

THE RIGHT STAD OF MIND



A visionplan for a
restorative neighbourhood
in 'Het Eilandje', Antwerp

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PREFACE

Before you lies my master thesis 'The Right Stad of Mind – creating a restorative neighbourhood in Antwerp'. It has been written as the last phase of the master program 'Sustainable Urban Design' at the department of Architecture and Built Environment at Lund University. I wrote this thesis from the 16th of January until the 31st of May 2023.

The reason why I wanted to write this thesis about mental health in the cities is because as an urban designer you want to create spaces and places where people feel as comfortable as possible, physically as well as mentally.

For me, the city is not the first place that comes to my mind when I think about restoring mental health. I grew up in a rural area and whenever I visited a city it brought some stress with it. Lots of people, traffic, noise, heat and so on. Still there are more and more people that move to cities and I couldn't imagine I was the only one having a stressful experience of visiting cities. This is why I decided to dive into the subject of restoring mental health with urban design and look into the opportunities that we as urban designers can create to create spaces for people where they feel in their right state of mind.

The location that I chose as my design site was a personal choice. As a grew up in a rural area in the south of the Netherlands, the city of Antwerp has always been the closest 'big' city to my hometown. I have a lot of memories visiting this city, some positive, some negative. Because of this reason I chose a neighbourhood in the city of Antwerp for this thesis.

In this preface I would like take the opportunity to thank my supervisor Teresa Arana Aristi for guiding me so well through this thesis process. It has been a pleasure to work with you and I am thankful for the interesting discussions that we had during the past months.

Lastly, I want to thank all my fellow students, friends and family to support me during the past two years of the master program. Without this support, this thesis would never have come about.

Martine Mahu
Lund, May 2023



ABSTRACT

More and more people are moving to urban areas, but with this urban growth, there is also an increase in the urban population coping with mental health problems.

This thesis explores the relation between mental health and urban design. The site is the neighbourhood 't Eilandje in Antwerp, Belgium.

The following research questions are posed;

- Can urban design play a role to counteract the trend of increased mental health problems along with population growth in the cities?
- Can cities be designed in a way that provides people from developing mental health problems?
- Can cities be designed in a way that heals people that are affected by mental health problems?

Jenny Roe and Layla McCay wrote the book 'Restorative Cities' in the aftermath of the COVID-19 pandemic. They introduced the new concept 'Restorative Urbanism' and created a framework to put mental health in the city at the forefront of urban development and to create a restorative city. The framework for a restorative city consists of seven pillars; green, blue, neighbourly, active, playable, sensory and inclusive.

This framework was used throughout this thesis to analyse the design site as well as use it as well as use it as a guideline while designing the visionplan for a new restorative neighbourhood for 't Eilandje in Antwerp.

After analysing the site, it became clear that improvements could be made for every pillar of the restorative city framework. In particular the green pillar, since the overall green coverage of the neighbourhood of 't Eilandje is quite low. On the other hand, the neighbourhood scored well on the blue pillar, since it is surrounded by different types of water structures, but improvements can be made to intertwine the public realm with the current waters. Design implementations were made for every pillar.

To greenify the neighbourhood, a green fringe is created on the edges of the neighbourhood. Additionally, a green network was established consisting of green streetscapes, inner courtyards and parks.

The water was activated with different urban areas that interact with the docks. A riverfront tidal park was created and opportunities were taken to implement water activities such as canoeing.

To make the neighbourhood more neighbourly, an active spine was established that is surrounded by functions as shops, offices, schools and a market area. The spine aims to create a network of public spaces where people can build social connections.

To create a support system for inhabitants to have a more active lifestyle, the tramline is expanded throughout the whole neighbourhood. The main network is connected to a network of bike sharing stations and streetscapes provide a wide and comfortable space for cyclists and pedestrians.

In a lot of cases the active city and the playable city merge. Functions such as sports fields and swimming pools are added to the neighbourhood.

To give an example of a sensory implementation, a community garden is situated just outside of the building blocks. In these gardens all senses can be stimulated with different colours, textures, smells and even taste.

The different implementations lead to a restorative environment within the neighbourhood of 't Eilandje and brings Antwerp a step closer to a 'Right Stad of Mind'.

There is a myth, sometimes widespread, that a person need only do inner work, in order to be alive like this; that a man is entirely responsible for his own problems; and that to cure himself, he need only change himself ...

The fact is, a person is so far formed by his surroundings, that his state of harmony depends entirely on his harmony with his surroundings

– Christopher Alexander et al., The Timeless Way of Building

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GLOBAL FACTS ON MENTAL HEALTH*

15% of the world's population is affected by mental health problems

12.000.000.000 productive workdays per year that are lost due to depression and anxiety

Anxiety is the most common mental illness in the world

Mental illnesses affect more females than males



Costing the global economy
\$1.000.000.000.000

80-90% of people living with depression in low-and-middle income countries are not diagnosed or treated

In the first year of the COVID-19 pandemic, the global prevalence of anxiety and depression increased by

25%

Compared to rural living, urban living is associated with increases in the following mental health problems:

39% Increase in mood disorders

21% Increase in anxiety disorders

200% increase in risk of schizophrenia

INTRODUCTION

70% of the world population will live in cities in 2050 (The World Bank, 2023). With this rapid population growth, there is also an increase of the amount of people that are living in urban areas and coping with mental health problems (World Health Organization, 2021). On page 8 there are some global facts shown that relate to mental health in urban areas.

Some numbers that stand out are for example the percentage of people (80%-90%) that live in low-and-middle income countries and cope with depression without being treated or diagnosed. Or the amount of workdays that are lost because of mental health problems, which cost the global economy around one trillion dollars.

Mental health problems are therefore a global problem and developing them relates to the environment we live in. (National Counselling Society, 2019)

This master thesis explores the relationship between mental health and the city. The main questions in this thesis are;

- Can urban design play a role to counteract the trend of increased mental health problems that comes with population growth in the cities?
- Can cities be designed in a way that prevents people from developing mental health problems?
- Can cities be designed in a way that heals people that are affected by mental health problems?

* sources can be found on page 134

WHAT IS MENTAL HEALTH?

“ *Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community.*

It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships and shape the world we live in.

– World Health Organisation (WHO), 2022

“ *Mental health includes our emotional, psychological, and social well-being.*

It affects how we think, feel, and act.

It also helps determine how we handle stress, relate to others, and make choices.

Mental health is important at every stage of life, from childhood and adolescence through adult-hood.

– Centres for Disease Control and Prevention, 2023

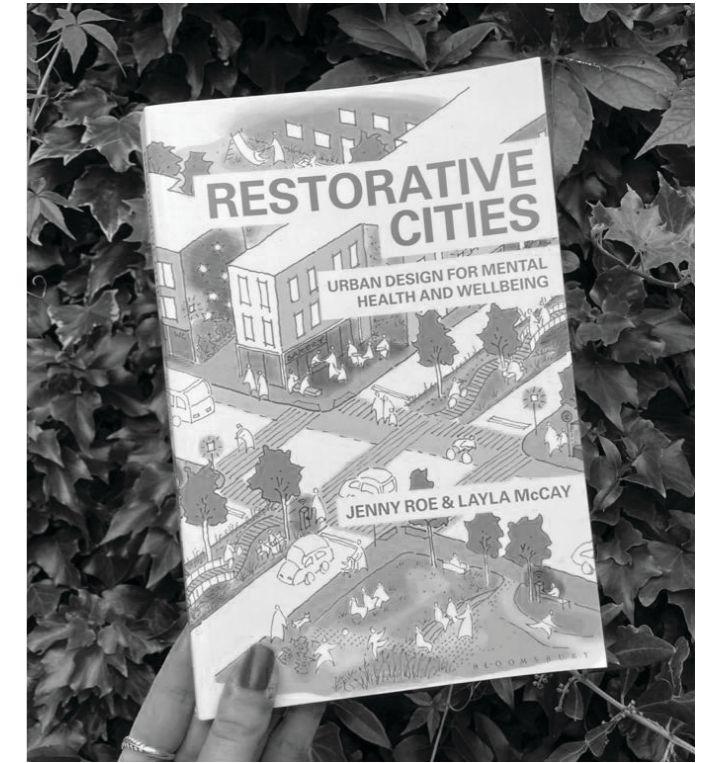
RESTORATIVE URBANISM

Jenny Roe and Layla Mccay published their book 'Restorative Cities' in 2021, in the aftermath of COVID19. This book manifests the importance of including mental health in city development and introduces the new concept of 'restorative urbanism'.

Restorative urbanism places mental health, wellness and quality of life at the forefront of city planning and urban design.

It builds as a concept upon the theory of 'restorative environments' – a theory that shows how certain environments promote the recovery from mental fatigue, depression, stress and anxiety. A theory well-known within the environmental psychology. Roe and Mccay translated this theory into a new city typology 'The Restorative City' and came up with a framework to help urban planners to include restorative environments into their city design.

Roe and Mccay based their theories and ideas within this framework on research from a variety of sciences (psychology, public health, geography, anthropology, urban planning). Their research and strategy for restorative urbanism forms the most important source of the theoretical framework in this thesis.



**RESTORATIVE
URBANISM**

THE FRAMEWORK

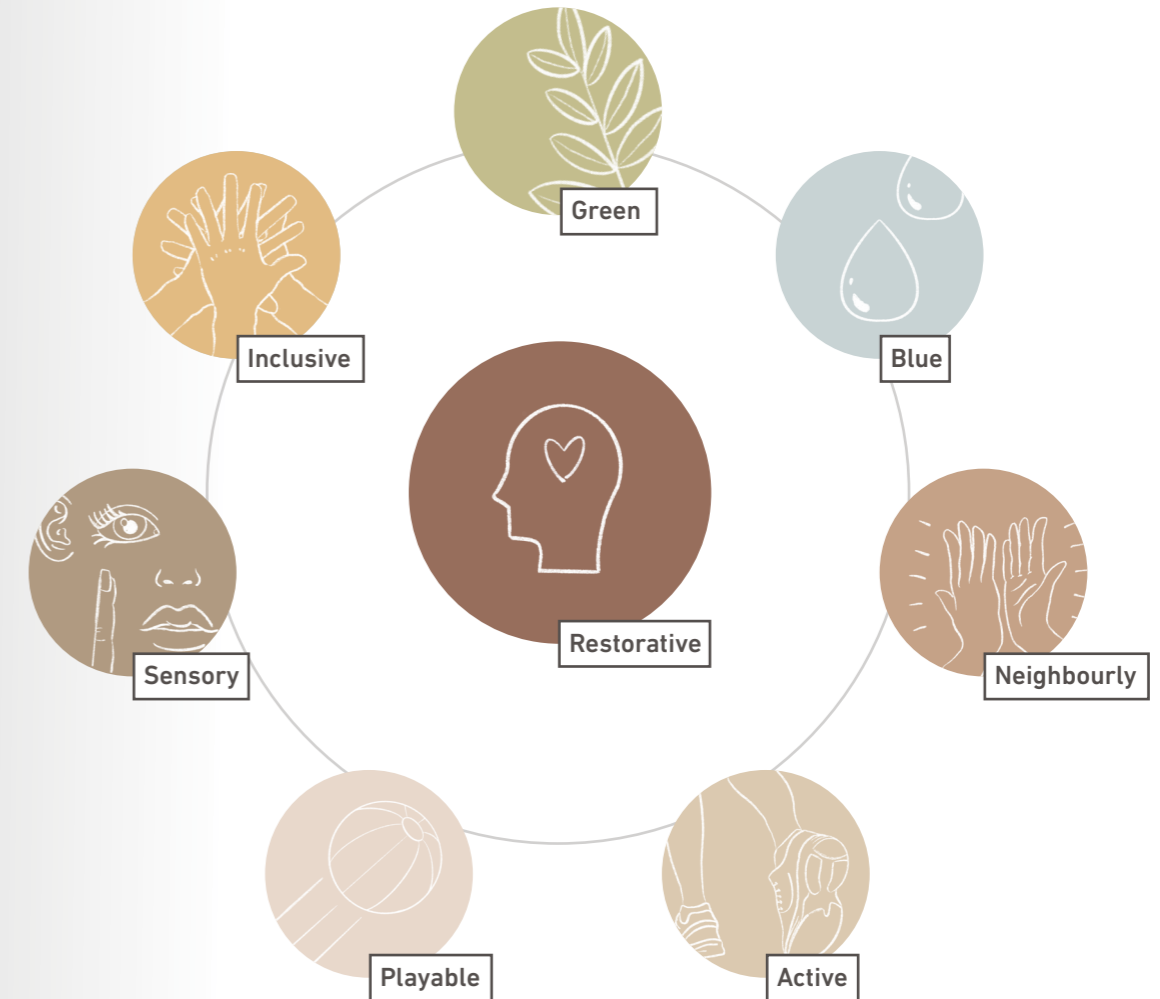
THE FRAMEWORK - RESTORATIVE CITY

In their book, Roe and McCay created a framework for 'The Restorative City'. This framework consists of seven pillars and form a guideline for the stakeholders in urban development to take mental health into account with every decision that is made.

The seven pillars of the framework are examples of different city typologies. A restorative city is therefore a combination of seven different city typologies; green, blue, neighbourly, active, playable, sensory and inclusive.

In this chapter of the thesis this complete framework is explained thoroughly. On page 15 and 16 a summary is given of every city typology and what it entails. Then a more detailed overview is given of every city typology where the effects on mental health are shown as well as some implementations and design principles. Every overview is concluded with an example.

THE FRAMEWORK - RESTORATIVE CITY



THE FRAMEWORK - RESTORATIVE CITY



The Green City

... is all about maximizing people's exposure to nature in urban places. This can be direct or indirect exposure. It is important that green places should be in a close proximity from homes, transits, schools and workplaces and scattered all over the public realm. Some examples are parks, gardens, trees and nature views. A greener city can reduce the symptom severity of serious mental health problems, such as ADHD. Indirectly the green city also invites people to be more active and have more social interactions which also benefits mental health.

(Roe & McCay, 2021)



The Blue City

... is all about maximizing people's exposure to different water elements in urban spaces. This can be direct or indirect exposure and includes views to the water as well as interacting with it. Some examples are rivers, coastlines, water fountains and climate adaptation systems. A blue city can help reduce stress, depression and improve people's mood. It also contributes to cooler and comfortable environments in the city which invites people to be more active and social.

(Roe & McCay, 2021)



The Neighbourly City

... is all about socializing and creating settings where social networks can be built. When people have regular interactions with others it reduces the risk of developing mental problems like depression, anxiety, stress, dementia and having suicidal thoughts. A social environment improves self-esteem, brain function and sense of belonging. A neighbourly city brings people together by providing social places, better walkability, accessibility and good infrastructure.

(Roe & McCay, 2021)



The Active City

... is all about provoking people to have physical exercise in their everyday urban lives. The active city takes care of people's physical health, but exercising also has mental benefits. It helps reducing depression, stress and anxiety and improves self-esteem, brain function and social cohesion. The active city focusses on providing good infrastructure, connections, and good facilities like public toilets, light, benches and drinking fountains.

(Roe & McCay, 2021)



The Playable City

... is all about providing opportunities for all-ages to have playful and creative interactions within the urban realm. Play promotes creativeness, imagination and self confidence. It reduces depression, regulates stress and provoke social interactions. Some elements in the playable city are interactive art installations, (intergenerational) playgrounds, parks and elements that promote affordance.

(Roe & McCay, 2021)



The Inclusive City

... is all about creating spaces to be accessible and useable for all and to express and celebrate diversity in the public realm. Exclusion has a negative effect on people's self-esteem, mood, dignity and belongingness. It can restrict certain groups to have the opportunity to access all the features the city has to offer. Co-creation should be the foundation of every inclusive urban design. It brings people together, reduces discrimination and prevents social isolation.

(Roe & McCay, 2021)



The Sensory City

... is all about maximizing people's wellbeing by intentionally stimulating our senses; smell, sight, taste, sound and touch. Pleasant smells associated with nature and food can evoke positive emotions. A visually interesting city (not monotonous) distracts people from having negative thoughts. Tastes can evoke positive cultural feelings and a sense of belonging. This also applies to gentle and natural sounds which can reduce stress and depression. Lastly, touch increases people's engagement with certain places. Urban gardening is an example of this and reduces anxiety, depression and increase mindfulness.

(Roe & McCay, 2021)



THE GREEN CITY

Benefits of green cities on mental health



Mental health protection
Children who grow up with the access to local-area green, are less likely to develop mental health problems later in life. (Engemann et al., 2019)



Cognitive health
Exposure to nature has a positive effect on cognitive health; it increases mental alertness, memory recall, productivity and the manageability of everyday tasks. It also reduces cognitive decline, including dementia. (Berman et al., 2012)



Improved stress regulation
Research has shown that nature-based therapy was as effective as cognitive behavioural therapy for treatment of stress disorders. (Karlsson et al., 2018)



Management of mental illnesses
Exposure to nature helps managing the symptoms of severe mental health problems (ADHD, PTSD) and reduces the risk of suicide. (Roe, 2016)



Emotional wellbeing
The exposure to residential greenery has protective effects on depression and mental wellbeing. (Alcock et al., 2013; Beyer et al., 2014)



Social wellbeing
Residential green space improves place attachment and place identity. It also increases social interaction and altruism. (de Vries et al., 2013)

Design principles

- General**
- Maximize the amount of green space
 - Maximize close proximity of green space to all homes
 - Maximize the accessibility of green space

- Integrate**
- Front porches and gardens
 - Green roofs and walls
 - Green streets
 - Connected walkable and bikeable corridors
 - Pocket parks
 - Larger urban parks
 - Accessible transport to nature
 - Courtyards with natural features

(Roe & McCay, 2021)

THE GREEN CITY

Facade gardens, Haarlem

Facade gardens are privately owned, vertical gardens that allow smaller streets to have natural drainage and a greener character. This example is a narrow street in the city of Haarlem. The people living in this street experienced floodings during heavy rain. Together with the municipality they took the initiative to greenify their street and planted a vertical garden against their facades. The municipality allowed them to take out some of the paving stones to give them a small space to start their gardens. These façade gardens have benefits such as improving the air quality, reduce heat stress, improve biodiversity, reduce noise in the streets and make the street more visually appealing and liveable.

