

PLAY WITHOUT LIMITS

Making Cities Playable for Every Child

Graduation Thesis - Niki Sophie Holman





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Delft Faculty of Architecture and the Built Environment
Department of Urbanism
Cluster Healthy and Inclusive Cities

Mentors

First mentor: Prof.dr.ir. Machiel van Dorst
Second mentor: Dr. Deepti Adlakha
External examiner: Dr.ir. Marjolein Spaans

Author

Niki Sophie Holman
Student Number - 6101402

Figures are by the author unless stated otherwise.



REMARK

AI tools were used to refine the grammar, spelling, and sentence structure of this document. AI was used exclusively for language refinement. All content, ideas, analyses, and conclusions are the author's own. The final content was critically reviewed and verified by the author to ensure its accuracy and originality.

**“We don’t have any children with disabilities here,
so we don’t do anything about it.”**



Figure 1. Children playing together on rotary device (Stichting het Gehandicapte Kind, n.d.)

ABSTRACT

Play is essential for children's physical, social, emotional, and cognitive development. However, many public playgrounds and urban environments are inaccessible to children with disabilities. This limits their opportunities for independent movement, social interaction, and outdoor play. Although inclusive playgrounds have received more attention recently, accessibility is often considered an isolated intervention rather than part of the broader urban environment.

This master's thesis explores ways to redesign urban environments to support inclusive access,

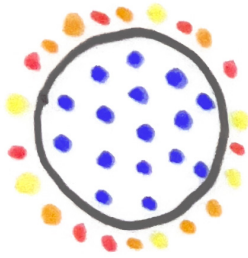
movement, and play for children with and without disabilities. Using the neighborhood of Buitenveldert as a case study, this research project employs a combination of spatial analysis, fieldwork, interviews, mapping, literature research, and research by design. Three personas representing different ages and disabilities were created to understand how children experience and navigate the neighborhood and its public spaces.

The design proposal develops an inclusive, neighborhood-scale framework based on the principles of connect, play, and rest. These

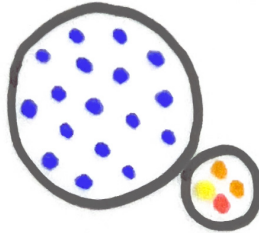
strategies aim to create accessible routes, inclusive play environments, and moments of pause throughout the neighborhood. This project shows that inclusive play is not only defined by playgrounds, but also by the broader urban environment that enables children to move around, navigate, and participate independently.

Key words

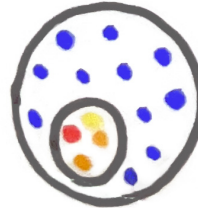
Inclusive urban environments, Inclusive play, Accessibility, Children with disabilities, Spatial inclusion



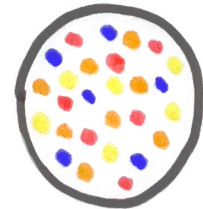
Exclusion



Segregation



Integration



Inclusion

TABLE OF CONTENTS

Colophon	02
Remark	04
Abstract	07

01 Introduction **10**

Personal Motivation	13
Introduction	14
Urgency	16
Relevance	17
Children's play	18
Types of play	20
Types of Disabilities	22

02 Project Approach **24**

Problem Field	27
Problem Statement	30
Research Aim	31
Questions	31
Methods	32
Research Framework	36
Methodology Framework	38

03 Understanding the Neighborhood **40**

Site Selection	42
Spatial and Social Context	46
Fieldwork	62

04 Children in the Neighborhood **66**

Personas	68
Lina	70
Sam	72
Noor	74
Shared Barriers	76

05 Design	78
Sketches as Design Tool	80
Masterplan	82
Pattern Language	84
Safety (S)	85
Orientation (O)	88
Comfort (C)	90
Play (P)	92
Spatial Framework	94
Connect	96
Play	98
Rest	100
Spatial Interventions	102
Child Ribbon	104
Rest Zones	110
Residential Small-Scale Play Spaces	114
Child-Priority Crossing	118
Playground Large	122
06 Conclusion and Reflection	132
Conclusion	134
Discussion	136
Reflection	138
Acknowledgements	142
References	144
Appendix	148
Interviews	150
Spatial Interventions with Patterns	160



01

INTRODUCTION



Figure 2. Rrouwstraat playground, Amsterdam (Proludic Netherlands, n.d.)

PERSONAL MOTIVATION

My fascination with urban planning stems from my desire to have a positive impact on people's daily lives. I am interested in how people move through and navigate the city, and how the design of public spaces influences their experiences, behavior, and social interactions. To me, urban planning is about more than designing streets and squares; it's about creating spaces that enrich people's lives and support their well-being.

I am particularly interested in the impact of public spaces on groups that strongly depend on accessibility and inclusivity, such as children with disabilities. Accessible and inclusive environments are essential for allowing children to freely explore, play, and form social connections. The ongoing lack of such spaces in many neighborhoods has strengthened my belief that urban planning can actively improve people's lives and reduce social inequalities. I am fascinated by how relatively small spatial interventions can significantly influence people's experiences, as well as their sense of freedom, safety, and belonging.

As an urban planner, I have the opportunity to create tangible, positive change in society. This motivates me to apply my knowledge, creativity, and attention to detail to designing cities and

neighborhoods that work for everyone. I see urban planning as a unique opportunity to influence not only physical structures but also the social structures that promote equality, inclusion, and community. I am driven to combine creativity and empathy to ensure that the needs of diverse individuals are met, so that children feel seen and valued in their surroundings. Through conscious design for diversity and accessibility, I aim to create environments where everyone, regardless of age or ability, feels welcome and engaged and is free to experience the city in their own way.

INTRODUCTION

Play is a fundamental part of childhood and an essential contributor to children's physical, social, emotional, and cognitive development. Public playgrounds play a crucial role in urban environments by providing spaces where children can explore, interact with others, and develop social relationships. However, many existing playgrounds are designed primarily for able-bodied "average" children, excluding those with physical, sensory, or cognitive disabilities. Consequently, these spaces often fail to provide equal opportunities for play, interaction, and belonging.

In recent years, inclusive play has received more attention in urban design and planning. Inclusive playgrounds aim to create environments where children with and without disabilities can play together, promoting social inclusion from an early age. Despite this growing awareness, inclusive design is not yet systematically applied in many Dutch neighborhoods, particularly in existing playgrounds designed according to outdated standards. According to recent data, 155 of the Netherlands' 342 municipalities (45.3%) have no inclusive playgrounds (NOS, 2025). The challenge extends beyond the playground itself because the broader urban environment often

remains insufficiently inclusive for children, which limits their access to safe spaces, their ability to move around independently, and their opportunities for outdoor play.

This master's thesis explores how urban environments can be redesigned to create inclusive spaces where children with and without disabilities can independently move, navigate, and play in public playgrounds. The research focuses on children with physical, sensory, and cognitive disabilities, recognizing that children with different abilities experience and navigate urban environments in different ways.

Buitenveldert-Zuid, a residential neighborhood in Amsterdam, is used as a case study. Although the research and design outcomes are specific to this location, the project's ambition extends beyond a single site. The thesis's central outcome is a design-driven framework that translates research on urban accessibility and inclusive play into spatial strategies for public space and playground design. The framework is intended for multiple locations across the Netherlands and provides practical spatial strategies for improving inclusive movement, access, and play within neighborhoods.



Figure 3. Veertoestellen (Proludic Netherlands, n.d.)

Onvoldoende speeltuinen voor kinderen met een handicap: 'Ik wil ook buiten kunnen spelen'

NOS & Rijnmond Redactie 10 november 2025

Translation: Insufficient playgrounds for children with disabilities: "I want to be able to play outside as well"

Samen spelen? Voor veel kinderen met een handicap nog geen vanzelfsprekendheid

RTL Nieuws 10 november 2025

Translation: Playing together? For many children with disabilities, this is still not a matter of course.

'Gehandicapte kinderen spelen vaker alleen in de speeltuin'

NOS Nieuws 10 november 2025

Translation: Children with disabilities are more likely to play alone in the playground.

RELEVANCE

Scientific relevance

Despite growing attention to inclusive play, there is still a knowledge gap on how public playground designs can support the social, physical, cognitive, and sensory development of children with and without disabilities. Most research focuses on technical accessibility or isolated interventions rather than the complete play experience for all children. This study contributes to our understanding of how inclusive spatial and social environments can reduce exclusion. It does so by investigating design strategies that encourage interaction, independence, and engagement among children with diverse abilities (Moore & Lynch, 2015; Helleman, 2018; Finnigan, 2024).

Societal relevance

Inclusive playgrounds are essential for fostering social cohesion, equality, and community well-being. Children with disabilities often feel excluded from public play spaces, which limits their opportunities to interact with their peers and participate in community life (Stichting Het Gehandicapte Kind, 2025). Providing environments where children of all abilities can play together ensures that they experience a sense of belonging, learn to cooperate, and develop empathy. Welcoming public spaces prevent discrimination, promote social inclusion, and normalize diversity in early childhood, creating healthier, more connected communities.

Developmental relevance

There are twelve reasons why outdoor play is essential for children's development, such as improving motor skills, spatial awareness, personality, self-esteem & confidence, social interaction, emotional regulation, and resilience (Helleman, 2018). For children with disabilities, these developmental opportunities are critical. If they are primarily treated as patients rather than children, they risk falling behind in key skills and social integration. Inclusive playgrounds allow all children to explore, experiment, and interact independently, ensuring equitable growth and access to the full developmental benefits of play.

CHILDREN'S PLAY

Before taking a more in-depth look at the topic, it is important to understand that children experience the built environment in different ways. Children's interaction with space changes as they grow, particularly in relation to their independence, mobility, and forms of play. Developmental theories of play and cognition provide a useful framework for understanding how children's spatial behaviour changes over time.

For children aged 2–4, play is limited to areas very close to the home and takes place under adult supervision. At this stage, children often engage in solitary or parallel play, meaning they play near other children without directly interacting with them. This form of play was identified by Mildred Parten in her study of children's social participation in play (Parten, 1932). Such behaviour corresponds with the preoperational stage of cognitive development (2–7 years) described by Jean Piaget, during which children begin to develop symbolic thinking and engage in imaginative and pretend play (Piaget, 1962).

Between the ages of 5 to 7, children's play becomes more socially interactive and gradually more independent. During this stage, children interact more with their peers and begin to engage

in associative or early cooperative play, in which communication and the sharing of materials become more common (Parten, 1932). Social interaction plays a central role in learning and development during this period. According to Lev Vygotsky, cognitive development occurs through interaction and collaboration with others (Vygotsky, 1978). These interactions often take place in shared play environments, such as schoolyards and playgrounds.

Children aged 8–12 typically demonstrate greater independence and more organized forms of play. At this stage, children often engage in cooperative play, which involves shared goals, rules, and coordinated group activities (Parten, 1932). This shift toward organized group play is supported by cognitive abilities that develop during Piaget's concrete operational stage, when children begin to think more logically, understand rules and perspectives (Piaget, 1962). As a result, children can organize group activities and explore their surroundings independently. Their spatial range within the neighborhood expands, allowing them to move more freely between different locations. Play therefore becomes less confined to designated play environments such as playgrounds and occurs while children move through streets

and other informal spaces within the neighborhood (Hart, 1979; Hillman et al., 1990). At this stage, playgrounds often function as meeting points from which children continue to explore other areas of the neighborhood together.

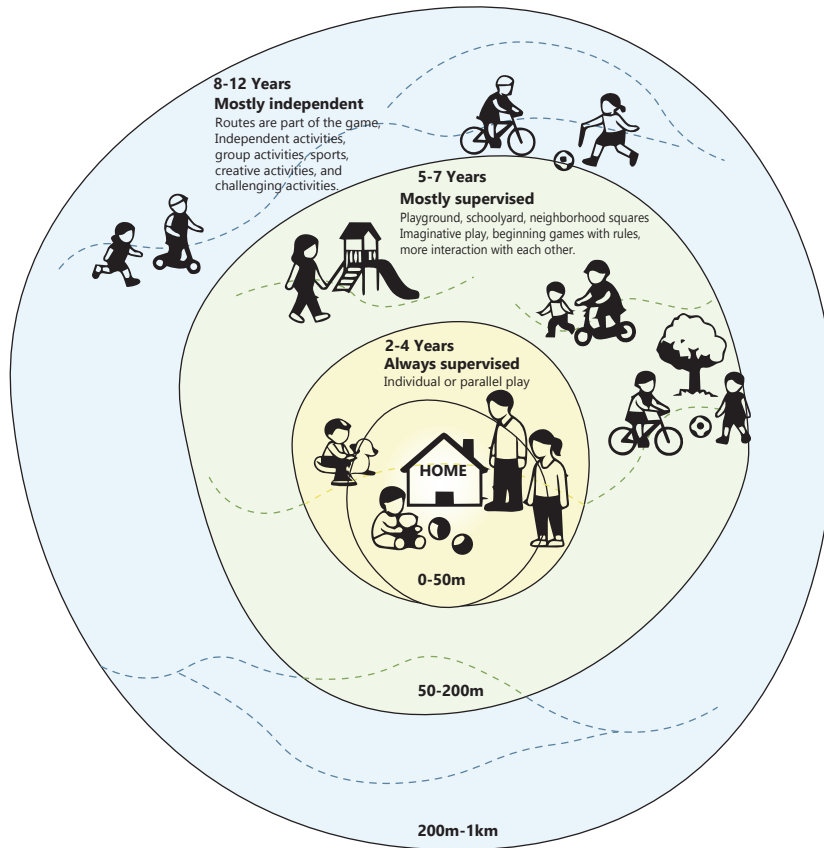


Figure. Children's Play: Mobility, Independence, and Spatial Development 19

TYPES OF PLAY

To analyze children's play behavior in relation to their environment, researchers often categorize different types of play representing various forms of activity and interaction. In his research on children and the living environment, Joost van AnDEL identified twelve types of play that describe how children use and experience their surroundings (Van AnDEL, 1985). Based on Van AnDEL's classification, 4 main categories of play are distinguished in this study: rest, fantasy, movement, and construction.

Additionally, this study includes a fifth category: sensory play (Case-Smith, 2013; Moore & Cosco, 2010). Together, these categories reflect the various ways children interact with space and help analyze how the physical environment supports different types of play.

Rest refers to passive activities, such as observing, sitting, talking with others, or taking a break from active play (Van AnDEL, 1985). These activities usually occur in quiet areas or in sheltered spaces, where children can observe others and socialize.

Fantasy play involves imaginative role-playing activities in which children invent stories and scenarios (Van AnDEL, 1985). It uses elements

from the environment as symbolic objects or scenery. For example, children pretend that structures become houses, castles, or other imaginary spaces or natural elements are used as props, such as using sticks as swords. Through fantasy play, children can interpret their environment creatively and interact with it in flexible ways.

Movement play includes physically active forms of play such as running, climbing, jumping, and chasing (Van AnDEL, 1985). Within this category, movement can be divided into two types: movement as an activity in itself and movement with the purpose of displacement (Van AnDEL, 1985). The first includes activities such as jumping rope, climbing trees, and playing tag. The second type refers to moving through space with or without a destination. Examples include cycling to school or walking without a specific goal. These activities require space for physical movement and are often associated with playground equipment, open spaces, and routes through neighborhoods where children can move freely.

Construction play involves activities in which children manipulate materials or elements of the environment to build or create something (Van AnDEL, 1985). This may include using loose materials,

sand, or natural elements to construct objects or small structures, encouraging experimentation, creativity, and hands-on interaction with the environment.

Sensory play refers to activities that stimulate children's senses, including touch, sight, hearing, smell, and fine motor skills. Children explore materials and elements by feeling textures such as sand or wood, interact with water, or play with small objects (Case-Smith, 2013). Visual stimuli, such as reflections, light, and color, as well as auditory experiences, like making and listening to sounds, also play an important role (Moore & Cosco, 2010). Sensory play focuses on experiencing and exploring sensory qualities rather than creating objects, and is closely related to children's cognitive development while being shaped by the physical environment.



Figure 4. Rest (Source unknown)



Figure 5. Fantasy (Community Playthings, n.d.)



Figure 6. Movement, Playground on Egernevej, Frederiksberg (KOMPAN, n.d.)



Figure 7. Construction (Studio Jan Ooms, 2012)



Figure 8. Sensory (Gro-Organic CIC, n.d.)

TYPES OF DISABILITIES

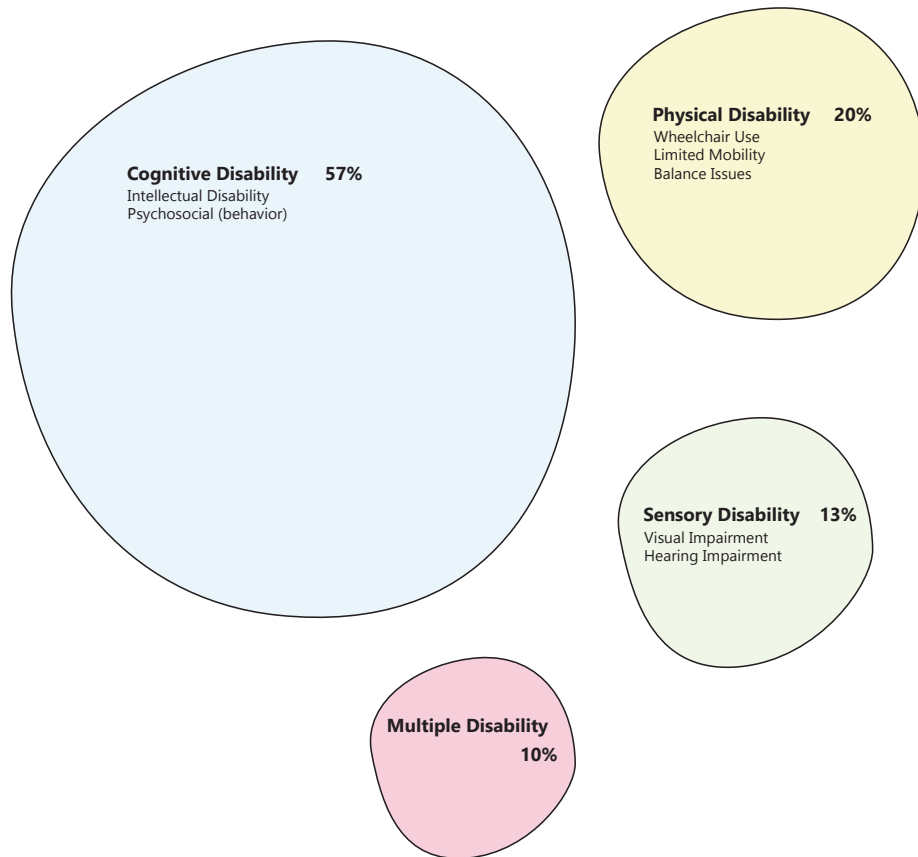
In the Netherlands, it is estimated that approximately 3.5% of children have a disability. Of those children, around 57% have a cognitive disability, 20% have a physical disability, and 13% have a sensory disability (Woittiez et al., 2019; Blommestein & Duijf, n.d.). In addition to these groups, approximately 10% of children have multiple disabilities, often involving combinations of physical and intellectual impairments (Blommestein & Duijf, n.d.).

Physical disabilities involve motor impairments that limit a child's mobility. These impairments can result in reduced mobility, reliance on a wheelchair, and balance issues, which may restrict independent movement and participation in everyday physical activities (Anaby et al., 2013).

Sensory disabilities refer to impairments in vision and hearing. Children with visual impairments may have difficulty perceiving spatial layouts and obstacles because vision loss affects the ability to see and interpret the surrounding environment. This can make navigating and orienting oneself in unfamiliar settings more challenging (World Health Organization, 2019). Children with hearing impairments may have reduced access to auditory

information, including speech and environmental sounds. This can affect their ability to communicate and understand (World Health Organization, n.d.).

Cognitive disabilities, the largest group, include intellectual and psychosocial disabilities. Intellectual disabilities are characterized by limitations in intellectual functioning and adaptive behavior, affecting learning, problem solving, and social participation (American Association on Intellectual and Developmental Disabilities, 2021). Psychosocial and behavioural disabilities involve difficulties with emotional regulation and social interaction. Children may experience challenges in coping with daily life, school, and understanding social rules (NSW Health, 2023).





02

**PROJECT
APPROACH**



Figure 9. Inclusive play locations in the Netherlands (Stichting het Gehandapte Kind, n.d.)

PROBLEM FIELD

(Non)Inclusive playground

Modernist design principles have shaped many of Europe's public spaces, including playgrounds. Modernist planning often relied on a universal "average user" by prioritizing efficiency, order, and standardization, producing spatial norms that unintentionally exclude those who fall outside this ideal (Imrie and Hall, 2001). This is particularly evident in playgrounds, where design choices often overlook the needs of children with physical, intellectual, or sensory disabilities. Studies show that many playgrounds have equipment that is difficult to reach, circulation routes that are inaccessible, and sensory or social environments that are unwelcoming (Moore & Lynch, 2015).

These design legacies are also visible in the Netherlands. Although playgrounds are widespread, many remain far from inclusive. Of the 342 municipalities, 155 have no inclusive playgrounds, meaning 45.3% offer no fully accessible public play spaces for children with disabilities. Of the children who have access to an inclusive playground, over a quarter often play there alone. Furthermore, 72% of children without disabilities never play with children with disabilities, although nearly half (45%) would like to

(Stichting Het Gehandicapte Kind, 2025). Together, these data reveal that exclusion in play environments is a persistent, structural problem.

Creating inclusive playgrounds requires more than meeting technical accessibility standards. It calls for spatially diverse, socially welcoming, and flexible play environments that enable all children, regardless of ability, to access, navigate, and engage in play together. The Samenspeelbril 100-70-50 framework, developed by the Speeluinbende (Hoyng & van der Put, 2022), provides a practical approach to such design. It emphasizes three complementary goals: ensuring that 100% of children feel welcome, making 70% of play opportunities physically accessible, and designing 50% of activities to actively encourage collaborative play. Unlike purely technical standards, the Samenspeelbril focuses on social inclusion and shared play experiences, offering a concrete method to transform playgrounds into spaces where children of all abilities can play together.

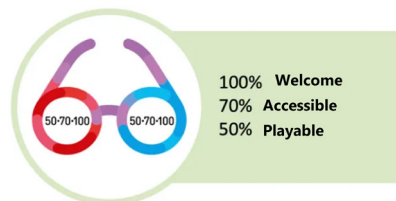


Figure 10. Samenspeelbril, Samenspeelnetwerk (n.d) 27

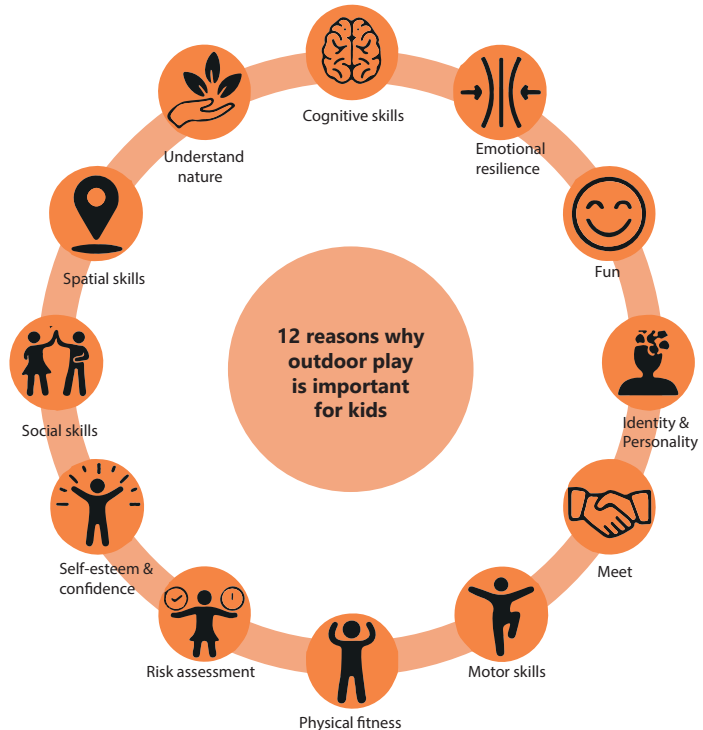
The importance of outdoor play

Outdoor play is essential for children's development, and Helleman's *Playable Cities: Why?* (2018) provides a clear framework for understanding why accessible and stimulating outdoor environments are important. Helleman posits that public spaces act as "living laboratory", offering children opportunities to explore movement, texture, balance, speed, and natural variation. These experiences support the development of motor skills, spatial awareness, creativity, and problem-solving abilities. Outdoor play also fosters social development as children learn to negotiate, cooperate, and interact spontaneously in shared spaces.

According to Helleman, outdoor play contributes to three interconnected domains: skill development (including physical, cognitive, and social abilities), improved health and well-being through active movement, and intrinsic enjoyment, which motivates children to engage in free, unstructured play. The unpredictability and openness of outdoor environments allow children to take manageable risks, build resilience, and gain independence, qualities that indoor or highly structured environments cannot easily replicate.

Helleman further emphasizes that modern urban settings increasingly limit children's

opportunities for outdoor play due to traffic, densification, screen-based entertainment, and a lack of appealing public play areas. As a result, children spend less time outside than previous generations did, limiting their exposure to the developmental benefits associated with outdoor play. This decline underscores the importance of designing urban environments that actively encourage play and ensure that all children, including those with disabilities, can enjoy meaningful outdoor experiences.



Barriers to inclusive play

Playgrounds are often designed for able-bodied “average users”, which unintentionally excludes children with physical, sensory, or cognitive disabilities (Moore & Lynch, 2015). These barriers extend beyond the equipment to the broader play environment, the routes leading to the playground, and social interactions within it.

Physical accessibility remains a critical barrier. Uneven surfaces, narrow pathways, and inaccessible play structures can restrict a child’s ability to move around independently (Moore & Lynch, 2015). Even when a playground includes an accessible element, surrounding features such as curbs, sand pits, and thresholds often prevent children from reaching or using it (Brown et al., 2021).

Sensory and cognitive challenges can limit participation. Overstimulating environments, unclear spatial organisation, and a lack of calm zones can overwhelm children with autism, ADHD, or intellectual disabilities (Finnigan, K. A, 2024). Poor visual cues and signage can reduce autonomy and the ability to safely navigate the playground (Helleman, 2018).

Social barriers also play a key role. Children with disabilities often experience stigma, limited peer interaction, and insufficient

adult support (Moore & Lynch, 2015). Families report avoiding playgrounds when children feel unwelcome or when the designs do not accommodate assisted or shared play (Stichting het Gehandicapte Kind, 2023). As a result, these children have fewer opportunities for spontaneous, unstructured outdoor play, which is essential for social and emotional development (Verian & Jantje Beton, 2024).

Many of these barriers are not the result of isolated design decisions, but rather, they stem from broader assumptions about who playgrounds are intended for. When accessibility and inclusion are treated as secondary considerations rather than foundational design principles, exclusion can persist, even in spaces that aim to be inclusive.

Together, these physical, sensory, and social barriers reveal a gap between the ambition of inclusive play and its realisation in public spaces. Understanding and addressing these obstacles is crucial to creating playgrounds that allow all children to participate, be autonomous, and interact socially.

PROBLEM STATEMENT

Many public playgrounds in the Netherlands are inaccessible to children with disabilities. Designs that focus on the “average user” often fail to address these children’s physical, sensory, and social needs. These designs result in barriers such as uneven surfaces, overstimulating environments, and difficult-to-navigate layouts. However, the challenge extends beyond the playground itself. The urban context is essential in determining whether children can access and use inclusive playgrounds in the first place. Discontinuous sidewalks, unclear wayfinding, traffic-dominated streets, and inaccessible routes can prevent children from reaching playgrounds altogether, regardless of how inclusive the designs are. These barriers limit opportunities for interaction between children with and without disabilities, hindering their ability to play freely and develop physically, cognitively, and socially. Nearly half of Dutch municipalities still lack fully inclusive playgrounds, and opportunities for children with and without disabilities to play together are rare.

Inclusive playgrounds should address the physical, sensory, and social needs of children, and they should be easy to navigate with clear signage and an intuitive layout, both within the playground and along access routes. In practice,

however, many neighborhoods and playgrounds fail to meet these conditions, creating barriers that prevent children from accessing the developmental and social benefits of play independently.

RESEARCH AIM

This project aims to create an inclusive urban environment where children with and without disabilities can independently move, navigate, and play in public playgrounds.

Case study approach

The project is developed through a case study approach, using Buitenveldert-Zuid in Amsterdam as the research and design location.

QUESTIONS

What spatial and environmental conditions characterize Buitenveldert-Zuid as a neighborhood?

How do children of different ages and with different disabilities experience and navigate in the neighborhood?

Which spatial strategies can support inclusive movement, access, and play within the neighborhood?

METHODS

This project uses a mixed-methods approach to investigate how urban environments and public playgrounds can support inclusive access, movement, and play for children with different abilities. Through a combination of literature research, interviews, personal observation, case studies, and mapping, the study captures both general knowledge and location-specific insights. This helps identify barriers, needs, and opportunities for inclusive play.

Literature review

The literature review is a good foundation for research because it explores existing knowledge on inclusive playground design, child development, outdoor play, and accessibility. It identifies common barriers, successful strategies, and design principles from academic studies and professional guidelines. These insights helped define the problem framework and the relevance of the research. They also informed the inclusive design principles and spatial strategies applied to the final design proposal.

Interview

Semi-structured interviews were conducted with community members and play experts (see appendix). These interviews provide

insights into children's needs, the current state of playgrounds, experiences with inclusion and exclusion, and future plans. Drawing on the experiences of professionals, experts, and caregivers, the interviews help us understand how children of different ages and with different disabilities experience and navigate the neighborhood (Q2) and identify needs and spatial qualities relevant to inclusive design strategies (Q3). This contributed to the development of the personas and highlighted needs related to accessibility, sensory comfort, independent movement, and social interaction.

Observation

The observation focuses on how children use urban environments and playgrounds and how physical, sensory, and social barriers affect their behavior and interactions. On-site observations of public spaces, streets, routes, and playgrounds pay particular attention to obstacles that might restrict participation. By documenting visible and less visible challenges, the observations provide insight into the spatial and environmental conditions of Buitenveldert-Zuid (Q1) and how children move through, experience, use, or avoid spaces within the neighborhood (Q2). This helped identify barriers, movement

patterns, and locations where spatial interventions and improved routing were needed within the design proposal.

Case study

The case studies focus on the spatial organization of public spaces and playgrounds in order to identify strategies that promote inclusive movement, accessibility, and play. Existing playgrounds and inclusive public spaces are examined for their spatial qualities, design interventions, and accessibility measures. The observed design elements and adaptations are then translated into design patterns that inform spatial strategies for improving movement, access, and play in Buitenveldert-Zuid (Q3). This helped translate successful precedents into spatial strategies related to routing, zoning, play typologies, and sensory experience.

Mapping

Mapping is used to document the spatial relationships, accessibility, and urban context of playgrounds. Routes from schools, playgrounds, and surrounding streets are mapped to analyze access, connections, and spatial thresholds. Incorporating traffic intensity, pedestrian flow, and public space usage supports the analysis of neighborhood conditions

(Q1), children's navigation through public spaces (Q2), and locations where spatial interventions could improve inclusivity (Q3). This supported the analysis of existing urban conditions and helped determine where inclusive spatial interventions were most needed within the neighborhood.

Research by Design

The Research by Design approach translates research findings into spatial design proposals. Throughout the design process, different spatial solutions are explored and evaluated using three personas representing different age groups and disabilities. This method helps us to understand how children experience spatial interventions (Q2) and to test inclusive design strategies within a neighborhood context (Q3). This supported the testing and refinement of design decisions related to accessibility, routing, spatial transitions, and different levels of play and interaction.

