

# ***working women***

advancing towards gender equal cities



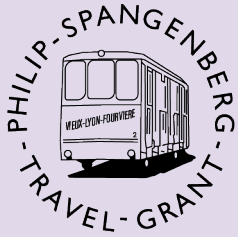


This thesis is dedicated to

Sabien  
Noëlle  
Eline  
Lotte  
Greta  
Kiki  
Josephine  
Silke  
Lola  
Lydia  
Rosalinde  
Thyrza  
myself

and any other woman who has had to deal with male  
harassment while out in public space

# colophon



MSc. Graduation Urbanism  
Faculty of Architecture and the  
Built Environment  
TU Delft

P5 report

Cecile Ikink  
5876443

Design of the Urban Fabric  
Embracing Plurality - Growing Porosity

First Mentor: Birgit Hausleitner  
Second Mentor: Machiel van Dorst  
Delegate: Simona Bianchi

19/6/2024

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## *motivation*

As a young woman in a patriarchal society, I have an ongoing interest in feminism and the many ways gender inequality shows up in my life, mainly because I cannot escape it.

As an urbanism student, I have an ongoing interest in the way we live in cities and how our built environment adds to the experiences people have in their lives, positively or negatively. In this graduation project, I would like to combine these two interests and explore how the structure of gender inequality is present in our cities and how mindful and inclusive design can improve equality in our living environments.

I chose this topic because I want to contribute to the fight for equality. I hope that my project will, at the very least, inspire other people, students and designers to make the world a better place - for everybody.

## *list of terms*

### **division of labour**

Division of labour is the notion of the skewed distribution of the shared responsibility of unpaid care work in the family, which, in the Netherlands, disproportionately falls with women.

### **gender mainstreaming**

The practice of ensuring women and men are accounted for equally in policy, legislation, and resources

### **patriarchy**

The patriarchy, or a patriarchal society, is a social system wherein men and masculinity are seen as the human default. In this social system, positions of dominance and privilege are primarily held by men, as all masculine qualities are appreciated more than feminine qualities. It is a system that hierarchically orders the differences between men and women, resulting in male control over positions of power and economic resources in combination with the physical, psychological, and sexual submission of women.

### **opportunity**

An opportunity is defined in the Cambridge Dictionary as “an occasion or situation that makes it possible to do something that you want to do or have to do, or the possibility of doing something.”

### **intersectionality**

Intersectionality is the notion that systems of discrimination or disadvantage are always interlinked and interdependent due to the complex interconnected nature of social categorization. Outside of gender inequality, specific individuals may have to deal with additional or other types of inequalities based on socioeconomic class, race, nationality, religion, disability, etcetera. This argues for us to keep in mind that there is no one-size-fits-all solution, and some transformations may be unsuitable for different ‘types’ of women.

### **equity**

Equity, as opposed to equality, is the idea that in order to make sure everybody has the same opportunities, different accommodations need to be made on the basis of disadvantages that come with age, gender, nationality, and disability in order to reach an equal outcome for all individuals.

## disclaimers

### the gender spectrum

Gender as a social concept (different from sex—the biological expression of gender) comes in many different forms, outside of conservative binary man-woman thinking (Nagoshi et al., 2014). When speaking about gender equality in general, we mean that all gender expressions—female, male, non-binary, and others—should be considered and treated equally. As there are a lot of differences between the experiences of people with different gender expressions, it is a large task to ‘solve’ gender inequality in the city for all of these different groups of people, and I am just one person with one year of time.

Therefore, I have made the decision to focus my research on the experiences of women (or female-identifying people) in the city. From this point onward, when I use the term ‘gender equal city’, it refers to (binary) gender equality between men and women.

### equity, equality and sensitive design

The terms ‘gender-equal city’ and ‘gender-sensitive design’ will both be used simultaneously. Even though those terms and the principle of equity may seem contradictory, in this thesis they have complimentary definitions and are interlinked in the process and result of my research. Gender-sensitive design refers to the manner of designing that does not perpetuate existing gender inequalities or discriminate against any particular sex or gender (CSHA, n.d.). This is an act of equity, as this design will offer different accommodations for women, which will result in a gender-equal city, which is the end goal—a city in which inhabitants will have the same access to rights and opportunities regardless of gender.



# introduction



## problem context

Our society today has numerous issues of inequality, including between men and women. This gender inequality is the foundation of our patriarchal societal system, and gender disparities are so ingrained in our lives that they frequently go unnoticed or are not seen as problematic.

## gender inequality

Gender disparities have been highlighted in Europe ever since the Enlightenment period (Atria, n.d.). Ever since, women have been fighting for their rights in North Western Europe in a successful way, as most larger inequalities are resolved. In the Netherlands, women can attend higher education (since 1871), vote (since 1920), open their own bank account (since 1956), are not legally obligated to be submissive to their husband (since 1957), and get a legal abortion (since 1984) (Atria, 2018; Geschiedenis.nl, n.d.). These rights have ensured that the social position of women is increasingly equal to that of men. There is, however, a lot of more subtle inequality still present in society. These are inequalities

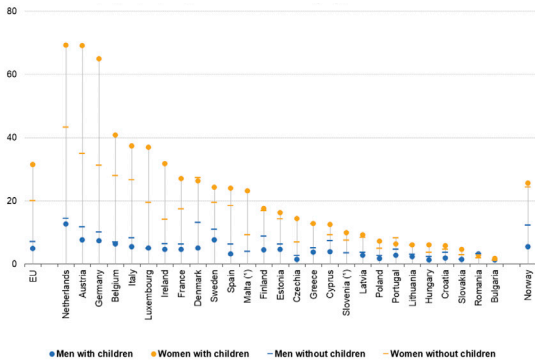
such as the disproportionate amount of violence against women, sexual intimidation and violence against women, the wage gap, where Dutch women earn around 7.4% less than men (Moeliker & Vié, 2023), and disparities in employment rates between men and women.

Just as during the first and second feminist waves, these inequalities have been highlighted increasingly in the last couple of decades. An example is the #MeToo movement regarding sexual intimidation. It is a topic that is getting more and more attention in newspapers, social movements, documentaries, etcetera, acknowledging that society still has a long way to go before there is true gender equality.

## employment

It is a general trend in the European Union that part-time working rates are higher in women than in men, with around 30% of European women working part-time versus around 8% of men working part-time (Eurostat, 2023). The Netherlands holds the highest share of part-time working adults and part-time working women among all of the EU countries, with 38.4% and 60.6%, respectively (Eurostat, 2023).





Part-time employment rate in Europe with and without children, by sex and country

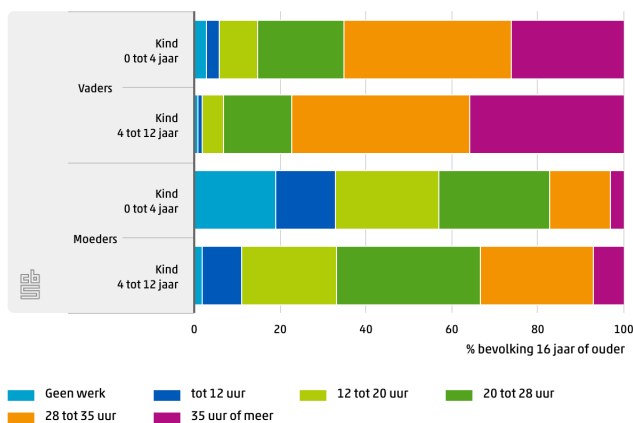
Data by the Dutch Bureau for Statistics shows that while employment rates between men and women are the same in the age category between 15 and 25, from 26 years and on, female labour participation becomes less than that of men, with the highest difference in the age category 55-65 (69% female employment and 77.4% male employment). (CBS, n.d.). Women more often give the care tasks in their family as a reason for working part-time than men, with 36.3% of female part-timers versus 10.4% of male part-timers (Eurostat, 2023). This shows that the labour that is connected to the family falls more under the responsibility of women than of men. This is a prime example of the way that certain responsibilities have been assigned to gender due to values embedded in our patriarchal society. It has resulted in the idea of gender roles, where there is a societal expectation that certain tasks should fall upon women and others upon men. Research by the CBS has shown that these gender roles are ingrained in society, with more

than half of the respondents having the opinion that women with children should work less than 28 hours per week, while around 80% of the same respondents found that men should work 35 hours or more (CBS, 2022a). However, the same research showed that respondents were also of the opinion that women should work less than men when there are no children involved, meaning that women in general are seen as less suitable for work than men (CBS, 2022a).

### effect of children on employment

Statistics from Eurostat show that while having children does not have a big impact on the employment rate of Dutch women, it does have a great influence on their share of part-time employment. The part-time employment rate changes by 26 percentage points, while the general employment rate stays the same, indicating that 26% of women will start working part-time when children arrive (Eurostat, 2023). This effect is not the case with Dutch men, where the change in the share of part-time employment is even slightly negative, meaning more men with children work full-time as opposed to men without children. Seeing as this discrepancy between women and men is largest in the age group where children typically leave the home (55-65) (CBS, n.d.), women do not go back to a full-time job after their duties at home decline, meaning the impact of is permanent.

### Mening over geschikte arbeidsduur voor ouders, 2022

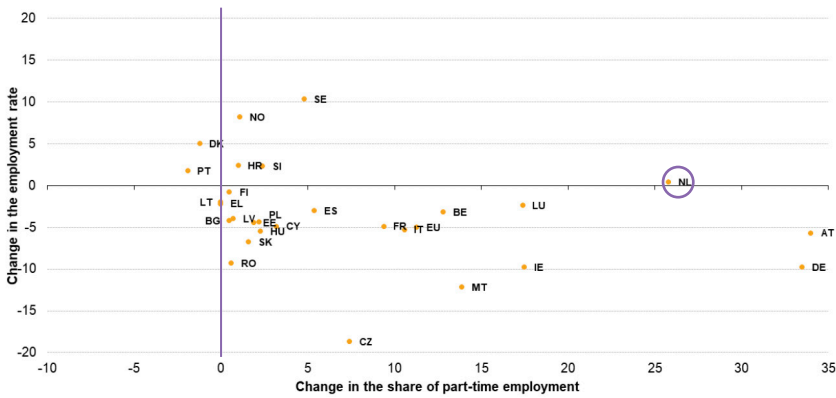


Dutch public opinion on the appropriate weekly working hours for parents, categorized by age of youngest child.

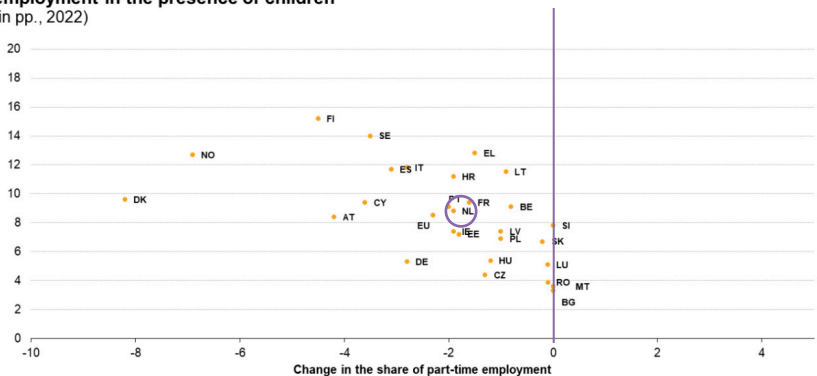
**focus group**

I have chosen to focus on the group of ‘working women’; women who fulfil the care tasks in their families. These care tasks vary between household activities, taking care of children, and taking care of the elderly. Women may or may not do this next to a daytime job, either part- or full time. This because this group of women encounters the most obstacles in the city, while simultaneously being criticised for not working enough and not taking care of their households enough. They exist in an impossible limbo of patriarchal criticism.

**Change in the female employment rate and in the female share of part-time employment in the presence of children**  
(in pp., 2022)



**Change in the male employment rate and in the male share of part-time employment in the presence of children**  
(in pp., 2022)



Change in female (above) and male (below) employment rate and share of part-time employment in the presence of children. Circles indicate the position of the Netherlands on the chart, the line indicates the 0% rate for change in share of part-time employment





## problem analysis

### interplay between the city and society

Our built environment is a direct reflection of societal values and developments. We see this for example in the difference between medieval cities, that are full with small roads and tight-knit neighbourhoods as they were built around the importance of local community, versus the car-centric urban suburban development that was made possible by a certain prosperity that allowed quality of life for more people (Fidanci, 2023). So, just as societal structures are reflected in cities, patriarchal values are also manifested in them, resulting in gender inequalities (Marcuse et al., 2009). This may not come as a surprise, given that women were not always considered equal to men. As a result, cities have been built by men for men, with little regard for women's experiences. The link between gender inequality and our living environment and concepts of the unequal built environment has been noticed by female architects since the 1980s (Matrix, 2022) and, in more recent times, by Leslie Kern in her very popular book 'Feminist City' (Kern, 2020). The popularity and growing number of such books can be seen as indicators that the problem is gaining attention in the field of architecture.

Just as society influences the built environment, the set-up of the city influences social activities and practices, both positively and negatively (Rios, 2022). In the context of the unequal built environment, this means that the city has an impact on the lives of women. It affects feelings of safety, the time it takes to perform certain activities, and participation in public life due to accessibility (Fenster, 2005; Kern, 2020; Matrix, 2022). These are all factors that influence the opportunities that the city offers to women. Women may not have the time to work due to the time it takes them to fulfil their care duties; an education opportunity may be missed if it is located in an unsafe part of the city (Kern, 2020).

### gender roles

If we dive deeper into gender inequality in the built environment, we can clearly connect the unequal city to the aspect of gender roles. This concept entails the differences in activities connected to traditional female and male roles within society and the family, where men are seen as the financial provider for the family and women take care of the family. This has been written about extensively by for example the Matrix collective and Leslie Kern. The idea is that activities connected to the care tasks of the family influence the way women need and use space (Criado-Perez, 2019; Kern, 2020). These activities have not been accounted for in the design of the city.



*Woman carrying her child up stairs in a public transit stop*

Although current feminist movements and efforts try to push us away from this stereotypical familial distribution, due to national legislation on parental leave (Kooijman, 2023) and the wage gap present in the Netherlands (Moeliker & Vié, 2023), the care tasks of families and society fall disproportionately under the responsibility of Dutch women (Meulenbelt, 2022).

### safety

Safety is also a big problem for women in the city. Research by the CBS shows that two out of three young women have experienced harassment while walking down the street, while for men it is only half that amount (CBS, 2022b). Their research also found that the feeling of unsafety affects women more than men, with 85% of women feeling unsafe when being catcalled versus 43% of men. This denies women access to the city, seeing as they often choose to avoid the public sphere if they do not feel safe.

### accessibility

Concepts of accessibility to and in the city take many different shapes. It can refer to physical obstacles that may occur in the city, such as stairs on walking paths that are hard to navigate with a pram (which connects to the gender roles mentioned before) (Kern, 2020; Matrix, 2022). However, on a more abstract scale, it can connect to facilities that the city has or lacks. As women generally have less money than men, the commercialization of places in the city denies them access to those areas since they are less able to participate in that commercial function. If the public space is not equipped for other activities, this also denies women access to the city.

### lack of understanding

It is clear from these examples that designers lack an understanding of the needs women have in the city. Gathering such information through regular participation practices may not provide a solution, given that democratic participation practices in participatory urban design often reinforce existing group oppression, and women have their needs underrepresented compared to those of men (Fenster, 2005). It is clear that in order to address the problem of gender inequality in the built environment, there needs to be more focused research on the needs of women and how to integrate these in design practices. A specific research and participation process can better delineate the different scales and domains in which women experience problems in the city.



Public campagne against street harrasment in Rotterdam, 2021

*The patriarchal structures of our society have led to gender inequalities in societal norms, spatial configurations and participation processes, creating disparate experiences for women in the city, especially women who perform care labour. This has resulted in unequal cities, and designers lack the tools or knowledge necessary to reform cities towards equality.*



## *project aim*

The aim of this project is to develop legislative and design interventions that facilitate a gender-equal city. These interventions need to be developed based on an understanding of two aspects. Firstly, the interplay between the societal process behind gender inequality and the spatial elements of the city. Additionally, the needs and activities of working women in the city need to be accounted for.





*methodology*



## research questions

### What urban transformations can help enhance gender equality in the city, increasing opportunities in the everyday environment of working women?

This research question can be answered through answering the following sub research questions (SQs). These questions can be categorised as either a question that provides context, that provides design input, that poses a design question or that offers reflection on the outcomes of the research.

#### context

SQ1: In what ways are gender inequality and equality present in West European culture?

SQ2: In what ways do these (in)equalities manifest themselves in Dutch cities, specifically Rotterdam?

SQ3: In what way have gender mainstreaming processes helped to reduce gender inequalities in the city?

#### analytic

SQ4: What are the needs of working women in the city?

SQ5: What design and legislation principles can improve opportunities for working women in the city?

SQ6: In what way is Katendrecht an unequal or equal neighbourhood?

#### projection

SQ7: How can Katendrecht be transformed into a gender-equal neighbourhood?

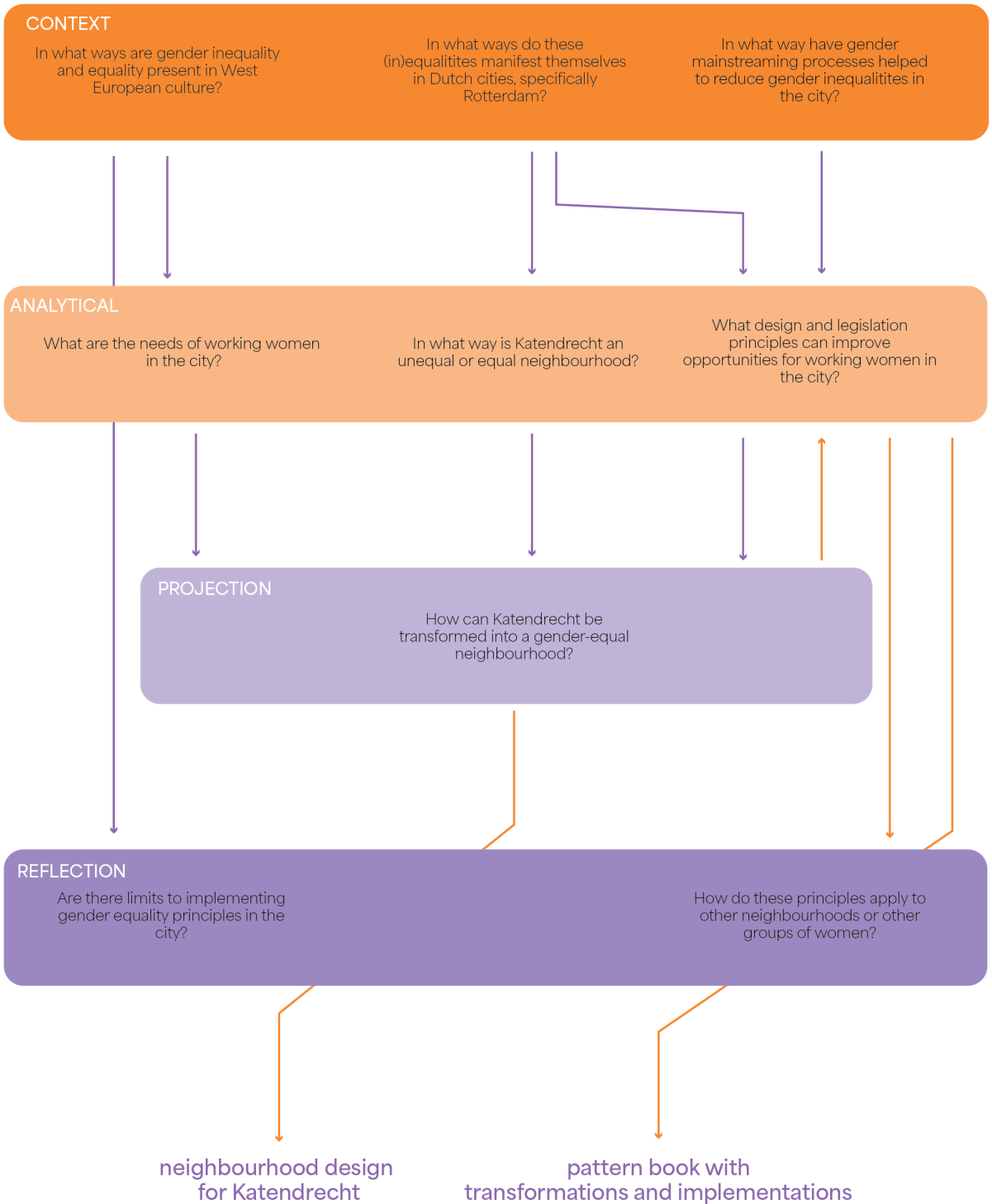
#### reflection

SQ8: How do these principles apply to other neighbourhoods or other groups of women?

SQ9: Are there limits to implementing gender equality principles in the city?

The relation between the sub research questions and the proposed end results can be seen in the analytical framework provided on the right page. Contextual questions give input on the 'bigger picture', while the analytical questions provide more specific design input. This can be developed into the projection of a neighbourhood design, but also be used directly for the pattern booklet with transformations and implemenations. The reflective questions serve as a way to broaden the project again, and reflecting on the applicability and transferability of the developed implementations.

# What urban transformations can help enhance gender equality in the city, increasing opportunities in the everyday environment of working women?



## methods

The different sub research questions all aim to fulfil a different function in this graduation research. There are questions that aim to inform as context (SQ's 1, 2, and 3), others to analyse as design input (SQ's 4, 5, and 6), to deliver a design projection (SQ 7), and to reflect (SQ 8 and 9). These questions together can create a complete answer to the main research question and can be integrated into a handbook that details how to design for gender-equal cities.

A variety of methods have been used to address these questions. These methods are literature and historical research, case studies, observation, mapping, interviews, pattern development, and design.

**Literature and historical research** has been used mainly for questions that aim to inform and analyse. It was used to give a background to the history of the fight for gender equality in Western Europe, as well as the connection between gender inequality and the built environment. It was able to provide an evidence-based background for the analysis of the phenomenon in Katendrecht, as well as information on gender mainstreaming and its benefits. It also provided information on any limits to the implementation of gender equality principles in the city.

The different forms of **fieldwork (ethnographic mapping, interviews, and observation)** have provided a more detailed analysis of the problem, applying what has been found in the theory in Katendrecht to see in what way the problems may manifest themselves. This gave valuable information to see what interventions are needed.

Vienna was analysed as a case study, with the same fieldwork methods as Katendrecht. This was done to make a comparison of transferability and to see how well the gender mainstreaming practices of Vienna can be applied to Rotterdam. Conducting fieldwork in Vienna also helped to make deductions on whether gender mainstreaming practices lead to gender equality in the city.

**Design** was used as a testing tool as well as an outcome in this thesis, using an iterative design process to find which interventions can be successful in the location and which are not applicable. Applicable interventions were combined into a site design, functioning as an example of how to design a gender-equal city.

All information gathered during theoretical research, fieldwork, and design testing was processed into patterns, using **pattern language development** to create a handbook for gender inclusive design.



In the methodological scheme on pages 24 and 25, the use of methods per question is shown. If a question is answered by multiple methods that serve different purposes, they are color coded in order to show which methods correlate with which part of the question.

The specification of some methods per question are as follows:

For research question two, 'In what ways do these (in)equalities manifest themselves in Dutch cities, especially Rotterdam?', the type of mapping was thematic mapping based on the findings from literature, using this information to explore their applicability in Rotterdam.

The fieldwork conducted to answer research question three 'What is typical about the group of working women?' consists of interviews, observation methods and the use of ethnographic and activity mapping in order to find the needs and activities of working women.

In order to answer question four 'In what way have gender mainstreaming processes helped to reduce gender inequalities in the city?' fieldwork (observation, activity and ethnographic mapping) was conducted in Vienna, to understand how the Viennese gender mainstreaming efforts may have altered the activities and behaviour of women in Vienna. The Viennese examples were also used as a case study to determine transferability to the case of Rotterdam.

The pattern development for research question five 'What design and legislation principles can improve opportunities for working women in the city?' is for two purposes. The pattern language is both as a communication tool as well as a design tool.

To answer question six, 'In what way is Katendrecht an unequal or equal neighbourhood', there is a mix of basic morphological mapping, subject mapping connected to the literature (similar to research question two), and the use of ethnographic and activity mapping to get a better view on the problems that are relevant in the case of Katendrecht. Interviews have also been used in order to understand the social problems and needs that can influence the design.

## research questions

## methods

### informing

In what ways are gender inequality and equality present in West European culture?

historical research  
theoretical research

In what ways do these (in)equalities manifest themselves in Dutch cities, specifically Rotterdam?

mapping  
theoretical research

### analysing

What needs do working women have in the city?

theoretical research  
fieldwork

In what way have gender mainstreaming processes helped to reduce gender inequalities in the city?

reference case study  
fieldwork  
theoretical research

What design and legislation principles can improve opportunities for working women in the city?

theoretical research  
pattern development

In what way is Katendrecht an unequal or equal neighbourhood?

mapping  
fieldwork

### projective

How can Katendrecht be transformed into a gender equal neighbourhood?

site design

### reflective

How do these principles apply to other neighbourhoods or other groups of women?

theoretical research

Are there limits to implementing gender equality principles in the city?

theoretical research



## *intended outcomes*

(historical) overview of gender (in)equality in the Netherlands, underlying structures and how these influence society still

overview of spatial and social aspects that cause (in)equality in the city, together with maps showing them specifically for Rotterdam

basic description of the focus group: characteristics, activities  
overview of needs and problems this group of women have in Katendrecht

overview of mainstreaming practives  
analysis of how mainstreaming has helped with (in)equality in Vienna

overview of base conditions, implementations and legislation that can be used to improve the city for the focus group  
pattern book with transformations and implementations

maps showing problems and opportunities in Katendrecht

neighbourhood design for Katendrecht

discussion on how patterns may interact differently in other locations

reflective text branching out to obstructions  
in the fight for equality in the city

**MR. PRESIDENT  
HOW LONG  
MUST  
WOMEN WAIT  
FOR LIBERTY**

UNIVERSITY  
OF KANSAS

U OF MO.

*theory*



WASHINGTON  
COLLEGE OF LAW

LELAND  
STANFORD

RYN MAWR

SWARTHMORE

VA

## theoretical framework

The realm this thesis operates in is defined by many concepts, of which some are contextual and others more directly related. The context of our **patriarchal** societal system has led to a skewed **division of labour** and the need for **gender mainstreaming** methods. These methods are an act of **equity**, changing accommodations in order to reach an equal outcome. These gender mainstreaming implementations can be both legislative or concern **urban transformations**. These urban transformations can facilitate **opportunities** for working women in order to lead to an **integral right to the city**, as opposed to the gendered right to the city which is present now. These urban transformations can also influence the division of labour, but never alter it directly. When designing gender mainstreaming implementations for our case, we always have to take into account how **intersectionality** is applicable to the different ideas.

Explanation of the individual concepts used in the conceptual framework follow:

### patriarchy

A patriarchal society is a social system where men and masculinity are seen as the human default, in which men oppress and exploit women (Lorber, 1997; van Tricht, 2018). Although feminist efforts have helped to reduce women's oppression and exploitation in Western Europe over the last few decades, the structural basis of our society remains patriarchal. It has resulted in a society in which women are categorically seen as being 'below men', as lesser humans, and this thought underlies the gender inequalities that have resulted from it (van Tricht, 2018).

The consequence is that characteristics and activities that are traditionally viewed as female are underappreciated in society. This manifests itself in women not getting recognition for such activities or in men not being allowed to show such characteristics. Therefore, traditionally female responsibilities, such as that of childcare and houseminding, are seen by most men as not their obligation, or sometimes even as 'beneath them'.

However, as society has emancipated throughout the decades, this point of view is slowly becoming less prevalent. Men are claiming more responsibility in their households, with the concept of a "daddy day" (papadag in Dutch) becoming popular (Theunis, 2018). Even though this is a step in the emancipated direction, the concept of one day per week where the father assumes responsibility for the kids leaves six

other days where the obligation falls upon the mother. The woman remains the primary caregiver in the family. The patriarchal ideas that are ingrained in society have led to a skewed division of care labour in the family.

### division of labour

Research by The Netherlands Institute for Social Research has shown that Dutch women spend an average of 26.5 hours per week on care tasks in the home, while Dutch men spend 17.5 hours (Roeters & Vlasblom, 2019). The shared responsibility of care labour falls mostly on women in the Netherlands, which is the result of a few different processes. The main reason it is the female partner that gives up paid labour in order to take on the unpaid labour in the home is due to the wage gap that is still present in the Netherlands (Moeliker & Vié, 2023). As women earn less than their male partners, it is a logical choice for them to decrease their work hours when the amount of care labour increases, as this minimizes the income loss. Another factor which influences this skewed distribution of labour is the institutional difference between maternity and paternity leave. The paid 'birthleave' for partners is one regular working week. Additionally, they can take up to five weeks of non-paid leave, in which they get governmental benefits of 70% of their regular income (Ministerie van Algemene Zaken, 2018). The birthing parent gets 16 weeks of paid leave, starting at least 4 weeks before the birth (Ministerie van Sociale Zaken en Werkgelegenheid, 2013). Women are legally entitled to 10-12 weeks of fully paid time off to spend with their newborn, while their partners get just 5 days. This legislation clearly shows an institutional idea that the women should be the default caregiver, ingraining this idea in the family dynamics (Kooijman, 2023). This is a result of the patriarchal structures ingrained in society, and it also perpetuates these ideas.

### (gendered) right to the city

The 'right to the city' as Lefebvre coined the term, is that urban spaces should be shaped by the people who participate in them, who appropriate them - the urban life - instead of being shaped by capitalist structures. Harvey describes it as a common right to shape the city and therefore shape ourselves: "the freedom to make and remake our cities" (Harvey, 2003). However, as Tori Fenster critiques, this view is sexist, as this urban life and the 'public' that shapes our cities is more often than not men, as current societal and spatial structures are exclusionary to women. According to the patriarchal structures in our society, women have no belonging to the city. This discredits their citizenship, and therefore limits them in exercising their right to the city (Fenster, 2005). This is influenced by the activities that fall within the care tasks, which are often connected to the home realm, meaning that women who are performing these tasks are not able to go outside and participate in urban life. The aspect of safety also prevents women from

going outside and taking part in urban life. In order to address this problem, and allowing women to exercise their right to the city and be a part of the urban life that shapes the city, an adjustment of the facilities for women in public space needs to be made.

**gender mainstreaming**

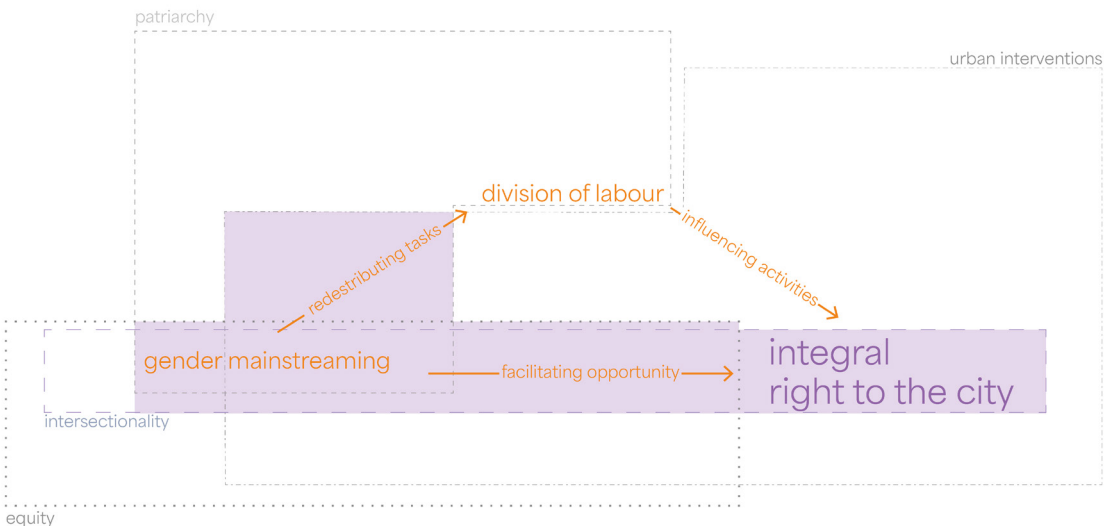
Gender mainstreaming is the practice of ensuring that women and men are accounted for equally in policy, legislation and resource allocation (Hunt, 2019). It is a method that actively works against the patriarchal structures underlying most policy and legislation processes, and it is a process of equity. It recognizes that in order to arrive at a future wherein women and men have the same opportunities, there need to be different accommodations made for women (Juda, 2020). In this research gender mainstreaming refers to the process of focusing on the design of public space to facilitate gendered activities equally, and improving the challenges that women face in the city on different scales, including legislative challenges. This is needed to arrive at a future where women and men have the same opportunities, and are equally able to take part in urban life.

**opportunities**

An opportunity is defined in the Cambridge Dictionary as “an occasion or situation that makes it possible to do something that you want to do or have to do, or the possibility of doing something.” In this thesis, we see opportunities as the instances women are able to do what they want to do, without stigma or other obstacles preventing this. In our current society, the obligation of care tasks and the social opinion on what activities are appropriate for women to take part in can deprive women of the opportunity to exercise their own right to choose.

**intersectionality**

Intersectionality is the notion that systems of discrimination or disadvantage are always interlinked and interdependent due to the complex interconnected nature of social categorization (Crenshaw, 1991). Outside of gender inequality, specific individuals may have to deal with (extra) other types of inequalities based on socioeconomic class, race, nationality, religion, disability, etcetera. This argues for us to take in mind that there is no one-size-fits-all solution and some transformations may be unsuitable for different ‘types’ of women.







# NEUTRAAL BAR

TEL. 7884

CITY THEATER  
BYD CHAPLIN  
DE FORTUUNLIEGER  
HET WITTE GEHEIM  
MOCCROY

NEUTRAAL BAR  
TEL. 7884

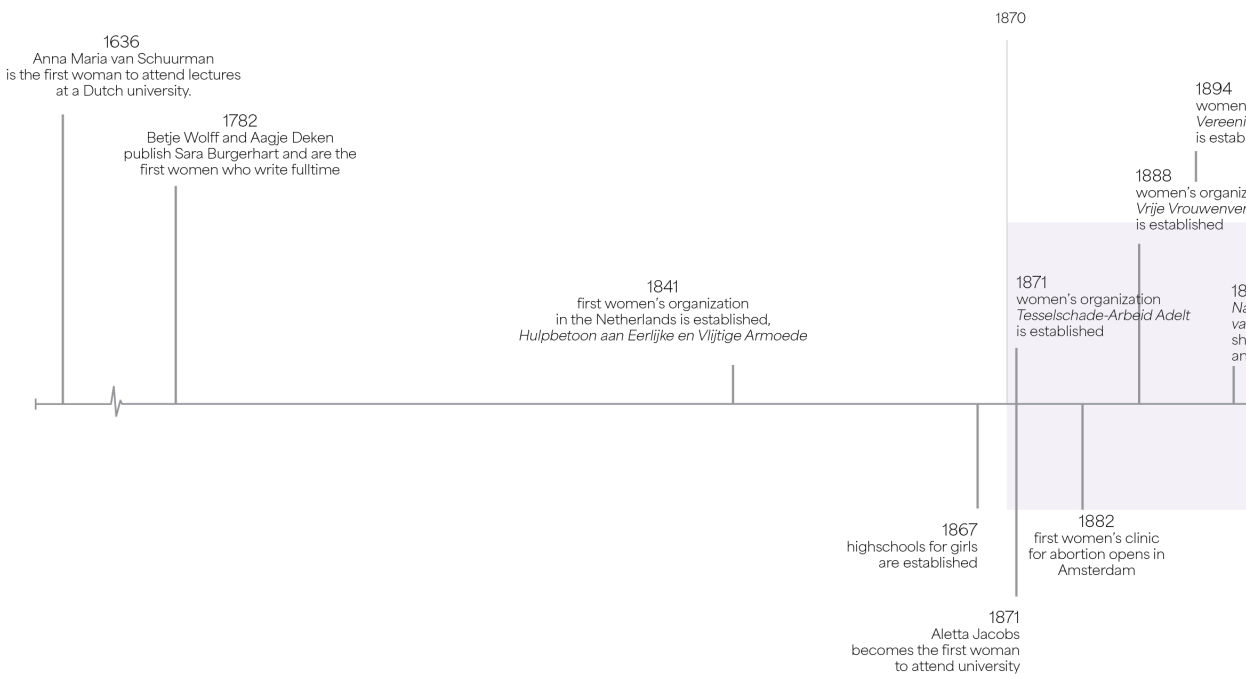




*gendered aspects of city life*

## women's position in society

first w  
suffra



### patriarchy - the start of female oppression

Gender inequality and the dominance of men over women have been so ingrained in society that many people still see them as natural or inevitable. However, as researchers discover more and more about ancient societies, it shows that the patriarchy has not existed for as long as we might think. Many writers believe the origin of the patriarchy to be at the agricultural revolution, when a divide between manual labour and domestic labour in and around the farm fell upon men and women (Humanistisch Verbond, n.d.). Recent research by Angela Saini has come up with a different explanation for our gender differences and male dominance. She theorises that, actually, the start of states is to blame for a difference in societal expectations based on gender (Saini, 2024). She believes states are the explanation, as a society living in a state needs to have enough people to defend the state. Therefore, it needed women to be able to produce as many children as possible in order to grow the state's population, and it needed men to fight to protect the state (Saini, 2024). This establishment of gender roles—women as child-bearing and submissive, men as aggressive and dominant—is the start of a society with very strict rules about gender (and its expression) where these structures surrounding gender roles become suffocating, pushing women (and men)

into constricting ideas of what a woman (or man) should be.

It led to societies where women were subordinate to men, reduced to being property passed along from father to husband. Women were not allowed to own property or money; inheritances were passed over daughters and would go to the next male dependent in line; and young women did not get the same opportunities as young men. Even in the lower rungs of society, where families' livelihoods also depended on the labour of the women, young women were often expected to stop working from the moment they were married, as from that moment onward, they were to serve the marriage and their husband as their sole task. Society developed towards a state of perpetual inequality between men and women, which dictated female labour, activities, and ownership.

Where there is inequality, the fight for equality also eventually arrives. Women's movements advocating for female rights have been fighting the patriarchy since the late 18th century, with the critique of women's social position having originated around this time in Europe.