(Mirte Slaats, 2023)





THE BLUE CITY

Benefits of blue cities on mental health



Social wellbeing

Physical access to water(fronts) opens opportunities for social connections to form. It also increases social trust and place belonging. (Roe et al., 2019)



Reduced heat stress

Reduced heat stress is associated with the reduced risk of anxiety, depression, agitation, anger and societal tension in extreme heat (Roe & McCay, 2021)



Mental health protection

Physical access to water(fronts) reduces depression, stress and improves mood. (Engemann et al., 2019)



Therapeutic benefits

Water has the effect of reducing symptom severity of mental health problems (Roe & McCay, 2021)

Design principles

General

- Maintain visibility to aquatic settings
- Maintain public access to aquatic settings
- Allow opportunities to walk/bike/socialize along waterways
- Engage in water activities

Integrate

- Safe waterplay for children within easy reach of home
- Attractive plantings and seating alongside water features
- Hybrid parks
- Climate adaption systems to cool the city down
- Water fountains to mitigate noise pollution
- Urban water walls to capture the cycle of water
- Riverside parks
- Flexible waterfront space to facilitate different activities

(Roe & McCay, 2021)

THE BLUE CITY

Promenade du Paillon, Nice

This urban park in Nice covers 12 hectares and is located right in the heart of the city. The park used to be a congested and neglected part of the city, dominated by an old bus station and a multi storey car park. These elements were demolished in 2011, and after a multi-year development the park turned into an oasis of green, open space with an impressive water feature; the Mirroir d'Eau (the mirror of water). This 3000 m² square is dotted with water jets that shoot water into the air. This water feature is very popular, especially with children and provides the residents of Nice with a place to cool down on a hot summer day.

(See Nice, 2021)



THE NEIGHBOURLY CITY



Benefits of neighbourly cities on mental health



Reduced loneliness

A neighbourly city reduces social isolation. With this comes the reduced risk of depression, anxiety and suicidal thoughts. (Hatcher & Stubbersfield, 2013; Roe & McCay, 2021)



Build social capital

A higher social capital increases social trust, self-esteem, confidence and empathy. It also contributes positively to place belonging. (Roe & McCay, 2021)



Resilience

A neighbourly city increases social, emotional and informational support. (Roe & McCay, 2021)



Mental health protection

A neighbourly city helps to protect against depression, anxiety, stress and dementia. It also reduces suicidal thoughts. (Roe & McCay, 2021)



Therapeutic benefits

A neighbourly city builds a support system to recover from mental health problems (Roe & McCay, 2021)

Design principles

General

- Design should be in human-scale and human-centred
- Neighbourhood participation should be part of planning
- Ensure good stewardship and maintenance to attract people to use places

Integrate

- Social infrastructure
- Adequate, available homes, co-located and/or easily accessible to social infrastructure
- Co-locate public social spaces with facilities as schools or religious buildings
- Create bumping places where people can meet
- Provide fine-grain, permeable facades
- Provide pet and animal amenities to promote social interaction
- Allow flexibility in the use of space

(Roe & McCay, 2021)

THE NEIGHBOURLY CITY

Jenks School District, Oklahoma

This school district in Oklahoma was a finalist of the 'Best Intergenerational Communities Award' in 2017. The school in Jenks provides different programs and activities for all ages and abilities. It was developed by a partnership between the school district and a nursing home 'the Grace Living Center' that was located next to the school. These two organisations now share a playground, two classrooms, an ice cream parlor and a common gathering area. The elderly of the nursing home are also involved with various activities with the children throughout the day, such as reading and field trips.

(Patrick Sisson, 2018)





THE ACTIVE CITY

Benefits of active cities on mental health



Mental wellbeing

Being active reduces depression and stress and it improves mood and sleep. (Berman et al., 2012; Powers et al., 2015)



Social wellbeing

Mobility in a city is social activity, it increases social interactions, and social cohesion. (Roe & McCay, 2021)



Social independence

Particularly for youth. (Ahmadi & Taniguchi, 2007; van Vliet, 1983)



Management of mental illnesses

The active city helps managing mental health problems, such as ADHD. (Faber Taylor & Kuo, 2009)



Cognitive health

Being active improves attentional capacity and memory functioning. (Roe & McCay, 2021)



Increased living experience of the city

Using the city in an active way, improves spatial cognition, wayfinding and the understanding of the city. (Roe & McCay, 2021)

Design principles

General

- Prioritize street design for active transport
- Be creative about putting 'the active' in everydaylife (e.g. make an event of walking the stairs)

Integrate

- Different types of parks
- Connect parks and other public spaces
- Provide a mix of facilities within a 15 minute walk
- Provide mixed housing
- Provide multiple modes of transportation
- Provide good lighting and seating
- Make navigation intuitive (e.g. by distinctive landmarks)
- Foster bikesharing schemes
- Provide facilities for bikes, like air pumps all over the city

(Roe & McCay, 2021)

THE ACTIVE CITY

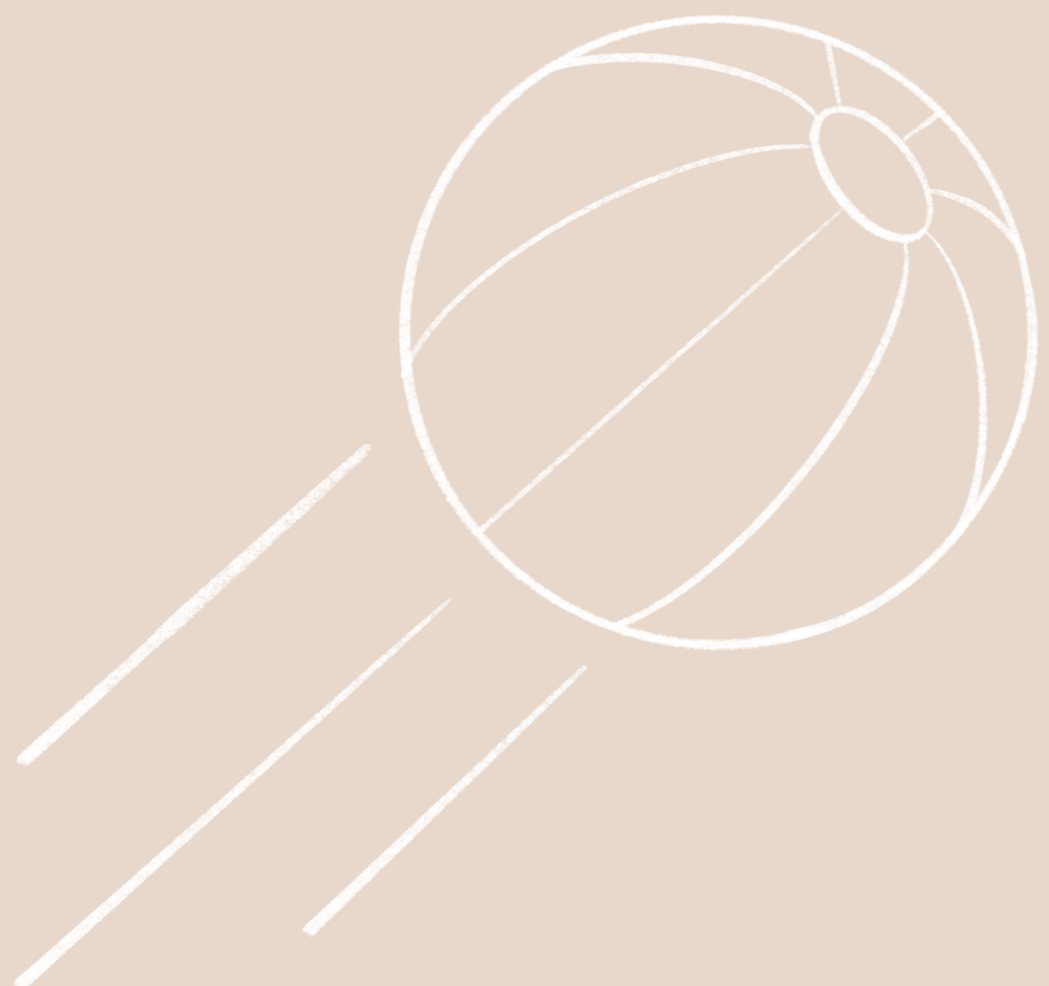
Bicycle passage Rijksmuseum, Amsterdam

This bike tunnel may be one of the most beautiful cycle lanes in the world. It is located in Amsterdam, right beneath the Rijksmuseum. Besides that this cycle lane is safe, comfortable and efficient it is mostly its attractiveness that persuade the people in the city to take their bike and follow this route. This is a good example of one of the design principles mentioned before; to make an 'experience' of everyday tasks, like commuting by bike. This bike lane through one of the most historical buildings of Amsterdam definitely makes cycling an experience.

(Urhahn, 2017)



THE PLAYABLE CITY



Benefits of playable cities on mental health



Social wellbeing

The playable city increases social interaction and social cohesion. (Roe & McCay, 2021)



Mental wellbeing

The playable city reduces depression and stress and improves mood. It also increase self-identity and self-efficacy and control. (Roe & McCay, 2021)



Resilience

The playable city helps coping with negative childhood experiences and challenging life situations. (Roe & McCay, 2021)



Cognitive health

The playable city increases mental alertness, problem solving, creativity, work/academic performance, curiosity and exploration. (Roe & McCay, 2021)

Design principles

General

- The playable city should be approached through an all-age lens

Integrate:

- Outdoor play facilities for all ages (e.g. playparks, table tennis, chess tables)
- Maximize informal nature play
- Design labyrinths, mazes and murals to engage curiosity
- Implement 'play streets' (temporary closure of streets to offer a place to play right outside of a child's home)
- Explore urban digital gaming
- Provide pop-up spaces for self-expression by artists
- Maximize flexible use of space (to support affordance)

(Roe & McCay, 2021)

THE PLAYABLE CITY

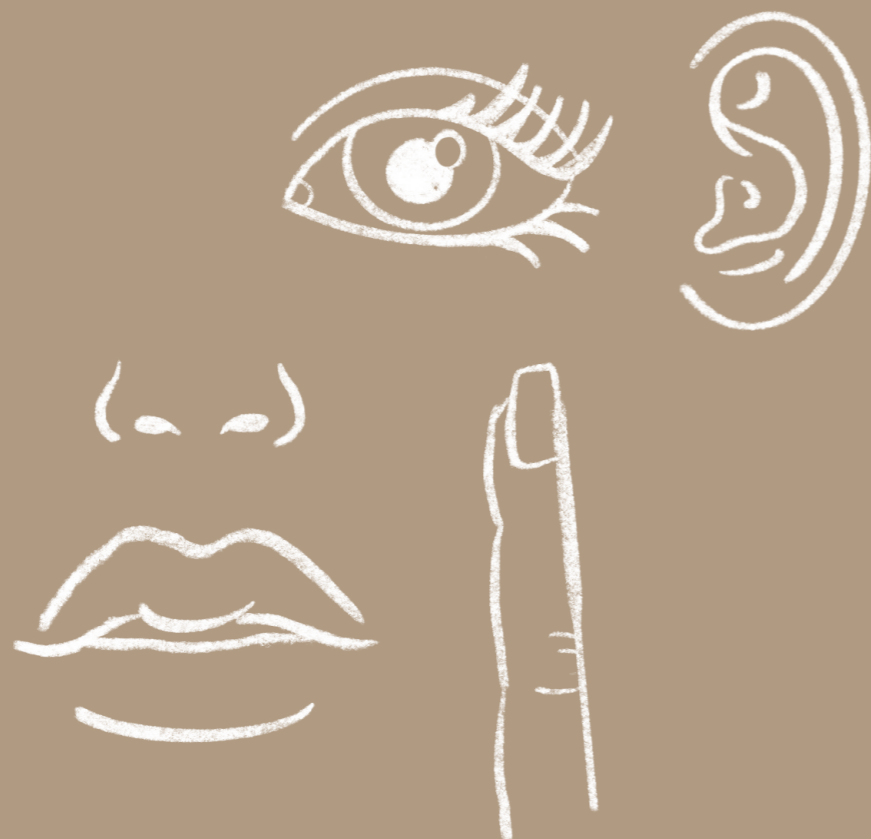
I wish this was ... by Candy Chang

In this urban art project, Candy Chang mixes urban planning with street art. I Wish This Was is an art project from 2010 where Candy Chang posted thousands of stickers on vacant buildings across New Orleans. The note on the sticker begins with 'I Wish this Was...' and passers-by could complete this sentence with their wishes and dreams for the neighbourhood. To this day this project is still popular as a way to start casual and playful conversations in the city.

(Candy Chang, 2010)



THE SENSORY CITY



Benefits of sensory cities on mental health



Trust and belongingness

Senses evoke feelings of familiarity, trust and belongingness. (Roe & McCay, 2021)



Feelings of wellbeing

Sensory input can evoke wellbeing, it reduces depression and having the feeling of dissonance and disconnection. (Roe & McCay, 2021)



Reduced distress and stigma

When commonly unpleasant noises, smells and others sensations are managed, it reduces stress and stigma. It also encourages the use of the place. (Roe & McCay, 2021)



Feelings of safety

Good lightning increases the perceived as well as the actual safety in public spaces. (Kaplan & Chalfin, 2021)



Reduced monotony

A visual diverse and engaging landscape reduces negative thoughts, stress, and behaviour that risk mental health. It improves wayfinding. (Ellard, 2017)

Design principles

Include sensory design

- Use nature-based sounds to create sonic refuges
- Use gentle sounds of homes, schools and places of worship to instill belongingness
- Position public spaces to take advantage of smells appropriate to the location - clean, natural, fresh and familiar
- Use symmetry, scale, proportion, order, unity, balance, rhythm, contrast, harmony and colour to increase aesthetic pleasantness, wayfinding and local character
- Use light to increase the use of the city and improve safety
- Use textural variation
- Provide space for food markets and cultural festivities that involve food

Reduce unpleasant sensations

- Reduce traffic noise by reducing traffic locations, speed, density and noise transmissions (e.g. speed bumps) and by using quiet-pavement road-surfacing technology
- Reduce traffic density by investing in pedestrian and cycling infrastructure and green public transport to reduce unpleasant sounds, smells and sights.
- Mask traffic noise with barrier walls, berms, trees, sound-masking facades and water

(Roe & McCay, 2021)

THE SENSORY CITY

Paley Park, New York City

Paley Park is a popular pocket park in the middle of the bustling city of New York City. It was opened in 1967 and designed between high rise buildings on a privately owned plot. The park is slightly elevated to give a sense of privacy and prevent noise from coming directly into the space. The walls are covered with dense ivy and together with the tree canopy they function as a sound barrier. The waterfall in the back masks the sounds of the bustling city and gives the feeling of being in an oasis right in the middle of the city.