Methods applied to questions

Questions:

1. What spatial and environmental conditions characterize Buitenveldert-Zuid as a neighborhood?

2. How do children of different ages and with different disabilities experience and navigate in the neighborhood?

3. Which spatial strategies can support inclusive movement, access, and play within the neighborhood?

Literature review

Interview

Observation

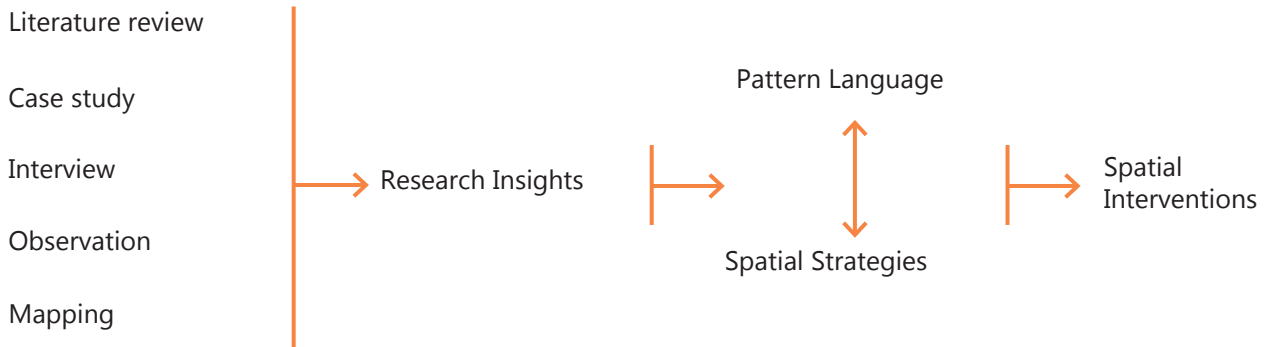
Case study

Mapping

Research by Design

Pattern language

Knowledge gained from the aforementioned methods is translated into a pattern language following Christopher Alexander's (1978) structure. Developed throughout the design process, the patterns function as spatial principles and interventions that support inclusive access, movement, play, and rest within the neighborhood.



RESEARCH FRAMEWORK

→ Informative

..... Reflective

Personal Motivation

Problem Statement

Research Aim

Problem Field

(Non)Inclusive playground,
The importance of outdoor play,
Barriers to Inclusive Play, Urgency
and Relevance

Public playgrounds are designed for the "average user", which results in physical, sensory, and social barriers that prevent children with and without disabilities from playing together.

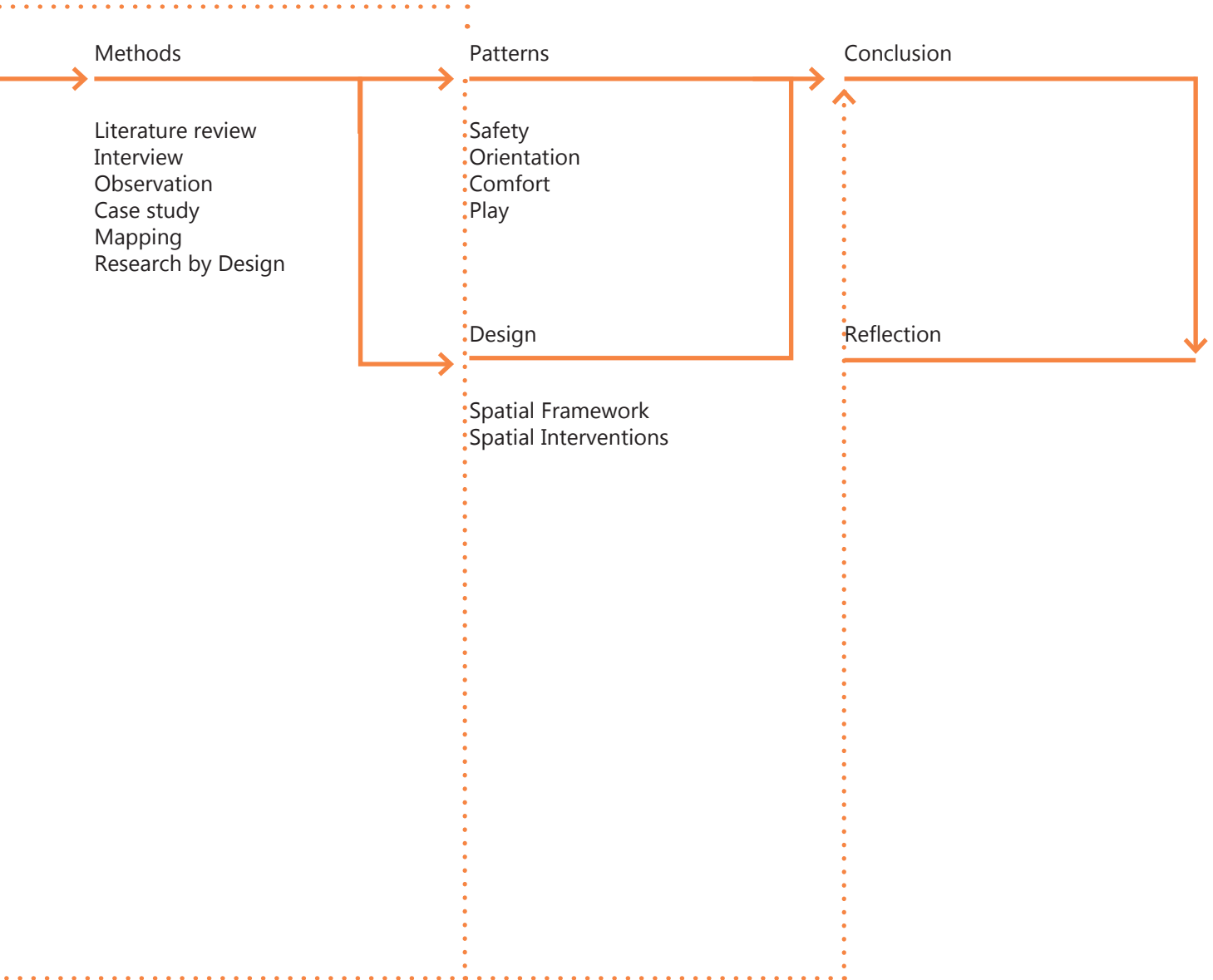
To create an inclusive urban environment where children with and without disabilities can independently move, navigate, and play in public playgrounds.

Questions

What spatial and environmental conditions characterize Buitenveldert-Zuid as a neighborhood?

How do children of different ages and with different disabilities experience and navigate in the neighborhood?

Which spatial strategies can support inclusive movement, access, and play within the neighborhood?



METHODOLOGY FRAMEWORK

Pattern language

These patterns are presented in a concise format that includes a title, brief hypothesis, indication of which children with different disabilities could benefit from the intervention, and supporting sketch. Together, they translate research findings into spatial design principles for inclusive movement, accessibility, and play. The patterns vary in scale, ranging from small spatial adaptations to larger neighborhood interventions.

Research by Design

Research by Design is a methodological approach in which design serves as a research method and an outcome. Through iterative design processes, spatial analysis, and reflection, insights from literature and fieldwork are translated into spatial strategies that support inclusive movement, accessibility, and play. This approach allows for the refinement and evaluation of abstract concepts through concrete spatial interventions.

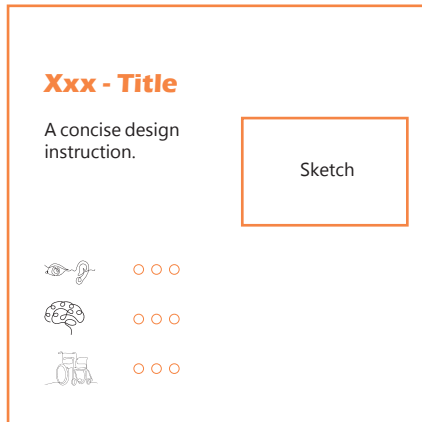


Figure. Lay-out Pattern

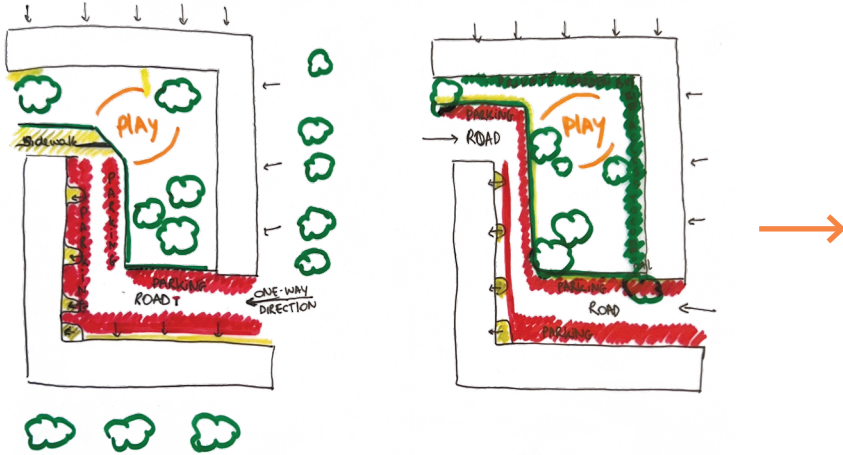


Figure. Research by Design, Current situation small play area



Figure. Research by Design, Preferable scenario small play area



03

UNDERSTANDING

THE

NEIGHBORHOOD

SITE SELECTION

Location selection criteria

The location was selected based on spatial, socio-demographic, and accessibility-related criteria aligned with the goal of designing inclusive playgrounds. A middle or mixed socio-economic context was prioritized to avoid extreme conditions that could overshadow spatial and design-related issues. The percentage of children was included to ensure play remains an everyday activity, and density and green space were considered to balance urban intensity with outdoor play opportunities.

Accessibility was addressed at both the playground and urban scales. A benchmark of a 200-meter walking distance to existing play areas was used for everyday accessibility, especially for children with disabilities. Additionally, qualitative, eye-level indicators such as route continuity, visibility, wayfinding, and signs of informal play were included to capture how public spaces are experienced and used in daily life.

Location	Socio-economic	Density	Building year	Children %	Green Space	Play <200m	Informal play	Accessibility Routes	Wayfinding & visibility	Scale
Tuindorp-Oost (Utrecht)	Middle	Both (middle)	1930-1950	14%	Much	Yes	Medium	Good	Clear, Small-scale	Small (to limited)
Overvecht (Utrecht)	Low	Both (middle)	1960-1970	17%	Much	Yes	High	Moderate	Diffuse, Large-scale	Large
Buitenveldert (Amsterdam)	Middle	Both (middle)	1950-1960	15%	Enough-Much	Yes	Medium-Low	Good	Clear, Large-scale	Large (zoom-in needed)
Weesp (Amsterdam)	Middle	Low	1960-1980 (mixed)	15%	Much	Partial	Medium	Good	Clear	Medium - Large
Spaarndammerbuurt (Amsterdam)	Low	High	1910-1920	11%	Little-Enough	Yes	High	Moderate	Clear, but dense	Medium
Duivendrecht (Amsterdam)	Middle	Both (middle)	1960-1970	14%	Enough	Yes	Medium	Good	Clear	Medium
Watergraafsmeer (Amsterdam)	Middle	Both (middle)	1930-1950	16%	Much	Yes	Medium	Good	Clear	Large (zoom-in needed)
Middenmeer (Amsterdam)	Middle	Both (middle)	1920-1950	14.5%	Enough	Partial	Medium	Good	Clear	Medium - Large

Figure 12. Comparative analysis of neighborhoods. Based on Google Maps (consulted in 2025 and 2026) and CBS statistics (2025), accessed via AlleCijfers.nl.

Selection of Buitenveldert Zuid

Buitenveldert Zuid was chosen as the focus area because it matched the selection criteria. This allows for detailed spatial analysis at multiple scales and provides a balanced urban context. The area has a middle socio-economic profile, a large number of families with children, and a clear postwar urban structure with green spaces. Its size allows for a focused zoom-in to a 200-meter catchment area, making Buitenveldert Zuid suitable for addressing accessibility, wayfinding, and the integration of inclusive play within the surrounding urban fabric.



Figure. Map of The Netherlands



Figure. Location Buitenveldert-Zuid (Amsterdam)



Figure 13. View of Buitenveldert (AmsterdamSights.com, n.d.)



SPATIAL AND SOCIAL CONTEXT

History

Buitenveldert-Zuid was developed as part of Amsterdam's southern expansion. The development of the area was based on the Algemeen Uitbreidingsplan (AUP), a plan designed in the 1930s under the leadership of urban planner Cornelis van Eesteren. The AUP introduced a modern approach to urban planning, clearly separating housing, traffic, and green areas and arranging them in an open urban structure (Stadsarchief Amsterdam, 2024).

Buitenveldert was later built on the site of the Binnendijksche Buitenveldertse Polder, a rural landscape south of the Zuider-Amstelkanaal. Starting in 1955, the polder was filled with sand to prepare the land for construction. Construction of the new district began on June 2, 1958, with the laying of the first foundation stone of Buitenveldert. The first residents moved into the newly built homes in 1959 (Gemeente Amsterdam, 2023).

Buitenveldert was designed as a tuinstad (garden city) with spacious residential areas, green spaces, and neighborhood facilities. The southern parts of the district were developed mainly as quiet residential areas with a mix of apartment buildings and family housing within

a green urban structure (Gemeente Amsterdam, 2023).

Location

The area is bordered to the north by the Gijsbrecht van Aemstelpark, which separates the northern and southern parts of Buitenveldert. To the south, Buitenveldert borders the municipality of Amstelveen. The A10 ring road provides an important connection to the rest of Amsterdam. Buitenveldert is located between two large green spaces: the Amsterdamse Bos to the west and the Amstel area to the east.

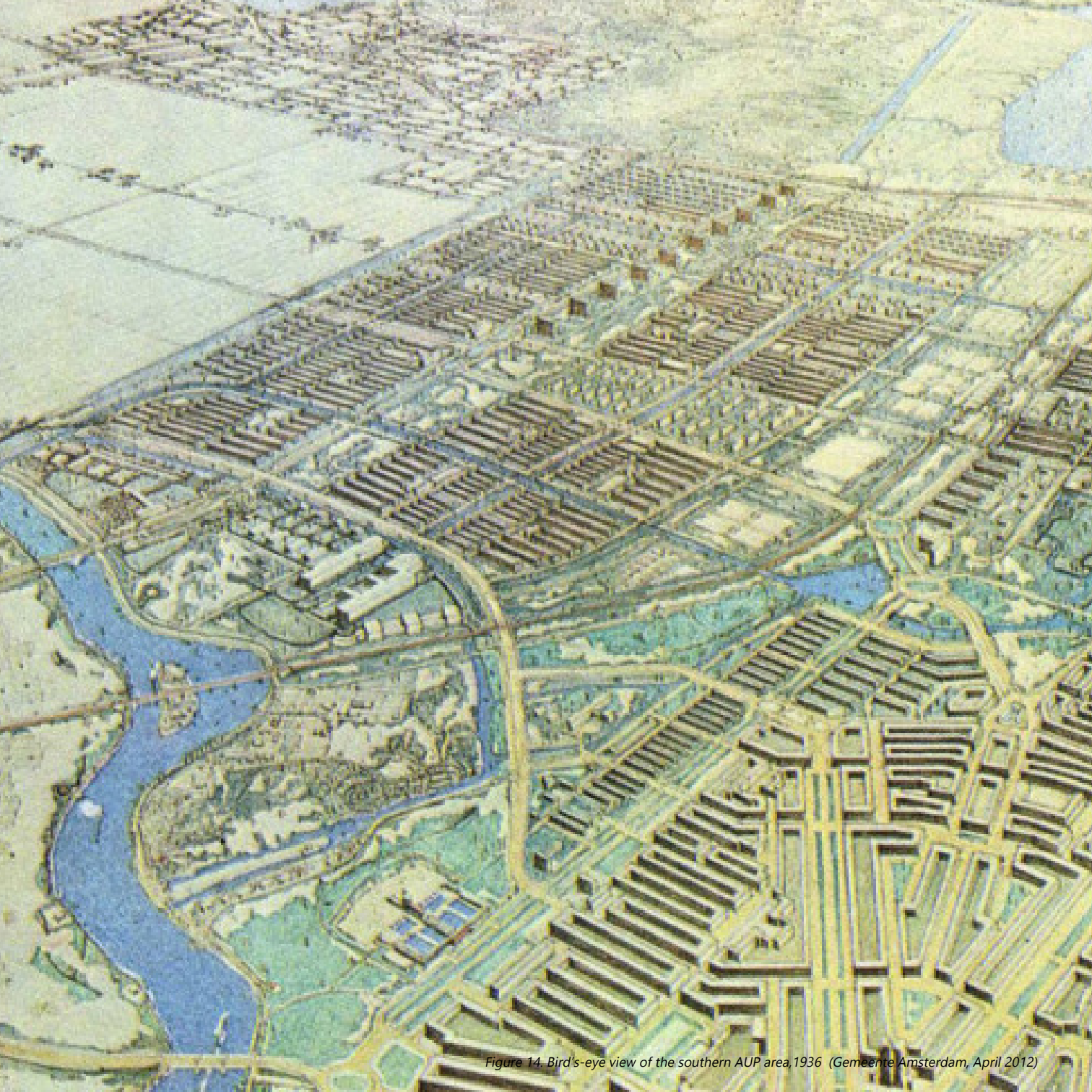


Figure 14. Bird's-eye view of the southern AUP area 1936 (Gemeente Amsterdam, April 2012)

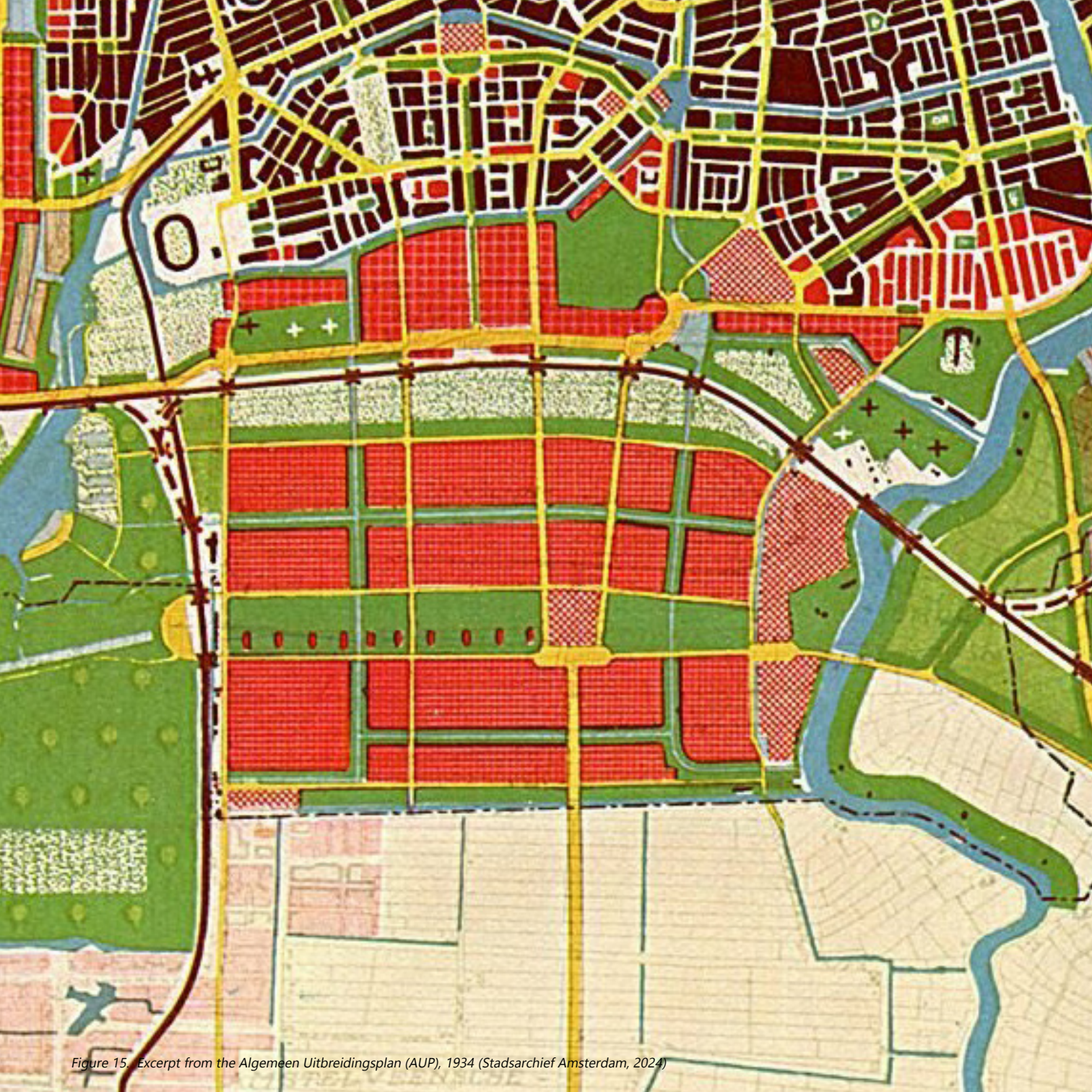


Figure 15. Excerpt from the Algemeen Uitbreidingsplan (AUP), 1934 (Stadsarchief Amsterdam, 2024)

Spatial structure

The spatial structure of Buitenveldert's southern and eastern districts reflects the urban planning principles of the Algemeen Uitbreidingsplan (AUP). The area is organized by a clear, layered system of main roads, green spaces, and water features running in north-south and east-west directions. These larger structural lines form the framework of the neighborhood and define its residential blocks.

Within this framework, housing areas are arranged in an open layout with buildings placed in separate clusters rather than closed blocks. Green spaces play an important structuring role, with parks, green strips, and planted courtyards integrated between buildings. This creates relatively low building density and a spacious character.

The neighborhoods consist mainly of mid-rise apartment buildings, which are often four to five stories high. These buildings are typically strip- or hook-shaped and arranged in patterns that are common in post-war housing developments. They are surrounded by public green spaces, pedestrian paths, and wide streets. The combination of open building arrangements and ample green spaces gives the neighborhoods of Zuid-Midden and Zuid-Oost their distinctive spatial structure.

Neighborhood profile

The figures offer insight into the neighborhood's demographic and socio-economic composition.

Figure 16 illustrates the migration background of the residents, revealing a diverse community with a majority of Western residents and smaller non-Western groups. This composition may influence the area's cultural character and local services.

Figure 17 illustrates housing tenure, indicating a balanced mix of owner-occupied, private rental, and social housing. This suggests that the neighborhood is stable and accessible to people with different incomes.

Figure 18 shows educational levels. Roughly half of the residents have

a higher education, while the rest have a secondary or practical education. This indicates a relatively well-educated population, which could affect employment patterns, income levels, and community engagement.

Figure 19 illustrates the age distribution of the neighborhood. Of the 7,970 total residents, 1,125 are children. This means that a significant part of the population is made up of younger residents. The relatively high number of children suggests that the area is family-oriented, which makes safe public spaces, accessible schools, and well-distributed playgrounds even more important. It also highlights the need for safe mobility routes and child-friendly infrastructure.

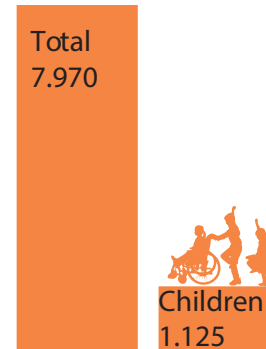


Figure 19. Number of children within the total population (CBS statistics, 2025, accessed via AlleCijfers.nl)

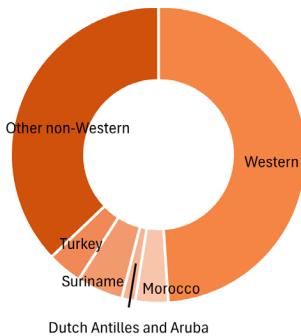


Figure 16. Migration Background (CBS statistics, 2025, accessed via AlleCijfers.nl)

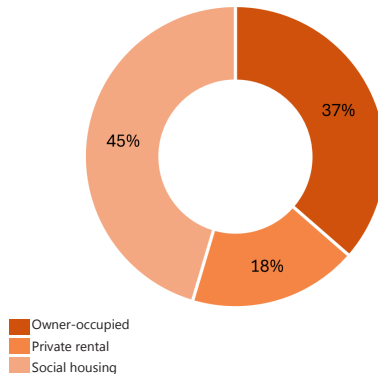


Figure 17. Housing by Tenure Type (CBS statistics, 2025, accessed via AlleCijfers.nl)

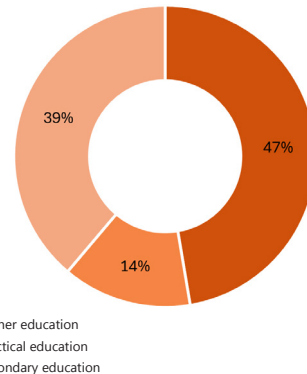


Figure 18. Education Level (CBS statistics, 2025, accessed via AlleCijfers.nl)



Figure. Crossing at Van Boshuizenstraat

Functional structure

As with many neighborhoods developed according to the principles of the Algemeen Uitbreidingsplan (AUP), there is a clear spatial separation between residential and non-residential areas.

Most buildings in the neighborhood are used for housing. Other functions are concentrated in specific clusters within the residential blocks. Retail and hospitality are mainly located in certain central blocks among the housing, where small commercial areas are concentrated.

Additionally, some retail is clustered along Van Boshuizenstraat, where several shops and services are located close to each other.

Schools are distributed throughout the neighborhood and are often located near these clusters so they remain easily accessible from the surrounding residential areas. Office spaces are located along larger roads and at the edges of the neighborhood to benefit from better accessibility.

Overall, housing dominates the functional structure, with supporting facilities such as retail, schools, and offices integrated into specific clusters within the neighborhood.

- Retail
- Hospitality
- Lodges
- Education
- Museum and Gallery
- Relaxation and Entertainment
- Sports
- Care
- Social
- Offices
- Companies
- Not clear

100m





Figure. Bakery in function blocks

Schools

The area contains a total of 15 educational facilities consisting of different types of schools and childcare institutions. These include daycare centers, primary schools, secondary education, vocational education, Montessori education, and specialized education for students aged 12 to 20.

The schools are distributed throughout the neighborhood and are generally located within or close to residential areas, making them easily accessible to local

residents. In addition to these institutions, the area includes three Jewish schools that operate within secured compounds. This gives these locations a more enclosed spatial character compared to the other schools.

Overall, the distribution of educational facilities reinforces the neighborhood's identity as a family-oriented residential area where educational services are integrated into the urban structure.



Public playgrounds

Public playgrounds of different types and scales are spread throughout the neighborhood. The larger play areas include facilities such as football fields, sand pits, and larger play structures. Many smaller playgrounds are located between housing blocks. These smaller spaces usually contain individual play elements, such as seesaws, climbing frames, and makeshift soccer goals. They are typically located on residential streets and are often closely surrounded by housing and parked cars.

The area also includes several linear zones equipped with sports and exercise facilities, which provide additional opportunities for recreation and physical activity.



○ Large Playground



○ Small Playground



● Sport Facility

100m



Figure. Public Playgrounds

Greenery and water

A key characteristic of the AUP (Algemeen Uitbreidingsplan) is its spatial structure, in which green and water systems play an important role. The area is defined by long sightlines, wide waterways, and green strips that shape the urban layout.

The green network is organized at three scales: district, neighborhood, and residential. It consists of large parks, green corridors alongside main roads and waterways, semi-public green courtyards, and private

gardens.

Buitenveldert is located between two significant green spaces: the Amsterdamse Bos to the west and the Amstel park to the east. Within the district, Gijsbrecht van Aemstelpark separates Buitenveldert's northern and southern parts. To the south of the study area, there is also a strip of recreational green space. Both parks have water features.

The main roads are characterized by wide green strips with multiple rows

of trees. At the residential scale, ground-based houses typically have private gardens, while apartment buildings are surrounded by public green spaces. The strip and hook-shaped building layouts create semi-public courtyards that often include playgrounds.

- Gardens
- Main Green Structure
- Main Tree Structure
- Water

100m



400m

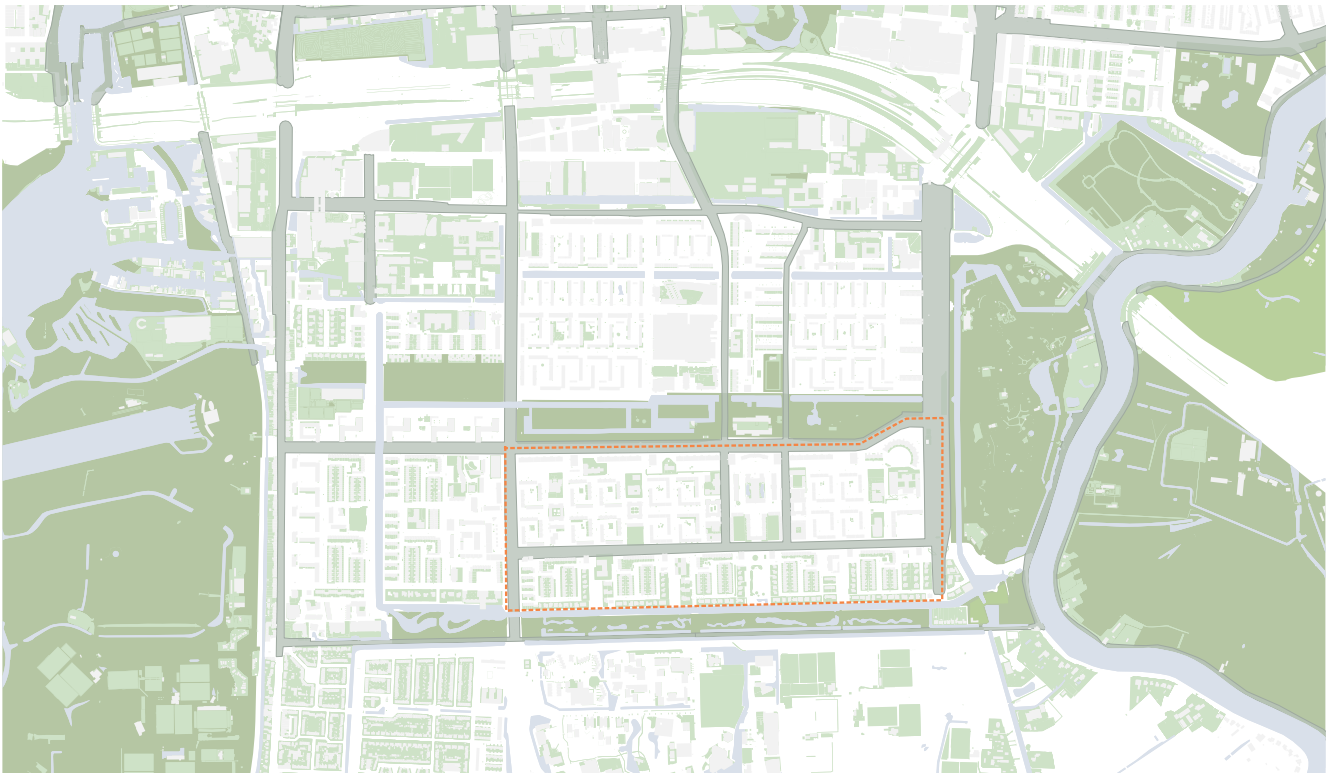


Figure. Greenery and Water map in the Surrounding Area 57

Car and bicycle

The street layout reflects the hierarchical road structure typical of neighborhoods developed under the Algemeen Uitbreidingsplan (AUP). In these neighborhoods, main traffic routes structure the area, and residential streets provide local access. Cars play a dominant role in the street profile, strongly influencing the spatial character of public spaces (Stadsarchief Amsterdam, 2024).

