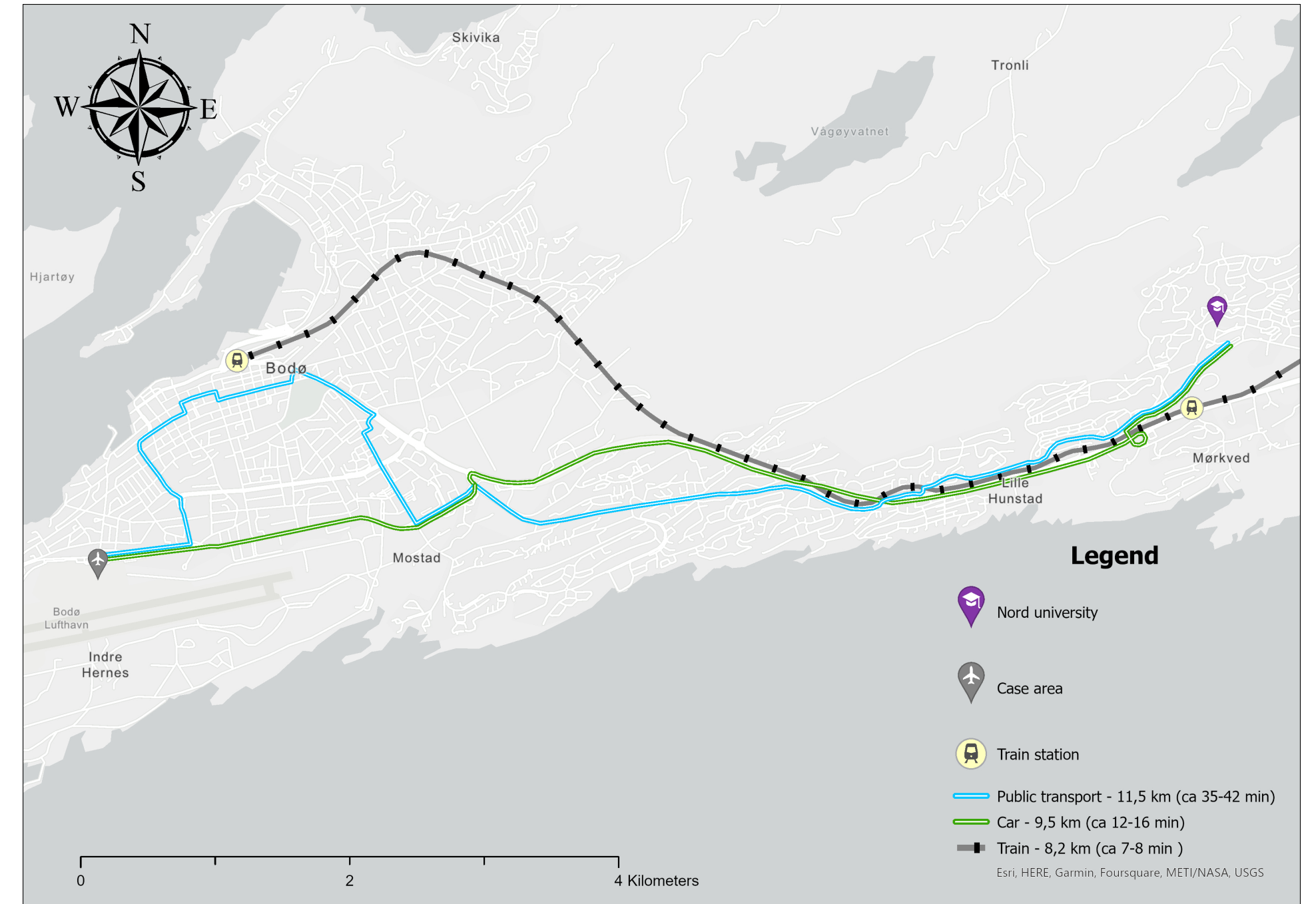


Figure 37. Map of the communication options between Bodø and Nord University, 2022. (Map data from: Statens Kartverk, ESRI, Norkart).

MUNICIPAL PLANS FOR DEVELOPMENT OF THE HERNES AREA - AMBITIONS AND PLANS

INITIAL RESPONSE

Bodø's initial response to the decision to release the acreage of the existing airport to new use was to organize a planning project titled "New city – New airport". The purpose of this was to initiate both the planning for the new airport and the reuse of the area covered by the existing airport (Bodø kommune, 2022h).

The guiding principle was that Bodø's position as a "compact" city with short distances between home, school, workplace and general infrastructure should be retained. The new district should be connected to the city to achieve a sustainable development of Bodø at a general level.

Further again, the development should, as it the case for the city, aim to achieve a zero-emission status for climate gasses and, to the largest extent possible, be based on the circular economy principle (Bodø kommune, 2021)

CONCEPT STUDIES

Bodø commissioned three concept studies for the development of Bodø and Hernes.

These were obtained from:

- Henning Larsen Arkitekter
- Nordic - Office of Architecture
- Asplan Viak + DRMA

Each of which cooperated with others.

A summary of these are set out in the following.

CONCEPT STUDIES

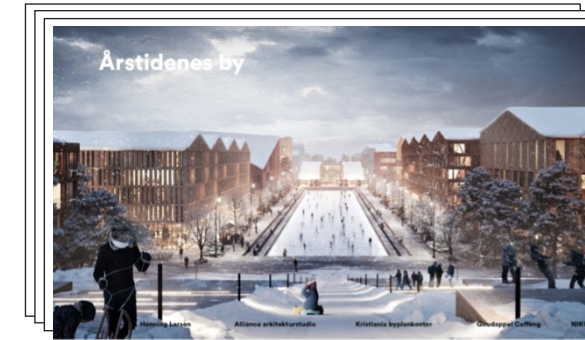


Figure 38. Front page with the title "The city of the seasons", 2020. (Illustration: Henning Larsen).

Author: Henning Larsen, with Alliance arkitekturstudio, Kristiania byplankontor, NIKU & Goudappel Coffing
Year: May 2020

In this study, six main principles have been defined:

1. Creating a strong identity as "The City of the Seasons".
2. Use climate and local weather conditions (current and reported) positively.
3. Create a comfortable and vibrant community for all age groups.
4. Strengthen Bodø's urban core.
5. Be inspired by the existing urban and landscape qualities to create the future.
6. Design mobility solutions that are suitable all year around



Figure 39. Front page with the title "The northern urban powerhouse", 2020. (Illustration: NORDIC).

Author: NORDIC, with KOHT, Burohappold Engineering & Felix Landscape Architects.
Year: April 2020

The focus is on circular economy, with Bodø as the "circular city". Four principles/ideas have been defined to reach the ambitions:

1. Bodø powerhouse – increasing investments both private and public institutions.
2. Circular Bodø – Focus on re-use of materials that benefits the environment. This includes energy and waste management.
3. Urban public health – Access to green space, recreation, and physical activities.
4. Experiences – A vibrant city with high diversity. Using cultural, sports- and the surrounding nature to develop Bodø in a more circular way.

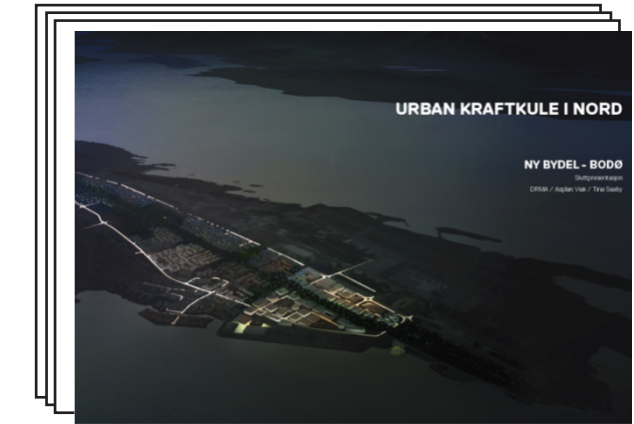


Figure 40. "Front page with the title "Bodø - The Circular City 2.0", 2020. (Illustration: Asplan Viak).

Author: Asplan Viak, DRMA & Tina Saaby
Year: 2020

Three potential urban-city models were presented:

1. The Neighbourhood City – Human needs, social equality within an inclusive local society.
2. The Natural City – Nature as the main driver within the city. Using wood as building material on nature's premises, not overusing!
3. The Airport City – A commercial city with efficient production and create more jobs.

MUICIPAL PLANS

“BODØ TOWARDS THE YEAR 2030”

This is a “planning programme”, which means that it is a preparatory step before specific municipal plans are presented to the public. It tied into the previous municipal program covering the period 2012 – 2016. (Bodø kommune, 2013).

“MUNICIPAL PLAN 2014 – 2026: STRATEGIC COMMUNITY PLAN BODØ”

The plan was adopted on 13 February 2014 and aims at creating optimism, pride and faith in the future in the Municipality’s residents. The plan is a reserved community part that connects with a separate financial plan. The most central aspect of this is a discussion of the situation with Nord University. In their scenario, they have assumed that the Municipality will have 70,000 inhabitants by 2030. Consequently, the Municipality must promote increased immigration, especially labour immigration. Housing development must improve, especially student dormitories. Finally, one must actively support the development of Nord University. The Municipality boasts of having a good environment in Bodø by having the university, business and local/national authorities together in the Municipality and argued that this must be utilized (Bodø kommune, 2014).

The University is one of the main pillars of the Municipality together with the Norwegian Civil Aviation Authority and the regional hospital. It has been calculated that by 2030 there will be almost 10.000 students at the Mørkved campus. There is also a discussion about developing research parks for students in collaboration with the Municipality (Bodø kommune, 2014; Hansen, 2021).

Municipal Sub-Plan – HERNES

The Municipal sub-Plan for Hernes are split in two parts, an “Impact Assessment” and a “Plan description – consultation edition”. Both were made by the Municipality to share their vision to establish a new, mainly residential district on the area of the existing airport. They argue for suitable developments that promote the desired growth. This plan has a horizon between fifty to one hundred years, according to the Municipality (Bodø kommune).

On December 9th, 2021, the city council approved consultation and public inspection of the Municipality plan. It contains several suggestions for the development on Hernes. Their ambition to meet the strict climate and energy requirements and transform Hernes into a low-emission area which can be an inspiration for other cities. (Bodø kommune, 2022g).

THE MUNICIPAL PLAN 2018 – 2030

The purpose of the plan is to facilitate healthy development with varying services focused on strengthening a diverse city life. It consists of a plan map and provisions that are legally binding for all land use within the Municipality. The entire plan is divided into three parts. The first consists of general and thematic provisions within land use and consideration zones. The second has special provisions for the Bodø districts. The last part takes as its starting point the planning processes that have been shown in the planning map and are listed in an overall matrix (Bodø kommune, 2018a).

An essential part of the plan is to regulate the height of all buildings around the new airport. For safety reasons, air traffic controllers in the control tower must have the best possible view of all nearby air traffic. Height regulations have therefore been set up for buildings around Bodø to prevent visibility from being impaired. Hence, Avinor must be notified and approve a building’s height to maintain safety (Bodø kommune, 2018a).

MUNICIPAL SUB-PLAN FOR NEW DISTRICT

A cooperation agreement focused on the localisation and development of the new airport was concluded between Bodø municipality and Avinor in 2019. The previous year, an agreement was made to produce a municipal sub-plan for the acreage covered by the existing airport.

The main goal is to create and secure a long-term plan where new housing units, business, social infrastructure and green spaces are well adopted within a future sustainable land use. Further, the relevant area within the plan should follow a compact city model. Short distances between jobs, schools, green spaces and social meeting points shall be the guiding principle. With various offers of housing units, assorted sizes of families can fit everywhere. Hence, the goal was to develop a fully sustainable, compact city based on the zero emissions principle and renewable energy sources (Bodø kommune, 2019).

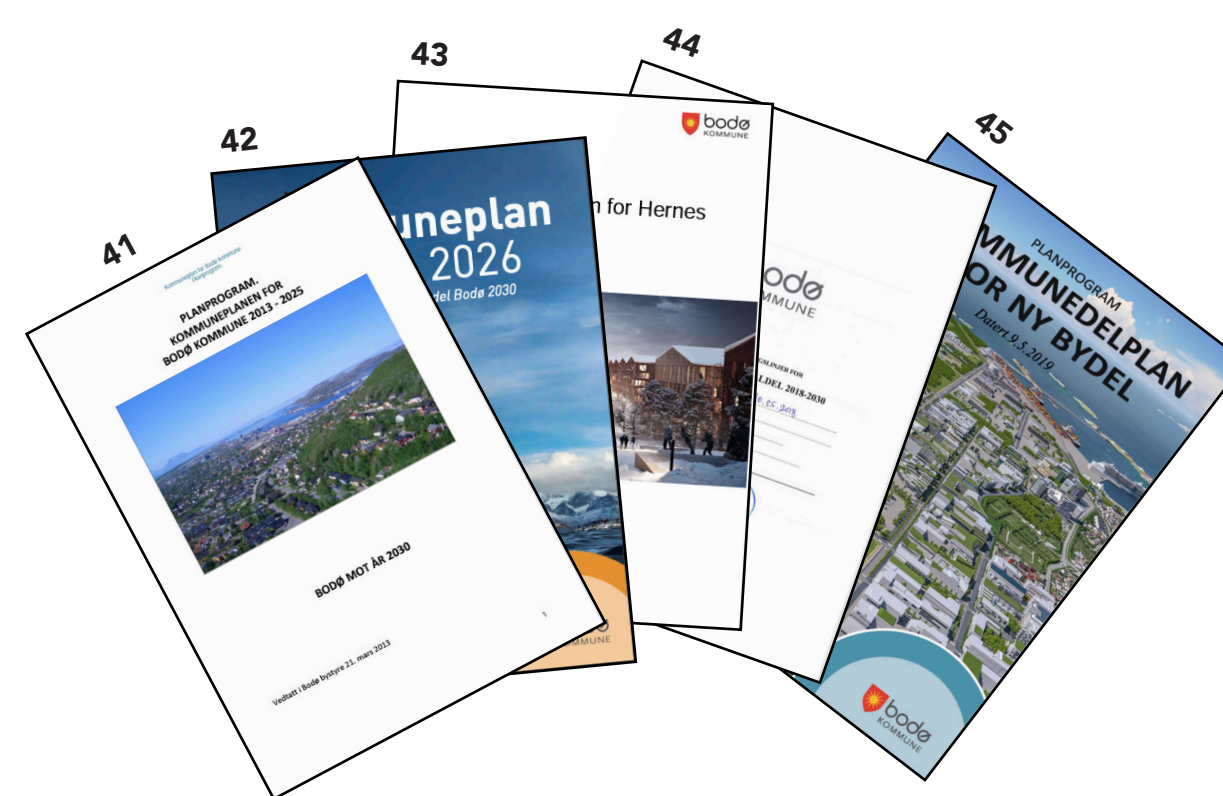


Figure 41. Front page of the municipal plan “BODØ TOWARDS THE YEAR 2030”, 2013. (Illustration: Bodø kommune).

Figure 42. Front page of the municipal plan “MUNICIPAL PLAN 2014 – 2026: STRATEGIC COMMUNITY PLAN BODØ”, 2014. (Illustration: Bodø kommune).

Figure 43. Front page of the municipal plan “MSP – HERNES: PLAN DESCRIPTION - consultation edition”, 2021. (Illustration: Bodø kommune).

Figure 44. Front page of the municipal plan “THE AREA PART OF THE MUNICIPAL PLAN 2018 – 2030”, 2018a. (Illustration: Bodø kommune).

Figure 45. Front page of the municipal plan “MSP FOR NEW DISTRICT”, 2019. (Illustration: Bodø kommune).

TIMELINE ---> 2026

After the cooperation agreement between Avinor, Forsvarsbygg and the Municipality was concluded, optimism rose to reach the goal of a new airport by 2026. However, several challenges have emerged that affect the outlook for the new airport in the coming years.

In January, it was claimed that the new airport would not be ready until 2029. Initially, the target date was at the end of 2026. According to NRK (Budalen et al., 2022), the reason for the postponement was financial problems for Avinor due to corona - the pandemic.

Aviation was hit hard with little travel activity, lost income, reduced staffing and other cuts. It was, therefore, necessary to get financial support from Avinor’s group board, owner and authorities (Avinor, 2020).

As a result of the financial problems, the “New city - New airport” project received significant direct support from the government in the state budget for 2023. About. NOK 1,007 million was granted assist in the financing of the development and cover Avinor’s financial losses through the pandemic (Guttormsen, 2022).

This will still not be enough to complete the new airport by the original date, i.e. 2026. The project will, in any case, continue towards the final goal in 2029, but with somewhat reduced progress, as well as minimizing the future risk of possible further postponements (NTB Kommunikasjon, 2022)

NORD UNIVERSITY

HISTORY

Various regional educational institutions were, at a relatively early stage in Bodø's modern development, established in Bodø. An example of this is Bodø Teacher College, established in 1951, another Nordland Nursing College, established in 1920. Over the years these institutions grew in size and importance. Other academic fields were added and this development led to the establishment of the Senior College (Høgskolen) in Bodø in 1994 (Hansen, 2021).

The new institution was established at Mørkved, an area approx. 9 km to the east of the city centre. A modern campus was gradually built here. This development continued with the consolidation of the Senior College in Nesna, a village further south in the county of Nordland and a Senior College in Nord-Trøndelag in a new institution which, from 1 January 2016, was granted status as a university under the name Nord Universitet (Hansen, 2021).

SUBJECTS

Nord University offer both bachelor and master's degrees in a wide range of subjects. It also offers a large number of shorter programmes together with 4 research-based doctorate degrees. Among the subjects offered is entrepreneurship and business development. Many subjects are also tying into the

local and regional business community, notably aquaculture (Nord Universitet, n.d.a).

MØRKVED

Mørkved is geographically a part of Bodø. Given the distance between the city and Mørkved this is, however, not easy to understand. However, basic communication lines are good as both Highway 80 and the railway passes close to the south part of Mørkved. There is a station here at which local trains stop. There are, furthermore, a bus line to Bodø which also serves the existing airport. Mørkved has around 10.000 inhabitants. This is approx. 20% of the total inhabitants in the Municipality today (Bodø kommune, 2022f; Dalfest & Thorsnæs, 2022b).

FACULTY

Nord University has a total of 1,300 employees. Approx. 987 of these have their workplace at the campus in Mørkved. These might live in the Mørkved area, or either commute from Bodø and Fauske (Nord Universitet, n.d.a).

There is a total of five departments/faculties :

- Nord University Business School
- Biosciences and Aquaculture
- Education and Arts
- Nursing and Health Sciences
- Social Sciences

STUDENTS

The majority of the students at Nord University belongs to the Mørkved campus. These are distributed across all of the subjects taught at the campus. Most students will wish to live at or close to the campus at which they study. There are various accommodation options directed at the students, both at Mørkved and in Bodø. However, there seems to be a shortage of accommodations. This is not an unusual situation at a university but is nevertheless something the Municipality needs to address in their forward planning (Trygstad & Fallmyr, 2021).

RELATIONSHIP TO BODØ

The Nord University campus at Mørkved is, technically, a part of the Municipality. It is furthermore an institution which defines Bodø as a "university city" contributing a significant population which has Bodø as its urban centre. As such they are crucial to Bodø's further development. This is particularly important in relation to the creation of jobs and the long-term settlement of people originating elsewhere in Bodø. Hence, the continued growth and success of Nord University's campus at Mørkved will, to a large extent, be the most important factor in Bodø's ambition to further grow and develop.

The distance between the city and the campus is a challenge as it both factually and mentally creates a "barrier" working against a real integration of the two. It is not helpful, in this context, that Bodø's historical identity is linked to its harbour and its ocean.

Figuratively, Bodø thus has its face to the sea and its back to its hinterland. Turning this around so as to make both the Hernes area and, ultimately, Mørkved and the university campus a true part of the city will thus have to be a fundament for Bodø's strategy in reaching its growth ambition.

More importantly, both its faculty and its students can be categorised as belonging to the "creative class" and, as such as a potential "engine" for Bodø's development. This will be further described in the upcoming chapter of theory.

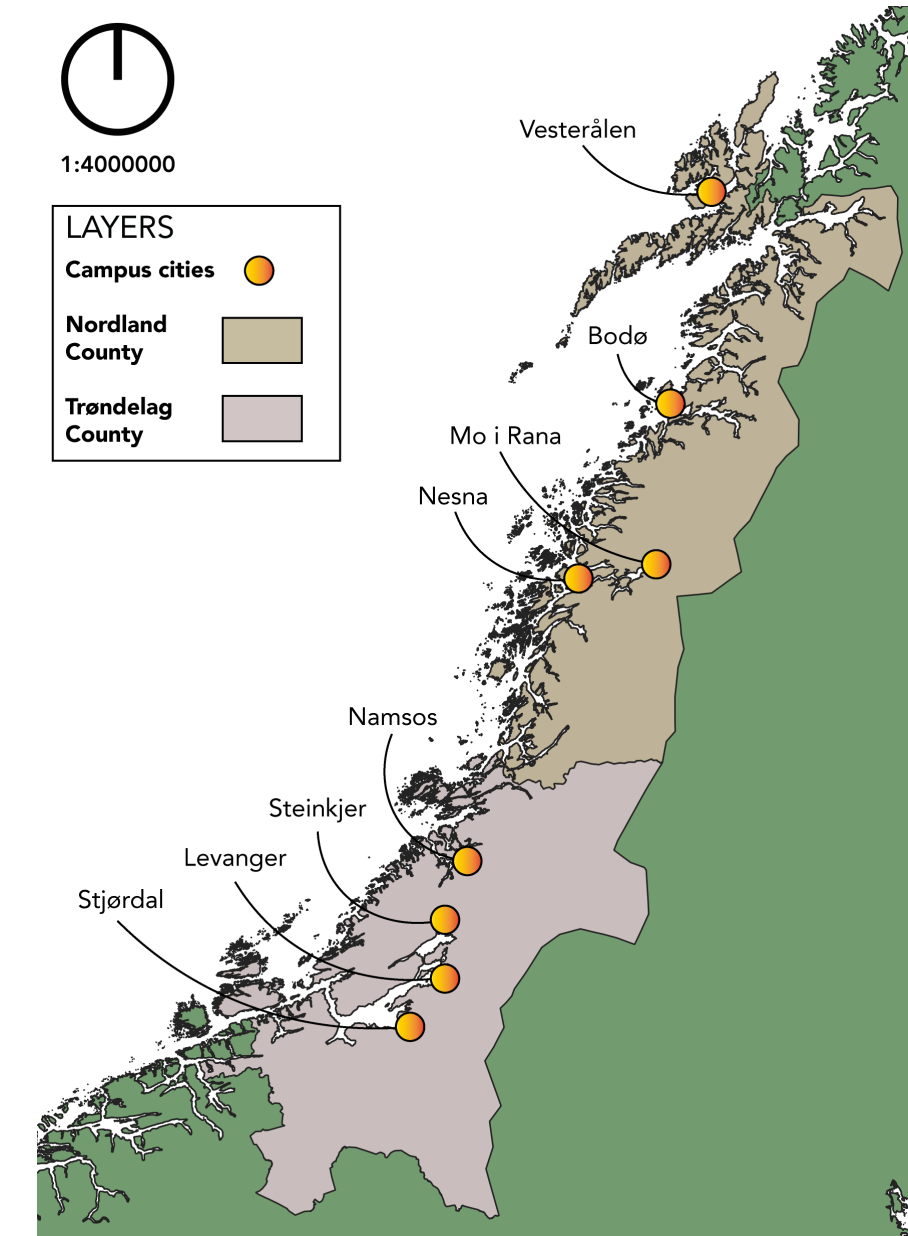


Figure 46. "Map of the locations where Nord University has its campuses", 2022 (Map data from: Statens Kartverk).

SUMMARY – CHAPTER 2

- Bodø's airport will be relocated to an area southwest of the current airport at Hernes.
- The move is expected to be effected in 2029.
- The acreage of the existing airport will be released for alternative use when the new airport is operational.
- The main buildings availability for re-use are the terminal building and the control tower.
- The Municipality has several plans for the area to be released. Their focus is the create a new residential area with approx. 15.000 new homes and 20.000 new jobs.
- The Municipality wish to create several green corridors and across the released area.
- Nord University at Mørkved will be a critical factor in Bodø's development.
- Communication between Mørkved and the city are not optional.
- Bodø need to grow eastwards toward Hernes and Mørkved

*3 - THEORY AND
EMPERICAL RESEARCH*

THEORY

GENERAL

I have, in preparing this study, relied on a number of theoretical concepts. A brief synopsis of these and a few remarks on their relevance are set out in the following.