(Project for Public Spaces, 2015)



THE INCLUSIVE CITY



Benefits of inclusive cities on mental health



Visibility

The inclusive city enhances the feelings of belonging and social capital when people's diversity is represented in the public realm. (Roe & McCay, 2021)



Accessibility

Designing for different abilities brings increased independence, autonomy, opportunities, and participation in the public realm. It reduces loneliness and isolation. (Roe & McCay, 2021)



Integration

The inclusive city reduces segregation and enhances self-esteem, dignity and equal access to protective factors for good mental health. (Roe & McCay, 2021)



Equity

The inclusive city provides equal access to housing, education, employment, culture and healthcare. (Roe & McCay, 2021)

Design principles

General

- Engage with the full-target community, involving current and future users

Integrate:

- Mixed use neighbourhoods that enable walkability
- Accessible pedestrian infrastructure
- Potential subdivisions in parks and other public places to encourage multiple groups of people to make use of the park
- Enhance wayfinding (e.g. landmarks and clear signage)
- Natural surveillance (e.g. good lighting, maintenance and bustling streets)
- Connectivity for all neighbourhoods to education, employment, local businesses, transport, culture, healthcare and restorative features
- Accessible public toilets for all
- Celebrate diversity throughout the city

THE INCLUSIVE CITY

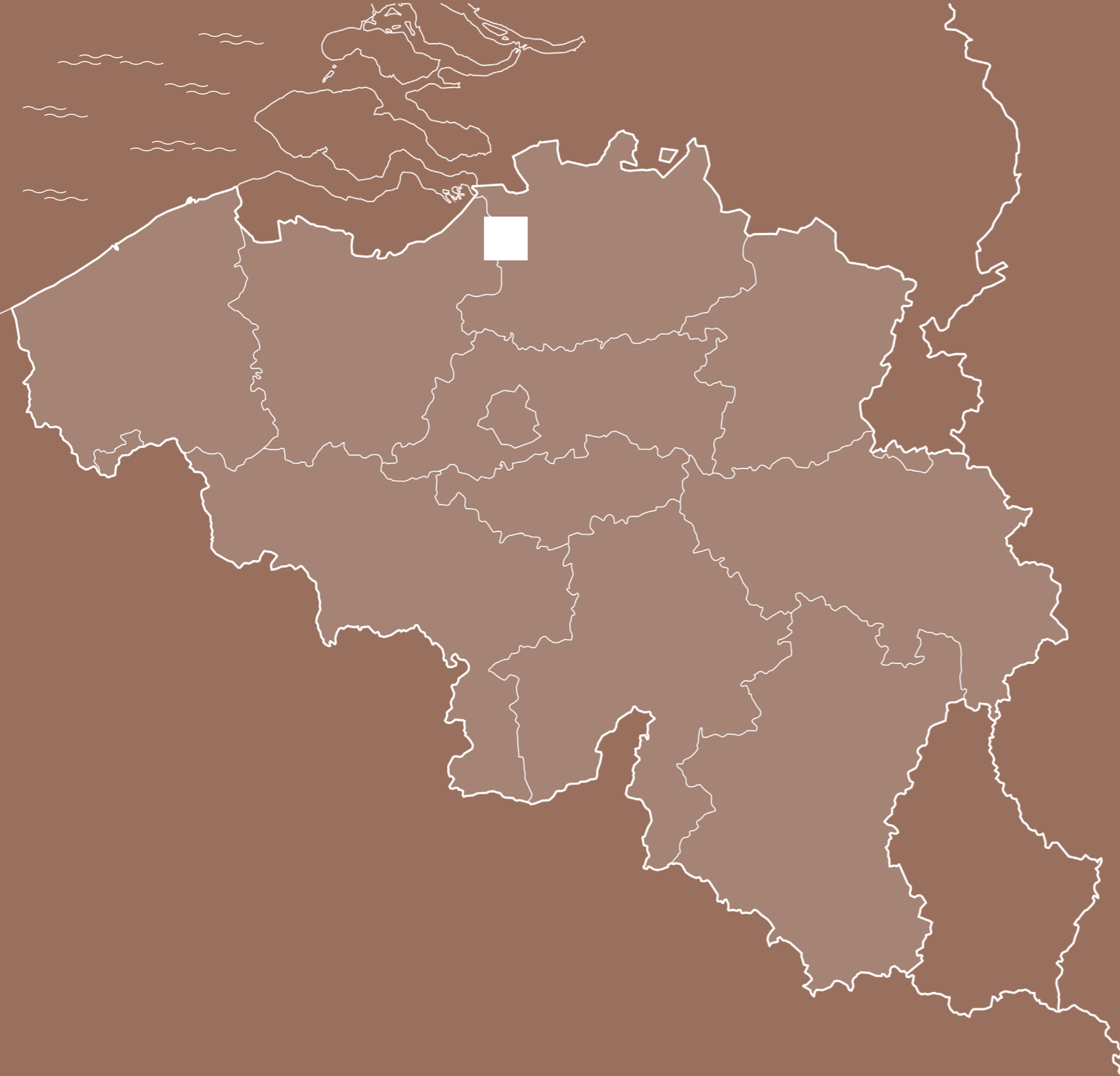
Gender equal city of Vienna

Vienna has the aim to include inclusiveness and gender equality in the public life of the city, and they are well on their way! The city has called their strategy to achieve this 'gender mainstreaming' and even set up a department for it to make sure gender mainstreaming is included in the decisions the city makes. The head of the department, Ursula Bauer, describes the strategy as a tool to achieve more gender equality in society based on equal structures, settings and conditions for both women and men. Some examples of this gender mainstreaming in public space are using illustrations of men with children, wide pavements for parents with strollers and making the queer community more visible by using same-sex couples in traffic lights.

(Noelle Illien, 2021)



THE SITE



In folklore stories the Dutch name for the city 'Antwerpen' relates back to the Dutch verb 'hand werpen', which literally translates to throwing hands. This story is about a giant living in the Scheldt and collecting toll from passing boatmen. When they didn't pay, the giant cut off the hands of the boatman and threw them into the river.

The giant was eventually killed by a young man called Silvius Brabo, who eventually cut off the giant's hands and threw them in the Scheldt. This story is honoured with a statue that stands prominently on the city's main market.

In reality there are a lot of different versions of the origin of the name Antwerpen, but to this day it is still not sure which one is true.

(Alles over Antwerpen, nd)



ANTWERP



THE CITY OF ANTWERP

The city of Antwerp is, with its' 530.000 inhabitants, the second biggest city of Belgium. It's the largest city in terms of surface area at 204.41 square kilometres. The density of the city is 2390 people per square kilometre. (Stad Antwerpen, n.d.) Antwerp is located close to the Dutch border in the north and although Belgium is a bilingual country, the main language is Dutch.

The city of Antwerp is well known for its historical character and its global port function. It has a rich history in which the river Scheldt plays a main role. The river functions as the city's main artery for centuries and was crucial for the city's social and economic life. From an early stage, the Scheldt shaped the identity of Antwerp as a harbour city and brought prosperity as well as loss to the city.

In the 15th and 16th centuries the city of Antwerp was at its' peak in terms of prosperity and trading. As one of the biggest global trading cities, Antwerp was well known for the trade in cloth, metal and spices. To this prosperity came an end when the Spaniards attacked Antwerp in 1576 and took over the city. The Dutch blocked the Scheldt to prevent ships from going to Antwerp and trade with the Spaniards. This historic event, referred to as 'the closing of the Scheldt' led to the city of Antwerp going into a recession.

The closing of the Scheldt lasted for a few centuries until 1792 when Napoleon invaded Antwerp. He turned the harbour of Antwerp from a trade port into a war port and started to build it in a way that is still recognisable these days. From this point on the port of Antwerp started to regain its importance again. (De Geschiedenis van Antwerpen, Een Schets | Historiek, n.d.)

In 2023, Antwerp is the second biggest harbour of Europe. (Shipa Feight, 2021)

Antwerp & Mental health

The main focus of this thesis is to make a link between urban design and (improving) mental health. What is the situation in Antwerp in terms of mental health?

The city of Antwerp takes a health survey every three years. This survey is sent to random inhabitants and consists questions about general, physical and mental health.

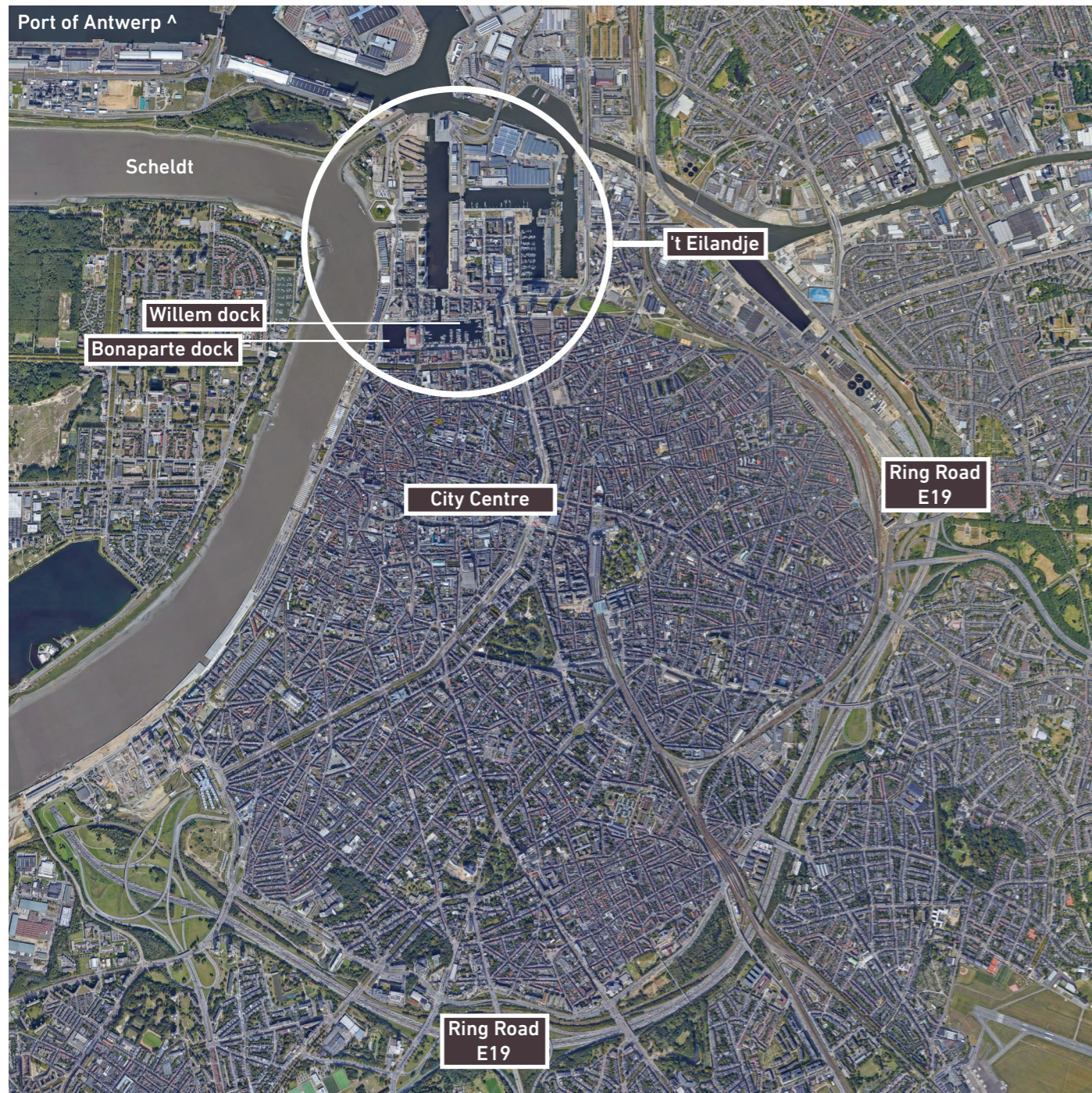
In 2019 the survey was sent to 8500 random inhabitants over the age of 16. Although the survey does not go into mental health a lot there were still some interesting results:

- 56,5% of the respondents experience stress in their everyday life.
- 37,5% of the respondents have trouble sleeping.
- 24,8% of the respondents have psychological problems.
- 49,3% of the respondents have sufficient exercise.

The fact that more than half of the respondents experience stress is interesting and a good starting point to try to change this by creating a restorative environment to reduce this number.

Next to this, the survey shows that more than half of the respondents don't have enough exercise. As we have seen before in the examples of the active city, it is important for your mental health to be physically active. Therefore opportunities should be exploited to create an environment that supports an active lifestyle.

(Stad Antwerpen, n.d.-a)



THE SITE - 'T EILANDJE

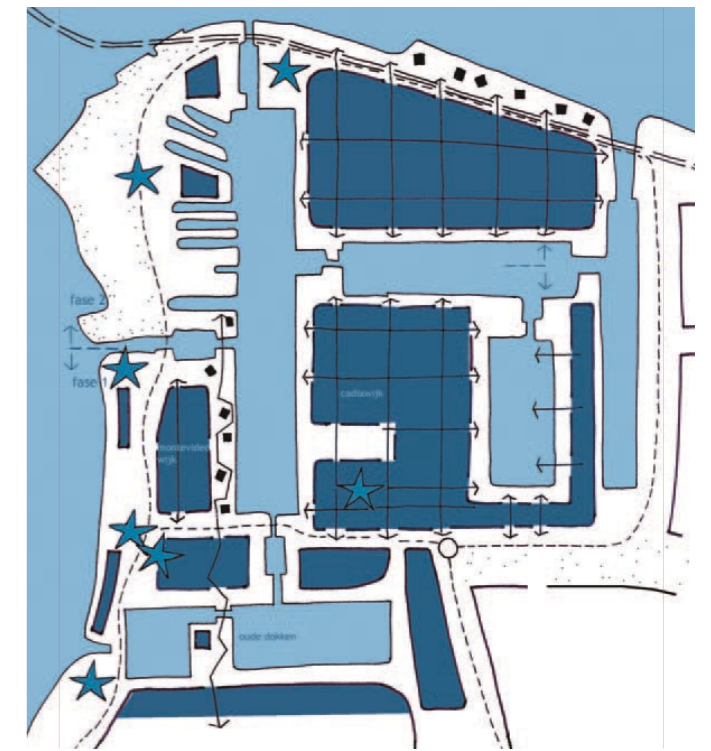
't Eilandje is an important site when talking about Antwerp becoming a global port. It's the oldest part of the historical port and it located between the city centre and the active port of Antwerp in the north. When Napoleon took over the city, he gave the command to dig out the first docks of the port and uses them as an important part of his naval base.

After the fall of Napoleon (1814), Willem I, the king of the Netherlands, uses the infrastructure to turn the port of Antwerp back into a vibrant city port and during the 19th century more docks are excavated. The names of the docks refer back to important events, there is a Bonaparte dock and a Willem dock.

Antwerp became more important as a port city during the 20th century. The ships became bigger and the loading and unloading of the boats needed to be done faster. This meant that newer, bigger docks had to be developed north of the original port. The bustling port life moved to the new docks as well and left the area of 'Het Eilandje' behind as a deserted and desolated space between the new port area. (Antwerpen voor beginners, n.d.)

In the end of the 20th century the city and its' citizens became to see the potential of 'Het Eilandje' as becoming a part of the city again. The land however was in ownership of the port, which made it difficult to make plans. However in the end of the 90's the plans became more and more reality and in 2004 a masterplan was made by Buro 5 Maastricht.

The total scope of the masterplan is around 172 hectares. The aim of the masterplan is to revitalize the neighbourhood and bring in a mix of urban living, working and leisure while preserving the rich maritime history of the site. Next to this the masterplan also emphasizes the role of Het Eilandje being a link between the port and the city and how to connect these different areas to each other. (Het Eilandje - Stadsvernieuwing Op Weg Naar Een Bruisende Stadswijk Aan Het Water, n.d.)

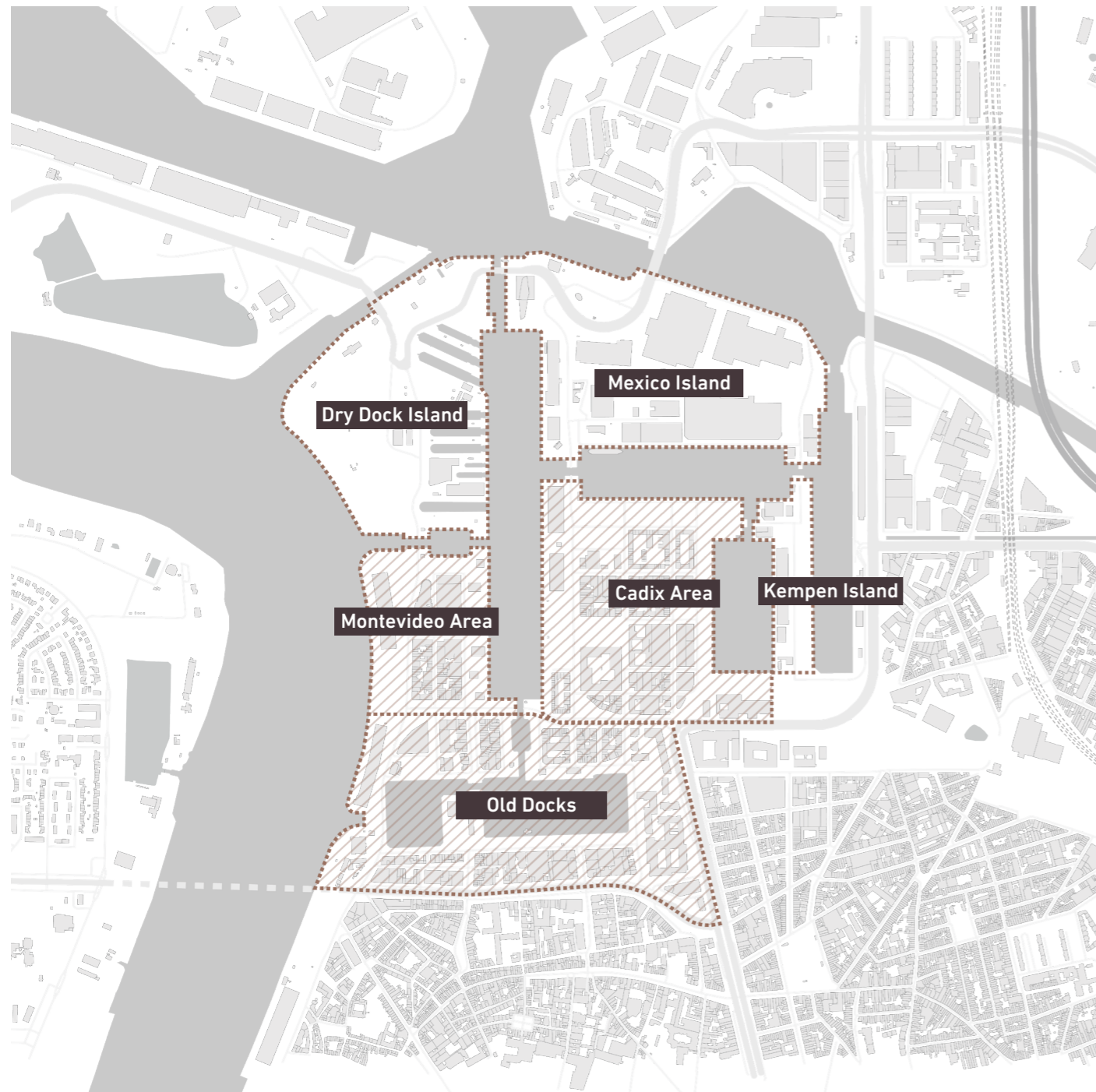


Masterplan 't Eilandje (Stad Antwerpen & Burp 5 Maastricht, 2004)

Some main key principles that are important in the masterplan of Buro 5 Maastricht;

- Het Eilandje functions as the link between the port and the city centre
- Het Eilandje is a part of the city that should be for everyone
- Existing spatial principles are the starting point for new developments
- The masterplan is dynamic and leaves the opportunity to be flexible in space and time

(Stad Antwerpen & Burp 5 Maastricht, 2004)



THE SITE - 'T EILANDJE

On the map on page 54 you can see that 't Eilandje consists of five parts. The five parts were included in the masterplan of 2004 and also form the scope of this thesis. Development of 't Eilandje started in 2006 and now, nearly twenty years later, the first phase is close to being finished. The 'Old Docks', 'Montevideo Area' and 'Cadix Area' are part of the first phase.

