Pattern catalogue

FROM INTENT TO ACTION

Fostering sustainable behaviours in vulnerable neighbourhoods through public space design.

2022 / 2023

PATTERN CATALOGUE

FROM INTENT TO ACTION

TUDelft Department of Urbanism
BKBouwkunde

Living in an environment that uplifts behaviours.

This pattern language has been developed together with the thesis project "From Intent to Action". The aim of this booklet is to translate findings from observations, conversations and literature into concrete design interventions that foster sustainable behaviours within the context of vulnerable neighbourhoods. The patterns presented in this booklet have been formulated within the unique setting of Bloemhof and Tarwewijk in Rotterdam. As a result, some patterns are rooted in context-specific observations. Nevertheless, the patterns proposed can still serve as valuable guidance for future explorations in the inclusive design for sustainable behaviours in similar contexts.

"How can we expect humans to behave sustainably when most, if not all, the new affordances we fit our urban environments with are ones which primarily invite us to behave unsustainably."

Roope Okaii Kaaronen (2020)

List of content

the Pattern Language

The pattern language is a tool that can help to understand and communicate complexity in design. In this booklet, each pattern shows the arrangement of the physical environment which contributes to inclusive design for sustainable behaviours. In a way, it can be understood as a literal language, with the patterns being words. The words can be combined to built sentences and the sentences can be used to narrate full stories.
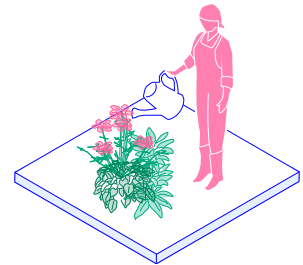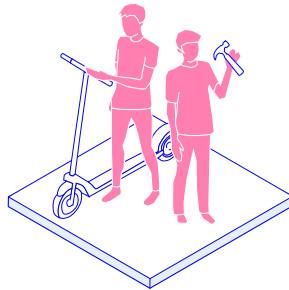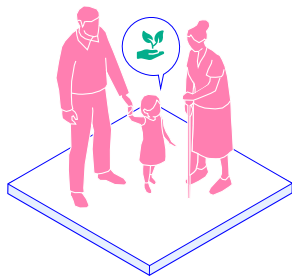
The integration of multiple disciplines is crucial in the intricate process of urban design, aiming to create functional and visually appealing public spaces. One effective approach to encompass this complexity is the utilisation of a pattern language. A pattern language serves as a framework consisting of design principles and guidelines that identify recurring solutions for successful and sustainable built environments. It facilitates communication and the sharing of common design concepts and strategies among designers, planners, and communities. These patterns, derived from theory and observations, can be customised and combined to generate effective design solutions.

By employing a pattern language, we can tap into a collective knowledge base, incorporating essential aspects into the design process while drawing from successful approaches utilised in diverse projects and contexts. This design approach takes into account both the tangible built environment and the intangible aspects. In this specific project, we integrate the spatial elements of neighborhoods with concepts from environmental psychology to uncover design interventions that promote sustainable behaviours.

The patterns will be categorised into three primary groups, focusing on the target behaviours for sustainability: Community Awareness, Everyday Decisions, and Recovery and Protection. Everyday Decisions will be further divided into two parts, specifically addressing mobility choices and consumption choices. These categories assist in making informed choices based on the specific behaviours that need to be targeted within a neighbourhood.

elements of
importance
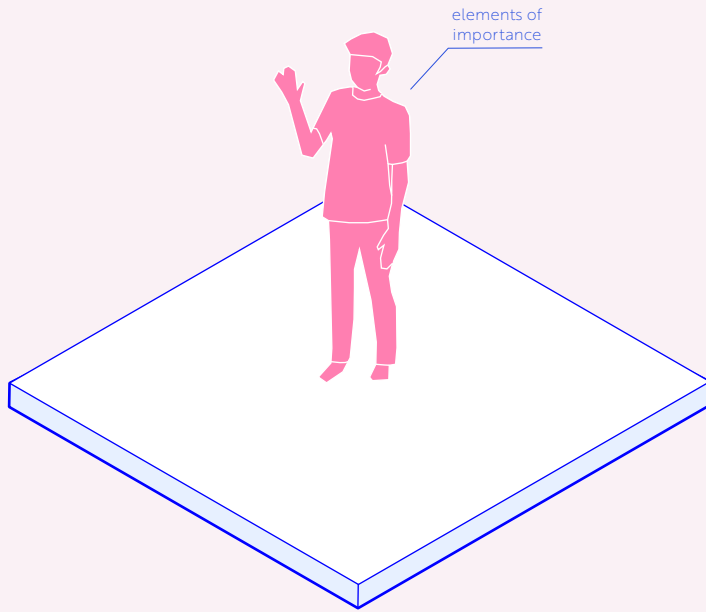
A1 # Pattern
example

Statement on space and behaviour

"Quote to enhance message of pattern"

Quote from ...

Some patterns have strong relations with other target behaviours. When this is the case, the circle is emphasised.

ED RP CA

Picture: description of reference project

clarification

Theoretical back-up or back-up from observations and interviews.

practical implication

Explanation on how a pattern can be put to practice. What is necessary to make it happen.

SOURCES

the Pattern Field

While patterns can exist independently, their true significance emerges when they are combined with one another. Patterns inherently exist in relation to one another, and it is through these relationships that their impact is exemplified. To showcase these interconnectedness and to visualise the effects of a pattern, a pattern field is established. The pattern field serves as a framework to demonstrate the dynamic interactions and dependencies between patterns, ultimately enhancing our understanding of their collective influence.
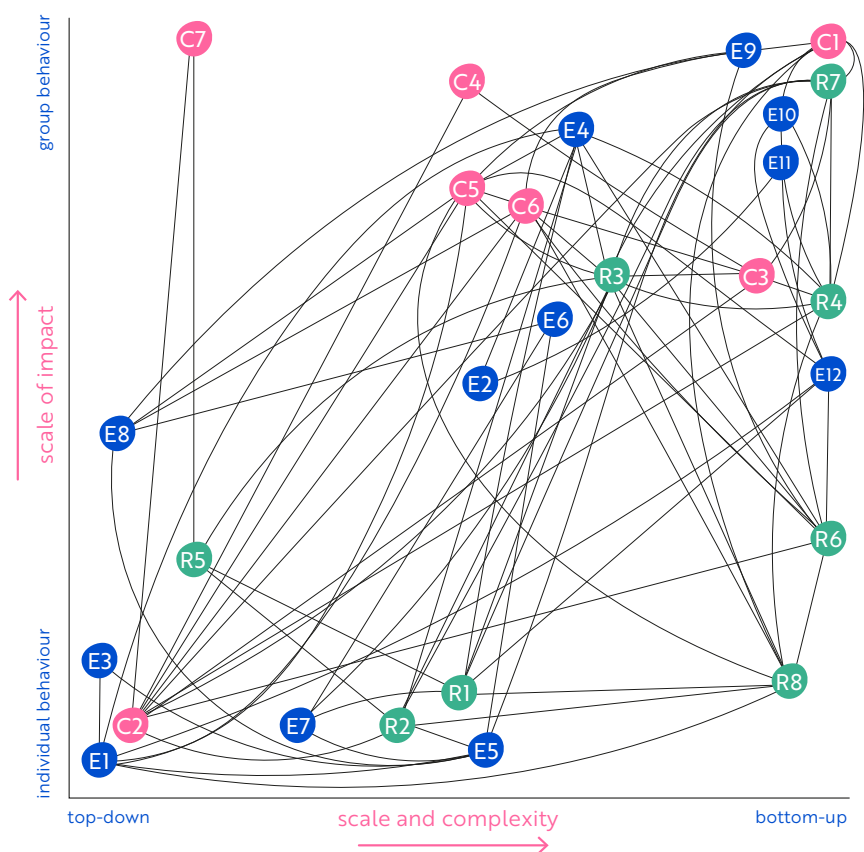
The provided diagram serves as a visual representation of a pattern field, carefully designed to enhance our understanding of the intricate nature of the pattern language. The two axes employed in the diagram correspond to different scales: one measures the impact on behaviour, while the other gauges the complexity of organisation, specifically identifying the key stakeholders involved. Complexity is not solely inherent within individual patterns but also emerges from the interconnections between them.

This pattern field accommodates a diverse range of patterns, highlighting their varying levels of impact and complexity. Patterns related to community awareness primarily

influence groups and collective behaviours, whereas everyday decision behaviours are more dispersed among individuals. Within everyday decision behaviours, mobility patterns typically necessitate a top-down approach, involving higher-level decision-makers. On the other hand, recovery and protection patterns require a bottom-up approach, extensively involving local citizens in the process.

By visually representing these relationships, the pattern field offers valuable insights into the distinct characteristics and approaches required for each pattern category, facilitating informed decision-making and effective implementation of the pattern language.

neighbourhood makers
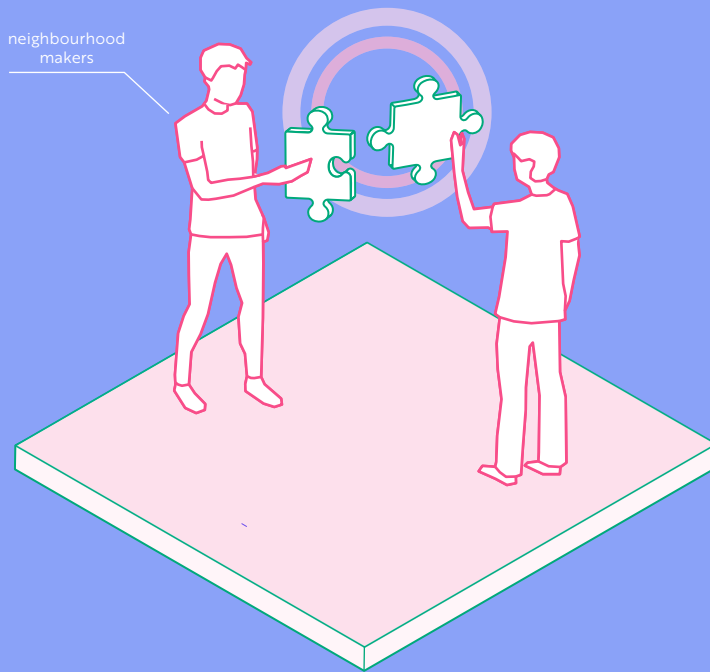
1 Dare to experiment

Socio-spatial experiments are important for creating a vibrant and sustainable community.

RELATED TO
all

> "Put the rules on hold and make room for experimentation. Dare to change the rules if they don't help the neighbourhood progress."

Quote from Buurtklimaatje

ED RP CA

Neighbourhood oven in Carnisse, Rotterdam as a result of social experimentation

clarification

Before going through this booklet and learning about the proposed patterns, it is important to understand that these proposals are the only way to achieve sustainable behaviours.

Socio-spatial experiments are important for creating a vibrant and sustainable community. They allow for innovative and adaptable solutions to be tested and implemented, fostering a participatory and inclusive approach to community development. This can address both social inequality and environmental sustainability. It is therefore important to note that interventions should be seen as guidelines to be adapted and adjusted for the local community as needed.

By creating adaptable spaces, communities can foster creativity, innovation, and sustainability.

practical implication

To be able to create meaningful experimental interventions in a neighbourhood, it is important to have people in place that are closely related to the people and the community and that have an understanding of the spatial layout of the neighbourhood.

The so-called "Neighbourhood makers" (buurtmakers in Dutch) are a great examle of how such a relation can look like. These people understand the burocracy system and therefore have the tools to implement changes.

The experiments are usually very local and human-scaled, like a picknick-table, a street party or a sheepwire as a fence for a dogfield.

By experimenting and implementing temporary interventions, permanent changes can become more meaningful.

SOURCES
Buurtklimaatje, 2023

15

buurThuis

bla bla
bla bla
bla bla bla
bla bla
bla

HI!

► **Paving the way for sustainable behaviours**

Community awareness

A more attractive and interactive design of public spaces, catered towards the needs of local residents, can make public space more inviting and conducive to social action, leading to a dynamic and engaged community that supports each other towards more sustainable lifestyles.

resident of the
neighbourhood

collaborator

capital
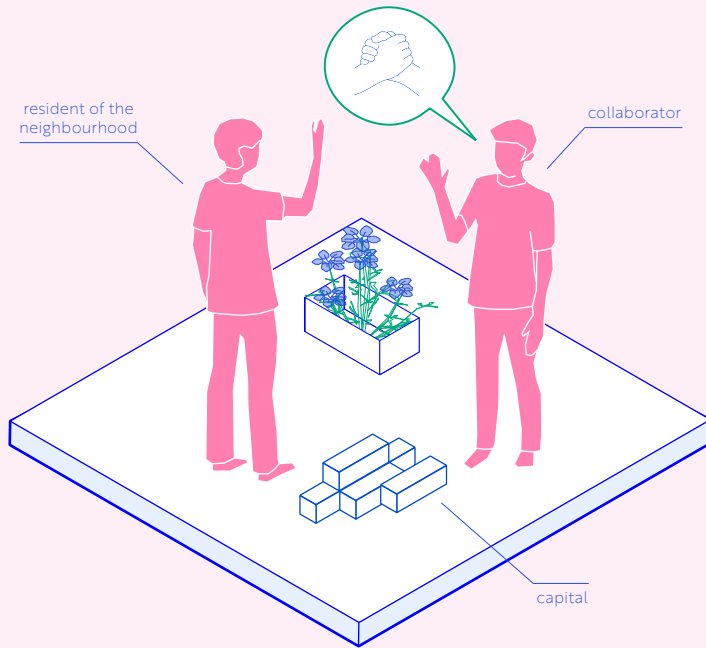
C1 Connecting key players

Sustainability values in a neighbourhood can become meaningful for a larger group through collective action.

