THE PARADOX OF GREEN



Balancing the ecological quality with the perceived safety among women in Ommoord

Sylvia Crijns

Colophon

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Balancing the ecological quality with the perceived safety among women in Ommoord

Keywords: Perceived Safety, Women, Inclusivity, Urban green space, Modernistic neighbourhood, Ommoord Rotterdam

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Abstract

Green spaces are increasingly emphasised within urban design because of their climate-adaptive, recreational and ecological benefits. However, when green spaces are not designed qualitatively, they can unintentionally reduce perceived safety through dark vegetation, isolated routes and anonymous open spaces. This creates what this research describes as the "**paradox of green**." While statistical safety may remain relatively high, low perceived safety can strongly reduce the use of public space, particularly for women and other vulnerable groups.

This paradox is especially visible in modernist neighbourhoods such as Ommoord in Rotterdam, which was therefore selected as the case study. Within these neighbourhoods, openness, separation of functions and large quantities of green space were prioritised, while the green spaces often remain of relatively low quality and perceived safety and social cohesion are limited.

Greenery and safety are often treated as mutually exclusive objectives, however this research investigates whether safety and ecology can instead reinforce one another within urban design.
Both themes were first analysed separately to establish design principles. These principles were combined within the design process, requiring continuous trade-offs and spatial negotiations between ecological and social objectives. Rather than designing from a top-down perspective, the project approaches the neighbourhood from the perspective of its users by focusing on necessary, optional and social activities. At the same time, the ecological design was guided through four focus species representing larger species groups using the 4V-framework, allowing the design to respond to broader ecological systems. Additionally, temporal differences between day and night formed an important consideration, as the spatial requirements for safety and ecology differ over time.

Through a research-by-design approach based on continuous iteration and testing, the project resulted in an integrated urban design proposal in which both safety and green quality are strengthened simultaneously. The proposal combines safe and legible routing, ecological connectivity, spaces for social interaction and inclusive public spaces within one coherent urban framework.

Ultimately, the proposal goes beyond only the lenses of safety and ecology. By also considering housing, mobility, amenities, social cohesion and overall spatial quality, the project developed into an integrated urban design that improves the overall livability and quality of Ommoord.

Motivation

The paradox of green in this project refers to the tension between greenery and safety. While an emphasis on green space is often associated with positive contributions to wellbeing and environmental quality, insufficiently thoughtful design can paradoxically result in perceptions of unsafety and social exclusion. In particular, dense vegetation may create dark corners, reduce sightlines, and limit natural surveillance, thereby discouraging the use of these spaces, especially by women.
My interest in this topic is grounded in lived experience, which has shaped my critical perspective on the relationship between green space, safety, and inclusivity in residential environments.

For some time, I lived in a modernist neighbourhood, characterised by tall residential blocks surrounded by large expanses of green space. Much of the green space lacked a clearly defined function and, as a result, remained largely unused. In addition, insufficient maintenance led to dense, poorly lit vegetation, creating areas that resembled small, dark patches rather than accessible communal spaces.

This spatial configuration had a significant impact on my sense of safety, particularly during night time. Routes to and from my home required passing through these dark green areas, while the ground floors of the surrounding buildings consisted primarily of storage units, resulting in inactive plinths and a lack of social surveillance. The absence of eyes on the street reinforced the feeling that one could not be seen or assisted if something would happen.

What struck me most was the contrast between the evident potential of these green spaces and their actual use. Despite their size and presence, the areas that were actively used were limited to clearly programmed and hard-surfaced elements, such as a football cage with artificial grass and an asphalted cycling path. These became the primary routes and gathering points, while the surrounding green areas remained avoided rather than embraced.

My personal experiences reflect a broader pattern shared by many women. The difference in spatial atmosphere between daytime and nighttime, the conscious avoidance of certain routes, refraining from outdoor exercise after dark, especially during winter months, and the routine practice of sending messages to confirm safe arrival at home are behaviours that are widely normalised among women. These practices exist alongside numerous accounts of negative and unsafe experiences, underscoring that these concerns are not abstract but rooted in everyday reality.

Through this project, I aim to critically examine how green space can simultaneously represent environmental value and social inclusion. By addressing the paradox of green, I hope to contribute to the development of more equitable, inclusive, and socially safe neighbourhood designs, in which green spaces are not only visually present but also actively supportive of diverse users and everyday life.

The 'Paradox of Green' describes how the strong emphasis on green spaces for their ecological and psychological benefits can, when such spaces are poorly designed or managed, produce the opposite effect by generating perceptions of unsafety and exclusion, thereby discouraging use and undermining their intended benefits.



Figure 1: Author's attitude towards green spaces in modernistic neighbourhoods.

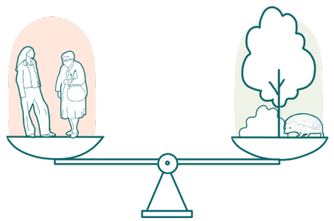
Content













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1

INTRODUCTION

1.1 Urgency

Urban green space has become an increasingly central concern in urban planning, because of its benefits for climate resilience, physical activity, social interaction, mental well-being and biodiversity (Sugiyama et al., 2018; Lehmann, 2021). Yet, the presence of greenery alone does not guarantee a supportive urban environment, the perception of safety emerges as a critical factor that can either enable or hinder access to these benefits. For example poor sightlines, dark corners, insufficient lighting, a lack of overlooked routes or simply too few “eyes on the street”, can significantly reduce perceived safety (Rahm et al., 2020; Soraganvi, 2017; Navarrete-Hernandez et al., 2021). These design failures disproportionately affect women, who may avoid certain routes, travel by bike instead of walking, or altogether refrain from using outdoor public spaces in the evening (Rahm et al., 2020; Meesterberends, 2024).
While women are not the only demographic to experience unease, older adults, children, and other groups may similarly feel unsafe, research indicates that public spaces designed with a female perspective in mind tend to be experienced as safer by a broader public (Valente et al., 2018; Candiracci et al., 2022).

The news of the femicide of a woman named Lisa on a poorly lit, under-monitored route has intensified public discourse on women’s safety in public spaces (Peters, 2025). This route has beforehand been reported several times as being unsafe (Chavannes, 2025).
Even though cases like these are rare, this has highly influenced the collective feeling of safety in The Netherlands. It has renewed calls for safety-conscious urban design.



Figure 2: A news collage illustrating recent media coverage concerning women's experiences in public spaces.

The challenge lies in the tension between 'green space' and 'perceived safety'. Women's safety is often seen as being at odds with nature: for example, one news article states, "Wij hadden geen verlichting in een donker park waar vleermuizen leven. Na gesprekken met vrouwen die na een avonddienst door dat park moeten lopen, zijn we nu toch voor lantaarnpalen gegaan.", translating: We had no lights in a dark park where bats live. After talking to women who have to walk through that park after an evening shift, we finally opted for streetlights (NOS Nieuws & NOS Nieuws, 2025). This shows how biodiversity and women's perceived safety are seen as mutually exclusive.
This example illustrate the perceived conflict between natural environments and security, raising the question: is nature truly the enemy, or is the issue rooted in how urban spaces are designed? Apart from the deeper societal gender injustices and the attitude towards women in our society, the gender injustice is also rooted into urban design.
The design of many post-war modernist neighbourhoods, for example, forces women to travel through poorly lit or secluded areas at night, highlighting how urban planning has historically neglected the needs of female users. Addressing this requires designing for safety at all times of day, reconsidering routing, visibility, lighting, and human activity, so that the benefits of green spaces can be fully realised without compromising security.



Figure 3: Questioning whether women's safety and advocating for green spaces are mutually exclusive

1.2 Perception vs actual safety

There are different dimensions of safety. This study focuses on crime-related or personal safety in public space, referring to the risk of victimisation through theft, assault, harassment, or sexual violence, rather than physical, traffic, or public health hazards. Within this domain, a distinction is made between actual safety, as reflected in crime statistics, and perceived safety, which is shaped by lived experience, fear, and shared narratives. The relationship between these two forms of safety is often paradoxical.

Spatial layout

The spatial configuration of the built environment plays a crucial role in shaping perceived safety. Environments characterised by clear sightlines, always eyes on the street and active presence tend to have a stronger sense of security, whereas poorly lit, enclosed, or visually obstructed spaces are more associated with heightened feelings of vulnerability (Newman, 1972).

Social mix

The social composition of neighbourhoods can influence safety in public space, but social mixing alone does not automatically result in higher levels of actual or perceived safety. Its effects depend on factors such as social cohesion, socioeconomic conditions, and resident participation (Kempen & Bolt, 2009). Nieuwbeerta et al. (2008) link violence risk to disadvantage and low neighbourhood cohesion. At the street level, social mixing, where different groups actively share public space, can be associated with lower crime rates and higher perceived safety (Fan et al., 2023). These findings suggest that the influence of social mix is mediated by social, economic, and spatial conditions.

Negative spiral

Perceived safety, actual use, and social presence in public space are closely interrelated. When spaces are perceived as unsafe, people tend to avoid them more. This reduces everyday social presence and passive surveillance, reinforcing feelings of insecurity. Over time, this dynamic creates a negative spiral in which avoidance further intensifies the conditions that initially generated fear (Jacobs, 1961).

Gap in statistics

This process is exacerbated by underreporting in crime statistics. Incidents of harassment or intimidation, particularly those affecting women, are often not reported. Some individuals distrust reporting mechanisms, while others adapt their behaviour by avoiding certain places or times, preventing incidents from occurring in ways that would be statistically recorded. Consequently, official data frequently underrepresent everyday experiences of insecurity (Schram et al., 2024).

Collective perception

As a result, perceived and actual safety may diverge significantly. Collective perceptions can be shaped more strongly by isolated incidents or shared stories than by long-term crime trends (De onveiligheidsparadox, 2025).

Regardless of whether these perceptions reflect objective risk, their spatial consequences are tangible: avoidance restricts mobility, limits access to public space, and disproportionately reduces the benefits of urban green space for certain groups, particularly women (Navarrete-Hernandez et al., 2021). Understanding the interaction between spatial design, social behaviour, and incomplete safety data is therefore essential for designing green public spaces that are genuinely inclusive.



Figure 4: Perceptions of safety and its influences

1.3 History of urban design

To understand where perceptions of urban insecurity play the most pronounced role, and how they have emerged, it is essential first to analyse the history of urban planning itself. The morphology and design principles of cities, including housing form, public space, mobility, and environmental infrastructure, have profoundly influenced how safe and secure inhabitants have felt at different times. The time periods will be described together with figures 5 and 6.

In the period termed **1. Industrialisation, Early 20th Century (1850-1920)**, European and Dutch cities experienced rapid urbanisation and population growth. Overcrowded neighbourhoods, poor sanitation, and limited sewerage infrastructure contributed to unhealthy living conditions and perceptions of insecurity. In response, modern sewerage systems gradually emerged in the late 19th and early 20th centuries to improve public health (Gallardo-Albarrán, 2024).
Street lighting was also limited. Although gas and electric lighting became more common, many streets remained poorly lit at night, reinforcing feelings of unsafety (DBNL, 1993). Green space was mainly concentrated in formal parks, rather than integrated into the urban network, which were often more accessible to affluent residents than to the working class. An example is Het Vondelpark in Amsterdam (Ed, 2024; Vondelpark - De Parkgeschiedenis Van 1864 Tot 1884 Door Hans Homburg, n.d.).
Mobility relied primarily on walking, cycling, and trams, while cars had not yet reshaped urban form. In the Netherlands, the planning response to these conditions was set out in social legislation such as the Woningwet (Housing Act) of 1901, which marked a shift in public housing policy (Woningwet (1901), n.d.). This law required municipalities to regulate building quality, including minimum standards for light, space, and sanitation. It also laid the foundation for municipal planning and later social housing production.
The safety score on these morphological conditions of early 20th-century cities have now improved through proximity and human density. Thus the initial perception of insecurity was a product of these combined environmental and infrastructural deficiencies rather than an inherent flaw in the urban form itself.

The **2. Garden City period (1920–1940)** emerged in part as a critique of these overcrowded and unsanitary conditions. Inspired by Ebenezer Howard's earlier proposals for satellite towns surrounded by green belts, Garden City planning emphasised health-focused ideals, human-scaled housing, community-oriented layouts, and a diversity of green spaces and gardens within neighbourhoods (Nieuwe Instituut, 2021).
These designs sought to integrate social contact, green spaces, and safety by promoting visibility and communal activity, features that continue to support positive perceptions of safety in many garden city-influenced districts. Mobility remained oriented towards slow movement, like walking and cycling, with tram networks serving more urban cores, and automobile use was still limited (Nieuwe Instituut, 2021).

Following the devastation of the Second World War, the **3. Modernism, Reconstruction & Functional Zoning (1940–1960)** period responded to acute housing shortages and embraced rationalist planning paradigms as presented by the Congrès Internationaux d'Architecture Moderne (CIAM) and the influential Athens Charter. CIAM advocated for the functional separation of housing, work, recreation and traffic, grounded in ideals of light, air and open space. These principles underpin many post-war reconstruction projects throughout Europe (Blom et al., 2004).
The resulting morphology often featured apartment blocks, open layouts, and rigid zoning that physically and socially separated functions (Blom et al., 2004). Although intended to improve living conditions, this approach also reduced what urban theorist Jane Jacobs famously termed 'eyes on the street', the natural, informal surveillance generated by a mix of uses and constant pedestrian presence (Jacobs, 1961).
Mobility in these districts was highly segregated; while this separation reduced traffic conflict, it also decreased incidental social contact in public spaces.

These tendencies were intensified in the **4. Modernism, High-Rise & Car-Dominated Expansion (1960–1975)** period, in which larger high-rise blocks were set within expansive, often under-utilised green spaces and separated street networks (Blom et al., 2004). The prominence of cars and the low-density spacing between buildings diminished pedestrian activity and further disabled natural surveillance, leading to a paradox where in abundant greenery coexists with a reduced sense of safety (Blom et al., 2004).
Interestingly, after this period, renewed feminist movements arised, that increasingly challenged these impersonal systems more broadly. This broader cultural shift can be understood as part of a counterreaction towards more human-centred environments and lived experiences aligned with the return to human scale, social safety, and inclusive design that modernist planning had often neglected.

In reaction to these outcomes, the **5. Anti-Modernist Renewal / Bloemkoolwijken (1975–1990)** movement movement prioritised smaller-scale, community-oriented neighbourhoods. The introduction of in Dutch 'woonerven', shared streets prioritising pedestrians and cyclists, and revived building frontages looked after stronger visibility, street life, and human interaction (Ministerie van Onderwijs, Cultuur en Wetenschap 2024). By reducing anonymity and improving social oversight, these designs improved perceptions of safety relative to earlier modernist models (Blom et al., 2004).

The **6. VINEX period (1990–2010)** emphasised compactness and planned suburban growth, with large tracts of row housing, mid- and low-rise forms, and designated ecological zones. These neighbourhoods generally maintained good levels of passive surveillance and slow mobility options such as cycling (Lörzing et al., 2006). In some cases the monofunctional character could lead to reduced evening activity in strictly residential areas.

Today's era of **7. Compact Urbanism, Placemaking & Climate Resilience (2010–now)** foregrounds densification, mixed uses, biodiversity and climate adaptation. This paradigm seeks to balance environmental sustainability with vibrant public space and diverse mobility options, prioritising walking, cycling and public transport over private cars.
However, the question arises whether an overemphasis on greenery might recreate conditions similar to earlier modernist environments, with potential implications for perceived safety if green space lacks active edges or frequent social use.

This historical overview demonstrates that perceptions of insecurity are reliant on the interaction between morphological form, infrastructure, and social activity, rather than on single elements in isolation. The paradox of green is most visible in the 4. Modernism, High-Rise & Car-Dominated Expansion (1960–1975) period. This period marks the typology with a low perceived safety and today still deals with social problems. Therefore, a location with this typology is chosen for the project.

1865–1877
Vondelpark, Amsterdam



1910–1925
Tuindorp, Nieuwendam



1953–1960
Zuidwijk, Rotterdam



1958–1970
Buitenveldert, Amsterdam



1960–1970
Ommoord, Rotterdam



1987
Herenpad, Delft



1975–1985
De Merenwijk, Leiden



1999
Ypenburg



2010–2020
Duindorp, Alemere



2015–now
Lelystad Campus Midden





Damstraat, Utrecht
1900–1920



Zaagmolenstraat, Rotterdam
1920



Vreewijk, Rotterdam
1925–1940



Bergpolderflat, Rotterdam
1954



Overvecht, Utrecht
1960–1975



Bijlmermeer, Amsterdam
1966–1975



De Pas, Winterswijk
1975–1985



Hoofddorp
1995–2005



Spoorzone, Delft
2014-now



Merwede, Utrecht
2010–now

1. Industrialisation, Early 20th Century 1850–1920)

Societal context: Industrial overcrowding, hygienist ideas, first structured planning.
Urban typology: Dense perimeter blocks, early boulevards and parks.
Green: Public parks for health, aesthetic not ecological; socially exclusive.
Mobility: Walking, bikes, trams.
Safety & inclusivity: Poor lighting, unsafe streets; parks for "polite society."

2. Garden City Influence (1920–1940)

Societal context: 1901 Housing Act (Dutch); community-oriented and health-focused ideals.
Urban typology: Garden villages, courtyard blocks, human-scaled housing.
Green: Semi-public courtyards, communal gardens, planted streets.
Mobility: Streets for walking, bikes, trams; limited cars.
Safety & inclusivity: Natural surveillance, strong social control; traditional family norms.

3. Modernism, Reconstruction & Functional Zoning (1940–1960)

Societal context: Post-war housing shortages; CIAM ideals; top-down rational planning, functional zoning.
Urban typology: Slab blocks, open layouts, neighbourhood units, strict zoning.
Green: Large collective green, often empty.
Mobility: Car use rising; separated pedestrian routes; underpasses.
Safety & inclusivity: Weak surveillance; isolated green and walkways feel unsafe.

4. Modernism, High-Rise & Car-Dominated Expansion (1960–1975)

Societal context: Top-down planning; mass production; growing critique.
Urban typology: High-rise slabs in vast open fields; multi-level traffic; big parking areas.
Green: Abundant but underused greenery; no human scale.
Mobility: Car-centred layouts; garages, large roads, disconnected pedestrian routes.
Safety & inclusivity: Low visibility, underpasses/ garages unsafe; social isolation issues.

5. Anti-Modernist Renewal / Bloemkoolwijken (1975–1990)

Societal context: Reaction against modernism; focus on identity & liveability.
Urban typology: Small scale, maze-like street patterns, revived plinths.
Green: Divided greens, local parks, community gardens.
Mobility: Woonerf and cycling rise.
Safety & inclusivity: Better surveillance

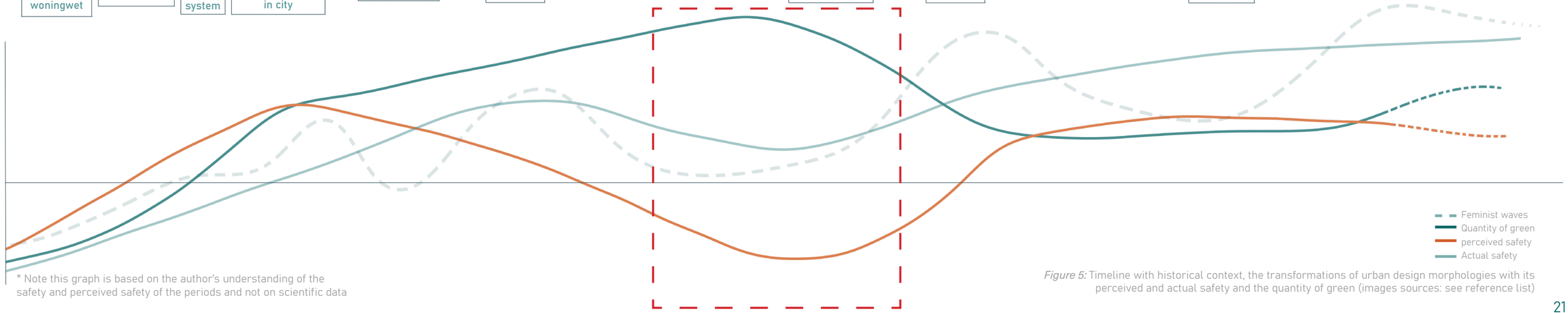
6. VINEX & New Town Urbanism (1990–2010)

Societal context: Compact-city policy; large planned suburbs.
Urban typology: Row houses, mid-rise, organised but monofunctional.
Green: Parks, ecological zones, water systems; variable quality.
Mobility: Car-oriented but strong cycling and Public transport links.
Safety & inclusivity: Good visibility overall; mono-functional parts empty at night.

7. 2010–Now: Compact Urbanism, Placemaking & Climate Resilience

Societal context: Climate adaptation, densification, housing crisis.
Urban typology: Mixed-use, Low-, mid- and high-rise, lively public realm; densification
Green: Climate-adaptive and social: biodiversity networks, pocket parks.
Mobility: Cycling-first; fewer cars; shared mobility; slow traffic.
Safety & inclusivity: Active edges, mixed uses, emphasis on justice, equal green distribution.

1901 woningwet
Electric tram
Sewage system
Street lantarns in city
WW2
Affordable cars
Elevators
Depillarization
Internet
Google Maps



* Note this graph is based on the author's understanding of the safety and perceived safety of the periods and not on scientific data

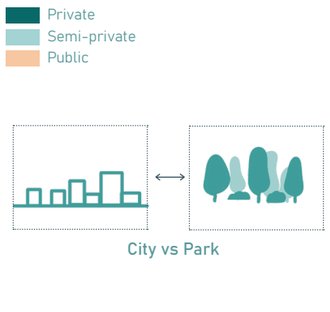
Figure 5: Timeline with historical context, the transformations of urban design morphologies with its perceived and actual safety and the quantity of green (images sources: see reference list)

1. Industrialisation, Early 20th Century (1850–1920)



Damstraat, Utrecht
1900–1920

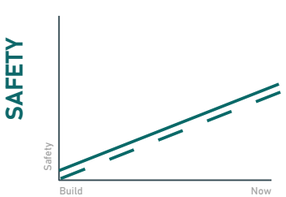




City vs Park



Mixed mobility



2. Garden City Influence (1920–1940)



Vreewijk, Rotterdam
1925–1940

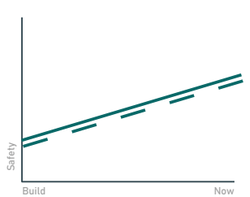




Front gardens Collective green



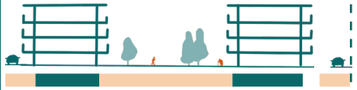
Mixed mobility
Slow traffic



3. Modernism, Reconstruction & Functional Zoning (1940–1960)



Zuidwijk, Rotterdam
1953–1960

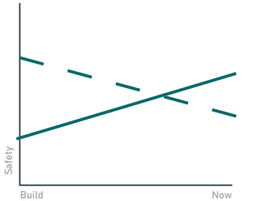




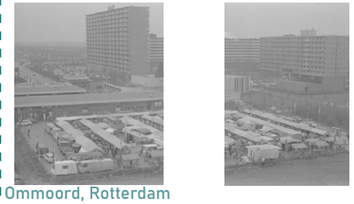
Public green



Separation transport modes



4. Modernism, High-Rise & Car-Dominated Expansion (1960–1975)



Ommoord, Rotterdam
1960–1970

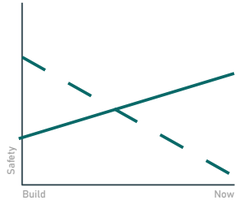




Public green



Separation transport modes



5. Anti-Modernist Renewal / Bloemkoolwijken (1975–1990)



De Merenwijk, Leiden
1975–1985

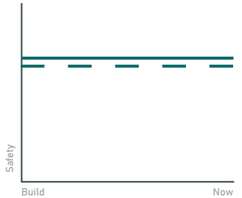




Private front and back gardens Woonerf



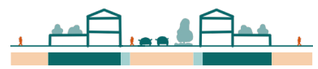
Mixed Slow traffic



6. VINEX & New Town Urbanism (1990–2010)



Ypenburg
1999

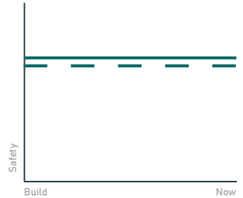




Private front and back gardens Public green



Mixed Slow traffic



7. Compact Urbanism & Climate Resilience (2010–Now)



Merwede, Utrecht
2010–Now

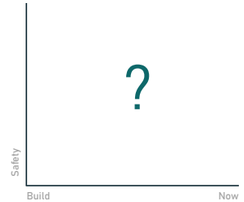




Public green Collective green



Fast traffic Slow traffic



PUBLIC VS PRIVATE

GREEN PUBLIC SPACE

MOBILITY

SAFETY

Actual safety
Perceived safety

* Note this graph is based on the author's understanding of the safety and perceived safety of the periods and not on scientific data

Figure 6: Timeline of urban design morphologies with its characteristics of public and private spaces, types of green spaces, mobility set-up and its perceived and actual safety (images sources: see reference list)

1.4 Case study

This thesis investigates the late-modernist residential neighbourhood of Ommoord in Rotterdam, designed by Lotte Stam-Beese (Rijksdienst voor het Cultureel Erfgoed, 2016). Completed in 1967, Ommoord became the first high-rise residential neighbourhood in the Netherlands (Lotte Stam-Beese en de Wederopbouw van Rotterdam, n.d.).

Stam-Beese was an important Dutch urban designer during the post-war reconstruction period and played a central role in shaping large-scale residential developments in Rotterdam. Influenced by Het Nieuwe Bouwen and her Bauhaus background, she designed neighbourhoods such as Pendrecht, Kleinpolder, Zuidwijk, and Ommoord, with an emphasis on functional spatial layouts, access to light and greenery, and the organisation of everyday social life. Her designs integrated housing with neighbourhood facilities, traffic-free pedestrian routes and angled apartment blocks (Lotte Stam-Beese: 1903-1988, n.d.).

This thesis focuses specifically on the central part of Ommoord, characterised by tall apartment complexes set at considerable distances from one another and set within extensive green spaces. While these spatial qualities reflect late-modernist planning ideals, they can also contribute to perceptions of unsafety, as identified in the preceding morphological analysis. These concerns are further reflected in the Leefbaarometer, in which Ommoord scores below the national average in terms of livability, safety, nuisance, and social cohesion (Leefbaarometer, n.d.).

The research explores whether perceptions of safety in Ommoord can be improved without compromising the ecological and spatial qualities of the area. By examining factors such as spatial configuration, visibility, and demographic characteristics, the study aims to identify design strategies that reconcile urban greenery with a genuine sense of safety, enabling all residents, particularly women, to fully benefit from the social, environmental, and recreational value of urban green spaces.



Figure 7: Ommoord's layout of expansive green spaces, isolated routing and anonymous buildings layouts

1.5 Problem statement

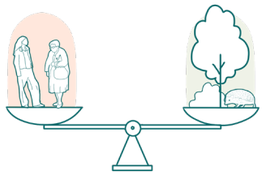
Urban green space is increasingly promoted as essential to healthy and sustainable cities, yet its potential to undermine perceptions of safety remains insufficiently addressed. Green environments that are intended to support wellbeing and social life can instead produce feelings of insecurity, disproportionately affecting women and limiting their use of public space.

This tension is particularly evident in modernist housing districts, where expansive yet low quality green spaces lack human scale, everyday activity, and natural surveillance. As a result, these spaces are frequently underused and perceived as unsafe. Given the widespread presence of post-war modernist neighbourhoods in the Netherlands, the consequences of such design shortcomings are both systemic and urgent. Rethinking green public spaces through the lens of safety, quality, and inclusivity, especially from women's perspectives, is therefore essential.

2

METHODOLOGY

2.1 Research framework



The aim of this research is to explore how the modernist neighbourhood Ommoord can be redesigned to enhance the perceived safety for women, while also providing high-quality, inclusive public green spaces.

The research framework of this project is structured around three sub-research questions, centred on two potentially conflicting perspectives within public space: safety and greenery. To examine these perspectives as thoroughly as possible, they are first considered separately before being brought together through design.

The first research question focuses on the perspective of safety and inclusivity in public space, investigating the key qualities and conditions required to create environments that feel secure and accessible for diverse users. The second research question addresses green spaces, exploring what is needed to improve the quality of urban greenery and to ensure that green spaces are both functional and beneficial.

The third research question examines the specific context of Ommoord, assessing how both sets of principles currently perform within the neighbourhood while also identifying the contextual characteristics and local conditions that must be taken into account. Together, these strands of research contribute to the main goal of how safety and greenery can both be safeguarded in Ommoord through design. The design phase therefore focuses on making informed spatial trade-offs based on the specific context of Ommoord, translating theoretical insights into context-sensitive design solutions.







	What are important qualities and requirements in public spaces to enhance the safety and inclusivity?	What are important qualities and requirements in public spaces to enhance the ecology and climate adaptivity?	How does Ommoord perform in terms of safety and the quality of green spaces, considering both social perceptions and physical characteristics?
News analysis	Credible news sources and critically reviewing them		
Policy review	Reviewing what policies are in Rotterdam regarding women's (perceived) safety	Reviewing what policies are in Rotterdam regarding public green spaces	Reviewing what policies are in Rotterdam regarding public green spaces
Literature	Books of urban theorists about safety, literature on women's experience in public space	Research on how to design public green spaces to enhance its positive effects	
Spatial analysis			Mapping Ommoord on its spatial characteristics with emphasis on safety and green spaces
Observations			Looking at safety (typology, maintenance, users, visibility, lighting) and greenery (diversity, height, water, biodiversity).
Interviews		Expert interview on green space interventions specifically in Ommoord	Street interviews on experiences and mapping positive/negative places; expert interview on green space interventions in Ommoord.
References / Examples	Fieldwork to multiple cities to experience what scale, typologies and interventions create feelings of safety	Fieldwork to multiple cities to experience how green spaces can be designed qualitative	
Research by design	Safety-related design principles developed and tested.	Ecology-related design principles developed and tested.	
Pattern language	Collecting design interventions that come out of the literature and research by design	Collecting design interventions that come out of the literature and the research by design	

Figure 8: Methodological framework

2.2 Description of methods

1. News Media Analysis
This analysis examines how contemporary media discourse frames perceived safety, particularly for women, alongside the role of urban green space. As media narratives both reflect and shape public opinion, policy priorities, and societal expectations, they provide valuable insight into the broader cultural context in which urban design decisions are made. The analysis therefore explores whether current reporting suggests a shift towards safer and more inclusive public spaces, and whether green space is portrayed as contributing to safety concerns or as a potential solution.

To do so, recent articles and opinion pieces from credible national and Rotterdam-based media sources are reviewed in order to identify dominant themes, such as fear of crime, women's safety, public space interventions, and debates surrounding greenery.

2. Policy and Governance Review
This review examines how existing policy frameworks shape safety and green space within the project context across multiple scales. Spatial conditions are not determined by design alone; policy decisions, governance structures, and institutional priorities strongly influence what is spatially possible, permitted, maintained, or neglected. Because perceived safety is not solely a localised issue, the analysis considers relevant policies and strategies at site, municipal, regional, national, and European levels to understand how broader governance frameworks shape local spatial realities. In contrast, green space policy is examined more contextually, with greater emphasis on place-specific frameworks, ecological ambitions, and local governance conditions. This approach clarifies how policy directly affects what can and cannot materialise spatially.

3. Literature review
Safety: The review investigates both mid-20th-century urban safety theories and contemporary studies on safety in public space, with particular attention to women's experiences. This includes examining foundational safety-oriented urban theorists alongside recent gender-sensitive research in order to understand how safety, inclusion, and perceived insecurity have evolved within planning discourse.

Green spaces: The review analyses literature on green space performance, focusing on how public green environments function ecologically, socially, and spatially, and how their quality can be enhanced through biodiversity, climate adaptation, and design optimisation.

Together, these strands establish the theoretical basis for understanding the challenge of integration of safety and green spaces in a modernistic neighbourhood.

4. Spatial Analysis
The spatial analysis examines the study area across multiple spatial dimensions in order to understand how different urban layers interact and shape both environmental performance and everyday spatial experience. From small-scale local quality to wider neighbourhood and regional ecological networks.

Green spaces: This includes assessing the performance, structure, connectivity, and qualitative condition of green spaces in relation to biodiversity, accessibility, and broader spatial cohesion. In addition, the analysis investigates the urban layers that structure daily life, including land use, functional distribution, and movement systems.

Safety: This involves mapping functions, public amenities, and mobility networks across walking, cycling, car infrastructure, and metro connections in order to identify patterns of accessibility, disconnection, conflict, and opportunity.

By combining ecological, infrastructural, and functional analysis, the spatial study reveals how broader urban systems shape current challenges and potentials within the site, forming the basis for identifying strategic design opportunities through research by design.

5. Observations
The observational analysis focuses on direct spatial observations of how the area functions in practice through its users, physical condition, and everyday spatial qualities. Rather than relying solely on reported experiences, this method examines visible patterns such as user presence, maintenance conditions, waste, sightlines, route use, and the legibility or navigability of space. Particular attention is given to how easily the environment can be understood and moved through, as well as how spatial qualities may encourage, discourage, or complicate use.

In addition to structured observations, the site was visited over ten times by the designer across different seasons, times of day, and both day- and night-time conditions. This repeated and temporal immersion was essential in order to develop a broader understanding of the area beyond a single-moment impression.

6. Interviews
The interview process was designed to capture lived experiences, local perceptions, and professional insights that could not be fully understood through spatial analysis alone. By engaging directly with residents and local stakeholders, the interviews provided qualitative insight into how Ommoord is experienced in everyday life, revealing social, emotional, and practical dimensions that may remain absent from purely spatial or quantitative analysis. This approach allowed the researcher to better understand how different groups perceive the neighbourhood, whilst also incorporating broader professional perspectives on spatial, social, and ecological conditions.

Interviews were conducted informally and conversationally across multiple days in various settings, including public streets, the neighbourhood community centre (buurthuis), and an elderly community meeting. Residents were first informed about the project and then asked open-ended questions about how they experience Ommoord, allowing participants to share their perspectives without being steered towards positive or negative responses. Conversations at the elderly meeting were generally longer and offered more in-depth insights into long-term lived experiences of the area. In addition, professional interviews were conducted with municipal representatives involved with Ommoord, community centre stakeholders, and an ecologist focusing on local green spaces. All interviews were kept anonymous, no personal data was collected, and findings were documented through note-taking.

7. Reference Projects Review
Throughout the design process, reference projects functioned primarily as sources of inspiration, reflection, and critical orientation rather than as direct templates for intervention. A wide range of national and international projects, design ideas, and spatial examples were continuously explored through online research, literature, and discussions with mentors. These references helped broaden the designer's perspective on themes such as safety, green space, urban renewal, and spatial quality, shaping the conceptual development of the project without prescribing fixed design outcomes.

In addition to desk-based references, multiple field visits were undertaken with the design cluster to both post-war neighbourhoods and newly developed urban areas. These visits provided valuable opportunities to observe, discuss, and critically compare how different spatial typologies function in practice.

Newly built projects were especially useful in illustrating how alternative spatial futures might be realised and experienced. Although these references did not produce a singular or directly measurable design output, they played an important role in expanding imagination, informing judgement, and strengthening the broader design process by offering comparative insight and practical spatial awareness.

8. Research by Design
Research by design functions both as an analytical method and a generative process, translating the spatial, social, and environmental challenges identified throughout the research into concrete design opportunities. By making implicit spatial

and broader spatial performance, to be critically tested, reconfigured, and spatially explored.

Through this process, multiple design scenarios are developed in response to insights from literature, spatial analysis, interviews, observations, and policy review. These scenarios are iteratively refined, allowing ideas to be tested against feasibility, contextual suitability, ecological quality, and broader project ambitions. Rather than producing a single immediate solution, this iterative approach enables continuous evaluation and adjustment, ensuring that proposed interventions emerge through critical reflection and design exploration.

9. Pattern Language Development

The development of the pattern language translates insights from literature, fieldwork, observations, and the final design process into a structured set of transferable design tools. In this way, it provides an overview of smaller-scale interventions that collectively support and strengthen larger structural ambitions.

Whilst the masterplan remains strongly context-specific to Ommoord, the pattern language abstracts key principles into more widely applicable tools that can also inform other neighbourhoods facing similar tensions between safety, inclusivity, and green space quality. These patterns are therefore intended to bridge site-specific design and broader spatial applicability, offering practical strategies that can support safer yet ecologically valuable public spaces beyond the immediate project area.

To structure this framework, the identified interventions were synthesised into four core criteria particularly relevant to addressing the paradox of green.

2.3 Planning

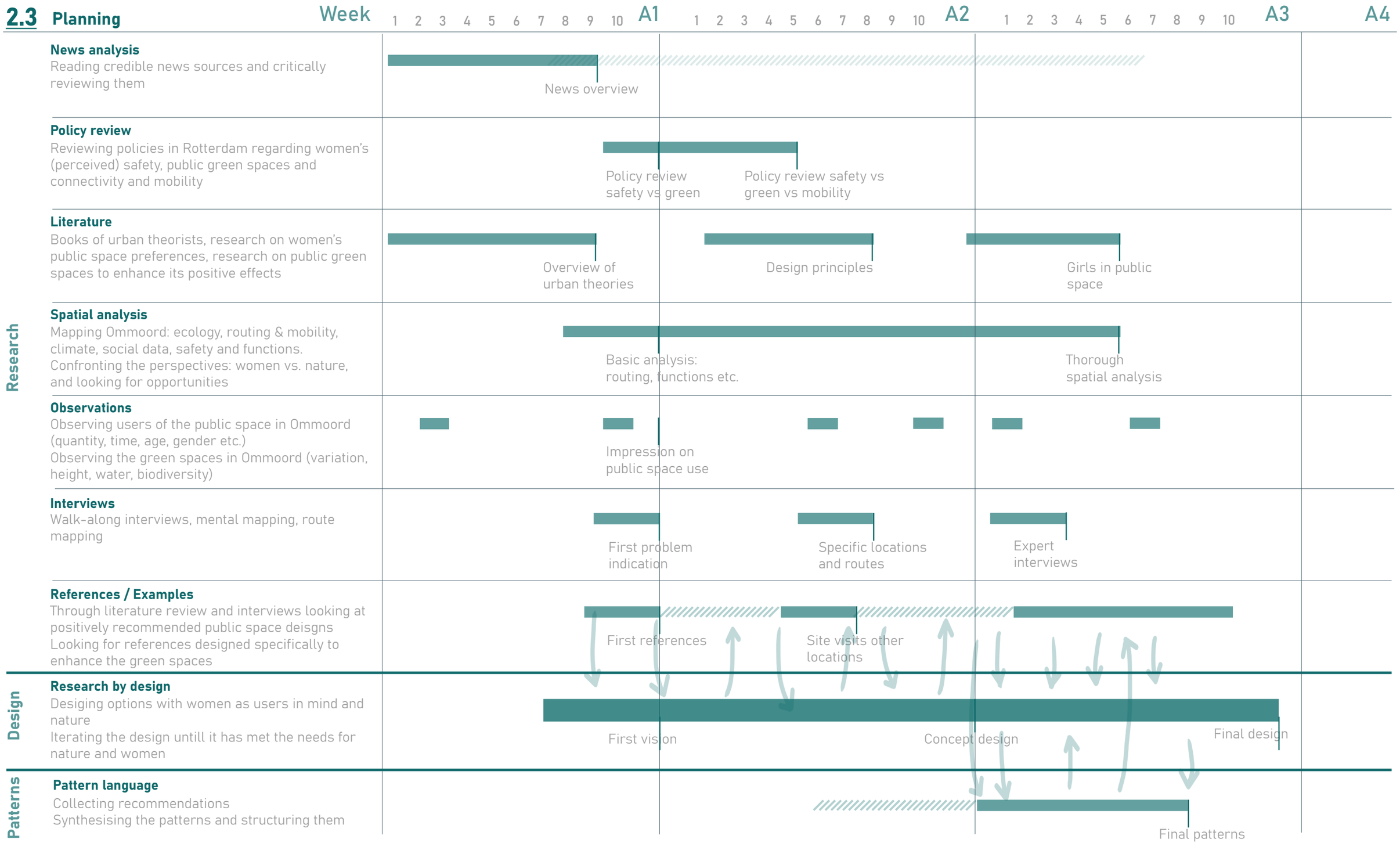


Figure 9: Project planning

2.4 Conceptual framework

The conceptual framework is represented as a triangular model encompassing three interrelated themes: Ecology & Climate Resilience, Safety & Well-being, and Connectivity & Mobility. Within this model, Ecology & Climate Resilience and Safety & Well-being function as the two primary project objectives, which exist in direct tension with one another and together define the central challenge of this project: The Paradox of Green.

Ecology and climate resilience are already quantatively embedded within the location and therefore form an essential part that must be preserved. Any intervention aimed at improving safety, usability, or inclusion should avoid undermining these existing ecological values. In contrast, safety, inclusivity, and well-being are currently underrepresented and require more deliberate design attention. The project therefore focuses on balancing these two objectives: safeguarding ecological integrity while simultaneously improving social safety and inclusive spatial quality.

Connectivity & Mobility does not function as an equal third objective, but rather as the primary intervening variable that shapes the relationship between the two core goals. Movement structures, accessibility, and spatial connections directly influence how ecological qualities and safety outcomes interact.
For instance, routing can either isolate green spaces and reduce perceived safety or strengthen accessibility and social oversight. Connectivity & Mobility therefore becomes the key design mechanism through which both objectives can be meaningfully reconciled.

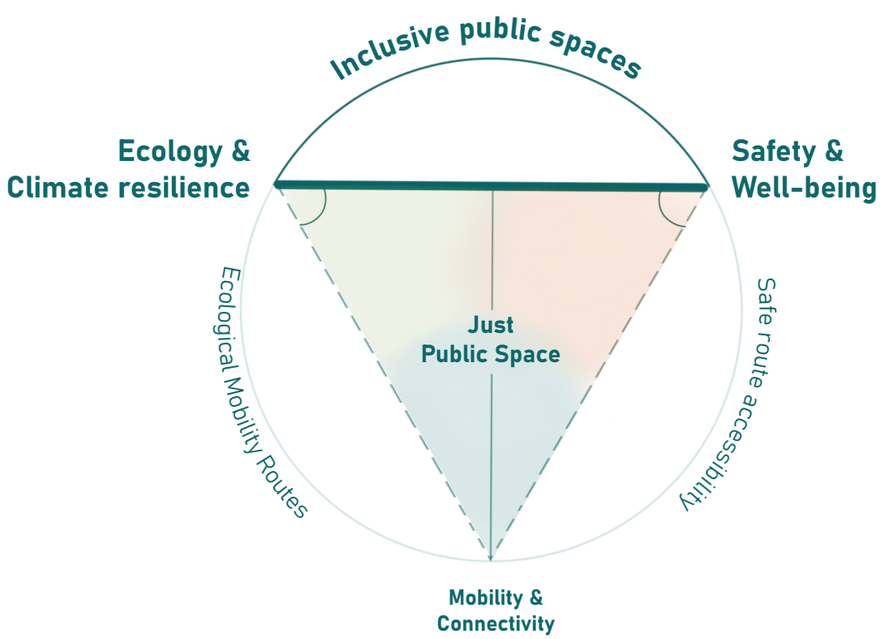


Figure 10: Conceptual framework focusing on the safety & Well-being and Ecology & Climate resilience with Mobility & Connectivity as design mechanism between the two objectives

2.5 Research aim and outcomes

This research aims not only to expose the persistent challenges surrounding women's safety and inclusivity in urban space, but also to critically examine the often-overlooked tensions between safety and ecology. While both themes are individually well established within urban discourse, they are rarely analysed through an integrated lens. By explicitly overlaying concerns of gendered safety with ecological and climate-responsive design, this study introduces a new perspective within the broader debate on urban safety and environmental planning. In doing so, it seeks to help narrow an existing knowledge gap by addressing how these two priorities interact when considered simultaneously.

Approaching safety and ecology together also creates a more realistic planning framework, as urban design inevitably requires continuous negotiation between multiple priorities rather than isolated solutions. This research acknowledges the complexity of spatial decision-making and aims to contribute a more balanced understanding of how competing objectives can be reconciled.

Importantly, this study also moves beyond generic or purely theoretical interventions by applying its findings directly to the case study of Ommoord. While substantial research already exists on individual safety or ecological interventions, fewer examples demonstrate how these elements can be meaningfully combined within one coherent design approach. This is precisely where context becomes essential, as the integration of multiple objectives generates new challenges that differ according to local spatial, social, and environmental conditions. It offers broader inspiration and transferable insights into how safety and ecology can be brought together in practice.



MANIFESTO SAFETY

3.1 Women oriented design

Women's experiences of public space are strongly shaped by gender differences in perceptions of safety and patterns of mobility. In the Netherlands, women report feeling unsafe more often than men, particularly at younger ages. Among women aged 15 to 25, 60 per cent report that they sometimes feel unsafe in general, compared to 27 per cent of young men in the same age group (Centraal Bureau voor de Statistiek, 2026). These feelings of insecurity also influence everyday behaviour in public space. To avoid places they perceive as unsafe, 45 per cent of women aged 15 to 25 report that they sometimes change their route within their own neighbourhood (Centraal Bureau voor de Statistiek, 2025). Across all age groups, women are more likely than men to adapt their movements for safety reasons. Safety concerns also extend into domestic routines. For example, 70 per cent of women aged 65 and older report that they do not always open the door in the evening for safety reasons, while among younger women this ranges between 55 and 63 per cent. Men generally report this behaviour less often (Centraal Bureau voor de Statistiek, 2025). Together, these findings show that perceptions of safety influence not only women's mobility in public space, but also everyday precautionary behaviour more broadly.

Unequal occupation

Gender differences are also visible in the way public spaces are occupied and used. Research by Karsten (2003), based on observations in eight playgrounds in Amsterdam, shows that boys consistently outnumber girls in recreational public spaces. On average, girls are only around one third of playground users, and their participation decreases further with age. Girls are also more likely to stay closer to home, face greater restrictions on their mobility, and are more affected by the perceived quality and safety of public environments.

Boys often dominate larger and more visible areas, such as football pitches, while girls more frequently occupy smaller or peripheral spaces. Similar patterns appear in sports participation data from the RIVM, which shows that boys between the ages of 12 and 17 exercise more often than girls; 37.9% versus 27.7% in 2022 (Schurink-van 't Klooster, 2023). These findings demonstrate that public space is not experienced equally and that gender norms continue to shape how people use and move through urban environments from an early age (Karsten, 2003).

Gendered city

These inequalities are partly rooted in the historical development of cities and urban planning. Historically, cities have often been planned around how men traditionally moved through and used public space. This is reflected in transport systems that prioritise efficient commuting routes associated with traditional male breadwinner norms, as well as in recreational spaces focused on competitive activities such as football. At the same time, amenities more closely connected to the everyday experiences of women and girls, including public toilets, safe waiting areas, adequate lighting and informal social spaces, have often received less attention.

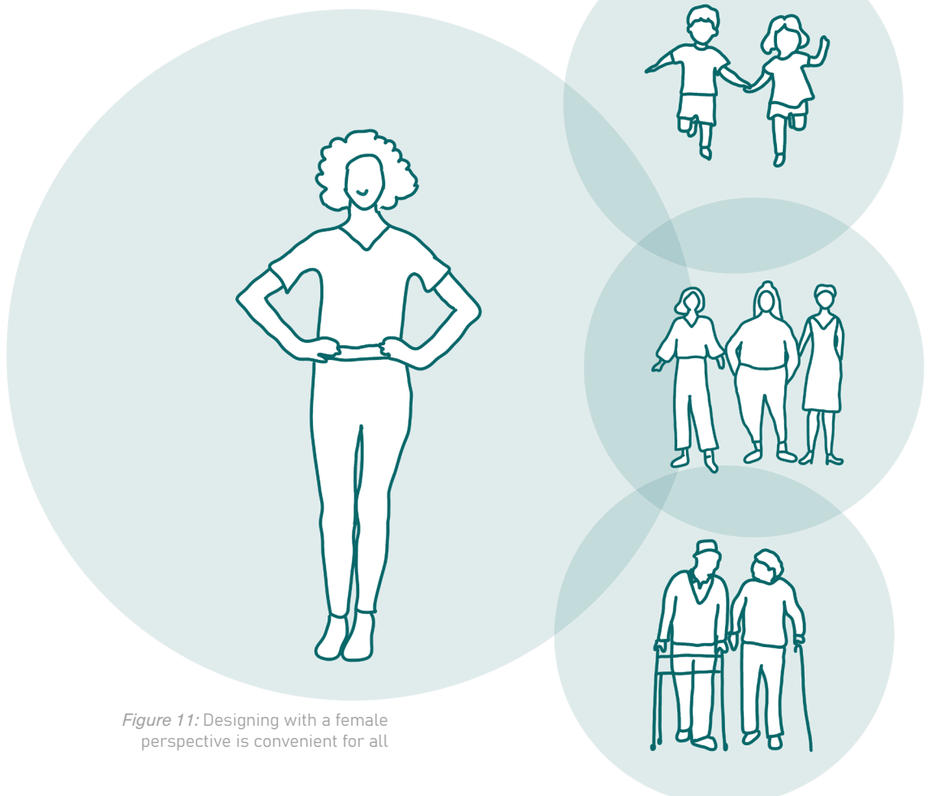


Figure 11: Designing with a female perspective is convenient for all

Contemporary gender-sensitive research therefore argues that cities are not gender-neutral, but instead reflect planning traditions and social structures in which women and girls have historically been underrepresented and disadvantaged (London Legacy Development Corporation and Arup [LLDC & Arup], 2024; Shaikly & Mella Lira, 2023; Wierda-Boer et al., 2026).