The main focus of this thesis is on the areas that are not developed yet; 'Dry Dock Island', 'Mexico Island' and 'Kempen Island'. Because there are opportunities for improvements in the areas that are already developed the scope is enlarged to the complete neighbourhood.

To give examples of the atmosphere and the current situation of the site, the next pages consist of a series of photos that were made of 't Eilandje.

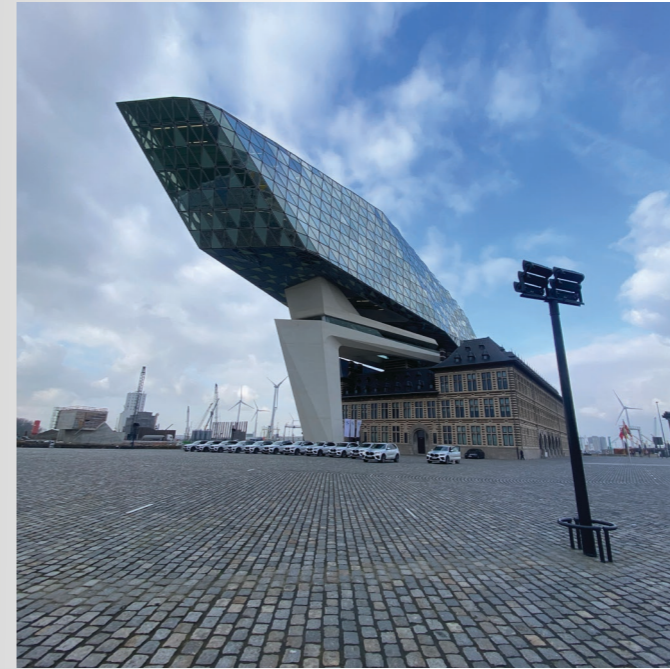
'T EILANDJE IN PICTURES



'T EILANDJE IN PICTURES



'T EILANDJE IN PICTURES



'T EILANDJE IN PICTURES



'T EILANDJE IN PICTURES



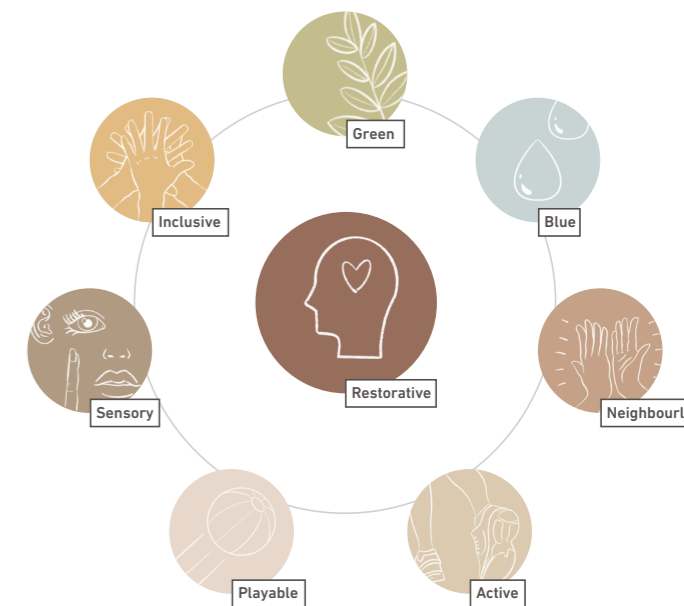
ANALYSIS



'T EILANDJE & THE FRAMEWORK

To get an idea of how restorative the neighbourhood of 't Eilandje is at the moment, the framework of the Restorative City was projected on the site.

In the following chapter a short analysis is described for every pillar of the framework. The two main questions that were asked during the analysis were 'What is the current state of the neighbourhood in terms of the specific pillar of the Restorative City framework?' and 'What are the opportunities to make it better?'





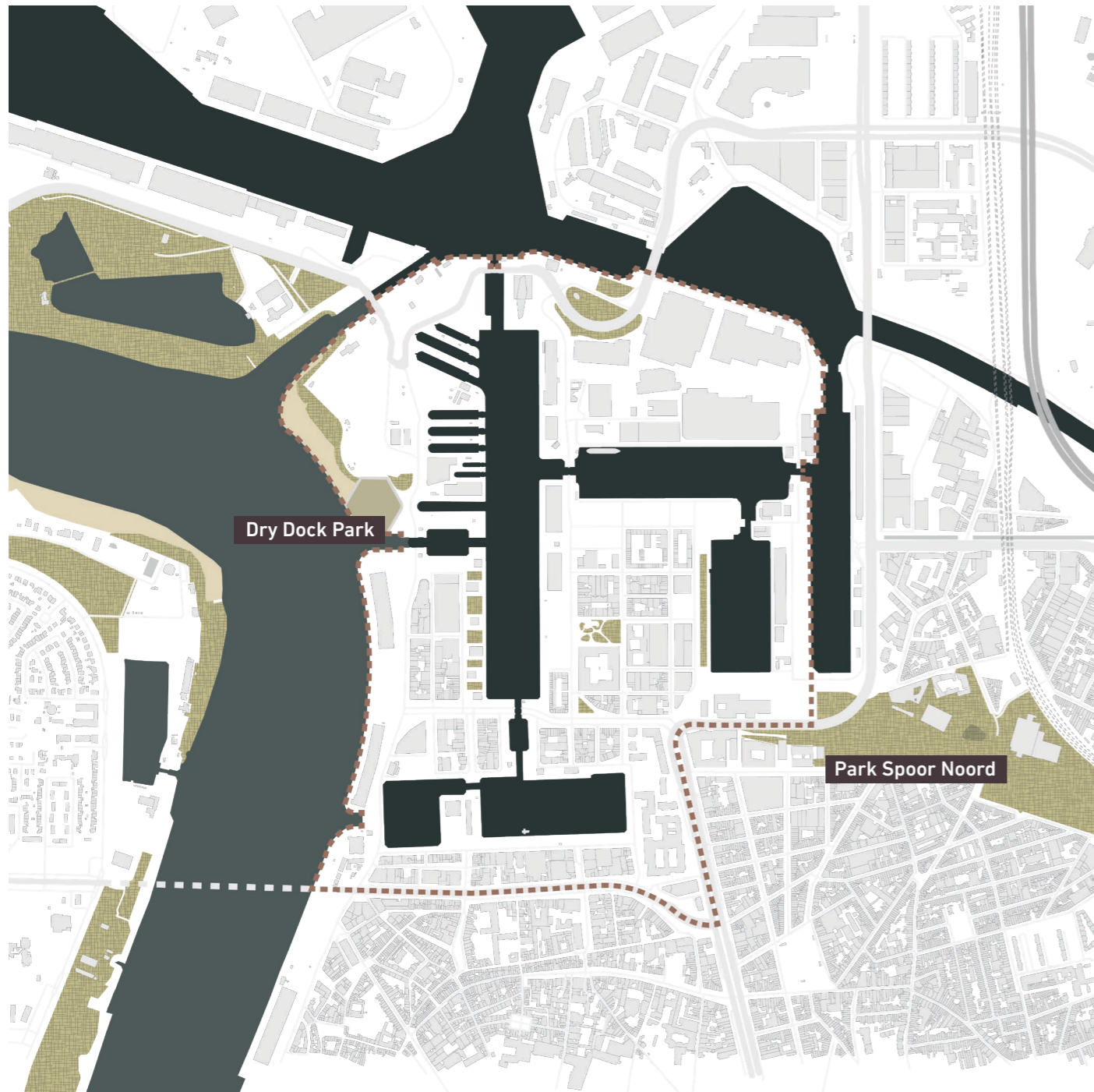
THE GREEN CITY

Globally, Antwerp can be seen as quite a green city. But as can be seen on the map on page 70, most of the green space is located outside of the city centre. The centre of the city has some green patches here and there, but most of the city centre is hard surfaced and grey.

Antwerp has a total surface area of 3856.6 hectares. Only 5.8% of this surface area is useable green space. This means that opportunities exist to create greener neighbourhoods and streets within new developments. These new developments should be created in a way that connects the city centre to the green structures surrounding it. This creates corridors and connections which is beneficial for biodiversity as well as water retainment.

Having too many hard surfaced, such as the city centre of Antwerp, comes with the problem of the heat island effect which can cause stress and drops in mood and mental ability.
("Heat Islands" May Be Causing Mental Health Issues, n.d.)

A greener Antwerp will reduce the heat island effect and will therefore become a more restorative city.



THE GREEN CITY

Zoomed in to the site, the two main parks in the site are recognisable. The hexagonal Dry Dock Park is located directly on the Dry Dock Island and was opened in 2018. With the development of this park, a start has been made with the second phase of the 2004 masterplan.

On the other side of the neighbourhood, just outside of the site, Park Spoor Noord is located. This park is highly popular among the citizens and hosts of different functions such as sports, water features, bars and restaurants and of course a lot of green space.

Small green patches are scattered around the site, but overall the surface is sealed off with paving. The pictures on the left display some impressions of the site. The pictures were taken in the newly developed parts of the Montevideo area and the Dry Dock Park. They show that even in the newly developed parts there was no space designed for greenery.

To conclude the green analysis, 't Eilandje as well as the whole of the city centre are lacking green spaces. The existing parks are merely patches that exist on their own without any connections or corridors between them or connecting them to other green areas outside of the city centre. To create a restorative city, greenery is crucial.

Nature distracts is from having bad thoughts, in reduces heat stress and it gives you the feeling of 'being away'. Next to that, green spaces create opportunities for physical activity as well as social interaction. Therefore greenery should be implemented in the new neighbourhood development as much as possible. (Roe & McCay, 2021)



North Sea

Western Scheldt

Port Antwerp

Antwerp

Scheldt

THE BLUE CITY

People living in Antwerp are very proud to live so close to the water. The river Scheldt played a major role in the development of the city and connects the city to the Western Scheldt and eventually to the North Sea. It can be said that Antwerp is therefore connected to the whole world and has a very strong position as a city by the water.





THE BLUE CITY

On page 76 the different waters around the neighbourhood are highlighted and two different water structures can be recognised. The river Scheldt is situated west of the neighbourhood. The river is a natural waterbody and therefore has a more organic and natural character with tides and sandy riverfronts with views of passing ships.

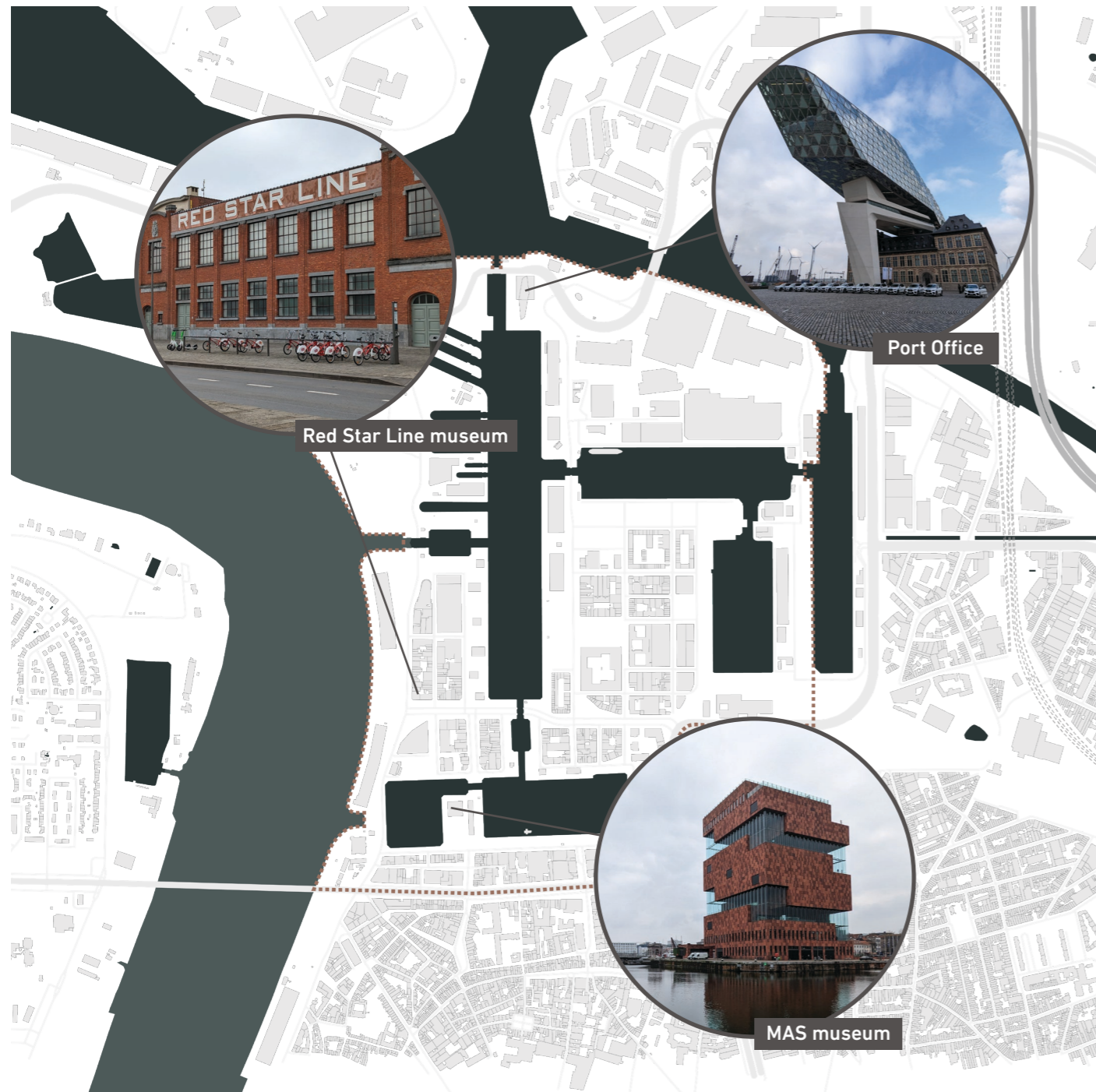
Docks can be found on the eastside of the neighbourhood. The waterstructure of the docks bring a completely different character in the neighbourhood opposed to the riverside. It's artificial and man-made with right-angled shapes. The water levels of the docks regulated by sluices, so the tides can't be experienced on this side of 't Eilandje.

Although the neighbourhood is surrounded by water, there are still opportunities to incorporate more blue in 't Eilandje. What is missing at the moment is an interaction between the neighbourhood and the different waterstructures. The top photo on the right shows the riverfront, which is abandoned and not accessible. The riverfront is currently not being used and is no part of the public realm.

This also applies to the docks. The bottom photo on the right shows the Bonaparte dock, the dock closest to the city centre. As can be seen it has an artificial character and it's not interacting with the public spaces around it.

For future development in 't Eilandje it is important that water plays a role in the public realm. To restore mental health, it's not only about the views to the waters, it's also about interacting with it and the fact that it's accessible improves mental well-being.





