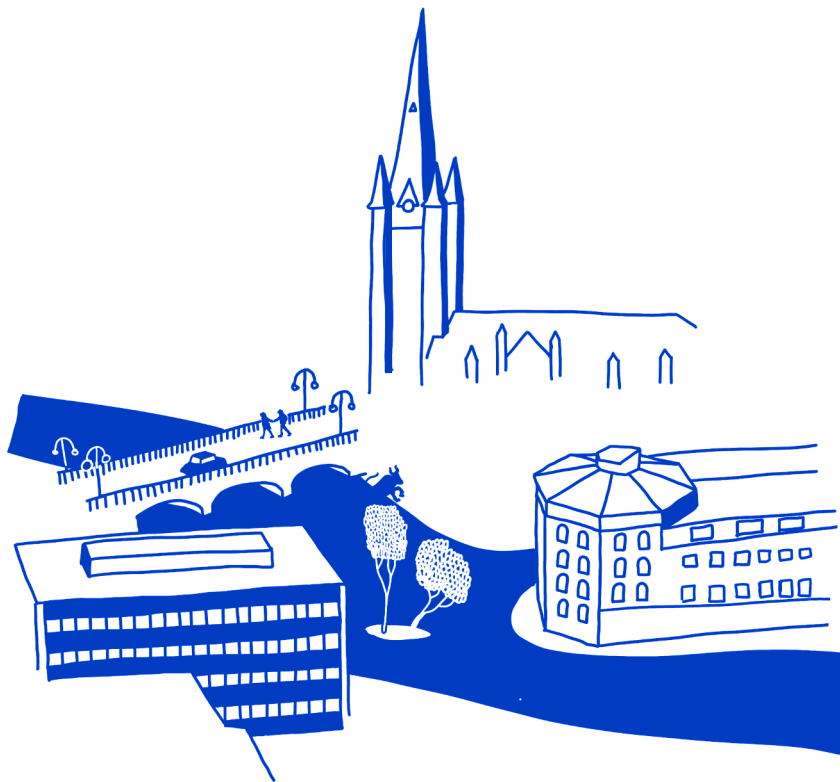


Josua Ernvik

Chalmers Architecture

Urban and Rural  
Design and Planning

2025



# Mariestad 2040

Mariestad and the 7 objectives of the  
municipality's Detailed  
Comprehensive Plan 2040

Chalmers School of Architecture, Department of Architecture and Civil Engineering

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# Mariestad 2040

Mariestad and the 7 objectives of the  
municipality's Detailed  
Comprehensive Plan 2040



**CHALMERS**  
UNIVERSITY OF TECHNOLOGY

## Abstract

The municipality of Mariestad is in its most transformative phase since the postwar era. The municipality estimates a population increase from the current 25 000 to 40 000 inhabitants by 2040 in the wake of new industrial establishments and expansion, including the Volvo Group's battery cell factory.

In 2024, the municipality adopted the Detailed Comprehensive Plan 2040 (DCP), providing a strategy for 7200 new housing units in Mariestad. The DCP identifies 7 objectives for Mariestad: the close-knit (nära) town, the living town, the safe town, the diverse town, the well-designed town, the green lakeside town, and the proud town of the future.

The master's thesis argues that these 7 objectives are connected to each other, and strongly influenced by the first objective, the close-knit town. The DCP, however, suggests urban expansion with areas consisting of 50-75% of single-family homes to supply 3000-6000 of the new housing units. This risks contributing to urban sprawl, the opposite of the close-knit town, and thereby counteracting all 7 objectives.

The design presented in the master's thesis aims at shaping an alternative plan for Mariestad which more closely aligns to the 7 objectives of the municipality's Detailed Comprehensive Plan. The design distinguishes several centrally located areas possible areas for new

development for 12 000 new residents within 2 km of the town center in Mariestad without exceeding a floor space index of 1.2. The sites of Yttre Hamnen, Katthavet, Marieforsleden, Tidan's Kvillar, Norra Katrinefors, Electrolux and Tidan's Västra Strand are described in more detail, where the density of the site and its role in the town as a whole is explored.

The design unlocks dormant qualities around the river Tidan and the former Electrolux factory, connecting the town over the water and providing pleasant public space to stimulate urban life, while also creating new flows through the historical town center, Gamla Stan, in order to stimulate urban life. Space syntax analysis identifies that the design improves the centrality of Gamla Stan.

The proposed development is on land currently occupied by open grassland, car infrastructure or sprawling industries. This risks causing higher initial investments in groundwork, relocation of industries and a decreased car capacity. This is deemed as reasonable trade-offs to the increase in qualities of the 7 objectives generated by the design. By investing in the close-knit town and the qualities which follow, Mariestad improves its chances of thriving independently from the future of the Volvo battery factory.

*Keywords: close-knit town; densification; sprawl; comprehensive plan; Mariestad*

*I would like to extend my sincerest gratitude towards Liv Sonntag for her great supervision, support, mentorship and guidance through the master's thesis, and to Lars Marcus, for his insightful feedback and encouragements.*

*I would also like to thank the representatives from the municipality of Mariestad, including Adam Johansson, for his aid in helping me understand the current planning in Mariestad, and to the local experts Nils Björling and Leif Ahnlund who have in their free time helped me navigate my project.*

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*Lastly, I would like to express my warmest gratitude to my family, friends and girlfriend who have shown immense support and patience throughout the time of the project.*

# Student Background



**Josua Ernvik** is an architect with roots in Mariestad, Chiang Mai, Thailand, and Gothenburg.

He has a passionate interest in Mariestad, his birthplace, the residence of his family and town where he spent the majority of his years growing up.

With a strong background in associations and congregations, Josua carries the importance of community engagement and social interactions into his designs. Co-ownership, co-building and reuse are strategies which have held central roles Josua's projects during the master's studies.

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Image 1: Tidans Kvillar, January 2025



Image 2: Gamla Stan seen from Karlsholme

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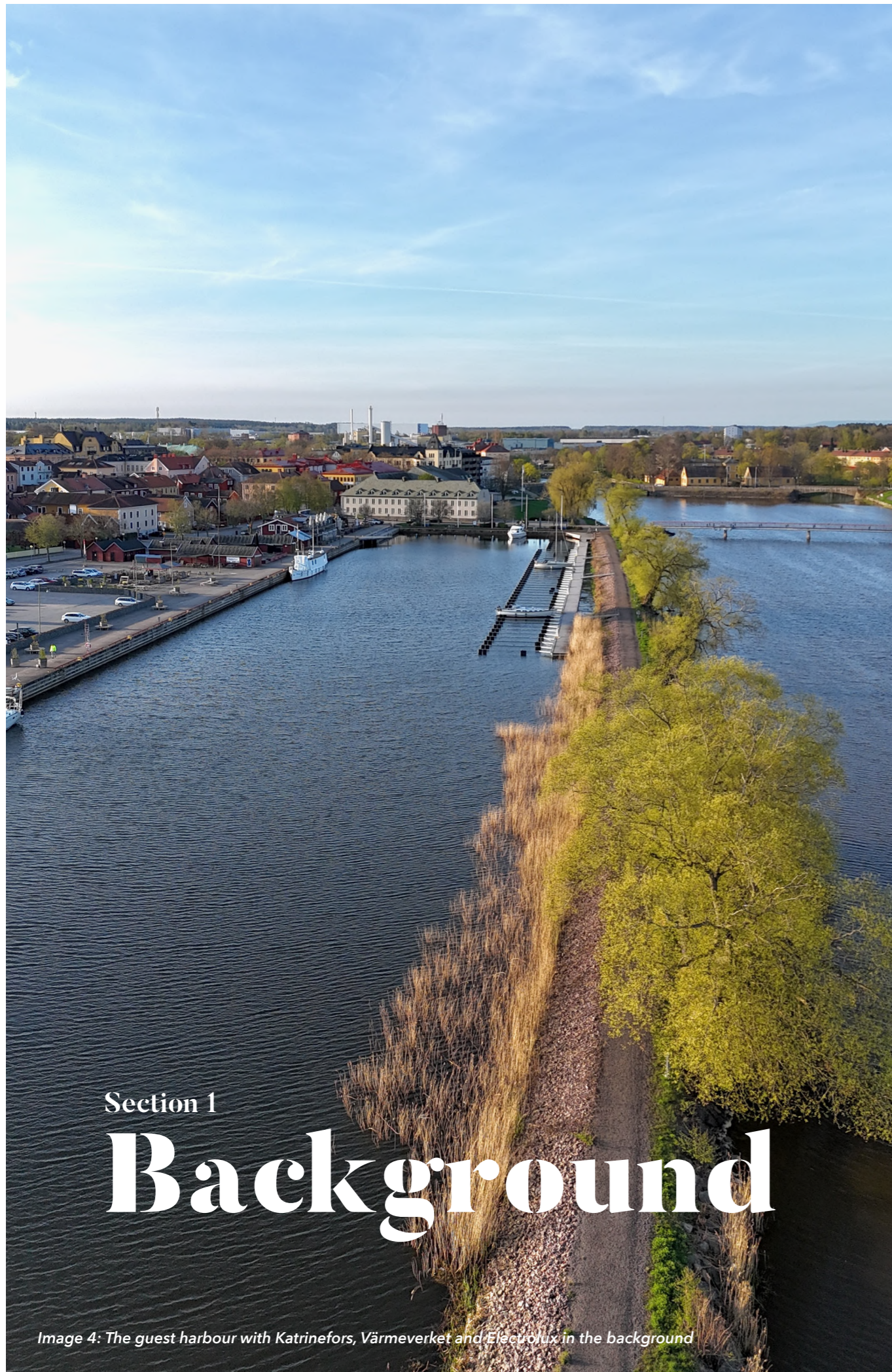
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# Vocabulary

<b>Betweenness centrality</b>	The probability of passing a space when moving between every other space in a system, such as a town. (Marcus, 2023)
<b>Closeness centrality</b>	The average distance between one point and every other point in a system, such as a town. (Marcus, 2023).
<b>Detailed comprehensive plan (Fördjupad översiktsplan)</b>	A comprehensive plan is an urban planning document which gives a framework for the physical development of the municipality. A detailed comprehensive plan (DCP) gives a framework for a specific area of the municipality. In the case of Mariestad, the DCP gives a framework for the urban area of Mariestad.
<b>Ecosystem services</b>	The benefits that humans obtain from natural ecosystems.
<b>Eyes on the street</b>	The concept that the presence of other people in public spaces improves the sensation of safety.
<b>Floor space index (FSI) (Exploateringstal)</b>	A measurement of density, measuring the ratio of the total built area divided by plot area. A 2 storey building covering 1/4 of the plot has an FSI of 0.5. A higher number signifies a higher density.
<b>Garden city (Trädgårdstad)</b>	A concept within urban planning developed during the 19 <sup>th</sup> century to combine the benefits of the country side and city. In the Swedish context, it generally refers to dense small scale residential areas.
<b>Space Syntax</b>	A set of techniques for analysing spatial layouts and human activity patterns in buildings or urban areas.
<b>Single-family home</b>	A freestanding home for one family. Synonym to villa.
<b>Streetscape (Gaturum)</b>	The visual elements of a street, including the surrounding buildings.
<b>Town geometry</b>	The shape of the town, including its geographic size, the connection between its parts and its density.
<b>Typology</b>	The different classifications of buildings or neighbourhoods based on form.
<b>Virgin land</b>	Land which has not been previously built.



Image 3: Early morning over Gamla Stan



Section 1

# Background

Image 4: The guest harbour with Katrinefors, Värmeverket and Electrolux in the background

## Background

In August 2022, the news came as a shock to many in Mariestad. Volvo AB presented plans to construct a battery cell factory in Mariestad, potentially employing 3 000 workers. Overnight, the narrative of Mariestad as a stagnating town, bereft of its industries and with a slowly dwindling population changed to the narrative of a town for the future with an incoming population boom. The municipal forecast estimated that the current 25 000 inhabitants would increase to 40 000 by the year 2040.

In response to the pending transformation of Mariestad, the municipality released the Detailed Comprehensive Plan 2040 (Fördjupad översiktsplan 2040) for Mariestad's urban area in April 2024. The DCP presents the municipality's strategy for how Mariestad can grow with 7 200 new homes, as well as services, commerce, and new industrial areas.

The shape and geometry of a town has a significant impact on the life between the buildings. The town's geometry sets the conditions for its walkability, its inclusivity and the economic feasibility of attractions and services.

Mariestad's natural qualities such as lake Vänern and the river Tidån, as well as the largely intact Gamla Stan (Old Town), make Mariestad a town with high potential for well-being. Mariestad is faced with a once-in-a-century opportunity for transformation. The choices taken in questions of urban development this decade could define Mariestad's conditions for urban life for many generations to come. If done with care and insight, Mariestad has the chance of transforming into one of Sweden's most pleasant towns to live in.

# A brief introduction to Mariestad

Municipality population: 24 583 (2024)  
Town population: 16 750 (2023)  
(SCB)

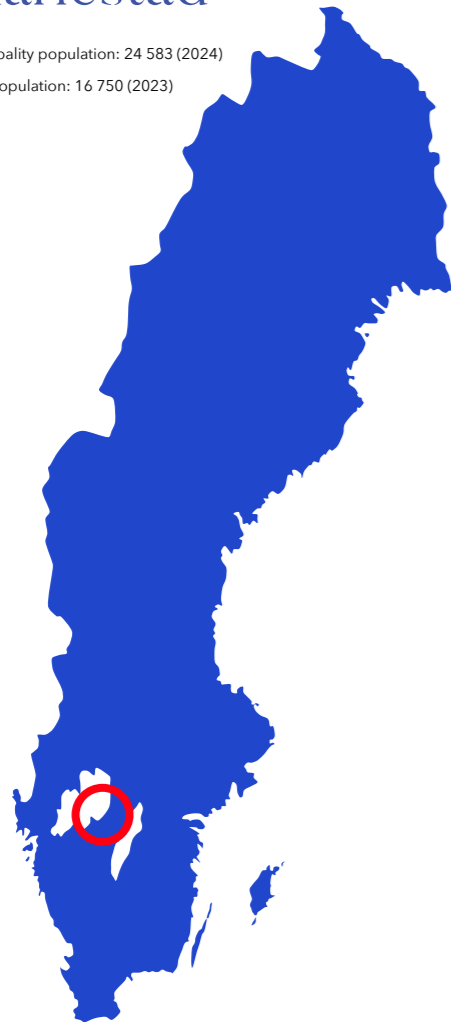


Figure 1: Map of Sweden

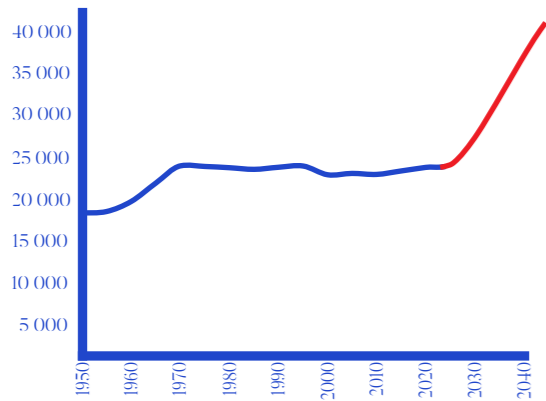


Figure 2: Population of Mariestad (SCB, 2024)

**From centrality to periphery**  
Mariestad has gone from a regional centrality to being in the periphery as important functions have moved from Mariestad to Skövde and Gothenburg.

**From industry and government to stagnation**  
From a proud industrial town and regional capital to industrial decline and the centralisation of power in Gothenburg during the 1990s, Mariestad has been forced to reinvent itself with varying degrees of success.

**Reindustrialisation and optimism**  
Groundbreaking investments now place Mariestad at the start of its largest transformation since the postwar era.

- 1583** Mariestad is given its status as a town.
- 1662** Mariestad becomes the capital of Skaraborgslän. The county government and several institutions move to Mariestad.
- 1765** Katrineforsbruk begins producing paper by the river Tidan in Mariestad. It remains the town's largest employer until the early 20th century. Industries continue to grow along both sides of the river over the coming centuries.
- 1850** Mariestad has a population of 2059, making it Sweden's 37th city in size.
- 1850** Mariestad has a population of 2059, making it Sweden's 37th city in size.
- 1862** Västra stambanan is completed, connecting Stockholm and Gothenburg by rail. The original plans of drawing the rail through Skara and Mariestad are scrapped in favor of the smaller cities of Falköping, Skövde and Töreboda. Skövde grows from 1/3 of Mariestad's size in 1850 to exceeding it in 1875.
- 1950** Electrolux establishes itself in Mariestad, building a refrigerator factory along the river Tidan.
- 1970** Mariestad reaches its peak in population with 16 600 in the town and 24 800 in the municipality. The population remains largely unchanged over the coming 55 years.
- 1988** The Electrolux factory reaches its peak and has 1519 employees, nearly 10% of the town's population.
- 1990** Sweden enters an economic crisis. Many industries move production to low-income countries. Many industries in Mariestad struggle and are forced to scale down.
- 1997** Skaraborgslän merges with Göteborgslän, Bohuslän and Älvsborgslän to form Västra Götalandslän. Mariestad loses its role as a regional capital in favor of Gothenburg.
- 2000s** Mariestad enters an identity crisis. Who are we when we are no longer the seat of regional government or the home of proud industries?
- 2000s** Mariestad invests in tourism and crafts. Göteborgs Universitet moves parts of Institutionen för Kulturvård to Mariestad.
- 2017** Electrolux ceases its production of refrigerators in Mariestad. Prodma AB, a newly formed company consisting of former employees at Electrolux take over the factory. They quickly grow to 80 employees.
- 2022** Volvo AB release plans to build a battery factory in Mariestad, contributing with approx. 3 000 new jobs. Katrinefors and Kriminalvården also expand drastically. A wave of optimism fills Mariestad.
- 2024** The municipality releases the Detailed Comprehensive Plan 2040. The plan formalises the goal of growing from 25 000 inhabitants in the municipality to 40 000 by 2040.
- 2024** Europe's battery sector quivers as Northvolt struggles. Competition with North America and China seems all the more difficult.



Image 5: Sattelite image of Mariestad (Google Earth, 2022)

## Aim

The aim of the thesis project is to contribute to the discussion of development in small and medium sized urban areas, and the potential results of growing outwards through expansion or inwards through densification.

The thesis specifically aims at impacting the development of Mariestad towards a more sustainable and attractive future through broadening the discussion of the town's development. There are surprisingly few voices being vocal concerning Mariestad's development. The municipality lacks a City Architect, an existing architecture policy and the ambition of making an architecture

policy (Sveriges Arkitekter 2024). This master's thesis aims at providing critical perspectives and alternative strategies to those provided by the politicians in Mariestad, with the goal of raising awareness and opinion among residents to apply pressure and change in Mariestad's development.