As a result, research emphasises that creating more inclusive public spaces requires more than improving safety measures alone. It also requires reconsidering whose needs and experiences are prioritised in urban planning. Importantly, research suggests that public spaces designed with women and girls in mind can also improve accessibility, comfort and inclusion for a wider range of users (LLDC & Arup, 2024; Henning Larsen et al., 2023; Valente et al., 2018).

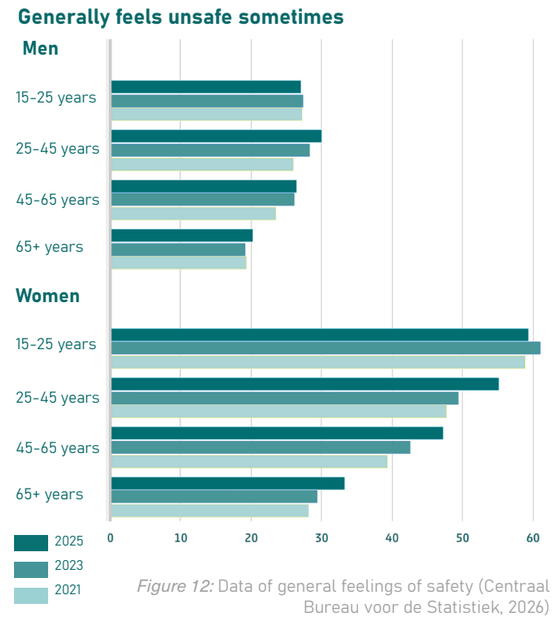


Figure 12: Data of general feelings of safety (Centraal Bureau voor de Statistiek, 2026)

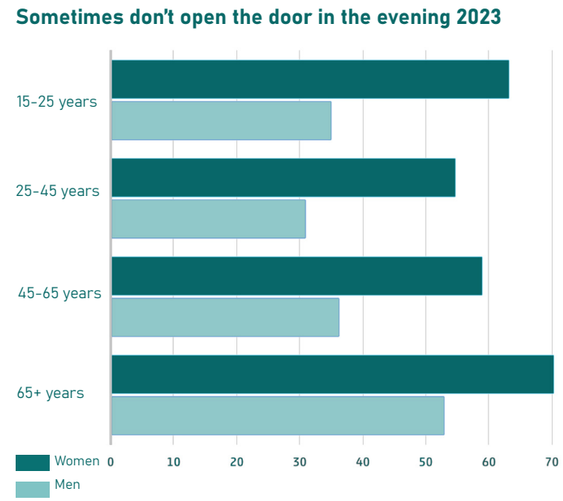


Figure 13: Data people opening door in the evening (Centraal Bureau voor de Statistiek, 2025)

3.2 Policy analysis on safety

Although data consistently demonstrates a significant difference between men's and women's perceptions of safety in public space, policy responses continue to lag behind.

Municipal level: Rotterdam

Rotterdam has developed safety-oriented initiatives, such as the Veilige Steden programme, which aim to reduce sexual street harassment and make public space safer for women, girls, and LGBTQIA+ persons. These programmes focus primarily on social safety and behaviour, including awareness campaigns, prevention programmes, victim support, and collaboration between the municipality, police, and civil society (Gemeente Rotterdam - Veilige Steden, 2024). However, they do not establish formal urban design regulations: lighting, sightlines, visibility, enclosure, or path layout are not mandated.

For example the research "Ruimte voor meiden op Zuid" shows that these factors strongly influence women's perceived safety (Schram et al., 2024). Physical modifications to public space are generally addressed on a project-by-project basis or through general guidance rather than citywide policy.

While Rotterdam also promotes green infrastructure for climate resilience and biodiversity, these objectives are treated separately from social safety initiatives (Rotterdamse Stijl 2.0 Klimaatadaptief - Rotterdams Weerwoord, 2023). Because the interaction between greenery and perceived safety is not explicitly considered in a single integrated framework, there is a risk of unintended trade-offs.

Figure 14: Veilige Steden (Veilige Steden, n.d.)

Provincial level: Zuid-Holland:

At the provincial scale, women's safety in public space is addressed indirectly through broader objectives related to spatial quality, liveability, and accessibility (Zuid-Holland, 2025). The Omgevingsvisie Zuid-Holland promotes inclusive and high-quality environments but does not explicitly operationalise gender-specific safety as a spatial planning criterion. As a result, responsibility for addressing women's safety in the design of public space largely remains with municipalities, leading to uneven implementation across the province.

Figure 15: Omgveingsvisie Zuid-Holland (Provincie Zuid-Holland, 2021)

National level: The Netherlands

At national level, women's safety in public space is primarily framed as a matter of social safety, emancipation, and violence prevention. The Dutch government coordinates the national Veilige Steden programme through the Ministry of Education, Culture and Science, focusing on sexual harassment and violence against women rather than spatial design standards (Veilige Steden, 2025).

The Netherlands also participates in the Orange the World campaign, which raises awareness of violence against women and girls and mobilises public institutions and civil society (Orange The World, 2026). While these initiatives acknowledge the importance of safe public environments, they do not translate into concrete urban design requirements within national spatial planning policy, including the National Environmental Vision (NOVI) (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2020).

Figure 16: Veilige Steden (Veilige Steden, n.d.)

Figure 17: Orange The World logo (Orange the World, n.d.)

International level

Internationally, women's safety in public space is embedded within the United Nations' sustainable development agenda. SDG 5: Gender Equality and SDG 11: Sustainable Cities and Communities explicitly call for safe, inclusive, and accessible public spaces, particularly for women and vulnerable groups (Goal 5: Gender Equality - the Global Goals, 2024; Goal 11: Sustainable Cities and Communities - the Global Goals, 2024).

UN Women and UN-Habitat further emphasise the integration of gender perspectives into urban planning and design (UN Women, 2018). While these frameworks provide strong normative guidance, their implementation depends on national and local policy translation.

Figure 18: SDG's 5 and 11 (The Global Goals, 2015a; The Global Goals, 2015b)

3.3 Current efforts in design

Although gender-sensitive urban planning has gained more attention, the Netherlands has historically lacked a national policy framework that explicitly addresses women's everyday experiences in public space as seen in chapter 3.2. This reflects a broader tendency within Dutch planning traditions to approach urban environments as gender-neutral, despite persistent structural inequalities in how public spaces are designed, used, and experienced.

Vienna

Vienna is a strong example of a city that has already implemented gender-sensitive urban planning. In 1992, Vienna established its own Women's Office for urban design, which later developed into the office responsible for gender mainstreaming. Gender mainstreaming means designing policies, spaces, or plans while considering the needs and experiences of all genders equally. Today, gender mainstreaming is integrated as a standard criterion within urban planning and design processes (Urban Development Vienna, Municipal Department 18 [MA 18], 2013; Bauer, 2009).
To achieve this, Vienna has integrated gender mainstreaming criteria into multiple aspects of urban planning, including strategic plans, urban development plans, housing competitions, and park guidelines (MA 18, 2013). Several projects have already been realised. For example is the redesign of several public parks. In 1997, Vienna recognised that girls aged 10–13 were more likely to withdraw from parks, while boys tended to dominate these spaces. In response, parks were redesigned to better accommodate girls (MA 18, 2013). Examples include Einsiedlerpark, Bruno-Kreisky-Park, and Odeonpark. Interventions included smaller activity zones, additional seating areas, improved visibility, better lighting, and facilities that supported different age groups.
Vienna also evaluated these interventions through observation and interactive feedback to assess whether they increased park use. Because the interventions were considered successful, similar principles were later integrated into broader planning guidelines (MA 18, 2013).

Current efforts in the Netherlands

Although national policy remains limited, several municipalities and smaller organisations have started developing their own approaches to gender, safety and inclusion in public space. Amsterdam has emerged as one of the first Dutch municipalities to more actively explore gender-inclusive planning by incorporating the perspectives of women and girls into discussions on public space and mobility (Amsterdam Gaat Haar Openbare Ruimte Inrichten Op De Jonge Vrouw, n.d.).



Figure 19: Bruno-Kreisky-Park in Vienna (Auf Den Hängematten Im Bruno-Kreisky-Park Kann Man Gut Chillen., 2024)

Unfortunately, not all current initiatives translate this growing awareness into meaningful structural change. Some interventions are presented as "solutions," creating the impression that gender inequality in public space is being solved, while the deeper structural causes remain largely untouched.

One example of a current experiment aimed at improving women's safety in public space is the introduction of a women-designated parking space (Kooyman, 2024). While this intervention acknowledges women's safety concerns, it does little to address the wider urban conditions that contribute to feelings of unsafety, such as poor lighting, unsafe walking routes, limited social surveillance, or street layouts that insufficiently consider women's mobility patterns. As a result, this type of measure often functions as a visible but temporary solution rather than a structural change.

Another example is an initiative in which girls are given specific access or time slots on a male-dominated football pitch (Pieterse, 2026). Although this recognises unequal participation, it does not address why these spaces continue to be organised around male patterns of use.

Consequently, such interventions often respond to the symptoms of inequality, whilst the underlying spatial and social structures remain largely unchanged.
This distinction is important because gender-sensitive urban planning requires more than temporary or symbolic interventions. It requires structural changes that reconsider how safety, accessibility, mobility, and inclusion are integrated into the built environment. Without these broader changes, efforts to include women and girls risk remaining fragmented responses rather than fundamentally transforming the inequalities embedded in public space.

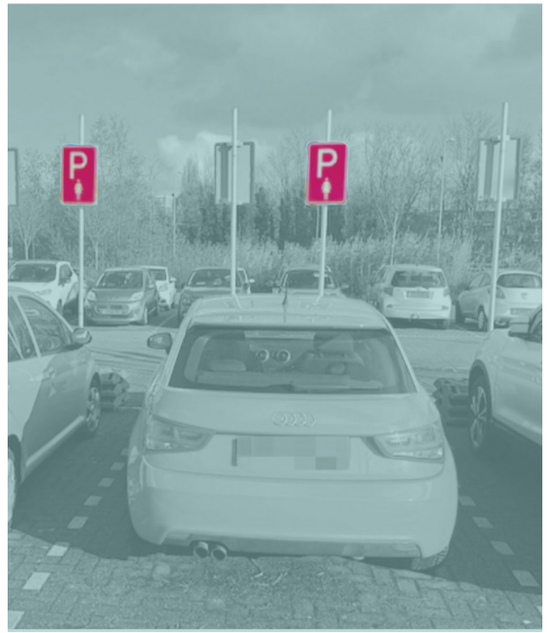


Figure 20: Parking spaces for women (AD, 2024)



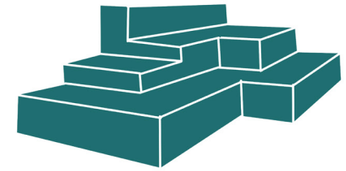
Figure 21: Time-slots for girls on football court (AT5, 2026)

3.4 Designing for girls

It is important to note that gender-sensitive design principles should not be approached as a fixed checklist that can simply be applied universally. The needs and experiences of women and girls differ across age groups, cultural backgrounds and local contexts, meaning that effective interventions depend on the specific characteristics of a place and the people who use it. As a result, these principles should always be combined with participatory processes and consultation with women and girls themselves.
Nevertheless, existing research highlights several recurring spatial qualities that tend to support girls' comfort, safety and participation in public space:

- **Good lighting, visibility and clear sightlines**
  Well-lit routes and open visibility can reduce fear and support independent use of public space.
- **Social surveillance and active presence**
  Spaces with visible social activity and natural surveillance often feel safer and less isolated.
- **Smaller and multifunctional spaces** Instead of one dominant area
  Multiple smaller zones can reduce territorial dominance and encourage more equal participation.
- **Round seating areas and sociable gathering spaces**
  Seating arrangements that support conversation and group interaction better reflect how many girls use public space socially.
- **High levels of maintenance and upkeep**
  Clean, well-maintained and welcoming environments encourage longer stays and repeated use.
- **Public toilets and sanitary facilities**
- **Public toilets and sanitary facilities**
  Access to toilets and basic facilities is important for equal and comfortable access to public space.
- **Spaces with both visibility and a sense of protection**
  Many girls prefer spaces where they can overlook their surroundings while also having some sense of enclosure or retreat.
- **Sheltered or covered spaces**
  Weather-protected meeting spaces can support year-round use and longer stays.
- **Playful and non-competitive equipment**
  Elements such as nest swings or informal play features can broaden participation beyond competitive and traditionally male-dominated activities.
- **An inviting and enjoyable atmosphere**
  Attractive and emotionally positive environments support comfort, presence and lingering in public space.
- **Co-design and participation**
  Involving women and girls directly in the design process generally improves inclusivity, relevance and long-term success.

(LLDC & Arup, 2024; Shaikly & Mella Lira, 2023; Walker & Clark, 2023; Karsten, 2003; Wierda-Boer et al., 2026; Henning Larsen et al., 2023-ab; Sandström et al., 2024)



Stairs seating for good overview



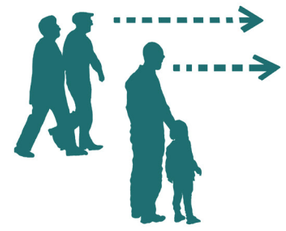
Nice looking



Good atmosphere



Round seating for better conversation



Social surveillance for safety



Chill spaces



Nest swing



Canopy against rain



Seating with back support



Public toilet



Well-maintained

Figure 22: What girls want in public spaces to feel comfortable

3.5 Feminist waves

Designing public space for women and girls should not be seen as a niche issue. Instead, it highlights long-standing gender inequalities within urban planning and can contribute to creating healthier, safer and more socially sustainable environments for everyone.

Importantly, this is not the first time that women's safety and exclusion in public space have been recognised. Across urban history, concerns around gendered insecurity and unequal access have surfaced repeatedly, including in earlier safety-focused planning debates such as Crime Prevention Through Environmental Design (CPTED), which emphasised surveillance, visibility and environmental safety (Cozens & Love, 2015). Although these debates have repeatedly drawn attention to the relationship between safety and the built environment, long-term structural change has often remained limited.

Within today's fourth wave of feminism, these issues have returned with renewed urgency. However, the problem is no longer a lack of research or evidence. Instead, the main challenge lies in implementation: whether planning systems and design practices are willing to consistently translate decades of research into lasting spatial change. The key question is therefore whether this current momentum will be enough to move beyond traditionally male-centred planning norms and create cities that are genuinely inclusive and safe for everyone. When women are treated as equal urban users rather than exceptions, public space tends to improve for wider groups as well.

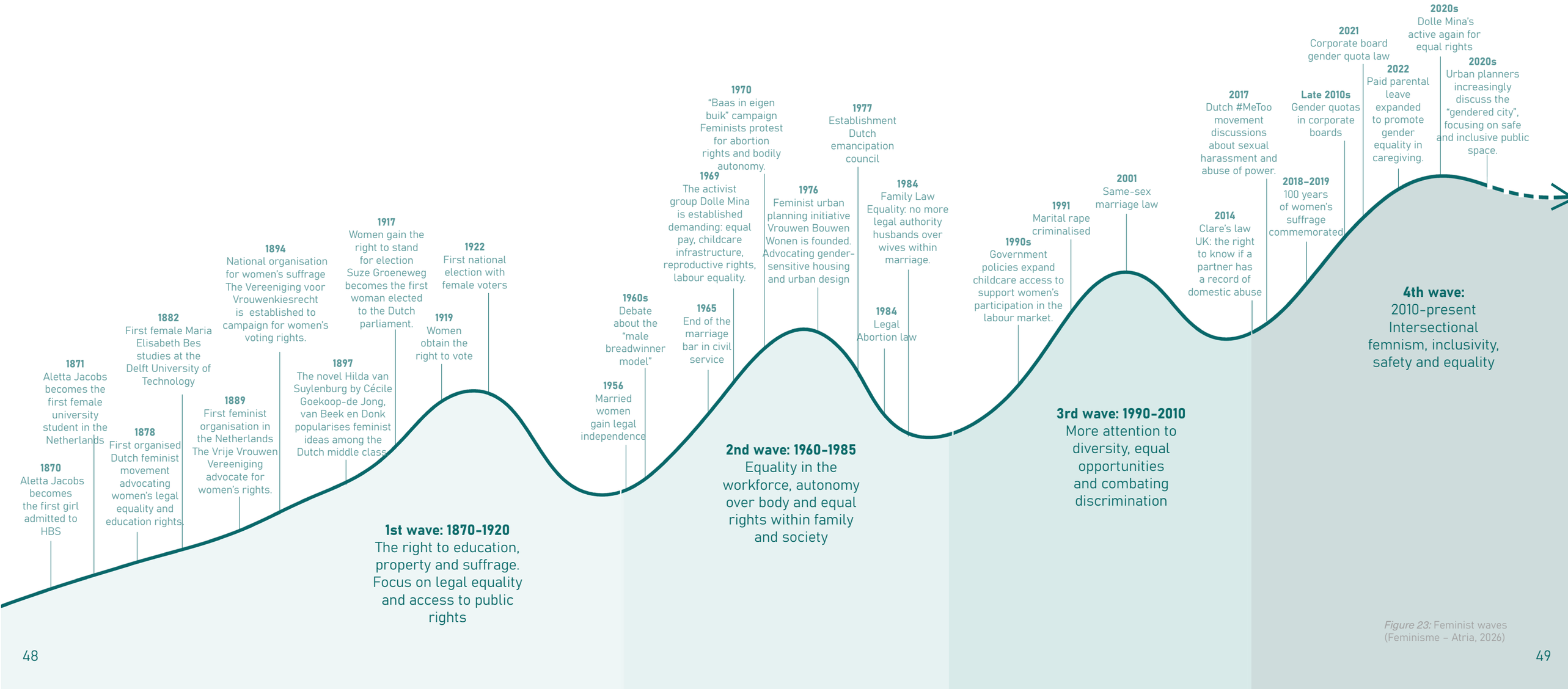


Figure 23: Feminist waves (Feminisme – Atria, 2026)

3.6 Theoretical framework

As previously discussed, this is not the first time that safety has emerged as a central concern within urban design and planning. During the 1960s and 1970s, safety became a major focus, partly in response to the failures and critiques of modernist planning. As a result, much of the foundational knowledge regarding how safety can be integrated into urban design already exists. This theoretical framework therefore provides the basis for the design component developed in Chapter 6, where the core principles and interventions proposed by key urban theorists will be incorporated.

Jane Jacobs, *The Death and the Life of Great American Cities* (1961)

Jane Jacobs' work fundamentally reshaped thinking about urban safety by emphasising how ordinary social life can create natural security. In The Death and Life of Great American Cities (1961), she argued that a lively, mixed-use urban environment generates what she called "**eyes on the street**". For Jacobs, safety does not arise primarily from policing or surveillance but from continuous, casual observation by residents, shopkeepers, and passers-by who have a natural interest in maintaining order.

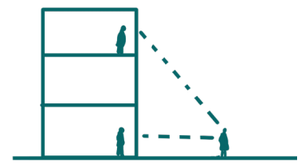
Safe streets depend on a clear distinction between **public and private** space, as well as a steady flow of everyday activity that encourages natural surveillance. When streets or spaces are deserted or rarely used, they tend to feel unsafe, even if lighting or other interventions are provided.

Streets with **active ground-floor** uses, **short blocks**, and **diverse functions** ensure a steady flow of people throughout the day, reducing opportunities for crime and increasing perceived safety. A lively, well-watched sidewalk is safer than a deserted park or courtyard; visibility, accessibility, and incidental supervision are key.

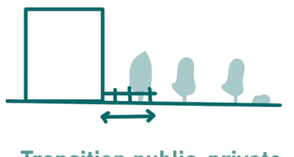
If public parks and green spaces are not actively used or integrated in the livelihood of the neighbourhood, they can be perceived as danger zones. These ares are more prone to vandalism.

Jacobs also stressed the role of "sidewalk ballet": small, everyday interactions that build trust among neighbours. This social cohesion gives communities the informal power to discourage antisocial behaviour. She warned that modernist planning, superblocks, single-use zones, and empty plazas, create dead spaces lacking function and community oversight, which makes them feel anonymous and take away the community atmosphere.

Jacobs ideas continue to influence contemporary thinking on public-space design and community resilience.



Eyes on the street



Transition public-private



Mixed-use



Short blocks



Enclosed green

Figure 24: Key design strategies proposed by Jane Jacobs (1961) to enhance natural security in urban environments.

Kevin Lynch, *The Image of the City* (1960)

Kevin Lynch is widely recognised for his contributions to understanding how people perceive and mentally structure urban environments, most notably through the concept of imageability developed in The Image of the City (1960). Although his work does not focus explicitly on safety, his theories have had a substantial influence on contemporary interpretations of perceived urban security.

Lynch argued that the legibility of the built environment, how easily people can navigate and make sense of it, plays a crucial role in shaping feelings of comfort, confidence, and emotional security. Clear, vivid, and differentiated public spaces support orientation, identity, and a shared sense of place. Conversely, confusion, disorientation, or visual disorder can generate anxiety, even in areas with relatively low crime rates. This insight underscores the broader social importance of security: people are more likely to engage in civic life, use public space, and develop communal attachment when environments feel understandable and predictable.

Central to Lynch's framework is a set of elemental components that contribute to a coherent spatial structure:

- **Paths:** the channels along which people move; their clarity and continuity aid orientation.
- **Edges:** boundaries or transitions between areas.
- **Districts:** larger areas with a recognisable character that allow users to understand where they are within the wider city.
- **Nodes:** strategic points of concentration, such as junctions or squares, that anchor mental maps and support confident navigation.
- **Landmarks:** visually distinctive features that act as external points of reference.

According to Lynch, urban areas that lack clear visual cues, suffer from poor connectivity, or display repetitive or ambiguous layouts more often feel unsafe. Enhancing legibility through coherent design, adequate maintenance, and predictable spatial transitions can therefore strengthen users' sense of control and enable residents to make a "mental map" of their surroundings.



Paths



Nodes



Landmarks



Edges



Districts

Figure 25: The five key urban design components by Kevin Lynch (1960) to build a legible structure

Jan Gehl, *Life Between Buildings* (1971)

Jan Gehl emphasises that urban design shapes how people use and interact within public spaces. He identifies three types of outdoor activities: **necessary activities** (such as commuting, shopping, or waiting for transport), **optional activities** (like walking, sitting outdoors, or lingering in public spaces), and **social activities** (including informal gatherings, children playing together, or neighbours conversing). Social activities often emerge as a consequence of the first two: when people are present for necessary or optional reasons, opportunities for social interaction naturally arise. The quality of the environment plays a key role: while poorly designed spaces may accommodate necessary activities, they discourage optional ones and, in turn, reduce the likelihood of spontaneous social encounters. High-quality public spaces encourage people to linger, creating a self-reinforcing cycle of urban life, which in place helps people to feel more secure in their neighbourhood.

Gehl stresses the importance of **hierarchical spatial organisation** in residential environments to support social interaction at multiple scales. Gradual transitions between spaces, such as semi-public thresholds, visual connections, and permeable edges, allow residents and children to interact beyond their immediate cluster. For instance, a courtyard for one cluster should be visually connected to neighbouring play areas, encouraging movement and social contact between groups while maintaining a sense of local belonging.

Gehl also highlights the importance of **human-scale design** in maintaining street-level social interaction. High-rise buildings can disrupt essential contact with the street, particularly when ground floors are inactive, inaccessible, or visually disconnected from pedestrian activity. Once buildings exceed a certain height, the pedestrian's view of street-level life is diminished, reducing the vibrancy of public space. Gehl therefore advocates strategies that preserve visual and physical engagement with the street, ensuring urban areas remain lively, socially rich, and conducive to spontaneous encounters (Gehl, 2011).

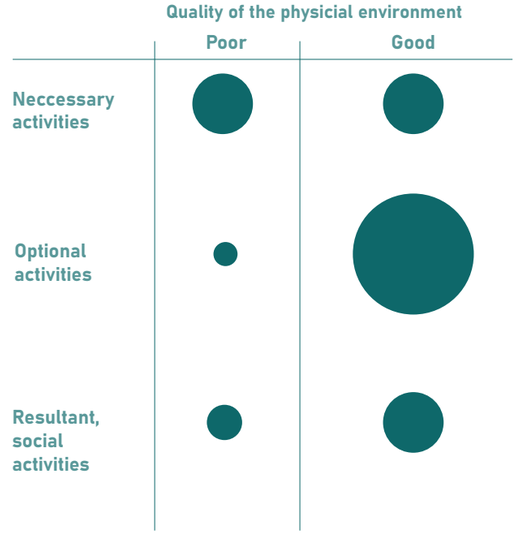


Figure 26: Three outdoor activities: Neccessary, Optional and Resultant activities and the amount in relation to quality public space Reproduced from (Gehl, 1971)

Oscar Newman, *Defensible space: Crime prevention through urban design* (1972)

Oscar Newman's concept of Defensible Space (1972) emphasises the role of physical design in shaping social behaviour and reducing crime. Newman argued that the layout and organisation of residential environments can create a sense of territoriality, allowing residents to feel ownership and responsibility over their surroundings. Central to this idea are four key elements: territoriality, natural surveillance, image/maintenance, and site layout.

Territoriality involves the use of physical cues, such as fences, landscaping, and semi-private areas, to delineate private, semi-private, and public spaces. This soft transition from public to private spaces results in informal inbetween spaces where social contact takes easier place, which helps with a sense of security.

Natural surveillance refers to designing buildings and spaces so residents can observe activity in and around their homes, including sightlines from windows, balconies, and pathways.

Image and maintenance focus on the visual condition of the environment: well-maintained spaces communicate care and oversight, whereas neglected or vandalised areas may invite misuse.

Finally, **site layout**, or safe adjacency, considers the arrangement of dwellings, paths, and communal spaces to encourage social interaction and informal monitoring while discouraging isolation and anonymity.
Newman's studies of mid-twentieth-century housing projects revealed that high-rise, isolated buildings with long corridors and distant entrances often fostered social alienation and higher crime rates, whereas low-rise, clustered dwellings with semi-private courtyards supported social control and a sense of security. His work underscores the idea that physical design can shape the social life of a community, making spaces more legible, monitored, and self-regulating.

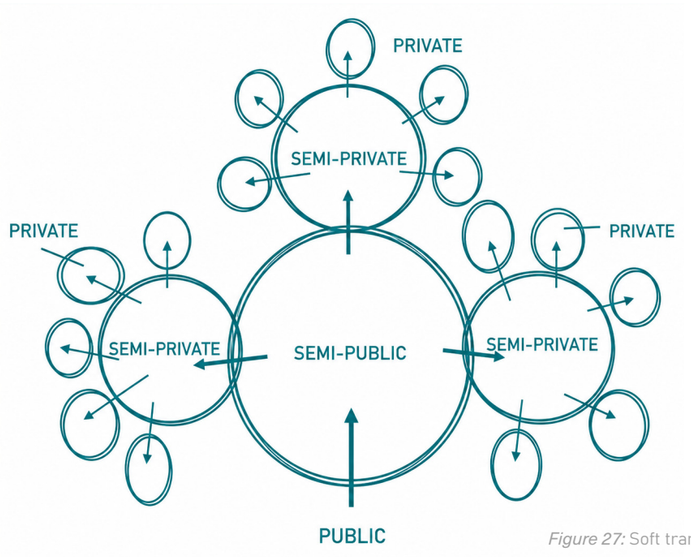


Figure 27: Soft transitions from public to private spaces reproduced from (Newman, 1972)

CPTED

Crime Prevention Through Environmental Design (CPTED) is an approach that emerged in the 1970s as a way to reduce crime and the fear of crime through the strategic design and management of the built environment. Its foundations lie in the work of theorists such as Oscar Newman and Jane Jacobs, who emphasised how spatial layout, visibility, and human activity can influence both social behaviour and security outcomes. CPTED became important as policymakers and planners sought practical tools to make urban and residential spaces safer without relying solely on policing or surveillance technologies (international CPTED organisation, 2022).
The original, or first-generation, CPTED focused on three core strategies: natural surveillance, territorial reinforcement, and access control. Natural surveillance aims to maximise visibility so that people can see and be seen, discouraging criminal activity. Territorial reinforcement involves using physical design elements, such as fences, signage, and lighting, to signal ownership and responsibility. Access control manages movement through the environment, restricting entry to private or sensitive areas (international CPTED organisation, 2022).
Later developments led to second-generation CPTED, which incorporates social and community dimensions, including fostering social cohesion, collective efficacy, and long-term engagement in the maintenance and monitoring of public spaces.

These strategies demonstrate that safety is not only about physical cues but also about building resilient, socially connected communities that actively participate in the upkeep and oversight of their environment (international CPTED organisation, 2022).

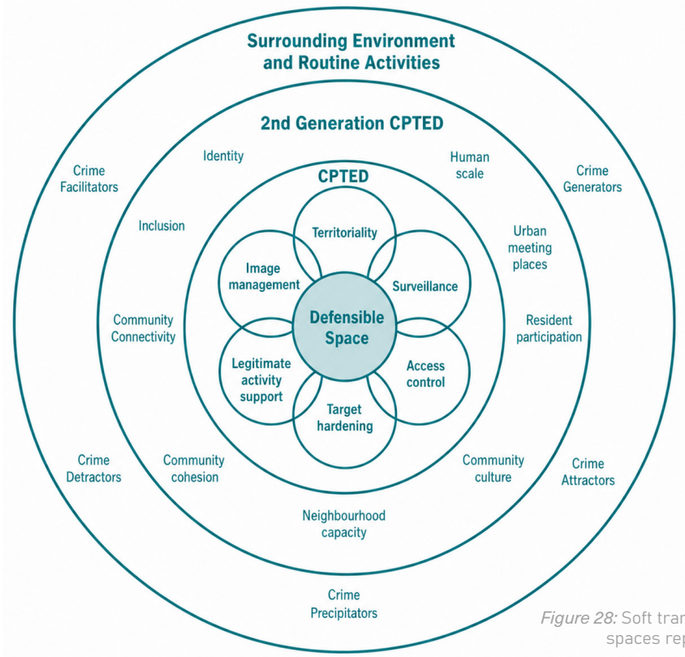


Figure 28: Soft transitions from public to private spaces reproduced from (Cozens, 2014)

3.7 Design principles

In summary, this chapter establishes a series of key insights that are translated into design principles to guide design proposal.



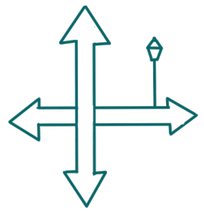
Eyes on the street

First, the principle of eyes on the street is essential. This concept emphasises that a sense of safety in public space is strongly linked to the presence of visible human activity and mutual surveillance. This can be achieved through various spatial strategies, such as positioning entrances along routes, combining pathways to increase pedestrian density, incorporating windows facing public space, maintaining open sightlines and strategically positioning functions like community centres along main pathways. Fundamentally, this principle is concerned with both seeing and being seen, thereby reinforcing natural surveillance and perceived security.



Spaces for contact

The third principle is allocated spaces for social contact. Social cohesion within a neighbourhood should not be assumed to occur spontaneously; rather, it can be actively facilitated through the intentional creation of routes, semi-public spaces, and places tailored to different user groups, such as playgrounds, social spaces for teenagers, and community centres. By designing places with clear purposes, environments can attract diverse users and create opportunities for repeated encounters and community formation, while also supporting freedom of choice by allowing residents to engage with these spaces in their own way.



Legibility, sense of place

Second, legibility and sense of place are crucial in creating environments that are understandable, navigable, and psychologically reassuring. Clear spatial structures in routes and built form allow users to easily comprehend and predict their surroundings, creating a sense of control. Lighting also plays a significant role in this regard, as it not only improves visibility but can actively guide movement through space. Landmarks further contribute to legibility by functioning as recognisable reference points within the urban environment, strengthening orientation and identity.



Well-maintained, clear vision

The fourth principle is well-maintained environments and clear vision. Clear sightlines are essential for maintaining eyes on the street, preserving visible landmarks, and allowing users to scan routes ahead for safety. This principle also applies to green spaces, where maintenance must ensure that vegetation does not obstruct important views or create hidden spaces. Together, maintenance and visual clarity strengthen surveillance and overall perceived safety.



Soft transitions private-public

The fifth principle concerns soft legible transitions between public and private space. Such gradual spatial transitions encourage social interaction while simultaneously protecting privacy. Front gardens or semi-private thresholds between dwellings and public routes can create recognisable buffer zones that make the distinction between public and private space more legible. These spaces can increase residents' comfort and control over exposure, thereby encouraging behaviours such as opening curtains or occupying transitional spaces, which in turn strengthens informal surveillance and facilitates casual social encounters with neighbours and passers-by.



Gender Mainstreaming

The seventh principle is gender mainstreaming. This refers to the conscious recognition of gender inequalities within public space and the need to address them through inclusive design strategies. Public spaces are often unconsciously shaped around boys and men, which can result in exclusion or discomfort for others. Gender mainstreaming therefore advocates for deliberate design interventions that consider the needs, experiences, and safety of different genders and social groups, ensuring that public space is more equitable, inclusive, and representative.



Balanced mix housing, functions and people

The sixth principle is a balanced mix of housing, functions, and people. A socially balanced neighbourhood requires careful consideration of how urban form influences demographic composition and social cohesion. Through the strategic inclusion or limitation of certain housing typologies, specific target groups may be attracted or supported. Simultaneously, the integration of varied functions, such as work opportunities, services, and amenities, can diversify everyday use and contribute to a more resilient and balanced community structure.



Difference in day-night routing

Finally, the principle of designing through the temporal lens of day and night acknowledges that urban environments are experienced differently depending on time. A place that feels welcoming and safe during the day may feel insecure at night. Designing with both daytime and nighttime conditions in mind ensures that safety, comfort, and usability are maintained throughout the full daily cycle. This includes considerations such as lighting, programme distribution, visibility, and activity patterns.

Figure 29: Overview safety design principles

3.8 Design framework

Building on Gehl's three categories of outdoor activity, five specific modes of use have been further articulated, relating to both speed and type of movement: moving quickly from A to B, Safe local routing, engaging in optional activities, resting in one place, and socialising.

Applying this Activity distinction in design ensures that all user needs are addressed. By accommodating both the basic and higher-level activities, public spaces not only enhance physical safety but also foster social interaction, strengthen communal bonds, and build trust, factors equally essential for a genuine sense of safety and well-being within the neighbourhood. In this way, the ladder concept mirrors the hierarchy of basic human needs, guiding the progression from fundamental functionality toward vibrant, socially inclusive urban spaces.

1. Travelling from A to B
This activity emphasizes on reaching destinations efficiently, by bicycle or other slow mobility on regional scale. The focus is on efficiency, safety, and ease of navigation. Routes should be intuitive and well-connected, with well-lit streets, clearly marked crossings, and predictable traffic, allowing women to move purposefully while minimising risk and stress.

2. Safe local route
Public spaces are used for everyday neccessary activities, such reaching public transport stops, shopping, or running errands. These movements are functional and often unavoidable, so the environment should be safe, predictable, and convenient, with clear pathways and easy access to destinations.

3. Optional routing
Public spaces are also used for movement without a specific destination, such as walking for leisure, jogging, or exploring. The emphasis is on experience, enjoyment, and the journey itself, rather than speed. Routes should be interesting, safe, and visually appealing, with features like greenery, benches, or scenic paths enhancing the overall experience.

4. Staying in one place
This activity emphasizes on public space as a space to pause, rest, or engage in stationary activities, such as sitting on a bench, having a picnic, or supervising children. Here, the focus is on comfort, safety, and enjoying the immediate environment. Well-designed seating, good visibility, shade, and protection from hazards help women feel secure and comfortable while stationary.

5. Socialising
Public spaces also serve as areas for social interaction, whether meeting friends, walking together, or encountering new people. Safety, visibility, and a welcoming atmosphere are essential, allowing women to feel secure while socialising. Features such as open spaces, seating, and clear sightlines encourage interaction while maintaining comfort and safety.

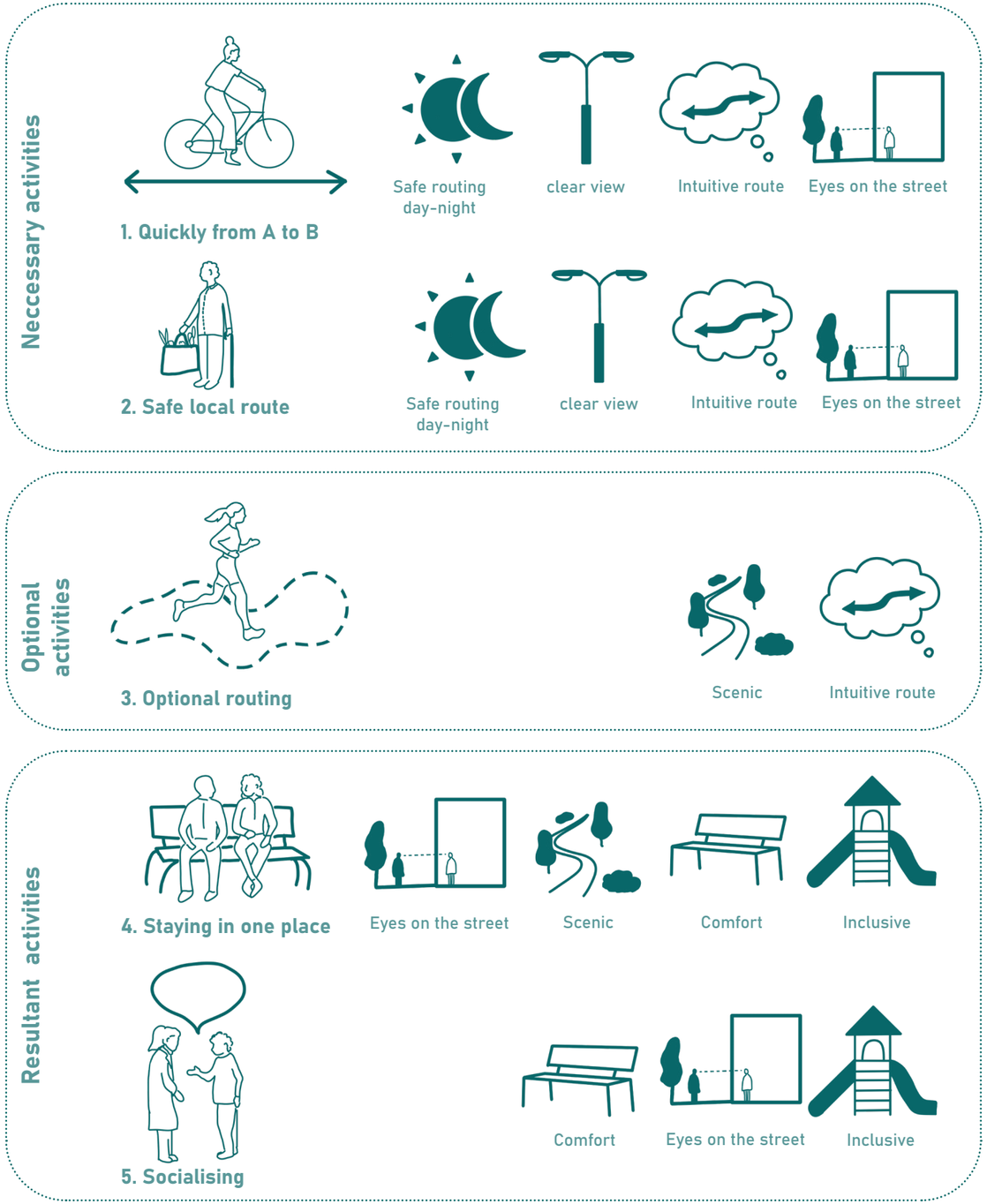


Figure 30: Elaboration on Gehls three types of activities (Gehl, 1971) and the preferred circumstances

DAY

NIGHT

We want safe inviting places to hang out

We want play areas close to home so we can go alone

I want to walk my dog without worrying about my safety

I want well-lit, easy-to-navigate routes

I want to reach my destination safely.

I want to exercise whenever I feel like it.

Figure 31: Manifesto for safety in urban design



4

MANIFESTO GREEN SPACES

4.1 Theoretical framework

This chapter sets out the theoretical framework and design guidelines for green spaces in Ommoord, where an important spatial imbalance defines the project context: green space is already abundantly present, whilst safety and inclusive usability remain more contested. From a green space perspective, the central challenge therefore lies not in providing additional greenery, but in maintaining existing green quantity whilst critically improving its quality without undermining broader safety ambitions.

3-30-300 rule as quantitive baseline

An internationally recognised framework often used to assess urban greenery is the 3-30-300 rule, which proposes that every resident should be able to see at least three trees from their home, live in a neighbourhood with a minimum of 30 per cent tree canopy cover, and have access to a public green space within 300 metres (Yggdrasil, 2025). This framework offers a valuable quantitative baseline for measuring green presence and accessibility. However, in contexts such as Ommoord, where these quantitative standards are already relatively well met, it also reveals that quantity alone does not guarantee ecological quality. As emphasis on only quantity of greenery does not automatically ensure biodiversity value, climate resilience, or well-functioning green networks. As such, whilst quantity remains an essential foundation, this chapter approaches green space through the lens of optimisation, shifting the emphasis towards qualitative dimensions such as ecological performance, biodiversity, connectivity, and climate adaptation.

Climate Adaptation

In Rotterdam, climate adaptation in public space is primarily guided by Rotterdams Weerwoord, a municipal climate adaptation programme and policy framework (Rotterdamse Stijl 2.0 Klimaatadaptief - Rotterdams Weerwoord, 2023). Its core objective is to prepare the city for increased rainfall, heat stress, drought and flooding (Wat Doen We - Rotterdams Weerwoord, 2020).

A key principle within Rotterdams Weerwoord is the use of green and blue infrastructure as a climate buffer. Public spaces need to contribute to water retention through permeable surfaces, vegetated soils, wadi's and rain gardens, allowing rainwater to be stored and infiltrated locally instead of being rapidly discharged into sewer systems. In addition, trees and layered vegetation play a crucial role in reducing urban heat stress by providing shade and supporting evapotranspiration. Climate-resilient planting is therefore not only an ecological choice but a functional necessity for thermal comfort and water management (Rotterdamse Stijl 2.0 Klimaatadaptief - Rotterdams Weerwoord, 2023).

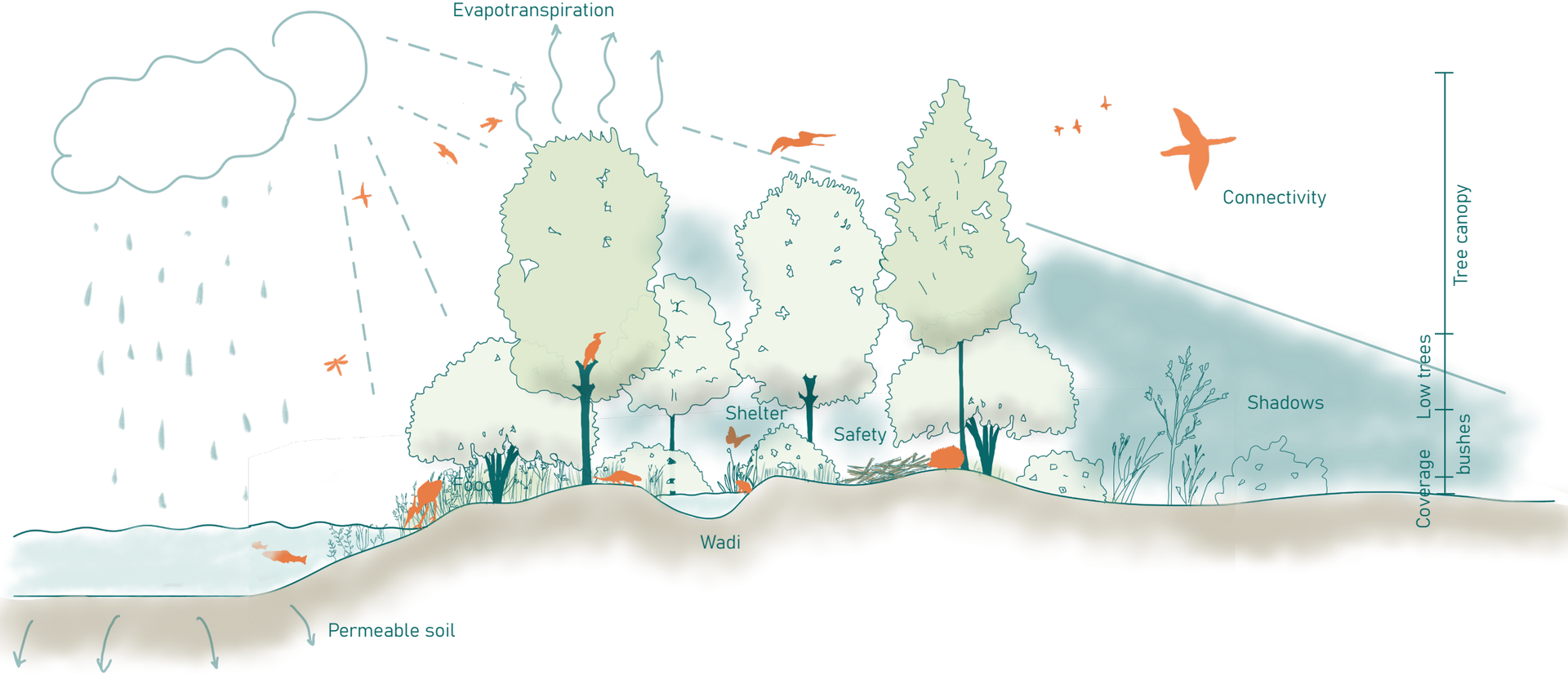


Figure 31: An ideal landscape section from the perspectove of climate resilience and biodiversity

Biodiversity
Biodiversity in Rotterdam's public space is guided by the Toolbox Natuurinclusief Rotterdam, a municipal design guideline that operationalises the city's biodiversity policy into practical design strategies. The toolbox introduces the 4V-framework: Voedsel (food), Verblijfplaats (shelter), Veiligheid (safety) and Verbinding (connectivity), as a simple structure for embedding ecological value in spatial design (Gemeente Rotterdam, Team H+N+S Landschapsarchitecten, et al., 2023).

Vegetation layers
Biodiversity-supportive public spaces require diverse vegetation layers, including trees, shrubs, herbaceous plants and ground cover, preferably composed of native or ecologically valuable species. Flowering plants and fruit-bearing shrubs provide food for pollinators and birds, while dense vegetation, dead wood and soil structures create shelter and breeding opportunities. Water elements, such as ponds, natural banks and wet zones, are essential habitats for amphibians and insects and simultaneously strengthen climate adaptation (Gemeente Rotterdam et al., 2023).

A particularly important design layer is the herbaceous layer, which functions as a critical ecological base by supporting pollinators through seasonal nectar provision, enriching soil health and creating habitat for insects, amphibians, and ground-foraging birds. It also increases edge diversity and trophic complexity, meaning it supports food webs far beyond its physical scale. Rather than decorative planting alone, herbaceous layers should therefore be structurally diverse, seasonally continuous, and spatially connected (Gemeente Rotterdam et al., 2023).

Habitat heterogeneity
In addition, ecological research consistently shows that habitat heterogeneity, the diversity of environmental conditions within and between spaces, is a major driver of species richness. Transitional gradients such as wet-to-dry zones, sun-to-shade conditions, open-to-dense vegetation structures, and high-to-low topographies create a broader range of microhabitats and ecological niches, thereby supporting more species (Schouten, 2007).

Connectivity and size
The 4V-framework also exists of connectivity. This emphasis on layered and connected habitats strongly derives from the Island Biogeography Theory of MacArthur and Wilson (1967), which argues that biodiversity is largely shaped by habitat size and isolation. Larger habitats generally support greater species richness because they contain more ecological niches and have lower extinction risks, whilst better-connected habitats experience higher rates of species movement, recolonisation, and long-term resilience.

In fragmented urban environments, isolated green patches can function like ecological islands: the smaller and more disconnected they are, the more vulnerable they become to biodiversity loss. For urban design, this means ecological quality should not rely solely on isolated parks or green pockets, but on sufficiently sized and interconnected habitat networks that reduce ecological fragmentation and strengthen resilience across spatial scales.

Disturbance limitation
In addition, disturbance should be limited through careful management. Human-induced disturbances, including noise, light pollution, fragmentation, and repeated human intrusion, can significantly reduce habitat quality, disrupt ecological processes, and increase species vulnerability (Gemeente Rotterdam et al., 2023).

Temporal differences
An important yet often overlooked dimension of nature-inclusive urban design is its temporal character. Public green space should not be understood as a static landscape, but as a dynamic ecological system that continuously changes across seasons, weather conditions, and day–night cycles. Designing with temporality means acknowledging that ecological value, spatial experience, and habitat function shift over time: flowering periods, breeding seasons, migration patterns, shade, darkness, and human use all fluctuate throughout the year and across the daily cycle. A successful design therefore responds not only to spatial form, but also to these temporal rhythms (Gemeente Rotterdam et al., 2023).