THE NEIGHBOURLY CITY

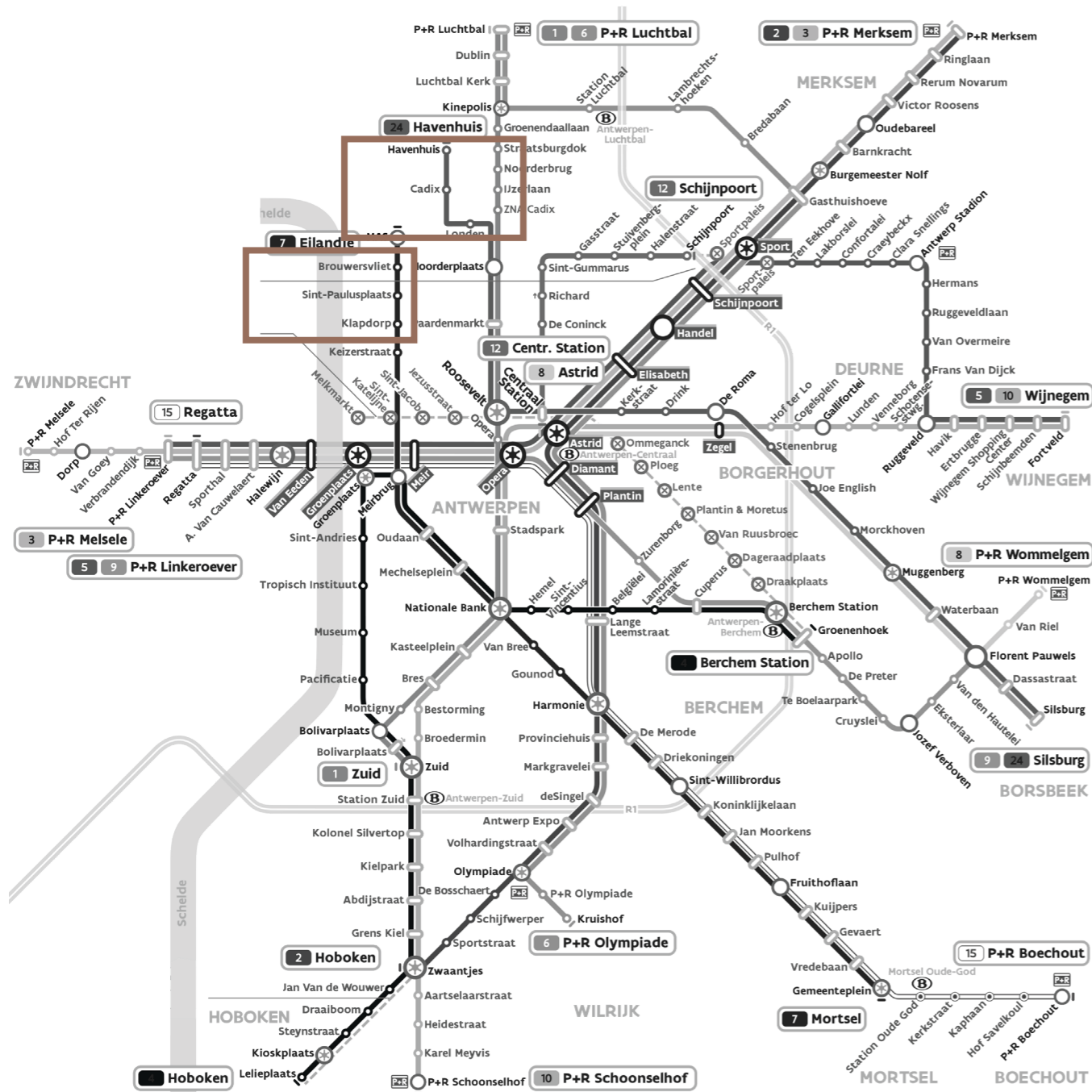
To create a neighbourly city, it is important to provide a network with (public) spaces where people can meet each other and build a social network. 't Eilandje is located approximately 30 minutes walking from the core of the city centre. Until the start of the development in 2006, the neighbourhood was abandoned and not part of the city centre life. The last twenty years important functions are brought to the neighbourhood that attract visitors as well as residents.

Some of these functions are highlighted in the map on page 78. Examples of these functions are the museums MAS and Red Star Line and the port office that functions as an important landmark and was designed by Zaha Hadid. These spots are important meeting points for the whole city.

The quietness of the area can be experienced when walking through it. This is because most of the newly developed areas are residential. Next to that, the Mexico Island, Kempen Island and the Dry Dock Island are still industrial or under construction, so there are no functions that attract people in these parts of the neighbourhood.

Overall the neighbourhood could use more functions to create a lively and bubbly area with plenty spaces to meet. This applies for indoor functions as well as bumping places in the outdoor.





THE ACTIVE CITY

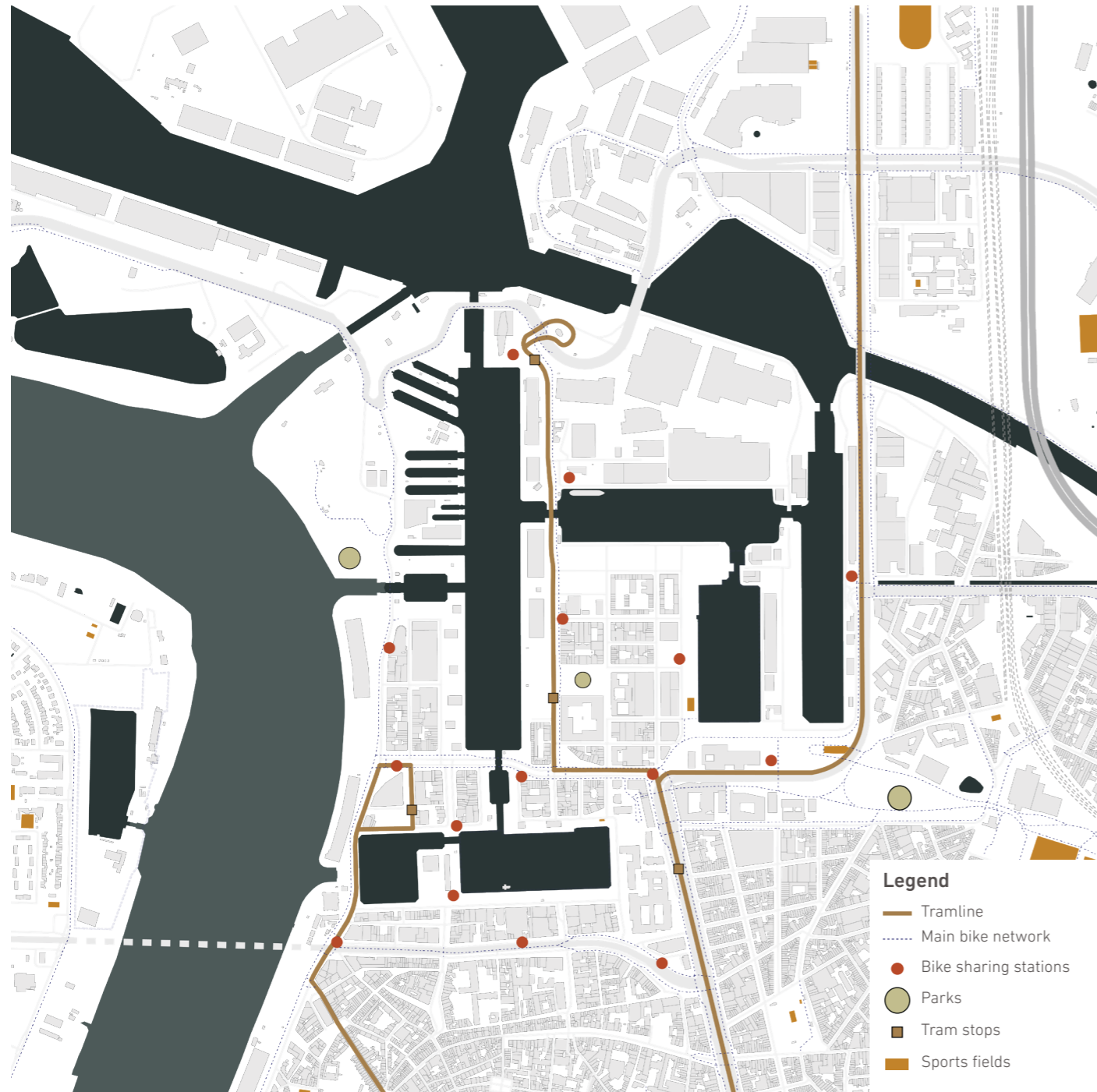
Good physical health supports brain health, therefore it's important for a restorative city to create a support system that persuades people to be active in their everyday lives. A neighbourhood should have outdoor spaces where people can be active, such as outdoor gyms and sports fields, but it is also important to create a high quality public transport network.

Public transport is crucial for an active city. If the public transport is well connected and is linked to active mobility such as a bike sharing system, people are more likely to make use of this network instead of taking the car.

A good public transport network activates people to walk to a bus stop, take the bus to the closest bus stop at the office and maybe take a shared bike as a last-mile solution. A much more active lifestyle than the one mentioned before.

When looking to Antwerp at city scale, the most popular mode of transport is the tram. The image on page 80 shows that the entire city is connected by trams. Two of the tramlines (7 and 24) operate within 't Eilandje, this is positive since the neighbourhood is still in development.





THE ACTIVE CITY

Two tramlines run through the neighbourhood. The tram runs through the middle of the neighbourhood, which means a connections is lacking in the east and west part of 't Eilandje. Since these parts are not yet developed, it's not a problem at the moment. But steps must be taken to expand the network throughout the whole neighbourhood to ensure the quality of the public transport system.

The tram network as well as the main bike network are linked to a popular bike sharing system. The stations where you can get or put away these bikes are marked on the map on page 82. This bike sharing system is used by locals as well as tourists and stations can be found all over the city. Some of these stations can be seen on the first and second picture on the right.

Furthermore on the map on page 83 can be seen that there are only a few places where people can be active. The parks that were mentioned before are marked as well as the sports fields in and around the neighbourhood. As can be seen, there is only one small sports field within the site (See the bottom picture on the right).

More of these spaces should be integrated in a new development to create a network of public spaces that support people to be active in the outdoors.





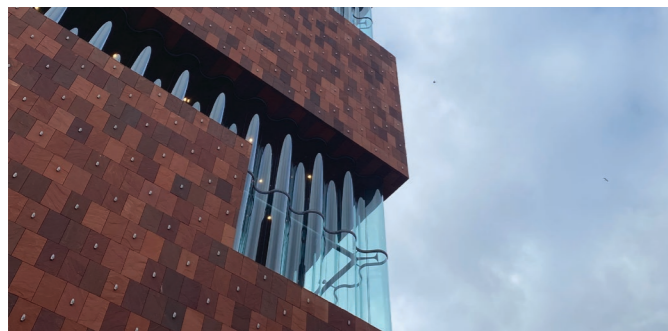
THE PLAYABLE CITY

A playable city is vital for children as well as adolescents. It nurtures creativity, self-identity, learning, agency and social interaction. (Roe & McCay, 2021) A 'playable area' is often linked to the youngest age groups, but it's important that opportunities are created for all ages to be playful in the city.

An important aspect of the playable city which is well represented in 't Eilandje is outdoor art objects. It improves peoples mental health through creativity. The stars in the map on page 84 mark different kinds of outdoor art, like wall art, sculptures and statues. The art objects often refer to the identity of the neighbourhood, the history or its folklore. This is a positive aspect for a restorative environment and should be continued in new developments.

A second crucial aspect of the playable city is multifunctional spaces in the public realm where all generations can be playful. There are only a few of these public places at the moment; the parks and sports area that were addressed before, but also a few playgrounds and boules fields (middle picture on the right). Most of these places are playgrounds for the youngest ages groups (bottom picture on the right). So for a future development to create a restorative city, more spaces should be created where all ages can express themselves in a playful and creative way.





THE SENSORY CITY

A sensory city is about the experience of the city with all senses. Positive experiences can create a sense of belonging, trust and safety which improves mental wellbeing.

A lot can be experienced when walking around 't Eilandje. Positive as well as negative. On page 86 some of these experiences are shown in pictures. Some positive experiences are for example the closeness to the river with its water sounds, salty smells and the sound of seabirds.

Then there is the experience of the rich history of the site, with historical buildings that refer back to the wealthy time period of the port. The third picture from the top is an the closeness to the water again, wherever you are in the neighbourhood. This picture shows one of the docks with the impressive Port House next to it.

The bottom picture on the left represents the different textures, colours and shapes that are all around the neighbourhood. This reduces the sense of monotony and creates a diverse neighbourhood. Diversity in terms of shapes, forms, textures and colours is important to keep the mind busy. This prevents the mind from wandering off into stressful thoughts.

There are also negative elements to address. The site has been in development since 2006 and has not finished yet. This results in messy public spaces with roadblocks, machines and building material everywhere. Which causes nuisance such as noise, which is unpleasant when walking around the neighbourhood.

Some of the public spaces that are in the industrial part of the neighbourhood feel unsafe because of the lack of functions and lightning, resulting in poor social safety. These places are not well maintained which results into litter scattered everywhere. This results into a negative sensory experience.

The picture on the bottom right is a picture of a public space in the newly developed area. Even when available functions and sufficient lighting result in social security, messy and unmaintained places give a negative impression of the neighbourhood.



THE INCLUSIVE CITY

A city should be for everyone and this applies to many aspects of urban design, ranging from pavement material to public transport and from affordable housing to public space amenities. Because there are so many aspects to inclusiveness, it's hard to execute a holistic analysis of 't Eilandje in terms of the neighbourhood being inclusive.

What can be said and what is also relevant to the site, is that the neighbourhood is becoming more and more exclusive. 't Eilandje is turning in one of the most popular neighbourhoods in the city, which results into higher housing prices than the rest of Antwerp. A huge threat for creating an inclusive and therefore a restorative neighbourhood is housing prices increasing and preventing lower income households from living in a restorative environment.