The master's thesis aims to lay the groundwork for further discussions with politicians and public in Mariestad which are planned outside the time frame of the thesis project, with the aim of impacting the choices made in Mariestad's development in this formative time.

## Problem Description

According to Mariestad's Detailed Comprehensive Plan 2040, the municipality of Mariestad needs to grow from 25 000 inhabitants to 40 000 in 15 years to meet the work force demand from the expanding industries. For the town of Mariestad, this means 7 200 new housing units.

The transformation occurs in an era of crises. Ongoing shifts in the world order and global economy lead to an unpredictable future which has already caused delays in the construction of Volvo's battery factory in Mariestad. The climate change also contributes to an unpredictable future, while encouraging us to change our lifestyles and methods away from "business as usual" into something with a lesser negative impact on the environment. The climate crisis is especially relevant to urban planning as it forces new perspectives on themes such as reuse, sustainable transportation, co-ownership and resilience.

The Detailed Comprehensive Plan identifies 7 objectives for Mariestad: *The close-knit town, The living town, The safe town, The diverse town, The green lakeside town, The well-designed town and The proud town of the future.*

The theory shows that these objectives are connected and interdependent. The geometry of the town sets the conditions for the movement of its people. A town which is close-knit (nära) and which has pleasant public spaces promotes pedestrian and cyclist movement, generating urban life which in turn generates many qualities the majority associate with attractive towns including safety, improved economic feasibility of attractions in the town and diversity.

The strategy for growth outlined in the Detailed Comprehensive Plan, however, has a focus on single-family homes in urban expansion. If the municipality continues in the pattern of previous urban expansions, including Sjölyckan, the result of strategy will be a sprawling town, which weakens the qualities of the close-knit town. Mariestad's current strategy risks cementing issues associated with sprawl, such as car dependency and segregation, in the geometry of Mariestad. This could lead to social issues but also a higher negative impact on the environment and a dependency on the new battery factory which makes Mariestad susceptible to shifts in global economy.

# Research Question

How can Mariestad grow towards the needs of 2040 in a way which aligns with the objectives of the close-knit town, the living town, the diverse town, the green lake-side town, the well-designed town and the proud town of the future, identified in the municipality's Detailed Comprehensive Plan?



Image 6: Tidån, Universitetsbron, and Electrolux

# Method

The thesis project views the development in Mariestad from the perspective of the Detailed Comprehensive Plan 2040, adopted by Mariestad's municipality in April 2024. The DCP presents 7 objectives for Mariestad, *The close-knit town*, *The living town*, *The safe town*, *The diverse town*, *The green lakeside town*, *The well-designed town* and *The proud town of the future*. These objectives are used as the starting point of the *Objectives & Theory* section.

In addition to many other sources, two main theoretical topics explored in the *Objectives and Theory* section are Jan Gehl's views on urban life and Space Syntax's views on the geometry of cities.

The town of Mariestad has largely been explored through personal experiences. The author has grown up in Mariestad and uses personal experiences of the town and the experiences of acquaintances in his arguments and speculations. The author draws experiences expressed in workshops that have been attended outside the scope of the project. Dialogue with local planners and property owners, the municipality's steering documents including the Detailed Comprehensive Plan, and local news of the development from

Mariestads Tidningen and the municipal website have complemented the personal experiences.

The theory lays the groundwork for the design which aims to illustrate principles which better align with the 7 objectives of the Detailed Comprehensive Plan than the principles guiding current planning.

The design is then analysed on the town scale using *space syntax* to better understand the design's impact on the town. The analysis is done in comparison with Mariestad in its current form and with Mariestad in 2040 according to the plans in the DCP.

The master's thesis is intended as the foundation for further communication in Mariestad with the aim of raising awareness and impacting the planning in municipality's pursuit of housing 40 000 residents.

## Relevance to Sustainable Development

Mariestad's development is occurring during a transition of urban planning ideals in Sweden. Ideals of high, dense cities in proximity to public transport are being replaced as politicians promote smaller scale and single-family development. (Kvint, 2024). In May 2024, the national government appointed Stefan Attefall (KD) as Egnahemskommissionär with the goal of promoting smaller scale housing within the construction industry.

In January 2025, the government released the *New Strategy for Living and Safe Cities* which promote Garden Cities, inspired by Ebenezer Howards writings from the 19<sup>th</sup> century, as a sustainable middle way between the densely built block-based neighbourhoods and homogenous villa areas. (Regeringskansliet, 2025). As a response to the government's initiatives to stimulate small-scale housing development, Hyresgästföreningen and Spacescape published the report *The True Garden City: the solution to Sweden's*

*unsustainable single-family housing development*. The report highlights the risk of using the concept of Garden Cities wrongly to justify sparse villa areas that contribute to urban sprawl, which is deemed as an unsustainable typology which weakens the attraction of the city. (Spacescape, 2024).

This master's thesis explores the principles of the Garden City as a dense but small scale building typology in the context of Mariestad. It also explores possible coexistence between Garden Cities and repurposed large scale buildings remaining from previous industries.

## Delimitations

### Geographic limits

The geographic limits of this thesis is the town of Mariestad, which is also the focus area of the Mariestad Detailed Comprehensive Plan 2040 in which the thesis has its starting point. The thesis does not consider areas outside the limits of the town, including sites within other urban areas in the municipality of Mariestad. These urban areas, such as Lugnås, Ullervad and Hasslerör, are highly relevant to the development of Mariestad. The thesis proposes that the municipality promotes rural development to house 3 000 of the 15 000 new residents of the municipality outside the Mariestad urban area. A thorough exploration of this is not within the scope of the project.

### Design

The design of the master's thesis aims at communicating that development within Mariestad's existing boundaries is both possible and beneficial for the residents of Mariestad. The design highlights several sites deemed suitable for development, and provides snapshots of what these site could resemble and which roles they could serve in the town as a whole. The master's thesis does not provide a fully functioning detailed design. The aim of the design is to inspire and illustrate new possibilities. Therefore, the aim of the design has not been to solve every issue, but to illustrate a spectrum of typologies which can contribute to urban life in Mariestad. The design in its current form is too simplified to be developed without further work, but the principles communicated by the design should

be taken into consideration in the development of Mariestad and similar towns.

The design does not go in depth on the scale of the individual public space or building, but holds its focus on the town-scale.

### Services

The project's focus is on discussing housing for an increasing population. Less focus is placed on services. The same is true for the DCP. Since many services in Mariestad, including daycares, education and healthcare, are being dismantled, one can assume that many services in Mariestad are not at their maximum capacity and need not expand at the rate of the increasing population.

### Public engagement

The project has not worked with public engagement. This is not because public engagement is deemed unimportant in the question of Mariestad's development, but because I deem that there is a lack of awareness of the consequences of the planned urban expansion in Mariestad. My perception is that the reason behind the negative aspects of Mariestad's development is not that the municipality does not listen to the wishes of its residents, but that there is a gap between the dreams of the politicians and the reality presented by research. Therefore the master's thesis aims at raising awareness among the politicians and the public of the consequences of urban expansion and alternatives which exist in Mariestad.



Section 2

# Objectives & Theory

Image 7: Tidån, Universitetsbron and Trädgårdsskolan

## Objectives & Theory

### What makes a town attractive?

There are an endless amount of answers to that question. It can be Saturday markets at the central square, afternoons on the beach, going down to the football pitch with one's friends, the view of the forest from one's window, having one's job within 5 minutes of cycling, studying at a café, becoming friends with one's neighbours or being able to walk to the train station. It is the conveniences and the comforts of the town combined with the life between the buildings which give the town its spark, and which make it attractive.

Even if it is the people, the cultures, and the life between the buildings that make a town a place we want to live in, we must delve deeper to understand the conditions which generate life between the buildings. To build an attractive town, we need to understand that the initial conditions for life between the buildings are set in the town's geometry.

The *Objectives and Theory* begins by exploring the objectives for Mariestad presented in the Detailed Comprehensive Plan 2040. These objectives are "*The living town, The close-knit town, The safe town, The diverse town, The well-designed town, The green lake-side town and The proud town of the future.*" Relevant theory from Spacescape, Jan Gehl and other sources is then explored to better understand the connection between the objectives of the DCP2040 and the geometry of the built environment.

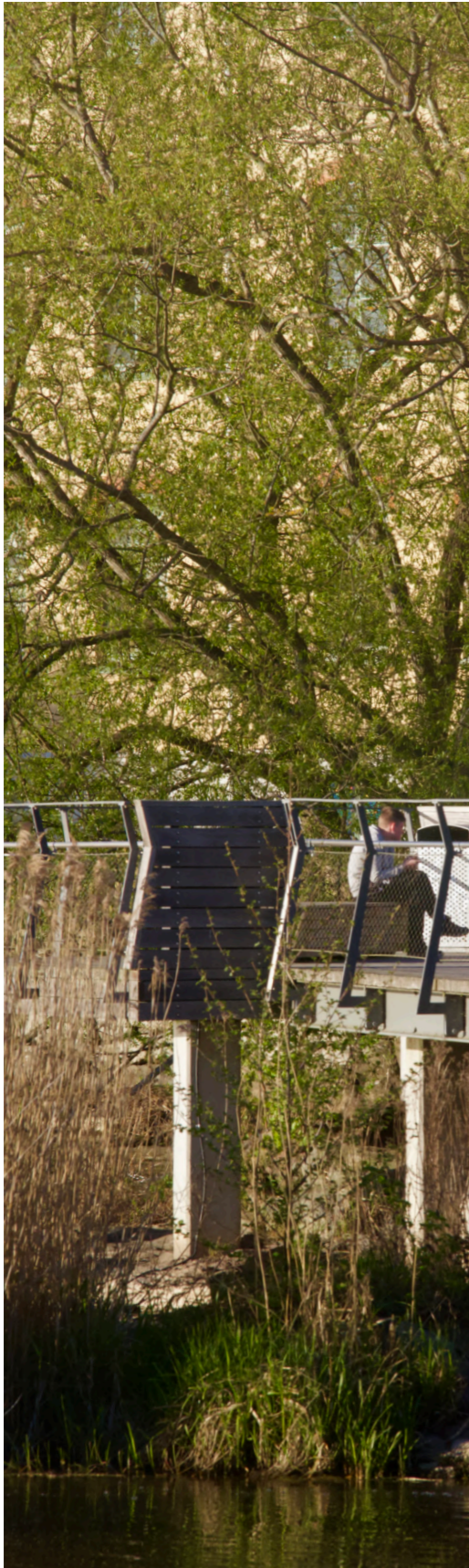


Image 8: Universitetsbron and Trädgårdsskolan

## Objectives of the DCP2040

### The close-knit town

*“Proximity is one of the most important qualities of a small town. It increases accessibility to the town's values and experiences, while also making everyday life easier as it is simple to travel between home, work, school, and services. A 'close-knit town' promotes both sustainable travel and public health, as many everyday trips can be made on foot or by bike. These modes of transport also provide opportunities for spontaneous encounters, which contribute to a vibrant city and safer public spaces. The close-knit town also provides good conditions for children's independent mobility. This strengthens the opportunities for a healthy upbringing.*

*As Mariestad grows, maintaining and developing the proximity between homes, work, services, recreational areas, and various meeting places is an important value to preserve. Increasing accessibility and bridging physical and mental barriers between destinations and recreational areas is a prioritized issue to further develop this value.”*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040

### The living town

*“Life and movement are, for many, a fundamental part of an attractive town. A vibrant town promotes interactions between people, increases safety, and provides the basis for trade and other commercial services. Movement is created by mixing different functions within the same area. One such example is the town's center, where commerce, commercial services, and public services are combined with housing. When a district has multiple functions, it leads to more activity during more hours of the day. This, in turn, creates opportunities for businesses like restaurants and cafes.*

*In other words, the town's lively center is an important quality to preserve and develop. For a town the size of Mariestad, a vibrant center is also important for the town's attractiveness. Therefore, the conditions for a continued strong center should be safeguarded and developed. This means we need to develop public spaces that both promote interaction between people and prioritize sustainable modes of transport. It also means we should preserve the variety of housing and services that currently exist there. For the town as a whole to become more active, some functional diversity is also required outside of the center.”*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040

### The safe town

*“One of the municipality's most important tasks is to create a safe town with good conditions for children and young people to grow up. That people feel safe in the town and in their neighborhoods is a fundamental prerequisite for a good life and for an attractive and sustainable town. Safety creates trust between people, thereby promoting integration and preventing exclusion.*

*As Mariestad grows, public spaces and residential areas should be planned to create safe interactions between people. Perceived insecurity should be taken into account, and physical and perceived barriers should be overcome.”*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040

## The diverse town

*"A town's supply of housing and living environments is often crucial to its attractiveness, both for existing residents and those considering moving there. When choosing a place to live, it is not just the home itself that matters. Other important factors include access to commercial and public services, recreational and cultural offerings, and green spaces for recreation. For a town to be attractive to live in, there also needs to be a varied range of housing environments with different characteristics and housing types. As Mariestad grows, there should be such a range of housing environments; there should be something for everyone.*

*When new residents move in, the need for municipal services also increases, such as places in preschools and primary schools. If many people move from one part of the town to another, it can result in either overcapacity or a shortage of space in certain areas. Therefore, housing in a growing Mariestad should be planned in a way that creates sustainable and robust service areas for municipal services throughout the town."*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040

## The green lakeside town

*Mariestad is a lakeside town surrounded by a rich landscape of forests and agriculture. The town, the water, and the landscape often meet in Mariestad. The boundaries between the lake and the landscape are undulating and follow the rhythm of nature. These encounters make the town diverse and provide citizens with good opportunities for recreation. The proximity and accessibility to water are deeply rooted in the town's identity. Swimming, beaches, and boating are obvious everyday qualities for the people of Mariestad - as is the closeness to the countryside. In just a few minutes by bike, one can leave the hustle and bustle of the town and instead reach open farmland and forests. This offers opportunities for recreation and recovery for everyone and is therefore a significant value that is important to protect.*

*The town's blue and green structures are also habitats for animals and plants. Connected blue and green structures provide conditions for rich biodiversity that can mitigate and address the effects of a changing climate.*

*As Mariestad grows, the accessibility to water and nearby natural areas should be developed. The aim is both to improve the qualities of these values and citizens' access to them, as well as to strengthen biodiversity and the blue-green biological corridors. Urban planning should be done with a sustainability perspective that combats climate change and creates robust structures that adapt to and mitigate the effects of a changing climate.*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040

## The well-designed town

*"A town is a living environment where many people live their lives. The town accommodates a variety of functions, such as housing, workplaces, and recreational areas. These functions consist of places and buildings where activities take place, and people naturally move between these functions. How well these places and buildings are adapted and designed for their purpose affects the experience of the activity. Architecture and urban planning, in other words, influence both people's well-being and the efficiency of society. To create the conditions for good architecture, purposeful urban planning is required; the town is a whole where no part is entirely separate from another. To create a sustainable living environment where people feel good, enjoy spending time, and that is also adapted to its function, a holistic approach is needed when planning and designing the town.*

*Mariestad is a growing town where extensive urban transformation is planned. The town will grow through densification, transformation, and urban expansion. New environments and buildings will be created, and existing ones will be replaced. In this transformation, new buildings should be characterized by good architecture with conscious material choices. Public spaces should also be designed in a way that promotes interaction between people and creates a good, attractive, sustainable, and well-designed living environment for everyone. In this work, urban planning, architecture, art, and cultural heritage should interact."*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040

## The proud town of the future

*Mariestad is a town on the rise - a town of the future - attracting establishments from global companies and new industries. This also allows existing businesses to grow and makes Mariestad a town where more people want to live and work. With industrial renewal as its guiding principle, Mariestad has established itself as a town of the future for innovative and sustainable system solutions, and is seen by many as a pioneer in this field. This desire, ability, and courage to think innovatively in order to meet future challenges should be harnessed as the town grows. In a growing town, there are many challenges, not least regarding a changing climate and mobility issues. Here, innovative solutions should be encouraged and become an asset. Challenges are also opportunities; this should be embraced with great interest.*

Excerpt from the Mariestad's Detailed Comprehensive Plan 2040



Image 9: Race in the town center



Image 10: Cyclist on Hamnbron

## Theory

### Life in the town

Life in the town (stadsliv), or urban life, refers to the human activity in the public spaces of a town. It is the people moving from store to store in the town center, the picnic in the park, the fishers on the bridge, the man on the park bench and the cyclist passing through. Life in the town, though a quality in itself, is a condition for the existence of many other qualities. (Gehl 2010). People moving through and spending time in the public spaces of the town are the foundation of customers for shops, restaurants, services and other businesses. Without the customers provided by the flow of people in a town, many attractions and services become economically unfeasible.

Life in the town is one the most significant markers for the attractiveness of a place. We humans enjoy the company of others, and generally consider an urban space with human activity as more inviting and warm than a space devoid of people. (Gehl, 2010).

### Life in the town and safety

A public space with human activity is perceived as safer than an empty space. (Gehl, 2010). In a space where other people are present, we assume that someone will intervene if we or our property become exposed to danger. Eyes on the street increases the perceived safety of a space and therefore increases its attraction.

### Life in the town as a self-reinforcing process.

We as humans avoid desolate spaces and wish to be in the presence of other people. (Gehl, 2010). A pedestrian is more likely to enter a park where one person is walking their dog and another is sitting on a bench reading than enter a completely desolate park. Architects are especially aware of this, and often fill their

illustrations and renders with people to make the scene more attractive. Since humans choose to be where other humans already are, town life breeds more town life.

Many attractions in the town are dependent on customers. (Gehl, 2010) Restaurants and stores are often placed where there already is a flow of people to guarantee customers. The addition of new attractions increases the pull of a place even more, leading to an ever stronger flow of people. Life in the town is a self-reinforcing process. There are tipping points where the start of town life quickly generates more.

### The conditions for life in the town

The conditions for life in the town are closely linked with the architecture of the town, both on the scale of the streetscape, but also on the larger scale of the town's geometry. The connections between spaces in the town, how close-knit the town is, as well as how pleasant the urban space is for people and the presence of attraction points determine the conditions for life in the town.

### The close-knit town

A town which is closely knit (nära) has strong connections between its spaces. It is easy to move from one place in the town to another, for example between the residence, school, work, public transport, nature and markets. The strength of the connections between spaces in the town is dependent on proximity and how pleasant it is to move between the spaces. (Gehl, 2010).

### Closeness centrality

Closeness centrality measures the average distance between one point to all other points in a system, for example a town. (Marcus, 2023). It is not the same as central, which is measures the proximity between a point and the town's defined center. A point which has a high closeness centrality is therefore well connected to

other points in the town, meaning that a residence which has a high closeness centrality potentially has short distances to work, school, stores, recreational areas or other attractions.

