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ACCESS TO GREEN

Enhancing Urban Attractiveness in Urban Centers
– the Case of Turku

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PREFACE

Nature is good for the city!

Nature-based solutions is one of the key words in the debate on urban development today. Nature is expected – and proved – to serve many functions in our cities. Many challenges that would otherwise be hard to meet can best be solved by approaches where nature plays the key role.

Climate Change is the greatest acute threat to humankind and the diverse forms of life on planet Earth. The City of Turku has responded strongly to this threat. We have already reduced a quarter of our emissions as compared to the level of 1990, and by 2029 Turku shall be a carbon-neutral area. Our Climate Plan 2029 was approved unanimously by City Council on the 11th of June this year.

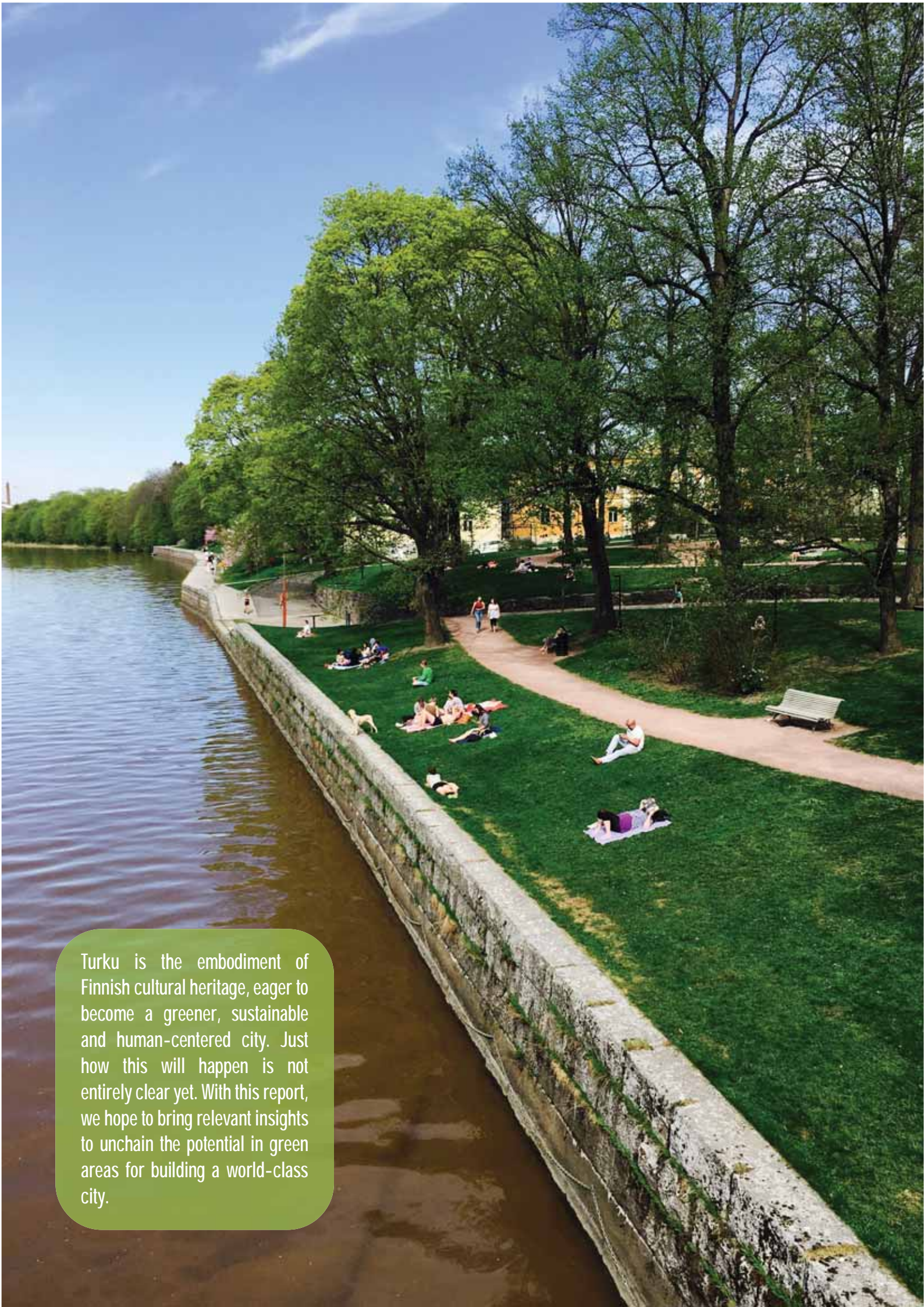
Nature plays an important role in both Climate mitigation and adaptation. Climate risks are significantly reduced by increasing the area of forests, greeneries and wetlands within the built city areas. At the same time, these solutions increase the daily wellbeing and health of the inhabitants. Furthermore, green corridors within the city serve as pleasant routes for walking and cycling as well as ecological corridors for animals, birds and insects.

Green cities are also attractive cities. While Turku is currently growing and undergoing a densifying phase of urban development, it is of utmost importance to create urban environments that are interesting, refreshing and healthy. There is no better way to reach this goal than by making use of the full potential of urban nature. Turku must remain a green city and the elements of nature in city development are to be intensified.

Against this background, I am especially pleased with the Green-in-Turku research project and the current report that provides us with useful knowledge. The lessons learnt and examples from cities that are greening successfully as well as the important perspectives gained from the users of our urban space could not come at a better time!

We have just recently prepared and adopted the ambitious and innovative vision for the development of the center areas of our city. Our partners at the University of Turku – most notably professor Markku Wilenius – made invaluable contributions in the preparation process. The Green-in-Turku project and this report continue the excellent cooperation and co-creation to create a better city for the mutual benefit of both human life and functions as well as nature.

Minna Arve
Mayor of Turku



Turku is the embodiment of Finnish cultural heritage, eager to become a greener, sustainable and human-centered city. Just how this will happen is not entirely clear yet. With this report, we hope to bring relevant insights to unchain the potential in green areas for building a world-class city.

TABLE OF CONTENTS

PREFACE	3
A GREENER URBAN LIFE	6
INTRODUCTION	8
BENEFITS OF GREEN SPACES	12
GREEN SPACES AND SUSTAINABLE DEVELOPMENT	14
THE GREEN-IN TURKU PROJECT	15
OBJECTIVES	16
TURKU CITY CENTER VISION 2050	20
HOW TO LOOK INTO THE FUTURE? WEAK SIGNALS AND FORESIGHT IN URBAN PLANNING	24
HISTORY OF URBAN DEVELOPMENT IN TURKU	28
BACKGROUND	28
GREEN AND PUBLIC SPACES IN TURKU	30
TURKU NATIONAL URBAN PARK	31
THE CITY CENTER	33
POPULATION	34
FACTS AND FIGURES	37
CORE URBAN IDENTITIES	38
ACCESS AND DISTRIBUTION OF GREEN SPACES	44
ACCESSIBILITY INDICATORS	48
QUALITY INDICATORS	50
USERS	52
RECOMMENDATIONS	64
NEXT STEPS	79
FINAL REMARKS	80
BIBLIOGRAPHY	80

A GREENER URBAN LIFE



Our experience of life on Earth is shaped by our environment. As development continues to grow increasingly urban, access to green areas continue to become central to human health and to ensure quality of life. The integrated design of green areas in planning is a multi-dimensional and cross-disciplinary process that requires a combination of approaches namely, a network design approach, functionality, scalability, and sustainability management approach to help cities and communities deal with the unprecedented challenges of the century.

Naturally, cities differ in the amount of green area that is publicly accessible and how well-distributed green areas are in planning. Currently, there is a growing concern for the future of green and public spaces in cities.

At the systems level, “green” means all life-supporting systems. The question comes to: What do we mean by life-supporting systems? What are the elements? Essentially, it means an approach to work with the natural ecosystem and all its ramifications. It means to reconsider ecology as the means to increase linkages between life-supporting systems and the built environment.

Nature exists for us to interact with it in multiple ways. For one thing, it is in nature where we can enjoy and interact with the flowers, plants and the grass. When we are in nature, we experience quietness and there is a certain sense of peace one gains from this interaction. Nature also exists to take us away from the increasingly noise-polluted cities crowded with cars and traffic from industry to help us cope with urban stressors. But green

is not only grass, trees and flowers, or biomass in the manifold of forms. Nature also contains a symbolic and intangible value. It is nourishment for the soul and something rooted in our system, connecting us to our Mother Earth and indeed to the reality around us.

Above all, green means life, in contrast to dead matter like that of concrete and steel so prevalent in our modern cities. In the fundamental sense of the word, green is our home and from the human perspective, encountering nature highlights the most significant aspect of green which is that (with some exceptions) green is where we all agree we can convene and coexist. Green, then, is part of our human experience in urban life.

The social dimension of green spaces deals with how people cope with urban stressors that make life in cities unhealthy. There is now a significant amount of research pointing to the positive benefits that exposure to nature has on human health. Studies show a positive correlation to how contact with nature can help reduce stress and increase happiness (Hartig, et al., 2003). They also point out at how greener environments in urban areas help in addressing diseases related to lifestyle factors like physical activity and obesity (WHO, 2016). The bottom line is, without adequate access to green areas, communities cannot thrive.

Green spaces are the lungs of the city. The health-related aspects of green means that more green breaths more health into the city as it helps regulate the quality of air in urban climates.

In the City of Turku, we see the need to orient planning towards a re-evaluation of the value of green in urban development which is what this report is about.

This study calls attention to the need for more quality, access and adequate distribution of green areas in urban cores. Focusing on the city center districts of the city of Turku, this report addresses the need for more development in the design and holistic planning of green areas as providers of human health and attractive urban life. The study emphasizes the critical need to carry out a more detailed inventory of green areas and current access requirements.

With this, our intent is to help increase the understanding of the need for indicators and tools that study these important nature resources in-depth. Currently, green areas are lacking integration into the overall urban planning process. There is a need to increase understanding of our natural resources as the basis for sustainable development and effective management, something that is also well understood to have a strong long-term economic impetus for the city as a whole.

A move towards a greener life means elevating access to green at the heart of the city and to offer all citizens equal opportunities to experience quality of life and well-being, today and in the generations to come.

INTRODUCTION

As the first city in Finland, Turku has been born and developed as a result of particular set of events and drivers that have taken the city to where it is now. There are two aspects of urbanization in the evolution of Turku that are of particular interest to us: The first aspect is about the change of its spatial dimension: how the city as a set of buildings and with its urban infrastructure has expanded, shifted and contracted over time. The second dimension deals with social environment: how urban functions and needs have changed and molded the city that we know.

The planning of spatial and social dimensions in city development are keenly intertwined. By and large, we want to state that, spaces should be developed according to their social function. By that we mean that if the social function changes, the urban spaces should change accordingly. The Old Town of Turku was the origin of Turku City as we know it today. It played a role as a main center of the city until it was burned in 1827.



Image 1: The [Cathedral](#) and the [Academy building](#) after the fire. Painting by [Gustaf Wilhelm Finnberg](#)

After the fire, the city center started to develop to the eastern side of the river and the part of the Old Town with its physical construct was never rebuilt. Instead, the heart of the new Old Town was converted into a patchwork of new parks defined by Uudenmaankatu highway. That state-of-the-

art has prevailed now almost for two centuries. Today as people are crossing the Suurtori, they are essentially crossing over the covered remains of the Great Turku Fire.



Image 2. Map of Åbo after the 1827 fire.

Destroyed areas are in grey, surviving areas in red. The red blocks to the South East are now the [Luostarinmäki](#) museum

In the last 200 hundred years the meaning of the Old Town of Turku has changed dramatically. In the early 19th century, it was still the active nexus of city. After the Fire, it sank slowly into oblivion, with a function of the park. Now, it is becoming a point of interest, this time because of the revival of the Old Town concept. As it seems, Old towns in all parts of the Europe and wider, has become a source of attraction. They invite people to a profound experience telling the story of their historic past. With people there comes active streets, cafes, boutiques, design hotels and classy restaurants that support the identity and the economic development of Old Towns.

But not so in Turku. To the detriment of the city, there has been no real effort to redefine the space according to its current social potential function and to give Turku's Old Town its true value. In the real sense of the word, Turku has no real old town. However,

there is huge potential for the Old Town to regain its glory for a better use. For one thing, the whole area functions rather as a transitional space, a traffic junction, with people moving from one place to another by private cars, walking or cycling. The point here is that the entire area of old town, with Suurtori at its center, is dominated and suffocated by private cars: a four lane highway cutting the area from the middle, the large area on the upper side of the *plaza* covered most of the days by cars. People flows essentially jammed to one location in the whole middle area, where the traffic lights are. The beautiful historic green parks in this case deliver very little use or attractiveness as noise, pollution and little sense of comfort prevails in the space.

As a result, the incredible potential the city has at its heart, to cater for cultural experiences together with green aesthetics has not been materialized. This is rather sad since Turku, in sharp contrast with most of the other cities, has surplus amount of green areas close to the city centre. Vartiovuori, Samppalinna and sport park, together with riverside, forms a large are of diverse green and social functions. Turku has the potential to unite green spaces and culture unlike any other city, if it only would allow the social functions of the area to be the starting point of its urban design.

Let us, for the sake of comparison, look at the Helsinki downtown, particularly the Ullanlinna area that is aptly called design district. Ullanlinna, it seems like, is a very convenient place to live. It has lively old buildings and lots of green spaces. Around the neighborhood, is very easy to move from one place to another, people have plenty of options to be mobile. One can use the bike, walk or simply take the tram. The comfort in urban living is that everything is very close by. Streets are not suffocated with cars, there is no through-traffic and there are a lot of people who don't own a car. There is a feeling

of living in a village as there are plenty of restaurants, bars and cafes acting as extended living rooms for residents. People don't have to come from work straight to their homes because there are many options to do extra activities after work.

In Ullanlinna, there is also a feeling of nature and sufficient access to parks. Smaller parks, like Topelius Park or Vuorimiehenpuistikko, complement with larger greener areas of Tähtitorninmäki and further in south Kaivopuisto. Green areas with diverse cultural activities complement those social functions that give the feeling of the liveliness of the city. The whole area is embodied with human-sized spatial scale that gives the comfort to the people who use that space as it creates its very special atmosphere. Convenience is there.

Turku, we claim, could create something similar. In fact it already has a lot. It has riverside, with its sideways, restaurants and bars. It has Vähätori, on the Western bank, that already functions as social attractor, due to absence of cars and presence of beautiful buildings, social functions like the library and the Aura River with riverside trees and landscape. The area also has a new pedestrian bridge and City Hall that adds an old elegance to it.

Our basic observation is this: Turku has a lot of unused potential. Turku needs to make better use of its resources by allowing convenient social functions to develop and shape the use of the physical space of the city core. It is all about how to enable natural flows of people through mobility schemes that are light and human-scaled. Inconvenience arises when people get stuck in a traffic jam or slowed down as a pedestrian or cyclist for having to yield for cars that dominate the streets. The idea of a green mobility is that which promotes good flow, easy access, safety and convenience. Unfortunately, cars occupy a huge majority of

the available public space in almost all the city centers around the world. People are squeezed into narrow sidewalks because a fraction of the population - normally not more than 10-15% of the population - are using cars.

There are basically three aspects of convenience people living in cities are looking for: easy mobility, flexibility to adjust to new needs and resourcefulness. The first convenience comes from ease of movement from one place to another in a fast and efficient manner. Obviously, this aspect of comfort was the one that attracted people to buy and use their cars in the first place. Cities were built accordingly, to accommodate the rising use of private cars. More and bigger driveways, more parking lots. Turku has come a long way to accommodate for the use of cars in the city center. There is only one pedestrian street in the city and car owners can drive almost anywhere in the city center. Currently, a new parking lot is being built under the traditional Market Square of Turku, to attract more car drivers to the city center.

The second type of convenience people are seeking is adaptability. A case in point is that there is a movement in cities around the world to inhibit private car driving into city cores¹. Cities like Madrid, London, Vienna, Hamburg, Bogota, Copenhagen San Francisco, Chengdu, Mexico and many others have already done or are in the process of making major rearrangements². Furthermore, changes in mobility schemes is a trend in urban development that aims to add more room for pedestrians and bikers. So, a massive transformation of the cities is happening and at the heart of that change we see a reconstruction of the city's core spaces. As public transport systems are widening – Turku got its city bikes in the spring of 2018 –

we see also more of a blend of private and public services in terms of car sharing and new mixtures of public and private transport services. All in all, the transport systems are gearing towards more greener, less polluting and more health-supporting solutions.

In 2017 Turku received an ambitious city center vision 2050 by the vision committee led by Prof. Markku Wilenius³. A major part of the new vision was built around the rearrangement of the traffic flows. The Vision aims to bring forward the idea of a more convenient and healthy city where mobility is part of the holistic design of the city center rather than a historical accumulation of past decisions. This approach led to a critical analysis of the current urban arrangements to suggest radical new ways of dealing with traffic and human flows⁴. So, instead of letting the small minority of the population dominate the traffic arrangement, we thought it was time for the majority to rule the design of transportation flows. Hence the suggestion to inhibit private car traffic to most parts of the city centre, yielding more room for pedestrians and bikes, leading to the reorganization of the whole public transportation system.

The third, convenience, is about being resourceful. Turku, with its superior endowments should be designed to emphasize its existing strengths. To be clear, Turku has two exceptional assets. First of all, it is a city where Finnish modern cultural history with respective institutions were born. Secondly, it enjoys exceptionally rich and diverse natural resources. It has large green areas and parks, many very close to the city center. It has meadows and fields more than 2500 hectares. It has an archipelago attached to it, with 20 000 islands. It has the Aura River running through the city and the richest

1 <https://www.businessinsider.com/cities-going-car-free-ban-2017-8?r=US&IR=T#san-francisco-wants-to-ban-cars-on-one-of-its-busiest-streets-12>
2 See also our first report http://www.utu.fi/fi/yksikot/ffrc/julkaisut/e-tutu/Documents/FFRC_eBook_5-2018.pdf

3 <http://www.turku.fi/en/vision2050>

4 See more

https://issuu.com/turunviestinta/docs/20171017_turku_visiokirja_web_singl

composition of soil that one can find in Finland.

For people living the urban life, these exceptional resources are of crucial importance. According to statistics, Finnish people (More than any other nationality in Europe), are more likely to spend their time outdoors and to exercise out in nature and parks. More than 2/3 of Finnish people say that parks are their favorite recreational grounds⁵. In other words, Finns love to spend their time among the green. Moreover, foreigners may find these aspects of Finnish culture particularly attractive and more now that cities are generally becoming more trafficked, congested, and polluted.

Turku, from this perspective, has an amazing opportunity to build its future attraction point on these premises. The only thing that needs to be done is help these assets become more refined and attached to the city core. This is why we are suggesting the city should make a bold step to re-evaluate the role of green areas and the human-scaled mobility in the heart of the city.