Many scholars see Mary Wollstonecraft as the founding mother of feminism, as she published



first wave

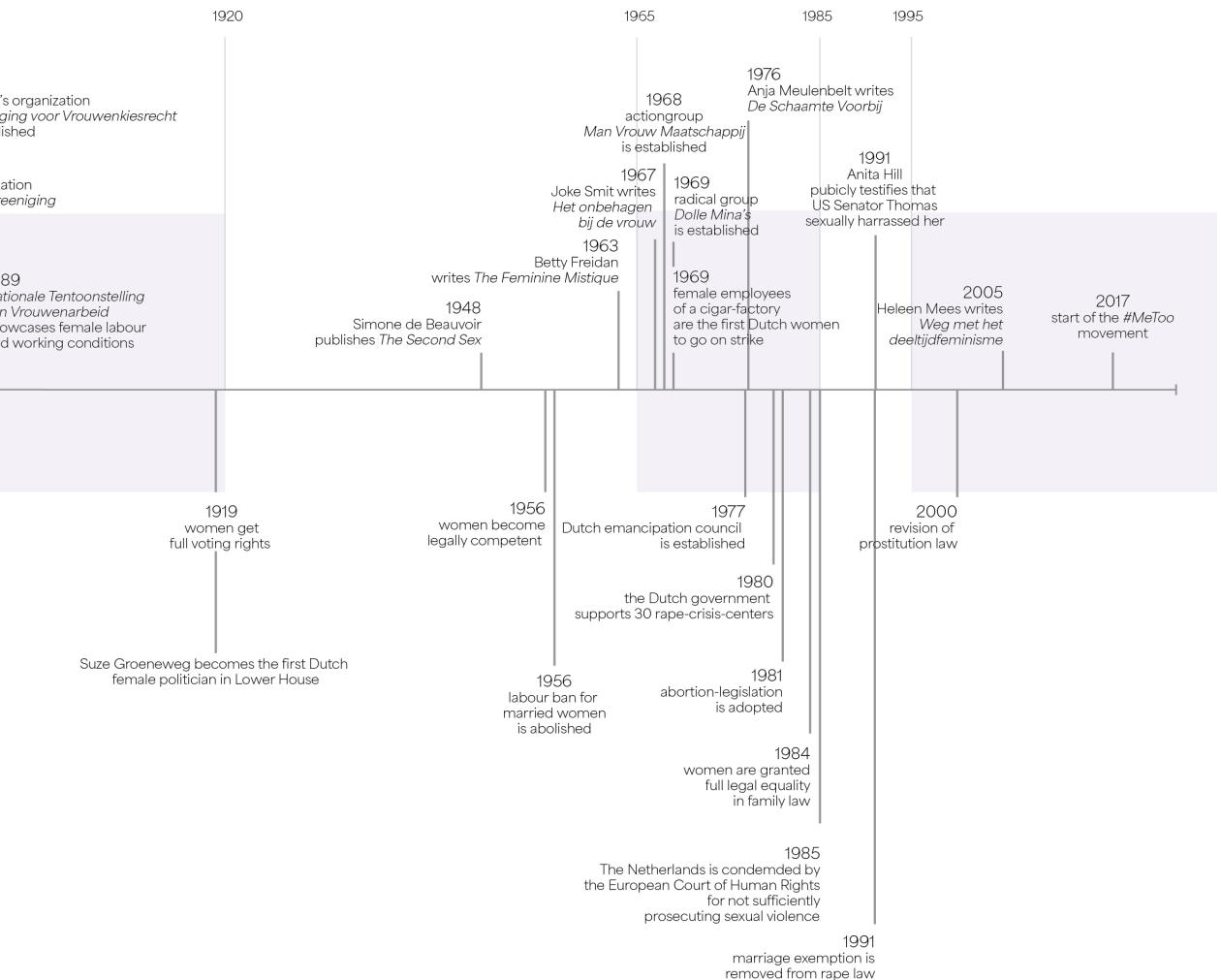
age

second wave

wide range of issues  
sexuality, domesticity, reproductive rights

third wave

intersectionality,  
sexual violence



a pamphlet in 1792 titled “A Vindication of the Rights of Woman”. It was unusual at that time for a woman to write about her own social position, and many people still consider it to be the first feminist work (Atria, n.d.). Another influential woman in this origin of the women’s rights movement is Olympe de Gouges, who wrote the “Declaration of the Rights of Woman and of the Female Citizen” in 1791, a document critiquing the way the French Revolutionists handled gender equality. Partly as a result of this publication and critique, de Gouges was convicted of treason and executed (Historiek, 2019). It is obvious from de Gouges’ horrid fate that society was not yet ready for such gender-focused critiques, and it took more than a century for an organised movement to actually make progress in the fight for women’s rights.

a short overview of feminism in The Netherlands

The feminist movement is often recounted in four movements, or ‘waves’, as distinguishable periods of protest, all with different aims of rights to advocate for.

The first wave of the feminist movement in the Netherlands was between 1870 and 1920, fighting for the right to vote, to follow higher education, and to perform paid labour. Important women from this time period are Aletta Jacobs and Wilhelmina Drucker, who fought for women’s voting rights and equal rights in the workplace. Aletta Jacobs is the first Dutch woman who was allowed to attend university and obtain a diploma (Anna Maria van Schuurman was allowed to

attend lectures in 1636 but was not allowed to graduate and had to sit behind a curtain in order to stay hidden from the male students). She afterwards became the first Dutch female doctor and committed herself to the right to women's suffrage in the Netherlands, and in 1919, Dutch women were granted full voting rights ('Feminisme in Nederland', 2024). The fight for equal labour rights took longer, with the labour ban for married women being abolished in 1957.

Simone de Beauvoir's *Le Deuxième Sexe*, published in 1948, is a long manuscript detailing the origin of the subordination of women to their husbands in the domestic sphere. Inspired by this article, Joke Smits wrote the article *Het onbehagen bij de vrouw* (Women's displeasure), which ignited the second wave of feminism in the Netherlands. This movement pointed out a wider variety of topics than the first movement, focusing mostly on women's position in society, sexual pleasure and reproductive rights. Smit uses her article to point out that women are valued mostly in relation to their care-role for husband and children. Even though labour rights for women were improved in the start of the 20th century, women were not using these possibilities and were selling themselves short by not partaking in society and building a life outside the domestic sphere (Atria, 2017). Many Dutch women recognised themselves in this, and this support ignited the establishment of a new feminist action group called *Man-Vrouw Maatschappij*. The MVM focused itself on a practical approach to societal displeasure. A more radical group that originated during this time was *Dolle Mina*. The *Dolle Mina's* caught quite a lot of attention during their active time, using playful actions and protests (such as distributing facemasks at the housekeeping fair against the 'suffocating fumes of marriage') to call attention to the societal role distribution of men and women and advocate for a change in mentality in order to liberate women and men (Atria, 2015). Due to the efforts of MVM, the *Dolle Mina's* and countless other action groups and their demonstrations, women acquired more legal rights, such as full equality in family law ('Tweede feministische golf', 2024). Their biggest wins, though, were the societal changes that followed their efforts, like the establishment of shelter for victims of sexual violence, improved daycare options, education on contraception methods, and abortion clinics (Atria, 2015).

The third feminist wave in the Netherlands is a continuation of the second wave as well as its own movement with additional focus. During this time, there was still a lot of attention for female labour participation, as the second wave focused on. However, new topics the third wave focused on were the aspect of intersectionality and the lack of women of colour in past feminist



*The Dolle Mina's in a propaganda march in favour of the birth control pill, 1970.*

movements, as well as additional attention to sexual violence and violence against women. Important feminists such as Gloria Wekker published about the integration of gender and race, establishing the action group *Sister Outsider* for black, migrant, and refugee women as a response to, for example, the MVM, which consisted mostly of white, middle-class women.

Due to the arrival of the internet and global communication, a lot of feminist activity from all over the world can now influence the feminist movement in the Netherlands. An example is the #MeToo movement, which originated in the US following sexual violence accusations of Harvey Weinstein. It led to a worldwide societal transition considering sexual intimidation, leading to an investigation into transgressive behaviour on the Dutch TV show *The Voice of Holland*.

### persisting inequalities

Although scholars disagree whether the third wave is still ongoing, has never started, or the current feminist movement is already in a fourth wave, feminist issues are still being addressed every day in our current society. Although obvious and visible gender inequalities have been addressed before and have mostly been eliminated in the Netherlands, and the position of women in society has improved immensely, it is still not on the same level as that of men. The patriarchy is still an existing societal system, and there are many aspects of male domination still present in our society.

Many of these remaining inequalities have to do with societal expectations and the hard-to-erase underlying ideas about masculinity and femininity that come from the patriarchy. Although women are allowed to take part in the paid labour force, they are paid about 14.8% less than men (in the Netherlands; the average 'wage gap' in the EU is 12.1%) (OECD, n.d.). Next to this, men often also enjoy better secondary terms of employment, get higher bonuses, or get a share of company profit than women (Moeliker & Vié,

2023). Scholars are thinking of many reasons this could be, but in general, it all comes down to societal expectations of what women and men should be or behave like. Men are often rewarded with higher salaries because people think they are the 'breadwinner' in the household, and women are often deemed less sympathetic when negotiating an offer, resulting in them less often closing a deal than men (Moeliker & Vié, 2023). It is also a generally acknowledged problem that there are fewer women than men in high positions or on company boards, which has provoked countries to implement a female quota. In 2020, only 13% of board members in Dutch companies were female, leading to the implementation of a law that states that at least one third of the supervisory board of publicly traded companies has to be female (Sociaal-Economische Raad, n.d.).

In the scientific world, there is also a lot of gender inequality. Research and experiments are often conducted with only male subjects, as their relatively simple hormone cycle is easier to account for in experiments (Saini, 2018). This has resulted in skewed results, which can become extremely dangerous for women in the case of medical science. For example, recent research has shown that heart-attack symptoms are different in men and women, but because the male symptoms are seen as the default, heart attacks are recognised less in women. Women are more than 50% more likely to be misdiagnosed following a heart attack, and as a result, women are statistically more likely to die due to a heart attack (Criado-Perez, 2019). The consistent misdiagnosis of women even has a term in the medical field, being called the 'Yentl Syndrome'. Medical professionals also often underestimate the gravity of the symptoms women are experiencing, especially in female-specific diseases, leaving women to walk around undiagnosed and in pain for multiple years, putting them at a higher risk for complications than men who are heard and helped in the first instance (Criado-Perez, 2019). Endometriosis, a very painful uterine disease, takes, on average, 8 years to be diagnosed in the UK. No cure has been found for it yet, though it is estimated to affect 1 in 10 women (Criado-Perez, 2019). This, together with the fact that women are more often thought to be experiencing psychosomatic pains and systematically have to wait longer to receive treatment than men (Criado-Perez, 2019), makes it borderline dangerous to be a (sick) woman.

Safety concerns are an issue for women currently anyway. Six out of ten female murder victims in the Netherlands were murdered by their (ex-)partner, and one out of five by family. In comparison, three out of ten murdered men were (merely) acquaintances of their murderer. Women are also often murdered in their own homes (CBS, 2023), making even their most personal space dangerous to them. Less fatal violence at the hands of a partner is also a

problem, with around 26% of women worldwide having been subjected to physical or sexual violence by a partner in their lives (United Nations, n.d.). Sexual violence is primarily a female issue, with 1 in 8 Dutch women having been a victim, against 1 in 25 Dutch men (CBS, n.d.). Dutch women are also harassed more often on the street and are experiencing it more negatively than men (CBS, 2022). Research also shows that women handle this harassment differently than men, with men more often laughing about it or addressing the perpetrator, while women often use strategies to make themselves feel more safe, such as calling someone or grabbing something (keys or pepper spray) to defend themselves with (CBS, 2022).

While the past century has seen improvement in the position of women in society, recent years are showing a regression in female rights. In the US, the famous Roe v. Wade ruling was overturned in 2022, denying American women the constitutional right to abortion (Totenberg & McCammon, 2022). The use of social media worldwide has also shown a lot of attention to misogynists, with men gaining more and more followers to share their opinion. One of these is the infamous Andrew Tate, who is poisoning young men worldwide with his views on women (BBC, 2024). Another worrying social media trend is the rise in popularity of so-called 'trad-wives' (traditional housewives), women who are showing their lives in extremely conservative and traditional gender roles, with the opinion that women 'belong in the kitchen' (BNNVARA, 2024). Flemish political party Vlaams Belang is even pushing women to bear children before their thirstiest, saying this will 'strengthen the nation'. They argue that in order to face an immigrant ban there needs to be 'healthy family politics' (@standaard, 2024). Doing so, they are making an appeal to women's bodies and lives in order to support their political ambitions, which is a scary regression to the origin of patriarchy.

Although this will not immediately undo the years of feminist victories, their popularity shows that their philosophy is shared by many people worldwide, and true worldwide value of gender equality has not yet been achieved.

According to a forecast by WOMEN Inc., an institution committed to improving the position of women in the Netherlands (Women Inc., n.d.), it will take 72 years before the Netherlands reaches full gender equality (WOMEN Inc., 2024). Evidently, although massive strides have been made since 150 years ago, there is still a lot to be achieved before women are fully equal to men.

## gender inequality in the city

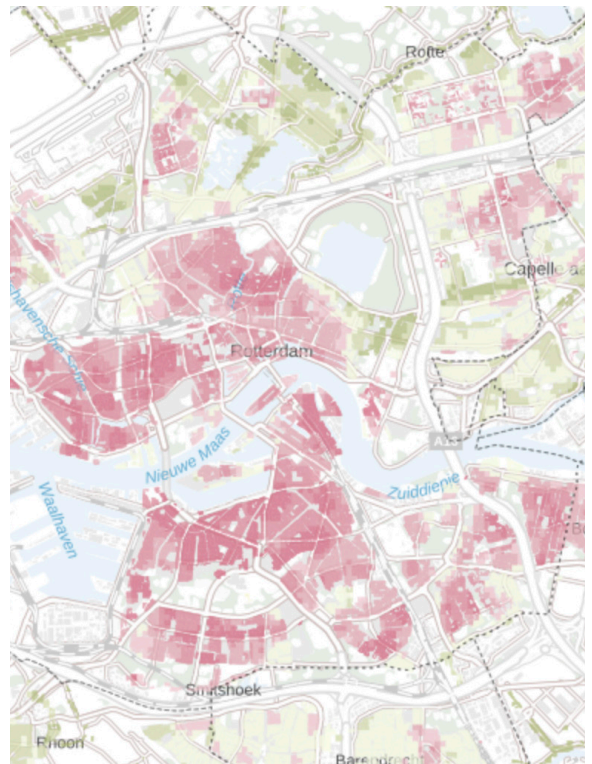
We can see gender inequality in the built environment as a problem resulting from the extending freedoms women have gained in the past century. As society deemed women's place 'inside the home' for a long time (Hayden, 1980), they did not participate in society in the built environment enough to encounter problems here. However, as women have been increasingly finding their place in active society, entering the paid labour force and venturing outside of the home, it is showing how a city designed for homebound women is constraining them socially, physically and economically (Hayden, 1980). The city has been conceptualised as the realm of men, and even though women now use public spaces, the city is a masculine environment which leaves women feeling uneasy, unwelcome or even excluded (Rampaul & Magidimisha-Chipungu, 2022).

One of the most obvious problems women encounter in the built environment is that of (a lack of) safety and the fear that comes from this experienced unsafety. Generally, in the Netherlands, street harassment is more frequent in the city than in the countryside, with 20% more young women having to deal with unwanted attention, name calling or wolf whistling on the street (Centraal Bureau voor de Statistiek, 2022).

### - Overlast & onveiligheid, Grid, 2022

Gemeentegrenzen 2022

- Zeer grote negatieve bijdrage
- Grote negatieve bijdrage
- Negatieve bijdrage
- Kleine negatieve bijdrage
- Geen afwijking
- Kleine positieve bijdrage
- Positieve bijdrage
- Grote positieve bijdrage
- Zeer grote positieve bijdrage



*Experience of disturbance and unsafety in Rotterdam, Leefbaarometer*



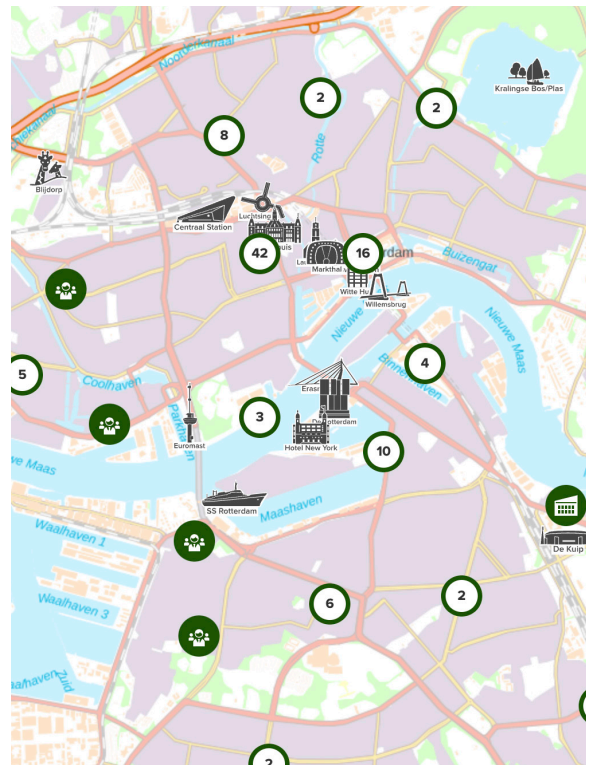


*Dolle Mina demonstration against the lack of public toilets in Amsterdam, 1970*

mannen mogen gratis plassen  
 in zo'n prachtig steen gebouw  
 maar de vrouw moet geld verbrassen  
 die zit altijd in het nauw

*poem by Salomon Cohan, prompted by the Dolle Mina Aktie Hoge Nood*

Another aspect of gender inequality in the built environment is the availability of public restrooms in the city. Back in 1970 Dolle Mina already fought for public urination rights for women, as most public urinals were (and are) only accessible for men, leaving women to find a place to do their business, most of the time in restaurants or locations they need to pay for (Atria, 2024). Although it might seem like an inconvenience at the most, the presence (or actually, absence) of clean and free toilets for women sends a message of what people have ownership of the street, and who is envisioned to be a participant in public space. If there are only facilities for men to urinate in the street, it is clear that women are not imagined to be a part of the public sphere in the city. Even though the demonstration by the Dolle Mina's was some 54 years ago, there has been little to no improvement in the number of public toilets for women. Just recently, in April of 2024 (176!! years after the first public urinal for men), the city of Amsterdam has announced to invest four million euros in public toilets that are also accessible to women (NOS, 2024).



*Public toilets in Rotterdam, official website of the municipality Rotterdam.*

## built environment and gender roles

If we look at the intersection between the built environment and the different roles men and women take on in the family and in society, we can find a lot more aspects where the city is unequal. Activities that are associated with taking care of the household, like buying groceries, bringing children to school and extracurricular activities, or taking care of elderly family members all have a spatial claim in the city that is different from going to work as the most important activity. Seeing as women perform 75% of the care labour in the world (Criado-Perez, 2019), from this point onward I will be speaking of a very reductive separation between men and women, in which the woman is the caretaker and the man performs no care tasks. This is due to multiple aspects.

Firstly, simply because these activities, which often need to be combined during one day or even one trip (a phenomenon called trip-chaining), are located at multiple locations, dispersed throughout the city. The aspect of function distribution and concentration is relevant in this context. Due to this distribution of functions, the travelling patterns of women are way more erratic than that of men, who are simply going to work and coming back home.

*These maps all show public transport stops, with buffers according to the walking distance acceptable to reach such a transit option. Even on the busy overlapped map, it is clear that there are parts of the city which are not well-connected, such as Heijlplaas, which is only accessible with a busline.*

*Considering buslines service one specific route, travellers from Heijlplaas will always have to transfer in order to reach the city centre, or even other locations in Rotterdam Zuid. This adds a lot of time to the travelling route, requiring more effort to go to certain parts of the city or perform certain tasks.*

*These two so-called heatmaps show the concentration of shops and respectively offices in Rotterdam. These images clearly show that there are areas of the city that have very little access to shops (Heijlplaas for example), and therefore the public will always have to travel far to visit the shops. Offices even have a more skewed distribution, with a clear concentration in the city centre, and little to no offices in Rotterdam Zuid. Women who live on Zuid will therefore always have to travel further for their jobs, making it harder to combine with care labour.*

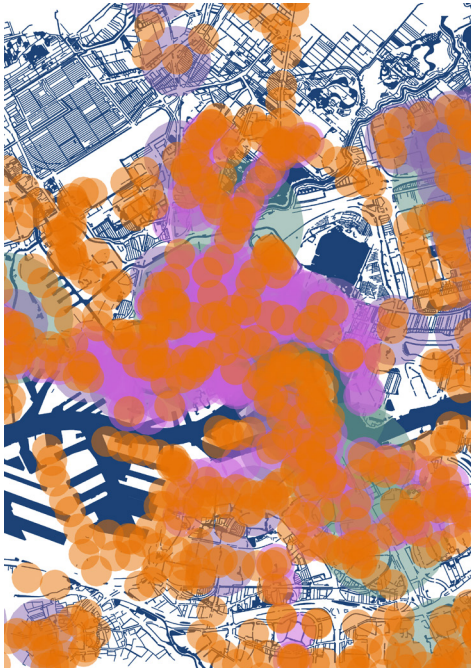


Heatmap of shops in Rotterdam



Heatmap of offices in Rotterdam

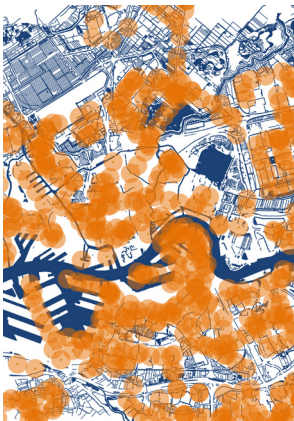




Public transport coverage in Rotterdam, all transport types.

Even though women are more likely to use public transport than men (Criado-Perez, 2019), public transit systems are designed with male travelling patterns in mind, making them ineffective and expensive for the trip-chaining women who actually use them more frequently (Kern, 2020). Even if a city is well-covered by public transit options, arriving at specific locations often requires switching transit options (from bus to train to metro), which are offered by different providers. This may increase costs, as women need to get a subscription to all systems, or because the linear organisation of the transit systems means women are making double trips (Kern, 2020).

This can have a big impact on women's lives. The accessibility and availability of good quality amenities dictates the ease in which care labour can be carried out. In Johannesburg, a city where the additional influence of apartheid also plays a role, women sometimes have to decide to send their children to live with relatives, because they cannot find quality schools in the same area where they can find work (Kern, 2020). This is not generally the case in the Netherlands, but it is illustrative of the impact the city can have on women's and children's lives when it is not designed with these aspects in mind.



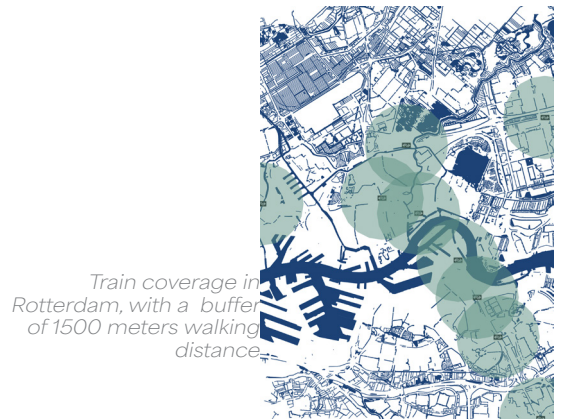
Bus coverage in Rotterdam, with a buffer of 350 meters walking distance



Tram coverage in Rotterdam, with a buffer of 450 meters walking distance



Metro coverage in Rotterdam, with a buffer of 800 meters walking distance

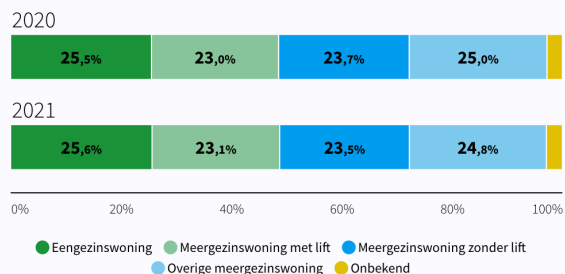


Train coverage in Rotterdam, with a buffer of 1500 meters walking distance

Another aspect in which the city can be unfriendly to women is in the housing types it offers. This is deeply connected to society and the way it favours the nuclear family; a social group consisting of two (often married) parents and their socially recognized children (Brittanica, 2024). This, together with the Dutch fetish for home-ownership encouraged by a centre-right government (Hochstenbach, 2023) has resulted in a housing supply which consists mostly of single-family homes and family focused apartment complexes. This type of architecture does not facilitate the development of community and friendship, even though such social links are of great importance to women (Kern, 2020), as the forming of a community with neighbours allows for the sharing of care labour between multiple members of the community. As a result of the Dutch individualistic housing stock, someone needs to cook dinner in every house in the Netherlands tonight, which means that there will be roughly 770.000.000 people needing to spend time in the kitchen cooking, instead of being able to choose how they want to spend it (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2021).

The city is most unequal in its intersection with gender roles. As a result, improving gender equality in the built environment needs to be addressed both through design, but also through our societal view on women's space in the city. We cannot solve the problem solely through altering urban design and architecture; it also requires a shift in our collective mentality regarding the division of labour in the family and society.

### Woningvoorraad naar type Rotterdam



*Housing stock in Rotterdam, which consists of 25.6% out of single family homes and 71.4% multi-family homes (also contains appartments).*

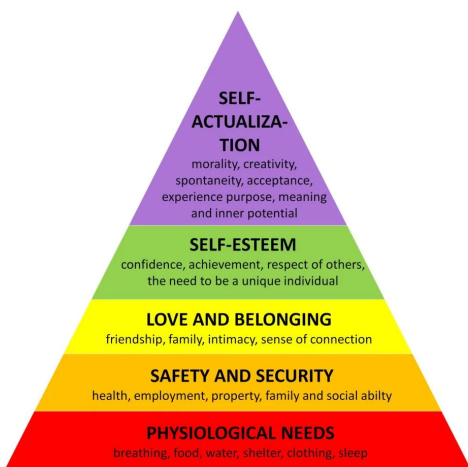




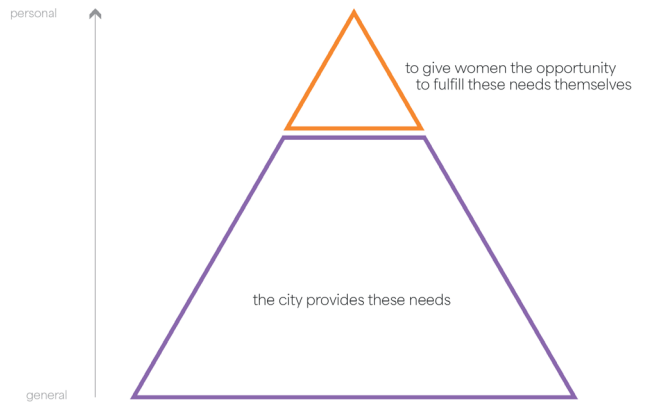
## women's needs in the city

The definition of working women used in this thesis is 'women who fulfil the care tasks in their families'. This care labour varies between household activities, taking care of children, and taking care of the elderly. Women may or may not do this next to a daytime job, either full-time or part-time.

Fundamentally, the needs working women have should not be so different from those of people in general; they too require food, air, and water to live, a home to reside in, and a form of income to survive. Abraham Maslow developed a theory considering human needs, arguing that our needs are arranged within a hierarchy: they are organised in five ranks: physiological, safety and security, love and belonging, self-esteem, and self-actualization (see figure) (McLeod, 2024). Maslow's theory is that higher-level needs cannot be met before basic needs are satisfied. Generally, these needs can be seen as either deficiency needs or growth needs, meaning that people can regress without the more basic needs, while the more advanced needs will make them improve. This is not universal, as Maslow also recognises that as every person is different, there will be people who value self-esteem higher than a feeling of belonging, or people who put creative fulfilment above food (McLeod, 2024).



*The hierarchy of needs as developed by Maslow*



Based on Maslow's hierarchy of needs, I have developed a working women's hierarchy. This pyramid specifically describes the needs working women have in the city. Just as in Maslow's pyramid, needs on the lower ranks are more basic and therefore universal, while needs on the higher ranks are more personal and will differ in importance between women. Needs in the highest rank, self-fulfilment needs, are the most personal, and women have to meet these needs themselves. As they are unable to meet these needs if the more basic needs are unsatisfied, the city needs to provide these lower, more general needs to offer women the opportunity to be able to reach self-fulfilment.

The five categories of needs in this working women's hierarchy are life necessities, safe environment, community, value, and lastly, self-fulfilment. Although they are presented as separate categories and therefore clearly separated entities, needs can, of course, also fall into more categories, whether or not in different forms. The need for paid labour, for instance, falls in the 'life necessities' category as it provides money to fund life, but a prospering career falls within the 'value' category. Job locations, as a need from the city, can therefore be categorised in both ranks.

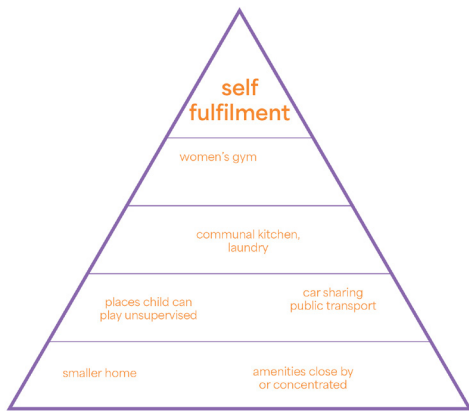


*The Working Women hierarchy of needs*

In order to contextualise these needs and the way they may connect, I have developed four persona's of such working women. They illustrate the different types of working women we may encounter in the city, what activities they may execute, and the needs that are specific to these different situations.

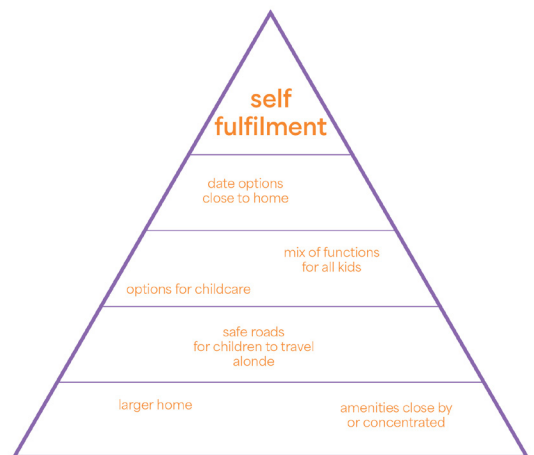
Mona is a single mother in her thirties. Her son, Tom, is nine and in primary school. Since they are just the two of them, their living space does not need to be big. However, it would be nice to live somewhere where Mona could get to know the neighbours, so she has someone to look after Tom when she has plans, or so someone else can cook for once. A complex that has a laundry room would be great. As Mona is the only parent, she spends a lot of time biking around the city, from school to work to the supermarket, back to school to the soccer club, and then to the library and home. This takes a lot of energy and time, and it would be great if at least some of these functions could be concentrated to make them easier for her to combine. Most of the time, Mona and Tom take the bike to go through the city. But on the rare occasion they need to leave the city (to go to her parents, for example), they take public transport. Sometimes Mona needs to transport large items or go for a longer ride, in which cases it would be nice to rent a car.

Tom has a lot of energy, and he likes to play outside, but Mona does not always have the time to watch him. It would be nice if there was a place nearby where he could go by himself and Mona knew he was safe and supervised. To blow off some steam, Mona likes to go to the gym and go for drinks with her friends. She can leave Tom home alone for an hour or so, but she likes to be close just in case something happens. It would be nice if these activities could be done within a 10-minute bike ride.

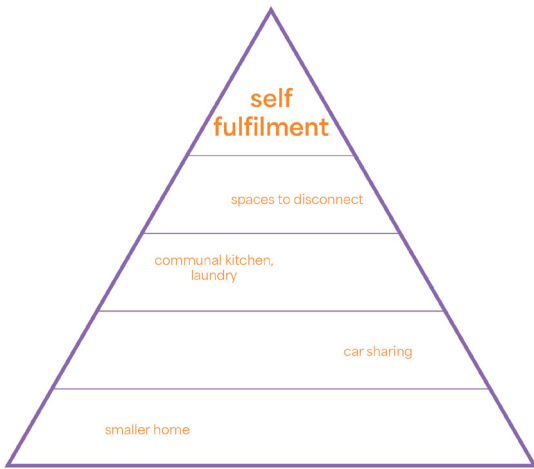


*Mona's hierarchy of needs*

Sarah also lives in Katendrecht with her husband Noah and three children. Julie and Noah both work part-time and split the care work 50/50. Two of their children are in primary school, and the eldest is in high school. As they are a big family, they need a larger home. Sarah and Noah manage most of the tasks in the household with ease, but some help in childcare might be nice on the days they both work the full day. When the children have the afternoon off, they sometimes go on a little excursion. All of the kids have different interests, however, so having multiple options close to each other keeps all three happy and limits angry outbursts. A big family means a lot of groceries, and all the kids' different hobbies ask for different supplies. Therefore, it is nice that they can get such things in one location, which saves them a lot of time (something that is not easy to find with three young children). The eldest is actually old enough to bike to school by herself, but Sarah's anxiety would ease completely if the biking route there was safer. Noah and Sarah like to go out and spend some time together frequently. The kids are old enough to stay home alone, especially with the older one keeping an eye on things, but being able to stay close to home on date night eases Sarah's mind.



*Sarah's hierarchy of needs*

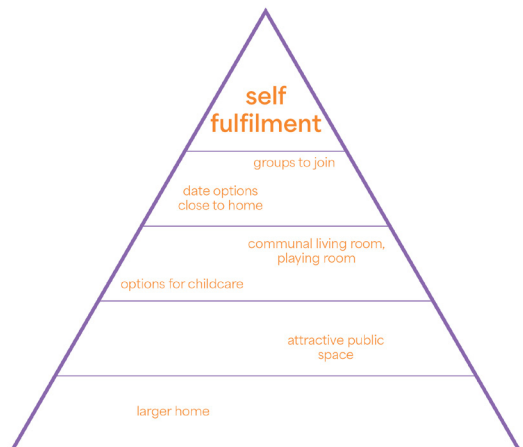


*Beth's hierarchy of needs*

Beth lives in an apartment in Katendrecht. She is happily single and has no children, but she is the caretaker for her aunt. She really likes her studio but wishes she would know the neighbours better. Not just because it is nice to say hello in the stairwell, but also because when she comes home after a day of caring for her aunt, it would be great to not also have to cook for herself. She often has to go with her aunt to check-ups at the hospital. Having the possibility to take a car would make such a trip way easier. On the days she isn't working or taking care of her aunt, she likes to disconnect—either get a coffee somewhere with a friend or read a book in the park—as a way to escape reality for a while. Having such options close to home increases the ease with which she does them, as it can be a hurdle to take herself to the Kralingse Plas when she is tired from a long week.

Olivia had a baby a few months ago and has another child with her partner Bo. Bo works, but Olivia has decided to devote her full attention to the children for the time being. She can get lonely sometimes during the day, spending most of her time with two children who cannot form sentences yet. She would love it if her block had a facility where she could come and connect with some of the other adults who were at home that day, or even a space nearby where she could form a community in the neighbourhood. It would also be great if someone could watch the children sometimes during the day, so she can have the time to take care of herself and go to the gym a couple of times every week. She often takes the children outside if they have the possibility, because the house can become very claustrophobic if they're inside too much. It would be nice to have attractive public space nearby, so she doesn't have to travel too far with the children.

In order to keep the romance alive, Olivia and her partner try to go on a date at least once every two weeks. If their activity is close enough, they can just take the baby monitor with them and skip a babysitter.



*Olivia's hierarchy of needs*







*exploring solutions*



## principles of gender mainstreaming

### gender mainstreaming in urban planning

To create cities that serve both men and women, gender-conscious planning decisions need to be made. Inclusive cities, which promote gender equality, need to take both men and women's urban life into account, especially their experience of and behaviour in the city (Rampaul & Magidimisha-Chipungu, 2022). Taking gendered experiences and needs into account and ensuring women are accounted for equally as men is called gender mainstreaming (Hunt, 2019). Gender mainstreaming as a practice can be implemented in different domains, such as policy, legislation, resource allocation, planning, and design.

Vienna has been applying gender mainstreaming in their urban planning practice since the 1990's, establishing a 'Frauenbüro' in 1992 which accounted for gender-sensitive projects during the city's rapid expansion (Hunt, 2019; Jackowska & Novas Ferradás, 2022). The reason for this establishment was the successful exhibition 'Who Owns Public Spaces? Women's Everyday Life in the City' organised by junior urban planners Eva Kail and Jutta Kleedorfer. They saw that it was necessary to pay attention to gendered differences, to ensure that Vienna's expansion after the fall of the iron curtain would result in a city comfortable for all inhabitants (Jackowska & Novas Ferradás, 2022). The exhibition was an unexpected success and as a result Vienna has been a well-known example of gender-sensitivity for a long time (Jackowska & Novas Ferradás, 2022).

Over the past decades, Vienna has often received accolades for being "the Smartest City in the world", as well as leading a global quality of life city ranking for ten years straight between 2009 and 2019 (Horelli, 2017; Jackowska & Novas Ferradás, 2022). These accolades cannot be attributed solely to the gender mainstreaming urban planning (Vienna is also well-known for its high quality subsidised social housing stock), but the efforts of acknowledging gender in planning practices has led to Vienna becoming an activated, pedestrian-friendly and inclusive urban space (Jackowska & Novas Ferradás, 2022; Roberts & Madariaga, 2013).

Gender mainstreaming practices in Vienna's urban planning process have focused on women-friendly housing complexes, gender-sensitive park designs and mobility services and fully gendered master plans of new towns (Horelli, 2017).

One of the first examples of a gender-conscious housing project in Vienna is that of Frauen-Werk-Stadt, a 1997 complex designed by women for women. It contains the female perspective in every element; there is pram storage throughout the building, the laundry room is on the roof instead of tucked away in the basement and the building itself is low enough to ensure 'eyes on the street' (Hunt, 2019).

A newer example of a women-friendly housing



*Playground in Frauen Werk Stadt, with balconies that offer a view of the activity on the playground*

project is that of Die Drei Schwestern in Seestadt Aspern, finished in 2015. The building complex has specific storage space for bikes and prams, as well as communal spaces in the ground floor that connect to the semi-private outdoor space between buildings, making it easier to watch children playing outside while the adults can remain inside and do their own activity. The configuration of the building blocks, with the addition of landscaping, has resulted in pockets of outdoor spaces which are not fully private, but not public either, preventing strangers from entering.

Such elements can be found in more housing

*right: collective outdoor space in Die Drei Schwestern, utilizing the landscaping in the forefront to create a subtle separation between public and collective space.*

projects throughout the city, some not even deliberately gender-sensitive. In der Wiesen Süd, a housing project in the south of the city, houses many collective functions in the ground floor, from kitchens to meeting rooms to playrooms for the children (Dietrich Untertrifaller Architekten, n.d.). Besides that, apartments are configured in such a way that the kitchens have a view of the exterior, so parents can oversee their children playing outside while preparing dinner inside the house. There is a doctor on site, as well as a primary school, daycare and pharmacy. The grocery store is across the street, increasing the ease with which errands are run and children can be taken to school.

Another special example of a housing project with attention to community is that of the Sargfabrik. Started in the 1980's by a group of people who wanted to live a more community based life, the building houses a communal roof terrace, daycare, communal kitchen and library, culture space and even a swimming pool. The building is also configured in a more communal way: all apartment doors are situated on one walkway, so that you meet your neighbours when walking through the building instead of disappearing in the lift. Even the location of the laundry room is focused on connection: it is in the middle of the project so everyone can see each other when they are in there.



*Hammocks in the Bruno Kreisky Park*



One of the residents explained that during the first year she lived there, she met everyone in the laundry room. Knowing all these people in the building was great, as people could help each other with their children, or to borrow something that was forgotten at the store. Often, people spontaneously cooked for everyone, and still (some 40 years later), there is communal dinner every friday. By facilitating the communal spaces, this housing project fostered a special bond between residents that have assisted each other throughout their lives.