Therefore, the project area is easily accessible by car. The S109 (Van

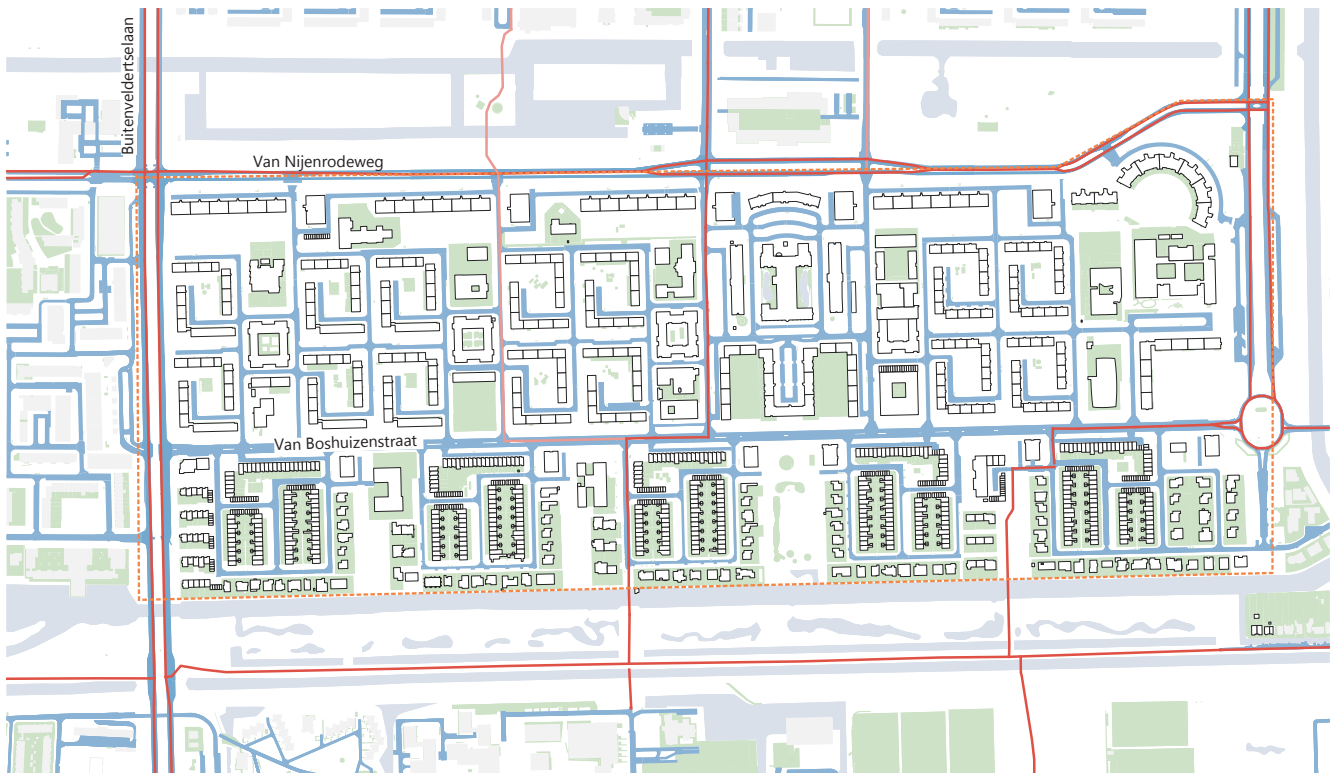
Nijenrodeweg), which has a speed limit of 50 km/h, runs along the northern edge of the area and connects to the A10 ring road and the wider road network of Amsterdam. Van Boshuizenstraat, which runs through the neighborhood, functions as a 30 km/h local road. On the western side, Buitenveldertselaan is another 50 km/h route that connects the area to Amsterdam-Zuid, the VU area, and Amstelveen.

Cycling receives less spatial priority

than car traffic. Some larger roads have separate cycling lanes, while on other streets, cyclists must share the roadway with cars. Although there are bicycle routes that provide connections to destinations such as Gelderlandplein and Amstelveen, the overall street layout remains car-oriented.

- Car
 - PlusNet Car
 - PlusNet Corridor Car
 - MainNet Car
- Bicycle
 - PlusNet Bike
 - MainNet Bike

100m



400m

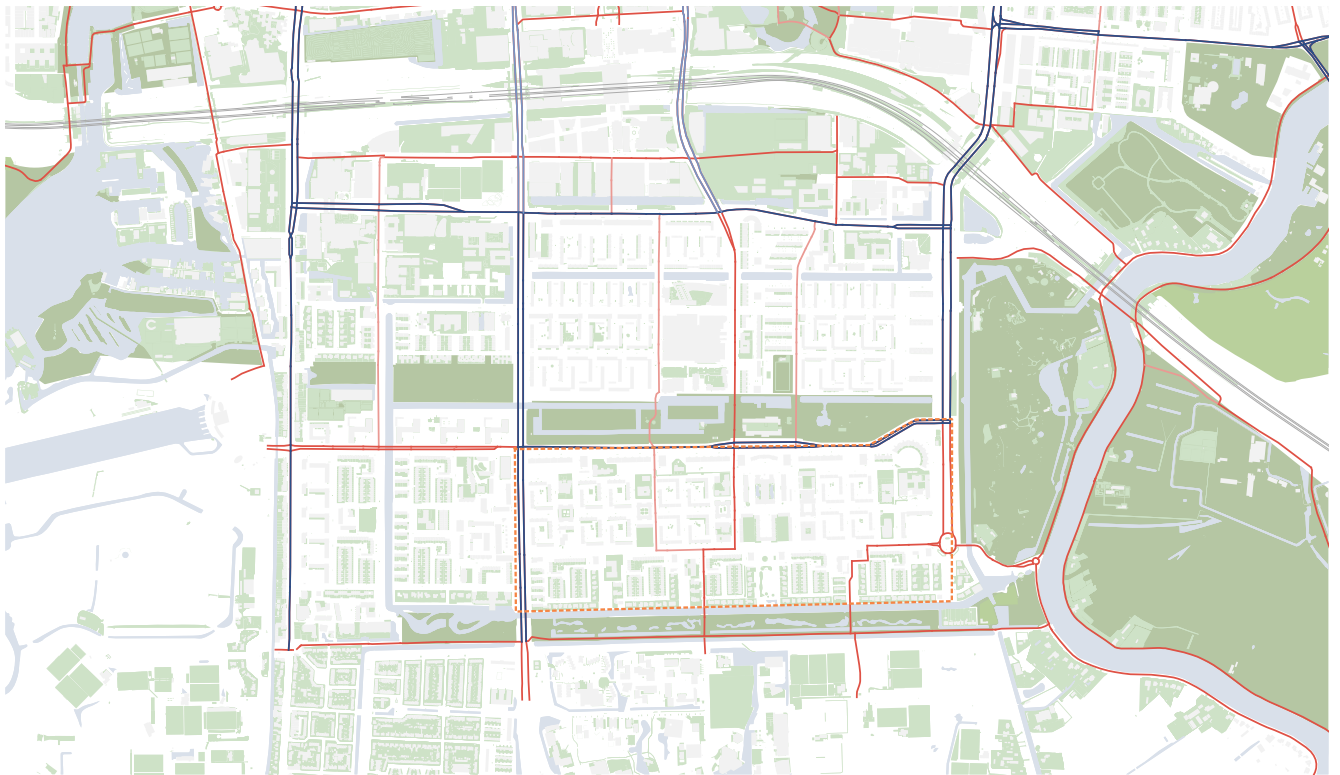


Figure. Traffic map for cars and bicycles in the Surrounding Area 59

Parking

Parking primarily occurs along the street, where cars occupy a significant amount of public space. The design of streets often prioritizes parking, which strongly influences the appearance of the public realm.

Several apartment buildings have parking boxes, yet cars are often parked directly in front of homes or partially on the sidewalk (see figure). Courtyards provide parking spaces, yet cars are often parked in areas not intended for parking, such as near building entrances, on sidewalks, or in front of garage boxes. This interrupts the pedestrian route.

reducing pedestrian space (see figure).

Even when designated parking spaces are available, cars are often parked directly in front of homes or partially on the sidewalk (see figure). Courtyards provide parking spaces, yet cars are often parked in areas not intended for parking, such as near building entrances, on sidewalks, or in front of garage boxes. This interrupts the pedestrian route.

■ Parking box entrance
■ Parking space

100m



Figure. Apartment buildings have parking boxes



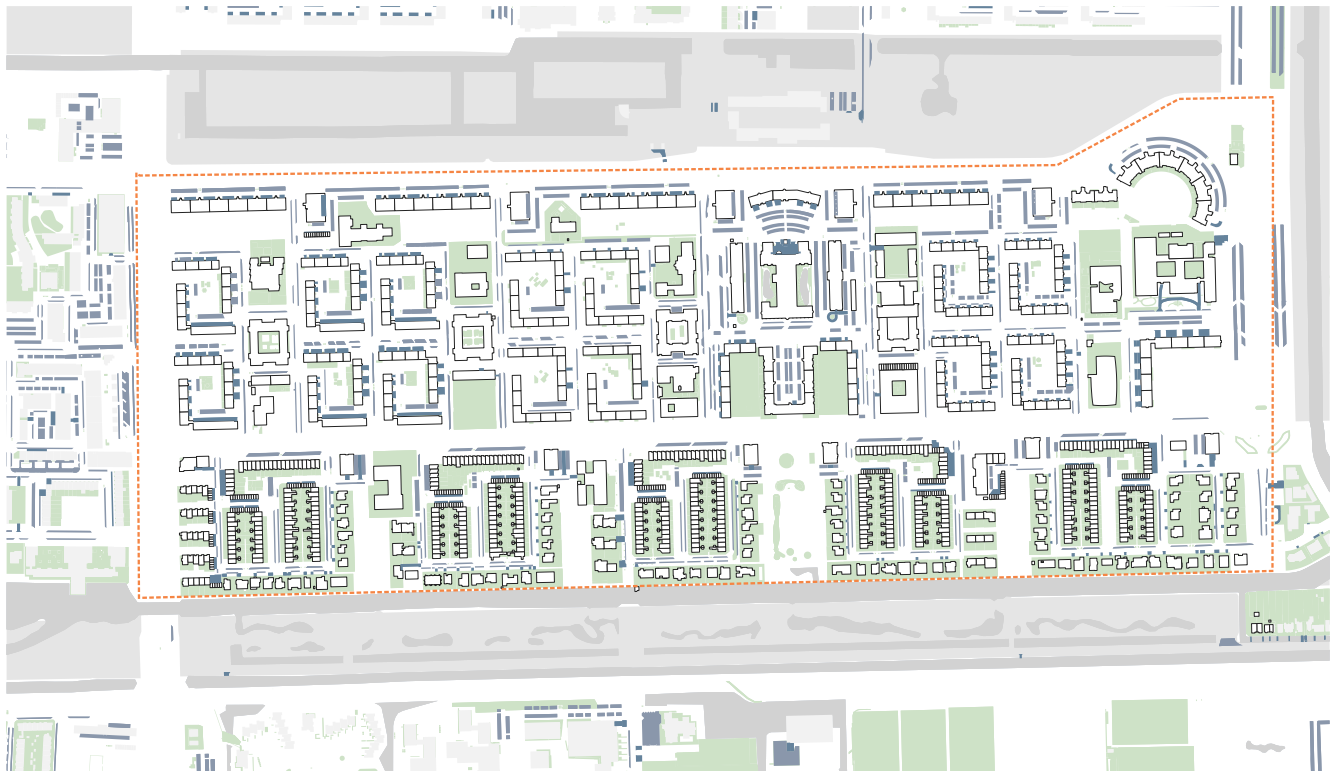
Figure. Parking box used for storage



Figure. Cars parked in front of homes despite available parking spaces



Figure. Parking box entrance disrupting sidewalk



Public transport

The area has good public transportation connections to the rest of Amsterdam and the surrounding region. The nearby Amsterdam Zuid and Amsterdam RAI train stations offer regional and national rail connections.

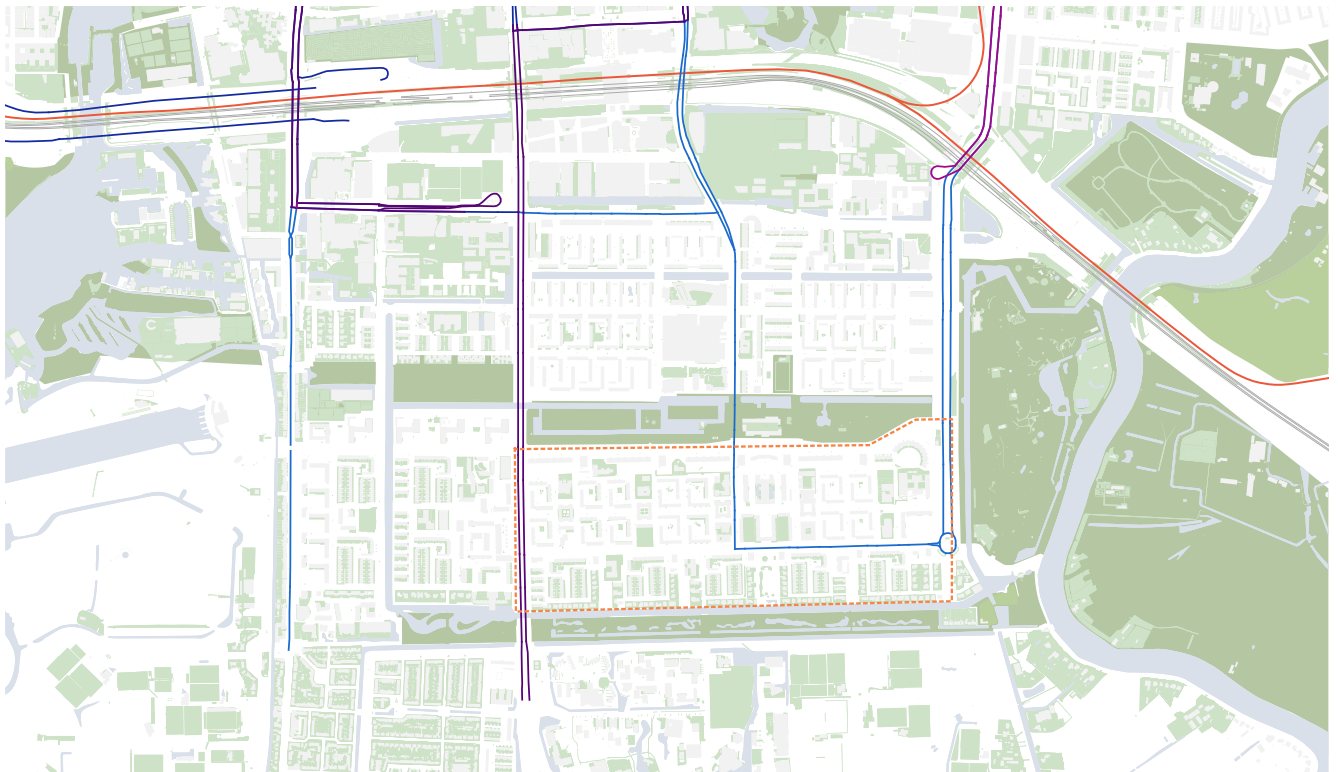
The neighborhood is also served by several tram lines. Tram 5 runs along Buitenveldertselaan, connecting Amstelveen Stadshart and Station Zuid. Tram 25 provides a fast connection between Uithoorn and Station Zuid, and

Tram 24 runs from the VU area to Amsterdam Central Station.

Bus line 62 runs through the neighborhood, connecting it to nearby stations such as Station RAI and Station Lelylaan. These train, tram, and bus connections make the area easily accessible by public transportation.

- PlusNet Tram
- MainNet Tram
- BasicNet Tram
- PlusNet Bus
- MainNet Bus
- MetroNet
- Train

400m



FIELDWORK

Urban context and playgrounds

Fieldwork was conducted to gain practical insights into the current situation of playgrounds and their surrounding urban environments. Several site visits were carried out on 17 January, 2 March and 17 April 2026. These visits enabled the playgrounds and their wider neighborhood context to be studied in different conditions, providing a broader understanding of how children actually use and move through these spaces.

During the fieldwork, on-site observations and spatial analyses focused on accessibility, movement patterns, use of space and physical or sensory barriers were conducted. Notes and visual documentation were collected to identify the strengths and weaknesses of the playgrounds and the urban context.

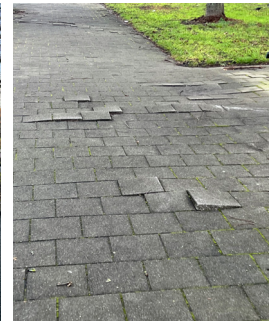
17 jan ☁️
02 mar ☀️
17 APR ☁️

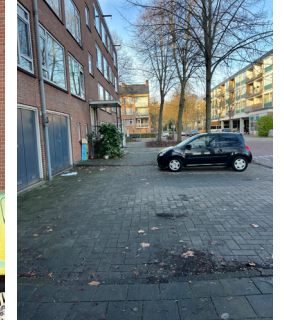
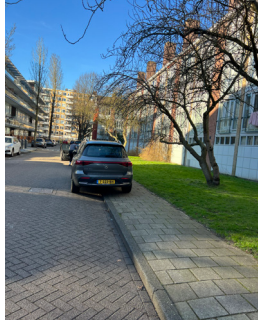


→ everywhere
there are poles, less than 1m?

no safe crossing path
↳ 50km/h

uneven surfaces !!



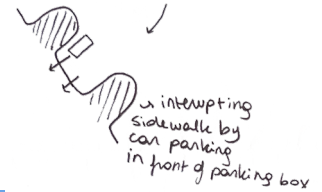


Some walking paths 0.8m

↳ cars on sidewalk
↳ interrupting path

↳ same level surface
but car parking here
becoming obstacle for wheelchair
of blind children

parking box
being used for
storage



1. sidewalk being interrupted by parking boxes (and not being used)
2. a lot of extra parking space

↳ lack of parking box → closed facade

↳ entry courtyard

↓
nice street
(always sidewalk!)
cars parking □ parallel
□
instead of □□□
perpendicular parking



↳ bikes under function blocks

entry function blocks

a lot of green
peacefull square

people doing groceries

terrace of bakery



entry courtyard
 ↳ Sidewalksteps for car parking boxes
 ↳ a lot of parking extra



↳ in courtyard doors to storage



a lot of cars are parking on places except the designed parking spaces



really!!! small sidewalk



bicycle parking on sidewalk. makes it impossible to walk there anymore



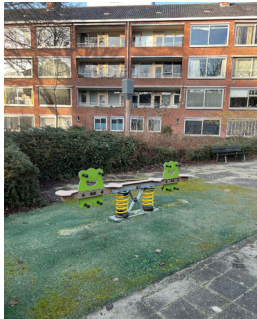
playhouse on piles (only stairs, no ramp)
 ↳ obstacles for a lot of disabled childs



↳ sandpit



balanced play (nice)



Small play elements



↳ small play element (by making it a bit bigger (wheelchair proof) and same level as ground making it already inclusive



self made goals



↳ book exchange cabinet
 ⇒ neighborhood feeling

Small COURTYARD PLAYGROUNDS



"large playground"
↳ a lot!!! of grass
and sand ⇒ not inclusive

Skate ramp
(3 field trips never being used)



walking path next to
water and wadi

↓
sitting place

↳ small inclusive
sensory play
element

LARGE PLAYGROUNDS.



small toddler area
"fantasy play"



04

**CHILDREN IN THE
NEIGHBORHOOD**

PERSONAS

Personas were developed by combining different age groups with cognitive, sensory, and physical disabilities. This chapter uses these personas to explore how children of different ages and with different disabilities experience and navigate the urban environment and playgrounds within the neighborhood. The personas were informed by literature research, observations, spatial analysis, and expert interviews (see appendix), helping to identify recurring barriers, opportunities, and spatial experiences within the neighborhood and playgrounds.

The three age groups - 2-4, 5-7, and 8-12 years old - were chosen because children at different developmental stages interact with their surroundings differently. Younger children tend to stay closer to home and experience fewer barriers in the wider urban context, while older children move more independently and encounter a broader range of environmental challenges.

Based on this, I assigned each age group a specific type of disability reflecting where the greatest challenges are expected to occur. The youngest persona, Lina (three years old), has a cognitive disability because her primary interaction is with the playground itself rather

than the larger urban environment. The second persona, Sam (7 years old), has a sensory disability (visual impairment) and actively engages with both the playground and the surrounding urban context, facing challenges in both. The oldest persona, Noor (11 years old), is associated with a physical disability because she is more likely to travel independently and encounter more barriers on her way to and within the playground.

It's important to note that this categorization doesn't exclude other disabilities from the design process. Instead, personas are used as a tool to structure the narrative and highlight specific challenges. The design approach remains inclusive, addressing a wide range of needs beyond those represented by the personas.

Throughout the project, Lina, Sam, and Noor are used to guide design decisions and to structure the narrative of the design process. These personas help to make design choices more explicit and grounded in user perspectives. By using them as a storytelling tool, the project communicates how different needs and challenges are addressed, with the aim of creating a more inclusive and accessible play environment for all children.



Figure 20. Auditory play through interactive sound elements (ASPECT Studios, 2024)

LINA

Lina is three years old and has a developmental delay. She processes sensory input more slowly and becomes overwhelmed more easily by her surroundings. Her mother tells her story.

Lina lives with her family in a second-floor apartment without an elevator. Her world is small, consisting of her home, daycare, and the courtyard where she sometimes plays. The distance to the outside world isn't far, but for Lina, it often feels much longer.

"Every step takes energy for her," her mother explains.

Along the way, everything happens at once: bicycles on the sidewalk, passing traffic, and jumbled sounds. While others barely notice this, Lina is overwhelmed by it all. She needs time to understand what's happening.

Her mother has noticed that it helps when things are predictable. For example, a clear route with a recognizable line to follow can give her peace of mind. Then, Lina knows where she's going, step by step.

At the playground, the difference becomes even clearer. "She always pauses at the edge," her mother says. "As if she needs to understand where she is first. But there's no real beginning."

The playground is open, and everything happens at once. Children run, crisscrossing each other; a ball rolls by unexpectedly; and the swings swing high and fast. For Lina, that's not liveliness but confusion. She wants to play but doesn't know where to begin.

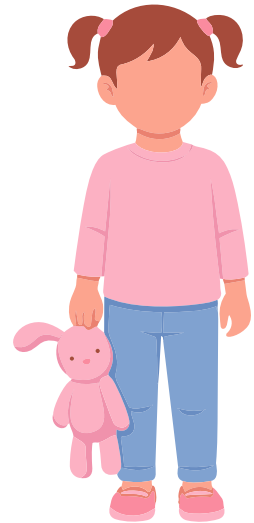
On weekends, they sometimes stop by the bigger playground. She would love to play there, but the crowds and chaos overwhelm her.

"When too much is happening at once, she just freezes," says her mother. "It's not because she doesn't want to; it's because she can't take it all in."

Having a clear overview helps her. At home, she's given one thing at a time, and then she plays. Outside, that sense of rest is missing. Everything is jumbled together: spaces, activities, and movements.

Her mother sees how things could be different. If there's a clearly defined area for young children that is calmer and more separate from the busy play area, Lina feels more confident. She needs a small slide, something to climb on, and a sandbox, simple things with one clear function.

"Just one thing at a time," she says.



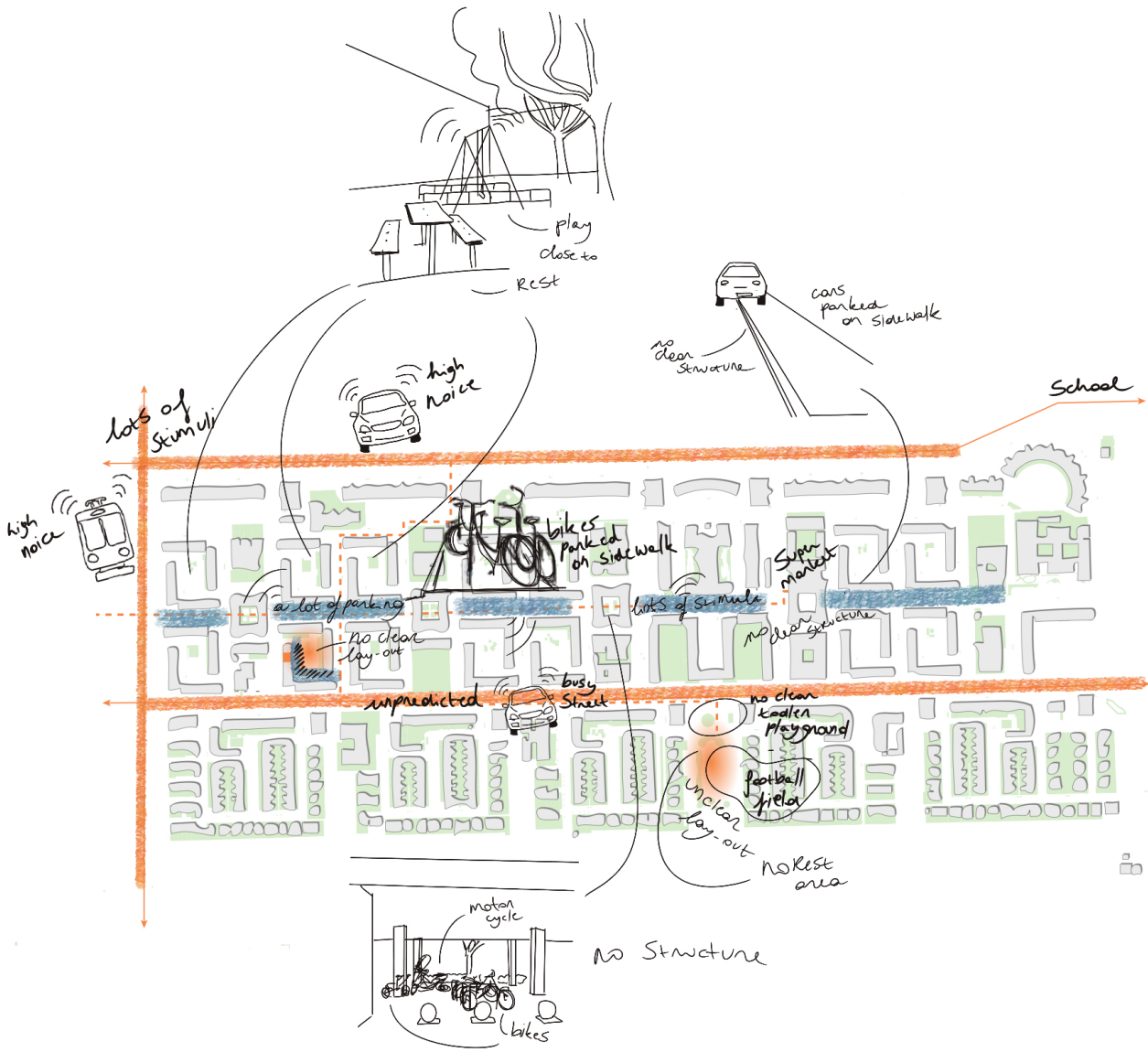
"Then she knows what to do."

A rest area on the playground would help, too. It's a spot where Lina can watch first before joining in. There, she can get used to what's happening at her own pace.

For Lina, the difference is not in adding more, but in how the environment is organized. When a space is clear and predictable, she can understand it. Then, she climbs and repeats movements, growing more confident.

"She doesn't need a special playground," says her mother. "She needs a place she understands."

When the space adapts to her pace, Lina can keep up. Then, play becomes what it's supposed to be: fun, inviting, and something she can be a part of.



SAM

Sam is seven years old and completely blind. He lives with his parents and older sister in Buitenveldert. Having never been able to see, he understands the world through sound, touch, rhythm, and repetition. While others look, he feels and listens.

"I don't know what things look like," Sam says. "But I know how they feel and sound."

Many children move through their neighborhoods independently, going to school, a friend's house, or the playground. For Sam, every route requires concentration.

The sidewalk is not always easy to follow. Bicycles are often parked halfway on the sidewalk, and garage driveways interrupt the walking path. The sidewalk shifts into a driveway and back again without a clear boundary. Sometimes a car is parked on the sidewalk, and sometimes it isn't. These small changes make the route unpredictable.

To navigate, Sam creates a sequence of landmarks, such as a change in pavement, an echo between buildings, or a metal pole that sounds different when his cane taps against it.

"I remember it as a story: first the smooth part, then

the tree, then the pole."

This system depends on consistency. When obstacles move or the path is interrupted, Sam has to reorient himself.

In some places, the path narrows, and in others, it seems to disappear. The sidewalk blends into a driveway or street without a detectable edge or height difference. Where a sighted person can see the transition, Sam has to search for it.

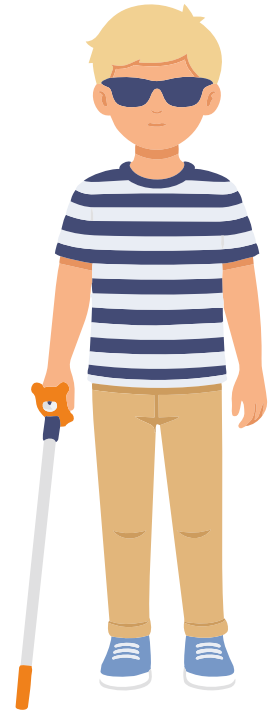
Crossing the street requires extra attention. Crosswalks are not always present, only Van Boshuizenstraat has a few. Elsewhere, intersections have no clear right-of-way or recognizable crossing point.

"That's what my mom finds most stressful," says Sam. "When I'm walking alone."

"You don't know if he's being seen," his mother adds.

At these moments, Sam must decide when it is safe to cross, relying on sound and his sense of space.

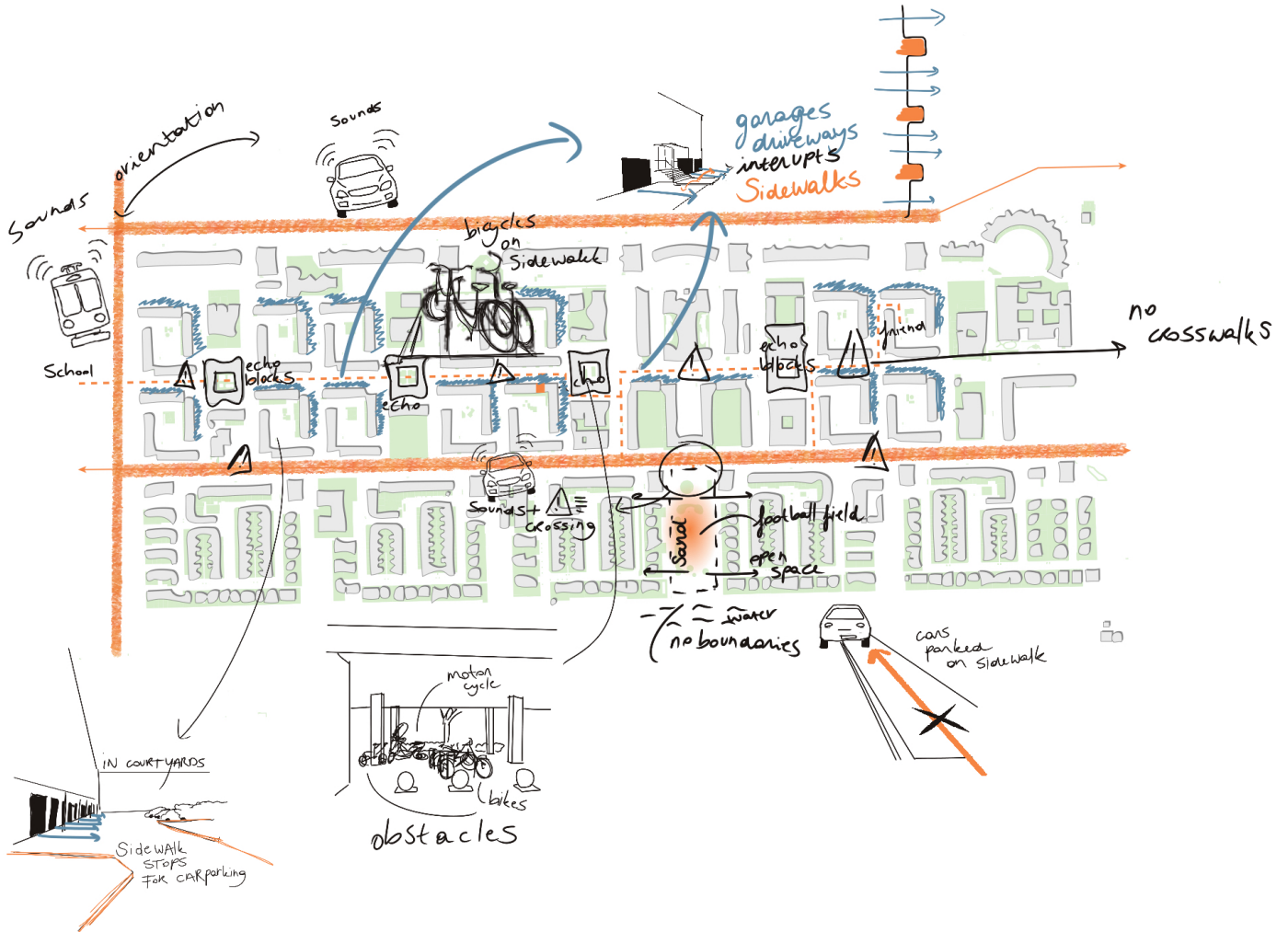
"It would be nice if the sidewalk just kept going," he says. "Maybe I could go to a friend's house or the playground on my own." A clear edge or consistent walking line gives him confidence.