THE CREATIVE CLASS

This is a term and concept first used by Richard Florida, a professor at the University of Toronto. His field is urban studies. He published a book titled “The rise of the Creative Class and how its Transforming Work, Leisure and Everyday Life” in 2002. In this book he presented his theory on the “Creative Class” and its importance to the wellbeing and development of urban centres (Creative Class group, 2022).

He expanded on his theory in a subsequent book, “Cities and the Creative Class” which was published in 2005. Professor Florida’s inspiration for these works was the Canadian-American author, and urban planner, Jane Jacobs. In her book “The Death and Life of Great American Cities” published in 1961, she criticised the more modernist architecture focus many planners, especially the French-Swiss architect LeCorbusier, had on physical development and the manner in which they often abandoned existing parts of city having fallen on hard times as a consequence of economic downturns etc. She was among the first who focused on urban transformation by opening up areas which had been used in one capacity to another - i.e. the process which later on has been labelled gentrification. Her main point is that urban development is driven by people - not economical investment (Florida, 2005; Jacobs, 1961).

Prof. Florida’s theory on the “Creative Class” rests on his observation that economic growth in a city or region is driven by its residents. Florida called this the “social capital”. An area’s social capital is strong if the inhabitants are united and interact with each other through the various meeting points a society can create, typically charities, schools, political parties and other civilian organisations. They will then associate themselves with various groups, act collectively and generally work positively with authorities and other groups (Florida, 2005).

A weak social capital is, on the other hand, characterised by the inhabitants acting individually - both in relation to each other and the authorities. The consequence of this is, in Prof. Florida’s opinion, disconnection between the residents. This creates a negative spiral where social meeting points are

weakened and anti-social behaviour increases. The end of this line of development is an environment which is hostile to its residents. This is easily spotted by outsiders who obviously will not want to migrate into such areas. Further, positively minded inhabitants will move out (Florida, 2005).

Florida moved on by pointing out that what was needed to build social capital was a particular type of people - what he labelled the “creative class”. They would generally have higher education, be employed and have the extra energy to engage in social activities. Individuals who fell into the “creative class” category were, when they considered where to live, looking for areas with high diversity and strong social capital. Financial reasons and general lifestyle preferences also played a part but these factors were often subordinated to the others (Florida, 2005).

When people from the “creative class” starts to move into an area it will quickly increase its social capital, start to transform itself in an economical perspective and generally grow and develop. This will, in turn, contribute to economic growth.

Florida (2005) then expands his theory by arguing that “creative class” usually moves into an area in stages. The first group is, in his theory, called “The Super-Creative Core”. This covers scientists, engineers, university teachers, designers and the like. These people will quickly put their mark on a neighbourhood and “fertilize” it with transformative ideas. The second group is called “The Creative Professionals”. This covers high-end professionals and individuals employed in knowledge-based jobs.

Florida (2005) lastly points out that there are three concepts that attract the “Creative Class” - tolerance, technology and talent.

The relevance of this theory to Bodø is that it will need the Creative Class as inhabitants in the new district of Hernes for this to a successful extension of Bodø today. Further, a large group of people - the faculty and students at Nord University - are typical members of the Creative Class.

Drawing them closer to Hernes and the city of Bodø will benefit both the transformation of the existing airport and Bodø as an urban centre.

THE COMPACT CITY

The “Compact City” concept is another term which can be traced back to Jane Jacobs and her book “The Death and Life of Great American Cities” (Jacobs, 1961). She argued against the “garden city-suburbia” concept wanting, instead, to transform the run-down inner-city areas in the large traditional cities.

By concentrating inhabitants on a smaller, truly urban, area, the quality of city life will, in her opinion, increase. The concept has been further developed, both in meaning and applicability by subsequent authors. An example is Michael Neuman a professor at Westminster University, who wrote in an article published in 2005:

“The compact city, we are told, is more energy efficient and less polluting because compact city dwellers can live closer to shops and work and can walk, bike or take transit.” (Neuman, 2005, p. 12).

Neuman (2005) has an excellent and up-to-date political point. European cities such as Copenhagen and Amsterdam are examples of how a compact city

development should be done. Their network of cycle paths is well developed. They have wide sidewalks for pedestrians and good public transport with many stops.

By offering shorter distances between home, work, university and daily services, the compact city is more sustainable. The demands on the infrastructure will be reduced when private cars do not dominate as much. The water and electricity networks will also supply several people in the same block, rather than being spread among several smaller homes. Compact cities also reduce significant encroachments on nature below ground level with dozens of pipes and wires (Ghisleni, 2022).

URBAN DENSITY

A key element in figuring out the complexity of an urban area will be the number of people living there, also referred to as “urban density”. According to Christopher Berggren (2022), “urban density” describes the number of people living in a specific metropolitan area. Numerous urban planners are in

favour of building higher and denser. Cities will operate more efficiently based on a long-known theory if residents live in denser urban areas. By following this theory, cities will have the potential to be more walkable, in particular if an enhanced network of public transport is available.

A compact city defines an urban model where a city is more densely populated. Development of apartments, shops and services shall be built as close to each other as possible.

PEDESTRIAN AND CYCLE DESIGN

Networks of pedestrians, cyclists and public transport will be the dominant transport routes in a compact city. This is a contrast to the “scattered city”, where the car is a necessity for mobility. This is not wanted in a compact urban development (Ghisleni, 2022). Achieving a compact city structure that emphasizes low automobile dependency is a huge step in reaching the sustainable development goals. However, to achieve this, attractive facilities for pedestrians and cyclists will be essential. Walking has been a crucial

element of human life, just as running. The study or design of walkability has been launched to encourage more people to walk, especially within urban neighbourhoods. It is necessary to facilitate the pedestrian environment such as space, design, and mobility.

WALKABILITY

To achieve walkability within an urban neighbourhood, a designer must observe and estimate people’s attitudes toward walking. Based on this, a simplified and improved pedestrian network can be designed (Omar et al., 2016).

Further, Omar (et al., 2016) alleges that destination accessibility is a key to improving walkability and, thus, reduce automobile dependency. Sidewalks are crucial for a neighbourhood or inner city and city parks. Connection and distances will also be pivotal elements in improving walkability. Municipalities and local politicians should thus include this in any plan for a compact city development.

GREEN SPACE

According to Haaland and van Bosch (2015), the characteristics of a “compact city” is a high density of housing, well-functioned public transport, and widespread walking and cycling options. However, the livening conditions would be more problematic. Absence of green spaces is an issue for densely populated cities, especially in a compact city centre.

The authors define a green space within an urban areas as:

“Any vegetation found in the urban environment, including parks, open spaces, residential gardens, or street trees.” (Haaland & van den Bosch, 2015, p. 761).

Green space development will be crucial for urban cities with a vision to become sustainable. Humans, especially urban dwellers, wish to be social, do physical activities, or seek recreation. Peschardt (et al., 2012) allege that natural environments are linked to public health. If natural environment decreases locally,

lifestyle diseases such as stress-related illnesses, depression and mental fatigue tend to increase. Green spaces, in this case urban parks, might be favourable options for people who want a break from the typical stress and hustle in noisy cities. Urban dwellers who want to eat lunch in a quiet place away from a busy job will also need such spaces.

Bodø has made the “compact city” concept a cornerstone for its long-term plans - both overall and for the Hernes area. While the concept will be relatively easy to apply to the Hernes area as such, it is challenging to see how the concept can be fully implemented given the distance between the harbour on the western limit and Mørkved to the east.

However, some parts of the concept can be used, notably good communications, cycle paths and probably expansion in steps where each step is developed as “compact” as possible and the space between them filled in over time.

CIRCULAR ECONOMY

The relationship between the principles usually referred to as “sustainability” and “circular economy” is not clear. Although both concepts focus on using renewable energy and reusing natural materials, academics and scientists are still discussing how to link them in an appropriate manner. The basic principle is “reusing”. This means using materials that have the potential to be recycled if possible. When recycled, materials can be converted into commodities which can be reused as a viable alternative to new materials, a “circular economy” is in place. Thus, the volume of resources used drops, and the available resources can be used longer (Miljødirektoratet, 2022).

Countries should focus more on achieving equilibrium of economy and environment. Geissdoerfer (et al., 2017) claim that natural recourses affect the economy within the production and consumption. By comparing Earth as a closed and circular system, you can combine industries, waste, creation of more regional and local jobs, and resource efficiency in a loop. By creating those elements, the circular system close and minimizes pollution, waste, and energy leaks

EU AND NORWAY

In addition to environmental and climate improvements, a circular economy have the potential for creating more jobs. Surrounded by the positive results, the topic has been crucial in the EU agenda. Since the launch of the new circular economy action plan named CEAP, in March 2020, the European Commission has committed itself to move to a circular

economy. The proposed measures will also apply to Norway via the EEA. A change in the EU regulations will usually affect the Norwegian regulations (Klima- og miljødepartementene et al., 2021).

The EU wants to reduce, if not end, the linear economy. This economic mentality was based on the “take-make-use-dispose” model, where almost no used resource or material would be re-used. However, switching to a circular economy model can extend the life of products and materials. In the same way, you reduce the risk of exceeding the global planetary boundaries (European Commission, n.d.b).

In addition to the EU’s action plan, another main goal is to change the negative environmental impact of used products. According to the Norwegian Environment Agency (Klima- og miljødepartementene et al.), a set of measures is required to reduce the negative impact of this, and instead follow a more circular economical approach:

- Increase the durability of products with the potential for reuse, maintenance, or repair.
- Reduce all products that contain chemicals which prevent recyclability.
- Reduce both carbon and other environmental footprints from products.
- Provide more detail about all products, both digital and printed.

In June 2021, the Norwegian government published a strategy (Klima- og miljødepartementene et al., 2021) to achieve the transition to a circular economy. Furthermore, the industrial sector is working to improve more environmentally friendly measures within waste management, plastics, and packaging.

CONCRETE

The reuse of concrete is an essential transition to a circular economy. Crushing a concrete wall into smaller sizes which can be used as paving stones is an example. While crushing concrete, iron serving as re-enforcement must be removed.

This is very expensive. Recycled material is, unfortunately, the costliest and can lead to a desire for cheaper solutions. For instance, sand and gravel will be much more affordable than recycled concrete, but the disadvantage is that they are not renewable resources. Thus, a “use and discard technique” such as linear economics will continue (Holm, 2021).

GREEN CITIES

GREEN CITIES

Access to green spaces is an essential component in compact urban developments. City dwellers will often seek out areas where fresh air is available to relax from their hectic weekdays. Furthermore, you may want to seek recreation or meet others to socialize in such spaces. In and around a city, there are usually green areas in the form of city parks or forest areas, which residents can find very positive. In addition, getting out and experiencing these green areas might also improve public health, especially our mental health.

MENTAL HEALTH

Physical activity can improve our mental health. Mapping the connection between nature and mental health has often been complicated.

For years, researchers have argued that nature is not always about where people hunt for food or provide materials for shelter. Bratman (Bratman et al., 2019) state that humans depend psychologically on nature. Nevertheless, cities can also be associated with reduced nature offerings. Individuals may have barriers such as fear. Furthermore, they prefer to be inside. More empirical research in public health has therefore been crucial in investigating how the combination of nature and health can improve the mental health of individuals.

SOCIAL ARENAS

A social arena can be a physical or mental area where people spend time or do something together. Ortwin Renn (1993) argues that this topic has a broad definition. First, it is a symbolic place created by political influences. In addition, such locations can be either geographical units or organizational systems with different parts. A green space is an example of an area that can provide room for several social arenas. Therefore, social arenas have many purposes but share the same functional goal of providing social input. (Renn, 1993). Social arenas will help gather people, improve mental and physical health through sports, or seek fresh air and tranquillity.

PARKS

A park should be an adapted green area where people can do outdoor recreational activities. A gardener is often responsible for maintaining lawns and planting vegetation. Parks can also serve as simple trail areas with multiple seating along the trails. A city park is defined in Norway as a public area in a city, while a national park often covers a larger geographical area (Bruun, 2020).

Bodø has a unique location with proximity to nature, the mountains, and the sea. Being close to such green places strengthens the use of the local population. The municipality experience (Bodø kommune) is that most public parks and urban spaces are less used than in other cities. This is explained by people preferring the countryside and the sea above the city parks.

Some of the city parks in Bodø have an extended history, typically Rådhusparken and Solparken. Both will go through a significant upgrade. Rensåsparken, the oldest and largest park in Bodø is located east of Nordland Hospital. The park is an important green area with activities such as frisbee golf and includes several trails. In addition, both Rensåsparken and Rådhusparken are suitable for more significant events such as concerts, for example, the Park Festival (Bodø kommune, 2017b).

The Municipality (2017b) lists several areas within the city centre of Bodø, which can be turned into future green areas. Through participation processes, the Municipality wants input from neighbours, associations and affected businesses on how the site in question should be developed for a green structure. The process will take place through feasibility studies and workshops where input is used to arrive at a final solution. The map of green areas in Bodø (see fig 42) classifies such areas as “potential areas.”

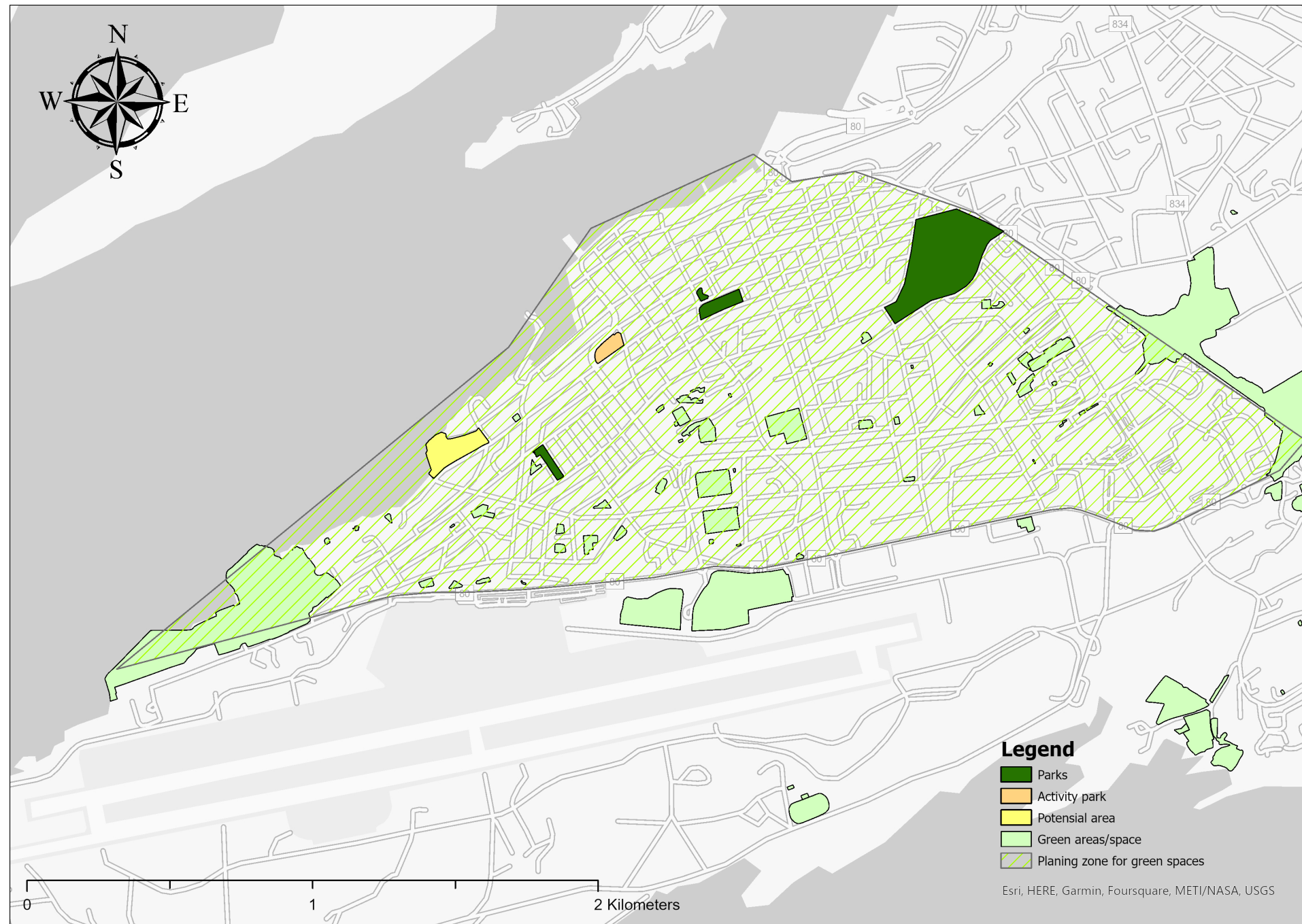


Figure 47. "Map of green areas, including the potential areas", 2022. (Map data from: Kartvrket, ESRI, Norkart).

TRIPLE HELIX

Creating growth, especially in economic and social development, has always been a key driver for cities, regions or countries. Industry and government often cooperate regarding technological development or innovations, but this has changed.

Students can collaborate more closely with the industrial sector and the authorities by including academia to promote innovation. The concept is called the "triple helix" and was developed by the American social scientist Henry Etzkowitz and the Dutch sociologist Loet Leydesdorff.

During a meeting in Amsterdam in 1993, Henry Etzkowitz and Loet Leydesdorff discussed the triple helix concept. It describes a collaboration model between academia, industry and government. Actors from a local university can cooperate with local or regional initiatives and the government to create an innovation model. Institutions such as incubators or science museums are examples of such collaboration. Furthermore, it will benefit the local government to participate due to regional economic growth, especially in knowledge and social development (Etzkowitz & Zhou, 2017).

A key point from Etzkowitz was to investigate the relations between industry and authorities. Due to the economic downturns in New England in the 1920ties, closer cooperation between industry, governing bodies and universities was initiated. Together, they managed to come up with new ideas and strategies for future economic growth (Strand, 2016). An important note about those New-England states

was the large number of universities, i.e., Massachusetts Institute of Technology (MIT), Harvard University and Boston University. By involving the universities more, the potential for new thinking, innovation and creativity increased.

The president of MIT, Karl Compton, was optimistic about the cooperation between universities, industry and authorities. MIT received some government research projects with financial support from the local authority. However, the first signs of regional growth did not come until after WW2. As a result of involving the universities, development within biotechnology and the microcomputer increased leading to regional economic growth (Strand, 2016).

Similar cooperation was ongoing in Silicon Valley. The University of Stanford already had strong ties with local industry and government. With an education in entrepreneurship, universities can help improve the knowledge of society worldwide. At Stanford University, university president David Starr Jordan encouraged graduating students in entrepreneurship to establish more technology companies. Students of the next generation, led by Frederick Terman, were able to connect closer to the next-generation industry with incremental innovation. Additionally, other faculties at Stanford were given a dual role as the link between campus and companies was developed further. Combining this triple helix, university, industry and government (U – I – G) can expand research and put partner knowledge to broader practical use.

To unite different actors within a project, the chances to secure local, regional or national economic growth will increase. Cooperation within creative knowledge will be crucial to achieving innovation (Etzkowitz & Zhou, 2017).

INCUBATORS

The example of incubators describes well how a triple helix collaboration works. Ørstavik (2022) describes an incubator as an organization or company providing financial support to one or more businesses that wish to realize their ideas on the market. It could be establishing innovations, commercial activities or entrepreneurship. Both public and private businesses can provide financial aid at regional and national levels. Throughout this platform, students can create a vast network with entrepreneurs or founders, creating an innovative sustainable region.

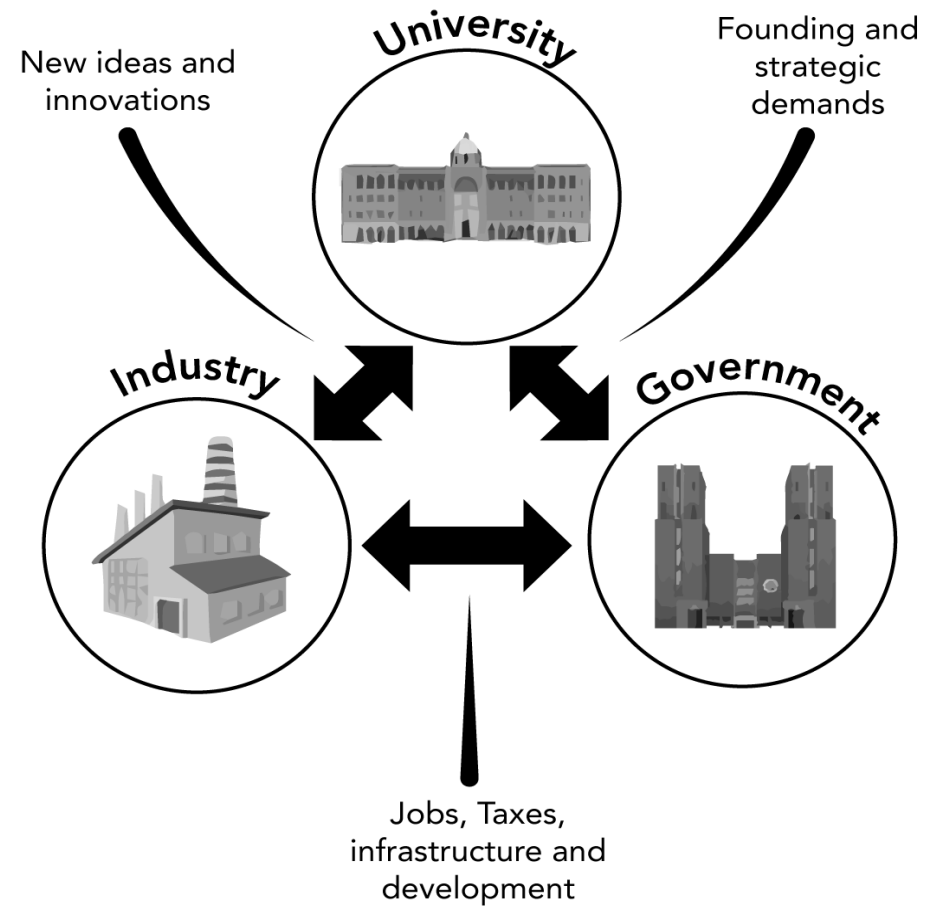


Figure 48. Illustration of the triple-helix concept.

TEMPORARY USE IN THE TRANSFORMATION PROCESS

By applying the triple helix concept, academia, industry, and government will be able to cooperate to create more sustainable innovation. Within urban development and transformation, young creative talents, i.e., design students, can create a new purpose for a metropolitan area previously closed to the public. If not permanent, a site can be the object of a temporary transformation to meet the immediately needs of the city's inhabitants.

An urban landscape design company in Denmark presented, in 2009, a study of the temporary use of urban space. The intention was to find out how to exploit an area with a temporal concept and to investigate the potential of the area.

Local politicians, industry sectors, and other inhabitants of the city would have the chance to use their social, economic and cultural skills to transform the area into something everyone could use. A positive outcome of temporary institutions is measured in relation to how positive they are for users in a short term perspective. It can be effective within a few hours, days or years. Should the institution or purpose be more positive than intended, it can easily be made permanent. Alternatively, if the temporary institution does not have positive effects, it is easy to remove without any high risks (Boye et al., 2009).

While developing a new urban life temporarily, some considerations must be made. For instance, physical and mental features are vital while investigating a metropolitan area. Physical means how the site can be used and what conditions buildings are in.

Within the mental part, it is necessary to learn the site's history and know which associations and memories the area has given the population.

Thus, to understand the limitations, it is essential to specify that temporary use shall not replace previously approved development determined by the authorities.

However, temporary use can reduce the risk of a previously approved project stagnating or stopping for various reasons. Therefore, the primary purpose of temporary use will be to preserve the area while developing the site based on its history and identity (Boye et al., 2009).

- How can a small piece of a large area be transformed and later utilized?
- Create enthusiasm where residents can be involved in the development process.
- Exploit the delay to an area that has stagnated or will continue for several years.

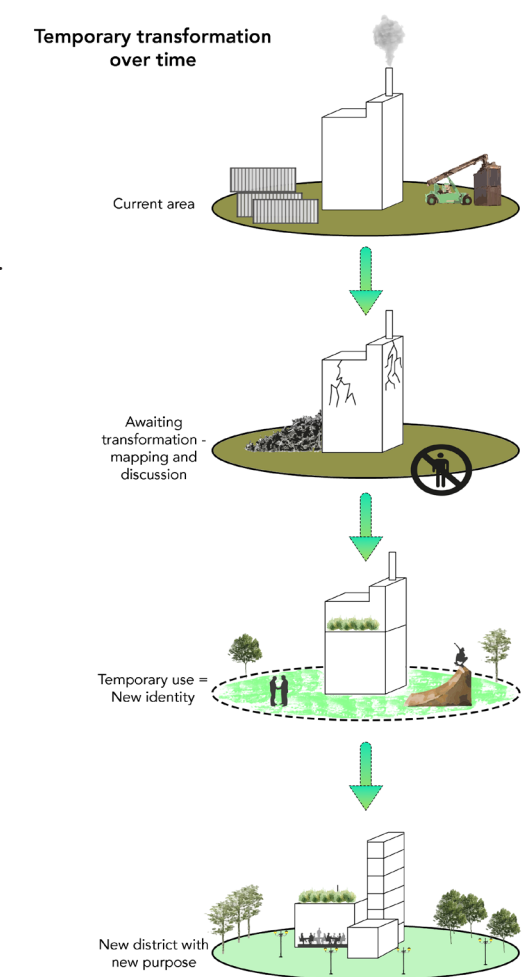


Figure 49. Illustration of the time-process regarding a temporary transformation.