Then the third category of comfort, comprising such necessities as housing, jobs, day care, health stations, and amenities we need to run our urban lives, would be better facilitated. Particularly, to attract people to move to Turku in search of jobs. The well-functioning, aesthetically attractive and nature-filled city center can be the crucial factor behind this positive decision.

So, what are the ingredients to build a livable city center? In the Turku context, it means to

demonstrate how the city core can be transformed into something that speaks to people of this time in terms of the social functions and spatial solutions. It means, we need to create a space for people to be at ease, to enjoy others, enjoy nature and all that Turku has to offer without the distraction of non-human oriented infrastructure. In other words, we need to demonstrate the city of the future that showcases the capacity to scale spaces into human sized environments. By human-sized environment we mean spaces that are predominantly devoted to human flows rather traffic flows; it means nature that is brought in and integrated completely into the city core to form an essential part of it. It also means new functions and uses from playgrounds to dog parks, and sports grounds that stimulate social interaction and opportunities to participate in public life.

For Turku, to become a green city center means that it boldly takes on its historical responsibility as a learning nexus of Finland. Along the Suurtori we find the very first school of Finland. Today we have 35,000 people on the University campus area attached to Suurtori area and the whole of the Old Town. We need to demonstrate the learning aspect of the city in all spatial and social design from here on. It also means we can change and grow, if historical context is different.

For Turku, it is all about making better use of all the tremendous assets the city has and construct the future of the city on top of its strengths.

⁵ See https://data.europa.eu/euodp/data/dataset/S2164_88_4_472_ENG

Benefits of Green Spaces



Urban Sprawl: Having access to green areas is associated with quality of life and what has been the premise of suburban life that in rural areas provide better access to space to nature resources. Thus, deploying a more compact and integrated system of green areas in urban cores, greening can help solve issues related to fractured development and growing suburbanization. Increasing the stock of green spaces in the form of green pockets, parks, allotments, green streets, and other strategies, could attract more people and families to the experience of an urban life. Because rural areas are associated with higher living standards, deploying more nature in the city, is an effective measure in favor of increasing livability while managing sprawl.



Compaction: The compaction of city centers is a challenge for many cities building integrated development. On the one hand, a compact urban structure is important to avoid the impacts on land resources associated with suburban and rural development. On the other hand, planning for expansion is a requirement to address the need for urban growth. Green spaces can act as a tool to help cities transition from compaction to more sustainable approaches to development.

Through a network of green and open spaces, cities can build resilience and more interconnected ecosystems in both, cities and metro areas. More importantly, the integration in planning of green areas is an opportunity for cities to tackle multiple issues of social, cultural, equality, and well-being and use complexity to assist in a most needed systemic regeneration of urban cores from gray to green.



Soil Sealing: Green areas help increase the amount of unsealed soil surfaces in the artificially constructed grounds of cities. Restoring soil functions is important to enhance the regulating qualities of natural ecosystems and promote soil based functions. The multiple benefits of restoring soils extend to permeability, drainage, water retention capacity for healthy root development of trees and deep-rooted ground covers. Soil based surfaces have significant benefits for managing storm water runoff and improving natural water cycles highly built environments.



Urban Heat Islands (UHIs): Because vegetated system contribute to natural cycles of evapotranspiration, Increasing the amount of greenery in highly grey cities can help counteract the negative effects of UHIs and help regulate the urban microclimate (Hoyer, et al., 2011). The Urban Heat Island effect is a concern in large cities where the percentage of unsealed surfaces exceeds that of permeable spaces creating an artificial climate with low capacity for self-regulation. In many cities, strategies like green roofs are implemented to help cope with heat islands while tapping into unused rooftop areas making them retain water thus improving the urban temperature.



Water: Green surfaces provide ground for promoting natural water cycles in artificially built grounds and assist with the natural process of water infiltration and water recharge. The adoption of nature-based solutions integrated in planning help connect people with the natural elements and to promote rainwater management developments addressing the need in urban cores to treat rainwater as close to the source as possible (Hoyer et al., 2011).



Climate Change: Green areas help cities in coastal areas to deal with flooding as vegetated grounds have the capacity to absorb larger amounts of water than sealed or impervious surfaces (Benedict, et al., 2006) Increasing the availability of natural soils is important to lower carbon emissions. In the international climate change negotiations – fortified by the recent IPCC 1,5°C report – carbon sinks are taking a more central role. Thus, part of any city strategy from here on should be to focus on how to enhance those sinks at the urban and regional level. In urban centers where the amount of green areas is often minimal, the creation of new green streets, footpaths, gardens, and other green areas could contribute to build the resilience and adaptation capacity to deal with severe climate-related events expected to impact cities.



Human Health: There is an entire body of research currently investigating the positive effects that exposure to nature can have on human physical, mental performance. In a study of the effects of naturalness, gender, and age and how urban green space are perceived and used researcher found that green spaces with a high level of naturalness could generate greater well-being in residents living nearby (Sang, et al., 2016). Another study has also highlighted the positive effects that living in close proximity to green areas have on physical activity and mental health (Bertram & Rehdanz, 2015). According to the (WHO, 2016). Urban Green Spaces and Health, “Physical activity has been identified as the fourth leading risk factor for global mortality.” Increasing access to green spaces and the defining minimum requirements and adequate distance will become central to the planning of future cities and for ensuring the well-being of communities living in urban cores.



Biodiversity: The loss of biodiversity is one of the most serious threats urban development poses on natural ecosystems and human health.

Biodiversity in the form of plants, animals and microorganisms is known to be the foundation of ecosystems and the services they provide (Worldwatch Institute, 2016); (Grunewald, et al., 2018). Through history, urban development have evolved from stablishing communities on fertile soils and green areas where agriculture and access to water have created the conditions for settlements to flourish. But cities depend on the healthy regulating effects of natural ecosystem for a variety of functions specially if cities aim to afford clean air and clean water. Green organisms like plants and trees are important to help improve air quality and assist on the natural filtration and self-cleaning processes of water resources.

Biodiversity also plays a key role in human health particularly in urban areas with high population density. In cities, urban parks can function as biodiversity hotspots (WHO, 2016) that promote habitat and the species and the integration of insects and other animal species. The significance of having species and biotopes in the inner-city was mentioned by Grunewald, et al (2018) giving the example of Dresden-Germany and the actions taken to work with urban spaces to carefully managed parks as important habitats and stepping stones of biotope compound systems.

Green Spaces and Sustainable Development



<p>ECOLOGICAL</p>	<p>Green areas helps restore the essential functions of natural ecosystems. Their resulting benefits of green in cities are obtained in the form of what is known as ecosystem services based on the primary functions of nature-based areas necessary for healthy life of all living organisms. Benefits derived from ecological development extend to high quality of air, comfort through climate regulation; restoration of natural water flows, promotion of soil fertility and the exposure to biodiversity (EEA, 2011). The loss of biodiversity is today one of the biggest challenges for urban development yet, there are equal opportunities to bring in bring in the elements of fauna and flora back into the city.</p>
<p>SOCIAL</p>	<p>Green contributes significantly to social impact by transforming urban areas into attractive social spaces for people to engage in urban life outside. Green spaces provide ground for people to meet, to share experiences, convene, and converse. Spending time in nature helps improve mood and vitality (Wilenius 2017). Contact with nature has the potential to reduce blood pressure, and increase the feeling of happiness (EEA 2010). It also helps address diseases related to lifestyle factors like lack of physical activity and obesity (WHO, 2016). Education of ecology and ecosystem functions could contribute to strengthening the social urban fabric by building better informed societies of care engaged in the development of their own natural environment.</p>
<p>ECONOMIC</p>	<p>Working with green spaces is a process that can generate innovation and stimulate all sectors to consider the value of green for economic development for improving the urban ecosystem. The increase of green extends to non-quantifiable benefits like increased property value, reduced crime, improved health and employee satisfaction (Clements & Juliana, 2013). By taking a sustainable development approach to economic growth, green areas represent opportunities for a more equitable distribution of profits and land resources helping cities strike the right balance between people, planet, and profit. Connecting sustainable development with economic growth creates a new business philosophy in which organizations become aware of the manifold benefits of assuming a holistic outlook regarding their business.</p>
<p>CULTURAL</p>	<p>Cultural sustainability is essential to human identity. The University of Washington's report "Good Cities: Good Health" explains how cultural development extends to the aspects of place attachment and meaning and how people develop experiences though connecting with a place. In urban development a comprehensive approach considers cultural tangible and intangible cultural assets as vital for future generations. Siivonen (2008) has made reference to the links between culture and nature as interactive processes of signs (living consciousness) that takes into account material and immaterial elements of the world (Siivonen, 2017). According to König et al (2010), "Cultural identity is as essential for societies as biodiversity is to nature."</p>

THE GREEN-IN TURKU PROJECT

Green IN TURKU

TOWARDS GREENER URBAN FUTURES

The City of Turku has set out ambitious targets to move towards a greener future. Since 2000, Turku has cut its greenhouse emissions by 20% and the city has a climate plan that aims to reach carbon neutrality by 2029. Turku is also working on updating environmental policies like the Urban Tree Policy (Turku, 2016) committed to enforce sustainable urban planning and to safeguard the cultural landscape of the city.

The Project Green-In TURKU, *Towards a Greener Urban Future: Investigating Innovative Solutions to Increase Livability in the Inner-City - Perspectives for the City of Turku*, is an investigation of the current state of Turku's green areas to identify gaps and formulate new pathways for how to scale-up the distribution and access to urban green. The project is interdisciplinary in that it combines foresight methods of urban futures research and urban planning to analyze trends and patterns in urban development, thus anticipate the potential impact on the future well-being of urban cores. The project emphasize two main aspects that are part of the current discourse of urban green: a) the growing need for adequate access to green space for human health and b) the complexity of the urban systems for providing adequate distribution of green areas per inhabitant.

Building an understanding of the natural resources the city has will contribute to make better informed decisions concerning the sustainable growth of districts and communities of the city center.

Objectives

01: TO EVALUATE THE URBAN LANDSCAPE OF TURKU CENTER

OBJECTIVE 01



The core of Turku has a unique arrangement of parks and green recreational zones that define Turku's cultural and historic landscape. The topography of the city center features a mixed terrain of elevated rocky parks, slopes and planes traveling along the Aura River through the center of the city. Turku has what is called an Urban National Park, a linear network of green spaces stretching from the green suburban areas north of the city center to the south further into the harbor. Turku's cultural landscape radiates outwards from the central River Aura and it's what gives the city center a unique green appearance.

However, from an strategic point of view, Turku would need to adopt a more integrated approach to its urban landscape and consider actions to protect Turku's legacy as a city of culture, gardens and parks. More understanding on how to improve quality and

access to green space inside the city center district will contribute significantly to enhance unique qualities and support the experience of a well-connected green center that can offer residents and visitors the advantages of a green and vibrant town.

The way Turku has developed over the years has been constrained by fragmentation in both architecture and planning. Throughout history, city planners have expressed an inclination towards the integration of green and open spaces for cultural and recreational purposes. Thus, more needs to be done to learn from Turku's historic past and build better synergies between its urban landscape and cultural heritage.

Images above: Turku City Center. Source: Lahtinen & Otronen, 2014

02: TO ANALYZE THE SPATIAL QUALITIES AND FUNCTIONALITY OF GREEN SPACE

OBJECTIVE 02



Walking and cycling are considered some of the most competitive advantages that any downtown area could offer. Densification and excessive development in city centers require that we place higher importance on the functionality of public spaces so they can deliver a high level of quality of streets, green areas and shared space.

In today's urban discourse, those cities that are the most committed to set targets that enhance the urban experience offering convenience, safety, and access to flexible green and open spaces, seem to be having a higher level of social success compared to cities without set targets. The city of Turku promotes sustainable physical activity among its residents and is part of the Healthy Cities Association for active cities. The city offers a variety of green areas with different uses. Urban green spaces in particular those that surround the River Aura, are the backbone of urban life in Turku particularly during the summer months. These areas provide amenities that mobilize

However, The primary functions of the different green areas within the city center needs to be taken into account as an integral part to mobility, biodiversity, and basically any other strategy impacting the public domain. There is a need for more cohesive planning at the core of Turku center and to put a stronger focus on the continuation, efficiency and integration of green and open spaces together with pedestrian areas.

The project calls attention to the current inventory of green areas from the perspective of quality of access, distribution and space functionality. We are convinced that the attraction, value and urban identity of the city center is increased when the city builds from its existing strengths emphasizing efficiency and increasing the value in green areas for well-being.

Ultimately our task is to provide all groups of society with healthy experiences namely, footpaths, greener cycle routes, diverse green pockets for activities, for experiencing quietness, hear the voices of nature, or just to bond socially.

03: INVESTIGATE THE ROLE OF ACTORS STRENGTHENING THE CITY IDENTITY

OBJECTIVE 03



Many cities from around the world are upgrading their skills to lead. This means a more intelligent activation of different groups coming to participate in the development of the city.

The approach to working with actors is for us a way to give consideration to not only the functions of the space but also the direct community of users from local residents, to visitors and commuters for whom the city center green and public spaces are meant to deliver a particular benefit or a service.

However, in the Central Business District of Turku, the Market Square (Kauppatori) is undergoing the construction of an underground parking garage which means the Square will be inaccessible during the construction period. This type of interventions have a direct impact not only on the economic sphere that is the small businesses and local farmers that loan the



space during market days, but it also has an impact on the entire flow of visitors and residents that frequent the square on a regular basis and for whom the Square is part of their social and cultural activities.

Meanwhile, many of the historic parks in the city center continue to be empty lots with aging infrastructure that detracts residents from using the areas as social spaces when they can participate in urban life.

The process of greening the city requires a co-creative process that explores the multiple ways in which to build stronger relationships between individual and public interests, people and their surroundings, nature and the built environment giving consideration to the diverse groups of active participants in urban life.

o4: INTEGRATE FUTURES RESEARCH METHODS IN URBAN PLANNING

OBJECTIVE o4



Urban development is undergoing unprecedented changes. The conditions for a smarter urban core are changing at an incredible speed. Only five years ago we did not talk about the adoption of electric vehicles, complete renewable energy transitions, cheap taxis ordered through Apps, driverless cars as an essential part of our mobile future, artificial intelligence (AI) transforming the working life, or walking and cycling as key drivers of green mobility.

These trends are now becoming dominant which means we are on a fast track to a very different urban life. Meanwhile, the recently published IPCC Special Report on Global Warming of 1.5°C is anticipating that more

frequent and severe climate events will take place as a result of anthropogenic emissions (IPCC 2018). By 2050, the world's population is expected to nearly double (UN, 2016). In Europe, 72% of the population is already urban creating a new set of challenges for efficient land use and access to green areas particularly in dense urban centers.

Our objective is to bring in the strategic importance of foresight examining outside factors and unknown realities as inputs. Also analyzing past and current trends impacting cities thus introducing newly evolved green space planning structures towards a new vision in green development.

Turku City Center Vision 2050



1. A CENTER ACCESSIBLE AND EASY TO MOVE

The location at the heart of the most beautiful archipelago in the world and 800-year-old historic center provides Turku with immense opportunities to become an internationally significant world-class city that fosters knowledge creation and provides well-being for citizens and visitors alike. The Vision 2050 established key objectives for a livable and attractive city center.

The vision proposed that a new, much wider public transportation system, enabling the expansion of the city center is to be launched.

New public transport terminals on each side of the center are proposed to provide high efficiency and sufficient space for passive transit at the heart of the city specifically prioritizing pedestrians and bicycle users.

Parking spaces is to remain predominantly outside of the city center's new pedestrian zones enhancing a new urbanity with new public infrastructure in the city center transformed by a pleasant urban experience of a safe "city of walking and cycling."



2. A CENTER **COMMERCIALY** ATTRACTIVE

The Vision imagined a more efficient and vibrant city center with more visitors and more commercial activity. The current Market Square (Kauppatori) is to be redesigned taking into account the needs and priorities of the citizens.

From the perspective of scale, the central Market Square is to emphasize the human dimension expressed through a new human-centered design of functional spaces. With interesting activities and better integration of green areas, the central Market Square is to become a true hub on the western side of the city center, the central business district (CBD).

With far more pleasant space to roam and new activities, the premium stores and services, easily missed in the city center currently, will all mushroom in a new commercial center. As a result of this, approximately more than 15 000 new jobs are to be generated in the area.

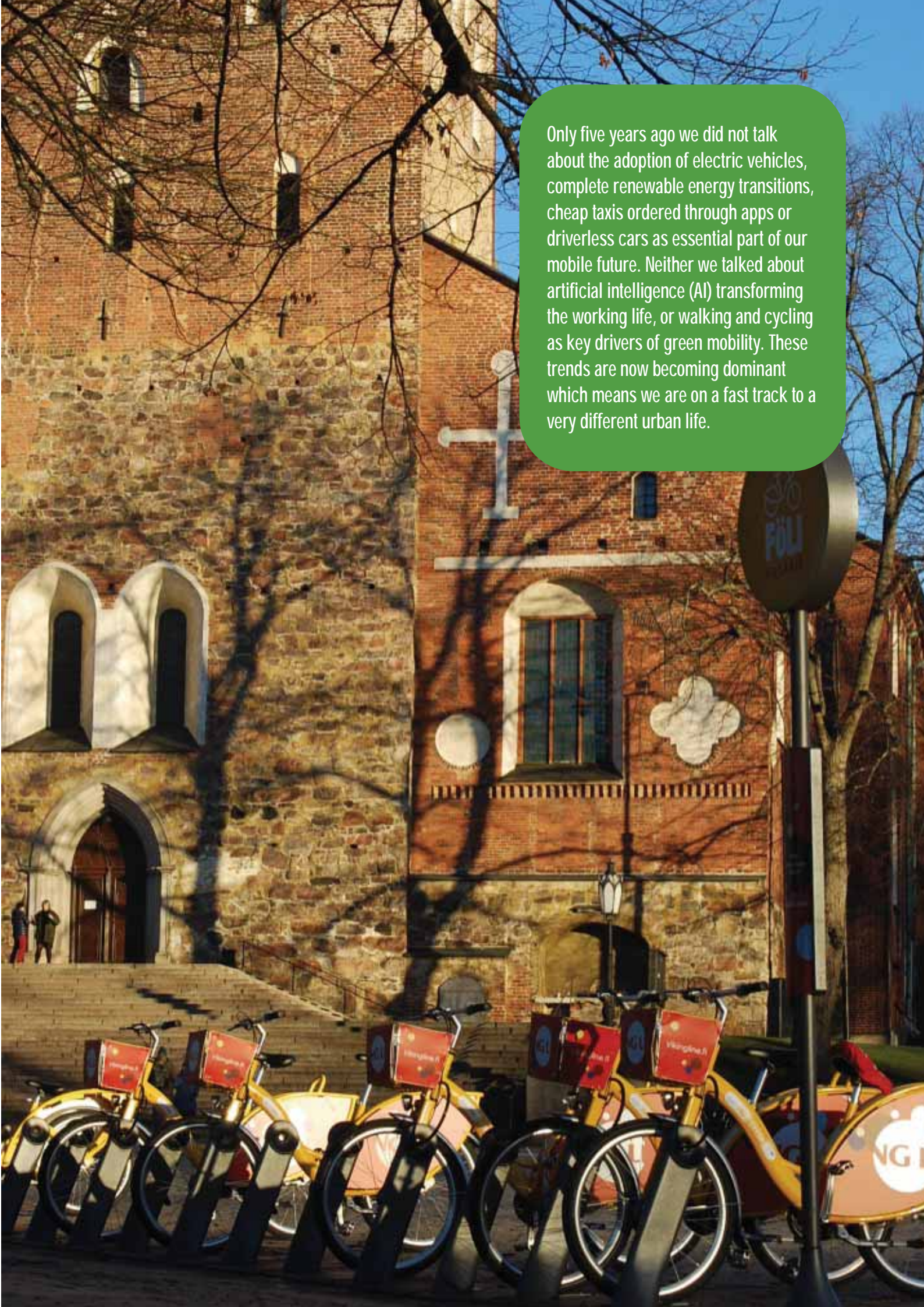
In the same fashion, the Old Town area surrounding the Suurtori, is to be revitalized as a more livable twin city center on the other side of the Aura River. In this way, the Old Town Square will be given the lift it deserves as the most culturally significant square in the whole of Finland.