The same lack of clarity appears in the playground. There is no clear transition between the sidewalk and the play area. Surfaces shift from pavement to grass or sand without any structure or direction.

"Because of the open space I don't really know where I am," says Sam. "Everything feels the same, I don't like to come here."

When a space is clearly organized, Sam can find his way and join in. If the environment is readable, he can move independently, and the route becomes a story that makes sense.



NOOR

Eleven-year-old Noor uses a wheelchair due to spina bifida. She lives in Buitenveldert and wishes to get around independently in her electric wheelchair. She attends a nearby school and often meets up with friends to spend time outside.

"I can just drive myself," Noor says.

On the street, everything seems close by. A friend lives around the corner, and the supermarket and playground are also nearby. However, once she's outside, she remembers that not everything is as easy as it seems.

The sidewalk is too narrow. Bicycles block the way. Her wheel gets stuck on the edge of the sidewalk. Further on, the sidewalk suddenly ends at a driveway.

"Sometimes I just have to turn back," she says.

She turns around and tries another route. But there's a bike in the way or the sidewalk is too narrow. What looked like a short trip is taking much longer than expected.

Going outside with friends feels different. That means going out with friends isn't always easy. They can walk or bike anywhere, but Noor has to keep checking to see if she can

follow. They slow down for her, but that makes her feel like she's holding them back and that she's different.

"I don't want everyone to have to wait for me."

Because of that, she joins them less often. It's not because she doesn't want to, it just doesn't come easily to her.

In the playground, that feeling doesn't change. The football field is grass, and she can't kick the ball. The playground equipment is not accessible or usable with her wheelchair. There is little she can participate in.

"I still go," Noor says. "But I don't really join in."

She stands on the sidelines while others play. She watches and talks along, but doesn't fully participate.

At wheelchair basketball, it's different. Everyone moves the same way. She doesn't have to stop or wait. She drives, turns, and plays.

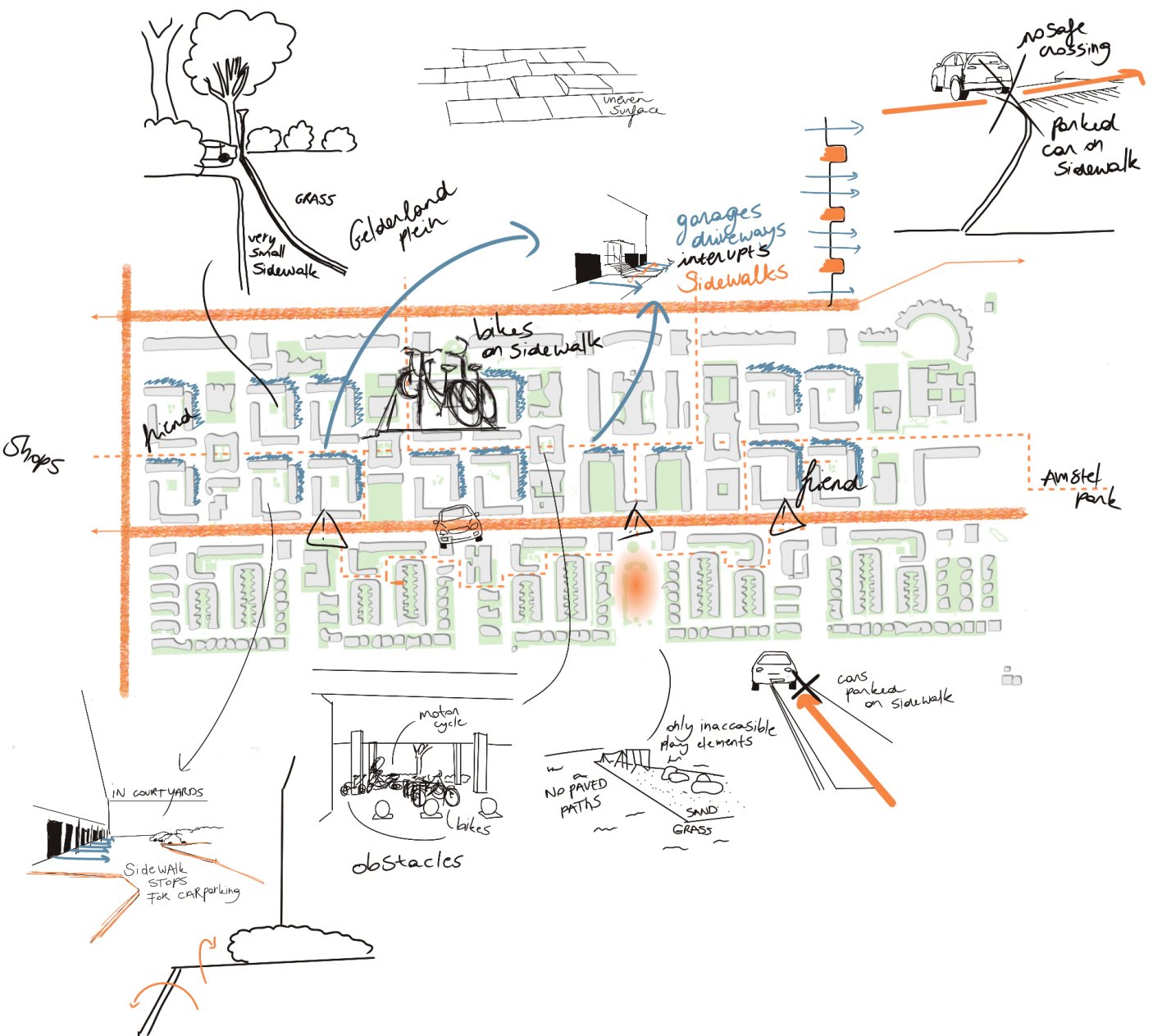
That difference feels huge.

For Noor, the issue is not what she can do, but rather, how the environment is designed. When routes are continuous and accessible, she can move around



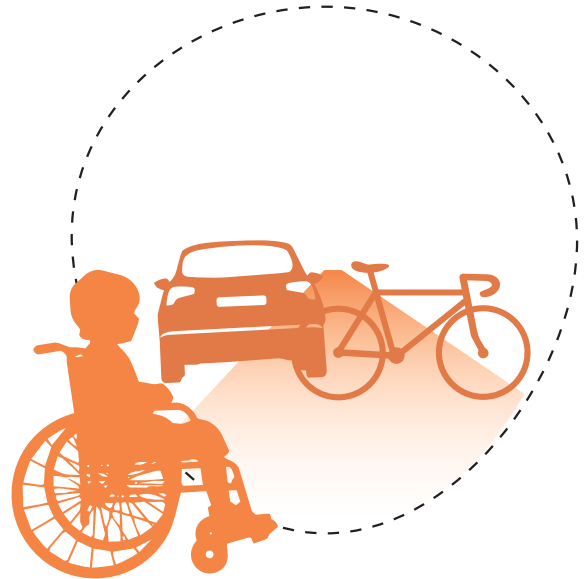
independently. When playgrounds are accessible, she can join in.

"I just want to go by myself," Noor says. "And stay."



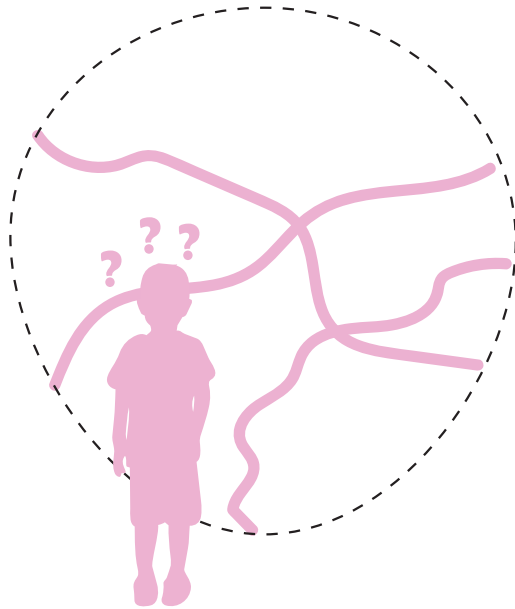
SHARED BARRIERS

The personas showed that children of different ages and abilities experience the urban environment and playgrounds within the neighborhood in different ways. They encounter both shared and unique barriers depending on their needs and level of independence. While some challenges were experienced differently, recurring barriers related to accessibility, orientation, and participation appeared across all personas. The personas showed how these barriers affect children's ability to move independently, understand their surroundings, and actively participate in play and social interaction.



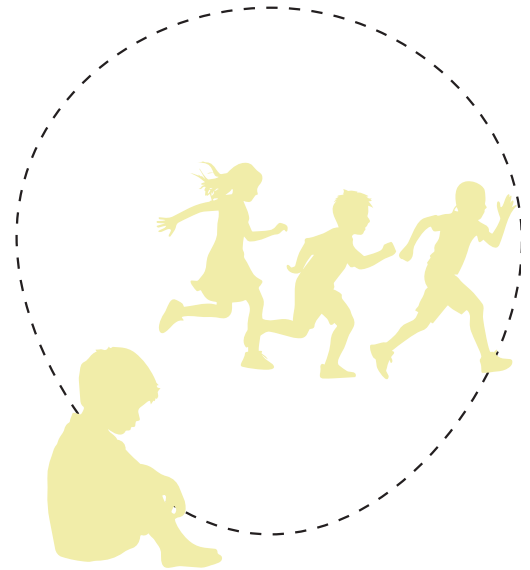
Lack of Accessibility

Obstacles on sidewalks, blocked routes, limited physical access



Lack of Orientation

No clear structure, difficult to navigate, lack of guidance



Lack of Participation

Unable to actively join play, no opportunities for shared play, social exclusion



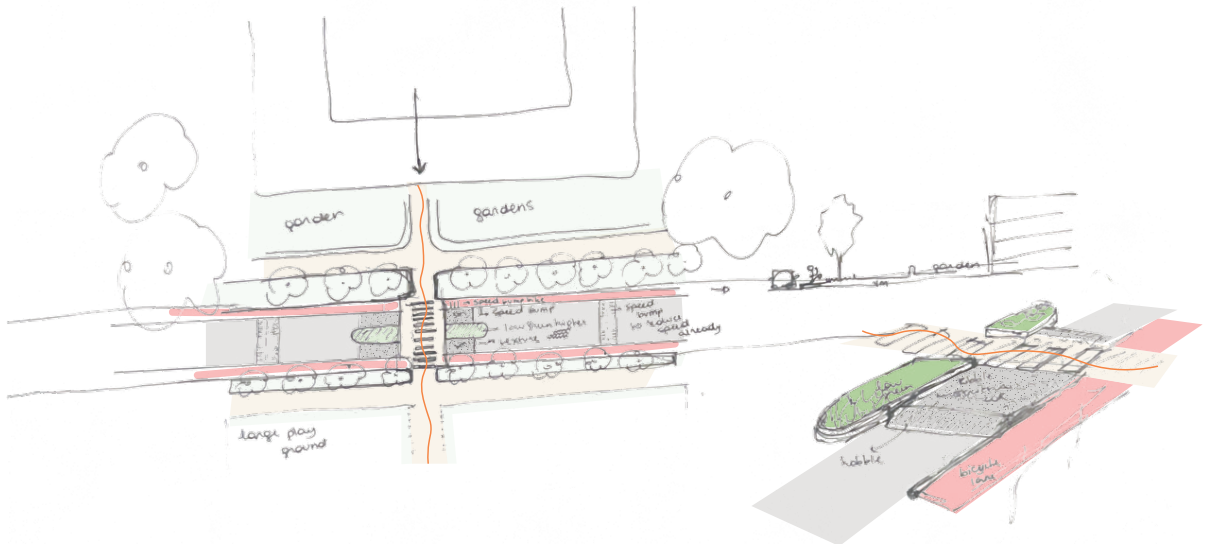
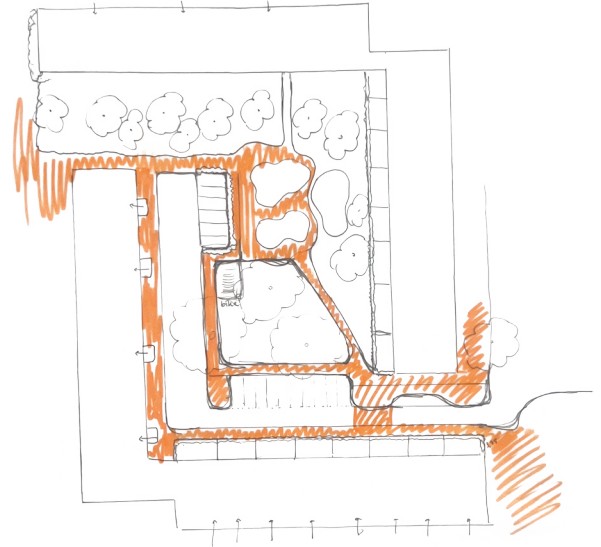
05

DESIGN

SKETCHES AS DESIGN TOOL

Sketches played an important role throughout the design process, helping to quickly explore and test different ideas. They made it possible to intuitively and visually study spatial relationships, circulation, and the interaction between different functions.

Sketching also acted as a way of thinking through design. By drawing intuitively, ideas could be questioned, adjusted, and compared quickly and flexibly. Plans, sections, and perspective sketches helped to better understand scale, proportions, and spatial experience.



MASTERPLAN

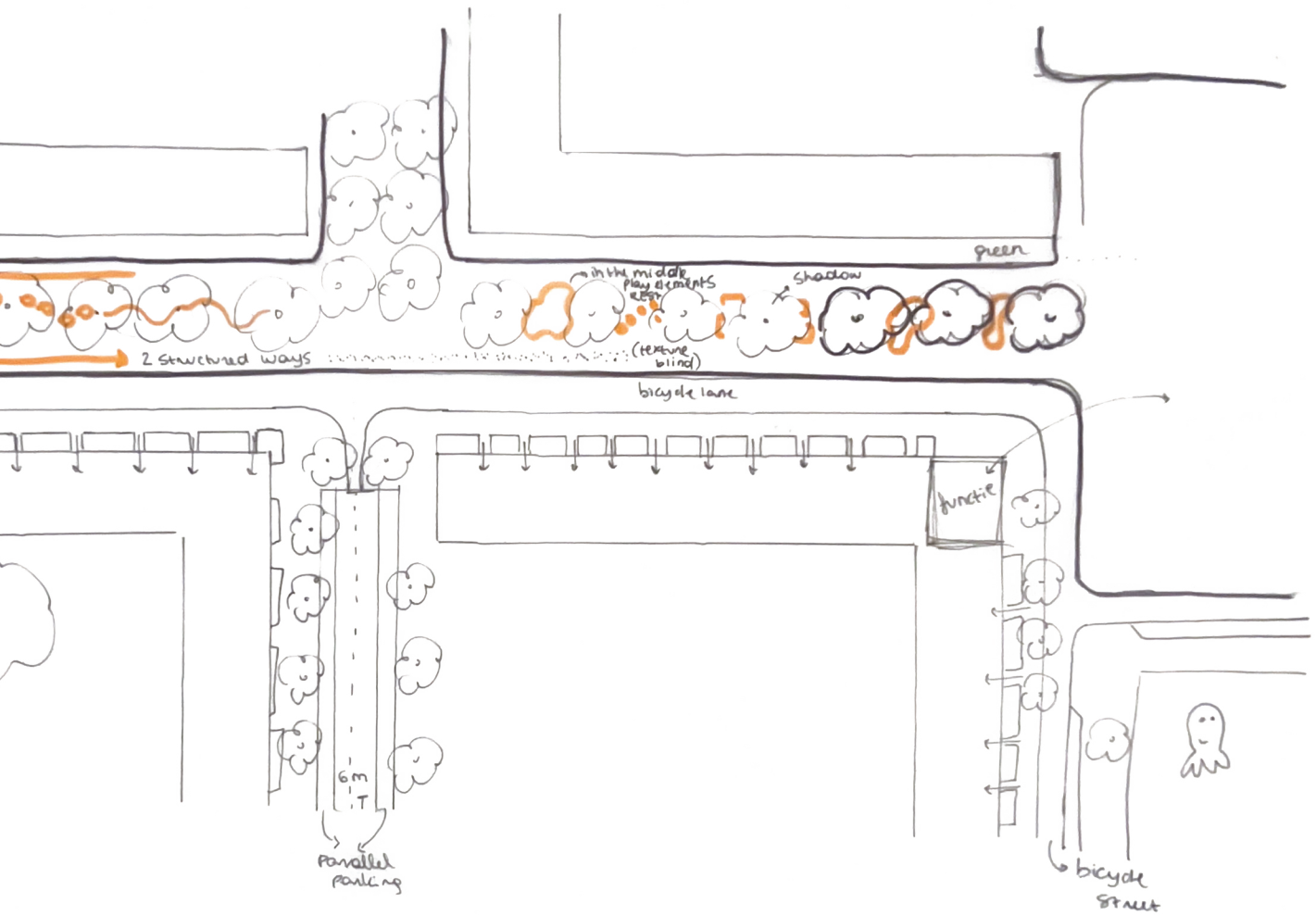
This section addresses the third sub-question.

Which spatial strategies can support inclusive movement, access, and play within the neighborhood?

Based on these findings, the masterplan is structured around three themes: Connect, Play, and Rest.

Together, these themes guide the masterplan and support a more inclusive and accessible neighborhood for children of all abilities.





PATTERN LANGUAGE

Inclusive public spaces should support children with various physical, cognitive, and sensory needs in everyday urban life. As part of the design process for the Child Ribbon, this pattern language was developed to translate broader inclusive design principles into spatial interventions within the public environment.

The patterns are organized into four themes: Safety, Orientation, Comfort, and Play. Together, these themes address various aspects of how children experience, understand, navigate, and use public spaces independently. Rather than functioning as isolated interventions, the patterns work together as part of a larger spatial system throughout the child ribbon and the surrounding neighborhood.

Throughout the design process, the patterns functioned as analytical and design tools. They helped structure spatial decisions, identify inclusive design principles, and translate abstract needs into concrete interventions within the urban environment. The patterns helped connect smaller spatial interventions into a larger, more inclusive framework throughout the Child Ribbon and the surrounding neighborhood. They also served as a communication tool for translating research insights into

spatial strategies.

Through this process, the project evolved into a coherent, understandable spatial framework integrating movement, accessibility, play, and sensory experience into everyday public spaces.

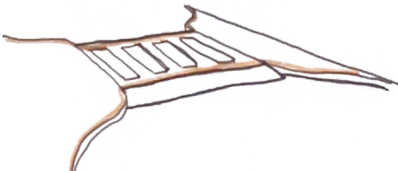
This booklet illustrates each pattern with a short explanation and supporting sketch, showing how specific spatial interventions can contribute to a more inclusive public environment for children with different needs and abilities.

The accompanying icons indicate which type of disability each pattern primarily supports: physical, cognitive, or sensory. Although patterns are categorized by their main focus, many interventions contribute to multiple forms of accessibility and inclusivity at the same time.

Further information on the complete pattern language can be found in the pattern language booklet. The application of these patterns within the final design proposals can be found in the appendix.

SAFETY (S)

S01 - Raised Crossing



S02 - Speed Bump



S03 - Road Narrowing



S04 - Child Crossing Warning



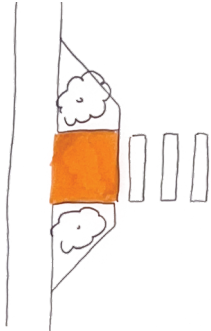
S05 - Raised Curb



S06 - Rumble Strip



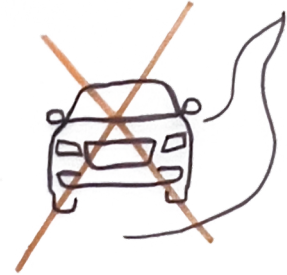
S07 - Safe Waiting Zones



S08 - Child Priority



S09 - Car-Free Street



S10 - Cul-de-Sac



S11 - Wide Sidewalks



S12 - Bicycle Street



S13 - Living Street



S14 - Textured Pavement



ORIENTATION (O)

O15 - Predictable Layout



O16 - Main Circulation Route



O17 - Simple Wayfinding



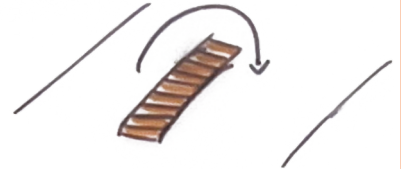
O18 - Clear Paths



O19 - Zoning



O20 - Material-Based Transition Zones



**O21 - Clear Play Space
Marking**



O22 - High-Contrast Colors



COMFORT (C)

C23 - Shade



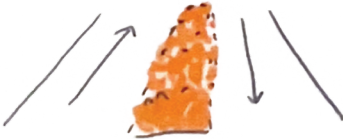
C24 - Pause Zones



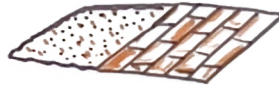
C25 - Transitional Spaces



C26 - Natural Green Separation



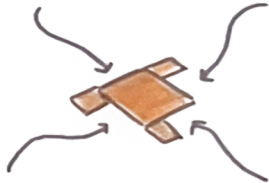
C27 - Hard Surface Pavement



C28 - Tactile Paving



C29 - Clustered Facilities



C30 - Inclusive Seating



PLAY (P)

P31 - Play Route



P32 - Play Elements Along the Child Ribbon



P33 - No Play Elements in Quiet Zones



P34 - Interactive Ground Play



P35 - One Play Type per Residential Block



P36 - Ground-Level Play Elements





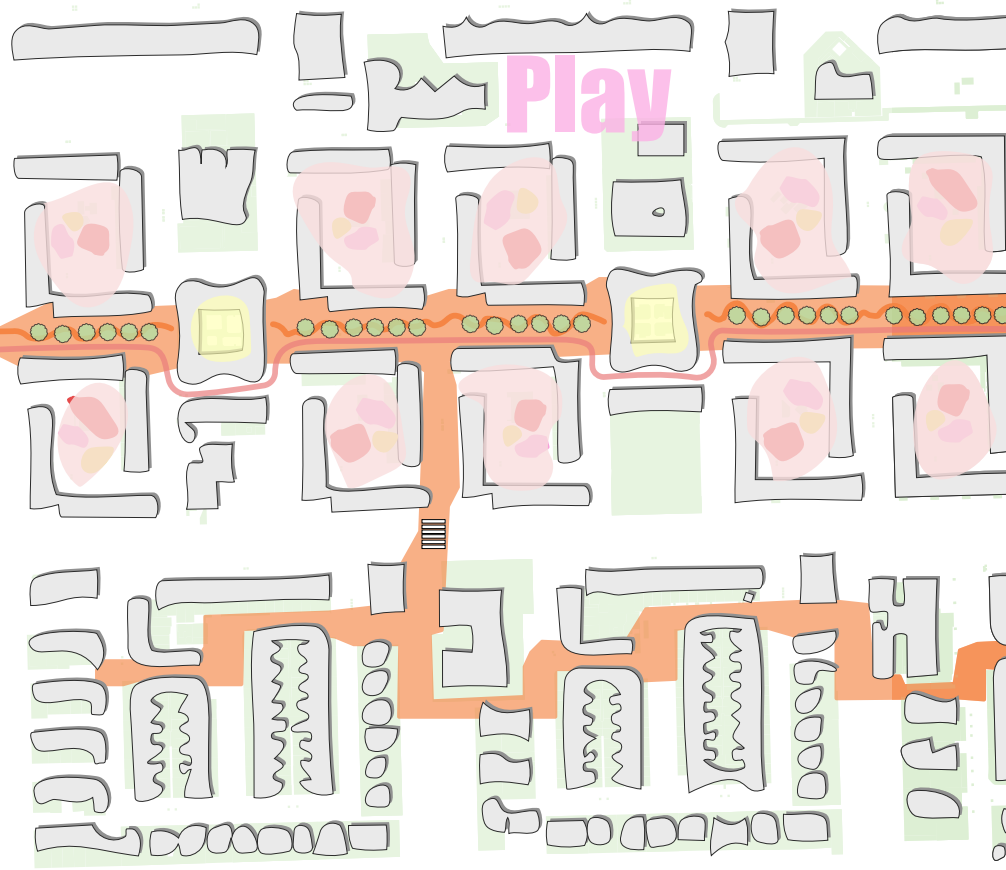
Figure 21. Interactive sensory facade encouraging curiosity and exploration (DOLONG Landscape, 2023)

SPATIAL FRAMEWORK

Connect

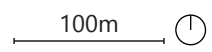


Play





Rest



CONNECT

Connect forms a child-friendly route through the neighborhood

It is a continuous line that weaves through the neighborhood, linking children's everyday worlds, from home to school, from friends to playgrounds. This clear, recognizable path stitches together key destinations into one inclusive network.

The design prioritizes accessibility and independence for children with different abilities. Its clear structure and strong sightlines support children with visual impairments or autism, helping them navigate the route with confidence and a sense of security. The continuous, step-

free path ensures full accessibility for wheelchair users and children with limited mobility.

At every crossing, the child-friendly play ribbon takes priority, reinforcing safety and ensuring a predictable and legible route. The ribbon is largely car-free, and where it intersects with traffic, crossings are designed to prioritize the child. The design slows down surrounding traffic, placing the child at its center. Green elements combined with a balance of sun and shade create a comfortable environment throughout the route.

Play is never far away. Small-scale play elements are carefully

integrated, including elements that stimulate the sense: sight, hearing, touch and smell. This allows children with a wide range of abilities to engage in their own way.

Connect is more than a route. It provides opportunities to meet, pause, and connect, making movement through the neighborhood a playful, safe, and inclusive experience.





Figure 22. Child-friendly play ribbon, Kings Crescent Estate, London (GreenBlue Urban, n.d.)



Figure 23. Level changes in a play street, Potgieterstraat, Amsterdam, by Carve (Landezine, 2012)



Figure 24. Small-scale play elements (Mooool, 2023)



Figure 25. Visual features (ArchDaily, 2013)

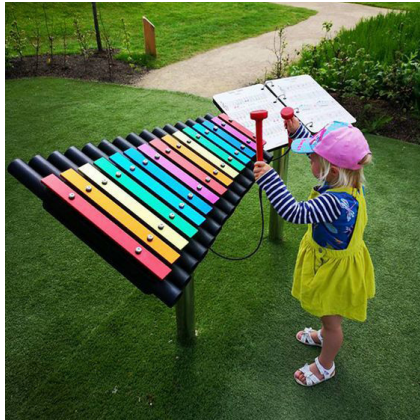


Figure 26. Auditory stimulation (Percussion Play, n.d.)



Figure 27. Tactile interaction (Lappset, 2020)

PLAY

Play provides inclusive play spaces for every child

These spaces are organized as a series of playgrounds connected by a child-friendly path and distributed throughout the neighborhood. Smaller playgrounds are located between housing blocks and are primarily for younger children, while the larger, central play area accommodates a wider range of activities and age groups.

The same design principles are applied across all playgrounds, creating a coherent and recognizable system. The design is based on clear zoning of play types, offering structure and choice. Zones

that support movement, fantasy, and construction play, as well as spaces for rest, are arranged within each playground. This clear zoning supports children with different abilities by providing predictability and allowing each child to engage with the environment in their own way.

Clear routes connect the zones and form the main structure of the playground. These paths are recognizable and easy to follow through the use of distinct materials. This helps children with visual impairments to orient themselves and provides structure and clarity for children with autism. The continuous, accessible paths allow

children with physical disabilities to move independently throughout the playground.

Variations in color and material make the different zones legible and easy to understand. A balance of sun and shade ensures comfort throughout the day. Subtle level changes, such as gentle slopes, provide variation and challenge, enabling children of different ages and abilities to engage with the space at their own level.

Play creates a structured yet flexible environment where every child can participate, explore, and develop in their own way.





Figure 28. Shade and rain shelter in resting areas (02Landskap, 2018)

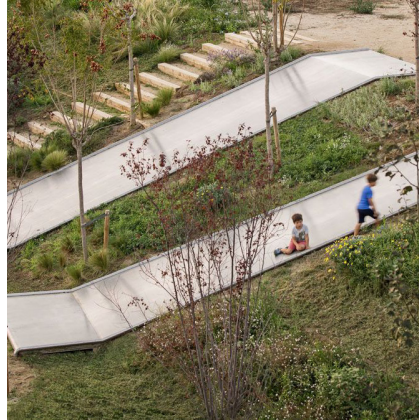


Figure 29. Integration of slides within natural terrain (Batlle i Roig, 2017)



Figure 30 Spatial zoning and circulation structure (Urban Synergy, 2023)



Figure 31. Play tunnel supporting fantasy and constructive play in a natural environment (Danger Garden, 2012)



Figure 32. Play panels supporting sensory exploration (Miracle Recreation, n.d.)



Figure 33. Movement play through cycling and dynamic play surfaces (VIASCAPE design, 2025)

REST

Rest creates moments of pause within the child-friendly ribbon

At four points along the ribbon, rest becomes central. While the child-friendly route remains, its active, playful character is reduced, allowing the environment to shift from stimulation to calm.

These rest areas are located within semi-covered ground-floor spaces beneath residential buildings, where two building volumes intersect above, forming an open space at the center. These spaces create sheltered passages on both sides, allowing movement through the block while opening up to a green inner space with trees and quieter areas beyond.

Designed for pedestrians and focused on children, these areas slow down movement and reduce noise. Cycling routes are directed around these areas to ensure that the spaces remain calm and uninterrupted. Seating, greenery, and small-scale functions support comfort and everyday use. The reduced level of stimuli makes these areas particularly important for children who are sensitive to sensory input, such as children with autism. They also offer places to rest for all users.

These restful spaces balance the ribbon, ensuring that moments of activity are complemented by moments of calm.





Figure 34. Semi-enclosed integrated greenery and pedestrian-focused circulation (Kleihues + Kleihues, n.d.)

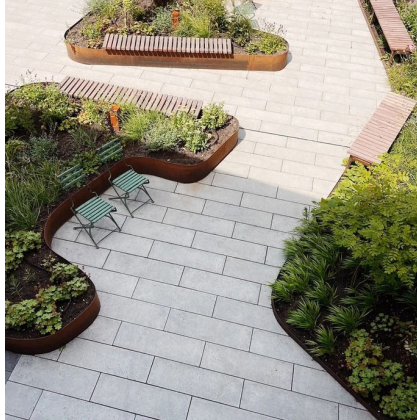


Figure 35. Curved planting beds and integrated seating structure (Atelier Terra, n.d.)



Figure 36. Natural seating elements (Studio39 Landscape Architecture, 2008)



Figure 37. Seating integrated with planting (Butler Wiltshire, n.d.)



