

FLEX SQUARE

A robust and flexible square for today's
contemporary dilemmas
Stora torget, Falköping

Josefine Ögren



Flex square

A robust and flexible square for today's contemporary dilemmas, Stora torget, Falköping

Flex torget

Ett robust och flexibelt torg för dagens samtida dilemman, Stora torget, Falköping

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Credits: 30 hp

Level: A2E

Course title: Independent Project in Landscape Architecture

Course code: EX0846

Programme: Landscape Architect Programme

Course coordinating dept: Department of Landscape Architecture, Planning and Management

Place of publication: Alnarp

Year of publication: 2021

Cover picture: Josefine Ögren

Original format: A4 landscape

Keywords: Public urban spaces, urban spaces, square, robust city, covid-19, climate change, landscape architecture, design, urban design

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PREFACE

Hi there,

I'm happy to see that you've found my master thesis. This will be my finish line after five years of studying at the Landscape Architect Programme at SLU, Alnarp.

During spring 2020 I came back from Canada after a 1,5 years of study break and the COVID-19 pandemic had just turned the whole world upside down. Still now, a year later, barely anything has gone back to what used to be normal. I've always been prepared for the possibility that writing my master thesis would be different from previous years at beautiful Alnarp. Furthermore, I was definitely not prepared to be writing the thesis with restrictions caused by the COVID-19 pandemic with closed schools and libraries and not being able to travel as before. Although I am more than happy to have had the opportunity to spend time with my family back home in Luleå, as well as having the support of my closest friends in Malmö.

Due to the implications the COVID-19 pandemic has had on the world and how us humans interact in public spaces I've had to find new perspectives in my role as a landscape architect. Public urban spaces as well as

access to greenery and nature areas has never been as important for people living in the cities as it is now. Restrictions and "stay at home"- orders all over the world have absolutely put urban spaces in a new light. As landscape architects, we have the opportunity of designing spaces that could make a world of difference in the quality of life for millions of people in times like these. As well as the ongoing climate change crisis, that desperately needs to be taken more seriously, landscape architects have the opportunity to prepare and adapt urban spaces for future challenges.

During my five years at SLU, as well as internships and other experiences, I've realized that good design is about creating places where people feel anchored and connected to. Understanding the needs of different people and at the same time accounting for other aspects like pandemics and climate change is where this thesis makes its starting point.

I want to say thank you to my friends and family that have been supporting me and making these different times bright and enjoyable.

A special thank you to Falköping municipality for making this thesis possible by allowing me to access the material used for the competition.

And of course, a warm thank you to my supervisor Caroline that, despite only being able to have digital meetings, has given me brilliant supervision and support throughout this entire process.

ABSTRACT

The year 2020 will be remembered as a year that both shook and changed our society completely when the COVID-19 pandemic spread and affected people all around the world. Never before in modern times have green urban public spaces been as important for both the citizens and for the environment. However, the pandemic is not the only contemporary crisis that is affecting the world. Global warming has devastating consequences all over the world with rising sea levels, increased bush fires, more frequent extreme weather and intense heat waves.

These contemporary issues are affecting both humanity and biodiversity and efforts to mitigate these issues. This master thesis focuses on the consequences these issues have for the urban city and how to mitigate them while making urban city centres inclusive and welcoming for citizens.

An urban city center is meant to be inclusive and welcoming for all, no matter gender, background or age. Although, it is not always easy to satisfy everyone since people have different opinions and needs, and trying to achieve the goal of making the city centre inclusive and welcoming for everyone may have negative effects on other aspects. An urban dilemma is defined as “two

or more competing goals, such as stakeholder interest and related strategies which potentially fail to achieve their aims as implementing one strategy hampers or prevents the achievement of another” (Riegler & Bylund 2020, p. 19).

The aim of this work is to create a robust and sustainable design proposal for Stora Torget in Falköping city center. A robust and sustainable design proposal means that it must be prepared for both contemporary and future crises such as pandemics and climate change. By defining Stora torget's dilemmas, the Flex square was created.

The Flex square, or as we can call it, the flexible square, is designed to easily adapt to different needs and conditions, which could be different seasons, time of the day, different groups like women, girls, children, youth, men, elderly or other sexual or ethical minorities. The Flex square is a place that is inclusive and safe for all, provides meeting points and privacy, greenery and recreation, a clear moving pattern whilst practicing social distancing, as well as includes sustainable adaptation measures to mitigate climate change.

SAMMANFATTNING

Året 2020 kommer att bli ihågkommet som året som skakade om och förändrade samhället totalt när COVID-19 slog till och påverkade människor världen över. Urbana grönområden har aldrig i modern tid spelat en sådan viktig roll för människorna i staden. Däremot så är inte COVID-19 pandemin den enda kris som drabbar världen just nu. Klimatförändringar har under flera års tid drabbat jorden och orsakat katastrofer världen över med exempelvis höjda havsnivåer, extrema skogsbränder, mer frekventa extrema väder och intensiva värmeböljor.

Dessa samtida problem påverkar både mänskligheten och biodiversiteten, vidare är behovet att mitigera dessa problem brådskande. Detta masterarbete fokuserar just på konsekvenserna av dessa samtida problem och hur det påverkar urbana publika platser i staden.

Den urbana stadskärnan ska idealt vara en plats som är inkluderande och välkomnade för alla, oavsett kön, bakgrund eller ålder. Däremot så är det inte så enkelt att gestalta en plats som tillfredsställer alla invånare eftersom alla har olika åsikter, erfarenheter och behov. Att försöka gestalta en plats som uppfyller vissa aspekter, kan i sin tur ha negativa effekter i andra avseenden. Ett urbant dilemma definieras som ”två

eller flera konkurrerande mål, såsom intressenters intresse och relaterade strategier som potentiellt misslyckas med att uppnå sina mål, eftersom en strategi hämmar eller förhindrar att en annan uppnås” (Riegler & Bylund 2020, s. 19).

Målet med detta arbete är att skapa en robust och hållbar gestaltning för Stora torget i Falköping centrum. En robust och hållbar gestaltning betyder att den måste vara förberedd för både nutida och framtida kriser, såsom pandemier och konsekvenser av klimatförändringar. Genom att definiera olika dilemman rörande Stora torget togs konceptet ”the Flex square” fram.

The Flex square, eller det flexibla torget är designat för att enkelt kunna anpassas för olika behov och förutsättningar, såsom olika säsonger, tid på dagen, olika målgrupper såsom kvinnor, flickor, barn, ungdomar, män, äldre eller andra köns- eller kulturella minoriteter. The Flex square är en plats där alla ska känna sig inkluderade och trygga och som tillhandahåller; mötesplatser och avskildhet, grönska och rekreationsytor, tydliga rörelsemönster anpassade för social distansering liksom hållbara lösningar för att motverka och hantera klimatförändringar.

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INTRODUCTION

The introduction chapter starts with a background that outlines the starting point of the topics I've focused on during the process of writing this thesis. The background is based on facts and theories obtained in the literature study and also contains a brief introduction to why I chose to work with Stora torget in Falköping.

The introduction chapter also introduces the aim, purpose and my research questions. The limitations of the thesis are also described, as well as the method and working process. Finally, terminologies are presented where words and expressions used in this thesis are defined.

Background

The year 2020 will be remembered as a year that both shook and changed our society completely when the COVID-19 pandemic spread and affected people all around the world. According to the World Health Organization (WHO) COVID-19 is a respiratory disease that is caused by the SARS CoV 2 virus and has caused millions of deaths worldwide (WHO 2021).

Studies show that the virus is mainly transmitted via droplets when an infected person sneezes, coughs or exhales. These droplets are too heavy to be suspended in air for long and therefore quickly fall to the ground and other surfaces along the way. This means that if a person touches a contaminated surface and then touches their eyes, nose or mouth, that person stands the risk of being infected. A person also runs the risk of being infected by inhaling the virus through the air if that person is in too close proximity to a person infected with the COVID-19 virus (WHO 2021).

Different measures such as lockdowns, closing of restaurants, mandatory facemasks in public spaces and social distancing are just some of the restrictions that have been implemented around the world in an effort to stop the rapidly spreading virus (WHO 2021). Not being able to meet with friends and family and socialize indoors has put more pressure on well-functioning urban public spaces (Riegler & Bylund 2020).

Riegler and Bylund state that urban public spaces are

especially important for gatherings of friends and families outside as well as for recreation possibilities. On the other hand, the lack of space and well-designed urban public spaces that make social distancing possible has become evident and we now have to face the issue of designing urban public spaces that are flexible and prepared for similar situations in the future (Riegler & Bylund 2020).

Riegler and Bylund state that the COVID-19 pandemic is one of the biggest crises that have happened in modern times. Measures and restrictions that would have taken months, or even years to accomplish, were introduced over a night. In contrast to this, climate change has been affecting the world for many years through extreme weather, rising sea levels and biodiversity loss (IPCC 2018; Riegler & Bylund 2020).

According to Riegler and Bylund, the changing climate is just as critical as the COVID-19 pandemic, but instead of causing instant catastrophes, the consequences of climate change increase steadily over a long period of time. Science indicates that people tend to get used to the slowly increasing consequences caused by climate change. Riegler and Bylund claim that this is the reason why climate change is not taken as seriously as the COVID-19 pandemic (Riegler & Bylund 2020).

Never before in modern times have green urban public spaces been as important for both the citizens and for the environment (Riegler & Bylund 2020). Furthermore, green areas and nature are important for both recreation and mental health but due to the COVID-19 pandemic, these areas must also provide people with enough space to practice social distancing. The authors indicate that the risk of pandemics becoming more common in the future is not entirely

unrealistic. Therefore it is crucial to overlook design principles for urban public spaces to be able to adapt and manage future crises like pandemics and climate change (Riegler & Bylund 2020). Many of these issues are relevant for landscape architects to take into account in future development and design of urban public spaces.

In 2021, Falköping municipality together with Svenska Kyrkan and Sveriges Arkitekter, arranged an architectural competition for a design proposal for the city center of Falköping. Falköping municipality has a vision of creating a stronger identity and a city center with different functions alongside clear green infrastructure and communication programs (Falköping kommun 2021).

As mentioned before, urban public spaces have proven to be very important during the COVID-19 pandemic as well as for climate change adaptation. Since pandemics are likely to increase in frequency and the consequences of climate change will increase it is of utmost importance that urban public spaces, as well as green areas, are accessible and well designed to meet the criteria required to manage these problems.

Through literature studies, analysis and design processes the aim of this project, is to create a sustainable and robust design for Stora torget in Falköping city center that is well adapted and prepared to manage future pandemics and climate change. Hopefully this thesis and design can inspire future development and design of urban public spaces.

Aim and Purpose

A. Aim

The aim of this master thesis is to create a robust and sustainable design proposal for Stora Torget in Falköping city center. A robust and sustainable design proposal means that it must be prepared for both contemporary and future crisis, such as pandemics and climate change.

The aim is to show how the structure on Stora torget could be improved and clarified regarding flows and circulation patterns. It should be clear which areas of the square that are the most suitable for various functions, such as market trade, temporary events, outdoor cafés, hangout- and seating areas, artistic decoration and other cultural elements.

The aim is to create a square where everyone is supposed to feel welcomed, included and safe. The aim is to create a square that can transform depending on needs and conditions, and therefore get one step closer to a stronger city center.

The aim is to redesign the square where the historical features are strengthened and highlighted, as well as to give the square a modern design with a stronger identity.

B. Purpose

The purpose of this master thesis is to discuss the need of awareness of crisis, such as the COVID-19 pandemic and climate change, in the design and redesign of urban public spaces.

By creating a design proposal for an existing urban public space that is based on the awareness of contemporary and future crisis, the purpose is also to inspire future design proposals for urban public spaces.

Research questions

How to achieve urban robustness while designing public spaces, and at the same time, prepare urban environments for crises such as the COVID-19 pandemic and work towards sustainable and climate-adapted design?

Which urban public dilemmas are the most central in Falköping city center and how can the design of Stora torget take these into account?

Delimitation

This project is based on the design competition arranged by the Falköping municipality and Svenska Kyrkan together with Sveriges Arkitekter in the spring of 2021. The design competition includes four areas; Stora torget, Kyrkparken, the connection between Stora torget and Kyrkparken and three entrances.

This project will be limited to a design proposal focusing on Stora torget together with analyzes of relevant areas and surroundings and how they relate to Stora torget. It will also analyze how Stora torget relates to the rest of the city.

Within the design competition, the Falköping municipality has set up different goals and criteria which this project will follow to some extent. Further on, additional aspects such as various dilemmas in public urban spaces, consequences of the current COVID-19 pandemic and climate change are also included.

The literature study is focused on contemporary literature and theories, since this thesis focuses on contemporary problems caused by the COVID-19 pandemic and climate change.



Figure 1. Selected area for the design competition and design proposal (marked in yellow). Orthophoto: © Lantmäteriet (2019), addition made by Josefine Ögren (2021).

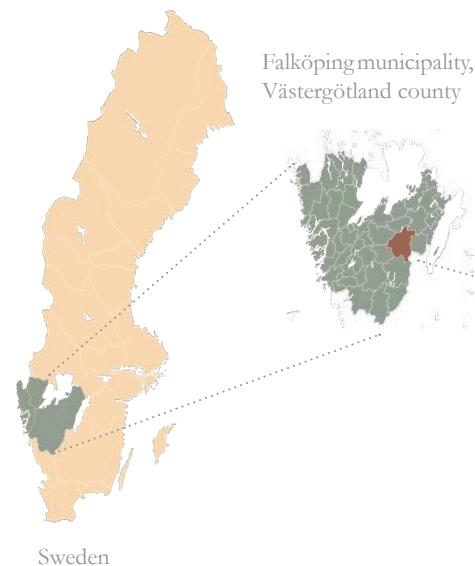


Figure 3. Sverigekarta:
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Maps.com. Additions made
by: Josefine Ögren (2021).



The map shows the selected relevant analysis area from the central station and Stora torget. The selected area for the design competition is also visible, including Stora torget.

Figure 2. Selected area for the design competition and design proposal. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021).

Method

The result of this master thesis is a design proposal, and the used method is design research. The author Murray Fraser defines architectural design research as:

“the processes and outcomes of inquiries and investigations in which architects use the creation of projects, or broader contributes towards design thinking, as the central constituent in a process which also involves the more generalized research activities of thinking, writing, testing, verifying, debating, disseminating, performing, validating and so on” (Fraser 2013, pp. 1-2)

In the book *Design Research in Architecture*; An overview, the author Fraser discusses the role of design research and the differences between a more academic scientific literature study and how a similar study is done by architects and designers (Fraser 2013). Fraser indicates that architects use scientific knowledge as a base to find new and creative ways to create new concepts and ideas and how these concepts and ideas should be applied in specific places and designs, which is the architect's result; the project (Fraser 2013).

Fraser states that architects and designers use both research and practice architectural methods like sketching, modelling, analysis etc., to develop a project. Furthermore, the resulting project is based on integrated work between research and practice (Fraser 2013).

In this master thesis, **the project is the design proposal for Stora torget**, which is a redesign of the existing square. The literature study works as a base which will strengthen the design principles in the design proposal.

The literature study in this master thesis is based on two main literature sources; *Unfolding dilemmas of urban public spaces*, written by various authors and edited by Johannes Riegler and Jonas Bylund, and a report in *Cities & Health – The Impacts of COVID-19 in public spaces* (Honey-Rosés et al. 2020). These two sources discuss contemporary issues and aspects and are used to investigate and enlighten the awareness of these contemporary and future crisis in urban public spaces, and will work as a base for the research questions and design proposal.

All visual material such as drawings, maps, plans illustrations and visualizations have been produced using the programs; AutoCAD, Adobe Illustrator, Adobe Photoshop, Adobe InDesign, SketchUp, VRay, ArcGIS and the web application QGIS. The work is written in Microsoft Word with the Harvard reference system. Tables have been created in Microsoft Excel and Adobe InDesign.

To answer the specific research questions this work is divided in four different parts: a literature study (divided in two parts), an analysis of the site Falköping city and Stora torget, a design process including sketching and concept building, and the final design proposal. The whole process has been an integrated work between the different parts.

A. Literature study part 1

The working process for this master thesis began with a literature study of scientific articles and reference projects, where theories and studies were discussed regarding robust, resilient and sustainable urban environments. The first part of the literature study was to gain a wider perspective and to find a theme and concept over the upcoming design proposal and research questions. Essential literature is searched through Epsilon, Primo and Google Scholar.