Gender-sensitive park design was inspired by research that showed the number of girls in public parks dropping after the age of nine (Foran, 2013; Hunt, 2019). Where traditional parks were programmed mostly with sporting courts, which were dominated by boys, transformed parks were designed with additional facilities also taking girls' interest into account (Hunt, 2019). This ranged from facilitating different sports (such as badminton or volleyball), to facilitating different activities altogether. The Bruno Kreisky park, for example, was fitted with areas where girls could lounge, observe and chat, as research showed teenage girls having an increased interest in such activities. With the addition of clear pedestrian routes and improved lightning to increase the feeling of safety, the number of girls in public parks rose again to an equal distribution between boys and girls (Foran, 2013; Hunt, 2019).



Mobility services with attention to gender focus mostly on improvement of the pedestrian network, as two-thirds of the journeys on foot in Vienna are taken by women (Hunt, 2019). Improvement to the pedestrian network was done on multiple aspects; improving street lighting, altering traffic light settings to prioritise pedestrians, and installing public seating to facilitate moments of rest during journeys. In addition, pavements were widened to allow pedestrians more space, and many areas with height differences or crossings were made barrier free to accommodate wheelchair users, prams and those having difficulty walking (Horelli, 2017; Hunt, 2019).

Seestadt Aspern is a relatively new part of Vienna, as it is currently under construction and due to be completed in 2028 (Hunt, 2019). Not only does it implement gender sensitive elements like those developed in the rest of Vienna, it also has a great symbolic feminist nature: all streets and public squares are named after women. This sends a deliberate message: women are important and Aspern takes them and their needs into account (Hunt, 2019).

Other symbolic measures throughout the city are the gender-neutral imagery on the metros, which indicate the priority seats for all genders: elderly can be men and women, and both genders can take care of their child.



*Pram-ramp in Vienna, on the side of a set of stairs*

There is some criticism on gender mainstreaming practices however, which come mostly from a feminist point of view. One such point for instance, is how these gender mainstreaming implementations, which are more often than not focused on the aspect of motherhood in their efforts, are stereotypical and reinforce certain gender roles on women (Zibell et al., 2019). Kail responds to these criticisms very pragmatically however: we cannot influence the share of care labour by architecture, but we can support it (Hunt, 2019).

As Kail sees it, the interventions that have been implemented in Vienna do not directly solve the bigger problems women face in life, but they improve the daily struggles women face in the city. They make women's lives in Vienna easier, and a bit more equal (Hunt, 2019).



*Signage on the street indicating the stairs nearby, allowing people to choose a route that avoids them.*

*All streets in Aspern are named after important women, such as the Jane-Jacobs-Weg, named after the American-Canadian journalist and activist who influenced urban studies, sociology, and economics.*



Stadtpromenade

22., Jane - Jacobs - Weg

## Lessons from Vienna

In order to experience the gender mainstreaming interventions and its effects first-hand, I conducted fieldwork and visited housing projects, parks and streets where gender mainstreaming had been implemented, as well as other projects that have qualities that are positive for women. In this chapter I will detail my findings and evaluation of the projects I visited.

I conducted fieldwork by annotating plans of the projects I visited to note observations. These annotated plans can be seen in small on the next spread. The plans in full size are in appendix 2.

I will start with general observations of public spaces and public life in Vienna in the context of gender equality in the built environment.

The city has a good distribution of and a large amount of extremely accessible city parks: almost all parks had their own metro or tram stop, they all had a very high number of benches and furniture to sit down and relax. Most had specific, separate and sometimes fenced play areas for little children. Many had easily accessible toilets, some for a fee (but those were very clean). These parks were dispersed throughout the city. In addition to the big city parks, there were informal green spaces throughout the grid of the city, often close to schools or kindergartens. Some of these informal spaces were just a green space - grass and some trees- but most of these patches of green space were programmed with a playground, sports field, or sitting area (or all three). Most housing complexes also facilitated green space in their courtyard, or another collective location; the city provided three levels of outdoor space in close vicinity to people's homes. This is incredibly beneficial to women, as it increases the accessibility of green spaces. Either they can choose to go to a less formal park closer to home if that suffices for the need at that time, or they can choose to go to a park on the way home or somewhere else: as the parks are situated on most public transport routes and throughout the grid of the city, they can add a park to their route without too much detouring.

Amenities, specifically child- and healthcare were also dispersed very evenly throughout the city, often in the plinth of regular apartment buildings or offices. Supermarkets and drugstores were also spread out very evenly throughout the city, instead of being centred in specific neighbourhood shopping centres. This ensured such life necessities were all very easily accessible, offering multiple options to visit in a short distance from most homes, schools or job locations.



Poster on a tramstop advocating for equal rights for women

The public transit system in Vienna was great. The U-bahn, bus and tram all worked together to move people throughout the city. As you travelled more outside of the inner city, and the metro system dispersed more, buses and trams took over to transport in other directions, with minimal waiting times. Transfer locations were organised clearly. However, when getting more outside of the city centre and more towards new developments, the frequency of the public transport system went down, which increased the time one had to wait before a train would take them somewhere.

Vienna has a lot of attention to details when it comes to normalising gender equality. Signage on the U-bahn for example uses different images to show both men and women with children in the priority seat. Separately, pedestrian traffic lights show both male and female figures, in different configurations (man with man, man with woman and woman with woman). Although this is not necessarily directly related to gender-equality in the context that I am researching, it shows that they have progressive views considering the expression of sexuality - a good indicator of a progressive environment which also pays attention to gender differences.

Something else I noticed in some of the U-bahn stations were vending machines with life necessities such as diapers, toothpaste, formula, medicine and likewise provisions. This 'necessibox', as it is called, is a very nice touch in increasing accessibility to amenities. It makes it so women don't have to rush to go to the store before it closes, or so they can buy new provisions when they realise they have run out late at night (or early in the morning).

## Observations on the housing projects

The multiple projects I visited are organised in the table on the right. I have added notes on how they have dealt with the subjects of (the access to) amenities, privacy, community, working facilities, accessibility, and a possible specific female focus. These subjects have been chosen as they have been proven to be important for women in the city.



Something that I noticed when organising this table is that a few of the projects used either architectural or landscape design to alter privacy aspects on site. There were different projects that used the wideness (or effectively the narrowness) of their entrances to foster a feeling of closure, which discouraged me (as a visitor) to confidently enter the area. Other projects used strategically placed plants to discourage people from entering the area, effectively making a distinction between private and public space without having to nominate it literally.

Many projects also had situated balconies overlooking the playing areas, ensuring a view of the playing children even if one remained home. This was only the case in lower buildings, as this effect did not work anymore in higher buildings. Most of the building projects I visited were no higher than five levels.

The communal facilities of almost all buildings were situated in the plinth, whether these buildings were freestanding on the site or integrated within the street. Some projects, like the Sargfabrik and the Sonnwendviertel, also had communal facilities throughout the building. The Sonnwendviertel used colour in their materialisation to illustrate these areas, as well as introducing bridges to connect them from one side of the block to the other.

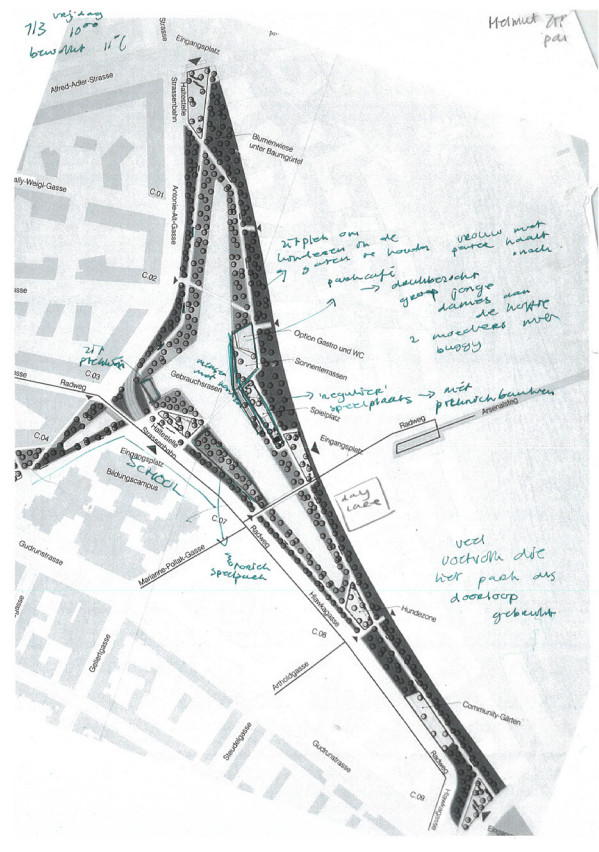
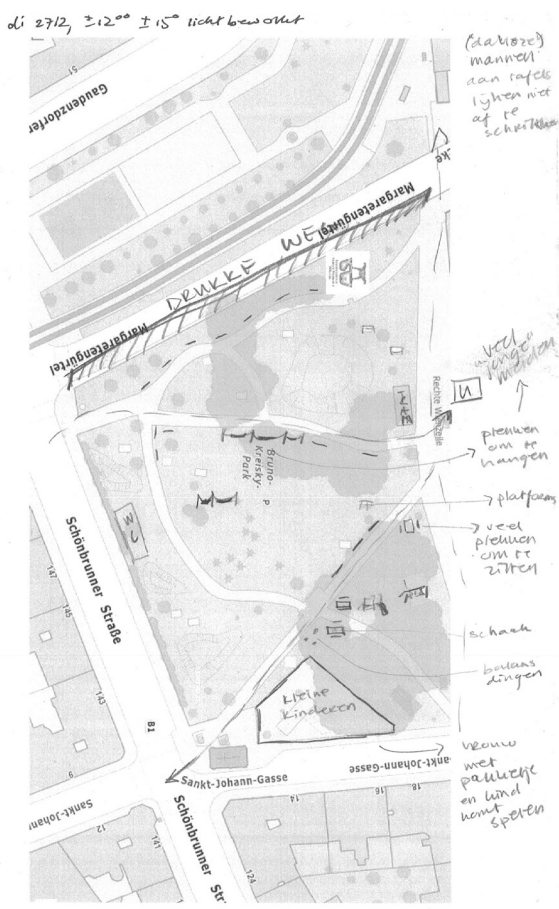
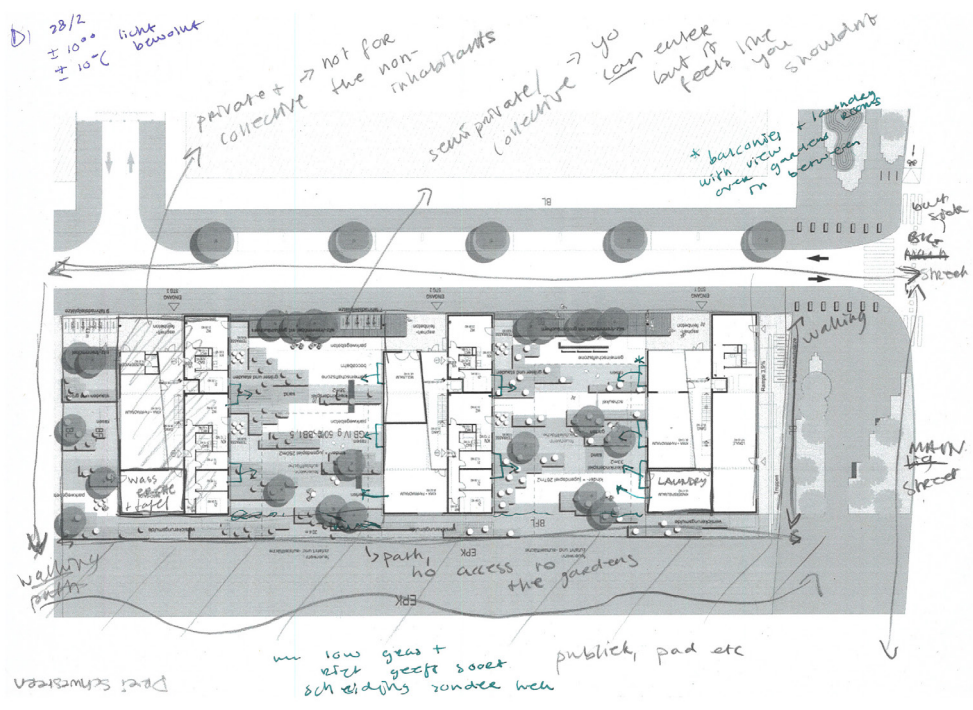


A vending machine containing products such as diapers, formula and medicine

## fieldwork findings

	amenities	privacy	community	working facilities	accessibility	specific female focus
Baugruppe LiSA	close to Aspern centre	narrow entrance	communal facilities and garden	none	close to bus, 10 min walk to metro which takes 40 min to city centre	none
Sargfabrik	pool, restaurant, daycare and theatre on site. short walk to supermarket	no added attention, entrance through walkway	walkways to meet neighbours, communal facilities in central location, inhabitants part of baugruppe	none	relatively near metro, 20 min to city centre	daycare on site
Drei Schwestern	none, 10 min walk to Aspern centre	blocking use of plants	some communal rooms in plinth	none	10 min walk to metro which takes 40 min to city centre	balconies overlooking playing area
In der Wiesen Süd	some throughout the site, most located on the large street running alongside it	no specific attention, very wide and public entrance	many communal facilities in plinth, spread over different buildings	some small business locations	10 min walk to metro, takes 20 min to city centre	balconies overlooking playing area, school and daycare on site
Frauen Werk Stadt	two daycare on site, located next to supermarket	closed off facades, entrance through front facade	no specific attention	none	next to tram stop, 30 min tram and metro ride to city centre	laundry rooms on top, possibility to look over playing children
Aspern	two big supermarkets, a city centre with school and hospitality, shops dispersed throughout settlement	n/a	n/a	some businesses, not all domains represented	has two metro stops, 40 min to city centre	female street names. big attention to wide sidewalks / pedestrian zones
Sonnwendviertel	movie theatre, laundry room, communal rooms, spa, doctor and more on site. close to station and supermarket	wide or narrow passage invites or deters	many communal facilities throughout buildings, illustrated with use of colour	some businesses, not all domains represented. flex working spots in plinth	next to Hauptbahnhof, multiple tram stops	none





Annotated plans of the projects visited in Vienna

29/2 9:30  
lichtbewolkt 9°C

houses → private  
plinth → collective

outdoor → very public, almost sunny but  
In deek Nielsen  
with a little bit of ownership  
grass



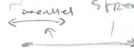
some neighbours talking

there is a doctor  
a school  
communal kitchen  
playroom  
laundry  
basement table  
pergolas

so also for older kids

some offices  
(but I have own office company)  
Main Street

with children, walking the dog, etc



28/2  
13:30  
13°C licht bewolkt

Faaren-week stad

I wouldn't like my ping pong

facilities zijn te vaak je kan ze niet maken; moet dus alomog met die buidel

ages with  
zicht op spelen kinderen

less bit more semi public, however playg. is for everyone

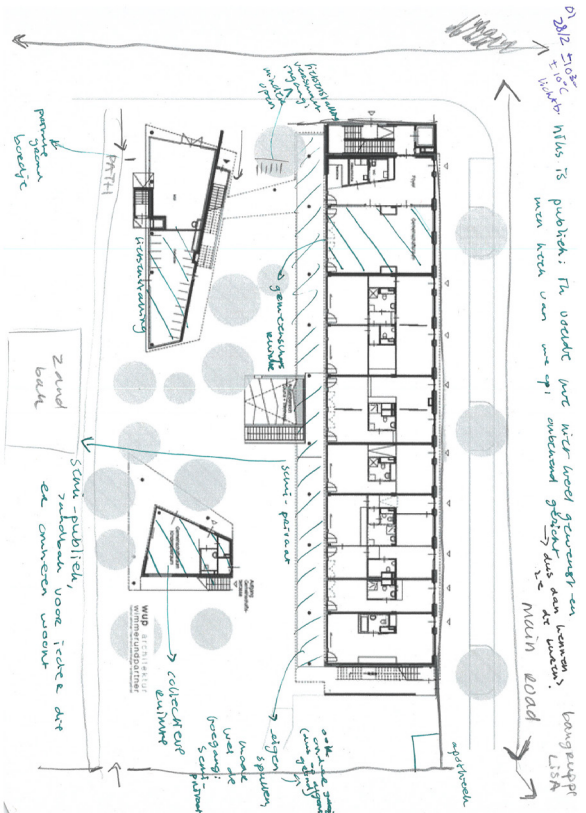
most private: still easily accessible

paved, empty, used as walkway  
'zicht op' voet mixtude tegesamig

hinder garden

easy access makes it feel very public

- Woning
- Winkel
- Winkelwoning, Entreehal, Woonkamer
- Woonkamer
- Stapelkamer
- garage/Opbergruimte
- Wandelpad voor en achter



28/2 13:30  
13°C licht bewolkt  
publiek: is uitdacht wat niet veel gemeenschap is  
wan keer van een op andere gebied dat aan water  
the main road  
Langebrug  
L15A



# pattern development

A Working Women pattern language was developed to combine aspects from literature and fieldwork into a clear and well-organised collection of women-friendly interventions and conditions in the city.

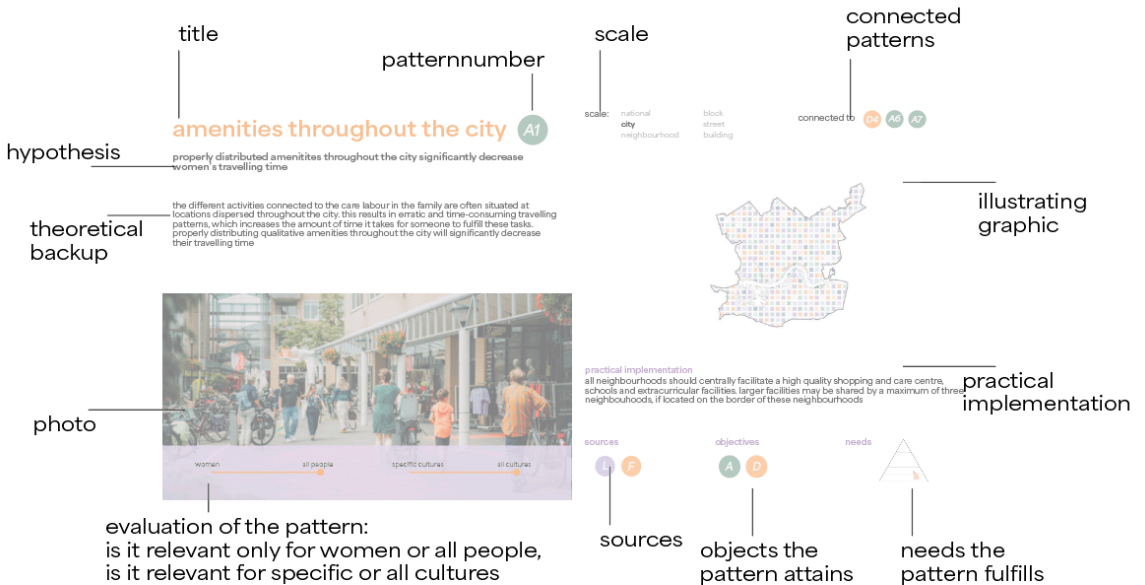
The pattern language approach was developed by Christopher Alexander as a method to incorporate varying design implementations into a set of interventions (or patterns). These patterns together comprise a language, as Alexander saw his patterns as words or thoughts, open to adaptation. (Alexander et al., 1977). Patterns are formed in such a way that they explain a general and abstract solution to a problem or a principle of implementation in order to allow users to adapt the implementation and apply the principle to their specific context. The language itself gives the author the possibility to organise the patterns in a way to explain complex relationships, combine multiple types of interventions, and evaluate the patterns.

The Working Women pattern language has been developed based on literature, fieldwork, and reference cases. Patterns based on literature are often solutions that respond to problems described in the literature studied for this thesis. Pattern D1, 'love thy neighbour', was developed in response to the problematization of a lack of community as described in Feminist City (Kern, 2020). Patterns based on fieldwork are often a

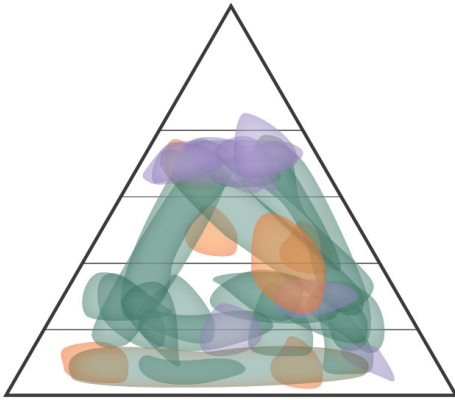
translation of an observation made in Vienna of an aspect that is beneficial to women. Pattern A3, 'gradations of outdoor space', for example, is based on the distribution of green spaces throughout Vienna. Lastly, there are patterns based on reference cases. These are developed in order to encourage the repetition of desirable aspects as implemented in reference cases. Pattern S4, 'female statues', was developed based upon the erection of a female statue near Rotterdam Centraal and the positive response that implementation received. Most patterns, however, are based on a mix of these aspects, where something experienced during fieldwork is also something that the literature identifies as important.

The pattern language consists of legislative actions, spatial interventions and conditions, or social aspects of urban life that can improve gender equality in the city. The patterns themselves consist of multiple elements, which can guide the user in choosing a pattern that is applicable to their situation.

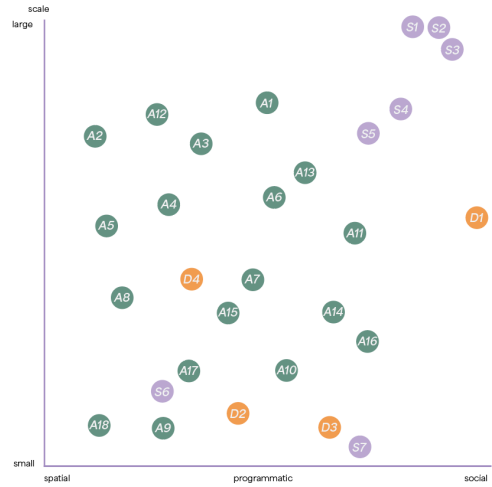
The title, hypothesis, and practical implementation are the backbone of the pattern, as they state the main objective and spatial implementation of the pattern. A theoretical background more explicitly states the reasoning for the pattern and can be used to determine the applicability of the pattern. As a visual aid, each pattern contains a picture and illustrating graphic.



Structure of the Working Women patterns



*Pyramid of needs with all patterns, illustrating which types of needs are addressed by all patterns*



*Pattern field with all patterns, in which they are organized on scale and type of intervention*

Other elements have been developed to evaluate or categorise the pattern and its use. All patterns depict the scale they operate in. To show the fulfilment of working women's needs, each pattern has a graphic depicting its position on the Working Women hierarchy of needs. Additionally, each pattern is identified as beneficial in the objectives of 'division of labour', 'symbology' and 'accessibility'. Furthermore, they are evaluated to see whether they are beneficial to women or all people, and whether they are beneficial to all cultures or only to specific cultures. These elements have all been developed in order to guide the user in choosing a pattern that can aid their specific problem and context, as they help to specify the effect of the implementation of the pattern.

An example pattern can be seen below. An overview of all patterns can be found in the Working Women Pattern Book accompanying this thesis.

The pattern language can be used in different ways. First, as it is also used in this thesis, it can be used as a design input, offering implementations a designer might choose to use in their design to add gender-equal aspects. The patterns lend themselves to being adapted to different spatial

contexts, as they offer spatial conditions to be met instead of specific implementations.

The pattern language can also be used as a communicative device, where designers or government officials might use the patterns to receive information on the needs women in a certain location may have. In this case, women can give feedback on the patterns, whether they find them desirable or if they think they are necessary. This can give designers useful insight into the problems and opportunities present at their site of interest.

In the next chapter, I will illustrate how to implement the patterns in a design context, where they will be used in the transformation of the neighbourhood of Katendrecht in Rotterdam







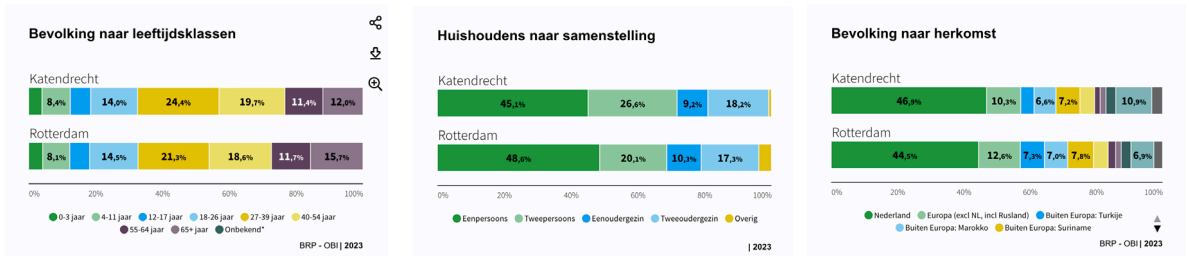
*opportunities in Katendrecht*

# projection on Katendrecht

The choice for Katendrecht as a focus neighbourhood has been based on the fact that its demographic composition of inhabitants by age, heritage and households is very similar to that of Rotterdam, making it a great sample location for exploration of the topic of gender inequality in the city.



Location of Katendrecht in Feijenoord and in Rotterdam

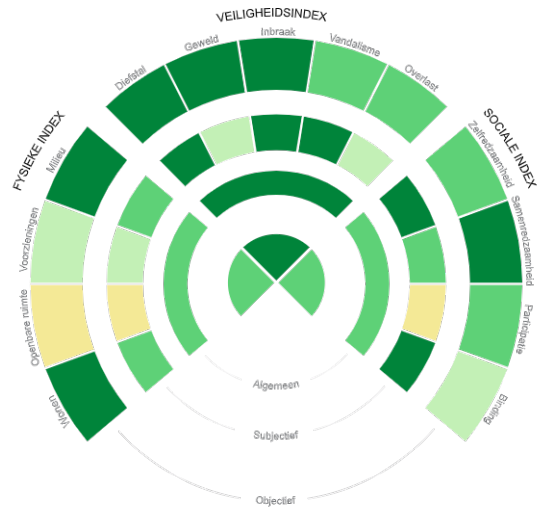


Comparative demographic data of Katendrecht and Rotterdam on age, households and heritage

Katendrecht is an old harbor neighbourhood, located on the south of the river Maas in the district of Feijenoord. The neighbourhood itself is a peninsula, which was created as part of the Rotterdam city harbour around 1900.

Katendrecht is home to 6685 inhabitants, of which 3380 are women. There are 3340 households, consisting on average of 2.0 people. The majority are one person households (1455), followed by larger households with children (955) and larger households without children (930).

The level of content in Katendrecht according to the neighbourhood profile is quite high, with the lowest scores in the objective and subjective public space and the subjective participation (2022 | Wijkprofiel Rotterdam, n.d.). This means that inhabitants are most happy with the public space in the neighbourhood, as well as the level of participation.

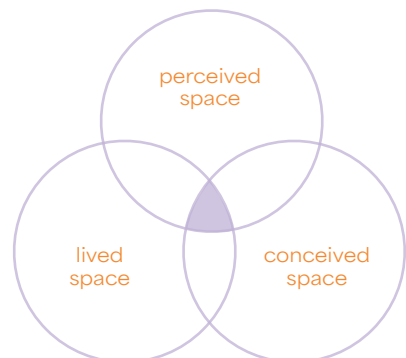


The neighbourhood profile of Katendrecht



*Aerial view of Katendrecht , looking over Kop van Zuid and the Maas.*

As described by Lefebvre in *The Production of Space* (Lefebvre et al., 1991), urban space is produced by people, and it is not merely a pre-existing vessel that we live and interact in. It consists of physical, social and mental relationships, that all shape the urban space we see. He describes this as the conceived, the perceived and the lived space. In order to fully understand the neighbourhood of Katendrecht and the urban space, analysis on these three forms of space will be conducted.



## conceived space

### history

Katendrecht has a complex history, in which it has gone through many spatial alterations and identity changes. Katendrecht originally was a peaceful village on the south-side of the Maas, used by the wealthy bourgeoisie to escape the filth, smell and noise of the city. Because it provided an opportunity to cross the river on the route between Antwerp and Amsterdam, it also functioned as a resting place with inns and lodges. This calm atmosphere made it very enjoyable for all who could afford to build their country houses and villas (Meyer, 1983). This atmosphere changed when Rotterdam started the expansion of its harbours to become the largest harbour city in the world. The arrival of the Willemsbruggen resulted in Katendrecht losing its function as river crossing and resting place, and the arrival of the working class in Feijenoord led to the wealthy Rotterdammers finding their peace elsewhere. The village of Katendrecht started to decline, and it was ready for transformation when the Maashaven was dug when the harbour activity spread itself over Rotterdam.

In order to dig the Maashaven and build the necessary harbour infrastructure, all 700 homes in Katendrecht were demolished (forcing 3500 people to move). When the Maashaven became operational, there is space left to create new housing on what was from that moment onwards a peninsula. Where a lot of the city projects in that time were conducted by private companies, the municipality of Rotterdam chose to develop Katendrecht itself, out of "Public Interest" for the city (Meyer, 1983). Although Katendrecht was designed in exactly the same way as other parts of the city, fitted with the 'new urbanity' that consisted of wide streets with a lot of light, green elements and clean design, it took just 10 years for the neighbourhood to develop itself in something the municipality saw as a necessary evil, full of 'social deprivation' where the 'lower rungs of the working class population mixes with the lowest rung of society'.

The groups that were seen as most problematic and thus deserving of special attention by the politicians of the city were dockworkers, sailors, and unwed women. A city-wide project to improve these social groups by the standards of the higher social groups was deployed, in which dockworkers were guided into a controlled and disciplined life. Any problematic cases who did not follow rules were accommodated in Katendrecht, where, due to the neighbourhood's isolated location, the inhabitants would not be able to influence other, improved citizens. Only by complying with many requirements

concerning a regular income and family life, and the absence of alcohol abuse and prostitution were these workers allowed to move to a new neighbourhood (Meyer, 1983). As a result, Katendrecht became the shelter for all citizens the municipality saw as 'unfavourable'.

The social isolation of Katendrecht from the rest of Rotterdam was even more reinforced when a large group of Chinese and Javanese workers settled in Katendrecht. Seen by the municipality as another problematic social group, isolating these workers in Katendrecht was considered the best solution to prevent their integration with the rest of the city. The city government made excellent use of the geographical shape of the peninsula to create a social distance with the rest of the city.

The third group of inhabitants considered problematic by the municipality were unmarried women. There were more women than men in Katendrecht, and unmarried women were almost directly categorised as prostitutes (Meyer, 1983). Even though prostitution was something the municipality wanted to reduce (to avoid the spread of STDs and to save the institutional role of marriage), it was important that the institution of prostitution remained, as it was important for men to be able to regularly indulge in their sexual needs. It was for their health that the medical control and registering of prostitutes was seen as the enforcing of a necessary evil. However, since prostitution was considered a moral danger for women and girls, it was very important to make the distinction between professional prostitutes and 'morally endangered girls' (Meyer, 1983).

As the presence of prostitution and these problematic dockworkers degraded neighbourhoods to unlivable conditions, the municipality started to implement legislation to eradicate prostitution in the city from 1910 onwards. One of these aspects was a ban on brothels throughout the city. The police and medics of the city protested this decision, saying it will only result in a clandestine continuation of prostitution, which would be harder to control. This turned out to be true, and as a result of the strict enforcement of prostitution rules in the city centre, most prostitution activity fled to Katendrecht. This result was actually seen as positive by the police, who were of the opinion that it was the ideal location for control over the prostitution activity in the city. It was therefore that the brothel bans were not enforced in Katendrecht, resulting in the neighbourhood becoming the concentration of all life in Rotterdam which is seen as 'socially undesirable but economically necessary' (Meyer, 1983).

All this resulted in Katendrecht becoming as a notorious part of the city: it was everything proper people have learned to look down on. Attention to Katendrecht in the form of reports on their 'way of life' only enforces this sensationalization of uncivilised society, with

passages detailing the Chinese population, their opium discs, the prostitutes and all children with differing cultural backgrounds. These reports and fictional novels about life on Katendrecht allow civilized citizens a glimpse into life on dangerous Katendrecht, assuring them that it is only right that such practices do not occur in other parts of the city. Katendrecht is mostly used as an example of “how it should not be” (Meyer, 1983).

Katendrecht keeps its function as society’s drain for a long time in Rotterdam, as the municipality sees it as such a lost cause that even during large-scale social rehabilitation plans in the 50’s and 60’s of other neighbourhoods with problematic inhabitants, Katendrecht is not even discussed. This only reinforces Katendrecht as a stowaway of all groups that were seen as unfit to be integrated with the modern welfare state of regular employment and valued familylife (Meyer, 1983).

Even though the population of prostitutes (which at that point are seen as the only ‘truly evil’ groups of inhabitants) increased in Katendrecht during the 1960’s and the municipality keeps viewing Katendrecht as unfit to transform, inhabitants of Katendrecht express their own desire for development. A dichotomy in the population of Katendrecht arises, of people against prostitution and people (mainly the exploiters of the brothels) in favour of prostitution. A violent confrontation between these two groups gives the municipality the opportunity to utilise the Action Group Save Katendrecht (the inhabitants against prostitution and with a desire to develop), making them responsible for city renewal policy, creating an integrated way for the municipality to improve the social conditions in collaboration with the inhabitants, instead of enforcing improvement upon them as governmental institution (Meyer, 1983).

The most important measures during this development were the addition of about a thousand homes on the filled-in harbour basins, with special attention in assigning housing to attract only welcome citizens. This is part of a bigger wish towards integration of the inhabitant of Katendrecht with “normal” inhabitants, which is also a part of the goal in the cleaning of the Deliplein towards a ‘positive entertainment centre’, where all brothels and dance clubs are demolished and rebuilt. Together with the sanitation of all prostitutional activity, small businesses of unregulated labour are moved to industrial areas, in order to attract inhabitants with more structural jobs.

To normalise the neighbourhood, its transformation is integrated in the city-wide urbanist policy. All neighbourhoods that were previously appointed as problematic and which were avoided, by inhabitants but also in policy, were now regarded as areas with big potential in a urbanist restructuring of Kop van Zuid.

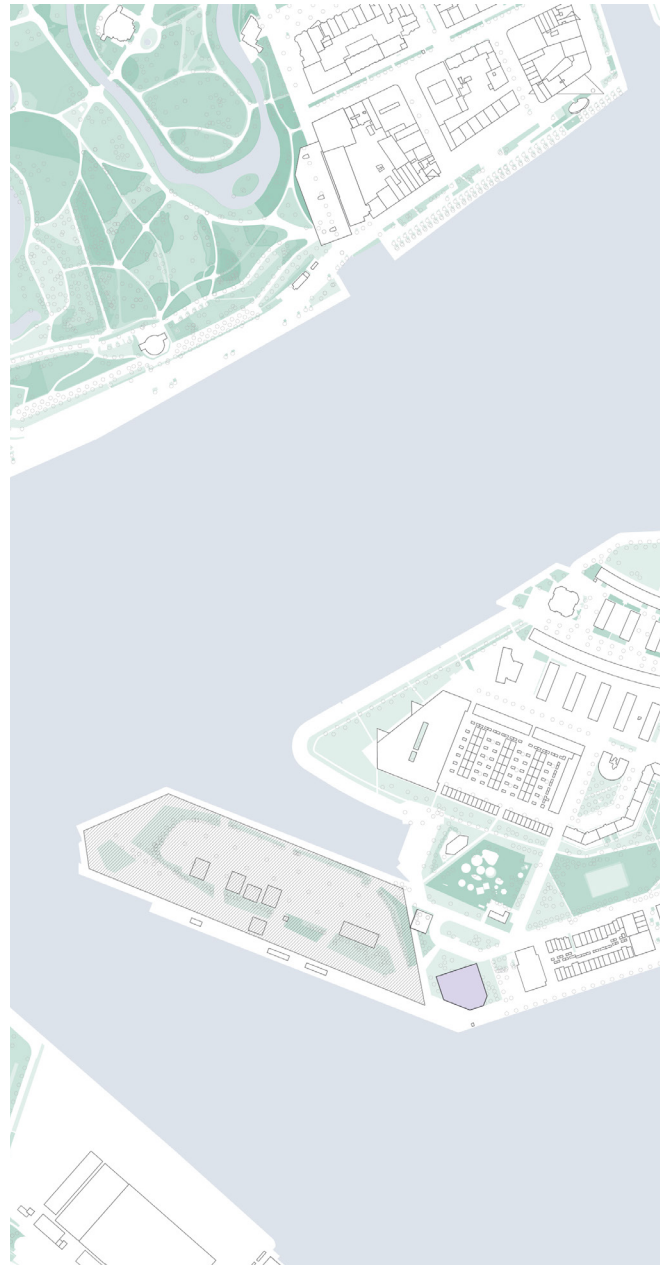
The normalisation of Katendrecht goes hand in hand with a new prostitution policy, wherein the prostitution sector is seen as a separate industry without connection with unwanted social patterns. After urging of the inhabitants in Katendrecht, there are plans to concentrate prostitutional activity in an erotic centre. Even though other neighbourhoods also do not want this activity to move to their neighbourhood, the municipality sees it as ‘solidarity with the Katendrechtse population to find a solution to the problem’ (Meyer, 1983). During these negotiations about the relocation of the prostitution, it became a separate entity from the neighbourhood of Katendrecht, which positively influenced the normalisation of Katendrecht.









As a result, Katendrecht lost its profile as a problematic neighbourhood at the end of the 1980’s, which resulted in a rise in popularity of the neighbourhood in close vicinity of the city centre. Consistent renewing of the corporate housing stock in Katendrecht, together with the private renovations of houses in the oldest part of Katendrecht has resulted in the neighbourhood now being branded as a ‘vibrant neighbourhood with rough edges’ (Rotterdam Info, n.d.). The addition of the Wilhelmina bridge connecting the peninsula to Kop van Zuid and therefore to the northern part of the city has quickly evolved Katendrecht into an upcoming neighbourhood.



As a continuation of the improvement of Katendrecht, the municipality of Rotterdam is developing a lot of plans in and around the neighbourhood. An overview of these projects can be seen in the map. It seems like this is an effort of Rotterdam to continue to connect it with the northern part of the city, and most projects proposed are high-rise housing projects, all consisting of apartment buildings with little attention to women friendly aspects.

Katendrecht as a neighbourhood has consistently been used by the municipality to function in a way that was useful to them at that moment, for the benefit of the city without regard to the effect that has on the neighbourhood itself. As a result of their use of Katendrecht as containment of all social activity they did not want in the city, the neighbourhood has lived almost a decade under the veil of a problematic prostitution district. The city had no plans to improve this area, until desperate inhabitants took the matter in their own hands. Now that Katendrecht has developed into a favourable neighbourhood, the municipality sees it fit to be an extension of the expensive and gentrified northern part of the city, once again not allowing Katendrecht to create and fill in its own, positive, identity.



- |   |   |   |                    |
|---|---|---|--------------------|
|  | park                                    |  | mixed-use building |
|  | cultural building                       |  | office building    |
|  | residential building                    |  | hotel              |
|  | residential building with active plinth |  | school             |



Map containing projects in the vicinity of Katendrecht.

## perceived space

This map is a synthesis of my own experience in the neighbourhood, as an observer, based on multiple site visits. These visits have been on:

Monday the 25th of september, sunny and 17 degrees

Wednesday the 27th of september, warm and semi cloudy

Saturday the 9th of december, cold and raining

Wednesday the 10th of january, cold and sunny.