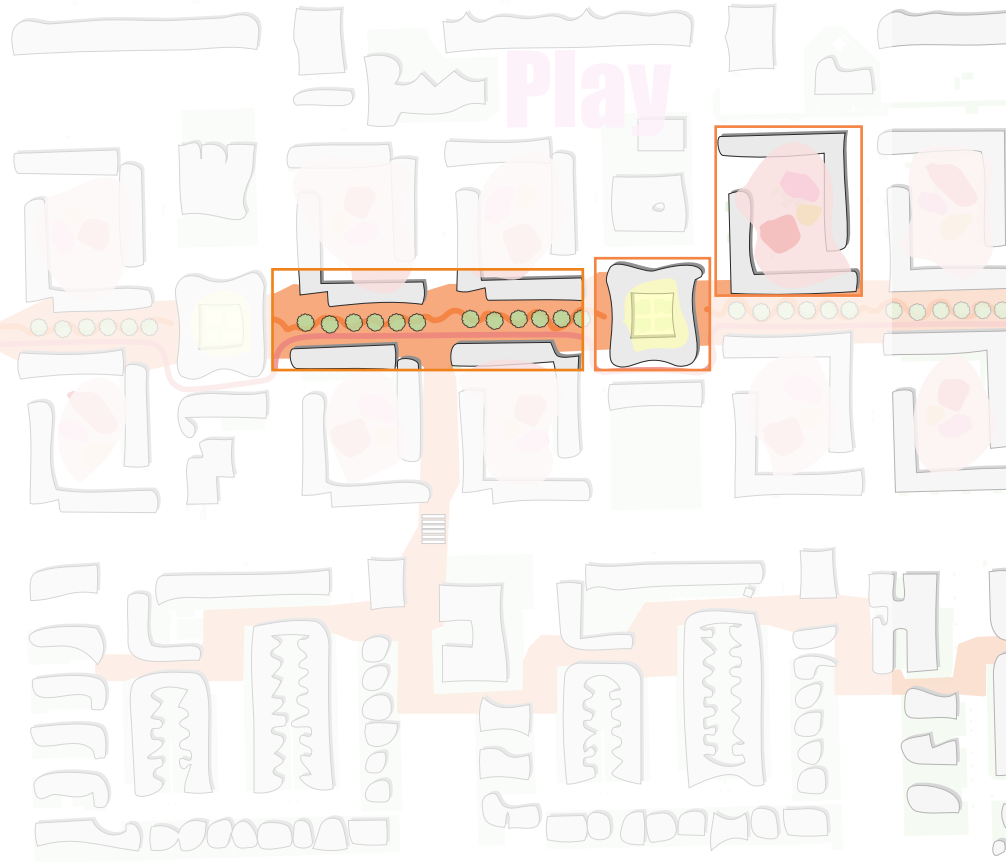
Figure 38. Small-scale café with minimal outdoor seating, (Atelier Bizzo, n.d.)



Figure 39. Playful seating element (Tjinco, n.d.)

SPATIAL INTERVENTIONS

Connect





CHILD RIBBON

An inclusive route for everyday movement and play

The child ribbon creates a continuous, recognizable network throughout the neighborhood, connecting homes, schools, playgrounds, and public spaces. Movement becomes part of play, and play becomes part of everyday movement through the neighborhood.

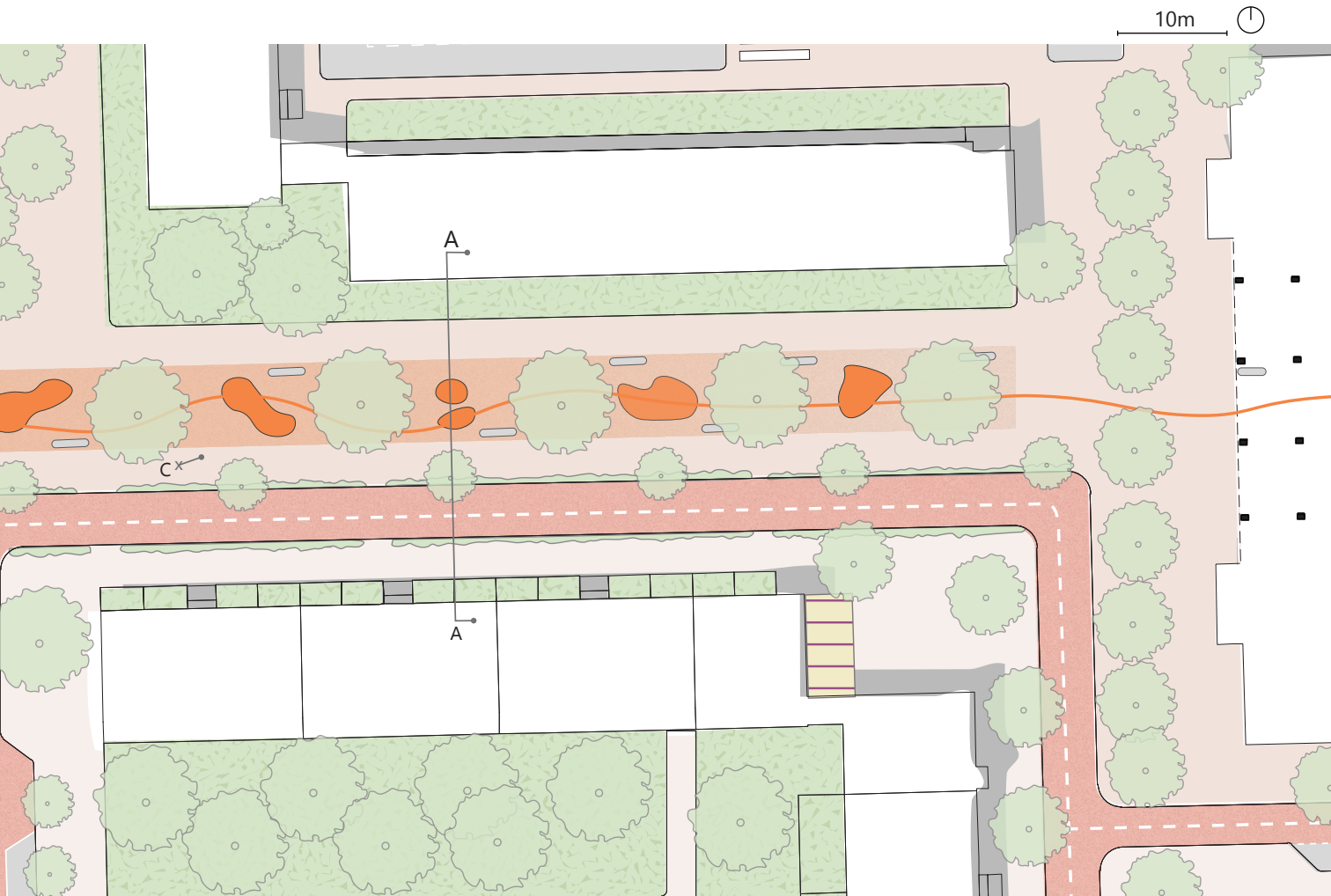
The design prioritizes children over cars. Residential streets transform into shared living streets where traffic is minimized, making independent movement safer and more accessible. Though the route also serves as a bicycle connection, children's safety, accessibility, and independence remain central to the design.

Straightforward, continuous paths provide clear orientation and improve legibility within the neighborhood. This structure supports children with different physical, sensory, and cognitive needs because children experience and navigate public space differently. Some benefit from sensory play and spontaneous interaction, while others rely on



predictability, structure, and rest in the urban environment.

Together, these interventions transform public spaces from traffic-oriented environments into more inclusive, playful, child-friendly living environments.



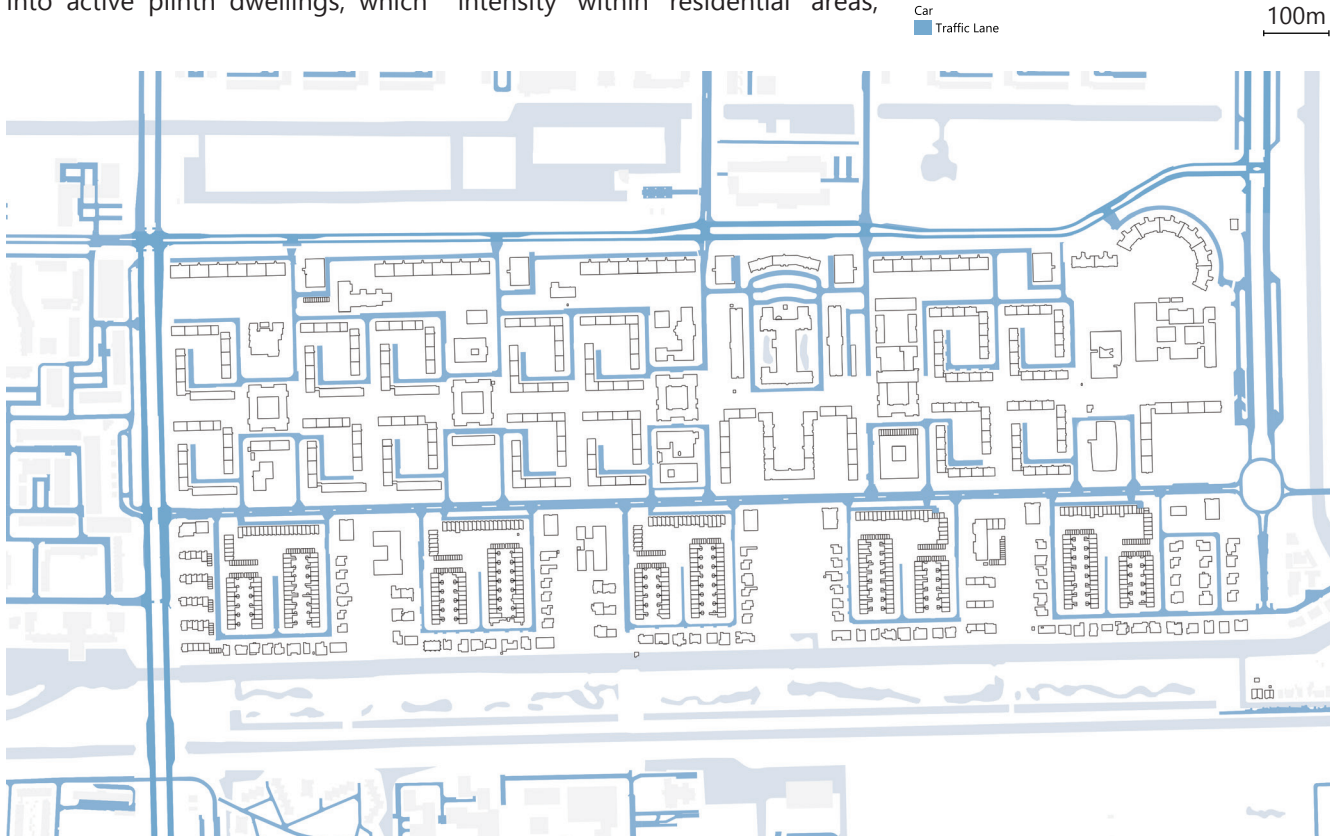
Prioritizing children over cars

Spatial analysis and fieldwork revealed that many garages in the neighborhood are primarily used for storage rather than parking. Many ground-floor spaces are currently in poor condition, creating closed, inactive street frontages that contribute to socially unsafe public spaces. To reduce the dominance of cars and improve the quality of public spaces, cars were completely removed from the street profile along the child ribbon. Existing garage boxes are transformed into active plinth dwellings, which

contribute to a livelier streetscape and improve the appearance of the public realm. These changes also strengthen social safety within the neighborhood.

Within the wider project area, residential streets are redesigned as bicycle streets that prioritize pedestrians and cyclists over cars. Through traffic is minimized by introducing multiple dead-end streets toward the residential blocks, which limits car movement to mainly destination traffic for residents and local functions. This reduces traffic intensity within residential areas,

creating calmer, safer environments for children and pedestrians. Turning spaces and loop structures allow vehicles to continue moving through the neighborhood when necessary while ensuring that schools and function blocks remain accessible by car.



Small-scale sensory play elements

Small-scale play elements are integrated throughout the children's area. These elements stimulate the senses of sight, sound, touch, and smell, and support children with a wide range of physical, sensory, and cognitive abilities. Some elements encourage spontaneous interaction, movement, and social encounters, while others help create recognizable and engaging routes through the neighborhood.



Touch



Sight



Smell



Sound

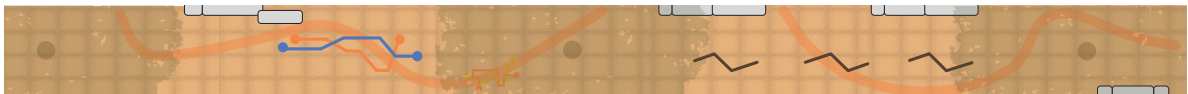




Figure. Section B-B

A route for different abilities

The child ribbon is designed based on how children experience and navigate the neighborhood. The personas of Lina, Sam, and Noor influenced the spatial design, emphasizing the importance of structure, predictability, accessibility, and sensory comfort in public spaces.

For Lina, clear zoning, recognizable routes, and quiet spaces help reduce sensory overstimulation, creating

a calmer, more understandable environment. Sam benefits from tactile elements, recognizable spatial cues, and continuous routes, which support his orientation and independent movement throughout the neighborhood. Noor benefits from step-free paths, accessible crossings, and reduced traffic, which allow her to move through the neighborhood independently without constantly encountering obstacles or unsafe situations.

Together, these interventions create a more accessible, child-friendly public environment.



Figure. Impression C

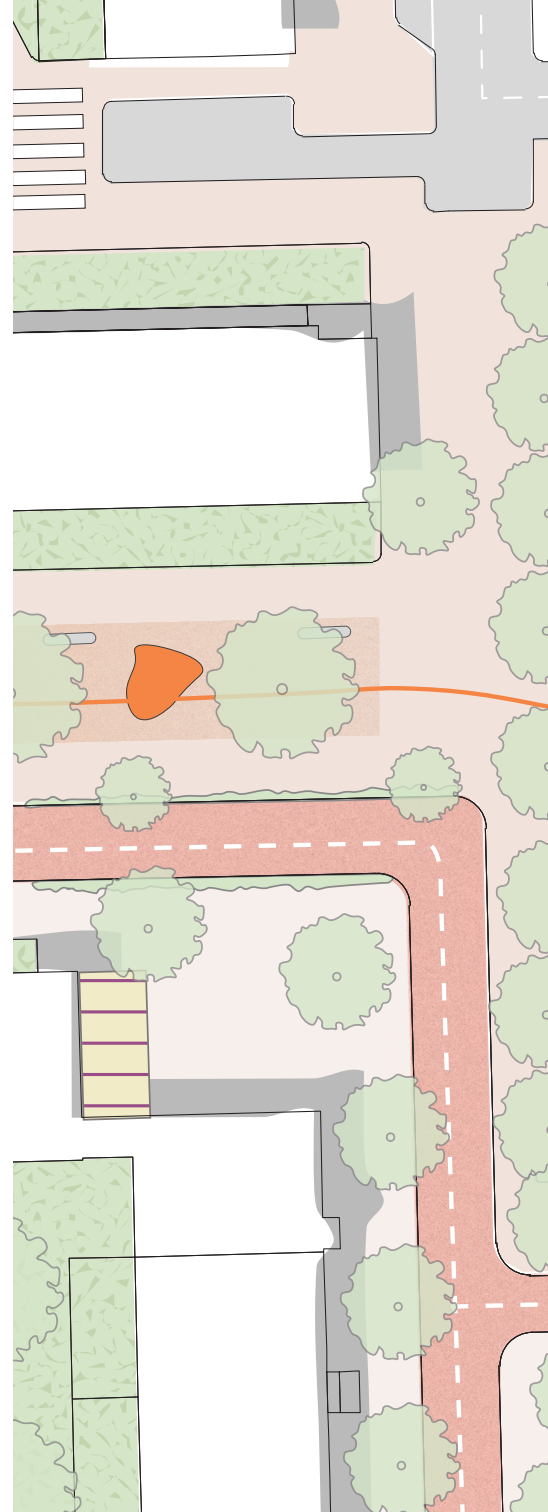
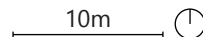
REST ZONES

Slowing down in the neighborhood

The rest areas introduce slower and calmer public spaces within the child-friendly area, providing opportunities for children with different abilities to pause, observe, find comfort, and experience sensory relief. Unlike the more active and playful sections of the route, these spaces are designed to reduce overstimulation and provide moments of rest in a public setting.

Seating areas, greenery, shade, and small-scale amenities, such as cafés and local shops, support everyday use. Transitional spaces create gradual shifts between active and quiet environments. Clear, continuous paths maintain orientation and accessibility throughout.

These areas are particularly important for children who are sensitive to sensory input or who benefit from structure, predictability, and quiet surroundings. To preserve the calm character of these spaces, play elements are not placed directly within them, and cycling routes are redirected around the areas to reduce movement and sensory overstimulation.



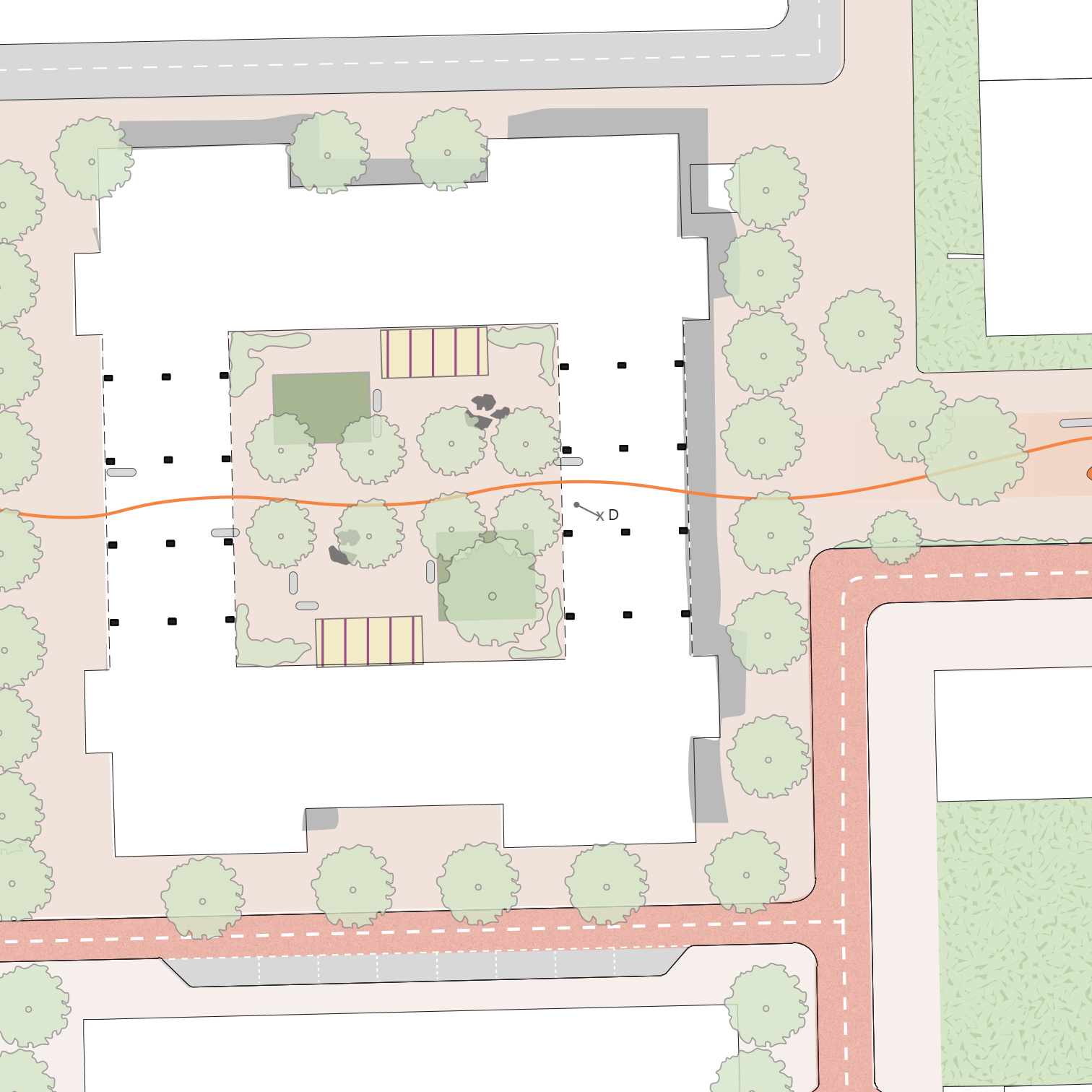




Figure. Impression D

Moments of calm

The rest spaces introduce calmer, slower moments within the more active child area. Rather than being used only as places to stop or sit, these spaces create quieter public environments with reduced movement and stimuli and a slower atmosphere.

For Lina, these environments reduce sensory overstimulation and make the public environment more understandable. For Sam, the reduced movement and clearer spatial transitions make the neighborhood easier to navigate. Noor finds that the slower and more accessible public spaces allow for safer and more comfortable movement throughout the neighborhood.

Together, these spaces balance the more active and playful areas of the child ribbon, providing variation in pace, stimulation, and experience throughout the neighborhood.

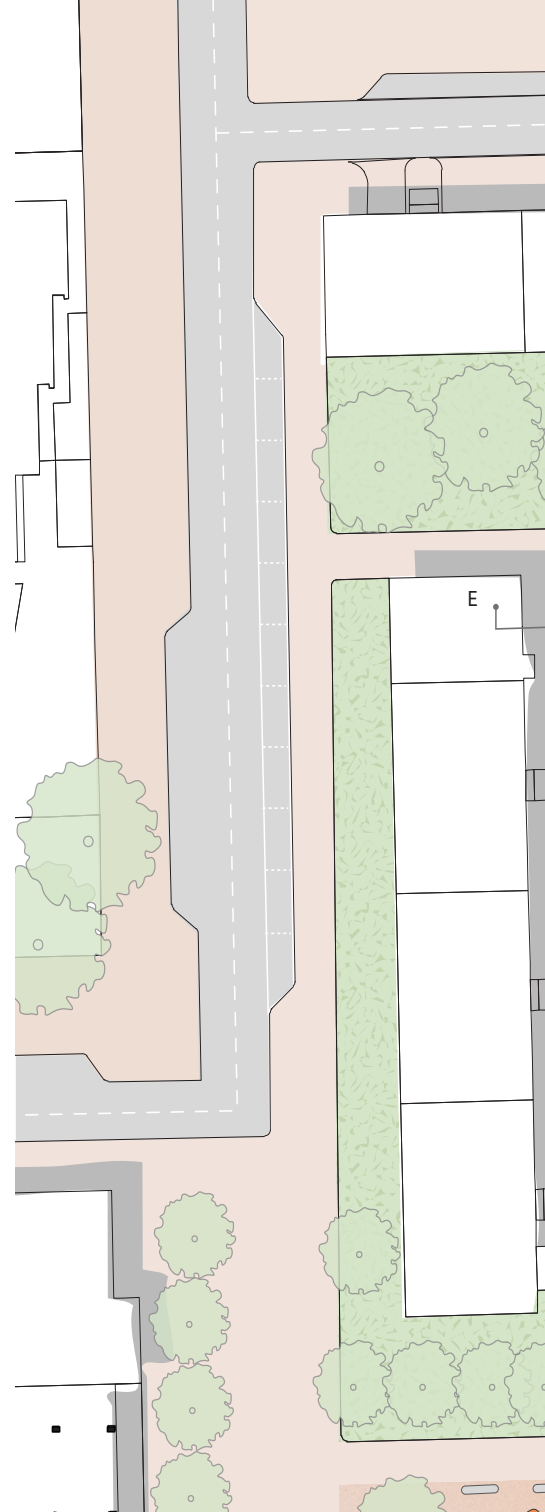
RESIDENTIAL SMALL-SCALE PLAY SPACES

Play close to home

The residential play spaces are integrated within the housing blocks and connected by the child ribbon. Introducing dead-end streets limits traffic within residential areas to mainly destination traffic, creating calmer and safer environments for children.

Raised crossings extend the child ribbon through the residential blocks, giving children clear priority in public spaces and strengthening the continuity of the route. Continuous sidewalks with a minimum width of 2.5 meters ensure accessible, uninterrupted movement throughout the neighborhood.

To reduce overstimulation, each play area focuses on one primary type of play. Since the play spaces are close together, children can choose different play environments independently depending on their needs and preferences at the time. Each play area also includes quiet resting areas, seating, and shaded spaces to promote comfort and sensory balance in everyday play.



10m



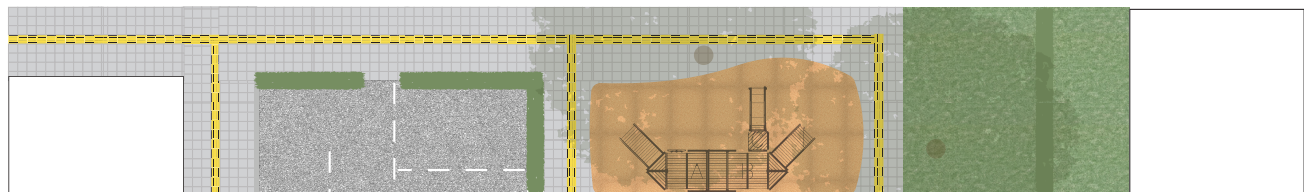


Figure. Section E-E

Living and playing together

This section illustrates the close relationship between housing, public spaces, and everyday outdoor play within residential areas. Play spaces are integrated directly into the living environment, enabling children to safely and independently move between various play areas throughout the neighborhood.

A continuous pedestrian path runs along the entire street, ensuring accessible, uninterrupted movement at all times. A continuous paved surface improves accessibility throughout the space, and changes in materials distinguish play areas from pedestrian routes. Softer play surfaces mark transitions into play zones, creating safer, more recognizable environments for children.

Seating areas, greenery, shade, and quiet resting spaces are integrated alongside play areas to create a balanced public environment that supports activity and sensory comfort for children of all abilities.

CHILD-PRIORITY CROSSING

Traffic adapts to the child

The child ribbon intersects with the Van Boshuizenstraat at three points within the neighborhood, where children come into direct contact with car traffic. Although the street has a 30 km/h speed limit, multiple spatial interventions have been introduced to prioritize the safety, accessibility, and comfort of children crossing the street.

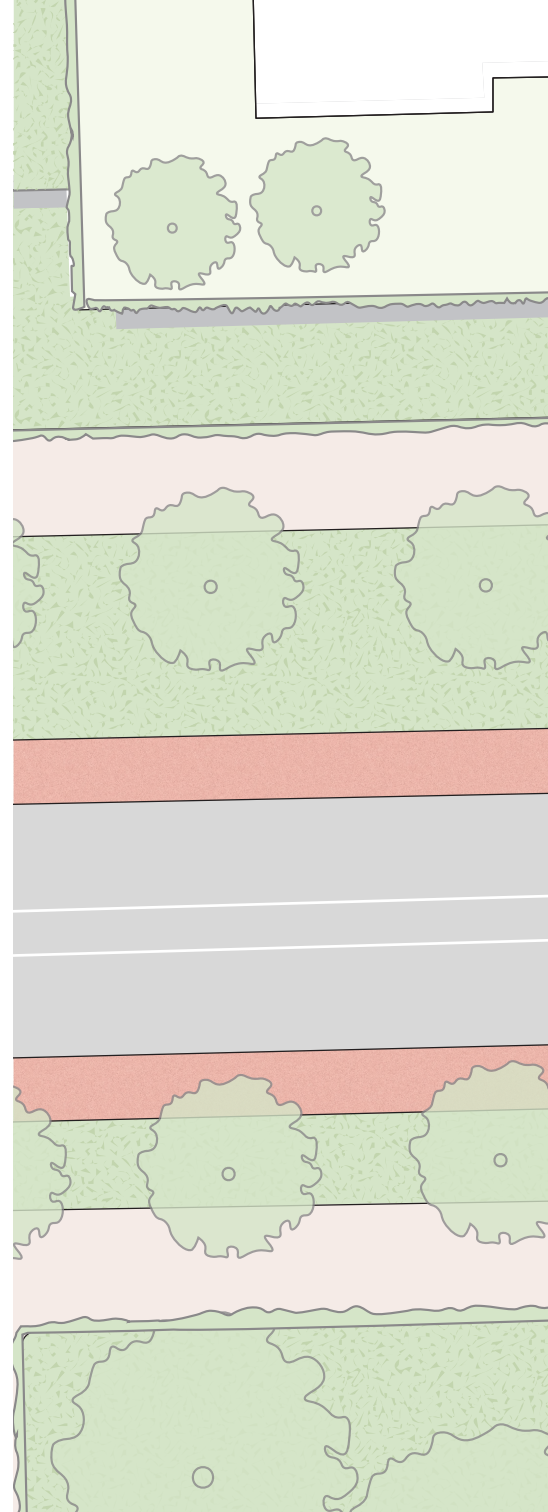
Before arriving at the crossing, the child ribbon passes underneath a residential building, creating a clear and recognizable continuation of the route. Raised crossings and safe waiting zones enable children to cross comfortably and safely, without encountering level differences or unnecessary barriers.

At the same time, several interventions are implemented to increase driver awareness and reduce vehicle speed. A road narrowing, created by low greenery in the center of the street, slows down traffic and reduces crossing distances. Raised curbs, speed bumps, and textured pavement alert drivers visually and physically, making them more aware of the presence of children and the child ribbon. Orange markers reinforce the continuity of the route for children and signal to drivers that they are approaching a child-

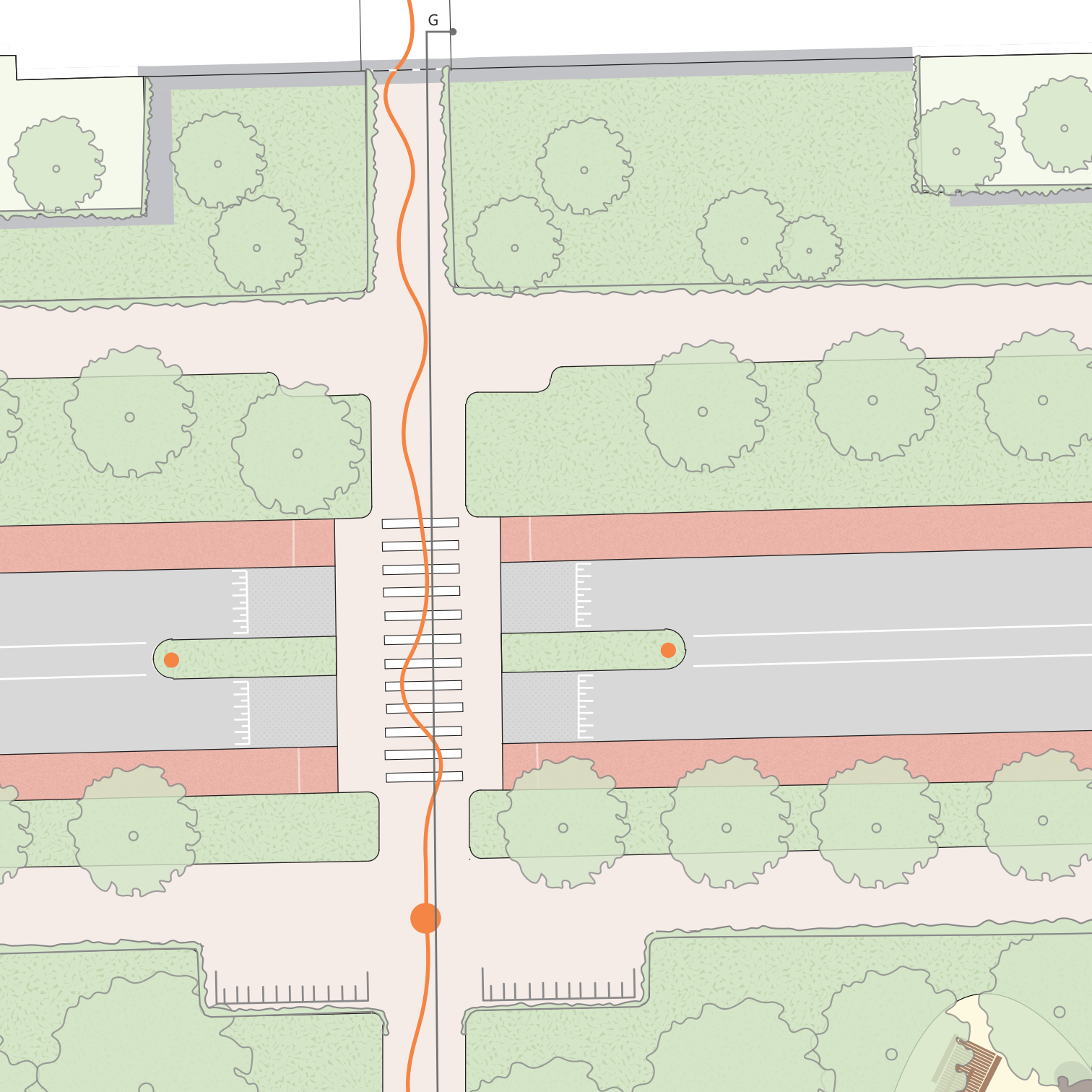
priority crossing.