By increasing the number of residents in proximity to the town center, the closeness centrality of the center increases. More people live near the the center which increases the flow of people through the center, improving the chances of achieving the critical mass of urban life in the center.

### Transportation and life in the town

Proximity is essential for people to chose to walk in the town. Shorter distances between housing, work, school and attractions increase the walkability of a town.

Pedestrians contribute more to life in the the town than car traffic. (Gehl 2010). Pedestrians move slower and are more likely to spontaneously stop and spend time in the spaces and attractions of the town. This increases the chances of interactions with markets and with other people. The presence of pedestrians also increases the eyes on the street, improving the perceived safety.

Car traffic, on the other hand, creates a stressful public environment that decreases the human activity in the town. (Gehl, 2010). The car traffic creates noise, pollution, barriers and a worry of safety which can discourage people from spending time near trafficked areas. The car moves faster through the town and is much less likely to spontaneously stop to interact with others.

Cyclists also move faster through the town, but are still much more likely to interact with the town and contribute to life in the town than cars.

### Conditions for pedestrian and cyclist movement

Pedestrian mobility is dependent on proximity and the amenity of the streetscape. (Gehl, 2010). A pedestrian will only tolerate a very short walk if the road is unpleasant, but might be willing to choose to walk further if the walk is through nature, urban life and away from cars. Cyclist mobility is also improved with proximity and amenity, as well as safe bicycle infrastructure.

### Conditions for public transport

Economically viable public transport is dependent on travellers within close proximity to stations and stops. The economic feasibility of public transport in the town depends on many factors, but a report from *Sveriges kommuner och landsting* identifies a threshold for efficient public transport to be a density of 80-100 residents per hectare within 400 meters of the public transport stop. (2016). Most areas consisting of single-family homes have a density of 20-40 residents per hectare. It is therefore unreasonable to expect that public transport can be the transportation method of choice in areas of low density.

### The 15 minute city

The importance of proximity has been popularized by the concept of the 15 minute city. 15 minutes have been identified as a threshold for how long people are willing to travel for daily needs. The idea of the 15 minute city is that daily necessities, such as work, education, groceries and recreation should all be reachable within a maximum 15 minute transport by foot, bicycle or public transport. (Moreno et al., 2021). This increases the freedom of mobility and decreases the dependency on cars.

### Balance density and livability

The importance of proximity speaks for a compact and dense town. Yet there are many examples of places with high density which do not have good urban life. High density risks creating



Image 11: Compact, small-scale spaces, Gamla Stan

unpleasant, cramped and dark urban spaces (Boverket, 2023). Neither is density and proximity the same thing (Marcus, 2023). If we design dense urban areas consisting of only residential units we have we have achieved density but not proximity between housing, workplaces and attractions. A town which is divided with large homogenous areas, for example areas consisting of only residential units or only external shopping, a house may have a close proximity to many other homes but still be far away from the nearest grocery store.

### Amenity of public space

Proximity is only one condition for pedestrian movement. The amenity, or the pleasantness of the public space is of at least equal importance. For people to choose to walk or cycle, the distances must not only be short but feel safe and beautiful. (Gehl, 2010).

### Nature in the town

The presence of urban life improves the amenity of a space, but so does also the presence of natural qualities and the scale of space. (Gehl, 2010). The presence of trees and water can make a space more attractive, and therefore encourage people to be in the space, contributing to urban life. Many municipalities, including Mariestad, have adopted the 3-30-300 principle, which strives for a minimum of 3 trees visible from the home, a 30% canopy cover and a park within 300 meters from each home. (DCP2040).

### Well designed streetscapes

Scale also impacts how pleasant a space is to be in. A large, empty public space can feel unwelcoming and cold. (Gehl, 2010). A compact, slightly cramped public space can feel more intimate, more inviting and warm. A well designed town, therefore, can use compact public spaces as a tool to increase the amenity of the spaces and attract people.

### The safe town

In a safe city, a person can move freely without fear regardless of age, gender or ethnicity. There are many factors which contribute to safety in a town, such as socio-economic equality. Many factors are set in the built environment, including the already described concept of eyes on the street.

### Protection from cars

Safety does not only refer to protection from violence between people, but also protection from cars. Even though casualties from car accidents are very rare within cities, the fear of a car accidents still contributes to worry. (Gehl, 2010). This is especially relevant to children. In a town with much car traffic, parents feel worried and limit their children's mobility for fear of an accident, for example by not allowing their children to cycle to school alone. A town where children are safe from cars allows for more freedom and independence for children, encouraging their development.

### Segregation

Another example of how the town's geometry impacts the safety in a town is the level of segregation. Different socio-economic groups generally have different possibilities when it comes to housing. By building new residential areas targeted at specific socio-economic groups, for example by building areas consisting of only large villas or only high rise apartment buildings, the socio-economic groups are segregated spatially. Spatial segregation risks generating parallel societies which in turn can lead to further inequality, exclusion and crime. By targeting different socio-economic groups when developing new areas, for example by providing a mixture of building types and forms of ownership, people of different background and possibilities become spatially integrated, creating a more cohesive and equal society.

Variation of typologies

A diverse supply of building types and forms of ownership within an area counteracts segregation and contributes to a safe, equal and cohesive society. It can bring different functions of the town closer, improving proximity. Yet there are more benefits to providing a range of building types within the same area.

Repurposing existing buildings

In Mariestad and many other Swedish cities there are many centrally located industrial buildings. The industrial buildings of the modernism era are often built with a pillar-beam system, and contain large open flexible spaces. (Brandin & Stanusoiu, 2012). This can make them suitable for transformation. In newly developed areas the prices generally go up, forcing actors with lower economic possibilities to relocate. Retaining industrial buildings instead of demolishing them is a way to maintain premises with lower rents and giving a space for actors who might not afford newly constructed premises. (Brandin & Stanusoiu, 2012). These actors include micro-industries, sport associations, workshops, secondhand shops, creators, restaurants etc. These actors give quality to the town. Repurposing high-quality industrial buildings is a way of maintaining the diversity of premises and giving space to actors who contribute to the town and who do not have the economic strength of renting newly built premises.

All stages of life

Different forms of housing are suited for different stages of life. One's needs changes as one passes through the different stages of age, income and family situation. By providing a diverse array of apartments and single-family houses of different sizes and forms of ownership, residents are able to continue living in the same neighbourhood through the different stages of life. This can give stability to social relationships in the area.

All stages of day

An area consisting of only offices risks becoming desolate outside of working hours, reducing the eyes on the street effect and causing perceived unsafety. A diverse neighbourhood consisting of both workplaces and housing gives activity throughout the hours of the day.

Urban sprawl

The opposite of the close-knit town is the sprawling town. A town consisting of highways allows for quick transportations for car drivers even though the town's spaces are far apart. However, for the cyclist or the pedestrian, a town built primarily for cars becomes difficult to navigate in due to the long distances between the town's spaces and barriers created by the highways. (Gehl, 2010). Without the pedestrians and cyclists, the urban life diminishes. Businesses move out to external shopping centers where they can be accessed by cars. The result is a town which sprawls outwards. The town becomes dependent on cars while losing many of its qualities which were linked to the urban life. There are many examples of this around the world, especially in the United States. Urban sprawl is not an issue only in megacities but also in smaller cities.

Space in the town

Transportation by car occupies considerably more space than transportation by foot, bicycle or public transport. (Spacescape, 2016). A significant amount of attractive and centrally located spaces in towns are occupied by parking spaces. This is true in Mariestad as well. To improve proximity and become a close-knit town, centrally located spaces currently used for parking should be considered for development. It is reasonable to decrease the capacity of car parking in the town in favor of proximity, as the close-knit town is less dependent on cars for transportation. If the town instead develops through sprawl, the car dependency increases and more spaces in the town will be needed to facilitate the increase.

Unsustainable use of cars

The current use of cars is not sustainable. The issues with cars are many, including the space they occupy in the cities, a negative impact on perceived safety, especially for children, noise and asphalt pollution from roads. The electrification of the car fleet does not solve these problems. The fully electric Volvo EX30 NMC, one of Volvo's most environmental cars to date, has an impact of 23 tons CO2eq throughout its life cycle when driven on clean electricity. (Volvo Cars). This is one person's full carbon budget for exactly 10 years if the Institute for European Environmental Policy's goal of 2.3 tons CO2eq by 2050 is to be reached. (IEEP, 2021). Private ownership of cars is not sustainable and our cities should therefore not be designed with car mobility as a high priority.

Conclusion of Theory

The objectives of the Detailed Comprehensive Plan are interconnected. Safety is dependent on social interactions and relationships which are influenced by urban life and integration. Urban life is dependent on the close-knit town and the

amenity of the public spaces. The amenity of the public spaces is in turn dependent on urban life, as well as the presence of nature and the scale of public space. People choose to walk and cycle in close-knit towns with pleasant streetscape, thereby decreasing the car dependency and allowing space used by cars to be developed to further connect and densify the close-knit town, allowing for nature to be preserved in and around the town. Integration contributes to safety and is dependent on diversity of buildings and proximity between different areas of the town.

The built environment can therefore have a significant impact on all 7 of the objectives of the Detailed Comprehensive Plan. By planning a close-knit town with well-designed public spaces and a diversity of buildings, Mariestad can improve urban life, increase safety and the freedom of mobility, and preserve and enable access to nature.

By daring to abandon the current conventions of sprawl, Mariestad can truly become a proud town of the future.

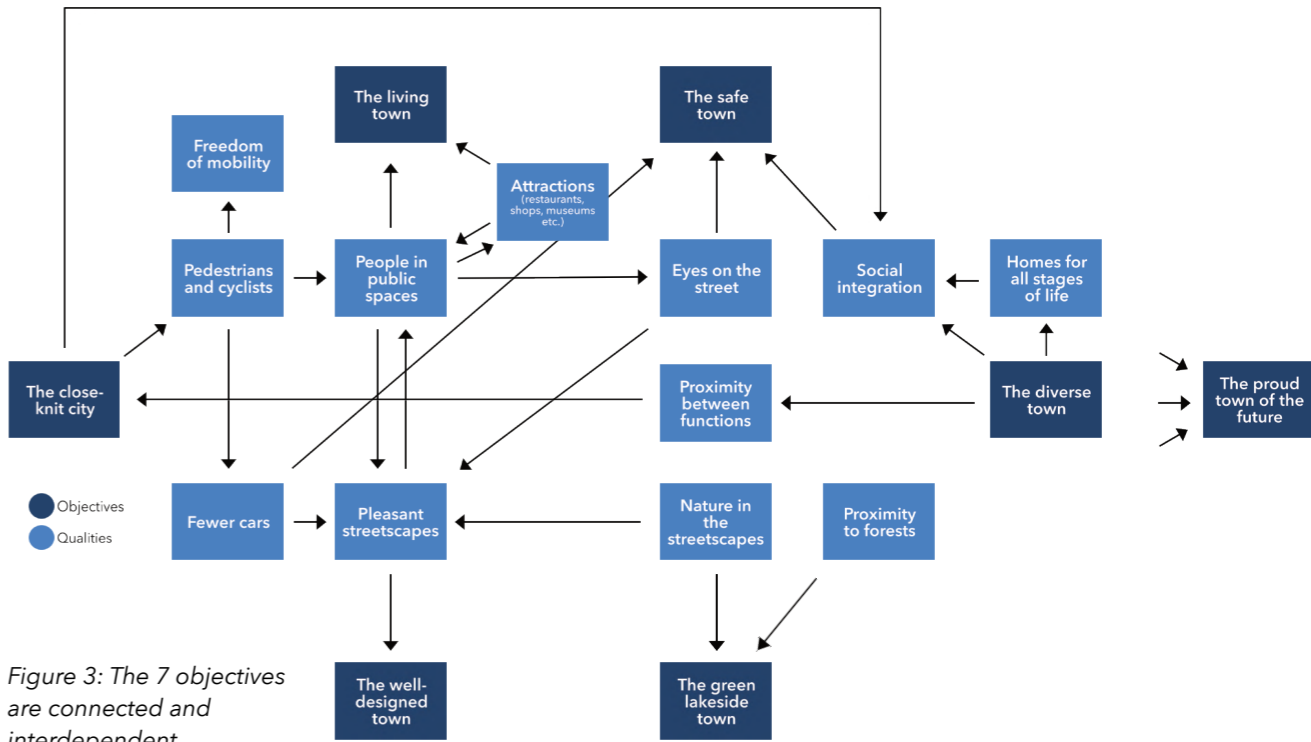


Figure 3: The 7 objectives are connected and interdependent



### Section 3

# Current Planning in Mariestad

Image 12: Sjölyckan

## Introduction to section

In April 2024, two years after the news of Volvo's battery factory were officially released, the municipality adopted the Detailed Comprehensive Plan 2040. The document mapped out the municipality's strategy for how to build to meet the demands of the

The DCP2040 estimates that the population of the municipality will reach 40 000 by 2040. This is a drastic increase considering that the population of Mariestad has been stagnant at around 25 000 since the 1970s. In the Detailed Comprehensive Plan, the municipality plans approx. 98% of the new housing construction to be located in Mariestad town (tätort), (Boendeförsörjningsplanen, 2024), meaning its population is likely to go from 16 000 today to 30 000. This means approximately 7 200 new housing units, according to the DCP2040.

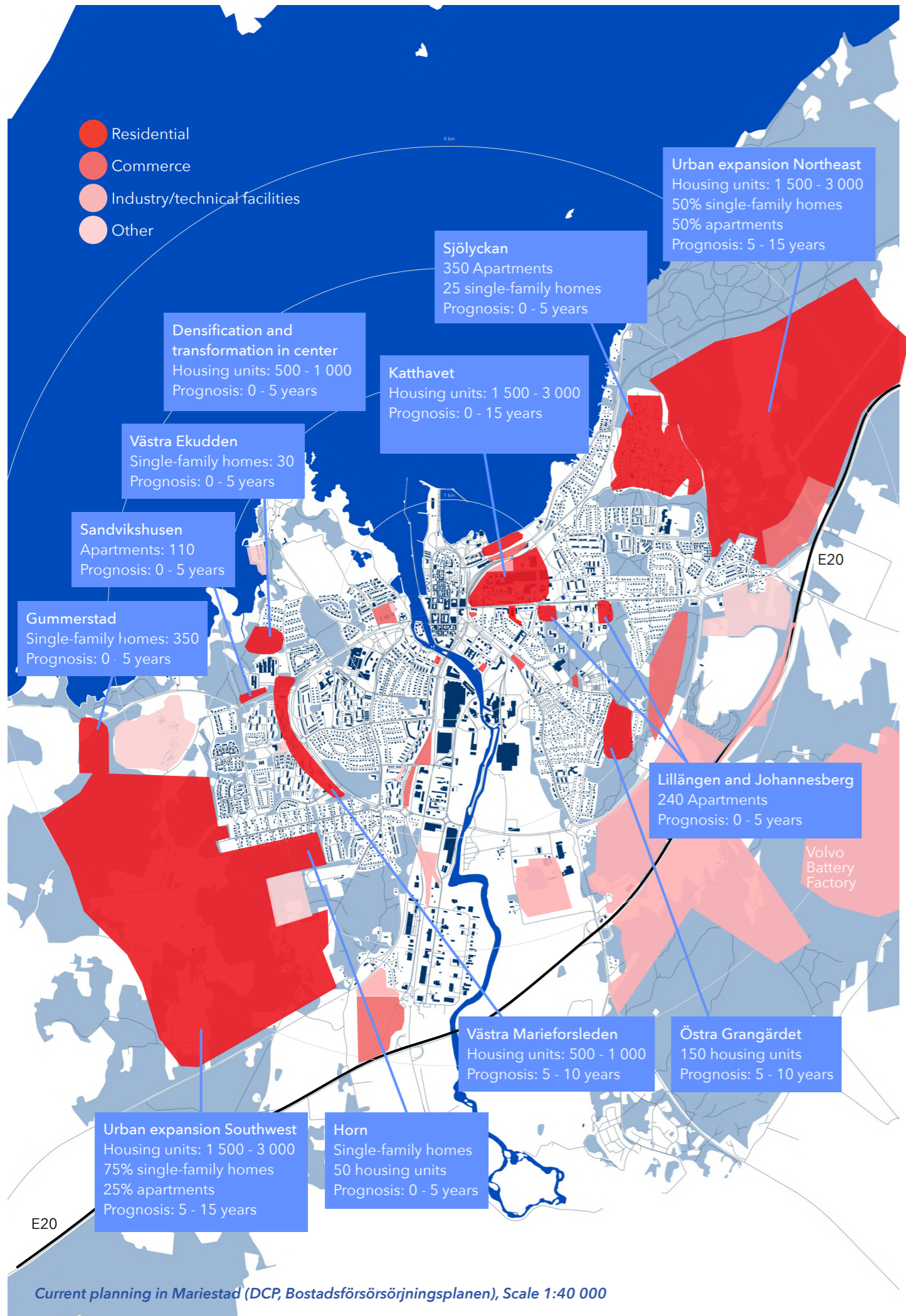
The Detailed Comprehensive Plan gives 7 goals and 3 methods of

growth. The 7 goals are *The close-knit town*, *The living town*, *The safe town*, *The diverse town*, *The green lakeside town*, *The well-designed town* and *The proud town of the future*. These goals can be read in detail in the *Objectives and Theory* section. The 3 methods of growth presented in the DCP2040 outline strategies for where new residential areas should be built to supply Mariestad with 7 200 new housing units. The methods are:

**Densification** - Infill projects on undeveloped sites within the existing street network.

**Transformation of Katthavet's Industrial Site** - Demolishing industrial buildings and constructing new residential and commercial buildings in Katthavet.

**Urban expansion** - Development on virgin land, outside of the town's current limits.



Current planning in Mariestad (DCP, Bostadsförsörjningsplanen), Scale 1:40 000

**Strategy of the Detailed Comprehensive Plan**

The illustration to the left shows the planned sites for densification, transformation and urban expansion. According to the Detailed Comprehensive Plan, the town of Mariestad needs 7 200 new housing units by 2040, consisting of approximately 50% single-family homes and 50% apartment buildings. 53% of the land mapped out in the DCP is planned for predominantly residential areas, and 46% for industries and commerce. The DCP2040 maps out space for 11 200 housing units, meaning that only about 62% of the housing units enabled by the DCP need be built.

Urban expansion stands for the majority of the housing units proposed by the DCP. The expansion is divided into two areas, Southwest and Northeast. The DCP enables 3 000 new residential units in each of the expansion areas, giving the possibility of 6 000 housing units in total.