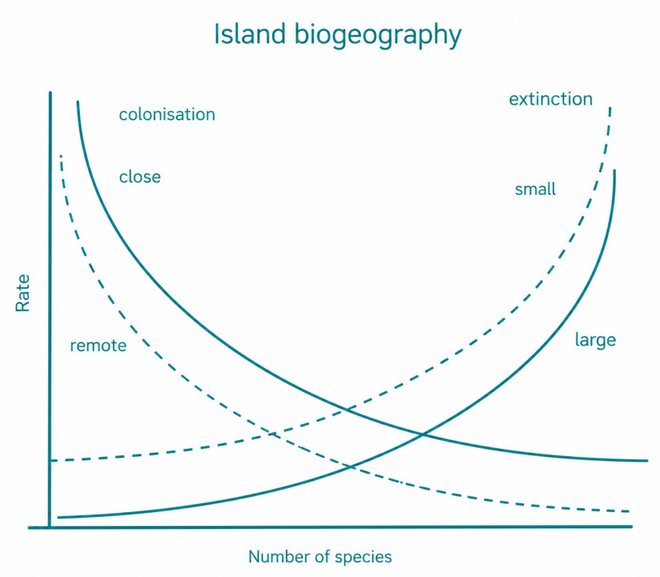


Figure 32: The Island Biogeography diagram based on (MacArthur & Wilson, 1967)

4.2 Design framework

The design framework in this project adopts focus species as practical ecological indicators, translating broader ecological principles into measurable 4V requirements visible in figure 33. By selecting representative species across amphibians, mammals, pollinators, and birds, the framework ensures that interventions address multiple ecological niches simultaneously. This mirrors Rotterdam's 'gidssoorten' methodology, where designing for one species can improve conditions for wider ecological communities (Gemeente Rotterdam et al., 2023). The species have been chosen together with an ecologist who knows Ommoord and it's challenges and conditions well.

Common Toad

The first focal species is the common toad, representing amphibians. Common toads inhabit aquatic and terrestrial environments. They reproduce in ponds, ditches, and other relatively still freshwater bodies, whilst spending much of the year in terrestrial habitats such as woodland edges, rough grasslands, gardens, and shrub-rich environments where shelter and humidity are present. They depend on accessible migration routes between breeding waters and terrestrial habitats, making ecological connectivity particularly important. Seasonal migration and road mortality are major ecological pressures, reinforcing the importance of safe transitions and connected habitat systems (Nederlands Soortenregister, n.d.-a).

Hedgehog

The second focus species is the European hedgehog, representing small terrestrial mammals. Hedgehogs thrive in structurally diverse landscapes such as hedgerows, shrub zones, woodland edges, parks, and gardens. They require permeable boundaries, connected habitat corridors, nesting opportunities, and invertebrate-rich foraging grounds. Habitat fragmentation, impermeable fencing, and traffic barriers significantly reduce ecological viability (Gemeente Rotterdam et al., 2023).

Wild Bee

The third focal species is the wild bee, representing pollinating insects. This category includes both solitary and social bees. Wild bees require a continuous sequence of flowering plants throughout the growing season, combined with diverse nesting habitats such as bare soils, hollow stems, dead wood, and cavities. Because many bee species forage over relatively short distances, habitat quality depends heavily on fine-grained spatial diversity and close proximity between nesting and feeding resources (Schouten et al., 2018).

Song Thrush

The fourth focal species is the Song thrush, representing breeding songbirds. Song thrushes inhabit woodlands, shrub-rich parks, gardens, and varied landscapes where dense vegetation offers nesting shelter and adjacent open soils provide foraging opportunities. Moist soils, leaf litter, and reduced disturbance are important habitat conditions (Nederlands Soortenregister, n.d.-b).

Together, these four focal species illustrate the importance of aquatic-terrestrial connectivity, structural vegetation diversity, continuous floral resources, low-disturbance environments, and habitat heterogeneity across multiple spatial scales. Designing for their ecological requirements strengthens biodiversity not only for individual species, but also for broader ecological resilience.

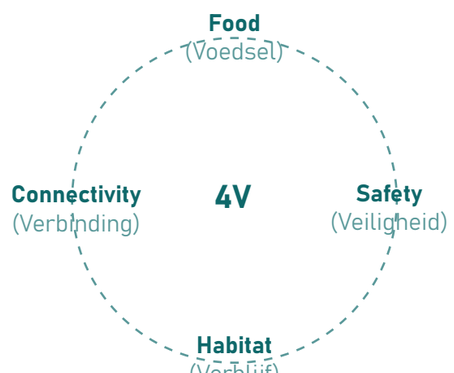
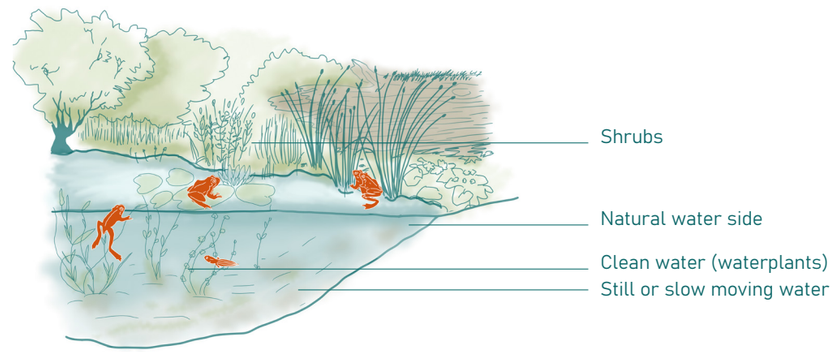


Figure 33: 4V-framework based on (Gemeente Rotterdam et al., 2023)

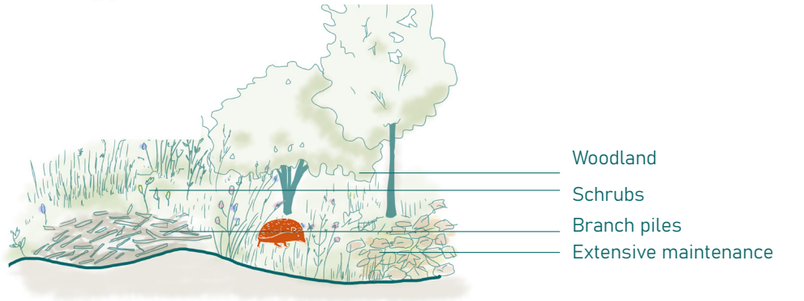


Common Toad



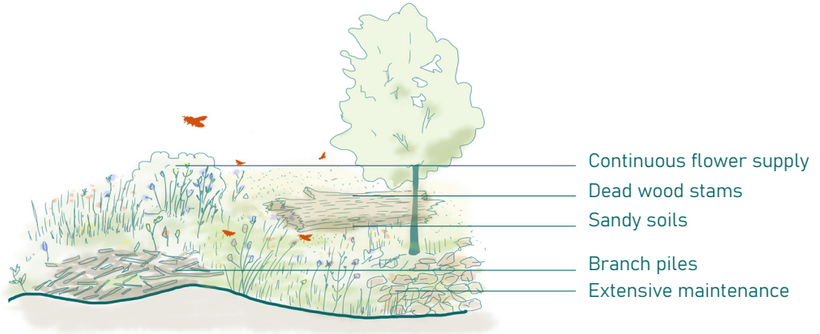


Hedgehog





Wild Bee





Song Thrush

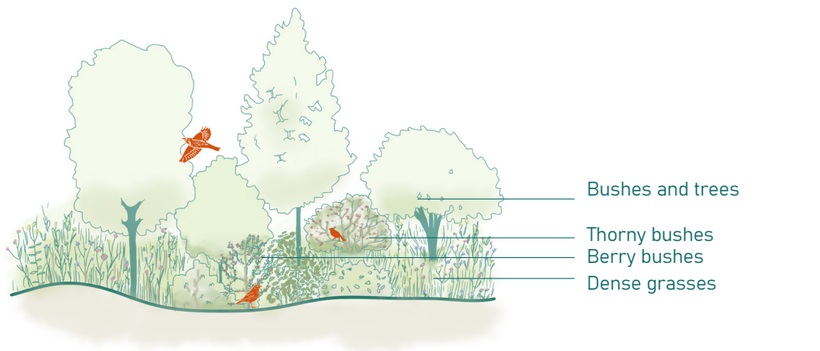


Figure 34: The four focus species and their preferred habitat and circumstances

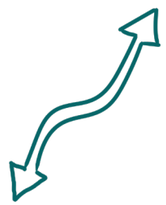
4.3 Design principles

In summary, this chapter can be distilled into a series of core insights that are translated into design principles for the integration of green space within the broader design proposal.



Ecological statisfication

The first principle is ecological vegetation stratification. This principle forms part of the previously introduced 4V framework, specifically relating to habitat. To create high-quality green spaces that genuinely support biodiversity, vegetation must be structured in layered and diverse compositions. This includes low grasses and herbs, shrubs and berry-producing bushes, and tree canopies, as well as variation in height, density, moisture, and soil conditions etc. They generate ecological gradients, which create a wider range of niches and habitats.



Good connectivity

The third principle is ecological connectivity, linked to the connection dimension of the 4V framework. Green spaces should not function as isolated pockets, but rather as interconnected systems that link habitats across multiple directions and scales. Connected green corridors enlarge potential living environments, improve species mobility, and enhance ecological resilience.



Foraging plant species

The second principle is food-producing planting systems, corresponding to the food component of the 4V framework. Green spaces should incorporate planting that actively contributes to local food chains, such as wildflowers for pollinators, berry-producing shrubs, seed-bearing plants. Crucially, this food availability should extend across all seasons to ensure continuous support for insects, birds, and other fauna throughout the year.



No disturbance

The fourth principle is minimal disturbance, representing the safety component of the 4V framework. Biodiverse habitats require protection from excessive human interference, particularly in ecologically sensitive areas. This may involve limiting human access in critical zones, reducing noise pollution, and adapting maintenance practices to avoid disrupting habitats.



Low maintenance

Closely related to this is the principle of low-maintenance ecological management. Allowing certain areas to remain less intensively maintained supports biodiversity by preserving biological waste materials such as fallen leaves, dead wood, and organic debris. These materials provide shelter, nesting opportunities, and nutrient cycles for many species. Low-maintenance landscapes therefore contribute not only to habitat security but also to long-term ecological functioning by reinforcing natural regenerative processes.



Difference in day-night use

Finally, green space design must account for temporal ecological dynamics, including both day–night cycles and seasonal change. Ecological systems are not static, and different species rely on environments differently depending on time and season. At night, reduced artificial lighting is essential to minimise disruption to nocturnal species, while daytime use may prioritise human accessibility. Similarly, seasonal changes affect food availability, shelter needs, breeding cycles, and vegetation performance. Designing with these temporal fluctuations in mind ensures that green spaces remain ecologically supportive at all times.



Climate resilience

The next principle is climate-resilience. While many of the previous principles also contribute to climate adaptation, this principle explicitly foregrounds the environmental performance of green space in addressing climate challenges. It stresses the reduction of hardened surfaces, the enhancement of water infiltration and storage capacity, and the provision of sufficient canopy cover for shade and evapotranspiration. Together, these strategies mitigate heat stress, reduce flooding risks, and improve microclimatic comfort.

Figure 35: Overview of the design principles for green spaces

DAY

Trees

Herbaceous layer

Shrubs

Shadows

Natural water side

NIGHT

No light pollution

Shelter spaces

No disturbance

SUMMER

Food

Herbacious layer

Rich aquatic life

WINTER

Dead wood

Food provision in winter

Shelter

Figure 36: Manifesto for green spaces

5

How does Ommoord perform in terms of safety and the quality of green spaces, considering both social perceptions and physical characteristics?

ANALYSIS

5.1 Introduction of Ommoord

The focus area for this report is the high-rise area in Ommoord indicated with the orange rectangle. Ommoord is situated in the north-east of Rotterdam. The neighbourhood is well connected to the city centre via metro and bus, and it has convenient access to the A20 and A16 motorways. To the north of Ommoord lies a large natural area, beyond which the town of Bleiswijk is located. Eastwards, the Rotterdam region extends towards Gouda.



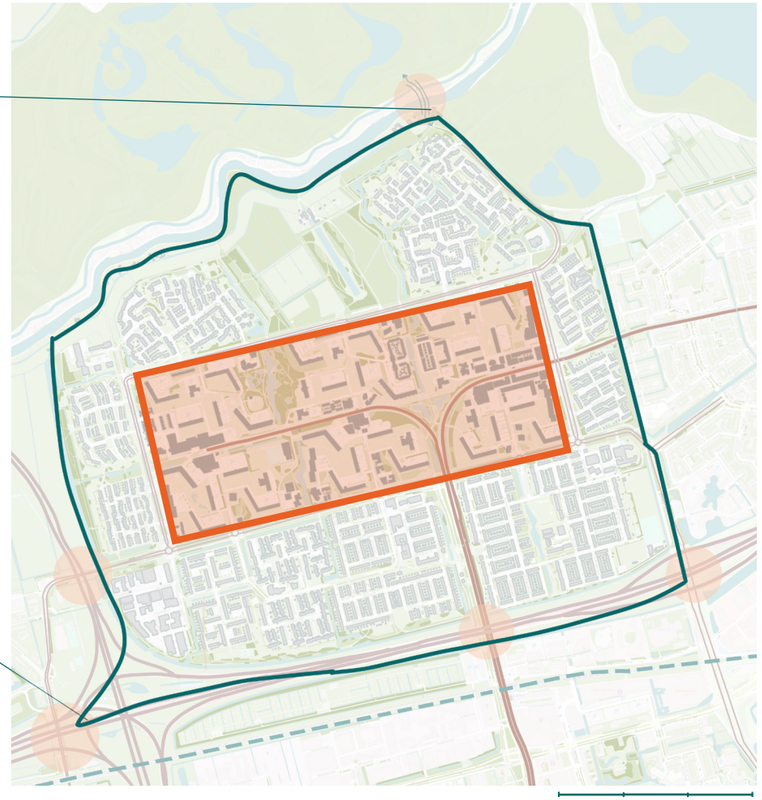


Figure 37: Location of Ommord in Rotterdam. Data: (GIS Rotterdam, n.d.; PDOK, n.d.)

5.2 Historical and cultural context

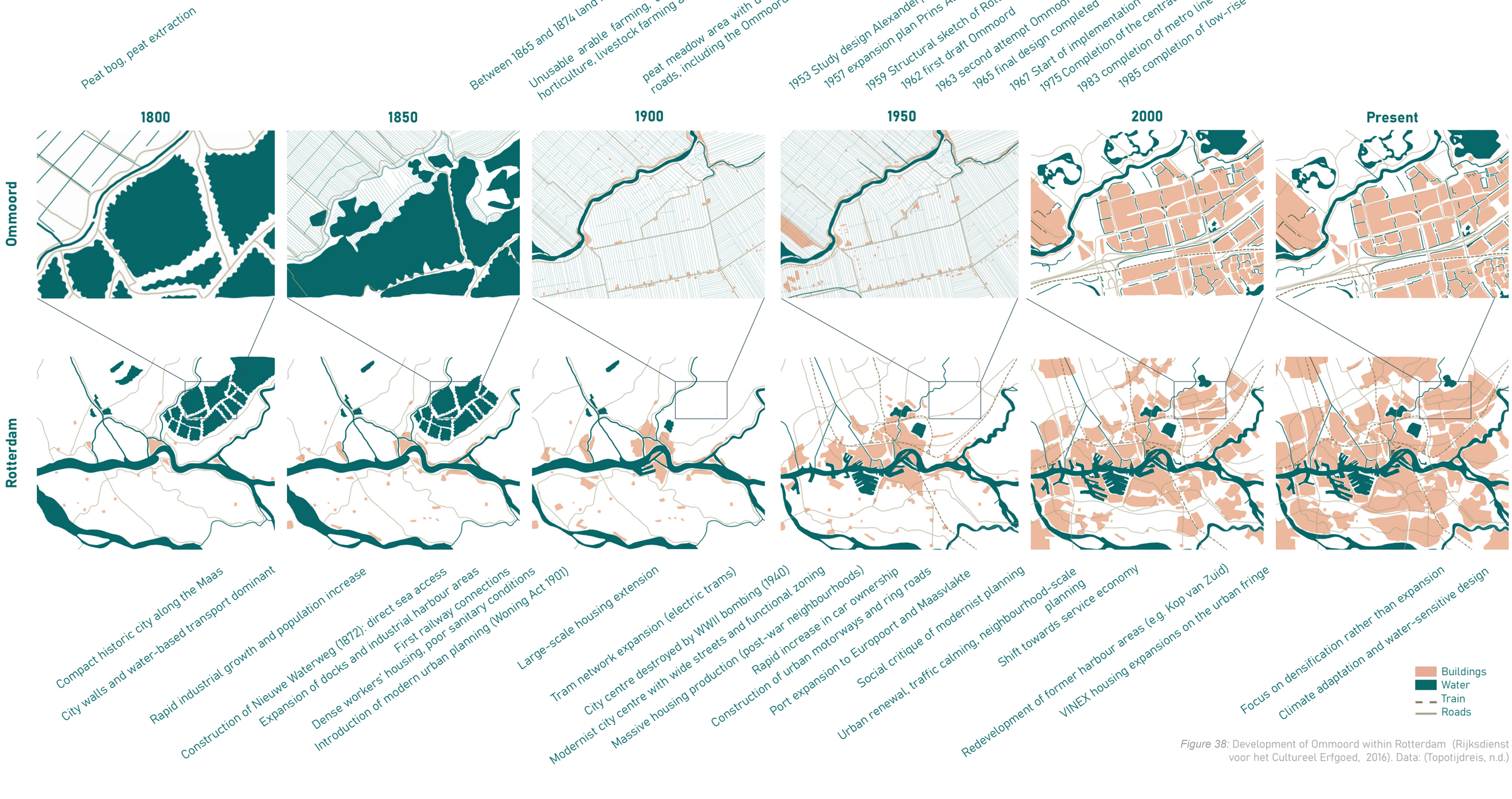


Figure 38: Development of Ommoord within Rotterdam (Rijksdienst voor het Cultureel Erfgoed, 2016). Data: (Topotijdreis, n.d.)

Lotte Stam-Beese the designer of Ommoord

Lotte Stam-Beese was the principal designer of Ommoord and one of the most influential urban planners in post-war Rotterdam. She was trained at the Bauhaus, where she was strongly influenced by modernist ideas on functionality, collective living, and the integration of landscape and architecture. Throughout her career, Stam-Beese played a key role in the reconstruction and expansion of Rotterdam, designing several post-war neighbourhoods. Ommoord became the first large-scale high-rise residential neighbourhood in the Netherlands (Lotte Stam-Beese: 1903–1988., n.d.).

The more low-rise housing on the edges of the neighbourhood were compensated by concentrating high-rise buildings in the centre. These towers ranged from approximately nine to fifteen storeys, resulting in a total of around 10,000 dwellings. This redesign led to a characteristic spatial structure with a clear separation between high-rise and low-rise areas, which remains one of Ommoord's defining features today (Lotte Stam-Beese: 1903–1988. , n.d.)

The concept behind the high-rise zone was to create a park-like landscape in which buildings were placed freely within an open green structure. The area was designed with an extensive network of pedestrian paths, deliberately minimising obstacles such as road crossings. At the time, this approach was largely driven by principles of traffic safety and the ambition to prioritise pedestrians by separating different modes of mobility (Lotte Stam-Beese: 1903–1988. , n.d.). However, this design strategy also resulted in a highly fragmented network of routes, leading to lower pedestrian density per path. Combined with the strict separation of mobility systems, this has contributed to a reduced presence of "eyes on the street."

A distinctive element of Ommoord's high-rise design is the so-called knikflats. These buildings were intentionally designed with a bend to create semi-enclosed in-between spaces with a sense of their own spatial identity (Lotte Stam-Beese: 1903–1988. , n.d.). While these spaces were intended to function as meaningful collective environments, today they often lack a clear spatial or social identity. In many cases, they function primarily as parking areas or undefined unused grass fields rather than as active or clearly defined public places.

In her original vision, Stam-Beese anticipated that the perception of Ommoord would fundamentally change over time. Although the high-rise buildings would initially dominate the image of the neighbourhood, she argued that, as vegetation matured, trees and greenery would become the primary spatial experience. The focus would shift toward people walking, playing, and sitting in the landscape, while the strictness of the architecture and the height of the façades would gradually recede into the background. Buildings, in this vision, would become secondary to the lived landscape (Lotte Stam-Beese: 1903–1988. , n.d.).

Today, Ommoord is still characterised by an abundance of pedestrian routes and seating opportunities. However, the level of vegetation remains relatively limited. Large areas consist of short-mown grass fields with only scattered trees, creating a strong visual contrast with the surrounding high-rise buildings rather than softening or mediating their presence. As Stam-Beese famously stated, "the ground belongs to all of us." While this principle underpins the open and collective nature of Ommoord's public space, it is not the reality as feelings of safety and comfort are not equally experienced by everyone.

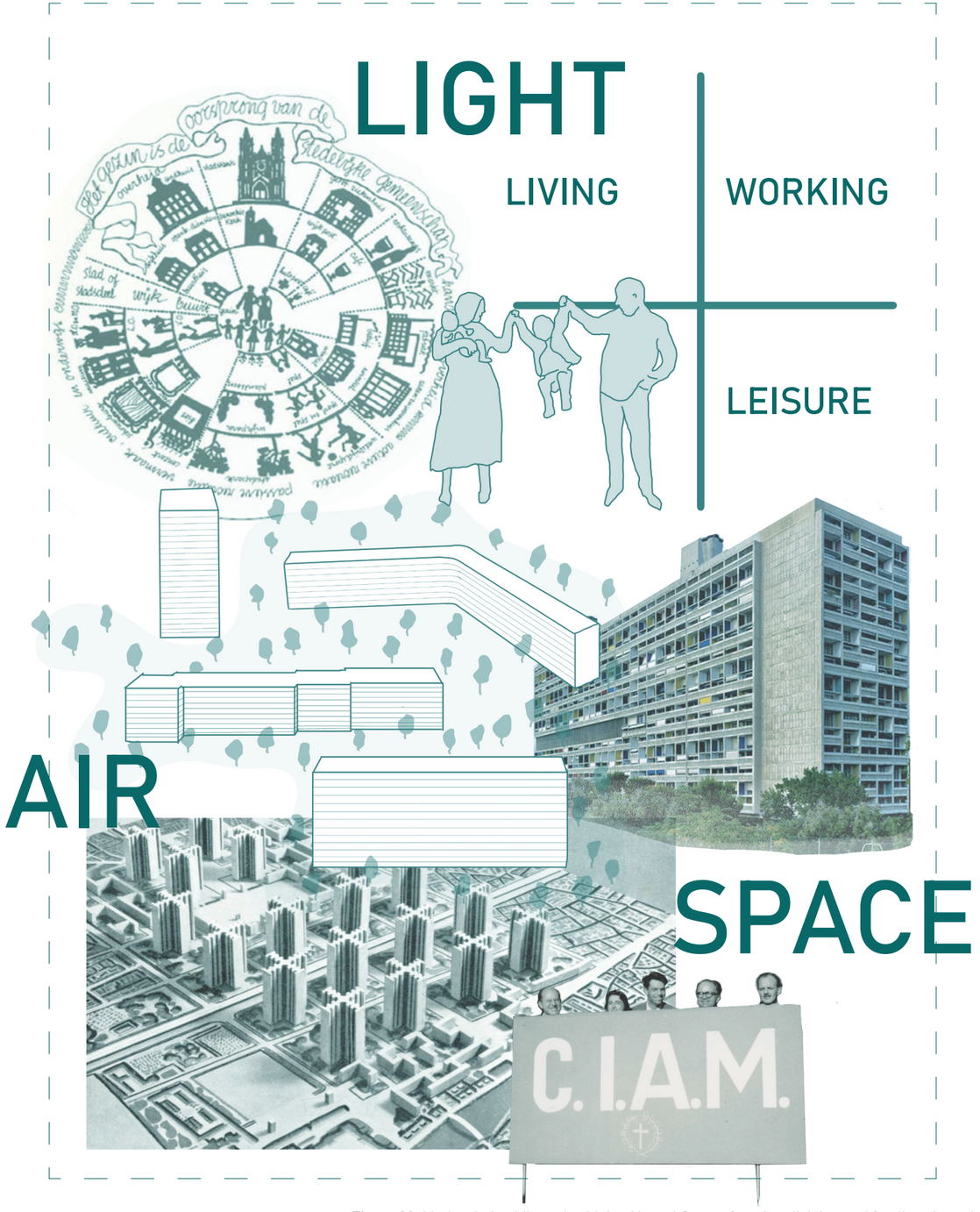


Figure 39: Modernistic philosophy: Light, Air and Spcae, function division and family oriented (collage image sources can be found in Rerences)

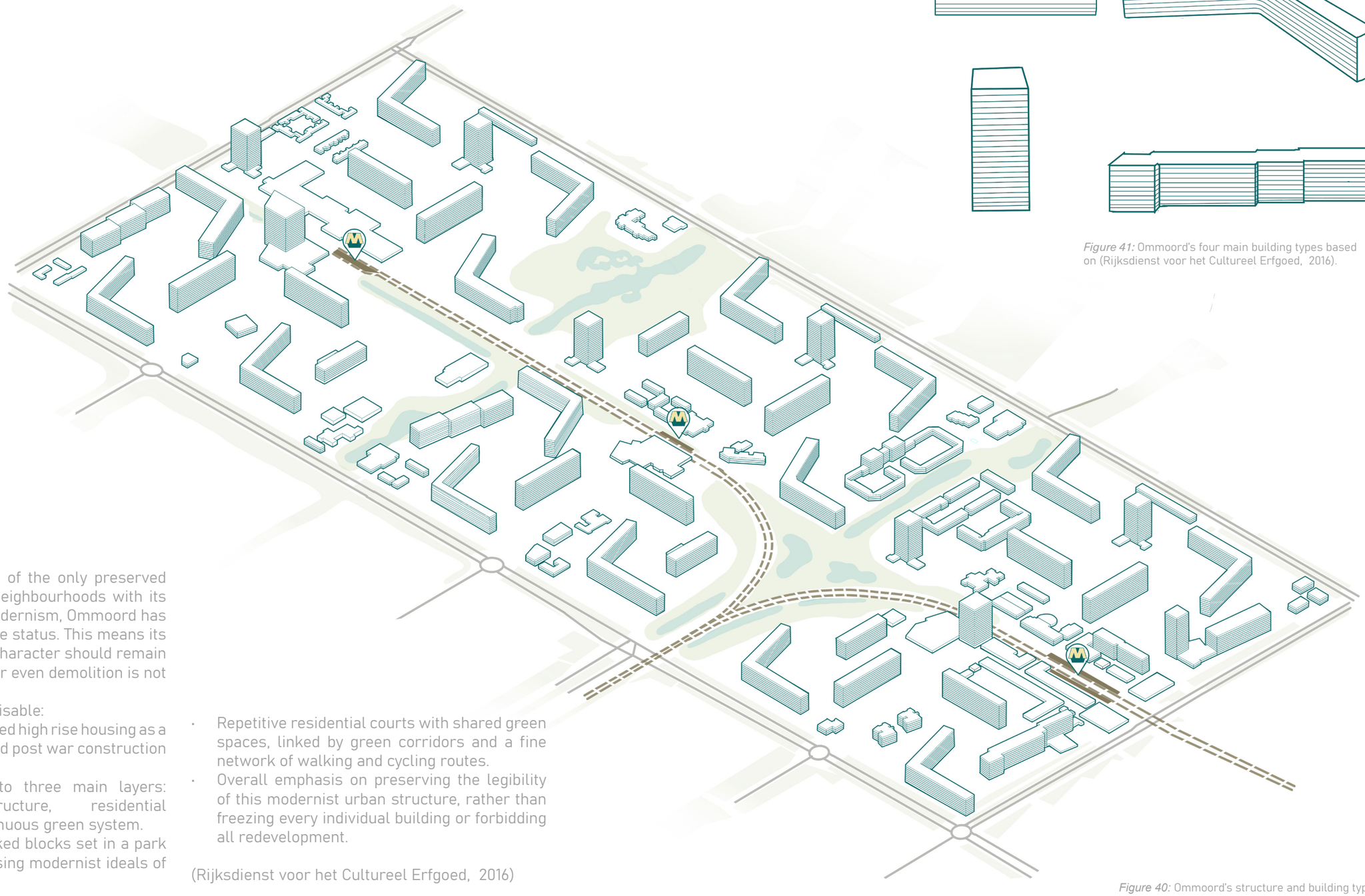


Figure 41: Ommoord's four main building types based on (Rijksdienst voor het Cultureel Erfgoed, 2016).

Figure 40: Ommoord's structure and building typologies

Heritage

Because Ommoord is one of the only preserved post war reconstruction neighbourhoods with its clear characteristics of Modernism, Ommoord has received a national heritage status. This means its key spatial structure and character should remain recognisable, but change or even demolition is not excluded.

What needs to stay recognisable:

- Large scale, standardised high rise housing as a product of industrialised post war construction methods.
- Clear organisation into three main layers: movement infrastructure, residential ensembles and a continuous green system.
- High rise flats and kinked blocks set in a park like landscape, expressing modernist ideals of light, air and space.
- Repetitive residential courts with shared green spaces, linked by green corridors and a fine network of walking and cycling routes.
- Overall emphasis on preserving the legibility of this modernist urban structure, rather than freezing every individual building or forbidding all redevelopment.

(Rijksdienst voor het Cultureel Erfgoed, 2016)

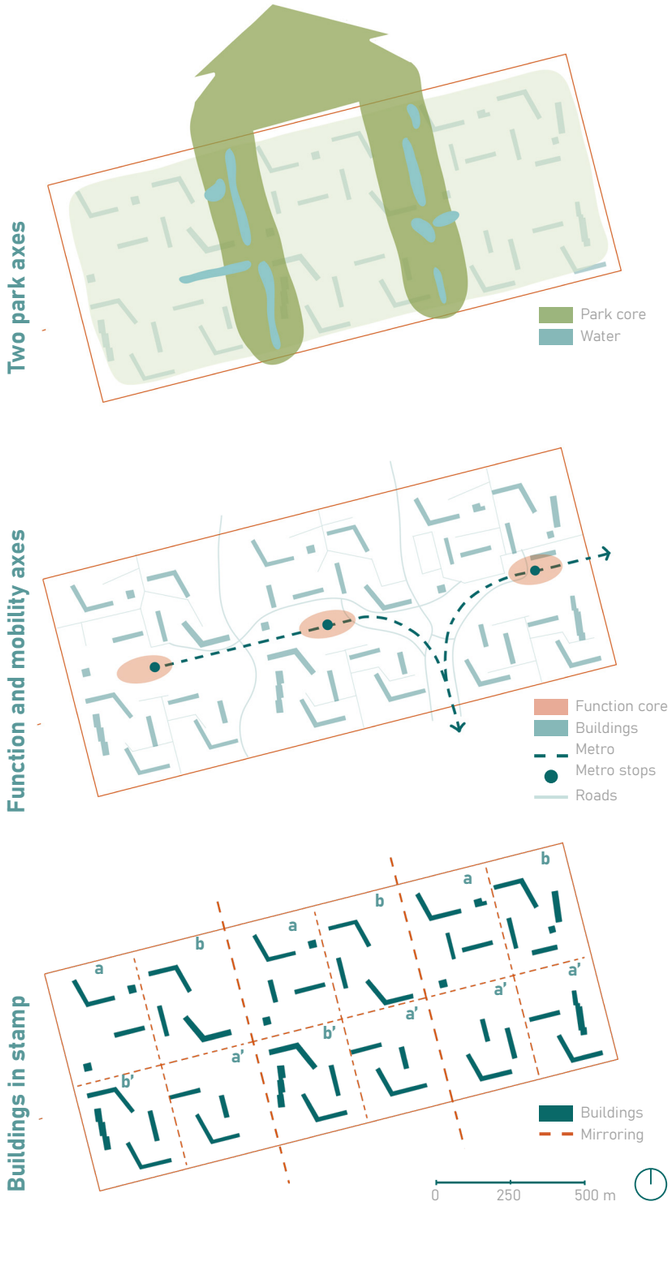


Figure 42: Ommoord's structure and principles reproduced from (Rijksdienst voor het Cultureel Erfgoed, 2016).

Structure and outcomes

The neighbourhood was designed around three key principles:

1. **Two green axes** extend southwards from the large natural area to the north, providing visual and recreational connections throughout the neighbourhood (Rijksdienst voor het Cultureel Erfgoed, 2016).

2. A **central metro axis** structures the area, around which **three centres** are located: the two at the extremities are more retail-oriented, while the middle centre is smaller and accommodates a variety of other functions (Rijksdienst voor het Cultureel Erfgoed, 2016).

3. Finally, the residential buildings in Ommoord exhibit a **repeating "stamped" rhythm**, sometimes mirrored. Existing of four main building types. Though this pattern is less evident today due to the introduction of newer building types (Rijksdienst voor het Cultureel Erfgoed, 2016).

Despite this, Ommoord functions poorly. As the green spaces result in secluded routing, the functions are closed off and the open structure results in anonymous spaces without eyes on the street.



Isolated routes



Closed off facilities



Open underused public spaces

Figure 43: Ommoord's reality in the three key principles

5.3 Spatial analysis

Green spaces regional

The region surrounding Ommoord is characterised by predominantly natural landscapes to the north, offering attractive recreational opportunities, while residential areas extend towards the south, south-west, and east. The neighbourhood is enclosed by the A20 and A16 motorways as well as the River Rotte, limiting the number of crossings into and out of the area. These crossings therefore function as important spatial nodes that structure movement and accessibility within the neighbourhood.

Compared to other parts of the city, Ommoord appears to demonstrate relatively high levels of biodiversity, as shown in Figure 44. However, this image is somewhat misleading, as these biodiversity values are largely influenced by the neighbourhood's proximity to ecological areas such as the River Rotte, the Kralingse Plas and the Zevenhuizerplas, which facilitate the movement of species through and alongside Ommoord. The ecological quality of the neighbourhood itself is considerably lower, as much of the green space consists primarily of lawns with scattered trees and limited structural diversity in shrubs and herbaceous vegetation. As a result, the landscape remains relatively homogeneous and supports only a limited range of species.

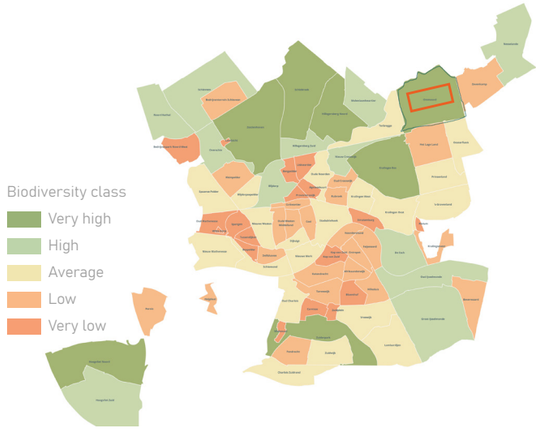


Figure 44: Biodiversity class Rotterdam. Reproduced from (Gemeente Rotterdam, 2023)



Figure 45: Surrounding nature of Ommoord (De Pannenkoekhut, n.d.; De Rotte Plasticvrij, n.d.)



Figure 44: The green region of Ommoord. Data: (GIS Rotterdam, n.d.; PDOK, n.d.; Openstreetmap, n.d.)



Figure 46: The green region of Ommoord. Data: (GIS Rotterdam, n.d.; PDOK, n.d.)

Green spaces local

Ommoord is characterised by a high quantity of green that strongly shape the neighbourhood's spatial identity, which residents also described as key qualities during interviews. At the same time, many green spaces lack a clearly defined function and movement through the neighbourhood often requires passing through poorly lit areas with limited visibility and few adjacent dwellings, resulting in dark corners and a lack of natural surveillance. The two north–south park axes were repeatedly identified as particularly uncomfortable at night, as they form spatial barriers with few east–west alternatives for movement after dark.

Ecologically, these green corridors and their associated water bodies contribute positively to biodiversity and are of higher quality than the surrounding lawn-dominated landscapes. However, because they constitute the only substantial non-lawn green spaces within Ommoord, they attract intensive recreational use, which disturbs wildlife and reduces ecological tranquillity. Ecological connectivity is further limited by the absence of a strong east–west green corridor and weaker southern connections caused by dense built structures and the motorway.



Figure 48: Ommoord's green spaces, lack of eyes on the street, street lights and clear routing



Figure 47: Landscape of Ommoord. Data: (GIS Rotterdam, n.d.; PDOK, n.d.).

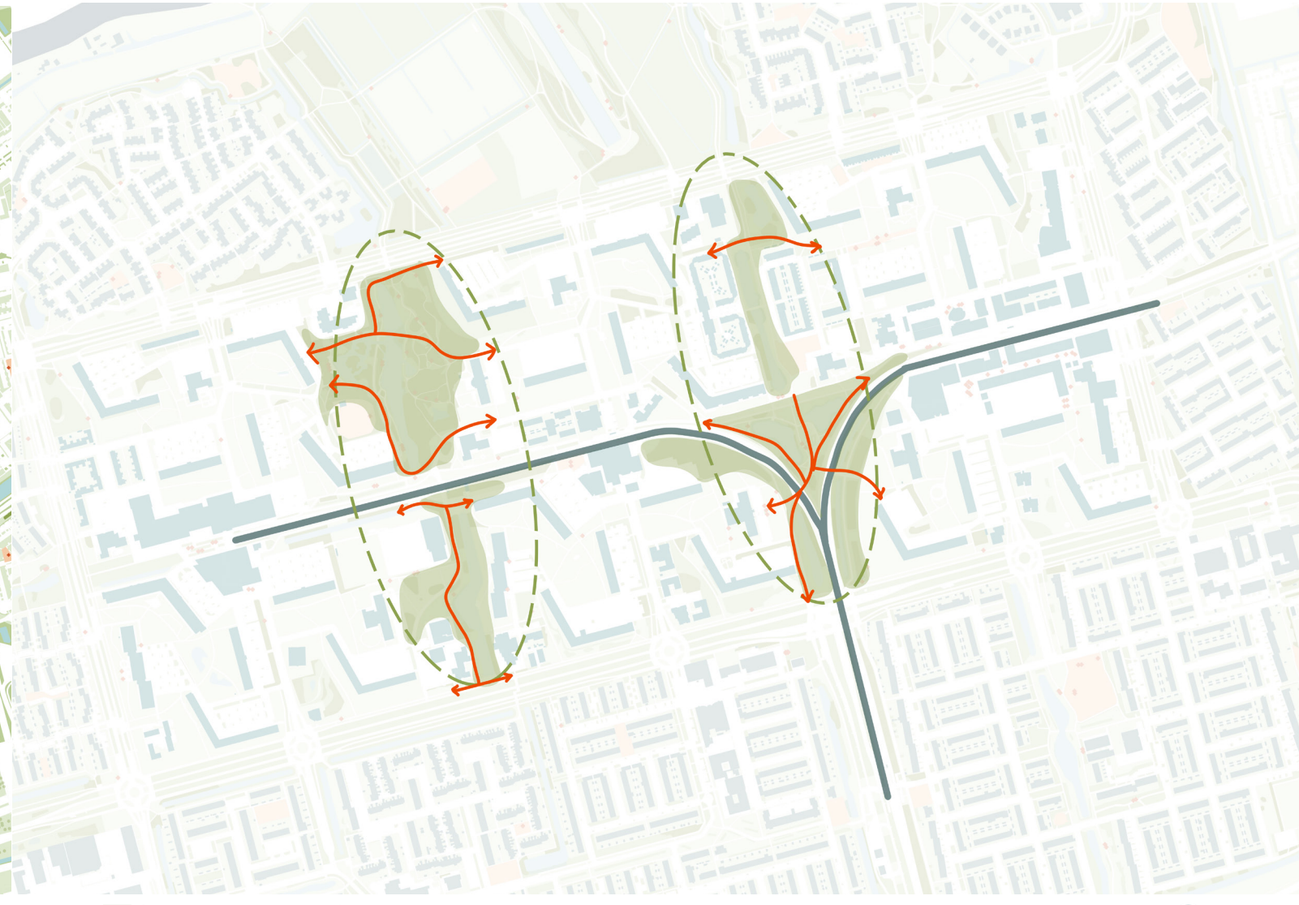


Figure 49: Ommoord's green axis as barriers and no clear alterantive routes

Water challenges

Ommoord is situated at a relatively low elevation, approximately 6 to 7 metres below NAP, which creates a significant water management challenge. During periods of heavy rainfall, the area is particularly vulnerable to surface water flooding, as high groundwater levels limit infiltration capacity and reduce the soil's ability to absorb excess rainwater efficiently. This problem is further intensified by extensive paved surfaces, which increase runoff. Simply creating additional open water bodies is not always an effective solution, as excavated areas may quickly fill with groundwater due to the high water table. More effective strategies include reducing impermeable surfaces and introducing water-retention and delayed-drainage measures, such as shallow wadis with integrated retention systems. Lowering green spaces relative to built areas can also help direct excess water away from residential zones, thereby reducing flood risk in inhabited spaces.

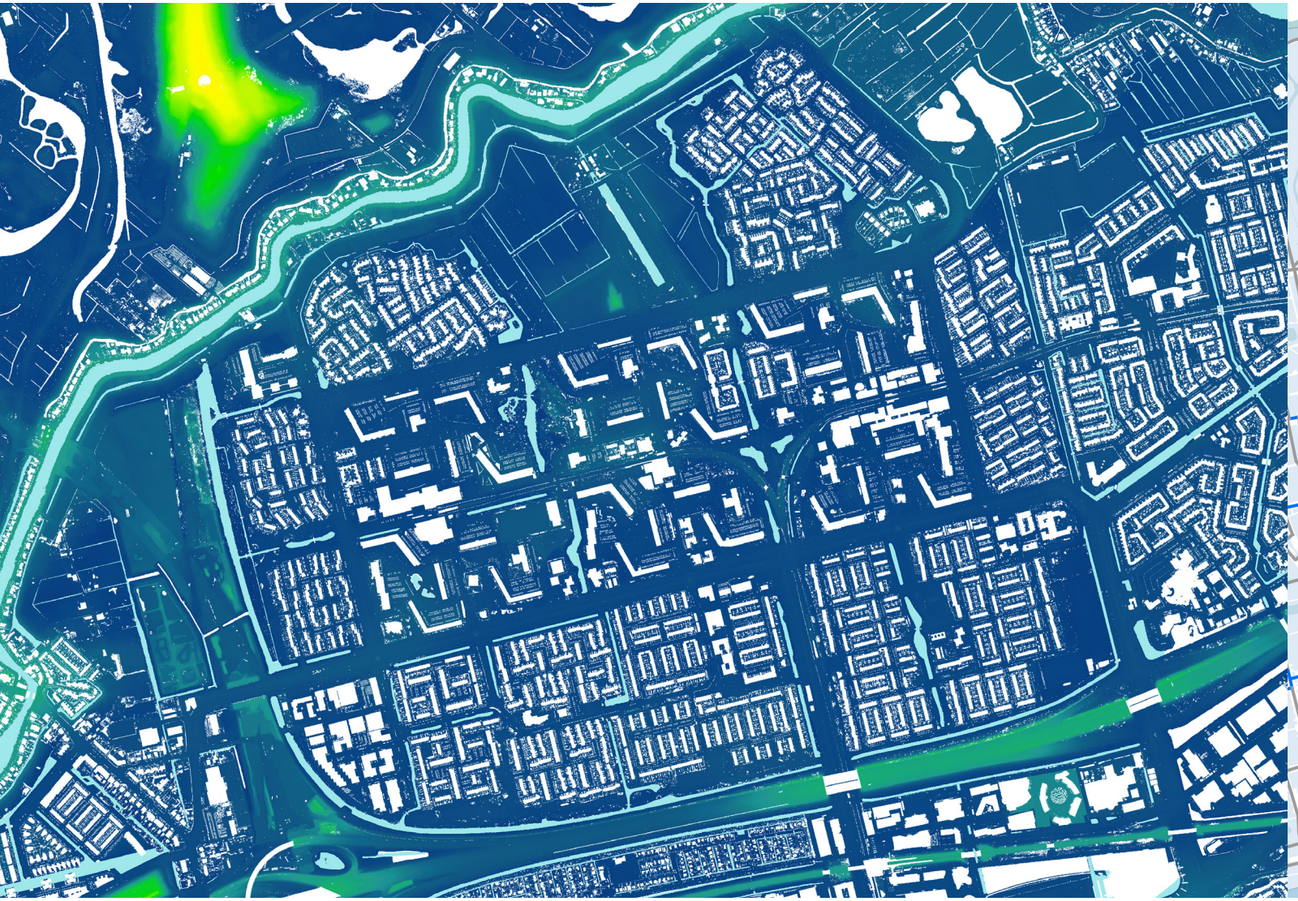


Figure 50: Topographical elevation (NAP) of Ommoord. Data: (GIS Rotterdam, n.d.; PDOK, n.d.).



Figure 51: Ommoord's water ways: Limited water ways & no ecological-friendly water banks.

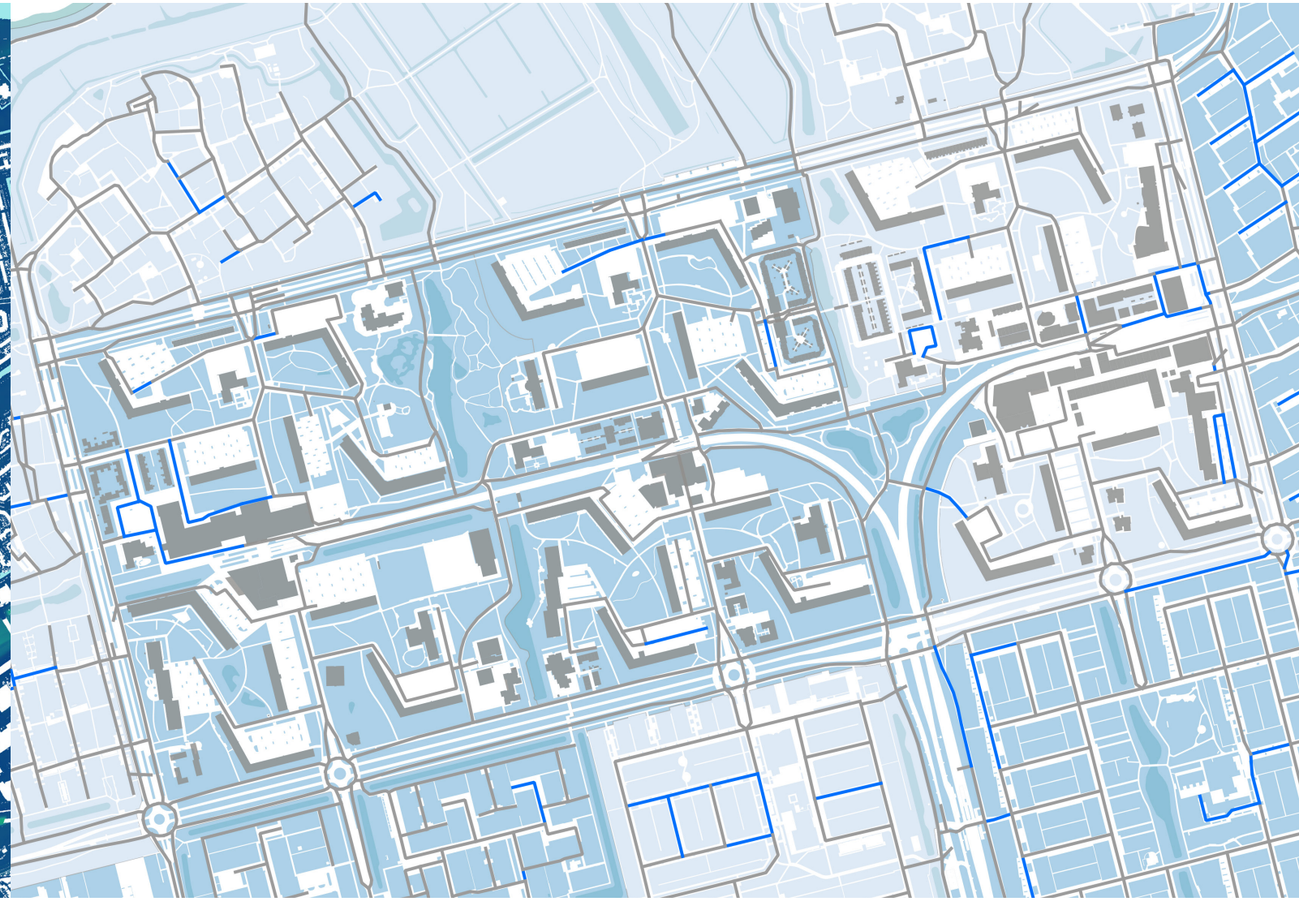


Figure 52: Ommoord's groundwater levels and flooding of bike paths. Data: (GIS Rotterdam, n.d.; PDOK, n.d.).

Functions

As previously described, Ommoord is structured around a central metro axis. At both ends of this axis, larger shopping areas are located, concentrating retail functions at the periphery of the neighbourhood. As a result, the central part of Ommoord is relatively distant from these commercial amenities. This middle area accommodates only a limited number of functions, primarily community-oriented facilities such as the library and the community centre. Consequently, community functions are spatially underrepresented and serve only a small catchment area. Interviews with municipal community workers further revealed that several of these community facilities are currently being phased out, with no clear replacement. Educational facilities are predominantly located along the edges of the neighbourhood, reinforcing the functional separation typical of modernist planning. Sports facilities are also underrepresented, consisting mainly of a single sports club and a small number of gyms.