RELATED TO
E5, E9, E10, R3, R5, R7, R8

"To learn that vulnerability should never, ever be the measure of what someone can mean for others and their neighbourhood."

Quote from Sander van der Ham

Neighbourhood representatives, students, and an enthusiastic citisen collaborated to create a new meeting place in Carnisse.

clarification

Through the daily hustle of daily life, it is hard for residents of vulnerable neighbourhoods to find the energy to concern themselves with sustainability issues. However, within a neighbourhood there are groups of people that fight for a better living environment through their own initiatives, albeit with environmental or social objectives in mind. By finding these keyplayers for sustainability and connecting them, social capital can be formed through which sustainability values and action can become accessible for locals.

practical implication

To achieve collective action, coordination is an important factor. An example of an organisation that has the organisational capacity to faciltate neighbourhood action is Buurtklimaatje, a group that is active in Carnisse, Rotterdam. The organisation is an independent group, working as a middleman between the locals and the municipality. Their independence and physical presence in the neighbourhood makes them trustworthy and makes it possible for them to motivate and assemble people with a wide diversity in backgrounds. The presence of an independent organisation is important to ensure that not only social capital, but also physical capital can be facilitated when necessary. Their expertise on how to deal with burocracy takes a load off the shoulders of local residents and makes it more attractive to join for collective action.

SOURCES
Buurtklimaatje, 2023
Own observations

divide space up using landscaping elements like trees
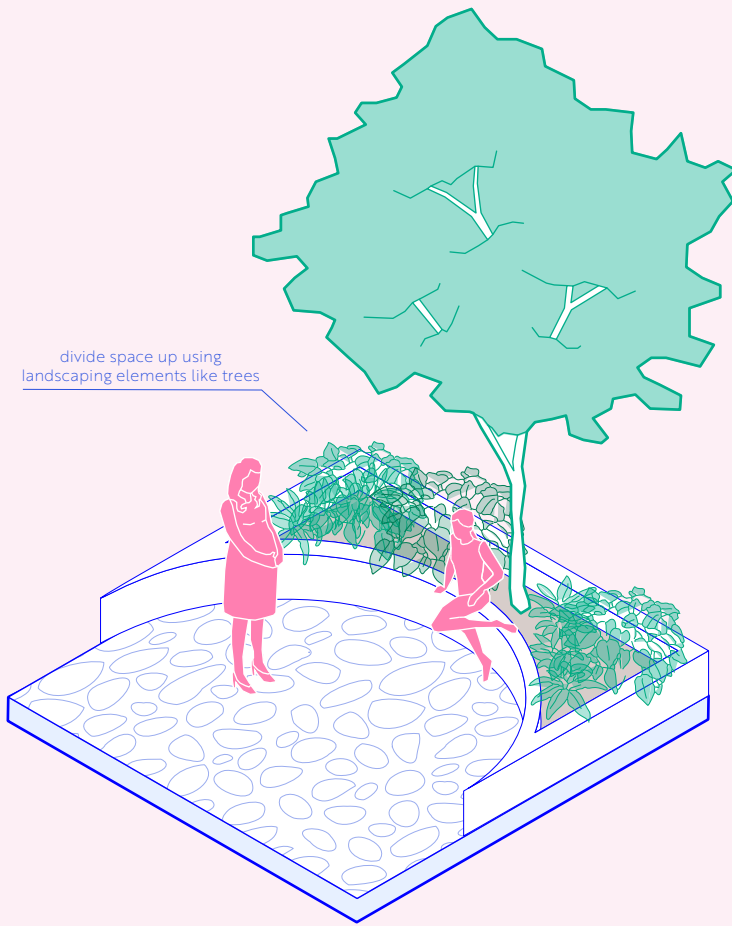
C2 Social variety

Inclusive public space that embraces cultural diversity and invites for active use is characterised by different degrees of openness and enclosure.
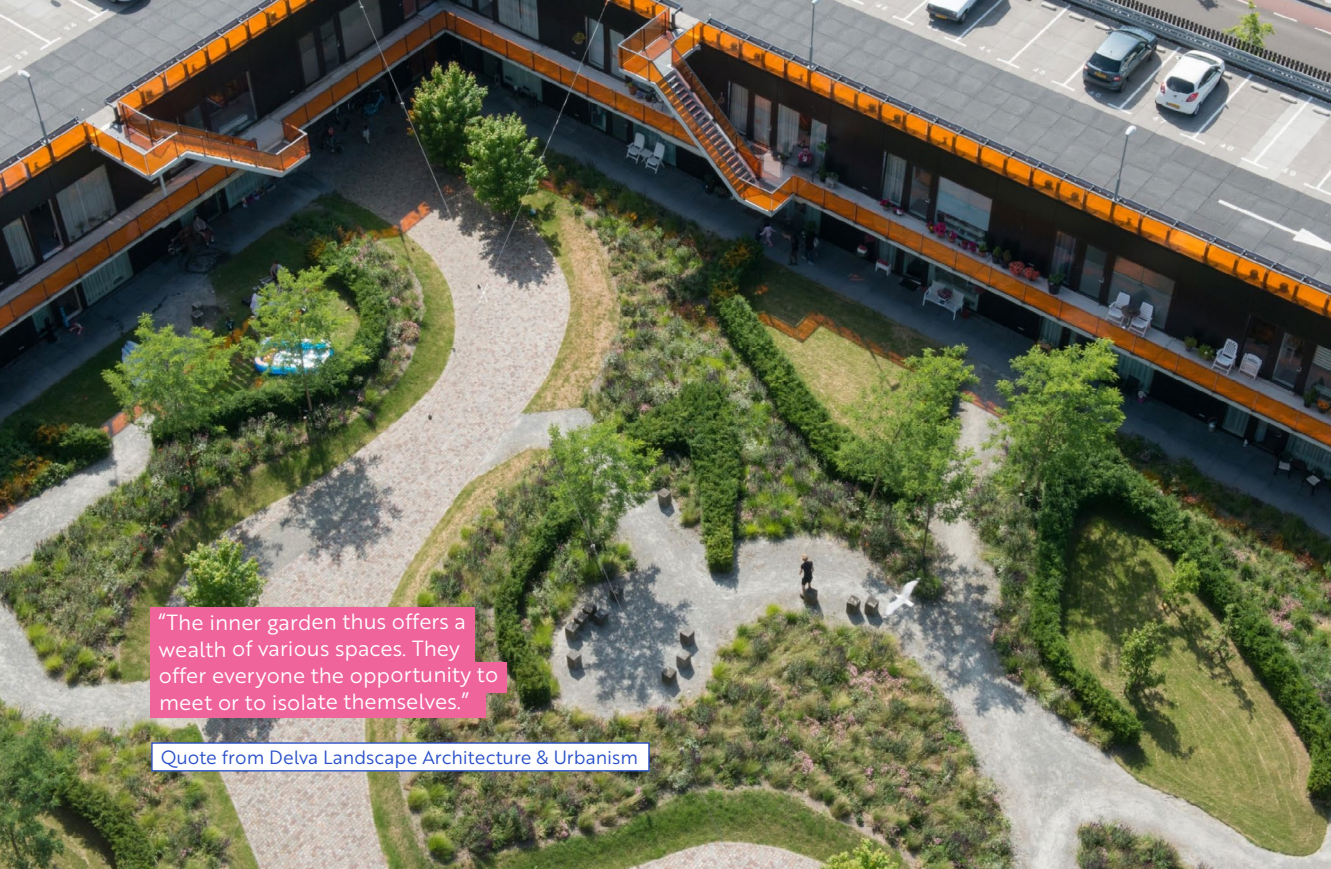
"The inner garden thus offers a wealth of various spaces. They offer everyone the opportunity to meet or to isolate themselves."

Quote from Delva Landscape Architecture & Urbanism

(ED) (RP) **CA**

'Heel Europa' in Purmerend is an inner garden that uses landscaping to create intimate spaces and foster interactions.

clarification

The concept of inclusive public space emphasises the importance of creating spaces that are accessible and welcoming to all members of society, regardless of their cultural background, age, gender, or physical ability. There are four primary dimensions of cultural differences - individualism, masculinity, uncertainty avoidance, and power distance - that should be considered in public space design. Western cultures tend to be more individualistic, while non-Western cultures are more collectivist, emphasizing the need for public spaces that encourage group interaction. Traditional gender roles continue to be perpetuated in public spaces, and to ensure safe environments, different degrees of access and intimacy should be offered to various groups. Public spaces that embrace cultural diversity and encourage active use can promote a stronger community.

practical implication

In practice this means that there is not one ideal type of public space design. However, to ensure that there is public space that is also inclusive to the more marginalised, such as women or elderly, different degrees of access and intimacy should be facilitated. Open spaces can facilitate towards group behaviours, whereas the provision of spaces that are more secluded can cater towards the need of women. This does not mean that specific groups need entirely different spaces; within a public space, such as a square, an array of sub-spaces can be created, facilitated towards a variety of needs.

SOURCES
Low, Taplin and Scheld, 2005
Peters, 2011

natural and inviting
boundaries

space for
appropiation
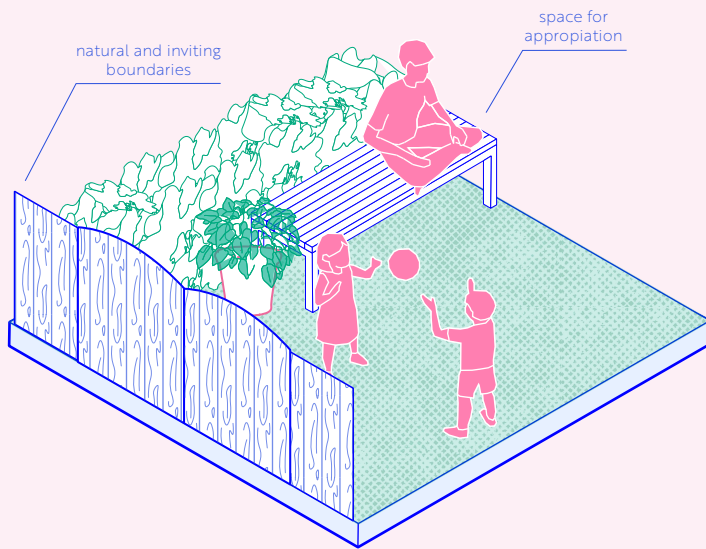
C3 Vibrant enclosures

Enclosed spaces serve as valuable social areas, offering a secure and comfortable environment for pro-environmental community activities.

RELATED TO
C2, C4, C6, R3, R5, R7

"Local residents and organisations together feel responsible for the garden, they can express their green creativity, kids can play and others just simply enjoy."

Quote from Rotterdamseparken.nl

(ED) (RP) (CA)

clarification

In order to create pleasant and safe spaces that encourage usage and contribute to a positive social climate, it is important to consider safety issues when designing for vulnerable neighbourhoods. Through enclosure, perceptions of safety and a sense of control can be increased. Enclosure also allows for clear ownership of public space, making it less susceptible for intrusion. This will have a positive effect on levels of devotion to place, also known as place attachment. In turn, pro-environmental behaviours can be expected as residents are more likely to want to improve and protect their environment. Leftover spaces in the urban context create unique inbetween conditions that allow for spontaneous socioecological processes to emerge. A well-functioning typology of this would be the courtyard.

practical implication

An important aspect of enclosure is the accessiblity to local users. In a neighbourhood, potential areas for enclosure, albeit inbetween buildings or a public square, can be pinpointed by looking for good access points. The permeability of an enclosed space plays an important role in its social use. To avoid uninviting spaces that are lined with stark fences or high gates, the design should be welcoming - enhancing natural materials and designs that are custom towards the location. The interior design of enclosed territories should be approached with the local residents, fitting their desires and needs and leaving space to be appropiated. Typologies that could potentially fit in the design of a enclosed space are a community garden, a sitting area or a playground.