Katthavet's industrial area is a centrally located industrial area consisting of smaller scale industries. This is for example the home of Kling Glass, the iconic ice cream factory. No exact plan has been revealed for how much of the industrial area will be demolished, but the DCP enables 3 000 new housing units in the area.

The densification in the DCP is mostly planned around the main roads in Mariestad, for example the ring road Marieforsleden. Modernist planners in the middle of the 20<sup>th</sup> century planned the majority of the main roads with large open grass or forested areas as a buffer between the neighbourhoods and the cars. These buffer zones are now possible sites for densification.

The DCP enables 11 200 units, whereof 6 000 are through urban expansion, 3 000 through the transformation of Katthavet's industrial area, and approx. 2 200 residential units can be made built through densification within the current street network.

The DCP also designates space for industries.

The majority of the new commercial areas are placed along the ring road Marieforsleden and the highway E20 (kan diskuteras).

Notable areas which are not explored in the DCP include the Outer Harbour, where an architectural competition was held in 2004 where the winning program included housing, hotel, conference and a beach. Neither are the areas around the river Tidan explored.



Image 13: Forest threatened by the DCP

**Critique of the current planning**

The current planning contains elements of both the close-knit town and the sprawling town. Densification in Katthavet increases the amount of residents in close proximity to the town center and the natural values of lake Vänern. Infill projects around Marieforsleden and other areas also contribute with residents in close proximity to the other functions of the town, contributing to the benefits of the close-knit town.

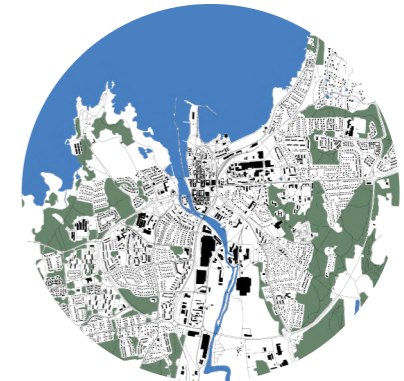
However, 3 000 - 6 000 housing units are planned in urban expansion. This risks becoming the majority of the 7 200 planned housing units. These areas are located 2.5 - 4 km from the town center, a distance which weakens Mariestad's close-knit qualities. The urban expansion risks increasing car dependency in Mariestad, thereby having a negative impact on the independent mobility of children and other who do not have access to cars. The increased car dependency also causes more traffic in Mariestad, higher climate impact and less pleasant streetscapes for pedestrians and cyclists.

By expanding the distances in the town, the urban expansion will likely have a decreased impact on the urban life in Mariestad, and therefore not contribute as much to customer dependent attractions, social integration or perceived safety. The risk of segregation is particularly high in Mariestad as Volvo's new battery factory is likely to attract many new residents from different backgrounds without an existing social network in Mariestad.

The urban expansion is mainly at the expense of forest and agricultural land, increasing the distance between residents in central Mariestad and nature. The transformation of Katthavet forces small-scale industries to relocate.

**Must Mariestad expand?**

The illustration to the right shows Mariestad within a 2.5 km radius from Nya Torget, Mariestad's most central place. Nearly everything in the town is included within this radius. Between any two points within the radius, the cycling distance is at most 20 minutes.



Mariestad within 2.5 km, scale 1: 100 000

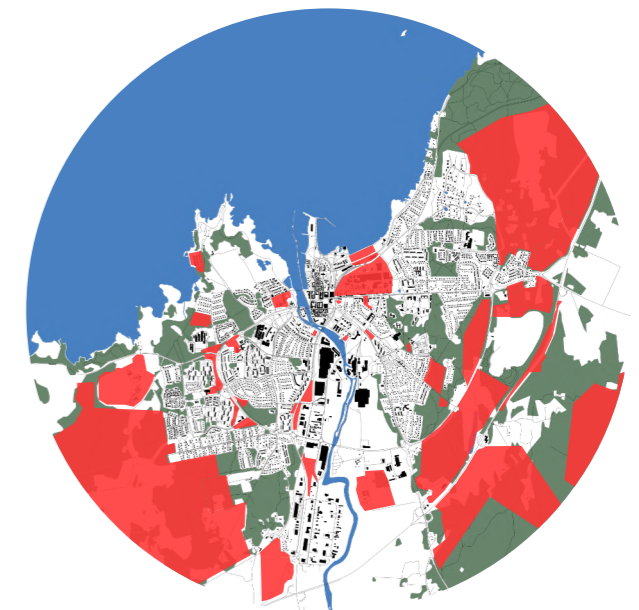
The next illustration shows Gothenburg within a 2.5 km radius of Kungssportsplatsen. Within the radius, one can find the train station, both Chalmers campuses, Sahlgrenska Hospital, Örgryte's villas, Ringön's industrial area, half of Slottskogen, the event district, Liseberg, Masthugget, Haga etc.



Gothenburg within 2.5 km, scale 1: 100 000

Approximately 90 000 people live within this circle (SCB), along with universities, parks, industries, commerce and infrastructure. The functions of a city can fit within a 2.5 km radius from the center.

Mariestad does not need to become as dense as Gothenburg by 2040. 1/3 would be enough to incorporate 30 000 inhabitants within the 2.5 km radius. This would allow Mariestad to develop the qualities of a close-knit town while also having more space for nature than Gothenburg. Instead, the DCP2040 aims for urban expansion, extending Mariestad to a 4 km radius from the center, greatly diminishing the close-knit town and increasing the dependency on cars.



Mariestad within 4 km, scale 1: 100 000

## There is a gap

There is a gap between the objectives of the Detailed Comprehensive Plan and the strategy for housing presented in the same plan. This points towards the existence of unwritten objectives and limitations which affect the planning. One can only speculate to identify these.

### Short sighted economic perspectives

An unwritten factor which is possibly affecting the current planning in Mariestad is a short sighted economic perspective. One area which is not included in the DCP is the Outer Harbour. This area is situated between the town center and the lake Vänern, making it a very attractive location in the town. In 2004, the municipality held an architectural competition for the harbour in Mariestad. The winning project, "Under asfalten finns en strand", designed the harbour with a conference center, housing and a beach. The takeaways from the project were included in the following comprehensive plans, but have been left out in the 2024 edition. Developing the Outer Harbour would greatly increase the flow of people towards the north of the Old Town, thereby improving the conditions for shops and restaurants in the Old Town. However, significant groundwork needs to be done to stabilise the Outer Harbour before development. (Johansson, personal communication, 28 April 2025). Viewing the development in a short term perspective, the initial investment in the groundwork of the Outer Harbour might make the development of economically unfeasible. When counting in the economic benefits the development of the Outer Harbour can have on the town center and the town as a whole, by contributing to the close-

knit and living town, the development of the Outer Harbour becomes more reasonable.

Worth noting is that the municipality in Mariestad is in a challenging economic position. The municipality must invest heavily on all fronts to prepare for a doubling of the town's population. Yet the tax base is still the same as it has been for many decades, and will not increase until the new population has settled. Therefore investments such as the Outer Harbour can be difficult for the municipality.

The same logic can be applied to centrally located industrial land in the town. There is a risk of industrial contamination which requires investments in groundwork before development can begin. This investment increases the price of production.

Building on virgin land is often cheaper and simpler in the short term. This contributes to the appeal of urban expansion. However, in the long term, the urban expansion contributes to a sprawling town with higher costs of transports and infrastructure and lower qualities of the close-knit and living town, leading to a less attractive town and unforeseen costs down the road.

### Symbolic value of the large industries

The large-scale industries in Mariestad, Electrolux (later Prodma) and Katrinefors, hold a high symbolic value. The municipality have been accommodating towards these industries to encourage them to maintain and expand their production in Mariestad. This has sometimes been done at the expense of the citizens of Mariestad, which can be seen in Katrinefors' recent development southward on Tidans eastern shore,

further limiting the public access to the river. (Ahnlund, personal communication, 18 October 2024). This is likely one reason why Katthavet, which contains small scale industries, is presented as an area for full transformation whereas the Electrolux area, which currently contains industries and storage employing approx. 250 workers on 150 000 sqm of centrally located land is not considered in the DCP. (Kristoffersson, personal communication, 3 October 2024).

### Appeal of single-family homes

In Mariestad, the politicians have a large influence over the urban planning in the municipality. This has become clear in discussions held with planners in Mariestad. (Nedersjö, personal communication, 24 September 2024), (Johansson, personal communication, 28 April 2025). The politicians have an incentive in making Mariestad attractive to new, ideally wealthy, residents who contribute to Mariestad's tax base. The politicians, however, risk having a simplified understanding of what makes a town attractive.

Multiple reports have shown that 60-70% of the population in Sweden wish to at some time in their life live in a single-family home. (Boverket, 2014). The appeal of the single-family home becomes more complicated to measure, however, when the aspect of its position in relation to other parts of the town is taken into account. (Spacescape 2024). The appeal of the single-family home is the subject of a national discussion which has seen the appointment of an Egnahemskommissionär by the national government to promote the construction of more single-family homes in Sweden. (Kvint, 2024).



Image 14: Katthavet



Image 15: Sjölyckan, a newly developed urban expansion which can give an insight in future developments

Single-family homes generally occupy large amounts of space, creating sparse residential areas and widening distances between the town's functions. One example of this is Sjölyckan a recent example of urban expansion in Mariestad. Sjölyckan is sparsely developed with a floor space index of 0.1. Just as with the planned urban expansion in the northeast and southwest of Mariestad, Sjölyckan is built on what was previously forest. There are current plans of constructing 350 new apartments in the area which would increase the fsi to approx. 0.2, yet this does not contribute enough to the close-knit town to justify urban expansion in the model of Sjölyckan.



Built area in Sjölyckan

#### Conclusion

The current planning in Mariestad risks not achieving the objectives set in the DCP if unwritten objectives which contradict the objectives in the DCP have too much influence over the planning. By not achieving the objectives in the DCP, Mariestad risks becoming a less attractive and sustainable town. The incoming transformation of Mariestad, generated by Volvo's battery factory and other investments, is a golden opportunity for Mariestad to truly become the proud town of the future, and put aside outdated conventions in planning and work towards the close-knit, living town.

## The narrative in Mariestad

Excerpts from Mariestads-Tidningen, the local newspaper

**Köpkraften i Mariestad, alltså hur mycket invånarna kan spendera, väntas öka från sex till nio miljarder kronor – på bara sju år.**

Enligt programmet vill kommunen:

- jobba för en välplanerad stad med attraktiva, inspirerande och trygga livsmiljöer.
- ha en levande stadskärna med handel, nöjen, kultur och service som binds samman av naturliga mötesplatser och attraktiva stråk.
- göra det enkelt att starta och driva företag på landsbygden och bidra till att det kan byggas bostäder där.
- säkerställa ett varierat och hållbart utbud inom handeln.
- att stadsplaneringen utgår från "15-minutersstaden" där arbete, vård, skola, handel, nöjen och rekreation finns inom gång- och cykelavstånd i city och 15 minuter bort med bil/buss för de som bor på landsbygden.
- att stadsplaneringen ska göra så att alla känner sig välkomna.
- utveckla flexibla företagsområden som kan anpassas efter ändrade behov så att företag kan växa utan att behöva flytta och att lokaler kan ställas om för nya verksamheter.
- stärka möjligheterna för fritidsaktiviteter.

Image 16: Tidan and Marieholmsbron



Section 4  
**Design**

Image 17: Tidan, Katrinefors and Värmeverket

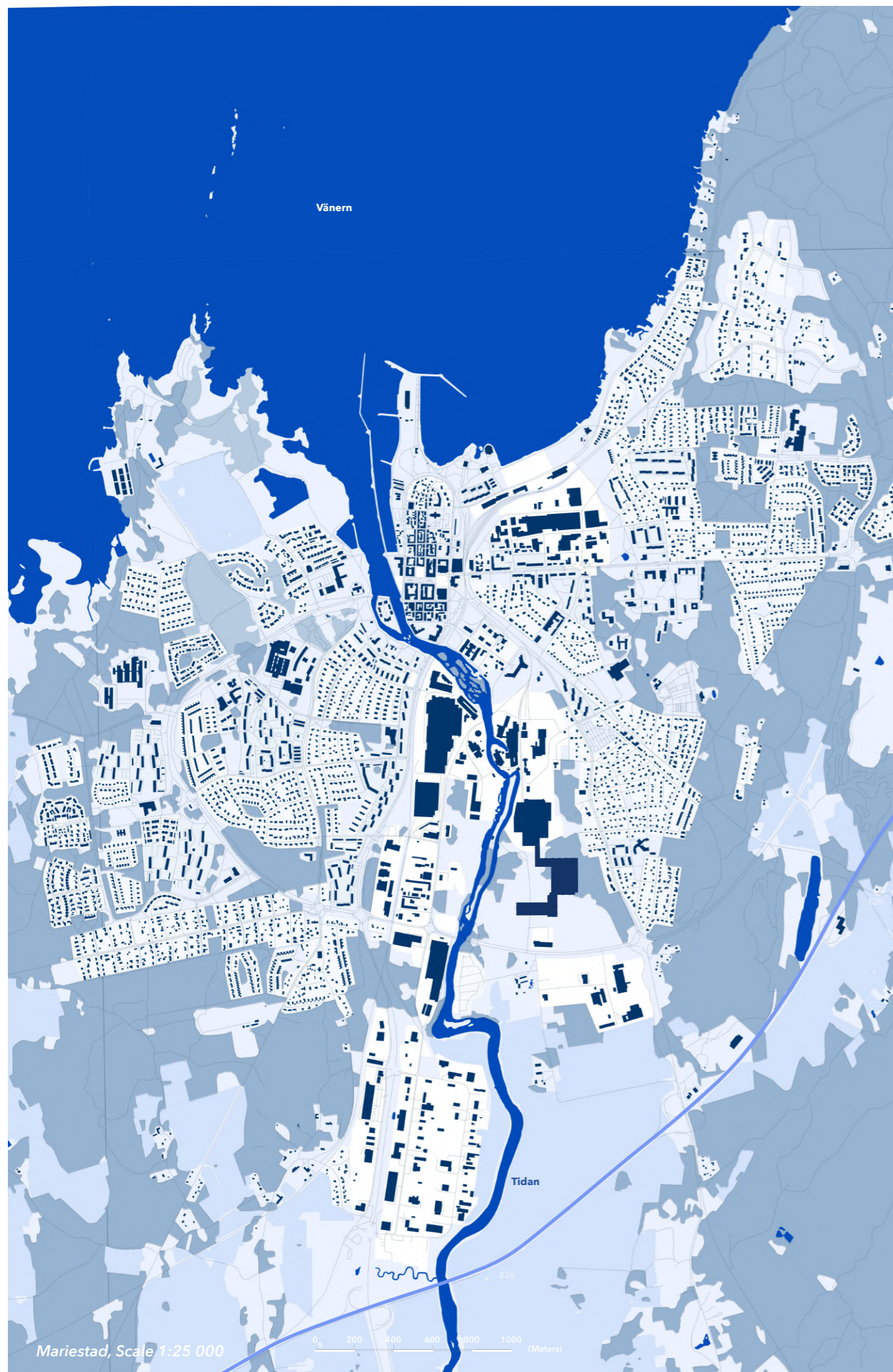
## Design

The design section presents an alternative plan to the one presented in the Detailed Comprehensive Plan, which aims at aligning itself more closely to the established objectives of the *The close-knit town*, *The living town*, *The safe town*, *The diverse town*, *The green lakeside town*, *The well-designed town* and *The proud town of the future*.

The design is initially conducted on the scale of the town as a whole, identifying areas where Mariestad can develop in closer proximity to the town center, as well as create better connections between existing parts. The objective on the town-scale is to make Mariestad more close-knit, and thereby improve the conditions for life in the town.

Several sites deemed suitable for new development are explored in greater detail. These sites are Yttre Hamnen, Tidan's Kvillar & Norra Katrinefors, Electrolux, Tidan's Västra Strand, Katthavet and Marieforsleden. The density of these sites, design principles and the role each site has the potential to serve in the town as a whole are discussed.

The DCP uses housing units to measure the amount of development needed. This is a clumsy number as a single-family home consists on average of 3.44 residents and an apartment only 1.85 residents. The design section will therefore use the number of residents as the measurement.



## Qualities

### Beauty of the town center

Mariestad has a relatively large, well preserved historical center with cobblestone streets and historical buildings, including the church Domkyrkan from the 16<sup>th</sup> century. Domkyrkan is a landmark for Mariestad and can be seen from most parts of the town and the surrounding countryside.

The harbour, where the river Tidan flows into lake Vänern, is directly west and north of the historical center. These areas attract tourists and residents of Mariestad, especially during the summer months.

### Vänern and nature

Mariestad goes under the nickname *Vänerns pärla* (The Pearl of Vänern). The lake plays a central role in the identity of Mariestad, and since the deindustrialisation of the harbour and the other areas along Vänern, there has been a desire for the town to grow closer to the lake.

## Weaknesses

### Barrier of Tidan

Apart from 1 km where the Tidan flows into Vänern, the majority of the river is difficult to access for the public. Since the 18th century, industries have established along the river. These industries are relatively centrally located in Mariestad, within 1 km of Nya Torget, the town center. The industries have fences on their boundaries, creating large central areas around the nature of Tidan which are unreachable. This has led to a division between the two sides of the river, and the connections between eastern and western Mariestad are few and far in between.

## Design town scale

### Aim

The main objective of the design in the town scale is to increase the values of Mariestad as a close-knit and living town. To achieve this, Mariestad should grow inwards through densification rather than outwards through expansion. The illustration to the right identifies locations for housing for 12 000 inhabitants. Space for the remaining 3 000 in the municipality's road from 25 000 to 40 000 should be created through projects to revitalize the rural areas of the municipality and the villages of Lugnås, Ullervad, Hassle, Lyrestad and Sjötorp.

### Concentrate development within 2 km of the town center

New housing in Mariestad should be concentrated within 2 km of Nya torget. This ensures close connections between all points in the town, making any point reachable within a maximum 20 minute bicycle ride, thereby improving the conditions for pedestrians and cyclists. Densifying Mariestad also improves the conditions for public transport by concentrating more potential travelers near bus stops and the station.

Concentrating development within 2 km of the city center decreases the dependency on cars in Mariestad, thereby leading to less traffic and more pleasant streetscapes.

### Balance density and livability

Newly developed areas should aim at a FSI of between 0.5 and 1.2. Less than 0.5 is too sparse to ensure everyone a home in proximity to the functions of the town. More than 1.2 is too dense for Mariestad and has a negative impact on the amenity of the streetscape.