ØSTRE HAVN - AALBORG (DK)

In December 2006, a Danish pilot project under the auspices of “Mental Byomdannelse” was carried out for an urban area in Aalborg called “Østre Havn”.

The site was, originally, an industrial port facility. After this use was discontinued, it was decided to transform the port into a new urban district.

The older industrial facilities affected the area negatively. Some buildings were in poor condition with a high risk of local pollution. Most of the industrial buildings were, however, classified as listed and therefore not possible to demolish.

Applying a circular economy approach, the existing buildings should be transformed to new use.

However, the combination of industrial buildings in poor condition and high risk of pollution were hostile to such an approach. Nevertheless, there was a significant desire to transform the former industrial area into a new and better purpose for the future of Aalborg (Boye et al., 2009).

In January 2008, inspections and registration of the industrial buildings were initiated. It was concluded that the architecture provided several possibilities for interesting re-use. Especially one building, Pakkhus 4, stood out as more qualified to be transformed into something temporary than the other buildings. Registration, discussions and negotiations with local authorities were initiated in parallel. Local authorities could ask questions regarding the project and, at the same time, give inputs on what Østre Havn means to the city, including how they imagine the area would

be in the future (Boye et al., 2009).

The next step was to search for relevant participants who wanted to join the pilot project. In total, twenty interviews with possible participants were held. Besides the interview process, it was necessary to start a dialogue and later negotiations with the Danish engineer Asger Enggaard.

A. Enggaard A/S had been the landowner of Østre Havn since 2005. Having him on the team was essential for the pilot project. In May 2008, an agreement was confirmed. The deal was to get permission to use one of the industrial buildings, Pakkhus 4, for temporary use (Boye et al., 2009).

In cooperation with Aalborg University, Aalborg Municipality landed on an idea to mix art and technology as design. Bretteville Hotspots, an organization of young artists and designers, was given the task of transforming the interior of the building. Later, they launched the new name of the building, Platform4. When all agreements with local authorities, the landowner and participants were landed, it was time to shape Platform 4 (Boye et al., 2009)

In the early process of designing Platform4, several workshops were initiated with creative and artistic actors from Aalborg. Thus, to include as many as possible and share the positive feelings of transforming something new for their city. One week later, everyone could present their workshop ideas and topics. The winner received financial support to complete their proposals. Having those workshops managed to solve several tasks for the

project. Furthermore, it created a significant network among all participants and volunteers (Boye et al., 2009).

When Platform4 was ready, they arranged a grand opening. All participants and volunteers, representatives from the municipality, the press and partners were invited. The project ideas, ambitions and an exhibition from the workshops were presented. Furthermore, a sub-project called “Track in the city” was launched to open up Østre Havn to all residents of Aalborg. Installations like binoculars and information signs were constructed to explain more about the area and its potential. Otherwise, cafes and shops were built around the industry field where visitors could learn more about the history and identity. Later, it was agreed that Aalborg University would be allowed to join Platform4 by providing additional workplaces for students in art and design. With the network created by involved participants and actors, the project quickly spread out to the residents, especially the younger, creative community. Communicating the area’s history and identity during the project gave residents of Aalborg a significant interest in Østre Havn (Boye et al., 2009).



Figure 50. Outside the older industrial building, Pakkhus 4 who now has been named Platform4, 2012. (Photo: Platform4).



Figure 51. View towards the factory installations at Østre Havn, 2010. (Photo: Jensen, M., L.).

TRANSFORMATION - GERMANY

OLD NIDDA AIRFIELD - FRANKFURT

The “Maurice Ross Army Airfield” was located on the outskirts of Frankfurt in Germany. The airfield was constructed in 1951-52 and used by the US Army Air Force until 1994. Multiple buildings, such as the control tower, hangars, and service buildings, were still intact. The most characteristic remaining feature was a runway covering almost 4,5 hectares paved with concrete and asphalt.

After a while, some of the local communities re-discovered the area. The runway was ideal for cycling, roller skating and skateboarding. It provided a flat, hard surface with no ordinary traffic threatening these activities. Finally, in 2003, the Frankfurt City Council transformed the area into a public park. Finding the balance between “rewilded” nature and the concrete surface was crucial. By leaving large areas as they were, nature was allowed to reclaim the space without human interference (Borades, 2004).

THE TEGEL PROJECT - BERLIN

Located in the same country, we find a similar project a bit northeast of the German capital Berlin. Despite the small size of the entire airfield, Berlin Tegel airport was the fourth busiest airport in Germany. Together with two other airports, Schönefeld and Tempelhof, it served as the major hubs in aviation for the German capital. Both Schönefeld and Tempelhof were shut down earlier than Tegel due to outdated facilities. Tegel remained in active service due to the long-delayed opening of the new Brandenburg airport (Krueger, 2020).

As a result of the corona pandemic, with the lack of passengers, the decision to close Tegel temporarily was initiated on June 1st, 2020. Almost a year after, on May 5th, 2021, the airport was finally decommissioned. Berlin County received ownership to the entire airport (Anker & Fahrur, 2020).

Soon after, the authorities in Berlin decided to restore the area of Tegel. It was handed over to the Tegel Projekt GmbH who wished to create a new urban neighbourhood on its 500 hectares, where 200 hectares are planned for landscape zones. Additionally, they want to develop at least 5000 apartments for almost 10.000 residents at the east end of Tegel, named “Schumacher Quaertier”. Further, the project group wish to create infrastructure such as schools, sports facilities, day-care institutions, and urban technology, called “The Urban Tech Republic”. Almost 1000 businesses will be built here, with nearly 20 000 employees focusing on development, urban planning, and research (Tegel Projekt GMBH, 2021).

Although the massive plans for the area and the apartment design, they found a brilliant idea to reuse the old terminal building. The Berliner Hochschule für Technik was allowed to move in as the new Berlin TXL campus, including 2500 new student apartments. A total of 5000 students will be part of this campus, researching renewable energy, urban planning, eco-friendly mobility, and more. The concept has been admired around Europe, if not worldwide (Tegel Projekt GMBH, 2021).



Figure 52. Cracked asphalt at the old taxiway, 2004. (Photo: Borades, D. B.)

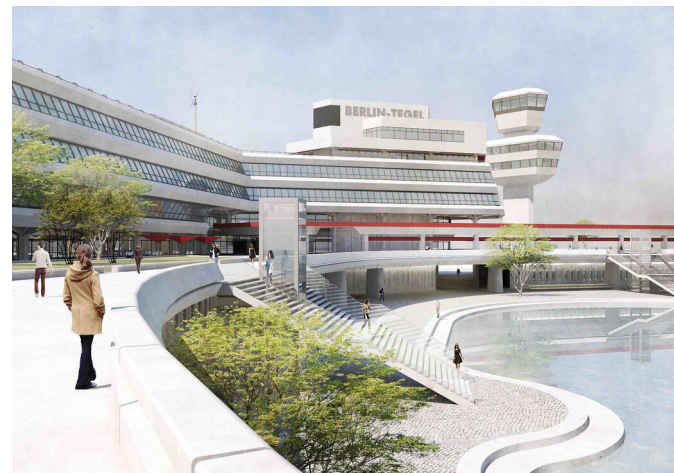


Figure 53. Illustration of the new design and purpose for Berlin Tegel, 2022. (Illustration: Florian, M. C.)

TRANSFORMATION - DE CEUVEL (NL)

Like the examples from Denmark and Germany, the former De Ceuvel shipyard in the north of Amsterdam has undergone a transformation from its original purpose.

The site is located by the Van-Hasselt canal and was bought in 1919 to establish a shipyard, later called “Ceuvel-Kromhoutwerf”. After two years, the shipyard was completed. Cooled water from the furnace helped keep the temperature higher than the water’s freezing point. During the Second World War, the shipyard and the neighbouring Fokker Airplane factory were damaged by a bomb attack. However, repairing the damages did not take long (Hotel Aisle Flottant, n.d.).

The shipyard was again acquired in 1953, where a new engine room and pier were built. During the 40 years after the war, the shipyard was constantly expanded through several acquisitions of other shipyards located in Amsterdam. Gradually, several multinational players made the competition more acute, which caused Ceuvel-Kromhoutwerf to have to wind down its business. In 2002, the municipality of Amsterdam closed the yard (Hotel Aisle Flottant, n.d.).

In 2012, a group of young architects won a competition from the municipality to establish a sustainable incubator for young creative entrepreneurs. The architectural group entered into a lease with a duration of 10 years. The area was given a new name, “De Ceuvel”. Sustainable and circular office parks and cafes were to be established.

Old houseboats were converted into office pads and deployed on-site. From its time as a shipyard, the land around the houseboats is characterized by high pollution levels. A pole was therefore placed to clean the soil and make it more environmentally friendly. Furthermore, the area produces its own electricity and handles waste innovatively (Hotel Aisle Flottant, n.d.; Sefkatli et al., 2017).

In many ways, this is an example of a previously “forbidden” area which suffers from contaminated land and derelict buildings that harm city life. By allowing temporary projects, you can easily see what works. Furthermore, closer cooperation between authorities, industry and young creative people will help to renew a historical place for new innovative functions and circularly sustainable purposes.



Figure 54. The pier with office-pods, 2015. (Photo: Vander Kaay, S.)



Figure 55. Café de Ceuvel, 2017. (Photo: Shannon, P.)

STUDENT SURVEY

As an important part of this thesis's research, is a survey aimed at collecting empirical data from the students at Nord University. All results have been presented in the appendix on questions and answers (see Appendix 2).

It is important to emphasize that the survey is not representative due to a low number of responders. Nevertheless, most of the answers where relevant, for instance for the communication issue between Bodø and Mørkved. The students' thoughts about their living situation, the communication, and the lack of student activity in Bodø were valuable. Further, their opinions regarding the entire project on Hernes, and witch use will be best for the terminal and control tower were also valuable. I received a total of 6 responses.

Some of the answers were expected, based on information I have found before and during my field-work. Other responses were a bit different. For instance, one person argued that almost nothing was problematic, besides some communication issues. The respondents all focused on the inconveniences in commuting between Mørkved and Bodø, primarily due to few departures within public transport. Their financial situation has also made travelling to the city centre more difficult, as many live only on the student grant. When I asked how often they went into the city during a week, the majority answered that this was very rare. Some others claimed they went

3-4 times a week. Regarding the university's location, the majority respond that they think this is not very positive. As a result of poor public transport options, students feel that a significant barrier prevents them from travelling to the city. Therefore, it is easier to stay at Mørkved campus. One argument is that the travel duration between the university, the city centre, and the airport takes between 30 and 40 minutes.

Secondly, the price per single ticket is NOK 47, while the monthly pass is NOK 470. There are obstacles, like students' finances, demanding communications, and the larger student culture in Mørkved. This might be one answer to why the city felt so empty during my stay because of the lack of students (WTW AS, 2020).

Further, a similar barrier exists in the relationship between students and business. The respondents claim that by not having proximity to the city, one could lose opportunities to create network connections, and later within the job market. It was interesting to ask what thoughts the responders had about the Hernes development. The majority were aware of the project. The majority responded that a restaurant or bar for the control tower, without specifying anything more. More interesting was the question surrounding the terminal. The respondents were positive about the idea of a new education building, making it more attractive to move to the city centre.

Furthermore, I asked the students to elaborate more on how the city should become more attractive so that more people choose to either live in the city or travel to the city centre more often.

There were several different answers, but one frequently mentioned response was the need for more student dormitories, cheaper bus tickets, better public transport solutions within buses and more social meeting places. One answer also points out that the municipality should, to a greater extent, facilitate more social meeting points within the student economic limit.

The advantages of empirical research will strengthen the investigations and make them more authentic. Furthermore, this helps to contact relevant groups directly and get immediate feedback. In this way, answers can be collected that may not have been heard, seen or experienced by everyone, which may be wrong information if previous surveys have been inaccurate answers. Nevertheless, such research will also have negative sides. For instance, such investigations can be time-consuming. For my part, I experienced some disadvantages, e.g., low participation in the survey and some unprepared questions (Olseng & Sundbye, 2022).

SUMMARY – CHAPTER 3

- Through Jane Jacobs and her criticism of urban development, Richard Florida got the inspiration for “the creative class”-concept.
- Solid social capital means that citizens are more united through several meeting points. Weaker capital means the city and its inhabitants are more individual and closed from each other.
- The “creative class” with young students should be a preferable target group to be part of local/regional business life.
- The “compact city” is beneficial for creating more inclusion among residents and is more environmentally friendly.
- Urban density helps create more walkability for residents.
- A greater focus on pedestrian and bicycle design contributes to less automobile dependence.
- Residents want the shortest possible distance to a specific purpose so that walkability will pay off.
- Green areas help to get people out more and socialize. They also prevent mental illnesses.
- Parks are essential to green areas for residents seeking recreation and peace.
- Collaboration between universities, industry and authorities creates a triple helix and can promote innovation and growth.
- Incubators are a positive arena for collaboration between students, businesses and authorities.
- The urban transformation will often affect a city's economic, social and environmental conditions.
- Through WW2 and NATO, Bodø has experienced two significant urban transformations.
- Temporary use and projects provide more opportunities and inclusion for more people.
- Østre Havn and De Couvel are examples of previously closed industrial areas that have become larger social arenas through temporary use and cooperation between actors.
- The airport area in Frankfurt and Berlin has created a new purpose while strengthening history and place identity.
- The survey has helped to understand both the positive and negative aspects of being a student at Nord University campus in Mørkved.

4 - ANALYSIS AND REGISTRATION

OUTDOOR AREAS IN BODØ

RIVERS AND STREAMS IN BODØ

There are several rivers and streams in and around Bodø. A significant number of these originates from the hills to the northeast of the city centre. Some of these run south toward Hernes or to the southwest towards Bodøsjøen. Others flow easterly towards Mørkved and Hunstad. The majority of the rivers, streams and smaller drainage canals have been laid underground. One of the larger rivers, Bodøelva, is mostly over the surface, and runs a bit east of the airport area.

BODØELVA

The river originates in Vågeøvatnet, a little northeast of the city centre. After passing Maskinisten, it continues throughout Vågøyenes. The area is classified as agricultural land and can therefore not be trespassed.

A hiking trail crosses the river by way of wooden bridges. The concept is to connect the forest in Bodømarka with the coastline. Hikers can then explore

the cultural landscape along the river. A lot of dead timber is floating in the river, negatively affecting the view. In some locations, the deceased trees has piled up, creating smaller dams. As a result, water will overflow to the riverbank and the hiking trails.

Further down, at Vågøyenes, you arrive at the roundabout at Stormyra and the new Highway 80. This area has been heavily developed as part of "Bypakke Bodø". The river is widening and is crossed by several bridges in this area. Trees have also been planted along the riverbanks and the new cycle/walking paths that follow the highway west towards the city centre. The river reverts back to its original size a bit south of the newly developed highway. At Bodøsjøen, you arrive at the Jektefartsmuseet and the river's outlet to the Salten fjord. This is also where the coastal path starts along the sea edge eastwards towards Hunstad and Mørkved.



Figure 57. Rensåsparken after a heavy rainfall. Bodø, 11 May, 2022.



Figure 56. Entering the "potential area" named Pelle Mollins plass. Bodø, 11 May, 2022.



Figure 58. The seafront along the commercial centre. Bodø May 12, 2022



Figure 59. Dead timber floating around north of Vågøyenes. Bodø, 12 May, 2022.



Figure 60. The agricultural land of Vågøyenes. Bodø, 12 May, 2022



Figure 61. Improved hiking trail alongside Bodøelva. Bodø, 12 May, 2022.

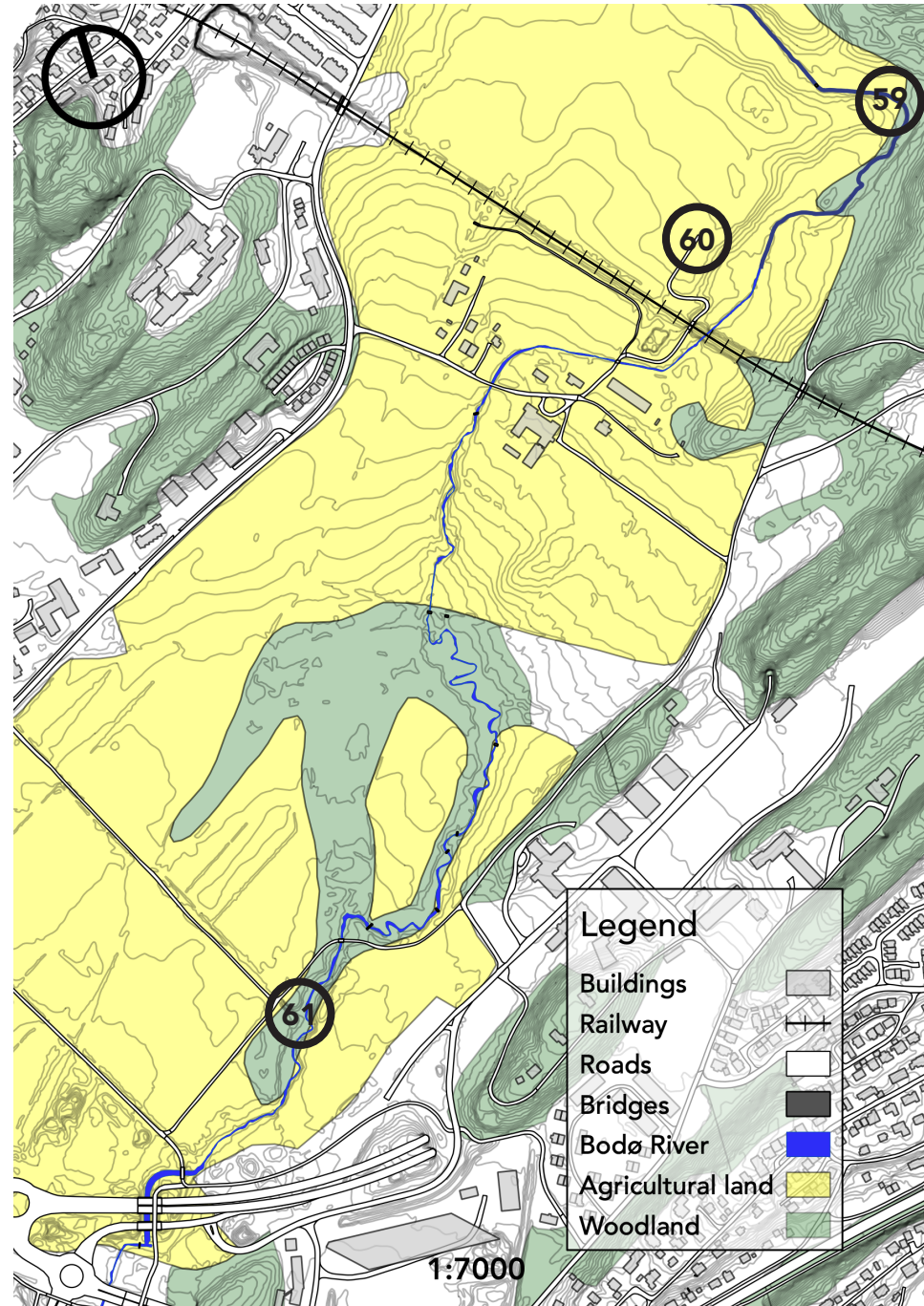


Figure 62. Map of Bodøelva, which flows through the agricultural land on Vågøyenes, 2022. (Map data from: Geovekst, Norkart).



Figure 63. The improved riverpond at Stormyra. Bodø, 12 May, 2022.



Figure 64. One of many wooden bridges near the river outlets. Bodø, 12 May, 2022.



Figure 65. Arriving the Salten fjord and the beginning of the coastal path. Bodø, 12 May, 2022

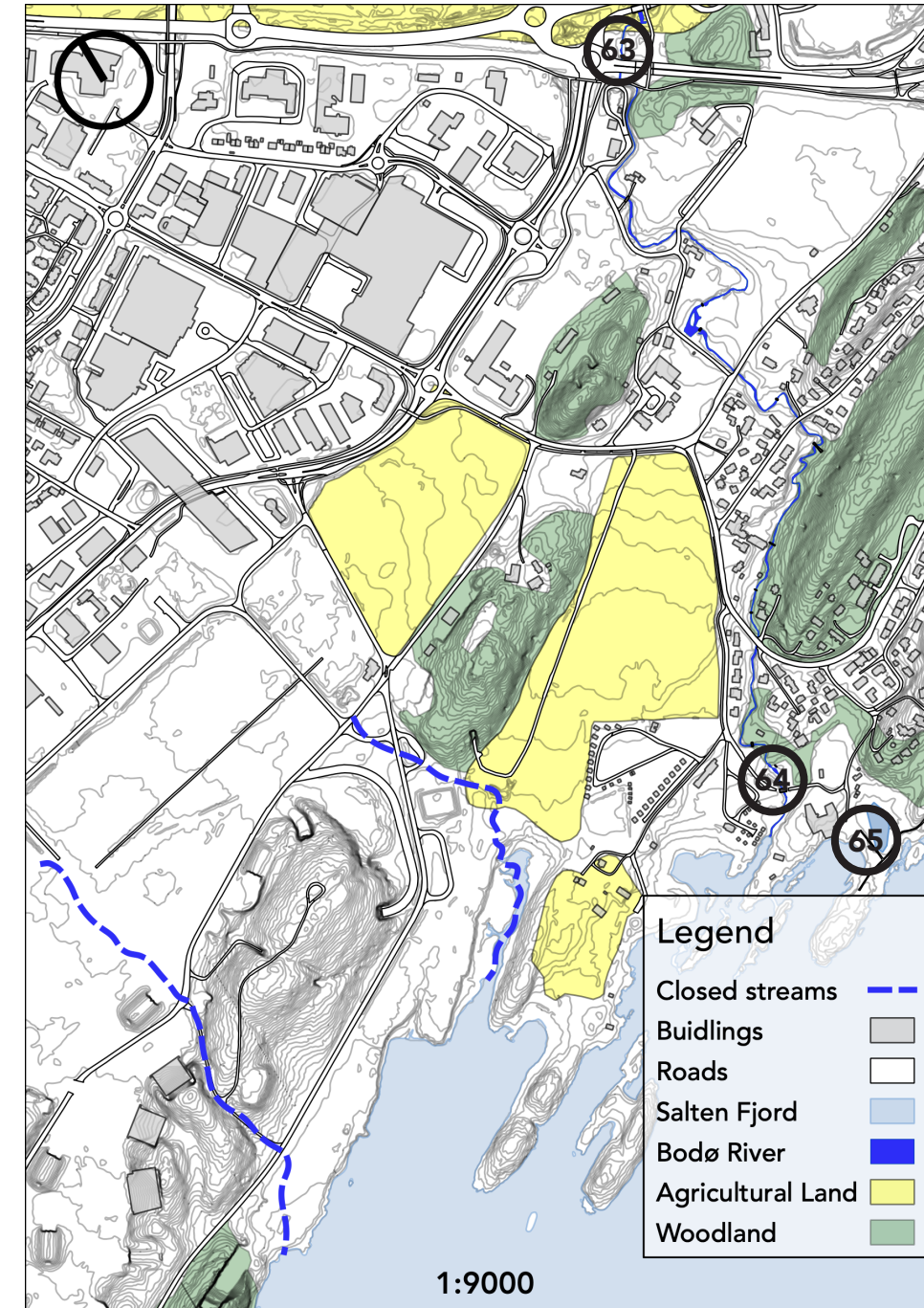


Figure 66. Map of the lower section of Bodøelva. The other two closed streams begin at the airport area, 2022. (Map data from: Geovekst, Norkart).

PEDESTRIANS, CYCLING AND HIKING PATHS

PEDESTRIANS AND CYCKLING

The city has a varied network of cycle paths with different standards. High-quality pedestrian and cycle paths have been built along the new Highway 80 from the roundabout at Stormyra, not far from City Nord. Westwards from Stormyra towards the city centre, the highway and the pedestrian/cycle path run parallel. Several wide sidewalks follow most of the main roads around the city. Along the old highway, which passes the airport, several wooden walls separate pedestrians and motorists. Hence, it is a good option in terms of safety.