The research has been focused on climate change, sustainable adaptation and mitigation methods, city planning, the COVID-19 pandemic and its impacts on the urban city, as well as public urban dilemmas. During the first part of the literature study, the two sources; *Unfolding dilemmas of urban public spaces* (Riegler & Bylund 2020), and the report in *Cities & Health – The Impacts of COVID-19 in public spaces* (Honey-Rosés et al. 2020), were discovered and became the two main sources for the master thesis.

B. Analysis of the Area

This master thesis is written in the spring of 2021 when the COVID-19 pandemic is still ongoing. During this period, The Public Health Agency of Sweden together with the Government of Sweden have introduced restrictions saying that no unnecessary travel between regions in Sweden should be carried out. Due to the restrictions and safety reasons, no site visit has been carried out in order to analyze Falköping city center or Stora torget.

To be able to make an analysis, get a solid understanding and impression of the site other methods and

techniques have been used together with social media and inter-based web platforms such as Google Maps and Google Earth.

In order to get a personal impression of the city of Falköping, analysis methods via social media have been vastly important. By studying various social platforms such as Facebook, Instagram and local newspapers, a more personal insight of the residents of Falköping and its identity, was gained.

Since this project is based on an architect design competition, Falköping municipality themselves have collected information and formulated criteria that they wish the design proposal to include. In the beginning of this master thesis, contact with the Falköping municipality and their procurement lawyer was made to ask permission to take part of this material. Furthermore, both me, the author of this master thesis, and my supervisor Caroline Dahl signed a confidentiality agreement in order to obtain the information and material.

The analysis will therefore be based on materials and data from Falköping Municipality together with information collected from their web site, the web tool QGIS/ArcGIS and other essential information from the Swedish authorities; Lantmäteriet, Länsstyrelsen and the Swedish transport administration.

By analyzing Falköping's historical and contemporary design with circulation patterns, traffic principles, green structure, meeting points, target groups and cultural contexts, different public dilemmas that are relevant to Falköping city center and Stora torget have been selected to be integrated further in the design proposal.

During the autumn of 2019, Falköping municipality held a dialogue process with the municipality's residents in order to find out what the residents wanted to improve and develop in Falköping city center. The dialogue was divided into three different dialogues; target groups dialogue, youth dialogue and citizen dialogue. In addition to these three dialogues, which were mainly based on physical meetings between the municipality and the citizens, a digital survey on movement patterns has also been found available on the municipality's website.

Target group dialogue

For the dialogue process the municipality identified particularly important target groups for the project, these are as follows: creative industries, pension associations, the Council for Disability Issues, market traders, REKO-ring & Malta-Johanna market, business and property owners (Falköping kommun 2020).

Youth dialogue

In the youth dialogue, schoolchildren in upper secondary schools and gymnasiums were invited to participate in the dialogue for the city center development project. The dialogue, that took place during school hours, gave the students the opportunity to participate during lesson time (Falköping kommun 2020).

Citizen dialogue

During the citizen dialogue, everyone who wanted to participate had the opportunity to do so. The invitation was announced on the municipality's website, on social media and on signs around Falköping city. It was also

posted in shop premises and flyers were distributed to passers-by in the city center (Falköping kommun 2020).

Digital survey

To gain a better understanding of the movement patterns of the citizens and how people move to/from the city center as well as within the city center, a digital survey was available on the municipality's website during the period October 23 to December 4, 2019. A total of 677 responses were submitted (Falköping kommun 2020).

The compilation that the Falköping municipality created from the dialogue studies was used in order to gain some background information and an understanding of Falköping city center, as well as an understanding of what the municipality's residents want for the development of their city. This has been an important part of the analysis work because of the travel restrictions put in place due to the COVID-19 pandemic.

C. Literature study part 2

After the analysis, with a broader and deeper knowledge about Falköping city center and Stora torget, another literature study was performed. During the analysis phase, knowledge of specific dilemmas and qualities of Falköping and Stora torget was gained. A more prominent and specific literature study was then conducted based on this knowledge and criteria. An integrated work between the literature study and other architectural practices like sketching and concept building, was performed.

Based on the first literature study and analysis of Falköping, the dilemmas: Nature-based solutions and Gender- and minority groups inequality in public spaces, were selected. These two dilemmas were selected because they suited well with the other aspects that this master thesis is focusing on, as well as the issues summarized from the analysis phase. In the literature chapter, these two dilemmas are described in more detail and what kind of approaches that the authors suggest in order to address the issues.

D. Design process

In order to accomplish a design proposal for Stora torget, a design process has been performed. As mentioned before, the method used in this project is design research, integrating research and architectural practice. This part of the design process has contained a solid sketching process and concept development. The sketching process is an important part of the design process to be able to try different suggestions and ideas in order to come up with the most suitable idea for the design proposal. The concept is a way to strengthen and form the sketching and furthermore the final design proposal.

E. Design proposal

Based on the previous parts; the literature study, the analysis and design process, a sustainable and robust design proposal has been developed for Stora torget in Falköping. The proposal is based on the developed concept to address different dilemmas on the square. The purpose of the design proposal is to increase awareness of both contemporary and future crisis that urban public spaces face. Various design principles and adaptation measures are used in the proposal in order to meet requirements and create a sustainable square.

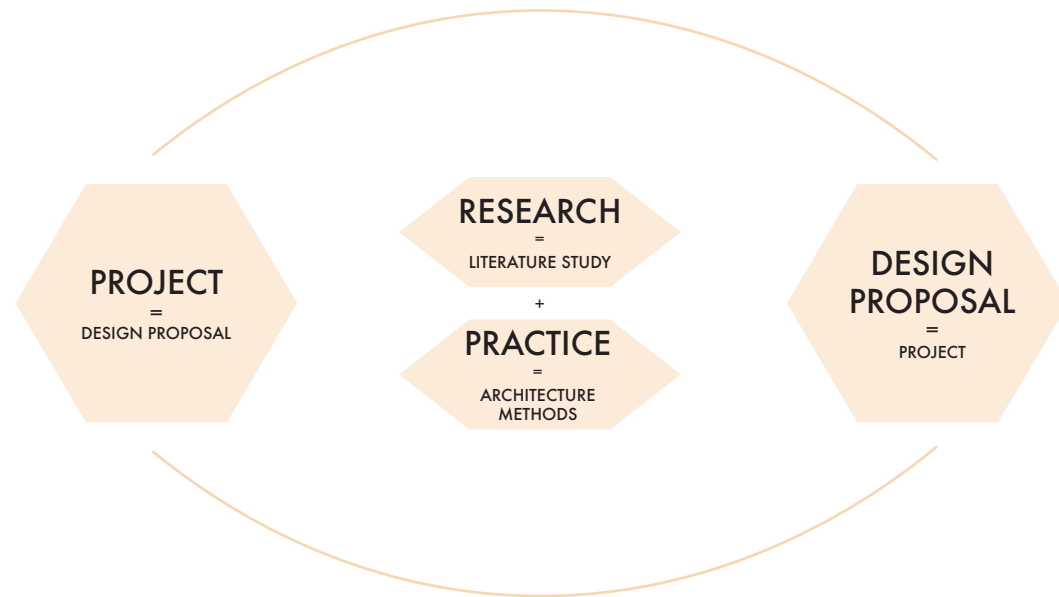


Figure 4. Graphic illustration of the method. Josefine Ögren (2021).

Working process

The literature study has had three main focus aspects: dilemmas in urban public spaces, the COVID-19 pandemic and its consequences in the urban city and climate change and its consequences in the urban city.

Furthermore, by analyzing Falköping city and Stora torget, dilemmas that were relevant for Stora torget were defined. The defined dilemmas together with the consequences of the pandemic and climate change were used to create a concept which led to a design proposal for Stora torget in Falköping.

Terminology

SARS-CoV-2 Severe acute respiratory syndrome coronavirus 2, which is the virus that causes COVID-19

Social distance The World Health Organization (WHO) urges people to maintain at least 1- meter distance between each other to reduce the risk of infection. WHO urges people to maintain an even greater distance when indoors. WHO states that the greater distance, the better (WHO 2021).

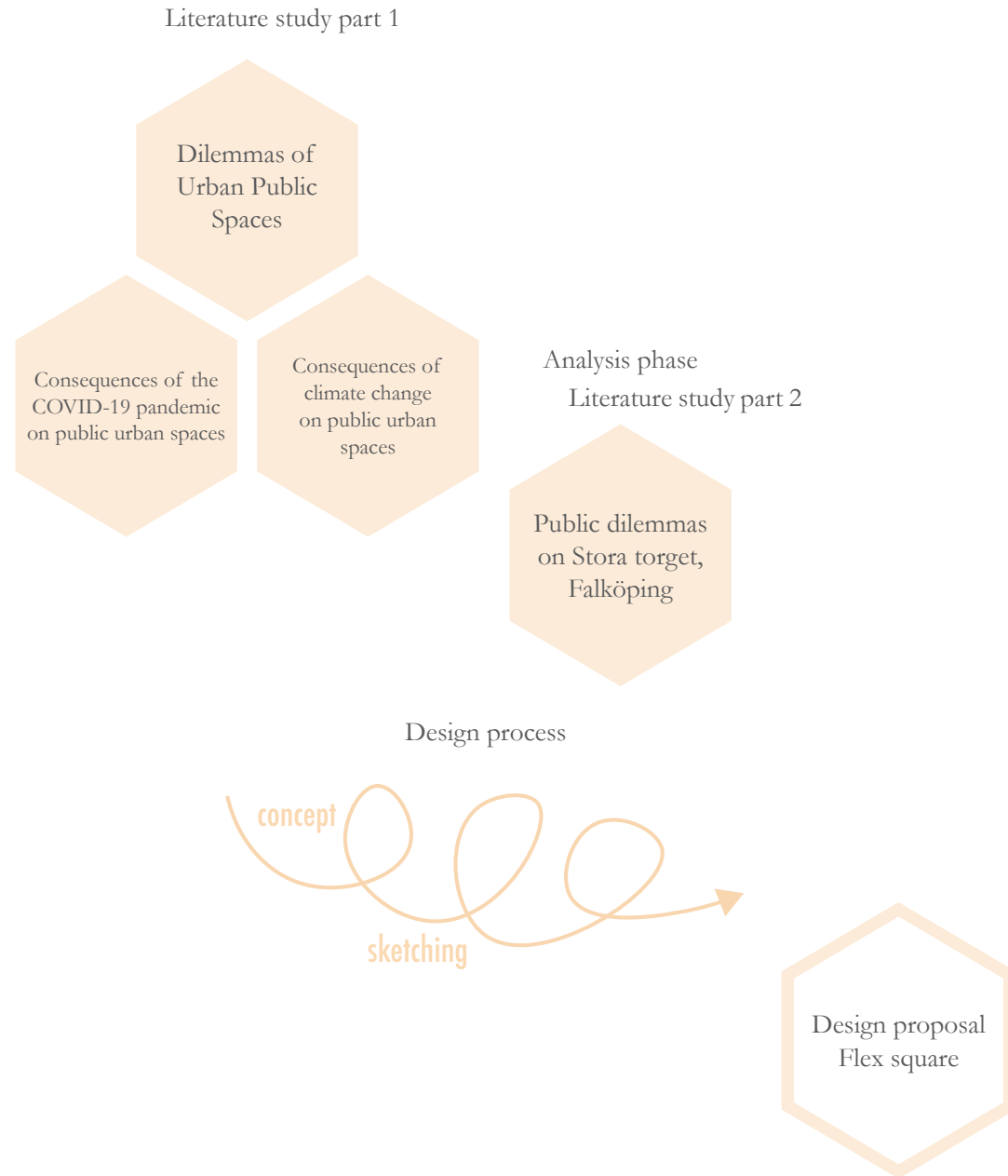


Figure 5. Graphic illustration of the working process. Josefine Ögren (2021).

LITERATURE STUDY; CONTEMPORARY ASPECTS IN URBAN PUBLIC SPACES

The literature study consists of three main aspects; Dilemmas in Public Urban Spaces, The COVID-19 pandemic and its consequences in the urban city, and Climate change and its consequences in the urban city.

The first chapter discusses Dilemmas of Urban Public Space and how landscape architects, urban planners and other relevant actors may encounter these issues in their work towards shaping and designing robust and inclusive urban cities. The other two chapters introduce two contemporary issues, the COVID-19 pandemic and climate change, that cause catastrophic consequences around the world.

Dilemmas of Urban Public Space

According to Angeli et al., urban public spaces constitute valuable places for different social expressions in the city. An urban city center is meant to be inclusive and welcoming for all, no matter gender, background or age. Although, it might not be easy to satisfy everyone since all people have different opinions and needs (Riegler & Bylund 2020). Further on, the authors mean that trying to achieve some of these goals may have a negative effect on other aspects. Urban public spaces often involve complications between everyone's right to the city, inclusion of all social groups, climate change and how to create a safe environment, without promoting increasingly exclusive cities (Riegler & Bylund 2020).

An urban dilemma is defined as “two or more competing goals, such as stakeholder interest and related strategies which potentially fail to achieve their aims as implementing one strategy hampers or prevents the achievement of another” (Riegler & Bylund 2020, p. 19).

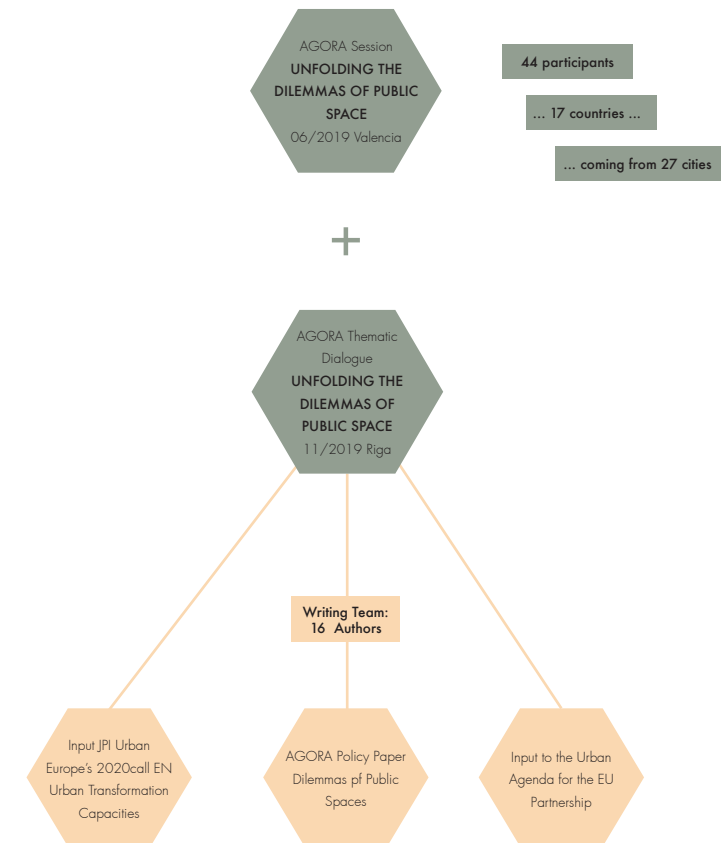
The authors Riegler & Bylund state that the ideal of a public space is that it is attractive to everybody. They state that public spaces are meant to function as a second living room where people can meet and socialize, both with friends but also with strangers. Furthermore, public spaces are for well-being and health, with greenery that urges people to move and

spend time outside. Hence can urban development and designing public spaces be used for increasing quality of life in urban areas. However, creating public spaces meant for all is constantly influenced by power balances and dilemmas due to different needs of different groups and communities (Riegler & Bylund 2020).

Riegler & Bylund indicate that urban public spaces are connected to a great number of urban issues of various disciplines, strategies and interests. One specific dilemma is how to create a public space that requires safety and security without creating more exclusive spaces (Riegler & Bylund 2020). Furthermore, different strategies and policies in order to make an attractive city center do not always support the standard of living in an urban city. Riegler & Bylund declare that archetypical concerns, or different dilemmas, can occur when designing urban spaces. These dilemmas can occur between; openness and integrity, inclusion and security, mobility and morphology, urban greenery and density, as well as the impacts of increased technology development like autonomous vehicles, digitized public protection and control, qualities of design, urban demographics, green accessibility and increasing privatization in the everyday life. This creates tangible dilemmas in the development of urban public spaces (Riegler & Bylund 2020).