### Land use

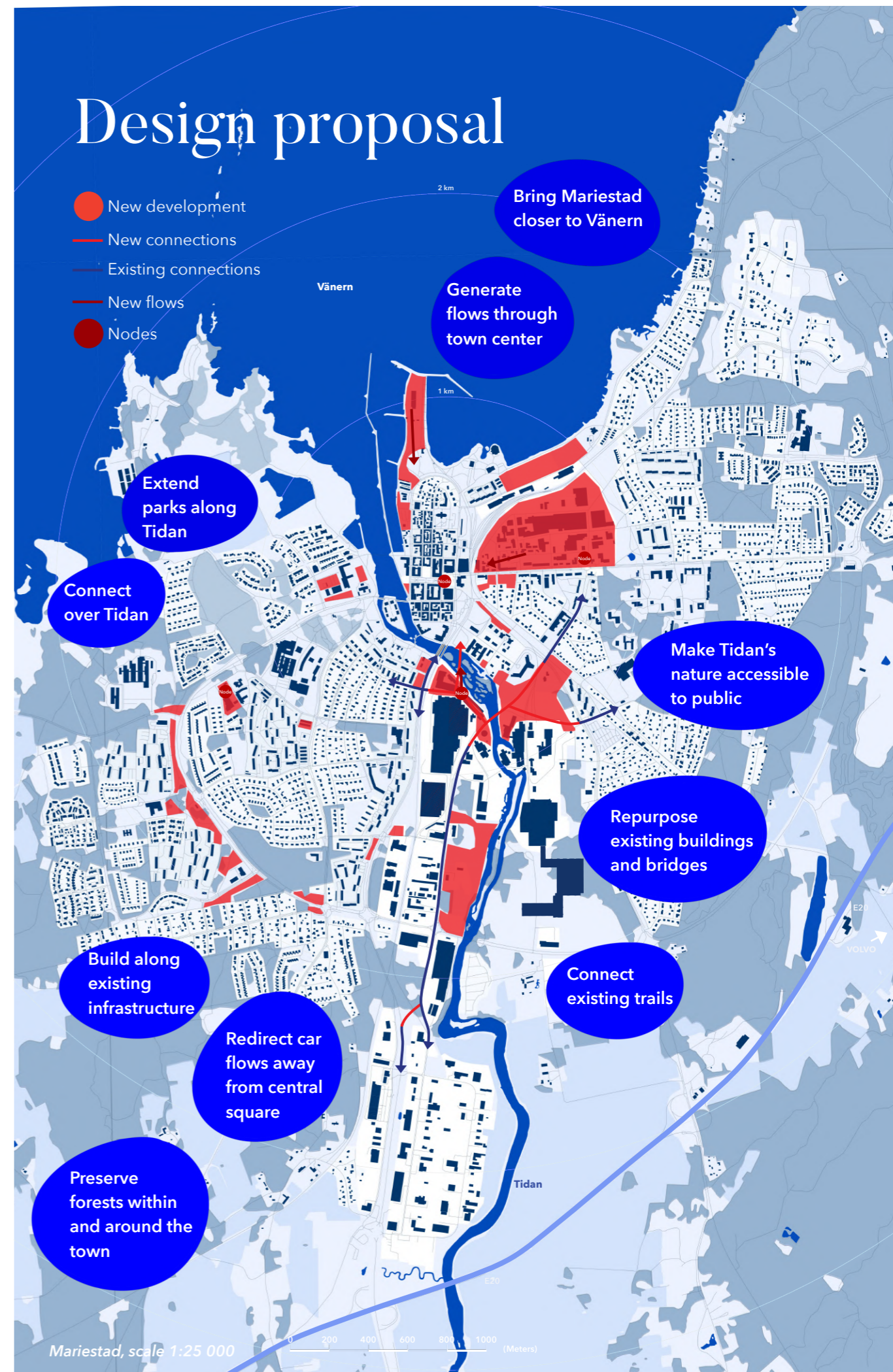
The development of new areas in Mariestad should not occur at the expense of natural values. The forests should remain as the lungs of Mariestad. Instead, the development should occur on open spaces, such as the buffer zone

around Marieforsleden, spaces currently occupied by car infrastructure and space occupied by industries. Even though Mariestad's population doubles, the space occupied by cars in Mariestad should decrease. This is a logical argument since developing centrally located car parks and fuel stations to housing and businesses contributes to the close-knit town and decreases the car dependency. As established in the *Objectives & Theory* section, the car is not a sustainable mode of transport, and the planning should therefore contribute to a decreased use of cars.

The industries are important to Mariestad and should be protected, but they currently use large amounts of centrally located space inefficiently. The plan proposes development on the site previously used by Electrolux. During the 1980's, 1 500 people worked on the site. It is reasonable to assume that the 250 who currently work on the site can condense their usage of the area without a drastic negative impact on production.

### Rerouting the flow of cars

Decreasing the amount of cars in the town center would improve the quality of the streetscape in the historic environment, potentially increasing the amount of pedestrians and cyclist who spend time in the center. One way to do this is to connect Haggården-Förrådsgatan-Mariagatan over the river Tidan by making the existing bridge within the Katrinefors industry available to the public. This connection is currently being explored by the municipality and would relieve traffic on Göteborgsvägen and Stockholmsvägen, decreasing the traffic by Nya torget.





Yttre Hamnen, scale 1:20 000

# Yttre Hamnen

800 residents  
 9 000 sqm hotels, conference centers  
 and restaurants  
 FSI: 0.9 (similar to Gamla Stan)

**Aim:** Generate flows through Gamla Stan by adding residents and attraction north of the center.

Bring Mariestad closer to lake Vänern.

Yttre Hamnen (the Outer Harbour) is today used as parking, winter storage for private boats and pitch sites for campervans during the summer. It is located between the town center and lake Vänern, thereby a location of high potential. The inner harbour and Gamla Stan are Mariestad's hottest spots for tourists during the summer. By adding housing, hotels and restaurants in Yttre Hamnen, new flows can be generated through Gamla Stan and the inner harbour, thereby stimulating the stores and restaurants in these areas which are busy during the summer but struggle for customers off-season. Yttre Hamnen is a land-fill in the water, and thereby requires strengthening groundwork before construction.

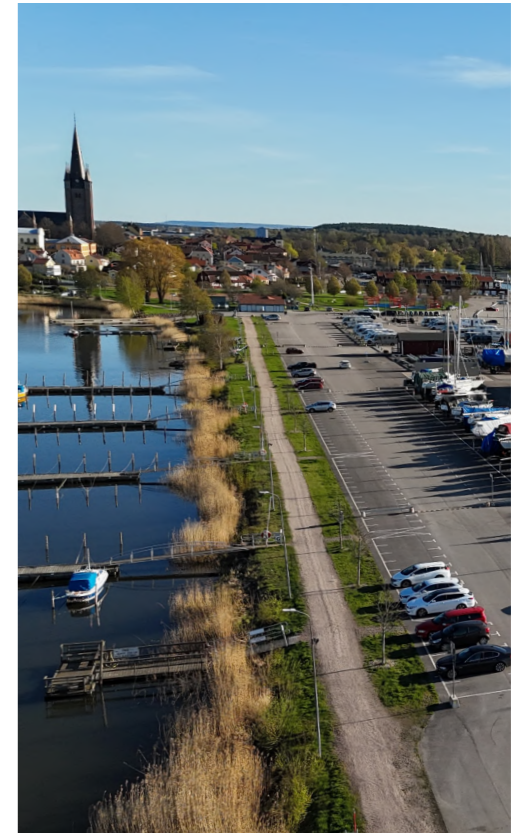


Image 18: Yttre Hamnen and Domkyrkan

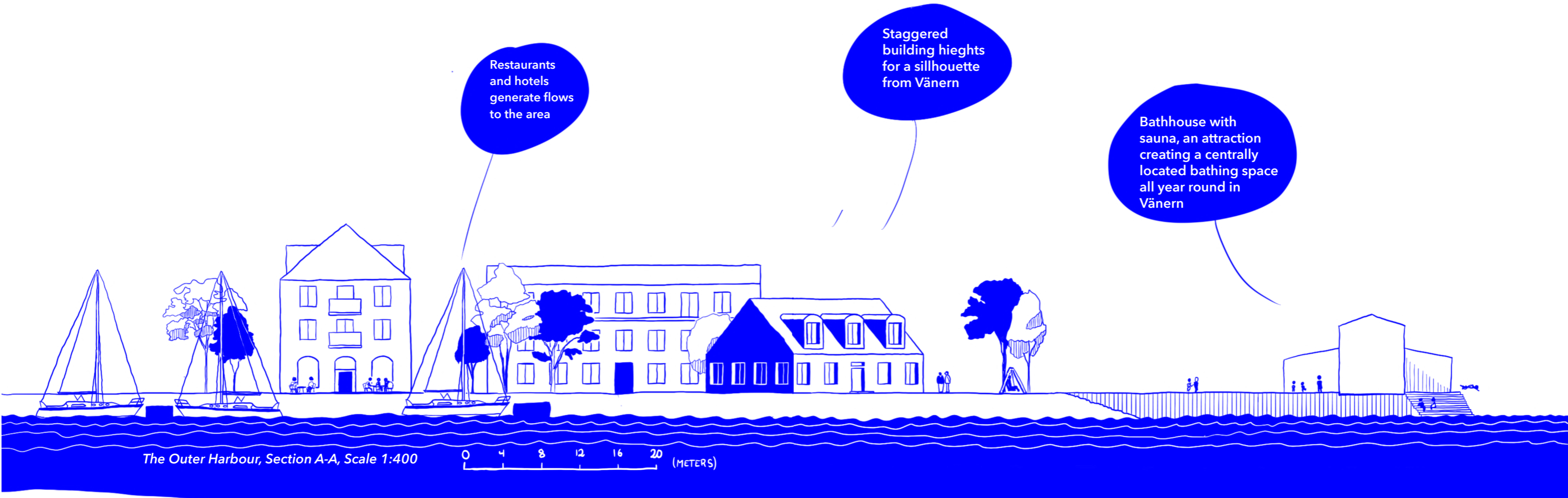




Image 19: Tidán's Western Shore, Electrolux, Värmeverket and the town center

### Qualities

#### Central location

The area of Electrolux and Tidán is Mariestad's geographical midpoint. The district stretches from the northernmost point of the Electrolux property, merely 400 meters from Nya torget, to Marieforsleden in the south, 1.8 km from Nya torget. This gives it a central location with close access to important passages (stråk) in the town, including Universitetsparken, Göteborgsvägen and Marieforsleden.

The fenced off industrial area around Tidán is a wedge which separates western and eastern Mariestad. Therefore, new connections would likely generate new flows of people through the area.

#### Natural values

The river Tidán creates a beautiful waterscape, including the unique biotope Tidán's kvillar, consisting of many small islands in the river. This unique landscape, though located merely 400 meters from Nya torget, is mostly inaccessible to the public due to the railway and the industries.

#### Industrial heritage

The area around Tidán's Kvillar was industrialised already in the 18<sup>th</sup> century. Multiple brick industrial buildings remain, including Kvarnen and Katrinefors.

#### Space

The area contains large open spaces, such as Tidán's Western Shore, as well as large indoor spaces in the former Electrolux factory. This allows for new development both on virgin land and through transformation.

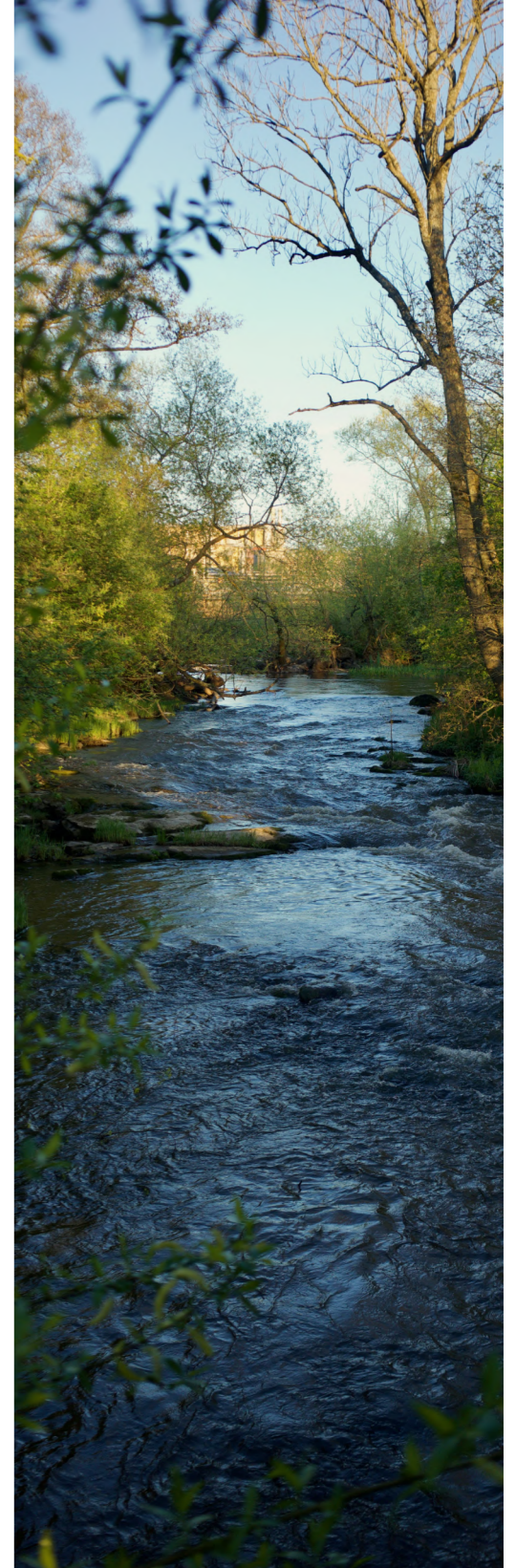


Image 20: Tidán's Kvillar

## Challenges

### Relocating existing industries and demolishing buildings

In the plan to develop the area around Tidán and Electrolux presented in this thesis, several smaller industries are relocated and their buildings demolished. The standards of the buildings are relatively low, and presumably there is space in the main building of the former Electrolux factory. This necessitates for Prodma AB, the main actor on the Electrolux site, to condense their activities to a smaller area. This should be possible, given the reasons stated when discussing land use on the town scale. The design proposal argues that the benefits of developing northern Electrolux and making Tidán's Kvillar accessible outweighs the negative consequences of demolition.

### Contamination

The level of contamination in the area is unknown. Likely there is some ground contamination in the northern Electrolux area as well as in the main building, but the extent of the contamination is uncertain. (Kristoffersson, personal communication, 3 October 2024). The buildings in the former Electrolux factory are likely unsuitable for housing. The ground of Tidán's Western Shore is likely free from contaminants.

### Noise pollution

There are multiple active industries in proximity. Several of these cause noise pollution, including Värmeverket and Katrinefors. The noise on Tidán's Western Shore on a working day has been measured to 31 dB, which is below the allowed maximum noise pollutions (40-50 dB). (Naturvårdsverket, 2015).

### Land ownership

The district is located on 8 privately owned properties with different owners.

Each have the right to withstand selling their properties, but each also has an incentive of making an income from unused land.

### Railroad

The railroad creates a barrier between Electrolux and the town. The railroad also has a safety zone which prohibits housing within 30 meters in each direction.

### Biotope protection

The biotope of Tidán's Kvillar is protected (biotopskydd), and must therefore not be affected negatively. Certain exemptions can be granted.

### Powerlines to elvärket

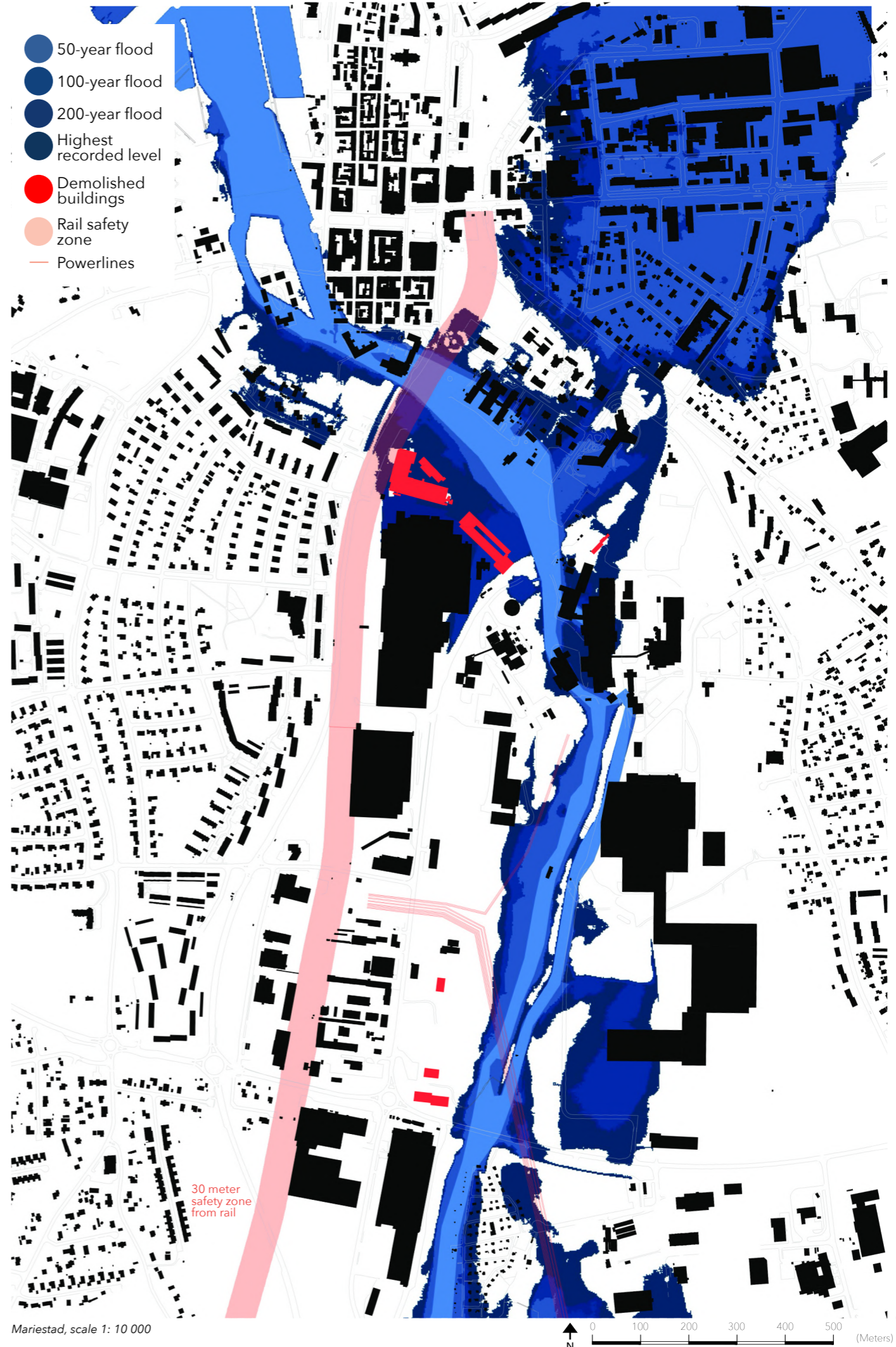
Powerlines cross over Tidán's Western Shore to the transformer on Leverstadvägen. These powerlines must be placed underground to allow development in the area.