The Vision anticipates a new urban culture that would support diverse lifestyles. Essentially, the city center is to be perceived as a living room for a new generation of citizens interested in a more stimulating and socially active urban life. Instead of having private cars dominating the streets, as it is currently the case, the Vision prioritized the need for quality of public space with combined social functions: pleasant green spaces, playgrounds, cafes, centers for cultural activity, restaurants and areas for physical activity.

Additionally, static historic buildings with little or no activity needed be re-activated to enable the emergence of creative hubs and the spread of innovative industries allowing businesses to grow. The Vision Plan projected the whole city center to significantly consider human dimension from the perspective of green mobility and the urban experience encouraging more possibilities for people to share spaces and to engage in public life.

Last, a new façade for the city, a riverbank of culture and urban experiences was suggested to be established to the eastern side of the Aura River.



Only five years ago we did not talk about the adoption of electric vehicles, complete renewable energy transitions, cheap taxis ordered through apps or driverless cars as essential part of our mobile future. Neither we talked about artificial intelligence (AI) transforming the working life, or walking and cycling as key drivers of green mobility. These trends are now becoming dominant which means we are on a fast track to a very different urban life.

How to Look Into The Future? Weak Signals and Foresight in Urban Planning

This report has been built on the premises of futures studies. One of the basic assumptions of futures studies is the notion that future has a lot of emerging properties. That explains why the future seldom materializes as a direct continuum of the past. These emerging properties make the future a complex web of phenomena, each of them interconnected. That is the reason why futures studies is closely connected to systems thinking, which teaches that often interrelations matter more than the phenomena themselves.



What does this mean in the context of urban studies when we are trying to understand the role of the green spaces? It means that we should always consider what key connections greenery form. For instance, greenery connects to health in multiple ways. The studies we have been citing shows how important a stress reliever green is. Green also means also play: many green areas fit very well into playing all kinds of outdoor games. Playfulness is known to be one component of good health as well. Biodiversity is also keenly connected to green as well as to health: A more diverse natural environment is usually a healthier one. More diverse ecosystems possess higher resilience.

Further on, in futures studies we are interested in something we call weak signals. By definition, weak signals refer to phenomena that at first does not seem to be more than background noise, but then, when connected to other phenomena, starts to emerge as a pattern. Take autonomous cars. Ten years ago almost nobody talked about or anticipated driverless cars roaming in the streets as they do today. Of course, autonomous cars have been tested for about 100 years, but until this point in time, they always belonged to the future and the world of prototypes. There were already a lot of weak signals but little or nothing more than that. Today, autonomous cars have become a reality.

Here we point to three major weak signals in the urban context we are in today. First, changing values. According to the research, people's value on the various global scale are changing towards something what Professor Roland Inglehart's World Value Survey describes as "postmaterial values"⁶. People are moving from basic needs of survival into more intangible desires. They value that they have **time** for themselves and for their friends, and they value their **social networks**. Also, interestingly, they increasingly value **green space** around them.

This poses a major challenge to the city design, which traditionally has been built around physical and social infrastructure, housing and mobility. It is the quality of experience that becomes the central focus of design. However, if we look at the

⁶ see more <http://www.worldvaluessurvey.org/wvs.jsp>

contemporary urban core design, there is often not much traces of these kinds of values. Take Turku commercial center around market place. Urban design there does not appear to be sensitive to the experience of contemporary urban life. In fact, it is known to be one of the most threatening sites in the Turku center area. It is not uncommon for people visiting that area on a dark evening to experience a feeling of deep discomfort.

However, in our studies of urban places, we saw a lot of signals that were a testimony of the new kind of appreciation of the urban experience. In most of the major Nordic countries cities have taken major steps on these fronts: more light is brought to the city centers, more right-scaled pedestrian streets, more activities played out in the streets. And much more green, multi-functional areas. Our estimate is, that green design will enhance its role in the overall city development in a massive way. With the shift towards post-material values, people start to see the value of the green areas in a new way. They want green bushes instead parking plots. They want small city forest or garden instead of just another shopping mall. Greenness is at the core of desired urban experience because it is increasingly important for us emotionally, as our techno-system continue to expand to the digital spheres. Green is a counterbalancing factor here.

Yet, we need to admit, the old non-human centric city design holds sway in most of the cities. Even with some highlights, most city centers – Turku included – simply look ugly, full of dull looking concrete buildings and other non-organic design and materials that do not connect to our desire to elevate our urban experience. “Return of the human perspective” is still just a weak signal. Turku belongs to this group of cities, which in spite of all green areas, still do not sufficiently work on enhancing urban experience in the context of green.

Secondly, we have observed cities empowering communities and becoming more directly involved with local citizens. Up until this point, the engagement of residents had not been anywhere in the top of cities’ agenda. Citizen participation has been previously reduced to for example voting a local representative to city council. In addition to that, citizens have just not been very actively involved with city development.

However, we have observed some interesting weak signals expressing more participatory city policies. Some cities, like Hamburg or Barcelona have encouraged residents to design their own parks or playgrounds. In the future, we believe, cities will make increasingly more use of their citizens’ ideas on how to design common spaces such as gardens inside city centers or suburban spaces.

Thirdly, the air around us is becoming thick with people’s concerns about their environment. Climate change – the rapid speed in which it is becoming a reality in terms of extreme weather events – pollution, resource depletion or just too much dirt and bad air to breathe in urban spaces are pushing people to take more active roles as environmental activists. Renewable energy sources, using light vehicles instead of cars and buses and thousand other green life-style issues have progressed from marginal towards the centre of city policies. Indeed, the city of Turku wants to be among the first cities to become carbon neutral by the year 2029.

However, in the city decision-making, these objectives are often downplayed by other objectives, such as efforts to enhance economic growth often by all short-term means. Recent examples prove this point: City board decided on 5.11.2018 not to cut private car traffic in two key bridges of the city, Tuomiokirkkosilta and Aurasilta, to give way for the pedestrians and light vehicles.

This was in fact against the city vision and strategy that the City Board had adopted just less than half a year prior. This decision means heavy traffic and air pollution continues – as it has been this far – to dominate all the key areas in the city center of Turku.

As it looks, greening is far from being main stream. It is still more of a weak signal. However, in the long term we believe all the aforementioned weak signals will most likely become strong or dominant. As the sixth wave of societal development begins to hold sway, societies, as well as cities, will start to look at all of their development from the perspective of resource efficiency⁷ and begin to realize the potential of green design in a

totally new way. Bringing green into the core of city design means a massive shift towards a human-centered and experienced-based planning. This is the most viable way for cities to be able to thrive economically in the future.

Within the next decade, we shall see cities- some swifter, some slower- adopting their own greening methodologies as part of a larger environmental planning approach. The likelihood of these events correlated with current transitions and the fact that people and cities are on the path to a paradigm shift becoming much more conscious of the necessity to activate environmental development to create thriving societies. New, more environmentally conscious generations, we believe, will lead this transformations.



HISTORY OF URBAN DEVELOPMENT IN TURKU

Background



Image 3. The Aura River of Turku. Source: Lahtinen, 2009.

Foundation and Early Planning

The City of Turku was founded in 1229. Its foundation was based on three main areas: The Bishopric and Cathedral; the Castle and governor; and the burghers (Kostet, 2002); (Lahtinen, 2014). The town started to develop close to the Unikankare, the hill close to the Aura River. The Cathedral and the center of bishop had been moved there from the district of Koroinen that is located about 2.3 km north of the city center. During this time, transport by boat was challenging due to a postglacial rebound which is a reason why the town had to be moved. The Aura River is known for having given birth to the town of Turku and it has been an essential waterway for trade from its historical period (Pihman & Kostet, 1986). Moreover, the archipelago of Turku provided protection for the city even though, it has also created a barrier for allowing bigger ships to enter the riverway into Turku.

The Turku Cathedral and the Old Great Square formed the centre of Turku's medieval town from the 14th century on. The town areas were a junction for roads from Häme, Satakunta, and Vyborg (Pihlman, 2002). The Turku Cathedral was the centre of the town. Christin church calendar year

determined work, celebration and market dates (Lahtinen, 2014). The Old Great Square was oblong, approximately 80-120 meters long and 25-27 meters wide square located close to the Turku Cathedral forming the heart of the city (Pihlman, 2002). Buildings surrounding it belonged to traders and the area was the main place for the trade and for street markets. During the 14th century, Turku had three blocks, Kirkkokortteli, Luostarinkortteli, and Mätäjärvi. The first bridge was built on 15th century, the this time, Turku spread to the western side of the river Aura, forming a 'new town' block. (Kostet, 2002).

19th Century Development

The Great Fire of Turku

The Great fire started 4th of September 1827. Narrow streets made putting out the fire difficult. Because buildings were filled with e.g. cattle feed, fire spread uncontrollable. More than 780 buildings were destroyed which was three quarters of the city. Area from Aurakatu to the sea was spared but the whole medieval town was gone, and 10 000 people became homeless. (Lahtinen 2014). Three weeks after the Fire, Carl Ludvig Engel drew up a grid plan (Lahtinen 2014). The grid plan included wide streets, regular quarters, squares, and parks (Pihlman & Kostet: 1986; Laaksonen 2002). Old building sites were bigger and new one's had a strict supervision of buildings. Buildings were the Empire style. Whole town was reconstructed 1820-1830 (Lahtinen 2014).

20th Century Development

In the 20th century, the Cathedral and the Old Great Square faced a big change and ruins of a medieval city were covered with a large square and park area, Nikolai Square (Laaksonen 2002); (Lahtinen 2014). Kirkkokortteli area was changed to wide square. Combination of the new square and the Old Great Square were part of the Nikolai Square (Laaksonen 2002). Part of the buildings around the Old Great Square was reconstructed. P. J. Gylich designed new buildings by using old walls as a base. All of them were designed to be Empire style. From that time, the area has been unchanged.

In 1907 Turku's building code changed, and it allowed two-storied wooden houses (Lahtinen 2014). Maximum height of houses rise from seven meters to nine meters. After that lower part of the buildings were made of stone and upper parts were wooden. Buildings were Jugend and Turku's Art Nouveau developed unique. Most of Turku's best known multistory buildings are from the period. Functionalism became stylistic tendency 1920–1930 (Lahtinen 2014). Bryggman and Aalto were the main architects. At the end of 1950s Turku faced a 'building boom' as many other cities in Finland. Old wooden buildings were demolished and new compact high-rise city centre was built. Building center's streets wider, there were more space for cars. Because of the lack of conservation legislation, only few old buildings were preserved (Lahtinen 2014).

Green and Public Spaces in Turku

Background

During the initial period of urban development, the parks of Turku had a lesser focus than they have today because at the time, Turku was a small town surrounded by nature. Urban life concentrated around the areas of the Old Great Square and the surroundings of the Turku Cathedral. The Old Square was a place for markets that were kept during Holydays. Initially there were two annual markets scheduled: One during the month of January and another one in June. Further, in the 15th Century, a third market day was added in September. Later on, two to four more annual markets were added to the calendar year (Lahtinen 2014).

Gardening came to Finland during the 16th century. In Turku, the district of Ruissalo became the first royal hunting preservation area and the first parks developed in private urban courtyards. In 1640, a botanical garden was built close to the Turku Cathedral. On the 1700's trees were planted on the streets and private yards started to be filled with fruit trees (Lahtinen & Laaksonen 2008).

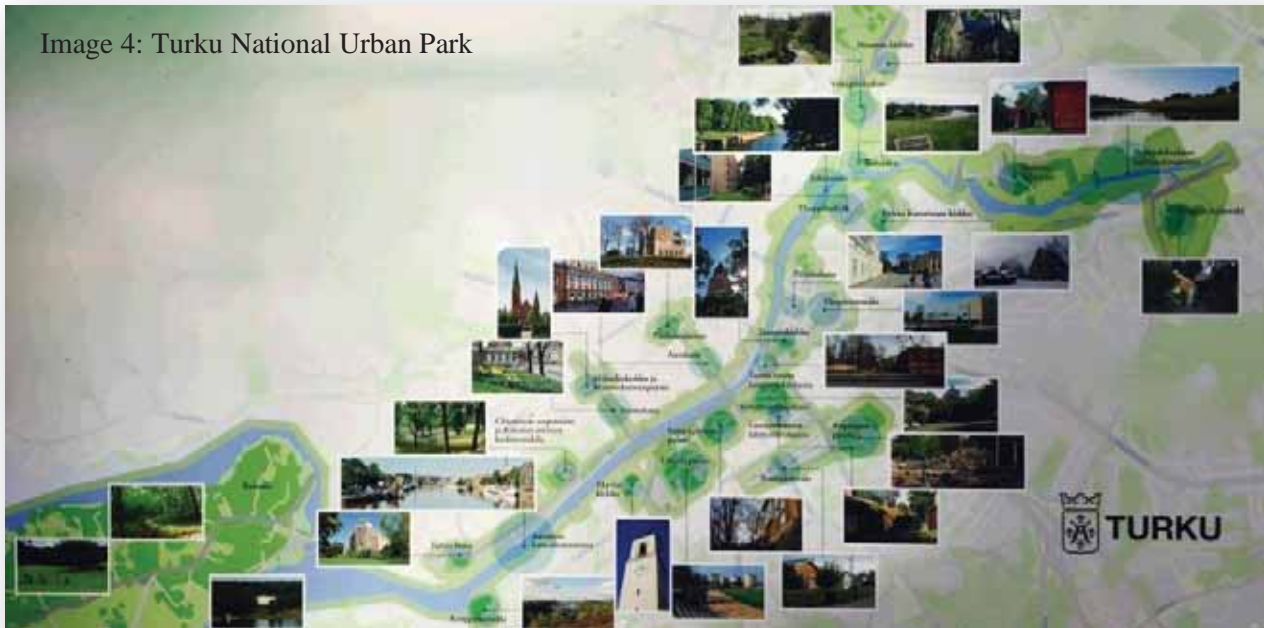
Winter and summer markets were said to be important part of Turku's life and besides trade, the Old Great Square was part of all kind of medieval events (Pihlman & Kostet, 1986; Lahtinen 2014). The 17th century was the boom time for craftsmen and cultural life became an important form of the city life. According to Lahtinen (2014), there were approximately 1500 inhabitants in Turku by the late 16th century and 4300 inhabitants by the early 17th century. It was mentioned that by the end of the 18th century, the population of Turku was about 11,000 people. Today many events take place in this site. The Medieval Markets are kept once every summer. The Declaration of Christmas Peace is still given there every Christmas.

Due to the destruction of the city parks during the Turku Fire, the redesign of the city by Ludvig Engel's loose grid left significant space for new green areas which is a main reason why Turku is as green as it is today. During that time, hills had not been planted yet, but later they became targets for nature parks. It was mentioned that it was at this time when many parks were created. streets were filled with trees and inner yards with their empty spaces were also planted with trees. Parks, it turned out, played an important role on supporting human health as they were spaces where people could experience silence and breathe good quality of air (Lahtinen & Laaksonen, 2008); (Lahtinen, 2014).

The city architect of Turku, P. H. Gylich, planned three parks in Nikolai Square, today the site of Porthan Park, Brahe Park, and Cathedral park. Porthan Park, is built around the H. G. Porthan statue, the first historical monument in Finland of its kind. During the 1840s, a small café was opened in the Park. The cafe eventually moved and in 1860 the larger building of Pinella was built. Later on, a playground was added to the Park, but it was also removed because of lack of use. the Brahe Park, known as the greatest park in Turku, is found directly opposite. In 2008 Brahe Park was subjected to a series of changes and a series of trees (33 in total) were planted (Lahtinen & Laaksonen 2008).

Underneath Cathedral Square, Brahe and Porthan Parks, is where a considerable amount of Finnish history can be found (Lahtinen & Laaksonen 2008).). The area has been the center of Finnish administration, religion, education and trade for hundreds of years.

Turku National Urban Park



Turku possess one out of the nine Finland's National Urban Parks (See Image 4). The National Urban Parks is meant to ensure a certain level of urban nature while at the same time promote a cultural environment that is integrated and provides an extended living room for city residents.

Turku's National Urban Park was founded in 2013 by Ministry of the Environment and the City of Turku (Turun kansallinen kaupunkipuisto). The founding decision was based on the position Turku has as the oldest City in Finland, as a Baltic Sea city, and for its position as a center of administration, church, science, trade and industry. Turku's Urban National Park covers 2200 hectares from Airisto to Kuralan kylämäki (Turun kansallinen kaupunkipuisto-esite). There are 850 hectares of it is designated as conservation areas. Inside the National Urban Park there are 271 buildings that are protected under the city regulation.

At its core, Turku's National Urban Park integrates a system of green spaces that branch out of Turku's central water artery, the

Aura River. Green areas of Turku are maintained according to the national park maintenance classification which is determined by the location and uses. Parks usually have areas with different maintenance levels to provide diverse natural conditions. In the city center four parks classified as representative green areas, are more intensively maintained. They are: Brahe Park, Porthan Park, Cathedral Park and the Railway Station Park. Other green areas inside the city centre are categorized mostly as Recreational Areas (V).

During the 19th century, many hills of Turku were covered with greenery. The hills of Vartiovuori and Samppalinnä, and Sport Park became parks in the 19th century. Most of the smaller parks were founded in same century and plantings were finished in early 20th century. Firebreaks lined with trees are important part of green areas in the city center. They were part of the new city plan 1828, which was focusing on fire safety. Broadleaved tree species were planted along the streets and to squares and yards. The current master includes tree alleys as

important to form green corridors. Turku has plans to increase the current number of trees and to plant new ones where necessary (Vesanto, 2008).