During 2019 a team of 44 participants from 17 countries (27 cities) started a collaboration that through workshops, dialogue and discussions combined different expertise, perspectives, knowledge and experience to come up with different topics to identify dilemmas that are connected to urban public spaces (Riegler & Bylund 2020).

Figure 6. AGORA Activities on the Dilemmas of Public Spaces The process for unfolding the dilemmas of public spaces. Riegler & Bylund (2020).



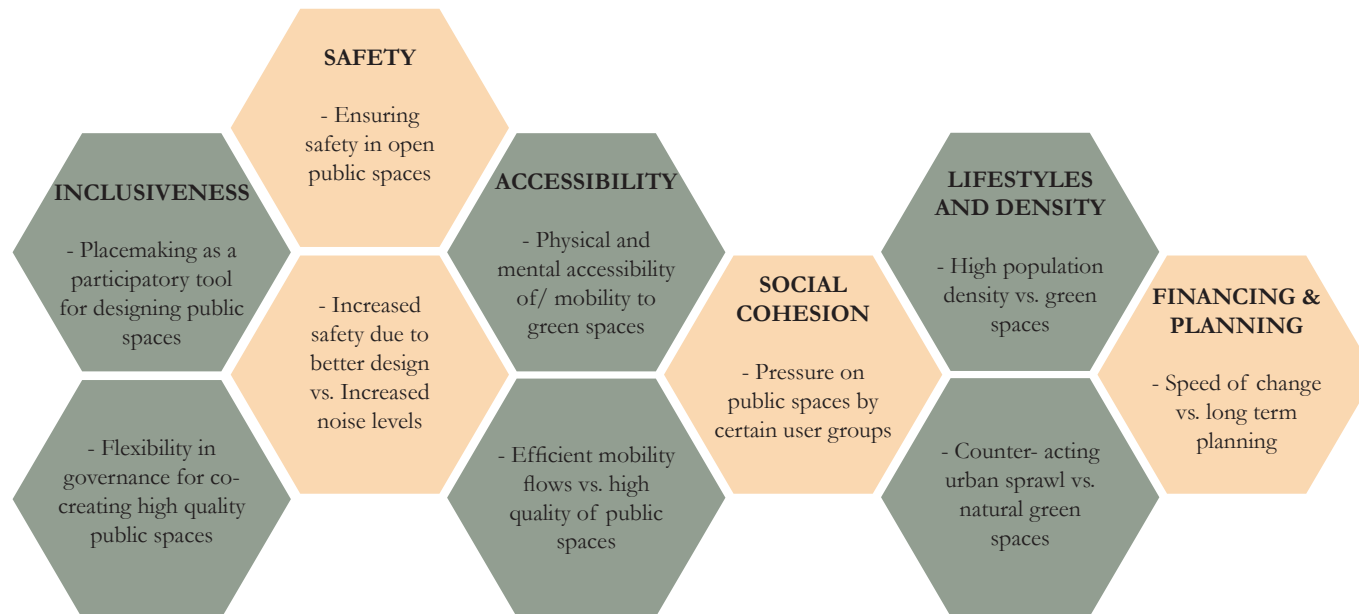


Figure 7. Identified dilemmas connected to urban spaces selected by the AGORA session team in Valencia, June 2019. Riegler & Bylund (2020).

Nature-based solutions

Ersoy & Yeoman state that the knowledge of global warming has urged both governmental and non-governmental organizations to create policies, programs and projects in the process of solving problems associated with urbanization and climate change. Further, the authors mean that the importance and willingness of designing cities that can mitigate and adapt to the changing climate has grown. Nature-based solutions are proposed to help urban cities to adapt and mitigate the negative effects of global warming and at the same time create a better quality of public spaces, for both humans and the climate (Riegler & Bylund 2020).

Heatwaves and heavy rainfall that causes flooding are just a few of the consequences of climate change that cities and public spaces are subject to (Riegler & Bylund 2020). The frequency of different disasters striking cities worldwide due to climate change is increasing and the need to create climate proof urban areas is a fact (IPCC 2018; Riegler & Bylund 2020). According to Ersoy & Yeoman climate-proofing has been neglected in most cities. Furthermore, this has had negative impacts on human health, life quality and the well-being in urban cities where the disadvantaged groups of the society have been particularly affected (Riegler & Bylund 2020).

Dilemmas

Nature-based solutions are based on natural processes like different ecosystems. Ersoy & Yeoman declare that adapting nature-based solutions into the urban areas can help address a variety of environmental, social and economic challenges in a sustainable way.

However, these three elements; environmental, social and economic, still face a main dilemma. For instance, urbanization leads to reduced green spaces and increased surface sealing. Furthermore, Ersoy & Yeoman state that there is a constant pressure on green spaces and surface sealing. Increasing levels of air pollution, increasing air temperature and heavy rainfall are threatening the urban spaces while the reduction of green spaces in cities decreases the possibility of outdoor physical activity (Riegler & Bylund 2020).

Ersoy & Yeoman state that consequences of decreasing green areas and reduced outdoor and physical activity in the urban city affect a number of human-health-related issues such as psychological problems like depression, anxiety and burnout, but also obesity, hypertension and diabetes. An increased air temperature can also lead to dehydration, hypertension and increased risk of cardiovascular diseases while increased air pollution can result in respiratory diseases (Riegler & Bylund 2020).

According to Ersoy & Yeoman, studies show that spending more time in nature helps reduce some of the psychological problems people in cities face, such as stress levels, social isolation and exclusion. Qualitative green, blue and natural settings support the urban livability. Nature-based solutions aim for cities and their citizens to benefit from the designed elements that are created to be inclusive, fair and respectful for their users (Riegler & Bylund 2020).

Furthermore, Ersoy & Yeoman suggest that high quality public spaces and nature-based solutions can stimulate long term economic benefits for cities. Through green infrastructure and multifunctional solutions, the unbuilt areas will increase, which supports ecological but also

social activities and processes. Long term, nature-based solutions will gain importance even further and have a higher status in the development of sustainable urban areas (Riegler & Bylund 2020).

Approaches to address the issue

Ersoy & Yeoman claim that due to the strong focus on economic growth when developing urban cities, an unsustainable development has simultaneously taken place in regions, resulting in climate change, unhealthy living conditions, growing inequalities, increasing inaccessibility and an ever-growing ecological footprint exhausting natural resources (Riegler & Bylund 2020).

Furthermore, Ersoy & Yeoman state that the interest and knowledge about this unsustainable development has grown and engages more local responses in order to solve the problem. Nature-based solutions are the way to create better urban planning, improve resource management and to engage the citizens to care about their city. The authors suggest that nature-based solutions strengthen the positive relationship between environmental, social and economic links between cities and resources and create a balance with nature. Urban public spaces are the most visible and lively component in the built environment. Therefore, public spaces are ideal for trying various nature-based practices, which will benefit both citizens and the climate (Riegler & Bylund 2020).

Summary Nature-based solutions:

- Nature-based solutions are based on natural processes like different ecosystems.
- Adapting nature-based solutions into the urban areas can help a variety of environmental, social and economic challenges in a sustainable way.

Dilemmas:

- Urbanization leads to reduced green spaces and increased surface sealing.
- Consequences of decreasing green areas and reduced outdoor and physical activity in the urban city affect a number of human-health-related issues such as psychological problems like depression, anxiety and burnout, but also obesity, hypertension and diabetes.

Approaches:

- Nature-based solutions strengthen the positive relationship between environmental, social and economic links between cities and resources and create a balance with nature.
- Public spaces are ideal for trying various nature-based practices, which will benefit both citizens and the climate.

Gender- and minority groups inequality in public space

The authors Angeli et al., state that a truly sustainable city is a place for everyone, no matter gender, age or disabilities. It is a place where everyone has an equal right to use and inhabit space, feel safe, included and welcomed. The authors state that this is the ideal of a sustainable city. However, today's public spaces do not provide the same level of safety, comfort, access and opportunity for growth, for women, girls, and sexual and gender minorities, as they do for heteronormative men, who has been the dominant stakeholder group of these places (Riegler & Bylund 2020).

According to Angeli et al., the general consensus of gender equality is when all genders have the same opportunities and rights in all aspects of life, both public and private. Public spaces are a key component for a sustainable urbanization, since public spaces began as a place for citizens to come together and express political thoughts and human rights. The authors assert that public spaces often are misunderstood for being a place that just exists as a kind of neutral space where people freely choose to visit, while in reality these spaces have the same barriers that beset other areas of society (Riegler & Bylund 2020).

Dilemmas

As the World Bank's recently published Handbook for Gender-Inclusive Urban Planning and Design demonstrates; "Space is not neutral, and hence (its) design can either facilitate or impede usage, appropriation, and safety for women, girls and sexual gender minorities" (Riegler & Bylund 2020, s. 38).

Angeli et al. state that even though public spaces are accessible to all by law, studies show that in reality, women, young girls and other minority groups do not have the same access and right to these spaces. According to Angeli et al., studies show that if a group of men have occupied an urban space, not all genders and age groups feel safe to use this space (Riegler & Bylund 2020). For years, feminist scholars have repeatedly shown that in various societies, women have been, and still are, excluded from public spaces. Studies indicate that both women and gender minorities are not appreciated as 'user' groups in developing projects and that women and gender minorities experience both racialized and gender barriers when interacting with public spaces (Riegler & Bylund 2020; Stockholms Handelskammare 2021).

Historically, Angeli et al., state that white heteronormative men have occupied, defined and shaped public spaces and public realm, both unintentionally as well as intentionally, and by that prioritized men's needs and desires over other gender and race (Riegler & Bylund 2020). Over time, this has shaped further gender roles within built environment and public spaces in particular where women, girls and sexual and gender minorities have been distanced from urban planning and design. Among many aspects, these actions are part of a much bigger problematic patriarchal system resulting in an urgent sustainability crisis (Riegler & Bylund 2020).

Recommendations to address the problem

- Focus on the process, rather than template solutions for gender-equal public space.

Angeli et al., state that by implementing a participatory

and inclusive design process that enables all citizens to give their perspective on how to explore and experience a city, should lead the way to an equal city. All citizens including: women, girls, men, boys, sexual and gender minorities, racialized minorities, people of all ages, abilities background and people subject to immigration control (Riegler & Bylund 2020).

- Ensure women's, gender-minority and minority groups with gender specialisms are meaningfully included in design and decision-making processes.

The authors declare that instead of staying at the 'consultation' and the more 'symbolic' process, the design policy needs to go even further by including and giving these gender groups a meaningful and sustained interaction in the planning process (Riegler & Bylund 2020).

- Ensure that the inclusion of women and gender minorities in policy solutions is intersectional and robustly addresses the needs of racialized and bordered minorities.

Angeli et al. state that women, racialized and bordered gender minorities experience inequality in urban public spaces. These barriers must be tackled and taken seriously in order to create an equal gendered approach to public spaces (Riegler & Bylund 2020).

- Align gender equal public space processes with overreaching sustainability goals.

Angeli et al., state that in order to avoid "gender equality" becoming a siloed concept and losing its impact, it is important to plan gender-inclusive design processes in a way that integrates and works together

with other sustainable goals for the city (Riegler & Bylund 2020).

Due to gender, age, economic inequalities, background etc., all people have different thoughts and experiences of what a safe place feels like, hence most people tend to feel safe when they can 'read' a public space and understand other people's behavior (Riegler & Bylund 2020). Peters & Yeoman state that when people are able to trust their physical and psychological well-being and are not disturbed or harmed by their interaction with others, people feel safe (Riegler & Bylund 2020).

Furthermore, it is important to recognize the broad expertise within different groups like civil society organizations, feminist and women migrants groups and research teams and universities working with these questions (Riegler & Bylund 2020). Angeli et al., suggest that enabling exhibitions and public discussions in public spaces can also contribute to combating sexism and racism. By increasing the involvement of women and gender minorities in the design process of public urban spaces, the needs of these groups will become more visible and increasingly be taken into account. Furthermore, urban public spaces that are designed and supported by women and gender minorities themselves, tend to enable safe leisure and independence in urban public spaces for everyone (Riegler & Bylund 2020).

Angeli et al., declare that a collaborative and equal design team, is the key to be able to create actual safe public urban spaces. Furthermore, the authors state that it is the long-term programming and maintenance that are the most sustainable, instead of creating parks or public spaces that just appear to be gender equal places, but quickly fall into disuse or disrepair. Creating specific and well-designed places is the key for a successful development (Riegler & Bylund 2020).

Summary Gender- and minority groups inequality in public space

- A truly sustainable city is a place for everyone, no matter gender, age or disabilities.
- The general consensus of gender equality is when all genders have the same opportunities and rights in all aspects of life, both public and private.

Dilemmas:

- Even though public spaces are accessible to all by law, studies show that in reality, women, young girls and other minority groups do not have the same access and right to these spaces.
- White heteronormative men have occupied, defined and shaped public spaces and public realm, both unintentionally as well as intentionally, and by that prioritized men's needs and desires over other gender and race.
- Over time, this has shaped further gender roles within built environment and public spaces in particular where women, girls and sexual and gender minorities have been distanced from urban planning and design.

Approches:

- Due to gender, age, economic inequalities, background etc., all people have different thoughts and experiences of what a safe place feels like, hence most people tend to feel safe when they can 'read' a public space and understand other people's behavior.
- A collaborative and equal design team is the key to be able to create actual safe public urban spaces.
- Createing specific and well-designed places is the key for a successful development.

The COVID-19 pandemic and its consequences in the urban city

Riegler and Bylund state that the COVID-19 pandemic has had major disruptions on urban spaces and has challenged many aspects of urbanity. The pandemic has shown which practices and infrastructures that have been affected and therefore, are the most vulnerable. To ensure public (mental) health, Riegler and Bylund suggest that a key priority has been to provide safe public spaces which allow social distancing, yet provide recreation, greenery and infrastructures and features to exercise, cycle and walk (Riegler & Bylund 2020).

To reduce the transmission of COVID-19 and to protect public health, authorities around the world have introduced restrictions in public spaces and commanded physical distances (Honey-Rosés et al. 2020). According to Riegler and Bylund, public administrations were quick to act and showed flexibility to implement temporary measures to reduce the spread of COVID-19. Worldwide, measures and adaptation methods like lockdowns and orders to work from home, which usually would take months or even years to implement, were designed, built and implemented over almost a night (Riegler & Bylund 2020). Countries like Colombia, England, Australia and New Zealand implemented measures such as wider sidewalks, extra bike lanes and reshaped streets and parks to meet the requirements (Riegler & Bylund 2020).

Inequities and exclusions

According to Honey-Rosés et al., it has been a must to take control over the spread of infection around the world, and different methods and restrictions have been implemented in countries due to the level of infection. Some cities have implemented total lockdowns for the residents and shut down almost all economic and social sectors (Reena 2021). Studies show that lockdowns have affected the daily life of people. However, some groups have been affected more severely than others (Honey-Rosés et al. 2020).

Honey-Rosés et al., state that even if public urban spaces are meant to be for everyone, it tends to not always be that way. Research indicates that inequities and exclusions are well observed in public spaces. Furthermore, studies show that public spaces are often recreational places for low-income residents and that public spaces are particularly important for elderly, children and women. The authors state that many mothers bring their children to play in public spaces and young people tend to meet there for socializing and play. Public spaces provide safety and social interactions that can mitigate loneliness and isolation, which are very important for seniors but also for women, children and low-income residents (Honey-Rosés et al. 2020).

Furthermore, studies show that lockdowns and stay at home orders have affected women's access to public space and safety especially. During the first months of lockdown in the United Kingdom, phone calls of domestic abuse went up 700% (Honey-Rosés et al. 2020).

Urban public spaces are not only important for

recreation and wellbeing, public spaces could also be the only factor that provides safety and dictates chance of life and death for some vulnerable groups like women and children. Therefore, it is very important to design urban public spaces that are inclusive and safe for these groups (Honey-Rosés et al. 2020).

According to Honey-Rosés et al., urban planning and design is related to human physical planning and mental health. Public space has become more central to debates during the last decade, especially with issues around gender, race and identity. The authors declare that there is no guarantee that a redesigned or reimagined public space will be truly accessible, inclusive and welcoming for everyone. However, putting these vulnerable groups and their needs in the spotlight while planning and designing urban public spaces should be an environmental justice priority (Honey-Rosés et al. 2020).