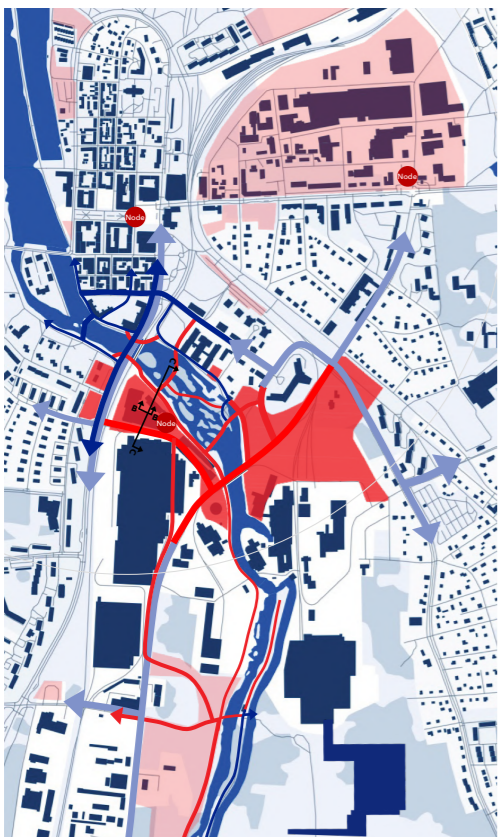
### Flooding

There area around Tidán's Kvillar is in risk of flooding from 100-year rains. The area of Tidán's Western Shore is relatively spared from flooding.

### New development

Expansions of Katrinefors from 2023-2025 have weakened the possibility of connecting the western and eastern shores of Tidán, and thereby connecting western and eastern Mariestad.





Tidan's Kvillar & Norra Katrinefors, Scale 1:20 000

# Tidan's Kvillar & Norra Katrinefors

2 500 residents  
28 000 sqm commerce and offices  
FSI 1.1

**Aim:**  
Extend Universitetsparken further along the river. Make the unique nature of Tidan's Kvillar accessible to the public in Mariestad.

Connect western and eastern Mariestad over the river.

Extend the town center. Create a bustling urban environment with high betweenness centrality and pleasant public space which people wish to spend time in.

Tidan's Kvillar is an extension of Universitetsparken and the town center, consisting of housing, offices and commerce by the nature of Tidan.

**Spaces**  
The design of the blocks works with the streetscape as a series of spaces which widen and close, creating spaces (rumsligheter) between the buildings. This creates an intimacy between the buildings, encouraging passersby to stay. The distance between the blocks is in some places only 6 meters to create a portal effect into the streetscape between the blocks, which opens up to 14 meters. The streets between the blocks are walking streets.

**Front yards**  
The design works with *front yards* (förgårdar). These are 4 meter zones between the building and the street for gardens or to allow cafés and stores to spill out onto the street, while allowing space for greenery and privacy of the entrance.

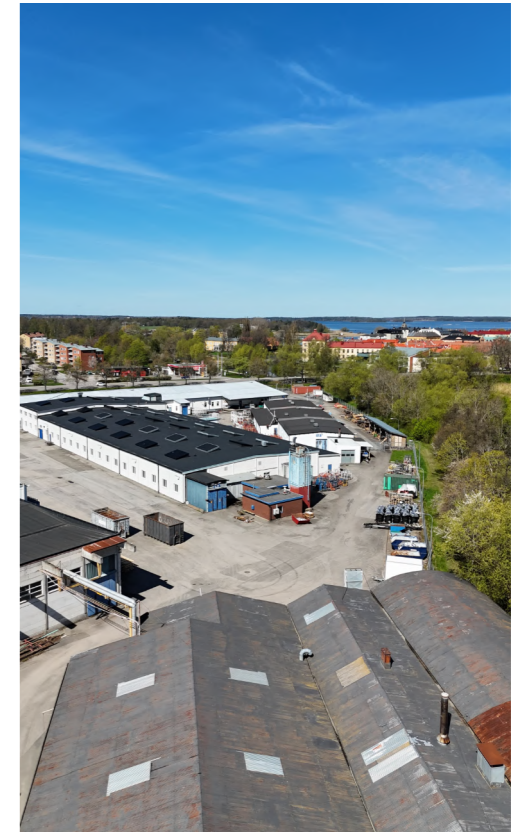


Image 21: Small scale industries of the northern Electrolux area

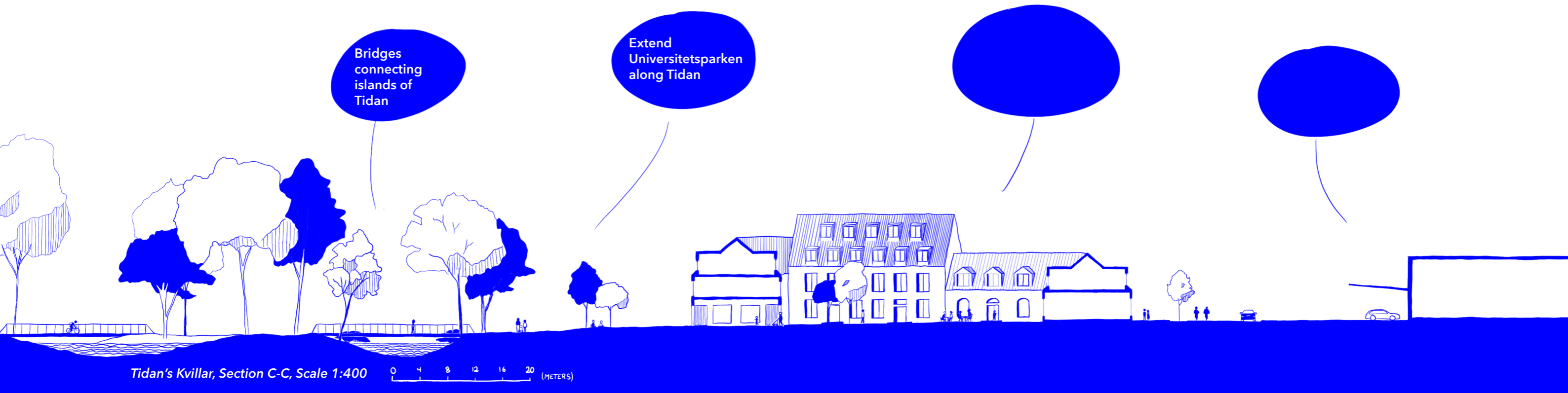




Image 22: Tidan's Kvillar, including existing foundations for a bridge

### Courtyards

Two courtyards are private and contain a garden for the residents. The third courtyard is public, acting as an enclosed square. The block containing the public courtyard has openings in strategic locations to encourage pedestrians and cyclists to pass through the square.

The height of the buildings are low for daylight to reach the streets and to allow for closeness between buildings.

### Connections

Tidan's Kvillar acts as an extension of Universitetsparken. A passage under Badhusbron and the railway bridge on allow pedestrians and cyclists to continue along Tidan, something which is difficult today.

Two pedestrian and cyclist bridges over Tidan connect the two sides. One bridge is placed upon existing foundations in the water, connecting Tidan's Kvillar with Drottninggatan and Sandbäcksvägen. The other is placed on existing islands in the river, and connects to Drottninggatan and Bror Kronstrands Gata.

A car road connects Göteborgsvägen and John Hedins väg with Tidan's Kvillar, Förrådsgatan and the bridge which connects car traffic to Sandbäcksvägen.

### Sightlines

Sightlines towards the landmarks of Domkyrkan and Katrinefors improve maneuverability and interest.

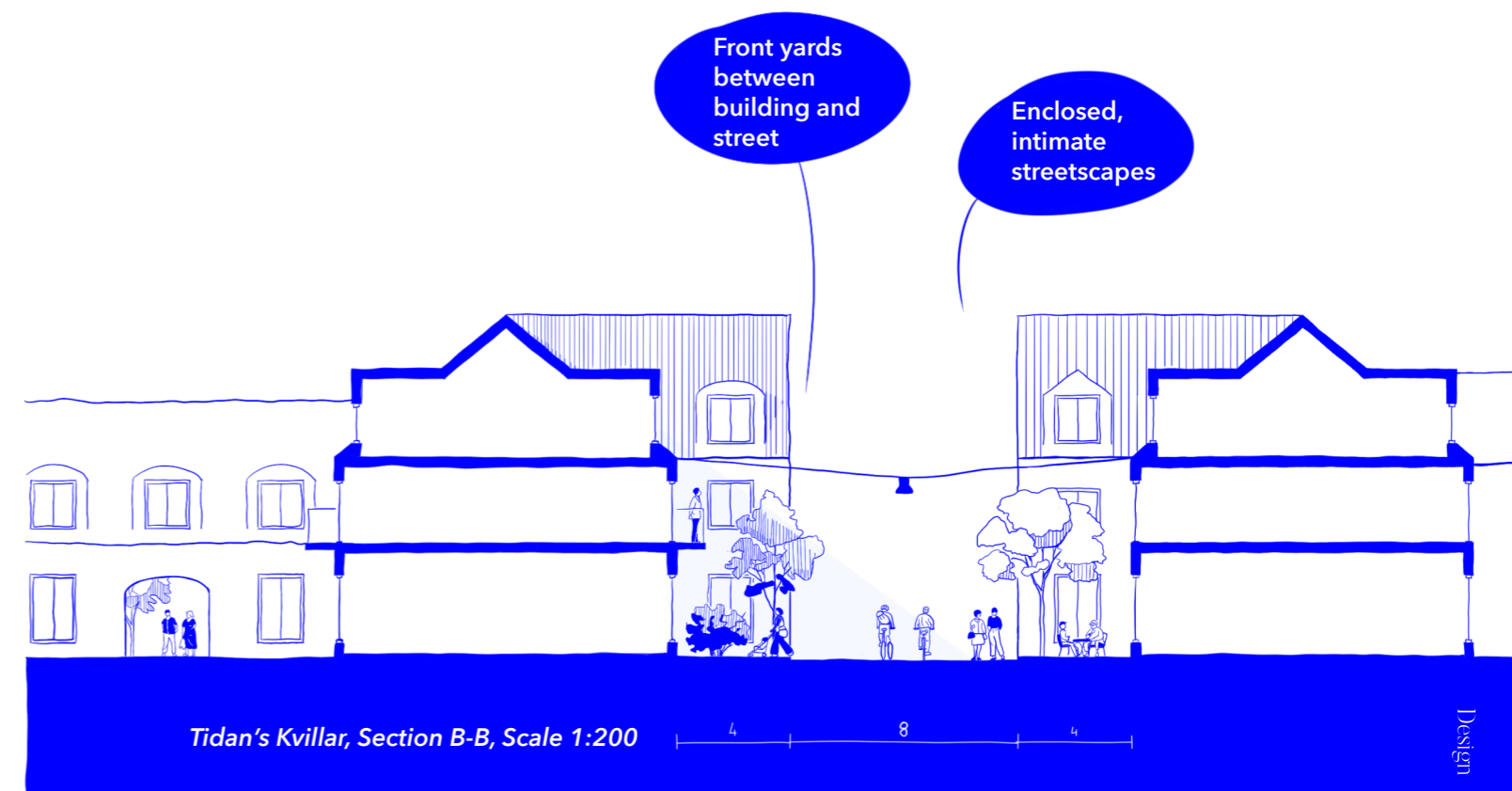
### Car parking

To make the compact streetscapes pleasant, car parking on the street is removed in favor of parking garages situated in the periphery of the area, including in the Electrolux factory building. This decreases the amount of moving and parked cars in the streetscape. The parking garages should ideally be designed for flexibility should the use of personal cars decrease in the future. Underground parking under the blocks is not used for its cost, its impact on the streetscape and facades of the buildings and the possibility of large trees on the courtyards.

One parking space should be available within 25 meters of each entrance to allow mobility for the differently able and for special circumstances.



Image 23: Bridge for trucks and trains, currently behind industry fencing but a potential link between Förrådsgatan and Mariagatan





Electrolux, Scale 1:20 000

# Electrolux

Repurpose 1/3 of the former Electrolux factory, or about 25 000 sqm, to new functions such as sport facilities, public workshops, studios, stores etc.

**Aim:**

Make available large open indoor spaces for businesses which contribute much to society but do not generate enough money for new premises.

Create a bicycle path through the factory to further connect areas in Mariestad.

The main building of the Electrolux factory is about 55 000 sqm and is currently used by Prodma AB and Electrolux Logistics. By purchasing and repurposing a fraction of the space, activities which require much space without generating much money become possible centrally in Mariestad. This can include sports facilities such as climbing, large stores, galleries, workshops etc, as well as the activities relocated from Tidans Kvillar, such as the building hall used by Göteborgs Universitet.

The factory building is from the modernism era and is built with a concrete column-beam frame spanning 16-24 meters between the pillars, simplifying transformation.

The new functions in Electrolux are orientated around a road for pedestrians, cyclists and permitted motorised traffic going through the factory underneath the existing beams, creating a unique urban space.

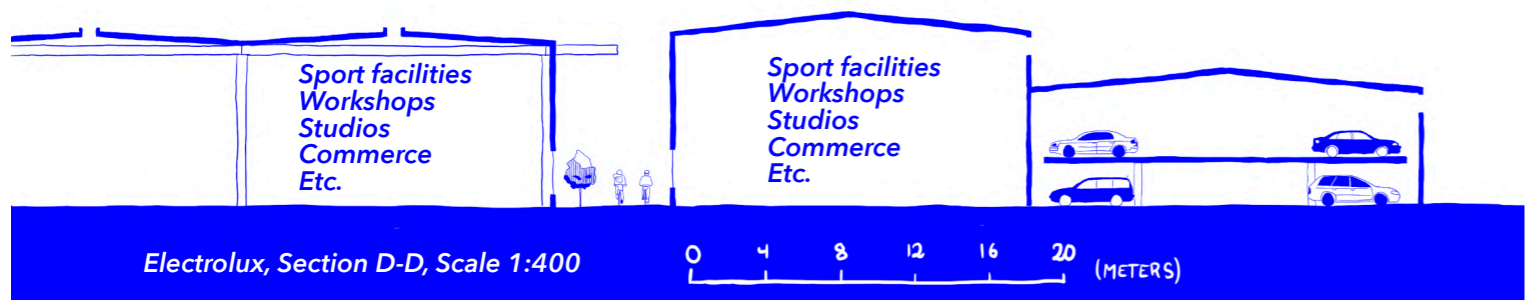


Image 24: The former Electrolux factory, Tidans Kvillar in the foreground



Tidan's Västra Strand,  
Scale 1:20 000

## Tidan's Västra Strand

1 300 residents  
9 000 sqm commerce and offices  
FSI 1.1

**Aim:**

To combine small scale housing, including single-family homes and row houses, with density.

To create safe environments for recreation and play.

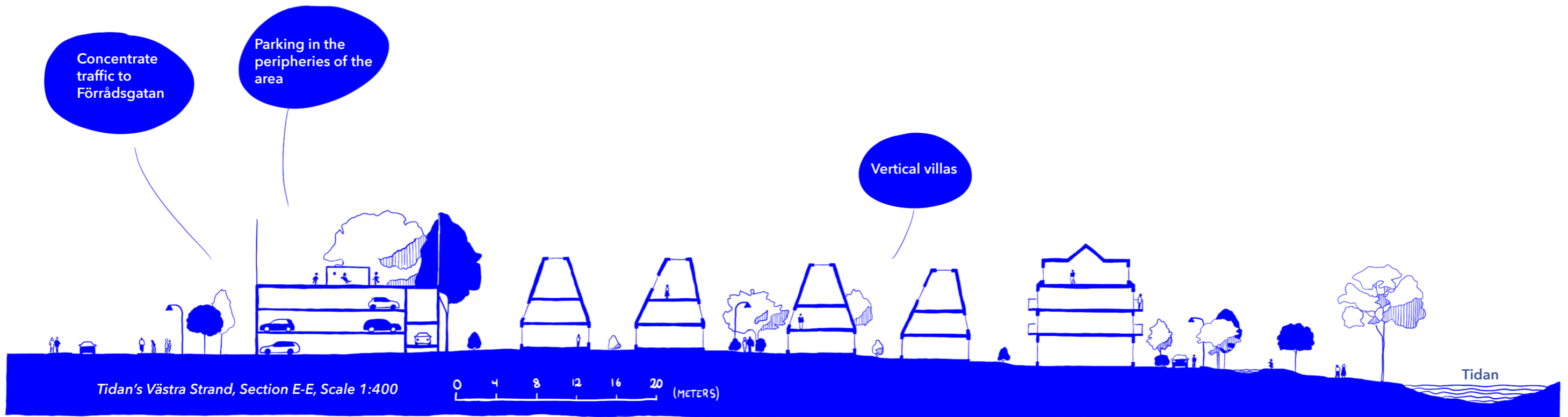
To further develop the accessibility of the river Tidan, for example by redirecting a smaller stream from the river for play and nature in the streetscape.

Tidan's Västra Strand is a predominantly residential area by the river. The design explores the Garden City as a way of combining the qualities of the single-family housing areas with the density needed for the close-knit town.

There is an appeal in single-family homes, which is reflected in the plan of the DCP. Single family homes are not necessarily incompatible with density. The Garden City typology encompasses a mixture of single-family homes and low multi-family buildings. This is explored on Tidan's Western Shore.