Based on these experiences, a divide between the north and south side of the peninsula can be made in levels of activity. While all sides are connected to water, only the route along the north border seems to be a popular walkway, while the quay along the southside is not frequently used at all.

There is also a lot of additional traffic in the neighbourhood that comes from the Wilhelminapier, of workers taking a lunchwalk along the water of Katendrecht.

On the 9th of December, a Christmas market was located on the Deliplein. It seems that this location is often used for activities.

The route from the metrostop towards the neighbourhood is frequently used, even though it is a very unclear traffic situation.



Photo B: car-filled, quiet street life

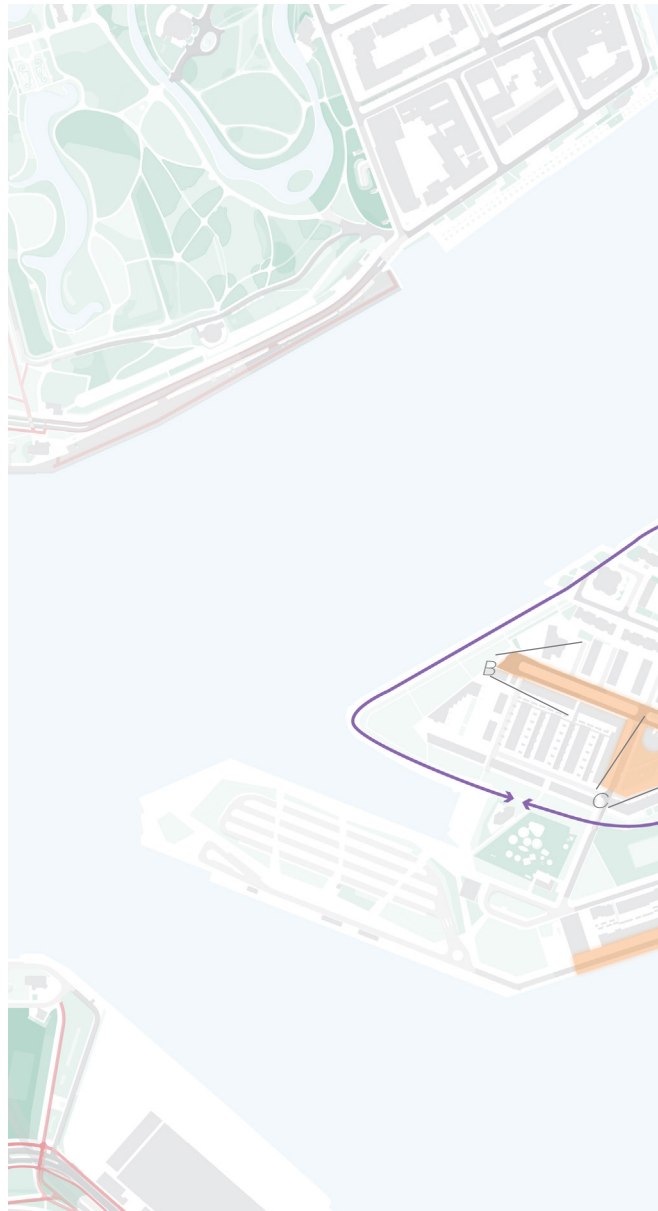


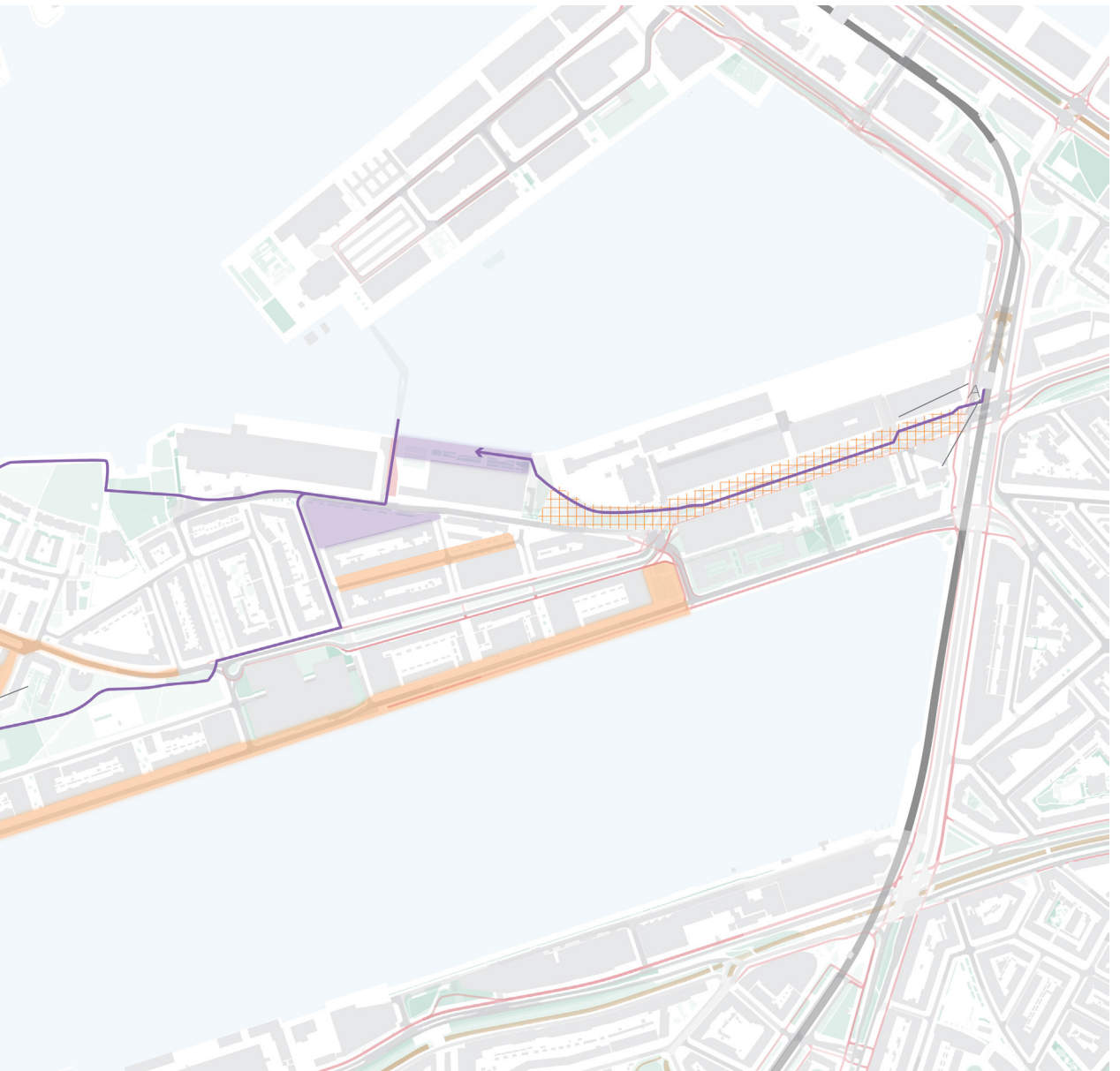
Photo A: pedestrians needing to walk on the bike path





Photo C: underused green space potential

-  well-used public space
-  frequently used walking route
-  not-used public space
-  low quality public space



## lived space

### micro stories

This map is a synthesis of the conversations I've had with six women on the 10th of January. The question I asked them was whether they felt like there was something in their neighbourhood that could be improved, with the connection to their daily lives and the care tasks they fulfilled in the family.

Three women I spoke with were with their children, and they mostly spoke about the functions in the neighbourhood. One of them was **dissatisfied with the number of playgrounds in the neighbourhood, the other with the number and types of shops**. She found it annoying that any time she needed to buy a gift for example, she had to leave the neighbourhood. This woman also was **dissatisfied with the connection she had with the neighbours**, although she already reflected it could have to do with her own effort. The last woman with a child I encountered was dissatisfied with the effort the municipality took to clean up the public space, as there **was always rubbish lying around**.

The last three women I spoke with were walking their dogs together. They were very positive about the neighbourhood, suggesting I have chosen the wrong neighbourhood to design for as they **never felt unsafe** and were very happy. After some talk, however, they made it known that they were **annoyed with the infrastructure in the neighbourhood and the lack of connection with the neighbours**. One of the women struggled with the need for someone to take care of little tasks such as hanging shelves etcetera and she did not feel a service like that was available.

***“there are only two grocery stores, not even a drug store: that is not enough”***

The last woman, who was quite young, announced she was moving because her home was not large enough for her once she and her husband wanted to have children, **and she could not afford a larger home on the peninsula**. All women are **very happy with the green public space** in the neighbourhood.





# *“I love to walk in the green space on the end of the peninsula”*



valuable green space



“the only two grocery stores”



cluttered infrastructure



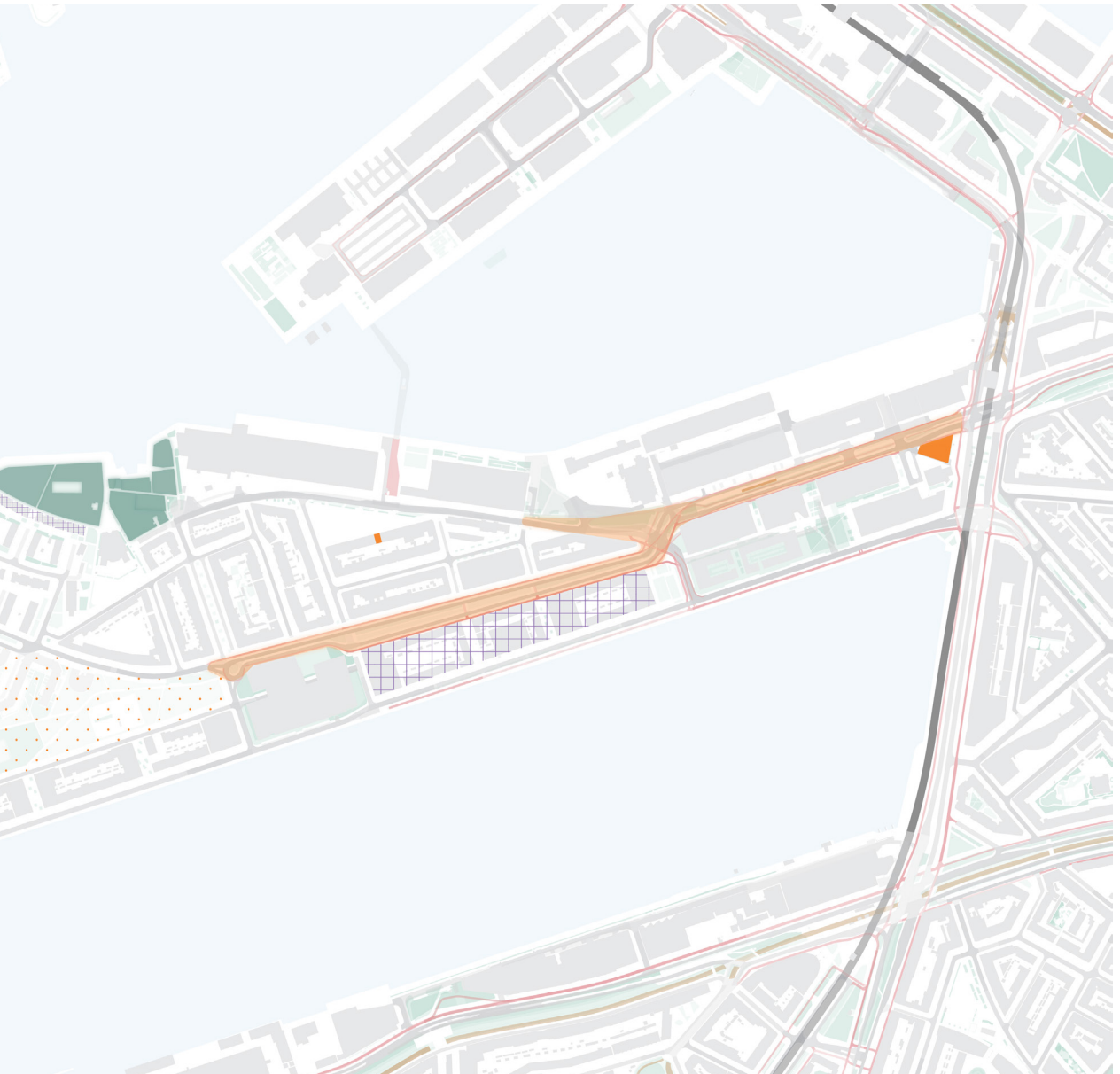
the only playground



lack of connection with the neighbours



litter on the streets



## micro stories 2

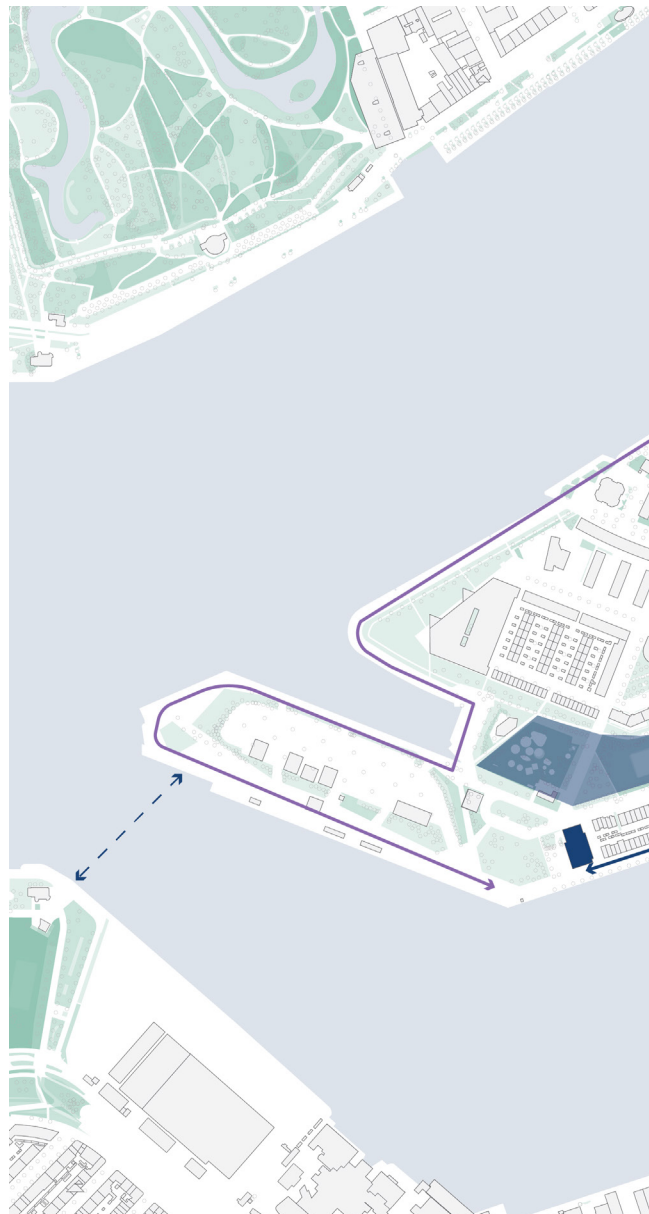
This map is a synthesis of the conversations I've had with three women on the 18th of April. I asked them questions regarding the amenities on the peninsula, and whether they were satisfied with those.

The first woman I spoke with actually lived in Oud-Charlois, but **sent her children to school in Katendrecht because the school was of higher quality** than in their own neighbourhood. She admitted to bringing the children with the car, because it is quite a bike ride to go all around the Maashaven. The **pedestrian ferry which connects the Kaap with Oud-Charlois feels too unsafe for her, and does not sail often enough. A bridge would be great.** She really likes it in Katendrecht, there are nice playing areas. Through the children and **through school she connected with other parents.** She and her husband actually looked for houses in Katendrecht when they were buying, but **chose not to move to the neighbourhood because there were no amenities closeby back then. Now, the prices are too high to move there.**

The second woman I spoke with just recently moved to Katendrecht. She is a stay-at-home mom to a newborn. Although **the supermarket is quite far away, she is alright with the walk because she has the time.** She leaves Katendrecht about two or three times per week, either to the city centre or to Feyenoord. A drugstore on the peninsula would be nice. Any **amenity she needs to visit multiple times per week she would like to have in the neighbourhood,** such as a place to work out. She does not have a job yet, but would actually like to go back to work. However, **She is unable to, as her child is still on the waiting list for daycare.** A lack of daycare also prohibits her from going to the gym or even think about leisure options for herself. Even though she is new to the neighbourhood, **she already met some neighbours and feels very connected.**

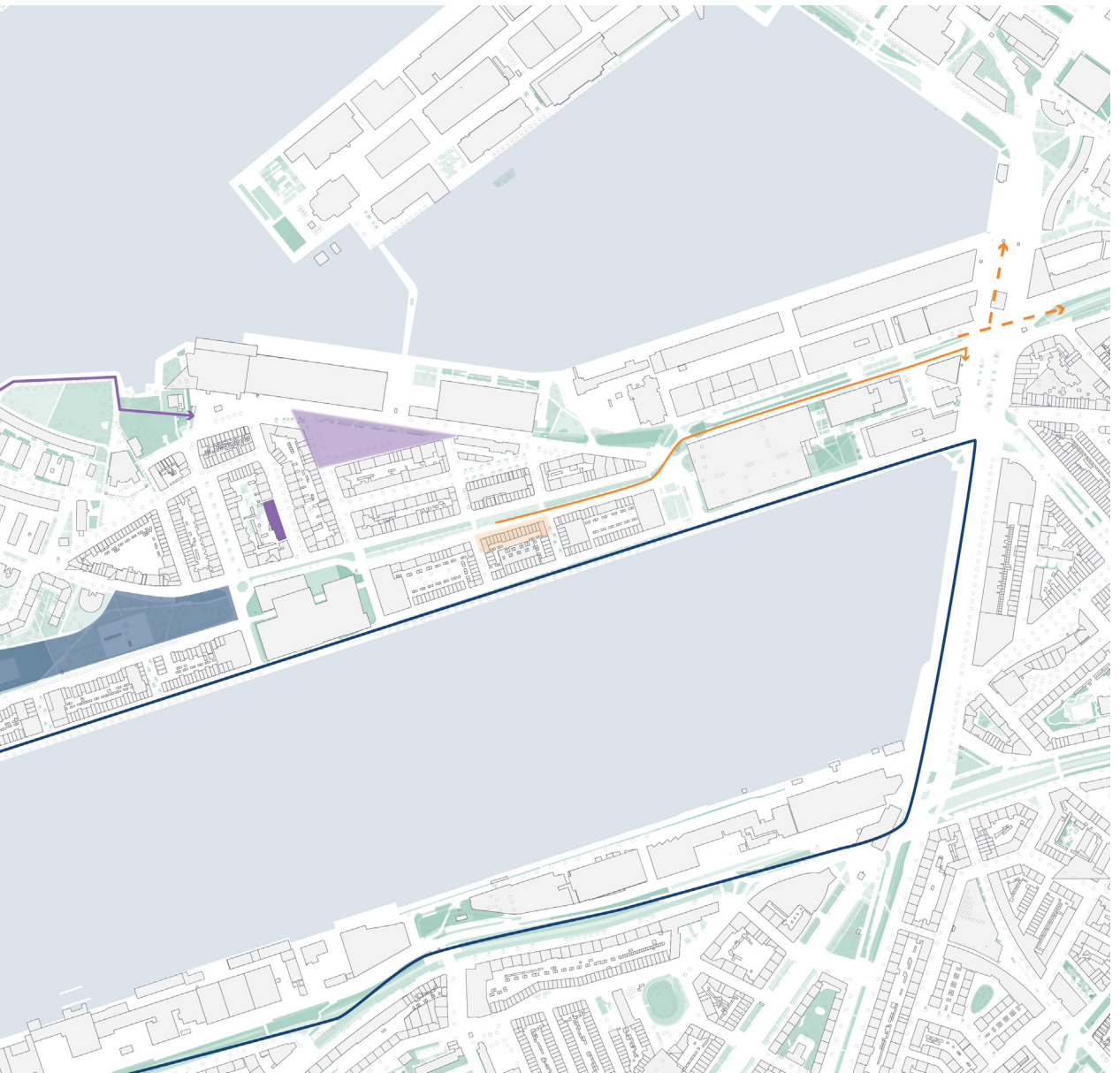
***“anything where I have to be more than twice a week I want in the neighbourhood”***

The third woman I spoke with was very positive about Katendrecht. She enjoys that **there is so much to do,** in comparison to her past place of residence of Apeldoorn. She **loves to visit the Deliplein with her friends, or walk around the Kaap.** She built a connection with other parents through her daughter's school.



# “pedestrian ferry to Charlois is uncomfortable and not safe”

- -> leaves Katendrecht 2/3 times a week
- feels connection with the neighbours
- enough to do at Deliplein
- connection through children with other schoolparents
- nice to walk around the Kaap
- ← - → undesirable connection
- cycling route from Oud-Charlois
- school better than in Oud-Charlois
- nice playing area
- quite far walk to supermarket

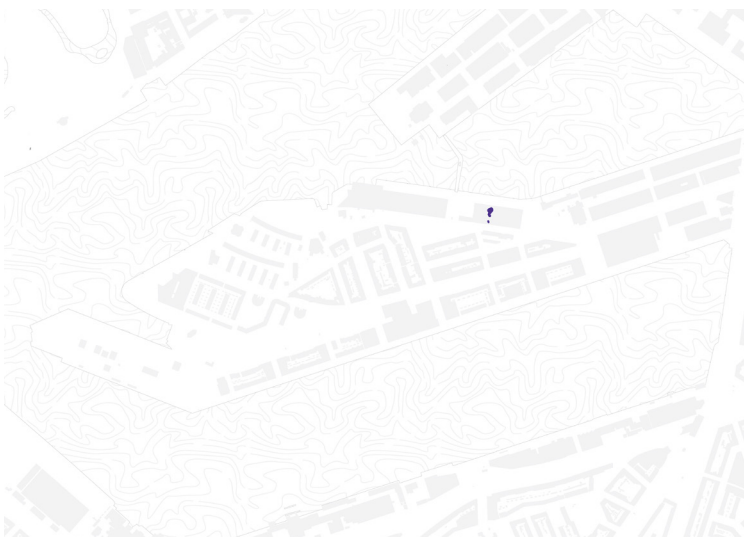


## design testing

### pattern based analysis

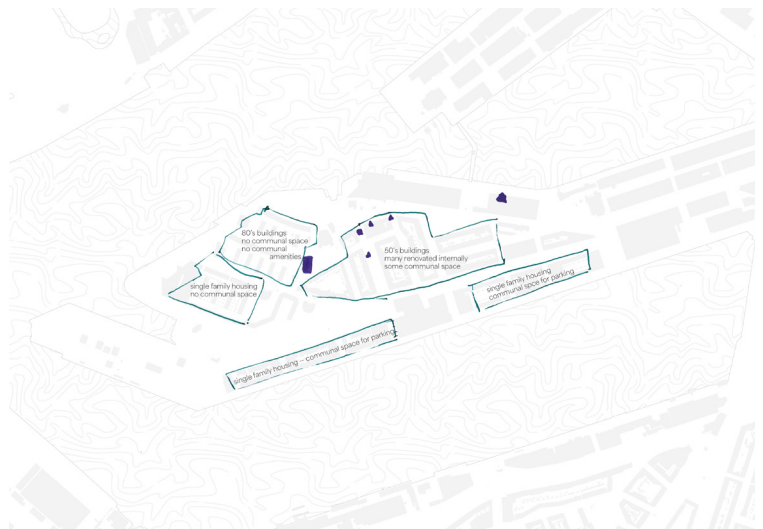
In order to design Katendrecht in a gender-equal way, an assessment on the current state of women-friendly aspects needs to be made. In order to do so, Katendrecht was analysed using the Working Women pattern language.

For each category of Division of Labour, Accessibility and Symbology, patterns were looked for in Katendrecht. Based on the discoveries, a conclusion map was made with the subjects that required the most attention



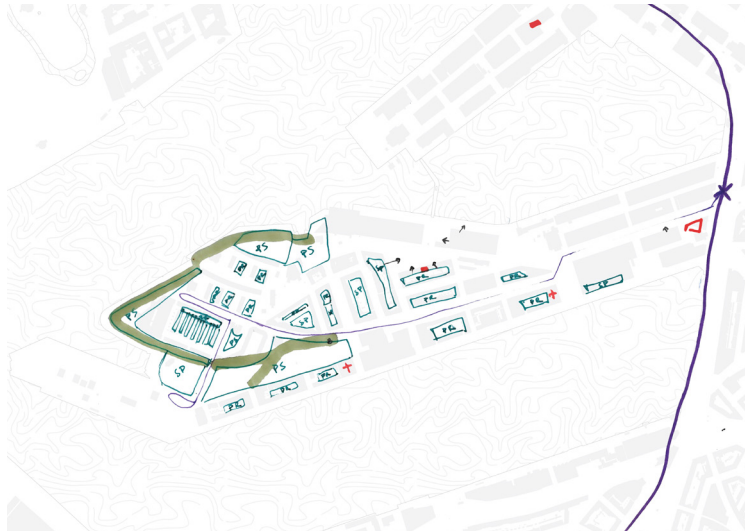
The first category analysed in Katendrecht is that of symbology. Sadly, none of the patterns were present in Katendrecht, with the exception of that of *changing tables in all restrooms*, although it is unclear whether the changing table present in the Fenix I is accessible by people of all genders. It is obvious that there is a lot to win still in Katendrecht in the aspect of women friendly symbology.

The pattern category of division of labour is also not represented immensely in Katendrecht. There is little to no attention to communal space or facilities in housing, and if there are collective facilities they are for parking, not for community building purposes. There are two neighbourhood buildings that organize activities especially for Katendrechters. There are adequate working locations in the neighbourhood, but these are all in offices of specific businesses, there are no dedicated flex work facilities.

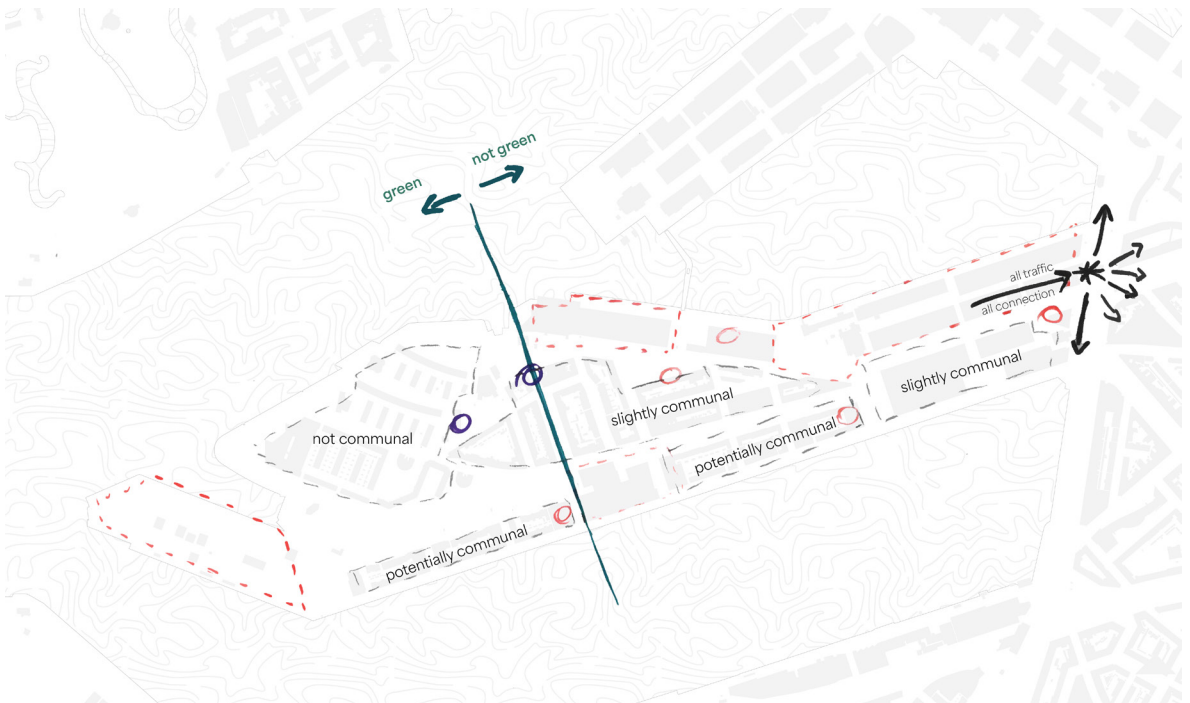




Considering the category of accessibility, there is a lot of private outdoor space connected to homes in Katendrecht. There is also a lot of public outdoor space, especially on the west-side of the peninsula. There was some semi-private, or collective, outdoor space to be found, in the form of a rooftop garden situated in one of the newer buildings on the eastside of the neighbourhood, as well as in the blocks of the buildings from the 50's. There are some active public parts of Katendrecht, at the Deliplein and around Fenix I. Healthcare options are distributed quite adequately through the neighbourhood, but life necessity amenities (supermarket, drug store) are scarce.



The neighbourhood is adequately connected through public transport, with a tram stop directly at the edge of the peninsula. There is a bus in the neighbourhood, but it runs in a circle. All car traffic needs to pass alongside the Brede Hilledijk, making it a very busy and dangerous road.



This map shows the synthesis of the patterned analysis of Katendrecht. What is clear, is that the westernmost of the neighbourhood has no communal aspects, nor potential to implement these. Other parts of the neighbourhood have the potential to become communal, or may already be communal. There is a clear division of the peninsula on the aspect of green space, as the west-side houses a green strip alongside the waterfront and the east-side is mostly built-up area. There are some parts of the neighbourhood which feature none of the patterns, mostly

the areas still in tranformation from industrial function. All traffic connections to leave the peninsula lead through the Brede Hilledijk, which puts unnecessary stress on the road and creates dangerous situations. Collective functions and amenities are sparsely distributed through the neighbourhood.

## looking for opportunities

The pattern-led analysis exposed some lacks and problems in the neighbourhood. Based on the results of that analysis, as well as some specific questions asked based on the patterns, the next step in design is made: looking for opportunities in Katendrecht for implementing women-friendly aspects.



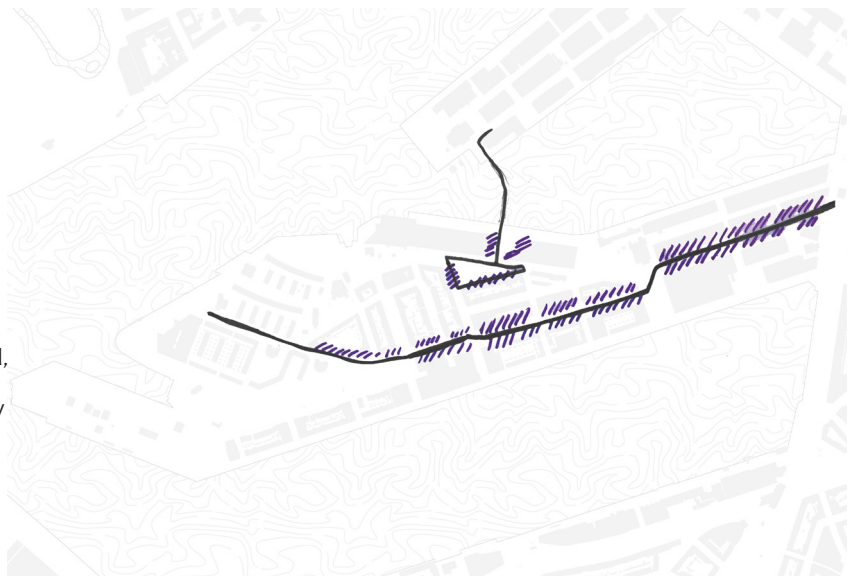
● current communal space

■ potential communal space

As Katendrecht is lacking collective space in its current configuration, the question “where can we add collective space” was asked. Porosities were found mostly in the existing courtyards in closed blocks in the middle of the neighbourhood, as the architecture of those blocks ensure the protection of communal space. The gardens of the single family homes on the west-side of the peninsula could also be transformed in collective space, but would need a larger transformation to offer protective elements that ensure collectiveness.

The next question asked was “what plinths should be activated”.

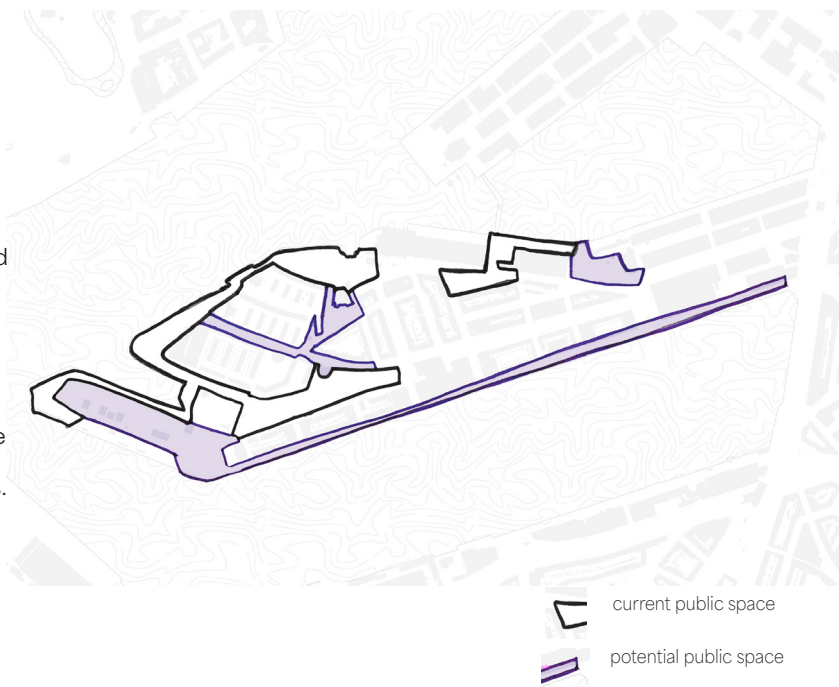
As the pattern-led analysis as well as the conversations with inhabitants lay bare that the Brede Hilledijk is not experienced as a comfortable cycling route, this is very much in need of activation and redesign. The surroundings of the Deliplein are now the public centre of the neighbourhood, although not all functions surrounding the square allow for activation.



— important routes and public space

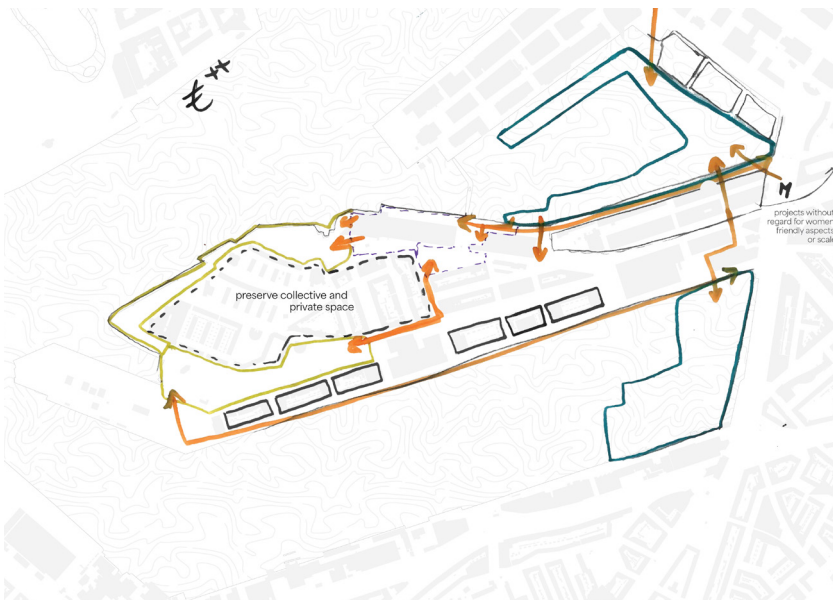
/// plinths to activate

Besides collective space, public space in Katendrecht can also be expanded. The opportunity for this is mostly found in areas that are underused at the moment, connected to current public space. Especially on the Tweede Katendrechtse Hoofd there is a lot of unused space (now taken as parking space for visitors of the SS Rotterdam), as well as alongside the southern quay of the peninsula. Utilising those locations for adding public space would finish the 'rondje Kaap' walking route which is loved by inhabitants.



An inventory of housing types in the area exposes the differences in architecture throughout the neighbourhood, as well as aspects of diversity. Where building blocks in the centre, south and eastside of the peninsula combine single-family housing with apartments, the west side of the peninsula houses monofunctional building blocks which are either single-family, multi-family or apartments. These building blocks also do not offer the protection the other parts of the neighbourhood offer.