Positive outcomes

Riegler & Bylund state that the COVID-19 pandemic has truly shaken the world and has had horrible consequences and high mortality. At the same time, due to worldwide lockdowns, cancelled aviation traffic and reduced car traffic, a big change in the global carbon emission has been registered (Riegler & Bylund 2020). When cities slowly opened up again, the authors declare that the citizens noticed what their city would be like without so much congestion. Furthermore, observed measurements have shown an increased air quality in China where habitants have experienced that the city smells better, sounds more peaceful and permits better sleep without the pressure of infrastructure and factories. Even the return of wildlife like different birds has been noticed around the world (Riegler & Bylund 2020).

Riegler & Bylund state that people that have lived through severe lockdowns may change their attitude and will show more appreciation for parks and public spaces. Furthermore, the authors declare that some of the temporary transformations that have been implemented in cities around the world, might be permanent changes (Riegler & Bylund 2020). Honey-Rosés et al., state that many large cities have made changes to meet physical distancing recommendations but also made space for other emerging needs like different delivery operations. The authors state that since people are not able to walk outside and do unnecessary errands, the online shopping and home food delivery have increased. Therefore, space for pedestrians, cyclists but also different delivery services are needed. Furthermore, cities like Boston, Philadelphia, Oakland, Minneapolis and Vienna have implemented changes like closing roads for car traffic, widened bike lanes and given more space to pedestrian traffic. Changes like these might change personal habits but will require a bigger change in policies, incentives and urban infrastructure (Honey-Rosés et al. 2020).

Furthermore, the authors indicate that this could be a great opportunity to make greener cities and also lower the carbon emissions by expanding the street space for pedestrians, cyclists and mobile transport alternatives (Honey-Rosés et al. 2020).

Public transit

Public transit has proven to be a major source of infection during the pandemic. Honey-Rosés et al., indicate that it would be naive to believe that people happily will return to public transit in a post-covid world. Studies show that in China, the usage of private cars almost doubled when the lockdown ended. There

is a risk that private transport alternatives like cars will be much more preferred than public transits. The economy of public transit is dependent on the number of passengers, and to be able to increase numbers of buses or trains and also to lower the ticket prices, more passengers are needed. Furthermore, this economic model will be threatened alongside increasing carbon emissions if more people choose to use private cars instead (Honey-Rosés et al. 2020).

On the other hand, micro mobility and mobility sharing did have somewhat of a "boom" before the COVID-19 pandemic hit the world in the beginning of 2020 (Honey-Rosés et al. 2020). The authors state that there is a chance that these smaller vehicles become more popular in a post-covid world. With effective disinfection systems for sharing electric kick bikes and electric mobility cars, these could be the preferred transport alternatives in cities in a post-covid world. This would also be a positive change for the global carbon footprint (Honey-Rosés et al. 2020).

Post-covid world

During the 19th century people started to explore the streets and spontaneous socialization like window shopping and just walking down the streets to meet and see other people (Honey-Rosés et al. 2020). According to Honey-Rosés et al., this was the start of the modern public space. The COVID-19 pandemic is now challenging the two activities that brought people out in the first place. Public space is a place for both spontaneous and informal social interaction as well as arranged meeting points, which are two forms of exchange between people that often are needed to build a community. There is a risk that the pandemic will limit people's ability to develop new relationships,

especially among strangers. Also, in a post-covid world people might change their social behavior and emotional connection with public spaces. Children who have spent almost a year in lockdown might not develop the same sense of attachment and intimacy with public space and other children, as they would normally (Honey-Rosés et al. 2020).

Honey-Rosés et al., state that we might see a new behavior around temporal patterns and spacing of users over the day, as people might try to avoid peak hours. The authors indicate that there is a possibility that men will be more likely to venture outside than women, and elderly people might stay at home. Maybe high-income people will avoid public spaces completely and just continue to work from home, while low income workers continue to move around (Honey-Rosés et al. 2020).

However, the authors state that this is not the first time humanity has experienced a pandemic and it will probably not be the last (Honey-Rosés et al. 2020). Furthermore, even though the COVID-19 pandemic might change some social behaviors and social patterns, it is unlikely that people will stop using public urban spaces because they are too important and meaningful for people. Large public spaces are also very important for different cultures but also for the city's identity and economy. Furthermore, large public spaces have provided citizens a place to organize, form groups and voice political dissent throughout human history. During the summer of 2020, during the still ongoing COVID-19 pandemic, the Black Lives Matters-movement took place in the United States where people gathered and protested in urban public spaces and streets all over the country (Honey-Rosés et al. 2020).

Honey-Rosés et al., indicate that the flexibility of large public spaces has shown to be very important and valuable assets during the pandemic. Cities like Vancouver, New York and London have converted large green spaces and convention centers into emergency centers/fields and hospitals. The authors state that a key feature in a resilient city is to have large spaces that can be transformed for emergency health purposes. These large green spaces could also be used for recreation and outdoor activities such as work out and for people to socialize while still maintaining social distance (Honey-Rosés et al. 2020).

The authors suggest that by redesigning streets and urban places to create more space could lead to a healthier, safer, greener and a more livable city. Urban designers aim to create cities and urban spaces where people feel welcomed, comfortable and safe (Honey-Rosés et al. 2020).

Anderas Hatzigeorgiou, CEO at Stockholms Handelskammare, state that “creativity is born out of crisis” (Stockholms Handelskammare 2021, p.1), and even though it has been said before, the speed of change due to the COVID-19 pandemic, is exponential. Hatzigeorgiou means that the pandemic has put the whole city on hold and that many people claim that this could be the end of a living city (Stockholms Handelskammare 2021).

However, Hatzigeorgiou states that mankind has throughout history been affected by pandemics, natural disruption, famine and war. Most of the time, cities have been affected the hardest. In spite of enormous human suffering, Hatzigeorgiou indicates that the power of urbanization has always triumphed over the pressure of leaving the city. Continually he states

that due to human’s wealth of ideas, determination and technological progress the city has always found ways to survive and improve. Instead of using the pandemic to declare the death of cities, Hatzigeorgiou states that it should be turned into something positive. Furthermore, he claims that the increased flexibility in working life and our everyday lives is probably here to stay (Stockholms Handelskammare 2021).

According to studies made by Stockholms Handelskammare, many of the Swedish workers have mixed feelings and experiences by working from home during the COVID-19 restrictions (Stockholms Handelskammare 2021). Furthermore, surveys show that people work more efficiently from home and thus get more work done, but most people suffer from a psychological point of view, where people miss socializing and the daily exercise from going to and from their workplace. Furthermore, studies show that people appreciate the “flexible working station”, which means that people like the opportunity to combine working from home and work at the offices.

The studies show that most of the people that attended the survey want to spend approximately 3 days at the office, and 2 days working from home. According to Stockholms Handelskammare, this could result in changes in the post-covid world where people are able to work both from home and at the office. This could also change the economic activity in the city centers (Stockholms Handelskammare 2021).

Alexandra Hagen, CEO at White Architects, states that due to less commuting, people will demand for a more mixed and flexible city, close to service, culture, recreation, greenery, work and housing, all in the same place (Stockholms Handelskammare 2021). During the

pandemic, Hagen indicates that the online shopping and other online services have increased, resulting in changed behavior and the need of the city center, where physical shopping is not needed. However, she suggests that this could potentially provide space for other activities in the city centers such as culture, restaurants and public urban spaces (Stockholms Handelskammare 2021).

According to Hagen, people will most likely return to old habits after the pandemic, since people miss the social interaction and public spaces during the pandemic. However, she claims that people might value and will look at urban spaces with new eyes. Since the spread of infection is higher in dense urban environments, it might take time for people to feel normal around these environments. Furthermore, Hagen indicates that the consequences of earlier pandemics have led to investments in the expansion of large city parks and public spaces to create a healthier living condition (Stockholms Handelskammare 2021).

During the COVID-19 pandemic, Hagen states that public transport, such as buses and trains, has been a huge risk of infection. However, Hagen claims that this strengthens the demand of expanding the city’s pedestrian and bicycle infrastructure, which also contributes to reduced spread of infection and increased health, and at the same time, contributes to more sustainable transports. Hagen states that this could lead to people making higher demands on outdoor environments, and due to that, investments in the expansion of urban public spaces. Potentially, it could also have positive effects on climate change such as increased biodiversity, reduced risks of flooding and help to dampen the effects on heat waves in the cities (Stockholms Handelskammare 2021).

Urban robustness

Riegler & Bylund mean that the COVID-19 pandemic has underlined the role of “shaping urban robustness”. The authors mean that a robust city is supposed to be livable and sustainable as far as possible, even during a pandemic. Furthermore, urban spaces are meant to be accessible, inclusive and well designed to provide physical distancing, as well as essential services to mitigate traumatic experiences and other effects caused by e.g. future pandemics or climate change (Riegler & Bylund 2020).

Riegler & Bylund state that urban robustness indicates that urban societies are prepared to handle increased and tougher crisis. By developing urban societies that are equipped and designed for different urban public dilemmas, one can achieve a livable and sustainable city, and therefore, achieve urban robustness (Riegler & Bylund 2020).

Climate change and its consequences in the urban city

According to Riegler & Bylund, the COVID-19 pandemic is one of the biggest crises that has happened in modern time. At the same time, they mean that the global warming crisis is just as critical as the COVID-19 pandemic. Riegler & Bylund state that just because the consequences of climate change increase steadily over a long period of time, the efforts to reduce emissions and adaptation measures are neither taken as seriously nor happening at the same rapid pace as the COVID-19 measures (Riegler & Bylund 2020).

In the footprints of human modern civilization and its industrial activities, the level of carbon dioxide has increased extremely over the last 150 years (NASA 2021). Research made by the Intergovernmental Panel on Climate Change (IPCC), a group of 13000 independent scientific experts from all over the world, shows that the probability of human produced greenhouse gases emissions are more than 95% the cause of global heating (IPCC 2018). Greenhouse gases, such as carbon dioxide, nitrous and methane oxide, block the heat from escaping the atmosphere, which cause global warming (NASA 2021).

According to the IPCC, many regions around the world, such as coastal regions and high mountains ranges, have already experienced the consequences

of a warmer climate (IPCC 2018). 240 million people across the high mountain region between Afghanistan and Myanmar, have already experienced higher temperatures and changes in period of seasons (Borunda 2020). More frequent extreme weather such as heavy rain, cyclones and more intense heat waves, are some consequences of climate change and have already cost many lives across the world (IPCC 2018).

In 2019, extreme fires erased more than 18 million hectares of bush in Australia, and hundreds of thousands of acres burned in the Sierra National Forest in California (Borunda 2020; Philips 2020). Science shows that these fires can be traced back to human impacts on the climate (Borunda 2020; Philips 2020). Due to global warming, science and observations show that the glaciers are melting, which lead to rising sea levels and cause coastal flooding. Research also shows that climate patterns change due to warmer temperature, affect ranges of animals and plants and therefore disturb natural lifecycles and cause biodiversity loss (WHO 2021).

According to the Intergovernmental Panel of Climate Change, approximately 1.0°C of global warming above pre-industrial levels, is estimated to be caused by human activities. Research shows that if global warming continues to increase at the current rate, the global temperature is likely to reach 1.5°C above pre-industrial levels between 2030 and 2052 (IPCC 2018). Due to IPCC's studies, coastal regions, high mountain ranges as well as low- and middle-income countries are most affected by global heating. Increasing poverty, famine and migration are some of the consequences in these regions due to climate change (IPCC 2018).

The IPCC states that climate-related risks for humans

as well as natural systems are higher with a temperature rise of 1.5°C but lower than at 2.0°C. Furthermore, the IPCC means that the intensity of risks is depending on geographic location, magnitude and rate of warming, as well as levels of development and vulnerability, and the implementation of mitigation and adaptation options, in the different regions around the world (IPCC 2018).

According to the IPCC, the consequences of global warming of 1.5°C are estimated to be lower compared to a temperature rise of 2.0°C. By limiting global warming to 1.5°C instead of 2.0°C, the impacts on ecosystems and biodiversity, including species loss and extinction, as well as human crisis is projected to be lower (IPCC 2018). According to the IPCC a rapid change in the transitions of renewable energy, land use and infrastructure, is necessary in terms of lowering the carbon emissions and by that, limit the global warming to 1.5°C (IPCC 2018).

Cutting emissions, reducing waste, investing in renewable energy and sourcing products from fair-trade organizations, are some actions for worldwide communities, likewise companies, to limit their carbon footprint and therefore commit to a more sustainable world and future (Grant 2020). Johansson & Sandström state that sustainability is about finding ways through usage of natural products and energy to increase the quality of life, while respecting environmental, social and economic systems (Johansson & Sandström 2018). However, the temperature on earth will keep changing and natural disasters will keep affecting human and natural systems (Johansson & Sandström 2018).

In order to master climate change, humans need to find ways to adapt to it. Jack Ahern, professor in landscape architecture, discusses resilience and states that resilience

could be another way to think about sustainability (Johansson & Sandström 2018). According to Walker & Salt, resilience thinking provides another way of observing and managing the natural resources on earth, as well as offering a more constructive alternative that creates options instead of limiting them (Walker & Salt 2006). Johansson & Sandström state that “resilience is about understanding the complexity of a constantly changing world” (Johansson & Sandström 2018, p. 11). Furthermore, they indicate that instead of working against the changing climate and its consequences, a more successful way would be to work with and side by side with these changes (Johansson & Sandström 2018).

Johansson & Sandström (2018) claim that resilience thinking offers many opportunities for landscape planning and design where multifunctional systems, like stormwater management and coastal flooding protections, are needed to prevent natural crises and finding ways to quickly recover from such event. Furthermore, Johansson & Sandström argue that using different types of expertise and working across different disciplines, would offer convenient planning methods that would protect and strengthen both human and natural systems (Johansson & Sandström 2018).



Image 1. Alder Fire in Yellowstone National Park. Mike Lewelling (2013).

Adaptation and mitigation methods

According to Naturvårdsverket, nature-based solutions are multifunctional and cost-effective measures to address various societal challenges by protecting, developing or creating ecosystems while promoting biodiversity and human well-being. Nature-based solutions strengthen the ability of ecosystems to provide humans with essential ecosystems services which in turn contribute to solving various societal challenges (Naturvårdsverket 2021).

Naturvårdsverket state that trees and greenery help regulate temperature in public urban spaces. With the right design and location, greenery, such as trees, shrubs and flowers, can also contribute to better health through noise reduction and reduced dispersion of airborne particles. Greener cities also provide areas for recreation and at the same time, create important elements for biological diversity and pollination as well as creating beauty values in the urban environment (Naturvårdsverket 2021).

As most urban areas are made of hard materials, and the combination of increasingly heavy rains due to climate change, the risk of flooding has increased in the urban city (Johansson & Sandström 2018). According to Malmö stad, large amounts of rain have led to, among other things, flooded basements, destroyed facades and traffic accidents. Furthermore, the amount of rainfall over a short period of time, exceeds the estimated precipitation that can be taken care of in the wells and drainage systems that exist in the cities. To overcome the problem, sustainable stormwater systems, inspired by natural solutions, have become more usual in cities around the world (Malmö Stad 2017).

According to Stahre there are different ways to take care of stormwater. Stahre states that the definition of sustainable stormwater management can be made through open or partially open systems, but it can also be a combination of traditional systems (Stahre 2008).

Open systems mimic nature's way of handling water, such as infiltration into the ground, or delay in ponds or over vegetation-covered surfaces. Stahre claims that in the open stormwater systems, the water is visible during the run-off. Furthermore, Stahre indicates that more traditional solutions involve measures such as directing stormwater underground, but also solutions such as underground reservoirs for temporary storage of stormwater. According to Stahre, sustainable stormwater management is not only about managing rainwater in open systems, but to see which solutions are most suitable for the local conditions. Stahre believes that a combination of solutions is often needed to achieve sustainable stormwater management and a cost-effective result (Stahre 2008).

Rainbeds is an example to delay stormwater in urban environments. Rainbeds are a combination of open stormwater solutions and plants where the plants have both a hydrological function as well as the function of purifying the water from pollutants (Eriksson & Lyth 2015). The plants can also increase the aesthetic value and increase the biological diversity (Malmö Stad 2017).

ANALYSIS OF FALKÖPING CITY CENTER AND STORA TORGET

This chapter describes the analysis of Falköping's city center with its history, as well as the present character and design of Falköping's city center.

The second analysis part of this chapter analyzes Stora torget with its history but also current character and design. The analysis also includes current circulation patterns, nodes and green structures in the city center and Stora torget.