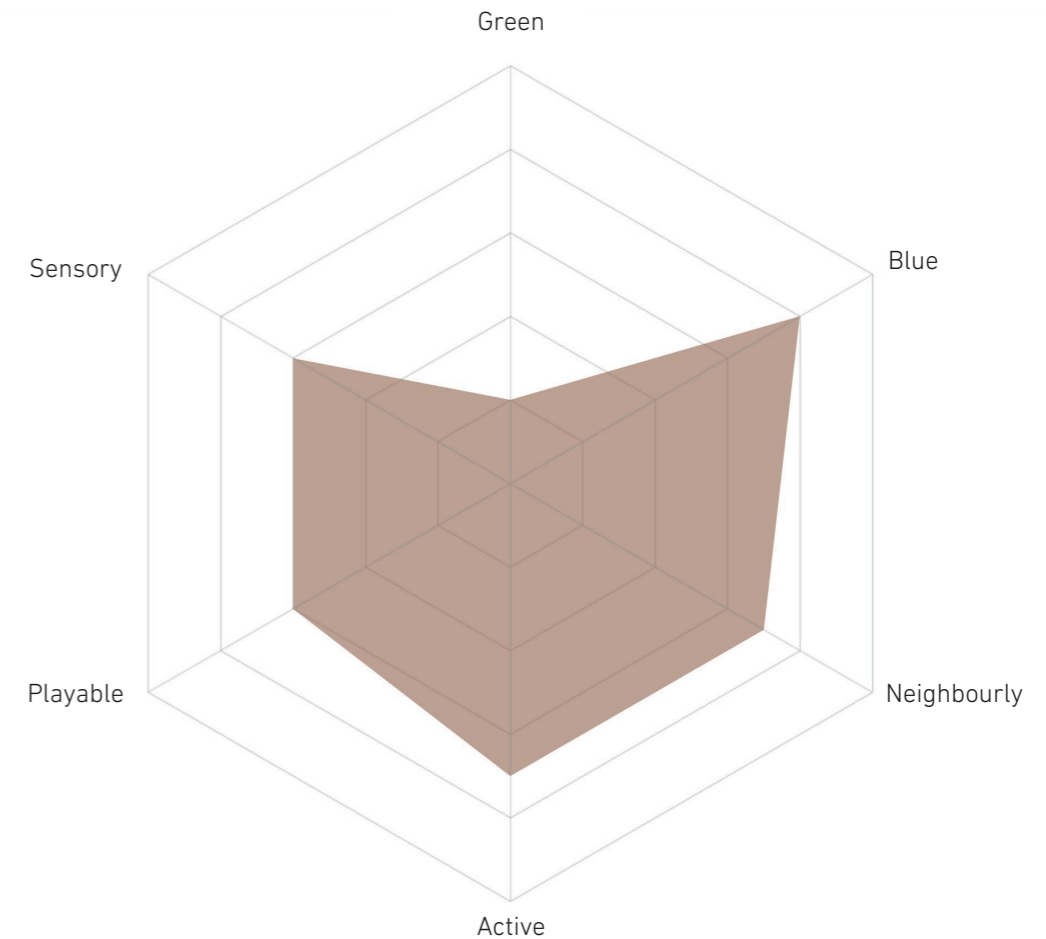
CONCLUSION

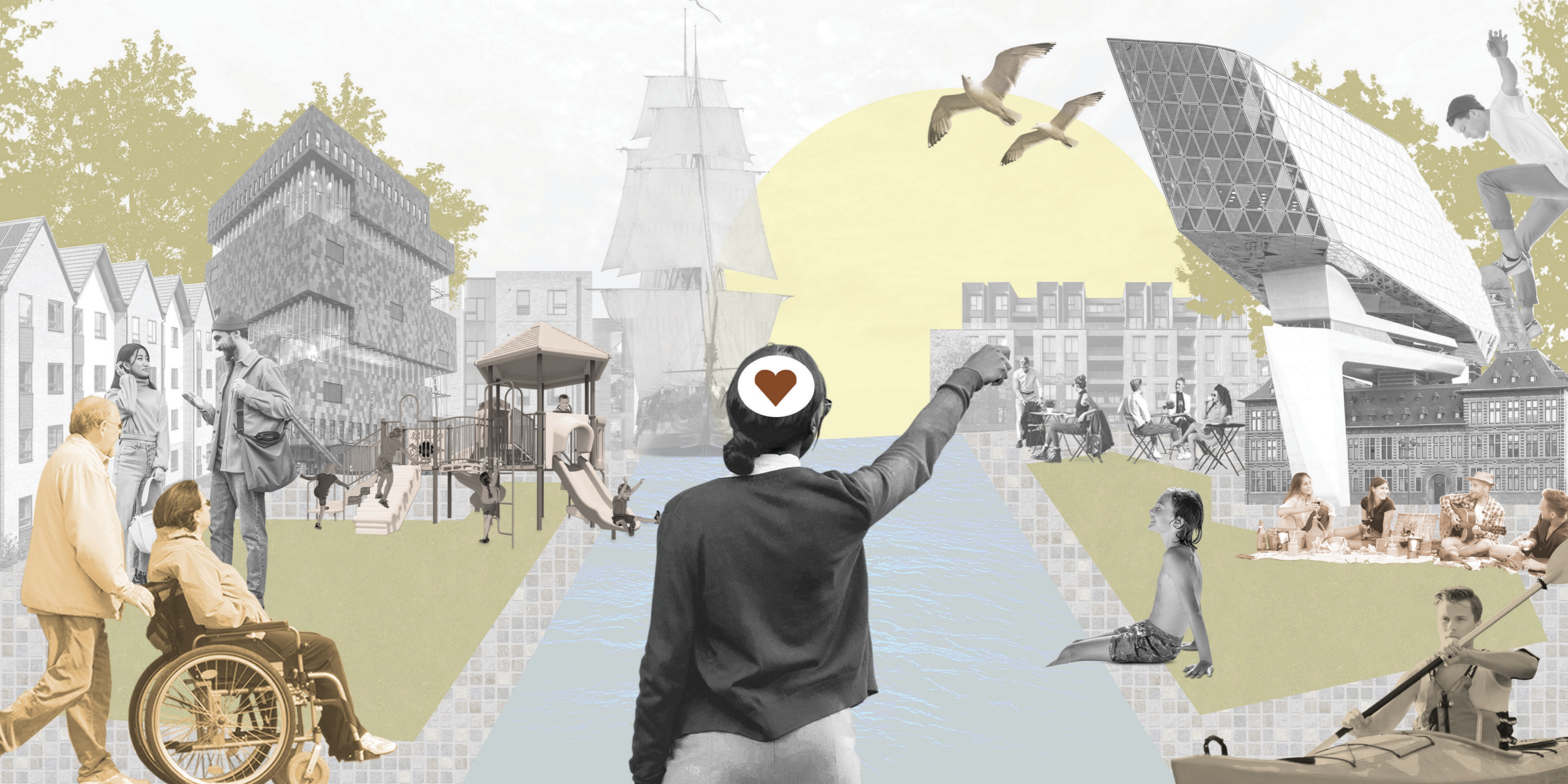
The spidergraph on page 91 shows a conclusion of the analysis. The scores that were given to each pillar are based on personal experience as well as the outcome of the analysis. As can be seen one of the pillars is missing; the inclusive pillar. This pillar was not taken into account in the scores, since there are so many aspects to inclusiveness that it is hard to put one score to it. Inclusiveness is integrated into everything and it applies to for example the playable city as well as the active city. A city should be for, and accessible to everyone and every aspect of inclusiveness should be taken into account.

To turn 't Eilandje into a restorative environment there is room for improvement within every pillar. Some pillars score better than others. For example the blue pillar scores really well, since the neighbourhood is surrounded by water. But the green pillar's score is not that high, because of the neighbourhood lacking green space and green connections.

The vision for the future of 't Eilandje is to improve the scores of every pillar and thus create a restorative environment where all elements of the restorative city framework are taken into account. On pages 92 and 93 a vision collage is made to illustrate this. All pillars come together and create a restorative neighbourhood where residents and visitors, feel like they are in their right state of mind.

The vision collage is followed by the strategy that contains specific implementations to turn 't Eilandje into a restorative neighbourhood.







STRATEGY

The Green 'Eilandje'

Increase the amount of green parks

Add green elements throughout the urban fabric of the neighbourhood, such as green walls, roofs and streets.

Create corridors between current green spaces

The Blue 'Eilandje'

Bring the blue into the urban life

Activate the waterfronts

Add water features into the urban paces

Show the water retention system in every street

The Sensory 'Eilandje'

Stimulate all the senses by adding different shapes, textures and colours in the public spaces.

Create places where all senses can be stimulated, such as (sensory) gardens.

The Neighbourly 'Eilandje'

Mixed use neighbourhood with all amenities within 15 min. walking distance.

More vital functions should be added, such as schools, shops, restaurant, community buildings and offices.

Create (more) bumping places in the public realm.

The Active 'Eilandje'

Prioritize active transport within the streetscape

Expand the current (active) transport system.

Create public spaces where people can be active.

The Playable 'Eilandje'

Provide outdoor activities for all ages.

Increase the amount of playgrounds and parks.

The Inclusive 'Eilandje'

The city should be for everyone.

DESIGN



'T EILANDJE - A RESTORATIVE NEIGHBOURHOOD

In this chapter the final vision plan is shown that is created to give an example of a restorative neighbourhood, implemented in 't Eilandje.

On page 100 the vision plan can be seen in its whole. Page 101 shows the build up of the vision plan with the most important design decisions. On page 102 and 103 a zoom in is shown with a section to give a more detailed idea of the design.

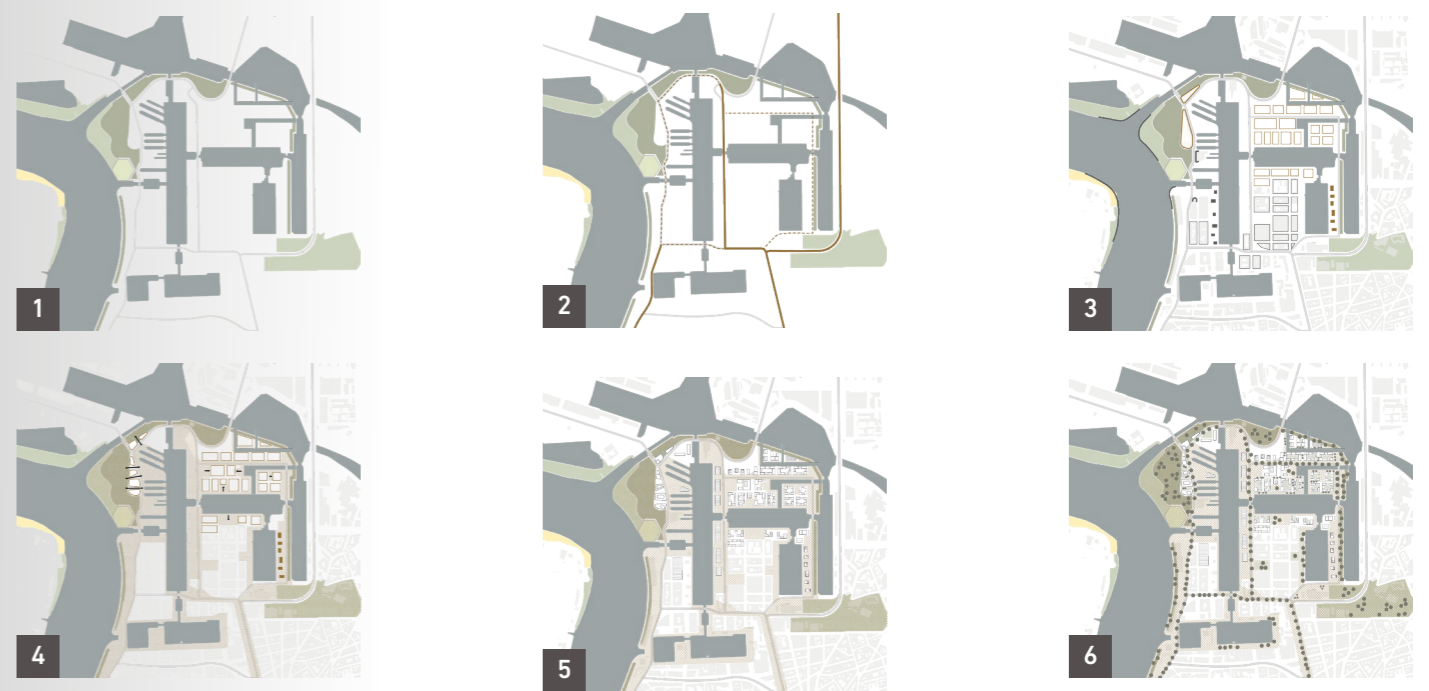
To give a holistic overview of the vision plan and to link the design to the restorative city framework, the plan is explained in detail, pillar by pillar. This means that for example an overview is given how the neighbourhood is turned into a more green environment, using the vision plan, parts of the zoom in plan, visualisations and sections.

This chapter is concluded with a phasing strategy.



- 1 Museum ●●
- 2 Museum ●●
- 3 Foodhall ●●
- 4 Art Park ●●●●
- 5 Swimming pools ●●●●●●
- 6 Skate park ●●●●
- 7 Boulder hall ●●●●
- 8 Student campus ●●●●
- 9 Port office ●●
- 10 Floating park ●●●●
- 11 Primary school ●●
- 12 Community centre ●●●●
- 13 Water stairs ●●●●
- 14 House boats ●●●●
- 15 Pocket park ●●●●
- 16 Cable park ●●●●

VISION PLAN



1. Green and blue
 The first step of the masterplan was to create a connection between the existing parks. This way a green corridor is created on the edges of the site. As far as the blue, the water of the docks is pulled into the site by creating additional canals to create more opportunities to create places that interact with the water.

2. Expansion of the tramline
 The tram network is expanded to the east and the west part of the site so a complete main spine is created.

3. Built form
 The new forms relate back to the already existing forms of the neighbourhood. The block structure is repeated on the Mexico Island. While on the Dry Dock Island the more organic forms that refer to the riverside are repeated.

4. Network of public spaces
 Some of the blocks are pushed back or opened to make room for a network of public spaces. Because of the diversity in terms of shapes, location and size of the blocks, the public spaces all have different characters.

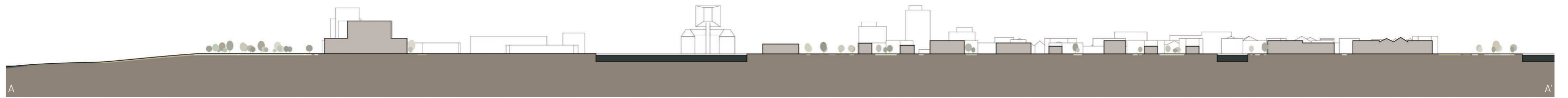
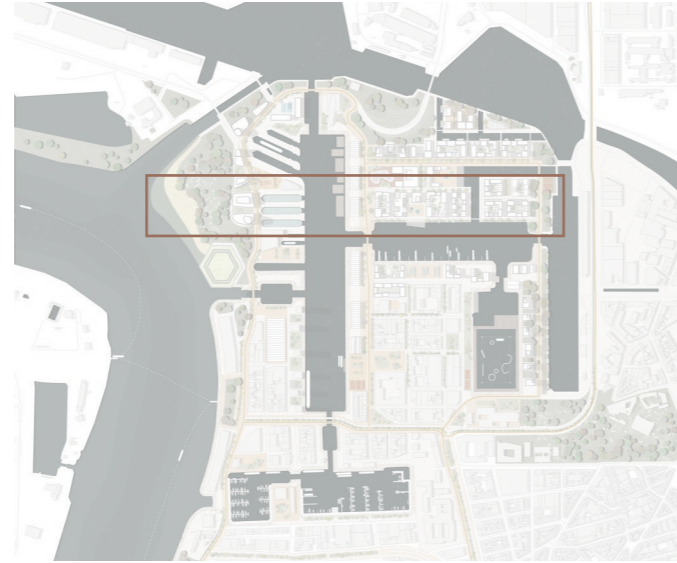
5. Diversity within the blocks
 Diversity is important in the context of a few of the Restorative Urbanism pillars. It has a positive effect on wayfinding, inclusiveness and it make the city more pleasing to the eye.

6. Green network within
 Apart from the green connection on the edge of the site, the green network is expanded with green streets, roofs, facades, community gardens and semi public gardens inside the building blocks. This green network ties the whole masterpla together.

ZOOM-IN & SECTION

On this page a zoom-in view of the masterplan is shown. This is a zoom-in taken from the site from west to east. The location of the zoom-in can be seen on the image on the right.

The zoom-in shows a more detailed plan showing inner courtyards, the streets and the public places. The section underneath gives an idea about the building height and the dimensions.





MASTERPLAN - GREEN

To make a greener neighbourhood some design decisions are made on a neighbourhood scale. These decisions are shown on the image on the left and explained in the text underneath.

1. Tidal Park

The tidal park activates the riverfront and creates a place where people can enjoy the view of the river and the passing ships while having a picnic in the park. The park is also big enough to host events.

2. Green corridor

The green corridor connects the tidal park to Park Spoor Noord, just outside of the site. This way a green connection is established on the edges of the site.

3. Green street network

In the new masterplan the streets are also made greener. A network of green streetscapes is created throughout the whole neighbourhood.

4. Urban Parks

On this scale it is also important to show the urban parks within the network of public spaces. Using green in these parks is important to give people the accessibility to green space just around the corner. It is also important to reduce the heat island effect which also has a negative effect on mental health.



ZOOM IN - GREEN

On this cutout from the zoom-in plan more details are shown of the design decisions that are made to create a greener neighbourhood.

1. Green living street

The streetscapes between the building blocks give a green atmosphere because of the street trees as well as some private frontyards here and there.

2. Green roofs

Green roofs are not only important for creating a green atmosphere, but are also important to improve biodiversity, water retention and reducing the heat island effect.

3. Semi private courtyards

Green courtyards were designed within the blocks to give residents close access to green space.

4. Community garden

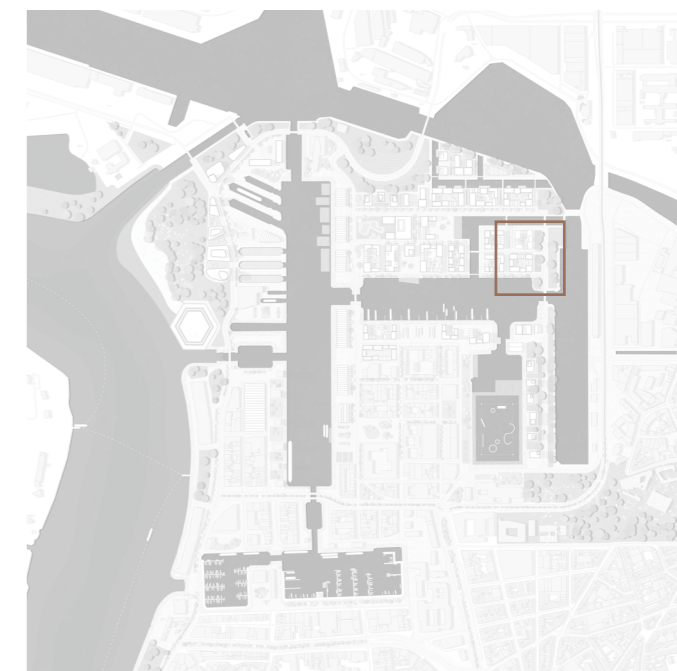
Areas for community gardening is provided on the outside of the blocks. This area does not only provide a green edge, but also a nice public space to meet other people living in the neighbourhood.

5. Green main street

The mainstreet is designed with green and open surfaces. The tram runs on a green carpet and there are buffers created between the car lanes and the bike lane for safety as well as a green atmosphere while biking.

6. Activated green edge

The edge of the neighbourhood is part of the green corridor running between the Tidal Park and Park Spoor Noord. This green edge is activated by functions such as playgrounds and sports areas.





VISUALISATION - GREEN

This visualisation shows the atmosphere of being in the greener neighbourhood of 't Eilandje.

1. Green street

As seen before, the streets are designed with green buffers. This buffer is located between the sidewalk and the car lane.

2. Green wall

Green walls are a great opportunity to increase biodiversity, cool down the buildings and create a greener street scene.

3. Private frontyard

Some of the houses have a small private frontyard to give the residents the opportunity to create a green facade, use the frontyard for gardening or have a small terrace.



MASTERPLAN - BLUE

On the image on the left the design decisions are shown that make the neighbourhood more blue and intertwine the current blue spaces with the urban life.

1. Tidal Park

In the Tidal Park the green and blue come together, so it is also an important element for the blue city. The riverfront is activated and people can enjoy the views to the natural water banks and passing ships.

2. Swimming pools

Three outdoor swimming pools are created in the existing maintenance docks to give the docks a second life while preserving the historical character.

3. Canals

The water of the docks is pulled into the neighbourhood through the canals. Around these canals opportunities can be created to make spaces that interact with the water.