HIKING TRAILS

A vast network of hiking trails runs through the urban forest. There are many hiking options, from wide dirt roads to smaller forest paths. There is a tuft park at Maskinisten, located in the innermost part of the fields at Vågøyenes. A few lighted trails make the option better for walks in the evening or at night. This is particularly important in winter when daylight hours are few. In several places along the Bodø River, wooden bridges have been built. The gravel road to Vågøyvannet follows the Bodø River up to the dam. Further inland, there are several paths towards the mountain peaks Keiservarden and Junkerfjellet.

The coastal path, which runs along the shoreline from Bodøsjøen towards Mørkved, has a high-quality standard. Visitors can enjoy a broad view of the fjord and several viewpoints. The combined layers of gravel, stone, wood and asphalt enhance the feeling of being surrounded by forest and sea. Some older boathouses stand in front of the Jektfartsmuseet and along the coast, reflecting a typical coastal culture.



Figure 67. The improved pedestrian and cycle lane at Stormyra. Bodø, 12 May, 2022.



Figure 68. The hiking trail at the end of Vågøyvannet. Bodø, 13 May, 2022.



Figure 69. The activity park at Maskinisten. Bodø, 12 May, 2022.

THE TERMINAL AND ITS SURROUNDINGS

TERMINAL

When you enter the main hall on the ground floor, you will find the departure sections to the right and arrival sections on your left. The interior space feels more massive than it looks due to the general openness of the rooms. The intense light comes from the glass roof sections. You will face the two escalators up to the 2nd floor in the middle between the departure and arrival area. The spot makes a nice view, splitting the area without leaving a physical barrier.

The building shape of the south side of the terminal forms a semicircle. With views in three directions, the potential of reusing this building reinforces the site's historical context and identity. Two of the gate-bridges on the second floor are shaped like stairwells down to the air side. Smaller aircraft usually park here, i.e., Widerøe's propeller aircraft. Both stairwells can be used for a later function, for instance, as an entrance

and exit. On the third floor are restaurants and the central kitchen, The design varies somewhat both inside and out. The roof design contains a halved circle like a flower or a star (BOARCH arkitekter, n.d.). The design of the terminal is distinct and defines its use. It has considerable potential for re-use given its large open shape. During my research and interviews, one of my informants (Informant 1, personal communication, February 16, 2022) mentioned that the Municipality would like to create a community centre in the terminal building.

NOISE SCREENS

Several works of art are mounted along the upper part of the noise screens. Glass windows are mounted under the art where the viewers can look outwards towards the runway. Although the art contributes to a pleasant view, the rusty art materials contribute to the

overall somewhat more negatively. The noise barrier was built thirty years ago explains much of the reason behind the rust. If, on the other hand, they are to be saved, one should perhaps consider doing some maintenance if this is possible.

RUNWAY SIDE

From the gate - area, you can look outwards toward the parked planes. You will quickly notice the large asphalt area, consisting of aircraft parking zones, taxiways and runways. This reflects the obvious need as airport has for paved spaced to operate. It will, when a similar, if not larger area to the southwest is paved as the new airport, be crucial to find a re-use of the paved space on the existing airport which is environmentally friendly.



Figure 70. Outside the main entrance of the terminal building. Bodø, 11 May, 2022.



Figure 71. Works of art along the noise screen. Bodø, 11 May, 2022.



Figure 72. Some rust characterizes the older works of art. Bodø, 11 May, 2022.



Figure 73. View towards the paved airside of the airport. Bodø, 11 May, 2022.

AIR TRAFFIC CONTROL TOWER

I could easily see the control tower from my hotel room on the 8th floor in the city centre. The control tower protrudes well above the other airport facilities, making it a well-known landmark. As such it can be used as a landmark in relation to witch pedestrian and others can orient themselves.

Both new and existing buildings in Bodø, including vegetation height around the airport, must be approved by Avinor. The reason is not to interfere with the sight from the control tower and thus the safety of the airport. This applies to areas to the north, where several tall buildings are located, and in the east (Bodø kommune, 2018a).

Despite my hotel having 16 floors, its roof was still lower than the plateau where the airport stands. The Municipality (Bodø kommune) has, in its plans, limited all buildings within the city centre to a height

of 52.0 meters. If this limitation is to be changed, this must occur in anticipation of new zoning plans for a new runway. This information was also explained to me by the other informant from the Municipality (Informant 2, 2022).

The tower has a 360-degree view of the entire city. Although the massive column of grey concrete the tower represents can give a sad look, the top of the tower looks majestic and remove some of the negatively associated with the overall image.

Connecting the tower building and the terminal in a new concept can strengthen the historical relations between them. The noise screen is also an option for later design ideas. The buildings is listed, so only interventions can be made within the facade.



Figure 74. Electric city bus charging in front of the control tower. Bodø, 12 May, 2022.



Figure 75. The control tower and the operations building that was finalized in the 90s. Bodø, 12 May, 2022.

RESIDENTIAL AREAS

CITY CENTRE

The largest district in Bodø is the city centre, named “Sentrum”. This had 11,384 inhabitants in 2017. Most of the city’s taller buildings are located here. The densification of the district has been ongoing and will, according to the municipality (2022f), continue until further notice. The districts of “Østbyen” and “Vestbyen” are also a part of the City Centre district. Unfortunately, there are no official figures, or numbers on how many people live in these two areas.

ØSTBYEN

Østbyen is located between the city centre and the airport. An unofficial source claims the area is 1.2 square kilometres. An interesting note is how similar the houses are designed. Wood is the typical building material for homes. Most houses have three floors, sometimes four with attics. Furthermore, it can consist of a single home or four separate apartments, including balconies and a modest private garden around the house. Aspmyra stadium, which belongs to the city’s football team Bodø/Glimt, is in the middle of “Østbyen”. There are green areas in “Østbyen”, mainly between the houses. From my walk through the district, I share the Municipality’s vision (NOU 2020:15) that the potential is significant for several of the green areas. Rensåsparken has received several suggestions from the Municipality, such as frisbee

golf, toboggan runs and events. The other green spaces are also mentioned in the Municipality’s action plan for which opportunities can be utilised.

VESTBYEN

“Vestbyen” is located west of the city centre, with similar constructions as in “Østbyen”. The dominant construction material is wood. However, newer and taller apartment blocks were built along the shoreline. Along the sea, terraces have been constructed with benches where passers-by and residents can enjoy the sea and the landscape. Unlike “Østbyen”, this district has somewhat shorter distances between its green areas. On the other hand, with a longer distance to

the city forests, it is sensible to invest more in the green areas in the district. The Municipality argues in favour of this in their program (NOU 2020:15).

MØRKVED

The district of Mørkved has, with the other nearby areas Hunstad and Støver, a population number of approx. 10.000. It is dominated by several educational institutions i.e., Nord University, The Police Academy – campus Bodø and Bodin High School. As a result of the distance away from the city centre, Mørkved has been defined as a sub-urb. Most of the students on both the university and police academy lives here (Bodø kommune, 2022f; Dalfest et al., 2022a).

SUMMARY – CHAPTER 4

- Bodø is surrounded by highly diverse and attractive nature.
- There are a number of rivers and streams inside the Municipality’s area, contributing to the quality of the landscape.
- The city of Bodø is separated in distinct districts, the centre, “Østbyen” and “Vestbyen”.
- There are some green spaces inside the city.
- Mørkved is a suburb of Bodø.
- The terminal building is a distinct construction, built for a highly specialized use. It is, however, quite open with considerable potential for re-use.
- The control tower is even more distinct. It has its viewpoint as its fundamental advantages.
- The paved area of the current airport is massive and must be re-used in a manner consistent with the Municipality’s visions.

*5 - APPROACHES AND
PRINCIPLES*

MAIN CONCEPT

This thesis presents a proposal for the reuse of the terminal building, the control tower and the adjacent outdoor area. The proposal is intended to address what I consider to be the main challenges in the long-term development of Bodø. This is how to integrate the suburb of Mørkved in general and Nord University's campus in particular better with the city.

By doing this, Bodø will be strengthened by the "creative class" represented by the faculty and students at Nord University. Students will, to a large extent than today, be tempted to take up residents and start businesses in Bodø when they graduate. This, in terms, will contribute both residents and jobs towards the city's long-term goals.

The manner in which my proposals will contribute to this is by transforming the terminal building and control tower to a semi-public space which can serve as a "connection" between the residents of Bodø and its commercial sector and the students at Nord University.

For this to work as intended, better and more modern communication solutions must be developed between Mørkved, the terminal building and the city. Further, the whole Hernes area must be developed by the Municipality to an attractive new residential area incorporating the blue-green concept, sustainability and compact city ideals which the Municipality already has based its long-term plans on.

In my proposals, I wish to transform the terminal building, the control tower and the outdoor area surrounding these in line with the Municipality's blue-green initiative and visions.

I propose to establish a business incubator and a science visitation centre both inside and outside the terminal building for short-term and long-term use. Such institutions can supplement the Municipality's desire for a community centre in the building. Several green corridors for pedestrian and cycle paths are proposed to be established on the paved area of the airport. These must be connected to the terminal building and the control tower.

Drainage lines (Kommunekart, 2022, Appendix 1) can be collected and further, smaller streams formed to contribute to stormwater management and a more robust blue-green structure.

The establishment of several social meeting points is proposed in the outdoor area between the terminal building and the control tower. There can be seating such as benches and tables. To provide a suitable meeting point for relevant target groups, temporary office pods and barracks of various sizes can be deployed at these meeting points along the open streams and corridors. Being sheltered from the weather and with access to enough light, the proposal can help draw residents out more, for instance, during the winter.

Based on research material from fieldwork, interviews and relevant literature studies, my proposal for the control tower is to convert it into a viewing tower where several information signs will be established in all directions. In this way, visitors can learn about the airport area's history, current use and future development plans.

To improve the route between Mørkved and the airport, an upgrade of Olav 5 gate, is proposed. It is suggested to include the road in the project "Bypakke Bodø" initiated by the Norwegian Road Administration.

A separate public transport or carpool lane is proposed for buses, taxis and electric cars. This can provide a faster commuting route between the city and terminal building and Mørkved. Inspired by the extended Highway 80 at Stormyra, where the motorway and pedestrian/cycleway are kept separate, this is also proposed along Olav 5 gate. This can help to make the journey safer for slow road users and motorists.

BRAINSTORMING, AND SKETCHING

Through brainstorming, four hand-drawn sketches were produced. These are based on physical and procedural principles and relevant empirical studies. In this way, the sketches helped shape ideas for the final proposals.

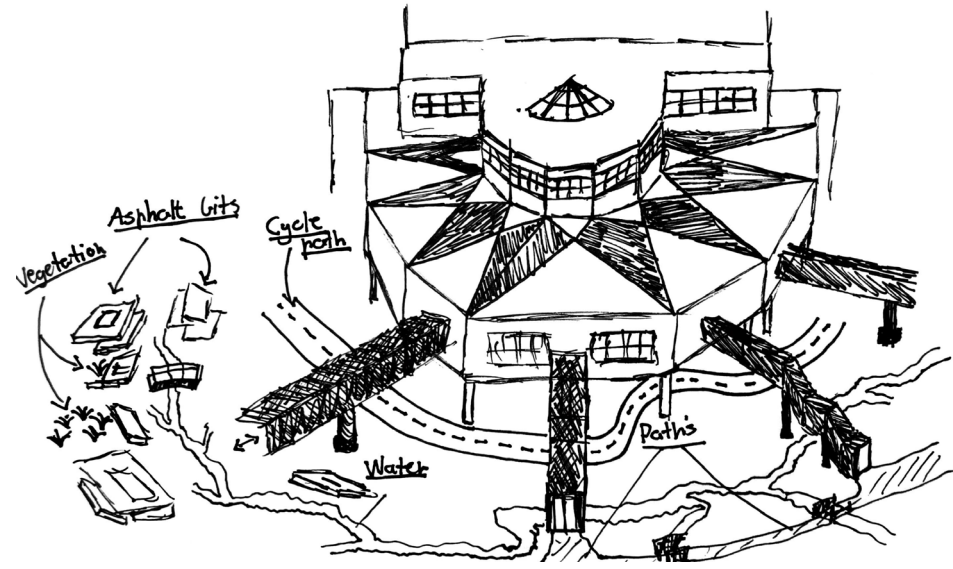


Figure 76. Sketch of the southern area of the terminal within a blue-green structure.

The first sketch (see figure 76) illustrates an example through a blue-green structure. The inspiration is taken from Old Nidda Airfield.

- Stormwater can be collected in smaller streams directed across the current terminal and runway area to the Salten fjord.
- Parts of the asphalt are removed, so that water is more easily channeled through a lower surface
- Removed asphalt layers can be reused for new

purposes, i.e. bridges, seating or tables that form a historical context for the current airport.

- Vegetation has the opportunity to return when the asphalt layers are removed.
- Today's ground service road can be turned into a cycle path.
- Jet bridges can be turned into access corridors into the terminal.
-

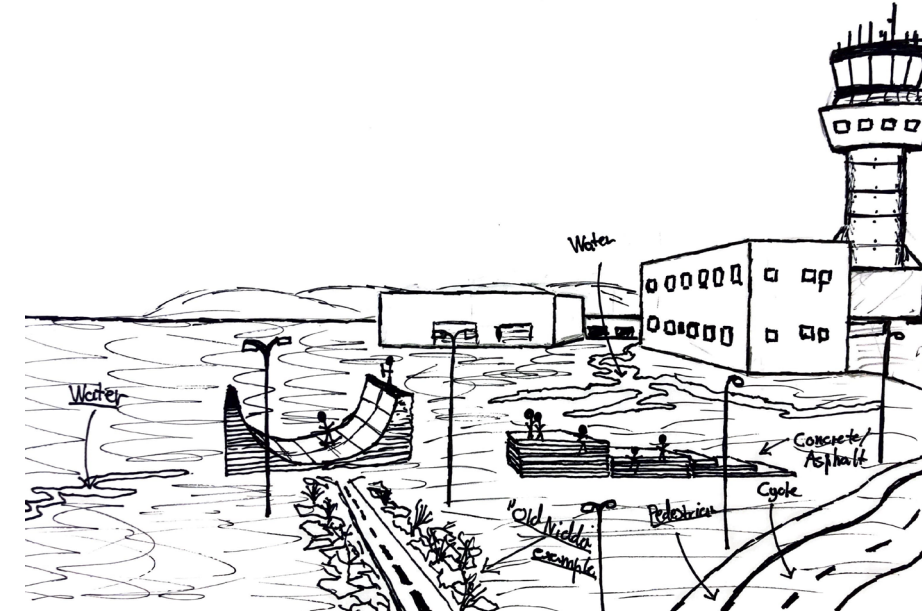


Figure 77. Sketch of the outdoor area between the control tower and the terminal building.

The second sketch (see figure 77) further illustrates a blue-green structure and the transformation of Old Nidda Airfield.

- Asphalt slabs are placed on top of each other and form a small viewing point.
- A skate ramp has been designed from the remaining asphalt material.
- The cycle track connects to the other major cycle paths in and around Hernes.
- The drainage lines can also be opened for stormwater management and connected to the already adopted blue-green structure.

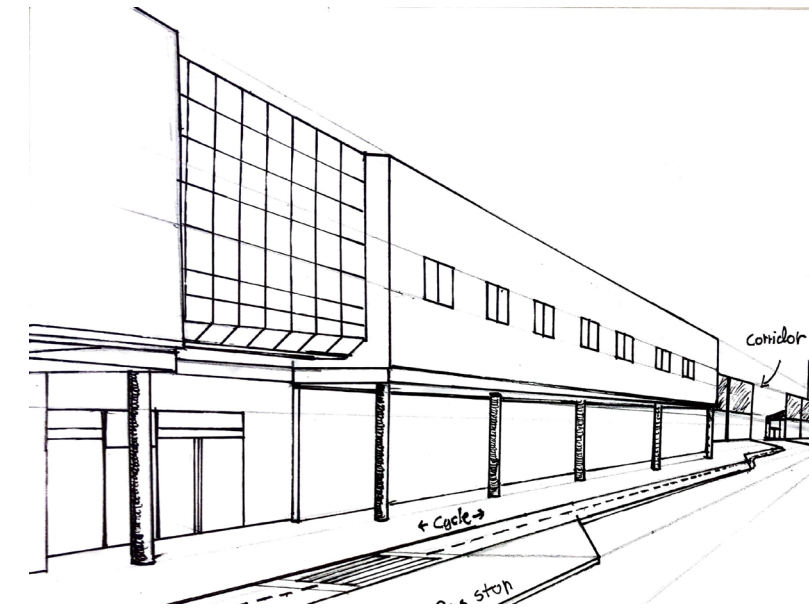


Figure 78. Sketch of the main entrance area to the terminal building. The noise screen and the tower in the background.

The third sketch (see figure 78) provides a perspective of the terminal building, with the noise screen and the control tower in the background. The Municipality wants, as a compromise, to remove some of the concrete walls and leave the glass walls standing (Informant 1, 2022).

- The noise screen creates a traffic corridor. This can be connected to the specific centre axis for pedestrian and cycle paths.
- An outlined pedestrian and cycle path runs parallel to the road. Only public transport and carpooling can be permitted to use the road.
- The corridors are separated to avoid conflict and accidents between cars and cyclists.
- Bus stop at the entrance for easier access.

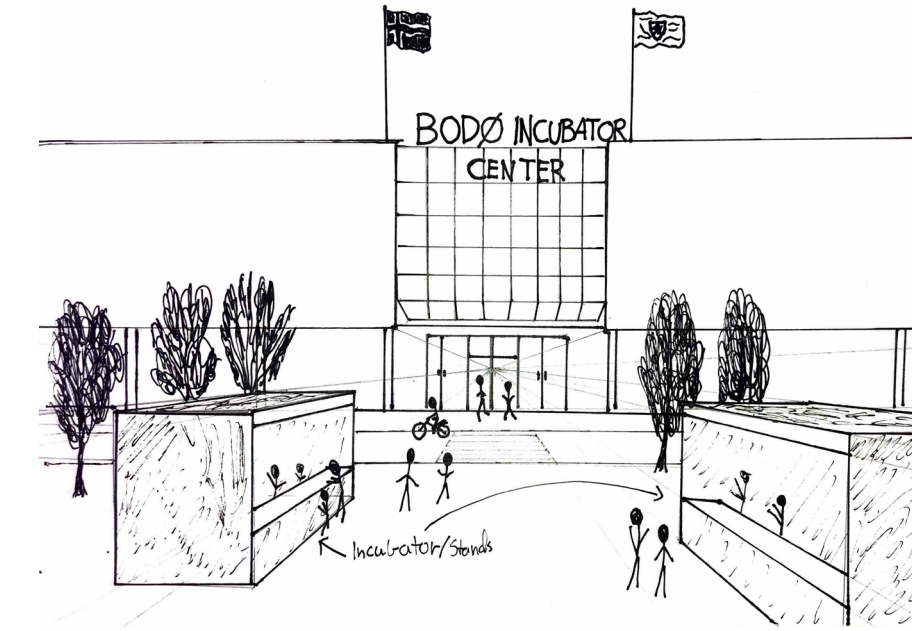


Figure 79. "Sketch of the front side of the terminal entrance with temporary stalls.

The last sketch (see figure 79) shows a perspective towards the entrance area seen from the north. Inspiration from De Ceuvél.

- Office-pods has been deployed along the corridor between Olav 5 gate and the terminal.
- The road closest to the terminal has been converted into a cycle path.

PRINCIPLES - PROCESS

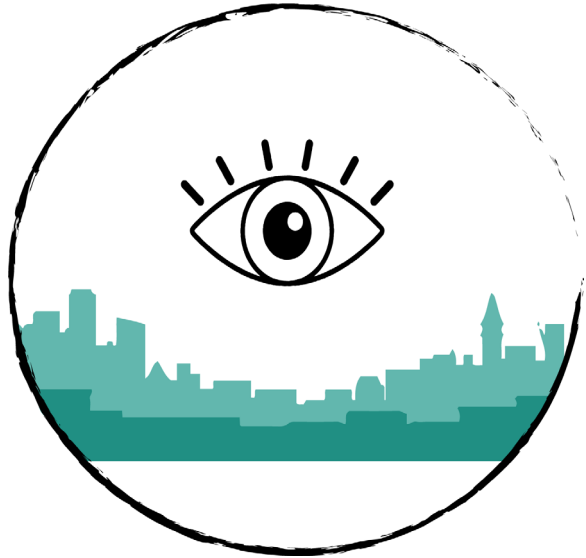
The proposals for the reuse of the terminal, tower and adjacent outdoor area is developed based on the theoretical principles referred to in Chapter 3. As an essential tool, these principles ensure that final proposals are consistent with relevant theory, description of the area and the Municipality's ambitions for future urban development.

Procedural principles are presented based on the following:

- Relevant theory
- Site analysis
- Strengths and weaknesses
- Municipal sub-plans
- The sustainability goals

Physical principles are presented based on the following:

- Communication
- Site analysis
- Compact urban development
- Municipal sub-plans
- Temporary use



STRONG IDENTITY

The identity in Bodø is strong. The city has often been referred to as "the aviation city in the north". The football team Bodø/Glimt and their achievements in recent years contribute to strengthening the city's identity as well. The new district and the current airport construction should be able to create a new, or continue an overall strong identity, alongside the existing factors for the entire Municipality.



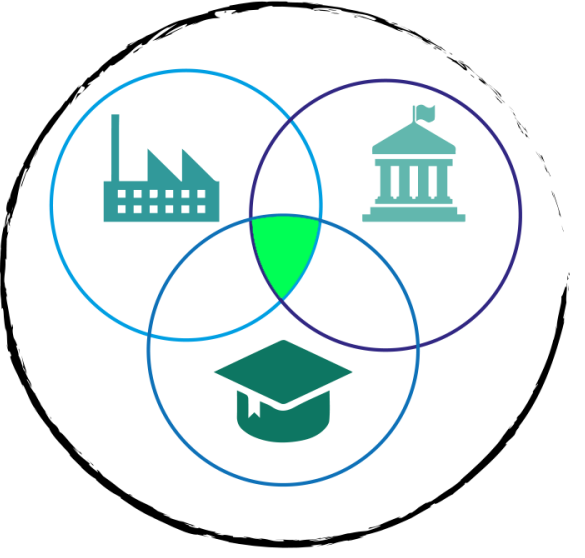
REGIONAL GROWTH

Although Bodø is one of the most important administrative and communication hubs in Northern Norway, regional growth will always be desirable. The Salten region has several vital resources, such as agriculture and fisheries, industry, hydropower and tourism. Strengthening knowledge-based development will contribute to regional growth. For instance, improving internships with close cooperation from the university will be central. In addition, the Municipality must include future or current students in their development plans. This way, Bodø will be an attractive place for education or employment. Further, opportunities to attract other significant institutions will strengthen jobs and growth.



PROMOTE CIRCULARITY

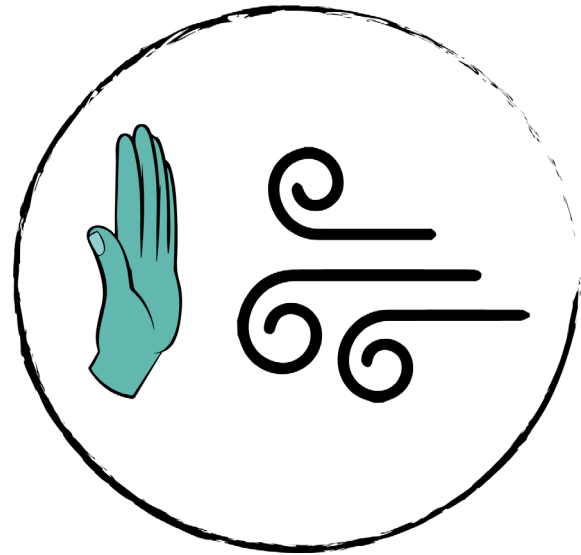
The measures of circular economy are crucial to reaching the sustainable goals. The possibility of re-using most of the material at the airport, especially concrete, is essential to set a good example. Thinking re-use, not use-and-throw, is vital in the global climate policy, especially for Bodø and their vision of zero-emission regarding the new district and future urban development.