Parts of Turku's master plan 2029 has been surveyed as silent areas. Noise affect people's health and urban attractiveness. Silent areas are places that are quieter than surrounding areas are important as places where to help people manage urban stressors.

In Turku, many of the parks are on hills which enhance the nature of these green areas as silent retreats within a busy city center. The parks that are part of the National Urban Park of Turku and that perceived as quiet green

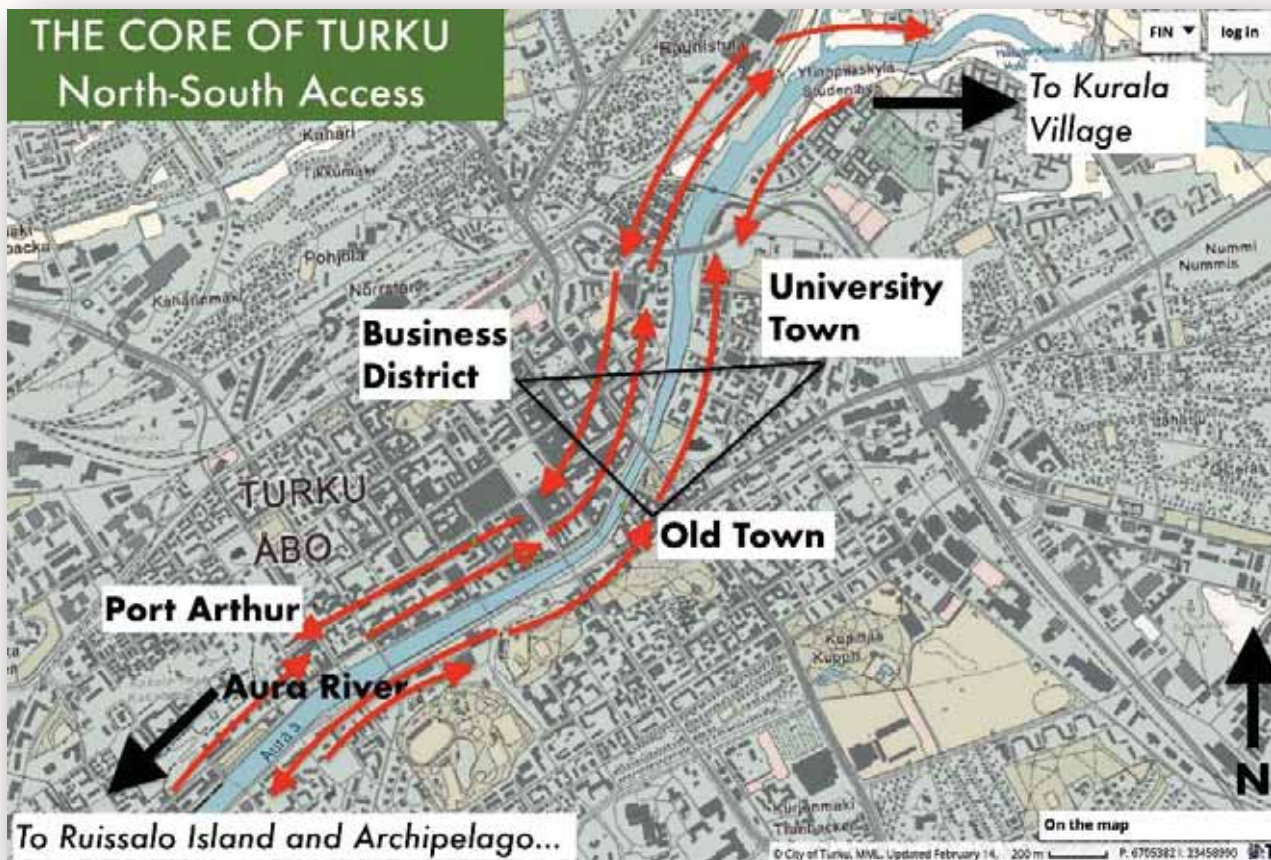
areas are: Vartionvuori, Samppalinna, Sport Park and Puolala Park. Those areas are protected from noise because they are situated on the hills and surrounded by buildings.



According to Vesanto (2008), a survey on the social values of the green areas in Turku, physical exercise came out as one of the most important and as a way using green spaces to increase physical activity.

There are 150 playgrounds for children in Turku. 28 of them are located near the city centre. Additionally, Turku has 16 dog parks, four of them are located also near the city centre (Koirapuistot).

The City Center



The City of Turku is an 800-year old town and the first commercial center in Finland. The city center evolved from its commercial area on the banks of the Aura River. The Aura River has been referred as “the mother of Finnish culture” (Virmavirta, 2004) and is a main waterbody dividing the city center between west and east. The urban structure of the city center is characterized by a mixed of identities and typography. The total area of Turku is 306.4 km² and its total amount of land surface area coverage of about 245.7 km². Turku is located in an archipelago region of approximately 20.000 islands and is a port of entry for trade between Europe and Scandinavia.

Turku’s city center is a cluster of districts each of a unique cultural, economic and social significance. The center is divided into 22 districts (See Map-3) and is essentially represented in four core districts with a strong urban identity: The University Town (Yliopisto I); the Old Town of the Vartiovuori II district and Yliopisto I; and the Turku Central Business District (CBD) comprised of the districts of Rauhankatu VII, Ursininkatu pohj., Kristiinankatu et., Kristiinankatu pohj., Puolalanmäki VII, Tuurepori VI, and the Kauppatori VI. Additionally, the harbor district adds to the urban identity of the city center and of Turku as a port city.

The topography of the city center is composed of hills and slopes with parks set high on hills making the access to green areas challenging for both city planners and for groups of society with physical challenges. The cultural landscape of Turku includes green areas that extend alongside its main waterbody, the Aura River. The cultural landscape forms an axial distribution of green areas that

radiate from each side of the River connecting the city center to the archipelago of Turku and its hinterland.



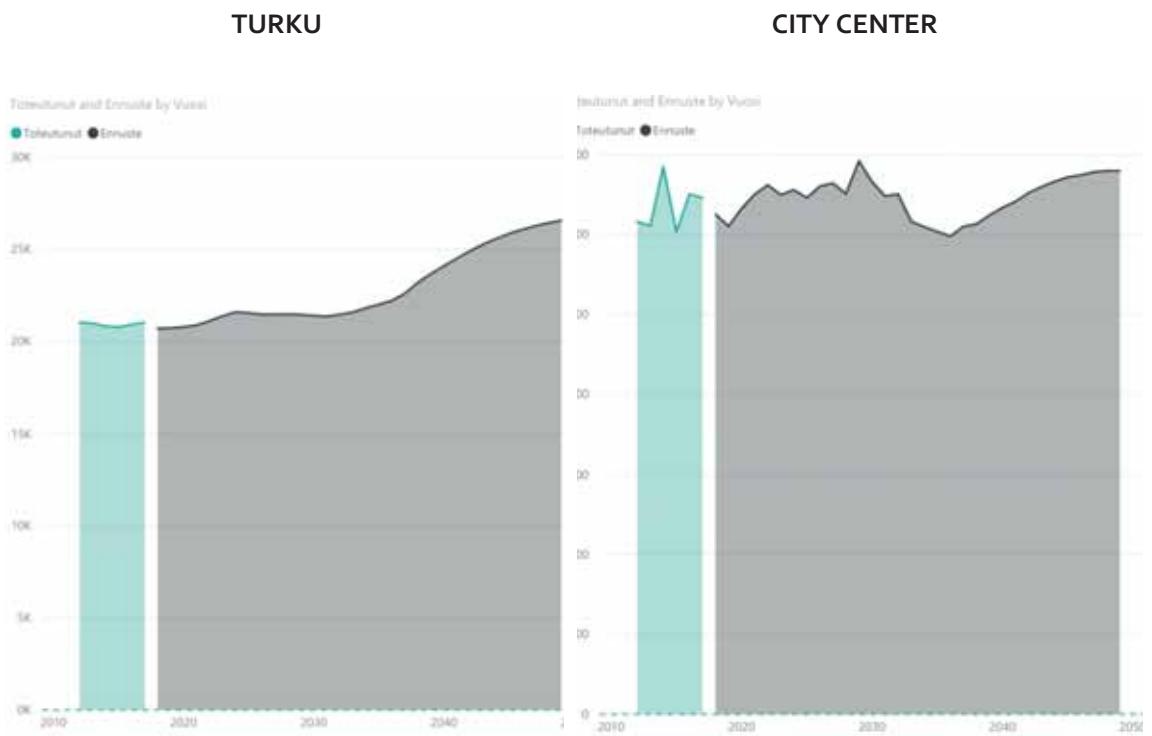
Population

Turku is a medium-sized city with a total population in 2017 of 189,669 inhabitants (Statistics Finland). According to the most recent figures provided by the City of Turku, the spread of the population in the city center shows that it is predominately divided between the young and the middle-aged group. The largest population was found within the ages of 20-59, an age group which accounts for more than ½ of the total residents of the city center or 35,380 people. This number also includes the most mobile age group, those between the ages of 20-29 who also reside primarily in the city center. The population of 59 and older (14,907 residents in 2017) is the largest group after those between 20-59, a group that is expected to continue to grow through the year 2050. On the contrary, the children population faces slow growth. In 2017, the total number of children living in the city center, between the ages of 1-15 was 4,174 and it is projected that by 2020, the children population will only slightly increase to 4,295 children. The current projection is that only an additional 121 more children will live in the city center by the year 2020. Table-2 below shows current and estimated population growth in Turku and the city center. Because of its growing aging population, Turku will need to consider provisions for adequate access to green spaces and also make improvements on the quality of green spaces to lift up its declining children population.

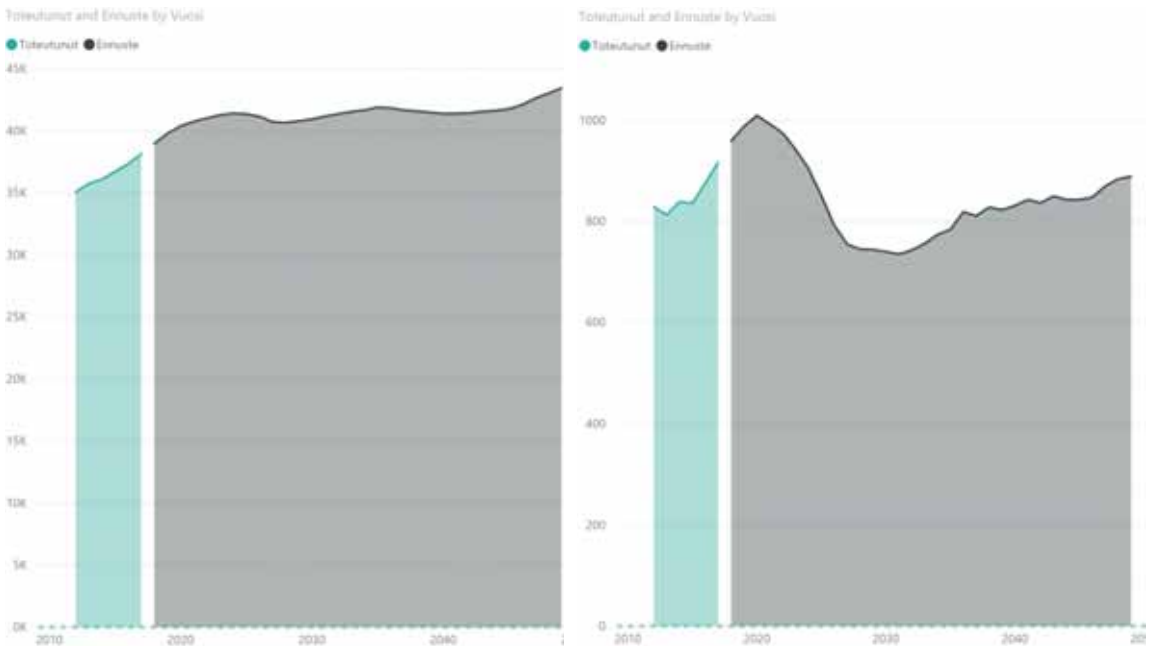
Table 2. CURRENT AND ESTIMATED POPULATION GROWTH IN TURKU AND THE CITY CENTER
(SOURCE: CITY OF TURKU, 2018)

AGE GROUP

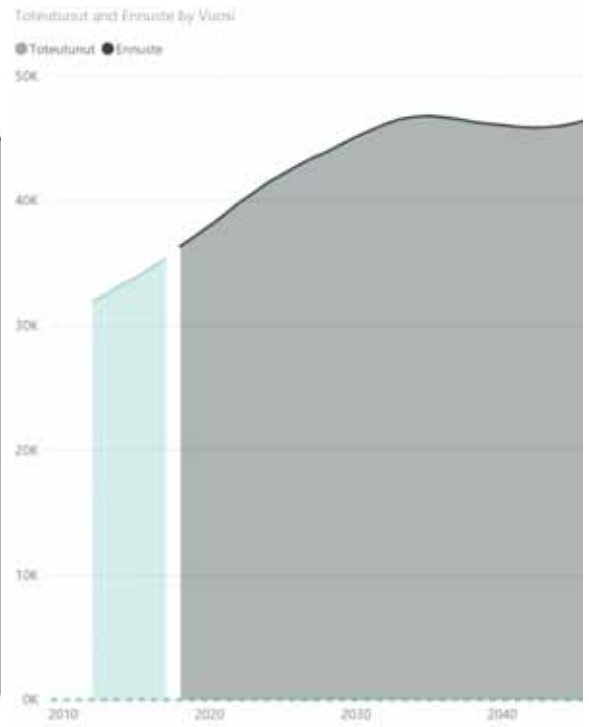
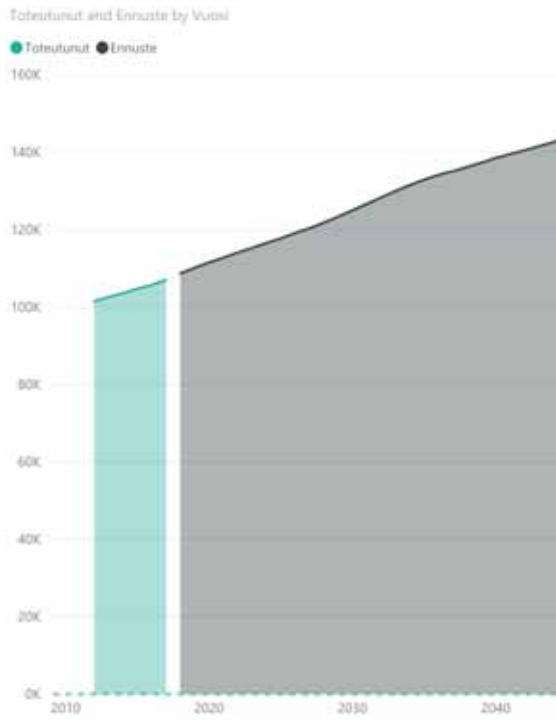
9-20



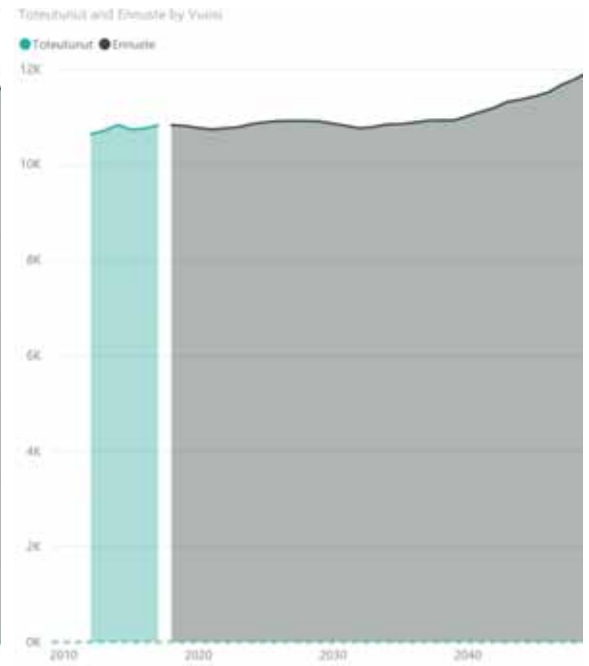
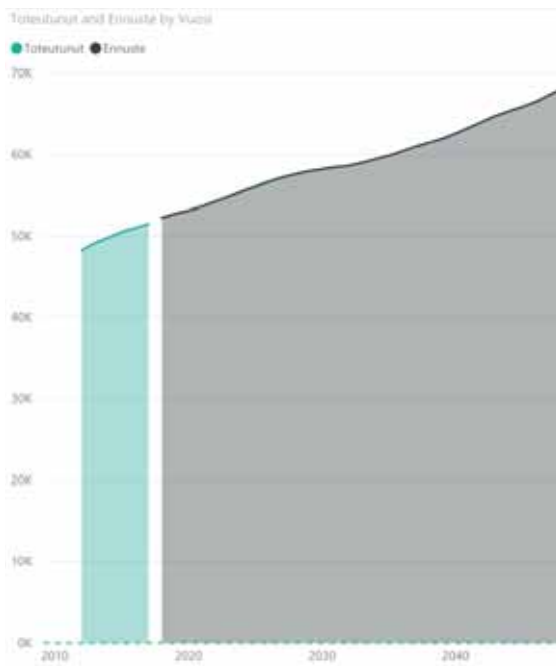
20-29