4. House boats

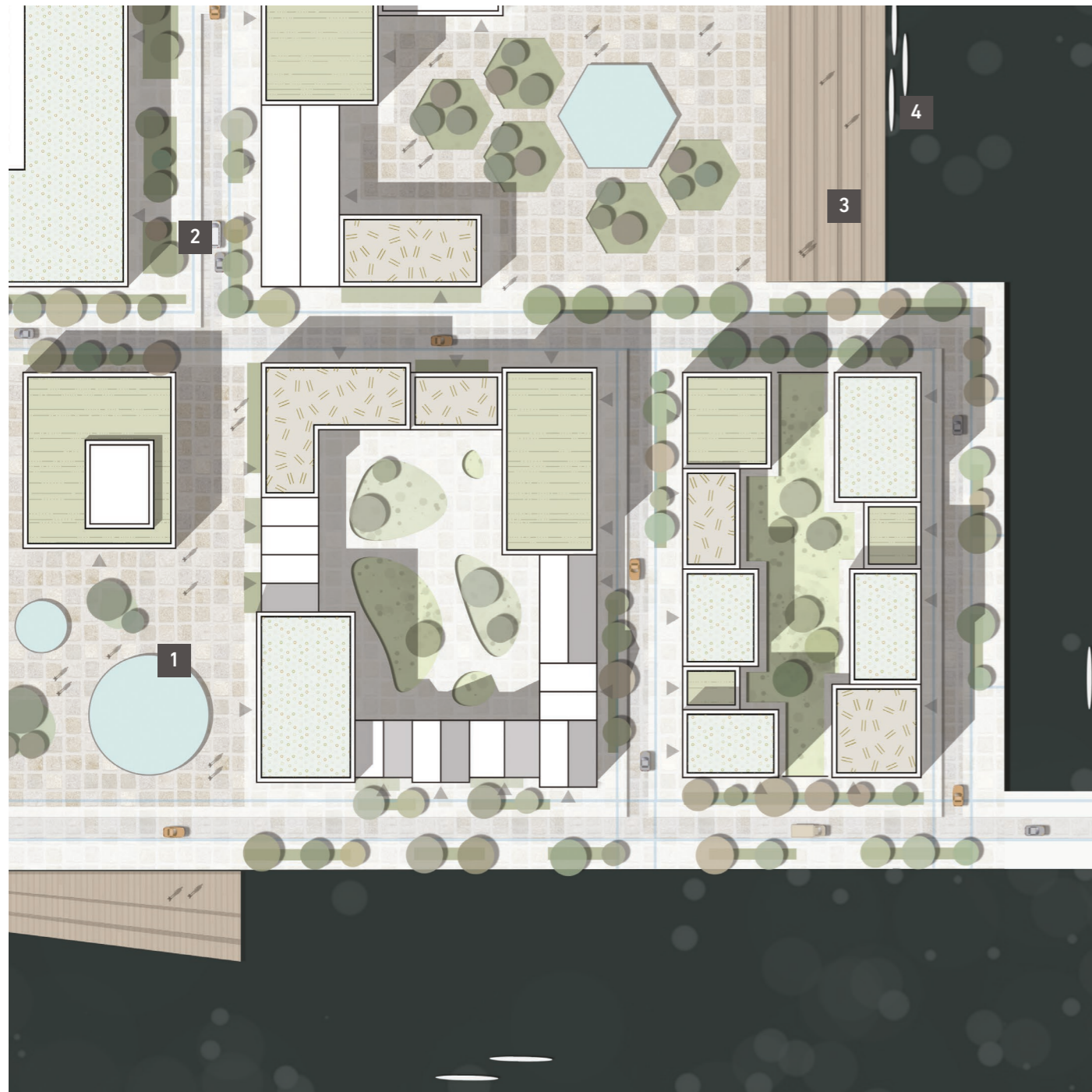
An area for house boats creates an interesting typology and creates the opportunity to live on the water.

5. Cable park

The cable park activates the water on a litterally active level. In this are the active, playful and blue city come together.

6. Main marina

The masterplan has one main marina in de oldest part of the harbour. This gives a purpose to the docks and creates another interaction between urban life and the water.



ZOOM IN - BLUE

On this cutout from the zoom-in plan more details are to be seen of the design decisions that are made to create a greener neighbourhood.

1. Water features

People should be able to engage with different types of water features in the public realm such as fountains, ponds and water jets.

2. Exposed water retainment system

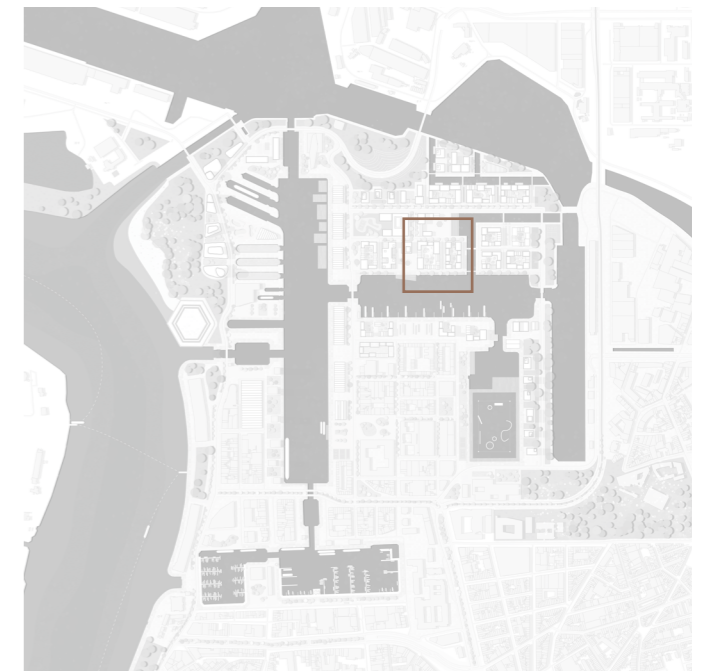
An exposed water retainment system gives every street a water feature during rainy days.

3. Activated waterfronts

In some parts of the neighbourhood, the public space merges with the waters of the docks, like these water stairs. In these places the waterfronts are activated and people can enjoy the qualities of the waters.

4. Water activities

The docks are activated by providing opportunities for different types of water activities. In this case canoeing.





VISUALISATION - BLUE

This visualisation shows the atmosphere of a public space that merges with the water of the docks. People can interact with the water while having some time for yourself or meeting friends.

Water can also be part of the playable city like the girls playing with the water jets in this visualisation. It also provides an opportunity to cool down on hot summer days.



ZOOM IN - NEIGHBOURLY

1. Active spine

The active spine is the main street where the tram runs and the main bike network is located. This spine is surrounded by functions as shops, restaurants, schools, community buildings and offices.

2. Primary school

Access to a nearby school is one of the aspects of a neighbourhood that fosters amenities within fifteen minutes.

3. Market area

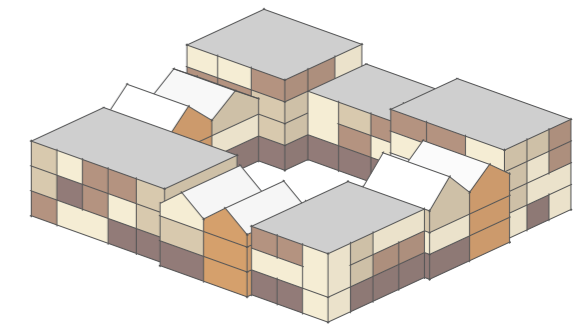
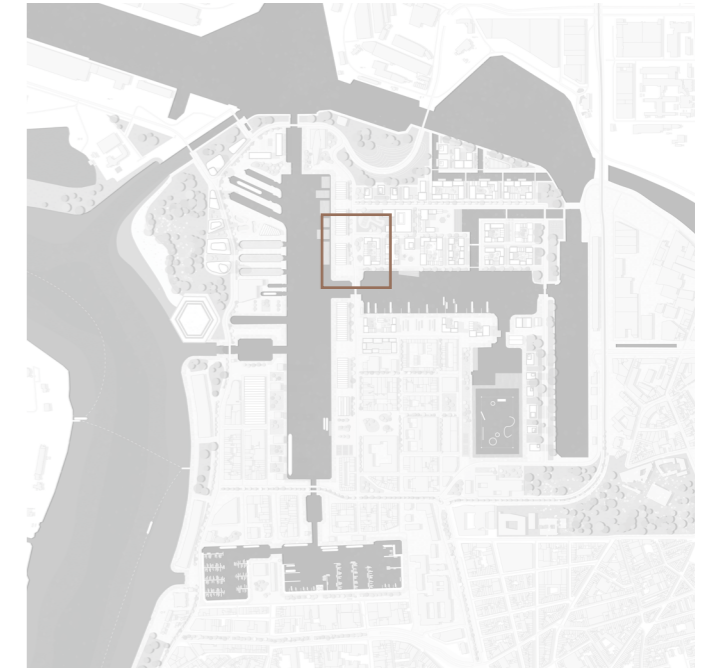
A market area supports a neighbourly as well as a sensory neighbourhood. It's a perfect space to meet people and a way for cultures to mix.

4. Mixed housing blocks

The more diverse a social network, the better. A block should foster living opportunities for different incomes, family compositions and ages. On the right, a diagram is shown with an example of this diverse city block typology. There is a mix to be seen with intergenerational living opportunities, student housing, elderly apartmentst and low-, middle-, and high-income apartments.

5. Semi-private courtyards

A courtyard within the block is the perfect opportunity for neighbours to meet eachother.



- Intergenerational living
- Student housing
- Apartments for elderly
- Mid/high-income housing
- Low-income housing



VISUALISATION - NEIGHBOURLY

Creating a neighbourly city is not only about creating public spaces as squares and parks where people can meet, but it's also about providing the public realm of high quality street furniture.

As shown on the visualisation, urban furniture creates the opportunity for people to sit down with friends or family and enjoy the city at the waterfront.



ZOOM IN - ACTIVE

The active city is about creating public spaces where people can be active, but it is also about a network that supports an active lifestyle. A good public transport system and infrastructure for cyclists and pedestrians supports this lifestyle.

1. Streets that support active modalities

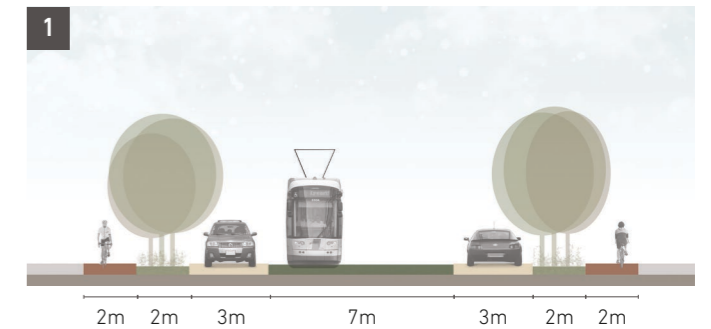
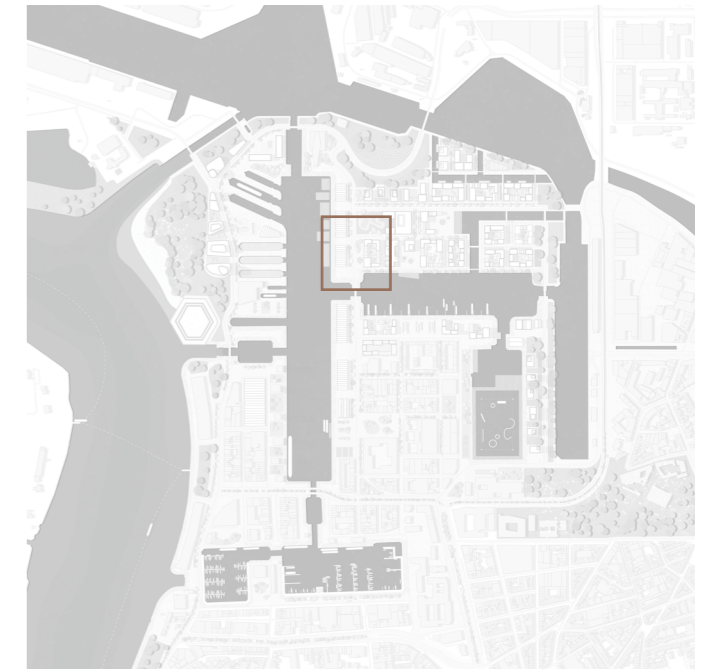
On the section below the main street is shown. The tram is the most important mode of transport in Antwerp and connects the site to the rest of the city. The section also shows the wide bi-directional cycling lanes in both are separated from the car lanes by a green buffer. This creates a comfortable and safe cycling lane.

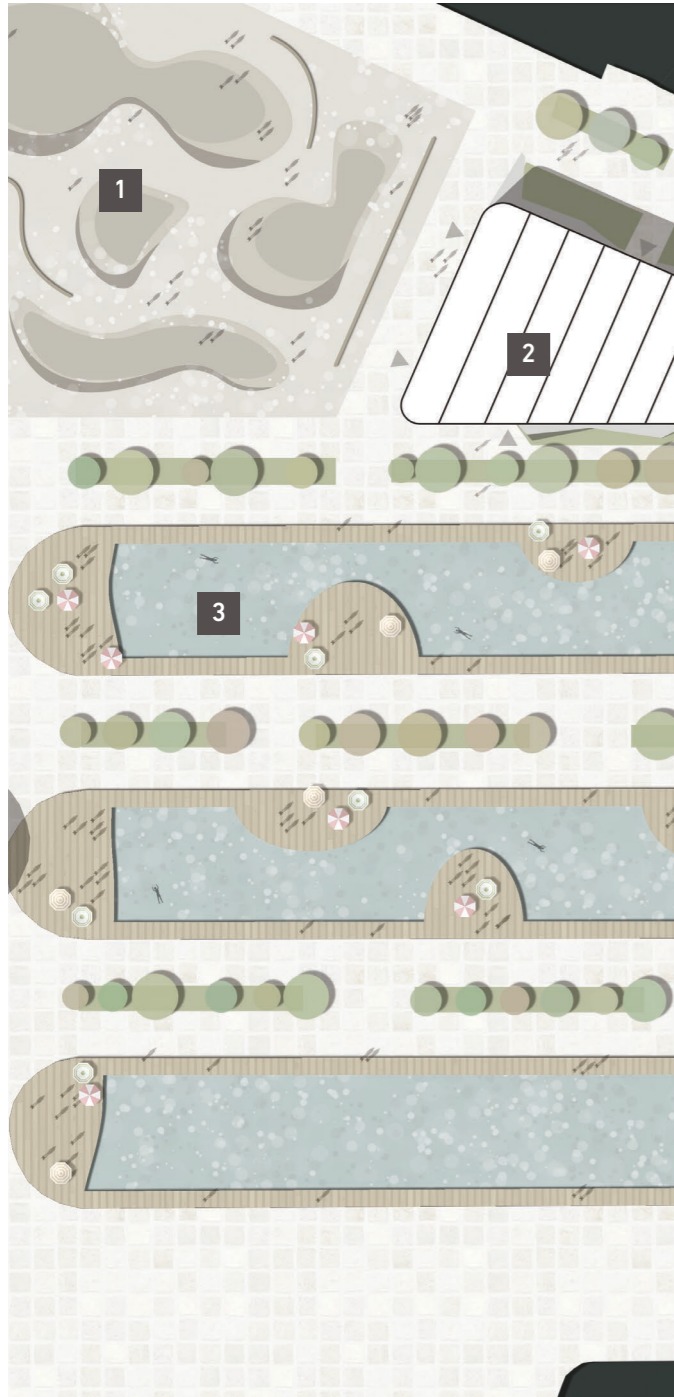
2. Bike sharing system

Bike sharing stations are scattered around the neighbourhood and around the main spine in particular.

3. Canoeing

Canoeing is an activity that brings the blue city as well as the active and playable city together. It would fit perfectly in a neighbourhood such as 't Eilandje.





ZOOM IN - PLAYABLE

As seen before the different pillars merge together in functions and areas. A lot of the playable functions in the masterplan are active as well.

1. Skatepark

A skatepark fosters the playable side of the city as well as the active and the neighbourly.

2. Boulder hall

For a playable as well as an active neighbourhood it is important that opportunities are created to be active and playable indoors as well as outdoors. A boulder hall is an example of this.

3. Swimming pools

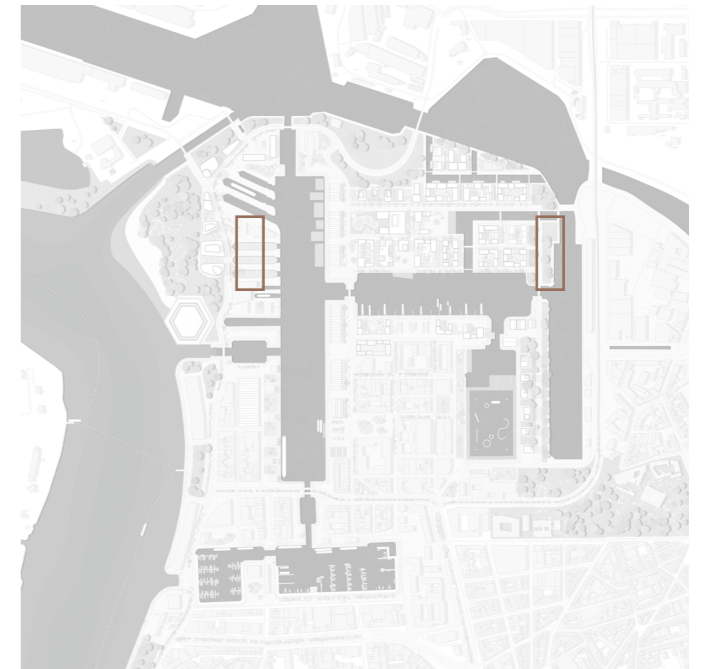
Three maintenance docks are transformed into outdoor swimming pools.

4. Sports areas

Sports areas are scattered throughout the whole site. These areas give all age groups the opportunity to be playful and active. It is important that the sports areas are flexible. Kids should be able to play football, students should be able to play beer kubb and elderly should be able to play boules.

5. Playground

This playground is located in the green corridor on the edge of the site. The playground has a green character and gives the younger generations the opportunity to be playful as well as active.