Figure 54: Ommoord's facilities, closed facades, few playgrounds and community functions



Figure 53: Facility map Ommoord. Data: (GIS Rotterdam, n.d.; PDOK, n.d.).



Figure 55: Main functions Ommoord and its reach. Data: (PDOK, n.d.).

Slow mobility and safety

Ommoord contains an extensive network of cycling and pedestrian paths. A notable characteristic of this network is that these routes are frequently separated, resulting in fewer people being present along any single route. In addition, the paths often do not run directly alongside buildings but are set back at a greater distance, which limits natural surveillance and reduces activity at street level.
The two maps illustrate how cycling and walking routes may be experienced as either safe or unsafe during the evening. Areas identified as unsafe are marked in red and are characterised by inactive ground floors, no proximity of dwellings or by adjacent functions, such as shops, that are closed in the evening .



Figure 57: Ommoord's paths, fences along patch, dead plinths and seperated monility

Walking



Cycling

Figure 56: Pedestrian and cycle map safety at night. Data: (GIS Rotterdam, n.d.)

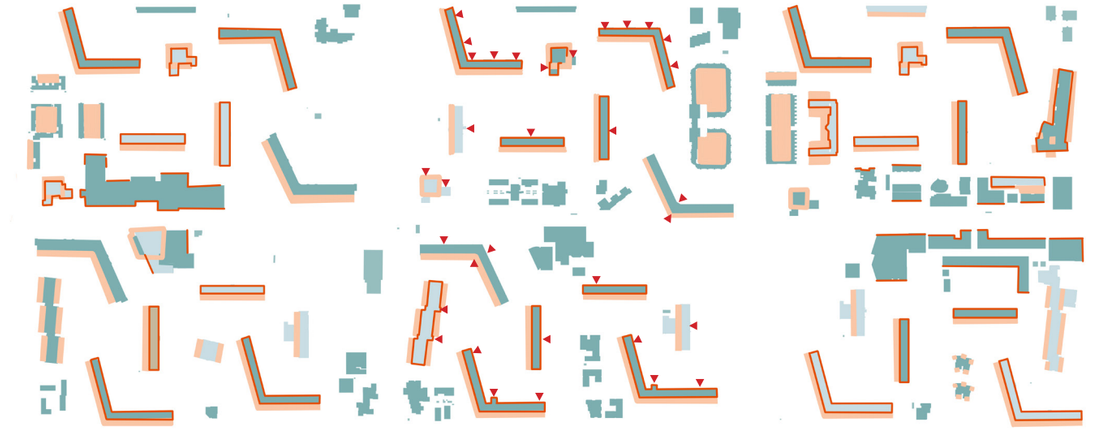


Figure 58: Building orientation and entrances

Connectivity

Ommoord is well connection on a regional scale, due to the metro connection, proximity of the motorways and regional bike routes.
On a smaller scale Ommoord is primarily accessed by car via a ring road surrounding the district, with several entry points providing access into the neighbourhood. However, it is not possible to drive through Ommoord from one entrance to another, as the area is subdivided into separate car compartments, which limits internal car connectivity.

By contrast, slow modes of transport, such as walking and cycling, are able to traverse the district. In addition, a substantial proportion of Ommoord's surface area is occupied by parking facilities, resulting in large, car-dominated open spaces. The introduction of a revised parking strategy could allow these areas to be repurposed for alternative uses, such as community-oriented programmes, enhanced pedestrian and cycling routes, or other forms of public space that contribute to improved spatial connectivity and social interaction.



Figure 60: Ommoord's connectivity, three central metro stops, ring road and big parking squares

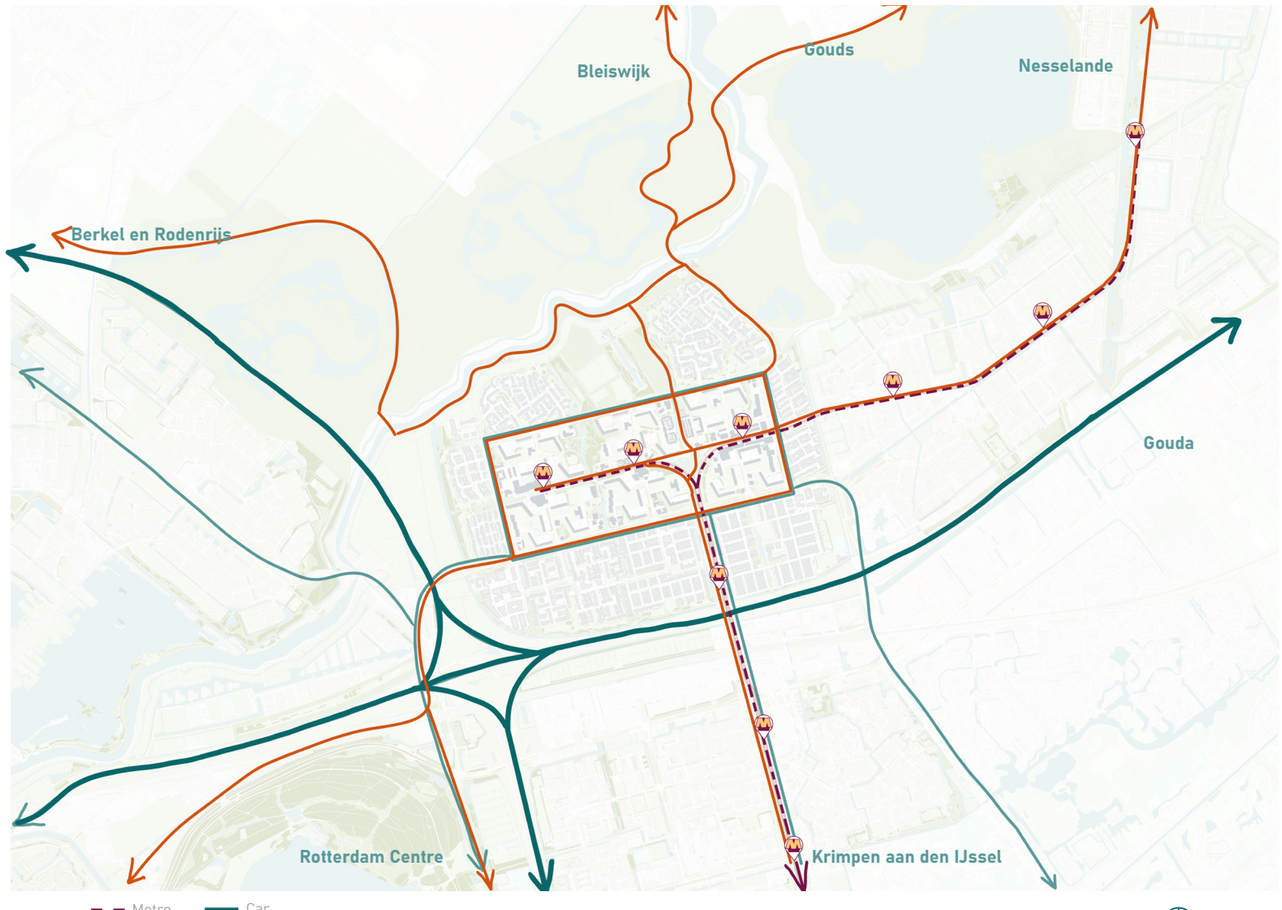


Figure 59: Connectivity of Ommoord regional. Data: (GIS Rotterdam, n.d.; PDOK, n.d.).



Figure 61: Ommoord's motorised mobility plan, three central metro stops, ring road and large parking squares (PDOK, n.d.).

5.4 Livability and perception



Figure 62: Livability, Nuisance and safety and social cohesion map of Ommoord in 2024. Data: (Leefbarometer, n.d.).

The high rise area of Ommoord scores relatively low on measures of livability, nuisance and safety, as well as on social cohesion compared to other parts of the neighbourhood (Leefbaarometer, n.d.). These factors are based on crime data, density, demographic balance, presence of facilities and phycial conditions (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2019).
The contrast between the high rise and low rise areas of Ommoord is striking: while the latter generally shows more positive indicators, the high rise zone appears to lag behind.
Ommoord is a neighbourhood in demographic transition. The original generation of residents from the 1960's is gradually leaving, while younger families are moving in. This shift has resulted in new social dynamics, evolving needs, and a changing socio-demographic composition.

There is for example a shortage of playground facilities, reflecting the growing presence of children in the neighbourhood. At the same time, differences in lifestyle and expectations between long term residents and newcomers occasionally give rise to social tensions and mutual misunderstanding. Challegnes in ommoord have increased in recent years. Lower levels of social cohesion are known to influence both perceptions of safety and actual experiences of insecurity, contributing to a sense of unease in public space (Van Kempen and Bolt, 2009; Nieuwbeerta et al., 2008).

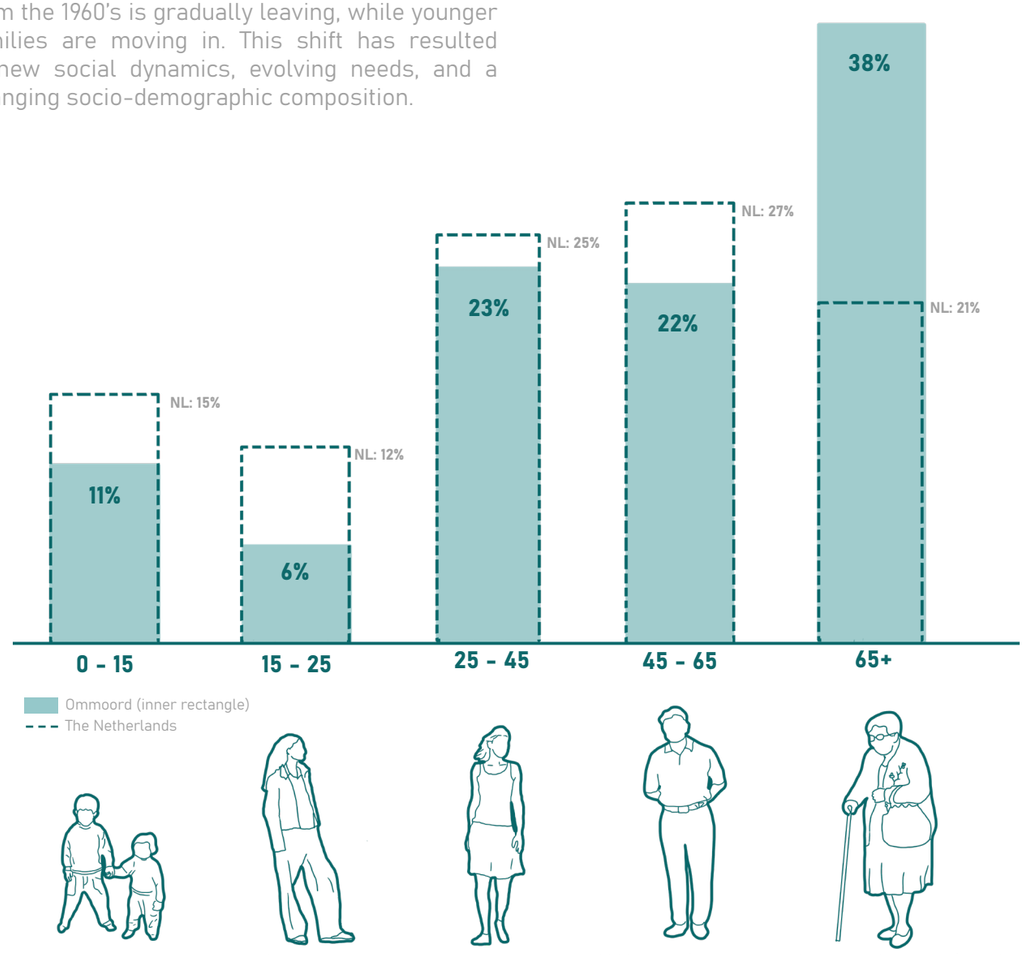


Figure 63: Demograpic structure of Ommoord compared to The Netherlands in 2023. Data: (Nederland in Cijfers En Grafieken | AlleCijfers.nl, 2026; PDOK, n.d.)

Interviews

To investigate whether feelings of unsafety commonly associated with modernist residential neighbourhoods are also present in Ommoord, a series of open street interviews were conducted.

Overall, it can be concluded that residents generally appreciate the presence of green space, particularly for walking and for the quality of views it provides. However, several respondents indicated that these green areas can also function as barriers, especially in the evening or when people are alone. Some interviewees stated that they actively avoid these green spaces during such times.

Ethical considerations

This research used open interviews, which proved particularly valuable because, as a designer, one approached the site with preconceptions and could easily overlook details that residents, as experts of their own neighbourhoods, understood intuitively. Residents provided insight into daily life, historical changes, and subtle social and spatial dynamics.

To protect participants' privacy, they were informed beforehand that the interviews were conducted for an urban design graduation project. Conversations were documented through notes rather than recordings, with summaries written immediately afterwards. No names, ages, or other personal data were collected. The interviews were not recorded, and no photographs of participants were taken. Illustrations included alongside the interviews were not direct representations of participants but served to support the discussion.

The open interview format allowed for spontaneous and flexible conversations rather than following a strict list of questions. Questions arose naturally during the discussions, enabling participants to guide the conversation and raise issues that were important to them. Prompts included: "I notice a lot of greenery here compared to surrounding areas, how do you experience this?", "How do you experience the area at night?", and "Which routes do you frequently take or avoid, and why?" Observations were used only to support the discussion without steering responses towards positive or negative evaluations.

Additional to the street interviews I was invited to an elderly meeting at the community centre. This provided insights into how they perceive and experience the neighbourhood. They identified areas they find welcoming and others they consider uncomfortable. A key finding was the limited interaction between neighbours, with different age groups largely unfamiliar with one another. They also reported feeling vulnerable in public spaces, citing factors such as minimal surveillance, inactive or enclosed ground floors, and a lack of natural oversight. These conditions contribute to reluctance to go outside in the evenings, driven both by perceptions of safety and by lifestyle habits.

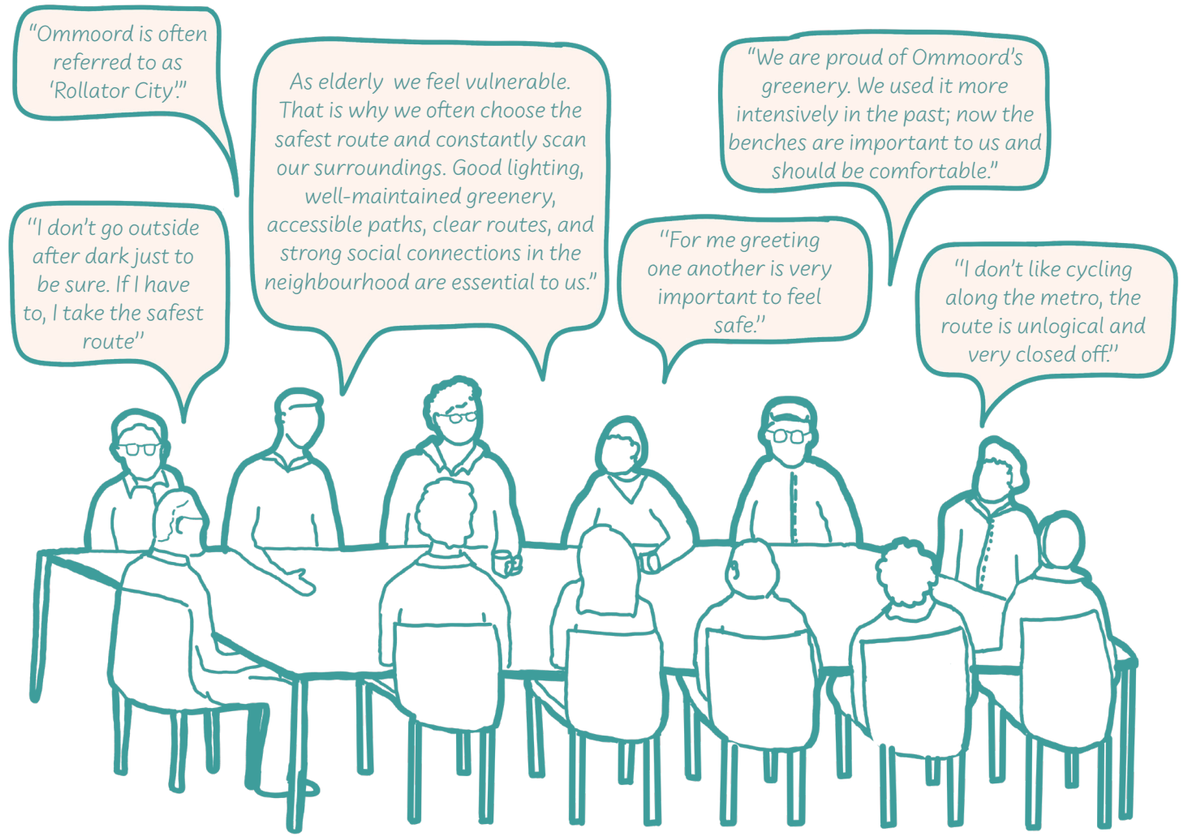


Figure 64: Elderly interview about their perception of Ommoord

Couple, +- 70

"We generally feel safe, but we don't really take routes through the green areas. We don't have a reason to be there, so we don't seek them out. We're not really outside in the evenings anyway.

We also avoid the greenery because you never know if someone is hiding in the bushes. And the storage units on the ground floor make it harder to have contact with neighbours."



Woman in the metro +-50

"I don't live here, I only come occasionally for the shops. I usually come during the day.

I remember when this area was first built, it looked very different. The greenery was lower and better maintained back then."





Female resident +-25, living here for 6 years

"At first it took some getting used to living here. It's very quiet, and I came from Rotterdam South.

I really like the green spaces for walking. Sometimes I find it a bit scary to be outside in the dark, but nothing has ever happened."

Couple +- 80, both with rollators

"We don't really feel safe outside. During the day it's manageable, but we always go out together."

Woman:
"I especially don't like going outside on my own, and definitely not in the evening. I'm afraid something might happen, especially after hearing the news lately."

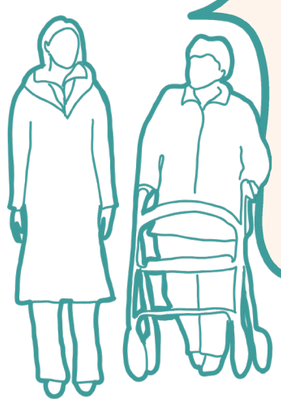


Woman +-75 with rollator & woman +- 30

Older woman:
"I really enjoy having green space nearby. I mostly enjoy the view, but I don't go outside anymore that often."

Younger woman:
"I come here occasionally, but only during the day. I'm always impressed by how green it is."

Older woman:
"I don't like going out on my own unless it's really necessary. When I do, I don't feel very comfortable alone."



Male resident +-75, at the community centre

"I feel the neighbourhood is deteriorating. There is less maintenance and more crime.

You see a big contrast between older residents who clean up and young people who throw fireworks and deal drugs. There is very little interaction between young and old which I find dissapointing.

Eventhough I am naturally not an anxious person, I sometimes avoid certain routes because of my safety, especially the dark park, although it's hard to avoid completely. The paths are poorly maintained and uneven, and not all streetlights work. Ground floors with blank façades don't feel pleasant.
The area around the metro feels unsafe: there are few escape routes, dark tunnels and roads to cross only in certain places, hardly any residents nearby and no cars. I mainly come here for the physio and the community centre. I don't really use public transport."



Two women at the community centre

"Ommoord is changing. The demography is shifting from a majority of older residents to an increase in young families, status holders and people in social housing.

There is an increase in drug-related crime and dealing. There is also a facility for people with drug problems opposite the community centre, which regularly causes disturbance. The police don't have enough people to manage it.
We don't like the dark areas and the tunnels. Many older people have a very limited walking range, so if routes feel unsafe or are poorly maintained, they simply don't use them. And there aren't many alternative routes here.

There are very few play areas for children, so families go outside less and feel overlooked. We are actively looking for places for young people and children, but at the moment youths cause nuisance, make a mess and show little respect. The community centre is closing and what replaces it will be much smaller, while there are already very few neighbourhood facilities."

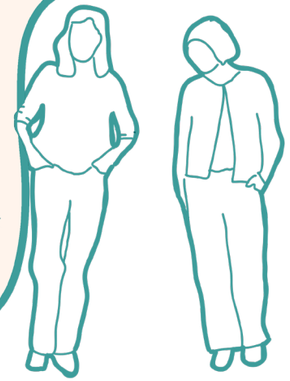


Figure 65: Open street interviews with residents about their perception of Ommoord

Spatial perception of residents

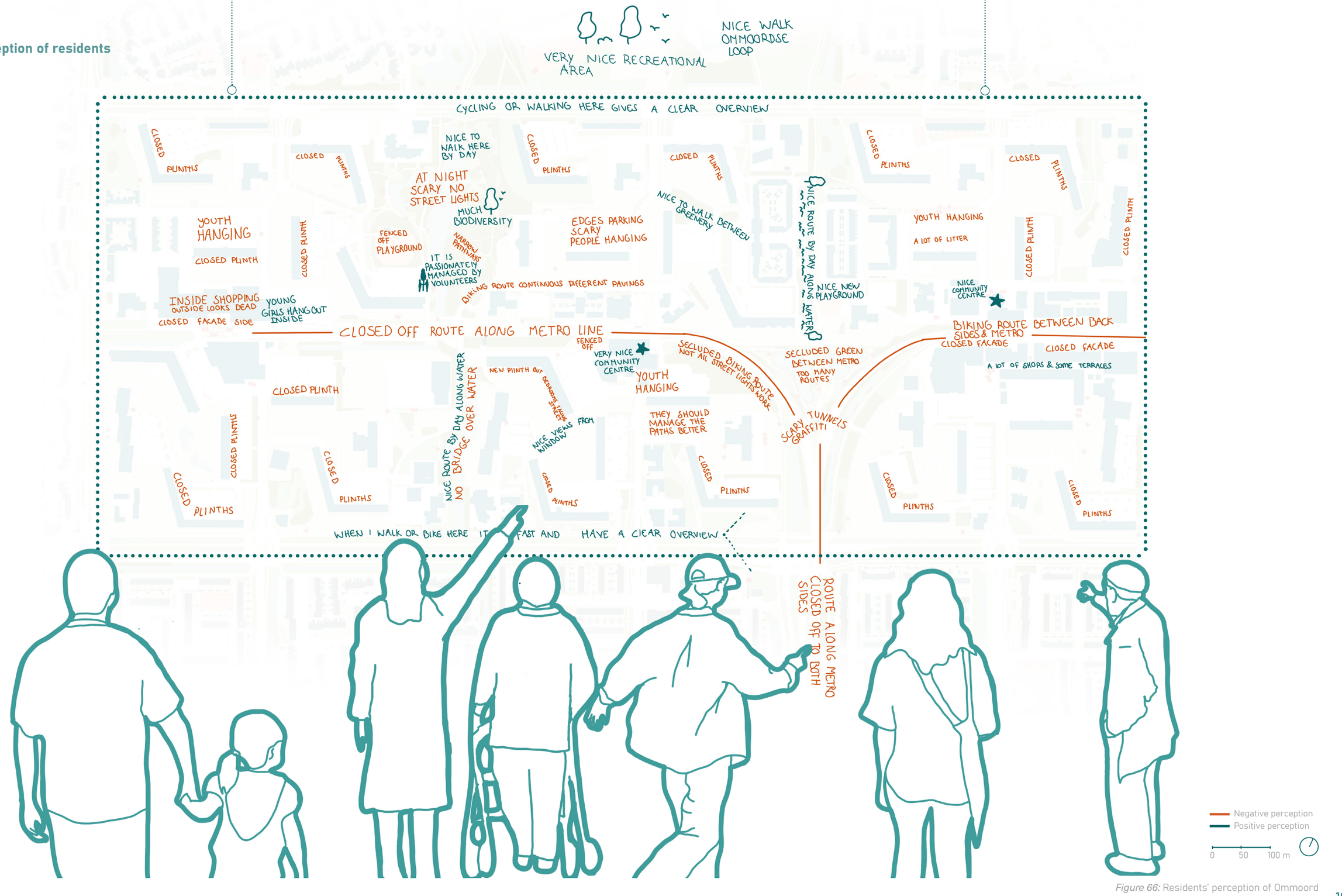


Figure 66: Residents' perception of Ommoord

5.5 Overview of site-specific challenges

In brief, the original modernist principles of Lotte Stam-Beese in Ommoord no longer function as effectively as intended within today's social, spatial, and environmental realities. Whilst her design fundamentally offered progressive ideas of light, air, space, and green living, the analysis demonstrates that these principles alone are no longer sufficient to address contemporary challenges such as perceived safety, fragmented mobility, ecological performance, and changing social dynamics. As a result, Ommoord now requires a renewed layer of intervention that does not reject Stam-Beese's original framework, but rather critically reconsiders and supplements it.

This reconsideration can be structured through a renewed interpretation of three core spatial scales. First, at the metropolitan and ecological scale, Ommoord's green structure must evolve beyond spatial quantity towards stronger qualitative and regional connectivity. Second, at the district scale, functions, routes, and infrastructural coherence require re-evaluation in order to address fragmentation and improve accessibility, activity, and integration. Third, at the local scale, the everyday lived experience of safety, route quality, and social comfort demands more targeted interventions that better respond to contemporary patterns of use and perception. Together, these three ambitions reinterpret Ommoord's foundational structure for present-day conditions.

However, analysis also demonstrates that spatial restructuring alone is insufficient. Two additional dimensions are essential for Ommoord's future resilience. The first is its cultural and historical heritage: as a significant post-war modernist landscape, Ommoord's identity should not be erased, but carefully adapted in ways that respect and evolve its original legacy. The second is the neighbourhood's social transformation. Current demographic and social shifts suggest that intervention is urgently needed to strengthen social cohesion and restore demographic balance before patterns of decline become more deeply embedded.

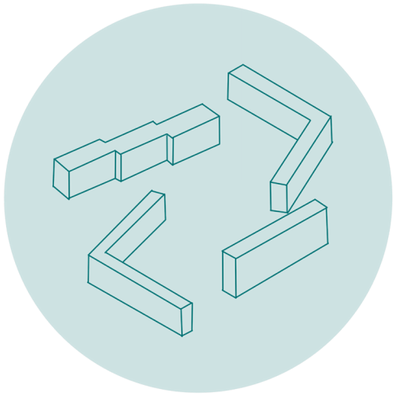


Figure 67: Heritage challenge



Figure 68: Demographic challenge

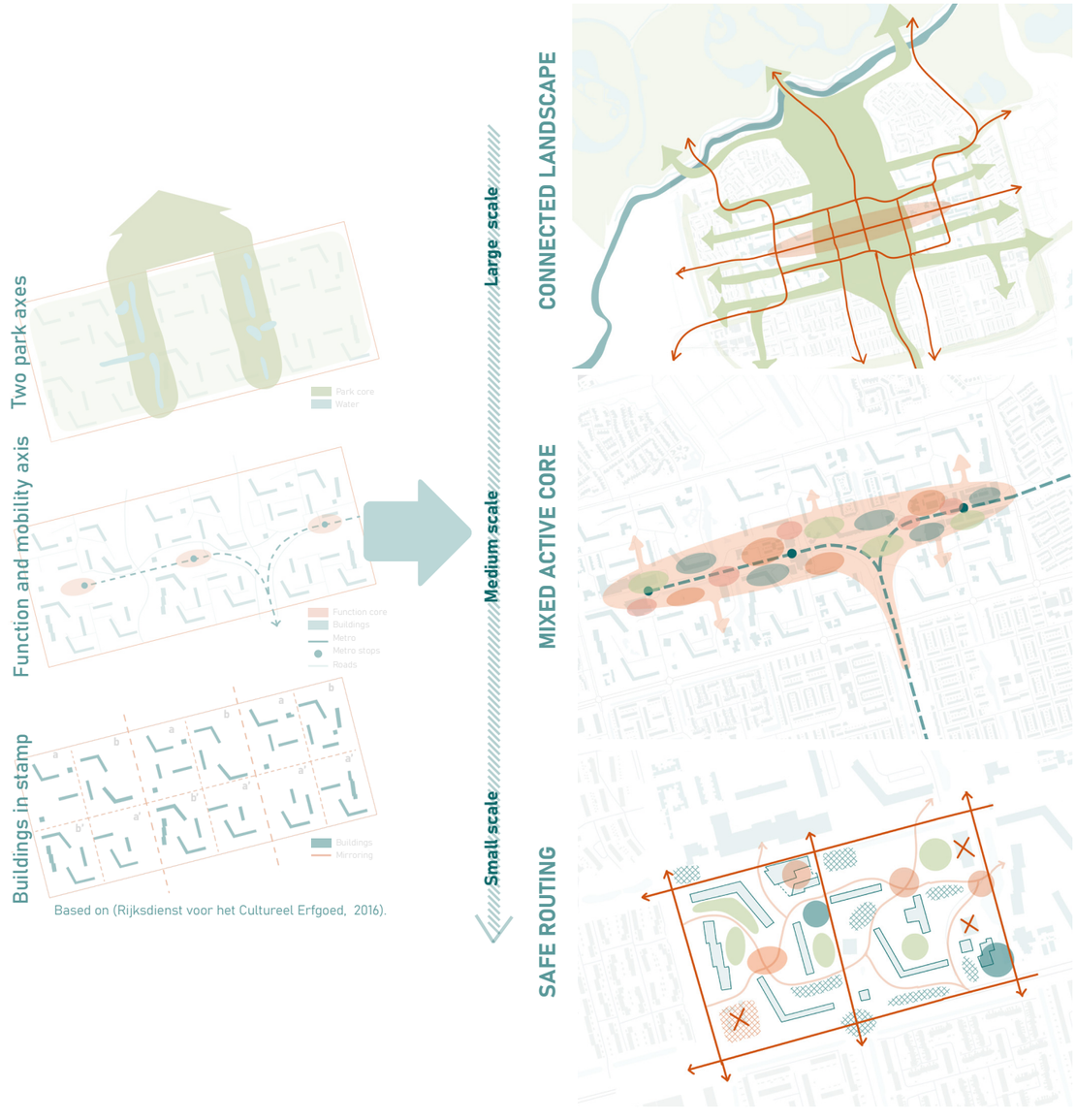


Figure 69: Ommoord's spatial challenges on three scales

6

DESIGN

6.1 Design principle trade-offs

The design chapter will now evaluate and apply the knowledge gained from both safety and green-space perspectives to Ommoord. The design principles emerging from these two perspectives may at times be complementary or neutral, but they can also be conflicting or contradictory. The design must therefore carefully assess what is appropriate in each location and how these principles can be integrated spatially. The principal conflicts are outlined below.

Legibility and sense of place vs Ecological connectivity
Safety principles often prioritise legibility and a clear sense of place, while green-space strategies emphasise strong ecological connectivity. These aims may create friction when routes intersect or are positioned close together. This raises important design questions: which should take precedence, should routes remain separate, or should they be integrated? In highly frequented residential areas and primary pedestrian routes, legibility and visibility may take precedence to support orientation and perceived safety, whereas in quieter edge conditions or ecological corridors, ecological connectivity may become the dominant principle.

Well-maintained, clear vision vs Low maintenance
Safety requires well-maintained greenery and clear sightlines, whereas ecological value often benefits from reduced maintenance and more natural growth. This creates a direct tension, requiring careful prioritisation depending on context. In intensively used public spaces, clearer sightlines and maintenance may be prioritised to enhance comfort and safety, while less frequented green areas may allow for denser and more natural vegetation to support biodiversity.

Eyes on the street vs minimal disturbance
From a safety perspective, active spaces with human presence, lighting, and surveillance are desirable. In contrast, ecological quality often depends on darkness, tranquillity, and minimal disturbance. Determining where each condition should dominate is therefore essential. In socially active spaces and key movement routes, visibility and activity may be prioritised to support social safety, whereas ecologically sensitive zones may require reduced lighting and limited disturbance to protect wildlife habitats.

Day and night distinctions
Both perspectives require different spatial conditions across day and night cycles. These may either reinforce or undermine one another. For example, artificial lighting may improve perceived safety for people at night, while simultaneously disrupting wildlife. The extent to which safety or ecological considerations dominate may therefore depend on temporal use patterns, spatial context, and the intensity of human activity during different times of day.

Throughout the design chapter, it will become clear how these trade-offs have been negotiated, where priorities have been assigned, and how conflicting principles have been spatially resolved.

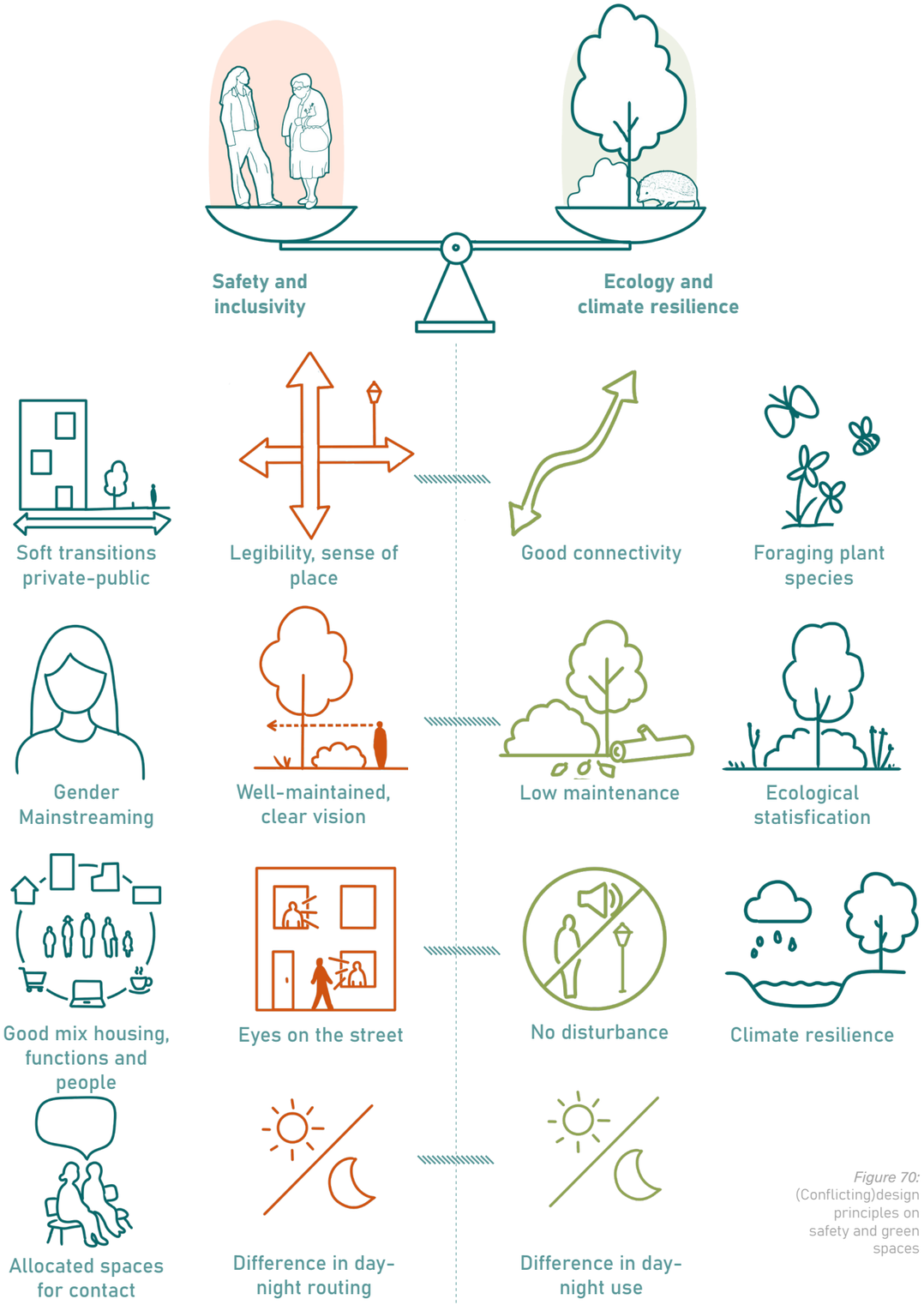


Figure 70: (Conflicting)design principles on safety and green spaces

6.2 Vision

The design framework employs distinct modes of use as an analytical and strategic foundation for formulating a renewed spatial vision for Ommoord. Rather than approaching the neighbourhood as a singular spatial system, this framework recognises that different forms of movement, activity, and occupation require different spatial responses. By structuring Ommoord according to varied patterns of use, the framework seeks to align mobility, safety, ecology, and social life more effectively across multiple scales.

Quicly from A to B

The first mode, Quickly from A to B, operates at the regional scale and primarily responds to cycling mobility. This layer is aligned with the broader regional cycling network and aims to provide highly efficient, legible, and continuous routes that integrate Ommoord more effectively into surrounding urban systems. Speed and directness are central, yet must never compromise safety. These routes should therefore function as reliable mobility corridors that remain socially and physically safe during both day and night, ensuring that efficiency does not come at the expense of perceived security.

Safe local routing

The second mode, Necessary Routing, focuses on pedestrian movement and smaller-scale daily mobility. This layer is structured around essential everyday activities, such as grocery shopping, accessing public transport, and reaching key neighbourhood services. Within this framework, Ommoord is understood as three interconnected yet distinct compartments, each centred around its own functional core. Every centre should be capable of fully supporting the essential daily needs of its surrounding residents, thereby reducing unnecessary dependence on movement through larger green corridors to reach distant facilities, an issue that currently undermines both convenience and perceived safety. Safe, direct, and accessible routes to these local centres are therefore crucial and must remain reliable throughout both daytime and night-time conditions.

Optional routing

The third mode, Recreational and Optional Routing, addresses non-essential movement such as walking, jogging, and leisure-based exploration. Unlike necessary routes, these pathways are not neccessary during evening or night-time hours and should therefore be discouraged after dark. Importantly, this network also functions ecologically, serving not only human recreation but also the movement needs of the four focal species identified within the biodiversity framework. In this sense, recreational routing becomes a dual-purpose landscape structure that supports both human enjoyment and ecological connectivity.

Staying and Socialising

Finally, Staying and Socialising forms a crucial social layer within the framework. Beyond movement alone, Ommoord must also foster opportunities for social interaction, belonging, and informal encounter. This requires the creation of new meeting spaces across scales, ranging from larger public gathering spaces to smaller, informal, semi-public places embedded within residential environments. Particular emphasis is placed on strengthening neighbourly familiarity and everyday social cohesion through design.

Within this layer, special consideration is given to teenage girls as a currently underrepresented user group in public space. Creating spaces that specifically acknowledge their presence, preferences, and autonomy is essential in ensuring that Ommoord's public realm becomes more inclusive, socially balanced, and responsive to groups historically overlooked in spatial planning.

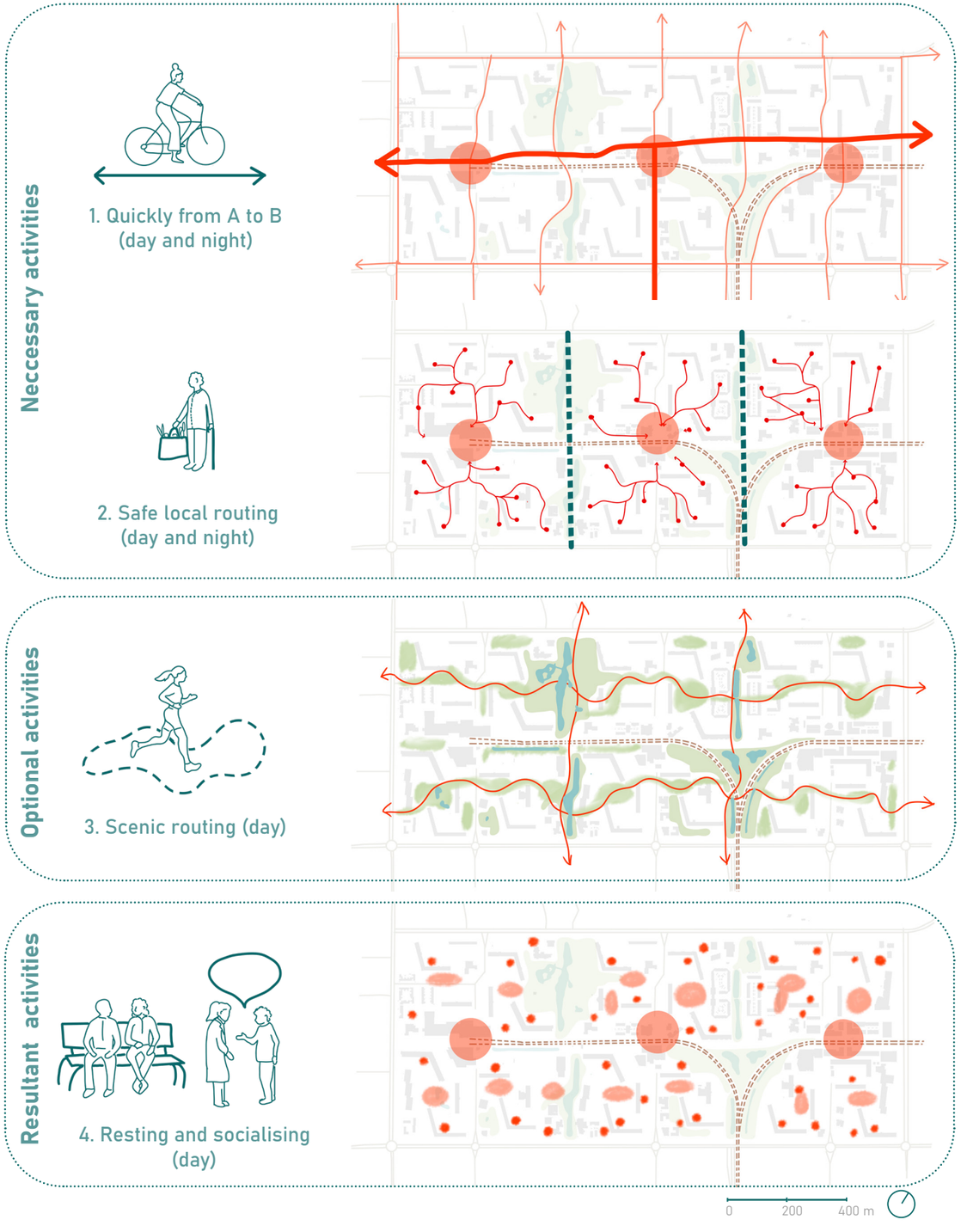


Figure 71: Design framework different activities used as vision for Ommoord

6.3 Quickly from A to B

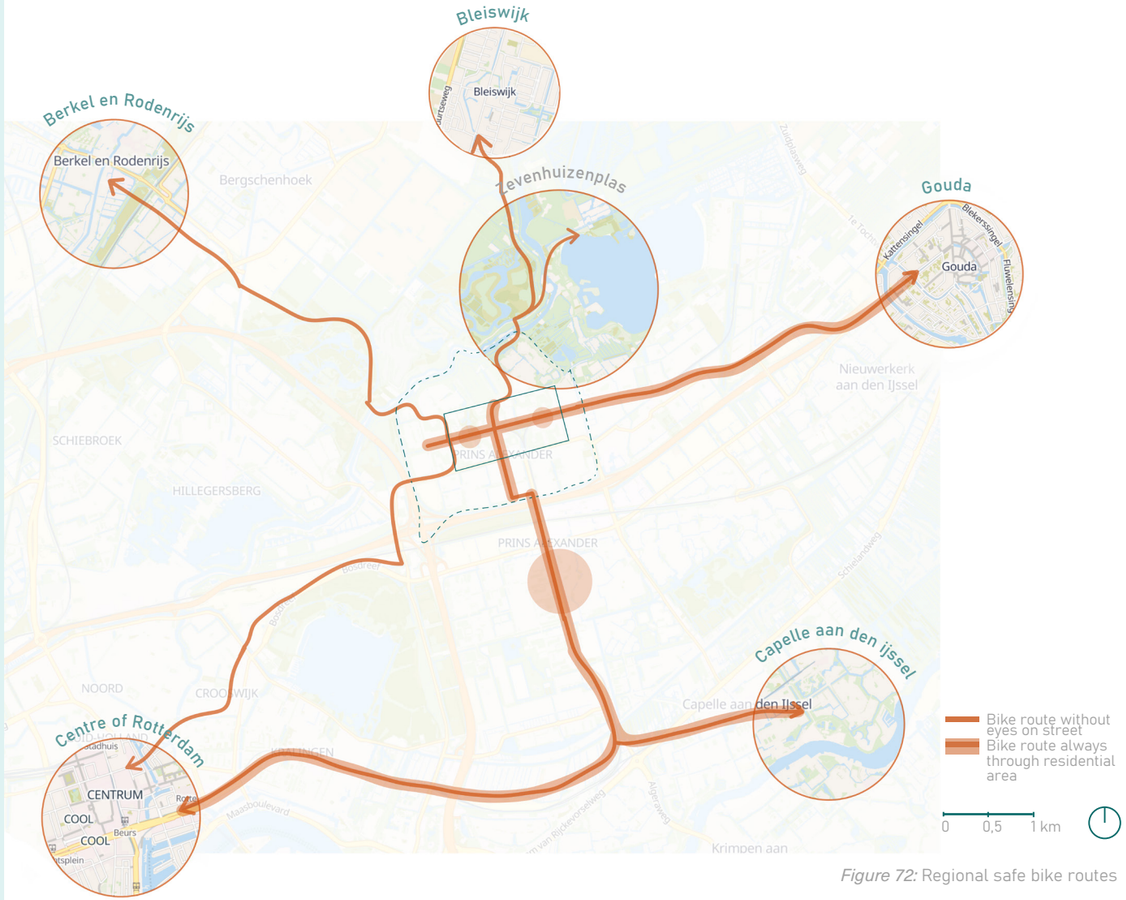


Figure 72: Regional safe bike routes

Regional bike routing

An analysis was conducted of potential cycling routes from Ommoord, identifying which paths allow travel predominantly through residential streets, thereby ensuring continuous natural surveillance. Only a limited number of routes met these criteria and were further developed to enhance safety, for example, introducing detours to avoid cycling alongside the metro. These selected routes are intended to serve as the main night-time cycling paths, providing safe and well-monitored connections from A to B.





Figure 73: Regional bike route reimagined

Quickly from A to B in Ommoord

Within Ommoord itself, this route has been further refined, maintaining its role as the main cycling path for quick travel from A to B while maximising natural surveillance. To achieve this, the route has been shifted away from the metro and directed through the residential fabric. The shopping centres along the way have been reconfigured, "turned inside out", to remove inactive façades and incorporate mixed-use housing, eliminating hidden passages. Sections adjacent to green spaces have been minimised, and where green does border the cycling path, vegetation within the first 30 metres is kept low to ensure clear sightlines and continuous oversight.

The light orange shows the area that should not have any obstructions at eye level which ensures there is always a minimum vision span and possibility for eye contact with ajacent homes.

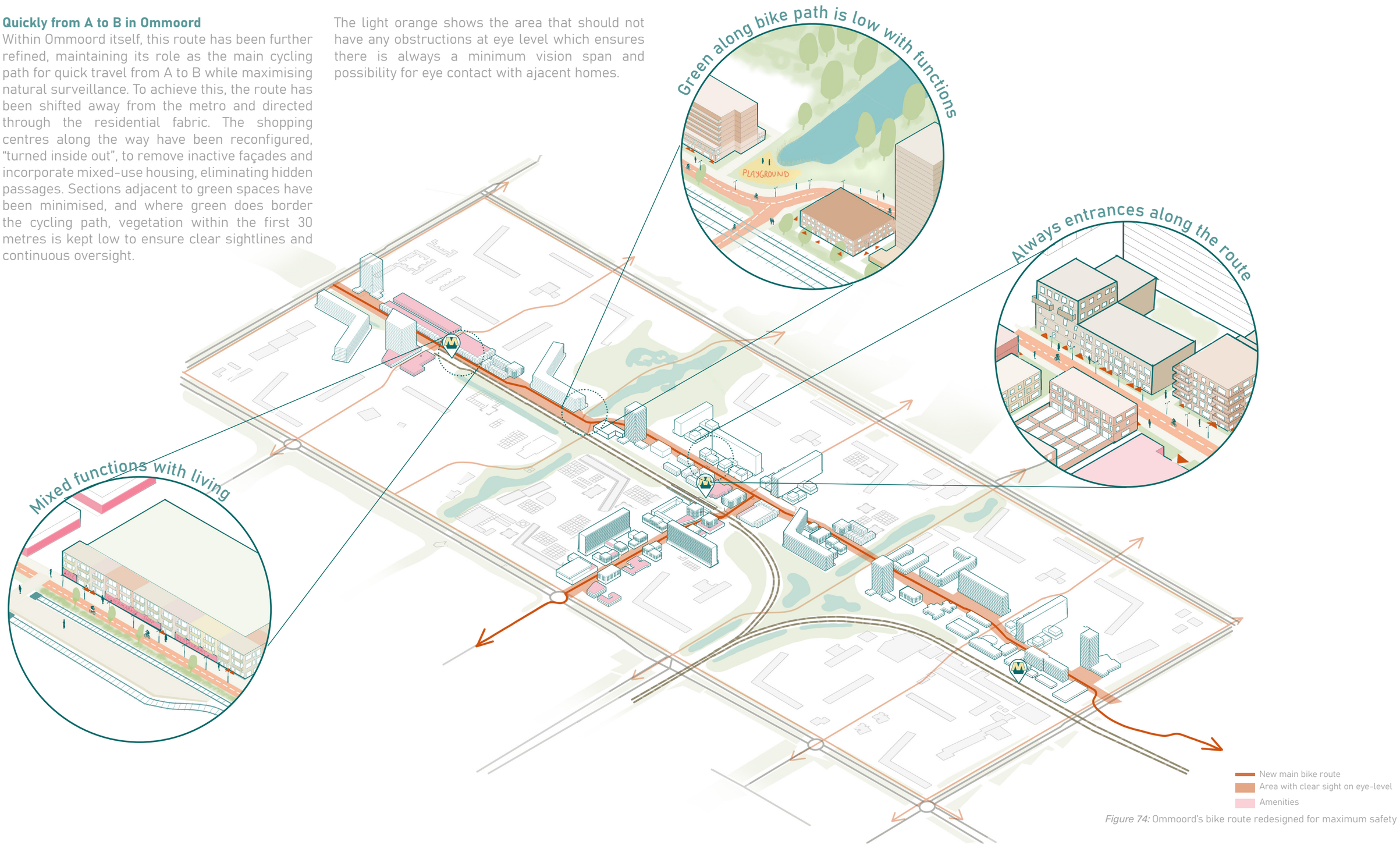


Figure 74: Ommoord's bike route redesigned for maximum safety



1. A wide road with little activity and flats set far back from the street. Tall streetlights dominate the space, creating little sense of human scale.