SOURCES
dialogues with residents
Luo and de Wit, 2022
Song, Daryanto and Soopramanien, 2019
Stamps, 2005

seating to
relax and socialise

free to use
activities
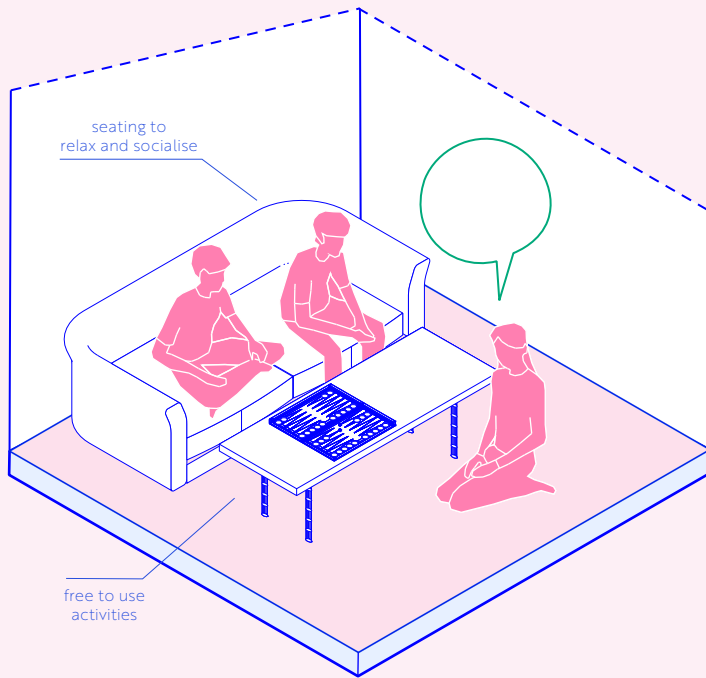
C4 Living
together

Warm and inviting community living rooms foster strong
community connections.

RELATED TO
C2. C3

"A new community of neighbourhood residents formed, connected despite their differences."

Quote from Blend

Neighbourhood living room Blend in Bloemhof, Rotterdam

clarification

In vulnerable neighbourhoods, community living rooms play an important role in providing a warm and comfortable place for people to come together and escape from the daily hustle of their lives. When people feel comfortable and at ease in a space, they are more likely to linger and engage with others. This can lead to stronger social connections and a greater sense of community. By creating a space that is open and inviting, community members are encouraged to gather and share experiences, stories, and ideas. This can foster a sense of belonging and create a supportive network of people who care about each other and the community they share. Ultimately, warm and inviting community living rooms can contribute to a more vibrant, connected, and resilient neighbourhood.

practical implication

To achieve warm and inviting community living rooms that foster strong community connections, several factors need to be taken into account. The space should be comfortable and welcoming, with adequate seating to accommodate a range of activities and social gatherings. The surrounding environment and how it interacts with the community living room, is also important. The living room should be accessible and visible from the street, and it should be situated in a location that is convenient for the surrounding community. To attract people to community spaces, a range of activities could be organised such as workshops or food kitchens.

SOURCES
Conversations at community centre Irene
Interview Robert Creatief Beheer
Interview Samenhuis Ernaast
Harteveld and Asadollahi Asl Zarkhah, 2021

frontage
zone

greenery

free path
1.8 - 2.4m

street furniture
zone

buffer zone

light for safety
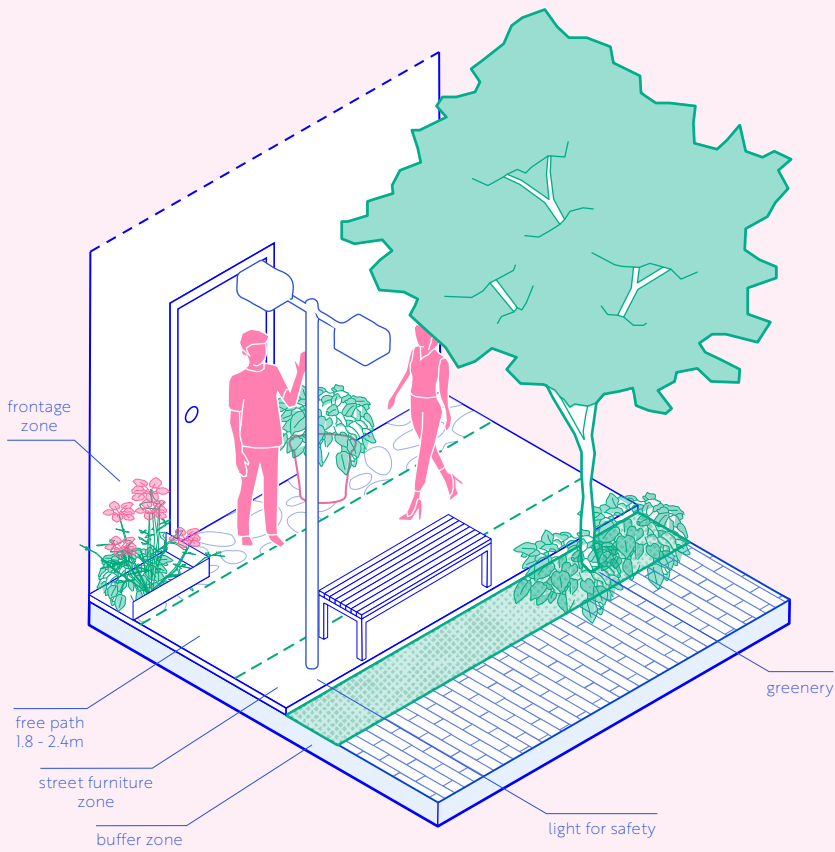
C5 The social life of sidewalks

Sidewalks serve a crucial role in fostering community networks by providing a space for people to interact and engage with each other.

RELATED TO
C2, C6, E1, E4, E9, E8, E12, R3, R6, R8

"Streets in cities serve many purposes besides carrying vehicles, and city sidewalks - the pedestrian parts of the streets - serve many purposes besides carrying pedestrians.

Quote from Jane Jacobs

ED **RP** **CA**

Appropiated/domesticated sidewalk - location unknown by City at Eye Level

clarification

Sidewalks increase walkability and accessibility, connecting services and amenities, and encouraging people to spend time in the neighborhood. They also provide a platform for social interaction, with almost 80% of social contact happening on sidewalks. This creates a level playing field, promoting inclusivity and social connections between people of different ages, races, and backgrounds. The spontaneity of meeting someone on the sidewalk therefore facilitates the development of community networks, which can further support sustainable behaviours and community-based initiatives.

practical implication

In practice this means that there are conditions in which a sidewalk functions on a social level. A way to approach this is by focussing on the quality of the existing sidewalks by designing with zones. Sidewalks can be divided into a frontage zone, a clear path of 1.8 - 2.4m, a street furniture zone and a buffer zone. Wide sidewalks allow for frontage zones and street furniture zones that allow for appropiation and social interaction. Appropiation of the sidewalk can be encouraged by the materiality of the design. Adding greenery will provide beauty and a sense of tranquility, creating a more pleasant environment for social interaction. In terms of providing safety at night, a sidewalk should be well-lit. Overall, when addressing social cohesion in a neighbourhood, it is important to also address the pedestrian network - the sidewalks - to inquire whether they fit the requirements to carry social life.

SOURCES
Global Designing Cities Initiative, 2022
Jacobs, 1992
Van der Ham and van Ulden, 2021

public function

shade

public art
or greenery

light
for safety

seating
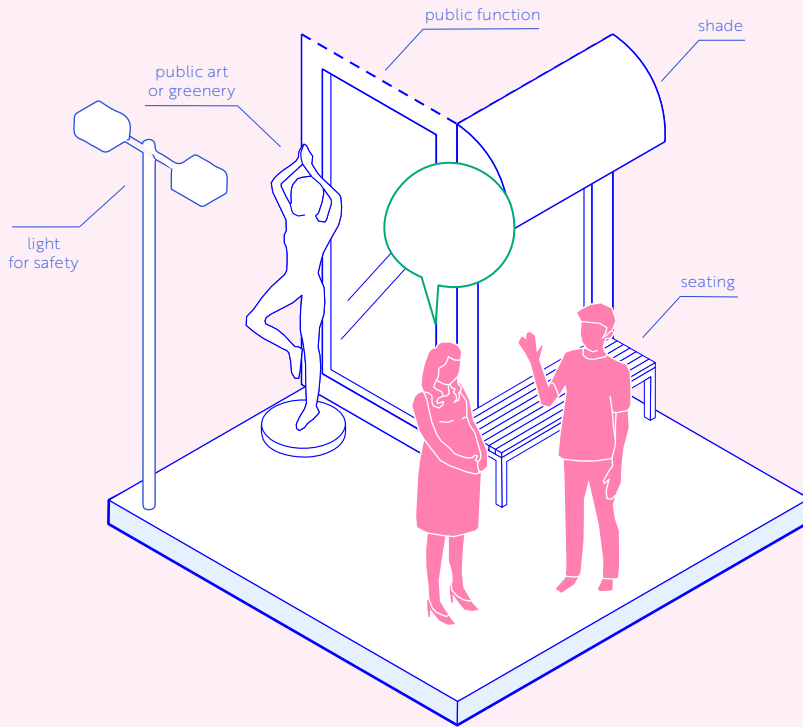
C6 Intersection interaction

Streetcorners are points of action and interaction within neighbourhoods and therefore enhance community cohesion.

RELATED TO
C2, C3, C5, E1, E9, E8, R3, R6, R8

"We also think that we get more visitors here than in De Focus because we are more visible here."

Quote from House of Hope Beverwaard

ED RP CA

clarification

In modern-day neighbourhoods, street corners still hold importance as places where social interaction and activity occur. Street corners are located at the intersection of multiple streets or paths, making them a natural place for people to gather or cross paths. Additionally, the open architecture of buildings of street corners offer opportunities for public ammenities, that attract people to congregate there.

Street corners can also serve as important landmarks or meeting points, making them valuable for coordinating with friends, family, or community members. They can facilitate social connections and foster a sense of community by providing a space for people to share experiences, exchange information, or simply engage in casual conversation.

practical implication

Designing a street corner to encourage social interaction and activity involves considering several principles. The buildings at the corner should have open architecture, inviting people to see in and out, and allowing for possible public functions like neighbourhood living rooms. Seating, shade, and other amenities, such as public art or green spaces, can also attract people to congregate and spend time there. This can also give opportunity for people to take ownership of the corner of the streets by appropiation, aiding in creating a sense of place and identity. Street corners should be well-lit and visible, particularly at night to ensure safety. Finally, the design should prioritise pedestrian traffic, with clear and safe crossings and ample space for walking, promoting active transport and therefore promoting spontaneous social interaction.

SOURCES
Interview Samenhuis Ernaast
Own observations

seating areas

accessibility for all ages

variety of activities

C7
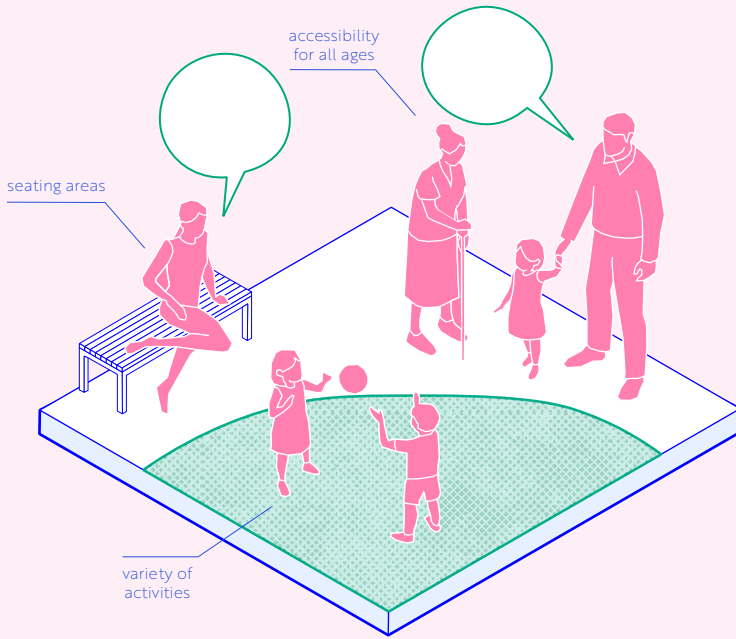
A playful gathering place

(School)playgrounds serve as a vital social space that promotes social learning among generations.

RELATED TO
C2, R4

"Since the community garden opened in 2011, it has served as a vital community asset with diverse programming for people of all ages and backgrounds."

Quote from SCAPE studio

ED RP CA

103rd Street Community Garden in New York is a multi-generational social hub with a playground and diverse activities.

clarification

Playgrounds provide an open and inclusive environment for individuals of diverse backgrounds to engage in activities and socialise through the one thing they have in common: children. Playgrounds are often located centrally in neighbourhoods and are accessible to people of all socioeconomic backgrounds, making them a shared community resource. By providing a common ground for individuals from different social groups to interact, playgrounds can enhance social interactions between strangers and intergenerational learning. As a place of social learning for sustainable attitudes and behaviours, the playground can therefore become a valuable asset for building a more sustainable community.

practical implication

In order to encourage social interaction and play among individuals from diverse backgrounds, playgrounds must be designed to create an open and inclusive environment. This can be achieved through a focus on accessibility, offering a variety of activities, and ensuring safety. Accessibility can be improved through visible and easily accessible entrances and the provision of seating areas. Activities offered should cater to different age groups and interests, and can for example include outdoor gyms. Additionally, incorporating green spaces into playgrounds can provide shade, privacy, and promote environmental sustainability.