20-59



59+

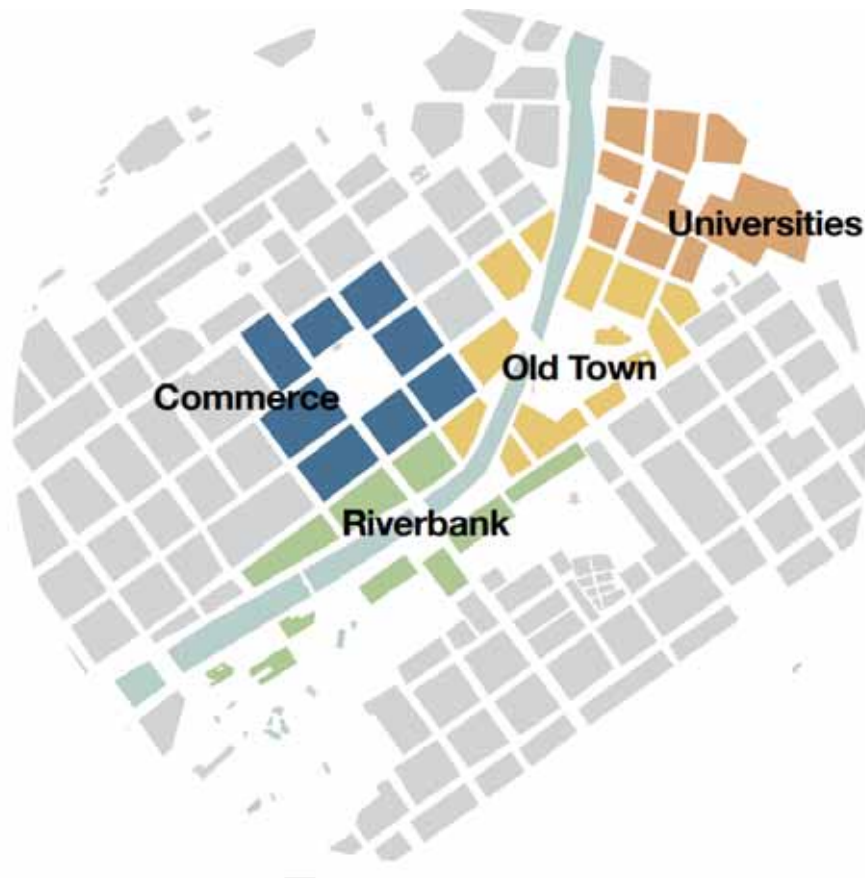


Facts and Figures

CITY OF TURKU FACTS AND FIGURES	
Population in 2017	189,669
Age range, 2017	0-14: 12,9 % 15-64: 66,7 % 65+: 20,5 %
Total area (km ²)	306.4
Average temperature, 2017	6,5 °C
Annual Rainfall, 2017	648 mm
Economic structure, 2015	Extractive industry 0,4 % Processing 15,9 % Services 82,7 %
Industries of Turku Business Region	Bio and circular economies and cleantech Health and well-being; Movies; games; experience industry Maritime industry Manufacturing and technology Service industries
Universities and their number of students (2017)	University of Turku: 16,180 Åbo Akademi University: 5,814 Turku University of Applied Sciences: 9,566 Diakonia University of Applied Sciences: 152 Novia University of Applied Sciences: 1,300 Humak University of Applied Sciences: 266
Turku City Center	
Population in 2017	ca 56,000
Total area	ca 121 km ²
Total number of buildings, 2017	3,388
City center core districts	Yliopisto I, Vartiovuori II, Samppalinna III and Urheilupuisto III, Tuurepori VI, Kauppatori VI, Rauhankatu VII, Ursininkatu pohj., Kristiinankatu et., Kristiinankatu pohj., Puolalanmäki VII
City center districts with the highest % of green area (Between 52% - 31%)	Samppalinna III, Mäntymäki, Kupittaa, and Urheilupuisto III
City center districts with 0% of green areas	Ursininkatu pohj., Kristiinankatu pohj., Kurjenmäki länt., Rahtisatama

Table 1. Turku facts and figures. Source: Kuntien avainluvut, Tilastotietoja Turusta 2018; Turku Business Region; City of Turku.

Core Urban Identities



Turku was for many years the center of commercial activity in Finland, but the city no longer holds that position and the city center no longer represents the best of city life with old and new urban trends and developments. Nonetheless, the city core possess a culturally-rich and diverse identity and a mix of neighboring districts each with its unique urban challenges but also with good potential for enhancing the urban expression and the spatial, social and cultural interest of the city. Essentially, the city core could be better understood when viewed through the lens of these three important districts:

1. The Old Town

The Old Town of Turku (Area code 103012 and 101008 on Map 3) is the first urban and commercial center in Finland representing the cultural heritage and historical identity of



the city. The historical buildings characterizing Turku's Old Town extend from the Cathedral and Suurtori square in the north, to the what is known as the "Vähätori" and the Fortuna quarters, and further south to the Turku Castle. The Master Plan 2020 includes the classification the Old Town as of cultural and historical preservation nature with green areas designated areas cultural landscapes of high nature and cultural value.

Under the master plan, the Old Town is classified as (PY): a public service and administration area. The Town is part of the Vartiovuori II and the Yliopisto I districts, two of the 22 districts that form the city center of Turku. Historically, the Old Town of Turku has a high cultural significance no parallel in Finland. Yet, the historic town is challenged by fractured development that prioritizes the new over the old promoting sprawl and urban development towards the periphery. The Old Town then struggles to keep its legacy and identity amid new trends.

2. The University Town



Yliopisto I (Area code 102010 on Map 3) is a campus area of cultural and historic value, home to two main universities: The University of Turku and the Åbo Akademi. Buildings here are distributed between residential, non-residential and educational uses with the highest number of buildings designated for non-residential uses. The area has been categorized as (PY) Public Service and Administration Area under the master plan (See Turku City Center Master Plan 2020 below), and it holds a large number of buildings under historic preservation including the Turku Cathedral, The Old Academy House, and the Åbo Akademi main building among others.

As a university town, Turku gets a high number of students annually. In 2017, the total student population in Turku was

approximately 33,278. This number including a total of 16,180 of students from Turku University and 5,814 students from Åbo Akademi University (See Table 1). The total population of the University district (Yliopisto I) in 2017 was 1,774 people, a considerable small number compared to the high inflow of students (21,994) that flood the university town during the school months. The buildings' main functions are as non-



commercial and residential buildings. The fact that the university district gets filled in with students during specific month of the given academic year, is a challenge for space efficiency of single-purpose buildings that are left with no function once the school is off.

3. Turku's Central Business District (CBD)

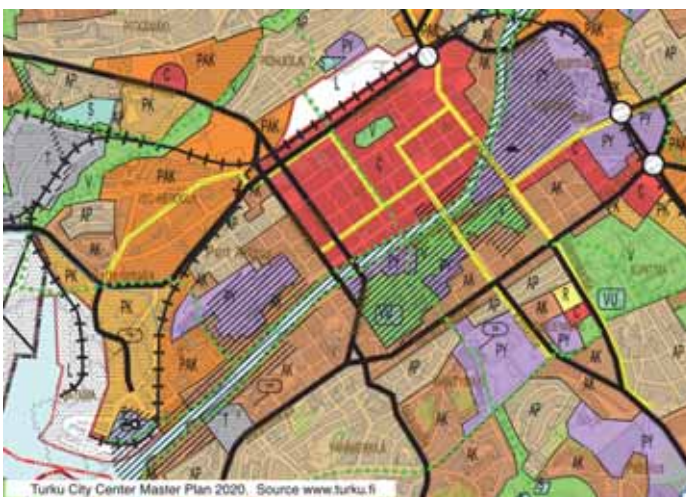
The CBD of Turku (Area code 101003-101007) is a high trafficked commercial area on the western side of the River Aura with specific functions primarily reserved for administration, trade, services, housing and work-related activities. The district is of high cultural significance expressed in its architecture, streets and public spaces like the Market Square, Kauppatori where the farmer's market is currently located. The CBD is comprised of six districts: Kauppatori VI; Tuurepori VI; Puolalanmäki VII; Kristiinankatu Pohj.; Kristiinankatu Et.; Ursininkatu Et.; Ursininkatu Pohj.; and Rauhankatu VII. The combined population in 2017 for the six districts was approximately 13,810 people (City of Turku

Turku Master Plan 2020

City Planning is part of the Environmental Division at the City of Turku in charge of land use, transport and planning for public space. The Urban Planning Unit prepares and integrates City Councils’ objectives concerning the land. Currently, the master plan is awaiting approval from the city government regarding changes to the classification of green areas in Turku’s central districts. The new classifications are designed to give a more descriptive account of the different functions of green areas (parks) in Turku (See Table 3). There are five new classifications describing the green spaces for public use and the areas have been divided into three basic groups: historical, recreational, and for sports-areas.

Current classification of green areas (City of Turku 2018)	New classification of green areas in the general masterplan (Pending City government approval-2018)
VP VP-1 VP/s	V Recreational area VP Park VPH/s Historic park with protected milieu VU Sports area VU/s Sports area with protected milieu

Table 3. New classification for green areas in Turku. Source: City of Turku Department of Environmental Planning (2018).



- **City Center Operations Area:** Reserved for main functions serving the city center areas. The main areas include housing, public and private services, trade, administrative services, and office-related functions.
- **Recreational Area:** Facilities for outdoors and recreational activities; community, traffic management and care facilities. No new buildings may be built in the area (Section 43.2 MRL).
- **Public Service and Administration Area:** Reserved mainly for public services, administration, housing, recreational areas, community and traffic management.

Table 4. Turku City Center Master Plan. Source:www.turku.fi

Areas Classification

The master plan 2020 of the City of Turku assigns specific zoning and subdivision of districts that belong to the city center (See Table 4). The classification is based on the spatial arrangement of services and it gives a

general (if not vague) idea of how the urban structure has been arranged for the different uses. From a land-use planning perspective, It is important to highlight that in spite of the urban arrangement and the fact that neighborhoods are located directly next to

one another, the different zoning also show how divided they are. This may help explain how in the city center, areas assigned for recreation, trade, housing and public services appear to struggle with desegregation. Currently, the division between the old and the new areas of the city center is a challenge in the urban renewal efforts aim to increase vibrancy. On this point, there are couple of important aspects worth taking into consideration.

The first, has to do with the current trend in urban development towards urban sprawl. Urban sprawl pose challenges to the densification of cities and communities a trend that can be applied to the Turku case. Currently in Turku, most of the new development is taking place outside the urban core this is an important trend because suburban development has been the cause of fractured centers that still today continues to hinder efforts for building urban vibrancy and livability and lack of investments creates the image of a deteriorated center. Another dominant trend in city centers is the tendency towards shopping malls development. Shopping malls make development in the streets and sidewalks –the most important areas for vibrancy- a challenge particularly for small businesses. The tendency towards shopping malls has then a direct effect on small businesses and urban life transformations.

Second, the lack of new development, creates little attraction points for those groups that make city center attractive; for example, the young, tourists, residents, visitors, and students. In Turku, the center is a mix of areas constrained with unpleasant traffic, noise, buses, and aging infrastructure. Architecturally, Turku tends to conform rather than challenge the current state of development, accepts new urban dialogs, and it distant itself from the kind of complexity and contradictions that new forms in new building could bring in. The Old Town of

Turku has remained unchanged yet it seems to be fighting for its legacy. There is a critical need for new elements of expression and renewal to validate the Old Town and to push it forward.

There is an obvious need for synergies between public ground,, buildings, and mobility networks will help move the city forwards and in integrated way. Similarly, as new demands arise from local residents on the uses of green spaces, the list of available functions for parks and green areas could also be expanded to the new nodes and functions rising from new trends in urban life. A more defined classification of green areas will be is a step forward towards improving the understanding of the importance of providing access to green spaces. According to the current classification of green areas in the detail plans, the description of uses is highly simplified or reduced giving very little understanding of what these urban green areas are and what they represent in terms of their physical qualities, social, environmental and regulatory functions. With the growing need to integrate biodiversity as part of the sustainable urban development discourse, a more extensive description of green areas in future plans will be needed. New uses will explain will need to explain in more detail the qualities and capacities of these life supporting systems overlapping the built environment.

The master plan should consider not only large green areas and parks that are primarily under the jurisdiction and ownership of the city but it should broaden the scope to show spaces under a semi-private as well a public use. Areas like private gardens, commercially owned pockets, green roofs and other green areas make part of the total urban landscape scattered around different built-up areas. These additional green pockets are important for studying green coverage in its totality and for enhancing the capacity of built urban

areas for self-regulating and for ensuring a larger provision of ecosystem services.

As green areas take a more central role in providing local communities with human

health, green areas will need to be effectively communicated on detail plans and also as part of a wider environmental framework that builds synergies between life-supporting ecosystems and the built environment.



Access and Distribution of Green Spaces

Access

As previously mentioned, there is vast number of studies pointing out at the positive effects of nature on mental and physical well-being. Epidemiological studies on the effects of nature on human health use indicators like proximity, availability and type of greening to measure more accurately the linkages between access to nature and different health-related conditions. In a vast number of cases, results have confirmed how access to green areas is a factor positively influencing how much physical activity people do and the frequency in which physical activity is conducted. Studies on the association of urban green spaces with physical activity and human health, have also shown how access to green areas helps increase the levels of physical activity in children (Abdullah Akpınar, 2017). Engaging on physical has also positive effects on people suffering from mental illnesses and there are multiple studies linking people and active lives with improved mental health. Nonetheless, just how cities are able to tackle health-related issues depends largely on the level of access to nature the urban population is able to gain and on the regulatory aspects of land use in connection to well-being.

Global frameworks like the Sustainable Development Goals (SDGs) and the “Future We Want” have a clear goal concerning the future of green areas in cities. For example, the SDG #11 (Goal 11), urges cities “by 2030 to provide universal access to safe, inclusive, and accessible, green and public spaces, in particular for women, children, the elderly and people with disabilities.” Furthermore, the WHO (2016) report, *Urban Green Spaces and Health*, explained the commitments made by the States of the WHO European Region that in the year 2010 committed to ensure that by 2020, each child is provided with access to “healthy and safe environments and settings of daily life in which they can walk and cycle to kindergartens and schools, and to green spaces in which to play and undertake physical activity.” It’s important to highlight the growing concern for the physical well-being of children as a result of increasing rates in child obesity. On this issue, studies on the association of urban green spaces with physical activity and human health in general, have demonstrated how access to green areas is a critical aspect for increasing the levels of physical activity in children (Abdullah Akpınar, 2017).

What access to green means in the urban context, is that nature is essential for providing communities with good quality of life. By “good” quality of life it means to ensure that all groups of society can have equal access and opportunity to interact with nature. In urban planning, increasing access to green areas means to work with the regulating and provisioning functions found in the urban ecosystem. It also means the study of green areas as the essential connecting tissue, linking the urban structure with its essential self-regulating capacity and with local water cycles, air quality and urban temperatures necessary for good quality of life.

So, in order to build further understanding of the multiple approaches to improving access to green areas, the term “access” would be explained through the lens of following three concepts:

1. Network

A network approach to working with green areas entails a circular perspective to study a set of green areas often classified as parks, recreational areas, sports facilities, green pockets, social spaces, green streets, etc., areas that combined form the green layer upon which life-supporting systems depend. The approach to work in a network of green areas entails enhancing the ecosystem properties and potential connections and functions emerging from within the urban structure. Access to green spaces in the this context will mean a system of green that is integrated as part of a larger unit; that is, a network that is circular rather than linear, dynamic and broad giving rise to new nodes and connections in the network. It also refers to the self-regenerative properties of the urban green layer and how its properties can be self-sustained and preserved.

TURKU CITY CENTRE
 APPROACH TO ACCESS, QUALITY AND DISTRIBUTION OF GREEN SPACES

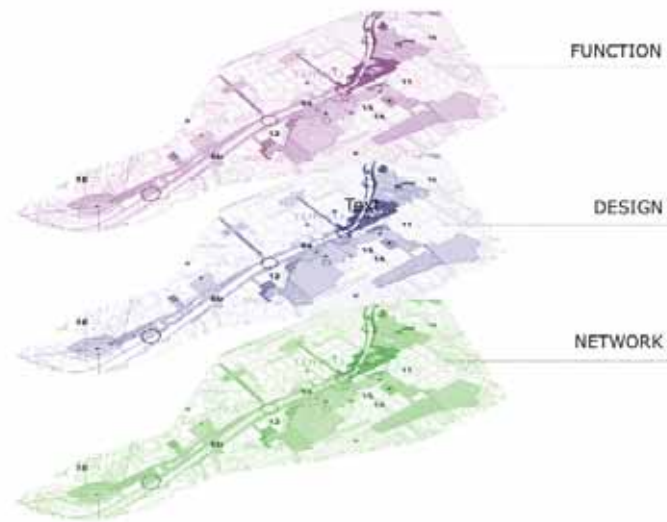


Image 5: Approach to access, quality and distribution of green spaces

2. Design

In the urban context, access to green means a human-centered design process. It means a design process that considers the multiple dimensions of nature's own intelligent design applied to the physical space. This means that we should not simply promote access but to be specific as to what is the type of access that would fulfill a specific requirement. That design can ensure the right access for a given area. It means making provisions for an inviting, universal, attractive and aesthetic access with consideration to future trends and changing environments. It also means consideration for every area in the network, designed in a way that accessibility is not only facilitated but also optimized by design. One example would be, the design-oriented solutions for how to construct linkages between green spaces, pockets and pathways in areas with potential; for how to help bicycles and pedestrians move in and around pleasant green paths paying attention to quality aspects and how different spaces are perceived and experienced in the urban environment.

3. Function

It means that green spaces, passages, pockets and pathways are designed for different functions and purposes and are well distributed around the city. The basic design of the various functions should fulfill a social purpose aim to provide areas for social interaction and for the enjoyment of nature. By having functional elements including public furniture and public art to support different social activities, having places for people from all age groups to engage at different levels of activity having function for social interaction like playing frisbee, a dog park, a rose garden-all as part of a well thought out process.

In the case of Turku, increasing access to green areas entails conducting comprehensive inventory of the size, number of areas and accessibility aspects of green spaces, individually but also collectively as part of an integrated network of green areas. A detailed inventory can also help to identify gaps and inadequacies in the network and help planners set benchmarks on the minimum targets for accessibility the city should aim for as part of a social and ecological strategy. Table 5. shows a set of indicators toward an inventory of green areas for the city center of Turku. Exact measurements are important to know how much the green area that exist is in fact accessible for public enjoyment. In Turku, the majority of the parks designated for

recreation include also facilities like buildings, playgrounds, football and tennis courts, etc., as areas that have been paved and that no longer perform the same function as “green” vegetative surfaces do. For this reason, additional spaces inside green areas need to be assessed based on their own spatial qualities, whether as part of open spaces or as grey areas that are integrated as part of the landscape.

GREEN SPACES CLASSIFICATION - TURKU CITY CENTER								
AREACODE	DISTRICT	CLASSIFICATION (per detail plan)	FUNCTION(S) DESCRIPTION	FUNCTION AREA (in m2)	GREY SURFACES (in m2)	BUILDING(S) (in m2)	Other paved areas part of the green space	TOTAL AREA OF GREEN SPACE AVAILABLE

Table 5: Criteria for the classification of green spaces in Turku

Furthermore, in the city center, there is a need for more human-centered design approaches that can facilitate access. The current situation is that spaces with the larger number of green area are mostly located on hills and slopes. The topography in this case makes assessing the size and usable area a challenging task for both, planners and residents users of the space. Also, In many of these parks, access points are more of a physical barrier to universal access throughout the year and there is a lack of alternatives for the physically challenged and for some of the age groups, particularly children and the elderly, to gain access. Further, constrains are present on how to integrate these elevated parks into the urban structure on the ground as part of the efforts to connect people with nature thus improve the urban experience of those moving by bike and by foot.