Image 25: Tidan's Västra Strand, with Electrolux, Värmeverket and the town center in the background



Tidan's Västra Strand, Section E-E, Scale 1:400

0 4 8 12 16 20 (METERS)

Tidan

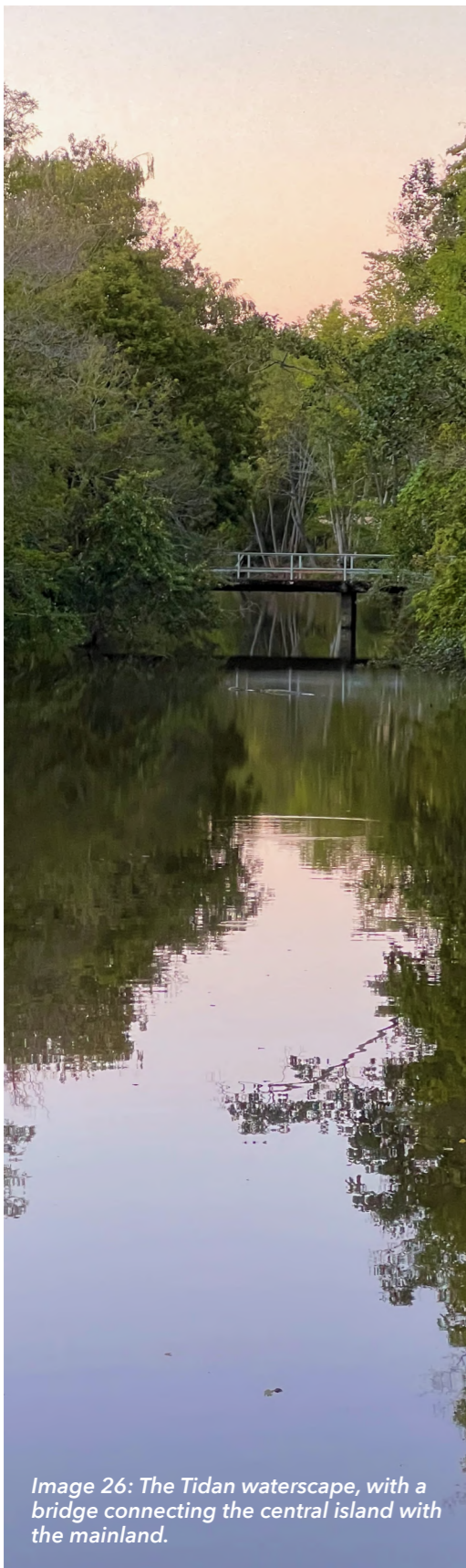


Image 26: The Tidan waterscape, with a bridge connecting the central island with the mainland.

The design aims to create distinction between private spaces, semi-private spaces and public spaces.

The private spaces are in the used and managed by individual families or residents.

The semi private spaces are used and managed by the residents of a block, generally 100-150 people. These spaces are gated to maintain privacy.

The public spaces are used by the residents of the district and the whole town. These spaces vary from open to compact to give different qualities. By creating distinct private and semi-private spaces, the design aims at supplying qualities prevalent in single-family homes. Having a spectrum of private and public spaces creates a diversity and interest of spaces.

The single-family home can become more space-efficient by becoming more vertical. The design includes 3-storey villas inspired by the Vertical Village II concept by Tham & Videgård Architects. (2018). The villas are on plots of 220 sqm, roughly 1/4 of the 1 000 sqm standard. The area also includes tiny houses of 30-50 sqm + loft, aimed mostly at 1-2 people households who wish to live in a house.

The design combines row houses and apartment buildings to form block structure to provide semi-private spaces. This diversity of typologies can bring a diversity of people together. The building heights are lower in the north and south for sunlight to permeate the courtyards and streets.

#### Access to nature

A section of the river is redirected above the hydropower dam and flows as a stream through the area. It is shallow, allowing for children to play while also contributing with biodiversity and flowing water in the neighbourhood.

The existing forested areas on Tidan's Western Shore are preserved.

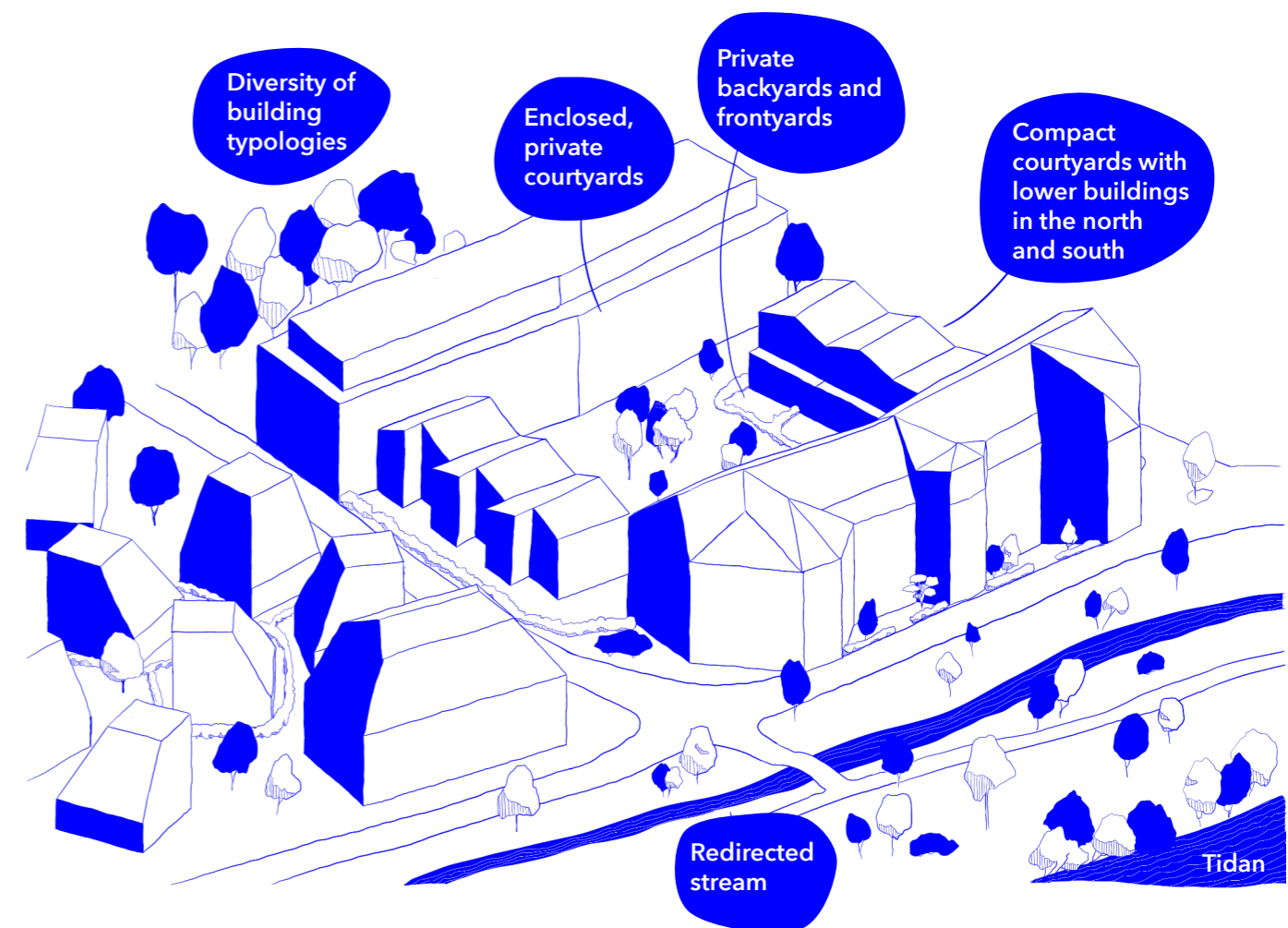
#### Cars

Parking is places in parking garages on the edge of the area to remove as many cars as possible from the streetscape. Individual parking spaces are placed around the area to supply a parking space within 25

meters of each building entrance. The streets are 4 meters wide to allow cars to pass within the area in one-way traffic on pedestrian's terms.

#### Protection against noise

The buildings are more solid and with fewer gaps in the directions of traffic or industry to protect the area against noise.



Tidan's Västra Strand, Axonometry



Katthavet, Scale 1:20 000

## Katthavet

4 500 residents

Preserve 50% of industries

FSI: 1.2

**Aim:** Create a coexistence between small scale industries and housing in proximity to the town center and lake Vänern.

The transformation of Katthavet is included in the municipality's current planning for Mariestad. It is a centrally located industrial site within proximity of both the town center and Vänern.

Ideally, 50% of the industries could remain in the transformation to create a symbiosis between small scale industries and the new residents. Several present industries are, however, incompatible with nearby residents due to smells and pollution, including Reningsverket and the iconic Kling Glass ice cream factory which would have to adapt or relocate.



Image 27: Katthavet's industrial area

## Marieforsleden

1 200 residents

FSI: 1.0

**Aim:** Densify along existing infrastructure while adding a diversity of housing typologies to an area consisting mostly of apartment buildings from the 1960's and 70's. Reignite a dying node in Marieholm, an area with high betweenness centrality.

Marieforsleden was built as a ringroad around Mariestad with modernistic ideals of safe car transportation. The road is wide with large open grassland on each side. The speed limit decreased from 70 to 50 km/h during the 2000s.

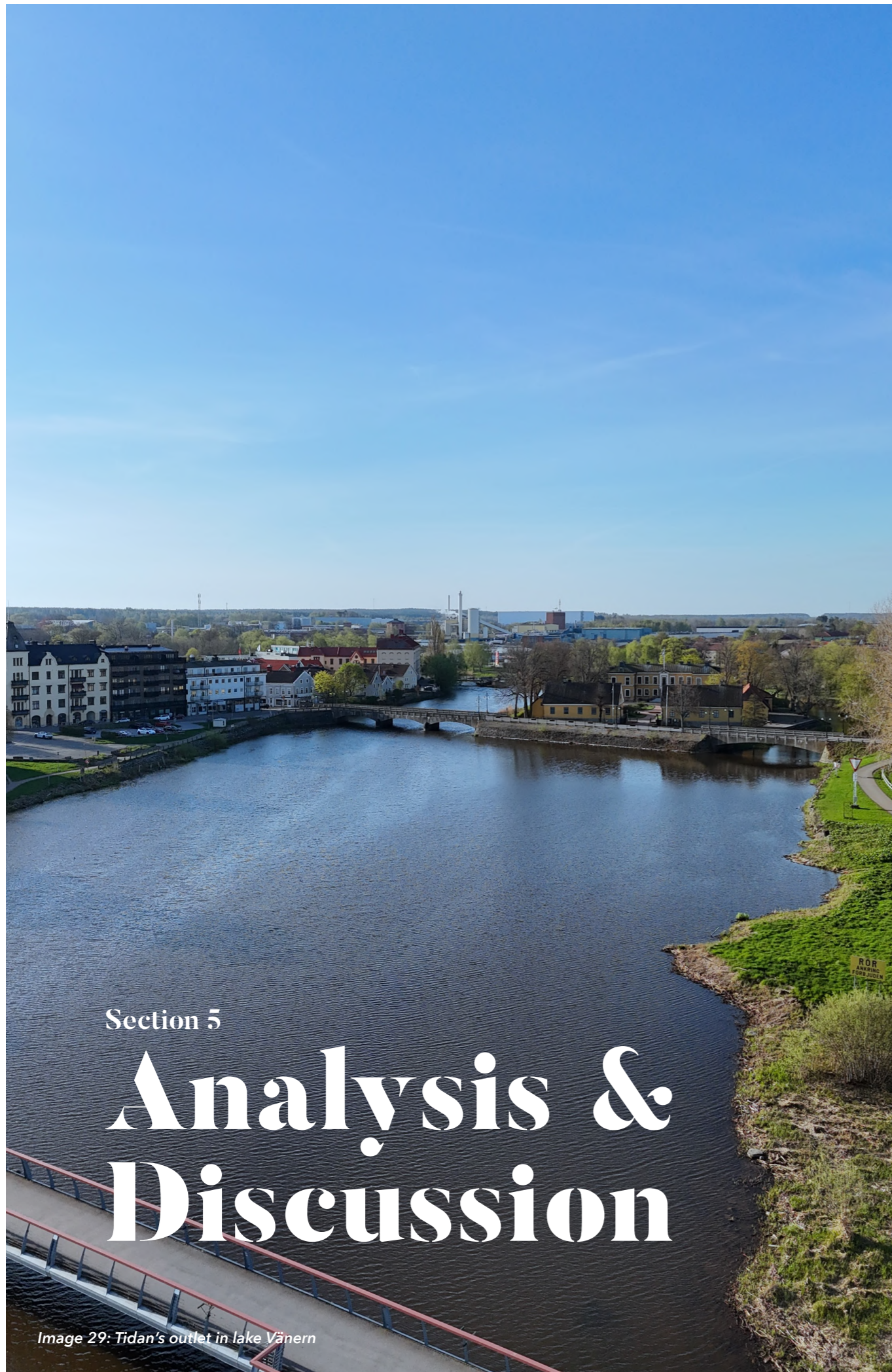
A transformation of Marieforsleden could make the street more urban, while adding buildings on what is today open grassland.



Marieforsleden, Scale 1:20 000



Image 28: Marieforsleden (Google Earth, 2023)



Section 5

# Analysis & Discussion

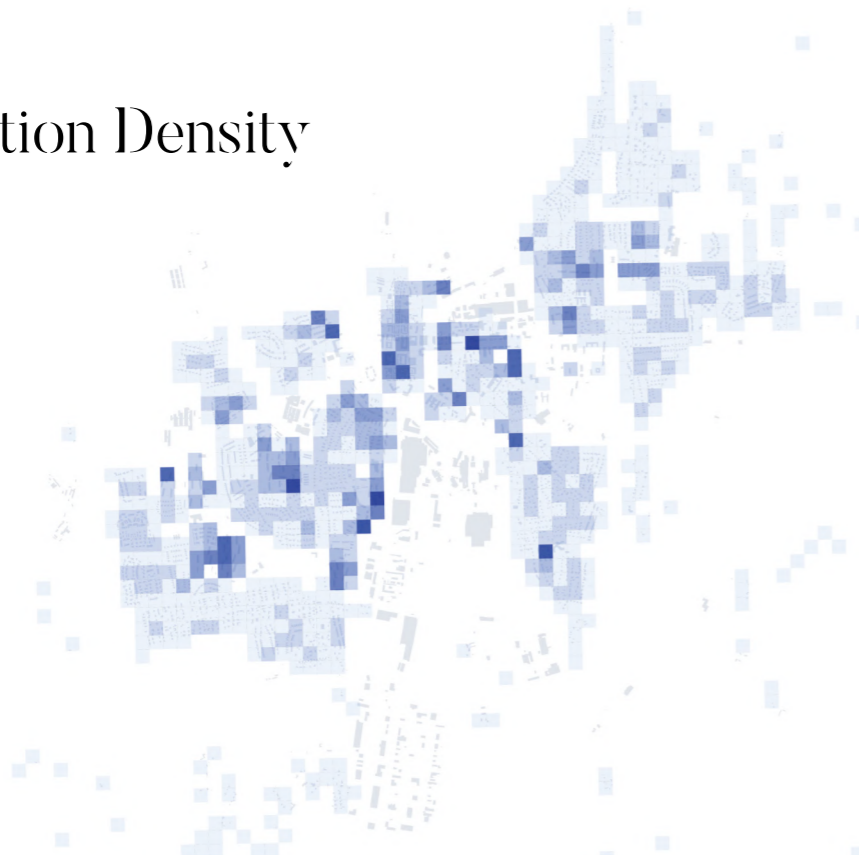
Image 29: Tidån's outlet in lake Vänern

## Analysis & Discussion

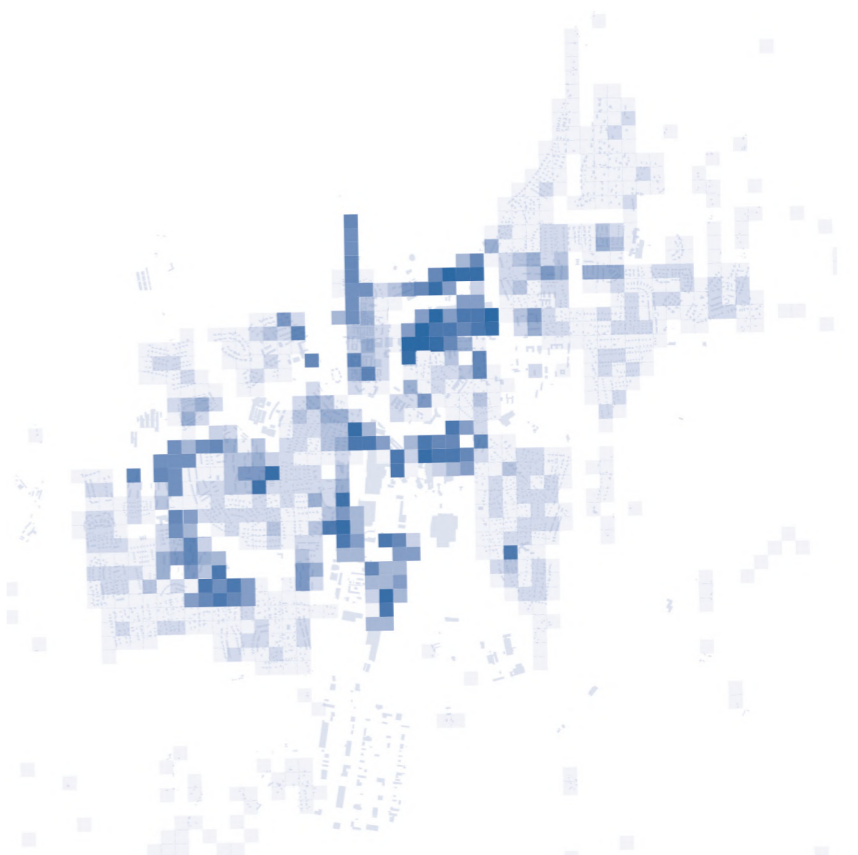
A town is a complex system of spaces and connections. Changes in one part of the system can impact other parts of town. Each change impacts the potential for urban life, interactions, green mobility and other qualities in the town. The analysis uses the principles of space syntax to compare the impacts which the current planning in Mariestad and of the design proposal of this project has on Mariestad as a whole. The analysis compares residents per hectare, residents within 1 km and betweenness centrality in the 2 km scale between Mariestad in 2025, Mariestad in 2040 based on the Detailed Comprehensive Plan, and the design proposal of this project.

The discussion takes a wider perspective on the effects and importance of Mariestad's development and the design.

# Population Density



Population density 2025



Population density 2040 in this project



Population density 2040 in municipal planning

Each box represents one hectare (100x100 meters), and the shade of each box represent the amount of people who live within each hectare.

In the current situation of Mariestad, several areas reach a density of 100 or more people per hectare. These are mostly areas consisting of freestanding apartment buildings, but the density can also be found in the historic stone-town (stenstad).

The current strategy in Mariestad combines sprawling low density areas expanding the town to the southwest and northeast, with a density in Katthavet not yet seen in Mariestad. The Städet 2 site includes a dense block structure consisting of 6-9 storey buildings, and including 5 residential buildings of 12-16 storeys. (Mariestad, 2025).

The design of this project spreads the densification over more areas of the town, creating a better balance between density and livability. The density per hectare does not exceed what is currently present in Mariestad.