The information is based on maps but also on different dialogue processes that the Falköping municipality held with the residents in order to understand the residents' moving patterns and needs.

Falköping history

Falköping is a city with a long history. Few traces remain from the Middle Ages when the city first was formed. In 1281, Falköping was first mentioned in written sources but it was not until 1441 Falköping was granted city privileges. Furthermore, the contemporary sources give very scarce information about the medieval Falköping. The overall picture about Falköping as a city, emerges during the 16th century. Falköping appears to be a small city with only a few hundred inhabitants, located on the outskirts of the rich agricultural area (Archidea AB 2009).

The oldest known map over the city planning is from 1696, where several medieval features are visual. It is possible to interpret some of today's Falköping in these old maps such as the distribution of Stora Torget, Storgatan and the stretch of Östertullsgatan. More groundbreaking changes to that pattern visible today took place in the 1830s re-regulations of the city plan, then among other things Nygatan and Repslagargatan were built. However, the more irregular medieval city pattern disappeared during this period (Archidea AB 2009).

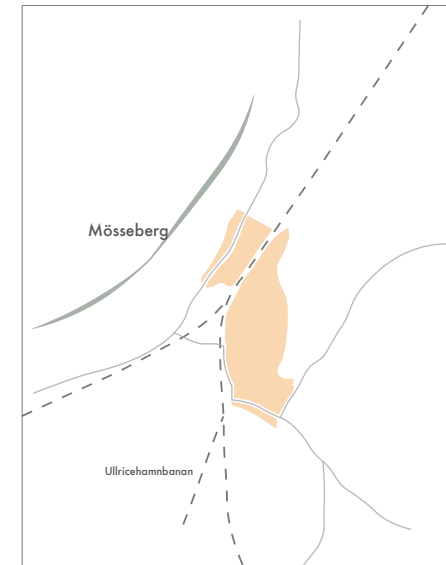
In the middle of the 19th century, the main railroad, Västra Stambanan, was drawn in the vicinity of the city center. The city center had more reason to grow because of the railroad and during the 1850 – 1900 the population multiplied from 693 inhabitants to at

least double and the city plan was greatly affected. This was also the start of the two-core center division of the city center; the railway station Ranten and the older city center with Stora torget and St. Olof's church (Archidea AB 2009).

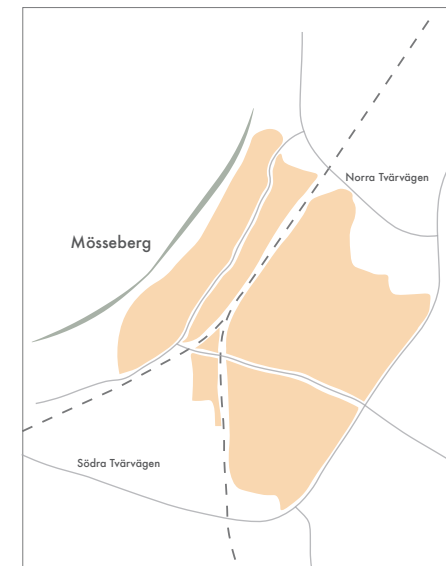
Falköping's first city plan was in fact made by Adolf Wilhelm Edelsvärd in the 1850s. The ideal city plan, the Finnish model, for the new railway junction Falköping was established. It became important to connect this two-core city center and therefore a parade street was introduced. St. Olofsgatan, which currently resembled a country road, was redesigned and rebuilt into an esplanade street. In 1870 the Planting Association was formed with the idea of a greener city. Trees were planted along St. Olofsgatan and after the purchase of land in 1884, the park called "Plantis" was constructed. Plantis's glory days were during the end of the 19th century and the first part of the 20th century. Since 1970, the Plantis park has been owned by the municipality and it is still an important green element in Falköping's center urban environment (Archidea AB 2009).

Figure 8. The images show that the two-core center formations in Falköping; Ranten and the area around Stora torget, as early as 1935 had merged and laid the foundation for the urban city center that exists today. Falköping Kommun (2017), additions made by Josefine Ögren (2021).

1935./



2017./



Falköping time line

The time line is referred to (Archidea AB 2009, 2015).

PRE - HISTORIC AGE 4200 f.Kr - 100 e.Kr

Falköping city is located in a valley on a limestone bedrock between two plateau mountains. Due to the fertile soil, early settlements emerged around the hilly landscape. The ancient part that remains reflects Falköping's long continuity of human settlement, from agricultural Stone Age to the Middle Age urbanization.

MIDDLE AGE AND PRE - INDUSTRIAL TIME 1000 - 1858

The city had a large population early thanks to the fertile soil and good agricultural possibilities.

Many middle age parish churches were built. St: Olof's church is one of them.

1100./ St. Olof's church



Image 2. St. Olof's church. Falköping kommun (2021).

1281./ Falköping was first mentioned in written sources.

1441./ Falköping was first mentioned as a city.



Image 3. Malta-Johanna fountain, Stora torget. Falbygdens museum (2017).

THE 17TH CENTURY

The city is growing and important structures like Stora Torget and Storgatan were built. Östertullsgatan, Trädgårdsgatan and Landbogatan still create a clear and well-preserved 17th century city structure.

1696./ The oldest known map of Falköping cityscape with several medieval features. The map also shows structures like Stora torget, Storgatan and Östertullsgatan.

1820 - 1830./ A lot of the Middle Age structure disappeared. The old city was rebuilt in a grid pattern with a very characteristic pre- industrial architecture. A small scale character with narrow streets, 1- 1,5 storey houses and characteristic buildings with cover strip panel and bars were built. Storgatan was also widened a couple of times during this period.

RAILWAY SOCIETY

1858 - 1914

The main line, Västra Stambanan and then Södra Stambanan were built through the city. Falköping became a central junction due to the railroads. Settlement was built after SJ:s chief architect Edelsvärd's city plan ideal. The two-cored city centers around the central station and the Old town grew together through St. Olofsgatan.

1858./ Railroad



Image 4. The Swedish National Flag day 1940, Stora torget. Falbygdens museum (2018).

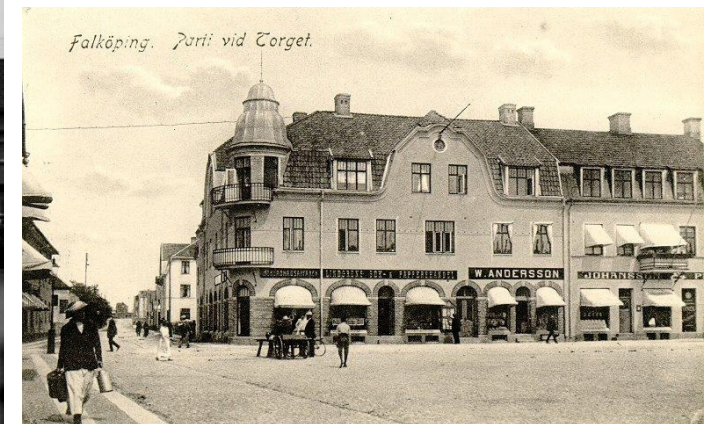


Image 5. Storgatan 16, Stora torget. Falbygdens museum (2017).

THE 20TH CENTURY

During the 20th century, a number of buildings from the 18th and 19th century were demolished.

GARDEN CITY 1914 - 1945

The population increased sharply in the end of the 1800s. It became more important to create higher living standards for the inhabitant's hygiene and well-being. More and more villas with their own gardens were built. A variety of different architecture design principles were used. The city grew around St. Olofsgatan and the city changed from being a railroad society into a Garden city.

1930./ The building Storgatan 16 was built in the Art Nouveau style. This building is still the city's most stately building.

1945./ After 1945 the trains got slowly replaced by cars and trucks. The train station is no longer the centerpiece in the city development.

1960./ Two more buildings were built next to the square Stora Torget.



Image 6. Horse and carriage, Stora torget. Falbygdens museum (2020).



Image 7. Trading at Stora torget. Falbygdens museum (2017).



Image 8. Big market, Stora torget. Falbygdens museum (2017).



Image 9. Aerial view of Stora torget. Falbygdens museum (2017).



Image 10. Malta- Johanna fountain 1968. Falbygdens museum (2017).



Image 11. The Swedish National Flag Day, 1940. Falbygdens museum (2018).

Stora torget's history

Stora torget is the old city center of Falköping's most important place and is located in the Old town. The whole area is classified as a monumental place where people have met and traded groceries and other necessary products and materials throughout history. Stora torget has also been an important place for different kinds of events and celebrations like the Swedish National Flag Day (Falbygdens Museum 2020).

The three squares, Stora torget, Köttorget and Trätorget are all located in the Old town of Falköping. Historically, the three squares have been important for the market trade in the city. Twice a year, in March and October, large markets were held in the city. In between, there were monthly markets and market days during Wednesdays and Thursdays. Every month, the first Wednesday after the 15th, a market was held at the square where farmers around the area, came by horse and carriage to sell their goods (Falbygdens Museum 2020).

The market trade was divided between the different squares. Goods like potatoes, oats, barley, eggs, butter, chickens etc. were sold at Stora torget, while meat was sold at Köttorget. When people needed firewood or other wood products, they went to Trätorget (Falbygdens Museum 2020).

City square typologies

Historically, the square has been very important for the residents in the cities, both for necessary, daily activities and the more festive or political events (Kack & Palmqvist 2020). Cooper Marcus & Francis (1990) state that the medieval cities relied on the squares since the squares contributed with many important functions in the society.

However, there are many classifications of squares which rely on either form or use (Kostof 1992). According to Spiro Kostof, squares that have fulfilled the same or similar functions throughout history, do not have the same or similar forms. The form of the square has proven to be operative in sense of activities and versatility of use. Furthermore, Kostof states that the possibility of a versatile square with mixed uses, a less specific form of the square is required.

Kostof declares that to overcome the complicated and comprehensive way of classifying squares, the form has been favored over content. One of the earliest classifications of squares was made by the architect and urban planner Joseph Stübben (1845-1936) (Kostof 1992). Kostof states that Stübben has modern concerns in his book, however Stübben is generous with historical precedents. The first category of city squares that Stübben identifies is the traffic square of modern interchanges that has a circular polygonal form. The second main category is the square of public use, made for markets, parades and public festivities (Kostof 1992). The third category refers to the English garden square and landscape square that developed in Europe during the 19th century. The final category is

the architectural square, which includes the forecourt serving a single monumental building (Kostof 1992). According to Kostof, Zucker classifies the quadrant square as the closed square, that is static and self-contained. The rectangular square is classified as the dominant square “where the space is dynamic, that is, directed towards a terminal object which can be a church, a gate or an arch, a fountain”... “or a view” (Kostof 1992, p.146).

Furthermore, space that is formed around a central statue, fountain or other vertical accent, is called the nuclear square. Zucker classifies a combination of spatial units as grouped squares and at last, where “spatial experiences are too diffuse to be positive” as the amorphous square (Kostof 1992, p. 146).

According to Kostof, the rectangle is possibly the most frequently used shape for the public space. Kostof states that one of the advantages using the rectangle as a shape, is that it allows a directional axis toward a culminating monument.

Mehta declares that urban public spaces, like squares, historically have been used to supply the residents of cities with basic functions such as trading and news reading. The squares have also been very important for social interaction (Mehta 2014).

Friberg states that historically, squares have been used as an arena for the people, both for the daily necessary use as well as private festive, celebrations, parades and acting. Friberg declares that these necessary needs

and private arrangements live in symbiosis with each other and are important for the squares' function as a meeting place (Friberg 1998).

Falköping today; The Good Life vision

The Good Life is Falköping's municipality's vision of a sustainable society, a society in balance and harmony, both for the current but also the future generations. The Good Life is built on everyone's equal value and the socially active inhabitants. These qualities are important to enhance the well-being of the inhabitants of Falköping municipality. To achieve the vision of the Good Life, the municipality has four goals:

1. A socially sustainable Falköping
2. A more attractive Falköping
3. Create conditions for businesses to develop
4. The quality of the businesses must increase

Falköping municipality wishes the city center to be a natural meeting point for residents as well as visitors and business in Falköping. This demands urban public spaces that are well designed to enable people to meet, and at the same time, provide enough space for the residents to keep social distance due to the restrictions caused by the COVID-19 pandemic. At present, there are a number of park benches in the city center, but the lack of well designed areas aimed for socializing and other activities, is a fact. There is also no place for play in the city center (Falköping kommun 2021).

Six value words/concepts have been developed by the municipality to be able to incorporate the municipality's vision with future city developments.

A city center where everyone wants to be

A city center should be for everyone and where everyone is supposed to feel included, regardless of age, gender or background. The city center must be accessible to everyone and designed with regard to different kinds of functional variations. The city center must be attractive both in terms of aesthetics and content (Falköping kommun 2021).

The room for trade and meetings

The city center should be welcoming to both citizens, business and visitors. The city center must provide modern areas for socializing and meetings as well as highlight the cultural heritage of the historic trading and meeting points. The design must be flexible and able to offer opportunities for both small and large events as well as be able to change character both over seasons and over a longer period of time. The city center must be able to face the future in a sustainable way (Falköping kommun 2021).

The city center as a living room

The city center should be experienced as a safe, inspiring, inclusive and inviting place. The goal is to make the inhabitants experience Falköping city as their place, and that the city center simply should feel like their living room. The area should have appealing lighting that creates both a safe and inviting environment, even at nighttime. Pedestrian traffic should be a priority in the city center, both to create a safe environment as

well as provide space for other functions and activities (Falköping kommun 2021).

Strengthening of the urban and rural area

The urban and rural areas in Falköping live in symbiosis with each other. The rural area needs a strong city center that reflects the connection between the urban and rural area as well as the urban city center needs a strong surrounding rural area to be able to develop. Strengthening the urban city center will therefore strengthen the rural area as well. The urban city center should be experienced as accessible and close to everyone (Falköping kommun 2021).

Falköping identity

The design should highlight the existing buildings and cultural environment around Stora torget and strengthen the city center's cultural-historical imprints. The design and functions of the city center should connect the values that are unique to Falköping and highlight the identity of Falköping municipality together with the population. There must be space both for small-scale and unique stores as well as for a modern center development (Falköping kommun 2021).

Collaboration and participation

The urban city center must be inviting and inclusive in its design to achieve a socially sustainable Falköping (Falköping kommun 2021).

Circulation patterns and nodes

In a dialog process that the municipality held with the inhabitants during 2019, people had the possibility to answer questions about their movement patterns within and to the city center. The result showed that most people currently enter the city center via Dotorpsgatan and St. Olofsgatan (see map on next side). There were also many people entering from the east, via Hästbacken. The main end destination is the liquor store, followed by the three largest clothing stores Lindex, H&M and Kappahl (Falköping kommun 2021).

People could also answer what type of transport they most frequently used in the city center. The study showed that 39 % walks, 36 % drives a car, 19 % bikes, 5 % uses public transport and 1 % drives a moped. Overall, the study showed that most of the inhabitants walk and bike in the city center. Those who state that they use a car, usually park their car in some of the parking lots south or east of the city center (Falköping kommun 2021).

The municipality is planning to close Dotorpsgatan for car traffic in the future. This will most likely have an effect on the movement patterns and flows in the city center, as the traffic from the north will have to go via Hästbacken in the east or via Storgatan/Landbogatan in the west (Falköping kommun 2021).

There are several large parking lots adjacent to the city center. Studies made by the Falköping municipality show that the amount of parking lots around the city center is sufficient (Falköping kommun 2021).

Storgatan is the main shopping street in the city center and starts at the intersection Storgatan/St. Olofsgatan and ends at the intersection Storgatan/Dotorpsgatan. The shopping street expanded when H&M moved into a building at Köttorget (Falköping kommun 2021).

Retail focus is rarity trade and is supplemented by restaurants and cafés. There are currently three cafés in the most central parts of the city center. The coffee culture has been established during the recent years and more people tend to visit the coffee shops both during the weeks and weekends. The stores in the city center have a profitability that varies depending by month and industry. The municipality works actively and focused on developing, marketing and supporting the trade in Falköping (Falköping kommun 2021).

Figure 9. The map shows cycleways, the main car road, center nodes, meeting points and unpopular spots. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021).



Hard and soft structures

As a city, Falköping has many tree-planted streets which create green corridors in the city, the map only shows the main tree alley along St. Olofsgatan. The urban city center is mostly paved with some element of trees and plantations. There is a big green area around St. Olof's church, Kyrkparken, which creates a green oasis in the city center that could have a greater role as a city park with the close connection to Stora torget, since the current city park Plantis, is located 500 meters further north along St. Olofsgatan. The third park, Folkets park, is located further north close to the central station.