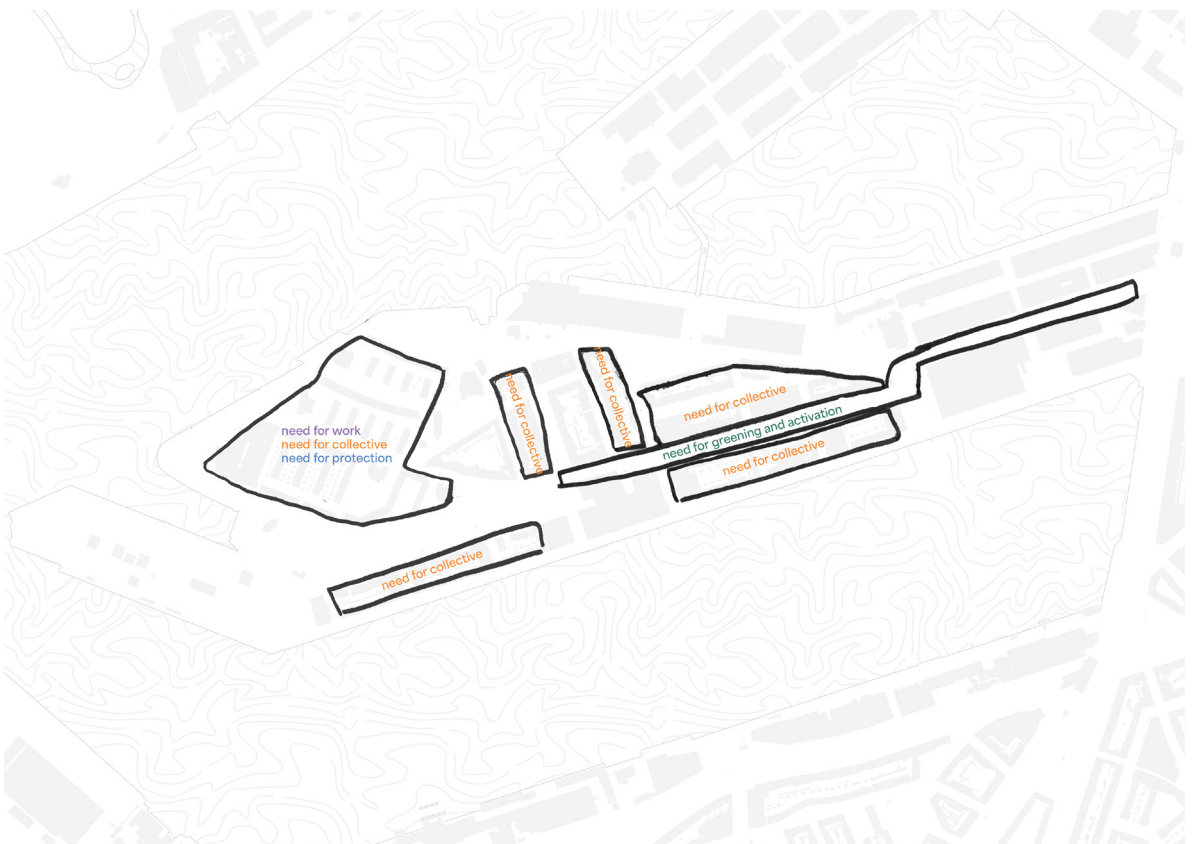


Another important question to pose is what will be the effects on Katendrecht of all the projects envisaged by the municipality of Rotterdam. The addition of the larger city parks will encourage a lot of visitors to the neighbourhood, especially as they will connect to the already present green space on the peninsula. Ensuring the presence of collective space in the neighbourhood requires the use of protective forms of architecture and street design, especially on the west side of the peninsula as that part of the neighbourhood is now enclosed by increasingly used public space. The

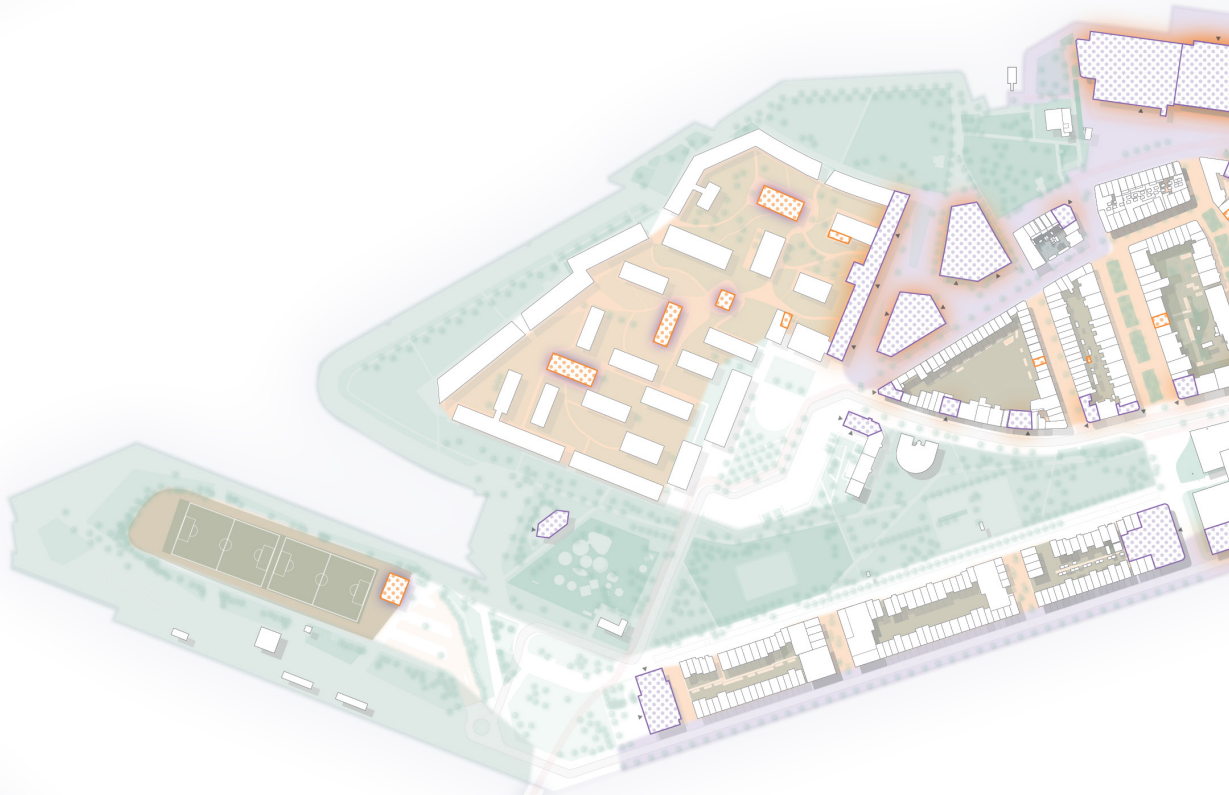
envisaged projects at the east side of the peninsula have no regard for women-friendly measures or scale at all, making them incredibly unfit for a gender-equal future for Katendrecht. The addition of many expensive projects will also have a big effect on the prices in Katendrecht (housing and of amenities), so measures to keep prices in check need to be implemented. The addition of the city parks is a positive aspect however, as it will increase the amount of qualitative outdoor space in Katendrecht and bring parks of such quality closer to the women living in Katendrecht.

Based on the previous design explorations and analyses, an overview of the areas of importance, with need for spatial intervention, is made for Katendrecht. Especially the west side of the peninsula needs many interventions, which argues for a full transformation of the area. Other parts of the peninsula could be transformed with lesser effort, requiring smaller alteration to create a gender-equal future for Katendrecht.



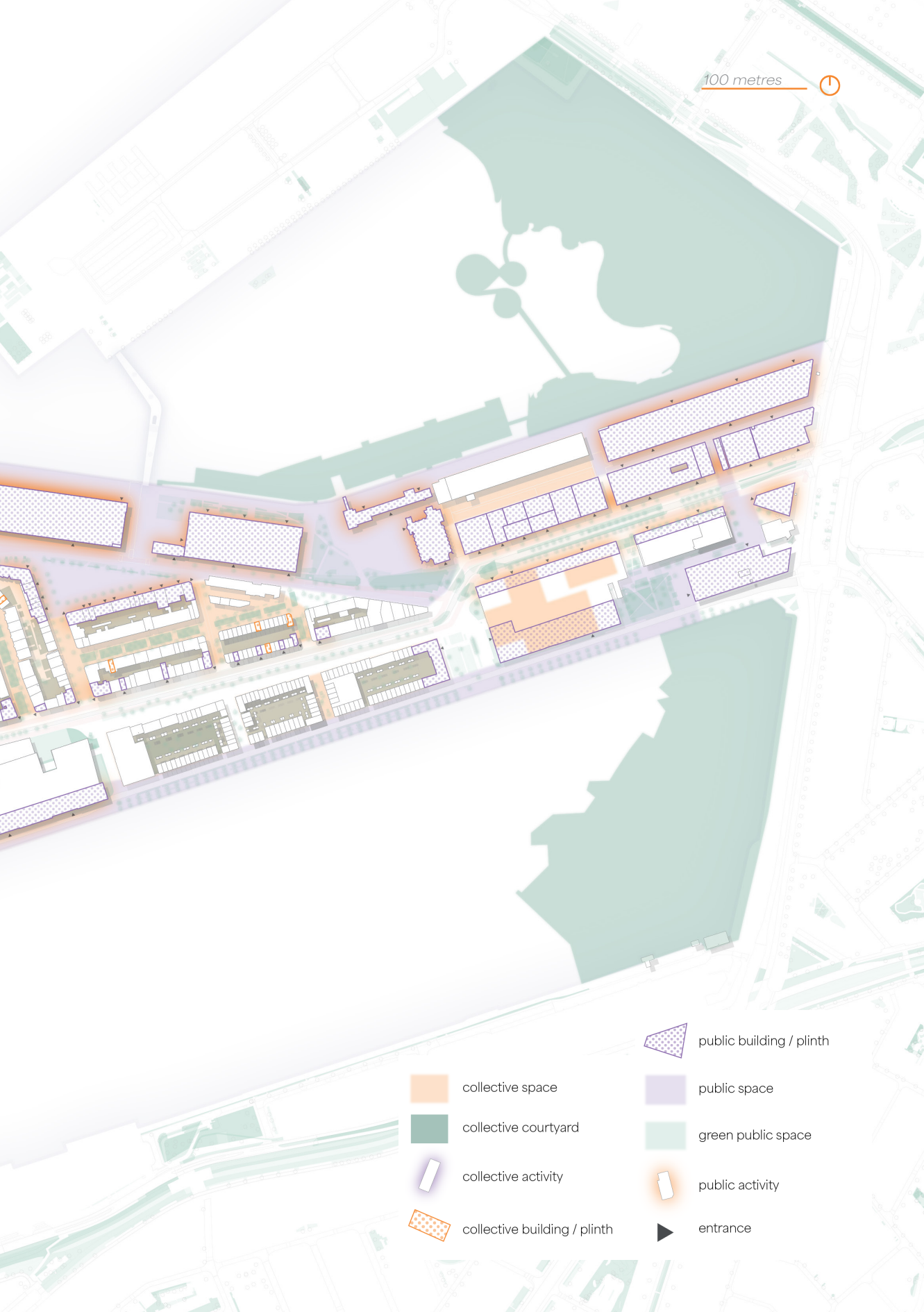


## *neighbourhood design*



The neighbourhood of Katendrecht is transformed with the use of the Working Women pattern language. The next pages will explain the composition of the design, starting with mobility, detailing the public and collective sphere, functions and lastly the living environments the transformations have created.

100 metres



collective space



collective courtyard



collective activity



collective building / plinth



public building / plinth



public space



green public space



public activity



entrance

A2

A4

A5

A8

A12



100 metres







mobility

Gender-equal mobility systems focus mostly on slow and shared transportation methods. This has led to the car being eliminated from the most of the neighbourhood, in order to increase safety for pedestrians and cyclists. Cars can enter the neighbourhood along the Maashaven Noordzijde, the most south street of the neighbourhood. Cars can be parked split over two car-sharing parking locations, as well as underground parking locations.

The connection between Katendrecht and other Rotterdamse neighbourhoods has been improved by the addition of a bridge, connecting Katendrecht with Oud-Charlois, and a ferry connecting the peninsula to Het Park on the north side of the river Maas. The addition of these connective points has altered the cycling network of Katendrecht, as the main cycling route is shifted towards the north-western side of the peninsula.

The elimination of the car and the diversion of the cycling network leaves ample space for the bus to alter its route through the neighbourhood. The number of bus stops is increased, and the bus stops are spread out more throughout the neighbourhood to increase the public transit accessibility.

## public sphere

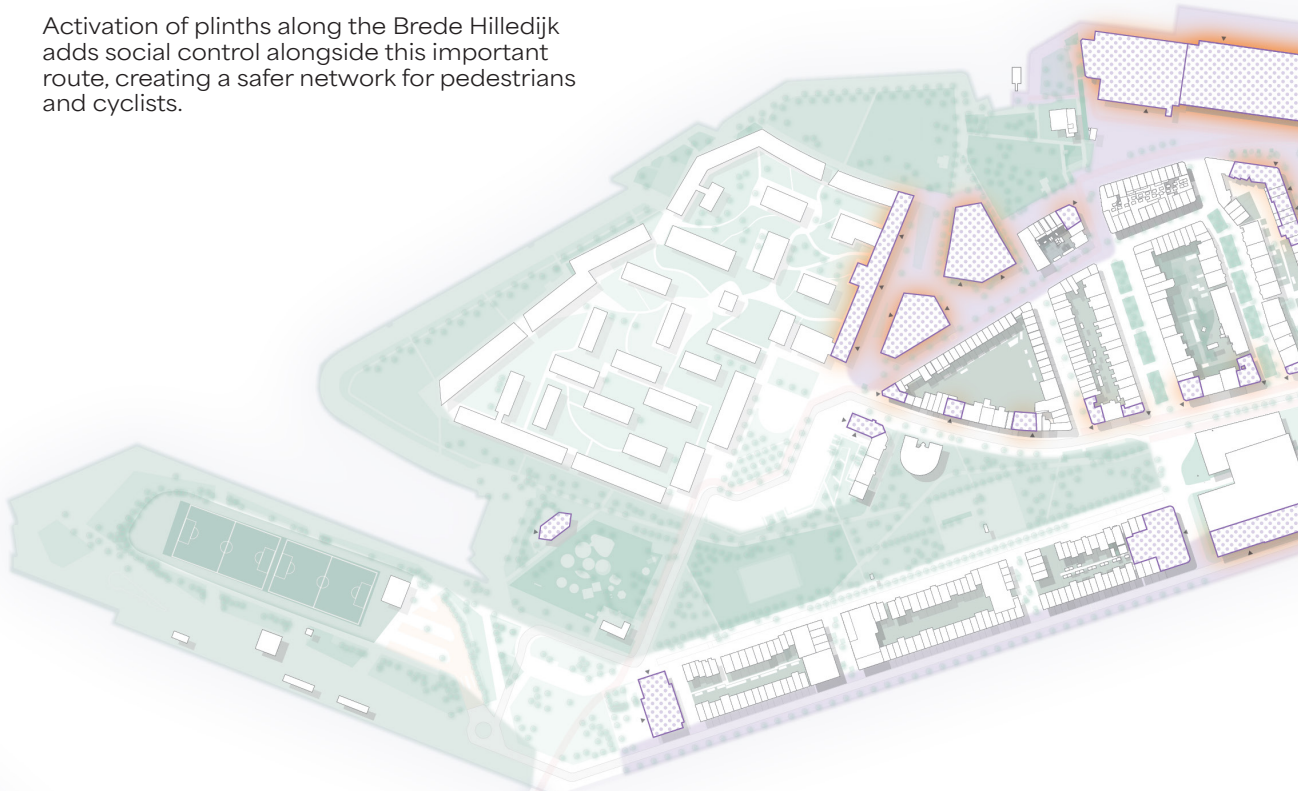
Most of the public space in Katendrecht is situated on the circumference of the peninsula, as its connection to the waterfront facilitates attractive space.

The green public space at the head of the quay in Katendrecht is expanded alongside the Tweede Katendrechtse hoofd, as well as in the bays of both the Rijnhaven en Mashaven. This balances the green space throughout the neighbourhood.

To connect these two green areas, building and plinths that are situated in between are activated to facilitate public space. This creates a pleasant area for activity on the north side of the neighbourhood.

Activation of plinths along the Brede Hilledijk adds social control alongside this important route, creating a safer network for pedestrians and cyclists.

The addition of a new square with public functions brings necessary amenities deeper into the neighbourhood, such as supermarkets and drugstores, as well as a public library and other cultural institutions.



A3

A6

A7

A11

A13

A16

S5

100 metres



public building / plinth



public space



green public space



public activity



entrance



## collective sphere

The collective sphere in Katendrecht is situated mostly in courtyards, as their configuration in the housing blocks is optimal for a clear distinction between public and semi-private space.

In order to increase the collective space in the neighbourhood, protective architecture and street design is implemented.

The new development on the west-side of the neighbourhood uses protective architecture to preserve a collective sphere within the fabric of the area. Inside, collective functions are situated such as a daycare, flex working spots and community rooms, to facilitate the inhabitants and to encourage the forming of community.

In the centre of the neighbourhood, protective street design creates a distinction between collective and public streets. The use of planting to narrow streets deters visitors from entering the street.

The addition of a sporting complex with fields on the Tweede Katendrechtse Hoofd offers active leisure functions within the neighbourhood.



D1

D2

D3

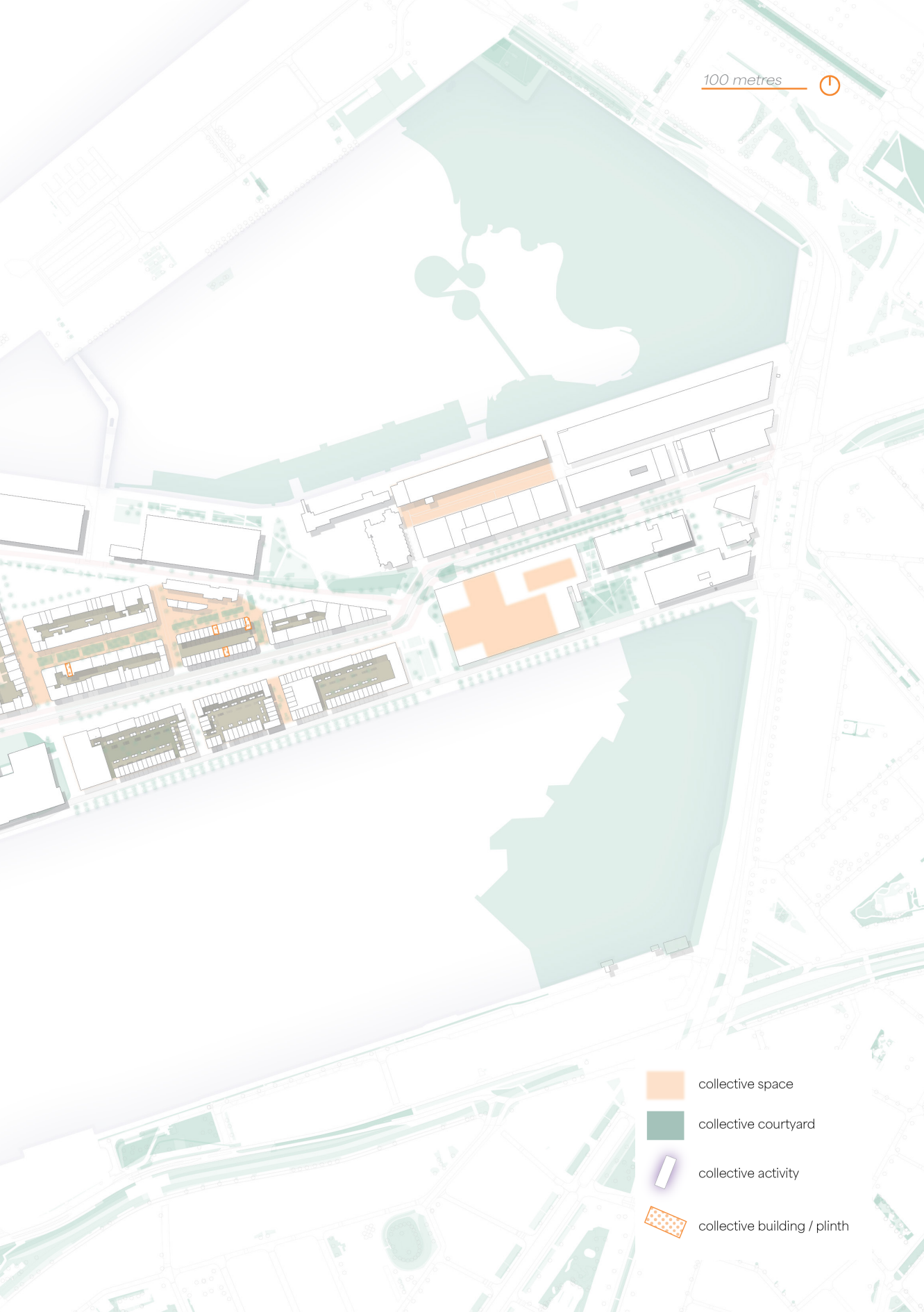
A9

A10

A12



100 metres



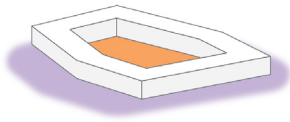
-  collective space
-  collective courtyard
-  collective activity
-  collective building / plinth

## protective design

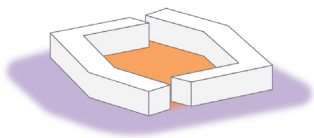
One of the conclusions that came out of the design exploration was that there is a need for protection in order to guarantee collective space in the neighbourhood.

As the public sphere wraps alongside the edges of the neighbourhood, and thus envelopes the collective sphere, it is easy for 'outsiders' to enter semi-public areas. To avoid such situations as much as possible and in order to guarantee the integrity of collective spaces, protective design choices are made.

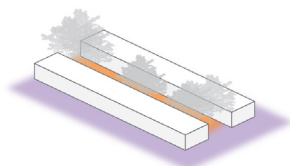
The configuration of building blocks as well as the implementation of vegetation is used in order to create protective architecture and street design.



*Protection by using closed building blocks*



*Protection by using building blocks that are arranged to offer narrow entrances*



*Protection by using vegetation to create a narrowing of a street*

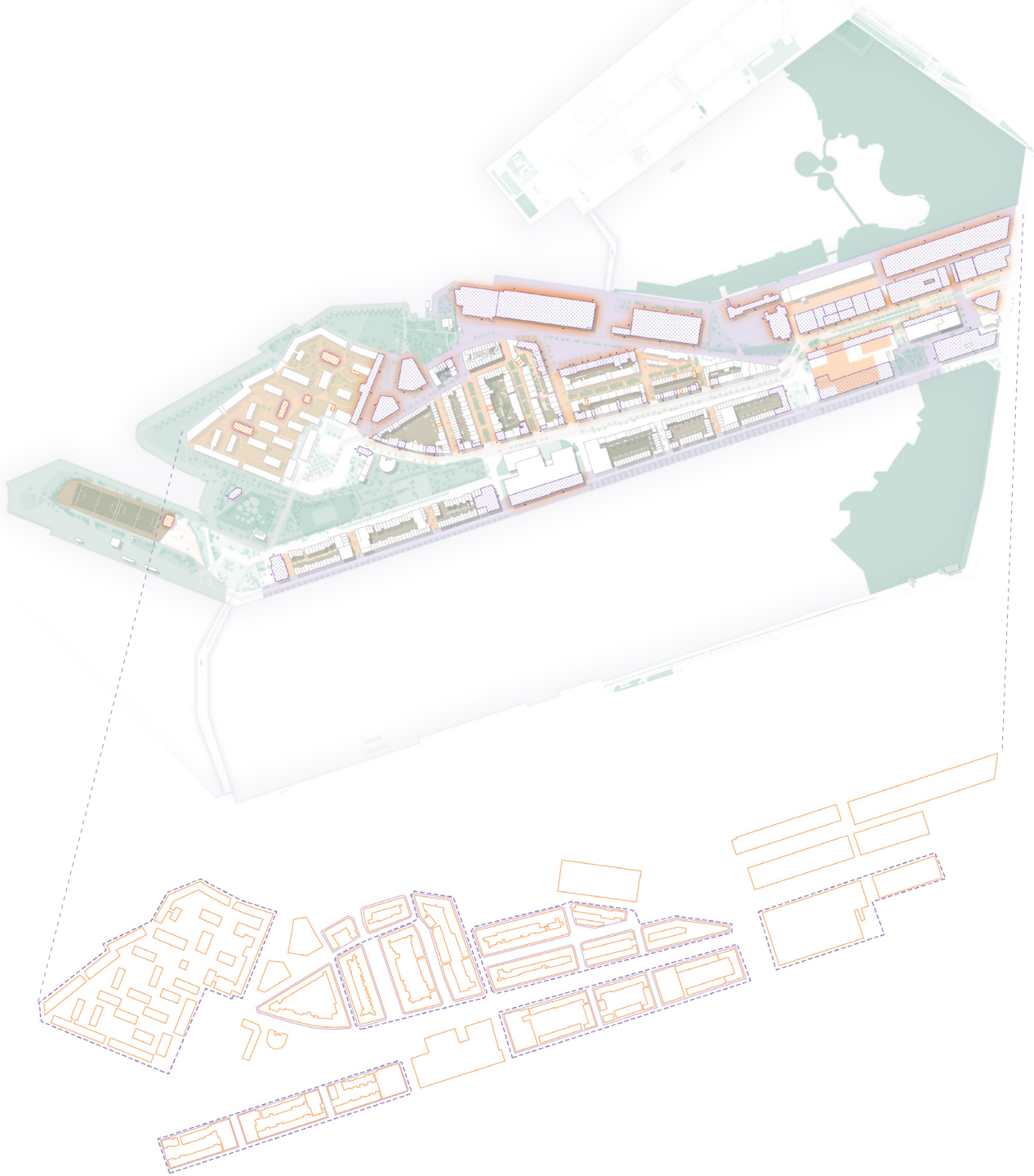
The different forms offer different levels of protection. Using closed building blocks offers the most protection, as the area within the block can only be accessed through a residential unit that is connected to this communal area. This offers the most amount of control over who enters the communal area. A variety of this is a building block which is not fully closed with buildings, but its entrance is fitted with a fence. This also allows control over who accesses the inner courtyard, as only people with a key can enter.

The use of building blocks with narrow entrances offers less protection, as there is no physical obstruction. However, the use of big block masses and the narrowing of entrances suggests to visitors that they should not enter the area, and it therefore is more of a psychological barrier.

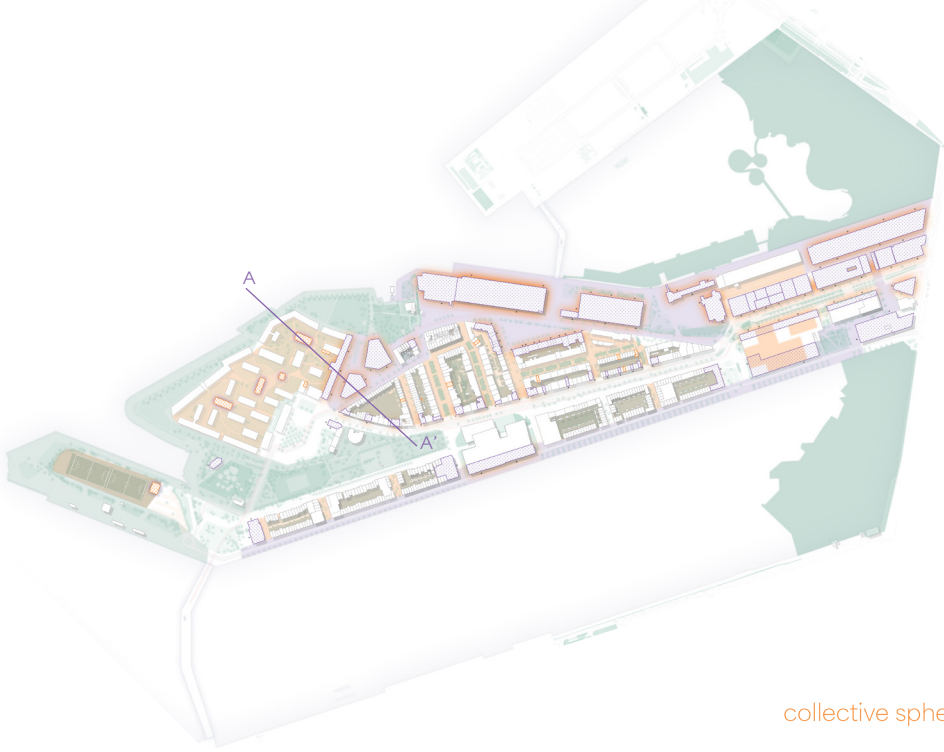
Lastly, the protection by using vegetation also makes use of a suggestion that the street should not be entered. The vegetation narrows the street and blocks the view to the other side, which discourages visitors from using it as a thoroughfare and makes use of a feeling of intrusion to deter people from entering the street.

The configuration of these different uses of protection throughout the neighbourhood creates multiple spheres with areas that are afforded more or less protection. The diagram to the right shows the different levels of protection and the borders it creates in the neighbourhood. As can be seen, any homes that are situated in a closed building block is offered the most protection, and therefore an environment with the largest amount of private to public possibilities possible.

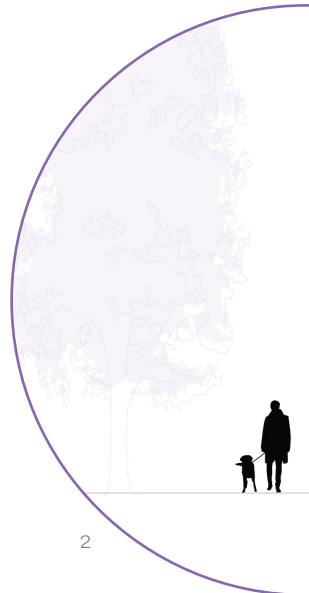
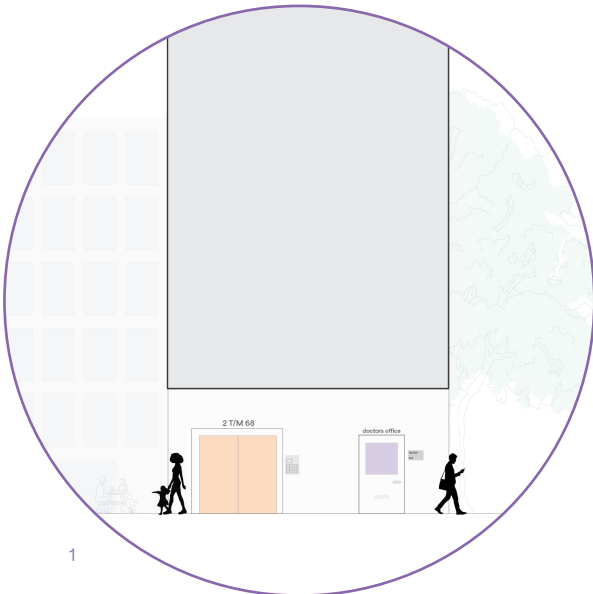
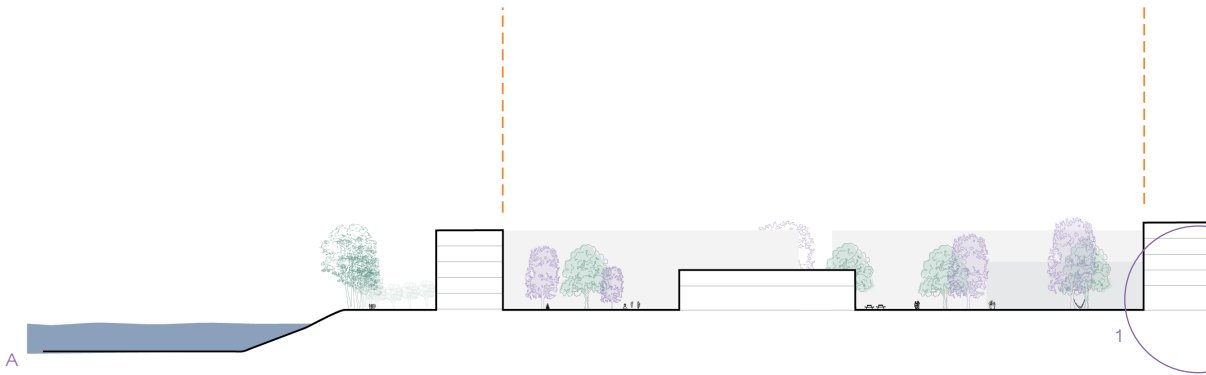
The offering of different levels of protection creates a diversity in private, collective and public areas in the neighbourhood, which can be used by working women to choose their home based on the level of privateness they want to achieve.



- first level border
- second level border
- - - third level border



collective sphere





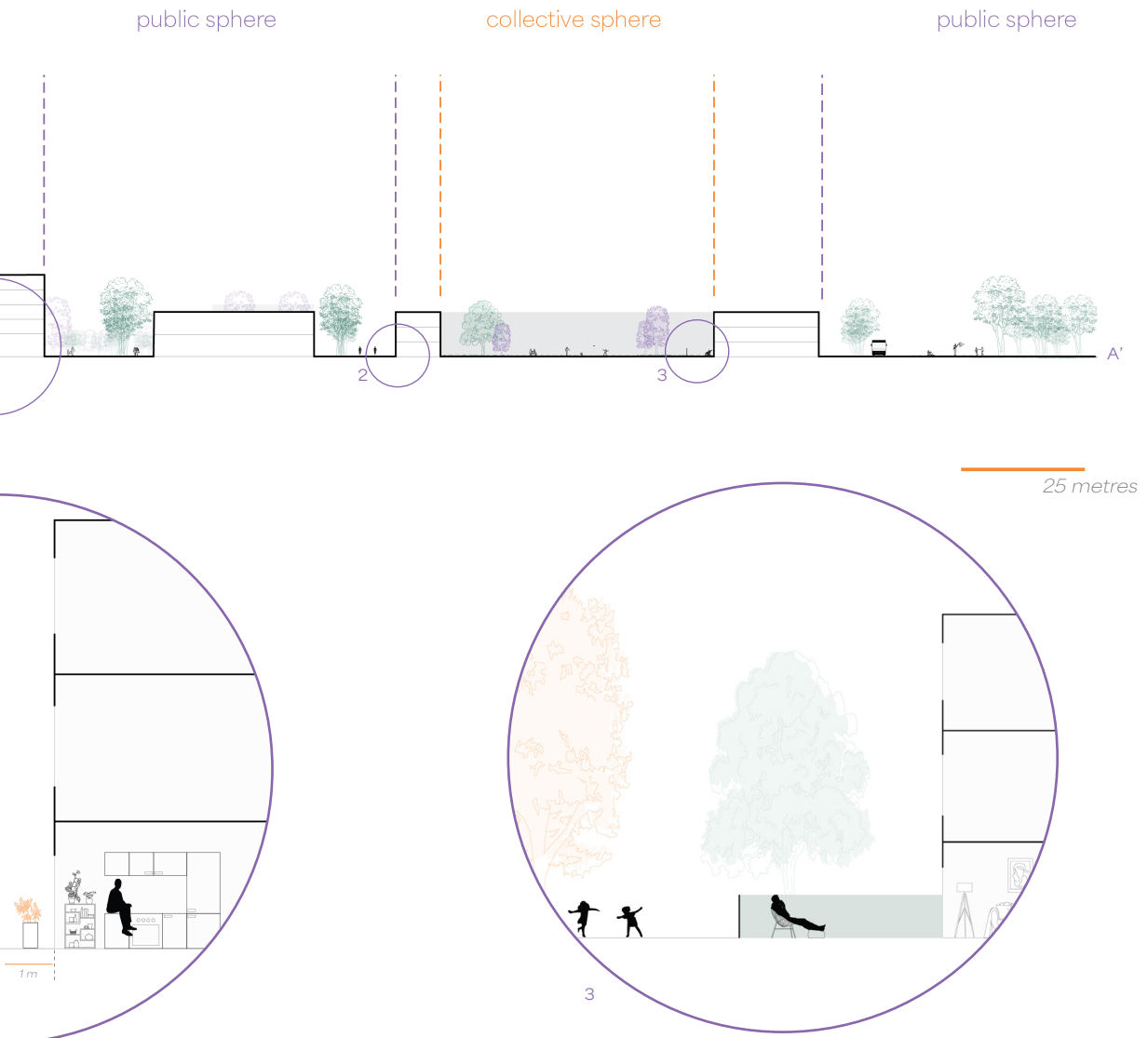
## transitions

This section shows the set-up of collective and public spheres throughout the neighbourhood. There are multiple forms of transition from public to collective to private. Three of these transitions are shown in this section.

First, a transition from public to collective which is made by creating an underpass through a building, which narrows the entrance and therefore suggests to visitors to not enter the collective sphere unless they have a destination there.

Secondly, a transition from public to private in the case of homes that are situated on a public sphere. It is in this situation important to use some form of partition, either by a plant or another type of furniture to create distance between the home and pedestrians. It is also recommended to situate a housing function on this side which is used less, such as the kitchen.

Lastly, the transition from private to collective is made by using small private gardens that border on the collective courtyard to increase the distance towards the private home.

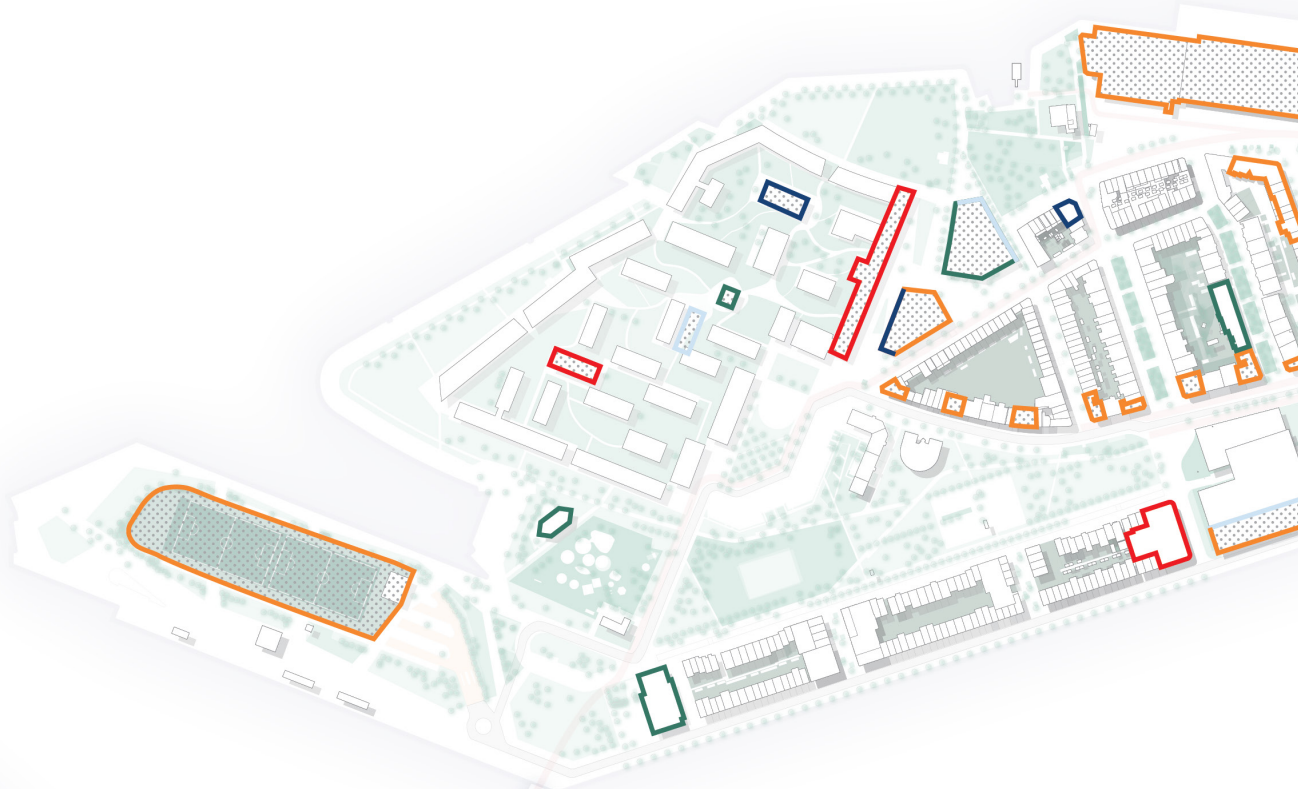


## functions

Functions are added in Katendrecht in two ways.

First, functions are being implemented more towards the west of the neighbourhood in the new neighbourhood centre. This has increased the accessibility of basic life necessities in the west of the neighbourhood, as well as adding functions that were lacking.

On strategic locations throughout the neighbourhood, plinths are activated and functions are added to provide activity on the streets. This is mostly done alongside the important biking routes through the neighbourhood, as well as surrounding public spaces.