Distribution

Around the city center of Turku, the distribution of natural green areas lacks circularity and adequate distribution. This is particularly true around the central business districts, more specifically at the Ursininkatu pohj., and Kristiinankatu pohj. districts that showed to have a zero percentage of green space accessible. In the current land use and demographic data by the city of Turku, green areas showed to be concentrated mainly the eastern side of the Aura River, in the hills of Urheilupuisto and Samppalinn and in the Kupittaa, Mäntymäki districts. Table-6, shows the percentage of green area per district as of 2017. Data on population of per district shows the shortcomings on the distribution profile of the green areas. When comparing the total population of the city center 55375 people with the districts with the highest percentage of green area- roughly 5000 people-it becomes obvious that more needs to be done to expand the network of green further into the districts of the CBD and port areas. To be effective, distribution in this case should consider green spaces that are part of a network of pockets and open spaces linking districts beyond the current linear configuration of green parks along the Aura River.

Table 6: Distribution of Green Areas in Turku City Center in 2017 by % of Total Area. (Source: City of Turku, 2018)

Distribution of Green Areas in Turku City Center in 2017 by % of Total Area (Source: City of Turku)						
Areacode	District name	Population	District total area in m2	Parcs and recreation grounds, % of total area	Total number of buildings (2017)	Total building Area in m2
101002	Ursininkatu pohj.*	2775	206 860,44	0 %	58	99964
101005	Kristiinankatu pohj.*	1047	124 832,80	0 %	48	305612
110031	Kurjenmäki länt.*	320	210 757,64	0 %	181	101196
113038	Rahtisatama*	9	1 699 557,38	0 %	122	169561
101003	Ursininkatu et.	858	113 220,81	1 %	68	190803
101007	Tuurepori VI	1508	182 865,45	1 %	64	129820
101004	Kristiinankatu et.	628	98 392,30	2 %	133	111579
101008	Kauppatori VI	2470	250 574,73	2 %	196	289075
105019	Port Arthur	3664	302 517,17	2 %	308	228381
102011	Sirkkala I	6381	560 317,77	3 %	40	66714
127022	Vatsela	192	25 511,67	4 %	123	22570
104015	Martti IV	4639	414 356,56	5 %	49	78832
106020	Iso-Heikkilä it.	371	601 795,50	6 %	170	306498
111034	Vähäheikkilä länt.	249	140 220,28	7 %	211	51775
101009	Verkatehdas VI	3225	347 701,36	10 %	90	194547
105017	Länsiranta	1582	406 729,84	11 %	35	52797
101001	Rauhankatu VII	3201	175 414,06	12 %	119	209689
113037	Otkantti	26	400 155,00	12 %	127	270800
111033	Vähäheikkilä it.	797	305 642,03	13 %	63	28237
102010	Yliopisto I	1774	589 283,58	14 %	97	163229
110030	Kurjenmäki it.	772	263 925,34	15 %	169	236227
112035	Korppolaismäki	394	248 301,48	19 %	30	8237
112036	Majakkaranta	1146	352 833,39	20 %	158	515865
103012	Vartiovuori II	3226	462 836,83	22 %	53	122469
104016	Itäranta	4335	672 006,52	24 %	198	166460
106021	Iso-Heikkilä länt.	1826	513 194,89	25 %	96	423358
101006	Puolalanmäki VII	1323	124 599,69	26 %	83	186167
105018	Kakola	1637	381 446,53	29 %	47	116293
103013	Samppalinna III	2243	321 465,50	31 %	95	198345
110032	Mäntymäki	1650	450 460,31	32 %	87	241708
109029	Kupittaa	5	786 209,98	44 %	44	237135
103014	Urheilupuisto III	1102	370 430,27	52 %	26	107511

Total population in the combined districts: 55375

*City center districts with zero percentage of green grounds.

Note: The above calculations are based on statistical data from the City of Turku for the year of 2017. A more in-depth calculation of the total area of green available per district and their use (Public, semi-public, and private grounds) would be necessary to determine the current amount of green area per capita.

Accessibility Indicators

First, the assessment of people's proximity to green spaces involves time and distance. Drawing from various indicators used across European cities, "good" proximity to a green space is generally assessed by areas that could be reached within a 15-minute or less of a walking time. Other proximity indicators called this a "recovery distance" and set guidelines of, for example, 250 to 500 meters recovery distance to a green space. In some cities in Germany, targets at municipal level are set to provide a certain amount of green space per inhabitant. Area access could differ on the function of the green space and could range between 6-9m² depending on the function of the green and public space. The proximity indicators suggested here, are part of a study by the World Health Organization (2016) of urban green spaces. According to the WHO, a measure for accessibility of a green areas considers the proximity to a green space used in a linear distance of 300m or 15 min. walking distance. For the purpose of our research, we will take into account the proximity indicators mentioned by WHO (See as part of a list of measures for accessibility to green areas).

Different cities offer different levels proximity and amounts of green areas that can be accessible by the general public. In the case of Turku, the city has not yet established a set of local indicators to measure proximity to green areas. Currently, the master plan integrates only those green spaces that are owned by the city of Turku something that limits the opportunities for integrated planning and for the expansion of the network of green spaces in lagging districts.

Second, another important aspect concerning proximity to green areas in Turku, relates to a current trend observed in cities across the board about the privation of public space in urban areas. Land ownership and whether green areas and green pockets are for public, semi-public or private use is an important factor. In general, there is a need for further transparency on what areas are -in fact-considered "public." In the city center of Turku, there are already some signs of privatization of public spaces for private use. For example, the west side of the Rantakatu, near the Vähätori, is a vibrant street with many restaurants and cafes facing the Aura River. This street is one of the most attractive streets in the city center; yet, the green areas and cultural landscape between the Läntinen Rantakatu and the riverbanks meant for public use, is today partly overtaken for by some of the restaurants and cafes that place tables and chairs directly on the edges of the green access, obstructing the view and use by the general public. Access to land is a key aspect of holistic planning. Increasing knowledge on the multiple dimensions surrounding access to green spaces will help create a more informed view on targets concerning the minimum amount of green area that should be available for the enjoyment of every resident and visitor.

Third, access points to green areas in the core areas of the city center require an approach to human-centered design. During the evaluation of the local urban landscape conducted over the course of the Green-In Turku project, universal access to green areas on the ground and on hills was identified as an urban challenge. Turku is constrained by the fact that the city does not have a large stock of green areas at ground level. The fact that the location of green areas is mostly on hills and slopes make access to green space a challenge but also a higher necessity as access to nature becomes more and more an important aspect of well-being. Access points to green areas on hills, are primarily by means of stairways and ramps and it's an impediment for some groups of society particularly for people with physical disabilities, for the elderly and children. A human-centered design to access points is essential to provide quality of life and for enhancing the urban experience. The city center strategy for livability needs should consider the development of a program to reassess flexibility of access points to green areas to fully scale-up the role of green in providing amenity and vibrancy.



Measure of Accessibility to Green Areas - the case of Turku			
<p>A</p>	<p>Proximity to a green space (Use linear distance of 300m or 15 min. walking distance).</p> <p>(Examples of indicators in other cities: Hamburg: 6-7 m² / p within a 1km walk; Barcelona: 1 m² / p; The World Health Organization (WHO): 9 m² / p within 15 minute walk).</p>	<p>Proximity indicators in Turku need to consider a broader area of coverage beyond its current central axis. This is particularly important for districts of the CBD currently lacking adequate proximity to green spaces.</p>	
<p>B</p>	<p>Green spaces for public use</p>	<p>Currently, the city of Turku does not have defined proximity indicators to measure access to green areas. The current masterplan integrates only those green spaces that are owned by the city of Turku leaving out green pockets and areas that belong to private owners. The scale- up of green areas will require integrated planning of a network of green spaces identifying green spaces for public, semi-public and private use.</p>	
<p>C</p>	<p>Access points to green spaces (Pathways, stairs, ramps).</p>	<p>The center of Turku is constrained by the fact there are not sufficient green areas at street levels. In fact, most of its green areas and parks are located on hills and slopes. Extreme level changes, uneven payments and steps are a predominant at most access points creating impediments for people with physical disabilities, for the elderly and children. In addition, entrances to green areas for public enjoyment are often not well-defined.</p>	

Table 7: Indicators of accessibility to green areas. Source: WHO, 2016.

Quality Indicators

To assess space quality aspects of green areas and public spaces, this study uses Jan Gehl's 12-Quality Criteria framework (See Table 8) for open spaces to generate a spatial inventory of two of the most important parks and squares in Turku where a high number of people intersect green and open spaces daily. The Jan Gehl's 12-Quality Criteria is a tool for researching how attractive public spaces are and it helps with aspects of users experience on public spaces. The criteria is based on the fundamental knowledge of human-center design and helps to create associations between different type of public spaces and their usability (Gehl & Svarre, 2013) and. In essence, the criteria is a flexible tool conducive to develop new perspectives on how human-space relationships are formed in public space.

Protection	<p>Protection against traffic and accidents. Do groups across age and ability experience traffic safety in the public space? Can one safely bike and walk without fear of being hit by a driver?</p>	<p>Protection against harm by others. Is the public space perceived to be safe both day and night? Are there people and activities at all hours of the day because the area has, for example, both residents and offices? Does the lighting provide safety at night as well as a good atmosphere?</p>	<p>Protection against unpleasant sensory experiences. Are there noises, dust, smells, or other pollution? Does the public space function well when it's windy? Is there shelter from strong sun, rain, or minor flooding?</p>
Comfort	<p>Options for mobility. Is this space accessible? Are there physical elements that might limit or enhance personal mobility in the forms of walking, using a wheelchair, or pushing a stroller? Is it evident how to move through the space without having to take an illogical detour?</p>	<p>Options to stand and linger. Does the place have features you can stay and lean on, like a façade that invites one to spend time next to it, a bus stop, a bench, a tree, or a small ledge or niche?</p>	<p>Options for sitting. Are there good primary seating options such as benches or chairs? Or is there only secondary seating such as a stair, seat wall, or the edge of a fountain? Are there adequate non-commercial seating options so that sitting does not require spending money?</p>
	<p>Options for seeing. Are seating options placed so there are interesting things to look at?</p>	<p>Options for talking and listening/hearing. Is it possible to have a conversation here? Is it evident that you have the option to sit together and have a conversation?</p>	<p>Options for play, exercise, and activities. Are there options to be active at multiple times of the day and year?</p>
Enjoyment	<p>Scale. Is the public space and the building that surrounds it at a human scale? If people are at the edges of the space, can we still relate to them as people or are they lost in their surroundings?</p>	<p>Opportunities to enjoy the positive aspects of climate. Are local climatic aspects such as wind and sun taken into account? Are there varied conditions for spending time in public spaces at different times of year? With this in mind, where are the seating options placed? Are they located entirely in the shadows or the sun? And how are they oriented/placed in relation to wind? Are they protected?</p>	<p>Experience of aesthetic qualities and positive sensory experiences. Is the public space beautiful? Is it evident that there is good design both in terms of how things are shaped, as well as their durability?</p>

Table 8. Gehl's 12-Quality Criteria (Source: Gehl & Svarre (2013))

According to Gehl and Svarre (2013), the 12-Quality Criteria's framework is based on three key principles summarized below:

1-Protection: This includes opportunities to experience safety in public social spaces—a crucial aspect when trying to make cities attractive for people from all groups. Protection defines whether a space invites and stimulates people to walking, biking and staying or the opposite. It entails also how to shield the public from congested traffic and resulting accidents as cars are still broadly used as main means of transport limiting the amount of space that can be allocated for bicycle and pedestrian infrastructure. Signs, street lamps and other obstacles are moved to walkaways, so they don't disturb cars. Lack of the space makes walking and cycling unsafe and unattractive, even if they are separated from cars.

2-Comfort: In public space, comfort takes into account elements that make moving, standing, sitting, seeing, and conversing conducive. Here, comfort addresses options for unlimited mobility for users with physical disabilities or for other users like those pushing a stroller or any other mobility device. For Turku, this means it is an uncomfortable situation for those with physical disabilities who may need to move through cobbled streets and slopes at various points. Physical barriers extend also to stairs which are the predominant means of access to green areas in Turku. In the criteria for comfort, walking is elevated beyond moving from place-A to place-B to an activity with a larger effect on urban mobility. Here, a *comfortable* public space means to allow for sufficient room for wheelchairs and strollers to circulate in space in addition to further mobility schemes and transit by foot.

3-Enjoyment: Based on this criteria, enjoyment considers the aesthetic aspects surrounding the quality of public space. Further, it gives consideration to the human scale and the relationships that are formed between people and spaces. According to Gehl (2010), proximity plays an important factor for planning human-centered cities and for enjoyment. For example, it was noted how in Europe, many old squares are smaller than 10,000 m² and shaped as rectangle of approximately 100 x 70 meters. The human scale here means that people can see activities taking place, recognize other people's faces and engage in other visual activities. Enjoyment here means a space that stimulates people positively to enter spaces and to mingle with others as it is well known that people tend to spend time in places where other people are.

Spatial and Sensory Analysis – The Old Town



Using the above Gehl's quality criteria framework as a base, this study conducted a multi criteria evaluation of green areas public spaces in the Old Town. The aim of the scope was to concentrate on key core spaces: the Suurtori and Cathedral Squares and parks as some of the most representative yet challenging spaces in the city center. The assessment of public spaces builds on the key principles of protection, comfort, and enjoyment part of the 12-quality criteria framework.



I. THE OLD GREAT SQUARE

Protection - The Old Great Square

Protection against traffic and accidents .

The Old Square is well protected against car traffic as no parking is allowed on premises. The area lacks cycling lanes and connections that can better direct and protect bicycle users. Pedestrian traffic can safely use the space. Cars crossing the six-lane street of Uudenmaankatu contribute to issues of unsafe particularly for pedestrians as they have to move through heavy traffic.

Protection against harm by others.

The square is perceived to be safe both day and night. Sufficient lighting provides a conducive atmosphere inviting for people to transit by it. Because of the lack of commercial development in the area, there is not sufficient after-work activities and it's particularly at this hour when the square and the buildings surrounding it appear rather deserted.

Protection against unpleasant sensory experience.

The noise, dust, and pollution from Uudenmaankatu contribute to the lack of attractiveness in the area. Courtyards act as silent spaces between the buildings and help to shield some of the traffic noise. The Square has points for people to find shelter from sun, wind and rain. There is not protection against unpleasant sensory experiences like noise and pollution.

Comfort - The Old Great Square

Options for mobility

Comfort means the easiness for people to circulate around courtyards and social spaces in the area. Here, cobblestone surfaces hinder comfort and make it difficult for wheelchairs, strollers and other mobility devices to circulate comfortably through the space. Also, slopes leading to the main square could potentially be an obstacle for pedestrians and for those with limited mobility.

Options to stand and linger.

Options to linger in this area are limited mainly due to the lack of commercial activity, different microclimates and elements for public seating that can encourage optional activities to take place in the square. The non-commercial spaces create some attraction but don't create the need to stand or linger.

Options for sitting.

There is no public primary seating in the area. A café and few restaurants in the area provide commercial, secondary seating. Overall, the majority of the public spaces are inadequate, lacking the human dimension and interesting concepts and elements for where to sit and inhabit the space.

Options for seeing.

Commercial seating in courtyards, presents little opportunity to view others or for people to have interesting views or something to catch their eye. The River Aura is an attractive element for the area; however, options for seeing the river from the square are obstructed by the Pinella building. In general, buildings and courtyards provide interesting views of the architecture and heritage. Lighting contributes to enhance the atmosphere during the evening time.

Options for talking and listening/hearing.

The Square has low levels of noise therefore, casual conversations are possible to be carried out at a normal level in spite of the fact that the area is directly next to the Uudenmaakatu main traffic artery, and that the fact that there is a lack of adequate seating or elements that can stimulate social communication or allow user to experience the area as a meeting place.

Options for play, exercise, and activities.

There is a lack of functions or activities that could take place at multiple times of day. Except for few cafes, restaurants and seasonal events. There is not enough ground for activities by different groups including children. It's possible to walk around the historical town streets and slopes but the experience is interrupted by the quality of the pavements and the lack of interesting routes,

Scale.

The human dimension could be reinforced to attract more pedestrian life and to elevate the social function of the square. More activation of buildings and functions in connection to public space is needed. The area is surrounded by buildings two or three-story high bringing them closer to the human scale enhancing the connection between buildings and city life. The size of the square is also in proportion to the human-scale, that is, small enough to provide opportunities for closer social encounters.

Opportunities to enjoy the positive aspects of climate.

Opportunities to enjoy the positive aspects of climate are inadequate mainly because there are no sufficient elements to shelter people from wind or cold. Buildings and entrances to courtyards give some shelter from sun and rain. Area is most of the time empty during the winter months and the few businesses in the area create little connectivity to the space outside walls.

Experience of aesthetic qualities and positive sensory experiences.

The area was a commercial center and local market in the past; however today, is a passive square with very few elements stimulating the human senses, activities, behavior and communication in the space. The scale contributes to a good social field of vision and opportunities for human interaction.



II. PORTHAN PARK

Protection against traffic and accidents.

Despite of the heavy traffic in the Uudenmaankatu, that intresects the park, people are able to move safely and without car interventions in the space. Sidewalks at the border of the park and the Uudenmaankatu street are shared by bicycle users and pedestrians with no clear paths marked for bikes creating unsafety conditions in addition to the threat of potential accidents from the heavy traffic passing along the side of the park.

Protection against harm by others.

The area is perceived to be safe during the day time. In general, the park offers sufficient lighting for evening time. There are no residential buildings or offices in area but people travel across it safely at night when going to bus stops and down to hte city center..

Protection against unpleasant sensory experience.

Protection against unpleasant sensory experience like traffic noise, pollution and dust is inadequate. That is mainly because the Uudenmaankatu street interferes with noise and dust that diminish the attraction to the park. Trees give shelter from sun and rain.. There are no built shelters against unpleasant sensory experiences, except bus stops and a private terrace at the Pinella restaurant.

Options for mobility.

The park's has adequate accessibility with enough room for walking, cycling and transit by other means.. Fine gravel used in the walking paths of the park is not adequate for wheelchair or similar mobility devices and cobblestone surfaces also hinder mobility. Quality of payments and surfaces play a key role in comfort so Turku will need to consider a more integrated model for passive mobility at these important parks and squares

Options to stand and linger.

Porthan Park provides only few features that attract people to spend time or to remain. Options to linger are minimal due to lack of positive sensory effect that park could have on users. The preference here is not to staying but to transit through it-it's a junction not a pleasurable space for stopping and be present.

Options for sitting.

The Park could improve its microclimate crating new and interesting places and pockets to sit with good options for both, commercial and non-commercial seating. Currently, public benches lack flexible design options. As the park lacks opportunities for optional activities, the type of seating that could best support activities and options for pleasant views is lacking.

Protection - Porthan Park

Comfort - Porthan Park

Options for seeing.