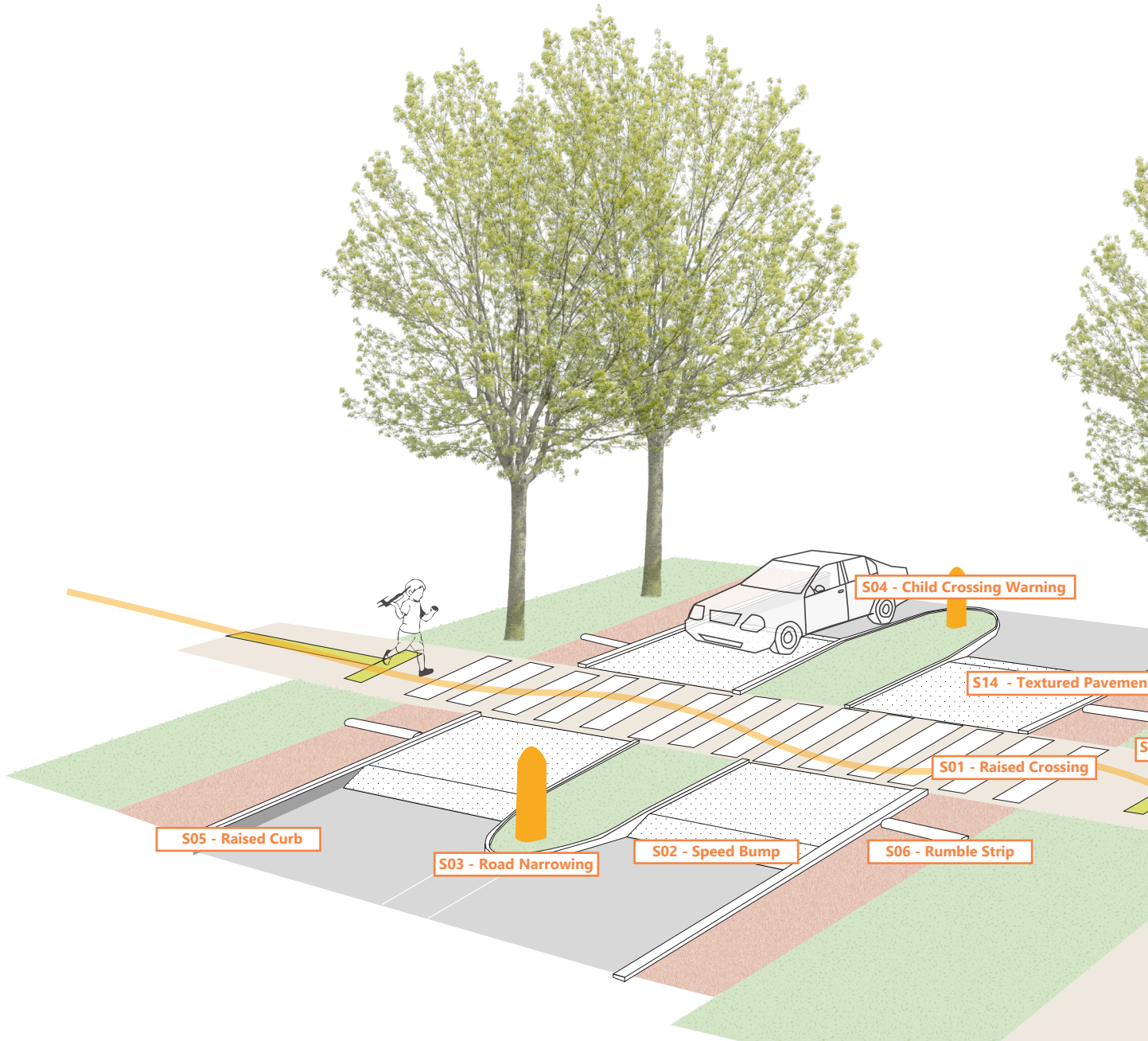
To improve visibility and social safety, trees near the crossing are selectively removed to create clear sightlines between children, cyclists, and drivers. Cyclists are alerted by rumble strips integrated into the cycling route.

Rather than requiring children to adapt to traffic conditions, the crossing is designed so that the surrounding traffic environment adapts to children. Children can follow the ribbon continuously toward the playground without interruption, while cars and cyclists encounter spatial cues that slow movement and increase attentiveness.

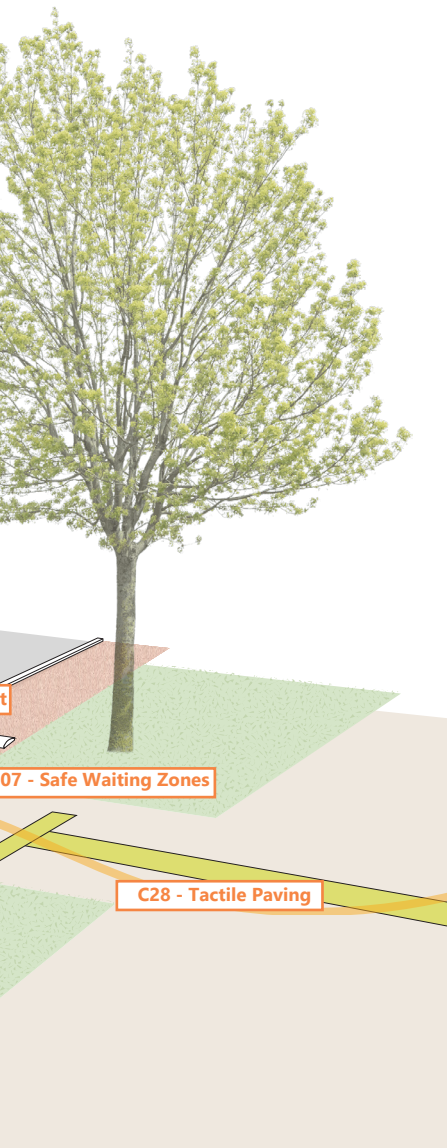


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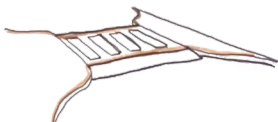




120 Figure. An example of the patterns in practice



S01 - Raised Crossing



S02 - Speed Bump



S03 - Road Narrowing



S04 - Child Crossing Warning



S05 - Raised Curb



S06 - Rumble Strip



S07 - Safe Waiting Zones



S14 - Textured Pavement



C28 - Tactile Paving



PLAYGROUND LARGE

A structured landscape of play

The large playground is organized into different layers of play, movement, orientation, and rest. The design is structured around clearly defined play typologies, creating a recognizable and predictable layout that helps children navigate the space independently. Each play type has its own zoning and color system. Movement play is blue, fantasy play is purple, sensory play is pink, resting spaces are yellow and construction is green.

These zones are connected by an orange main route extending from the child ribbon into the playground. This route serves as both circulation and a recognizable orientation element for children moving through the space. Additional colored lines within the playground guide children toward

different play areas, supporting simple and intuitive wayfinding.

A continuous rubber play surface is used throughout the playground to ensure accessibility, safety, and comfort. This material provides a soft surface for falls while remaining fully accessible for all children.

The playground gradually increases in activity from north to south. Near the entrance are the pétanque court and a more enclosed toddler play area, which create calmer spaces for younger children who may become overwhelmed by larger, more active environments. Next, the route moves through an area focused on sensory play, which stimulates different senses. Then, it moves on to an area focused on fantasy play, where children can engage in imaginative activities such as role play and creative interaction.

Resting spaces at the center of the playground provide opportunities for observation, retreat, and sensory relief. These spaces are important for children who benefit from calmer environments and offer recognizable meeting and waiting places for caregivers and families.

Further south, the focus shifts to movement play, which incorporates more active forms of running, climbing, balancing, and other physical activities. The playground transitions into a more natural, sheltered construction play area within the existing wooded landscape. Here, children are encouraged to explore nature, take manageable risks, and interact with less structured environments. Although a continuous accessible route is present throughout the area, smaller winding paths and informal play opportunities allow children to



South

explore the landscape more freely.

A central play hill connects the movement and construction play areas. The hill offers different levels of challenge and accessibility. Children can reach the top via accessible routes suitable for wheelchairs, bicycles, and walking. Climbing ropes and steeper paths provide more physically challenging alternatives. From the top, children can descend via different routes, including an inclusive slide integrated into the landscape.

By combining multiple play types, varying levels of stimulation, accessible routes, and opportunities for activity and rest, the playground supports children of different ages, abilities, and sensory needs. Children can discover, play, and move through the environment at their own pace and in their own way.



Figure. Section F-F



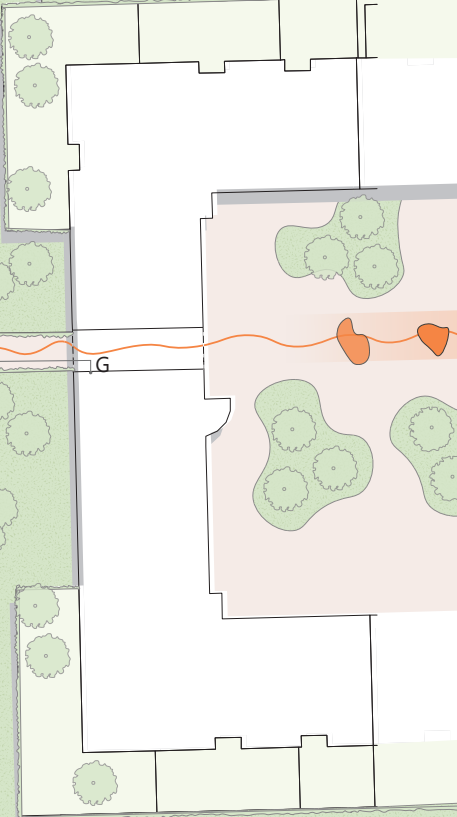
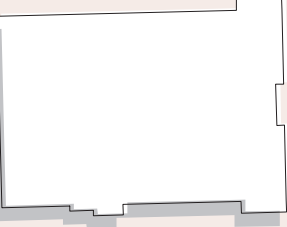
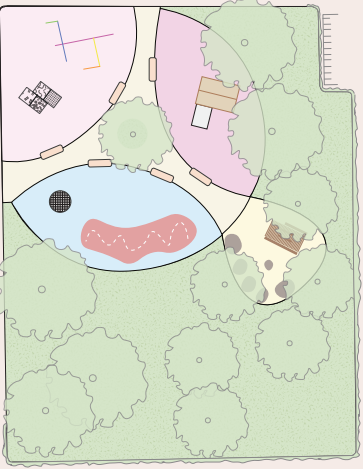
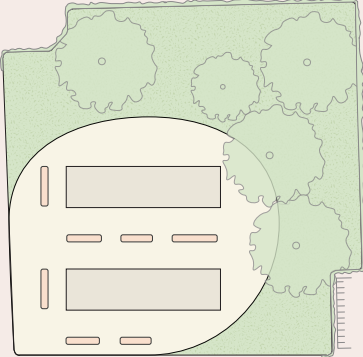
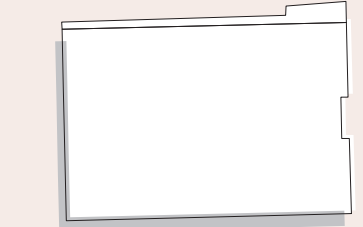
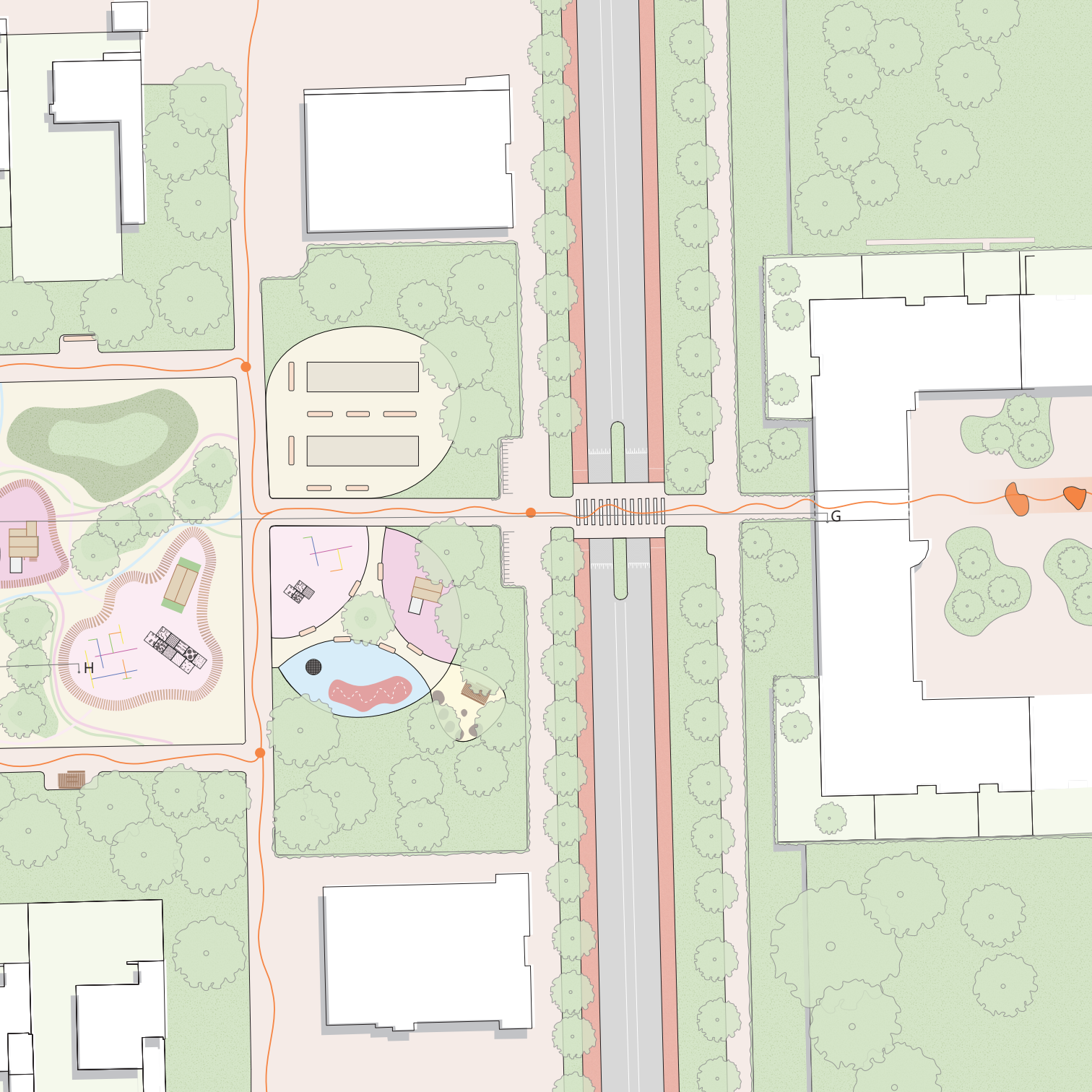
North

Figure. Section G-G 123



20m



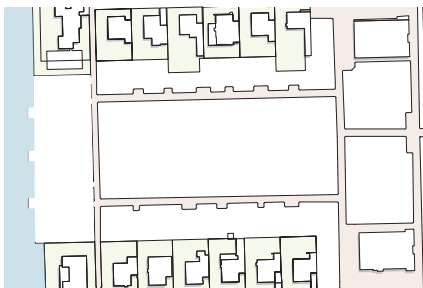


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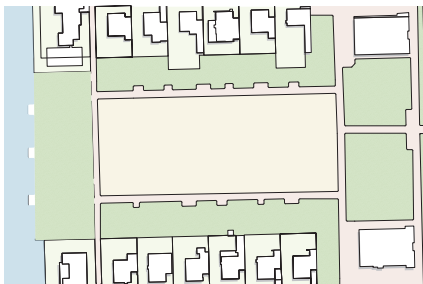
Layered approach

The playground's design uses a layered spatial approach to provide clear structure, zoning and orientation for children with diverse needs and abilities. Play areas, circulation spaces, shaded areas and quiet resting zones are carefully integrated to create an inclusive and supportive environment.

Site Context



Central Core



Play Zoning



Simple Wayfinding



Activity Integration



Rest Zone



Green Integration



Types of play

Different types of play are incorporated into the playground design to support a wide range of physical, sensory, social and cognitive needs. The inclusive design incorporates movement, sensory play, fantasy play, construction and rest zones.

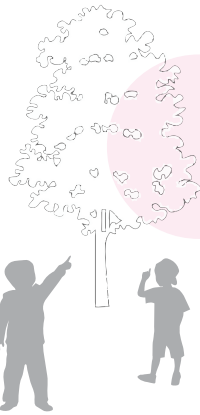
Blue Zones - Movement Play

Spaces designed to encourage active movement, coordination, and inclusive sports. Children can run, cycle, scoot, balance, jump on trampolines, use spinning elements, and play on accessible sports fields and climbing structures.



Pink Zones - Sensory Play

Areas that stimulate the senses through sound, texture, color, reflection, and touch. Interactive tunnels, musical elements, textured paths, mirrors, communication tubes, and colored panels create an engaging sensory experience.



Purple Zones - Fantasy Play

Imaginative environments that encourage roleplay, storytelling, and social interaction. Play houses, pirate ships, small shops, and themed structures allow children to create their own stories and worlds.



Green Zones - Construction & Nature Play

Adventure spaces focused on exploration, creativity, and interaction with natural materials. Children can climb, discover textures, play with sand, mud, grass, and leaves, and move through accessible nature-based pathways.



Yellow Zones - Rest & Quiet Play

Calm spaces distributed throughout the playground that support relaxation and sensory breaks. Softer play activities, seating areas, puzzles, quiet observation, and small social spaces provide moments of rest and comfort.





1m



1m

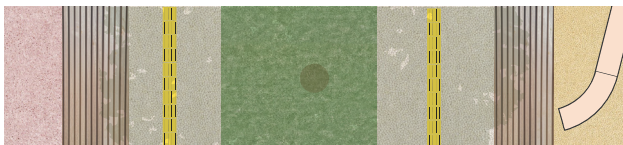


Figure. Section H-H

Sensory play - Rest zone

The transition from the sensory play area to the resting zone creates a gradual shift from stimulation to calm. Changes in material and tactile wooden strips help children with visual impairments or those who benefit from predictable spatial organization recognize this transition.

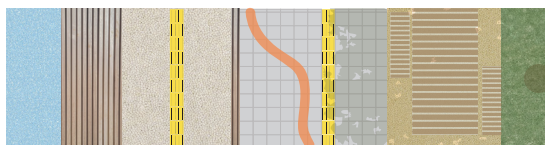


Figure. Section I-I

Movement - Main route - Rest zone

This section highlights the relationship between active play, orientation, and rest in the playground. The orange main route serves as the primary orientation path, and adjacent resting spaces offer quiet places for observation and social interaction.

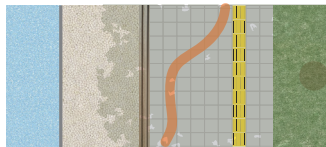


Figure. Section J-J

Movement - Construction play

The transition between the movement and the construction play marks a shift from active play to a more natural, exploratory environment. There is a continuous accessible route throughout the area, which allows for opportunities to explore beyond the main paths.

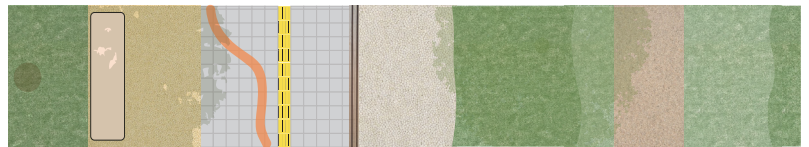


Figure. Section K-K

Rest Zone - Play Hill

The play hill incorporates movement, construction play, and accessibility into one landscape feature. There are different routes to the top, which create varying levels of challenge. Surrounding resting spaces allow children and caregivers to observe play from a quieter environment.

Play at your own pace

The large playground is designed to accommodate the various ways in which children experience play, movement, stimulation, and social interaction. Lina, Sam, and Noor's personas informed the design by highlighting the importance of accessibility, predictability, sensory comfort, and opportunities for challenge and exploration at different levels.

For Lina, clear zoning, recognizable routes, and quiet resting areas create a more understandable and less overwhelming play environment. Sam benefits from tactile transitions, continuous paths, and recognizable spatial organization, which support orientation and independent navigation throughout the playground. Noor can independently move through and participate in different play environments with her friends thanks to accessible routes, ground-level play elements, and inclusive play opportunities.

By combining multiple play typologies, varying levels of stimulation, and different degrees of challenge, children can discover, play, rest, and develop according to their own abilities and at their own pace.



Figure. Impression L



06

CONCLUSION

AND REFLECTION

CONCLUSION

Research aim and questions

This research aimed to explore how inclusive urban environments can support children with and without disabilities in independently moving, navigating, and playing within their surrounding urban context and public playgrounds. Focusing on the Buitenveldert-Zuid neighborhood, the project analyzed the area's existing spatial and environmental conditions, examined how children of different ages and with different disabilities experience and navigate the neighborhood, and explored spatial strategies that could contribute to more inclusive movement, access, and play.

Research by design

Research by Design proved valuable as a methodology throughout the project. Through sketching, spatial testing, visualization, and iterative design exploration, the research investigated how theoretical principles of inclusivity could be translated into concrete spatial interventions. Testing, combining, and repositioning recurring spatial patterns within the larger urban context continuously helped connect the different layers of knowledge developed throughout the research. By repeatedly zooming in on specific design interventions and then stepping

back to evaluate them within the broader spatial framework, it became clear that certain strategies functioned differently in practice than expected. Insights regarding transitions, sensory experiences, spatial orientation, and social interaction became apparent during the design process.

Inclusivity beyond the playground

The research revealed that inclusivity extends beyond the playground itself. While accessible play equipment is important, the surrounding urban environment - routes, transitions, orientation, and spatial safety - plays an equally significant role in enabling independent participation. Children experience the neighborhood as one environment rather than a series of separate destinations. Therefore, an inclusive playground alone is insufficient if the surrounding routes are inaccessible, overwhelming, or difficult to navigate independently. These findings highlight the importance of taking an urban and spatial approach to inclusive play rather than focusing solely on individual playground interventions.

Diverse experiences and needs

Using personas showed that children of different ages, abilities, and levels of independence

experience the same environment very differently. Younger children generally stay closer to home and depend more on caregivers. Older children encounter a wider range of urban barriers as they move more independently through the neighborhood. Cognitive, sensory, and physical disabilities also influence how children orient themselves, process stimuli, and engage with play environments. These findings demonstrate that inclusive design cannot rely on one universal solution but instead requires a variety of spatial conditions that support different forms of movement, play, rest, orientation, and social interaction.

Spatial strategies for inclusion

Themes related to safety, orientation, comfort, and play were translated into spatial interventions, including zoning, recognizable routing, predictable layouts, varied play levels, rest areas. By repeating and consistently applying these spatial patterns throughout the neighborhood and playgrounds, the design creates a more recognizable and predictable environment for children to independently understand and navigate. Together, these elements contributed to a more legible, comfortable, and independently accessible environment. Inclusive environments

rely not only on physical accessibility, but also on spatial readability, emotional comfort, and the ability to independently understand and navigate space. Through these strategies, the project addresses broader issues of exclusion, segregation, and limited participation in public spaces by creating environments where children with diverse abilities can interact, explore, and share experiences together, rather than remaining separated.

Outdoor play and child development

Helleman describes the developmental principles of outdoor play in *Playable Cities: Why?* (2018), while this project translates these principles into spatial design interventions that support children's physical, social, emotional, and cognitive development. The design supports motor skills, social interaction, self-confidence, emotional regulation, spatial awareness, and independent exploration through varied movement opportunities, shared play spaces, accessible routing, recognizable wayfinding, quiet zones, and gradual sensory transitions. Thus, the project shows that inclusive playground design can create environments in which children with and without

disabilities can participate, play, explore, socialize, and develop alongside their peers. By providing these developmental opportunities in everyday public spaces, the project contributes to ensuring that children with disabilities are not primarily approached through their limitations or care needs but rather as children who should have equal opportunities to grow, interact, and develop.

Relevance for inclusive urban environments

This research contributes to the growing attention toward child-friendly and inclusive urban environments by exploring how public spaces can respond to the diverse and sometimes conflicting needs of children with different abilities. The project shows how public spaces can promote accessibility, participation, independence, social belonging, and everyday interactions among children with different abilities. Therefore, the findings are relevant not only for playground design but also for landscape architecture, urban design, and future approaches toward inclusive public spaces.

Future perspectives

Although the project focuses on Buitenveldert-Zuid specifically,

the proposed strategies may be applicable in other urban contexts. Future research could explore participatory testing with children and caregivers further, as well as the long-term social impact of inclusive play environments in different neighborhoods. Future research could explore how similar inclusive spatial strategies can be applied within other urban contexts and expanded into larger networks of independently accessible play environments.

Final conclusion

This research ultimately shows that inclusive playground design encompasses more than just accessibility within the playground itself. It requires creating urban environments where every child can move, navigate, and play independently while feeling included in public spaces. Through an analysis of the spatial conditions in Buitenveldert-Zuid, an examination of how children of different ages and with different disabilities experience and navigate the neighborhood, and the translation of these insights into inclusive spatial strategies, the project demonstrates how urban environments can better support the independent movement, navigation, access, and play of children with diverse abilities.

DISCUSSION

Shift from playground to urban environment

One of the project's main insights is that inclusivity cannot be limited to the playground itself. Although the initial focus was on play spaces and equipment, the findings suggest that independent and inclusive play heavily depends on the routes leading to these spaces. Sidewalks, crosswalks, rest areas, orientation, and traffic structures became equally important, if not more so, in the design process. This gradual expansion from the scale of the playground to the scale of the neighborhood reinforced the concept of the child ribbon as part of a larger urban system that connects play, movement, and public spaces. However, this broader approach significantly expanded the project's scope, making it difficult to resolve all spatial conditions within the network. Certain transitions, such as crossings between the child ribbon and surrounding cycling routes, or connections between secondary residential streets and playgrounds, revealed tensions between safety, readability, accessibility, and existing traffic flows.

Inclusivity beyond physical accessibility

The project questions the idea that inclusive playground design should

predominantly focus on physical accessibility. While wheelchair accessibility remains essential, inclusivity is also influenced by predictability, sensory comfort, overstimulation, orientation, and opportunities for retreat. Children experience the same urban environment differently, meaning spatial interventions that benefit one group may cause discomfort or create barriers for another. Inclusivity cannot be understood as a universally optimized solution; rather, it is a continuous negotiation between different and sometimes conflicting needs.

Trade-offs and spatial tensions

This became particularly visible in the relationship between movement, safety, and public infrastructure. Several interventions intended to improve safety and predictability introduced new tensions to the urban environment. For instance, slowing down bicycle crossings and creating clearer spatial transitions increased readability and reduced stress for some children, especially those with cognitive or sensory sensitivities. These same interventions could also interrupt the speed and continuity of cycling routes within the neighborhood. Transforming traffic-oriented streets into calmer, more child-friendly spaces improved spatial

quality and independent movement while raising practical questions about accessibility, service routes, emergency access, and long-term feasibility. These examples show how inclusive design often involves balancing competing spatial priorities rather than resolving them completely. They also show that children benefit not only from safety, but also from opportunities to learn risk awareness and independently navigate public space.

Everyday movement as part of play

Play can be understood not only as an activity that takes place inside designated playgrounds, but also as something that is embedded within routes, transitions, and daily movement through the neighborhood. Sidewalks, living streets, crosswalks, and public spaces become part of the play experience itself. While this broader understanding strengthens the connection between independent mobility and play, it also expands the responsibility of inclusive play design beyond the playground itself and into the wider public realm.

Calmness and rest zones

The findings also highlight the importance of calmness, retreat, and slower-paced environments

in child-friendly urban design. Public spaces for children are often associated with activity, stimulation, and visibility. However, quieter forms of spatial experience receive less attention. Gradual transitions, pause spaces, and reduced sensory intensity can contribute to comfort and orientation, particularly for neurodiverse children. However, designing for reduced overstimulation introduces challenges because some children benefit from dynamic, highly stimulating environments. Inclusive design cannot rely on a single spatial condition but instead requires environments that can accommodate multiple sensory experiences simultaneously.

Personas as a design tool

Using personas as a design tool introduced both opportunities and limitations. They helped translate abstract discussions about inclusivity into concrete spatial situations, highlighting how children with different abilities may experience the same environment differently. At the same time, personas played an important role in defining the project's scope by helping determine which spatial conditions, barriers, and experiences would be the primary focus of the design process. However, personas inevitably simplify reality. Disabilities

often overlap, experiences differ greatly from person to person, and not every condition can be equally represented within a limited set of personas. Additionally, the personas struggled to represent children with multiple or overlapping disabilities where physical, sensory, and cognitive challenges occur simultaneously. While spatial design can reduce barriers and support orientation and safety, the project questions the extent to which spatial design alone can support independent mobility for children with disabilities. Independent movement is influenced by the physical environment as well as by age, supervision, confidence, social context, and personal ability.

Limitations

Several limitations influenced the project outcomes. First, the interventions were not tested in real-life situations, so their actual effectiveness is uncertain. Additional participatory research involving children, parents and schools, and local stakeholders could have provided more nuanced insights into everyday experiences and spatial needs. Because of ethical and practical limits, direct interviews with children were restricted. This meant that parts of the research relied more on literature, observations, and expert interviews. Certain

proposals, especially those involving the transformation of parking garages and larger traffic structures, require long-term political, financial, and organizational support beyond the scope of the project. Lastly, while spatial design can promote accessibility and comfort, social inclusion cannot be achieved solely through design interventions.

Pattern language as spatial system

Developing the pattern language revealed its potential and limitations as a spatial framework. Although the patterns were designed to be relatively general and adaptable, urban design remains strongly dependent on location, scale, safety conditions, surrounding infrastructure, and neighborhood context. While the intention is for the patterns to be applicable in other Dutch neighborhoods, their effectiveness would likely differ depending on each environment's specific spatial and social conditions. Certain patterns may function well in one context but become less relevant in another, where additional or alternative spatial strategies may be necessary. The pattern language should not be understood as a fixed, universal solution but rather as a flexible framework requiring adaptation to local conditions and user needs.

REFLECTION

What started as doubt slowly grew into confidence, independence, and pride in the designer I am becoming.

Relation between the graduation project, Urbanism, and the MSc AUBS programme

This graduation project is related to both the Urbanism track and the larger MSc Architecture, Urbanism and Building Sciences (AUBS) program. The focus of the project is on the relationship between how space is designed and how people experience it in their everyday lives. During my studies in urbanism, I became more interested in how city planning affects people's daily lives, well-being, independence, and whether they feel included in society. This interest was the basis of my graduation project.