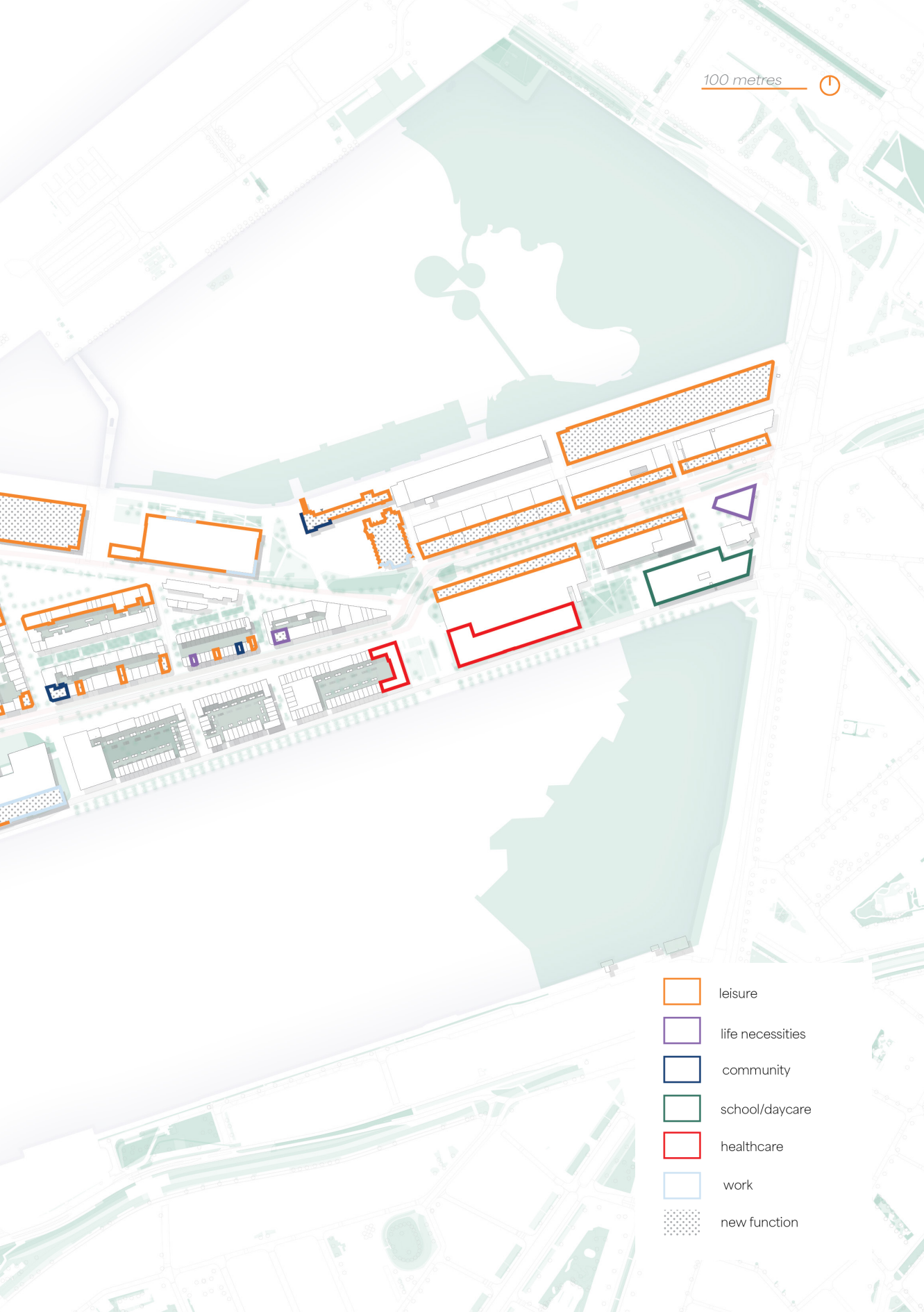
D4

A1

A6

A7

100 metres



-  leisure
-  life necessities
-  community
-  school/daycare
-  healthcare
-  work
-  new function

## living environments

The configuration of different dwelling types in combination with different forms of collective and public functions creates a variety of living environments in the neighbourhood, offering desired living conditions for a variety of women.

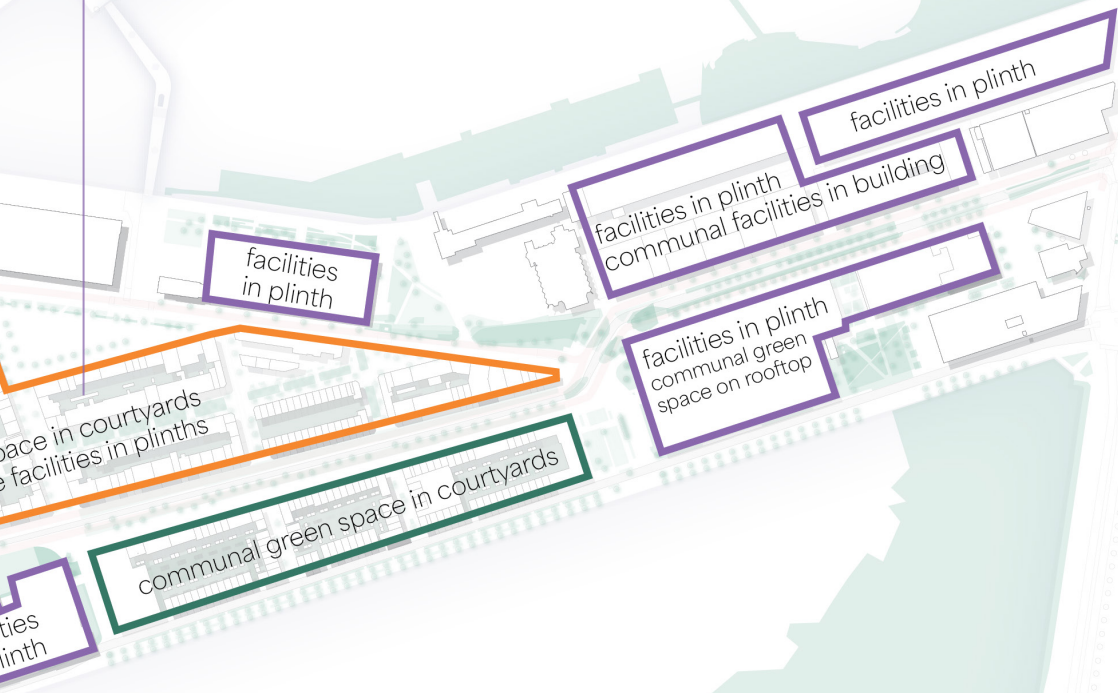
*Mona and Beth both live in this part of the neighbourhood, where they make use of the communal facilities. On days that Beth is free, she cooks in the communal kitchen and Mona and Tom can join her for dinner. The outdoor space here is safe enough for Tom to play on his own, to allow Mona to continue working, or to take rest and play a game with Beth and the other residents.*






Olivia lives in a lovely ground-floor flat that has direct access to the communal courtyard. Here, she and the other residents can sit together in the garden and chat while her children play. Sometimes, she can even quickly go to the gym while her elderly neighbor watches the children.

100 metres



Sarah and her family live in one of these homes, which are large enough so everyone has their own room. The courtyard that connects to their backyard allows the children to play with the neighbours in a safe space, so Sarah can focus on her own activities. It is also so close to school that the children are almost able to go by themselves.

 apartments

 multi-family homes

 single-family homes

## courtyards and street design

This zoom-in illustrates in detail the transformations of courtyards, the implementation of protective street design and the transformation of the main road on the Brede Hilledijk function.

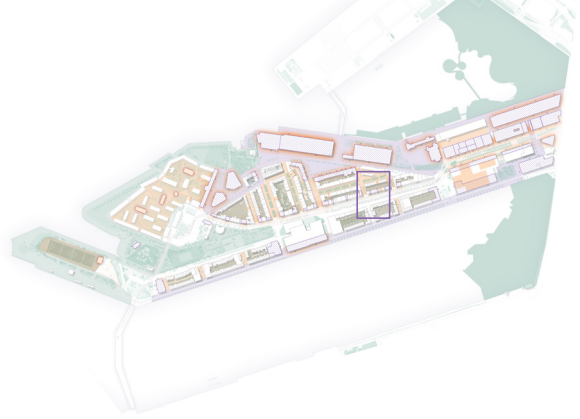
### current situation

The space that is currently situated on the inside of the building blocks in the neighbourhood are used in two ways; either they facilitate parking space, or they have been fitted with private gardens. In the context of gender-positive design, both of these programmes are sub-optimal, as they fail to facilitate some positive aspects. The programming of parking spaces is technically a collective function, but it lacks quality in its design that encourages encounters between neighbours or facilitates collective events. Private gardens do provide a form qualitative outdoor space that is positive for women, but it unfortunately does not facilitate communal interaction and the building of relationships with neighbours.

Two different types of streets are transformed in this part of the neighbourhood.

First are streets like the Atjehstraat, which are the residential streets running in between the residential blocks in the middle of the neighbourhood. This street is configured as a standard residential street, with a sidewalk, a lot of parking spaces and the middle of the street facilitates all types of traffic. It is this configuration which does not invite for interaction between neighbours, and does not facilitate the forming of community.

The second street to be transformed is the Brede Hilledijk, which is the main traffic artery through Katendrecht. The Brede Hilledijk is mainly designed for car traffic, with two separate two-lane roads. Furthermore, it facilitates a lot of parking spaces. The bicycle lane and pedestrian track alongside the houses feel like an afterthought. The set-up of this street does not add to a safe and qualitative cycling network, and the focus on car-traffic creates a dangerous atmosphere for pedestrians.



Atjehstraat

Brede Hilledijk

20 metres



Current situation in Katendrecht





## transformations and pattern implementation

The patterns reflected in the transformations in this part of the design are:

- D1** love thy neighbour
- D2** communal housing facilities
- D3** meeting over a gentle cycle
- A3** gradations of outdoor space
- A9** private outdoor space
- A10** semi-public outdoor space
- A12** text me when you get home
- A16** all eyes on us
- A17** i'm walking here
- S5** female streetnames

implementation  
of protective  
street design

reprogramming  
of specific  
dwellings  
to facilitate  
collective  
functions **1**

transformation  
of existing  
courtyard  
structure **2**

plinth-  
activation  
on strategic  
locations  
alongside  
important  
routing **3**

transformation of  
street to prioritise  
slow (cyclist,  
pedestrian) and  
shared (public  
transport)  
mobility



programmatic  
transformation



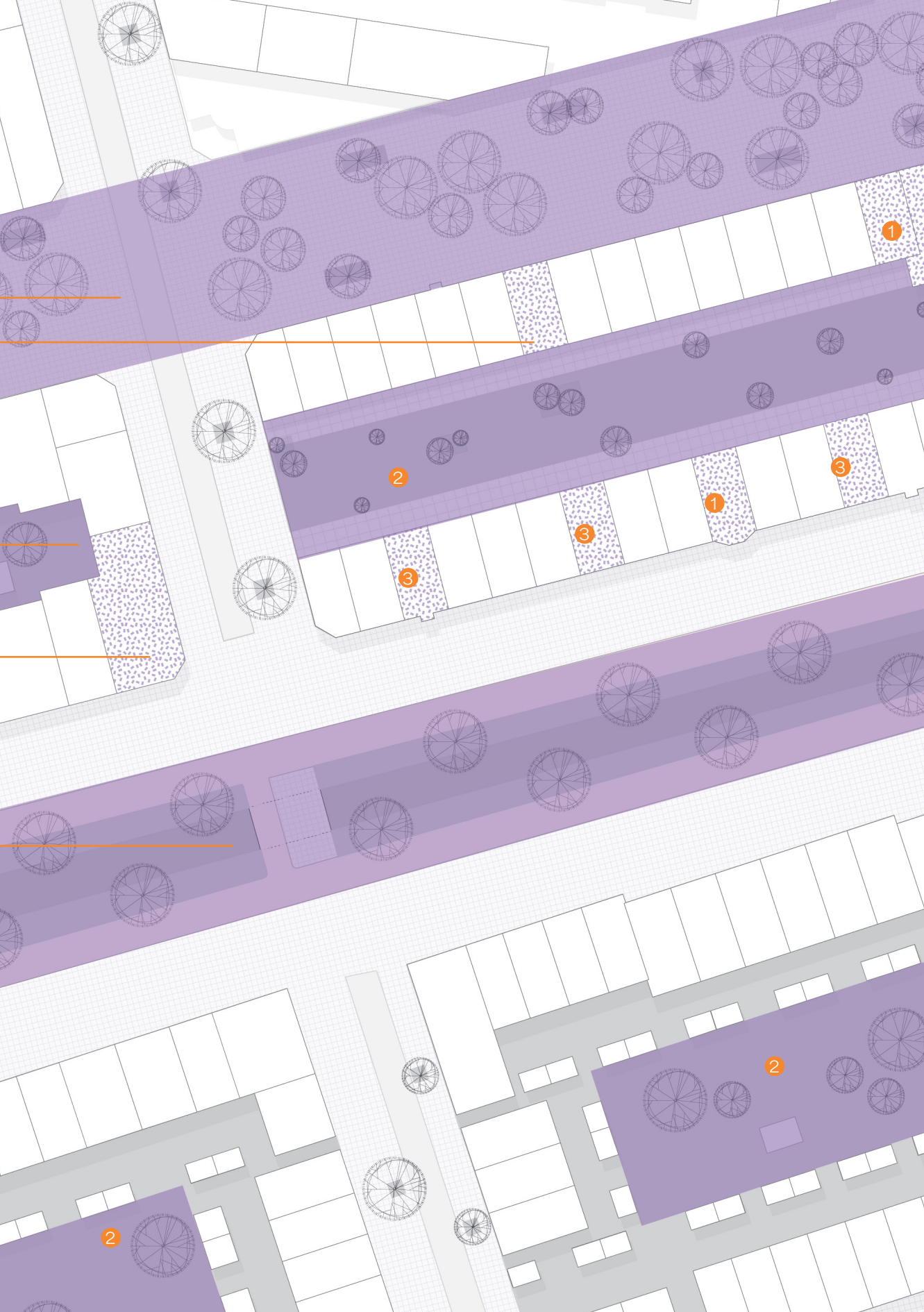
spatial  
transformation

12 metres



Transformations of this design zoom-in





## the design

The first step to implement the protective street design in the residential streets is to eliminate through-traffic using those streets. In order to do this, the quality of cycling routes in other locations are improved in order to guide cyclists to use those roads. Cars are mostly banned from the neighbourhood, but have certain streets that they can drive in order to reach specific areas. The roads cars can use are not fitted with vegetation, but do have a difference in materialisation to guide the route of the car (as can be seen in the street running north-south in this design).

Patches of grass and vegetation are used to narrow down the streets that are designed to stay collective. These patches of green are wider near connections with more public streets, in order to give more protection and a clearer transition. Further inward of the collective streets, the patches of green are organized in a manner that creates little pockets of space, which allows inhabitants to organize events in the street, put down street furniture, or organize it in the way they see fit.

The courtyards are transformed to offer collective outdoor space in favour of parking spaces or private gardens. As can be seen in the aerial view of the current situation in Katendrecht, the southern blocks of the neighbourhood are in two different states, as the eastern block has already transformed its courtyard to private gardens from its original state as parking space. Even though this is a nice development, in the context of this project and designing for women, the addition of communal space in the form of a courtyard is a preferred implementation.

The Brede Hilledijk is transformed to give more space to both pedestrians and cyclists, as their lanes are expanded. In the middle of the road, there is one bus line running to allow the bus to move through the neighbourhood.

To increase the feeling of safety, plinth are activated on strategic locations to increase the activity on the street. There are also enough street lights to ensure enough lighting for pedestrians and cyclists.

The street is renamed after Lotte Stam-Beese, paying homage to an influential architect and urbanist during Rotterdam's reconstruction.

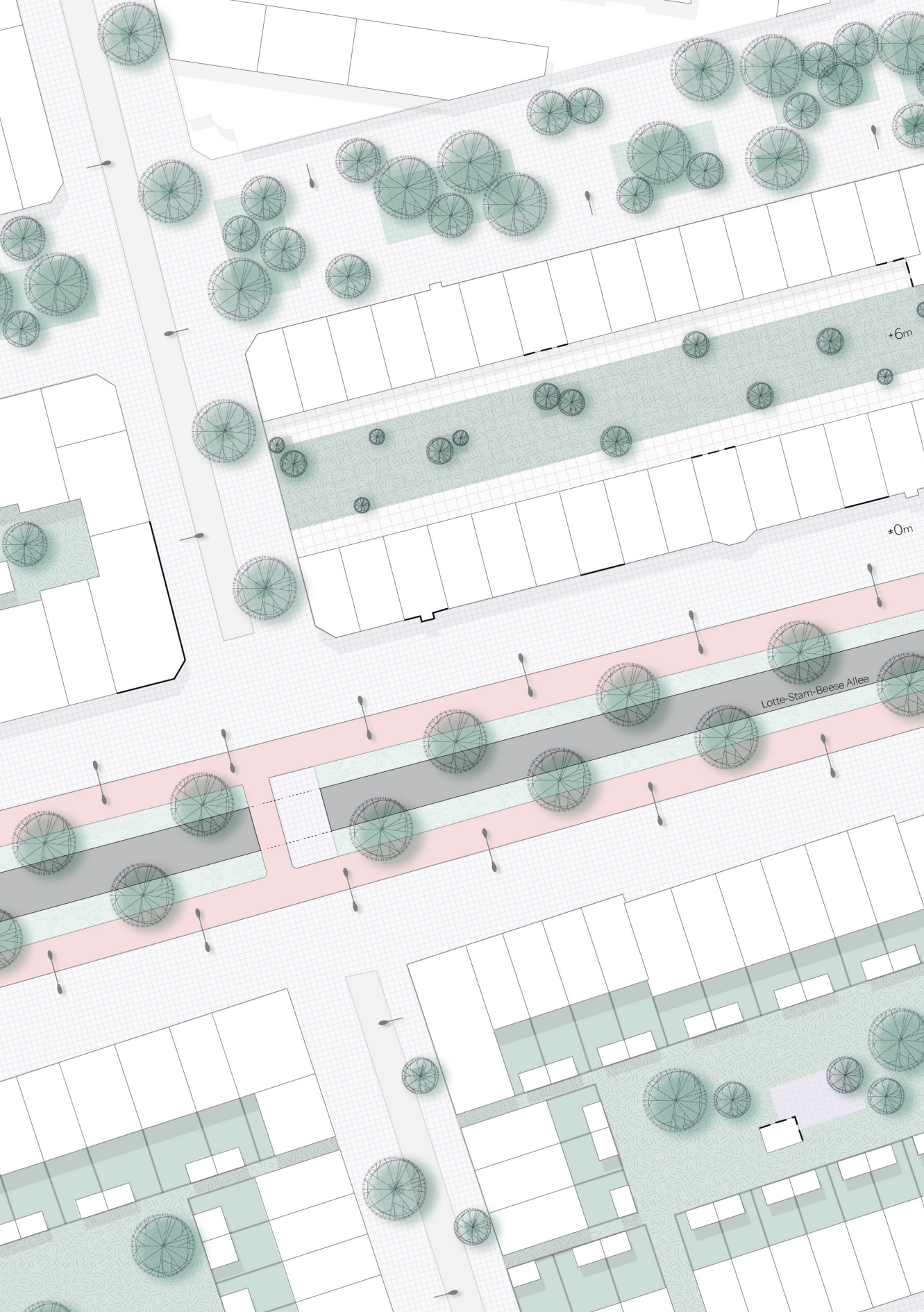


12 metres



Transformed plan of this design zoom-in





+6m

±0m

Lotte-Stam-Beese Allee

### collective sphere

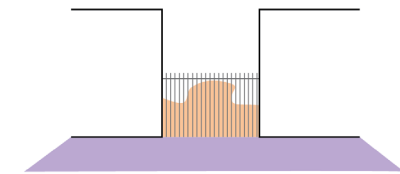
The collective sphere in this part of Katendrecht is situated in two situations. Either in courtyards within the building block or in the collective streets protected by the transformed street design.

The courtyards that are located inbetween the single family homes in the south of the neighbourhood. Here, the collective space is solely the green space in between private gardens, with occasionally a communal shed or small garden-building.

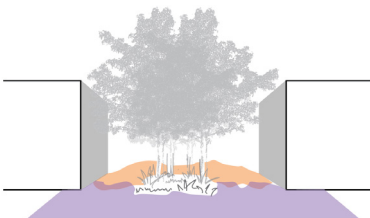
The courtyards located within the blocks of multifamily homes are directly connected to these homes. Some (parts) of the houses are converted to communal indoors space, which can be programmed by the residents in the way they see benefit the community. These communal rooms are only accessible via the courtyard, with no access from the street directly, in order to be accessible only for residents.

### transitions

The transitions from public to collective sphere in this part of the neighbourhood are in the form of gates (in the case of the courtyards in in the south of the neighbourhood) and with the use of the vegetation in the protective street design.



Transition in the form of gate or fence



Transition in the form of vegetation

### public sphere

The collective sphere in this part of the neighbourhood is sparse, as the public focus in the neighbourhood is situated more towards the north of the neighbourhood. There are some public functions however, in order to activate the Brede Hilledijk and its cycling and pedestrian road, in order to improve the 'eyes on the street' of this corridor.

Most of these functions are those of hospitality (restaurants, bars), as these have broad opening hours and often extend their active sphere onto the street, which makes for longer 'eyes on the street'.

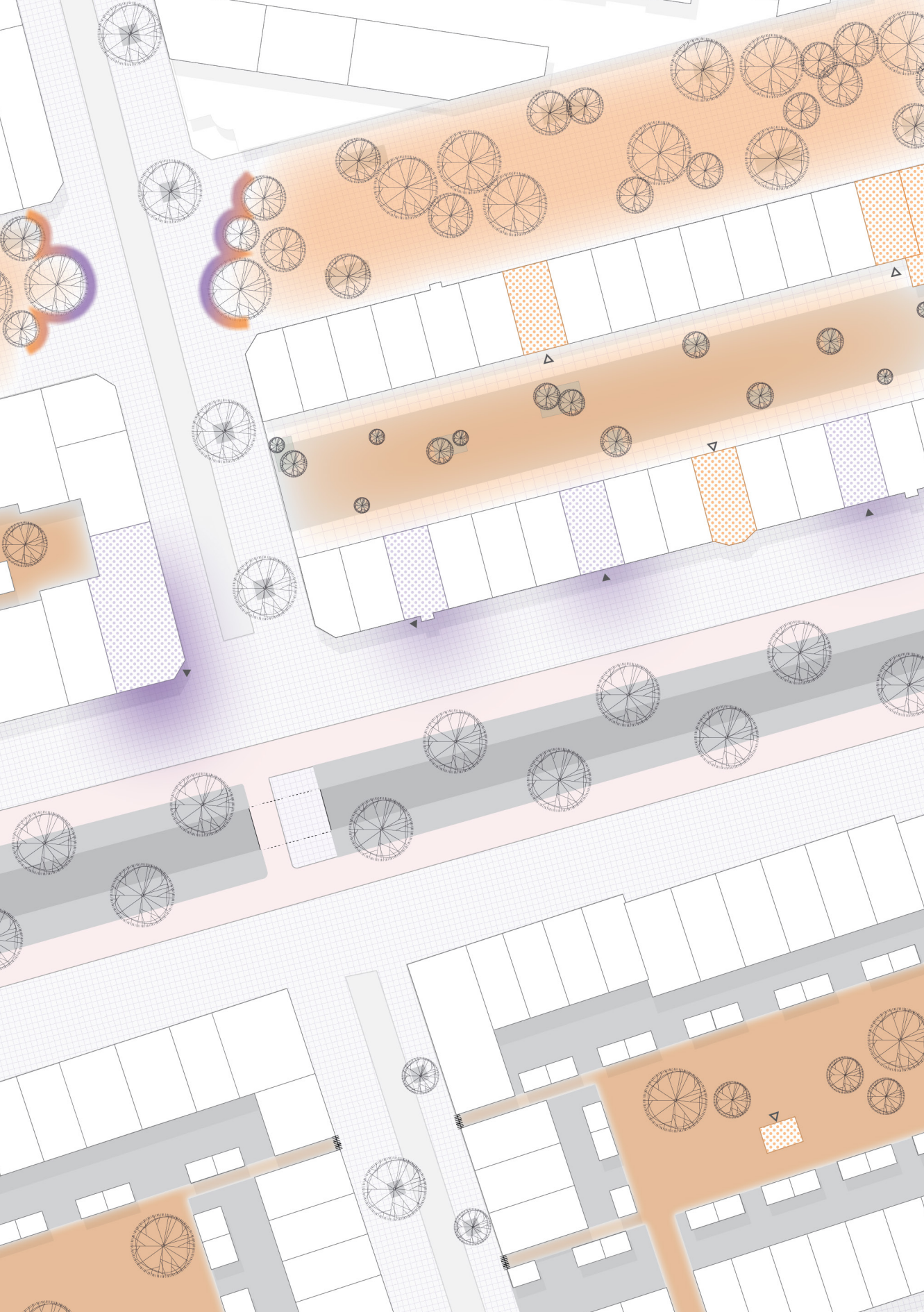
-  collective space
-  collective building
-  collective entrance
-  public building
-  public activity
-  public entrance
- transitions
-  gate
-  vegetation

12 metres



Public and collective sphere of this design zoom-in





12 metres



## functions

The functions programmed in this part of the neighbourhood are primarily to offer activity on the street and for the offering of community.

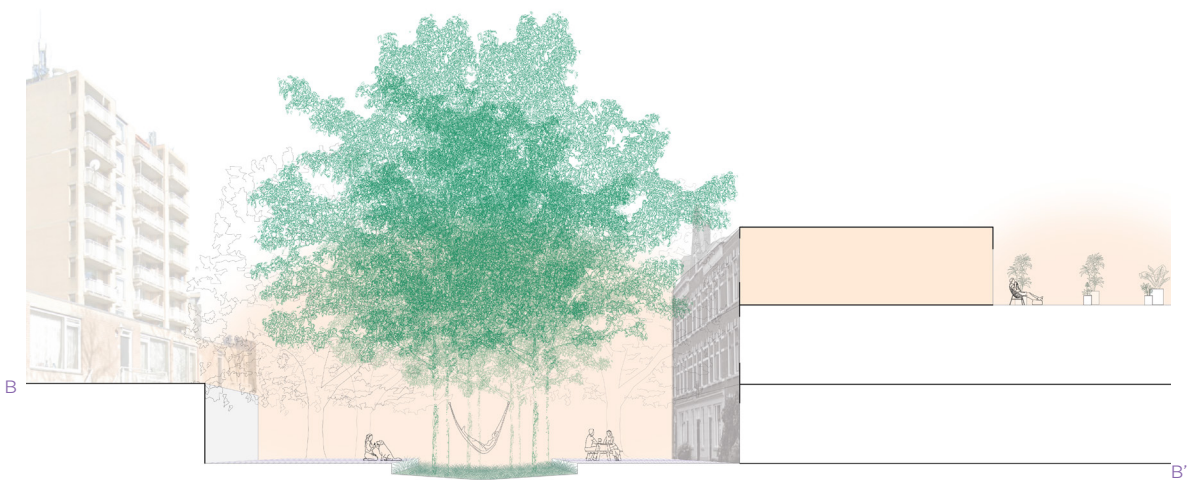
The public functions are all implemented in order to offer social control alongside the pedestrian and cycling route, and therefore are leisure based functions that allow wide opening times and the coming-and-going of a lot of people. These would be cafés and restaurants, or cinemas and theatres with bars.

The communal functions are different based on what dwelling type they serve.

Communal functions that are located in a single-family housing block are often in the form of a communal living room, offering spaces for inhabitants to meet. Communal functions situated in multi-family homes will also offer other functions that the residential units might not have space for, such as a laundry room, kitchen or work-space.

- 1 leisure
- 2 life necessities
- 3 community
- 4 school/daycare
- 5 healthcare
- 6 work

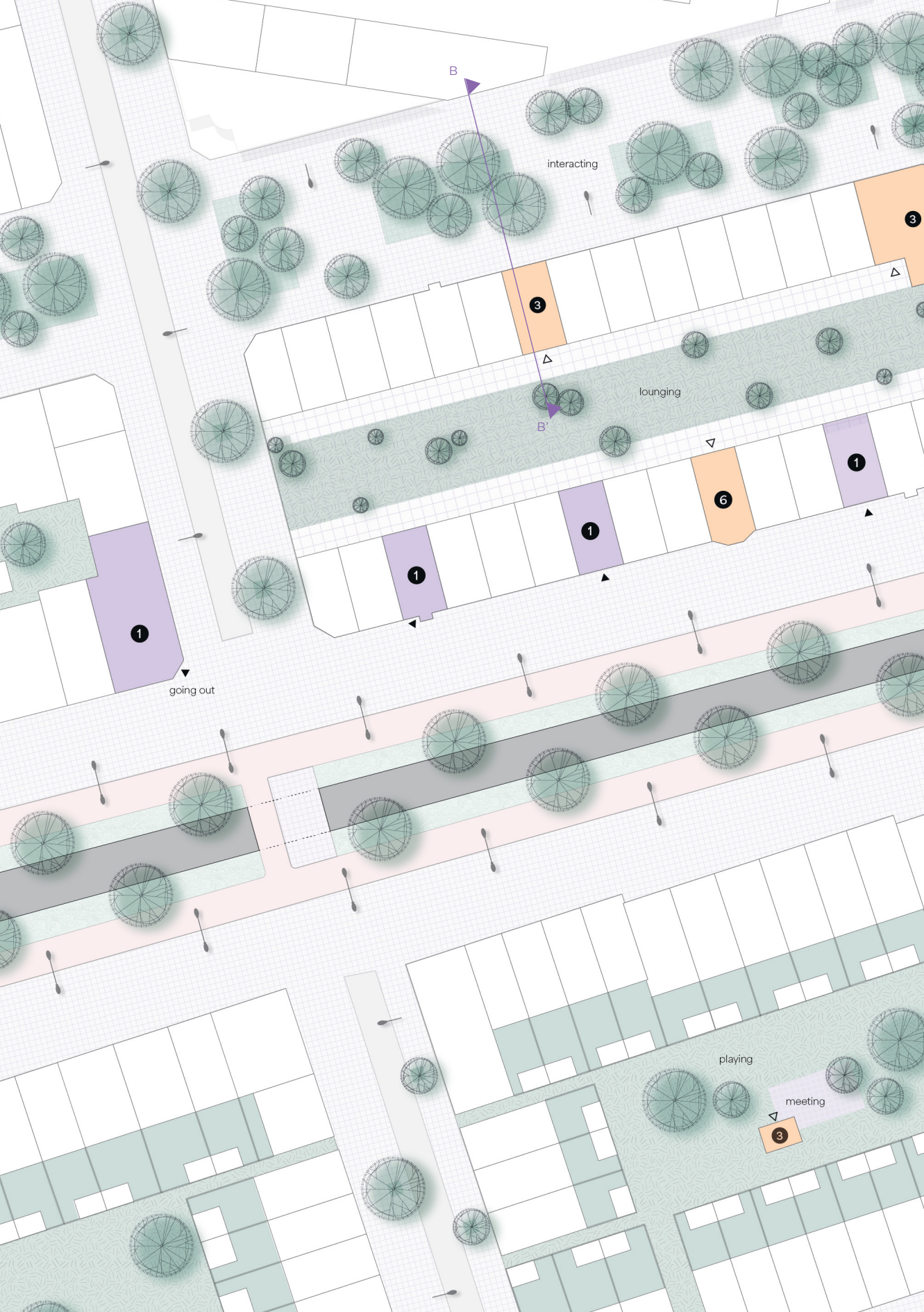
- collective building
- public building



5 metres

Section of the communal Atjehstraat.





B

interacting

3

lounging

B'

3

1

6

1

1

1

going out

playing

meeting

3

## *new neighbourhood*

The analysis of Katendrecht showed that the westernmost part of the neighbourhood has little potential for collectivity, lacks work opportunities and is in need of protection. Additionally, this part of the neighbourhood is lacking in amenities.

It is therefore that this part of the neighbourhood is transformed, implementing a new building fabric that affords collectivity and offers diverse dwelling types and environments.

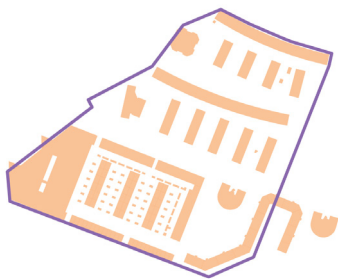
In order to come to a beneficial composition of buildings, reference cases of neighbourhoods that utilize protective architecture are explored.

Reference cases were selected based on whether they utilized a form of protective architecture, and based on whether they afforded any form of collective space.

The reference cases that were used are that of the Funenpark, the GWL-terrain and Spaarndammerbuurt in Amsterdam, as well as In der Wiesen Sud and der Sonnwendviertel in Vienna.

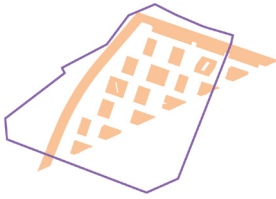
These reference projects are evaluated on the way their set-up influences public and communal space, and on the way they create (diverse) space.

Based on elements taken from each of these cases a new urban fabric for this part of Katendrecht is designed.



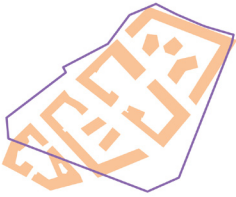
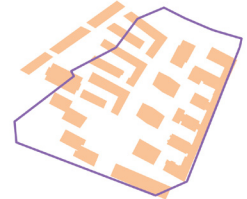
*Original fabric of the neighbourhood in Katendrecht. This set-up overly focuses on single-family housing and does not facilitate the creation of collective space, or provide protection from added public activity.*





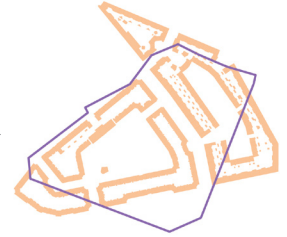
Fabric of the Funenpark in Amsterdam. This project specifically functions as sound-barrier, explaining the large surrounding mass which is of too big a scale for this area. The grid-like planning of the inner buildings does not offer a variety of outdoor spaces which is preferable.

Fabric of In der Wiesen Sud in Vienna. This fabric allows for both single-family homes, as well as apartments. The organis distribution of buildings facilitates different outdoor spaces. The protective building is a bit big for the location in Katendrecht.

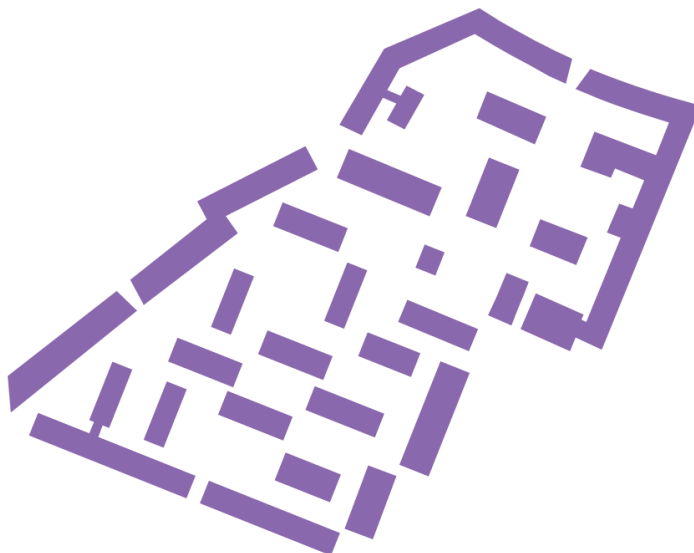


Fabric of der Sonnwendviertel in Vienna. The block-like structure still forms public-looking streets, which is not preferable. The use of smaller entrances towards larger open space is nice, as well as the bridge connection between buildings.

Fabric of the Spaarndammerbuurt in Amsterdam. The buildings here form an obstruction between private and communal, which is not preferable. This type of building also does not give a lot of opportunity for communal housing forms.



Fabric of the GWL-terrain in Amsterdam. The breaking up of the larger masses is nice, as well as the organization of the smaller buildings which creates different forms of outdoor space. The bridges connections between different buildings is nice.



100 metres



## *new public square and communal neighbourhood*

This zoom-in illustrates in detail the transformation of the western part of Katendrecht. It illustrates the implementation of protective design, the addition of collective space and functions, as well as the implementation of a new public centre with important amenities.

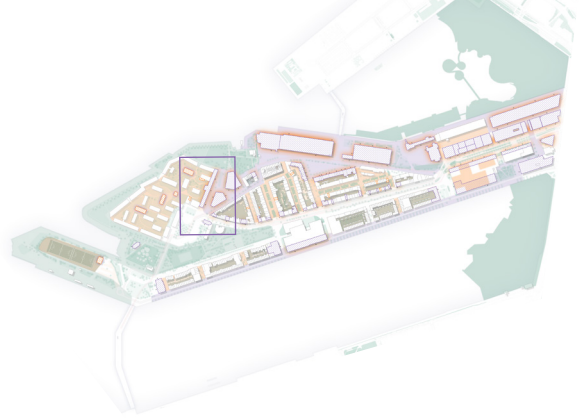
### *current situation*

The current dwellings in this part of Katendrecht are mainly single-family housing and multi-family housing. The outdoor space is mostly used for parking, and the dwellings have very little green space to their access. This green space has no potential to becoming communal, except for that situated in the courtyard of the closed block on the eastern side of this zoom-in.

The little square that is situated surrounding the grade school De Schalm, which also houses community centre 't Steiger, is set up in a way that it does not make optimal use of the available space.

All roads are lined with parking spaces, and there is no designated cycle lane, making it a more dangerous route for cyclists to navigate.

Besides the school and community centre, there are no public (or communal) amenities in this part of the neighbourhood.