The Park is currently lacking sufficient attraction points for people to engage in city life, meet or just observe others. The options for observing are minimal as the area does not have sufficient social activities that should take place for the area to be fully active.

Options for talking and listening/hearing.

The Park was not entirely perceived as a meeting, or a place rest and recharge due mainly to the few seating options and traffic noise. Talking and listening are possible however with some disruption.

Options for play, exercise, and activities.

The Park is categorized as a historical park with no special options for activities at multiple times of day and during the year. Green grounds are mainly trees.. Grass areas in the Park are relatively small and they don't encourage exercise activities other than strolling.

Scale.

With an area of approximately 7 100 m², the scale of the park contributes to process human sensory impressions. The height of the two-story Pinella building located in the park is an adequate scale for good communication between people, buildings and the surroundings green area (public space). The park provides a good base for future social activities in the heart of the city.

Opportunities to enjoy the positive aspects of climate.

In Porthan Park benches are partly located under the trees which may give shelter from sun and rain during the summer time. Bus stops also give shelter from changing weather. There is very few opportunity to find shelter from the cold wind, which would make the park more attractive during the cold months.

Experience of aesthetic qualities and positive sensory experiences.

There is a level of aesthetic that comes from the historic landmarks and architecture that add to the visual sensory effect of the park. However, the elements in space do not strongly support the quality of the park. Trees and flowers planted during the summer time contribute to the aesthetic value, ;however, in general ,the area contributes very little to the overall urban experience and character of the Old Town.



Protection – Brahe Park

III. BRAHE PARK

Protection against traffic and accidents.

The park lacks protective elements against traffic noise and congestion. Accidents have the potential to be exacerbated by the heavy traffic on the Uudenmaankatu street currently bordering the park.

Protection against harm by others.

There is a good amount of street lighting and people walking across the park during the night time, comfortably and safely. In the corner of the Park is a small station that serves fast food during the night time.

Protection against unpleasant sensory experience.

The park is not buffered against unpleasant sensory experiences coming from noise, pollution and dust. Trees, flowers and grass contribute to visual experience of the park and give a level of shelter from sun and rain.

Options for mobility.

Walking comfortably is possible on the park paths although with limitations due to the fine gravel-based surfaces. Bicycles transit around the edges of the park on rough cobblestone pavements.

Options to stand and linger.

The optional, recreational staying activities for people to participate in urban life are limited. The park provides benches; however, the combination of factors including scale, lack of flexible public furniture, architectural elements and activities refrain users from staying.

Options for sitting.

Benches are oriented along the park’s main paths however, the lack of recreational quality of the park hinders stationary activities like sitting. Flexible seating elements like movable chairs are missing.

Comfort - Brahe Park

Options for seeing.

Opportunities for experiencing social life through visually engage with others is possible. However the scale of the park increases the social field of vision thus limit the possibilities for seeing and be seen. . Seating located at various points increase the view of the users.

Options for talking and listening/hearing.

The park offers the possibility to have a casual conversation and to sit together. Despite the amount of seating options, traffic noise creates disruptions in the communication.

Options for play, exercise, and activities.

There is very little opportunity to be active at multiple times of the year. It’s possible to wander around or take a seat along the paths of the green space. There is no invitation to optional stationary of moving activities other than sitting.

Scale.

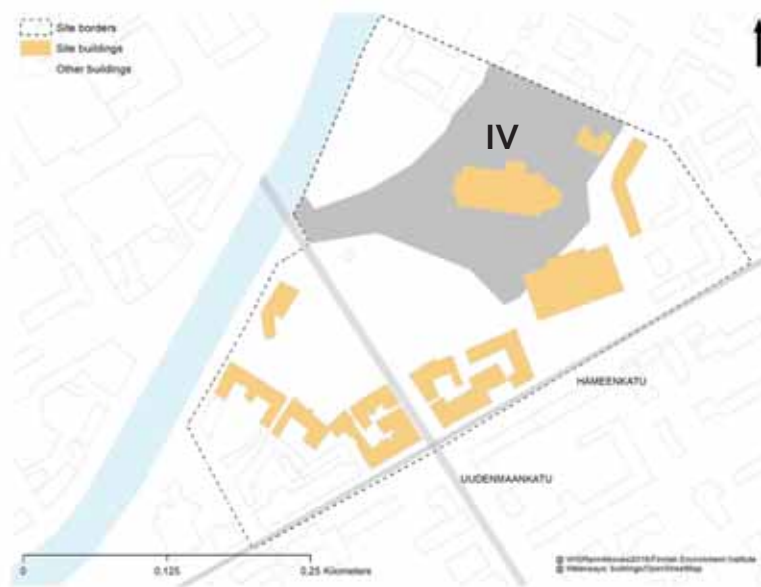
The park area of approximately 7200 m² and its surrounding open space gives the sense of lacking the human dimension necessary to stimulate the senses. Also, the social field of vision in the park is diminished by the sense of limitless space.

Opportunities to enjoy the positive aspects of climate.

There are some opportunities to enjoy the positive aspects of climate. Seating options are placed mainly under the trees. Because of the shift of wind changes, benches are not oriented according to the wind. Winter does not hinder access and it is possible to enjoy it for a brief period of time.

Experience of aesthetic qualities and positive sensory experiences.

There is a level of aesthetic that comes from the historic landmarks and architecture that add to the visual sensory effect of the park. However, the elements in space do not strongly support the quality of the park. Trees and flowers planted during the summer time contribute to the aesthetic value, ;however, in general ,the area contributes very little to the overall urban experience and character of the Old Town.



IV. CATHEDRAL SQUARE

Protection – Cathedral Square

Protection against traffic and accidents.

The park lacks protective elements against traffic noise and congestion. The open space/square allows access of private cars, tourist buses pedestrian and bicycle users all in the same space. The traffic is not directed and there are no marked paths thus there is potential for accidents involving pedestrians and bike users. It is dangerous confusing to circulate through the space for both pedestrians and cyclists.

Protection against harm by others.

The space is perceived to be safe both day and night. In the evening hours, lighting helps to provide a safe atmosphere. Students and pedestrians circulate through the space comfortable on their way home, to work, or to the student village.

Protection against unpleasant sensory experience.

The vast scale of the square gives the sense of protection from background noise and dust. Protection against the elements is minimal in the square. Trees in the Cathedral yard may give some shelter from sun and rain.

Comfort - Cathedral Square

Options for mobility.

Uneven cobblestone surfaces make the access and circulation challenging for both bikers and pedestrians. Cobblestone surfaces also hinder comfort and make it difficult for wheelchairs, strollers and other mobility devices to circulate comfortably through the space. During the observations, there was no one person crossing on a wheelchair. Because of the scale, there is sufficient area for walking and for other activities, but the structured traffic makes the space highly inefficient.

Options to stand and linger.

There are very few options to stand and linger in public space. Options to linger in this area are limited mainly due to the lack of commercial activity, different microclimates and elements for public seating that can encourage optional activities to take place in the square.

Options for sitting.

The square does not provide any primary seating of benches and public furniture and currently is mainly a space for people to pass across. Overall, the square lacks the human dimension and inclusion of interesting concepts and elements for people to sit and inhabit the space.

Options for seeing.

Historical buildings and the Turku Cathedral are present elements attracting the eye at street level. In general, the River Aura and the surrounding buildings of the square provide interesting views and opportunities for seeing by passersby. However opportunities for visual experience of city life or to observe others is minimal due to the lack of commercial activities and active buildings. There is only one restaurant and with outdoor seating directly on the square.

Options for talking and listening/hearing.

The square provide vast ground for talking and interacting; however, the fact that there is a lack of adequate seating or elements that can stimulate social communication, or allow user to experience the area as a meeting place, make the options for talking and listening minimal. The large scale of the square is a challenge to the stimulus of the human social field of vision that hinders possibilities for human interaction

Options for play, exercise, and activities.

The square is a passive area with very few elements stimulating the human senses, activities, behavior and communication in the space.

Scale.

The human dimension could be reinforced to attract more pedestrian life and to elevate the social function of the square. More activation of buildings and functions in connection to public space is needed.

Opportunities to enjoy the positive aspects of climate.

Opportunities to enjoy the positive aspects of climate are minimal mainly because there are no sufficient elements to shelter people from wind or cold. Surrounding buildings give little shelter from sun or rain and the area is most of the time empty during the winter months. The few businesses in the area create little connectivity to the space outside walls.

Experience of aesthetic qualities and positive sensory experiences.

The area was part of the commercial center in the history of the Town. Yet today, is a passive square with very few elements stimulating the human senses, activities, behavior and communication in the space. The square has a great potential for becoming a social magnet and meeting place at the heart of the city.

In conclusion, the use of the 12-Quality Criteria framework for the study of green and open spaces was helpful framework to assist in the understanding of human relationship and flows. Furthermore, this spatial analysis contributed greatly to the formulation of the recommendations made further in this report, towards improving the state and scalability of green areas in Turku and the city center in particular.

USERS



As part of an evaluation of social spaces and green areas, this study builds on site observations done using Jan Gehl's social space survey (Gehl, 2010). The aim was to gain understanding on how public spaces were perceived by different users and to gain user's perspective on whether green spaces were conducive to public enjoyment. Furthermore, the mapping of stationary activities was done at various parks and social spaces, paying close attention to human flows and the preferred methods for people to spend time socially.

Complementing these observations, was a set of informal questions made randomly to people around in the city center to gather opinions and attitudes among a diverse group of users. The informal questions were open and closed questions to learn how spaces were perceived and what people liked about them. The questions helped establish a baseline on the level of attractiveness perceived at different green and social spaces. The questions emphasized the quality aspects of the spaces and whether participants saw green areas and open spaces in need of improvement. In addition, respondents were asked on the type of improvements they

thought was necessary to better the quality of the green and public spaces in the city center.

Thus, the next page includes some of the opinions collected during the various talks with the general public in the streets and parks of Turku. The respondents who were randomly selected belong to different age groups. In general, the preferences that were communicated helped increase our understanding of the diverse attitudes and opinions. The answers also contributed to gain insight into the opposing viewpoints from the side of residents, students, visitors and business owners. The questions opened up new perspectives on everyday life urban situations by those who work and live in the city. The investigation also helped to highlight differences and contrasting expectations, in this case from the side of the temporary visitors and students, as well as from permanent residents.

All and all, the new perspectives gained on user's perception contributed to bring focus to the role that users of the space play as direct beneficiaries and as contributors to the greening process at core areas.

The **resident**



The **student**



The **visitor**



The **entrepreneur**



INFORMAL INTERVIEWS
Turku City Center - 2018

Type of Respondent	Questions and Answers
The resident	<p>Location: Sports Park</p> <p>AJ: why did you come to this park? JR: I like to come here to have some quiet time and to look at the pond. I work as a bartender and right now it is “down time” for me so I like to come here in the early hours after my shift and to sit in the quietness.</p> <p>AJ: Do you live in the city center? JR: Yes I have been living in the city center for about 3-years now.</p> <p>AJ: What can be improved in the city center? JR: The traffic. There are many fights between car drivers and bikes right now and it is a problem to have cars in the center. I myself don’t have a car because I am low-pay working class and I cannot afford it. But there are people who can afford to buy a car and live in the city center as well which is a problem. I feel that the city center is closing more and more as it goes along. The large shops and shopping malls are changing the center because people want to do everything inside.</p> <p>AJ: What do you like about living in the center? JR: I like Turku and I feels that it is nice to have green areas where we can come and experience nature. I am not a sport person, I don’t run or do sports but I enjoy coming here to sit and have a nice quiet time in nature.</p>
The student	<p>Location: Cathedral and Suurtori Squares</p> <p>SN: Why did you come to this park? KT: I use this area as a passage on my way to the university, to go work or to go to the bus stop.</p> <p>SN: Do you live in the city center? KT: I am a student and commute to the city center.</p> <p>SN: What can be improved in the square/parks? KT: The squares and parks could be more active and offer more options for seating and where to spend time. The large spaces around Cathedral park are empty cobbled areas that do not attract or provide options for staying there. In general, I think that the area could offer more access to chairs, plants, and public toilets.</p> <p>SN: What do you like the most about this area? KT: The trees. I also think it’s an attractive area for walking. I like that it is close to the River Aura and I enjoy coming here when I have free time.</p>

The visitor	<p>Location: The Old Town</p> <p>AJ: What has brought you to visit Turku ? RW: We are here passing coming from the archipelago and now in our way back to Holland</p> <p>SN: What do you like about your visit in the city? RW: We did not find the city particularly interesting. The streets are uninteresting and we thought that there was just nothing there grabbing you. We are here only passing.</p> <p>SN: How can the situation be improved? RW: The Cathedral is one attraction we are looking forward to visit later today. Perhaps having more reasons and extensive opportunities to visit other sites and learn more about this city would be interesting.</p>
The entrepreneur	<p>Location: Turku Market Square (Kauppatori)</p> <p>AJ: why did you come to the market square? MT: We are a 100-years old family bakery and we have been coming to the market for years now.</p> <p>AJ: Do you live in the city center? MT: No, I commute here few kilometers away from the city.</p> <p>AJ: What do you think can be improved in this area of the CBD? MT: The city center is changing negatively for our business because people prefer to go to the supermarket nowadays -they don't want to come here! Most people prefer to take their entire families to the shopping mall and buy everything there. The majority of my customers are older people. The young seldom come here. In the summer time the situation is a little bit better but not in the winter time. Now, they are about to start building an underground parking here in the market square which will create a lot of problems for us. Our family bakery may be put out of business. I am the fourth generation and may be the last. The parking project is to benefit the large businesses around this plaza and for the people with means.</p> <p>AJ: How can the situation be improved? MT: The city needs to find an area where we can move to and continue our normal operations but that seems unlikely.</p>

RECOMMENDATIONS

ACTIONS

Drawing from an in-depth analysis of current green urban development and trends in Turku and Europe and drawing from case studies on strategies for innovative social, economic and urban spatial development, the following is a set of recommendations with suggestions on how to improve the urban green layer of the city center while enhancing the livability profile of the city of Turku.

These recommendations also draw from an urban analysis and quality criteria study done on green areas and public spaces in core districts of the city center. Empirical observations were done on-site complemented with informal interviews with residents, visitors and travelers participants in the urban experience. Furthermore, studies on the current access, distribution, and classification of the existing network of green spaces in Turku were carried-out in collaboration with city managers from across disciplines and from a series of meetings with stakeholders from Turku and abroad.

Increasing vibrancy and socioeconomic growth is a priority to help invigorate the core of Turku and enhance the unique profile of the city. Thus, a list of recommendations in this report suggests investments in quality of public design and holistic planning to significantly improve urban identity and cohesion. Investment in urban infrastructure will bring larger dividends for the city long term and will contribute to elevate the importance of Turku as a highly relevant cultural and historic town not only for Finland but for the whole of Europe.

Objective 01: EVALUATE THE URBAN LANDSCAPE OF TURKU CENTER

ACTION 1.1

ADOPT URBAN PLANNING APPROACHES THAT ARE SYSTEMIC AND LONG-TERM

As much as possible, adopt integrative and systemic design solution in planning; that is, implement urban strategies that are holistic in nature taking into account the implications (impacts) that short-term actions may have on the well-being of the total urban



environment.

This means to use a systemic approach to problem solving to generate systemic solutions. It also means focusing on complexity management and to keep a clear view and eye on targets. In 2014, Turku adopted a 2029 city strategy to highlight its 800 year anniversary and the city has set ambitious targets to become carbon neutral by 2029. In 2017 the Turku City Center Vision 2050 was launched and it was adopted by the City Council of Turku in 2018.

Complexity management then means that the city meets its targets, preserving resources through efficiency. A greening strategy should be developed in conjunction with other strategic plans and strategies

including a biodiversity strategy, urban tree strategy, smart and wise Turku, green mobility to make each plan an essential part of every assessment, and an approval process of any public project in the city.



The integration of bicycle routes and walking paths together with a network of green areas creates cohesion and attractiveness to the experience of the city. In Hamburg, pathways in direct proximity to lakes and urban waterways are being planned prioritizing pedestrians and bike users. Along these routes, cars and bikes share the street space equally and pedestrians get ample amount of sidewalk area, proximity and visibility of the waterways.

In Turku, actions for improving the public infrastructure are lacking systemic design. In the example of the new bicycle path in the Aurakatu side, the project did not take into consideration the "safety-first" of bicycle riders necessary to increase bike use. Bike lanes in this case give a sense of a fragmented design approach with little purpose for continuation or reliability in the network design.

Objective 01: EVALUATE THE URBAN LANDSCAPE OF TURKU CENTER

ACTION 1.2

PROVIDE UNIVERSAL ACCESS TO GREEN AREAS ON THE GROUND AND ON HILLS

The urban structure of Turku with most of its parks located on hills and slopes makes access to green space a challenge. Access to these areas by all groups of society particularly the elderly and children is essential to provide quality of life and for enhancing the urban experience. Turku should consider launching a program for human-centeredness at all access points of its green network to fully scale-up the role of green in providing amenity and attractiveness.



Objective 01: EVALUATE THE URBAN LANDSCAPE OF TURKU CENTER

ACTION 1.3

CONSIDER THE DESIGN OF AN URBAN GREEN PLAN AND LANDSCAPE CODE FOR TURKU

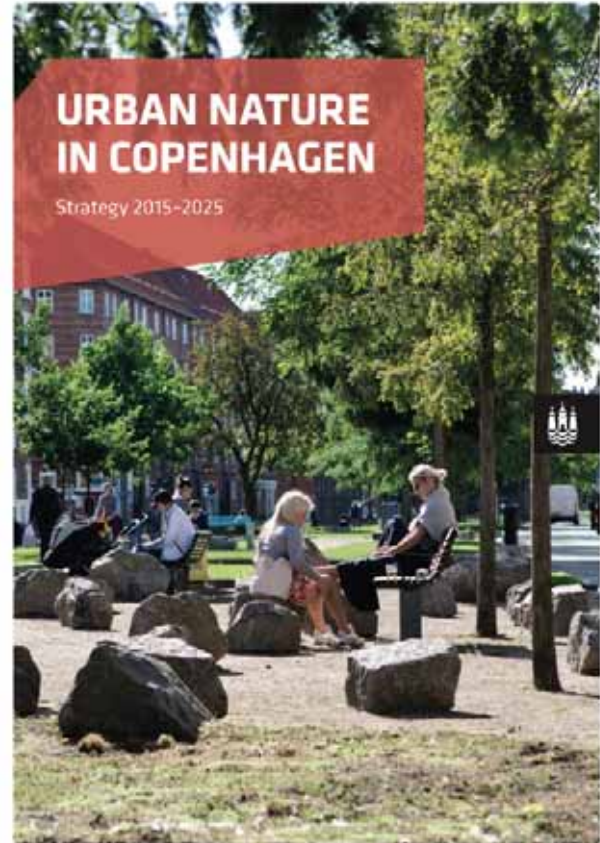
Consider launching an urban green strategy and Development Plan for setting up baselines, standards and guidelines in the planning of a well-designed network of green spaces giving special consideration to access and equal distribution of green areas across city center districts. Targets should consider the distribution of a green and open spaces on both, the east and west sides of the Aura River with a special focus on the most green-depleted areas of the city center- the central business district (CBD), Rauhankatu, Ursininkatu Pohj., Ursininkatu Et., Kristiinankatu Et. Kristiinankatu Pohj, Tuurepori and the Kauppatori.