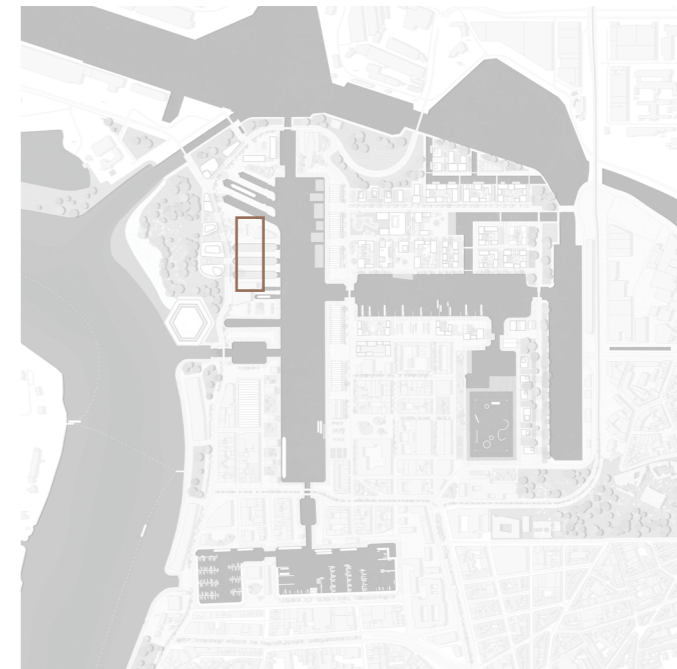




VISUALISATION - ACTIVE MEETS PLAYABLE

In a lot of situations, the pillars from the restorative city framework are overlapping. Courtyards are for example nice green places, but are also perfect meeting spots.

On page 124 some visualisation are shown where the active city and the playable city meet. This happens on the Dry Dock Island with functions such as swimming pools, a skate park and a boulder hall. These functions support people in having a more active but also playful lifestyle and can be visited by all ages.



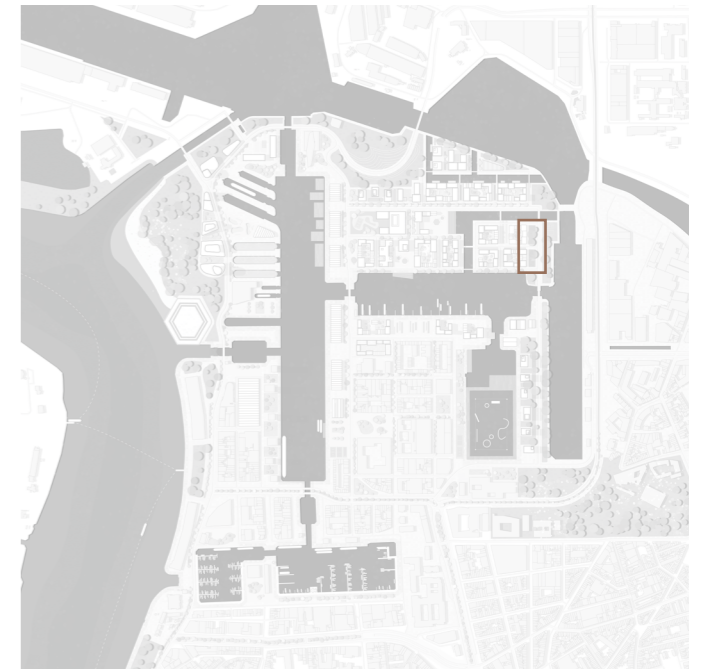


VISUALISATION - SENSORY

Community gardens are also an important space where a lot of these pillars come together. It's green, neighbourly, active, but most of all sensory.

In a community garden all the senses are stimulated. The diversity in vegetation provides different colours, smells, shapes and textures. And even the sense of taste can be stimulated when food is grown in the garden.

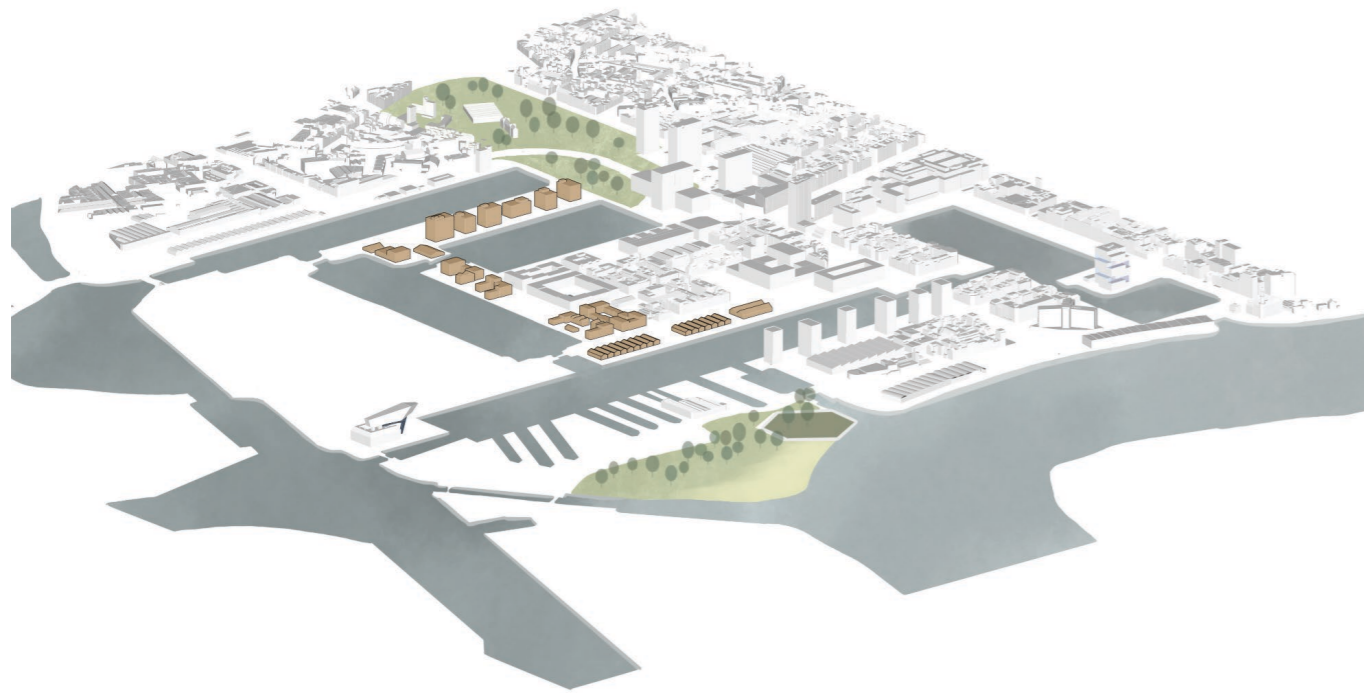
The sensory city has many aspects. It's all about creating diversity in terms of materials, built forms, textures and vegetation. These aspects can be found throughout the whole vision plan.



PHASE 1

Phase 1 - in 5 years from now

During phase one, the Cadix area is completed as well as a start has been made to develop the Kempen Island. This makes an end to the current developments.

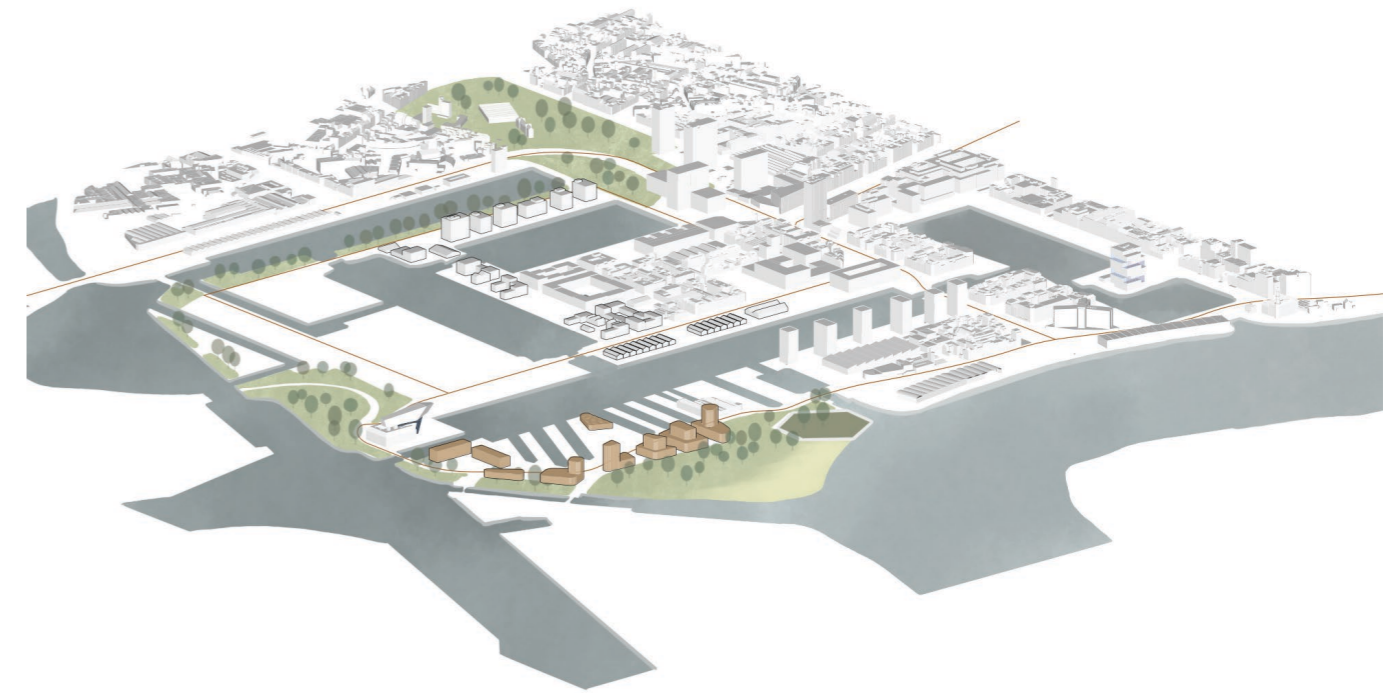


PHASE 2

Phase 2 - in 10 years from now

For phase two, the most important infrastructure elements are developed; the green fringe around the neighbourhood, the expansion of the tramline and the canals in Mexico Island.

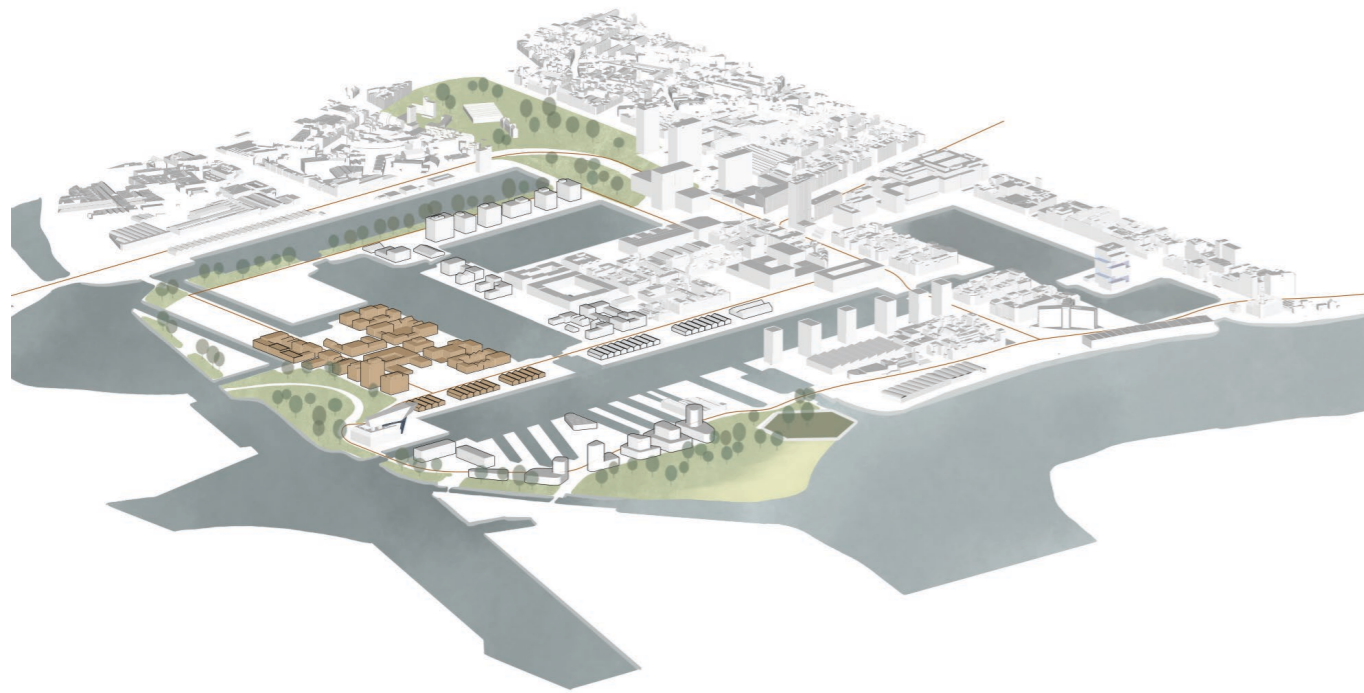
In this phase, the buildings on the Dry Dock Island are also being build. This is to create a sense of safety by social security on the Dry Dock Island. The Island is currently quite abonded, but if a program like a the tidal park has to work, there should be a sense of safety to go there as well.



PHASE 3

Phase 3 - in 15 years from now

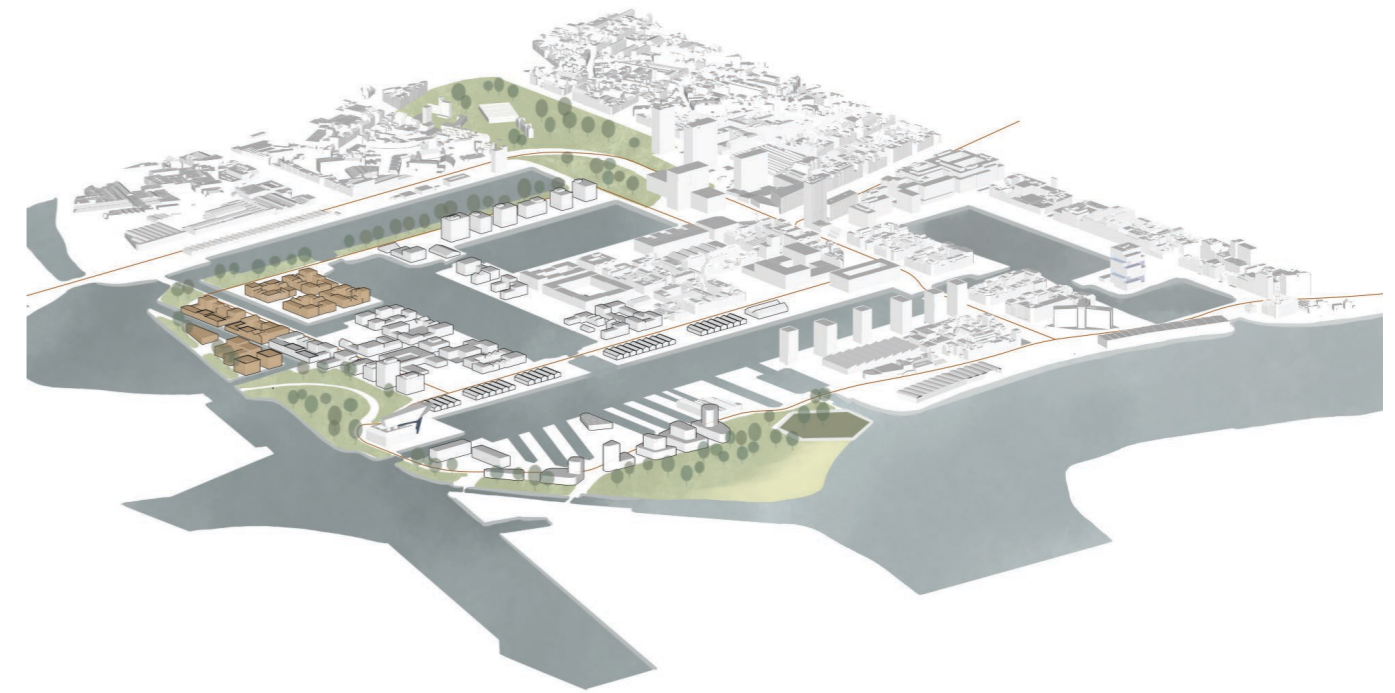
In phase three a start will be made to develop the last area, Mexico Island. These developments start close to the main tramline as well as the port office to frame the biggest dock in the area.



PHASE 4

Phase 4 - in 20 years from now

Phase four is the completion phase in which the last part of the neighbourhood will be developed.





CONCLUDING WORDS

The aim of this thesis was to dig into the relationship between mental health and urban design. The framework for a restorative city was used, created by Roe and McCay, and projected on the neighbourhood 't Eilandje in Antwerp.

After looking into the current situation of the site, in terms of it being a restorative environment, a vision plan was made to show how 't Eilandje can become a restorative neighbourhood, taken into account all the seven pillars of the Restorative city framework. This vision plan was shown in detail, using plans, sections, diagrams and visualisations to give a holistic view of the design decisions that were made.

All in all a vision is created for a neighbourhood that is created for everyone and brings Antwerp closer to become 'a right stad of mind' where people are less likely to develop mental health problems.

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