OBS De Schalm

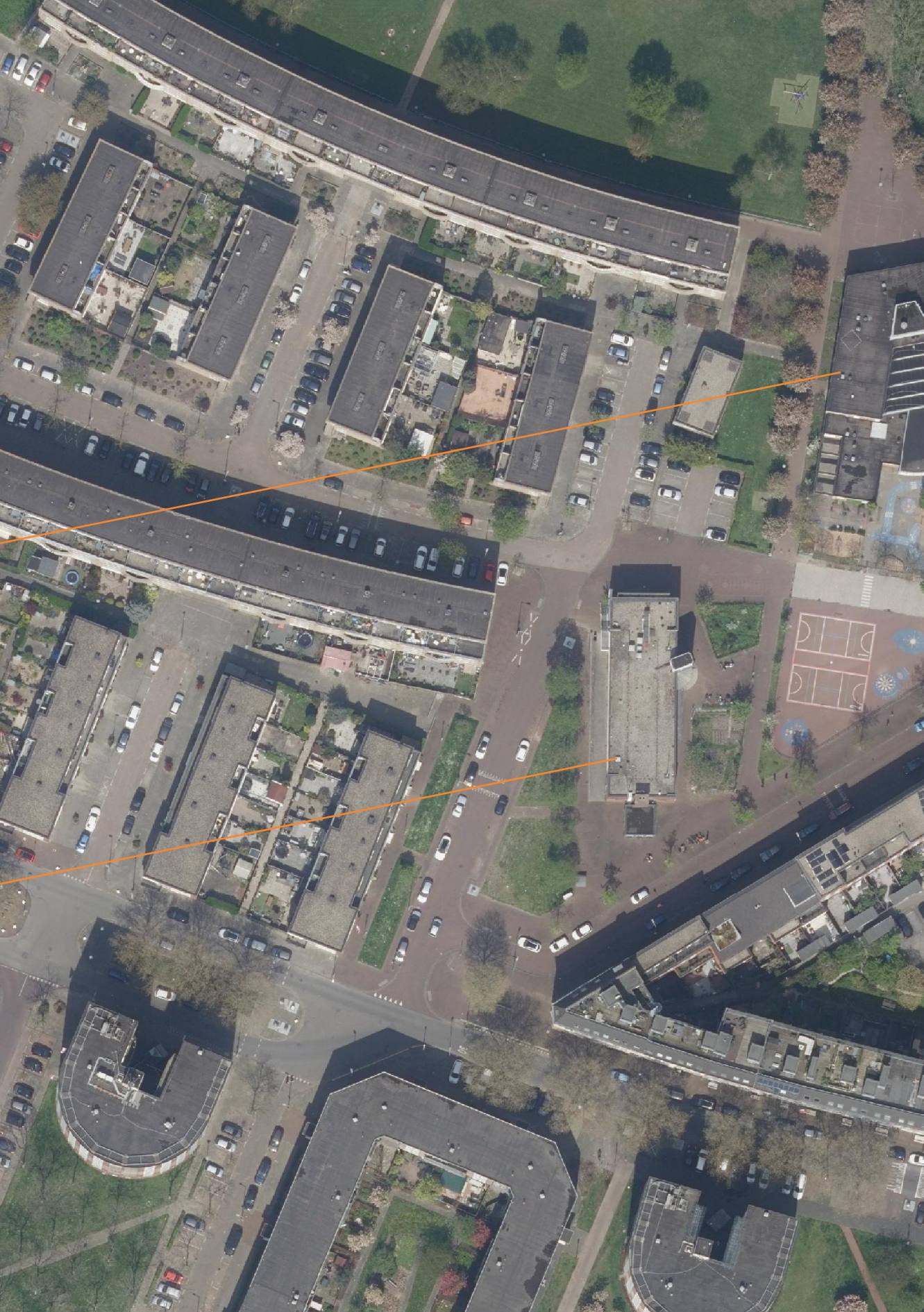
't Steiger

20 metres



Current situation in Katendrecht







## transformations and pattern implementation

The patterns reflected in the transformations in this part of the design are:

- D1** love thy neighbour
- D2** communal housing facilities
- D3** meeting over a gentle cycle
- D4** flex work place
- A3** gradations of outdoor space
- A6** quick trip to the shops
- A7** the doctor is downstairs
- A8** the next stop is... the park
- A10** semi-public outdoor space
- A11** public outdoor space
- A12** text me when you get home
- A14** lounge function in park
- A16** all eyes on us
- A17** i'm walking here
- A19** quick pitstop
- S4** female statues
- S5** female streetnames
- S6** protesting space
- S7** changing table in all restrooms

## implementation of public restroom building



programmatic transformation



spatial transformation

implementation of protective architecture to guarantee collective space

transformation of underused public space into new public centre with important functions

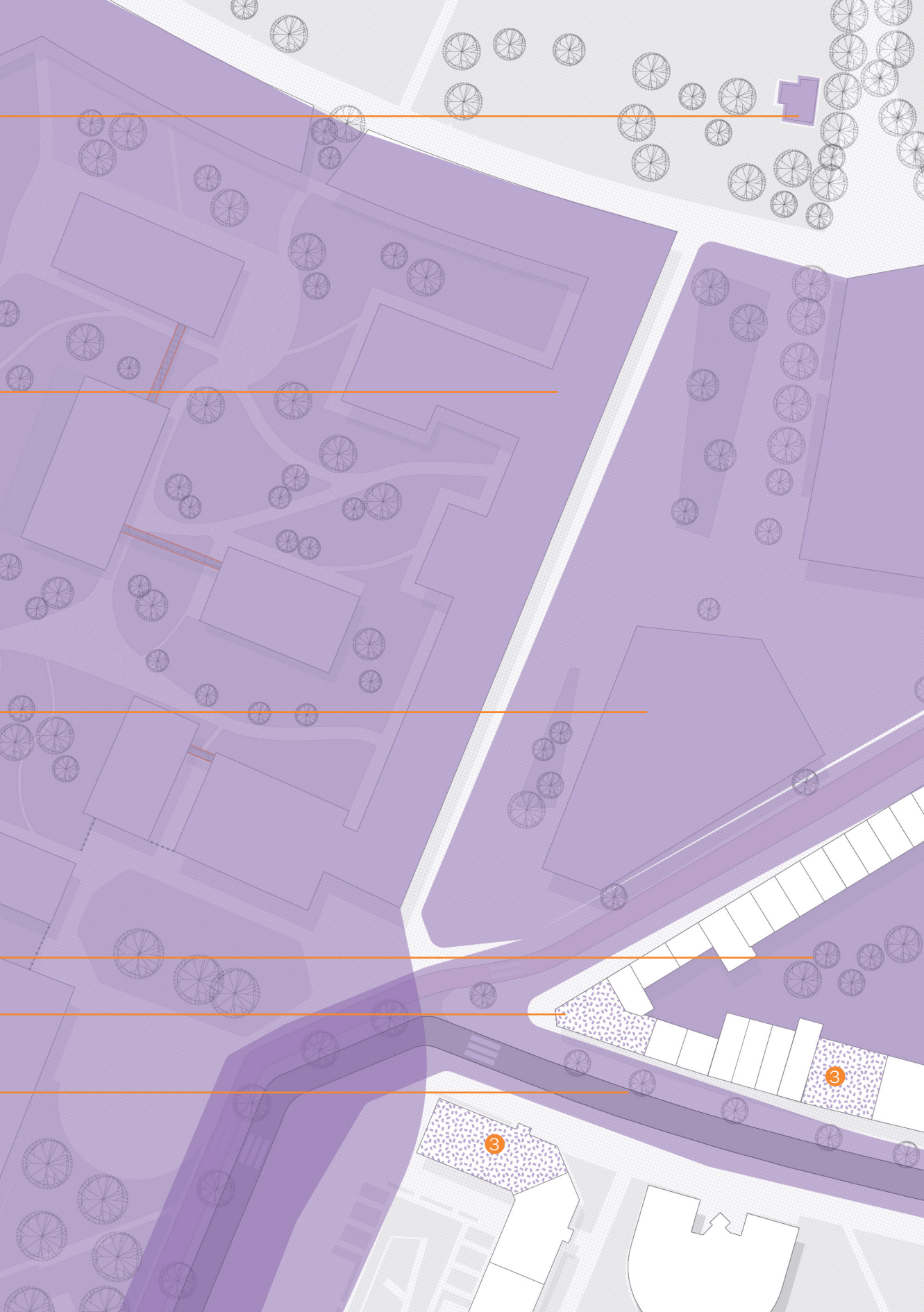
transformation of existing courtyard structure

plinth-activation on strategic locations alongside important routing

transformation of street to prioritise slow (cyclist, pedestrian) and shared (public transport) mobility

*Transformations of this design zoom-in*





## the design

The easiest transformation in this design is the transformation of the current courtyard in the closed block in the east.

The streetscape in this part of the neighbourhood is transformed to facilitate the main cycling network, as well as the bus which stops at the new public square. The cycling route is well-lit, and the cycling path is wide enough to facilitate both directions.

The transformation of the new collective neighbourhood entails a transformation of the building blocks as well as the outdoor space.

The buildings have been set-up in way that they give optimal protection from the public spaces situated to the north and east of the neighbourhood. Narrowing architecture and underpasses are used to form connections to the space outside of the neighbourhood.

Within the protective buildings, blocks are situated in a semi-organic manner in order to facilitate the creation of different outdoor spaces, that differ based on the functions of the buildings that are situated on the space. Buildings with communal functions are situated on more paved areas, while residential plinths are situated on grassy areas. There is a perimeter between the buildings and the grass to create a buffer between private rooms and the outdoor space.

Besides the walkways outdoors, some buildings are connected by bridges, in order to offer a more private access. Some of these bridges connect communal spaces, others are walkways between residential buildings.

The new public square is fitted with many seating options, as well as grassy areas which allow for lounging in the public space. Strategic spaces are activated to allow for social control on the street.

In the park in the north, a public sanitary building is constructed, in order to allow people who are visiting the public space the opportunity to relieve themselves if necessary.

The square is named after Tante Sjaan, an exploiter of a famous Chinese restaurant which was located in Katendrecht for a long time. The cycling route has been named Bordeelpad (Brothelpath) to refer to the history of Katendrecht as red district. A statue of a typical Katendrechtse prostitute on the square also reminds of this part of the Katendrechtse history.



tree



street lighting



pedestrian area



bike path



bus lane



grass



collective plinth



public plinth

20 metres



Transformed plan of this design zoom-in





Tante Sjaan-plein

Bordeelbad

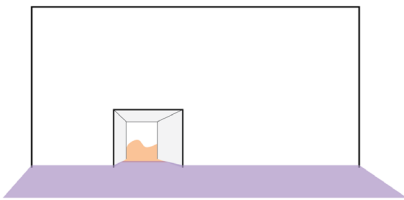
Hof der gelijkheid

### collective sphere

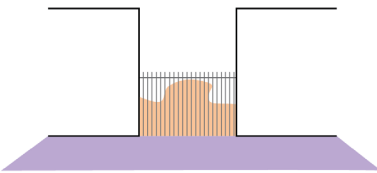
The collective sphere in this part of Katendrecht is situated primarily in the new communal neighbourhood, as well as in the courtyard in the closed building block.

The communal courtyard connects directly to the surrounding homes, creating a large surface of communal space.

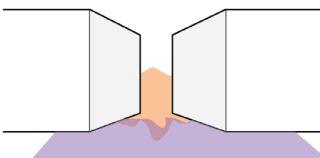
The communal space in the new communal neighbourhood also has a large surface. Here, communal space is more concentrated surrounding the communal building, and is less saturated along the surrounding residential buildings to offer privacy to ground-floor dwellings.



*Transition in the form of an underpass*



*Transition in the form of gate or fence*



*Transition in the form of the narrowing of building blocks*

### public sphere

The collective sphere in this part of the neighbourhood is situated in the new public square. This square connects to the public green space in the north, and is close by the green public space in the middle of the peninsula, and therefore is a crucial point in the public space network of Katendrecht.

The buildings on the square both have fully publicly functional ground and first floors, to offer as much amenities as possible to inhabitants and visitors.

At crucial locations surrounding the cycling network as well as the pedestrian road parallel to the busline, plinths are activated.

### transitions

The transitions from public to collective sphere in this part of the neighbourhood are in the form of gates, with the use of underpasses and with the use of narrowing building blocks.

-  collective space
-  collective building
-  collective entrance
-  public building
-  public activity
-  public entrance
- transitions
-  gate
-  vegetation

20 metres 

*Public and collective sphere of this design zoom-in*





20 metres 

## functions

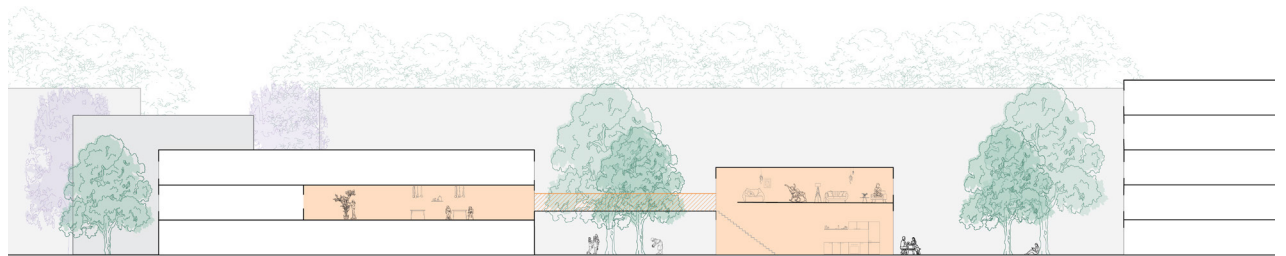
The communal and public functions in this part of the neighbourhood facilitate as many amenities as possible, in order to fulfill a wide variety of needs.

The public functions are programmed with flex working spaces, a supermarket, doctors office, pharmacy and drug store, a community centre and library to offer a variety of activities. Functions that may require more privacy, such as the doctors office, have their entrance situated in the underpass of the residential buildings. The square in between the public buildings has been set up as open as possible to allow for protests, in case there is a need for that. A public toilet building has been added to the park.

The collective functions offer meeting areas, as well as a communal kitchen, playing room, laundry room and even studio spaces for inhabitants to run small businesses in.

The school and daycare both have entrances on the public as well as the collective side of the building, as these are functions that offer the building of communal relationships between parents, while they are also open to children from outside the neighbourhood. This configuration allows for 'outsiders' to enter the buildings from the public side, while the connection to the communal space offers a safe space for the children to play.

-  leisure
  -  life necessities
  -  community
  -  school/daycare
  -  healthcare
  -  work
-  collective building
  -  public building



Section of the communal facilities

10 metres







# KATENDRECHTS VOLKSHUIS

oor G.L.O.  
LUS.  
fd der school  
ere schooltijd

27

GYMNASIUM  
ZAAL







*a gender equal future*

## transferability of gender equal principles

The transferability of the results can be considered on two aspects; that of the patterns and that of the design.

Due to the nature of the method, the Working Women patterns are designed to be transferable. The solutions they offer are developed to be implemented in any context, and are therefore very applicable to other neighbourhoods. However, as they were developed with non-specific locations in mind, the applying of the patterns into other contexts will require some testing. Not all patterns are applicable to each neighbourhood, and each neighbourhood's specific situation will require a different set of patterns to be applied in maybe other manners than I did for Katendrecht.

Generally, the transformations that are proposed in the design are very transferable, as they benefit everyone, not just women. Anyone can enjoy a better organised public transit network or qualitative public space. This is very prevalent in the evaluation of the relevance of patterns, where almost all patterns that are viewed as tangible are relevant to 'all people', and not of only women. This only shows that the concept of 'design for the few and you design for the masses' is true, as the transformations that benefit women are beneficial to any inhabitant.

However, while the design does benefit 'other people', people who do not fulfil the care tasks in the family will not experience the same level of improvement. While the transformations proposed may be a nice change for them, a small positive alteration, it will not be as influential on their life as it is for the carers in the family. People who are not responsible for all of these tasks, who do not feel the effect that these activities have on your life and time, they will not be able to appreciate these interventions in the way that working women will.

It is for this difference in nuance that the more intangible patterns, such as those considering national legislation, are less appropriate to be transferred to a design considering a different focus group. These patterns, that have a less obvious spatial implication, and are therefore a less general implementation, only benefit the few people who specifically have to deal with the problems these patterns address.

## limits to gender equal design

There are multiple aspects that could limit the implementation of gender-positive interventions.

Generally speaking, the biggest limit is that our current society would find the concept of 'designing for women' too radical. As it has taken over fifty years for the municipality of Amsterdam to increase the number of accessible public toilets, it is relatively safe to assume that the implementation of fully gender-equal neighbourhoods will take some time to be realised. Female-specific problems are routinely not being taken seriously, and our patriarchal society is far away from implementing transformations solely with the argument that they are beneficial to women.

However, as my research has shown, many of the transformations that are beneficial to women are beneficial to everyone. There may be fewer objections to the implementation of these principles if they are not advertised as being 'female friendly'.

More specifically, there are limits considering the implementation of certain patterns, as well as general societal limits to the transformations that are proposed in the design.

One considerable limit is that pertaining to patterns that suggest a modification in national legislation. Such legislation needs to be supported by a political majority before it is passed, and it is very possible that legislation that affords people more money without needing to work for it harder will struggle to acquire the support needed to implement it. Especially considering the current political shift towards a right-wing government in the Netherlands as well as in the European Union, these legislative changes are not likely to be implemented.

However, I think an aspect of this is that society needs to realise that caring—for children as well as for the elderly, even for oneself—is a task in which we simultaneously support society. There needs to be a change in mindset throughout our society: that having children and caring for the elderly is valuable work that even adds to society.

Another mindset shift which is needed in order to arrive at a gender-equal future is that of a neutralisation of gender-roles: the change towards a future in which women are not the default carers and that men can be caring too. Without such a shift, women will always be held responsible for the care labour of society. No urban transformation can change that.

Other aspects that require societal shifts in order to allow for the implementation of these gender-equal transformations are car dependability, the economic push towards building expensive apartments, high rents for retail spaces, and the limited governmental resources for maintaining communal and public spaces. All of these aspects, which in my opinion are deeply linked with our current political environment, have to do with processes that are so ingrained in society and legislation that they are very limiting to the implementation of gender equal transformations.

In general, a wide-spread societal and political shift towards the valuing of community, public space and equality principles is needed in order to implement specific gender-equal principles

## *project reflection*

This project started from a point of empowerment: taking the method of design to fight for gender equality in a patriarchal world. The question is now, at the end of the project, in what way can design and the spaces we create contribute to empowerment? If we see empowerment as 'the process of gaining freedom and power to do what you want or to control what happens to you' (Cambridge Dictionary, 2024), then space immensely influences empowerment.

In this project, programmatic choices as well as choices are specifically made to create spaces that allow inhabitants, in this case women, control over their environment as well as their time. In offering specifically communal spaces, women have the opportunity to control the interactions they have and, to some extent, the people they interact with. By programming functions in strategic locations, which decreases the time women spend fulfilling certain tasks, they get the freedom to use the gained time as they wish to.

The key to having design and space be empowering is to offer choice, to facilitate inhabitants with the possibility to choose their interactions, the spaces they frequent and the time they take to move through the city. Through facilitating diversity in the city, we empower people with the choice to fill their lives in their personal desired manner.

So what would it mean if we implemented these principles throughout the whole of Rotterdam? I think there are different levels at which it is possible to implement gender-positive principles in the city. With the least effort, private gardens can be transformed into communal courtyards, and healthcare functions can be added to existing neighbourhood centres.



However, as there is a dire need for more housing throughout the whole Netherlands and therefore also Rotterdam, it would be an optimal moment to implement gender-positive principles. In this case, it would mean that new and transformed areas need to become more multifunctional, moving away from the idea that a city consists of a city centre and surrounding suburbs. A diversity in housing types is also necessary, where a middle ground of multi-family housing with activated plinths and collective amenities is more preferable than row houses on the one hand and high-rise apartment buildings on the other.

An extreme implementation of gender equality principles throughout a city could possibly mean that the city fabric becomes equalised over the whole of the city, facilitating the different functions that can now be found concentrated on certain locations in the city more evenly spread throughout the whole of the city. This would probably also invite different forms of transport, as cars might be needed less to move throughout the city as things become better accessible by bike or foot.

However, what might be a result of such implementations is that inhabitants less often travel outside their direct living environments, as they have no reason to if all their needs are fulfilled in their direct environment. This might lead to segregated neighbourhoods, which might not be preferable. Research can further be specified on what functions need to be facilitated within the direct environment and what functions can be spread out over the city to find a perfect configuration throughout the city.

## conclusions

### What urban transformations can help enhance gender equality in the city, increasing opportunities in the everyday environment of working women?

Urban transformations that prioritise slow and shared mobility, facilitate community, increase the accessibility of public space and amenities and offer diverse environments will help increase opportunities in the everyday environments of working women.

### In what ways are gender inequality and equality present in West-European culture?

West-European culture is gender equal, as women have many of the same rights as men. They are able to follow the same types of education as men and have the same types of ownership of material belongings and property (Atria, 2018; 'Feminisme in Nederland', 2024). They have equal rights under family law and are not legally mandated to obey their husbands in the case of marriage. West-European culture is unequal, as gender-based behavioural ideas are still accepted as the truth. Women are expected to take on more of the care labour in the family (Centraal Bureau voor de Statistiek, 2022a). Women are structurally more often the victims of gender-related crimes, domestic violence, and sexual violence (Centraal Bureau voor de Statistiek, n.d.). All of these elements discourage women from participating in urban life in the city, denying them the right to influence the urban sphere and therefore shape the city (Fenster, 2005).

### In what ways do these (in)equalities manifest themselves in Dutch cities, specifically Rotterdam?

Inequalities in the city manifest themselves mostly in the intersection with the care work that women do. This mainly has to do with the travelling patterns that are associated with activities pertaining to care labour, which the city has not been designed for (Criado-Perez, 2019; Kern, 2020). The city also inadequately provides opportunities for community-building, which is extremely beneficial to women who perform care tasks. Outside of that, aspects of safety and access to public restrooms are where gender inequality expresses itself most in the city (Atria, 2024; Centraal Bureau voor de Statistiek, 2022b).

### In what way have gender mainstreaming processes helped to reduce gender inequalities in the city?

Gender mainstreaming processes have helped transform parts of the city to support women in their daily care activities. They have done this by improving pedestrian mobility services, as well as introducing housing projects that facilitate amenities important to care labour and with architectural features that improve the combination of child-minding and other tasks (Horelli, 2017; Hunt, 2019; Kail, 2019; Roberts & Madariaga, 2013). Outside of care labour, gender mainstreaming processes have improved public parks and outdoor spaces to facilitate female-oriented activities and to improve a feeling of safety, which has invited girls and women to use public spaces more often and for longer. These practices, however, have been criticised for stereotyping women in their role as caretakers. Although such criticism is correct to a certain extent, the reality of our current society is that these stereotypes exist anyway, and gender mainstreaming practices at least alleviate some of the problems women are encountering in the city (Hunt, 2019).

### What needs do working women have in the city?

Working women's needs vary between those pertaining to life necessities, a safe environment, community, and value. In essence, their needs are not very different from the needs of other inhabitants, but some aspects have specific qualities that are specific to working women. Needs can be categorised in a hierarchy, using a pyramid to visualise base needs and growth needs. The hierarchy contains the categories of life necessities, a safe environment, community, and value. These are the needs that the city provides, which improves opportunities for women to personally obtain self-fulfilment needs.

### What design and legislation principles can improve opportunities for working women in the city?

The development of patterns helps to organise design and legislative interventions that improve conditions in the city for women when performing their care labour, as well as facilitating them with opportunities to build community and partake in leisure activities.

### In what way is Katendrecht an unequal or equal neighbourhood?

Katendrecht has a lot of positive aspects in the context of a gender-equal neighbourhood. It has some schools and daycares, great accessible green space, and most of the amenities are within walking distance. It has some leisure activities, most of them in the hospitality range. It houses some working locations, but is closely connected to areas in Rotterdam that offer more working facilities. However, it is also lacking in some departments. It seriously lacks basic life amenities, such as a drugstore and a supermarket more centrally located in the neighbourhood. It is accessible via public transport, but due to its geographical shape as a peninsula, it detours a lot of travellers from Oud-Charlois or the city centre. Its architecture does not facilitate community at all, and unclear routing makes the biking network very dangerous.

### How can Katendrecht be transformed into a gender-equal neighbourhood?

Despite its flaws, Katendrecht has the potential to turn into a very gender-equal neighbourhood. To increase its accessibility, a bridge should connect it to Charlois over the Maashaven, and a ferry can run to the Museumpark to connect it to the city centre and Delfshaven. The blocks with inner space that are now used as parking or for private gardens can be transformed into courtyards, fostering a sense of community and facilitating communal outdoor space. Activating the plinth of buildings that are situated on the roads ensures a safer bike network, as well as transforming the street to allow more space for slower traffic. Additionally, transforming a part of the neighbourhood after examples from Vienna as well as implementing protective street design ensures the survival of communal space, as the addition of high-quality city parks will invite a lot of visitors to the green space surrounding the neighbourhood. Such implementations create different living environments which adhere to the different combinations of needs working women might have in the city. By offering various possibilities for housing, amenities, leisure, and work in the neighbourhood, women no longer have to adapt to the city, as the city has adapted to them.

### How do these principles apply to other neighbourhoods or other groups of women?

The general principles taken from the patterns can apply to multiple different neighbourhoods, as they were developed with non-specific locations in mind. Some will be more applicable to different contexts than others.

Generally, these principles will apply to other groups of women, but they will probably not be as beneficial to them as they are to working women. Some patterns will not be applicable at all, but most patterns will have some aspect that is beneficial to all women, if not all people.

### Are there limits to implementing gender equality principles in the city?

Limits are mostly concerned with the societal mindset shift that needs to happen in order to accept the implementation of solutions that are specified for women, or in general give attention to equality and community.

## personal reflection

### REFLECTION ON PROCESS

I want to start this reflection by discussing my process, preliminary results, and how they relate to my approach. I think my process has been similar to my process in other design projects, and in that context, it has worked for me. I am someone who wants to have knowledge about a subject before I switch to design (maybe sometimes a bit too much knowledge), and in that sense, the social, concept-based topic and approach I worked with fit me better than a design-based approach would have. This approach also worked well for the topic, as 'feminism' as a concept (the first iteration of a topic I had in mind) does not have a direct spatial expression. Through research on the different concepts that are linked to gender inequality within the spatial realm and its manifestation in the city, I found a workable realm to operate and design in. In this realm, social concepts and interventions are deeply interlinked with spatial elements and design. Therefore, the use of a pattern language proved itself extremely useful. Not only to encompass all interventions that are relevant to the topic (legislative, social, or spatial), but also because the method's flexibility allowed me to create patterns that are shaped exactly in a way that they can function as a stand-alone product, an extension of the research, and as an input for the design.

The role of the design in this thesis is something I struggled with during the process. At the start, I wanted the design to be more than just a collection of design interventions. However, each location brings its own context with it, providing challenges and input which may not be relevant to the proposed subject at all. It was difficult for me to marry these two forms of input, but I do think that it has been the right approach, as it is now becoming a true implementation of gender-sensitive design in an urban context without being too arbitrary or too generic.

However, during the approach to this thesis, I might have been too ambitious, both in general aim and in intended methods and elements. Even though I am focusing on a specific group of women, I could have specified even more to achieve more profound results. My result now is encompassing, but maybe in some moments it is quite general. Besides that, some of the methods and activities I had envisioned were just too much. Although it would have been nice to have specialist interviews or a more thorough participation process, it would have required a lot more time and energy from me to set up, and I think that might have been overkill. I had a personal goal to survive this year without

too much stress surrounding the project, and I think properly pursuing those elements would not have made that possible. So even though dropping those elements during the year has proven to not be detrimental to the outcome, I also could have been more realistic at the start, which would have allowed me to be more focused.

I think the feedback I mostly get are questions urging me to think a bit deeper, as well as tips for reference projects when I'm stuck. I'd like to think I take the feedback and translate it back into my project, but I don't know if I can say that I do take it literally. However, it definitely makes me think about the things I am doing and the position I am taking during the thesis.

With respect to what I learned during this thesis, I mostly learned about the topic and about Katendrecht from my work. However, on a deeper level, I have learned a lot about the role of design as a method. I don't know if it is due to my attitude or due to schooling during my bachelors, but for a long time I regarded design as the end result of a project, and as if there was a right or a wrong way to do it. During this thesis, I have come to understand that design is also an exploration, an experiment. It has made it a less daunting task, and I think in the end, my design process has been successful (albeit a tad slow at points).

I imagine the last part of my graduation process will be filled with fine-tuning. True to myself, I have left many things to the last minute, and the final weeks before the P4 hand-in were very chaotic, trying to finish a lot of different aspects and relating them to each other. Even though I always aim to prevent that part of the process, it seems that it is simply not how I work and I have (partly) resigned myself to it. In that aspect, I am thankful for the P4-P5 structure of the graduation process, seeing as it allows me to enter the last month of graduation way more prepared than I would have without a P4 deadline.

However, it does mean that my final weeks up to P5 are spent with 'cleaning up' and fine-tuning anything I may have done in haste while preparing for P4, as well as expanding on my design and processing the feedback I will get. This will probably be a less relaxed couple of weeks than it would be if I only had to process fieldwork, but I will manage. After all, I work best with a little stress and under a little bit of pressure, so having to do many things is probably better for my productivity.



## REFLECTION ON ASPECTS

### the relationship between graduation project topic, master track and master programme

My topic concerns itself with the interaction between social processes and the built environment, which is exactly what the Design of the Urban Fabric studio focuses on. The studio also makes use of design as a research tool, which I think is very relevant for my topic. As the connection between gender inequality and the built environment has mostly only been theorised up until now, there is a lack of a design dimension in the discussion of the topic. Using design as a research tool can add a practical layer to the feasibility of the problems and solutions that have up until now been discussed.

I think this interaction between design, theory, and current social issues also reflects a lot of the teaching in the Urbanism track, where we have always been encouraged to see how to address larger structural problems (whether societal, environmental, or other) with design, to see how they interact, and to see how design can help solve (if at least aspects) of these issues. The master at the faculty of architecture prides itself on the integration of design, physical and social sciences, and other domains to explore innovative ways towards a sustainable future. I think my topic and approach fit in with this mindset perfectly, combining urban design with a larger social issue and phenomenon to create a future that is equal and sustainable for all.

### influence between research and design

I am looking at my thesis as an assembly of three elements: my research, my pattern language, and my neighbourhood design. All three elements have influenced each other during the process. Most straightforwardly, the influence process has gone from research to patterns to design. The research had offered most input for my patterns and subsequently design, seeing as design solutions (the patterns) came from my research, which were then used as input for my design. However, the research also directly influenced my design, seeing as the research gave me a scope through which to look at the design brief. It framed the analysis I did, the way I looked at the location when I was there, and the questions I asked the inhabitants.

The design process also influenced my patterns, as certain design elements came forward as important while designing for Katendrecht. The use of protective architecture and street design in order to keep collective spaces, for example, came out of the design for Katendrecht but became an important element of the pattern advocating for collective space.

The way my design influenced research is less impactful than the other way around, but I do

think that discoveries I made during designing (with help of my mentors pointing out topics I subconsciously designed for) reflected back in my research.

### the value of your way of working

I think there is value in my way of working because it encompasses a lot of methods in order to arrive at a conclusion, which is a natural way to take many aspects into consideration. The use of reference cases, for example, both as a form of research and as a form of design, takes input from real-life examples. This increases the project's feasibility, as it is possible to point out how those elements have worked already.

### the academic and societal value, scope and implication of your graduation research, including ethical aspects

I think my research has a societal value seeing as over the last decades, our society has seen an increase in the addressing of and discussion on gender inequalities that are still lingering in society. Issues such as sexual harassment or the violence against women are getting more and more attention, with wide-spread social movements attesting the rights of women in these remnants of gender inequality. This research can be seen as a small part of such an addressment, pointing out the city as problematic, arguing for its redesigning to make better lives for women. It strives to be a part of the modern-day emancipation movement, fighting for women's rights until every aspect of society is gender equal.

In regards to academic value, I have seen that research on the interaction between gender and the built environment has been conducted for quite some time now. The problems that women encounter in the city have been described for at least four decades. There have, however, not been many efforts to address these problems systematically, besides from practices in Vienna. This research aims to help close that professional gap of implementation by providing professionals with guidelines to follow when designing new neighbourhoods. This also applies to the scientific framework, as my thesis adds to other theses that address gender issues in the built environment and this implementation problem, increasing the amount of scientific knowledge there is on the design answers to this gender inequality problem.

However, I do recognise that this project focuses on one specific group of women. Even though the aspect of 'design for the few and you design for the masses' applies in many ways, there are other groups of people in society that are

also oppressed, some in more ways than just by gender. It is possible that by designing for women, I am reinforcing their oppression. In that sense, the ethical aspects of this thesis can be a bit unsure, especially since there would also be people who have the opinion that designing for women is designing against men, in a form of positive discrimination. I have to say that I do not agree, especially seeing as most of the solutions and interventions I bring forward actually improve life for everyone, but people could find that an unethical aspect of a project that so specifically favours one group.

### value of transferability of your project work

I think most general aspects of my work are transferable, seeing as the patterns are developed with a general application in mind. However, the design is very specific to Katendrecht (as one can expect), and therefore that would not be transferable at all. I do think however, that utilising my design testing process for other locations would be successful in applying the topic to another urban transformation. That increases the project's transferability.

### the aspect of designing now for a situation that may be different in 50 years

I am designing this project with a very clear problem that has to do with societal conditions. As society is ever-changing, it is very possible that these problems will not be relevant in twenty, fifty or one hundred years. To what extent is this project something that will survive the test of time? I have two thoughts concerning this. Firstly, we have seen that it is actually taking a long time for certain societal mindsets to change drastically. On just the topic of gender equality, we see that even though women have been breaking out of their societal roles for at least a century now, there are still a lot of people who have an opinion of women and their place in society that does not differ from the values of 50 years ago. Therefore, I (sadly) think that it will still be a long time before society changes in such a way that all the problems I am addressing now are not relevant anymore. Secondly, I believe that although I am addressing a specific problem, the solutions I am proposing are not so specific at all. The value of community and safe urban environments, the value of quality public space, and a good distribution of amenities in the city are all elements that are beneficial to many, if not all, people, not just specific to 'working women'. Additionally, I am creating a lot of diverse environments in my design, which creates flexibility in the neighbourhood. This also makes the design more resilient, and something that will probably still function for centuries to come.

### the aspect of how "realistic" a graduation project should be

Something that has been a part of this project since the very beginning (or at least since a comment I got during my P1 presentation) is the level of provocativeness that the topic invites. As feminism as a political movement has historically come with a lot of tumult and women taking attention (instead of nicely asking for it), it was the question of whether this thesis should conduct itself accordingly. This would ask for a level of radical and rigorous urban design, which may not be very realistic when taking the urban development of Rotterdam as a city or even general development practices in the Netherlands into account.

This brings me to a reflection of the stance one should take in a graduation project and how realistic one should design.

On the one hand, the argument could be made that a graduation project is for a student to show the work they can do and how they can become a 'real-life' designer. In this context, the project should be as realistic as possible in order for the student to show how they would handle doing such a project in an office for a client that has budget or legislative constraints.

On the other hand, one could argue that a graduation project is for the student to take a stance and is the last chance they have to make something that doesn't have to be realistic. In that context, the student should go all out and forget any real-life constraints to show how they are able to make a point and have an opinion.

After considering this for almost a year now, I think I am a part of the second train of thought, and I want to develop this project further to take a full stance in the fight for gender equality in our domain, even if that means developing a project and a design that will never be built.



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## *appendix one: interviews*





## lady one

The first woman I interviewed is in her seventies, and lives with her husband on Katendrecht. They are both retired and split the care tasks 50/50.

### safety

While she was born on The Kaap, she moved away when she was 38 as she felt it was not a safe neighbourhood for her daughters any longer. When she and her husband came back around 2000 and their daughters came to visit, they would get them from and bring them to the Erasmus bridge as they felt Katendrecht was not safe enough to bike through due to the gang. She is relieved that that has been resolved, and she feels the neighbourhood is much safer now.

### daily life

She and her husband split the care of the household equally. He does the groceries most of the time, she cooks. They clean together. Often, they will visit the grocery store together during their daily walk. She always goes to the grocery store at the end of Katendrecht, as she is used to it.

She takes the car to the Kralingse Bos at least once every week, to be in nature (she appreciates the old trees there). About three times per week she and her husband walk into the city centre, to visit cultural locations such as the Schouwburg or the Kunsthal.

She always used to take the little ferry across the Maas to the Kunsthal. Now that is gone, they have to walk over the Erasmusbrug, which has added an extra 20 minutes to their trip.

### favorite place

When asked what her favorite place is, she immediately answered her home. It is located on the head of the peninsula, with great views over the Maas. The whole natural area on the head of Katendrecht is her favorite place, and she loves to walk around the peninsula and take in the view over the city.



Photo A: view over the Maas and city



legend

- home
- grocery store
- loved place
- important place

- avoided place
- place that needs improving
- walk / bike movement
- car movement
- metro stop most often used

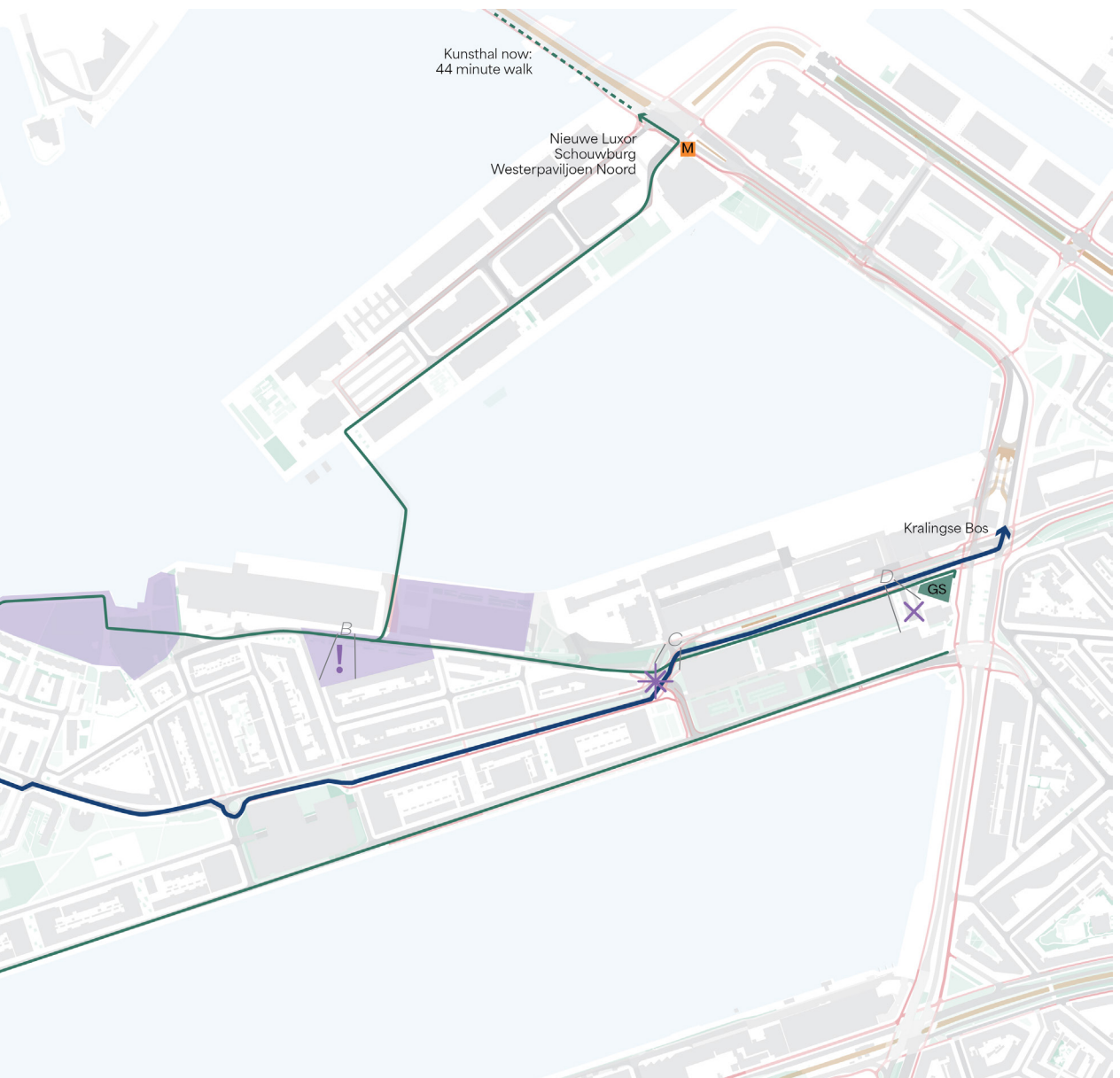




Photo B: terraces on the Deliplein

#### important place

It took her a while to think about what an important place in the neighbourhood was, but eventually she noted that the Deliplein, together with Fenix I is an important area for the inhabitants. "It's lively there, stuff happens. The other side of the peninsula is like a sleeping district, but around the Deliplein and Codarts there are activities, people can do something". The bridge between Katendrecht and the Wilhelminapier is also an important connection, as she does not have to go around any longer.

#### avoided place

Tough there are not many areas she would rather not be on Katendrecht she avoids the rubbish station located behind the supermarket. "It's dirty there, and the bins are always overflowing as they don't get emptied enough. Then when it's dirty, people are lazy and throw their rubbish there as well, making it even dirtier."

#### wish for the neighbourhood

One thing she wishes for the neighbourhood is to get better contact and connection between the original Katendrechters and the new inhabitants. She says there is a lot of friction within the neighbourhood, with the original inhabitants



Photo C: trash bins behind the supermarket



### place that needs improving

The crossing between the Veerlaan and the Brede Hilledijk is very dangerous, as cars cross there from any possible way and it there is no clear organization at all. She shared that she has seen a bicyclist get hit there once, and as a pedestrian she does not really feel safe there.