2. Moving towards the centre, with little amnities and with its closed and inactive façades.



3. Continuing along an isolated route beside the centre, with again the closed facades.



4. Crossing the metro line towards the northern part of Ommoord.



5. Turning left, the bike path changes back into a road. On the right side a green space blocking sight lines. On the other side green space, with a short stretch of housing.



6. Passing a flat with a closed plinth towards a darker green area.



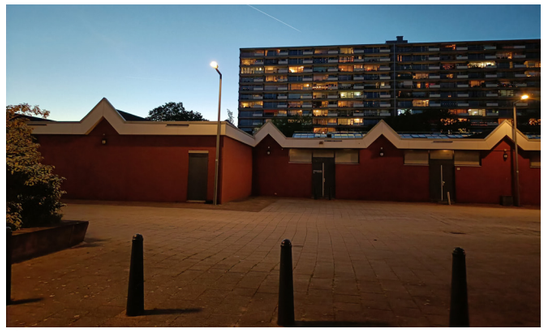
7. The route continues alongside dense greenery, becoming increasingly dark and unclear.



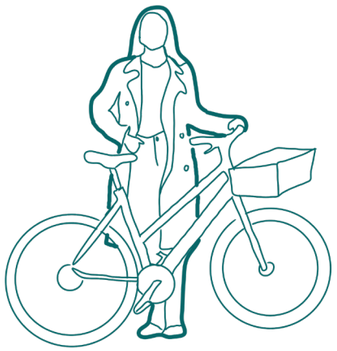
8. Following the route close to the metro, with greenery on the right side creating considerable distance from the flats.



9. Moving along the shopping centre Binnenhof with its closed façades and isolated routing.



10. Arrival at the shopping centre, where the façades remain largely closed towards the outside.



"I don't like the bike routes now, because they are dark and isolated"

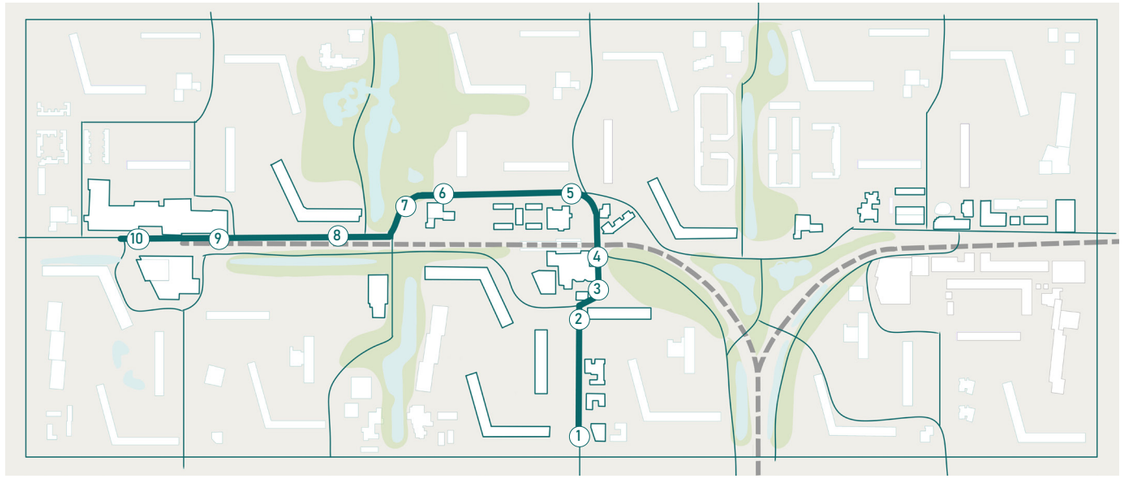


Figure 75: Current cycling route from the Marshallweg to the Binnenhof centre



1. The route is now designed for cyclists, with housing along both sides creating supervision and activity. Lower streetlights improve visibility at a more human scale.



2. Cycling towards the centre, daily life becomes visible through windows and active façades.



3. Passing the renewed centre, where functions and housing are mixed along the route.



4. Crossing the metro line and turning left.



5. The route remains clear through the continuous cycle path, with housing visible on both sides.



6. Even the flat at the edge now includes housing within the plinth, increasing activity along the route.



7. Additional housing extends further towards the green space. The greenery along the route is kept lower and includes a playground, creating clearer sightlines and visible use.



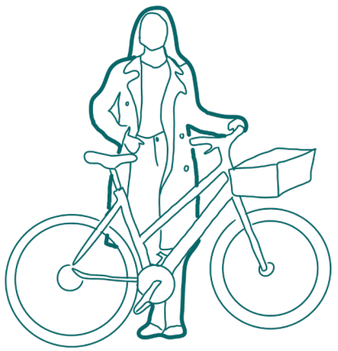
8. Instead of following the metro line, the route now moves alongside buildings, increasing social control and eyes on the street.



9. Arriving at the centre Binnehof, which now consists of active outward-facing façades and a mix of functions and housing.



10. Arrival at the café, surrounded by activity and liveliness.



"The new route is much safer! Come with me on the bike to the centre to visit my friends"

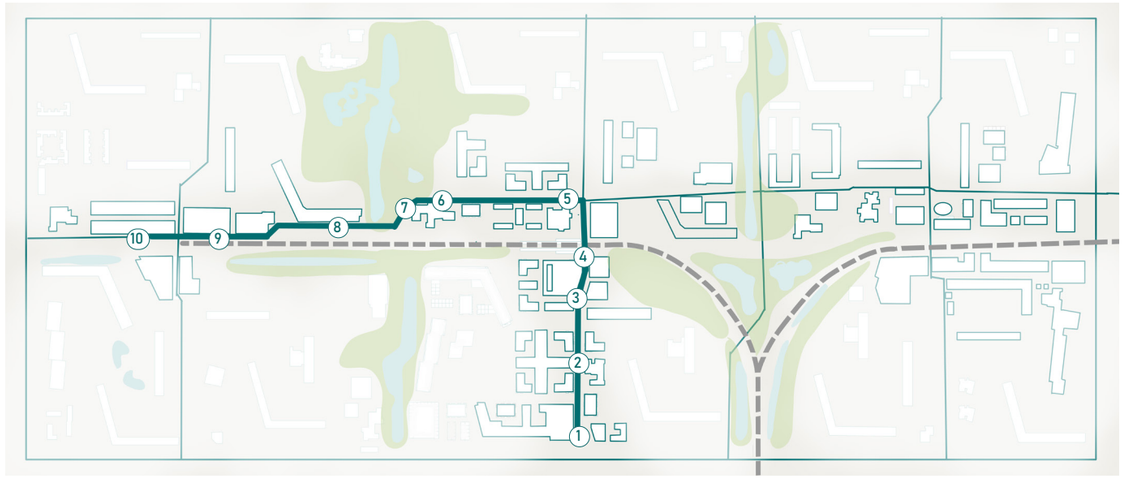


Figure 76: New cycling route from the Marshallweg to the Binnenhof centre

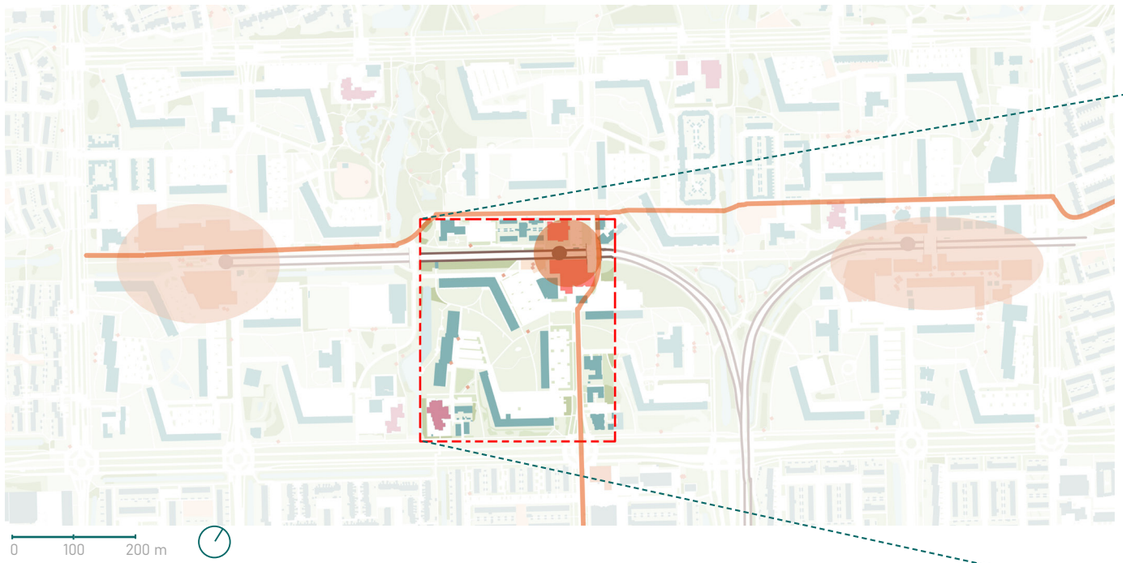
Figure 77: New cycling route impression

6.4 Zoom in: Human-scale experience

Based on the new cycling route through Ommoord, a zoom-in area has been selected for detailed study. This area brings together two-way cycling traffic, a metro station, and the neighbourhood centre, which currently consists only of a community centre with a library and a health centre, without any shopping possibilities.

The site occupies a more strategic location than the centre to the west, as it functions as a key junction capable of serving a larger number of people and therefore also being attractive for shopkeepers and combinations of working-living.

The design principles developed for this zoom-in area can subsequently be applied to other parts of Ommoord, as the urban layout exhibits a repetitive structure.



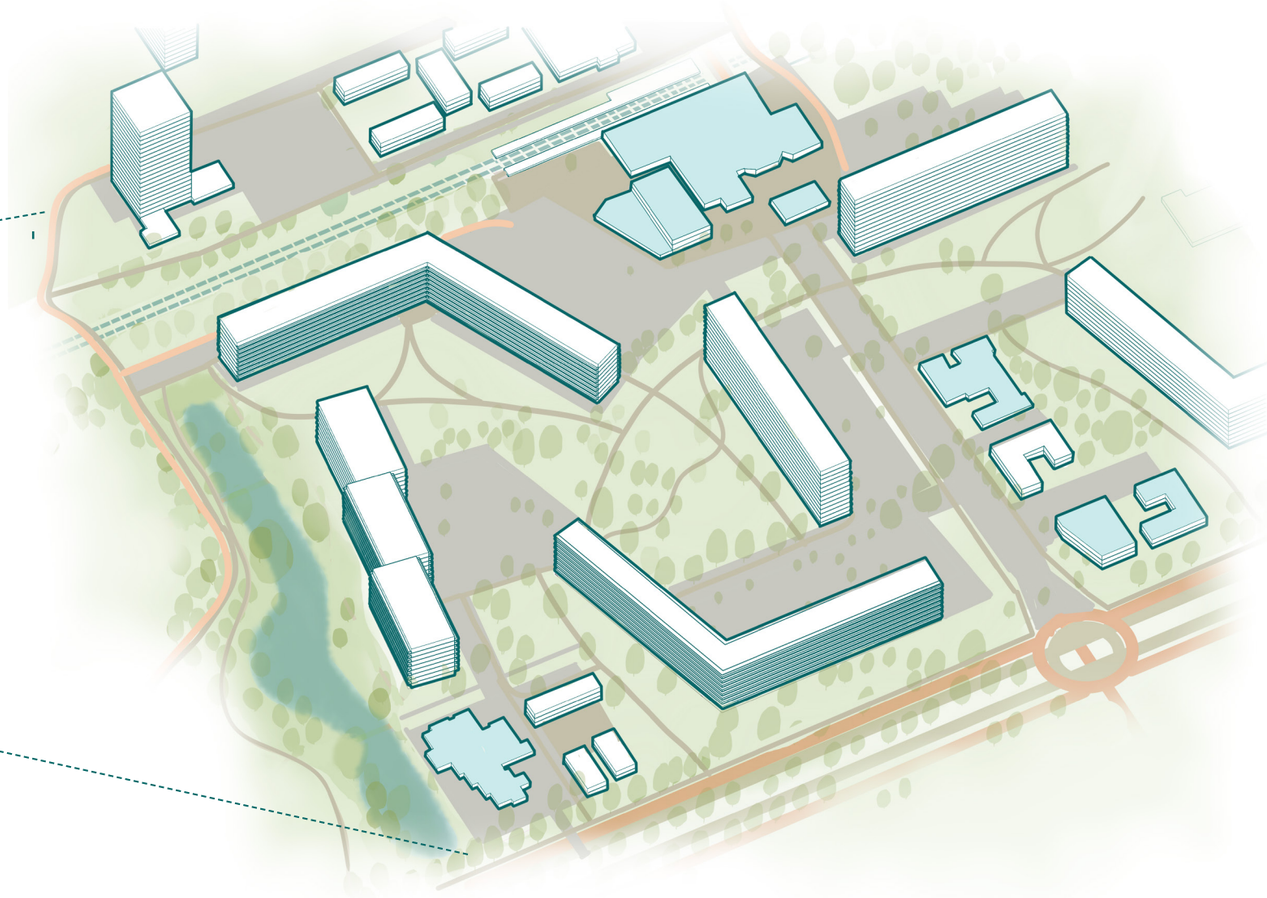
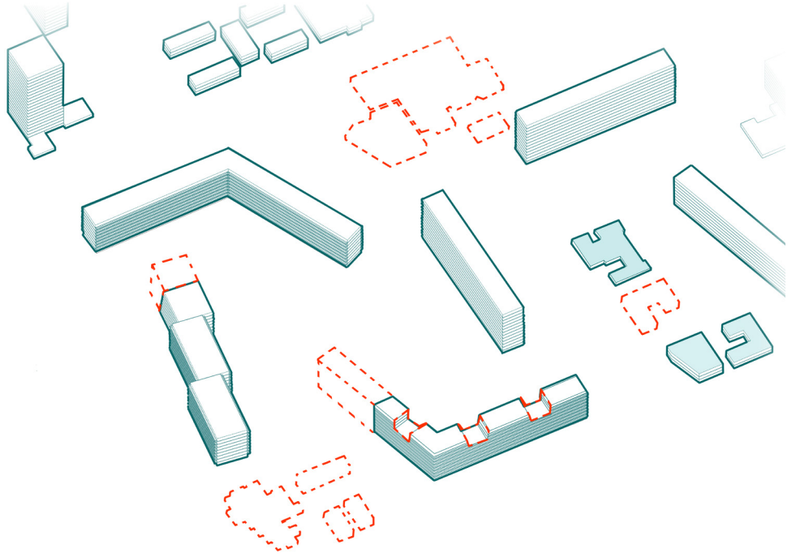
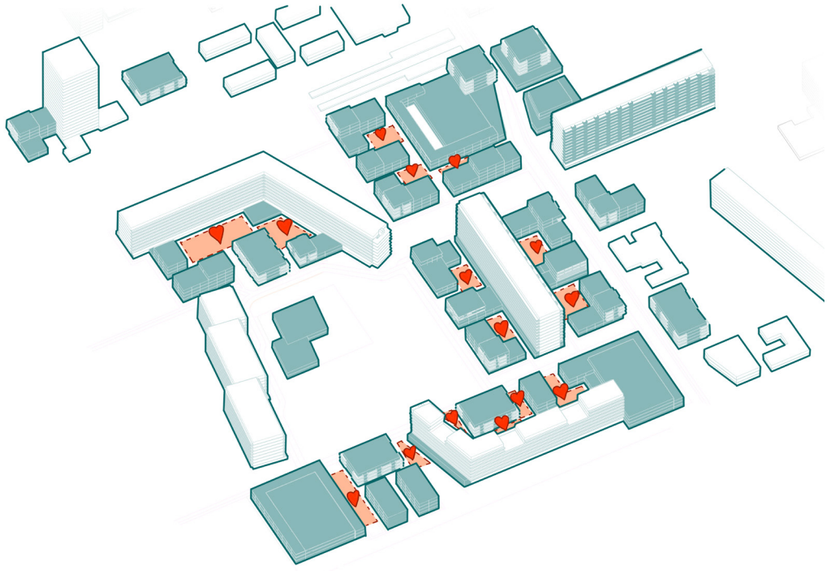


Figure 78: Neighbourhood scale zoom-in current situation



Keeping heritage structure

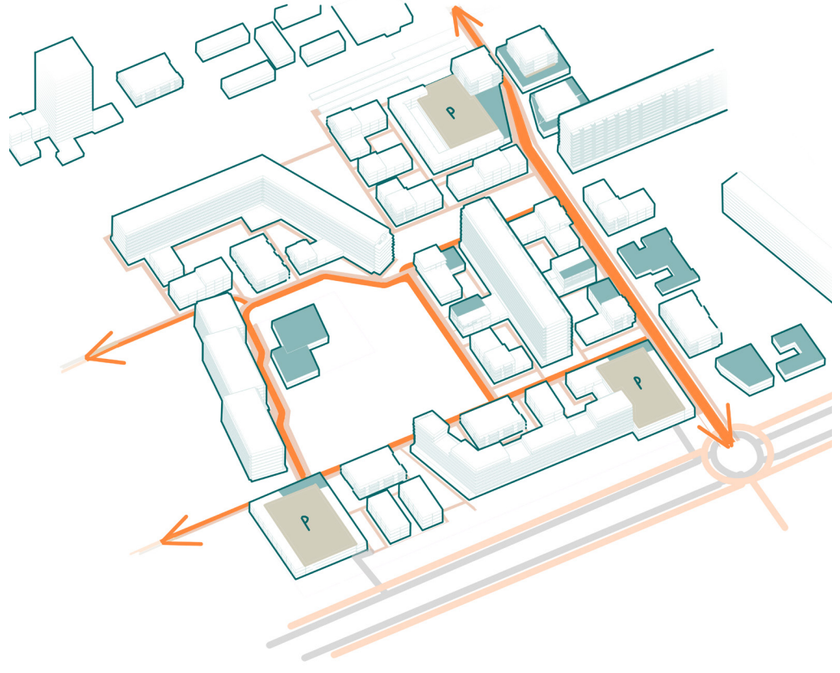
Because of the Heritage status, the existing flats will largely be preserved. Most of the remaining surrounding structures have been removed due to outdated conditions or isolated positions.



Addition of new buildings

New development have been introduced to create space for new target groups, thereby contributing to a more balanced social composition and they generate new semi-private courtyards that encourage informal social interaction.

The new buildings are deliberately lower and smaller in scale than the original high-rises, ensuring that the historic flats remain visually dominant and recognisable at all times.



Legible routing and functions

The new buildings create a clear and legible linear route structure that prioritises slow mobility, concentrates pedestrian activity, and minimises car use through peripheral parking hubs. Key functions are strategically placed along these routes to strengthen wayfinding, safety, and sense of place, with district-oriented amenities along main cycling routes and neighbourhood-focused functions near housing.



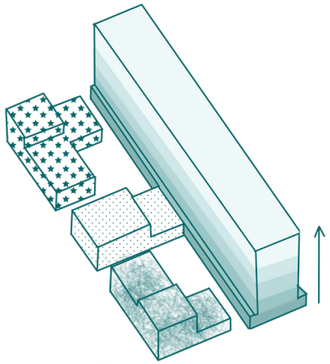
Ecological network

Green space has been significantly expanded, with larger and more continuous landscaped areas replacing fragmented patches of greenery. This shift emphasises spatial quality over quantity. A new central green corridor has been created, connecting surrounding green spaces and establishing a more cohesive ecological and social landscape structure.

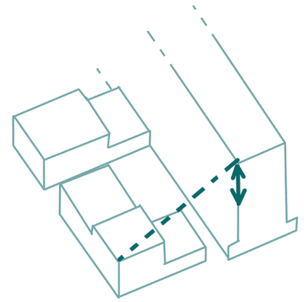
Figure 79: Design structure new design

This drawing presents the full 3D masterplan for this section of Ommoord. Considerable experimentation with masterplans was undertaken through multiple iterations as visible in chapter 9.4. Eventually this masterplan was chosen due to its coherent structure and well-balances design for safety and green spaces.

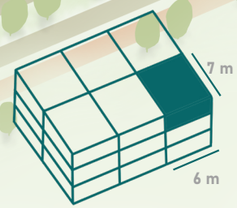
An image quality framework for the buildings is developed. This ensures the preservation of key principles such as legibility, heritage visibility, and specific dimensions.



Block Identity: The blocks all have their own identity, to accommodate wayfinding and for identifying with your own block. However, the blocks per cluster are still in the same colour pallette. The high-rise blocks have a soft colour transition from dark to light to amplify the human-scale described in chapter 9.6.



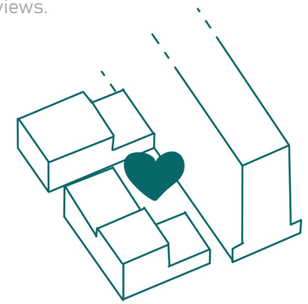
Soft height transition: The new buildings create a softer transition between the high-rise and low-rise urban structures, while building heights were intentionally kept lower where both structures meet in order to protect privacy and preserve views.



Flexible living - A dwelling can exist of one or multiple units and therefore can accomodate different social groups

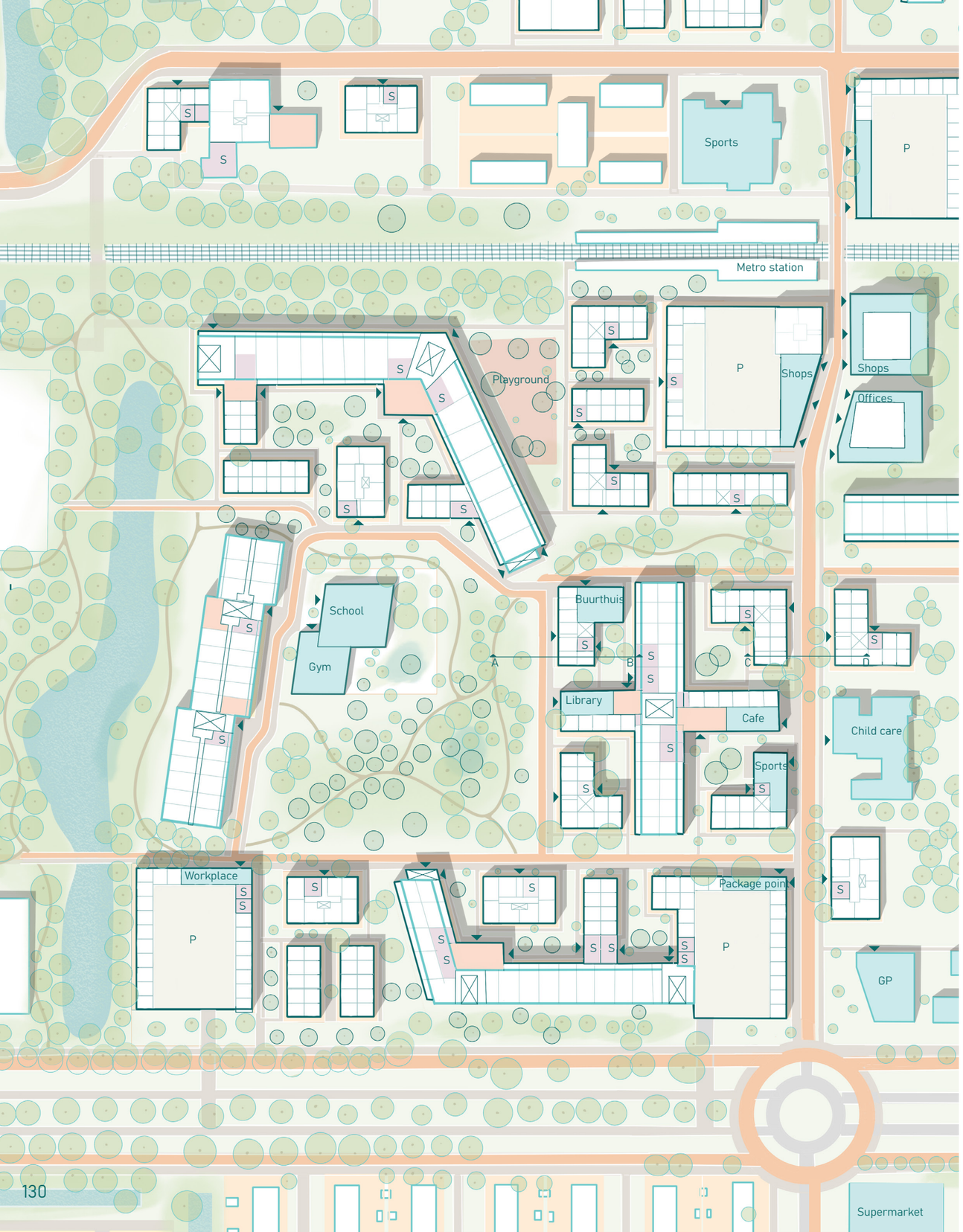


Ground floor social surveillance - The dwellings at ground floor always have the entrances at the street. They can be multiple stories high, resulting into rowhouses in the plinth. The living room should always be designed to be at the street.



Denisification as method for informal spaces: The new buildings have as main goal to create informal meeting spaces (hofjes), additionally they accomodate better legible routing. The size of hofjes are carefully chosen by looking at referencs as visible in chapter 9.2.

Figure 80: 3D design small scale and its image quality framework



The plan not only illustrates how external routes and public spaces function, but also how the internal organisation. Entrances, functions, storage spaces, and bicycle parking facilities are clearly indicated, which demonstrates the entire route to the front door of a home.

Bicycle parking is carefully integrated within the built form to ensure a well-maintained look. Additionally, these spaces can function as places for social interaction, as neighbours will encounter each other there. For apartment residents whose homes are not located on the ground floor, central entrances are accessible from the street and are combined with bicycle storage, while ground-floor dwellings maintain direct private entrances from the street.

In addition, common rooms have been created within the existing larger residential blocks exclusively for their residents. These spaces are intentionally left open for resident-led programming, allowing inhabitants to determine their own uses, such as meeting rooms, fitness spaces, or other communal facilities, thereby reducing anonymity while strengthening social ownership and community cohesion.

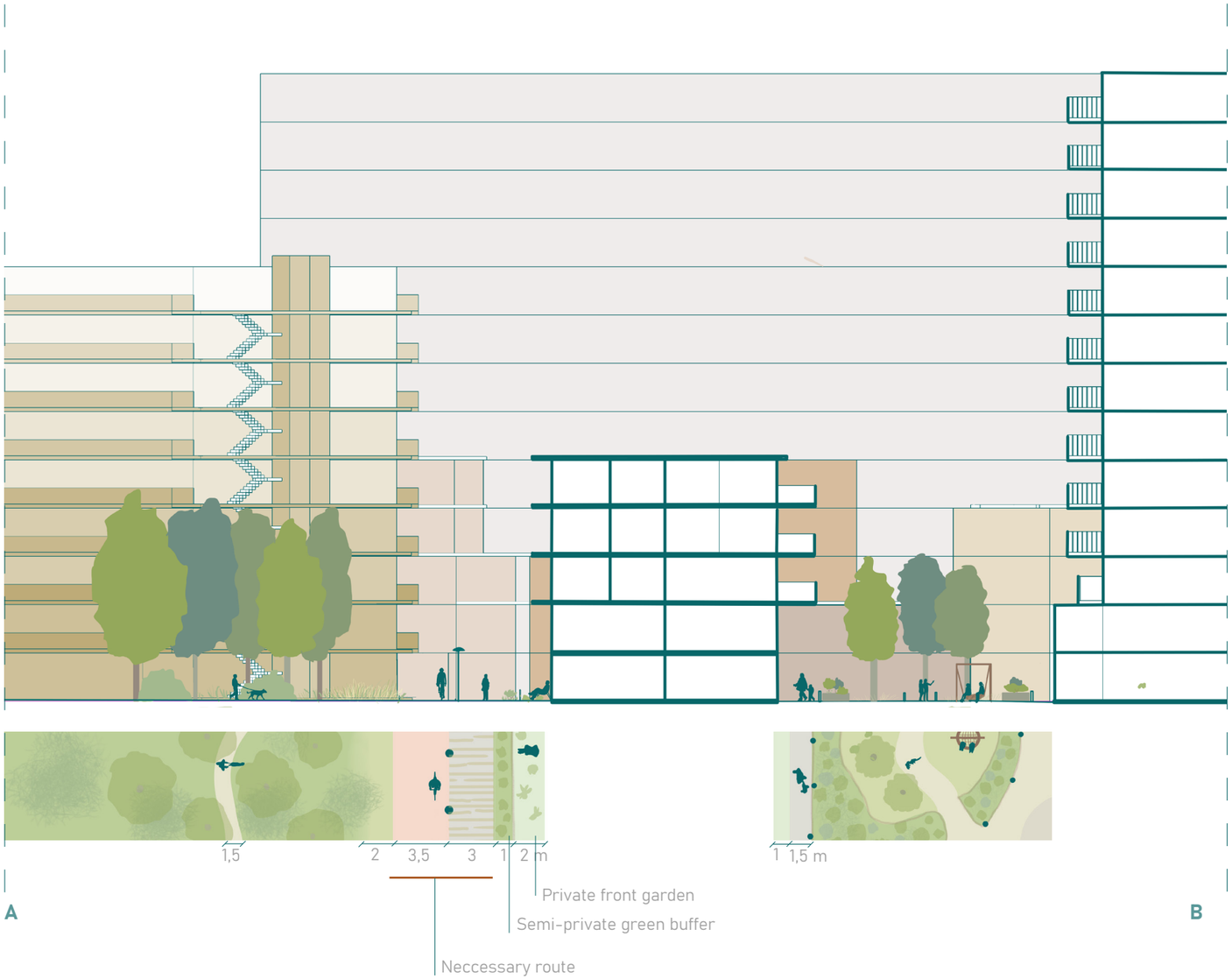
The drawing also indicates the newly introduced trees and shrub structures, further clarifying how ecological interventions are integrated alongside spatial and architectural functions.

- Grass
- Dense vegetation
- Water
- Pavement
- Bike lane
- Private garden
- Function
- Storage + bike parking
- Residents room
- Playground
- Parking hub
- Exisiting structure
- New structure
- Existing tree
- New tree
- Entrance

0 25 50 m

Figure 81: Design plan including facilities, routing and dimensions

Section A - B



Section C - D

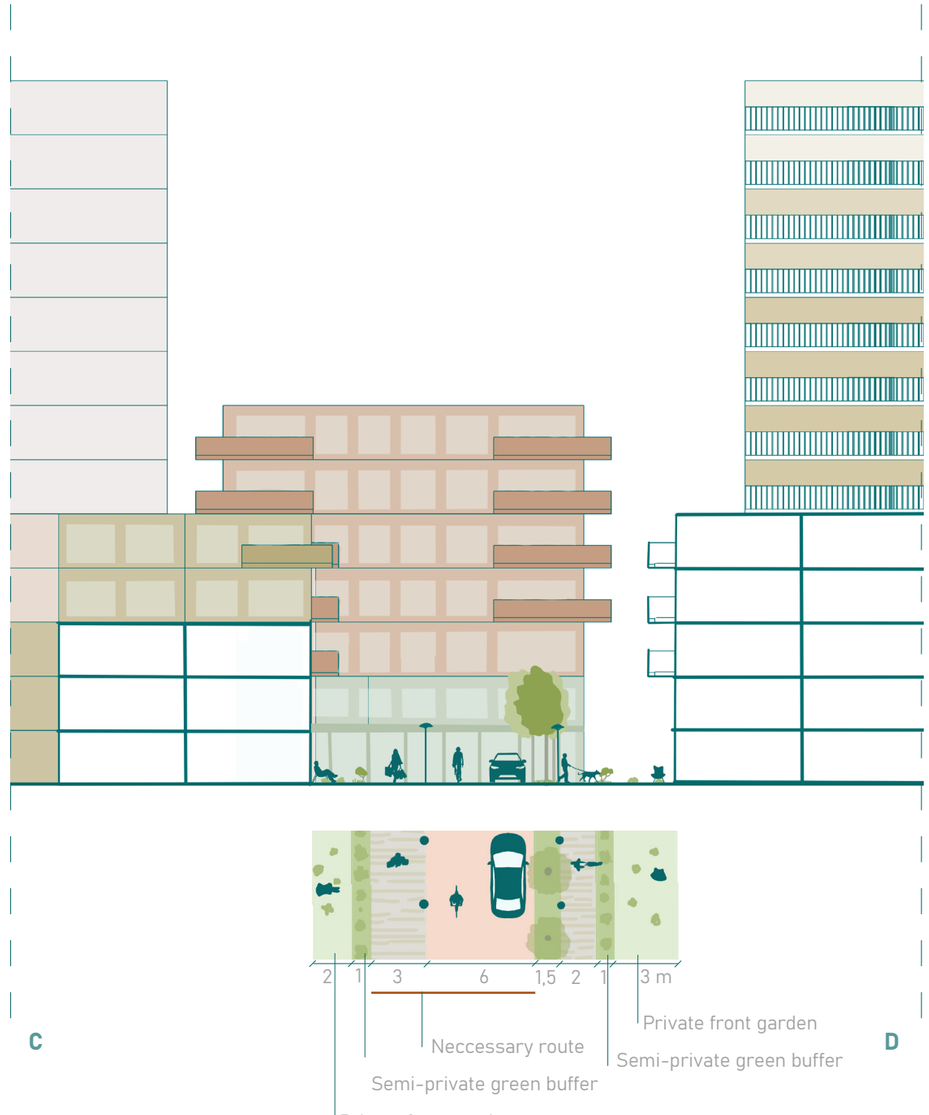


Figure 82: Sections of inside network of the cluster and of the fast bike lane

6.5 Safe local routing

This subchapter of the design focuses on safe local routing, concerning short-distance everyday movement patterns. The necessary route is the primary path intended for consistent use by all residents and visitors. This route is of critical importance during both daytime and nighttime, as it functions as the principal circulation spine through which daily movement is concentrated.

A key strength of this masterplan lies in the linearity of its routes. The routes are predominantly straight, which not only enhances clarity and predictability but also allows users to visually scan the path ahead for potential danger. This significantly contributes to perceived safety, as it eliminates concealed corners or abrupt turns that might otherwise generate uncertainty or unwanted surprise.
Efficiency was also a central consideration. The route has been designed to be as direct as possible in order to discourage users from seeking alternative shortcuts. This is crucial, as fragmented movement patterns would reduce collective use of the intended route and thereby diminish activity levels, natural surveillance, and social presence along it. This concentration of movement has been strategically reinforced through built form: potential shortcuts are intentionally blocked by carefully positioned buildings, ensuring that users remain on the designated path visible in figure 84. This strategy not only preserves route intensity but also protects the semi-private character of the courtyards by preventing them from becoming unintended public thoroughfares.

Importantly, while shortcuts are restricted, the design avoids creating dead-end streets. This ensures that users always retain alternative movement possibilities or escape options should they feel unsafe.

The drawing also identifies several important sightlines that preserve critical visual connections across the site. These sightlines protect landmarks such as the school building situated within the green landscape, which serves as an important orientation point. Equally significant is the visual openness maintained towards the entrances of the courtyards. These access points must remain clearly visible to reinforce the perceived proximity of others and to avoid hidden thresholds where unexpected encounters may occur.

Finally, the route consistently ensures eyes on the street by aligning movement corridors alongside built edges, with housing or active façades present on at least one side at all times.

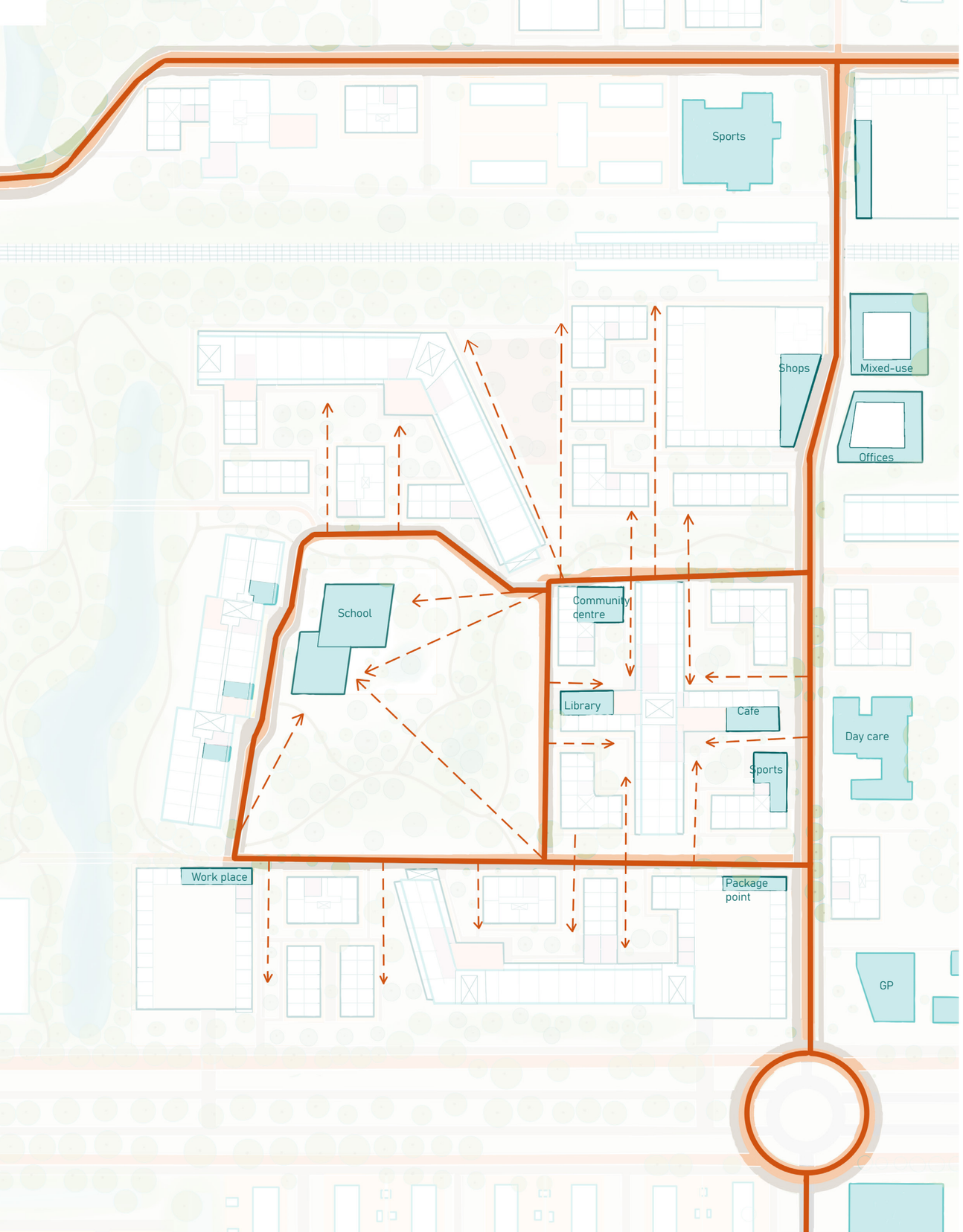


Figure 83: Safe local routing

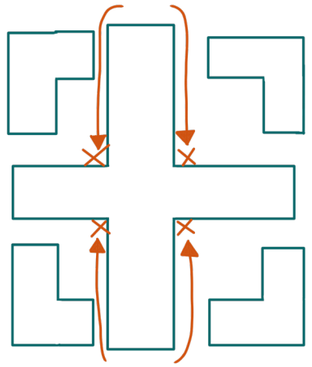
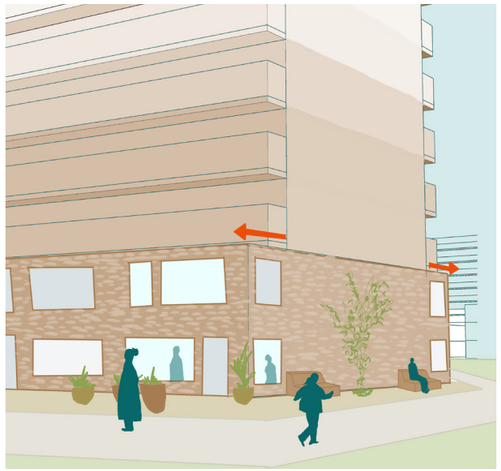


Figure 84: Intentional buidling morphology to limit routing

Design ingredients



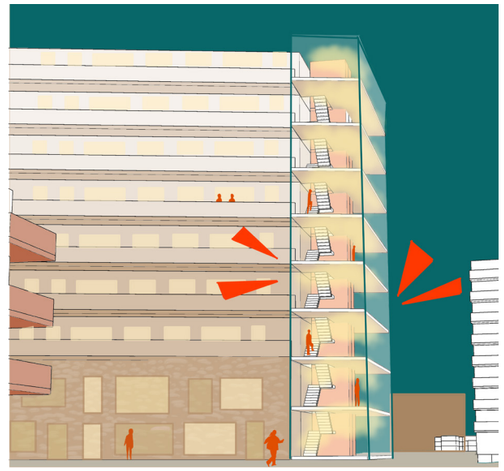
Living in the plinth

Most existing apartment blocks largely lack homes at ground-floor level. Introducing dwellings in the plinth creates more eyes on the street and softens the transition between public space and the built environment.



Functions along the main route

By locating key functions along the main route, people can reach their destinations without deviating from it. This keeps more people on the same path while adding variety and vibrancy to the route.



Visible entrances

By making entrances more transparent and clearly defined, they create a softer transition from outside to inside while also providing a visual anchor point.



Entrances along the route

By consistently providing ground-floor dwellings with entrances facing the street and main route, more eyes are placed on the street and a greater sense of human presence is created, enhancing safety.



Lighting for visibility and comfort

The lighting is lower than before (see Appendix 9.1), with a warmer tone and broader spread. This improves visibility for scanning the surroundings while reducing contrast between light and dark.



Transparant balcony edge

Balcony edges should be transparent, using railings or glass, to allow clear views and support stronger social surveillance.

Figure 85: Design ingredients for safe local routing



1. Starting from the metro, the route passes alongside the small inward-oriented shopping centre.



2. Continuing along closed façades, while dense and dark greenery is the other side of the route.



3. The route continues between parking areas and greenery, with no eyes on the street.



4. Turning right along the closed centre, still lacking supervision and activity.



5. Following the main road, with greenery on both sides of the footpath blocking free movement.



6. The route continues through green space, while the nearest buildings remain far away.



7. The same isolated path continues, bordered by greenery and adjacent to the main road and parking areas.



8. Turning right alongside another parking area.



9. No clear pedestrian route leads towards the flat, forcing movement across the parking lot.



10. Approaching the flat along a closed and inactive façade.



11. Continuing along the closed façade, with the entrance now in sight.



12. Arrival at the flat entrance, which lacks active resident spaces or social activity.



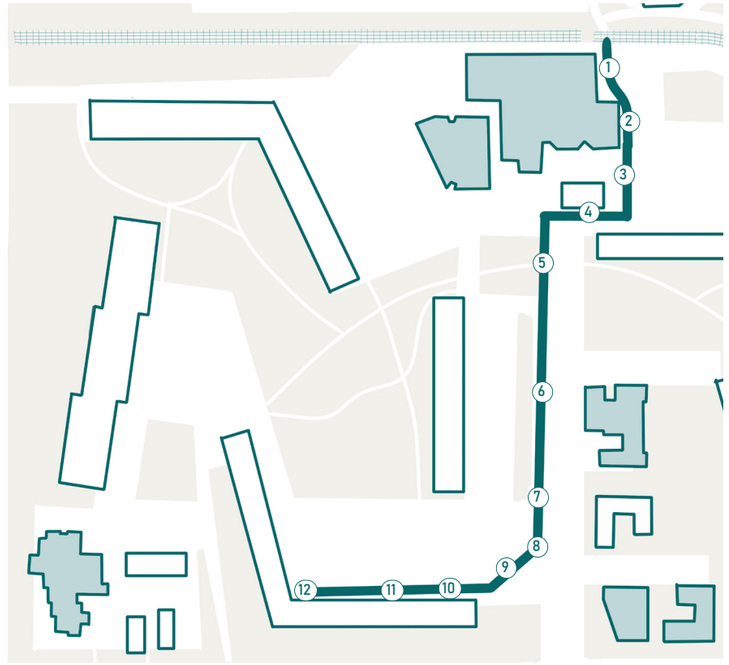


Figure 86: Current route from the metro station Romeynshof to the Kellogplaats flat



1. From the metro, the route immediately enters the centre, which now consists of a mix of housing, shops, workplaces and other amenities.



2. Lighting is designed at a human scale, creating even visibility and a comfortable atmosphere.



5. The route continues alongside housing, with long and straight sightlines towards landmarks such as flat entrances.



6. Passing the community centre, where activity remains visible during the evening through functions such as shared dinners and gatherings.



9. Passing the library, which remains active during the evening through activities such as music lessons.



10. The courtyard becomes visible through the straight routing structure.



11. Entering the courtyard, a semi-private and welcoming space appropriated by residents, with lower and warmer lighting.



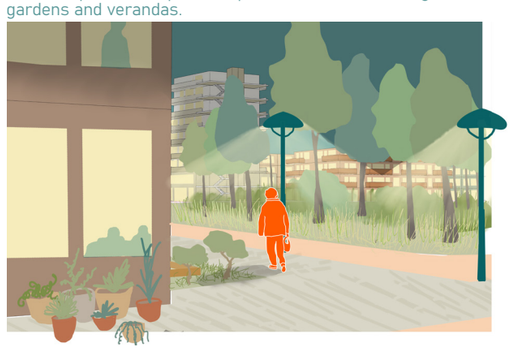
12. Arrival at the flat entrance, where resident activity is visible through communal spaces and a shared gym above.



3. Daily life is visible through the housing, while soft transitions between public and private space are created through front gardens and verandas.



4. Turning right along the housing blocks, where greenery is kept low to maintain clear sightlines.



7. Turning left, the route continues between housing and the central park.



8. Although the park is close by, it still feels safe due to eyes on the street, straight and wide paths, multiple escape routes and clear lighting.





Figure 87: New route from the metro station Romeynshof to the Kellogplaats flat



Figure 88: Safe local routing impression

6.6 Optional routing

The green network has now been outlined. This chapter addresses not only the human perspective on safety and quality of stay, but also ecological value and climate adaptation. The green network builds upon the existing ecological zone, which has been preserved as its ecological quality was already strong. However, this zone was previously subject to significant human disturbance. By introducing more greenery with higher residential and recreational quality within the built environment, pressure on these existing natural spaces can be reduced.

The green paths are intended for use only during daytime hours. For this reason, pathways are designed to be more scenic, less straight, narrower in form, and unlit, reinforcing their recreational character rather than functioning as primary movement routes. Multiple route options are provided, allowing for a varied and exploratory experience within the landscape.

The plan demonstrates how additional planting has been incorporated throughout the area, including substantial numbers of new trees alongside shrubs, grasses, and wildflowers. Key sightlines identified in the previous subchapter have been kept free from dense undergrowth. Trees should therefore provide a canopy that begins above eye level, ensuring visibility remains unobstructed at all times. Specific areas have also been designated for reduced maintenance, allowing them to become more naturalised over time. This contributes to greater landscape heterogeneity while simultaneously reducing disturbance for wildlife.

Several wadi locations have also been integrated for water retention, supporting climate adaptation while further strengthening ecological diversity. Wildflowers and grasses serve multiple functions simultaneously: they maintain broad visibility along necessary routes, while also supporting pollinators through food provision and ecological connectivity.