SOURCES
Interview Maël Vanhelsuwé
Peters, 2011
Spiteri, 2020
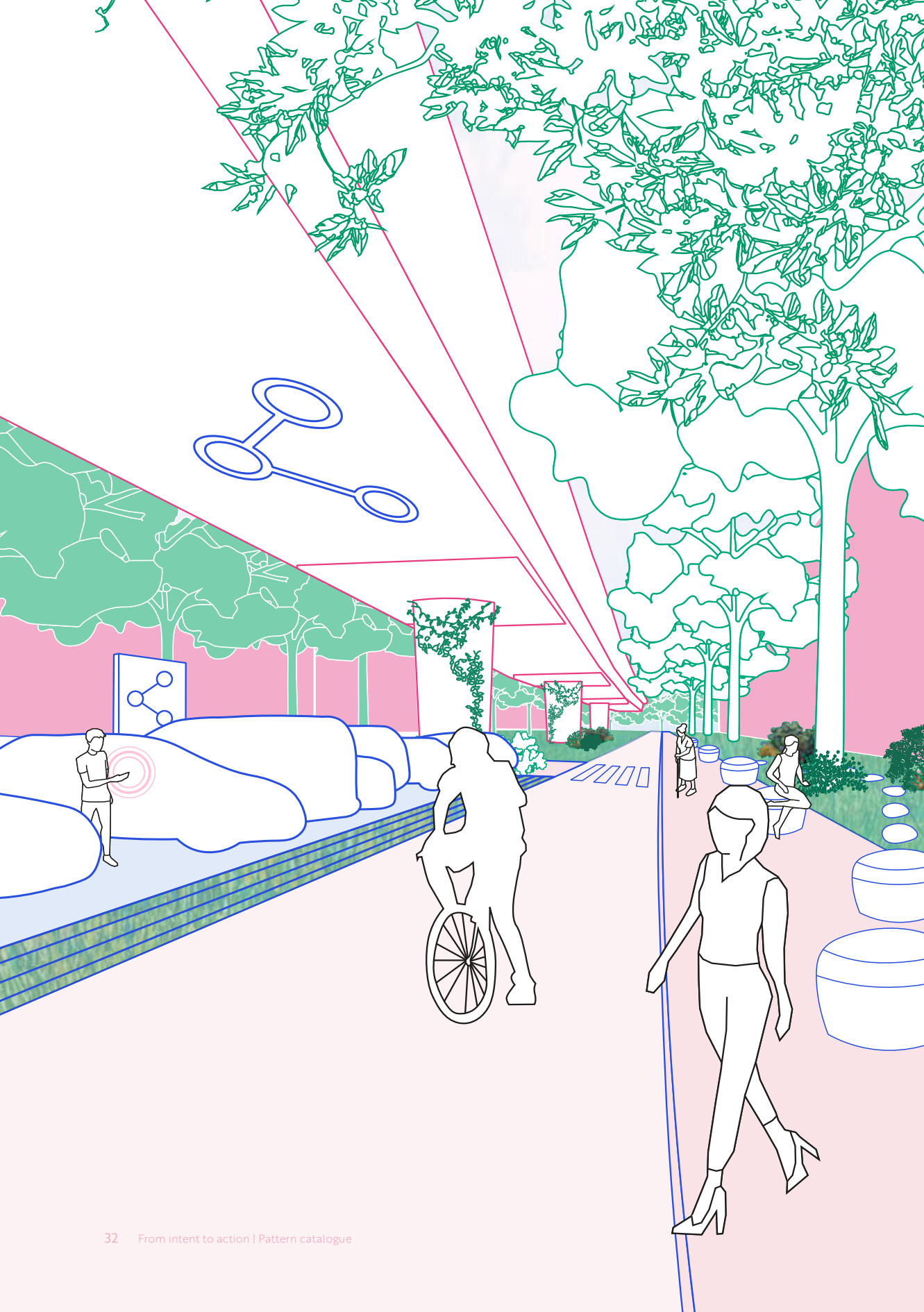
► **A balanced and connected streetscape**

Everyday decisions 1

A mobility design to breathe new life in the streets, creating a more balanced and better connected streetscape, in which sharing of space with the car does not mean being overpowered by the car. It is a streetscape where the power dynamic is tipped in favour of the human and in which mobility is mostly communal so emissions can be reduced.

shade trees

bicycle infrastructure

broad sidewalks

traffic calming

traffic calming through materials
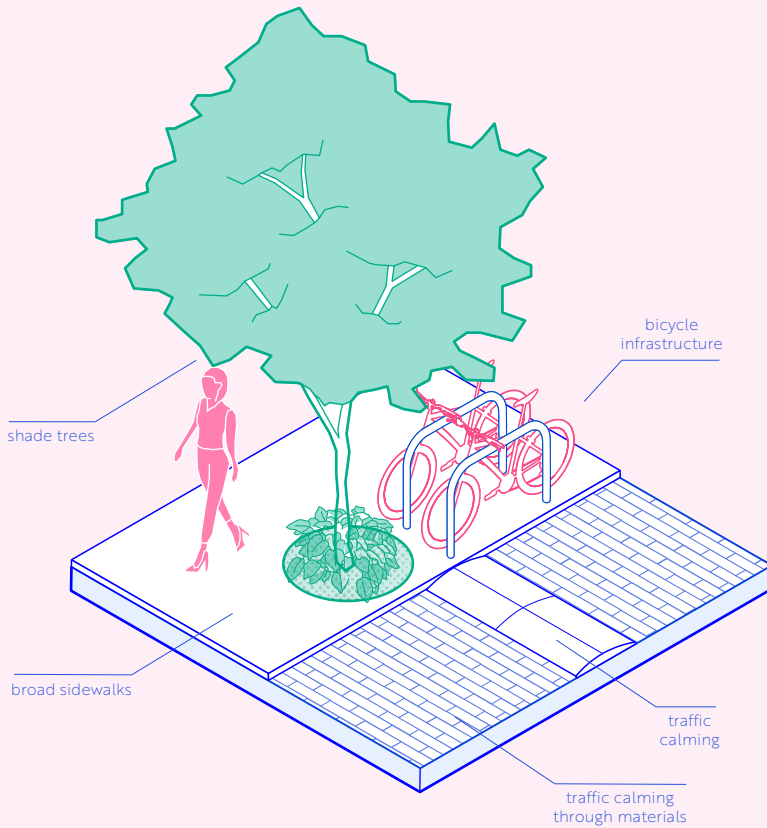
E1 Walking matters

Visibly prioritising pedestrians and cyclists in street design is an effective way to increase the likelihood of people choosing sustainable modes of transportation.

RELATED TO
C5, C6, E3, E4, E5, E12, R8

ED RP CA

clarification

Pedestrian-priority spaces play a prominent role in shaping a walkable, accessible, and enjoyable city. Cities are places for people, and they use streets for not only walking, but also resting, sitting, playing, and waiting. According to affordance theory, habitual behaviour, such as mobility choices, is a consideration between costs and benefits. By changing contextual cues of habit architecture, sustainable behaviours can be made more attractive. Thus, when walking and cycling is made more attractive and efficient there is a higher likeliness for people to act on this behaviour. Design can help to reflect the communities priorities, such as sustainable transportation modes.

practical implication

To achieve this, people have to be prioritised in street design. The highest order of intervention is by designing a pedestrian street. In this case cars are completely deflected from the street, allowing for a vibrant life on the streets. Often, however, the space in a street is shared between car, pedestrian and cyclist. Design controls can be used to create a more balanced streetscape, such as well-designed wide sidewalks, expanding on bicycle facilities, shade trees and traffic calming measures. Traffic calming measures can include speedbumps, traffic-slowing materials or obstacles. Throughout the design it should be visible that the pedestrian and the cyclist are the most important users of the neighbourhood street.

SOURCES
Global Designing Cities Initiative, 2022
Kaaronen and Strelkovskii, 2020
Linder, Giusti, Samuelsson and Barthel, 2022).
UNEP, 2018

clearly visible
information signs

communal cars
use the app
gebruik de app

green structures

E2
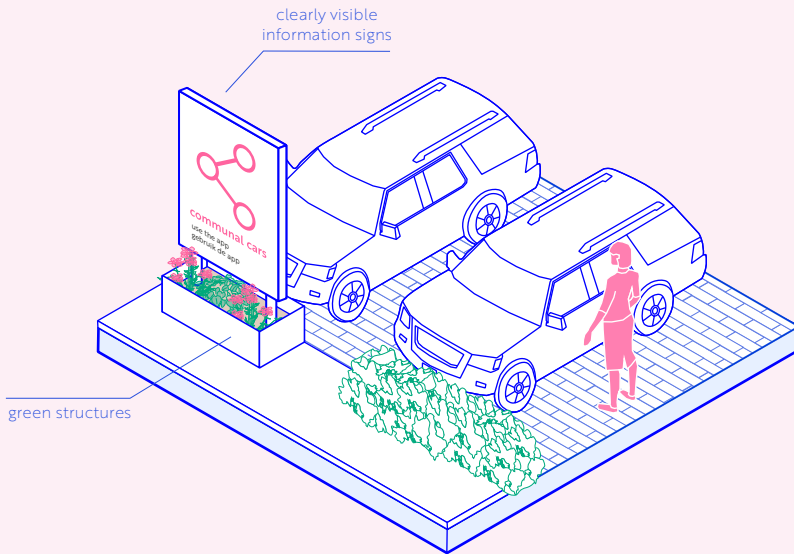
Collaborative commuting

By turning existing parking lots in vulnerable neighbourhoods into testing grounds for shared mobility, sustainable mobility behaviours can become more widespread.

RELATED TO
E5, E11

"Shared mobility systems, covering a range of types and uses, are exciting new players in urban transportation and offer a host of new transit options for individuals."

Quote from M. Kodranksy and G. Lewenstein, 2014

ED RP CA

Shared mobility station in Berlin, sharing a variety of transit modes and displaying information

clarification

Vulnerable neighbourhoods show potential for pilot projects on shared car services as such services can reduce fixed expenses and by reduction of parking spots can increase livability. However, some of the barriers for shared mobility use in low-income neighbourhoods are based on a lack of physical access and information about the benefits of shared car services. At the same time, there is still a lack of knowledge on the exact mobility needs of users in low-income neighbourhoods. Incorporating pilot projects of shared mobility can be used as a way of personaling services in such a way that shared mobility can have a positive impact. At the same time by increasing availability and visibility, knowledge on and usability of sustainable transportation choices can be increased.

practical implication

The testing grounds for shared mobility services should be easily accessible and visible to local residents, with physical transformations and information campaigns to increase awareness. Existing parking lots can be transformed to mobility hubs, with visible information signs, good connectivity to the pedestrian and/or public transport network and surrounded by green structures. The overall number of parking lots in the neighbourhood may be reduced in the long run due to the introduction of shared mobility services. Collaboration between parties is a major hurdle, and the municipality must provide funding and programs to help residents access shared car services. Success will be evaluated and the testing ground may be altered to fit local needs. Therefore, the assignment for shared mobility is both a design and a governmental task.

SOURCES
de Lorimier and El-Geneidy, 2012
Kodransky and Lewenstein, 2014
UNEP, 2018

shelter

art displays

seating

light for safety

greenery

high quality materials

M
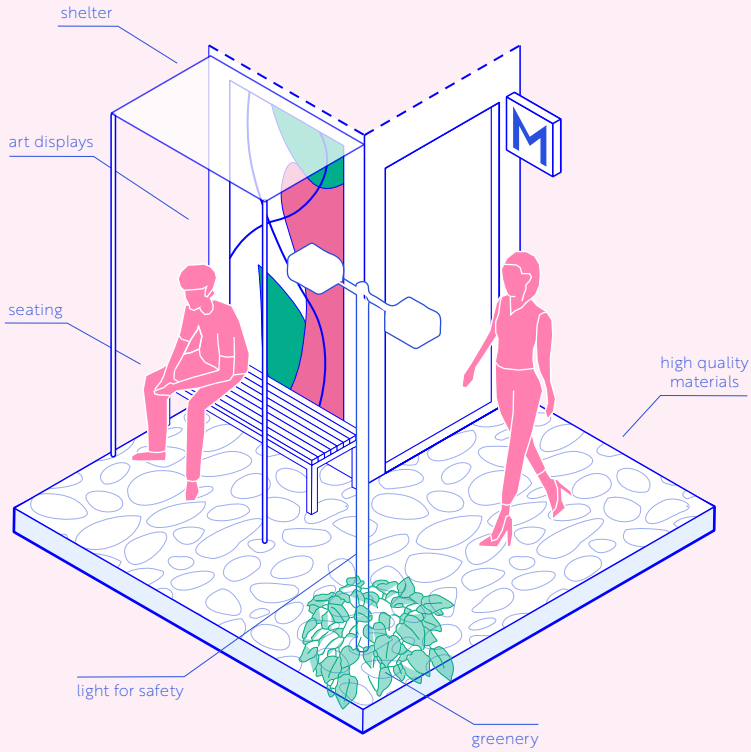
E3 Joyful journey

A well-designed and maintained public transport station will have a positive impact on people's perception of public transport usage.