# Closeness Centrality

Residents within 1 km



Closeness centrality 2025



Closeness centrality 2040 in this project



Closeness centrality 2040 in municipal planning

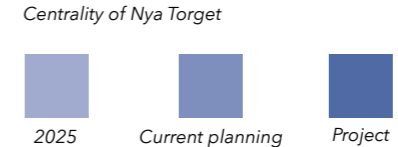
The density of an area has an impact on the potential for urban life of the areas around it.

From each box, a circle with the radius of 1 km has been drawn of various transparencies depending on the number of residents per box. 1 km is a walking distance of 10-15 minutes. The result is a diagram which illustrates the number of residents within 1 km, or short walking distance.

The current situation shows the highest closeness of residents around western Marieforsleden. Signs of a division between western and eastern Mariestad can be seen, partially created by the lower density of inhabitants on the sites around Tidan currently occupied by industries.

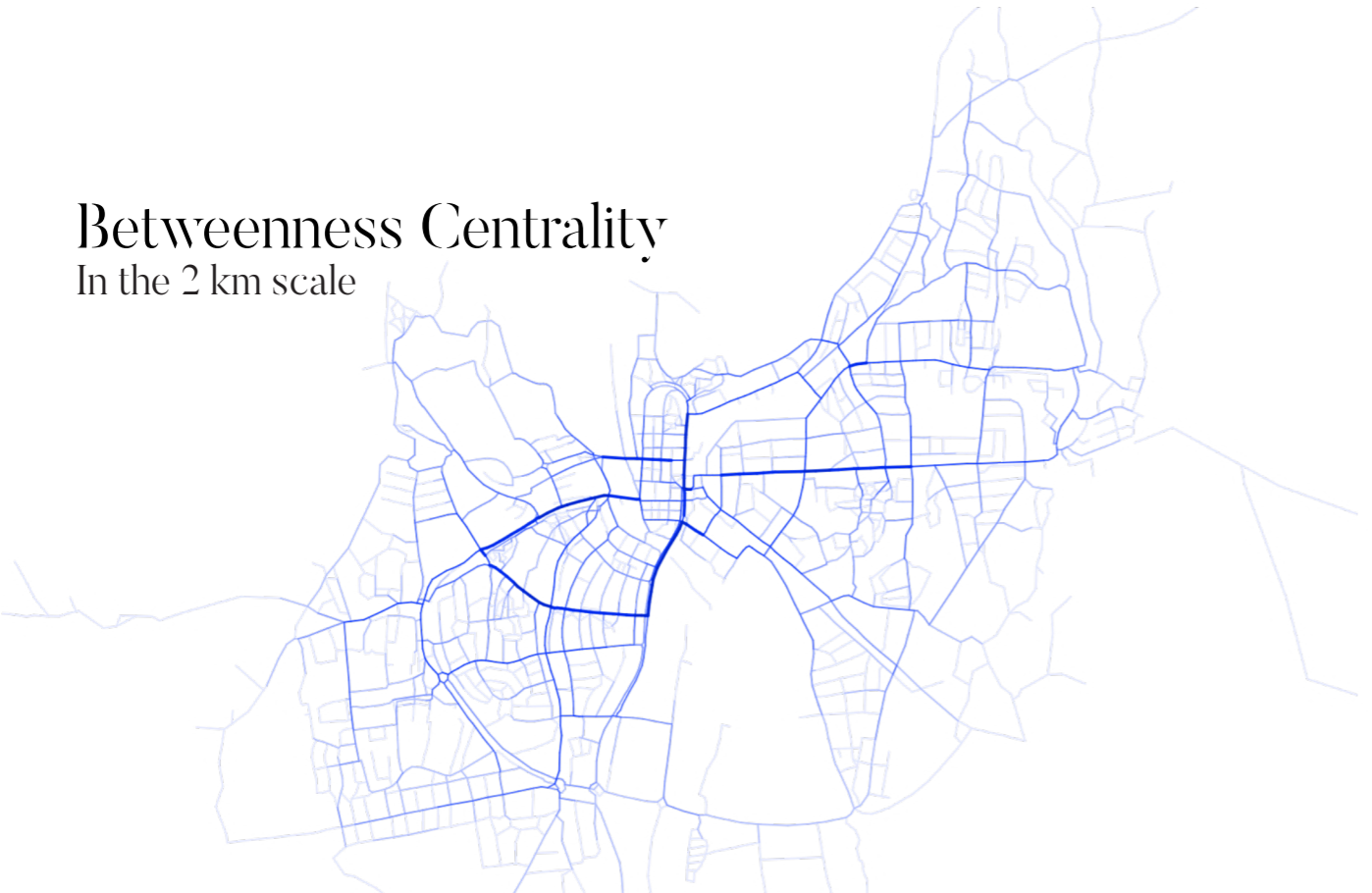
The current planning in Mariestad accentuates the 2 nuclei of Mariestad further by concentrating the densification in Katthavet and Marieforsleden, areas which are 2-2.5 km away from each other. The sprawl of the current planning creates a low centrality over a large area.

The design presented in this thesis concentrates the development near the town center, thereby improving its centrality. With more people within walking distance from the center, the conditions for urban life there improves. The centrality of Tidan also improves greatly, giving more people the chance of enjoying its natural qualities.

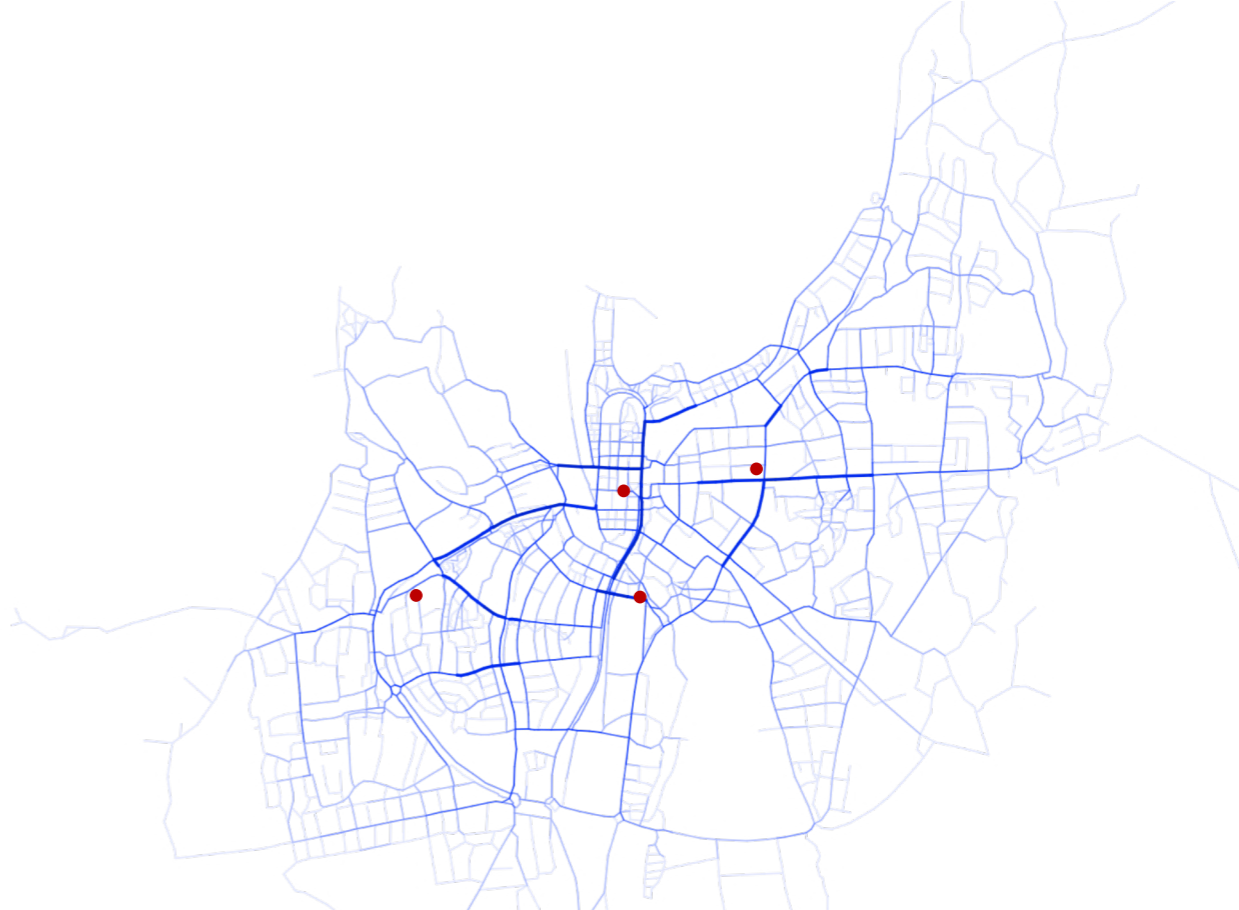


# Betweenness Centrality

In the 2 km scale



Closeness centrality 2025



Closeness centrality 2040 in thesis project



Closeness centrality 2040 in municipal planning

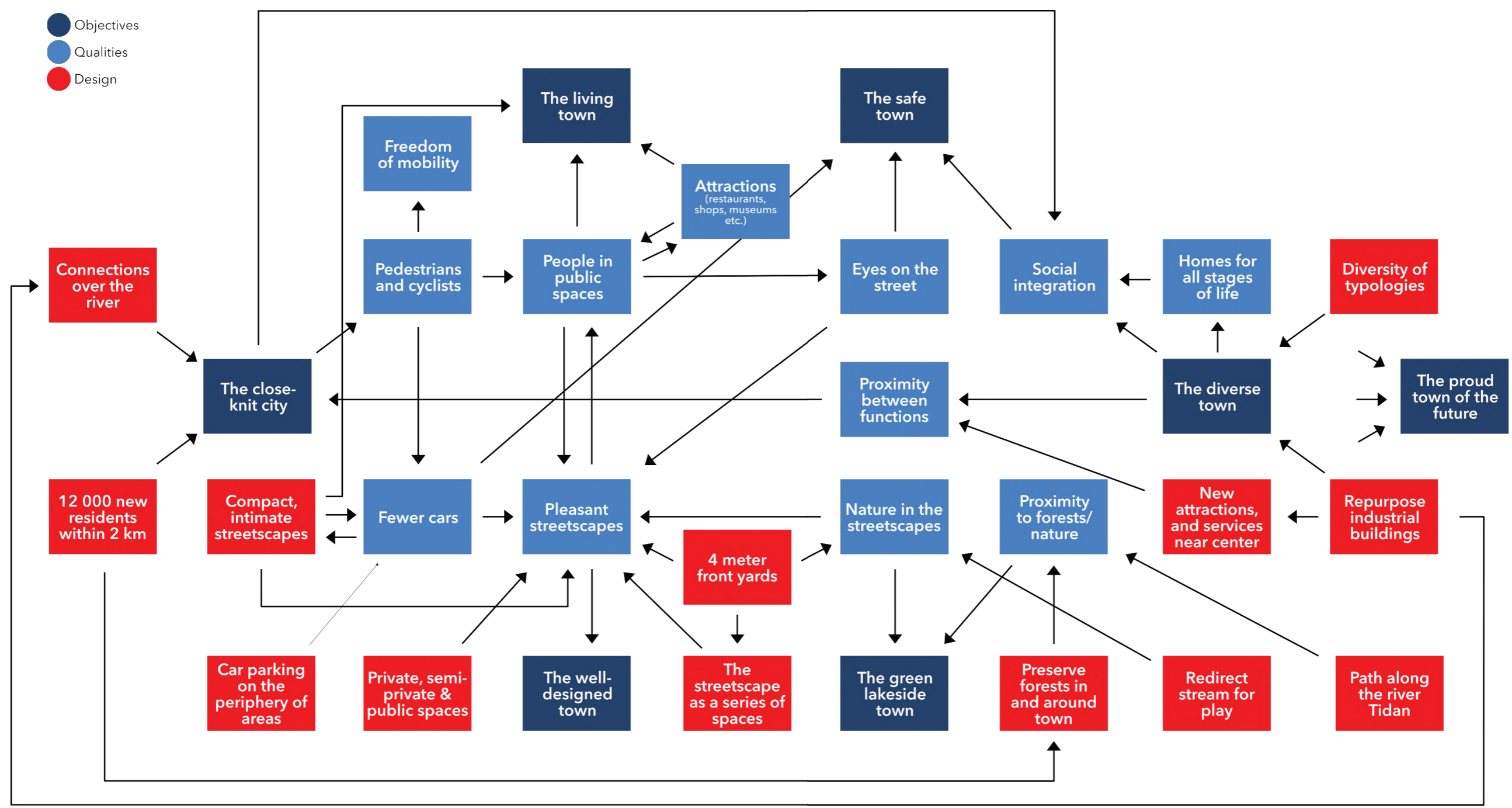
**Betweenness centrality**  
Different areas of a town have varying *betweenness centrality*. A space that has a high betweenness centrality naturally falls on the way between other destinations. For example, the road E20 has a high betweenness centrality as it is the quickest way between Stockholm and Gothenburg by car. Therefore many cars pass by Mariestad, making it possible to have car-oriented attractions near E20 such as McDonalds. The same principle applies for pedestrian and cyclist movement as well.

The diagrams analyse the connection between streets and illustrate the likelihood of passing a street segment when moving between the other street segments within 2 km.

The new connection over the river Tidan presented in the design have relatively high betweenness centrality and therefore good chances of customers for attractions.

The design identified 4 nodes in Mariestad, one existing (Gamla Stan), and 3 which could be developed (Marieforsleden, Tidan's Kvillar and Katthavet). These nodes are all placed in areas of high betweenness centrality.

The analysis is relative and only takes the number of street segments into account. When adding residents and attractions to the analysis, the betweenness centrality of the design in the thesis project is likely significantly higher than its counterparts..



The design aims to strengthen each of the 7 objectives of the Detailed Comprehensive Plan, either directly or indirectly

## Discussion

### Historic perspective

The situation Mariestad currently finds itself in is reminiscent of the situation of the 1950's and 60's, during the expansion of the Electrolux factory. The town grew with nearly 60% during the two decades. At its peak, the factory employed 10% of the town's population, a number equal to the prognosis of the battery factory. The dismantling of Electrolux caused a crisis for Mariestad. The municipality managed to navigate the crises and is now at the inception of a new radically expansive period. Yet the future of the battery factory is very uncertain, especially considering the rapid development in automation, a volatile global market and climate change. It is likely that sooner or later the battery factory too will one day dismantle.

Whether this boom-bust cycle of Mariestad caused by large industrial establishments is sustainable or not can be discussed further. To avoid a future crisis, Mariestad can not be dependent on something as unpredictable as the future of the battery factory to motivate people to live in the town. The town's geometry can supply more permanent qualities for Mariestad. By investing in developing the town's geometry, Mariestad becomes more resilient to future changes.

### Design

The aim of the proposed design is to promote the qualities of the 7 objectives of the DCP through developing the town's geometry. The design shows an alternative of tackling the objectives of the the close-knit town, the living town, the safe town, the diverse town, the green lakeside town, the well-designed town and the proud town of the future in Mariestad.

#### The close-knit town

The design concentrates new development within 2 km of the center, bringing new residents within walking and cycling distance of the town's functions. New connections over the river Tidån integrate eastern and western Mariestad.

#### Life in the town

The closeness centrality of Mariestad increases, increasing the potential number of people in public spaces. By decreasing the car dependency and creating pleasant public spaces, people are encouraged to walk, cycle and spend time in the town, generating interactions and life.

#### The safe town

By increasing the amount of people in the public spaces, there are more eyes on the street. By improving connections and proximity in the town, segregation is decreased, contributing to an inclusive society.

### The diverse town

By repurposing former industrial buildings, the design makes large, affordable indoor spaces accessible. An increase in the availability of affordable space, many new activities can afford to establish centrally in Mariestad. The design also contributes with a variety of typologies from apartment buildings to tiny-houses.

#### The well-designed town

By having compact public spaces with low surrounding buildings, the spaces become intimate yet airy.

#### The green lakeside town

The design makes the extraordinary nature around Tidån accessible to the public of Mariestad, while preserving the forests around the town.

#### The proud town of the future

By daring to abandon conventions of car dependency and sprawl from the previous century in favour of a close-knit town, Mariestad can become an example for other towns in green mobility and urban life.

#### Obstacles

Yet a densification of Mariestad at the scale I propose comes at the expense of higher initial investments and space for car infrastructure such as parking spaces, land and buildings currently owned by



Image 30: Värmeverket from Tidån's Kvillar

industrial actors, and requires a new take on single-family homes.

These factors likely the reason why decision makers instead have opted for the strategy dependent on urban expansion presented in the Detailed Comprehensive Plan.

The master thesis hopes to have shown that the proposed transformation of Mariestad generates qualities in line with the 7 objectives of the DCP which justify the expenses.

Another reason for the discrepancy between the objectives and the plan in the DCP is probably a lack of understanding of the link between proximity, car dependency and urban life. The decision makers may underestimate the consequences of urban sprawl upon life in the town.

#### Next Steps

Therefore, the next steps of the project is to spread awareness of these consequences among the decision makers and general public of Mariestad, and show that urban expansion is not inevitable, and that an alternative which is more closely aligned to the 7 objectives of the DCP is possible.

#### Conclusion

Mariestad is in a reindustrialisation boom. The rate of expansion expected within the coming 15 years is unique since the postwar era, and will likely not reoccur in the foreseeable future. The decisions taken the coming decade will therefore likely impact the built geometry of Mariestad, and thereby the conditions of urban life, commerce, interactions, green mobility, and many other qualities for the coming century.

Due to rapid changes in automation, global trade and climate, the future of Volvo's battery factory in Mariestad is highly uncertain. Mariestad can therefore not rely on the battery factory to be the attraction which ensures people choose to live in Mariestad. The town must be attractive enough in itself to continue to thrive in a world after the Volvo battery factory. By developing the town in alignment with the 7 objectives of the Detailed Comprehensive Plan, the town will generate qualities which are independent from the battery factory's future.

In combination with the existing qualities, including the beauty of lake Vänern and the historical town center, the new qualities have the potential to make Mariestad one of the most pleasant towns in Sweden.



Image 31: Hydropower in Tidå. The expansion of Katrinefors in the background.

## Section 6

# References

Image 32: The harbour in winter mist

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Images:

All images have been taken by the author, unless otherwise stated.

Image 5: Google Earth. (2022). [Satellite image of Mariestad]. Retrieved September, 14, 2024.

Image 28: Google Earth. (2023). [Streetview of Marieforsleden]. Retrieved May 27, 2025.

Excerpts from Mariestads Tidningen:

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