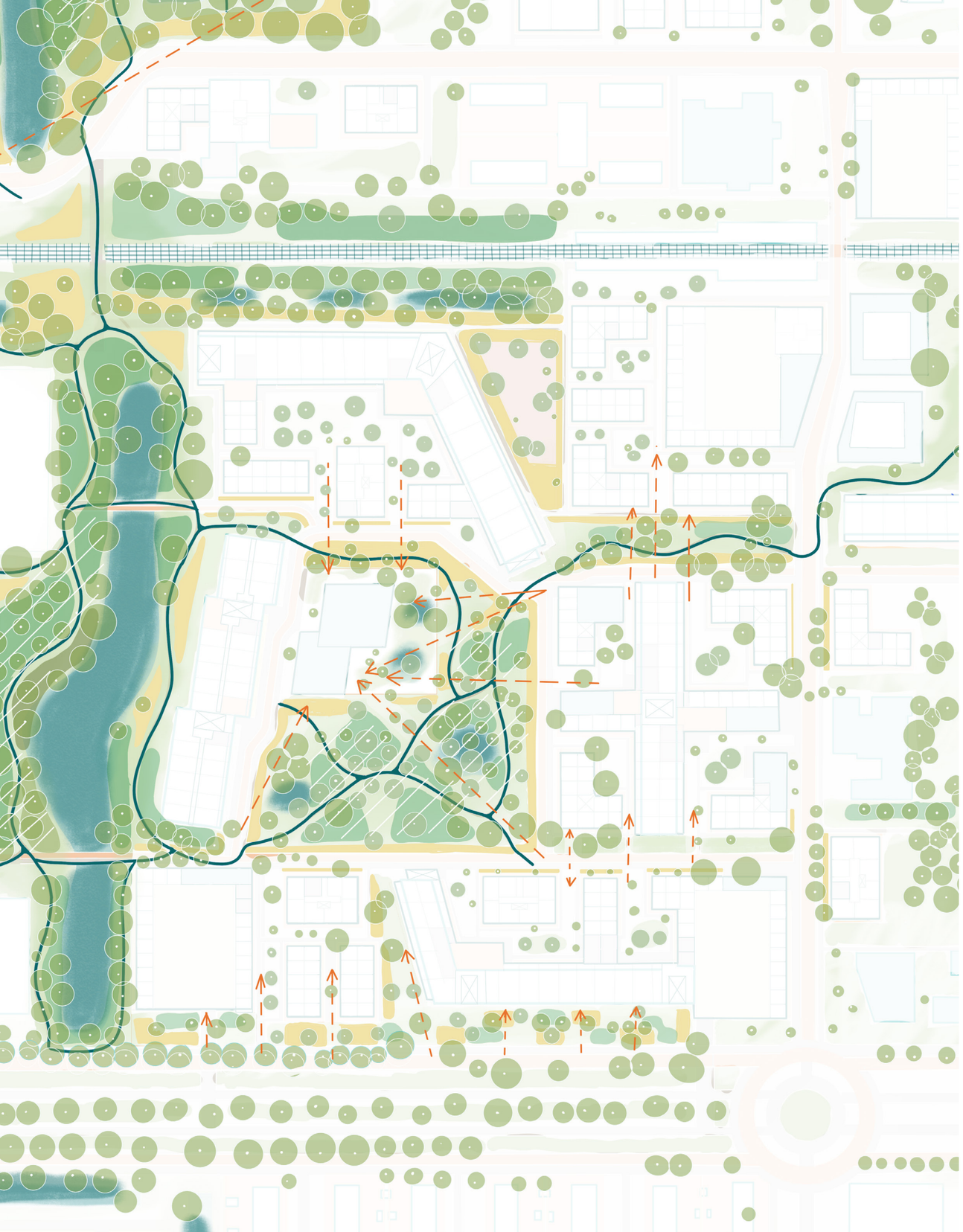


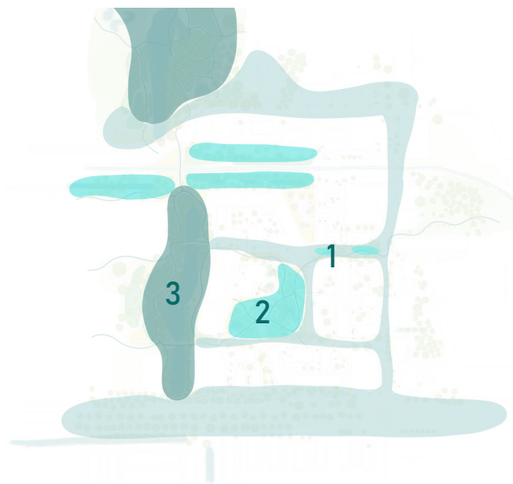
Figure 89: Optional routing plan

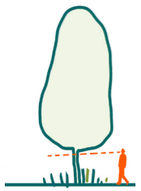




1. Safety-Oriented Green Corridors



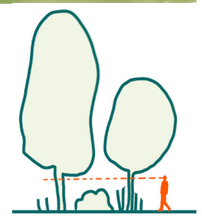




The green design is divided into three landscape zones. The first consists of green spaces along the main routes, where safety is prioritised over ecology. Dense vegetation that blocks sightlines is avoided to maintain visibility, surveillance, orientation, and clear connections between buildings.

2. Integrated Ecological-Safety Landscapes

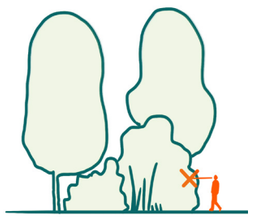




The second zone balances ecological value and safety through a more varied landscape structure. Selective shrubs at eye level are combined with preserved sightlines, while features such as wadis and designated ecological areas introduce greater landscape heterogeneity.

3. Ecology-Priority Green Axes





The third zone consists of the existing green axes, which already possess relatively high ecological value but previously experienced high levels of human disturbance. These areas are reoriented towards ecological priorities through reduced maintenance, minimised disturbance, and less emphasis on sightlines in order to better support biodiversity and habitat quality.

Figure 90: Three types of green zones

Design ingredients



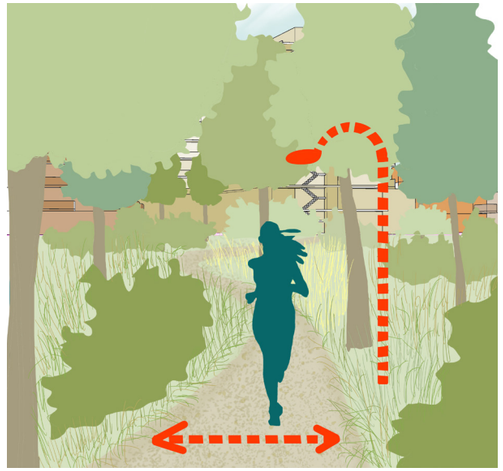
Clear sightlines

At key points within green spaces, sightlines should remain open to preserve visible landmarks and create variation, allowing people to periodically gain a broader view of their surroundings.



Low greenery along the edges

By using grasses and wildflowers along pathways, wider visibility is maintained, supporting environmental scanning. At the same time, these planted edges can form important ecological routes for wildlife.



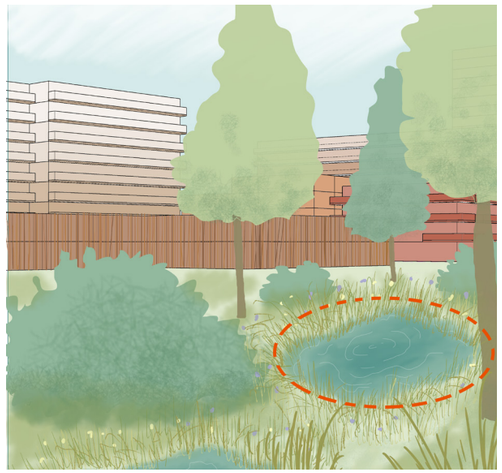
Scenic unlit gravel path

The green corridor intentionally remains unlit to clearly discourage use during the evening while also allowing the natural environment to rest undisturbed. Additionally, the path is composed of gravel to emphasise that it is intended as a scenic rather than an efficient route.



Ecological school square

By integrating the school into the landscape, the green area is extended. During the day, children can enjoy an adventurous environment, while in the evening it becomes a quieter space for wildlife.



Wadis for water retention

As Ommoord is low-lying, it faces significant water management challenges. Adding large water bodies is ineffective, as they quickly fill with groundwater. Wadis can capture excess water and release it gradually, while also introducing gradients into the landscape that benefit ecology.

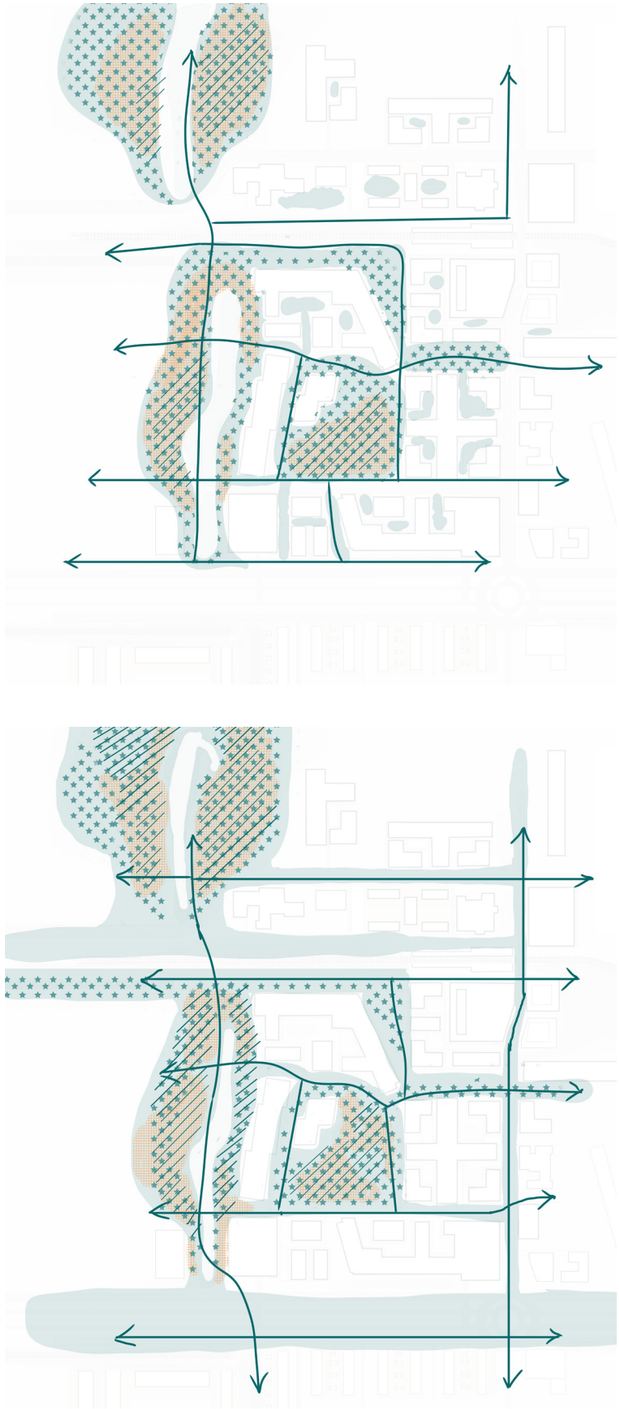


Areas where nature prevails

By reducing maintenance in selected areas, nature can take precedence, minimising ecological disturbance and allowing new habitats to emerge through dead leaves, fallen trunks, and other natural processes. This contributes to greater landscape heterogeneity.

Figure 91: Design ingredients for optional routing

4V-framework





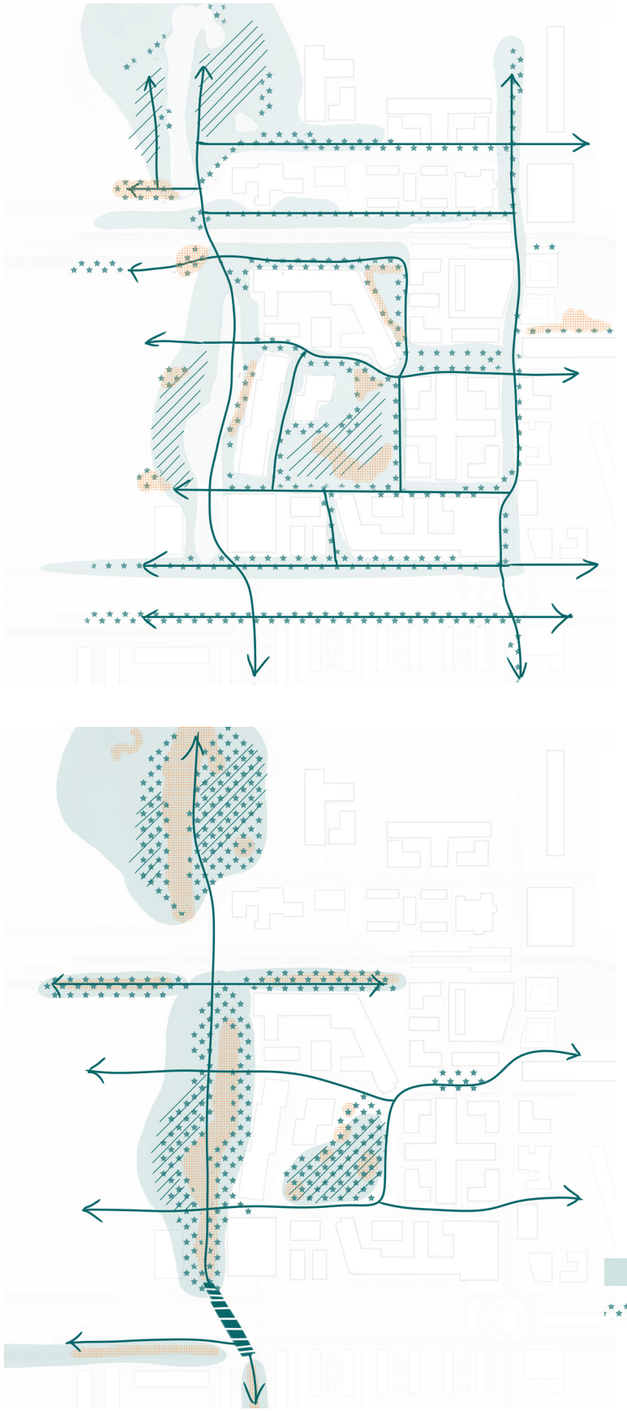
Hedgehog

The design supports hedgehogs by improving habitat quality, food availability, shelter, and connectivity. More biodiverse and low-maintenance green spaces increase invertebrate populations as a food source, while reduced-disturbance areas provide safer nesting opportunities. Improved ecological routes and reduced car traffic also allow safer movement throughout the area.



Song Thrush

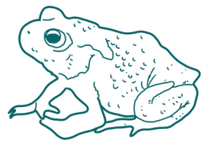
For the song thrush, the design enhances habitat quality through richer vegetation, increased biodiversity, and more sheltered green spaces. These interventions improve food availability and nesting opportunities, while reduced-disturbance zones and green stepping stones strengthen ecological connectivity within the wider landscape.





Wild Bee

The plan supports a wide variety of wild bee species through continuous pollinator corridors, diverse flowering vegetation, and improved seasonal food availability. Reduced-maintenance areas and varied landscape conditions create a broader range of nesting opportunities, including wetter and drier zones, dense vegetation, and more natural habitat structures.

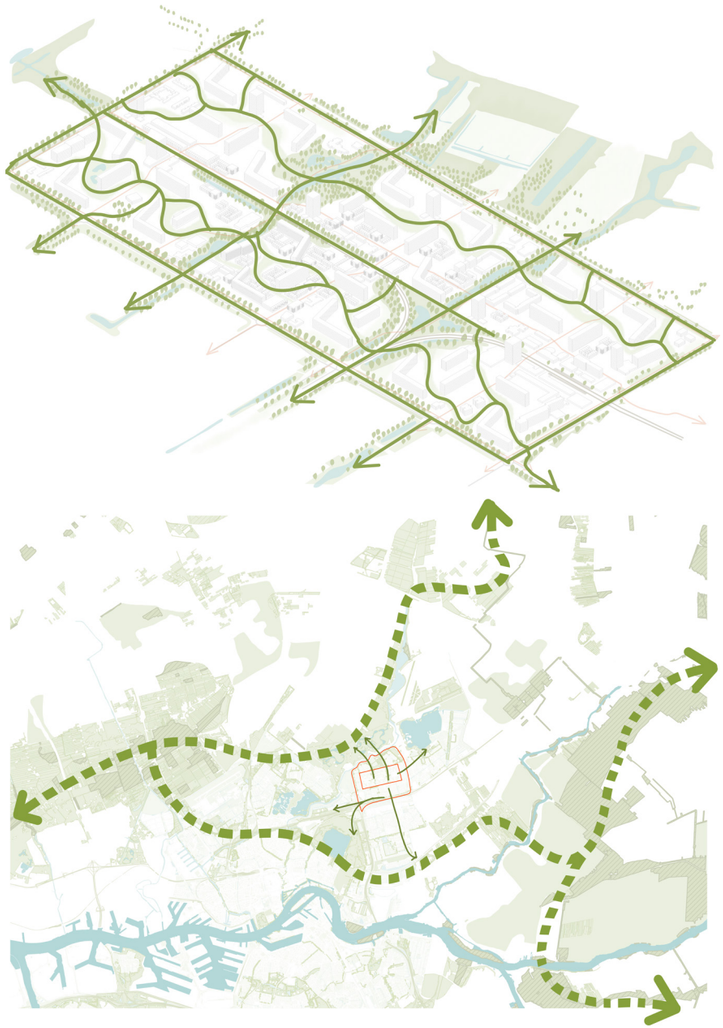


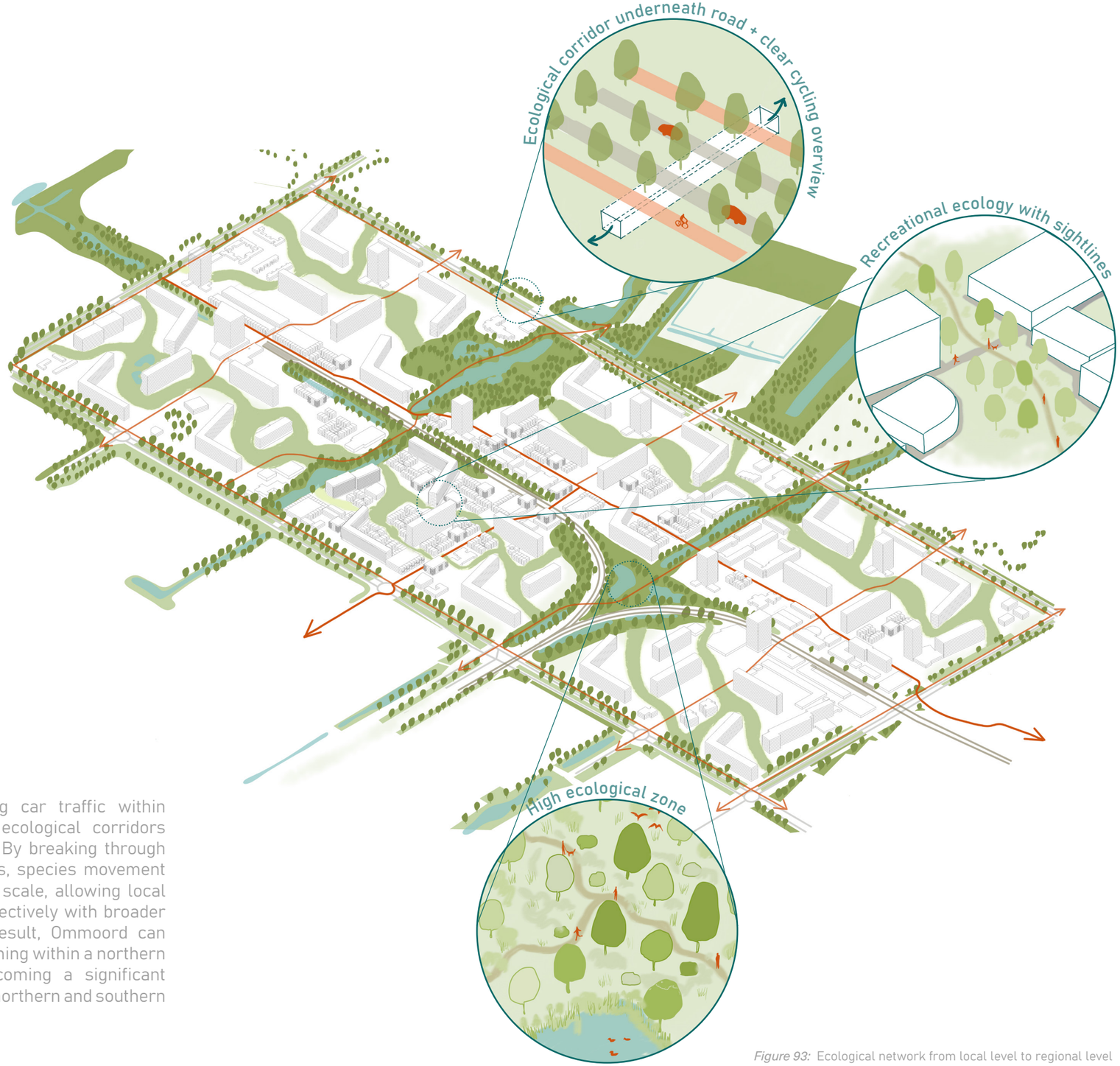
Common Toad

The design improves conditions for the common toad through expanded wet habitats, additional wadis, and water-retention areas that provide breeding opportunities and ecological stepping stones. Increased landscape diversity and richer ecological conditions also create more sheltered terrestrial habitats and greater food availability.

Habitat · Reproduction · Connectivity
Food · No disturbance, safety

Figure 92: 4V-plan per focus species





Ecological connectivity

As Ommoord is characterised by strong spatial repetition, the proposed design strategy can be translated across the wider district. This creates broader ecological connections throughout Ommoord, extending beyond the existing north–south axis to also strengthen east–west linkages, ultimately forming a more integrated and interconnected ecological network. Such expansion contributes to a new ecological framework that enhances biodiversity while also increasing overall ecological resilience.

The plan also demonstrates how existing barriers can be reduced by limiting car traffic within Ommoord and introducing ecological corridors beneath surrounding roads. By breaking through these infrastructural borders, species movement can occur at a much larger scale, allowing local habitats to connect more effectively with broader ecological systems. As a result, Ommoord can evolve from primarily functioning within a northern ecological structure to becoming a significant regional connector between northern and southern ecological networks.

Figure 93: Ecological network from local level to regional level

6.7 Soft transitions public to private

The design consciously establishes a soft transition from public to private space, which becomes clearly legible within the spatial structure. The main public routes are positioned around the green framework, and as one moves further into the built environment, spaces gradually become more private. This represents a clear departure from the existing situation, where the transition between public and private space is often abrupt and poorly articulated.

Informal meeting spaces play an important role within this structure, as they encourage everyday social interaction and strengthen community cohesion.

By creating soft transitions between public and private space, such as raised platforms, front gardens, terraces, or semi-private thresholds, residents are offered opportunities to appropriate space in ways in a natural way. These transitional zones reduce the abrupt divide between dwelling and street, allowing spontaneous encounters between neighbours to occur more naturally.

At the same time, such threshold spaces also function as important buffers between public and private domains. By creating greater distance between the dwelling façade and fully public routes, they provide residents with increased privacy, reduce direct pedestrian movement immediately alongside windows, and foster a greater sense of personal comfort. This often makes residents more willing to keep curtains open and engage visually with the street, which in turn strengthens natural surveillance and contributes to both social safety and residential quality.

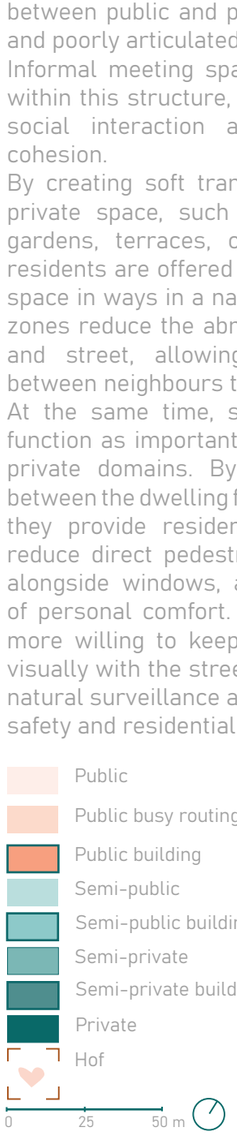


Figure 94: New design: soft transition public to private

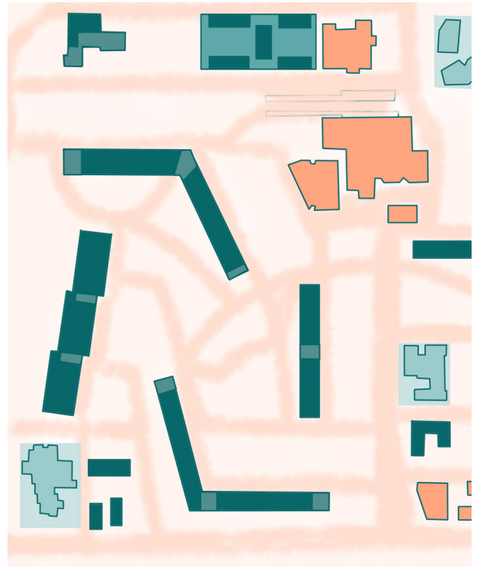


Figure 95: Current situation: rigid transition public to private



Design ingredients



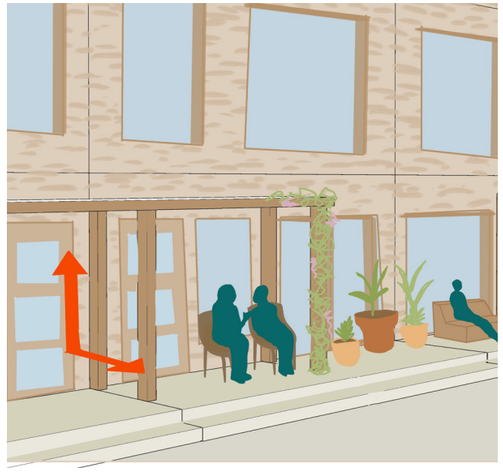
A soft transition is created from the plinth to the hof through the use of a slightly raised platform, which residents can appropriate as a front garden or terrace. This threshold encourages spontaneous social encounters.

Transition from plinth (private) to hof (semi-private)



The transition from plinth to street is shaped through a raised platform followed by a strip of greenery. This green buffer creates an additional threshold between private and public space while also offering recreational value.

Transition from plinth (private) to street (semi-public)



The transition between the building and the hof is established through a raised platform, occasionally complemented by a canopy to emphasise this threshold space and break visual repetition.

Transition from new build (private) to hof (semi-private)



The transition from building to street is created through small front gardens adjoining the dwellings, which gradually merge into a semi-paved street. This establishes a soft, green threshold from façade to façade, offering space for appropriation.

Transition from new build (private) to street (semi-public)



The transition from flat dwellings to the gallery is softened by widening the gallery and creating small bridges to each home. These bridges function as front gardens, where spontaneous encounters can more easily take place.

Transition from flat dwellings (private) to gallery (semi-private)



The transition from building to main route is softened by introducing a strip of low greenery between the raised platform and the route. This green buffer should remain neither too wide nor too high, as maintaining visibility along this key route is essential for eyes on the street.

Transition from new build (private) to main route (public)

Figure 96: Design ingredients for soft transitions public to private

6.8 Target group-specific public spaces

As outlined in the safety chapter, it is important to design public spaces with specific user groups in mind in order to avoid generic environments that are repeatedly dominated by the same social groups. A more intentional approach ensures that the needs of diverse populations are recognised within the spatial structure. Designing a space for a particular target group does not mean excluding others; rather, it ensures that the specific needs of that group are consciously accommodated and safeguarded. In this way, the design seeks to create space for all people by embedding inclusivity through differentiation rather than uniformity.

Alongside these targeted spaces, the design also includes areas that are not centred around a specific demographic but are intended for collective everyday use. These spaces are often less focused on prolonged stay and more on shared necessity. For example, the green park primarily supports movement through space, recreation, and broader landscape experience, while the shopping street accommodates essential daily functions such as shopping, work, healthcare, and services. Such spaces are designed to serve all residents, as these activities form a necessary part of everyday life regardless of age, gender, or social group.

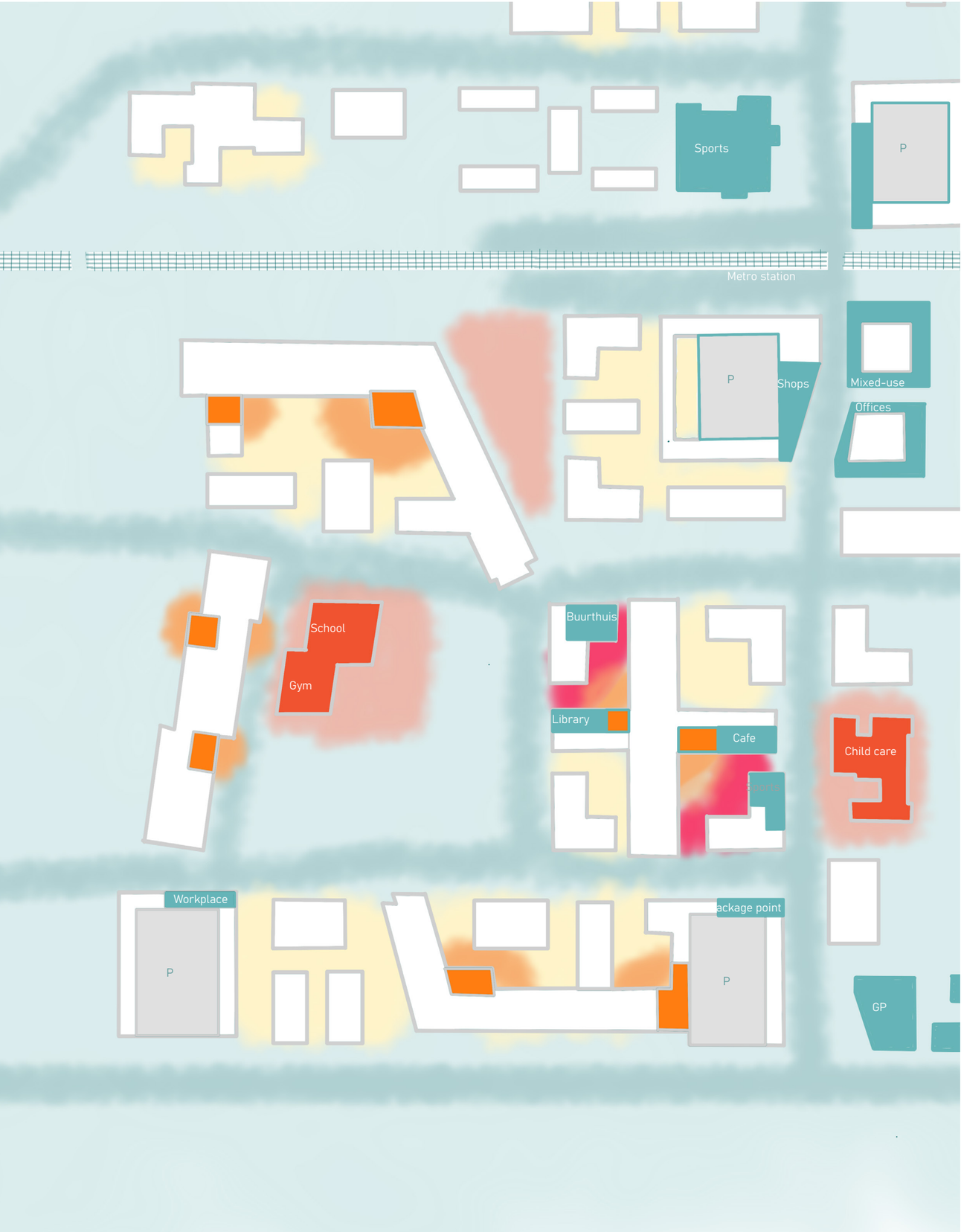
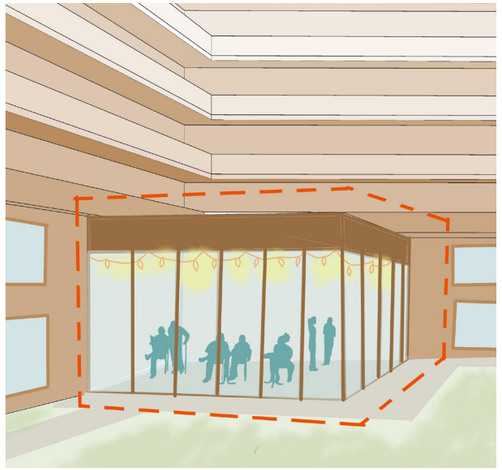


Figure 97: Target group-specific public space plan

Design ingredients



Flat residents' common room

To provide existing flat residents with their own place for gathering, particularly as larger flats can feel more anonymous than smaller apartment blocks, shared common rooms are introduced. Positioned along the hof, these spaces encourage social connection and community.



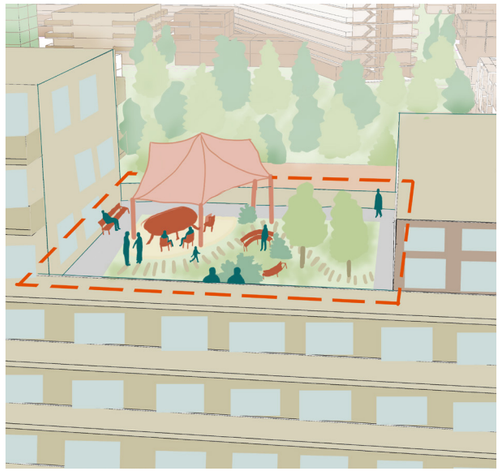
Shopping and multifunctional street

This street is intended for everyone, while ensuring that each cluster contains the essential daily amenities residents need, reducing the necessity to travel to another centre in the evening. In addition, it provides opportunities for work, sport, recreation, and other shared functions.



Hof for direct residents

The hof is intended primarily for immediate residents, fostering social contact between neighbours, supporting recreation, and contributing to a high quality of living.



Hof for direct residents

Flat residents are provided with roof top grardens. Given their larger population compared to new-build residents, these places add to recreation and social connection. They also allow more light to reach the hof below. The gardens are along the internal route, to integrate into everyday movement patterns (see appendix 9.7).



Playgrounds

A range of playgrounds are distributed throughout the plan, addressing a current lack of such spaces in Ommoord. As the new typologies may attract a broader range of residents, including families with children, play spaces become increasingly important. These can vary from small-scale play areas within the hof to larger central playgrounds.



Space for teenagers

Further explained on page 170, this strategy gives particular attention to spaces for teenagers, especially girls, who often spend less time outdoors and are more frequently excluded from public space.

Figure 98: Design ingredients for target group-specific public spaces

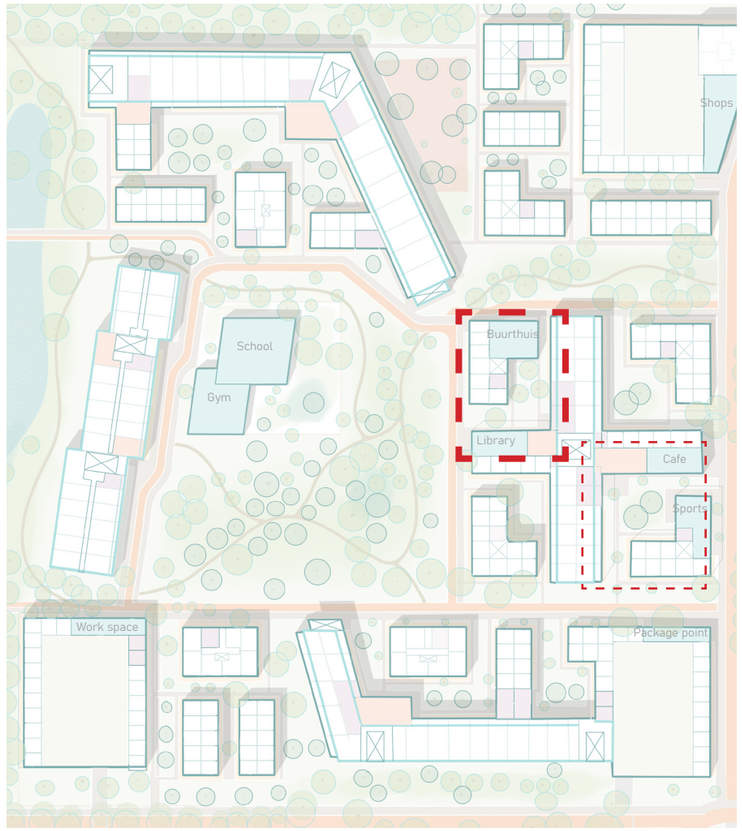


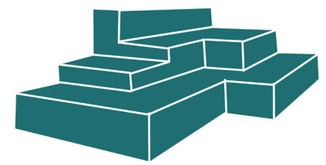
Figure 99: Semi-public courtyards purposely designed for girls

Space for girls

As previously established, it is important to design public spaces with specific target groups in mind in order to prevent repeated dominance by the same social groups. Teenage girls in particular require additional attention, as discussed in the safety chapter, where it was shown that they occupy only one-third of playground space compared to boys of the same age. This imbalance is closely linked to the spatial design and social coding of public environments.

To better accommodate young girls within the public realm, a dedicated public space intervention has been developed. The selected location is within the hof adjoining the community centre and library. Together with the hof connected to the gym and café, these spaces differ from other courtyards because they are somewhat more public than private. This is largely due to the presence of active community functions along the hof and the reduced number of ground-floor residential addresses, making these spaces feel less territorially claimed by immediate residents.

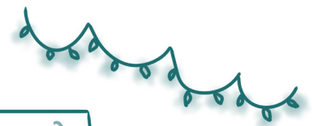
This spatial condition is particularly suitable for teenage girls, who often seek places where they feel welcome and socially permitted to remain, without the pressure of occupying spaces that appear overly appropriated by others. At the same time, they also benefit from social surveillance and a sense of safety. The presence of the community centre and library helps provide this through their social and civic roles, offering passive oversight without direct control. Drawing from the literature on girls' experiences and preferences in public space, key desired qualities have been integrated into the design in order to create a more inclusive and supportive environment.



Stairs seating for good overview



Nice looking



Good atmosphere

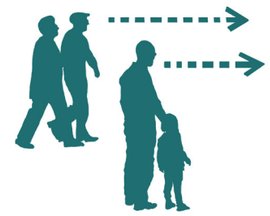


Round seating for better conversation





Nest swing

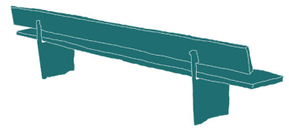


Social surveillance for safety





Canopy against rain



Seating with back support



Public toilet



Chill spaces



Well-maintained

Figure 100: What girls want in public spaces to feel included and comfortable

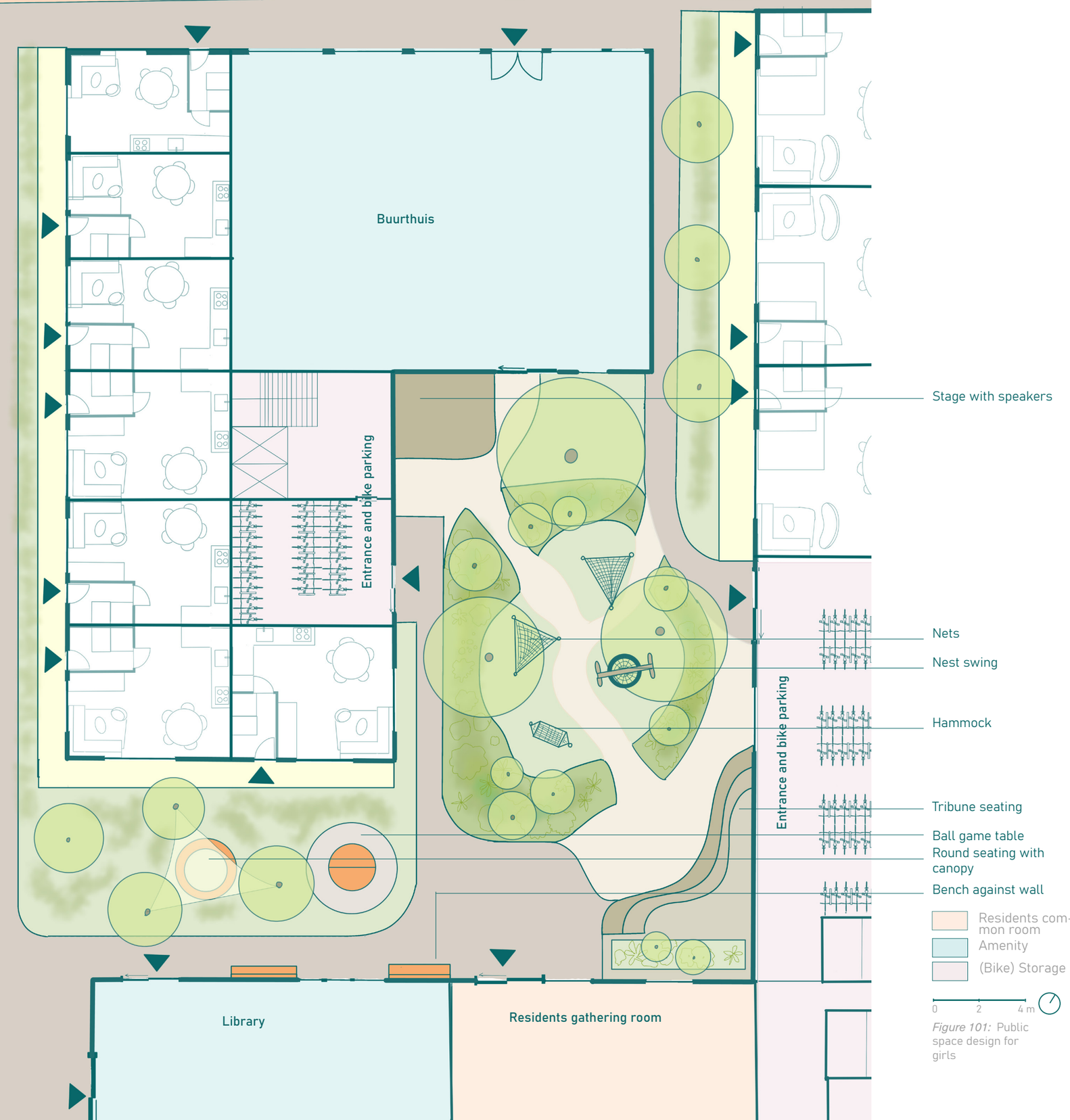


Figure 101: Public space design for girls

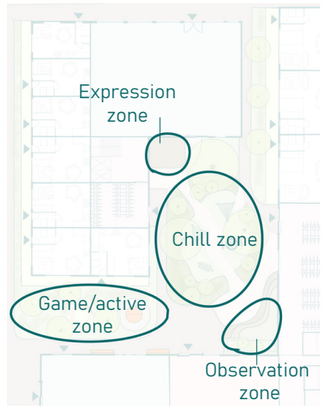


Figure 102: Zoning plan public space for girls

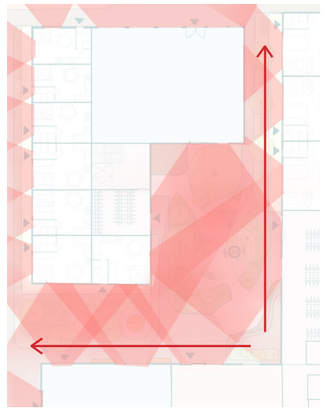


Figure 103: Passive surveillance and sight lines public space for girls

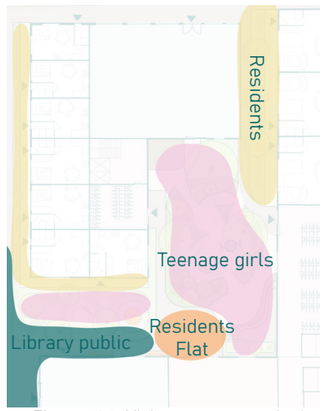


Figure 104: Visitors movement in the public space for girls

Design for girls

The design is structured around four distinct spatial zones, each responding to specific needs identified through research on teenage girls' experiences in public space. Together, these zones create a mixed plan that balances safety, comfort, expression, and activity for teenage girls.

1. Observation zone: This zone consists of an elevated seating area in the corner of the site. Its location allows teenage girls to look in two directions along the streets while benefiting from strong back coverage. By utilising the corner condition, the design also enables more round social seating arrangements, creating opportunities for conversation, socialising, and passive presence.

2. Chill zone: Located more centrally, the chill zone is designed as a semi-sheltered social space. It is framed by planted borders with low trees and grasses, providing a sense of privacy without compromising visibility or safety. Features such as a nest swing and hammocks create informal opportunities for relaxation, gathering, and conversation, allowing teenage girls to occupy space comfortably while maintaining social oversight.

3. Expression zone: This area takes the form of a platform or small podium connected to the community centre. It is intended as a space for self-expression, performance, and social creativity for teenage girls, such as dance or small gatherings. A music installation can be used within this space. The community centre provides oversight and supervision over this. This zone is positioned with slightly less direct social surveillance, allowing teenage girls to feel less observed without becoming isolated.

4. Activity zone: Positioned adjacent to the library, this zone has higher levels of movement due to nearby residents and visitors. It includes a circular ping-pong table, rounded seating with canopies, and multifunctional open space.

The community centre and library also provide supporting infrastructure such as public toilets, water access, social oversight, and long-term support, helping to maintain a welcoming and safe environment for teenage girls.



Figure 105: Public space design for girls impression

6.9 Design evaluation

Realisation of the Design Ambitions

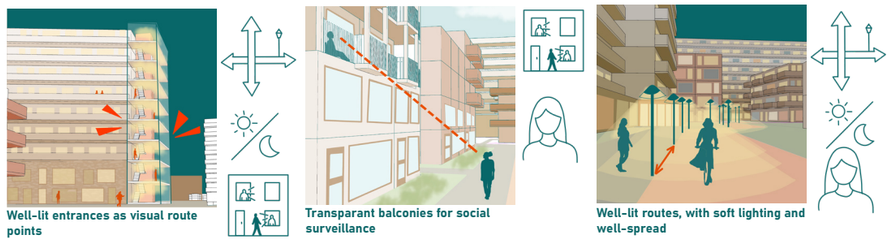
As described at the beginning of the design chapter, a set of design principles was established for both safety and green spaces. Several of these principles initially appeared to have conflicting spatial effects. However, these conflicts were weighed against each other through different design interventions, resulting in design ingredients that combine both green and safety objectives.

For example, the introduction of grasses and wildflowers along the primary routes preserves clear sightlines while strengthening ecological connectivity. Similarly, avoiding artificial lighting within the green areas works both as a social and ecological strategy: for people, the absence of lighting communicates that these routes are less suitable during the evening and night-time, while for flora and fauna it minimises ecological disturbance.

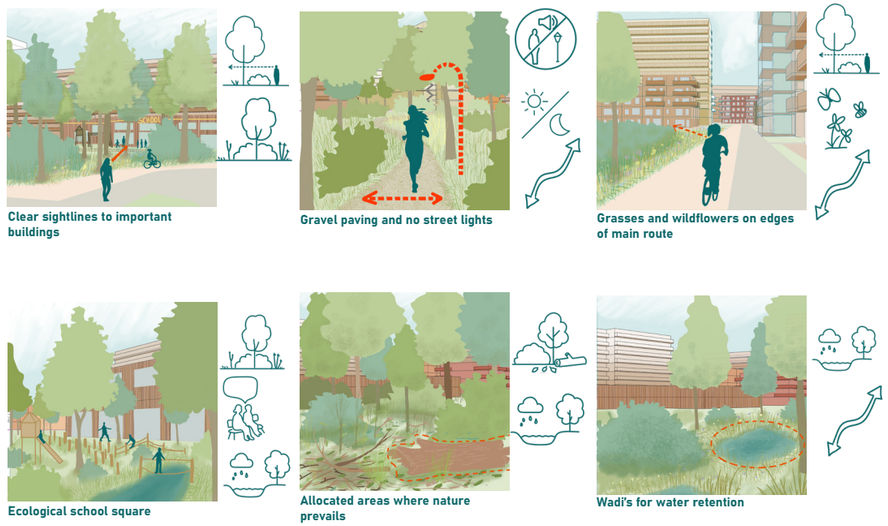
The conflicts between safety and ecology were also addressed within the masterplan itself through the routing system and the placement of buildings. A distinction was made between a greener ecological route and a more urban route focused on safety and orientation. In addition, the routes function differently during the day and night, separating routes mainly centred on human activity from routes where ecological values take priority. In this way, both spatial organisation and temporal use patterns became important design mechanisms through which safety and ecology could coexist.

Ultimately, all design ingredients can be directly linked to the established design principles, showing that the full set of principles has been integrated into the final design. Both ecological quality and safety have been given sufficient spatial consideration, and many green and safety principles have been combined within shared design interventions. At the same time, the necessary routing strategies place greater emphasis on safety and orientation, while the optional routing strategies focus more on ecological experience and green qualities. Together, the design ingredients and the masterplan ensure that both safety and green infrastructure are embedded within the proposal.