Kyrkparken contains big and stately trees, often called giant trees, and most of them are biotope protected as they are part of an avenue together with trees along Prästgårdsgatan. Kyrkparken has 36 trees with species of; *Acer pseudoplatanus*, *Acer platanoides*, *Carpinus betulus* f. *Stenshuvud* E, *Fraxinus excelsior*, *Fagus sylvatica*, *Ulmus glabra*, *Ulmus caprifolia* "Hörsholm", *Tilia cordata*, *Tilia x vulgaris*, *Populus tremula*, *Quercus robur*, *Quercus cerris*, *Aesculus hippocastanum* and *Sorbus intermedia* (Falköping kommun 2021).

Stora torget is the main square in the city center. Close by there are two smaller squares: Köttorget and Trätorget.

Southeast of the city center there is lake called Agnesstad lake. The nutrient-rich lake is about 600 m long and is a part of the Göta River's main catchment area. On the eastern side there is a bird - and lookout tower.



Figure 10. The map shows hard and soft structures in the city center. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021).

STORA TORGET

Stora Torget is located in the old town in Falköping. The old town includes the southern part of the city and one of the two-core centers from the 17th century. The whole area is classified as an ancient monument and the square, Stora torget, is the old town's most significant place. Market trade was conducted on the square already from the start and the city's main shopping streets are adjacent to the square (Falköping kommun 2021).

Stora torget has a medieval, irregular and elongated shape. The area amounts to just over 4,500 sqm. The southern long side has a cracked shape which is reflected in the house facades that are located on the property boundary towards the square. Along the southern side there are several restaurants that use the square space during the summer for outdoor dining. In the middle of the square there is a sculpture combined with a fountain on which the statue "Malta-Johanna" sits in a seashell and glances over the square. The square is mainly cobblestones but with concrete slabs for the walkways along the facades around the square (Falköping kommun 2021).

Falköping is a city that is permeated by the farming community and where markets and locally produced products are important for the inhabitants and the city's identity. The municipality, together with various companies and traders, organize various events during the year in the city center, where most of them take place at Stora torget. Recurring events are Easter in the

city, "Motordagen", the City Carnival (takes place over two days), Family in the city, "Meklesmäss" in the city (harvest market), and Christmas in the city (4 times, every weekend before Christmas). The City Carnival brings up to 5000 visitors over two days, "Motordagen" brings up to 2000 visitors and other events bring up to 750 – 1500 visitors (Falköping kommun 2021).

In addition to these, there are additional events that may affect the use of public spaces in the city center, such as "the summer street". During several of these recurring events, a mobile stage is used which is placed at Stora torget. The municipality wishes that Stora torget could make it possible for several different events and activities during different occasions (Falköping kommun 2021).

The market trade on Stora torget is important for the city and gives the city an identity. The square hosts both traditional market trade with market stalls and more large-scale markets such as Malta-Johanna market and REKO-ringen. Today, these are three different market trading categories which all take place on Stora torget (Falköping kommun 2021).

Currently, the traditional market trade in Falköping takes place on Tuesdays and Fridays, where 13 market stalls have stationary places at the square. For the weekly market trade there are a total of 55 market spots at Stora torget. The spots are currently 3 x 3.5 meter with a 4 meter path between them. It would be desirable to widen the paths between the market stands to enable more space for the visitors to avoid colliding and crowding with each other. This will most likely become even more important in a post-covid world. Currently the market stands are quite scattered all over the square and there is no clear flow, which makes

it hard for the visitors to understand the movement patterns (Falköping kommun 2021).

Every year, both an autumn and spring market take place in Falköping city. The market currently requires 60-70 market stands around the city center, where 40-50 stands are located at Stora torget. The remaining market stands are located on the adjacent Trätorget and Kötorget. Both the autumn and spring market usually attract a few thousand visitors each (Falköping kommun 2021).

During 14 weeks over summertime, a market called Malta-Johanna is organized at Stora torget. The market offers locally produced products and is important for Falköping's brand and identity. The development of the Malta-Johanna market mainly consists of attracting the younger people in the city. The biggest attraction method has turned out to be a collaboration with REKO-ringen. REKO-ringen is a model for locally produced and traded products between small-scale producers and consumers. REKO-ringen in Falköping has more than 50% of the same producers/suppliers as the Malta-Johanna market. However, the arrangement is different where the consumers at REKO-ringen place their orders on Facebook and then pick up their delivery at Stora torget at a specified time. This is also a model that may become even more popular in a post-covid world (Falköping kommun 2021).

The future of Malta-Johanna market and REKO-ringen looks bright since this kind of market trades are increasing, while more traditional market trade with market stalls is decreasing every year, although relatively slow. In spite of this, Stora torget needs a more modern and fresh design that can handle these kinds of events, all year round, regardless of the weather (Falköping kommun 2021).

Culture and art are important elements in the city center, and constitute a platform for social sustainability and interaction between people. Cultural elements, together with market trade, create a sustainable city center and a good foundation for a sustainable development (Falköping kommun 2021).

During the fall of 2019, Falköping municipality arranged a dialogue process with the municipality's residents to find out what the residents wanted to improve and develop in their city. The importance of cultural and historical elements in the city center turned out to be highly desirable for the residents. It was also clear that culture and history need to claim more space in the urban public spaces, especially events that are accessible and free for everyone (Falköping kommun 2021).

There is currently a cultural cluster in the city center which is located around Flygarens gränd. The cultural cluster consists of different types of actors, both commercial and non-profit driven. Associations and business show examples of different cultural orientations, including art galleries, material sales and activities. This cultural cluster could be developed further and have more accessible space for art and culture in public spaces, such as Stora torget (Falköping kommun 2021).



Image 12. Stora torget. Falköping kommun (2021).



Image 13. Stora torget, Old town, Falköping during the 1950s. Falbygdens museum (2017).

Old town

Stora Torget is a part of the old town, which is one of Falköping's most popular residential areas and is located from the square and south. Some of the district's buildings were built in the middle of the 19th century, but there are also much younger additions. The buildings are homogenous and are characterized by small-scale wooden buildings built in a traditional expression. Many older buildings are richly decorated with carpentry details and barred verandas. The facades are usually clad in wood paneling and the buildings are crowned mainly with gable roofs with roof tiles as covering material (Archidea AB 2009).

The old town's more prominent character is the small-scale, low-rise buildings that are densely located in the cityscape. This type of cityscape has a long history in Sweden. Many of these buildings were demolished all over the country in favor of more large-scale and modern buildings, which make districts like the Old town in Falköping very rare. Sweden also has a long history of handicrafts where outbuildings and sheds have been of great importance. The small buildings and sheds, as well as trades and market sales on squares, are therefore very important for the old characters and history (Archidea AB 2009).



Figure 11. Old town, Falköping. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021).

Stora torget today's character

Stora torget has a rectangular form with a slightly curved shape towards the Kemisten block in the south with the older wooden houses. The ground is covered in paving stones laid in soft patterns combined with paving slabs and to some extent asphalt that shows the direction of traffic and walking paths (Archidea AB 2015).

The square is framed with buildings of mixed character. The northeast side of the square is dominated by an older stone building which with its symmetrically placed frontispiece gives a monumental appearance. The building is flanked by a tall building erected around the turn of the century with a plastered façade and a lower two-storey wooden building. The opposite side of the square is built with older wooden buildings on varying scales. The main part of this collective wooden building is built on two floors and gives an urban impression. However, the building on the eastern corner is lower, and connects to the lower buildings on Trätorget. The buildings on this side of the square are relatively well preserved (Archidea AB 2015).

Stora Torget's older building character diverges from the two younger buildings in the southeast and northwest. These buildings were built on the square during the 1970s and 80s and replaced the older buildings, including the old town hall (Rådhuset). The younger buildings are much more large-scale and extend over entire or large parts of adjacent neighborhoods. The two younger buildings both have a rough expression and give the square a heavier impression. Furthermore,

the buildings certainly have a light sludge façade but are covered with some dark and heavy architectural details which were common during this time period (Archidea AB 2009).

In the middle of Stora torget is a cast bronze sculpture depicting a woman in a seashell. The woman and the seashell are placed on a stone pillar in limestone that also acts as a fountain. The fountain is designed by Ivar Tengbom. The bronze sculpture, created by Ansgar Almquist in 1931, is called Venus in the bath but is popularly called Malta-Johanna. The sculpture creates a strong identity for the square but could be highlighted further with clearer site-created elements around the statue. The fountain "Malta-Johanna" has a strong character which creates a clear impact on the square and is constantly in the spotlight. The fountain also constitutes a landmark from a number of sightlines leading towards the square (Archidea AB 2009; Falköping kommun 2021).

In the square there are two beautiful lighting poles that flank the statue Malta-Johanna. There are also other lighting poles that do not have such high experiential or historical qualities (Archidea AB 2015).



Image 14. Malta-Johanna fountain. Falköping kommun (2021).

Urban stone and wooden buildings

Today, Stora Torget is characterized by large-scale town hall buildings. The buildings have been built during different eras in a cohesive urban development. 2-2.5- storey buildings are built in contiguous blocks with facades in stone, brick and wood. Some of the younger buildings around the square are built with bay windows, roof domes and arcades, which give the cityscape a motley expression (Archidea AB 2009).

Extra monumental are the tall older buildings made in stone, as well as the buildings that intersect with St. Olofsgatan and Storgatan. The architectural design language is characterized with lavish façade details, friezes, balconies with ornaments and roofs adorned with towers, gables and spiers. National romanticism, Art Nouveau, the 20th century classicism and functionalism are just a few style eras that are represented (Archidea AB 2009).



Image 15. Stora torget. Falköping kommun (2021).

Ground material

To create an overall impression of the city, Falköping municipality has made a number of different investigations and developed design programs for future development of the city's urban public spaces. In "Gestaltungsprogram för Falköping stadskärna samt St Olofsgatan och stationsområdet" (Archidea AB 2009), there is a description of recommended ground materials in the city center. In general, the municipality wants to use materials that harmonize with each other in terms of color schemes and shape. Due to a cultural and sustainable perspective, it is also important to take advantage of older ground materials and reuse materials as much as possible (Archidea AB 2009).

Limestone stands out as one of Falköping's most characteristic materials, since the city lies in a valley of limestone plateau. However, limestone is not suitable as a ground cover where there is car traffic but works well in squares and pedestrian streets (Archidea AB 2009).

Granite and concrete are two other materials that the municipality advocates. The granite must have its origin from Sweden or Europe to counteract environmental degradation and unethical working conditions. The concrete stones and/or slabs can only be used in combination with paving stones or granite slabs (Archidea AB 2009).



Image 16. The photo above shows the ground material of cobblestones at Stora torget. Falköping kommun (2021).

Image 17. The photo to the right shows Storgatan, which is the main shopping street that runs along Stora torget. Falköping kommun (2021).



Sightlines, landmarks and historical motifs

Södra torggränd, Storgatan, St. Olofsgatan and Kyrkogatan create sightlines that help visitors to understand the orientation in the city center by putting the city's elements like the central station and Stora torget in relation to each other (Archidea AB 2015).

Storgatan is the main shopping street and runs along Stora torget's southern side. The Malta-Johanna-statue is located in the center of the square and her face is directed towards the square's parade building "Boktryckaren 16 and 17" (Storgatan 16). Malta-Johanna is a historical landmark and is a natural fund motif when approaching the square from all directions (Archidea AB 2015).

Stora torget has a characteristic rectangular shape with a crack along the southern long side. Along the western and eastern sides of the square, there are two modern buildings that differ in expression and material compared to the older buildings along the southern and northern sides. However, the two modern buildings still contribute to the spatiality of the square with the buildings scales and volume effects (Archidea AB 2015).

In the north-west corner of the square there's a building called Boktryckaren 17, which has a characteristic tower that is a fund motif in the square's urban space. The tower becomes a landmark from the square towards the northern city center (see figure 20)(Archidea AB 2015).

Stora torget is visible from various sightlines; Storgatan, Flygarens gränd, Södra torggränd and the passage from Köttorget (see figure 20).



Image 18. Sightline to Stora torget. Falköping kommun (2021).

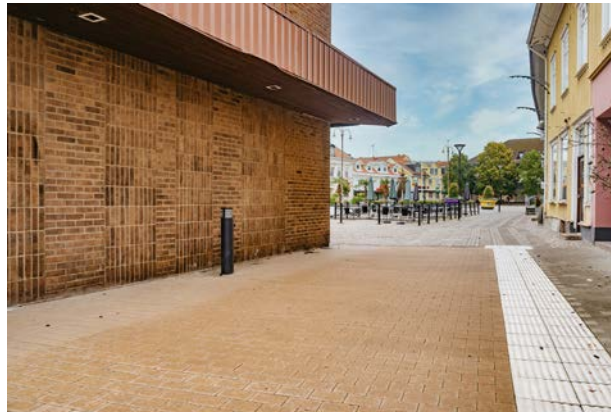


Image 19. Sightline to Stora torget. Falköping kommun (2021).



Image 20. Sightline to Stora torget. Falköping kommun (2021).

Stora torget's sightlines, landmarks and historical motifs

Throughout history, Stora torget has been important, especially for market trade. The square has also served as a meeting place in combination with shopping and restaurants. The square is mainly hard material with some green elements like tree plantings and flowerbeds. The two squares next to Stora torget are the newly renovated square in the west, Kötorget, and Trätorget in the east. Trätorget is a smaller and greener decorative park with trees and planting beds. The new design of Kötorget was completed in 2017 and is, to a large extent, also hard materials with plantings of trees (Archidea AB 2015).

To the west of Stora torget, Kyrkparken is located. This area is included in the design competition arranged by the Falköping municipality, Svenska Kyrkan and Sveriges Arkitekter, and will therefore also be redesigned. The vision is to turn Kyrkparken into a new green oasis in the city center where there will be an opportunity for Svenska Kyrkan to hold various events as well as a place for meetings and play. The connection and proximity to the main square is important due to the interaction between Kyrkparken and Stora torget which is important for the future development of the city center (Archidea AB 2015).



Figure 12. The map shows Stora torget's sightlines, landmarks and historical motifs. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).

Green structure

Today, there are eight *Tilia cordata* along the short sides of the square. There are also some *Sorbus aucuparia* along Storgatan, which obscure the sightline that runs from St. Olofsgatan towards Stora Allén.

The flower beds around the fountain and Malta-Johanna statue and along the western short side, contain seasonally adapted plantings of for example roses and perennials (Archidea AB 2015).

Infrastructure

It is currently possible to drive a car and park along Stora torget's northern long side. However, the car traffic is meant to be shut down in connection with implementation of the project of developing the city center. Due to this, it is possible to redesign the currently used car parking and lanes for other purposes. Stora torget is a central part of the city's cultural environment with its partly medieval town plan around the square and the church close by (Falköping kommun 2021).

Blue Strucure

The southwestern part of the square is the lowest point on the square. Therefore will all the stormwater congregate in that corner (Falköping 2021).



Figure 13. Stora torget's current green structure and infrastructure. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).



Figure 14. The stormwater flows in Falköping city. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).

Summary

To sum up the analysis of Falköping city center and Stora torget, Falköping has a long history, where the agriculture land as well as the building of the railway, play a major role in the city's development. Today, the city is characterized by the agriculture and "small town" community (Falköping kommun 2020).

According to the compiled results of the dialogue processes that the municipality held with the city's residents, Falköping is a multicultural society where people greet each other, and where both the municipality and the residents are committed and humane. There are many active associations and a rich cultural life. Due to the rich agricultural community, there are many locally produced products which contribute to the lively market events, where Stora torget plays a big role (Falköping kommun 2020).

However, many residents believe that Falköping is not spared from problems like loneliness and vulnerability, and that there are some groups that take up more space than others (Falköping kommun 2020). The dialogue process also shows that many residents think that the moving patterns in the city center are weak, and that there is a lack of safe meeting points. As mentioned before, market trade is very important, and a clearer circulation pattern and flow is needed. The residents

also wish for a more aesthetic city center with greenery and safe meeting points. Today, many residents feel that the city center is insecure, boring and outdated (Falköping kommun 2020).

By analyzing the various maps, in combination with the compiled results from the dialogue processes, it is clear that the moving patterns in the city center need to be improved. Furthermore, the nodes, such as the central station and Stora torget, need a redesign and the connection between them needs to be strengthened.