COOPERATION

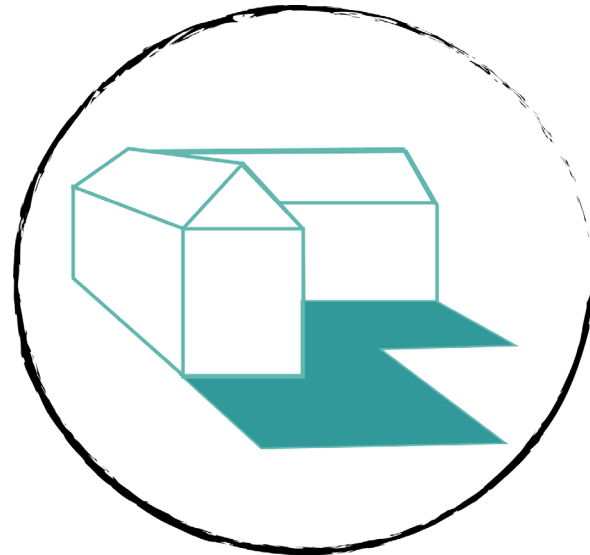
For Bodø, it will be crucial to strengthen the collaboration between Nord University, private and public businesses and local authorities. Following a close interaction, such as the triple helix, a combined education centre, and business incubator, will be a meeting point where the three parties can collaborate. The present airport has a unique location in the middle of the Bodø peninsula. Therefore, the old national highway can become an improved connection route to Mørkved and the Nord University campus.

PRINCIPLES - PHYSICAL



SHELTER FROM THE WIND

Bodø is known as a windy area. Shielding from the wind will be necessary for residents to be able to spend more time outdoors. Landforms can function as lee areas, but Hernes is relatively flat. Natural heights only exist south of the runway. On the other hand, the placement of buildings or vegetation can act as windshields to prevent the wind from accessing those areas.



INSIDE/OUTSIDE

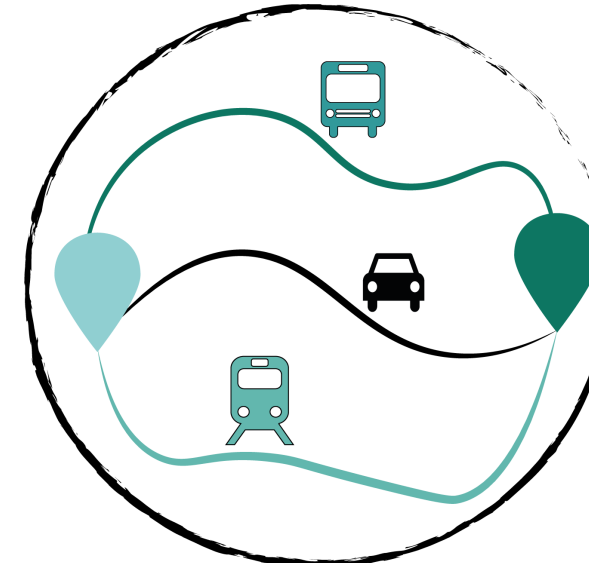
Both the terminal and control tower can provide more offers indoors. However, linking the outdoor areas will be just as important. More people would like to visit the buildings in an urban space if the surrounding space is attractive. Thus, streets will be more open rather than closed and empty.



LIGHT

Polar nights occur in Bodø for a short period during the winter. Significant outdoor lighting will make it safer to travel in traffic and get more people to get out.

There should not be too much light where there is a risk of light pollution. During the winter, snow can give a high albedo that reflects sun- or moonlight. On days with clear skies, areas will become more visual to the human eye.



IMPROVE COMMUNICATION

It is necessary to remove barriers that prevent inhabitants from the suburbs from accessing Bodø.

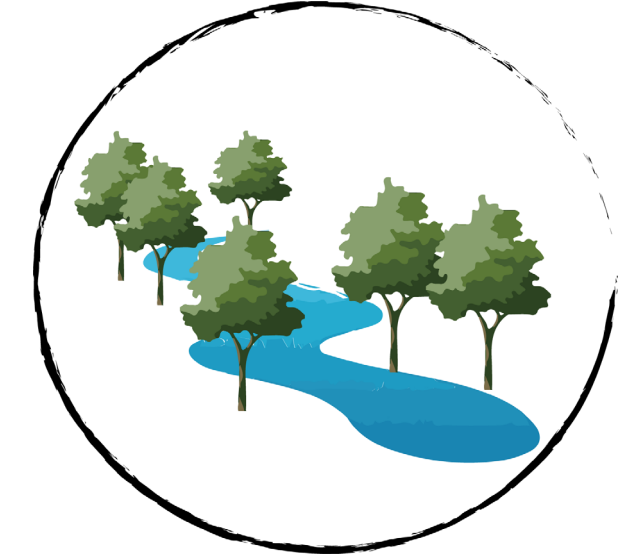
Improving communication will be vital to attracting more of the students at Mørkved to the city. Public transport, especially the number of departures, must be enhanced. Further, improved cycle paths must be developed and connected with the remaining cycle network. Bodø municipality and the university must therefore create closer cooperation.



CREATIVE CENTER

Both the terminal building and control tower are iconic buildings. Therefore, both buildings should be transformed into something through which the whole city will benefit significantly, typically a creative centre, consisting of education, private and public business, and local authorities.

Here students can encounter future workplaces and use their creative ideas for ground-breaking innovation where businesses and authorities can participate and guide projects. Other functions that have the purpose of bringing more residents together, i.e., community centre, should also be taken into consideration.



BLUE GREEN STRUCTURE

Heavy rainfall creates a larger volume of stormwater. Available space to enhance blue-green infrastructure should be prioritized, which Bodø municipality has mapped in their municipal plans.

So far, it is agreed that the blue-green corridors should be created across the airport acreage. However, there is always room for more! The drainage lines under the asphalt surfaces should be opened to a greater extent, so that surface water flows along them to larger rivers and streams. Further, it will create more harmony for people moving outside and along these water streams.

SUMMARY – CHAPTER 5

- The terminal building can be re-used as a combined location for a business incubator, a science center and a community center.
-
- The control tower can be developed
- The outdoor area adjacent to the buildings can be developed to a blue-green area.
- Communication along the east/west axis between the city and Mørkved must be improved.
- The development principles, notably, the blue-green and compact city, sustainability and circular economy must guide the development.

6 - PROPOSALS

MY PROPOSALS

GENERAL

The terminal building, the control tower with the administrative building at its base and the outdoor area adjacent to these buildings and structures will have to be put to new use as part of the overall transformation of the existing airport to a new, vibrant district in Bodø following the opening of the new airport.

The full development of the new district will require the building of a large amount of new residential homes, commercial buildings, etc. This will take time given the size of the investment and the work required. The Municipality's stated goal of adding 20,000 inhabitants to the population by 2030, the majority of whom must live and work at Hernes, seems very optimistic in this context.

However, the terminal building and the control tower are existing buildings/structures and can therefore be transformed to new use in a much shorter timeframe and at a much lower cost. This process and the new use to which these structures are put can therefore be a marker and a catalyst for the larger process.

It is furthermore important to use the opportunity these buildings represent to create a "connector" between the city, its residents and its commercial life on the one hand and the faculty and students at Nord University on the other. The latter groups are typically part of the "creative class" and can thus contribute to a successful completion of the new district and, more

broadly, to the development of Bodø in line with the long term plans of the Municipality. This effect will be strengthened if the Municipality includes attractive student accommodations in the new district and, more importantly, improve public communication between Mørkved, the new district and the city.

The proposals I make fall into 3 parts. These are:

- proposals for various new uses of the terminal building
- a proposal for a reuse of the control tower.
- a proposal for a transformation and upgrade of the outdoor area surrounding these structures.

THE TERMINAL BUILDING

My proposals for the reuse of the terminal building and the administrative building at the base of the control tower are the following:

- room for a business incubator;
- room for a science and lecture centre; and
- a community centre.

The community centre proposal is in line with the Municipality's stated preference. It is not clear from the Municipal plans exactly what services should be included here, but it is evident that a new district with 20,000 inhabitants will require a lot of communal services which easily can be located in these buildings. This, however, will only be relevant when people start to move into the new district in earnest.

There will thus be a long period of time before communal services will require a lot of space.

My proposal for a business incubator is based on the need both of creating a stronger connection between the students at Nord University and the city and the need to create new jobs. For these reasons, the financing of this idea should be provided by the Municipality with local businesses pitching in on specific projects.

The science centre idea is based on the need to draw Bodø's inhabitants closer to the University by giving the departments there a chance of presenting their research. With ready rooms and lecturing facilities it can also be an arena where the population can continue its education and, perhaps, participate in the more practical side of the students' education.

THE CONTROL TOWER

The options available for a reuse of the control tower are, due to its construction, limited.

The obvious solution is to open it up for the public as an attractive viewing platform. To make people use it, the surrounding areas need to be attractive so that the tower is either a goal point to start exploring the area from or a good point to end this.

THE OUTDOOR AREA

The outdoor area surrounding the terminal building and the control tower should be incorporated into the overall blue green initiative which the Municipality has resolved to implement in the overall development of Bodø. Green corridors will link the terminal building, the control tower and road facilities more closely with the Salten fjord shoreline. Several meeting places with benches will be available for everyone. Surface water will be collected in small, open streams and carried across the current paved area of the airport.

I will, in the following, concentrate on my proposals for a transformation and upgrading of the outdoor areas on the assumption that the terminal building and the control tower are reused in line with my ideas for these.

These proposals will be discussed within four focus areas:

- Road and transport systems
- Blue-Green zone
- Northern outdoor area
- Urban space

Final proposals will be presented through 5 sections and 3 3D-illustrations. The ideas are meant as input in the ongoing planning process in the Municipality. Furthermore, these proposals will be subject to a design process.

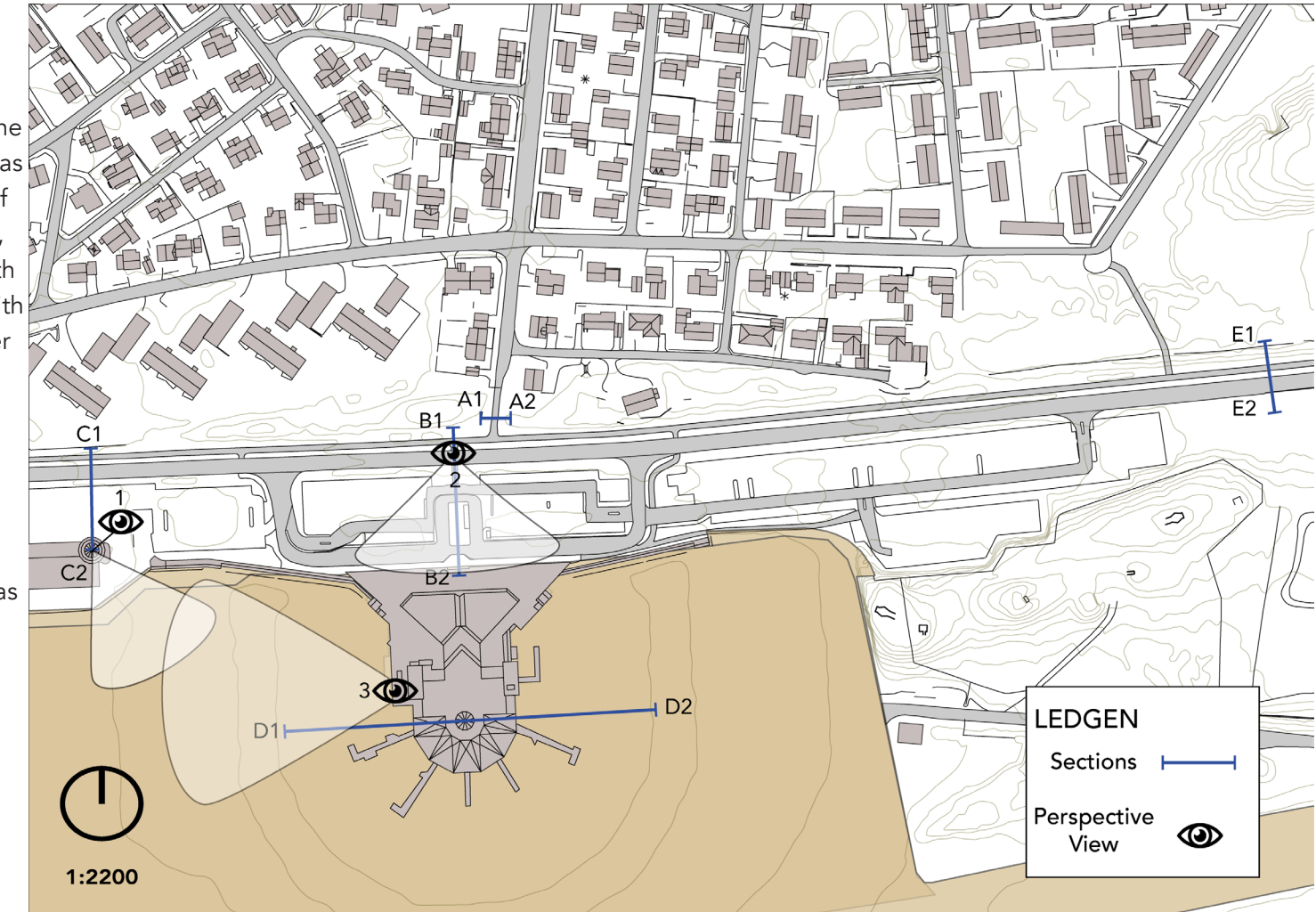


Figure 80. Overview map with section and perspectives for design proposals, 2022. (Map data from: Geovekst).

ROAD AND TRANSPORT SYSTEMS

An expanded and more efficient public transport system should make the area safer for light road users, reduce travel time and strengthen urban life. In my proposal, the primary connection for busses will run along Olav 5 gate, where a separate public transport lane will be developed. During rush hours, busses can then arrive faster, which helps to increase the number of passengers both in and outside the inner city.

Today's cycle path along the northern part of Olav 5 gate is upgraded. The aim is to make the bicycle a better means of transport than a private car. The cycle path is kept separate from the main road to minimise the chance of traffic accidents.

In order to reduce the risk of collisions between cyclists and pedestrians, the footpath should be construed slightly higher than the cycle path. Surplus materials from the airport's asphalt can be used to create this height. This should contribute to the reuse of waste materials.

Hernesveien, which runs north towards the city centre from the airport, shall receive a similar upgrade with new pedestrian and cycle paths. Currently, cars are not allowed to use the first part of this. Due to its size and standard, this part should remain as a car-free road.

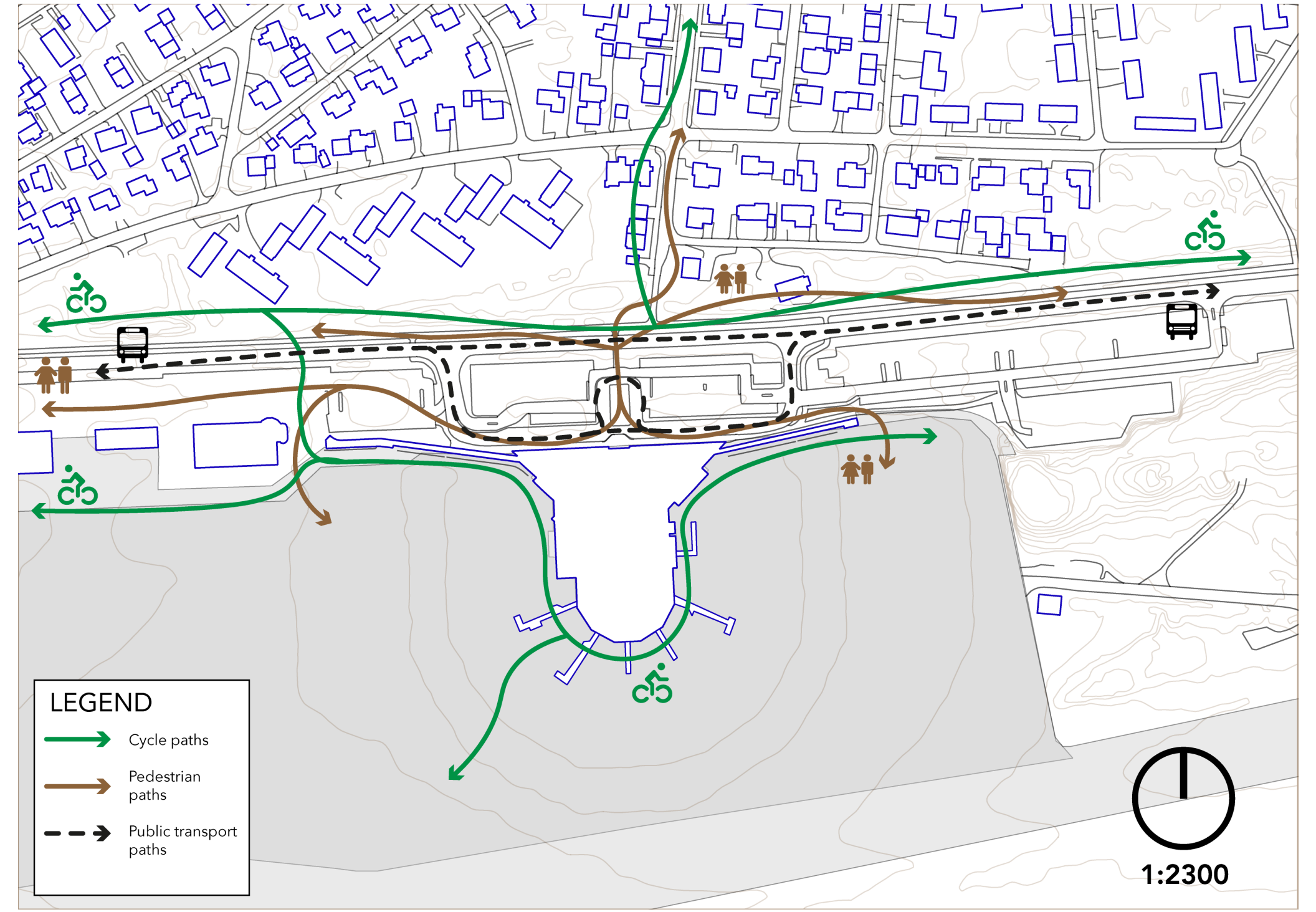
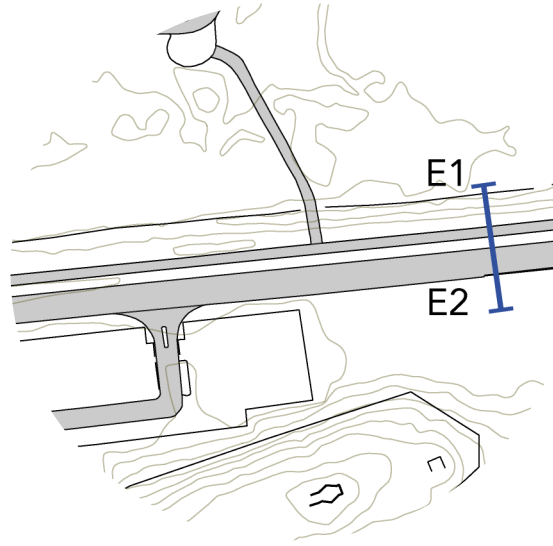
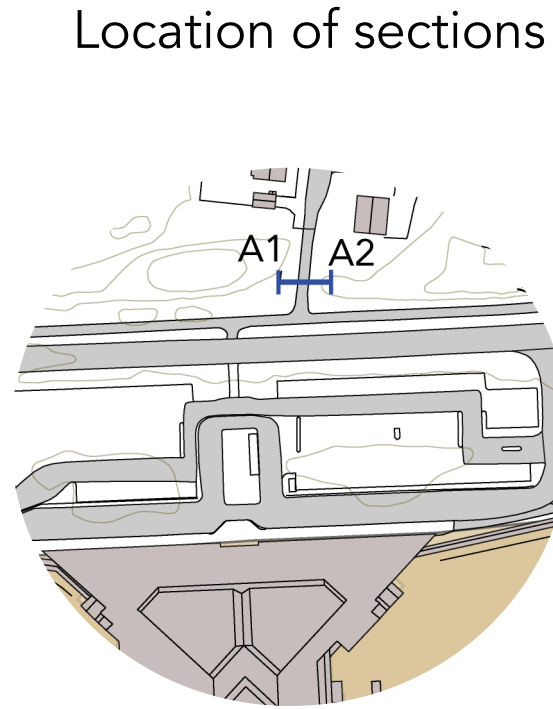


Figure 81. Map of proposed measures for roads and transport options around the terminal area, 2022. (Map data from: Geovekst).

"MORE BUSS - LESS CARS"

Section A: Improved accessibility for walking and bicycling

The footpath is separated from the cycle path. Thus, potential conflicts between cyclists and pedestrians are minimised. The centre line along the cycle lane will improve visibility.



Section E: Improved accessibility for public transportation, walking and bicycling.

The footpath is separated from the cycle path. Eastbound on Olav 5 gate, a separate public transport lane is being established. Only one lane is proposed because it requires less land and reduces costs. The separation between soft road users and motorists will create safer travel routes.

Current situation



Figure 82. The current landscape and situation of "Section A" at the beginning of Hernesveien from Olav 5 gate, 2022. (Screenshot from Google Maps).



Figure 83. The current landscape and situation of "Section E" eastwards on Olav 5 gate, 2022. (Screenshot from Google Maps).

Proposed situation

ILLUSTRATIVE SECTION - HERNESVEIEN

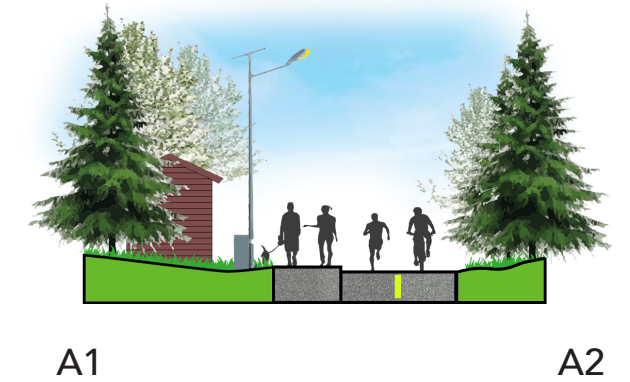


Figure 84. Section A.

ILLUSTRATIVE SECTION - OLAV 5 GATE (EAST)

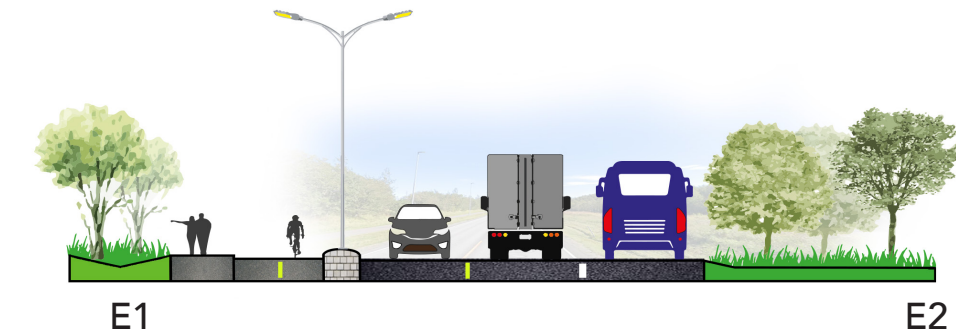


Figure 85. Section E.

Section C: Improved accessibility to the control tower

The bus stop provides improved access to the control tower and the outdoor area west of the terminal building. As a result of the new public transport lane, some parking spaces will disappear between the tower and the main road. Streetlights on both sides improves visibility at night.