NECCESSARY ROUTING



OPTIONAL ROUTING



PUBLIC TO PRIVATE



TARGET GROUP SPECIFIC



Figure 106: Overview design ingredients and their design principles



Figure 107: An holistic design: design qualities beyond only safety and green spaces

Although this project focuses on the perspectives of safety and green spaces, these are not the only qualities embedded within the design. The masterplan is the result of an extensive iterative design process involving many different versions and refinements as visible in chapter 9.4. Throughout this process, the plan was continuously evaluated and adjusted to ensure that it not only performed well in terms of safety and ecology, but also functioned as an integral, high-quality and livable urban plan across all urban aspects.

1. Housing increase

The proposal contributes directly to the current housing shortage through the addition of at least 320 new dwellings, depending on the number of units per building. In addition, the housing offer has become more diverse, creating opportunities for different target groups and household compositions.

2. Increase in social mix

The dwellings themselves vary in size and typology. Some units are located on the ground floor with private front gardens, while others include balconies or are positioned within more urban settings. Furthermore, the housing blocks are designed flexibly, meaning that one dwelling can consist of one or multiple units, resulting in greater variation in dwelling sizes. This diversity in housing typologies also contributes to a more diverse group of residents and a stronger social mix.

3. Central parking, reduction paved surface

The proposal results in a 26% reduction in paved surfaces, largely through the reorganisation of parking. Instead of dispersed on-street parking, cars are concentrated within centrally located mobility hubs. This improves the spatial quality of the neighbourhood, reduces the dominance of cars within the streetscape, and creates more space for greenery and public life. The parking ratio is expected to be around 0.7 parking spaces per household, resulting in approximately 770 parking spaces within the plan. Importantly, the parking hubs remain within walking distance of all dwellings and are positioned along the primary routes, contributing to both accessibility and safety.

4. Efficient routing

The routing structure has been redesigned to improve both efficiency and safety. The necessary routes are straightforward and connect directly to the main facilities and amenities. This increases the number of people using these routes, which improves social safety while also making the neighbourhood more walkable and bike-friendly.

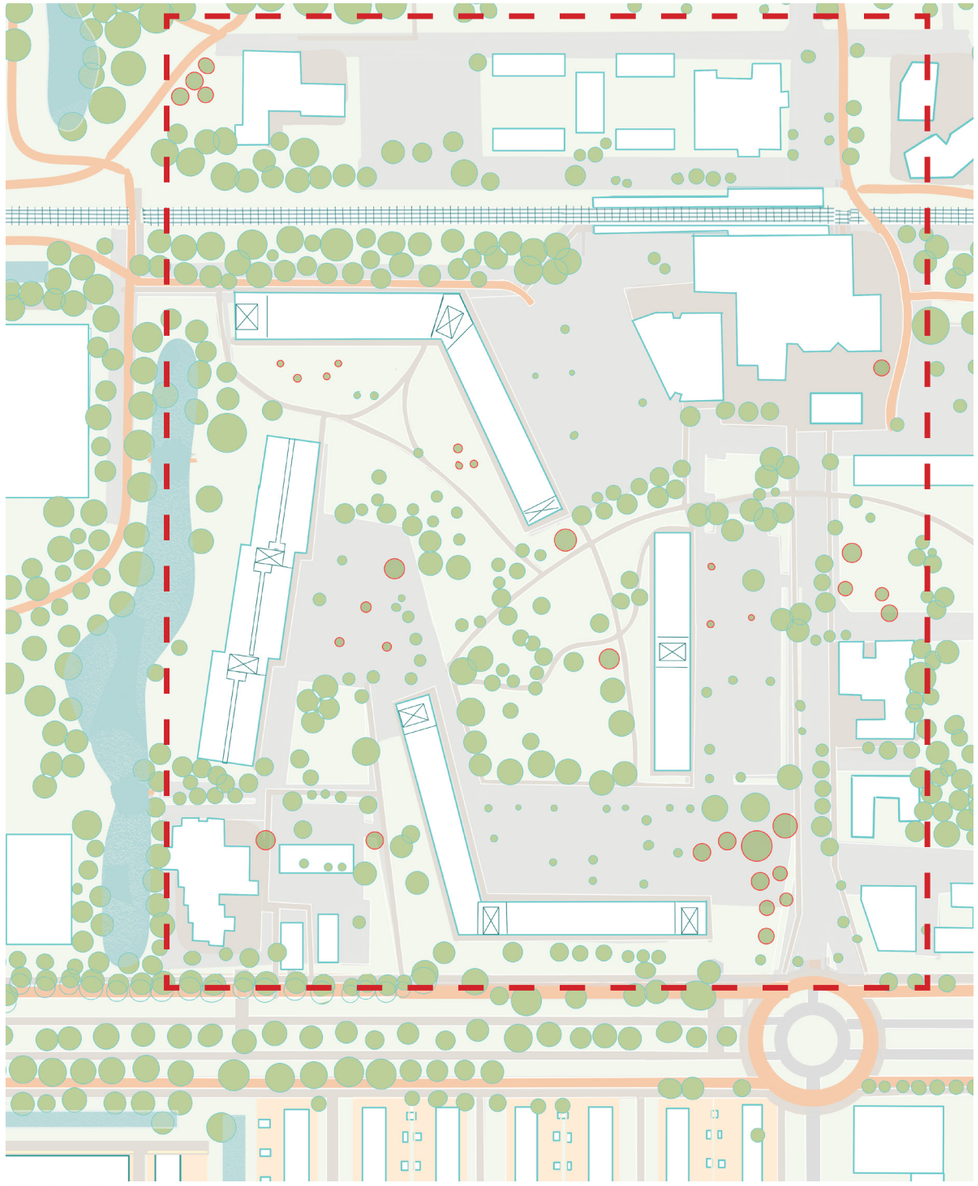
5. Increase and diversified amenities

The proposal introduces a greater quantity and diversity of amenities, both within buildings and throughout public spaces. New meeting places and functions are added for different target groups, including spaces related to sports, health, retail, work and recreation. This not only increases urban vibrancy and social interaction, but also creates opportunities for local employment and a more active public realm throughout the day.

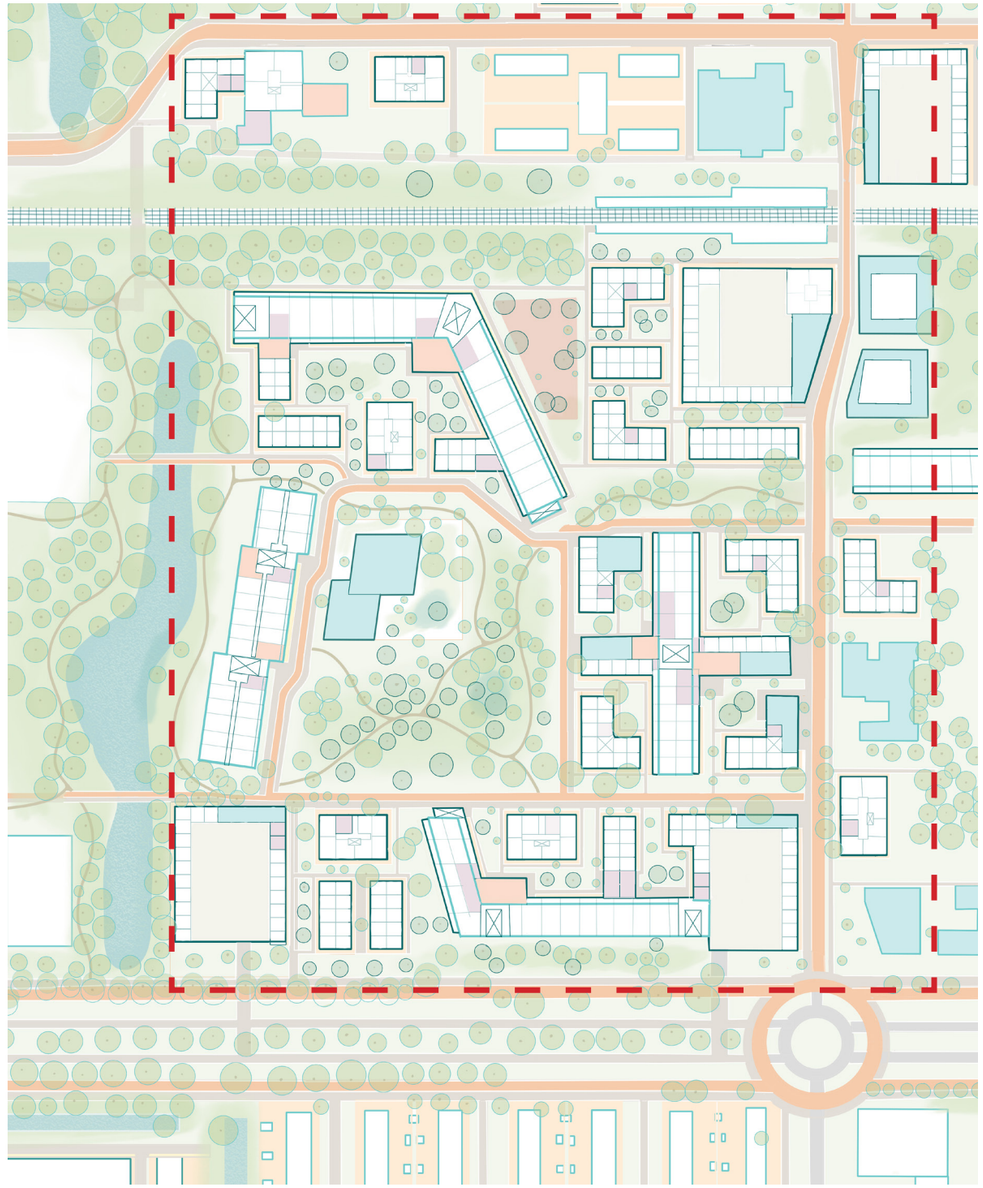
6. Increase in quality and quanitity green

The green spaces have also become more qualitative. The total green surface within the area increases by 10%, which not only benefits biodiversity, but also improves climate adaptation and the living quality of residents. In addition, more variation in planting has been introduced to create different ecological zones and a more interesting spatial experience when moving through the area. Furthermore, around 100 additional trees have been added, strengthening biodiversity, improving climate adaptation, reducing the urban heat island effect, and creating a more pleasant streetscape. At the same time, the placement of the new buildings was carefully considered to minimise the impact on the existing green structure. As a result, almost all existing trees could be preserved, with only 30 small trees removed.

Together, this shows that the design goes far beyond safety and green spaces and results in an integrated and highly livable urban masterplan.
The comparison between the current situation and the new design can be found on the next page.



Status Quo:
44% Paved area
17% build area
39% Green area



New situation:
18% Paved area
33% Build area
49% Green area

Figure 108: Design performance comparison between current situation and new design

7

CONCLUSION & REFLECTION

7.1 Conclusion



What are important qualities and requirements in public spaces to enhance safety and inclusivity?

Safety and inclusivity in public spaces require both important considerations during the design process and a range of spatial qualities and design interventions.

During the design process:

Awareness perceptions of safety: First of all, there needs to be more awareness that feelings of unsafety are still a persistent issue within many urban environments. At the same time, it is important to recognise that safety is highly subjective. Even when statistical data shows that a place is objectively safe, people can still experience feelings of insecurity. These perceptions have real consequences, as they can discourage people from using public space altogether.

Inequality in public space: In addition, the research shows a clear gender inequality in experiences of safety and inclusivity within public space. The needs, perceptions and spatial experiences of women have historically been underrepresented within urban planning and design processes. Therefore, these perspectives should be more consciously included within future planning practices, for example through gender mainstreaming approaches.

Design interventions:

Eyes on the street: One of the most important spatial interventions is creating "eyes on the street." This can be achieved by orientating windows and entrances towards primary routes, encouraging shared use of routes, and increasing proximity between users.

Legibility: Secondly, legibility and a strong sense of place contribute significantly to perceived safety. Straightforward and visually clear routes create predictability and give users a greater sense of control over their environment.

Clear sightlines: Maintaining clear sightlines and visual connections to landmarks also helps users better understand and oversee their surroundings.

Soft and legible transitions between public and private space: In addition, soft and legible transitions between public and private space can facilitate informal encounters and strengthen collective ownership of the environment.

Balanced mix: A balanced mix of housing, users and amenities is also important, as it contributes to social diversity, urban vibrancy and social cohesion. Moreover, spaces for social interaction should be intentionally designed for different target groups, including groups that are often overlooked in urban planning processes, such as teenage girls.

Consideration of day and night conditions: Finally, the research shows the importance of considering differences between day and night conditions, as perceptions of safety can change significantly depending on the time and environmental circumstances.



What are important qualities and requirements in public spaces to enhance ecology and climate adaptivity?

The research identifies several important principles and spatial interventions that strengthen ecological quality and climate adaptivity within public spaces.

Quality over quantity: Ecology and climate adaptivity within public spaces require more than simply adding larger amounts of green space. The research shows that the quality and ecological functioning of green spaces are just as important as the quantity. While increasing green coverage can contribute to climate adaptation, it does not automatically result in higher biodiversity or ecological quality. Therefore, greater focus should be placed on creating diverse, connected and ecologically functioning landscapes.

Designing for focus species and the 4V framework: The research demonstrates the importance of designing for focus species that represent larger ecological groups. By designing for a limited number of representative species, the design can ultimately support a much wider range of flora and fauna. Using the 4V framework as an evaluation tool makes it possible to test whether the design meets the ecological requirements of these species and contributes to a more resilient ecological network.

Diverse and low-maintenance green spaces: Ecological quality can be improved in several ways. Firstly, a layered vegetation structure with low, medium and high planting, combined with a diverse range of plant species, creates richer habitats and greater ecological complexity. Secondly, areas with lower maintenance levels allow natural processes to develop more freely and enable biological material to remain within the landscape, increasing heterogeneity and ecological resilience. In addition, selecting food-producing plant species that bloom throughout different seasons supports broader food chains and provides food sources for species throughout the year.

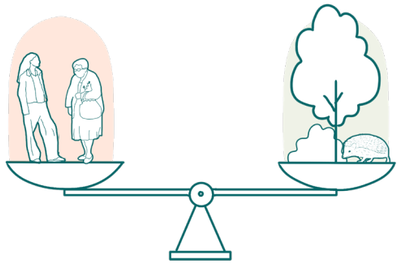
Ecological connectivity: Ecological connectivity is also highly important. Connected green structures strengthen resilience by allowing species to move more freely, access food resources in different locations, and support larger populations within an area.

Limited disturbance: At the same time, limiting disturbance is essential for ecological performance. Ecological systems benefit from reducing disruptions caused by artificial lighting, noise and intensive human activity.

Climate resilience: Climate resilience forms another important part of ecological design. This can partly be achieved by reducing impermeable surfaces and increasing green coverage, but also through measures such as water retention areas and improved rainwater management.

Temporal dynamics: Finally, the research highlights the importance of considering temporal dynamics within ecological design. Species have different needs during the day and night, as well as across seasons, and these changing patterns should therefore be integrated into the design process.





How does Ommoord perform in terms of safety and the quality of green spaces, considering both social perceptions and physical characteristics?

The research shows that Ommoord performs poorly in terms of both perceived safety and the quality of its green spaces. While the neighbourhood contains a large amount of green space, both the social and ecological performance of the area face several challenges.

Low perceived safety: The poor performance on safety is largely caused by routes lacking "eyes on the street," closed and inactive plinths, inward-orientated shopping centres, isolated routes through green spaces, and extensive parking areas. In addition, Ommoord currently experiences a demographic imbalance, which contributes to reduced social cohesion within the neighbourhood. Both the spatial analysis and the experiences shared by residents confirm these social and spatial challenges.

Low ecological and spatial quality of green spaces: With regard to green space, Ommoord performs well quantitatively, as it contains a large amount of greenery. However, the quality of the green spaces is considerably lower. Only the main green axes can be considered ecologically valuable, although these are often disturbed by high levels of human activity and visitors. Much of the remaining green space consists of fragmented and low-quality landscapes with limited ecological value. Furthermore, Ommoord faces increasing water-related challenges, which are worsened by the high percentage of impermeable surfaces throughout the neighbourhood.

The aim of this research was to explore how the modernist neighbourhood of Ommoord can be redesigned to enhance perceived safety for women, while also providing high-quality, inclusive public green spaces.

This research demonstrates that perceived safety and ecological quality do not have to function as conflicting objectives within urban redevelopment. Instead, when safety and ecology are approached as interconnected spatial systems, they can reinforce one another and contribute to a more inclusive, resilient, and livable neighbourhood.

The paradox of green in modernist neighbourhoods

The starting point of this research was the recognition that many modernist neighbourhoods, including Ommoord, were designed according to functionalist planning principles in which efficiency, separation of functions and the quantity of green space were prioritised, while social safety and inclusivity received less attention.
In Ommoord, the quantity of green space is high, but its quality is relatively low, resulting in low ecological performance and increased perceptions of unsafety. This is due to large open green spaces, isolated routing, inward-orientated building typologies, separated functions and extensive parking areas

Design framework

To address these challenges, a design framework was developed in which the needs and experiences of users, specifically from the perspective of women, formed the basis of the design process.
In addition, the framework explicitly incorporated the temporal dimension of day and night, acknowledging that perceptions of safety, patterns of use, and ecological requirements change over time.
This resulted in a distinction between several forms of movement and use within public space. Firstly, necessary routing consists of movement quickly from A to B and safe local routing, which should remain safe, clear, and comfortable during both day and night. Secondly, optional routing refers to leisure-oriented movement, which occurs during daytime and therefore allows greater emphasis on ecological qualities. Thirdly, resultant activities consist of staying within public space, social interaction, and informal encounters, which likewise occur during daytime conditions.
The plan is structured in such a way that neccessary routes and social activities place stronger prioritises social safety while optional routing emphasises green qualities and ecological performance.

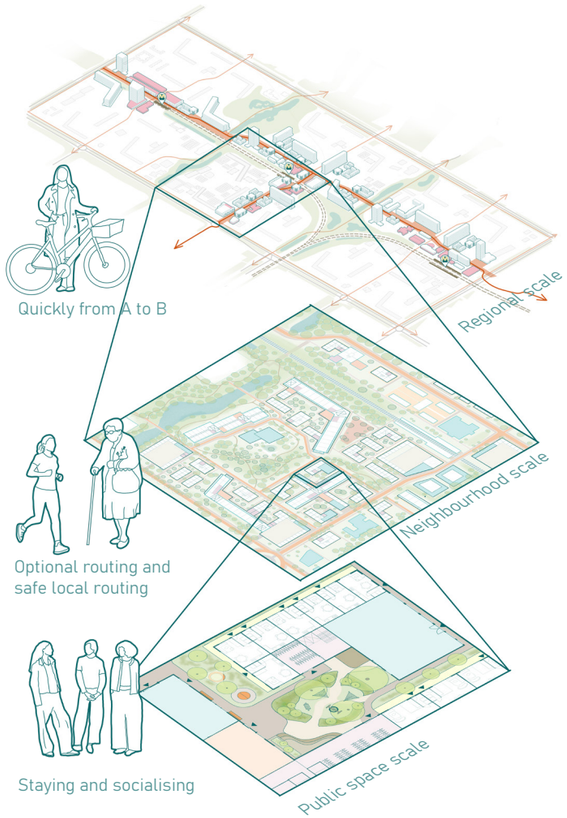


Figure 109: Design framework resulting into a multi-scalar design

Designing across different scales

By designing around these different types of activities, the proposal automatically operates across multiple scales. From fast movement from A to B on a regional scale, safe local routing and optional routing on a neighbourhood scale, and staying and social interaction on the public space scale.

Main design interventions

The design consists of the overall masterplan and design ingredients that together ensure all design requirements are integrated into the proposal. Together, several main interventions form the basis of the proposal.

- **Differentiated routing:** Differentiated route systems were introduced in which safety-oriented and ecology-oriented routes function differently during day and night conditions. This distinction is expressed through the selective application of lighting and maintenance regimes: some routes remain illuminated and intensively maintained to support perceived safety, while others remain darker and less disturbed in order to preserve ecological value.

- **Densification as safety and social cohesion strategy:** Secondly, new residential buildings were introduced to improve housing quality, strengthen social cohesion, and create more "eyes on the street". Through courtyard typologies and semi-public spaces, opportunities for informal and spontaneous encounters are encouraged. Public spaces were also intentionally designed with specific target groups in mind, ensuring that underrepresented groups are equally considered within the public realm.

- **Differing emphasis on green ans safety:** Additionally, the proposal establishes a clear distinction between green spaces centred primarily around human activity, spaces in which human and ecological interests coexist, and areas in which ecology takes precedence. Through this layered and integrated approach, the project demonstrates that the redesign of modernist neighbourhoods can move beyond purely quantitative green provision

towards environments in which ecological quality, climate resilience, perceived safety, and social inclusivity are addressed simultaneously.

Beyond safety and ecology

Finally, the design does not only take into account safety and ecology but functions as an integrated, livable and qualitative urban plan that considers all urban aspects. As a result, it not only contributes to safety and green spaces, but also creates more housing opportunities, different housing typologies for different social groups, new and more diverse amenities, efficient routing along important facilities, and a new parking strategy that reduces paved surfaces and is connected to the main routing structure. The addition of green space and the reduction of paved surfaces also contribute to a more qualitative living environment.

Academic relevance

Integrating safety and ecology

This research contributes to urban design discourse by demonstrating how perceived safety and ecological quality can be integrated within one coherent urban design approach, rather than being treated as separate or conflicting agendas. In doing so, the project contributes to broader discussions on the transformation of post-war modernist neighbourhoods and challenges the assumption that green space and perceived safety are inherently incompatible.

User-centred methodology

In addition, the research contributes methodologically by approaching urban design explicitly from the perspective of the user. By focusing on necessary, optional and social activities, and simultaneously designing through focus species and the 4V framework, the project introduces a more integrated way of considering both human and ecological needs within the design process. The inclusion of temporal differences between day and night further contributes to this integrated approach.

Transferability to other urban contexts

Furthermore, this project helps bridge the gap between theoretical principles and spatial application. While extensive theoretical knowledge already exists on safety-led design and ecological urbanism, there are fewer examples demonstrating how these principles can be translated into concrete urban form within a real and complex urban context. This is precisely where context becomes essential, as the integration of multiple objectives generates new challenges that differ according to local spatial, social and environmental conditions. By grounding the research within Ommoord, the project not only develops a context-specific proposal, but also offers broader inspiration, design principles and design ingredients for how safety and ecology can be integrated within urban design practice.

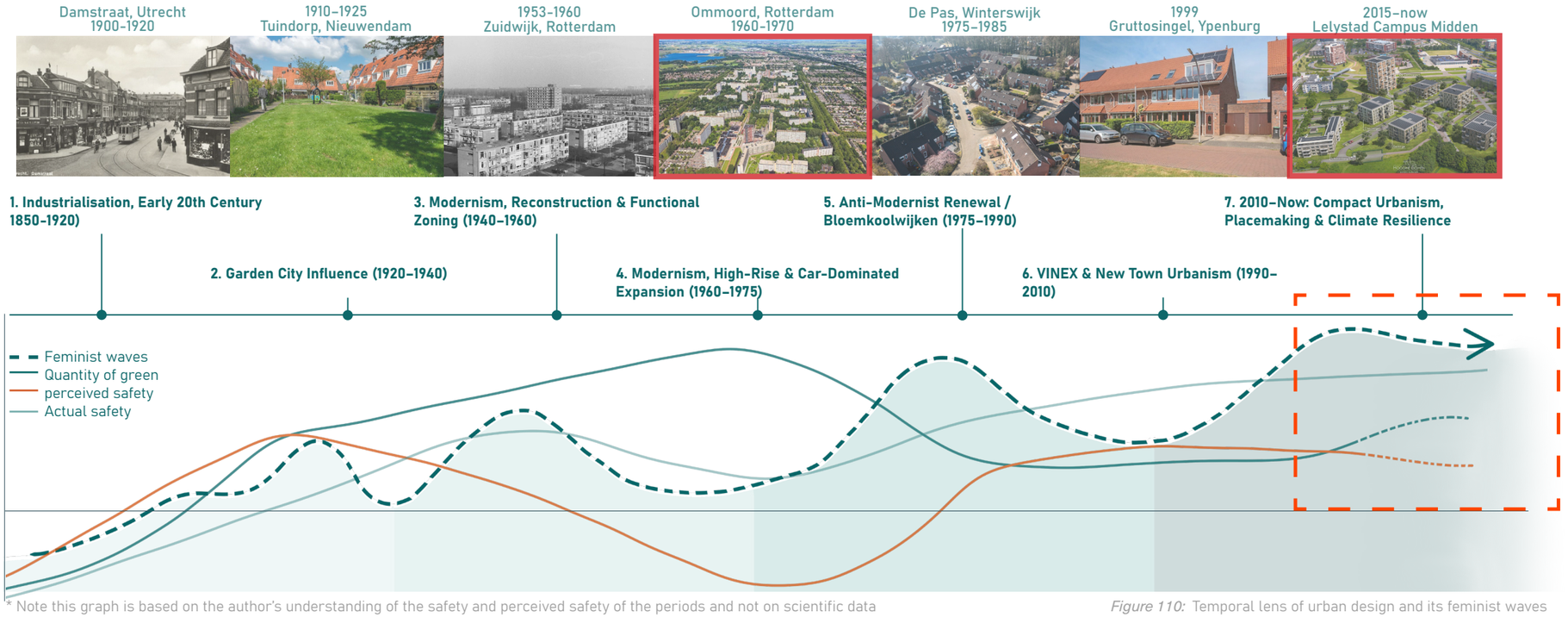
Temporal lens

A crucial part of this project was approaching urban design through a historical and temporal lens. By analysing different planning periods and their underlying ideals, it became clear how societal priorities shape physical space over time. Each urban era responds to the demands of its time, but often also creates new spatial challenges.

This became particularly visible in modernist neighbourhoods such as Ommoord. Modernism strongly focused on light, air, openness and efficiency, yet many of these same qualities now contribute to challenges related to perceived safety and the quality of green space. The project therefore demonstrates how the ideals of one period can continue to influence spatial use and experiences far into the future.

This reflection also feels highly relevant today. Contemporary urbanism is increasingly shaped by a strong emphasis on climate adaptation, ecology and fast housing production. While these developments bring important benefits, this project raises the hypothesis that a strong focus on openness and greenery could again unintentionally reduce perceived safety if these aspects are not carefully integrated. Within the historical timeline, these risks of repetition already become visible, (see Lelystad Campus Midden).

A temporal lens therefore offers an important warning: urbanism must remain an integrative discipline that continuously balances competing priorities rather than overcommitting to a single agenda. Because future demographic shifts, mobility systems, environmental pressures and social behaviours remain uncertain, designing only for the demands of the present is inherently limited.
This project has therefore highlighted the importance of regularly zooming out from the immediate site and reflecting on broader societal patterns and long-term spatial consequences within the design process.



* Note this graph is based on the author's understanding of the safety and perceived safety of the periods and not on scientific data

Figure 110: Temporal lens of urban design and its feminist waves

7.2 Reflection

This reflection looks back at the design process, key moments, aspects beyond the scope, and my positionality concerning the paradox of green.

Key steps in the process

This project was mainly approached from a design perspective. Therefore, even before A1, I already started designing, sketching and envisioning possible futures. Because of this approach, research by design became an important methodology throughout the process. How research by design manifested itself throughout the project becomes clear in the following key steps.

Location determination

From the start, I quickly established a clear topic, but the study location had not yet been determined. This was unusual, as normally the site is given first and the thematic focus is analysed afterwards. Working in this reversed order resulted in me analysing neighbourhood morphologies from different time periods to determine which location best suited the topic. Through this process, I not only found that modernist neighbourhoods showed the strongest paradoxes of green, but I also became more aware of the importance of the temporal dimension within urban design.

Design framework

One of the most valuable parts of the process was developing the design framework. This framework allowed me to approach the design more from the perspective of users rather than focusing mainly on amenities, programme requirements or housing numbers. It provided structure within the many possibilities that Ommoord offered and helped guide design decisions throughout the process.

Dealing with open space and heritage

One of the biggest challenges was that Ommoord consists of a large amount of open space, which offered little spatial guidance and often felt almost like a tabula rasa. At the beginning, this openness also caused me to misjudge the scale of the site, resulting in infill blocks that were initially far too large , visible in figure 111. The iconic architectural language of Ommoord made me question about how to deal with this heritage within the new design proposal.

For a period, the abundance of possibilities became overwhelming, as almost anything could fit within the vacant spaces. Through continuous iteration, building a scaled model, and testing different typologies with more realistic dimensions directly within the site, I gradually started to better understand the true scale of the area as visible in appendix 9.4.

At the same time, I became temporarily too focused on secondary design pressures such as parking, housing numbers and typological distribution, which made the design process increasingly complex.

Eventually, the user-centred framework helped me to zoom out again and return to the fundamental question of movement: what are the most important routes, and how should the architecture respond to them? This became a key turning point within the project. Once this spatial structure was established, the remainder of the design process developed with much more clarity and momentum. This shift also becomes visible within the design iterations, where the initially fragmented proposals gradually evolved into a clearer routing framework. The extensive testing of alternative options proved to be valuable, as it ensured that the final masterplan emerged from a carefully considered and well-evaluated process. Rather than resulting from intuition or arbitrary decisions alone, the final proposal became a synthesis of many smaller tests, scenarios and spatial experiments.



Figure 111: Initial research by design model with out-of-scale large blocks

Beyond the scope

Several aspects remained beyond the scope of this research and could form valuable directions for further exploration.

Participation: Looking back, a stronger participatory process, particularly involving women and young girls from Ommoord, would likely have strengthened the project significantly. As primary users of public space, they understand their living environment best and could have provided important insights into their daily experiences, needs and desires. Ideally, I would not only have conducted street interviews, but also returned with developed design proposals to gather feedback on the designs themselves. At the same time, this also raised ethical doubts for me, as the project remains hypothetical and could unintentionally create unrealistic expectations or false hope among residents.

Representation of young women: The representation of young women within the interviews remained relatively limited. Although many of the identified concerns aligned with broader findings on gendered experiences of safety, speaking with more young women from Ommoord itself would likely have provided more nuanced insights. This limitation is partly related to Ommoord's current demographic composition, which largely consists of elderly residents. As a result, the collected feedback mainly reflected the spatial needs, mobility patterns and safety perceptions of older residents.

At the same time, my own lived experiences as a young woman also strongly shaped the design process. Because I have personally experienced feelings of unsafety within public space myself, I could often intuitively empathise with the needs and experiences of this group during the project.

Phasing, finances and feasibility: Broader considerations such as phasing, implementation strategies and financial feasibility remained outside the scope of this project, although these aspects would form important topics for future development. Because the focus on safety and green spaces already formed a complex challenge in itself, I consciously chose to keep the research strongly grounded within the specific spatial and social context of Ommoord. As a result, I mainly focused on the spatial design itself and the experience of future users.

Policy implications: Lastly, an important area for further research concerns the broader institutional and practical context surrounding safety-led urban design. Throughout conversations, literature and the design process itself, I repeatedly encountered explanations for why safety is still not consistently approached as a fundamental design requirement. These included the perception that safety is less measurable than aspects such as green space, too complex to systematically address, or too subjective and personal. Further research into these barriers could provide important insight into why, despite growing awareness, safety often remains insufficiently embedded within urban planning practice. To me, this feels especially important, because it shows that designing safer environments is not only a spatial challenge, but also an institutional and societal one.

Topic positionality

From the beginning of this graduation project, I felt a strong personal connection to the topic of safety. As a woman, I have often experienced feelings of unsafety within public space, sometimes because of the physical design of a place and other times because of the social dynamics present within it. Living in different parts of Delft made me realise that I had never experienced a route connecting daily destinations, such as the station, campus or shops, that felt completely safe from beginning to end. From a young age, I was warned to avoid certain places at night because no one would be around to help if something happened. Even after moving out and living independently, these unsafe routes did not disappear. Instead, navigating the city often meant accepting discomfort or taking significant detours.

These experiences shaped my understanding of how unequal public space can be and made me question why urban environments are often designed primarily through a lens of efficiency rather than lived experience and perceived safety. This became the main motivation for choosing safety as the focus of my graduation project.
At the same time, designing for women's safety while being a woman myself also provided an important positional advantage. My own experiences gave me an intuitive understanding of which spaces feel comfortable, which do not, and how these perceptions develop over time. Having also once been a teenage girl navigating public space, I could strongly empathise with the intended users of the project. Although I was unable to speak extensively with large numbers of young girls directly, I believe my own experiences helped me better understand and interpret their perspective throughout the design process.

Romantic vs Realistic

Looking back, I find it ironic that during the time I lived in a modernist neighbourhood characterised by abundant green space and isolated pedestrian routes, I was also contributing to designs centred around similar qualities. These projects often celebrated living amongst greenery, recreational landscapes and scenic routes. Influenced by attractive renders of people picnicking, flying kites and enjoying nature, I rarely questioned the underlying spatial structure of these proposals.
Only later did I realise that many of these designs shared characteristics with the very environments that I experienced as uncomfortable or unsafe in daily life.
Through the temporal lens, I began to question whether certain planning principles were simply being reintroduced in a contemporary and visually appealing form. Rather than evaluating a design solely on its appearance, I started to ask how it would function in everyday reality. How do people get to work? Do they feel comfortable cycling home at night? Can they easily reach shops, schools and friends?

My perspective gradually shifted from romanticised visions of urban life towards a greater appreciation for the realities of everyday use. One of the most important lessons I take away from this project is that urban design should not only create attractive spaces, but also support the daily routines, safety and accessibility needs of the people who use them.

Structural Change is Necessary

At the same time, this issue extends far beyond my own experiences. Many women around me regularly share stories of uncomfortable routes, near-miss incidents, or routines such as messaging each other after arriving home safely. These behaviours have become so normalised that they are often treated as routine, even though they reveal how strongly feelings of unsafety shape everyday life.
One important reflection throughout the project was recognising that urban design can structurally improve safety by reconsidering routes, visibility and spatial organisation, but that it is still largely responding to the symptoms of a broader societal issue. Design can make harmful behaviour more difficult, but it cannot eliminate the existence of those who create harm. Therefore, while design can reduce vulnerability, the deeper causes of gendered unsafety ultimately require broader societal and cultural change as well.

Political relevance and trend awareness

It was striking to work on a graduation topic that rapidly gained political and public attention during the project itself. Issues surrounding safety, gender and public space increasingly appeared within news platforms, urban design discourse and municipal agendas. Throughout the project, I constantly encountered new debates and sources, while many women around me also started recognising that behaviours such as avoiding certain routes or adapting behaviour due to fear are not just personal experiences, but structural issues.

Although I am encouraged that this topic is receiving more attention, I am also aware that gendered unsafety in public space is not new. It has existed for a long time, but has only recently become more visible within public and political discussions. This raises an important reflection: urbanism should be careful not to approach safety purely as a temporary trend or political agenda. As an integrative discipline, urban design should embed safety structurally within long-term design thinking rather than treating it as a short-term theme.

This feels especially important because social and political momentum can be fragile. History, including different feminist waves, has shown that issues related to equality can temporarily gain strong attention, but can also face backlash, fatigue or gradually lose urgency again over time. Sometimes this happens through resistance, while in other cases people disengage because structural problems are too complex to solve quickly. As a result, there is a risk that attention shifts away before meaningful long-term change is achieved.

Therefore, one of my broader reflections is that designing for women's safety should not be treated as a temporary trend, but as a permanent and essential part of responsible urban design.

8

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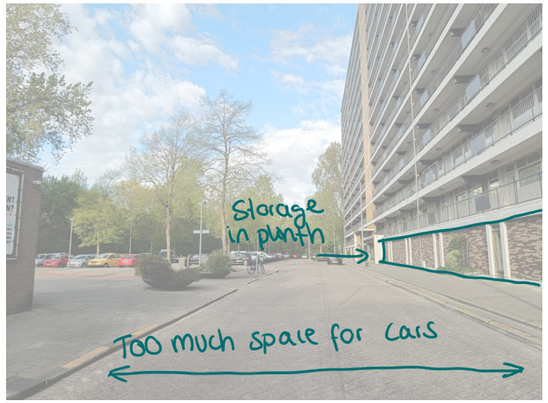
9

APPENDIX

9.1 Fieldwork in Ommoord



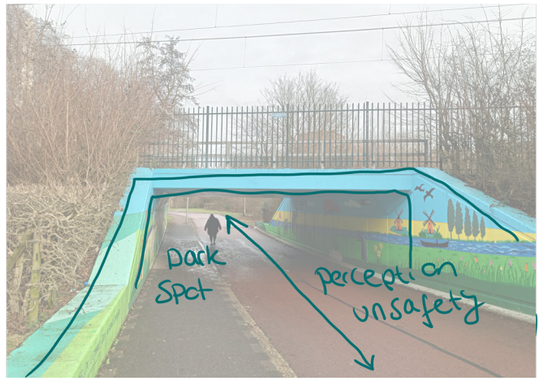












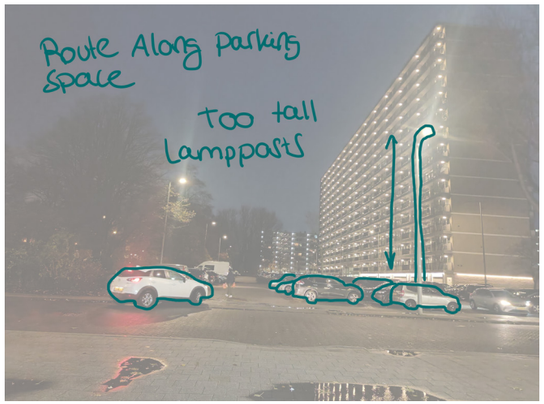






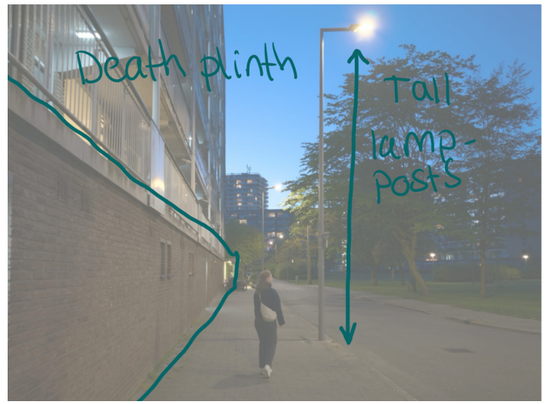





Route Along parking space
Too tall Lampposts


Closed Facades At night


Fake 'active' Plinth


Death plinth
Tall lamp-posts


Wide Street, but Quiet Traffic


Routing far away Houses


Isolated on both Sides Along metro


Route to metro fence


Secluded Route


large Distance


Curtains closed
TOO SMALL

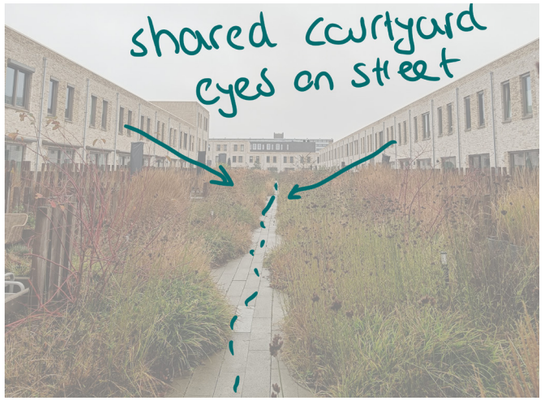

inside Shopping mall

9.2 Fieldwork references







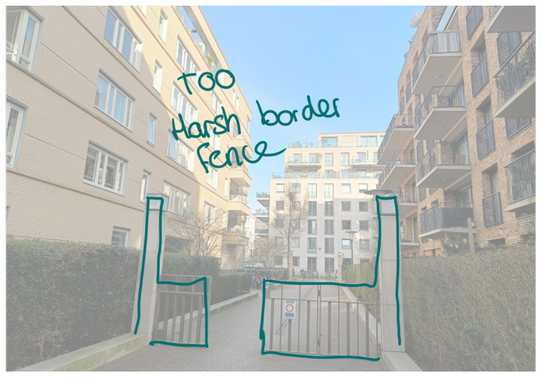


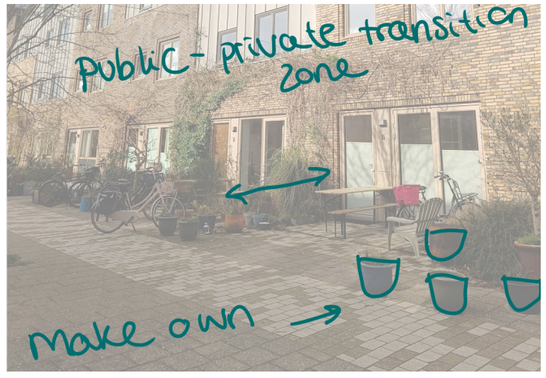










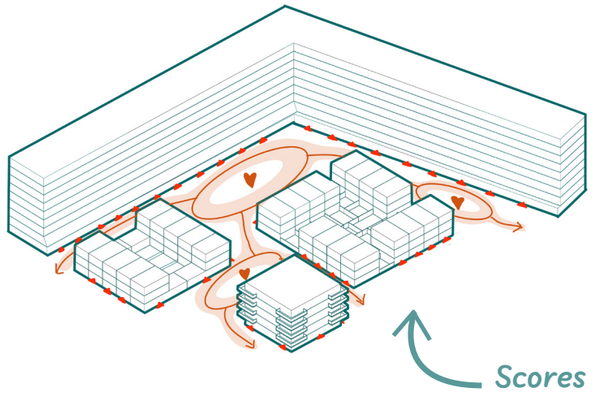






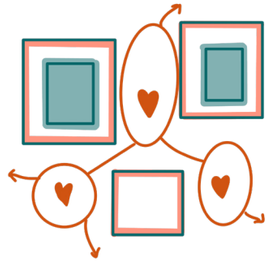
9.3 Courtyard experiments

Closed blocks

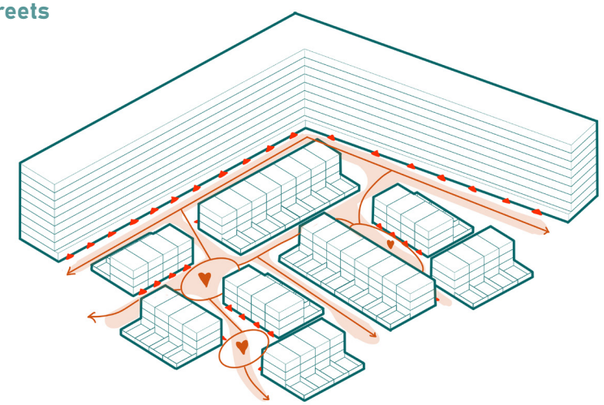


Scores best

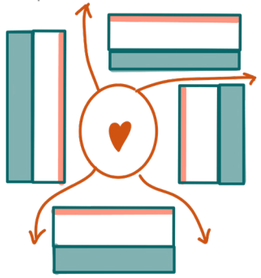
- Legible courtyard
- Walking route along the courtyard
- Can include multiple typologies and housing sizes



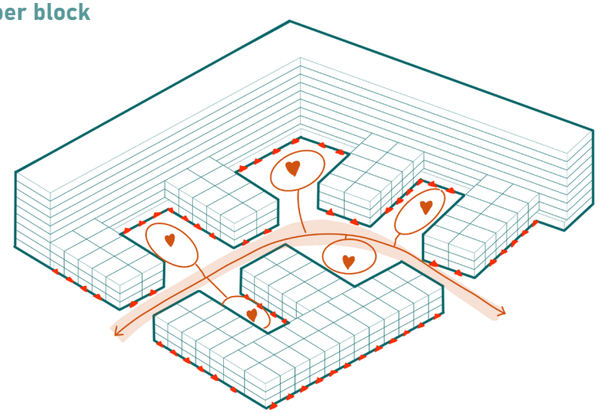
Streets



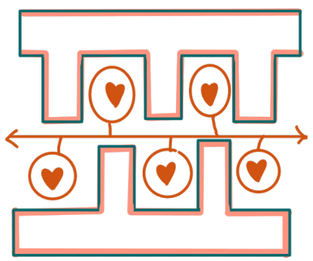
- No clear main route
- Unclear territoriality
- Routes along backsides as well
- Unclear communal spaces
- Many 'escape' routes



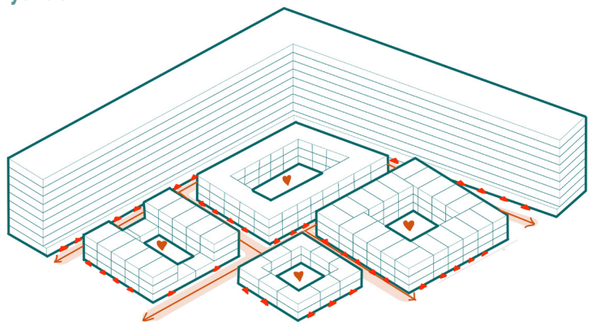
Super block



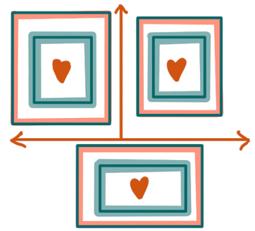
- Large block
- One route only, no other escape routes: dead ends
- Clearly defined courtyards
- No human scale



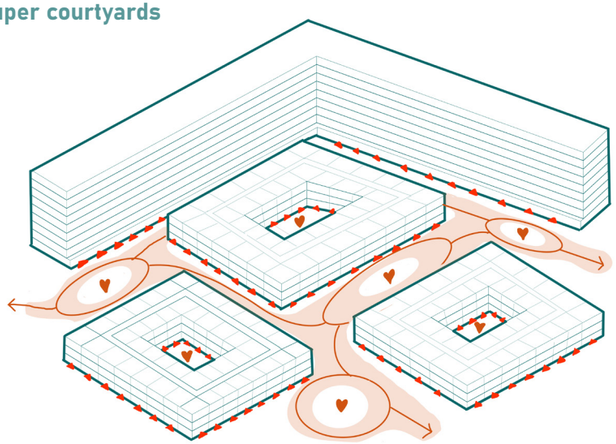
Courtyards



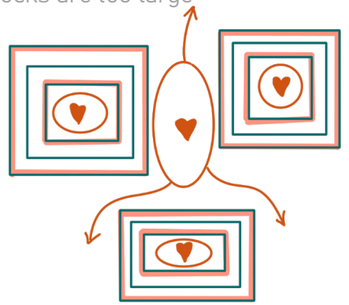
- Clear courtyards
- Courtyards inside, therefor inside-oriented structure
- Public routes less eyes on the street



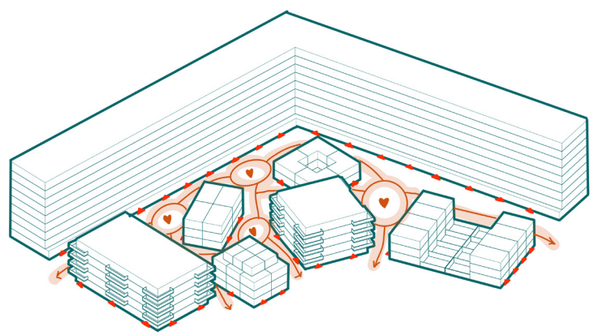
Super courtyards



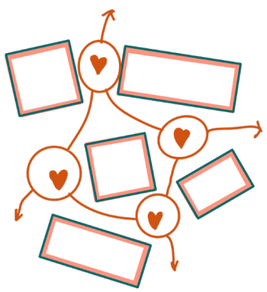
- Two side oriented blocks
- Inside block courtyards and outside block courtyards
- Too much communal space, can result in neglect
- Blocks are too large

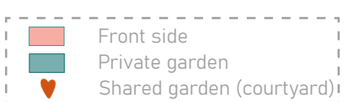


Organic



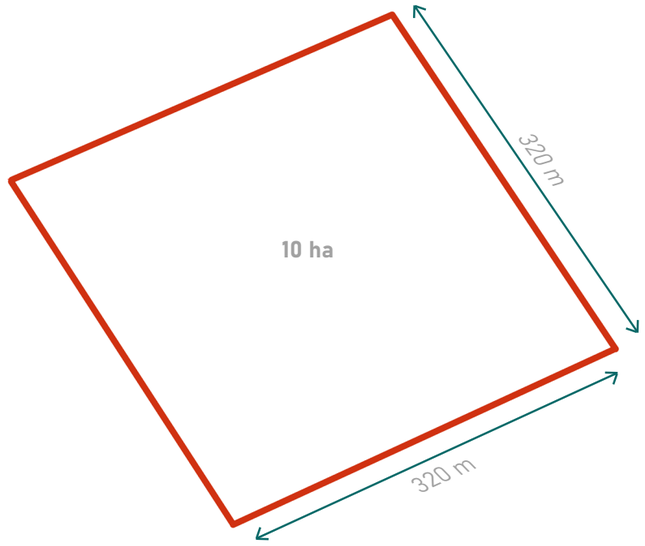
- Mix of different types of courtyards
- No legible routing
- Unclear hierarchy