The analysis also shows the lack of green and blue structures in the city center. Currently, there are two parks, Plantis park and Folkets park, and where Kyrkparken is suitable of becoming a new city park. A redesign of Stora torget could also strengthen the green and blue structures in the urban city.

In a redesign of Stora torget, it is preferred to strengthen the historical character, e.g., Malta-Johanna statue and the market trade, as well as creating safe places for socialization.

Falköping's dilemmas in urban public spaces

Stora torget is one of the main nodes in Falköping city center. Redesigning the square is one way to work towards a robust and sustainable city center, in order to deal with the dilemmas that Falköping is facing.

The overall dilemma in Falköping city is how to create a robust city center that is sustainable in an ecological-, economic- and social perspective, as well as accessible and aesthetically appealing.

Based on the analysis of Falköping city center and Stora torget, dilemmas on Stora torget are;

- **The lack of green and blue structures**
- **Gender- and minority groups inequality in public spaces**

Furthermore, the dilemma of Stora torget is how to create an urban space that reconcile the interest of the residents, responding to different genders, ethnics, ages and interests, as well as providing an urban space with possibilities for interests of the municipality and businesses, such as events and markets, and at the same time, create an urban space that is prepared for future crisis such as climate change and pandemics.

To deal with these dilemmas, a design proposal will be including different approaches and recommendations to address these issues:

- Approaches like adding nature-based solutions into the square will strengthen the positive relationship between environmental, social and economic links, as well as benefit both citizens, animals and the climate.
- Approaches like creating different rooms and qualities on the square will reduce gender- and minority groups inequalities.



Image 21. Stora torget. Falköping kommun (2021).
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DESIGN PROPOSAL

STORA TORGET

In order to answer the research questions;

“How to achieve urban robustness while designing public spaces, and at the same time, prepare urban environments for crises such as the COVID-19 pandemic and work towards sustainable and climate-adapted design?

and; ”Which urban public dilemmas are the most central in Falköping city center and how can the design of Stora torget take these into account?”, a design proposal for Stora torget has been made.

This chapter will begin with the concept, followed by the different functions and structures, with concept images and an illustrative plan, that together create a robust square which will strengthen the city center of Falköping.

Concept Flex Square

During the ongoing pandemic, we have learned that urban public spaces are extremely important for the people in the cities. We have also learned that we have no choice than to adapt and prepare our cities for the consequences caused by the ongoing climate change.

A robust city is defined as a place that is livable and sustainable as far as possible. By designing an urban space that takes the specific dilemmas in consideration provides the best prerequisite to achieve urban robustness.

The Flex square, or as we can call it, the flexible square, is designed to be able to change after different needs and conditions, which could be different seasons, time of the day, different groups like women, girls, children, youth, men, elderly or other sexual or ethical minorities.

The Flex square is a place that is inclusive and safe for all, provides meeting points and privacy, greenery and recreation, a clear moving pattern and measures that make it easy for the visitor to keep social distance, and includes sustainable adaptation measures against climate change.

The SHAPE



Figure 15. The Shape of the square. Basemap: Falköping kommun (2021), additions made by Josefine Ögren (2021).

The SHAPE of the square defines the form concept.

The ZONES



Figure 16. The Shape of the square. Basemap: Falköping kommun (2021), additions made by Josefine Ögren (2021).

The shape defines the different ZONES that divide the square's different characters. These characters will integrate with each other as well as help the visitor to orientate between the different types of characters at the square.



The ZONES define the hexagon that will be used further on in the design process.

Figure 17. Graphic illustration. Josefine Ögren (2021).

Illustrative plan



During regular weeks the square enables market stands underneath the mirror roof that works as a shelter for weather like rain but also the heat from the sunshine. The mirror roof also enables space for art exhibitions, trading events and an overall shelter.

The Malta-Johanna fountain is surrounded with new seating areas and planting beds. The western part is full of seating areas where people can meet and socialize and still keep social distances.

The square enables outdoor seating for the restaurants, cafés and winebars. The western corner has small water fountains which are pretty but also fun to play in.

Scale: 1:400 (A4)

Figure 18. Illustrative plan. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

Green- and blue structure

Trees and planting beds create the green structure on the square and re strengthen the shape of the square. . The southwest corner is the lowest point on the square and will manage the stormwater. Rainbeds along the southern side will delay and purify the water. There is a small canal running along the shape of the square that will lead the water to the southwest corner and the rainbeds.

11 *Platanus x hybridus* are planted around the square. The trees can handle the drought and provide shadow with their big leaves. The platanus trees also give a special character to the square with their characteristic stems and fruits. The green/beige colors of the stems also go hand in hand with the color schemes of the city center.

There are two cherry trees planted in the western short side in the 'private area' of the square. The early flowers will also lighten up the spring.

There are planting beds in combination with the seating areas where annuals and bulbs are planted to give something extra during the different seasons. The flowers will help increasing the biodiversity and pollination.



Specific selected plants; flowers and grasses that can handle both drought as well as flooding.



Scale: 1:400 (A4)

Figure 19. Green and blue structures. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

Social interaction

The mirror roof. This is the area where people interact and meet, while shopping local products at the market. The mirror roof also provides shadow and shelter against rain.

Except for market events, the mirror roof also provides an area for events and exhibitions, such as art exhibitions.

The seating around the Malta-Johanna statue is 2x2 meters in diameter, to help the visitors to keep distance on the square. The seating areas are also combined with flower beds to increase biodiversity and pollination opportunities.



Figure 20. Visualization, Social interaction. Josefine Ögren (2021).

Private area

The western side of the square provides the feeling of a smaller scale and a private character. This is a place for recreation as well as social interaction. This part of the square provides a safe area where people can be by themselves or integrate with other people. The corner of the square also gives the visitor a good outlook and gaze over the square.

The seatings are 1x1 meters in diameter and have different heights in order to give the visitor an idea of the social distances needed. The seatings are also combined with planting beds. The water fountains function both as draining wells and also as a place for play.



Figure 21. Visualization, Private area. Josefine Ögren (2021).

Stormwater management

Along the southern side there is a wider canal that collects and delays the stormwater. The canal is provided with some rainbeds where the plants have a hydrological function of delaying the water, as well as purifying the water from pollutants. The plants also increase the aesthetic value and increase the biodiversity.



Figure 22. Visualization, Stormwater management. Josefine Ögren (2021).

Different scenarios



Figure 23. Different scenarios Market. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

A couple of times during the year, Falköping city announces big market events. Autumn-market, Spring-market, Christmas-market etc. The market stands are spread out on both Trätorget, Stora torget and Köttorget, where Stora torget should enable 40-50 market stands.



Figure 26. Circulation patterns. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

The map shows the circulation patterns on a regular week.



Figure 24. Different scenarios Event alt1. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

Alt 1. The scene is placed under the mirror roof with tables and a bar. The western part of the square allows space for carousels and other events. One suggestion is to bring some of the carousels to Köttorget to provide a better flow and connection to Kyrkparken.



Figure 27. Evening. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

Thanks to good lighting the square allows movement and socializing during the evenings.



Figure 25. Different scenarios Event alt2. Basemap: Falköping Kommun, additions made by Josefine Ögren (2021).

Alt 2. The scene is placed in the centre of the square with tables in front of the scene. The bar is placed along the western short side. This alternative does not allow too much space for carousels on the square itself, the suggestion is therefore to place more of the carousels on Köttorget to provide a better flow and connection to Kyrkparken. The area under the glass roof could be furnished with tables and a bar.



DISCUSSION

This chapter discusses the design proposal based on the aims and purposes. It also discusses the literature study, method and working process, as well as other reflections and questions that have appeared during the process of this work.

The aim of master thesis is to create a robust and sustainable design proposal for Stora Torget in Falköping city center. A robust and sustainable design proposal means that it must be prepared for both contemporary and future crisis, such as pandemics and climate change.

The aim is to show how the structure on Stora torget could be improved and clarified regarding flows and circulation patterns. It should be clear which areas of the square that are the most suitable for various functions, such as market trade, temporary events, outdoor cafés, hangout and seating areas, artistic decoration and other cultural elements.

The aim is to create a square where everyone is supposed to feel welcomed, included and safe. The aim is to create a square that can transform depending on needs and conditions, and therefore get one step closer to a stronger city center.

The aim is to redesign the square where the historical features are strengthened and highlighted, as well as give the square a modern design with a stronger identity.

The result, method and working process

In order to answer my research questions;

“How to achieve urban robustness while designing public spaces, and at the same time, prepare urban environments for crises such as the COVID-19 pandemic and work towards sustainable and climate-adapted design?”

and,

“Which urban public dilemmas are the most central in Falköping city center and how can the design of Stora torget take these into account?”

, a design proposal for Stora torget in Falköping was made.

The purpose of this master thesis is to discuss the need of crisis awareness, such as the COVID-19 pandemic and climate change, in the process of design and redesign of urban public space.

By making a design proposal for an existing urban public space that is based on the awareness of contemporary and future crisis, the purpose is to inspire future design proposals for urban public spaces.

Through the literature study and analysis of Falköping an overall dilemma regarding urban public spaces in Falköping came to be defined as follows; “The dilemma

in Falköping city is how to create a robust city center that is sustainable in an ecological-, economic- and social perspective, as well as accessible and aesthetically appealing”.

Since Stora torget is a main node in Falköping city, a redesign of the square is one way to approach these dilemmas and work towards a robust and sustainable city center.

Specific dilemmas based on the analysis of Falköping city center and Stora torget were then defined; the lack of green and blue structures, and gender- and minority groups inequality in public space.

Stora torget faces many difficulties and expectations considering the aim of making the square a place for everyone, including gender, ages and other sexual or ethnical minorities. It should be accessible, safe and be able to meet various needs, depending on users and time of the year. These are some priorities and criteria that have been stated by the municipality as well as my own priorities in order to create a robust square.

The main focus aspects of this master thesis have been contemporary issues like the COVID-19 pandemic and climate change. The new design proposal of Stora torget, needed to be well designed to address the consequences caused by these issues. Therefore, adaptation measures that suited Stora torget had to be found. This resulted in solutions like rainbeds, space to delay stormwater, trees and plantations to increase biodiversity, and pollination opportunities and to ease the effects of heatwaves. The pieces of furniture are 1 or 2 diameters and differs in height, this in order to help visitors get a better understanding of the social distances.

The concept, Flex square, is based on the different dilemmas that have been defined, as well as the needs and criteria formulated by the Falköping municipality and the municipality's residents. The Flex square is also based on the aspects of contemporary issues like the COVID-19 pandemic and climate change and its consequences for the urban city.

At first, the form of Stora torget was used in order to create a form concept. The form of the square was then used to divide the different functions of the square. Another dilemma while designing the square, which came to light at the end of the process, was how to create a square that has a clear structure with different functions and at the same time create a square where all these characters and functions integrate with each other. Therefore, the zones were mainly used in the beginning of the process to be able to define the different characters. Further along in the process the design got more integrated, where circulation patterns and characteristics such as "socializing" could take place in more than one "zone".

Stora torget is also designed to be flexible, which means that it can change and adapt to suit different needs and conditions. One of the municipality's criteria was that Stora torget must be able to provide enough space for markets and different events such as "Stadsfesten". During these events, up to thousands of people visit the city center where Stora torget is a central meeting point and an important place for these happenings. In the redesign of Stora torget it was important that big events would be able to take place and further on, make them easier to realize. Thus, the creation of "Flex square", which means that Stora torget is flexible and able to adapt to the needs for different scenarios.

Further on, in the literature study, Honey-Rosés et al., discuss large spaces around the world that have been transformed into emergency hospitals during the COVID-19 pandemic (Honey-Rosés et al. 2020). The intention with the "Flex square" (Stora torget) was that it should be able, and be prepared, to be transformed into these kinds of things.

Stora torget is situated right next to two other squares; Köttorget and Trätorget. The intention while redesigning Stora torget was that during big events like the Malta-Johanna market, which attracts thousands of visitors, the squares could "work together", which means that market stands could be placed on all the three squares in order to create a better circulation pattern in the city center during these events.

During the analysis it was noted that Falköping does not have a lot of green areas and almost no blue structures. To be able to create a sustainable city center it is important to implement more green and blue structures that have a positive effect on both human health as well as global warming. In the proposal, trees with big leaves that create shade, rain gardens that delay stormwater and plantings with flowers to increase the biodiversity and pollination were specifically selected.

However, there are some tree-planted streets, for instance along St. Olofsgatan, which is the main road that connects the central station and Stora torget. Tree-planted streets are a good way to strengthen the city's identity and could be used on more streets in the city center with positive effects. Due to limitations in time, further analysis of this was not possible but is something that can be analyzed more in depth in future studies.

Falköping is a multicultural city, therefore, it has been important to create a design that is inclusive, safe and welcoming to all people. In order to meet these criteria, the design proposal created both secluded and exposed seating areas. Different people have different needs, therefore, private or exposed seating could be some of those things that make people feel safe depending on their specific needs.

However, even if there are places, such as seating areas, that are open for everyone to use, reality shows that women, girls, sexual- and ethnical minorities do not have the same access to these places as cisgender men. Some parts of the design process have been more challenging than others. For example, it has been really hard to know exactly what makes people feel safe, included and welcomed. Studies show that "when people are able to trust their physical and psychological well-being, we feel safe" (Riegler & Bylund 2020, s. 45) However, everyone has different experiences, which makes us all different, and therefore it is hard to say exactly what is safe and not. This is why Stora torget is designed with different areas and characters that offer many different things, but not necessarily at the same time.

To be able to design an urban public place where residents feel safe, included and welcomed, one has to understand the people that will use the place and their needs. However, even if the design is well thought out, efforts have to be made by the municipality or other associations to make the design work as intended. These efforts could for instance be markets, events or exhibitions.

Furthermore, regardless the quality of the design as

well as efforts made by municipalities/organizations, people will use and claim the public space in a way that suits their needs and interests. As landscape architects and urban planners, it is important to continuously observe and follow up how people utilize the space in order to gain valuable feedback and experience for future developments.

Studies show that enabling exhibitions and public discussions in urban public spaces can contribute to combat sexism and racism (Riegler & Bylund 2020). Studies also show that public spaces that are designed and supported by women and gender minorities themselves, both create spaces that these groups actually want, and at the same time, enable leisure and independence for these groups (Riegler & Bylund 2020).

My belief is that to be able to create robust and sustainable urban public spaces, we need to focus on good, inclusive design, where people of all genders are represented even at higher authorities. This is a worldwide problem, but hopefully the world is moving towards better and more equal times.

Critical reasoning and challenges

The present design of Stora torget has some good qualities, such as the size of the square. The size matters a lot considering the flexibility of the square where it is easy to transform the square into something else. The present design of the square is good considering the big market events and other festive events that bring up to thousands of visitors. The new design proposal includes more features and greenery, which will reduce the size of the square that currently can be used space. On the other hand, these new features and

greenery contribute to more activities and places for people to interact and socialize, as well as providing space for play and recreation. There is a fine line when furniture a square where you want to bring in features and activities such as seating areas and trees, and at the same time keep spaces on the square free and accessible for people do to whatever they want.

The present design of Stora torget includes a car road and enables cars and trucks easy access to the square. This is positive in terms of delivery and preparation for markets and other events. The new design of the square does not include a car road and has a lot more and bigger trees, which can limit the accessibility to the square. However, even if it is not as easy, it is possible to drive around the square as well as into the square, since it has to be accessible for rescue vehicles.

In the new design proposal, all the seating areas connected to restaurants and cafés, are placed along the northern side of the square. Currently, these seating areas are located at the southern side of the square, where most of the restaurants are. There might be some complications related to moving the seating areas, but the vision is to fill the first-floor spaces of the northern buildings with more restaurants, cafés and bars, which can contribute to a livelier and more social square.

Due to the time limit, I did not have the opportunity to go deeper in detail with the design proposal. A lot of questions and decisions are still there to solve. For example, there are no technical measurements of the construction of the roof or the capacity of the rainbeds and stormwater managements. Furthermore, this means that there are some uncertainties considering the capacity and size of the stormwater management

as well as the design of the roof and rainbeds.

If I would have had more time, I would also want to go into detail considering material, plants and lighting. Lighting is a very good tool to make a place feel safe and welcoming even during nighttime, and it would have been fun to work with this even further.