RELATED TO
E1, E5

"Stations are places where you arrive and depart, but also where you meet and stay. They are indispensable links in the mobility chain and of great importance for your journey from door to door."

Quote from ProRail

ED RP CA

Metrostation van der Madeweg in Amsterdam after renovation to improve image.

clarification

People's willingness to use public transport is partly dependant on their perception of the service. Public transport stations work as a visual representation of the service in a neighbourhood. The image that is created through design can be determined through aesthetics and affordances of safety, security, comfort and amenities. By adressing these issues in design, public transport as a choice can become more pleasant, safer and less stressful.

practical implication

A station that is clean and visually attractive will create a more positive overall experience for commuters. In practice this will require a certain quality in materials and investments in the cleanliness and maintenance. The use of art and greenery can also make the station visually more attractive. For the station to be easily and safely accessible, special attention has te be paid towards the surrounding pedestrian network, prioritising cyclists and pedestrians and creating a central public space for gathering. To enhance physical comfort and feelings of security shelter, lighting and seating arrangements need to be integrally included in the design.

SOURCES
Nissen, Prendergast, Aoyagi, Burningham, Hasan, Hayward, Jackson, Jha, Matter and Schudel, 2016
UNEP, 2018

green spaces

pedestrian
amenities

mobile parklets
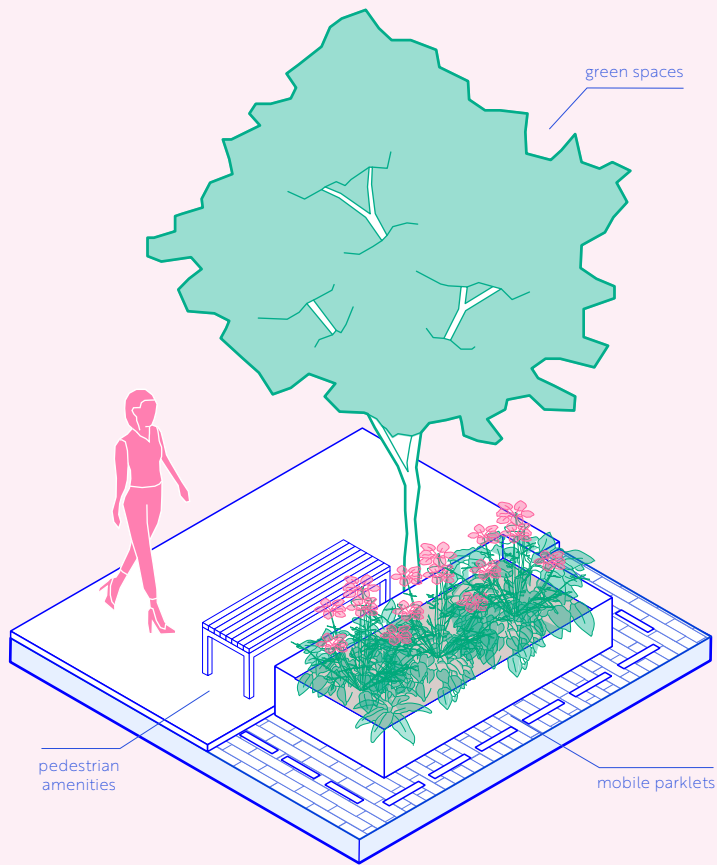
E4 Removing the car out of car park

By decreasing the reliance on cars in a neighbourhood, new opportunities for community spaces emerge.

RELATED TO
C5, E1, E2, R1, R2, R3, R5, R6

"... our need for more space and greenery is increasing. When you think about it, it is super wasteful to fill our public space with parked cars."

Quote from Weesperzijdebuurt.nl

ED **RP** **CA**

clarification

If strategies for alternatives to private car ownership are succesful, space that was before available for cars, becomes available for humans. The need for parking space will most likely be reduced, opening up space in close proximity to peoples homes. In a further future, the need for car repair shops could be imagined to be reduced. This brings a new porosity that can be transformed to be benefitial for the local community.

practical implication

Revamping parking can offer opportunities like better safety and pedestrian amenities, especially in areas lacking pedestrian infrastructure. Through fewer parking spaces, greenery can exist between concrete, and pedestrians between cars, creating a more livable and balanced streetscape.

When considering the removal of car parking to create public space, it is important to ensure high quality alternatives for mobility are in place. Place-making can help generate community interest in the space. Temporary interventions, such as mobile parklets, can help residents adjust to the idea of trading parking for public space. The space that is exposed by the proces of removing parking space then becomes available for the community.

SOURCES
Kaaronen and Strelkovskii, 2020
Project for Public Spaces, 2005
Project for Public Spaces, 2008
Steg, 2016
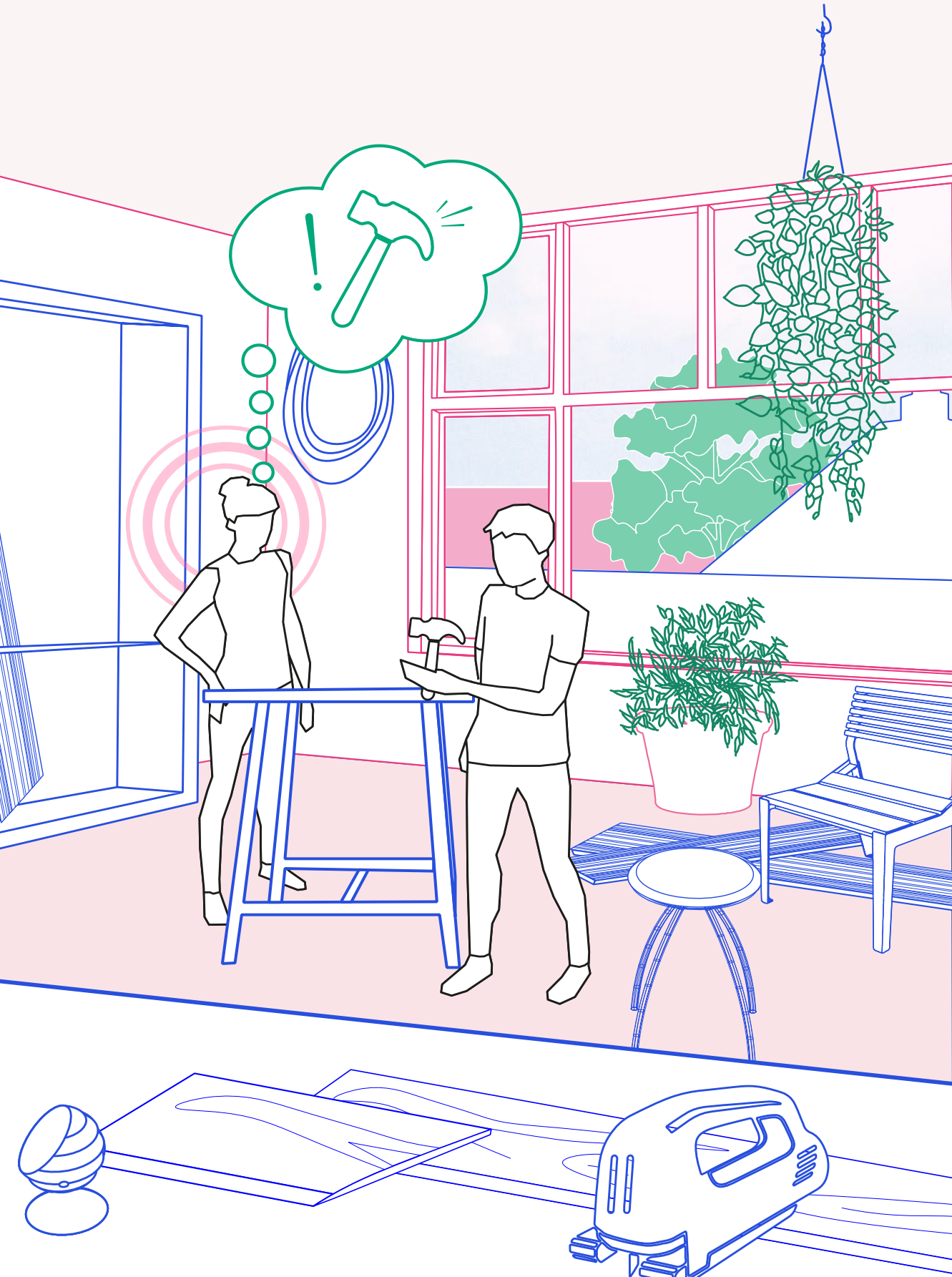
► **Utilising resources and skills**

Everyday decisions 2

A practice of sharing and repairing becomes second nature to communities through a focus on eco-friendly disposal, recycling, and conscious consumer choices in public space. New life can be brought to old objects, repurposing materials and harnessing the skills and resources of local communities. Together, waste can be minimised and resources maximised.

recycling
opportunities

clean and
maintained

E5 Clean streets, green mind

People feel attached to well-maintained environments, leading to both safety and pro-environmental behaviours.

RELATED TO
C1, E1, E3, E6, E7, E8, R2

> "Cleaning up clutter is actually a lot of fun to do together. You only get positive reactions, and you immediately have a result: a beautiful and clean street."

Quote from Opzoomer Mee

ED **RP** **CA**

clarification

According to the broken window theory, sense of attachment to a place is related the maintenance of the space, meaning that people generally don't feel attached to poorly maintained environments. A poorly maintained or dirty environment creates a social norm in which littering is enhanced. The behaviour becomes indifferent to the state of their environment. When a place is well-maintained people will have a stronger feeling of attachment, and therefore responsibility towards their living environment, resulting in behaviours that can be considered pro-environmental.

practical implication

The maintenance of the public space has to be invested in, meaning that the spaces have to be clean and repaired when needed. The responsibility for this in the first place lies with the municipality and its waste managment. Responsibility for residents can also be addressed, but has to be motivated by creating an environment that strengthens social norms. This can be done by increasing opportunities for citizens to keep the space clean by the placement of sufficient trash and recycling bins, and by increasing opportunities to reuse. Community events, such as the OpzoomerMee event in Rotterdam can also be used to promote an active engagement with the living environment and considers the cleanliness and maintenance of the neighbourhood.

SOURCES
Gemeente Schoon, 2011
NVRD, 2021
Interview Chantal van der Leest

new
incentives
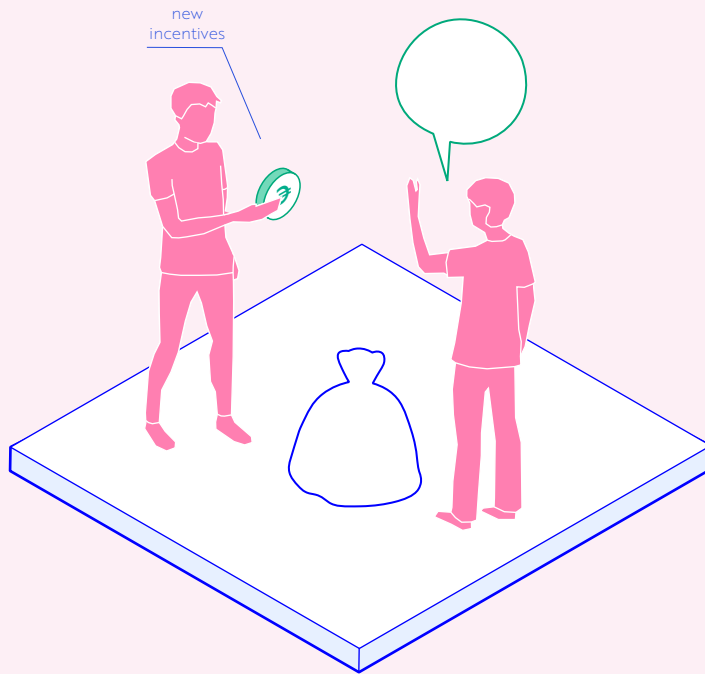
E6 Socialising waste

Socio-economic conditions influence waste behaviours.

"People without a job or with difficulties, can ride around on the Biking Bin to collect waste, to fill their day with a meaningful activity, that gives them a sense of purpose"

Quote from Zero Waste Lab

ED RP CA

clarification

Not all waste problems are created equally. In different contexts, different waste problems exist. The quantity and types of waste differs across communities, influenced among others by socio-economic determinants. Besides the type of waste generated, determinants such as language barriers can influence disposal behaviours. An universal solution for waste managment does not exist. This requires context specific solutions for waste managment to improve the quality of life in neighbourhoods.

practical implication

In neighbourhoods where littering poses a significant problem, it is crucial to reassess the current state of waste management. It is necessary to examine the specific issues within the context and propose tailored solutions. For instance, problems like the improper disposal of bulky waste, trash left outside of designated containers, or failure to clean up animal feces require customized approaches that address the unique circumstances. Socio-economic conditions can also impact waste behaviours through various economic factors. Recycling centers often offer incentives, such as deposit return systems or monetary rewards, to encourage the recycling of specific items. These economic incentives can have a significant influence on recycling behaviours, particularly in communities where socio-economic conditions strongly influence decision-making processes.