Choosing a graduation topic was initially difficult because I wanted to work on something that was both socially relevant and personally meaningful. The idea for this project came from the Week of the Disabled Child in the Netherlands. I heard on the radio that only 155 out of 342 municipalities had at least one playground that was accessible to disabled children. This made me wonder if children with disabilities can easily play with other children. Even if a municipality only has one playground, children may still need

to go across the whole municipality to find a place where they feel physically and mentally welcome. For many children with disabilities, this makes it harder for them to take part in everyday social activities and play.

This idea is closely related to the Healthy and Inclusive City studio, where well-being, accessibility, and inclusion are key. But during the project, I also learned that inclusivity goes beyond providing accessible infrastructure or social interaction. Inclusive urban environments must also consider sensory experience, predictability, rest, independence, safety, and emotional comfort. This broader understanding of inclusivity was one of the most important lessons of the project.

This project also made me believe that public spaces should be inclusive and be the norm in everyday urban environments, not just exceptions.

Reflection on the relation between research and design

One of the strongest parts of this graduation project was the constant connection between research and design. At first, I was mostly focused on inclusive playgrounds because I thought the main problems were in the play spaces. However, during the research phase, especially after

the A1, I realized that accessibility and being able to move around the neighborhood independently were equally important. A playground can only be designed to be used by all children if they can get to it on their own, without danger, and with ease.

This helped change the focus of the project from just building playgrounds to thinking about the bigger picture of how the neighborhood works. This includes things like paths, crossings, and connections between public spaces. At the same time, this created a challenge because the project constantly shifted between different levels: neighborhood, street, crossings, and detailed playground design. Learning how these scales influence one another became an important part of the design process.

The development of the personas was one of the most important moments in the project. At first, I had a hard time with the idea of designing for "all disabilities" because there were too many different perspectives and needs to consider at the same time. The personas helped make the project more understandable by connecting specific age groups to experiences in the neighborhood and the barriers they face. This helped me understand better how these things affected people's ability to move

around. The personas became more than just tools for representation; they also became analytical and design tools that guided spatial interventions and priorities.

The interviews were especially helpful in understanding inclusivity better and finding existing problems in public play environments. They helped show what is being done now and what could be done in the future to make play more inclusive. At the same time, the design process itself led to new research questions. Designing specific interventions often revealed complexities or conflicts that were not immediately visible during the research phase. This iterative process between research and design reflects the research-by-design methodology used throughout the project.

Reflection on methodology, approach, and working process

Looking back, I value the mixed-methods approach because it combined theoretical understanding with spatial and experiential analysis. Different types of research contributed different perspectives to the project. These perspectives included literature research, interviews, observations, mapping, persona development, case studies, and research by design.

The research I did helped me understand the bigger discussions about inclusive urbanism, child-friendly cities, independent mobility, and inclusive play. The interviews provided useful and hands-on information that could not have been found in literature alone. The observations and maps showed how barriers are experienced in different areas of the neighborhood. Previous studies helped translate theoretical ideas into more specific spatial strategies.

At the same time, the process also showed that there were some problems with the way it was done. Inclusivity is a very complex issue, and you can't solve it just by designing the space. During the project, I became more aware of how different users have different spatial needs. In urbanism, inclusivity is often strongly associated with physical accessibility, such as wheelchair access or social interaction. But this project showed me that inclusivity has many layers. For example, children with cognitive or sensory disabilities can experience overstimulation in public spaces very differently than physically disabled users. Many modern playgrounds are designed to be bright, exciting, and full of visual stimulation, but some children actually benefit more from calm, predictable, and well-organized spaces.

This made me see inclusive design in a new way. Inclusivity isn't a checklist, but rather a careful balancing of different and sometimes conflicting user experiences.

Another important thing to think about is how graduation is an independent process. During the Urbanism master program, students work together on projects that combine different subjects. Students regularly share ideas, work together in groups, and make group decisions. The graduation project, however, became a much more individual process. It was sometimes difficult to make design decisions, determine priorities, and manage uncertainty on my own, especially because I had limited time.

The weekly mentor meetings were very important parts of the process. They created opportunities to discuss uncertainties, reflect on decisions, and test ideas through conversation. Even when there were no "right" or "wrong" answers, these discussions helped me trust my own reasoning and abilities as a designer. Looking back, the graduation process taught me two important things. First, it taught me how to develop an urban design project on my own. Second, it taught me to trust my own judgment and decision-making.

Reflection on academic, societal, and ethical value

I believe the academic value of this project lies in its attempt to connect inclusive urbanism, independent mobility, and play through a spatial framework that looks at different levels. While inclusive playgrounds are a growing topic in urban planning, this project suggests that we should also focus on the public spaces around the playground and the access available to people. This project is important because it helps people talk about how to make cities better places for children and healthy for everyone.

The project is relevant to society because it makes everyday life more accessible and encourages social inclusion. Public spaces have a big impact on whether children feel welcome, independent, and included in society. Children with disabilities often face challenges not only physically, but also socially and emotionally. Designing environments where children can participate more equally in everyday play can therefore contribute to reducing exclusion and stigmatization.

The project also raised ethical questions surrounding inclusivity and representation. It became clear that no single design solution can fully accommodate every user equally. Designing for inclusivity means finding the right balance for

different needs, priorities, and forms of accessibility.

Reflection on transferability and future implications

One of the most important goals of the project was to create the “Connect – Play – Rest” framework and the related pattern language. I believe the value of these patterns lies in their ability to structure inclusive design principles across multiple scales. These scales range from neighborhood connections to playground zoning and resting spaces. The framework helped translate broader, inclusive principles into more specific actions and created a clearer connection between independent mobility, accessibility, rest, and play.

At the same time, the project also showed that the results can't be applied to other situations. The patterns were intentionally designed in a relatively general way, but how well they work depends on things like the local context, spatial conditions, demographics, governance, maintenance, and safety considerations. What works in Buitenveldert-Zuid might not work in another neighborhood or municipality. Different situations may require different patterns, depending on the existing urban structure, social environment, and what the users need.

The project suggests that we

should not think of these patterns as solutions that work in every situation. Instead, we should think of them as tools that can be used in different ways to support future efforts to create inclusive cities. Their value lies less in prescribing exact solutions and more in encouraging designers and municipalities to think about inclusivity as an integrated spatial system instead of isolated interventions.

I realize that the pattern language could be improved. Because I didn't have enough time, I wasn't able to work on the patterns as much as I wanted. The framework helped organize the project and make design decisions, but more research and long-term testing would be helpful to see how these patterns work in different cities and social situations. This could also help strengthen their ability to adapt and apply what is learned to future inclusive urban projects.

Personal reflection

Personally, this graduation project has been one of the most meaningful and educational experiences of my academic journey. When I started the project in November, I often wondered if I could do it by myself. Looking back now, I am proud of what I learned and the confidence I gained in myself as a designer and researcher.

My educational journey wasn't

always easy. I never thought that I would write an English master's thesis at TU Delft during high school. I started studying Built Environment at the HvA without knowing what I wanted to do professionally. But during those studies, I found out how much energy I got from turning ideas into real designs. I realized that the design of cities can have a significant impact on people's daily lives.

This graduation project reinforced that motivation. It made me more interested in inclusive urbanism and showed me how much I like combining research, social issues, and spatial design in one project. At the same time, the graduation process taught me to work more independently and trust my own design decisions. During the Urbanism master, most of the work is done collaboratively, while graduation became a much more individual process. Sometimes, I had to make decisions on my own, which was strange at first, but I learned a lot and felt satisfied.

The weekly mentor meetings were an important part of this process. They became moments to discuss ideas, reflect on choices, and gain confidence in the direction of the project. These conversations helped me develop more trust in my own reasoning and abilities as a designer.

Looking back, I am proud not only of the final outcome, but especially

of the personal and professional growth that happened throughout the process. It made me feel good about myself and my skills as a designer. It also made me excited to take the next steps in my professional development as an urban designer.

ACKNOWLEDGEMENTS

I would like to thank everyone who supported me during my time at TU Delft. Graduation can feel like an individual journey, but I could not have finished this project without the support, motivation, and encouragement of the people around me.

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I want to thank **my parents** for their support. **Mams**, thank you for always listening to my stories, reading my drafts with pride, and continuously

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Last but certainly not least, I would like to thank **all my friends** for

their support throughout this year, for always believing in me, and for continuously cheering me on.

Looking back, I feel incredibly proud of how much I learned and grew during this process. This thesis strengthened not only my passion for urbanism, but also my confidence in myself and the designer I am becoming.

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APPENDIX

INTERVIEWS

Interview Proludic - Ronny van Lanen, Speel en inclusie-expert

Datum: 8 december 2025

Interviewer: Niki Sophie Holman

Interviewer: Goedemorgen!

Ronny: Goedemorgen.

Interviewer: Kijk, we zitten. Hoe gaat het?

Ronny: Goed, zeker goed. En bij jou?

Interviewer: Ja, met mij ook. Mooi zo, fijn. Dankjewel voor je tijd. Vind je het goed als ik het interview opneem, zodat ik het later kan terugluisteren?

Ronny: Ja, dat is goed.

Interviewer: Dankjewel. Misschien is het handig als ik eerst kort iets vertel over mijn scriptieonderwerp en mijn doelen. Daarna kun jij misschien hetzelfde doen over je rol binnen Proludic.

Ronny: Ja, prima.

Interviewer: Fijn, dank je. Ik ben Niki en ik zit nu in mijn tweede jaar van mijn master en ben vijf weken geleden begonnen met mijn onderzoek naar hoe bestaande speeltuinen herontwikkeld kunnen worden. Mijn doel is om voor gemeentes strategieën te ontwikkelen zodat zij bestaande speeltuinen inclusiever kunnen maken. Voor nu richt ik me vooral op het vooronderzoek: wat er al bestaat, wat er al wordt gedaan, wat de obstakels zijn en waar de kansen liggen. Later ga ik me vooral richten op het ontwerp tot eind juni.

Ronny: Klinkt goed. En hoe ben je eigenlijk op dit onderwerp gekomen, als ik vragen mag?

Interviewer: Ik ben geïnteresseerd in de invloed van de openbare ruimte op het dagelijks leven van mensen in het algemeen. Toen ik mijn onderwerp moest kiezen, was er net de Week van het Gehandicapte Kind en hoorde ik daarover op de radio. Ik las het ook op het NOS-nieuws, en de cijfers waren zo opvallend dat ik dacht: hier kan ik als stedenbouwer echt impact op maken. Dat vond ik interessant.

Ronny: Leuk, klinkt goed. Het is een heel belangrijk onderwerp. Gelukkig is er steeds meer aandacht voor, maar er valt inderdaad nog veel te winnen. Ik denk dat het een heel mooi en goed onderzoek is.

Interviewer: Kun je iets over jezelf vertellen?

Ronny: Ja, ik ben Ronny. Sinds 2017 werk ik bij Proludic, eerst op de binnendienst en later in de buitendienst. We adviseren over en ontwerpen speel- en sportplekken voor scholen, recreatie en de openbare ruimte. Sinds twee jaar ben ik ook inclusie-expert. Proludic komt oorspronkelijk uit Frankrijk, maar we zijn wereldwijd actief met dochterondernemingen, bijvoorbeeld in Australië, Duitsland, Italië, Spanje. We merken dat toegankelijkheid en inclusiviteit overal een belangrijk onderwerp is. Wereldwijd hebben we een comité opgericht waar elk land iemand bij heeft. We spreken maandelijks over bevindingen en trends, en jaarlijks organiseren we een evenement met externe experts om te bespreken hoe speelplekken laagdrempeliger en inclusiever kunnen worden gemaakt. Ik vind het goed om te zien dat er steeds meer aandacht voor komt, maar er kan nog veel gebeuren.

Wat je vaak merkt in de praktijk, vaak kom ik bij gemeentes en krijg ik de reactie: "We hebben hier geen kinderen in een rolstoel of met een beperking, dus we doen er niks aan." Het is een beetje een kip-en-het-ei-verhaal.

Interviewer: Ze zien de kinderen niet, omdat ze er niet kunnen spelen. Dus doen ze er niks aan.

Ronny: Juist.

Interviewer: En jullie ontwerpen ook speeltuinen?

Ronny: Ja, van oorsprong zijn wij fabrikant, dus we ontwikkelen ook echt speeltoestellen. Daarnaast kunnen we meedenken over het ontwerp en de realisatie van een speelplek, van A tot Z.

Interviewer: Hoe ziet de huidige situatie van inclusieve speeltuinen in Nederland eruit?

Ronny: Het verschilt. Grote steden zoals Amsterdam willen in iedere wijk een inclusieve samenspeelplek realiseren. Rotterdam is er ook actief mee bezig, en Halderberge bijvoorbeeld. In kleinere gemeenten, zoals in Zeeland, is er minder budget en minder mensen die zich met inclusie bezighouden, waardoor ze achterlopen. Ken je het Samen Speelfonds?

Interviewer: Ja, daar heb ik over gelezen.

Ronny: Dat fonds ondersteunt het realiseren van samenspeelplekken in elke gemeente en stelt daar budgetten voor beschikbaar.

Interviewer: Dat is mooi. Ik kan me voorstellen dat het in een stad als Amsterdam, waar je bijvoorbeeld helemaal in Oost woont, soms nodig is om naar West te reizen voor een inclusieve speelplek. Dat is natuurlijk niet ideaal. Eén speelplek per gemeente is vaak nog te weinig. Wat zou jij zien als doel voor de toekomst? Denk je dat het realistisch is dat elke speelplek inclusief wordt, of eerder dat er een netwerk van speelplekken binnen gemeenten wordt gecreëerd?

Ronny: Het doel zou moeten zijn dat er in een wijk meerdere inclusieve speelplekken zijn, en dat ze goed zichtbaar zijn. Veel plekken zijn misschien al toegankelijk, maar gezinnen weten vaak niet waar ze zich bevinden. Het is voor

ouders soms een hele onderneming om er te komen.

Interviewer: Kijken jullie ook naar de omgeving rondom de speelplek?

Ronny: Ja, we hebben een inclusiescan ontwikkeld. Daarmee kijken we naar de toegankelijkheid met openbaar vervoer, paden naar de speelplek, toiletvoorzieningen en de ondergrond. Ook de speeltoestellen zelf worden meegenomen. Zo kunnen we een nulmeting doen en tijdens het ontwerpproces of na afloop laten zien hoe toegankelijk de plek is en waar verbeteringen mogelijk zijn.

Interviewer: Wordt ook gekeken naar de zelfstandigheid van kinderen?

Ronny: Het liefst kunnen kinderen zo zelfstandig mogelijk spelen. Soms is begeleiding nodig, afhankelijk van het kind. Bij een draaitoestel bijvoorbeeld kan een kind in een rolstoel samenwerken met anderen om het toestel in beweging te krijgen. Ook plekken waar kinderen zich even kunnen terugtrekken of prikkels kunnen verwerken zijn belangrijk.

Interviewer: Zijn gemeentes zich bewust van wat inclusief spelen inhoudt?

Ronny: Bij sommige gemeentes wel, maar er valt nog veel te winnen. Er is soms angst dat het duur of ingewikkeld is. Door in gesprek te gaan en uit te leggen hoe belangrijk inclusie is, groeit het begrip. Veel mensen weten gewoon niet hoeveel kinderen buitengesloten worden omdat ze niet naar een speelplek kunnen.

Interviewer: Wat zijn de grootste obstakels voor gemeentes of ontwerpers? Is het de kennis, of financiële aspect?

Ronny: Een combinatie van factoren, maar vooral kennis. Er is vaak het idee dat inclusie duur is, terwijl dat niet altijd zo hoeft te zijn. Slimmere oplossingen worden nog onvoldoende toegepast.

Interviewer: En waar liggen de grootste kansen?

Ronny: Kennisdeling is essentieel. Bij nieuwe speelplekken is het makkelijker om direct inclusieve richtlijnen toe te passen. Bij bestaande speelplekken is het soms lastiger, maar zeker niet onmogelijk. Zowel ontwerpers, fabrikanten als gemeentes moeten bewust keuzes maken. Het betrekken van verschillende doelgroepen, kinderen met fysieke, sensorische of cognitieve beperkingen, moet altijd onderdeel zijn van het proces.

Interviewer: Wat maakt een speeltuin echt inclusief?

Ronny: Het gaat niet alleen om de standaardtoestellen zoals schommels, glijbanen en klimtoestellen. Het gaat vooral om speelprykkels die samenwerking en interactie stimuleren. Kinderen moeten met elkaar kunnen spelen, niet alleen naast elkaar. Er moeten ook plekken zijn waar kinderen zich even kunnen terugtrekken.

Interviewer: Zijn er projecten waar jullie trots op zijn?

Ronny: Ja, we zijn met veel projecten bezig. Bijvoorbeeld de speeltuin Blijdorp in Amsterdam, waar we toestellen hebben geleverd en betrokken waren bij het ontwerp.

Interviewer: En voorbeelden waar het lastiger bleek?

Ronny: Soms ligt het aan de manier van aanbesteding door gemeenten. Verschillende leveranciers doen een voorstel en de buurt kiest het mooiste plan. Dan wordt toegankelijkheid niet altijd goed meegenomen en dat is jammer.

Interviewer: Zijn er nog dingen die belangrijk voor mij zijn om mee te nemen?

Ronny: Praat met ervaringsdeskundigen en sluit aan bij bestaande netwerken. Kijk vooral binnen je eigen netwerk en start niet te ver van huis; veel mensen zijn al actief met inclusieve speelplekken, daar kun je van leren. Inclusie gaat niet alleen om rolstoelen; er zijn veel soorten beperkingen, zoals visuele beperkingen of autisme. Je kunt het nooit perfect maken voor iedereen, maar iedereen moet zich welkom voelen op de speelplek.

Interviewer: Mag ik je later nog benaderen voor verduidelijking?

Ronny: Ja, natuurlijk.

Interviewer: Dank je wel voor je tijd en input.

Ronny: Graag gedaan, veel succes met je onderzoek!

Interviewer: Dank je wel.

Interview Jantje Beton - Michelle Cramwinckel, programmaleider Team Impact

Datum: 11 december 2025

Interviewer: Niki Sophie Holman

Interviewer: Zo, hallo. Hoe is het?

Michelle: Goed! Ja, dankjewel.

Interviewer: Voordat ik begin, vind je het goed als ik het gesprek opneem?

Michelle: Ja, zeker, ik ben heel benieuwd. Zal ik eerst kort iets over mijzelf vertellen en wat mijn rol is?

Interviewer: Ja, leuk.

Michelle: Ik werk bij Jantje Beton. Jantje Beton bestaat bijna 70 jaar en wij zetten ons in om spelen voor alle kinderen mogelijk te maken. Zelf ben ik programmaleider bij Team Impact. We voeren allerlei projecten uit, waaronder het Samenspeelnetwerk, daarvan ben ik projectleider. Dat project doen we samen met Stichting Het Gehandicapte Kind, waar we specifiek inzetten op samenspelen tussen kinderen met en zonder beperking. Zo kwam je ook bij mij terecht, want volgens mij was je via Het Gehandicapte Kind binnengekomen.

Interviewer: Ja klopt. Ik ben zo'n zes weken geleden begonnen met mijn scriptie. Ik wilde mijn onderzoek richten op de invloed van de openbare ruimte op het dagelijks leven van mensen, maar ik had nog geen specifieke doelgroep. Toen was het toevallig de Week van Het Gehandicapte Kind, en ik hoorde daar veel over in het nieuws. De cijfers raakten me echt, waardoor ik dacht: er is zoveel dat verbeterd kan worden, vooral vanuit stedenbouwkundig perspectief. Daarom heb ik uiteindelijk dit onderwerp gekozen: de invloed van de openbare ruimte op kinderen met en zonder beperking. En vanuit die link heb ik Het Gehandicapte Kind gecontacteerd, maar toen reageerde jij inderdaad.

Michelle: Ja, dat is een beetje het linkje geweest.

Interviewer: En wat is dan precies jullie rol binnen het verbeteren van speelomgevingen in Nederland? Hebben jullie ook invloed op het ontwerp?

Michelle: Bij Jantje Beton ontwikkelen wij veel speelplekken, altijd samen met lokale partners, leveranciers en ontwerpers. We geven ook onze visie op speelbeleid en we realiseren daadwerkelijk speelplekken: groene schoolpleinen, gezonde buurten, projecten zoals Speeltuinen van de Toekomst, enzovoort. Het gaat vooral over georganiseerde speelplekken, maar we zijn heel actief in het realiseren van speelplekken in de openbare ruimte.

Interviewer: En wat is dan het grootste verschil tussen Jantje Beton en Het Gehandicapte Kind?

Michelle: Jantje Beton is er voor alle kinderen in Nederland. Het Gehandicapte Kind richt zich op kinderen met een beperking, zij zetten zich in voor meedoen, in spelen, sport en school. Bij hen is "samen spelen" één programma.

Bij Jantje Beton is spelen de volledige kern van ons werk. Dus wij zijn breder, terwijl zij specifiek werken vanuit het perspectief van het kind met een beperking.

Interviewer: En hoe lang werk je al bij Jantje Beton?

Michelle: Acht jaar.

Interviewer: Acht jaar? En hoe ben je daar terechtgekomen?

Michelle: Ik werkte eerst ergens anders als communicatieadviseur. Daarna ben ik bij Jantje Beton gaan werken, en een paar jaar later ben ik overgestapt naar de afdeling Impact.

Interviewer: Hoe vind je het om ook voor kinderen met een beperking te werken via deze samenwerking?

Michelle: Ik werk niet direct voor Het Gehandicapte Kind, maar het project is een gezamenlijke uitvoering. We hebben samen subsidie aangevraagd bij het ministerie van VWS. Het is heel waardevol om echt impact te kunnen maken en samen op te trekken. Ik vind dat zeker bijzonder.

Interviewer: Wat merken jullie vanuit de behoefte van kinderen, zowel met als zonder beperking?

Michelle: We zien dat kinderen überhaupt weinig buitenspelen. Uit ons onderzoek blijkt dat er 416.000 kinderen zijn die nooit buiten spelen. Dat heeft enorme fysieke én mentale gevolgen. Binnen die groep zijn sommige kinderen extra kwetsbaar, waaronder kinderen met een beperking. Het onderzoek van Het Gehandicapte Kind zoomt daar verder op in en laat zien dat dit leidt tot eenzaamheid.

Met het Samenspeelnetwerk zetten we daarom vooral in op samenspelen. Het gaat niet alleen om toegankelijkheid zodat kinderen met een beperking kunnen spelen; het gaat erom dat alle kinderen samen kunnen spelen en elkaar leren kennen. Dat heeft een doorwerking in de rest van hun leven.

Interviewer: Ja precies, dat ze echt samen spelen en niet alleen naast elkaar.

Michelle: Precies. Veel kinderen met een beperking kunnen niet in de buurt spelen. Ze zitten vaak ook niet op een school in de buurt en sporten is vaak apart georganiseerd. Daardoor hebben ze weinig aansluiting in hun eigen omgeving. Dat zegt iets over hen, maar óók over kinderen zonder beperking, zij leren geen kinderen met een beperking kennen. Dat zorgt op latere leeftijd soms voor onbegrip.

Interviewer: Er zijn 155 gemeenten die nog geen inclusieve speelplek hebben. Weten jullie waarom?

Michelle: Elke gemeente heeft volgens het VN-verdrag Handicap de verplichting om iedereen te laten meedoen. Maar de redenen waarom het er nog niet is, zijn divers. Het speelbeleid staat in veel gemeenten nog niet goed, waardoor de kwaliteit van speelruimte sowieso achterblijft. Geld speelt ook een rol, maar het gaat vooral over gebrek aan beleid, kennis en prioriteit.

Wij pushen gemeenten via het netwerk om een belofte te doen dat ze hiermee aan de slag gaan. Ambtelijk blijkt dat soms ingewikkeld, terwijl het eigenlijk niet per se duurder of moeilijker hoeft te zijn, het vraagt vooral een andere mindset.

Interviewer: En misschien ook een stukje kennis dat mist?

Michelle: Zeker, en daarom hebben we het Samenspeelnetwerk. Dat is er om kennis te vergroten.

Interviewer: Denk je dat de huidige speelplekken veel obstakels hebben om ze aan te passen?

Michelle: Ja, die barrières zijn er. En vaak is men zich er niet bewust van. Het is niet onwil, eerder onvoldoende bewustzijn.

Daarnaast gaat het niet alleen om de speelplek zelf, maar ook om de bereikbaarheid. Kinderen moeten er kunnen komen. Dat vraagt om integraal werken in de openbare ruimte. Dat maakt het proces soms ingewikkelder.

Interviewer: Zijn er praktische richtlijnen die jullie ontwerpers adviseren?

Michelle: Ja, die staan op samenspeelnetwerk.nl. Er zijn veel richtlijnen. Op de website van Jantje Beton vind je ook cijfers over buitenspelen.

Interviewer: Hoe kijkt Jantje Beton naar de huidige situatie in Nederland?

Michelle: We merken dat er een verandering gaande is, maar we zijn er nog lang niet. Je kunt een plek realiseren, maar dat betekent nog niet dat kinderen ook echt samen spelen, dat vraagt meer.

Er is wel steeds meer bewustzijn. Gemeenten reageren tegenwoordig anders dan een paar jaar geleden; ze nemen het onderwerp serieuzer.

Interviewer: En jullie werken samen met ontwerpers?

Michelle: Bij het Samenspeelfonds zijn gemeenten zelf verantwoordelijk voor de realisatie. Wij beoordelen of een ontwerp voldoet aan de richtlijnen. Daarnaast realiseren we zelf veel plekken in projecten, altijd samen met ontwerpers en partners.

Welke fouten vaak worden gemaakt? Toegankelijkheid wordt niet vanaf het begin meegenomen. Soms is het pad toegankelijk, maar ligt een toestel vervolgens in zand. Of alle inclusieve toestellen staan bij elkaar in een hoek, dat is geen samenspelen. Inclusie vraagt dat je kinderen met én zonder beperking laat interacteren.

Interviewer: Heb je een project waar jullie trots op zijn?

Michelle: In Amsterdam is Blijdag, daar zijn wij zelf niet bij betrokken, maar het is een heel mooi voorbeeld van een inclusieve speelplek om te bezoeken.

Jeugdland in Amsterdam-Noord is ook leuk. Gibraltar is ook een goed voorbeeld, die zitten ook bij het netwerk.

Interviewer: Wat is jullie droombeeld?

Michelle: Dat inclusie vanzelfsprekend wordt. Niet: "we denken óók aan inclusie", maar: "dit hoort er gewoon bij." We streven nu naar minimaal één inclusieve speelplek per gemeente. In Arnhem zag je dat één plek een sneeuwbaaleffect veroorzaakte: de gemeente besloot dat eigenlijk álle plekken inclusief zouden moeten zijn. Dat is wat we willen.

Interviewer: Hebben jullie grip op de data van welke gemeenten wel of niet een inclusieve plek hebben?

Michelle: In beperkte mate. Plekken kunnen veranderen of worden aangepast zonder dat wij dat weten. Vanuit het Samenspeelfonds hebben we een nulmeting gemaakt: daar staan de 155 gemeenten op die nog geen inclusieve speelplek hebben. Op Samenspeelnetwerk staat ook een kaart met alle inclusieve plekken.

Interviewer: Ik wil een patronenboek ontwikkelen voor bestaande speelplekken, welke aanpassingen nodig zijn voor inclusie. Denk je dat dat aansluit?

Michelle: Zeker. Ontwerpers zijn daar steeds meer mee bezig. Op Samenspeelnetwerk, bij de beloftemakers, kun je partijen vinden die ook met dit thema bezig zijn.

Interviewer: Ik kijk nog naar locaties. Misschien kies ik Amsterdam, of een kleinere gemeente. Ik wil kijken naar bestaande obstakels, kansen, toegankelijkheid, voorbeeldprojecten en gedrag van kinderen.

Michelle: Gemeente Den Haag heeft net een groot onderzoek gedaan naar samenspelen, dat is interessant. In Amsterdam gebeurt ook veel, zoals bij Blijdag. En kijk vooral op JantjeBeton.nl voor het buitenspeelonderzoek.

Interviewer: Zijn er dingen die ik gemist heb?

Michelle: Nee. Neem vooral tussendoor contact op , ik vind het interessant wat je doet.

Interviewer: Dat ga ik zeker doen. Heel erg bedankt voor je tijd!

Michelle: Dankjewel, fijne dag! Doeg.

Field notes from visit to Speeltuín De Gibraltar

Datum: 11 december 2025

Interviewer: Niki Sophie Holman

The following notes are based on an informal visit to Speeltuín De Gibraltar and conversations with staff and visitors. No recordings were made, and the statements have been paraphrased.

During the visit, the playground was described as a safe and inclusive environment where parents feel comfortable returning because they do not feel judged. Children whose behavior is outside the norm are not excluded but explicitly welcomed and encouraged to participate. This highlights the importance of social safety and acceptance as a foundation for inclusive play environments.

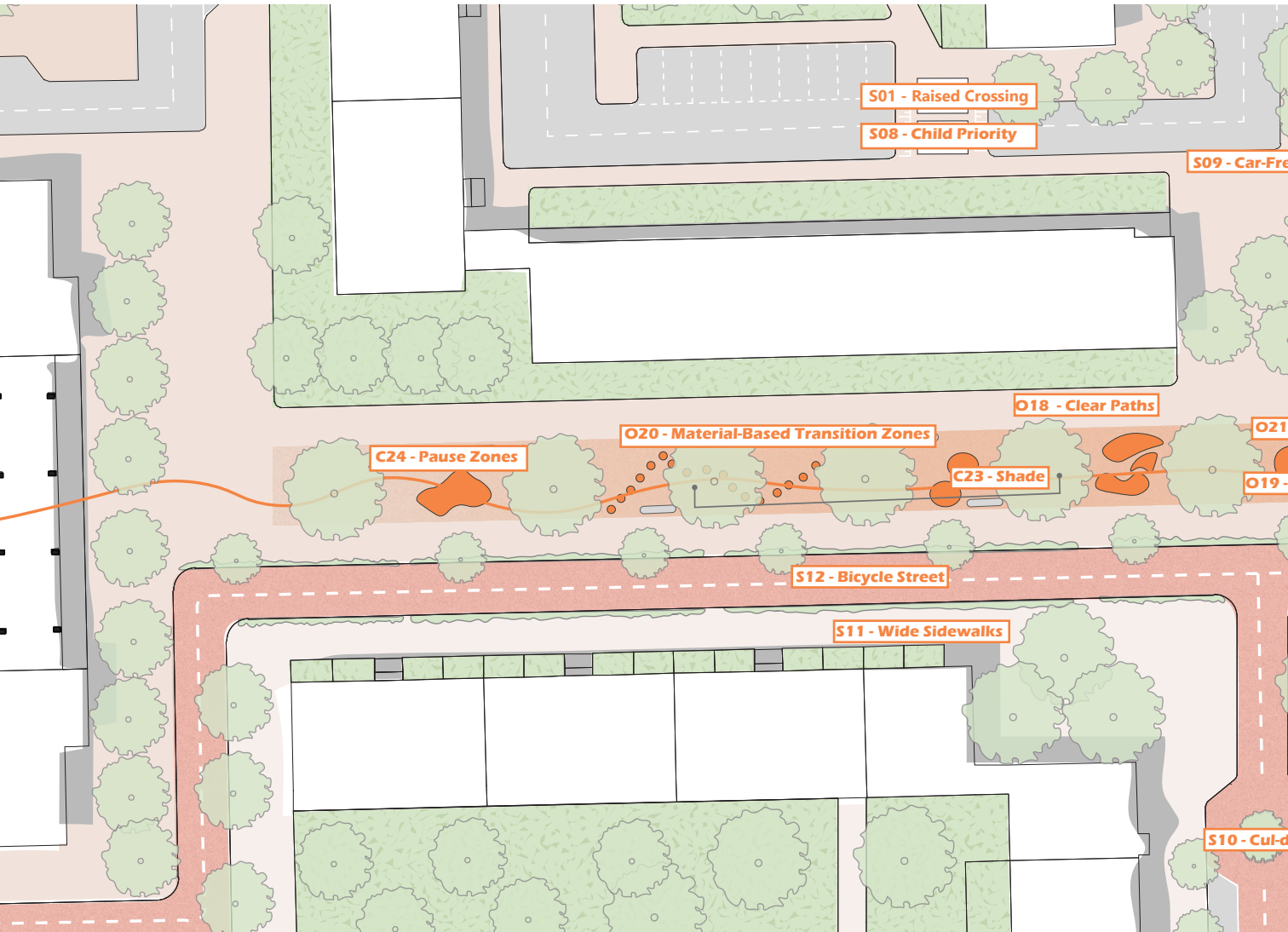
It became clear that inclusivity does not depend solely on the presence of adapted play equipment. Rather, it is strongly related to facilitating interaction between children. Shared play enables children with and without disabilities to learn from one another and fosters mutual understanding. In this context, inclusivity is achieved when children are given spatial and social conditions that allow them to play together rather than being separated by specific equipment or designated areas.