A detailed plan for working with green areas will generate a detailed inventory and good approximation of the amount of green space that is available per inhabitant. From there, projections can be made regarding distribution. This will help draft compensation measures to help keep an appropriate level of green space today and for future development. A plan will help set up benchmarks for the minimum area share of green spaces as well as a set of preconditions to ensure adequate proximity.

Given the topography of the city center and that the largest stock of green space is on hills, a greening strategy should approach development by taking a 3-dimensional perspective. That means that areas at street level and at the hill level are studied individually as well as a system of connected spaces.

Access would mean to design the pathways so that vertical and horizontal access is

provided using a human-centered design process for its design.



A Greening Plan should be developed in conjunction with other strategic plans like a biodiversity plan, urban tree strategy, and a strategy for open spaces.

An urban greening plan should be considered an integral part for the assessments and approval process of any public project in the city.

A Greening Plan should be launched in conjunction with other strategic plans of biodiversity plan, urban tree strategy, and a strategy for open spaces.

Copenhagen and Sydney are among the many cities with set strategies for working with green spaces. Strategies are multi-level. For example Sydney which has a combined strategy for urban forests and biodiversity as part of a larger scope for greening the city.

Objective 01: EVALUATE THE URBAN LANDSCAPE OF TURKU CENTER

ACTION 1.4

BENCHMARKING

DEVELOP BENCHMARKS FOR THE MINIMUM AREA SHARE OF GREEN SPACES AS WELL AS A SET OF PRECONDITIONS TO ENSURE ADEQUATE PROXIMITY

Benchmarks are to include detailed inventory and approximations on the amount of green space available per inhabitant. From there, projections can be made on how optimal green area distribution is per district. Planners can study the possibility of compensatory measures for developers that can help maintain appropriate levels of green access.

When it comes to green areas in the center, every bit of space counts. One challenge for city planners will be to gather area information that might not show up on GIS maps including pockets of green spaces on private properties. For example, the area of the Kaupattori has a green pockets that do not show up on the city master plan for green spaces.

Given the topography of Turku center and that the largest stock of green space is on hills, a greening strategy should approach development by taking a 3-dimensional perspective. That means that areas at street level and at the hill level are studied individually as well as a system of connected spaces. Access would mean to design the

pathways and how vertical and horizontal access is provided based on a human-centered design process.

Green pockets around the city center like the one found in the Kaupattori Market Square are to be part of a detail estimate of accessible green space in the city center district.



Objective 02: TO ANALYZE THE SPATIAL QUALITIES AND FUNCTIONALITY OF GREEN AREAS

ACTION 2.1 – The Urban Experience

FOCUS ON SPACE FUNCTIONALITY AND NEW ELEMENTS OF DESIGN TO INVITE CITIZENS AND VISITORS ALIKE TO THE EXPERIENCE OF THE GREENEST URBAN CENTER IN FINLAND

A better design for urban green spaces that is interactive and that offers a fair level of safety, comfort and enjoyment for all. The users of the city center include a dynamic mixed of residents, visitors, tourist, and commuters who pass through the heart of the city daily. The provision of functional spaces mean that green areas integrate more design elements that engage people in activities. It will require programs designed using a human-centered planning process benefiting each and every group of society (Particularly children and the elderly). Among the elements that add to the functionality of green spaces are:.

- New design for public furniture and public art
- Dog parks
- Semi-fenced areas for toddlers to room around at the heart of the city
- An Archipelago Garden
- A public vegetable garden; a rose garden exhibition
- A park for biodiversity

Dynamic flows of people and users perspectives should be taken into account when drafting alternatives particularly for the congested areas of the business district and in parts of the Vähätori Square. Design and function should be for the purpose of enjoying nature through different social activities that can be done after or during work and on weekends. Overall, a well thought out design for more and better green spaces.

A plan should include a strategy to jump start initiatives like green streets, allotments, partlets, green pockets, green streets, and areas where to experience nature but also areas for playing, grilling and for socializing.



Objective 02: TO ANALYZE THE SPATIAL QUALITIES AND FUNCTIONALITY OF GREEN AREAS

ACTION 2.2 – The Urban Experience

A STRATEGY FOR GREEN STREETS & SIDEWALKS

Consider efficiency in public spaces and develop a strategy for streets and sidewalks in the City Center that aim to boost attractiveness and people flow in areas with good potential for vibrancy.

In Turku, the scale of many streets and sidewalks is larger than in many other city centers and something of high cultural value.

A system of green streets will help increase green area coverage in depleted districts or unattractive streets of the city center. A strategy means that green spaces, passages, pockets and pathways are functional and support a larger network of green distributed around the city.

New approaches that treat streets and sidewalks as special areas needed to be adapted to new uses to fulfill the needs of its diverse community. In Turku, public space needs to acquire a new value as essential to preserve the identity and cultural significance of the cityscape.

Photo in black and grey: Lahtinen, R, 2010.



Objective 02: TO ANALYZE THE SPATIAL QUALITIES AND FUNCTIONALITY OF GREEN AREAS

ACTION 2.3 – The Urban Experience

LET THE CHILDREN PLAY! DESIGN NEW MODALITIES AND FUNCTIONS FOR CHILDREN TO PLAY AND INTERACT IN THE URBAN PARK

Cities represent the future of the city and our youth. The city should consider integrating a design forward approach for green spaces with functions for children to play- at the heart of the city.

New spatial functionality should be innovative with applicable concepts for Turku giving special consideration to the safety, comfort and enjoyment of areas by all children. Initiatives should make provisions in parks and gardens for children to gain

Photo in black and grey: Postcard-no author

adequate access to land and nature elements in an interactive way.





Objective 02: TO ANALYZE THE SPATIAL QUALITIES AND FUNCTIONALITY OF GREEN AREAS

ACTION 2.4 – The Urban Experience

SCALE-UP TURKU GREEN CAPITAL
 ENHANCE THE EXPERIENCE OF THE HISTORIC TOWN
 MOVING FROM STATIC HISTORIC PARKS TO A LEGACY
 OF VIBRANT HISTORIC GARDENS

As part of a comprehensive urban green plan, the city should put forth a strategy to move from static historic parks to vibrant historic gardens to give special attention to the cultural aspects of the landscape and the profile of the city with a long history of urban gardens. In the city center, the majority of the public parks are categorized as historic and considered cultural heritage. The challenge for planners is how to integrate new design and functionality to existing parks to improve their use while at the same time maintaining the historic and cultural relevance of these parks.

The users of the city center are composed of a dynamic mixed of residents, visitors, tourist, and commuters who pass through the heart of the city daily. The provision of functional spaces means that green areas integrate elements that support diverse functions, that they engage people in different activities and at different times. It will require that programs are designed from a human-centered perspective providing something for each age group from the perspective of well-being.

An action plan to invigorate the historic parks should be easily accessible, visible and attractive enough to

invite visitors, residents, travelers, students, and all city center users into the experience of a greener center. For this reason, strategies need to be seen a part of larger frame, a network considering access to green areas supported by a system of passive mobility fully accessible in, out and around every green space.



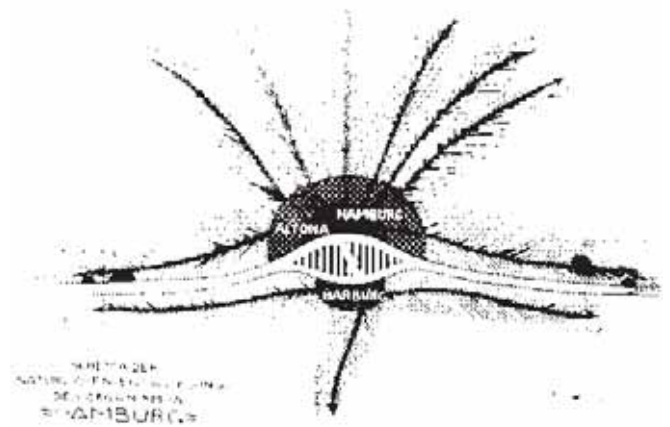
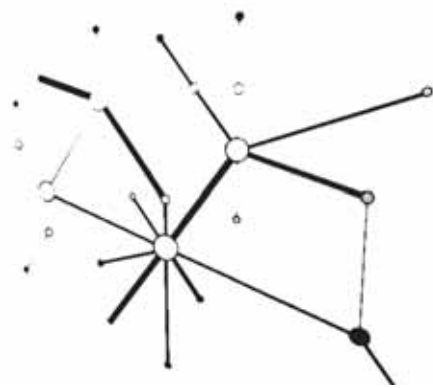
Objective 02: TO ANALYZE THE SPATIAL QUALITIES AND FUNCTIONALITY OF GREEN AREAS

ACTION 2.5 – The Urban ExperienceSCALE-UP TURKU'S GREEN CAPITAL
A CITY CENTER-WIDE NETWORK OF GREEN SPACES

A network of green spaces at eye level and above combined with a system of green streets and sidewalks provides connectivity and will contribute scale-up resources and increase attractiveness.

Green access needs to be part of a larger network. That is, a network that is broad enough, dynamic enough and composed of nodes and pockets of green-intersecting even at the heart of the busiest areas of the city center.

The diagram in the middle shows Hamburg's green network and 'Open Space Interconnecting System' (Behörde für Stadtentwicklung und Umwelt, 2010) as a system of spaces radiating from the city center. In this network, green and open spaces create a structure to link green areas within the city and beyond into the countryside. Below, the linear axis of in Turku that connects a series of green spaces could consider a broader distribution of green areas for districts not directly located along the River Aura axis.



Objective 03: INVESTIGATE THE ROLE OF ACTORS STRENGTHENING THE CITY IDENTITY

ACTION 3.1 – The Role of Actors

A "CITIZEN'S BUDGET" FOR TURKU

Identify the wide range of citizens including all groups of society to enhance and strengthen the community through urban green initiatives at the neighborhood level. Cities are looking into a more intelligent activation of different groups of society as an essential part of a long-term development strategy. That is; for example, the case of the city of Ghent and its tradition of citizen participation. Ghent has created what is called, a "Citizen's budget: co creation in practice" An initiative that aims to call upon the local community to contribute to the achievement of the city strategic vision.

Similarly, Turku should examine ways for how to develop a citizen-guided co-creation initiative for the city center to stimulate the participation of the local community in the scale-up of green areas. With the assistance of the local residents, the programming of functions for some of the parks can be designed, supported and executed by children and youngsters as well as by other groups.

Authorities can benefit from co-creation by developing new capacities for listening to citizens and learning what they have to offer. Empowering citizens could also lead to urban innovation and the reimagining of the city in new and unexpected ways.

Turku should consider ways for how to build new alliances with stakeholders and explore in more detail multi-participatory processes, listening to key needs from all members of society. Consider the long-term effects of co-creation in order to transcend public and private biases and to unite city and citizens inviting participation and building a more vibrant city together with citizens.



Objective 03: INVESTIGATE THE ROLE OF ACTORS STRENGTHENING THE CITY IDENTITY

ACTION 3.2 – The Role of Actors

PARTNERSHIPS AND CO-CREATION FOR MORE ACCESS TO GREEN

Partnerships can help build public-private cooperation addressing externalities and developing win-to-win schemes with a full consideration for the importance of adding quality to the urban green landscape.

In the city centers, there is a tendency towards the privatization of the public spaces. That is noticeable in some of the areas of the Vanha Suurtori where restaurants set their tables and chairs over green areas of the River banks. Partnerships could help support access to green spaces working together with businesses and private owners local authorities helping businesses to grow while at the same time promoting community responsibility.

Along the Aurakatu street, there are a number of buildings with lots of unused spaces in between. These areas could acquire new functions as biodiversity *hotpots* with green and blue functions to support active sidewalks and more vibrant street life adding opportunities for startups and small businesses to test new ideas creating higher community engagement at the CBD areas.



Objective 04: INTEGRATE FUTURES RESEARCH METHODS IN URBAN PLANNING

ACTION 4.1 – Greening Futures

A WALKABLE CITY CENTER

A major trend in urban mobility is the growing attraction towards walking and cycling as a preferred means of transportation. Flexible mobility is the key.

Turku City Center Vision 2050 has as main objective to create an attractive center that is easy to move within. The Vision plan is then to tackle urban mobility challenges through a system of shared space and bicycle networks

When building attractiveness, consideration needs to be given to functionality of design that should work in conjunction with mobility grids linking a network of green areas with non-motorized pedestrian and bicycle networks to allow all visitors to the center to experience the city's attractive recreational opportunities by foot.



Tulevaisuuden liikennejärjestelmä

Ydinkeskusta rauhoitetaan autoliikenteeltä. Keskuksen liikenne perustuu kehäkatuun, josta on pääsy keskitettyihin itä- ja länsipuolen pysäköintialueisiin. Joukkoliikennejärjestelmä uusitaan siten, että paine Kauppatorilta poistuu ja ydinalueella toimii sähkökäyttöiset robottibussijärjestelmä.

Kevyen liikenteen renessanssi

Liikennettä suunnitellaan kävely ja pyöräily edellä. Uusi laajennettu ydin on kävelykeskusta, ja osa keskustan kaduista muutetaan shared space-malliseksi hybridikaduksi. Ydin on helposti saavutettava ja sen helppo sisäinen liikenne laajentaa keskustamaista rakennetta joen varsille.

Kestävä keskusta

Kannustaminen rakennuskohtaiseen energiantuotantoon. Vähäpäästöisten liikennemuotojen tukeminen. Kiertotalouden periaatteiden soveltaminen kaupungin uusien alueiden suunnittelussa ja olemassa olevien kortteleiden muutostöissä.

Saavutettava tiivis keskusta

to enhance urban vibrancy.

Objective 04: INTEGRATE FUTURES RESEARCH METHODS IN URBAN PLANNING

ACTION 4.2 – Greening Futures

CLIMATE CHANGE: THE NEED FOR MORE NATURE IN THE CITY

As a part of implementing city's strategy of being carbon neutral by 2029, Turku should emphasize and increase its carbon sinks. Increase action to help meet Turku's ambitious targets should extend to the increase of the amount of trees and urban vegetation in the city center and beyond.



NEXT STEPS

HISTORIC TURKU: A TACTICAL INTERVENTION AT THE HEART OF TURKU OLD TOWN

Our project's next steps move on to formulate pathways to improve the urban experience and address bottlenecks at key areas with potential to become urban magnets.

A plan entails an urban revitalization of the Old Town (Suurtori) to consolidate Turku's most important sites and parks, the Old Market Square, Turku Cathedral Square and adjacent parks into an more dynamic and integrated space, with potential to create the highest impact on city and community.

By taking the Old Market Square as a tactical site, a green intervention will showcase Turku's tangible and intangible assets with the biggest potential for impact through a brand new concept of an integrated system of green spaces. The concept aims to connect and strengthen core urban identities to create the largest societal impact with benefits to both city and community.

From the perspective of impact, we observed that the Old Market Square/Cathedral Square present a big window of opportunity mainly due to its relevant location, significance of the site, large pedestrian traffic passing through

it daily and overall use. Our idea is to develop a strategy for the tactical intervention to reinvigorate and consolidate the Old Market Square and the Turku's Cathedral Square through an integrated system of green and open spaces at Turku's landmark and most important historical site in the heart of the city.

The plan will consist of a clear idea how to support the multi-functionality of the square in terms of its specific qualities and importance. Consideration is to be given to:

1. The educational and "learning" aspect and how they are represented and integrated into the design proposal based on current trend and in how learning is taking more and more a central role in society
2. An urban site analysis of the Suurtori and also a broader study of its context and integration into the city center
3. An urban study to look into the challenges like: a) building working inwards; b) lack of functionality; c) wide spaces; d) parks working as green disconnected islands; and c) people stock of 35K student passing by the site daily.

FINAL REMARKS

OUR EXPERIENCE OF LIFE ON EARTH IS SIGNIFICANTLY SHAPED BY OUR NATURAL ENVIRONMENT. TODAY MORE THAN EVER, PURSUING ANY POSSIBLE MEAN FOR INCREASING ACTIONS THAT ENHANCE THE SYMBIOSIS BETWEEN HUMANS, NATURE AND THE BUILT ENVIRONMENT IS PARAMOUNT

This project lays the foundation for the development and planning of green areas in support of the city center strategy for attractiveness and livability. Our research draws from an in-depth analysis of city-level initiatives implemented in Europe and abroad aimed to scale-up the value of green areas in mixed-use urban cores. Our investigation draws from a series of meetings with city officials, urban planners, architects, researchers and other stakeholders involved in the greening development plans of cities and communities.

Our approach aims to answer the question of: How do we improve the urban experience in Turku and build a more attractive, livable and greener city center that gives fair value to nature resources?

For one thing, human existence is provided by its supporting systems and subsystems. Our lungs and respiratory system in particular, needs the support from its infrastructure of small veins, arteries and capillaries for us to breathe. When we look at our urban environment from an ecosystem perspective, we can observe that green areas, large and small, are in essence, the lungs and life-supporting mechanism of any city. This understanding applied to the futures studies framework we have used bring us to elaborate further on two key trends:

1. **Trend-1: Humanization.** *Perhaps the most important trend impacting city centers currently is growing concern for well-being and the need for human-centeredness of the living environment. Principle: Use all possible means to make green areas ubiquitous and an essential part of the human experience*

2. **Trend-2: Localization.** *The immediate physical space and using local resources for emphasizing the uniqueness and ecological uniqueness of a given area. Principle: integrate a full range of local variants of green. In the Turku case, the vast nature of its archipelago (trees, rocks, plants etc.) is vast source of access to nature elements.*

Ultimately, our journey has led us to the conclusion that creating an attractive urban environment is today more than ever, a highly complex task. Given futures prospects on the new demands for public space coupled with contrasting views on the equal distribution, access, and utilization of the areas of the commons; pursuing any possible means of increasing progress towards more and better access to green space is paramount.

This project is a contribution towards innovative urban planning of green spaces and public space. The project addresses key aspects hindering the implementation of more cohesive planning of green spaces and it emphasizes the importance of design-oriented processes that can help optimize the current state of green development of Turku's city center. The project concludes with a list of actions and recommendations being formulated in the hope that something much larger than what we see today develops. That means, a more design-centric approach, better access to the experience of green space, more biodiversity, more children playing in the streets and more reasons to invite visitors and residents to experience urban life assisted by nature. Simply put, more *life* at the heart of the city.

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