SOURCES
López-Mosquera, Lera-López and Sánchez, 2015
NVRD, 2021
Own observations

container
gardens

well-maintained

place-making
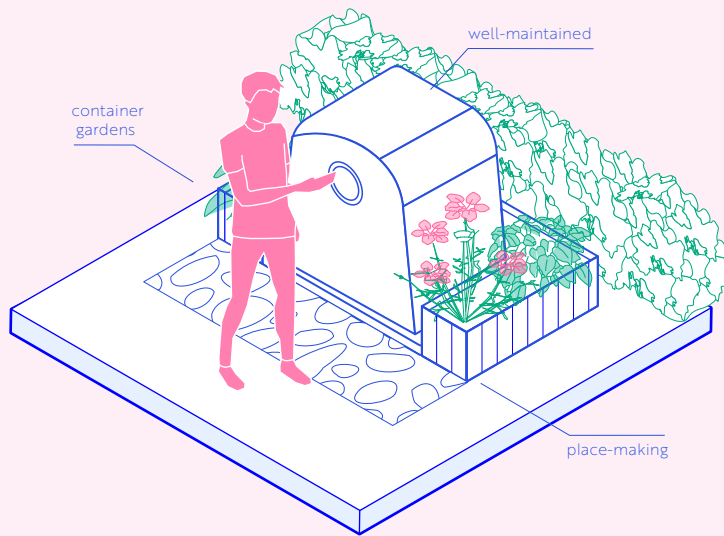
E7 Happy recycling!

An attractive design of recycling containers and its surroundings helps to reduce littering.

RELATED TO
E5, E6, R1, R3

"With the container garden with real plants, we entice people to look at a place with different eyes, which changes their interaction with that place."

Quote from Citygard

ED RP CA

clarification

People generally do not feel attached to unclean and badly maintained living environments. As a result, a lack of consideration and responsibility will exist. When it comes to recycling, this will generally mean that a lot of waste will exist on the street and especially around recycling containers, as peole are indifferent to cleaning it up. To battle waste in the neighbourhood and around recycling containers, experiments have shown that a careful consideration of the aesthethics and usability of the design of the container or it's surroundings helps to reduce littering.

practical implication

Throughout the neighbourhood, an inventory needs to be made of the waste disposals that are in bad shape, either functionally, but also aesthetically. Disposals have to be either replaced, or maintained. New containers and waste diposal needs to be made user-friendly, lowering the barrier for use. The use of colours and public art can help to improve the image of the disposal.

The design and layout of the surroundings can be adapted to prevent illegal dumping. A good example are containergardens, which add greenery and represent a clean environment. These containergardens can be under the care of local residents, enhancing feelings of owernship. Placemaking can be used in the design of a waste collection system, such as placing a playground or a luxury bicycle rack. This attracts more people to the area and makes the location less anonymous and increases social control.

SOURCES
Gemeente Schoon, 2011
NVRD, 2021
Interview Maël Vanhelsuwe

clear signage

PICK-UP
every thursday
morning at 10u

markings
on the street
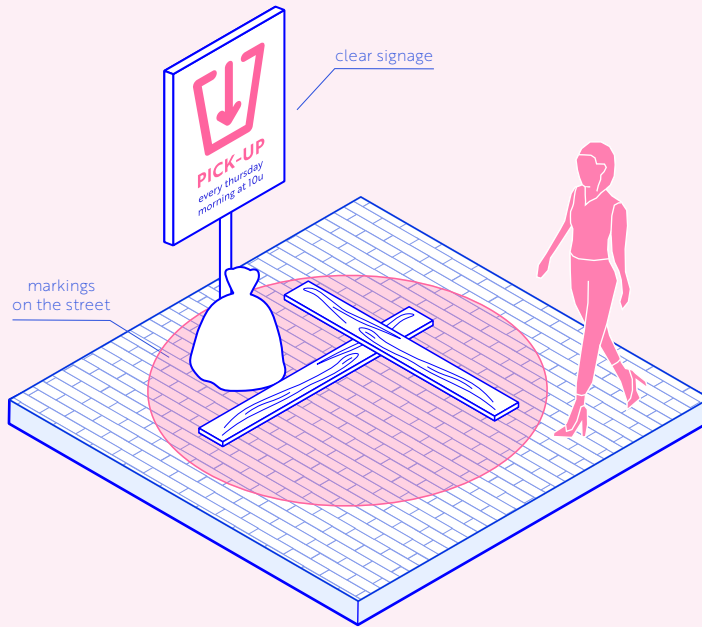
E9 Trash walk

Appointing fixed places and fixed pick-up times for bulky waste in a neighbourhood will not only reduce waste in the streets, but also provides opportunities for sharing.

RELATED TO
C5, C6, E5, E6, E9

"These fixed waste collection points make it clear where residents should place bulky waste. People also feel safer in a clean neighborhood."

(ED) (RP) (CA)

clarification

Even though bulky waste can often be collected for free when an appointment is made with the municipality, people still place big pieces of waste in the streetscape. This can most likely be prescribed to personal factors, such as language proficiency, which make it less likely for people to be able to contact waste managment. By visually prescribing fixed places in neighbourhood, the threshold for responsibly disposing of waste becomes lower. To prevent the street to be full of waste through the whole week, fixed pick-up times could help to relieve some pressure on the streets. On top of that, one's waste could become another persons treasure: fixed days in which people put their old things outside could result in an outing, in which residents can rummage through each others old things, providing new opportunities for sharing.

practical implication

In order to make these fixed waste disposal places well-known, the design needs to be visually present. This can be done by markings on the street, which should be large enough to accommodate larger pieces of furniture. To prevent misinformation and clear instructions on the use of waste disposal spots, signs have to be placed. Ideally this would include a few languages so that people of all cultures can understand the functionality. The time to dispose of waste should also be limited to the evening so that local residents do not experience their street to be a dumping ground.

SOURCES
Het Krantje Online, 2021
Interview Maël Vanhelsuwe
NVRD, 2021

neighbourhood
pantry

sharing cupboard

ensure
visibility

>1.8m sidewalk
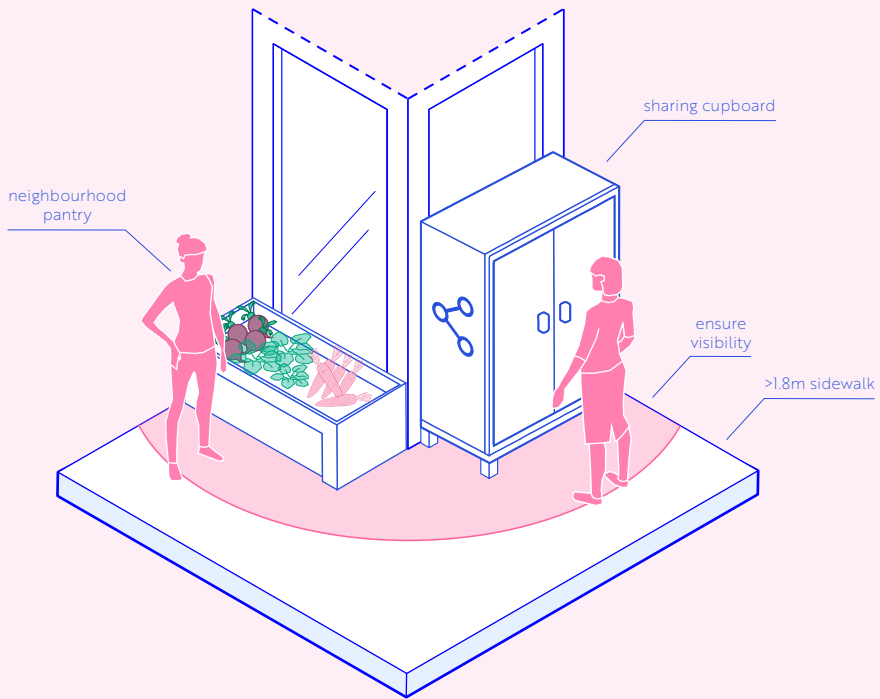
E8 Sharing = caring

Street libraries at the corners of the street promote sustainable consumption and by visually creating opportunities for the practice of sharing.

RELATED TO
C1, C5, C6, E8, R6

"A swap cabinet not only increases the sense of community in the street, but also contributes to a green city."

Quote from PZC

ED RP CA

clarification

Sustainable consumption is characterised by practices of sharing. Street libraries or swap cabinets are particullary effective in reflecting local needs in consumption behaviours.
In vulnerable neighbourhoods this type of intervention can become a valuable asset for people with a low-income, providing access to necessary or desired household items by a process of community transactions. It encourages community participation and brings responsibility and ownership to community members. Underutilised public space, such as the corners of the street, can be systematically appointed for sharing innovations in order to scale up community sharing and make an impact.

practical implication

The accessibility, visibility and therefore usability of street libraries is highly-dependent on it's location. When implementing a system of sharing it is important to choose locations that have a strong connection to the pedestrian network of a community. When placed, there has to be at least 1,8m sidewalk left accessible for pedestrians. Visibility can also be approached through aesthetics, choosing form that attracts the users attention. To achieve this, residents can be involved in the design of the cabinet by allowing them to modify it. The type of 'product' of sharing can vary according to the needs of a community. Possible shareable products can be books, plants, material scraps, food, seeds for planting, clothing, toys and tools. In the case of the latter, safety has to be a point of attention. A rich network of sharing can have a high variety of shareable products.

SOURCES
Cooper, 2017
Lerch, 2017
USDN, n.d.

familiar architecture

workspaces

tools
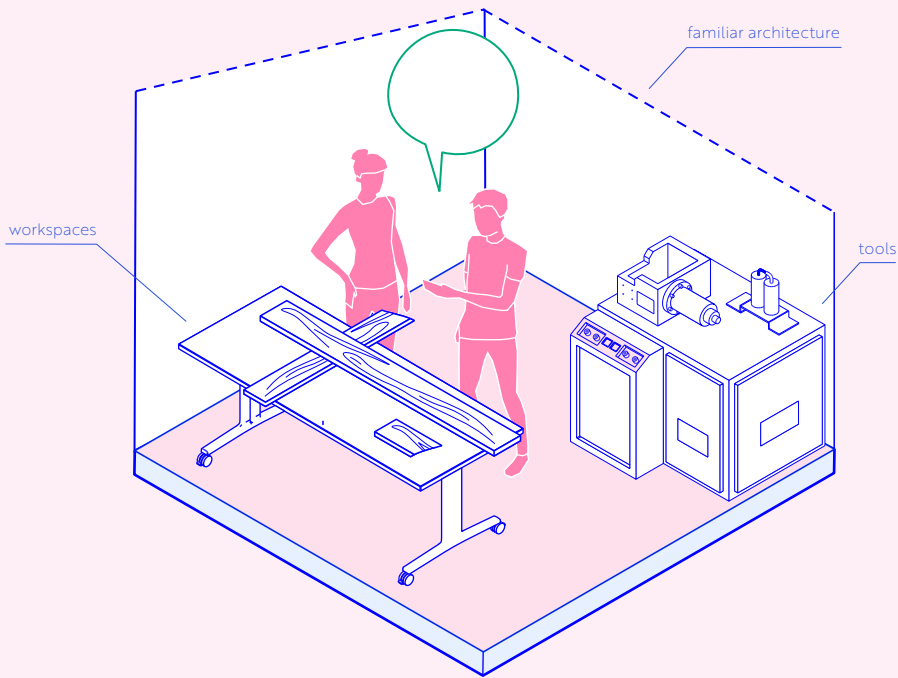
E10 Revival of the apprentice

Opening neighbourhood workshops can generate social and environmental value by the promotion of sharing and repairing actions within a community.

RELATED TO
C1, E11, E12, R5

"We mainly focus on residents from the neighbourhood and provide them with the opportunity to meet each other and jointly develop activities aimed at building connections, improving their own position and that of other neighbourhood residents."

Quote from Cultuurwerkplaats Tarwewijk

(ED) (RP) (CA)

clarification

A neighborhood workshop has both social and environmental value. In terms of the environment, the availability of a neighbourhood workshop can teach people how to repair and maintain products, tools and equipment, thereby extending a products lifespan and promoting sustainable consumption.

Socially, it provides people in the neighbourhood with the opportunity to meet and work together on common projects. It can bring together people from different backgrounds and with different skills, enabling them to learn from each other. By fostering the development of skills through apprenticeships, people can be given a sense of purpose. This can contribute to social cohesion, community building, and personal development.

SOURCES
Cultuurwerkplaats Tarwewijk, n.d.
Interview with Robert
Lerch, 2017
Own interpretation
Pluspunt Rotterdam, n.d.

practical implication

The neighbourhood workshop should be a versatile physical space that accommodates a variety of activities ranging from artistic pursuits like cooking, sewing, and painting to more mechanical activities like woodworking and electronics repair. To ensure that the workshops are inclusive and accessible to all, they should be visually appealing with a clear and inviting entrance, connected to the pedestrian network. The appeal can also be enhanced through the accommodation of the workshop within architecture that is familiar and meaningful to the neighbourhood.