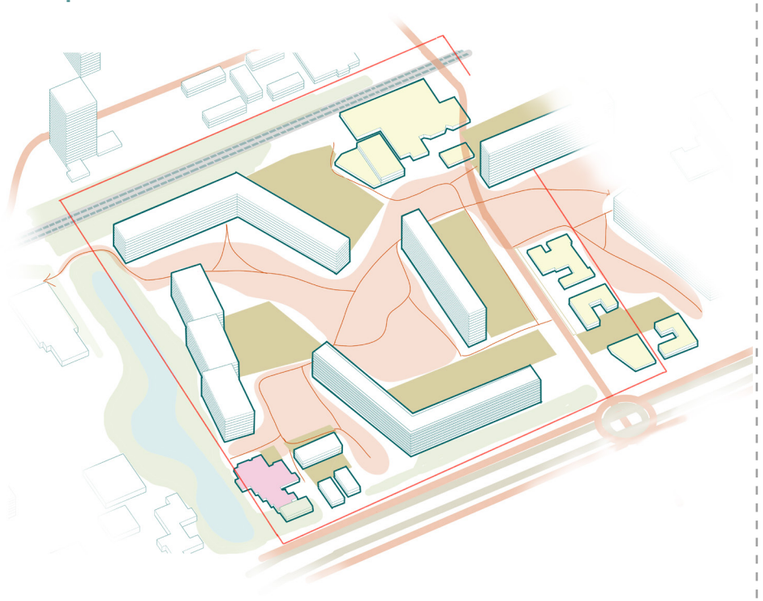


9.4 Design iterations

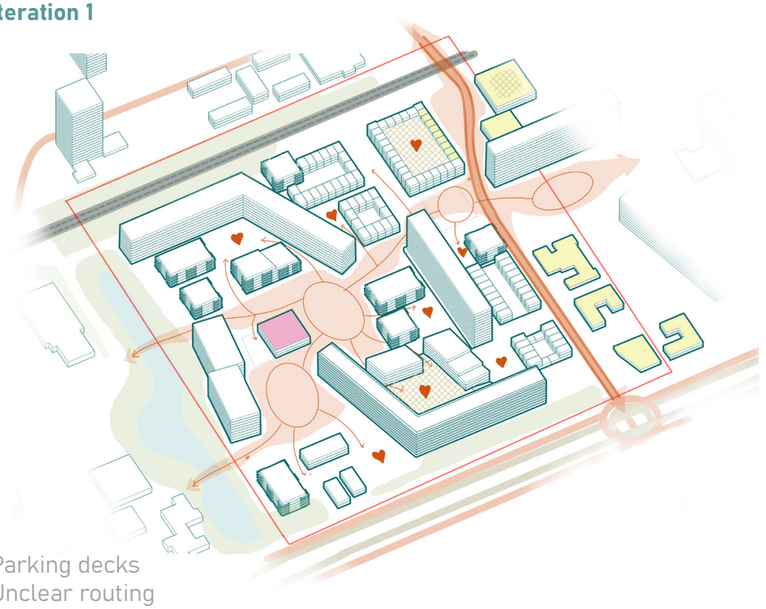
Size of chosen site



Status quo

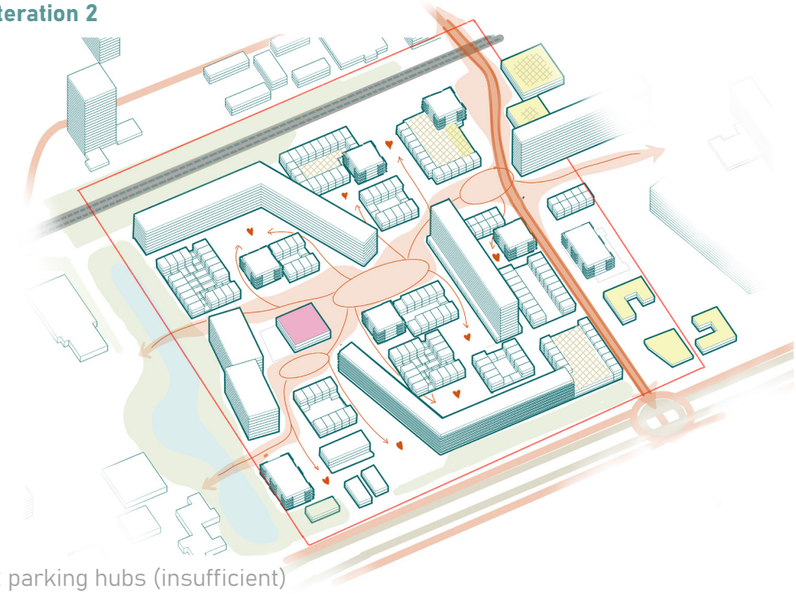


Iteration 1



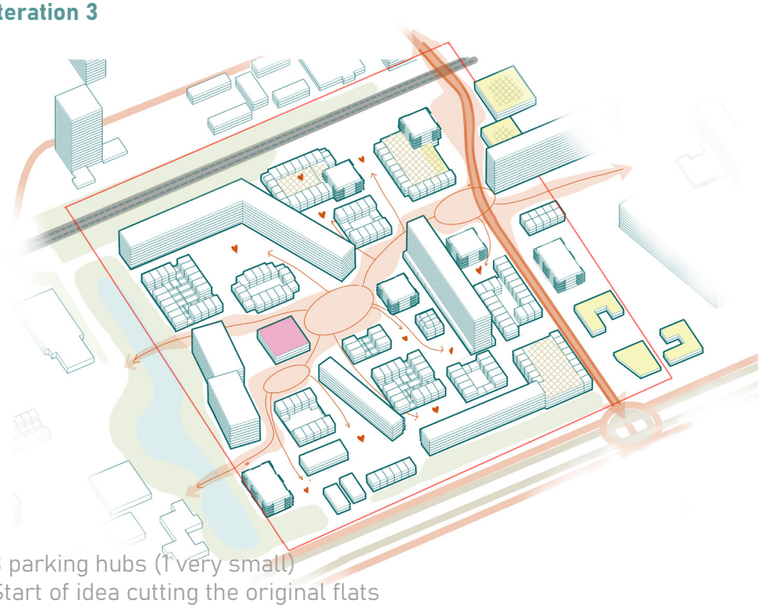
Parking decks
Unclear routing
Multiple central areas
Appartment blocks

Iteration 2



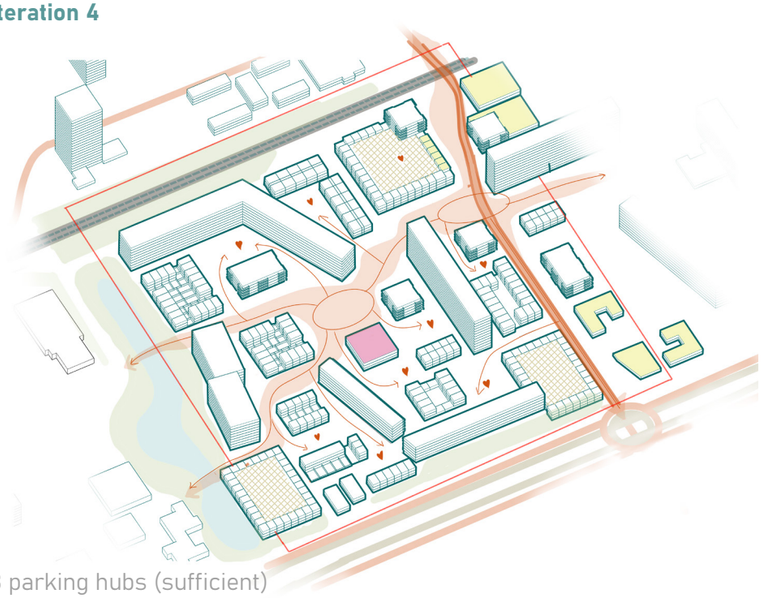
2 parking hubs (insufficient)
Unclear routing
Low-rise houses
Multiple quite large courtyards

Iteration 3



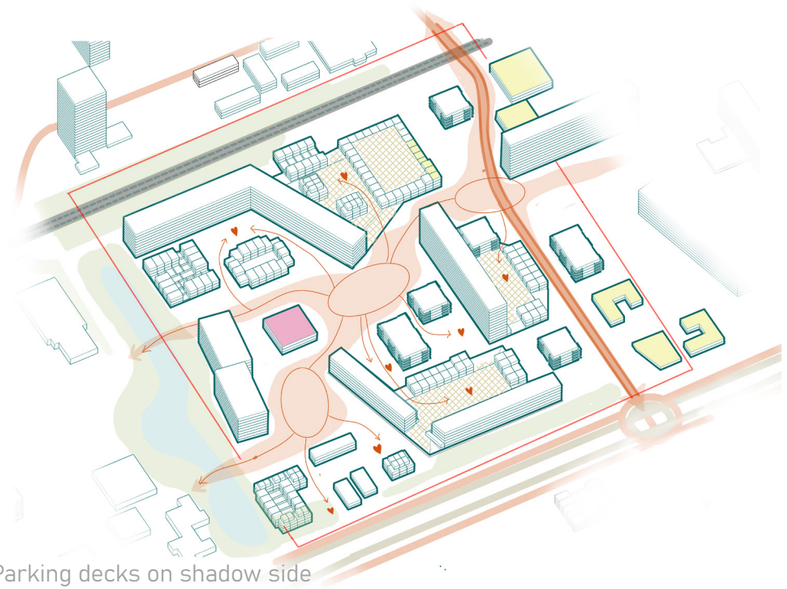
3 parking hubs (1 very small)
Start of idea cutting the original flats
No hierarchy in routes
Mix low-rise and appartment blocks

Iteration 4



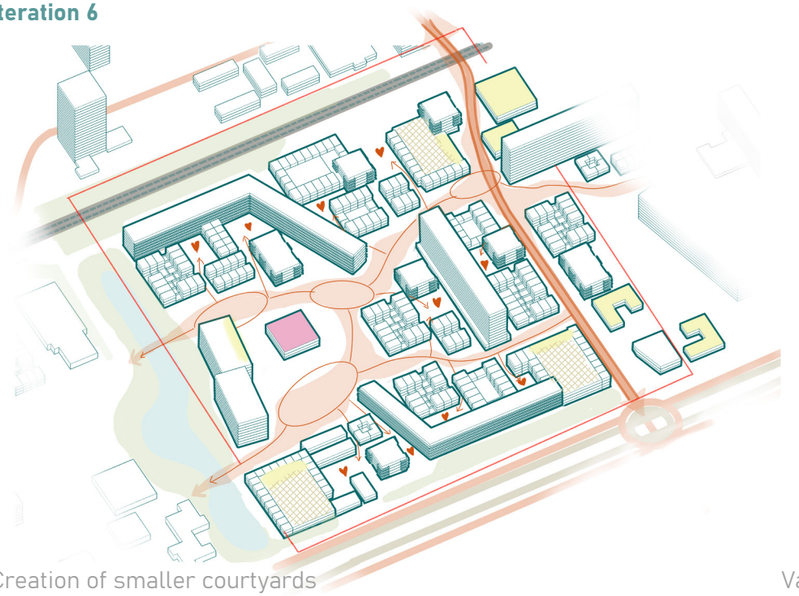
3 parking hubs (sufficient)
Fewer buildings
Large open spaces between buildings
No hierarchy in routing

Iteration 5



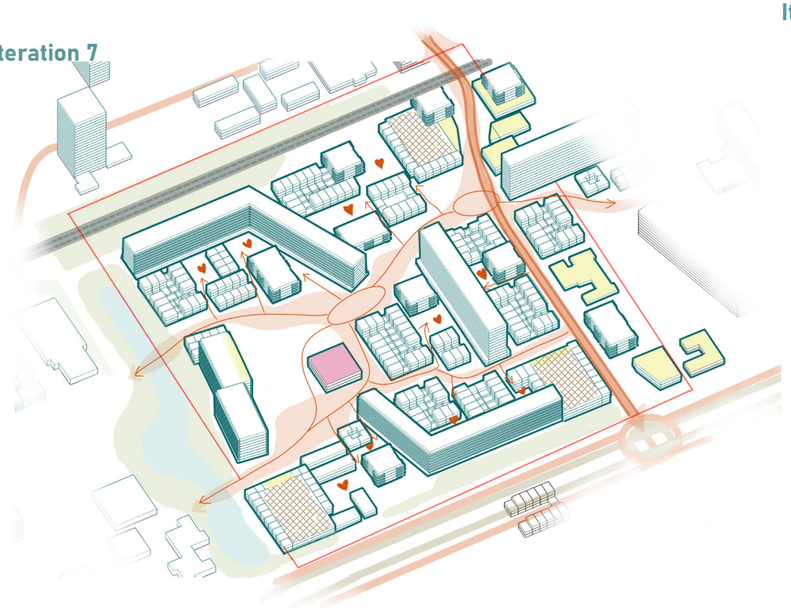
Parking decks on shadow side
Mix low-rise and appartments
Still too large spaces

Iteration 6



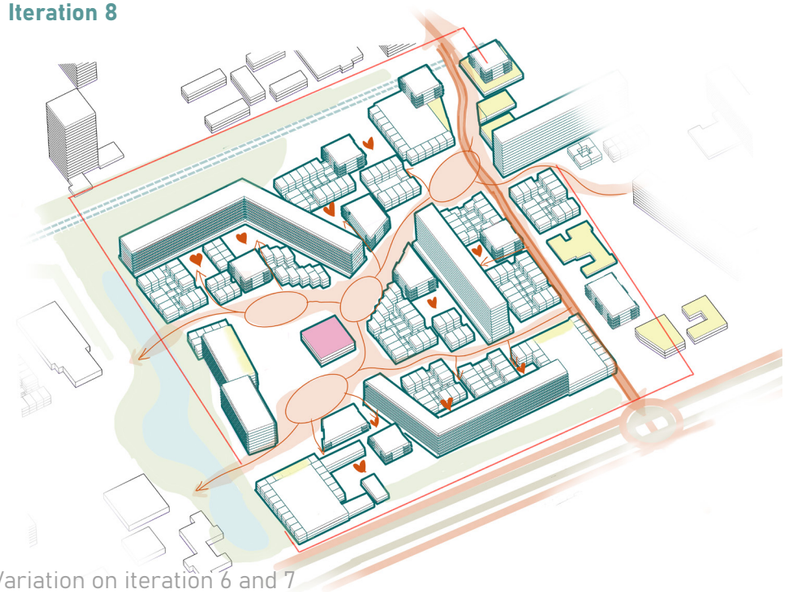
Creation of smaller courtyards
Typology mix
2 main routes
Route more legible, but many corners
Kinked flat is cut shorter

Iteration 7



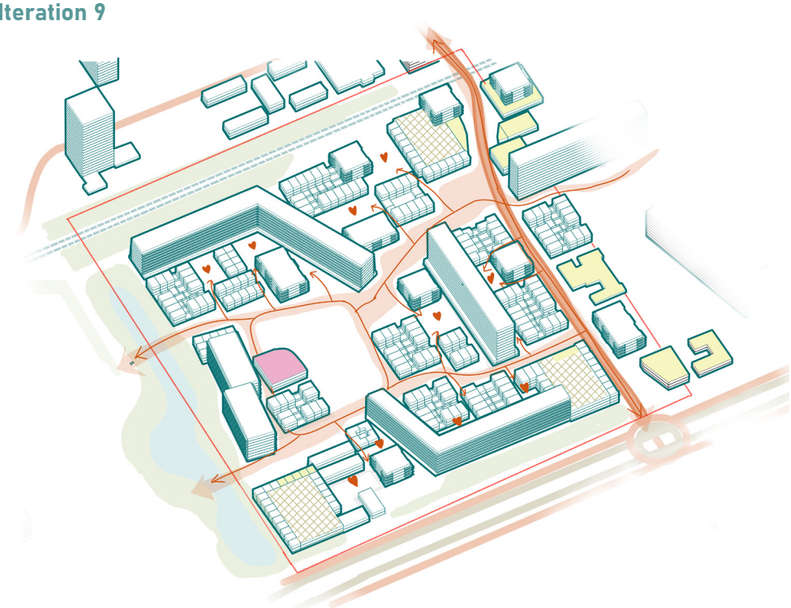
Small variation on iteration 6
Some low-rise buildings replaced with appartment blocks

Iteration 8



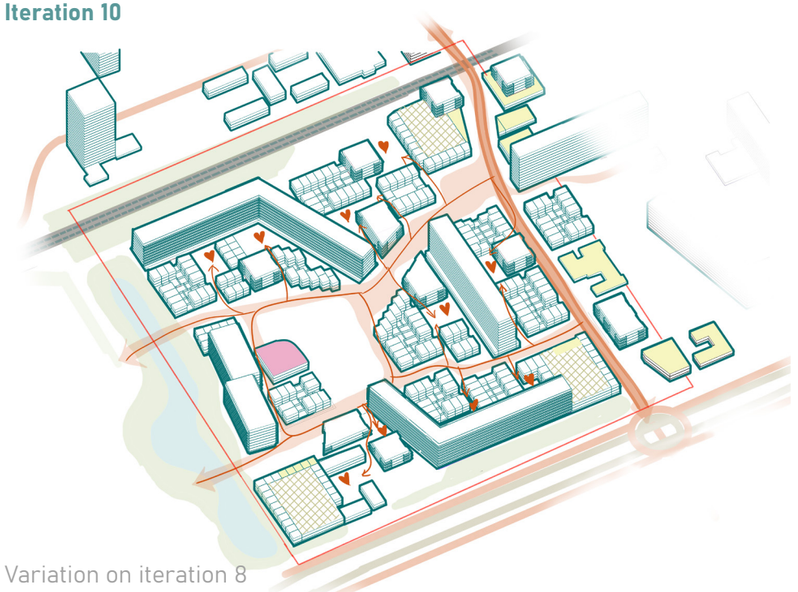
Variation on iteration 6 and 7
New idea: building structure that follows route
Results also in some tringular housing plans and public spaces

Iteration 9



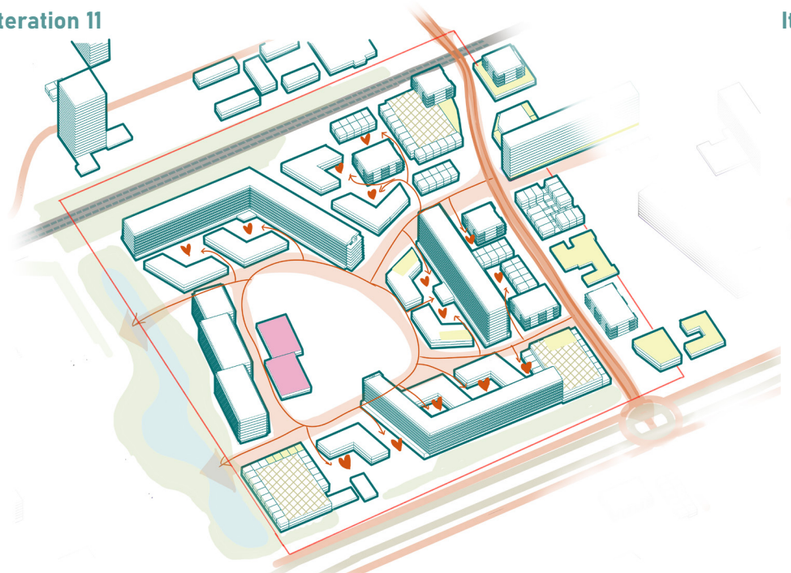
Variation interation 7:
Smaller building footprint
School added to a courtyard as well

Iteration 10



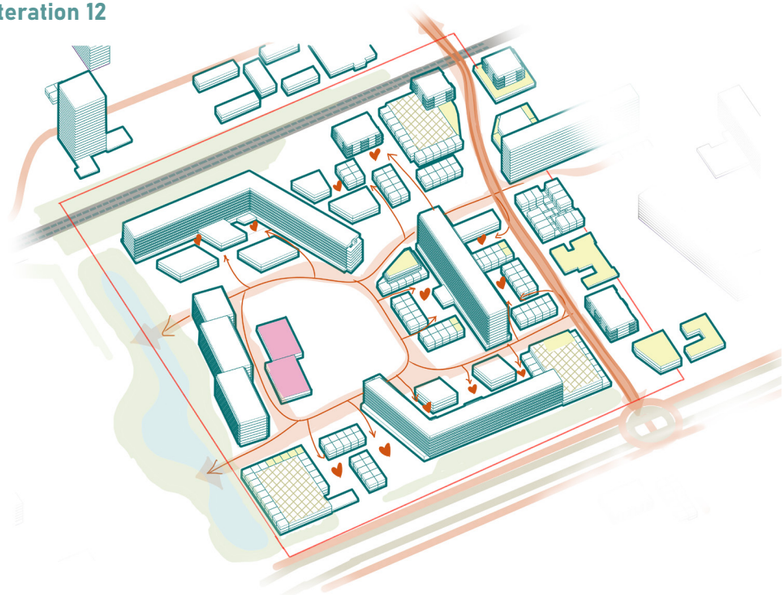
Variation on iteration 8
School is now added to a courtyard

Iteration 11



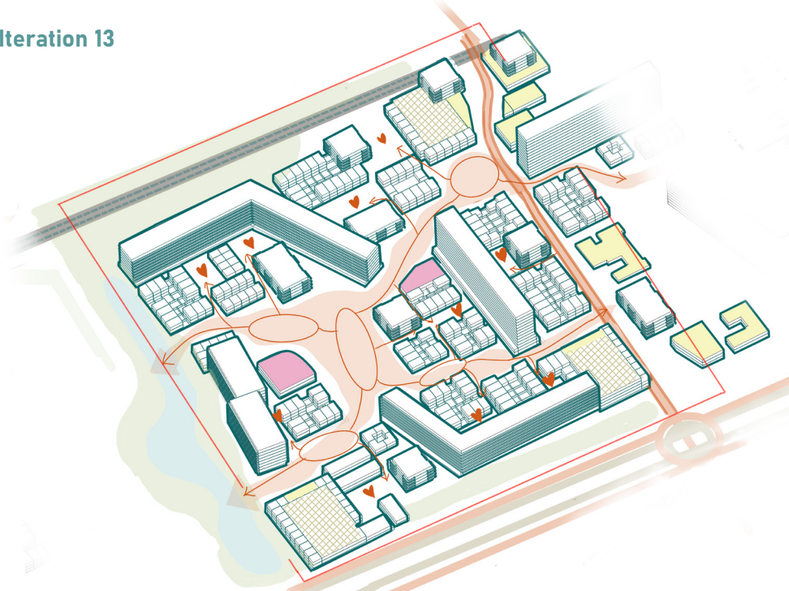
Out-of-the-box idea copying form of heritage in new buildings
Works for the courtyards already kinked, but what to do with the straight blocks?
Also large blocks
Too much of the same

Iteration 12



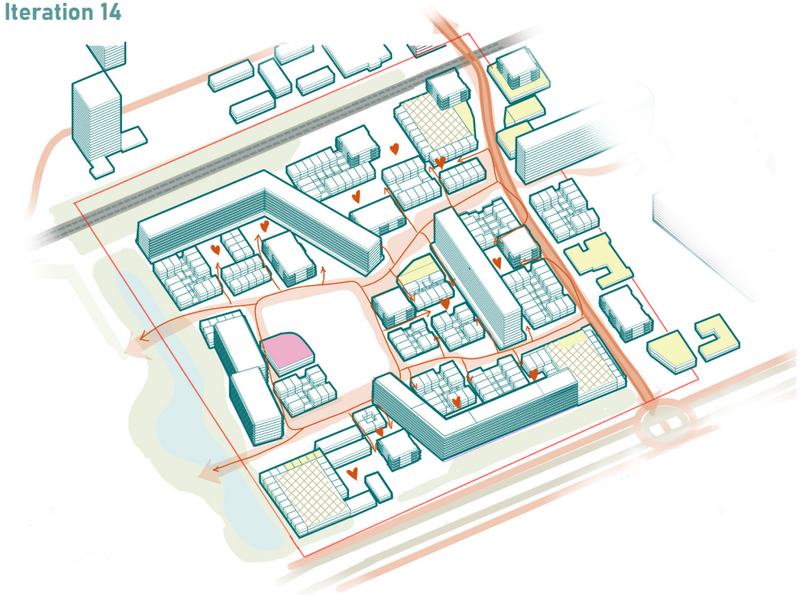
Out-of-the-box idea: contra shape of kinked flats
Urban villa typology
Large open spaces in between

Iteration 13



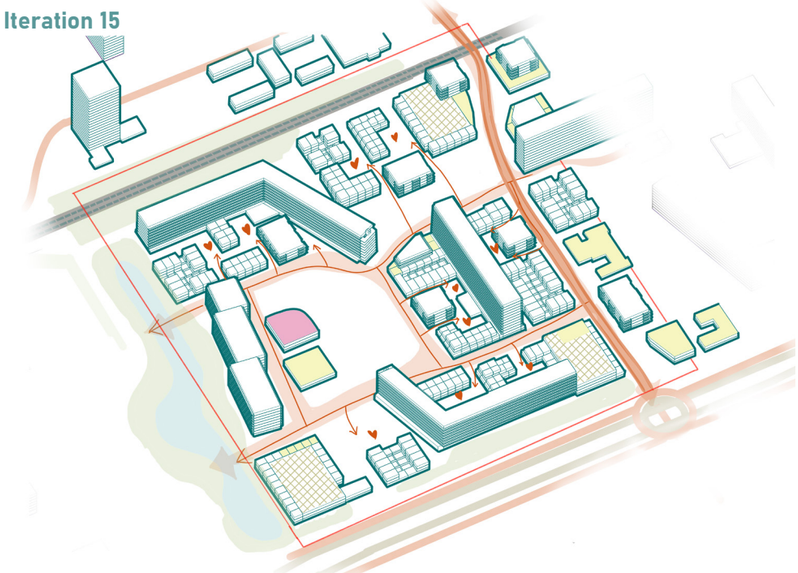
Creation of even smaller courtyards
Also adding community functions to structure, form follows route

Iteration 14



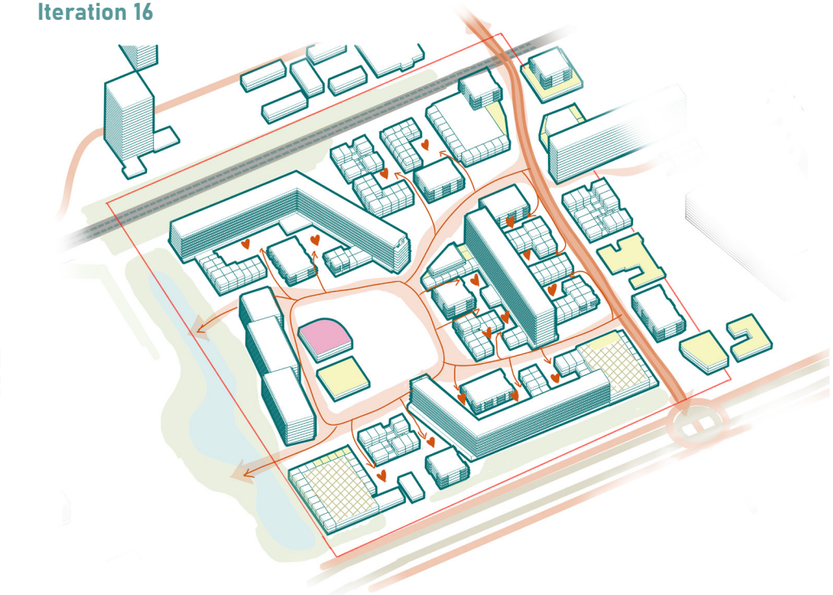
Variation on iteration 13: adding more blocks to guide route better

Iteration 15



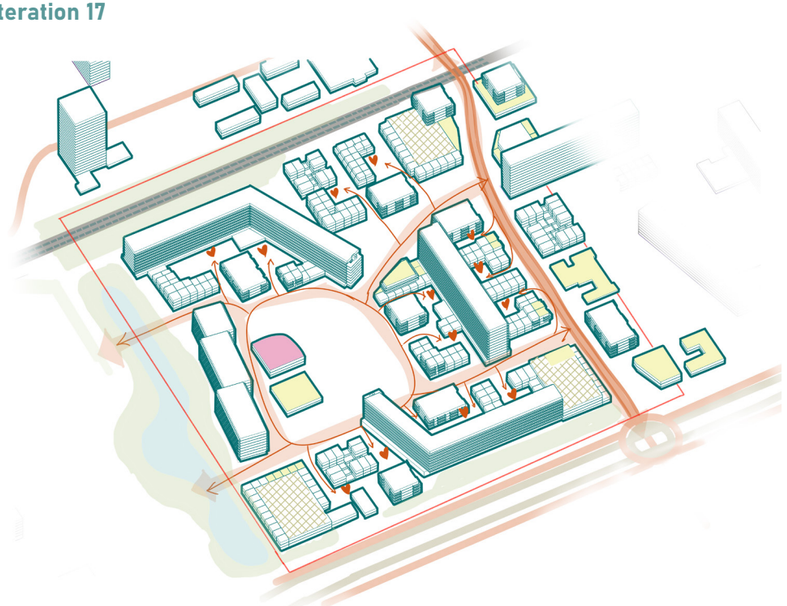
Replacing low-rise housing with private gardens for appartment blocks
Therefore block is more outside oriented

Iteration 16



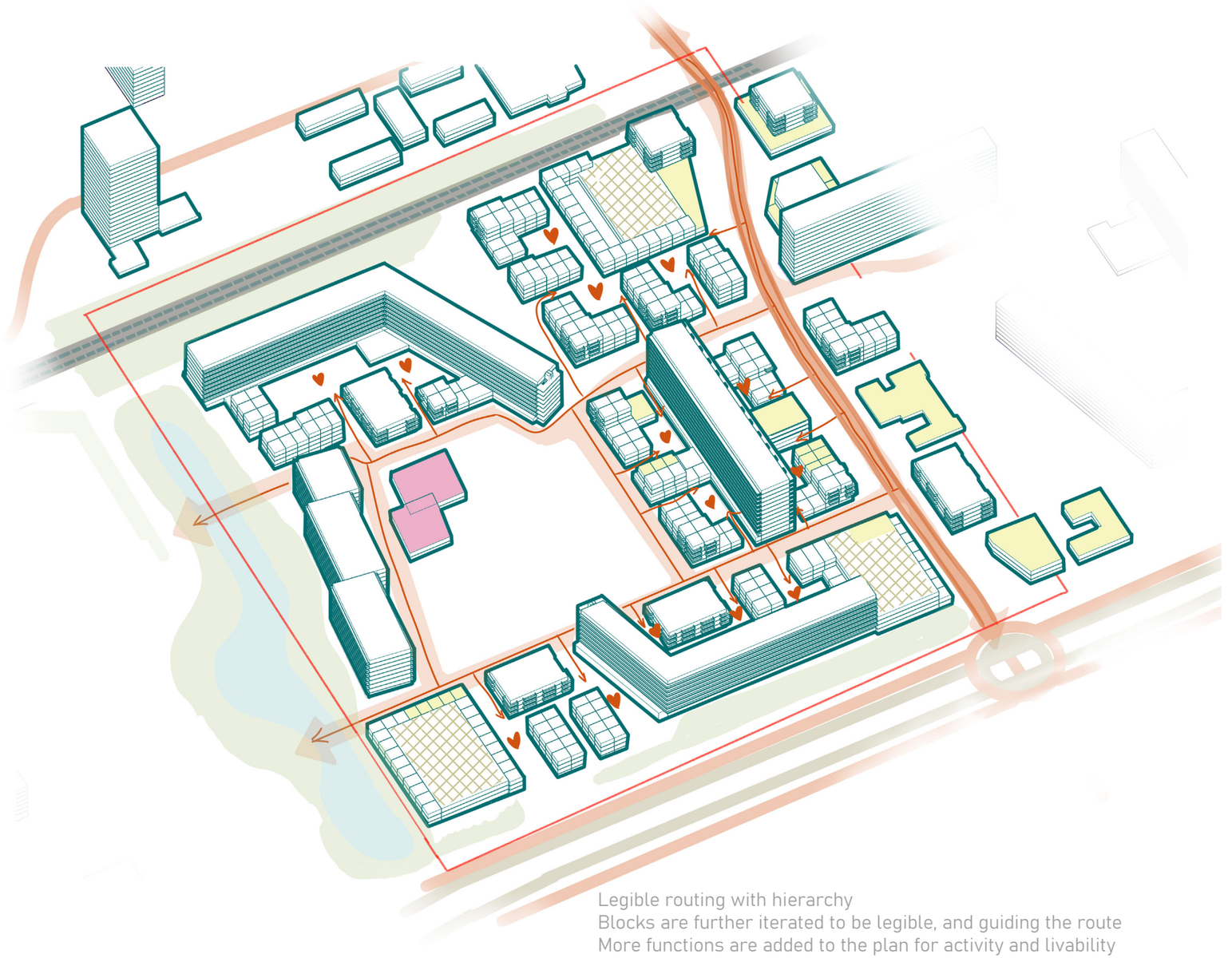
Further replacing the low-rise housing by appartment blocks
This results in the courtyards being people's garden and leisure space
Much more legible plan, routing is more straight

Iteration 17



Making the plan even more legible by aligning blocks
Blocks have same structure only different heigh accents

Final plan



Legible routing with hierarchy
Blocks are further iterated to be legible, and guiding the route
More functions are added to the plan for activity and livability

9.5 Model experiments



Experimentation with first model
Difficulty understanding the scale
Blocks are too large



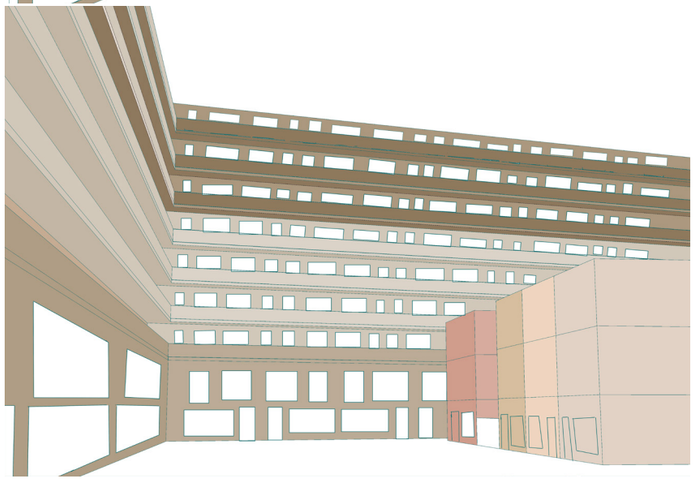
Second model
Representation of iteration 9
Still unclear routing, suprising corners
Low-rise housing with private gardens also result in closed garden fences
Too big contrast between high and low

9.6 Colour experiments

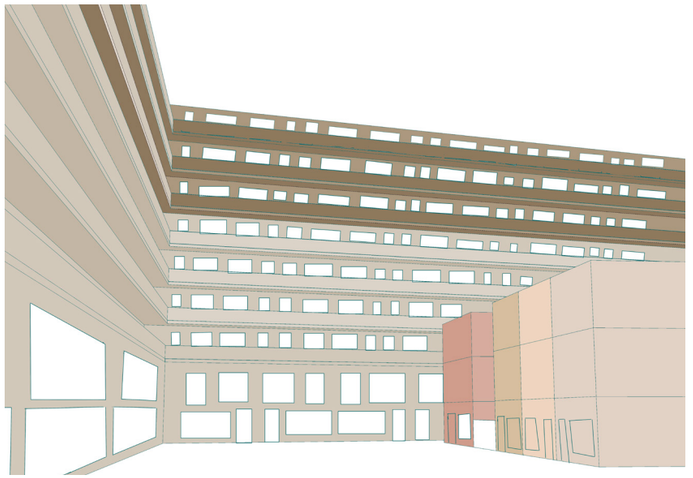
Because new buildings are being added to an existing context with iconic architecture, it is important to find an organic way to integrate them. This can be achieved through building form, but color also plays a key role by creating either connection or contrast. Therefore, different color combinations were explored, considering hue, lightness, darkness, and placement. Special attention was given to the old buildings, which currently feel very massive; this massiveness can be softened and visually broken up through the use of color blocks.



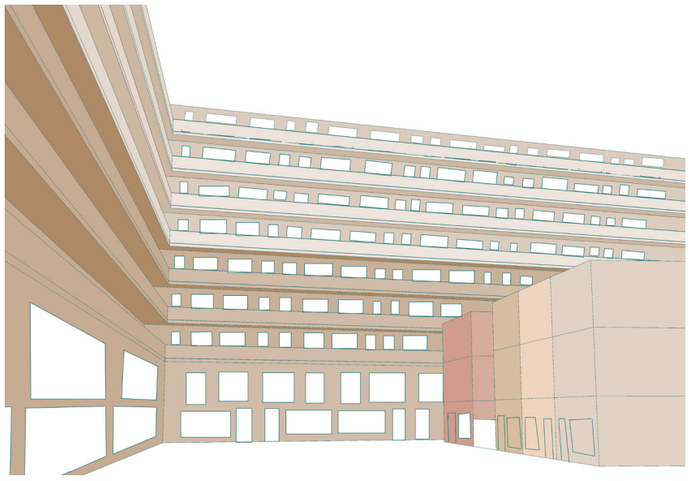
Plinth dark, top light
- Emphasizes eye-level
- Top seems very large



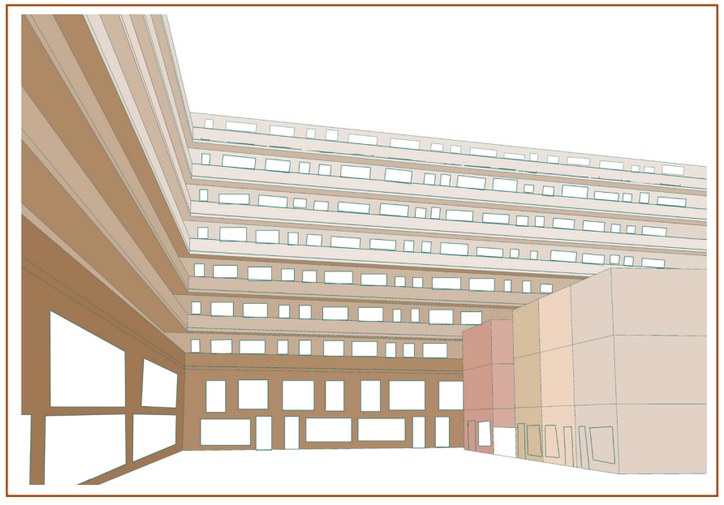
Division 3 zones
- It is a less monotonous facade, but making the top dark makes it heavy.



Top dark
- Emphasizes the top and emphasizes height contrast



Division 2 zones
- Already emphasizes more human scale
- Still quite large zones



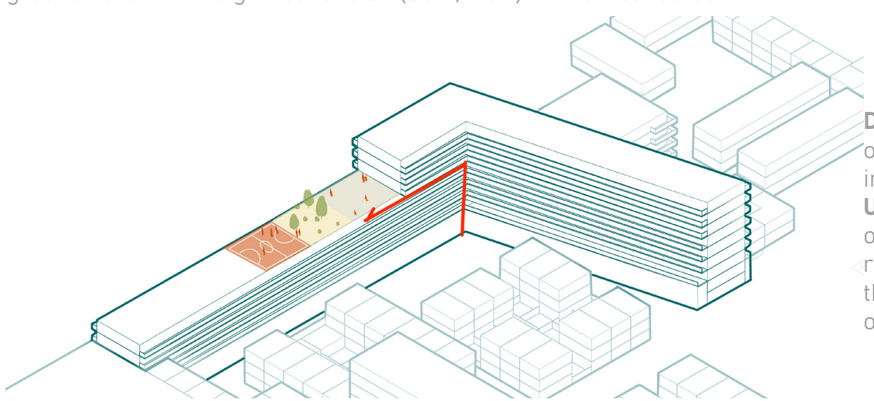
Colour gradient
- Soft transition low-high
- Emphasizes human scale
- Variation in colour makes it dynamic

Scores best

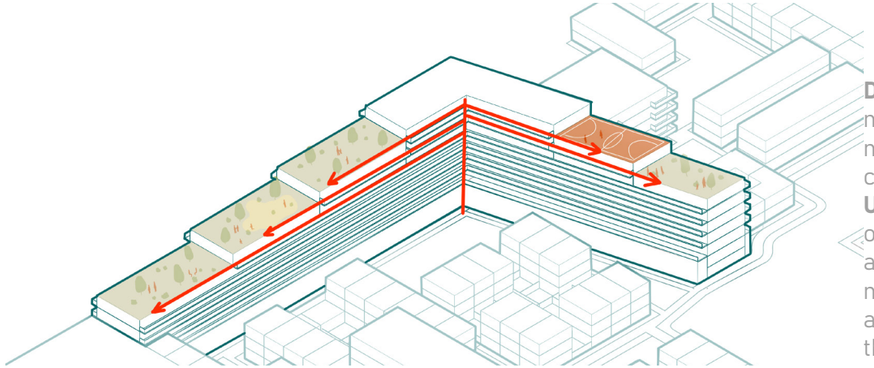
9.7 Shared rooftop garden experiments

The original apartment blocks contain around 160–200 dwellings. To strengthen community and social interaction, rooftop gardens can be added at higher levels. From the 5th floor onwards, residents gradually lose contact with the ground level, making an extra "ground level" in height beneficial (Gehl, 2011).

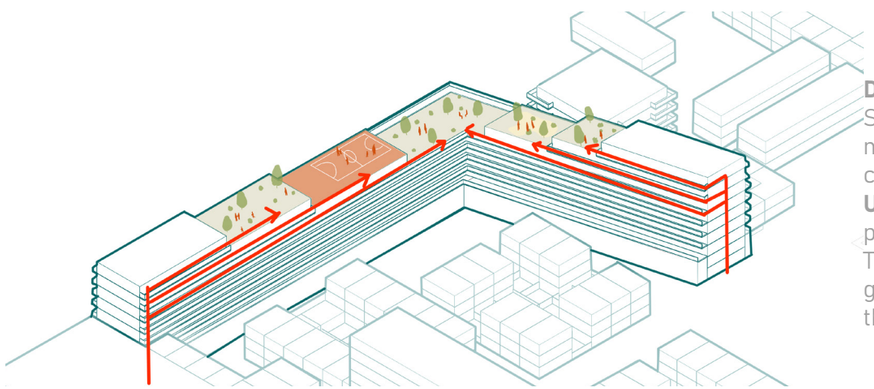
Some courtyards face north because they were originally parking areas. By removing parts of the kink flat, more daylight can enter the courtyard. This block was used as an experiment, focusing on both daylight and the connection between rooftop gardens and the circulation routes from the three vertical cores.



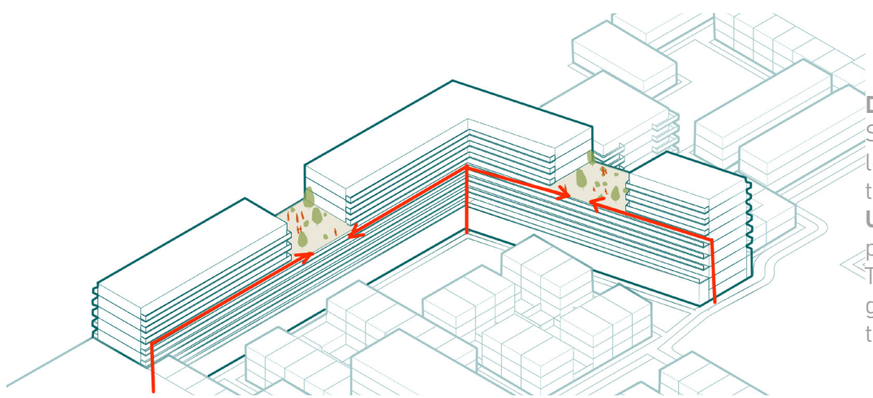
Daylight: Scores well on letting more light into the courtyard.
Usability: Only one entry point to roofgarden. Also at the end of route. Too open space.



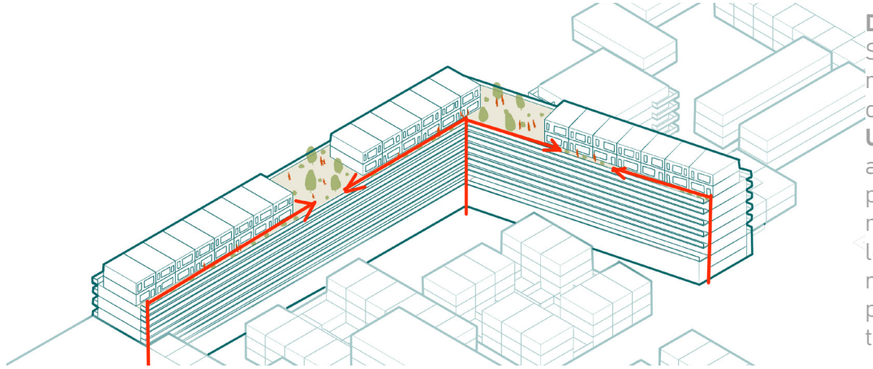
Daylight: Scores medium on letting more light into the courtyard.
Usability: Only one rising point accessibility. Too many rooftop gardens, and still at the end of the route.



Daylight: Daylight: Scores well on letting more light into the courtyard.
Usability: Two rising points accessibility. Too many rooftop gardens, and still at the end of the route.

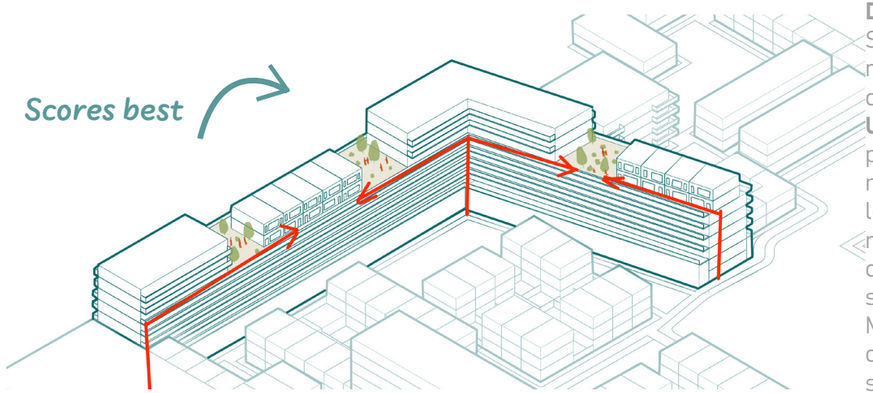


Daylight: Daylight: Scores medium on letting more light into the courtyard.
Usability: Two rising points accessibility. Too many rooftop gardens, and still at the end of the route.



Daylight: Daylight: Scores well on letting more light into the courtyard.
Usability: Rowhousing added to top. All rising points can lead to rooftop. Rooftops are located exactly in the middle between two points, making it still at the end of the route.

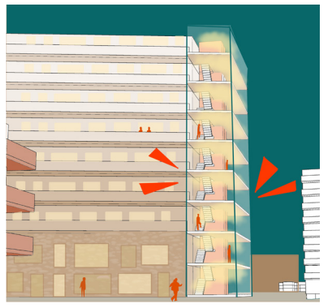
Scores best



Daylight: Daylight: Scores well on letting more light into the courtyard.
Usability: All rising points can lead to rooftop. Rooftops are located along the route to dwellings. So continuous activity and supervision.
Mix of rowhousing on top and original structure.

9.8 Overview design ingredients

NECCESSARY ROUTING


Well-lit entrances as visual route points


Transparant balconies for social surveillance


Well-lit routes, with soft lighting and well-spread


Entrances along main route



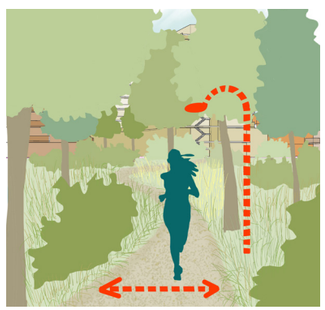
Functions along main route


Living in the plinth

OPTIONAL ROUTING



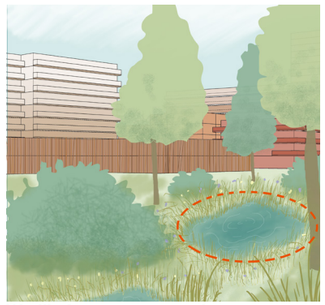
Clear sightlines to important buil-dings


Gravel paving and no street lights


Grasses and wildflowers on edges of main route


Ecological school square


Allocated areas where nature prevails


Wadi's for water retention

PUBLIC - PRIVATE


Transition houses (private) to hof (semi-private)


Lively gallery for informal contact

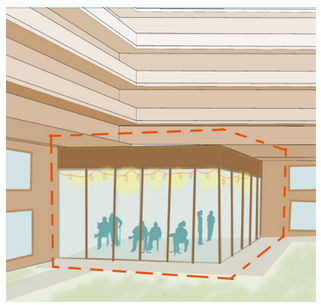

Transition houses (private) to main route (public)

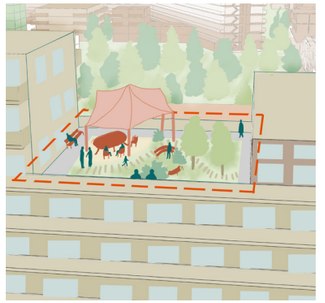

Transition plinth (private) to street (semi-public)


Transition plinth (private) to hof (semi-private)


Transition houses (private) to street (semi-public)

TAGET GROUP SPECIFIC


Flat residents room at the hof


Flat roof garden, only for residents


Hof, mainly for local residents



Shopping street


Playground


Space fo girls