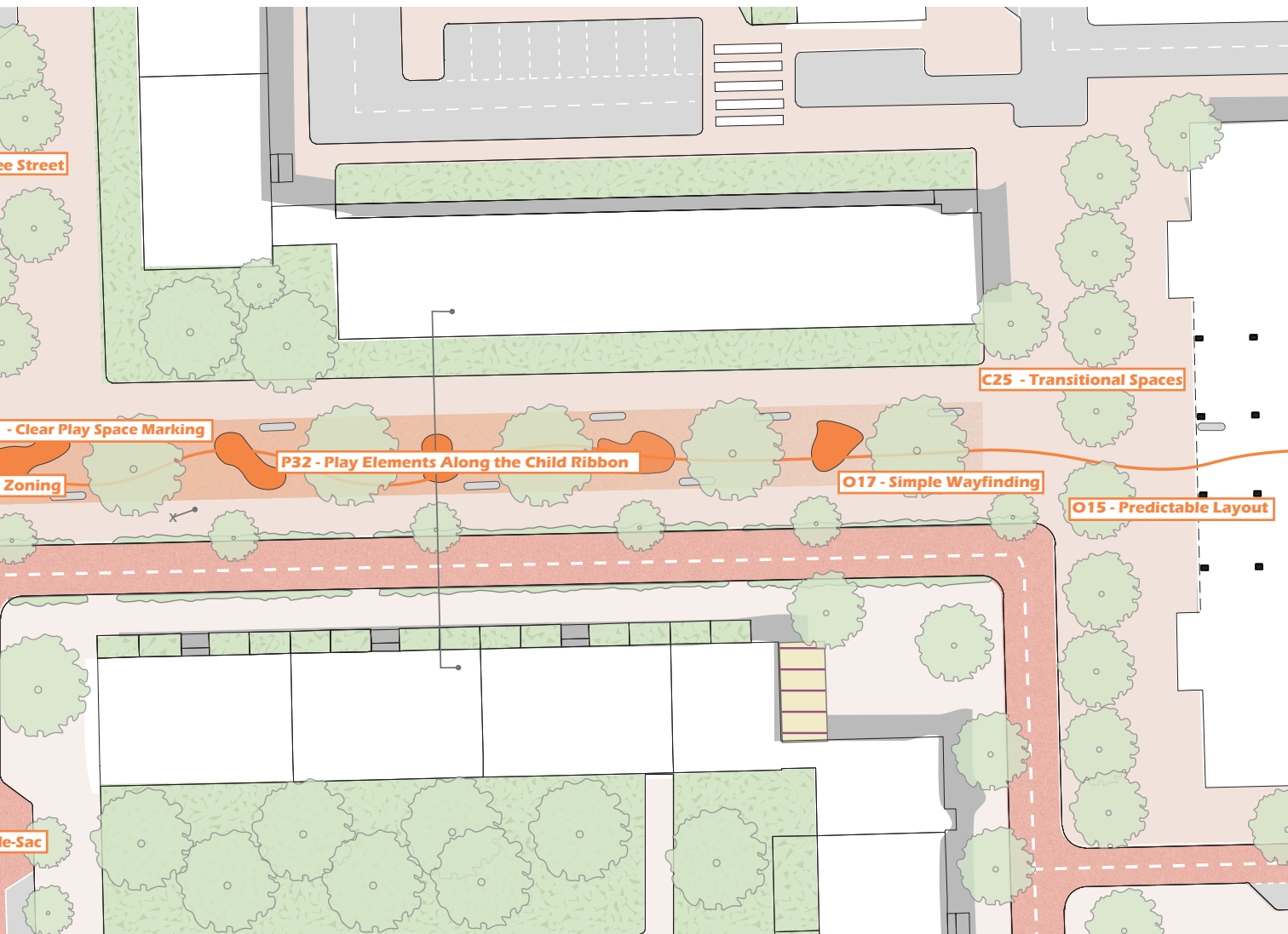
Small interventions, such as visual indicators of inclusivity, can increase visitor awareness. For instance, adding a sign or icon that explicitly communicates the playground's inclusivity can make visitors more aware that different behaviors are expected and accepted. This is particularly relevant for children with invisible disabilities, as it helps create a more understanding and accepting environment.

The spatial design of the playground also plays an important role in promoting inclusivity. For example, placing sand play areas at the edges of the playground allows children with limited mobility to more easily access and participate in activities. This demonstrates how thoughtful design decisions can enhance accessibility and encourage the inclusive use of space.

The playground is also part of the municipality of Amsterdam's broader policy ambition to promote inclusive play. There are plans to increase the number of inclusive playgrounds across the city. Additionally, the idea of introducing a classification system indicating levels of inclusivity was discussed as a potential tool to evaluate and communicate the inclusiveness of different play environments.

SPATIAL INTERVENTIONS WITH PATTERNS





e Street

C25 - Transitional Spaces

- Clear Play Space Marking

P32 - Play Elements Along the Child Ribbon

O17 - Simple Wayfinding

Zoning

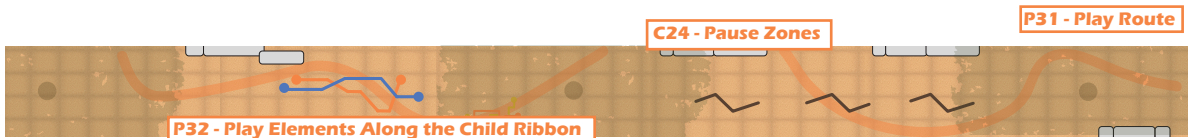
O15 - Predictable Layout

e-Sac



C23 - Shade

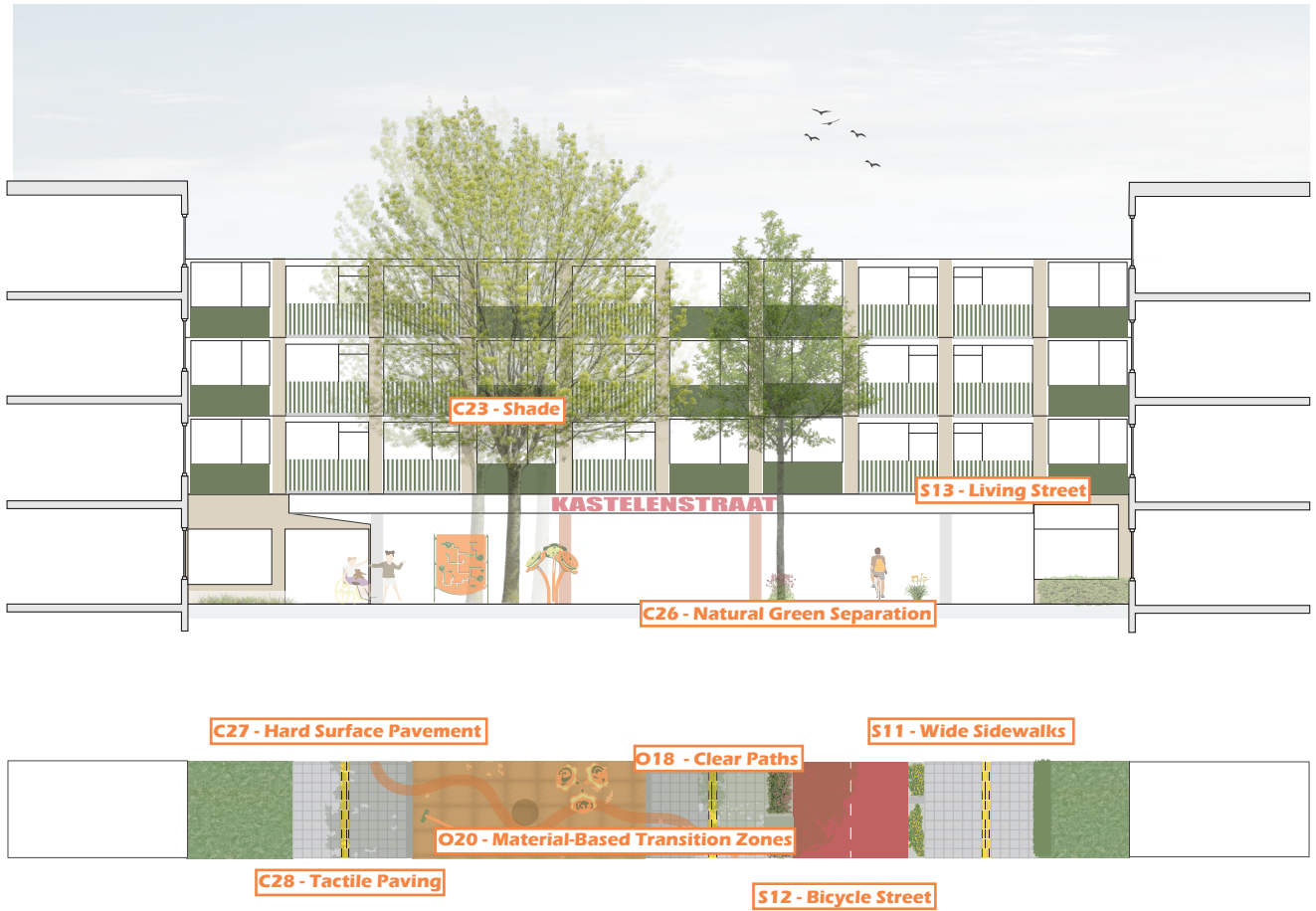
C30 - Inclusive Seating

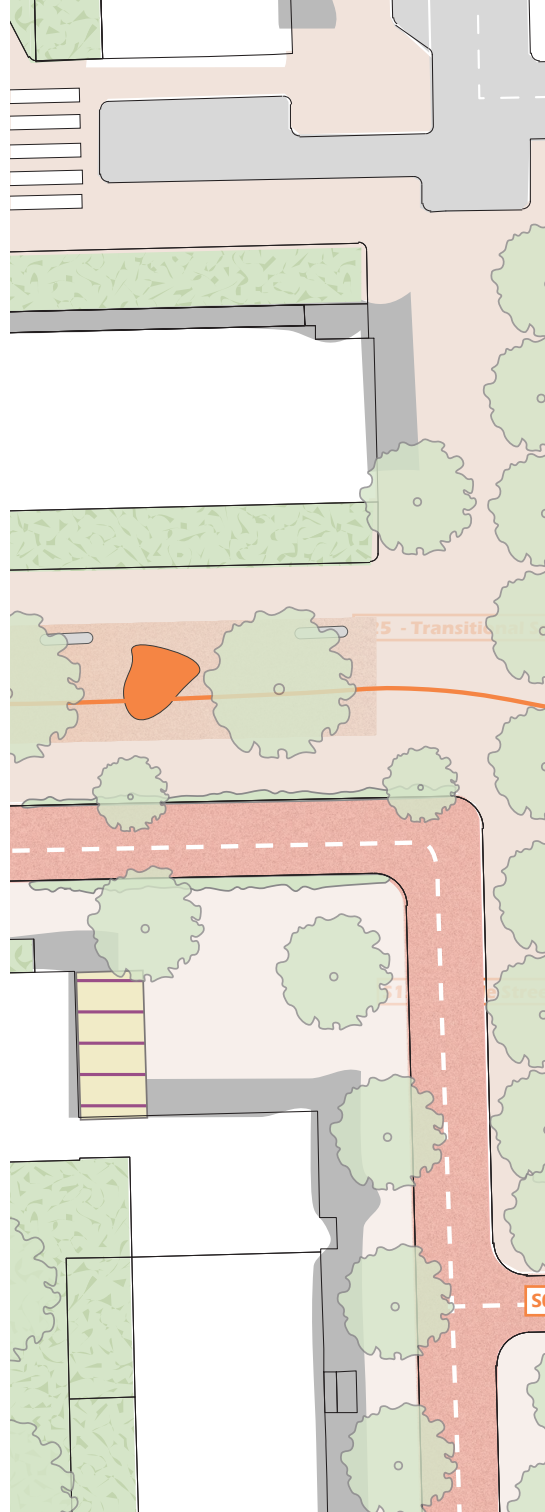


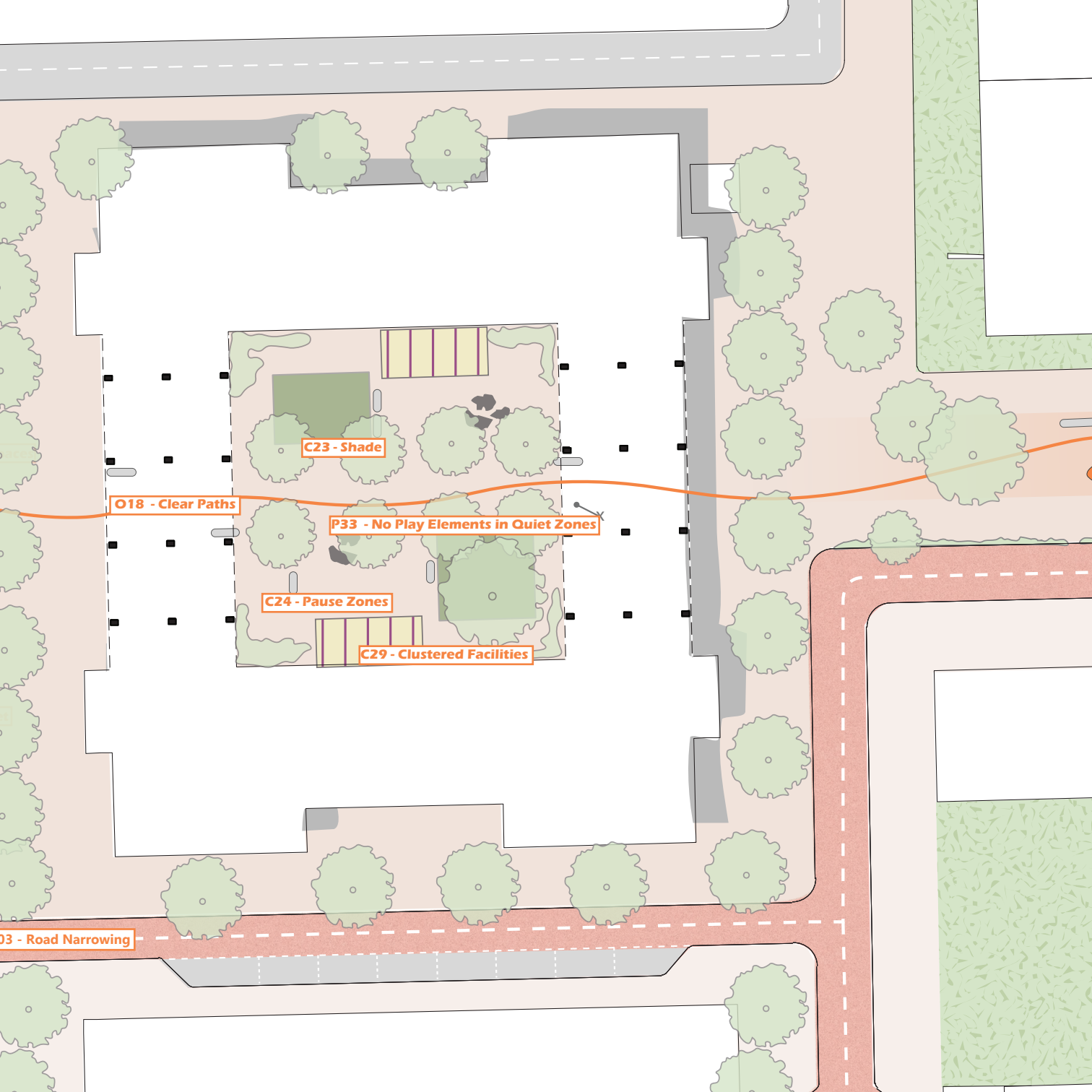
C24 - Pause Zones

P31 - Play Route

P32 - Play Elements Along the Child Ribbon







C23 - Shade

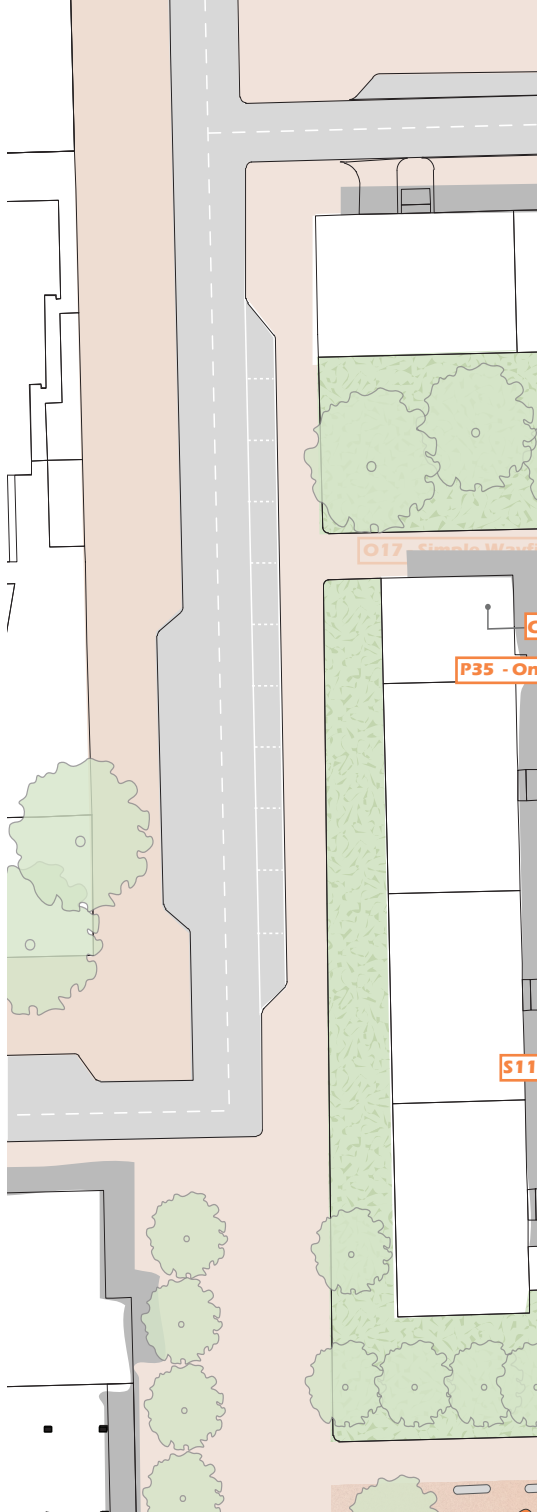
O18 - Clear Paths

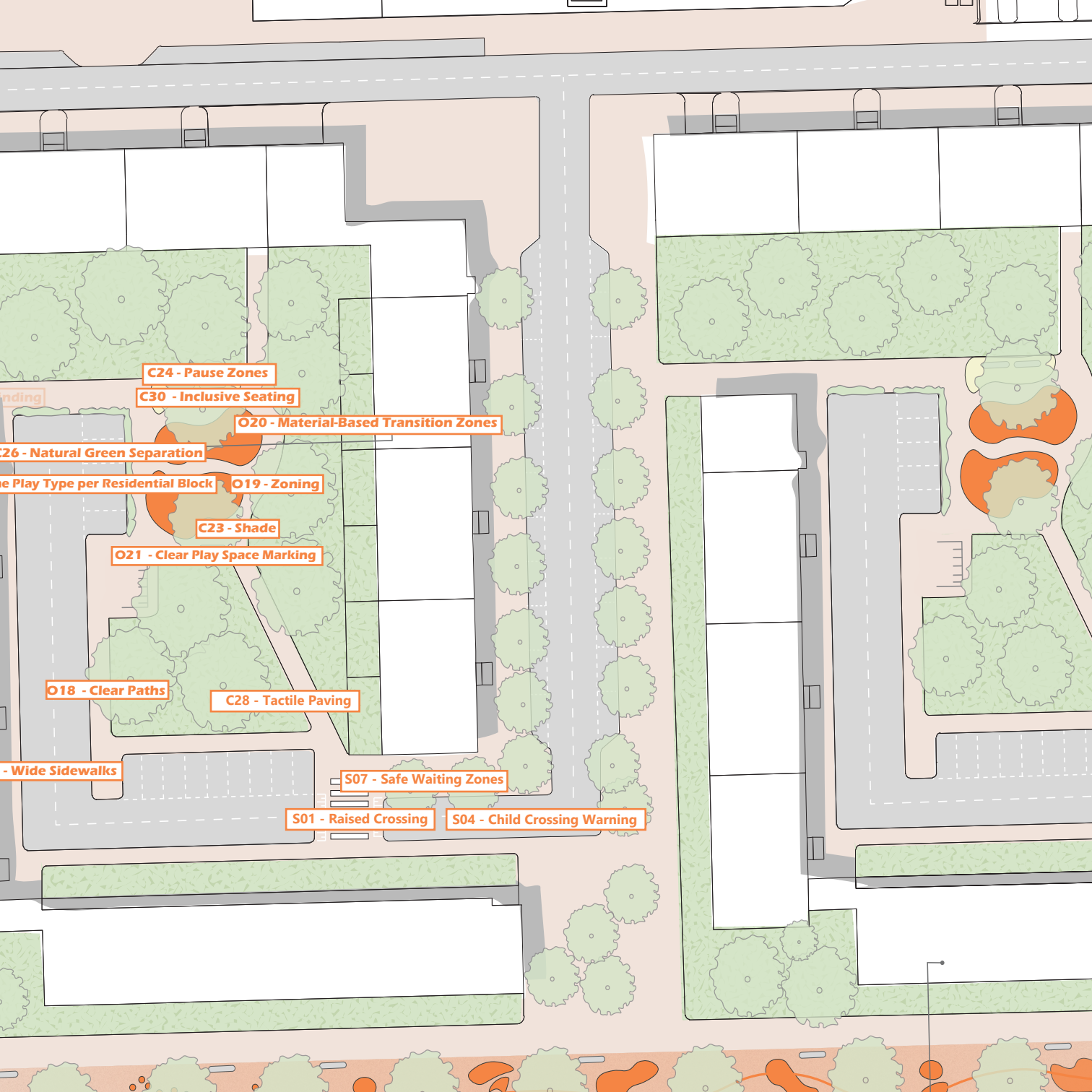
P33 - No Play Elements in Quiet Zones

C24 - Pause Zones

C29 - Clustered Facilities

03 - Road Narrowing





C24 - Pause Zones

C30 - Inclusive Seating

O20 - Material-Based Transition Zones

C26 - Natural Green Separation

O19 - Zoning

C23 - Shade

O21 - Clear Play Space Marking

O18 - Clear Paths

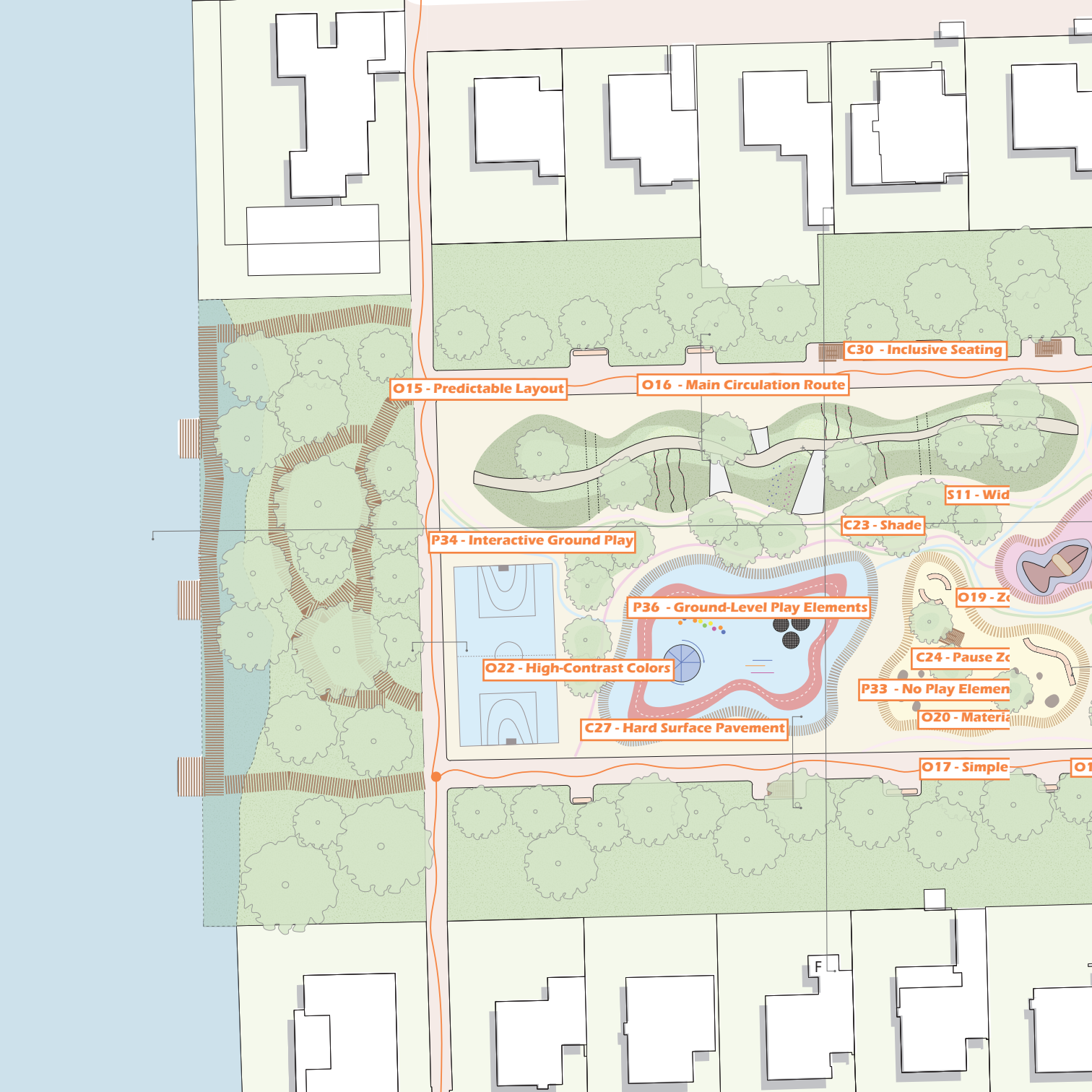
C28 - Tactile Paving

- Wide Sidewalks

S07 - Safe Waiting Zones

S01 - Raised Crossing

S04 - Child Crossing Warning



O15 - Predictable Layout

O16 - Main Circulation Route

C30 - Inclusive Seating

S11 - Wid

C23 - Shade

P34 - Interactive Ground Play

P36 - Ground-Level Play Elements

O19 - Zc

O22 - High-Contrast Colors

C24 - Pause Zc

P33 - No Play Elemen

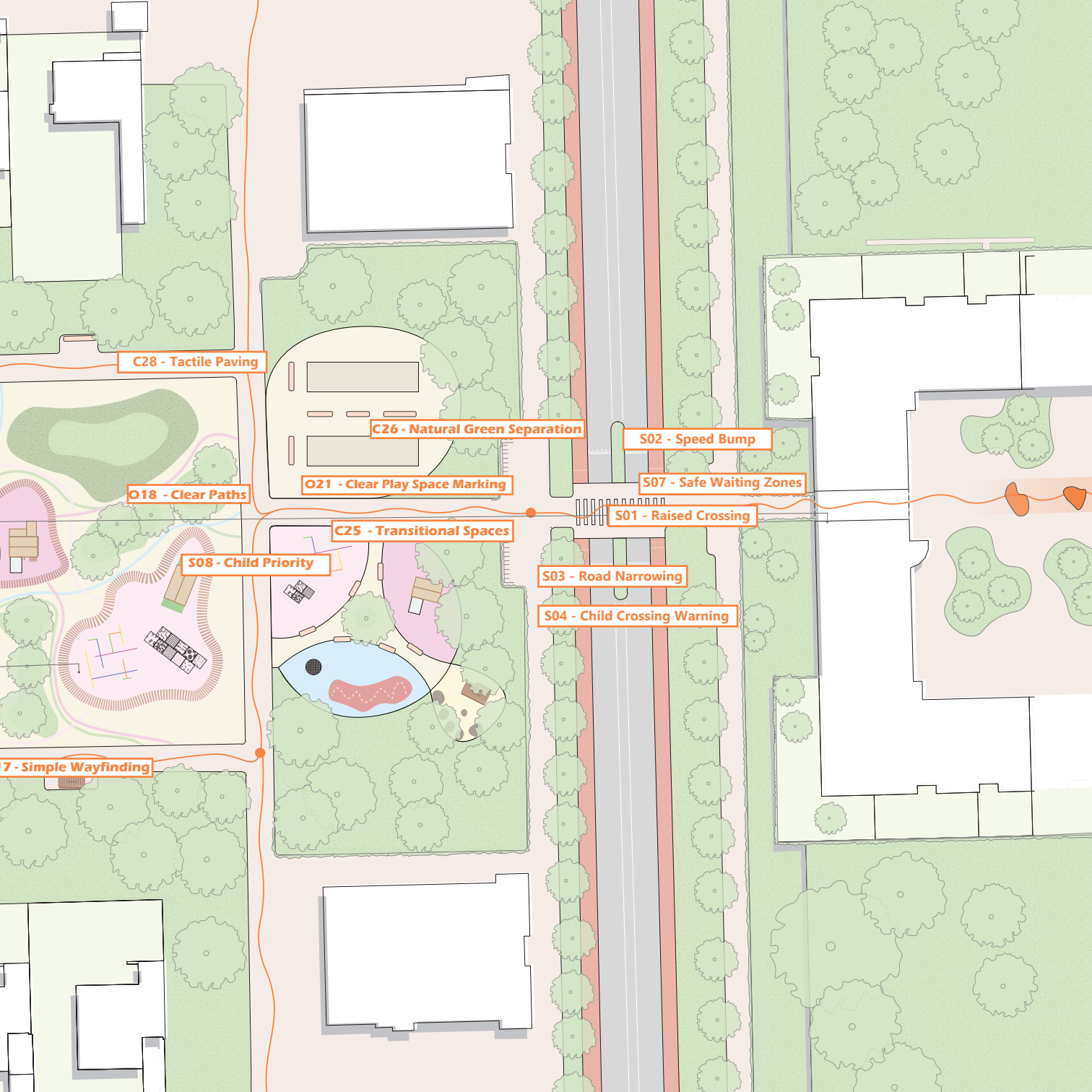
C27 - Hard Surface Pavement

O20 - Material

O17 - Simple

O1

F



C28 - Tactile Paving

C26 - Natural Green Separation

S02 - Speed Bump

O21 - Clear Play Space Marking

S07 - Safe Waiting Zones

O18 - Clear Paths

C25 - Transitional Spaces

S01 - Raised Crossing

S08 - Child Priority

S03 - Road Narrowing

S04 - Child Crossing Warning

7 - Simple Wayfinding