Measures - Short term:

To make the former terminal building a more integrated part of the city, there measures could be taken on short - term:

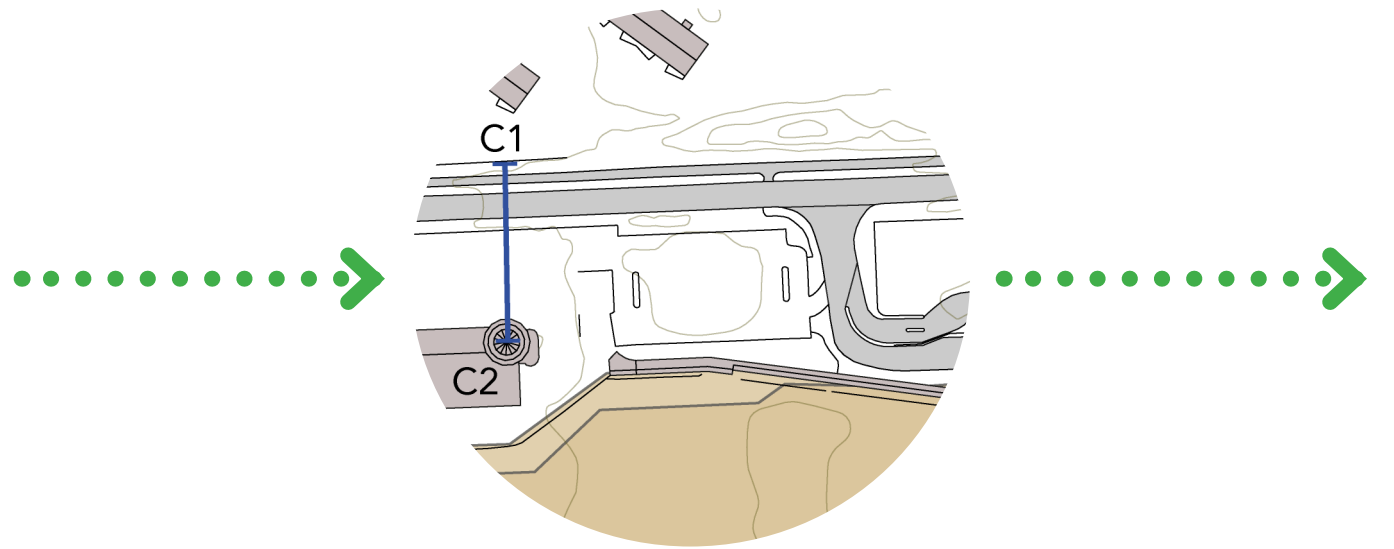
- Trees
- Light
- Stalls alongside the tower building
- Bus stops
- Stalls with coffee shops

Measures - Long term:

On long - term, the goal is that the former terminal building and it's surroundings is the heart of the area, and the following measures can be used to ensure this functionality:

- Activity parks
- Safer road connections
- Green corridors
- Pedestrian and cycle network

Location of sections



Current situation

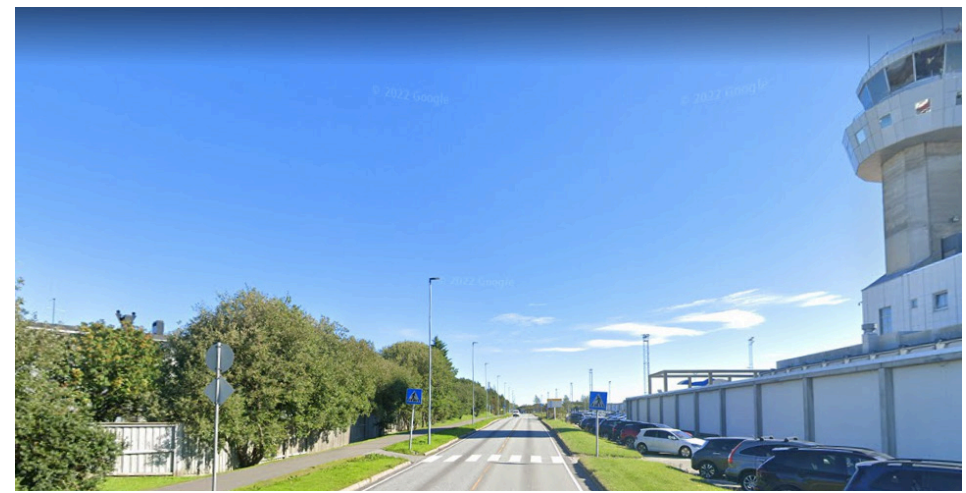


Figure 86. The current landscape and situation of "Section C" near the control tower and Olav 5 gate, 2022 (Screenshot from Google Maps).

Proposed situation

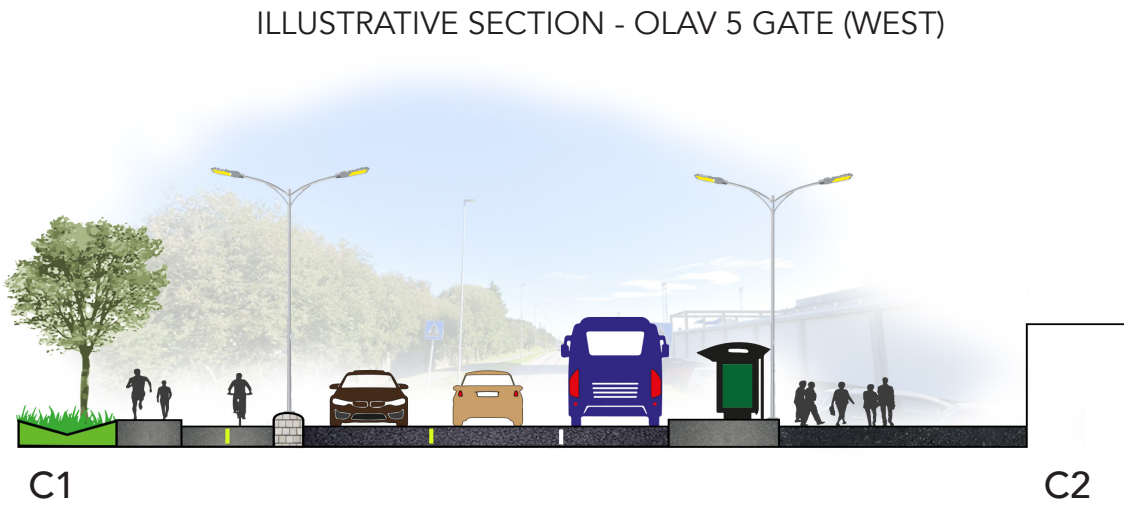


Figure 87. Section E.



Relevant principles for this transformation:

Communication: Facilities that promote sustainable means of transportation.

Cooperation: Public measures promote the use of the premises for private interest and academia.

Light: Increased and more differentiated lightning.

Circularity: Re-use of existing construction with minimum of alteration.

Possible advantages for Bodø:

- Improved communication with less distance.
- More public offers.
- Connect the city centre closer to the terminal, tower and the new district.
- Safer travel routes.
- Improved public transport.
- More indoor and outdoor activities
- Better facilities for walking and cycling

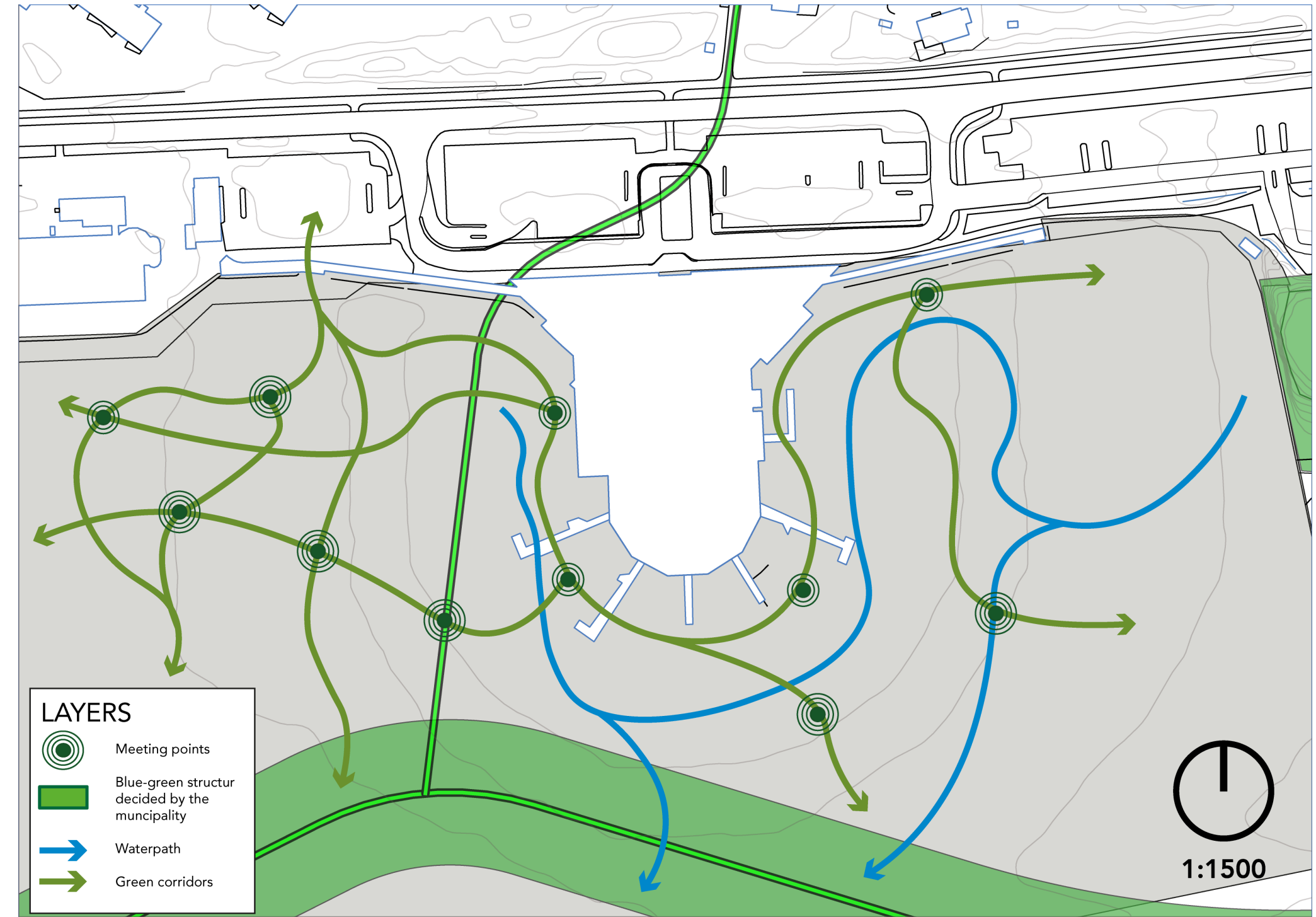
BLUE-GREEN ZONE

Green corridors can help to create a more pleasant urban space with shorter distances to recreational areas. The proposal will contribute to a positive mental health among residents by preventing stress. As the corridors are numerous and spread out in several directions, they will improve walkability in the airport area. This, however, will only reach its full potential in the long term when the new district is completed.

It is proposed, in a short-term perspective, to deploy more temporary office pods and activity offers as social meeting points. This helps to link "the creative class" closer to the terminal building, both inside and outside. Instead of forming new substrates for the corridors, the current asphalt should be used and thus be reused and preserved. Furthermore, the material can be used to create new seats by stacking them horizontally or set up vertically for temporary "windshields" around the meeting places.

Taking care of parts of the asphalt provides a history of the area's former function and thus maintains the identity of the airport area and Bodø as the "airport city"

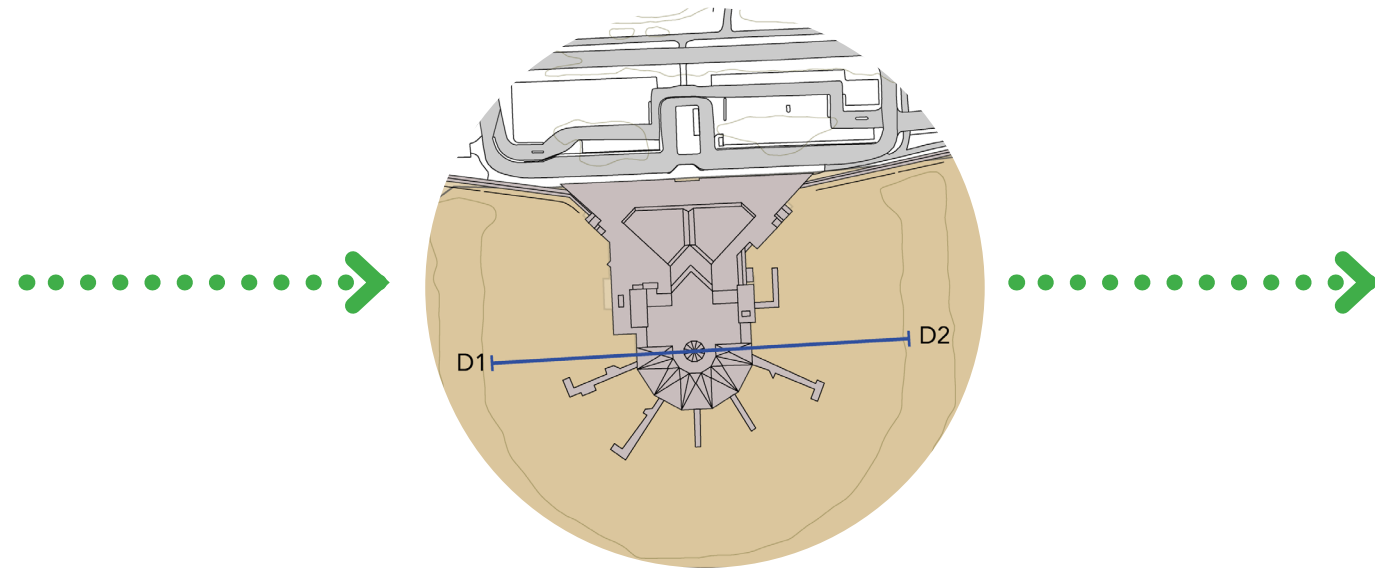
Figure 88. Map of the long-term established blue-green area outside the terminal building, 2022. (Map data from: Geovekst, Norkart).



"THE CREATIVE TERMINAL"

Section D: A Blue-green structure with improved accessibility for walking, bicycling along with a new creative center.

Two streams will collect stormwater. Seating options made of old asphalt layers, temporary office pods deployed on meeting points, and new corridors for pedestrian and cycling use will make it easy and interesting to use the area.



Measures - Short term:

Transforming the outdoor area as a more integrated part of the city, by the following short-term measures:

- Planting trees
- Open streams to function as stormwater management tools
- Skate- and roller skating rink
- Benches
- Improved lighting

Measures - Long term:

In the longer term, the goal will be to transform the area permanently. The following measures can be applied to ensure this:

- Office pods
- Basketball court
- Activity parks - Tufte park
- Inside/Outside services
- Cultural scenes

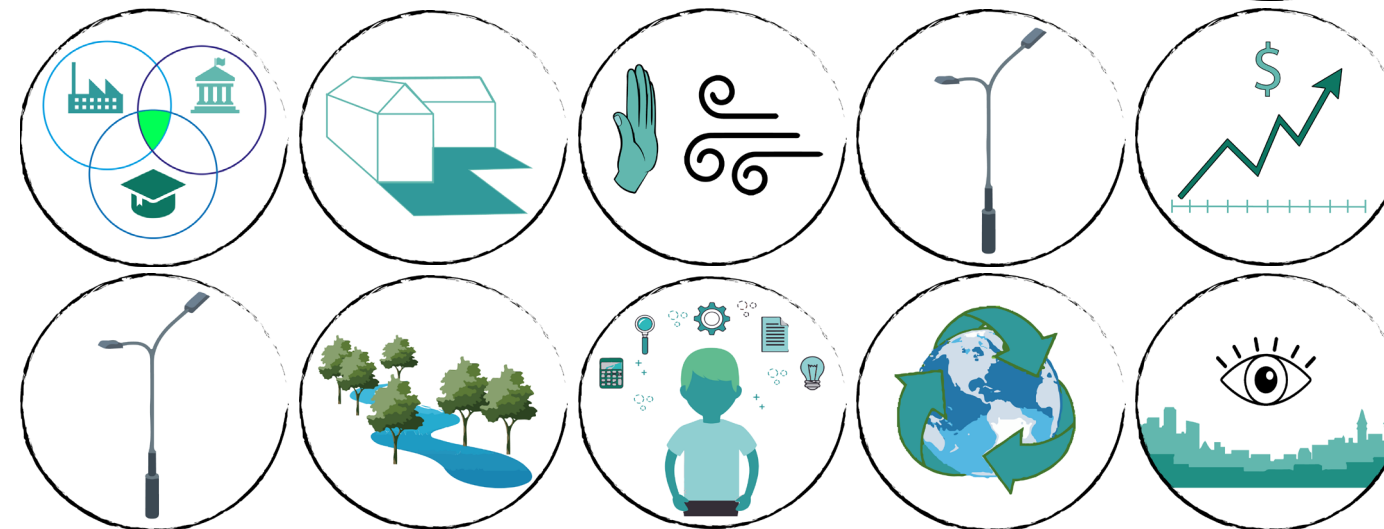
Possible advantages for Bodø:

- More options available to the public
- Short distances between offers
- Reuse of existing materials
- A blue-green beginning
- A stronger inclusion of everyone
- Arena of future economic growth

Current situation



Figure 89. The current landscape and activity at "Section D" - the terminal area, 2022. (Screenshot from Google Maps)-



Proposed situation

ILLUSTRATIVE SECTION - THE OUTDOOR AREA

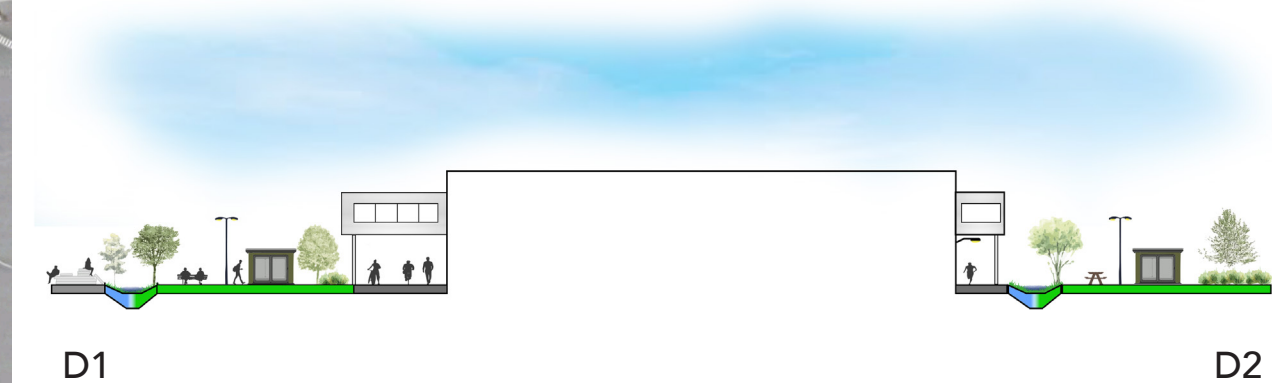


Figure 90. Section E.

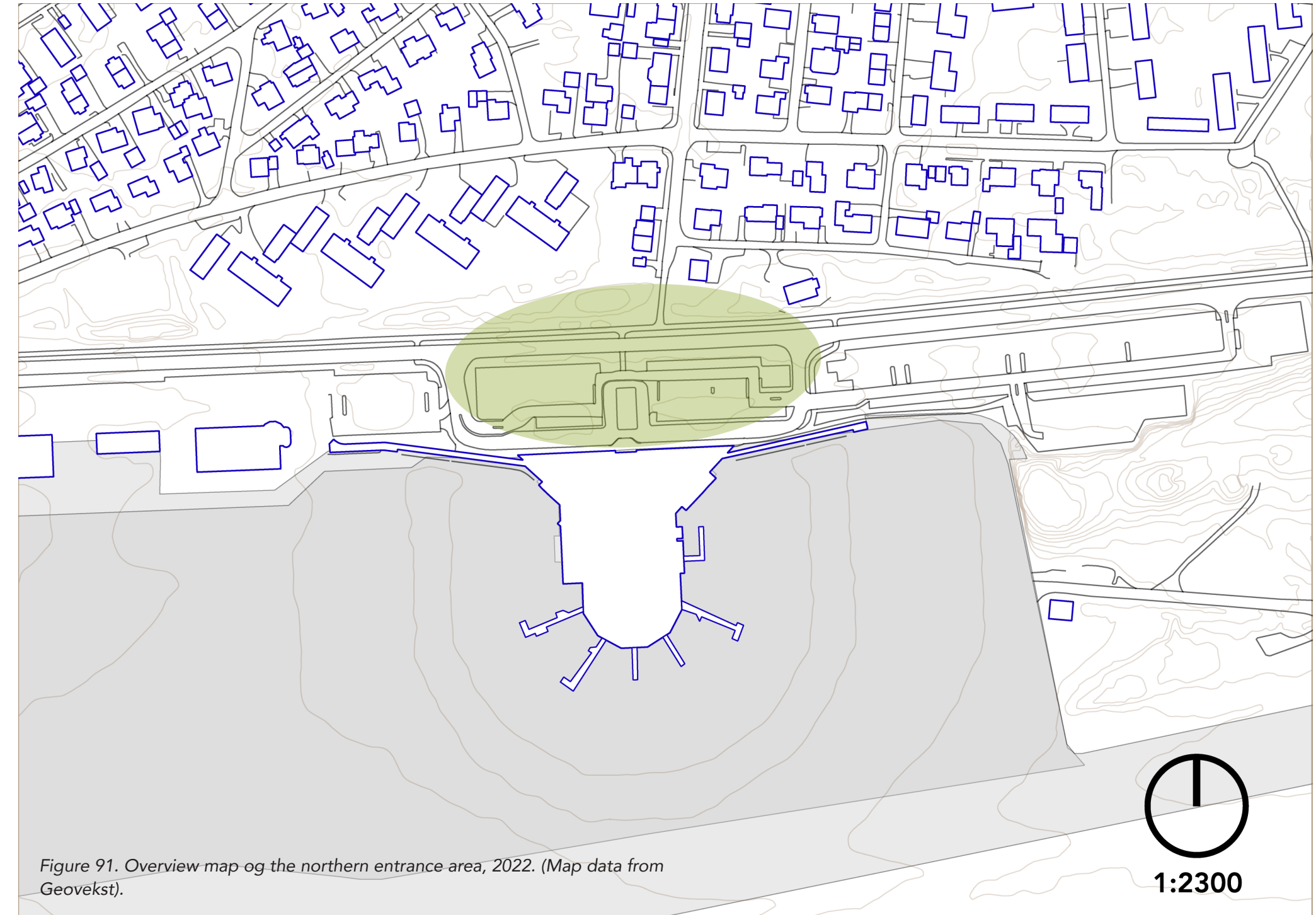
Relevant principles for this transformation:

- **Communication:** Facilities that promote sustainable means of transportation.
- **Cooperation:** Public measures promote the use of the premises for private interest and academia.
- **Light:** Increased and more differentiated lighting.
- **Circularity:** Re-use of existing construction with minimum of alteration.
- **Inside/Outside:** Combined offers inside the terminal and outside at the meeting points
- **Strong Identity:** Preserves more of the airport's history
- **Regional Growth:** Arena to promote innovation, start-ups, or business.
- **Creative center:** Establishing business incubators
- **Blue-green structure:** Stormwater management
- **Shelter from the wind:** Sheets of old asphalt as "windscreens". Shelter inside both terminal and office cushions

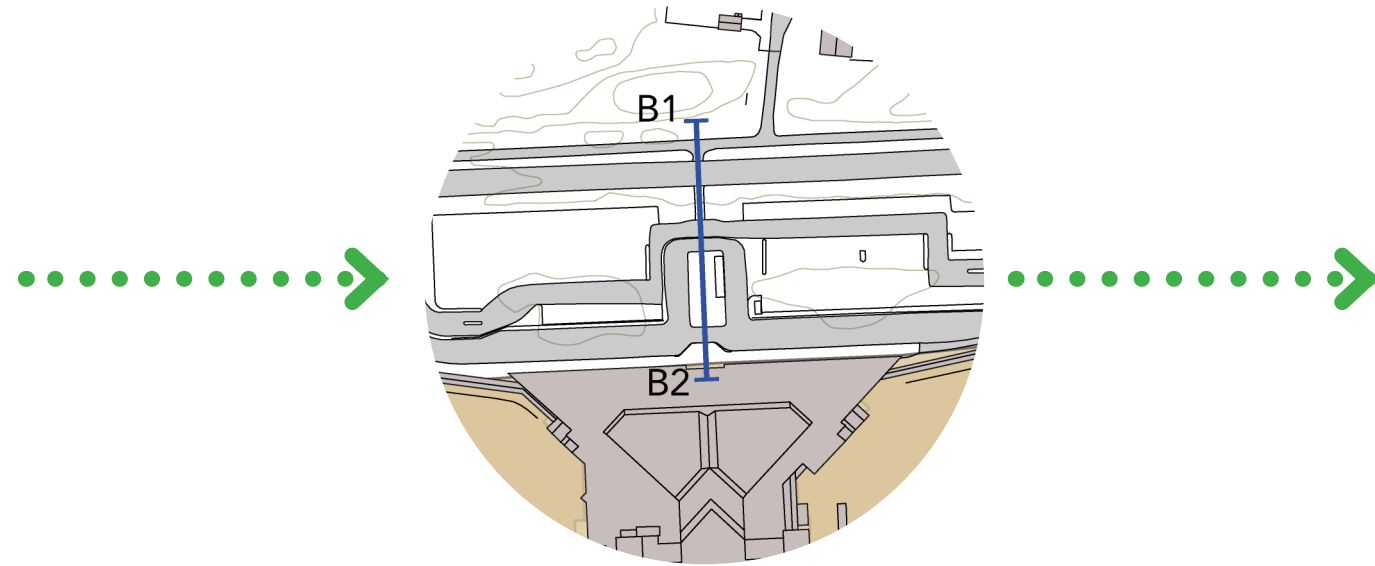
NORTHERN OUTDOOR AREA

The short-term parking "P1" can be converted to a new green area. Noise from car traffic is reduced due to a more significant natural boundary between the terminal and the main road. Trees and bushes along the green space can also protect against wind.