Photo D: the crossing Veerlaan with Brede Hilledijk

feeling threatened by the new YUPpen entering the neighbourhood, saying they have all got 'kapsones'.

She really feels this is a waste, because a lot of the charm of the neighbourhood used to be the village-like atmosphere where everybody knew each other. She says this sets Katendrecht apart from other neighbourhoods in Rotterdam, as Katendrecht is the place where "everybody still greets each other".

### wishlist

a grocery shop closeby, which isn't too expensive and which has an area where you can drink a cup of coffee, to get in contact with people

better contact between the 'old' and 'new' Katendrechters

She feels that besides from people needing to open up more to each other, things such as a grocery store which is accessible and has a place to drink coffee can facilitate informal interactions between inhabitants, creating opportunities for them to bond.

## lady two

The second lady I spoke with came to live on Katendrecht in 2013. She lives alone, as her children are already grown up. She is responsible for all the care tasks in her household.

### newcomer

When she first moved to Katendrecht, she was barely in the neighbourhood as she did not know anyone there. As the original inhabitants were a very tight-knit group who were not very welcoming of newcomers, she had a hard time settling and she would avoid the neighbourhood for her activities. She eventually got to know a few women through a theatre group and she spends more time in Katendrecht now.

### daily life

While she does not work, she is very active in volunteering work and in taking care of her health. She walks almost everywhere, including to the central station or her children in IJsselmonde. Most regularly she walks to her Zumba class in Afrikaanderwijk, or to the market there. She walks mostly due to her health, but also to save costs. Sometimes she takes the metro and train if she needs to go outside of the city or if the weather is bad, but she never takes the bus on the peninsula. She thinks it's a waste of money as it is only a couple of stops to the metro station.

### safety

She stops walking after 22:00 or when it becomes dark, as she feels very unsafe walking in Rotterdam in the dark. In her opinion, Rotterdam is not a female friendly city, "You need to have some balls to walk outside in the dark as a woman", she said. She also felt unsafe in her building for a while, as it was always very busy but she never knew who exactly officially lived there. To combat that, she made a whatsappgroup to be able to talk with everyone and keep an overview.

### favourite place

Her favourite place is the edge of green along the head of the peninsula, as she loves to walk around near the water



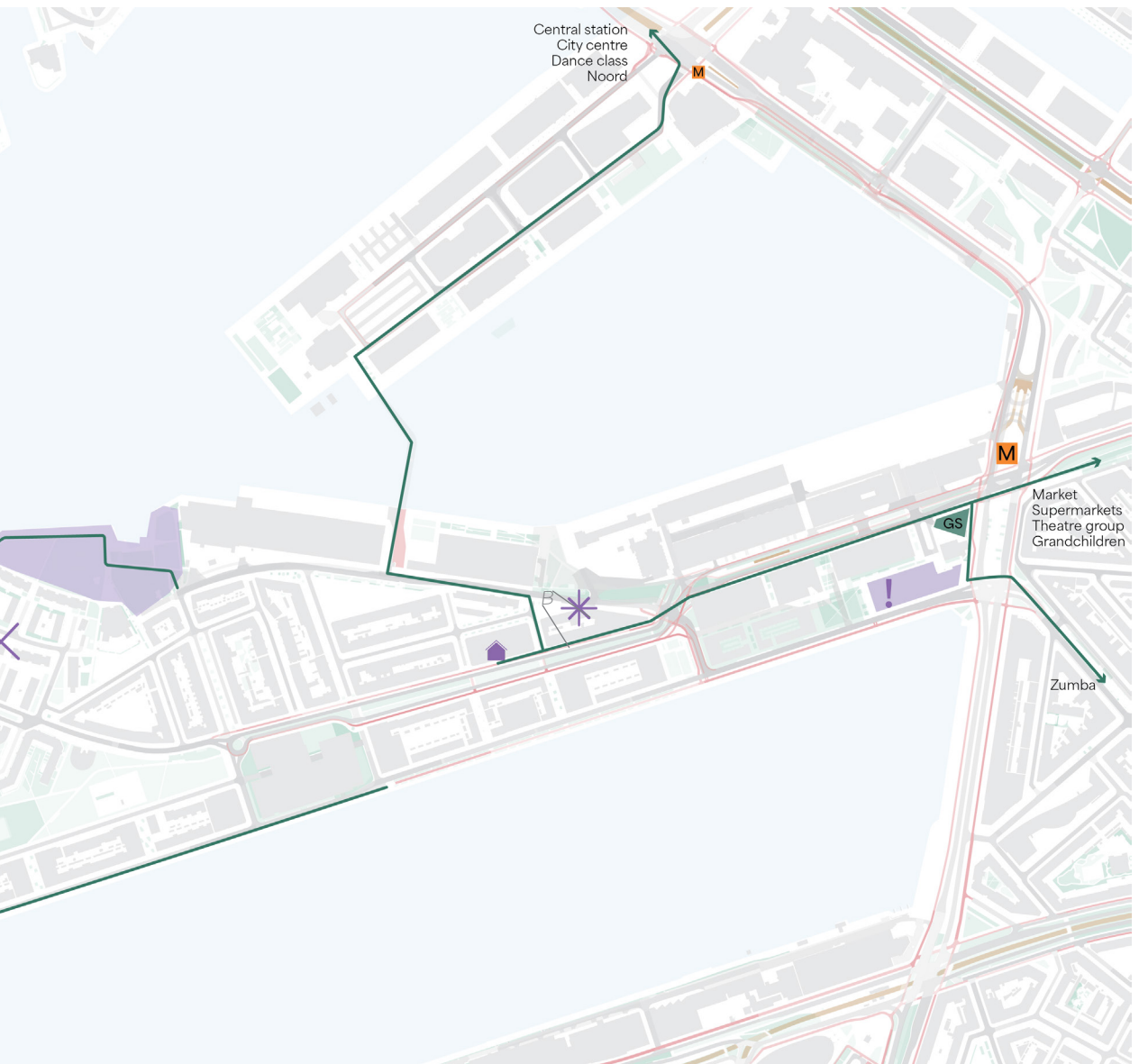
Photo A: start of the path walking around the peninsula



legend

- home
- grocery store
- loved place
- important place

- avoided place
- place that needs improving
- walk / bike movement
- car movement
- metro stop most often used





logeerhuis  
DE BUREN

*Logo's of House of Hope and Logeerhuis de Buren*

#### important place

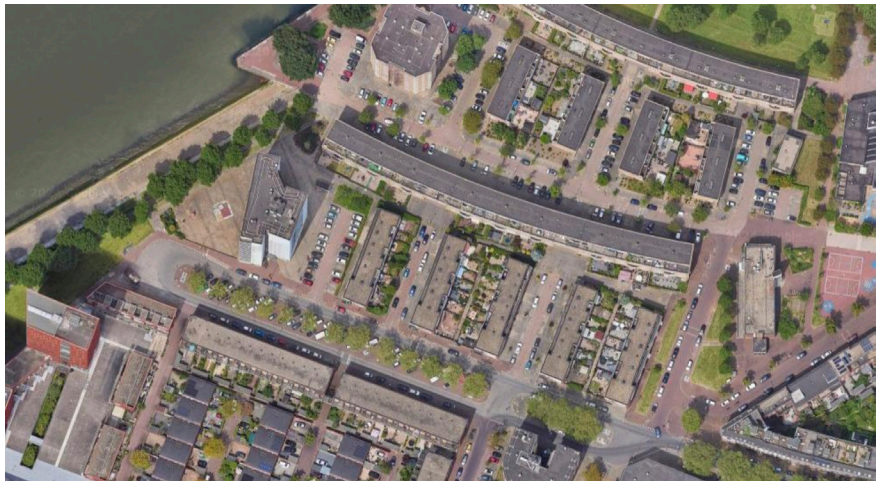
Something she appointed as an important place in the neighbourhood is the House of Hope and the 'Logeerhuis de Buren', both located on the start of the peninsula. They are locations where people without homes or in need of care can stay overnight, up to a couple of months, in order to regain strength or have a safe haven from where to reset their lives.

#### avoided place

She avoid the part of the neighbourhood which is located on the north side of the head of the peninsula, as "all of the sirens always go there" This has led her to believe that that is an unsafe part of the neighbourhood, and she is not inclined to visit there.

#### wish for the neighbourhood

When asks what she could change in the neighbourhood she would improve the connection between the original and the new inhabitants. She really feels it is a shame there is a divide in the neighbourhood.



*Aerial view of the neighbourhood she avoids*



### place that needs improving

The gym located on the Veerlaan, as she only sees men in there. As a result, she does not feel safe to go in there, while she would love to have a gym in her street to go to, as it would save her a lot of commuting time to the gym she visits now.



Photo B: gym "Body Reflex" on the Veerlaan

As she is a firm believer in food as a connecting factor, she would like to see some activities where people can dine and cook together in order for them to bond and to connect. Sporting activities could also help, she believes.

She is also sorry that the neighbourhood is becoming more expensive, and that people (mostly the original inhabitants) have to leave due to the costs rising above their income. The fact that Katendrecht is becoming less accessible due to that is a shame, and she is also worried she will not be able to live there after a while.

### wishlist

activities fostering a better connection between the original and new inhabitants

## *lady three*

The third interviewed lady does not live on Katendrecht anymore, but she grew up there and lived there between 1981 and 1995 with her family. The information showed here is applicable to that period of time. She lived there with her husband and two children. Her husband worked fulltime, she worked part-time and took full care of the household.

### village on the Kaap

She and was able to walk anywhere, as everything was in close reach. Her children could walk to the primary school by themselves, which saved her time in the day. The bakery, grocery store and post office were all a couple blocks away, and it was at these locations she would meet other women and that facilitated her social interactions. She had a big friend group of all Katendrechters who were married to each other, and those were the people she met up with at the women's club or in one of the pubs.

They would go together to the soccer club (in Lombardijen), where the men and boys would play and the women would watch. Afterwards they all joined each other in the pub back on Katendrecht.

She would also have to leave the Kaap for her work, where she had about three shifts per week. About once a month they would need to do shopping for clothes, which they did in the city centre or at Zuidplein

Other than that, her whole life was on the Kaap. Her most favourite places were near the water, as she would be able to "smell the Maas".

### departure to Barendrecht

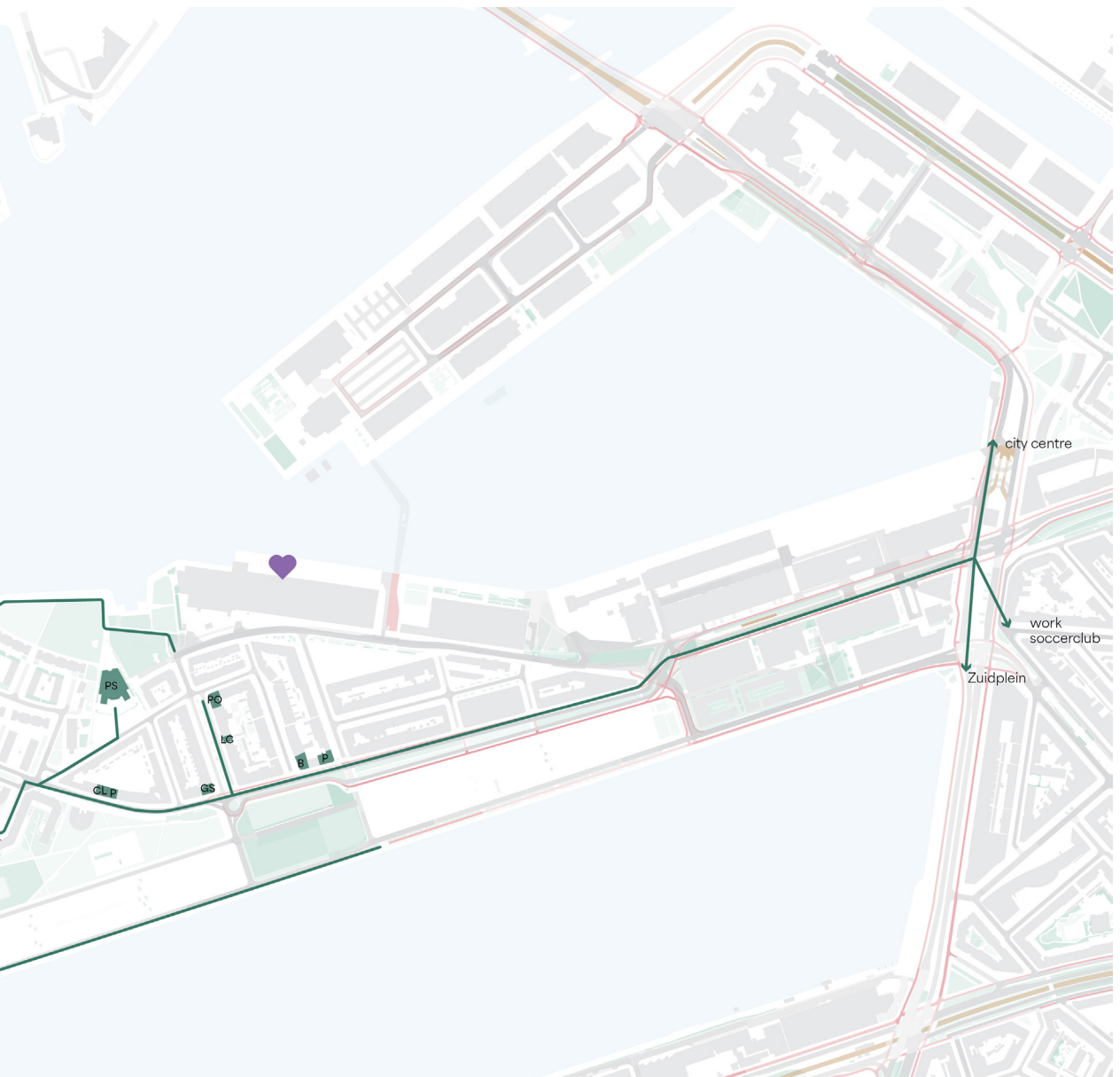
Eventually, as more and more 'new' people were placed in the neighbourhood, the village feel and the social connection declined in the neighbourhood. She was getting more and more annoyed with the lack of care from her new neighbours, both for the house but for their children as well. She often tried to report to the officials or give help herself, but it was not received well and it only added to the friction between her and her new neighbours. This was a problem in more parts of Katendrecht, and as a result of the loss of cohesion between inhabitants and the decline of the inhabitants love for their neighbourhood, the quality of the neighbourhood really declined. Eventually it was in such a state and she was so fed up with the situation that she and her husband moved to Barendrecht.



# legend

- home
- GS grocery store
- PO post office
- B bakery
- P pub

- PS primary school
- LC lady's club
- CL clubhouse
- loved place
- walk movement



*appendix two: annotated  
fieldwork plans*

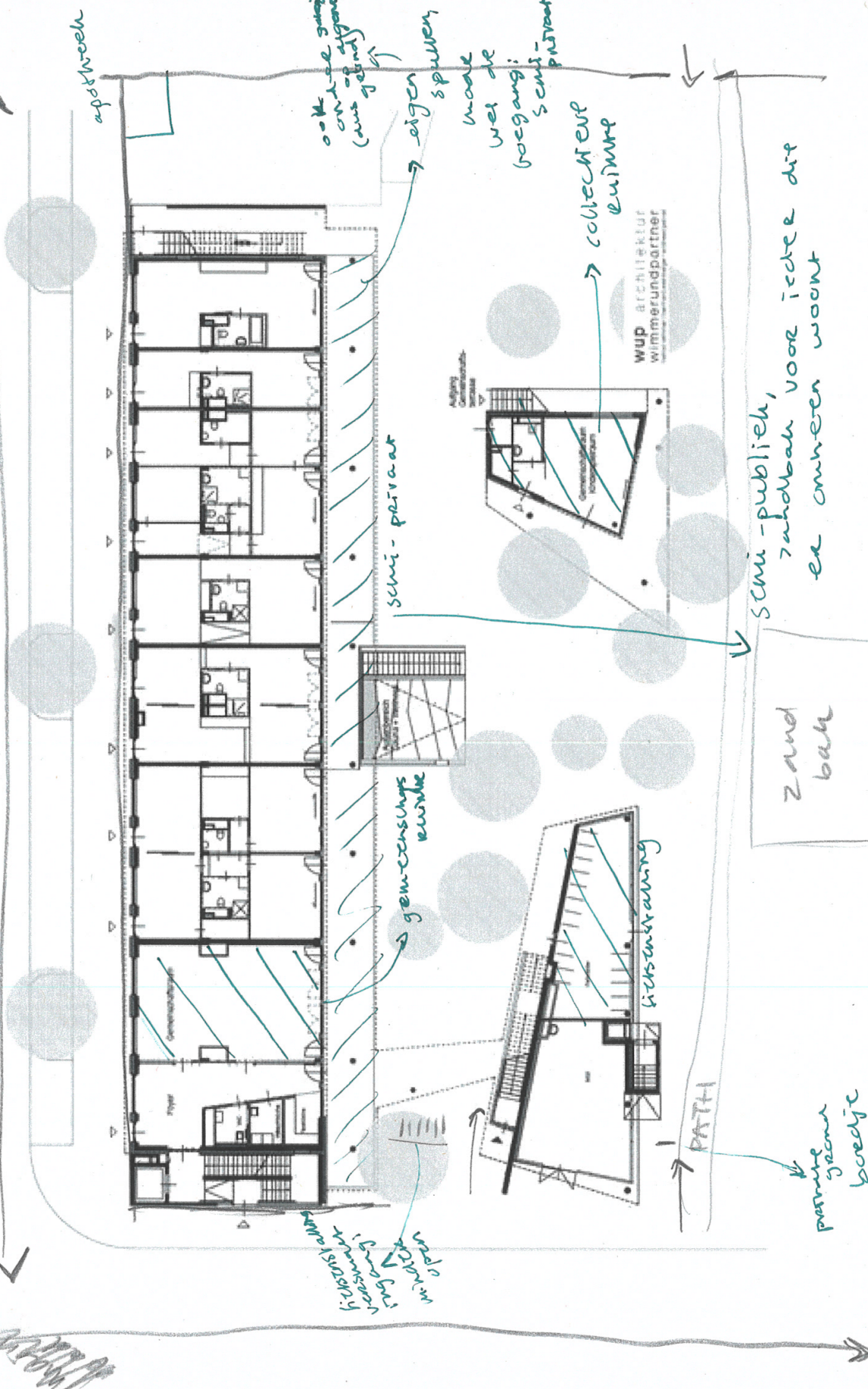


D1 28/12 5:10:30  
+ 1:10:00  
Wim

men heeft van wie op! ontbrekend gericht dus dan kunnen we niet heel gewent en  
publiek: Th voelde we niet heel gewent en  
bangeruppi  
LISA

MAIN ROAD

afsluiter



houtsplank  
inmassief  
ingebouwd  
in  
open

gemeenschap  
ruimte

semi-privaat

eigen  
spullen

Adrian  
Comstock

wup architect  
wimmerundpartner

collectieve  
ruimte

naar de  
wet de  
toegang:  
semi-privaat

ook de gang  
om de gang  
algemeen  
(dus openbaar)

semi-publiek,  
>andoban voor ieder dit  
en omheen woont

Zand  
bak

PATH

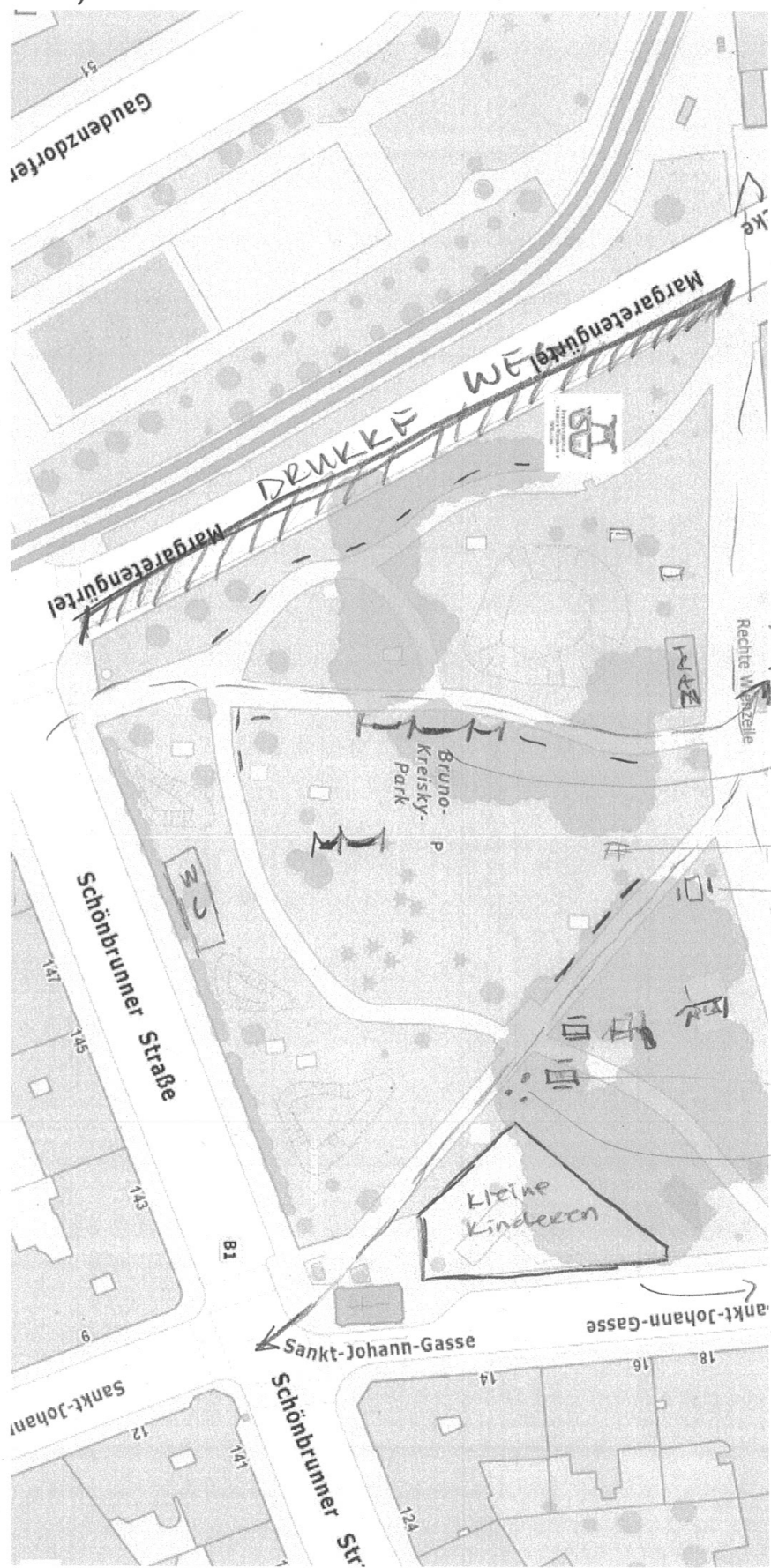
particuliere  
groen  
breedte







di 27/12, ±12<sup>00</sup> ±15<sup>00</sup> licht bewolkt



(datore) mannen aan tafels lijken niet af te schrijven

veel jongere mannen

plekken om te hangen

platforms

veel plekken om te zitten

schaak

balans dingen

vrouw met pauze en kind komt spelen

28/2  
13:30  
13°C  
licht bewolkt

facilities  
zijn er maar je  
kan er niet werken;  
moet dus alsnog  
na de buurt

agere with  
zicht op  
spelende  
kinderen

feels but  
more semi-  
public,  
however playgr.  
is for  
everyone

most  
private:  
still  
easy  
accessible

super  
market

kindergat.doctor

tram  
main road

paved,  
empty, used  
as walkway

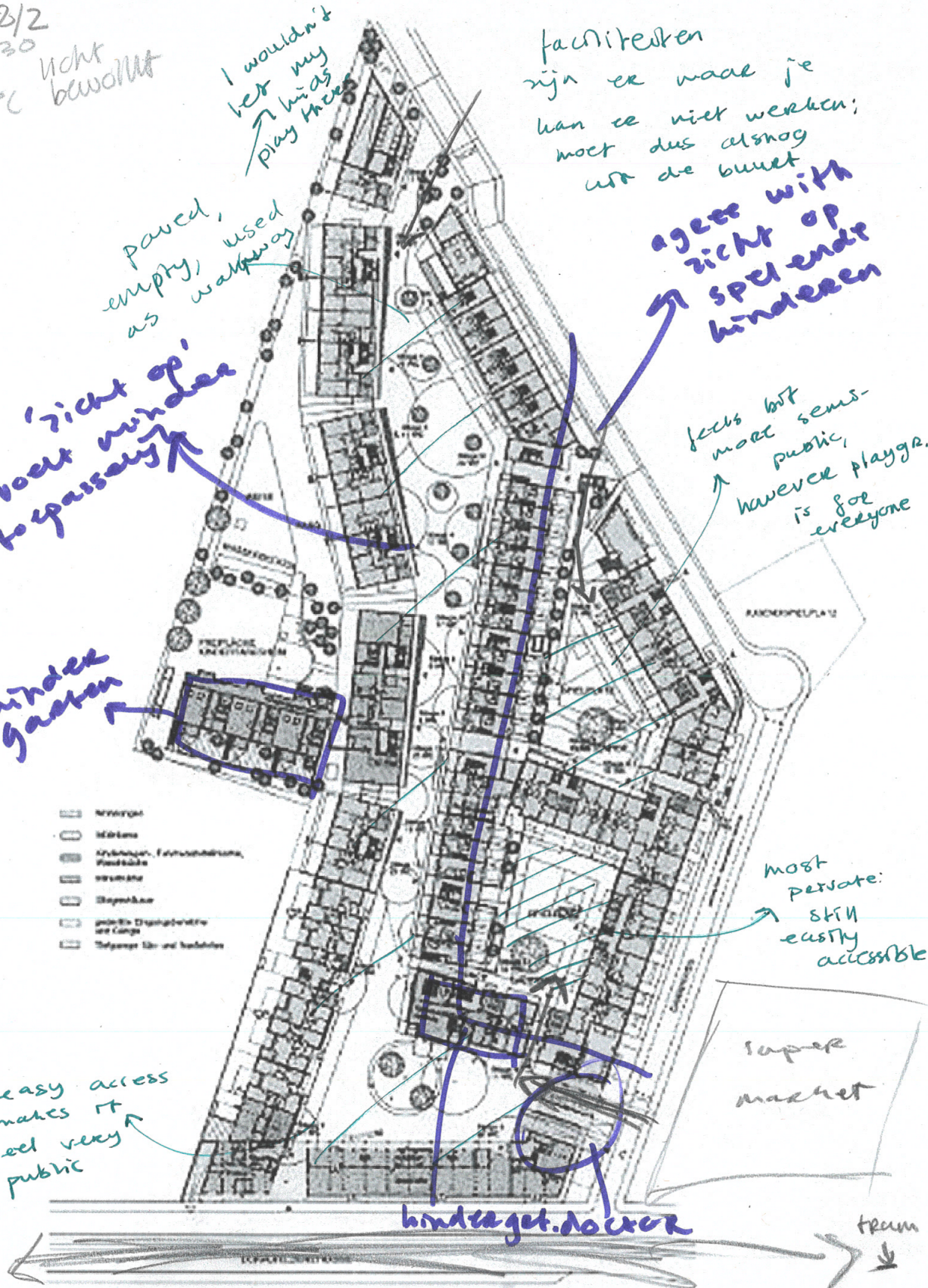
I wouldn't  
let my  
kids  
play there

'zicht op'  
voet minder  
to passersby

kindergat  
garden

easy access  
makes it  
feel very  
public

- Middengeboude
- Middengeboude
- Middengeboude, Fietsschudde, Fietskade
- Middengeboude
- Middengeboude
- Middengeboude
- Middengeboude
- Middengeboude
- Middengeboude
- Middengeboude





Zg12 g30  
 Lichtklima g1

houses → private  
 print → collective

outdoor → very  
 public, almost  
 sunny but a little

In der  
 Wiesen  
 sind  
 art of  
 ownership  
 focus

some  
 neighbours  
 talking

there is  
 a doctor  
 a school  
 communal  
 kitchen

laundry  
 football  
 table  
 pingpong  
 so also  
 for  
 older  
 kids

some offices  
 (but I think  
 own work  
 Main compound)

several  
 streets

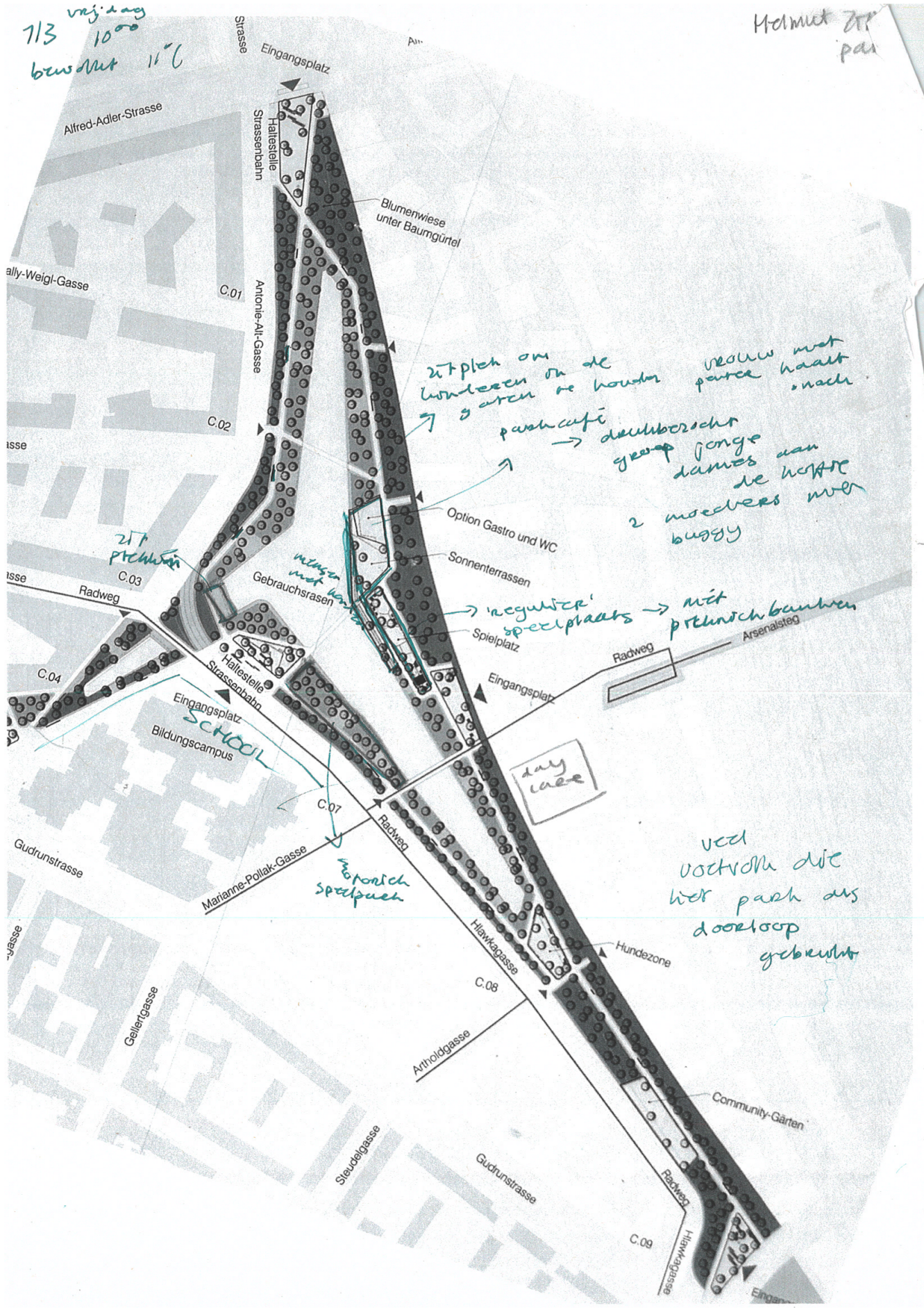


with children, walking the dog, etc



7/3 vrijdag  
10:00  
bezoek met 11°C

Holmuet 27  
par



zitplek om de kinderen om de handen te wassen  
parkcafe → deurbeschermt groep jonge dames aan de kassa  
2 moeders met buggy  
veel met parkeerhaak om te maken

zitplek met bankje

regulier speelplaats → met perkovichbanken  
Arsenalsteg

day care

spanisch speelplek

veel voetvolk die hier park als doorloop gebruikt

SCHULE  
Bildungscampus

Alfred-Adler-Strasse

Antione-Alt-Gasse

Marianna-Pollak-Gasse

Gudrunstrasse

Gellertgasse

Siewdelgasse

Anthologasse

Gudrunstrasse

Community-Gärten

Hlawkagasse

Eingangsplatz

C.01

C.02

C.03

C.04

C.07

C.08

C.09

Haltestelle Strassenbahn

Antione-Alt-Gasse

Gebrauchsrasen

Haltestelle Strassenbahn

Marianna-Pollak-Gasse

Hlawkagasse

Radweg

Arsenalsteg

Radweg

Radweg

Blumenwiese unter Baumgürtel

Option Gastro und WC

Sonnenterrassen

Spielplatz

Eingangsplatz

Radweg

Hundezone

Community-Gärten

Radweg

Eingangsplatz



Marm Street

Adelheid-Popp-Gasse

U2m  
Koch  
Küche

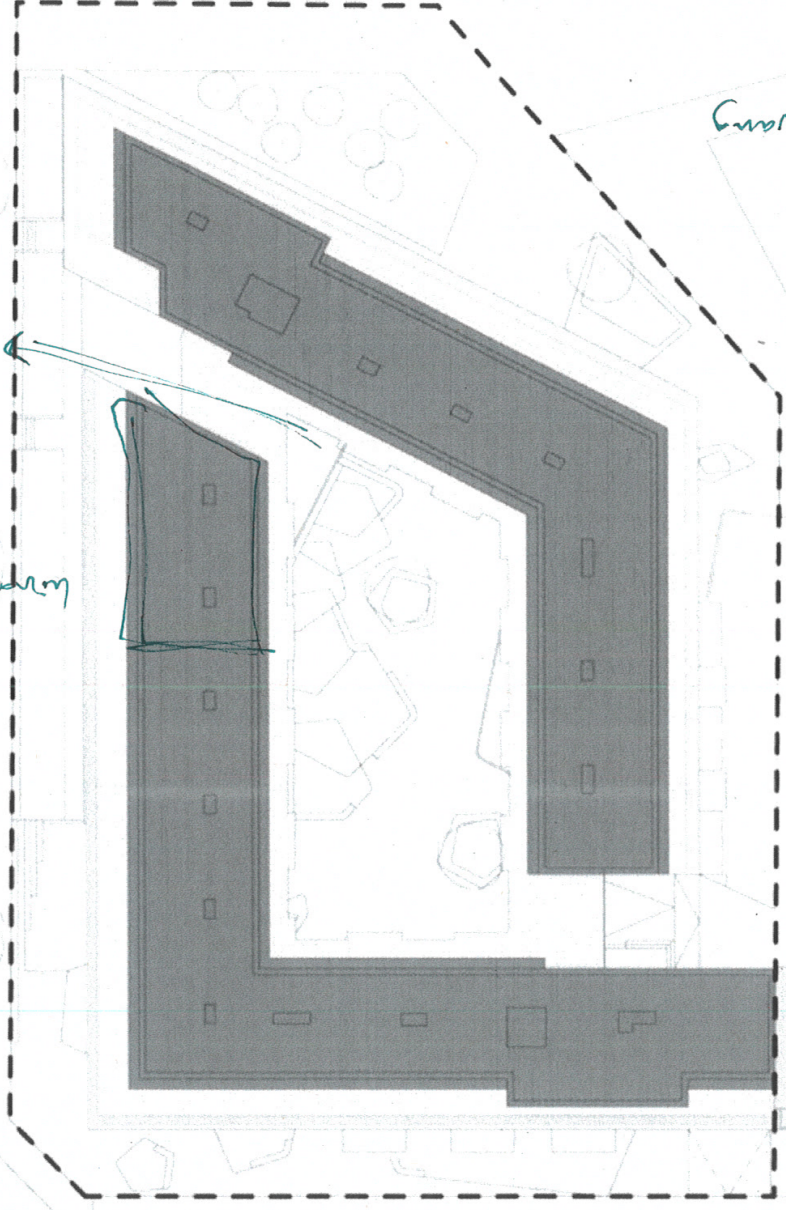
U2m  
Koch  
Küche

ADELHEID-POPP-GASSE

In 2009  
Koch  
Küche

MIRIAM-MAKEBA-GASSE

Stad 22



*appendix three: working women  
manifesto*



# working women manifesto

alternatively titled: **how to design a city for women\***

\* women who fulfil the care tasks in their families, these care tasks vary between household activities, taking care of children, and taking care of the elderly, women may or may not do this next to a daytime job, either part- or full time.

designing for women isn't hard. actually, it is surprisingly easy! make sure you implement these aspects and you too can design a

## GENDER EQUAL CITY

but why should I want to design a gender equal city? well, because women are still living under the oppression of the patriarchy, which is the reason that women earn 7.4% less than men, are two times as likely to be the victim of street harassment (by, what a surprise... men!), are expected to take care of children and elderly while also working (causing them to work parttime which they are ridiculed for and get called parttime-princesses) and so on and so on. all of these aspects lead to women not being able to partake in public life, which does not allow them to exercise their right to the city, by creating a city which decreases the effects of these aspects, we can allow women to exercise their right to the city

### 1 increase the accessibility of public space and amenities

women spend a looooooot of time travelling through the city to fulfill the tasks connected to the care labour in the family (think taking children to school and daycare, getting groceries, bringing elderly relatives to the doctor, getting a birthday present for that party next week, taking the children to the park to let off some steam... you get the idea) by facilitating amenities and public space in such a way that they are more easily accessible (by decreasing the distance to the shops, distributing public space evenly throughout the city, facilitating diverse environments), women can spend less time caring and more time doing something they can choose to do

women are more likely to use public transport or choose to walk and cycle to move through the city, prioritising car traffic therefore hinders their movement patterns and increases their travelling time. by facilitating a reliable public transit network and increasing the safety of pedestrian and cycling networks (by widening sidewalks and cycling paths, ensuring there are 'eyes on the street' alongside important routes and removing obstacles) women's access to the city is increased.

### prioritise slow and shared mobility

## 2

### 3 facilitate community

among them (and then, one evening, one woman can cook for everyone while someone else looks out for the children, and three other women can take some time for themselves! what a novel idea!). when facilitating community, make sure that these communal spaces are protected in order to keep them accessible only to members of the community.

so, about those tasks connected to the care labour in the family... they take up a lot of time, and a lot of these tasks are the same for different families. by facilitating community building and communal facilities (such as communal kitchens, laundry rooms, playing rooms, communal outdoor space) women can build a relationship with their neighbours which allows them to split these tasks

even though there are a lot of experiences that unite women, every woman is different. depending on their daily life, they have different needs from the city. so, in order to facilitate a city that is beneficial to every woman, make sure you offer diversity (of public space, amenities, dwelling types, living environments) to allow women to choose to live in a way that makes their lives easier, and for once, they don't have to adjust to the city, as the city is now adjusted to them.

### offer diverse environments

## 4

there you go, now you know how to include women in design! congratulations! want to know more, get inspired or check some sources? check out my thesis!