It is hard to say how flexible and sustainable the design proposal actually is. We are not sure how the consequences of this pandemic will affect us in the future, and which methods that still will be accurate. Maybe everything will go back to what used to be normal in the pre-covid world. However, we still know some consequences that will continue to affect us, such as increased extreme weather and a warmer climate. I think some of the issues and aspects that I have been focusing on in this master thesis, should be issues and aspects that are obvious and a must while designing future urban public spaces. For example, there are scientific studies that show that the consequences of climate change will continue affecting our urban spaces, and that greenery has a positive impact on both humans and biodiversity. Therefore, stormwater management and making cities greener, should not be debatable, instead it should be a must.

I think it is very important to be aware, vigilant and prepared for future crisis. As landscape architects, we have the opportunity to prepare and adapt our cities and communities, in order to make them as sustainable and livable as possible.

This master thesis brings up many big questions about the sustainability of our society, and of course it is not possible to solve all these questions on one square. However, every space and project matters and

therefore, the purpose of this design proposal is to enlighten and make people aware of contemporary and future crisis.

The resulting design proposal of this master thesis is one way to increase awareness of both contemporary and future crisis that urban public spaces face. By discussing different dilemmas and effects caused by contemporary dilemmas such as the COVID-19 pandemic and climate change as well as making a design proposal with design methods to approach these issues, this master thesis seeks to inspire future projects.

To be able to answer the research questions, the work was divided into four parts; a literature study, an analysis, a design process and the design proposal. The method that has been used in this master thesis is design research, where the result was the design proposal. The method is described in the book *Design Research in Architecture*; An overview, where the author, Fraser, discusses the difference between a more academic scientific literature study and how a similar study is done by architects and designers. Fraser describes that architects use scientific knowledge and find new and creative ways to create new concepts and ideas, and how to use these in, like in this case, urban public spaces.

Fraser means that there is no straight path for a design process to be developed, which I agree with, but with help of literature studies, reference projects and a solid sketching work, one can develop a method and a concept within the architectural design process.

I believe that the method I used in this master thesis suited me pretty well. It is a method I usually use when working with a project where the result is a design proposal. Before starting the literature study, I already had a project which I knew was going to result in a design proposal. I used the literature to select an overall theme and concept to the project and as a base for my research questions. The literature study is also strengthening my theories and design principles.

I found it hard to know exactly how well the design principles will work and if they will meet all my aims and purposes. Although, I think the design has good qualities for creating a square that can be flexible and meet the different criteria and expectations for the square.

As mentioned, the literature study is based on two main literature sources; *Unfolding dilemmas of urban public spaces*, written by various authors and edited by Johannes Riegler and Jonas Bylund, and a report in *Cities & Health – The Impacts of COVID-19 in public spaces* (Honey-Rosés et al. 2020). I did not want to get too deep into too much literature, and since I found these two sources handling my focus aspects pretty well, I chose to work with these. However, there are always some uncertainties using few sources since there is not much space to widen your perspectives.

Since I did not have the opportunity to visit Falköping, due to the travel restrictions implemented due to the COVID-19 pandemic, I did not have the opportunity to carry out any dialogue with the residents. Luckily, I got granted access to the material included in the design competition held by the Falköping municipality. It is very important to understand the needs and behavior of a city's residents in order to design an urban public space that meets their needs and will be appreciated. During 2019, Falköping municipality held dialogue processes with the residents of Falköping. The dialogue processes included different target groups with both physical meetings as well as digital surveys. The compilation of this work has been very important and valuable to this study and design process. However, there is always room for misinterpretation while relying on information someone else has compiled.

In this master thesis, I have chosen to work primarily with contemporary literature because the focus of this thesis revolves around contemporary issues such as the COVID-19 pandemic and climate change. This means that there is not much historic or old literature in the literature study.

Since the COVID-19 pandemic is still going on at the time of this study, the literature for the COVID-19 chapter is mostly based on theories and speculations of what people think will happen in a post-covid world. This means that not much of the theories are facts. Although, this is the most severe pandemic that has taken place in modern times and due to this, much effort and money are spent on studies regarding the COVID-19 virus. Thanks to this, the science and studies concerning the COVID-19 virus are further developed compared to other viruses and diseases.

However this is not the first time humanity has been affected by a pandemic, this means that some of the consequences that are discussed are therefore likely to take place. For instance, we know that greenery has positive impacts on human health and well-being, and by making the cities greener it improves the quality of life in the urban city.

The literature studied about urban public dilemmas and urban robustness are also quite recent studies but could possibly have much more knowledge backing it up compared to the pandemic literature.

The literature study regarding climate change is however, highly scientific studies and facts. Global warming is something that scientists have studied for many years and multiple studies present compelling arguments that humanity has, and still is, the main driving factor of global warming. Through carbon emissions, devastated rain forests and increasingly hard structured urban cities, the temperature on earth is rising which in turn has catastrophic consequences around the world.

It has been interesting to work mostly with

contemporary literature and theories regarding the ongoing crisis like the COVID-19 pandemic, climate change and dilemmas in urban public spaces. I found it particularly interesting, but also a bit unpleasant, not knowing what will happen in a post-covid world and how the pandemic will affect us humans and our behavior in the future, both in public spaces as well as in everyday life. I believe that certain things, such as having more routines regarding hygiene, and “working from home” will continue to some extent.

Urban public spaces have historically been very important for people. Large public areas, as well as large gatherings such as marches and protests, are very important both for a thriving democracy as well as for cultural purposes. However, keeping a distance to strangers might be the new norm for some people, and some will probably return to pre-covid behavior.

I believe that, depending on what type of job one has, it will be more common to have flexible working hours and that the rush- or peak hours might come to shift. This could have an effect on urban public spaces regarding social distancing or avoiding peak hours when working from home. The economy of small cities, like Falköping, is dependent on people visiting the city center and its shops and cafés, thus the need for clear circulation patterns. The “working from home culture” could therefore threaten the economy and the urban social life of smaller cities.

The COVID-19 pandemic has also had negative effects on public transit, since it has been a major factor in the spread of the virus, which have resulted in the use of private cars increased dramatically during the pandemic (Honey-Rosés et al. 2020). This is a negative effect considering the progress towards a car-free city center.

Often in smaller cities, private car use is preferred, especially if people live far from the city center. Public transit is dependent on the amount of people traveling and if that amount decreases, there is a risk that public transit could disappear in smaller cities.

In the beginning of this master thesis, the vision was to make a design proposal for some kind of urban public area. The reason behind choosing to work with Falköping and Stora torget is completely based on the ongoing architectural design competition held by the Falköping municipality, Svenska Kyrkan and Sveriges Arkitekter. I found Stora torget itself very interesting, and the material accessed through the competition made the site analysis easier since traveling, gathering information and building relationships with residents would be hard because of the COVID-19 pandemic.

I am content with the choice of project and very grateful that Falköping municipality gave me access to the confidential information. Although, this meant that I did not have the opportunity to discuss this project with other people, except my supervisor. This aspect in particular has been quite challenging and I have realized the importance of collegial conversations and discussion as well as working in groups.

In addition to the material received from the Falköping municipality, additional information are obtained through websites, Google maps, Google Earth, ArgGIS/QGIS, and various social media platforms. It has been both challenging and fun to find ways to get to know a place without visiting it in real life. There are of course some uncertainties and insecurities that I have not got “right” impression of Falköping. During a site visit you are able to analyze the site with all the five senses. I also believe that it is a good thing to

actually see sightlines, materials and subjects through your own eyes. However, this was not possible during this master thesis. Hopefully, this will benefit me in the future that I had to learn how to get to know a place without visiting it. Sometimes, even without travel bans, if one has a project in another country and does not have the opportunity to travel there due to various reasons, knowing how to analyze a site without visiting it in real life is very useful and important.

This thesis follows the goals and criteria that the Falköping municipality set for the design competition to some extent. Due to time limitations, this thesis was limited to focus on Stora torget and the analysis of relevant areas surrounding Stora torget and how they relate to the rest of the city. The limitation worked out well, but of course it would have been interesting to design the whole area set for the design competition. That would have made it easier to propose connections and flows between different areas of Falköping city center which in turn could have strengthened the design proposal.

During the analysis, studies of both Falköping's history as well as the city's current design and character were made. I think it is a good thing to take into account the history of a site when working on a design proposal to see if there is something that should be taken into consideration, such as a historical monument or other various historical artefacts. Since Falköping is a city with a very long history, it was important for me to highlight historical objects on Stora torget, such as the Malta-Johanna statue and two of the lighting poles that still exist.

The role of the landscape architect

As discussed in this master thesis, urban public spaces and green areas have been very important for people living in the cities during the COVID-19 pandemic. This is due to greenery having a positive impact on human health and well-being, as well as urban public spaces making it possible to socialize while practicing social distancing. All these questions are highly relevant for landscape architects, urban planners and designers since we have the opportunity and responsibility to design these areas that can provide accessible greenery and recreation areas, as well as places to socialize.

As landscape architects we also have the opportunity and responsibility to prepare and adapt cities to the consequences of climate change. By adding blue and green structures, we can mitigate heat waves and flooding, increase biodiversity and pollination, and at the same time create sustainable environments both for people and animals.

Identifying different dilemmas in urban public spaces is something that landscape architects, urban planners and designers, could play a big role in. By enlightening these different dilemmas and issues, there is a possibility of finding methods to approach these issues, and by that, creating a better design and environment.

Final reflection and future studies

In this master thesis, the focus has been designing an urban public space while accounting for contemporary issues, such as the COVID-19 pandemic and climate change. I think it has been very interesting to focus on contemporary aspects, especially the COVID-19

pandemic, but at the same time, a lot of the literature is based on very recent theories and speculations.

However, these aspects are important when designing urban public spaces and there is no harm in taking these aspects into account. Aspects like climate change and the dilemmas they create in urban public spaces are aspects that are highly relevant and are based on more underlined studies than the COVID-19 pandemic where scientists don't know all the consequences yet. To be able to design an urban place where the residents feel safe, included and welcomed, it is important as a landscape architect or urban designer to understand the people that will use the place and what needs they have. However, I have also learned that even if the design is well thought out, efforts have to be made by the municipality or other associations to make the design work as intended and make people feel included and safe. These efforts could for instance be markets, events or exhibitions.

However, as a landscape architect or urban planner, it is important to continuously observe and follow up how people utilize the space in order to gain valuable feedback and experience for future developments.

I believe that to be able to create robust and sustainable urban public spaces, we need to focus on good design where people from all genders are represented even at higher authorities.

Landscape architects play an important role in the development of urban public spaces and taking into account aspects such as; dilemmas in public spaces, COVID-19 and climate change, we have the opportunity to create robust and sustainable urban public places that can serve and benefit humans,

animals and the planet.

Since this project is mainly based on contemporary issues with the COVID-19 pandemic and climate change, it would have been interesting to follow up the consequences caused by these issues later in time, when it is possible to see how it actually affected the world. It would also be interesting to see what kinds of design principles will give the best effects, and if they have had other effects in the urban city.

Before writing this master thesis, defining different dilemmas in urban public spaces was not something I was very familiar with. I think it could be interesting to investigate these further. Maybe it is possible to find strategies to easier define what dilemmas are relevant for different urban public spaces.

There are already many studies and projects about adaptation and mitigation measures to cope with the consequences of climate change. However, I think that methods for stormwater management and making cities greener will always be relevant. Global warming is contemporary, but it is not temporary like the COVID-19 pandemic hopefully is, which means that we cannot just implement temporary restrictions or solutions to mitigate its consequences. Therefore, making cities greener and use nature-based solutions when designing urban public spaces, should be given.

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Figure references

Cover picture: Visualisation of Stora torget. Josefine Ögren (2021).

Figure 1. Selected area for the design competition and design proposal (marked in yellow). Orthophoto: © Lantmäteriet (2019) addition made by Josefine Ögren (2021). Orthophoto. Stadskärnan i Falköping stad, SWEREF 99 13 30 © Lantmäteriet [2019]

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Figure 3. Sverigekarta: Copyright © Free. Additions made by: Josefine Ögren (2021). Vector Maps.com [2021-03-16]

Figure 4. Graphic illustration over the method. Josefine Ögren (2021).

Figure 5. Graphic illustration over the working process. Josefine Ögren (2021).

Figure 6. AGORA Activities on the Dilemmas of Public Spaces The process for unfolding the dilemmas of public spaces. Riegler, J. & Bylund, J. (red.) (2020). Unfolding Dilemmas of Urban Public Spaces. JPI Urban Europe. <https://jpi-urbaneurope.eu/news/agora-policy-paper/>

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Figure 8. The images show that the two-core center formations in Falköping; Ranten and the area around Stora torget, as early as 1935 had merged and laid the foundation for the urban city center that exists today. Falköping Kommun (2017), additions made by Josefine Ögren (2021). <https://www.falkoping.se/download/18.5f7d535517115b399404aeb/1587130681137/F%C3%B6rt%C3%A4tningsprogram%20F%C3%B6r%20Falk%C3%B6pings%20stad.pdf>

Figure 9. The map shows cycleways, the main car road, centrum nodes, meeting points and unpopular spots. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021). Typografi; *Terrängkartan 2020* © Lantmäteriet [2021-02-24] Bebyggelse hus; *Fastighetskartan bebyggelse 2020* © Lantmäteriet [2021-02-24] Bakgrundskarta; *Vägartan 2020* © Lantmäteriet [2021-02-24]

Figure 10. The map shows hard and soft structures in the city center. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021). Typografi; *Terrängkartan 2020* © Lantmäteriet [2021-02-24] Bebyggelse hus; *Fastighetskartan bebyggelse 2020* © Lantmäteriet [2021-02-24] Bakgrundskarta; *Vägartan 2020* © Lantmäteriet [2021-02-24]

Figure 11. Old town, Falköping. Basemap: © Lantmäteriet, additions made by Josefine Ögren (2021). Typografi; *Terrängkartan 2020* © Lantmäteriet [2021-02-24] Bebyggelse hus; *Fastighetskartan bebyggelse 2020* © Lantmäteriet [2021-02-24] Bakgrundskarta; *Vägartan 2020* © Lantmäteriet [2021-02-24]

Figure 12. The map shows Stora torget's sightlines, landmarks and historical motifs. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).

Figure 13. Stora torget's current green- and infrastructure. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).

Figure 14. The stormwater flows in Falköping city. Basemap: CAD-underlag Falköping kommun (2021), Dagvatten SCALGO LIVE, SWEREF99 TM, point info: 416326, 6449548 https://scalgo.com/live/global?res=20000&ll=17.490234%2C3.776559&lrs=mapbox_basic%2Cglobal%2Fhydrosheds%3Adem&tool=zoom [2021-04-14]. Additions made by Josefine Ögren (2021).

Figure 15. The Shape of the square. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).

Figure 16. The Shape of the square. Basemap: CAD-underlag Falköping kommun (2021), additions made by Josefine Ögren (2021).

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Figure 20. Visualization, Social interaction. Josefine Ögren (2021).

Figure 21. Visualization, Private area. Josefine Ögren (2021).

Figure 22. Visualization, Stormwater management. Josefine Ögren (2021).

Figure 23. Different scenarios Market. Basemap: CAD-underlag Falköping Kommun, additions made by Josefine Ögren (2021).

Figure 24. Different scenarios Event alt1. Basemap: CAD-underlag Falköping Kommun, additions made by Josefine Ögren (2021).

Figure 25. Different scenarios Event alt2. Basemap: CAD-underlag Falköping Kommun, additions made by Josefine Ögren (2021).

Figure 26. Circulation patterns. Basemap: CAD-underlag Falköping Kommun, additions made by Josefine Ögren (2021).

Figure 27. Evening. Basemap: CAD-underlag Falköping Kommun, additions made by Josefine Ögren (2021).

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Image 15. Stora torget. Falköping kommun (2021). Projekttävling Falköpings stadskärna, Program. Permission granted by Falköping municipality. [Internt material]

Image 16. The photo above shows the ground material of cobblestones at Stora torget. Falköping kommun (2021). Projekttävling Falköpings stadskärna, Program. Permission granted by Falköping municipality. [Internt material]

Image 17. The photo to the right shows Storgatan, which is the main shopping street that runs along Stora torget. Falköping kommun (2021). Projekttävling Falköpings stadskärna, Program. Permission granted by Falköping municipality. [Internt material]

Image 18. Sightline to Stora torget. Falköping kommun (2021). Projekttävling Falköpings stadskärna, Program. Permission granted by Falköping municipality. [Internt material]

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