In practical terms, a neighbourhood workshop requires the involvement of creative and skilled individuals who can assist and motivate community members to unleash their own creativity and repair and reuse products.

natural light

new types of repair
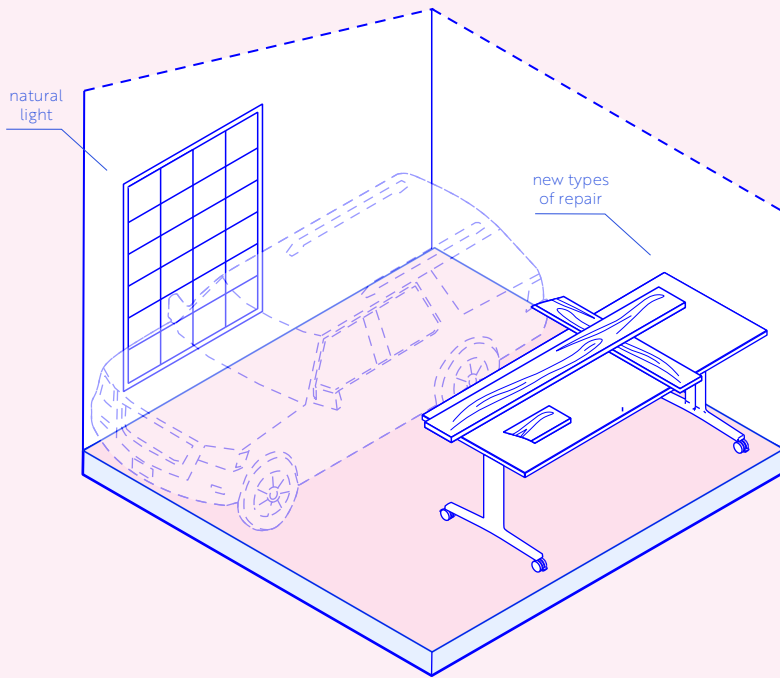
E11 Upcycling garages

Car repair shops can be repurposed to become typologies of repair workshops, promoting sustainable repair practices.

RELATED TO
E2, E10, E12, R5

"The workshops of Pluspunt in Blijdorp and Delfshaven are places where people with different backgrounds meet and work together towards a better life."

Quote from Pluspunt Rotterdam

(ED) (RP) (CA)

clarification

When there is a future where there is less individual car ownership, a portion of the current car repair shops will become abundant. The space of a car repairshop lends itself well for doing mechanical repair works. Instead of completely transforming the vacant spaces, there is a opportunity to use the spatial qualities of a car repair shop to integrate other types of repair shops in a neighbourhood, enhancing the availability of repair services in the neighbourhood and therefore promoting sustainable consumption. By incorporating repair shops that serve both a repair and social purpose costs for repair can be be kept low and new work and interaction opportunities can be created, transforming these vacant spaces into valuable assets for the neighbourhood.

practical implication

This approach offers practical implications in terms of design, utility, and execution. The design of the transformation of vacant car repair shops into other types of repair shops needs to take into consideration the specific needs of each type of repair shop, including the reconfiguration of the space, natural light, inviting atmosphere, accessibility, and storage. For example, car repair shops typically have large open spaces that allow vehicles to be worked on. For other types of repair shops, however, the space may need to be reconfigured to accommodate different types of equipment and tools. There are many types of repair shops that can be implemented in vacant car repair shops, including bicycle repair shops, electronics repair shops, furniture repair shops, and small appliance repair shops. These types of repair shops can serve both a repair and social purpose in the neighborhood while promoting sustainability and reducing the need for long-distance travel for repairs.

SOURCES
Own interpretation
Pluspunt Rotterdam, n.d.

complement surrounding environment

place with foot traffic
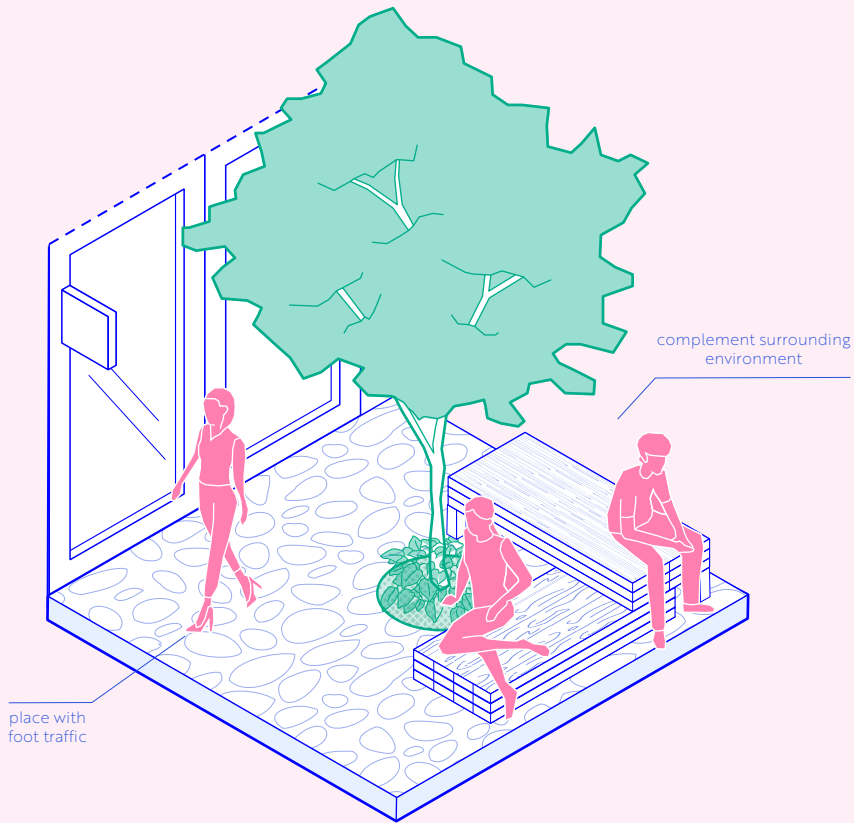
E12 The new green aesthethic

Recycled furniture displays in commercial zones promote pro-environmental behaviour by showcasing waste materials' potential for stylish and functional use.

RELATED TO
C5, E1, E10, E11, R1, R6

"When the volunteers and neighbours put in time and effort for the physical intervention, they are not just building a public space, they are also building a sense of community."

Quote from The Laneway Project

ED RP CA

DIY recycled street furniture in Athens

clarification

Recycled furniture displays in commercial zones can transform a simple 'space' into a memorable 'place' that reflects the sustainable story of the community, contributing to placemaking efforts. Showcasing recycled street furniture in the frequently visited commercial zones can also inspire pro-environmental behaviours by raising awareness of the potential for repurposing waste materials. When people see that waste materials can be transformed into functional and aesthetically pleasing furniture, they may be more likely to consider repurposing items instead of throwing them away. Locally made recycled furniture by peer-residents can create a sense of community ownership, provide inspiration, and empower individuals to positively impact the environment. These factors can motivate individuals to engage in sustainable practices and contribute to the overall sustainability of the community.

practical implication

There are two important main requirements for the practical implication of this pattern. First, the commercial zones in a neighbourhood have to be identified. They are the zones that encounter an increased foot traffic compared to other areas and have opportunities to stay in the space. Second, recycled furniture need to be supplied. In order for people to feel ownership or pride, a collaboration between local communities for the sourcing and creation of furniture needs to be set up. This could involve setting up workshops and training programs to teach people how to repurpose waste materials. On top of this it needs to be considered what the visual and aesthetic impact of the recycled furniture displays is, making sure they are visually appealing and complement the surrounding environment.

SOURCES
Own interpretation
Steg, 2016

Tjirp Tjirp
Tjirp

▶ **Sharing space with nature**

Recovery and protection

The seamless integration of nature into community infrastructures will foster a deeper connection between people and the natural world. This integration goes beyond aesthetics; it cultivates a sense of pride and deep connection to close surroundings. A (bio-)diverse environment that can thrive through a community that cherishes and protects it.

native trees

native plants and flowers
showing different seasons

wadi's
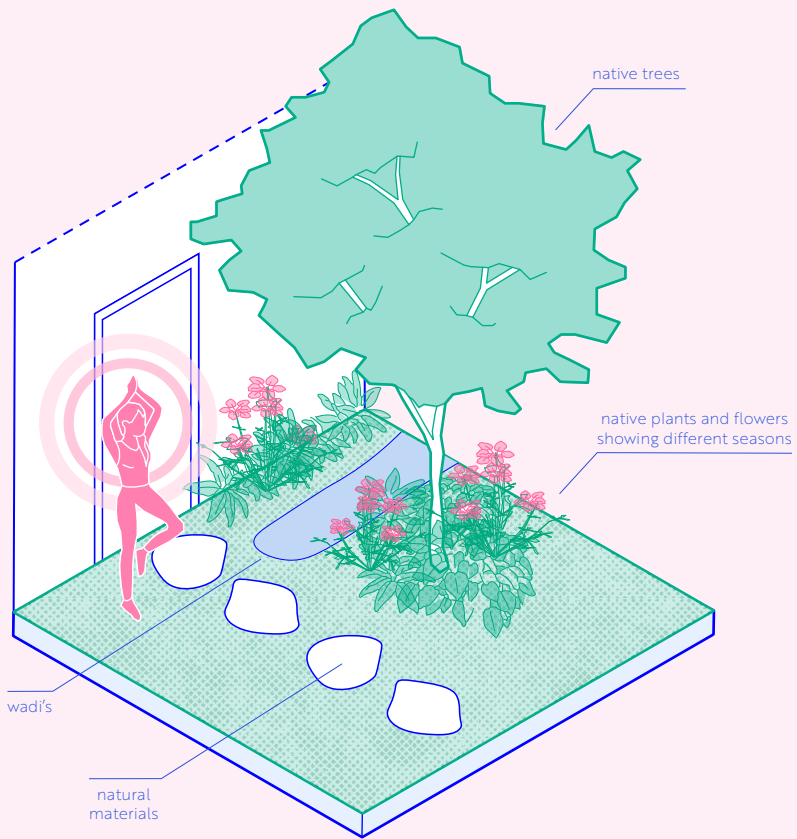
natural
materials

R1 Green exposure to devotion

Through natural design, social norms can be created and deeper connections between human and nature can be fostered.

RELATED TO
E4, E7, E12, R2, R3, R4, R7, R8

"What started with a bag of flower bulbs, eventually resulted in a neighbourhood where people live with more pleasure and want to contribute to a greener and more social neighbourhood."

Quote from Gezond010

(ED) (RP) (CA)

clarification

When individuals feel a connection and appreciation for nature, they are more likely to engage in behaviours that benefit the environment. This is based on the idea that individuals tend to act in ways that align with their values and beliefs. By exposure to value symbolism, such as biospheric symbolism, people can feel motivated to act acco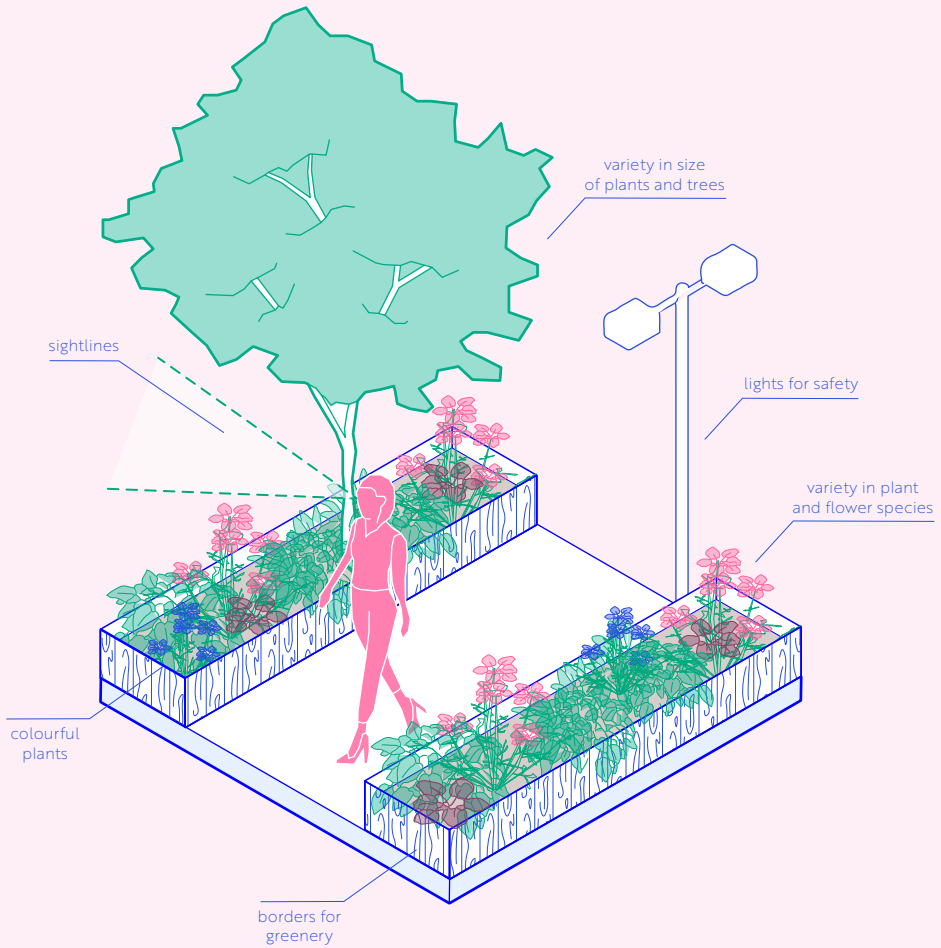rding to new values and take actions to protect the environment. Biodiversity or exposure to nature in general can play an important role in biospheric symbolism by evoking positive emotions and promoting a sense of responsibility and stewardship towards the environment. This is especially true for local urban nature, leading individuals to take actions to protect it.