Public transport such as busses has been permitted to drive through to drop off and pick up passengers more efficiently and reduce congestion on the main road. Temporary barracks and office pods will be placed at the bus stop between the terminal and Olav 5 gate.



Section B: Traffic lights can be established between the northern cycle path and the terminal. This makes it safer to cross the main road. Permission is only granted for buses to drive through the entrance area for disembarking and boarding the terminal area. Office pods and stalls are deployed for several functions and services.



Measures - Short term:

Transforming the outdoor area as a more integrated part of the city, by the following short - term measures:

- Planting trees
- Bicycle hotel
- Benches
- Improved lighting

Measures - Long term:

On long - term, the goal is to successfully transform... following measures can be used to ensure this functionality:

- Office pods
- An improved public transport hub
- Activity park - Tuftepark
- Dog park
- Improved Pedestrian and cycle paths
- Inside/Outside services

Possible advantages for Bodø:

- More public offers
- Inside/Outside services
- Much of the existing infrastructure can be re-used
- Short distances between transport and the terminal/tower area.
- Green corridors
- Pedestrian and cycle network

Current situation



Figure 92. The current landscape and activity at "Section B" - the terminal entrance area, 2022. (Screenshot from Google Maps).



Proposed situation

ILLUSTRATIVE SECTION - THE ENTRANCE AREA



Figure 93. Section B.

Relevant principles for this transformation:

- **Communication:** Facilities that promote sustainable means of transportation.
- **Cooperation:** Public measures promote the use of the premises for private interest and academia.
- **Light:** Increased and more differentiated lighting.
- **Circularity:** Re-use of existing construction with minimum of alteration.
- **Inside/Outside:** Short distances between offers/ services inside and outside
- **Strong Identity:** Preserves more of the airport's history
- **Regional Growth:** Arena to promote innovation, start-ups, or business
- **Creative center:** Establishing business incubators
- **Shelter from the wind:** Sheets of old asphalt as "windscreens". Shelter inside both terminal and office cushions

URBAN SPACE

When the airport is decommissioned, opportunities to set up temporary barracks and office pods will arise. This allows the testing of different offers to guide how the residents will use these. By testing out temporary projects, students from Nord University, or any other young creative people can get the opportunity to be included together with business and authorities to create new purposes together.

The location of the airport facilities places the area in the middle of an axis between the University and the city. Services within education, business and culture link the airport area more closely with the city. The new streams created for stormwater management and several green corridors help to connect the area closer to nature. Improved public transport will also help to strengthen city life in and around the airport.

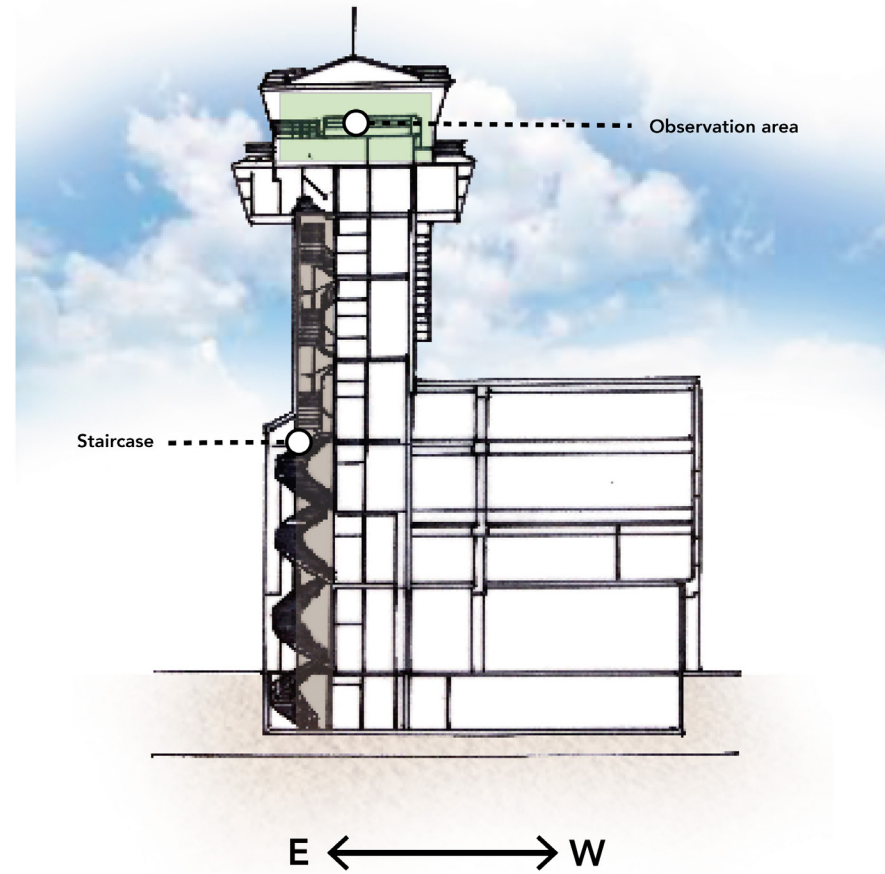


Figure 94. Illustration of the control tower with new functions.

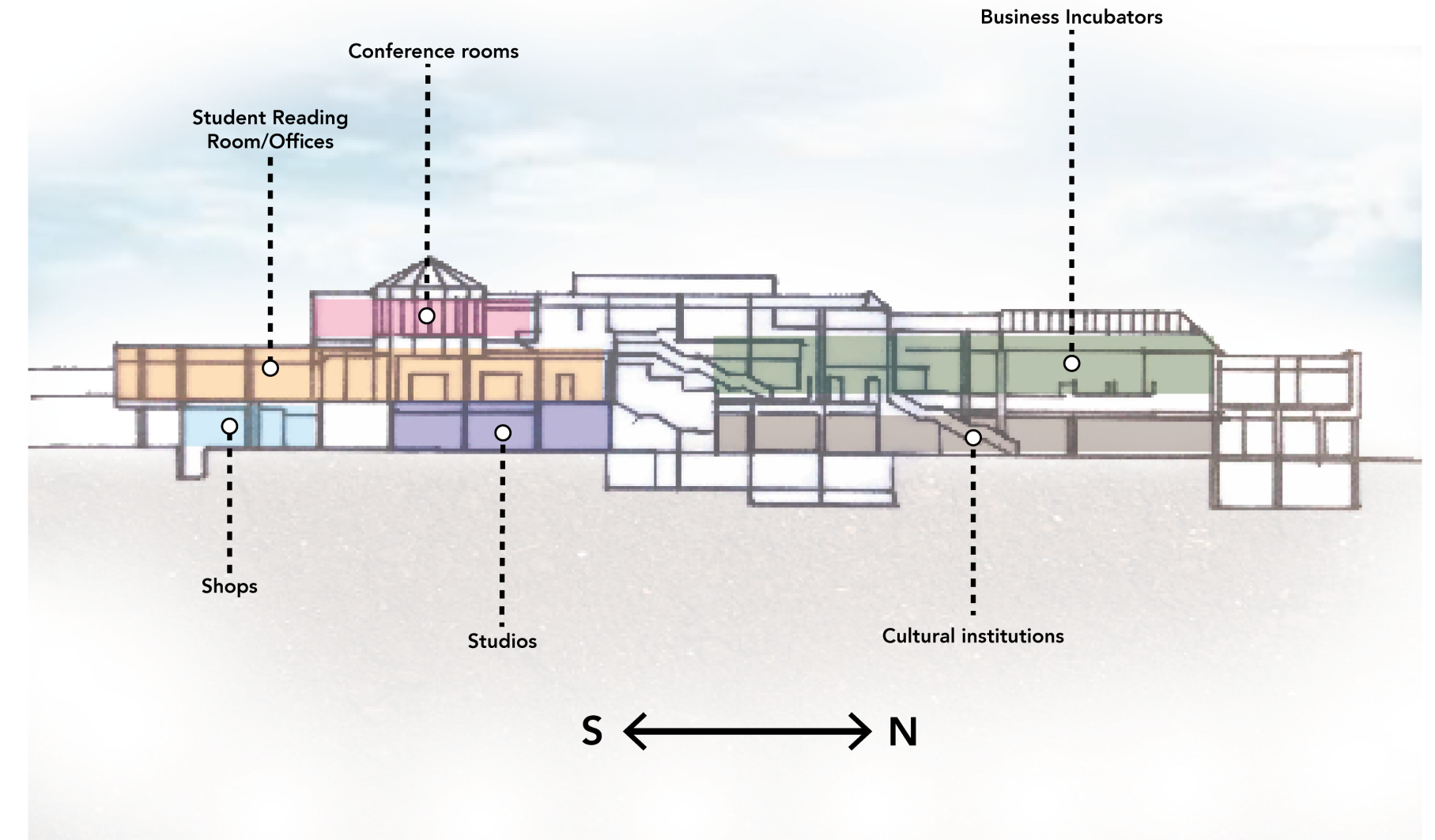


Figure 95. Illustration of the terminal with new services.

ILLUSTRATION OF THE TOWER

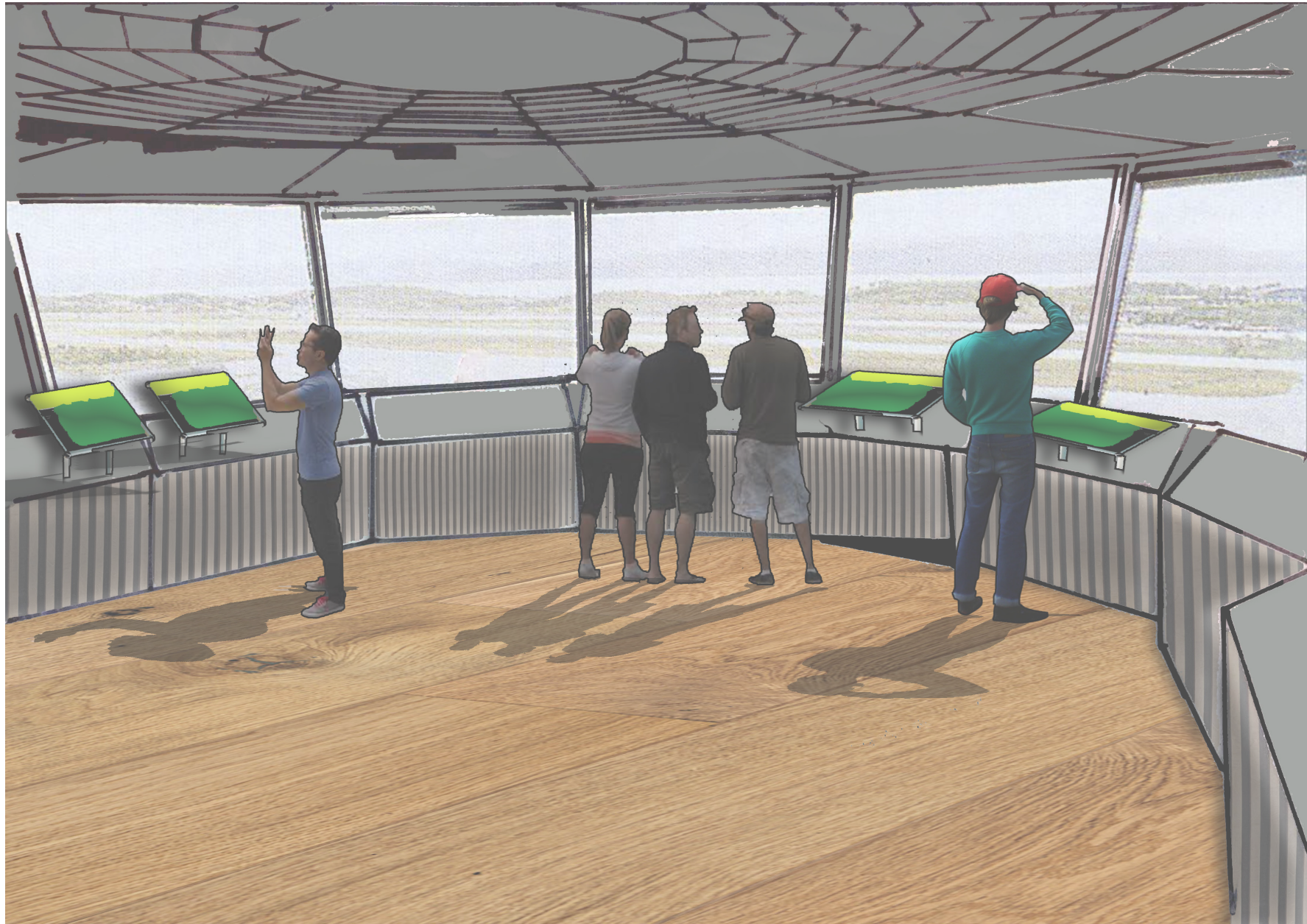


ILLUSTRATION OF THE ENTRANCE AREA



ILLUSTRATION OF THE OUTDOOR AREA



SUMMARY – CHAPTER 6

- The proposed reuse of the Terminal Building and the administrative building at the base of the Control Tower is community centre, business incubator and science centre.
- The Control Tower should be reused as a public viewpoint.
- The road system needs to be made more efficient for public transport and safer for soft users, i.e. pedestrians and bikers.
- The transformed outdoor area must incorporate stormwater management solutions and include green zones.
- Overall all developments and reuse should contribute to an urban environment with sufficient blue/green qualities.

7 - *DISCUSSION*

FUTURE PROSPECTS

The future of today's airport area is determined by the Municipality's plans. Nevertheless, several challenges have emerged that shape the prospects for urban development in the coming years. The new airport was supposed to be ready by 2027 but is now postponed until 2029 due to financial reasons.

No nearby airports are available as an option for the aviation activity of Bodø until the new airport has been finalized. Hence, it will be impossible to discontinue all operations today. This also applies to the control tower and the airport facilities' outdoor area. However, the outdoor space in front of the main entrance, including available rooms inside the terminal, may possibly be available for temporary projects at an earlier date.

THE FIRST STEPS

The proposal for the establishment of a business incubator can be launched and tested early in the process. In that case, it will require that the Municipality, industry and university are willing to discuss a long-term progress plan, cfr. the Triple Helix concept. The discussion should begin as early as possible.

Through acting and clear indications, the Municipality can show that development can commence before the existing airport is fully decommissioned.

The Municipality should invite user groups in the planning of the development, particularly students

at Nord University. Based on the triple helix concept, closer cooperation between the university, authorities, and local/regional businesses will help give students an introduction and guidelines for future employment and network building. With the ambition of creating 20,000 new jobs, students in the desired professional field will more easily get jobs in the city.

At the same time, the Municipality will bring in more local labour. Through incubators, the participants can contribute knowledge, creative qualities and financial support that stimulate innovation and regional economic growth.

Companies must also participate actively to allow the students to realize their thoughts and ideas. By visiting the campus often, preferably via stands, lectures or offers for internships within the field of study, students can get to know the companies and their activities at the local, regional or national level.

The university must early on encourage students to launch their creative ideas to the business world. An incubator will be able to contribute positively to this. For instance, students in aquaculture, business and entrepreneurship form a large relevant and in-demand group both for the Municipality and local business.

This will also create future regional economic growth and, thus, closer contact between Bodø and the

University. Deployment of temporary office pods, or barracks, should be considered early and placed in suitable areas that do not affect other activities. The parking area "P1" will be best suited to have a temporary boundary where office pods can be deployed. The area between the main entrance and Olav 5 gate (see fig "design 3) should have one or two barracks deployed later.

Upgrading the pedestrian and cycle path along Olav 5 gate and Hernesveien should also be implemented early on so as to make the journey easier for light road users. The improvement of the transport routes between Nord University and the city should be included in Phase 2 of the "Bodø City Package". The road between the airport and the shopping mall City Nord does not seem to be included in the planned construction phase, according to The Norwegian Public Roads Administration (2020). Still, incorporating this corridor should be a solution to provide a faster connection with public transport east toward Mørkved and Nord University.

This will provide a more efficient commuting route for students. The proposal with a separate public transport lane along Olav 5 gate (see figure 85 and 87) will contribute to less encroachment on the landscape around the planned blue-green areas.

THE SECOND PHASE

Before the new airport and urban district are completed, the Municipality should clarify several issues. The inclusion of appropriate student accommodation in the new housing at Hernes needs to be considered and decided early on. Hence, to share a more significant inclusion for students who want to live closer to city life. Furthermore, it must be decided to establish a blue-green structure around the terminal building and the tower.

Should the temporary office pods be a success, these will be continued, in addition to other cultural offerings and urban spaces around the meeting places. More can eventually be moved in for available services and outdoor space for other purposes. Parts of the asphalt along the airport area should be determined early on to be reused to function as windbreaks and seating around the new district.

"GRÜNDERHJELPERNE" AND "INCUBATOR SALTEN"

In recent years, as is well known, the corona pandemic has been challenging for many people to live through. It has also been just as challenging for several entrepreneurs, companies and the business world, who, through downturns, have experienced financial problems and, as an extreme consequence, have had to stop all operations or have gone bankrupt.

Founders and other businesses from Bodø have also been no exception to suffering the same fate.

Still, help was very close at hand! Through a group of companies and organisations, the aim is to be able to assist local entrepreneurs who have encountered financial obstacles. The group was called "Gründerhjelperne", which aims to promote measures to save companies in difficult situations. The Municipality has also joined the team to assist with measures and help to sustain local businesses (Bodø kommune, 2022j).

From previous economic downturns, e.g. the financial crisis in 2008 and the oil crisis in 2014, innovation has often been driven forward afterwards. Through a measure package of NOK 500 million, Innovation Norway wants to grant loans to entrepreneurs and other start-ups with a clear structure for innovative business ideas. Emphasis is placed on sustainable ideas, especially within social, economic and environmental guidelines.

Another organization that should be able to become a future engine for Bodø's "creative class" is "Incubator Salten". One of their most important purposes is to be able to invite entrepreneurs, companies, academia and investors to collaborate on new ideas, realize these and promote courses that can contribute with good guidance so that a picture can become

feasible. This is all consistent with the "Triple Helix" concept.

This will be a gift for the Bodø and the Salten region to achieve their ambitions to create regional growth. With their strong position, both "Gründerhjelperne" and Incubator Salten will be able to motivate young creative people to realize their ideas. Nord University should be included in the activity around Bodø, where such collaboration can offer help, training and financial support for those who want to continue their dreams.

8 - REFLECTION AND CONCLUSION

SUMMARY

Bodø has been a fascinating area to work with. Aviation has been central to Bodø's identity as the "aviation city in the north". This will be essential to preserve.

There have been many proposals for how Bodø should develop. Preserving and reusing today's airport facilities is essential for the Municipality for this. Through municipal sub-plans, a greater desire for compact urban development with more nearby services for residents is expressed. Furthermore, investing in a blue-green structure is essential for better stormwater management and proximity to nature.

The ambitions expressed in Bodø's plans are many and spectacular. However, there is a considerable risk that these will remain as words only. The financial costs for such extensive urban development will be considerable, especially if there are delays. The Municipality has not involved students at Nord University in the upcoming urban development. These issues and other findings have increased my curiosity about how urban development works. With this assignment, I wanted to spotlight the students' situation and how a closer cooperation and inclusion between the university, the Municipality and local/regional businesses can contribute positively to Bodø in the future, cfr. the Triple Helix concept.

REFLECTION

The proposals I have presented will be challenging to implement. Both temporary and permanent recom-

mendations can be affected by less space for testing and design, especially in the short term. On the other hand, there will be more land available in a longer term. It is a problem not knowing how the design of buildings and general densification of the airport area will look in the future. There have been many illustrations and models in the municipal sub-plans, but none have been determined in final.

Through the proposals, I wanted to facilitate a more vital city life with a focus on the reuse and preservation of existing buildings, good transport connections to and from the area. Further, I wish to establish functions and services that residents and students can benefit from, as well as an accessible blue-green structure for everyone.

Principles and actions have been designed based on the ambitions, potential and challenges in Bodø, creating a more robust solution proposal for the area. With this, I hope the thesis can inspire further work.

COMMUNICATIONS

For the proposals that have been presented to function optimally as I would like, communications between Bodø and Mørkved must be improved, first and foremost to be able to minimize the barriers that exist today.

Furthermore, including the students in the city's life will be essential for improved communication. The terminal building can become an important "connection" for inclusion through the proposals with

incubators and temporary office pods. Therefore, the Municipality, businesses and the university should take a more active approach to include students so as to tempt them to move closer to the city.

The proposed solutions have been designed based on sustainable use and reuse principles. Having only one public transport lane will create less land use around Olav 5 gate to the east, while at the same time, the costs will not be too high.

THE STUDENTS

It seems to me that being a student in Bodø has many positives. Access to magnificent nature right outside the campus with spectacular mountains, vast landscapes and the coast is something that many envy. Students who live and study close to each other will also be able to strengthen the social environment and contribute to creating more extensive networks. It is undoubtedly positive, but it will also have a downside.

From the conversation with the architecture student from Bodø (Informant 3, personal communication, Bodø 12 May 2022), I was made aware that this person's friends, who have either studied or are studying at Mørkved, are critical to the current situation. Challenges such as the distance between the campus and the city, poor public transport services and high rental prices in the city help make Bodø a challenge to visit, even when the cultural and activities offered tempt them. I understand in many ways that the students want more accessible access to the city and the offers

found here. Nevertheless, the "psychic barriers" seems to exist. Creating a brand new university in the city will sound like a good idea for better inclusion, but it is uncertain whether the Municipality and the university will want this.

THE AIRPORT ACREAGE

The thesis' research question was about how the terminal building, the control tower and the surrounding outdoor area of today's Bodø Airport, should be reused to create a stronger urban meeting point. Based on my proposals, I hope that these facilities will become an urban meeting point for everyone, including the students at Mørkved. Starting up incubators in parts of the terminal building in the short term should be prioritised where it does not interfere with current aviation activities. In addition, using a small area for either office pods or stalls with other offers can be a good short-term solution. In the long term, when the new airport has opened and taken over all aviation operations, the building, the tower and the outside areas should be subject to a transformation, which my proposals would like to show in this thesis.

THE WAY FORWARD FOR BODØ

Bodø has a significant and essential responsibility as a municipality to create a good and sustainable society for all its residents. Within urban development, on which this thesis is primarily based, there is a particularly large responsibility for Bodø to realize its large-scale development plan for the upcoming years. If several development projects are carried out step by step, this can result in a less coherent solution, which

could fall short of the original plan.

Municipal plans will often appear ambitious, with superb ideas, strategies and goals for future development. The danger is that too much is promised while results are not delivered. This can create a negative image of Bodø. A new airport, a new district and a greater focus on blue-green structures and zero emissions are possible. Bodø is one of the larger cities in this country which wants, through these projects, to give a clear signal that the city has a lot of potentials and can become an even bigger and more important hub for everyone. It will therefore be crucial for the Municipality, in close cooperation with its students, businesses and residents, to create a comprehensive, sustainable and joint society and development that not only goes on in the city of Bodø, but also in the entire municipality. Thus, the prospects for Bodø as the "motor in the north" will be more realistic than just words on a piece of paper.

THE WAY FORWARD FOR ME

This thesis constitutes a comprehensive feasibility study of today's Bodø Airport with the reuse of its main buildings as the central concept. I hope this will provide inspiration and suggestions for how the airport can be reused and create a more pleasant and inclusive urban life. I also hope this thesis can help draw greater attention to the students and the potential they represent for Bodø's development. Furthermore, I hope the thesis can contribute to looking at possibilities for how the reuse of something old can transform it into something new and even better.

FIGURE LIST

Unless otherwise stated, photos have been taken by the author. Figures have, unless another name is given been produced by the author.

- Figure 50: Andersen, S. (n.d.), Outside the older industrial building, Pakkhus 4 who now has been named Platform4 [Photography]. Available at: <https://wiki.hacker-spaces.org/Platform4> (Accessed: 28.11.2022).
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- Figure 5: Bodø kommune & Nordic. (2015), Planned new airport [Illustration]. (Accessed: 11.12.2022). "Reproduced with permission by Bodø Municipality".
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- Figure 9: Hansen, J. & Brente Steders Regulering. (1943), Brente Steders Regulerings plan for gjenreising av Bodø [Sketch]. Nasjonalmuseet. Available at: <https://www.nasjonalmuseet.no/samlingen/objekt/NAMT.jah003.002>. "Reproduced with permission by Kari Astrup"
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- Figure 24: Norsk Luftfartsmuseum. (n.d.), An airplane from Braathens takes off from Bodø airport [Photography]. Available at: https://lokalhistoriewiki.no/wiki/Fil:Bod%C3%B8_lufthavn.jpg. Creative Commons lisens <https://creativecommons.org/licenses/by-sa/4.0/> (Accessed: 12. November 2022).
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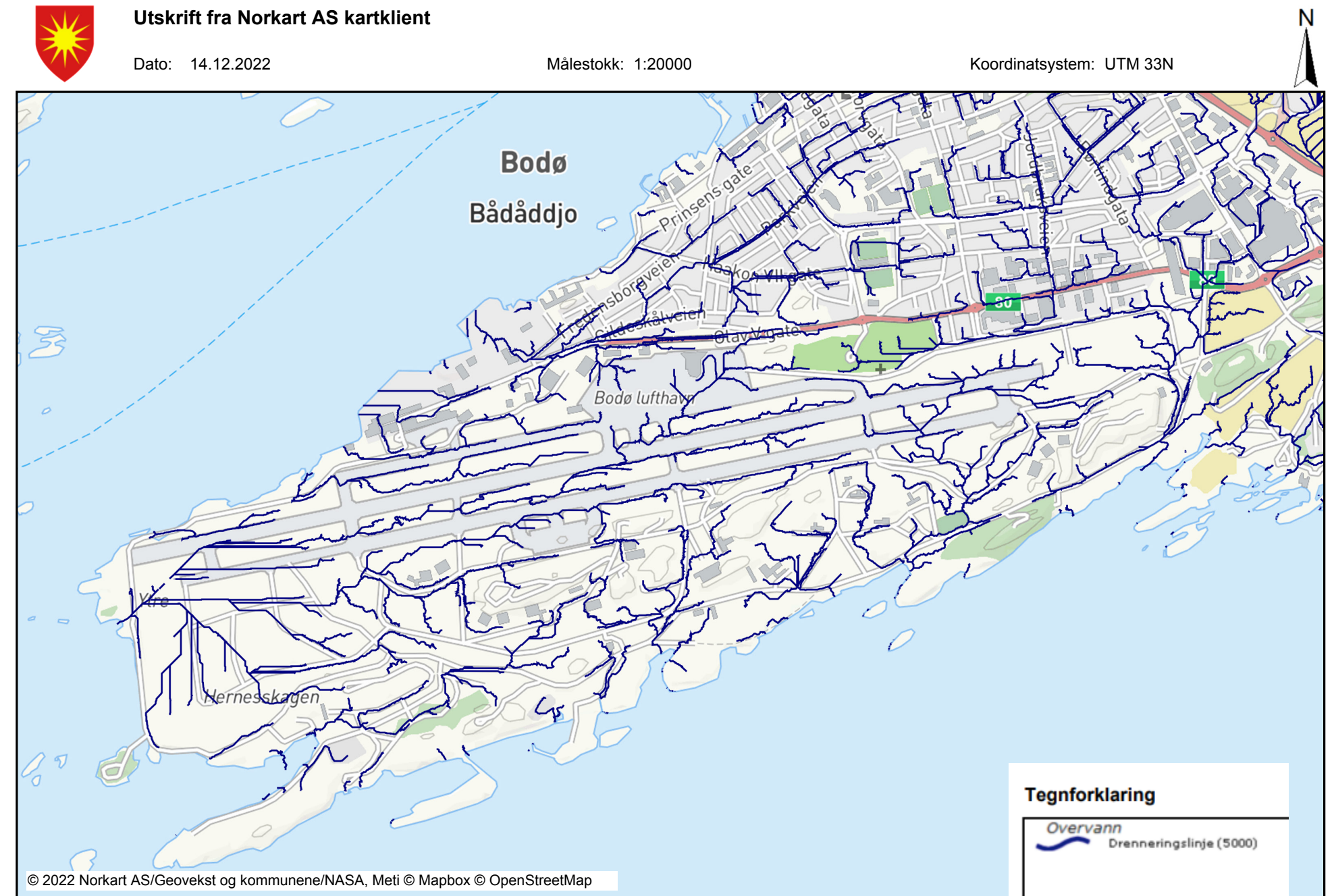
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MAP DATA SOURCES

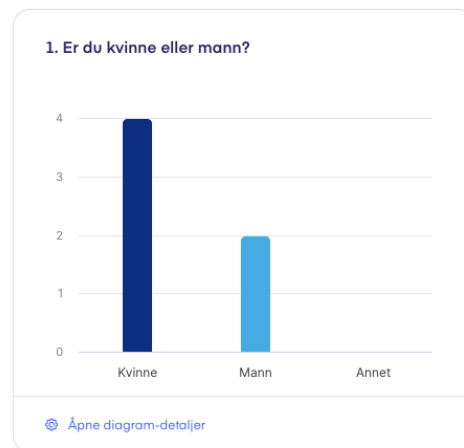
- Map Data have been found through FKB-data and Matrikkeldata UTM33 - Euref89 by Geonorge.

APPENDIX 1 - Drainage lines in Bodø

Source: <https://kommunekart.com/klient/bod%C3%B8?urlid=90960b92-5f67-4c16-815d-5c107ef9886e>



APPENDIX 2 - Results from the student survey

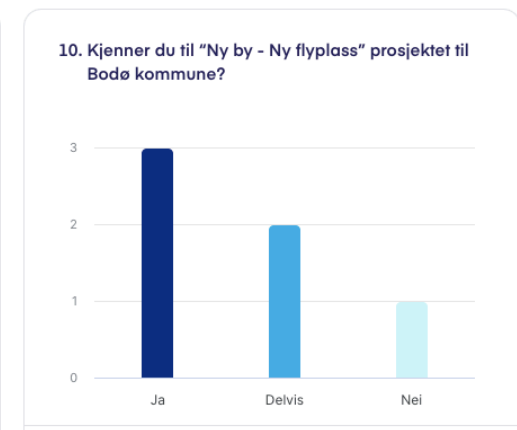
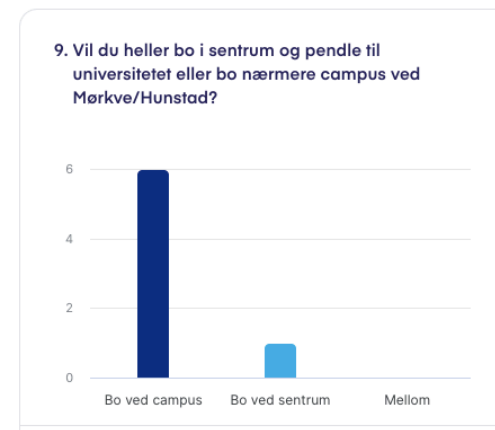
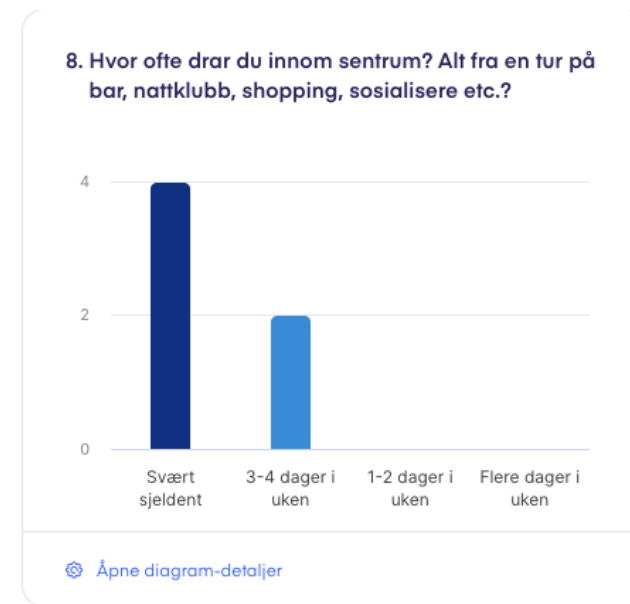


3. Hva studerer du på NORD Universitet?

Havbruksdrift og ledelse
 sosialt arbeid
 Sosialt arbeid
 Sosialt arbeid
 Økonomi og ledelse

4. Om du har studert tidligere, eller skal til å studere i Bodø, hvilket studie gikk/ starter du på?

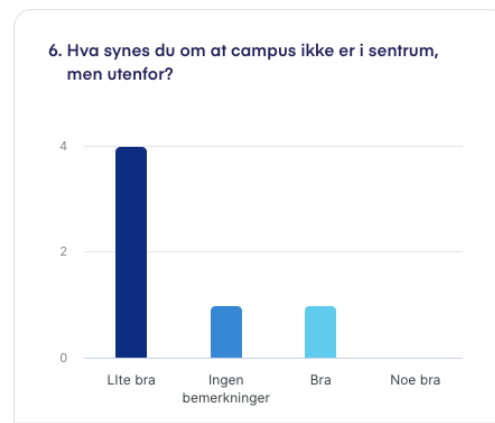
SVAR	SVAR	ANDEL
Økonomi og ledelse	1	16.7%
sosialt arbeid	1	16.7%
Sosialt arbeid	1	16.7%
Sosialt arbeid bachelor	1	16.7%
Sykepleie	1	16.7%



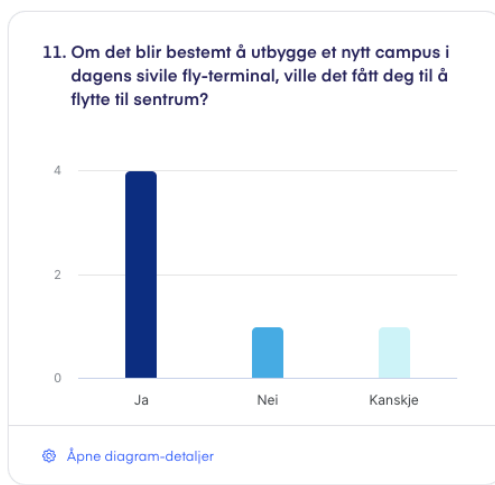
7. Om det er en ulempe at campus ikke ligger i byen, venligst forklar kort årsaken?

5. Hvor lenge har du studert i Bodø?

SVAR	SVAR	ANDEL
3 år	3	50%
1 år	1	16.7%
1 år	1	16.7%
3	1	16.7%



SVAR	SVAR	ANDEL
usentralt	1	16.7%
Næringslivet og studentene blir separert. Ønskelig med en større nærhet til lokalsamfunnet for studenter.	1	16.7%
Kostbart og komme seg inn til byen, og man føler ikke at man bor i Bodø. Mørkved blir som et eget lite samfunn utenfor byen (som også var noe bra)	1	16.7%
Føles som du ikke bor i Bodø, men på mørkved. Vanskelig å bli kjent med sentrum	1	16.7%
Dyrt (høye bussreiser) og langt til sentrum. Får ikke benyttes oss av Bodø sentrum som man ellers hadde gjort, eks. restaurant, uteliv, kafé, bibliotek, andre fysiske aktiviteter.	1	16.7%
.	1	16.7%



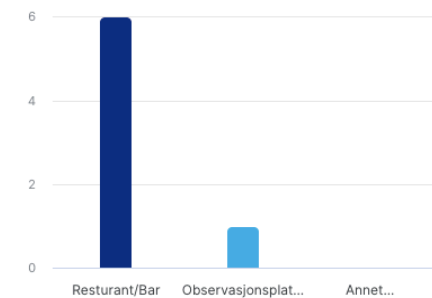
15. Hvis "litt eller helt uening" på forrige spørsmål, kan du beskrive kort hva/hvorfor?

SVAR	SVAR	ANDEL
Virker greit	1	16.7%
Ønsker heller campus	1	16.7%
helt enig	1	16.7%
Alt er avhengig av pris. Bodø er en svært dyr kommune å være student i.	1	16.7%
.	1	16.7%
-	1	16.7%

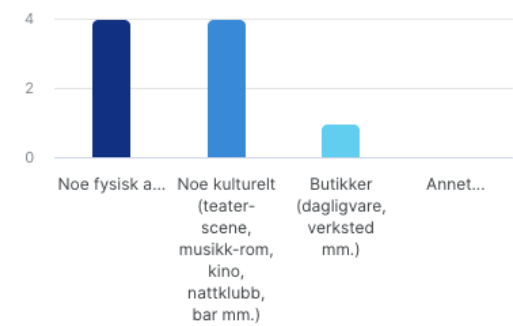
17. Hvis "Annet" på forrige spørsmål, beskriv kort hva/hvorfor?

SVAR	SVAR	ANDEL
.	4	66.7%
-	1	16.7%
.	1	16.7%

18. Hva kunne vært ideelt for dagens kontroll tårn?



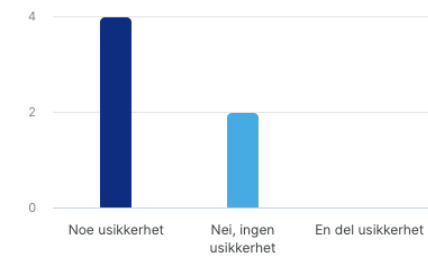
16. Av hangarer som står til fritt bruk, hva kunne du tenkt deg at de skulle blitt omgjort til?



19. Hvis "Annet" på forrige spørsmål, beskriv kort hva/hvorfor?

SVAR	SVAR	ANDEL
.	4	66.7%
-	1	16.7%
.	1	16.7%

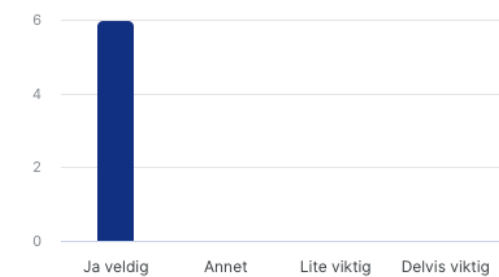
20. Synes du hele prosjektet og pengesummen (i dag: 7 milliarder, men kan øke) er dyrt i tillegg til usikkerhet om å bli fullført?



21. Hvis Bodø ønsker å få flere studenter til å bo og studere i sentrum (gitt at terminalen blir et nytt campus/utdanningsinstitusjon), hva er viktigst for deg at blir tilrettelagt?

SVAR	SVAR	ANDEL
Studentboliger	1	16.7%
Studentbillett på buss. Bedre bussruter, billigere bomuligheter både privat og ved student i Nord.	1	16.7%
gode leseplasser og sosiale møtepunkter	1	16.7%
Bra busstilbud og studenboliger	1	16.7%
At tilbudet studenter får gjenspeiler hva vi får i stipend. At de tilrettelegger for at vi ikke ha den beste økonomien og slipper å jobbe 50% ved siden av studiet for å få tegninger til å gå rundt	1	16.7%
.	1	16.7%

22. Vil du tro at sosiale møteplasser og mer grønt areal (eks. Parker, plen, by-trær, skog) er meget viktig i planleggingen av ny bydel?

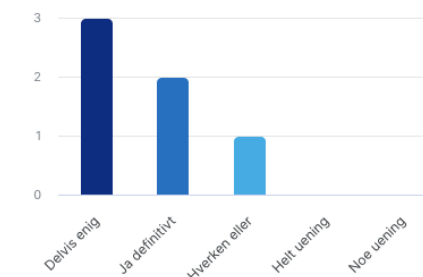


Åpne diagram-detaljer

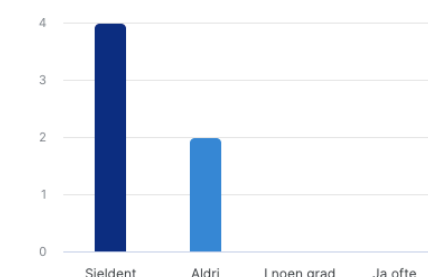
23. Hvis "Annet" på forrige spørsmål, beskriv kort hva/hvorfor?

SVAR	SVAR	ANDEL
.	4	66.7%
-	1	16.7%
.	1	16.7%

24. Har du noen tro på at prosjektet vil bli en stor suksess for Bodø i fremtiden?



25. Benytter du og dine venner seg av den nye Kyststien?



Åpne diagram-detaljer

26. Hvis Kyststien ble forlenget rundt hele Halvøya til kaia på nordsiden, med noe tunell/bro korridorer og gjennom ny bydel, ville dette vært en god...



Åpne diagram-detaljer

27. Har du eventuelt noe annet info du mener er viktig å spesifisere for prosjektet og studenters forhold til byen?

SVAR	SVAR	ANDEL
Noe som kan binde studenter til arbeidslivet underveis i studie. Kanskje et sted der man møter potensielle arbeidsgivere.	1	16.7%
nei	1	16.7%
Kortere vei til sentrum gjør at studenter bruker mye mer på næringsliv i byen	1	16.7%
.	1	16.7%
.	1	16.7%

APPENDIX 3 - Interview guide

Informant 1

Bodø Municipality

Wednesday 11. May 2022, 9:00 AM in Bodø

1. Fra samtalen i starten av januar nevnte du noen forslag de tre firmaene hadde lansert for byggverkene. Hvis kommunen enda ønsker seg et nærmiljøsentrum framfor de andre alternativene, hvorfor det?
2. «Kommuneplanens Arealdel 2018 – 2030» nevner kommunen kompakt byutvikling som meget sentralt, og hvordan det skal gjennomføres. Har du og kommunen tenkt på hvilke utfordringer som vil komme opp og håndteringen av disse?
3. (oppfølging) situasjoner som avfallshåndtering, pris på boliger og inntekter, er dette ledd dere har tatt mye hensyn til?
4. I 2021 hadde dere en kampanje hvor dere spurte innbyggerne i Bodø om tilbakemeldinger og innspill til prosjektforslag. Hvor viktig har innspillene vært med på planleggingen?
5. (oppfølging) Var det forslag som skilte seg veldig ut, og husker du hva dette var?
6. Ifølge SSB forventes befolkningsveksten i Bodø (innen 2030) å stige til 54 145, mens kommunen selv har et mer ambisiøst tall på 57 000. Hvorfor er dette så forskjellige tall?
 7. (oppfølging) Vil det da diskuteres å redusere antall boligbygg?
8. Det har vært en lengre sak om en ny båthavn, inkludert ny riksvei skal komme med ny bydel. Kan du fortelle meg litt mer om dette?
9. Kunne det vært et aktuelt forslag og forlenge Kyststien rundt hele halvøya, da med tunneller hvor ny flyplass vil bli bygget?
10. Ut fra alle designforslagene av bydelen virker det jo veldig ambisiøst og spektakulært. Hvor sikre er dere i kommunen på at nettopp dette passer for en by som Bodø og hvorfor?
11. Unge familier er nevnt ofte, men hvilke andre målgrupper ser dere på som mest ønskelig?

Informant 2

Bodø Municipality

Thursday 12 May, 9:00 AM in Bodø

1. Hva er din rolle som arkitekt til byens store satsning for «Ny by – Ny flyplass» prosjektet?
2. Mye av dagens bygg rundt i Bodø er bygget i tre og maksimum 3 etasjer. Er det også slik byggene er tenkt for Hernes?
3. Innenfor kompakt byutvikling, vil det være mer fristende å bygge høyere og tettere, som Scandic og Comfort/The Strom er blitt?
4. Hva er dine tanker rundt den sivile terminalen og ønske om hva den skal inneholde etterpå?
5. (oppfølging) Har du noen konkrete forslag om kontroll tårn og hangarene?
6. Jeg har snakket med en nyutdannet arkitekt fra Bodø om prosjektet, arkitekturen og utviklingen. For han virket det ønskelig å få flere studenter til byen og ikke utenfor. Deler du samme tanke?
7. Kunne du sett for deg og forlenget Kyststien rundt halvøya og opp til kaia/sentrumskjernen?

Informant 3

Recent graduated architecture from Bodø

Thursday 12 May, 4:00 PM in Bodø

1. Hva er din utdanningsbakgrunn og hva var hovedtemaet i din masteroppgaven?
2. Hvordan reagerte du og dine bekjente fra Bodø på nyheten om at all militær aktivitet flyttes til Ørland?
3. Tror du den nye bydelen vil bringe byens innbyggere nærmere hverandre enn før, eller tvert imot - skape et skille?
4. De du kjenner som enten har studert eller studerer ved Nord universitet. Er du fornøyd med å bo på Mørkved, eller ønsker de en tettere tilknytning til byen?
5. Du virker noe mer tvilende enn en troende på hele prosjektet. Forklar gjerne mer detaljert om hvorfor.
6. Foruten at studentene ikke tenker på avstanden mellom sentrum og Mørkved som det mest kritiske, hvilke andre grunner kan det være at noen ikke synes Bodø er spennende å flytte til?

Informant 4

Asplan Viak AS

Wednesday 4 May 2022 kl. 9:00 AM on Microsoft Teams

1. Bakgrunn – hvilken rolle har du hatt med oppdraget av å designe den nye bydelen i Bodø og nåværende status?
 2. Da dere var i gang med å lage/designe prosjektet om hvordan Ny-bydel skulle bli. Hva var de viktigste kravene fra kommunen for en mulig godkjennelse?
 3. (oppfølging) Har medvirkningsprosessen med kommunen vært positiv hele veien?
4. Er designforslagene deres kun basert på innspill fra kommunen, eller har dere også tatt i bruk innspill og ønsker fra lokale beboere i Bodø i like mye grad?
 5. Det diskuteres i planprosjektet deres om tre mulige bymodeller (Nabolagsbyen, Naturbyen og Airport City). Hvilke av disse tre ville vært mest aktuelt fra deres side å skape?
6. Dere lagde et utsnitt av hvordan dere så for dere nåværende sivil-terminal (kunnskapsterminal) og hangarer kunne blitt. Kan du nevne/utdype andre forslag om ideer for byggverkene?
7. Å bruke det som boliger ville vært noe mer vanskelig å designe. Badeland eller kjøpesenter var litt av forbildet til dette.
 8. (oppfølging) Har dere tenkt på noe til kontroll tårnet?
 9. Ut fra alle designforslagene av bydelen virker det jo veldig ambisiøst og spektakulært. Hvor sikre er dere på at nettopp dette passer for en by som Bodø og hvorfor?
10. Jeg vil tro dere har en visjon om at det skal bli vellykket, men hvordan er det for de sosiale møteplassene/arenaene som legges til grunn i KDP?
11. Fra nyhetene i går, men også litt tidligere på året kom det fram at det var en risiko med at hele flyplass-prosjektet skulle stanse som følge av dårlig økonomi i Avinor grunnet pandemien. Kontrabeskjed ble publisert i går om at de likevel vil få bevilget penger til ny flyplass. Følte dere i AV en typisk risiko for at arbeidet deres ville bli droppet, og om dette kunne føles som et tapt prosjekt?
12. Om vi tenker oss et typisk sted/by på Østlandet med mer naturlig rom og muligheter, hvor mye av tilbudene i planprosjektet tror du innbyggerne vil bruke?

Informant 5
Bodø Municipality
Wednesday 11 May 2022, 12:00 AM on Microsoft Teams

1. Du kjenner jo litt mer til nettverket av turstier rundt om i Bodø. Hvordan har utviklingen og bruken av disse vært gjennom de siste årene? Ses det en markant økning/minskning av bruken?
2. Har du jobbet mye med å fremme «blågrønn» struktur, og hva kan du fortelle om arbeidet som har blitt gjort?
3. Vet du om det skal gjøres noe mer arbeid med dagens elveløp gjennom Hernes, som renner ut rundt Bodøsjøen?
4. Det er blant annet en kjent tursti som følger Bodøelva hele veien fra topp til bunn. Ved utviklingen av en ny bydel, skal det gjøres noe mer omfattende med denne veien?
5. «Kyststien» i dag går mellom Mørkved og Bodøsjøen. Kunne det vært et alternativ å forlenge stien videre vestover og rundt hele halvøya?
6. Kunne den bli lagt i tunell under nye flyplass, slik at dette blir mulig?

Informant 6
Former Bodø Municipality
Wednesday 11 May 2022, 7:00 PM on Microsoft Teams

1. Da du var rådgiver for Bodø kommune, jobbet du tett opp mot «Smart by-satsningen», og kan du fortelle litt mer hva dette innebærer?
2. I byens «klimate og energiplan» snakkes det om «nullutslippsboliger». Vil dette også gjelde mine byggverk jfr. Terminal, hangarer og kontrolltårn?
 3. (oppfølging) Hvordan ønsker dere å bygge disse?
4. Var det noe du eller kommunen synes var mer positivt/negativt innenfor klima og miljø fra planforslagene til firmaene når de lanserte forslagene for ny bydel?
5. Jobbet dere mye med å skape en blågrønn struktur i Bodø da du var ansatt?
6. Vil du fortelle litt om kompakt byutvikling, og hvorfor du tror dette passer godt for Bodø?
 7. (oppfølging) Noen klare tanker om positive/negative aspekter?
8. Gang- og sykkelvei vil bli styrket utfra både KP og Energiplanen. Hvordan tror du at dette skal bli effektivt, spesielt i vintermånedene med mye variert vær og mørketiden?
9. Vil du, i likhet med kommunen ønske at dagens sivile terminal heller blir et nærmiljøsentert enn f.eks. et utdanningsinstitutt?
 10. (oppfølging) Evt, noe helt annet?



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