SOURCES
Church, 2018
Hoyle, 2020
Steg, 2016
Vollaard, Vink and de Zwarte, 2018
Wolch, Byrne and Newell, 2014

practical implication

The understanding that exposure to biospheric symbolism can foster pro-environmental behaviours has significant implications for urban design. Green spaces like community gardens and facade gardens can be incorporated in neighbourhoods to increase access to nature and promote exposure to biospheric symbolism. Using native plant species in these green spaces is important for local ecosystems and can help to promote ecological awareness and environmental stewardship. To prevent the misuse of biospheric symbolism for greenwashing large-scale projects in neighborhoods, small yet impactful interventions should be prioritised that align with the community's needs. Additionally, biophilic design principles can be used, such as the inclusion of water elements or incorporating natural materials and patterns into buildings and public spaces, to further enhance the connection to nature.

variety in size
of plants and trees

lights for safety

sightlines

variety in plant
and flower species

colourful
plants

borders for
greenery

R2 Embracing (bio-) diversity

Nature in diverse neighbourhoods has to be well-maintained to ensure appreciation.

RELATED TO
C2, E4, E5, R1, R3, R4, R7, R8

"A green space that is attractive to a wide range of local residents."

Quote from Stichting de Verre Bergen

(ED) (RP) (CA)

clarification

Biodiversity in its truest form represents wilderness through a wide range of variety of species and size. However, a more careful perspective on biodiversity in vulnerable neighbourhoods includes diversity on natural perception and issues of safety. Perceptions of nature varies across different cultural groups. People with a non-western background perceive nature generally through its functionality, whereas people with a western background moreso through wilderness. There is also a significant association between ethnicity and perceptions of tidiness and care, where people with a migration background prefer tidier and maintained places. The use of colours and flowers are commonly perceived as valuable for natural perception. Children in general are more favorable towards wilderness as it provides a sense of mystery. As an unintended effect of biodiversity, fears of crime can also be induced, as highly biodiverse areas can obstruct sightlines.

SOURCES
Hoyle, 2020
Müller, Werner and Kelcey, 2010

practical implication

In practice this means that biodiversity in diverse neighbourhoods does not necessarily represent typical views of wilderness. Urban nature should be varied in terms of aesthetics, facilitating the desires of both tidiness as well as wilderness. To enhance feelings of maintenance, nature can be represented through intentional design with borders and zoning. The facilitation of diversity for the natural environment still remains a main concern, emphasising diversity in native plant species and plant size through points, surfaces and lines in the neighbourhood. Attractiveness to all users can be emphasised through the use of flowers and attractive colours.

To ensure feelings of safety, the design of natural places should provide clear sightlines whenever possible. Feelings of safety can also be enhanced through additional features, such as lighting.

participation

educational
function

opportunities
for ownership
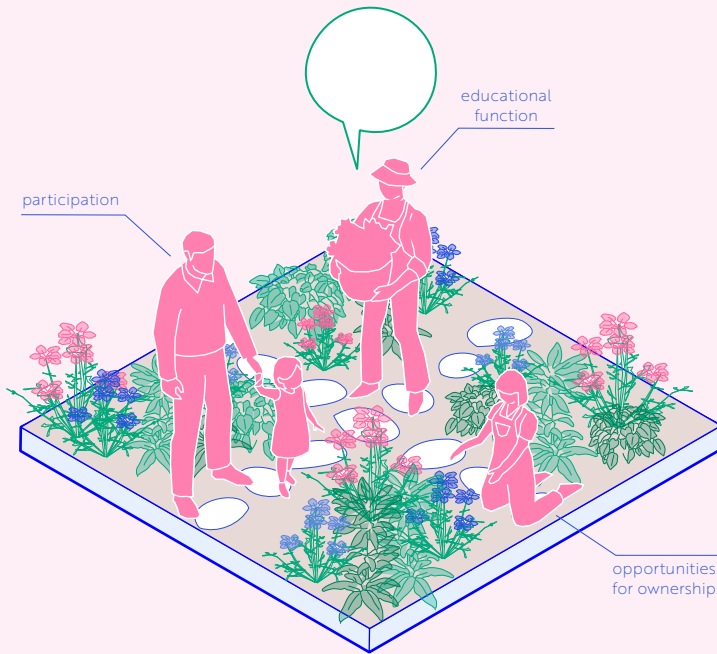
R3 Green spaces to green places

Interactive community-related green spaces fosters an environmentally conscious and engaged community in diverse neighbourhoods.

RELATED TO
C1, C2, C3, C5, C6, E4, E7, R1, R2, R4, R5, R6, R7, R8

"Er is een kruidentuin die bestaat uit vaste planten uit verschillende windstreken. Er is in alle seizoenen oogst. "

Quote from De Rotterdamse Munt

ED RP CA

Herb picking garden at the Rotterdamse Munt in Feijenoord, Rotterdam

clarification

People's behaviours and attitudes towards the environment are influenced by their interactions and experiences with nature. Interactive green spaces offer meaningful opportunities for individuals to connect with nature, leading to a deeper appreciation and understanding of the environment through stewardship and environmental learning. Studies indicate that individuals from lower socio-economic backgrounds are more likely to utilise green facilities that are connected to their community. By providing green community facilities like food gardens, community courtyards, or natural playscapes, people can engage in hands-on experiences and learn about environmental issues. Furthermore, the social connections and shared ownership fostered by community green spaces can cultivate a sense of community pride and responsibility for the environment.

practical implication

Interactive green spaces can be designed in various ways that align with the goals and needs of the local community. Community gardens or picking fields can encourage participation, education, and sustainability practices while providing fresh produce and flowers - and fostering a sense of community ownership. Playgrounds can offer hands-on learning about nature, sustainability, and environmental stewardship, using natural elements to stimulate imaginative play and learning about the natural world. Green facades or the adoption of public greenery provide ecological and aesthetic benefits, while also creating opportunities for community involvement. Different types of greenery can bring different benefits to a community. By means of co-production, the community-specific needs can be reflected in the ecological design of a neighbourhood.

SOURCES
Alon-Mozes and Heller, 2022
Church, 2018
Dujardin and de Vries, 2008

Hoyle, 2020
Steg, 2016
Wolch, Byrne and Newell, 2014

varying topography

safe waterscapes

vegetation that varies over seasons

clear boundaries for safety

natural play elements
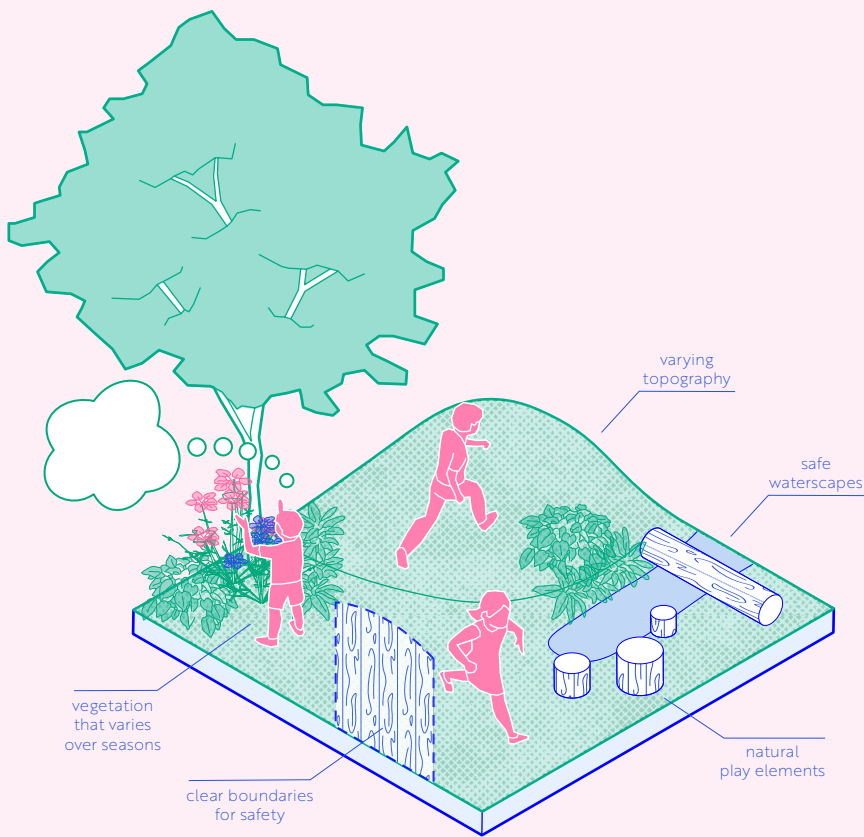
R4 Learning by playing

Natural playscapes increase environmental awareness among children.

RELATED TO
C7, R1, R2, R3

"More plants are also ideal for natural education. The children find little worms and other insects on their own school playground"

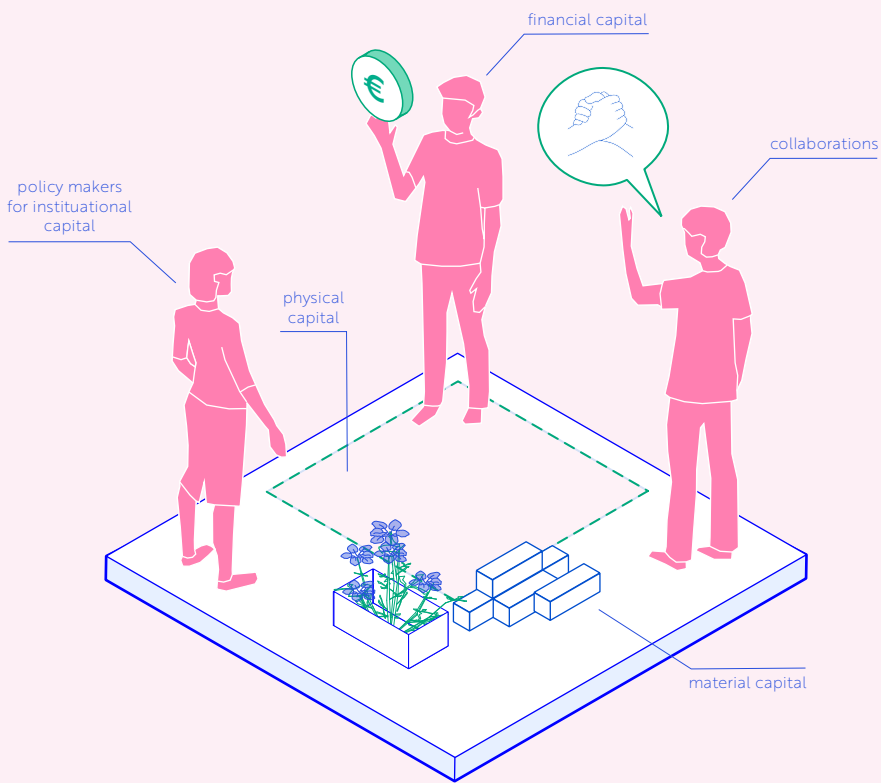Quote from Duurzaam010

(ED) (RP) (CA)

clarification

Children that are close to nature and have the ability to interact with natural elements, have stronger altruistic and biospheric values. They are more aware of their connection and interdependence towards nature. Through active and imaginative play in natural playscapes children get in close contact with nature and therefore learn about natural processes and develop stronger biospheric values.

practical implication

For children to engage in nature-rich routines, natural elements need to be brought to the places where kids play: the playgrounds. Paved areas get transformed into natural landscapes with a varying topography, vegetation, safe waterscapes and natural play elements. Some element of paved areas can still exist, as some playful elements require some kind of paving. Important in such design is to include elements that protect the children from potential dangers. Safety features include boundaries towards the street, but also the avoidance of sharp edges.

SOURCES
Bulut and Yilmaz, 2008
Dyment and Christie, 2005
Scannell and Gifford, 2010
Steg, 2016

financial capital

collaborations

policy makers
for instituational
capital

physical
capital

material capital

R5 Capital for change

Empowering stewardship actions in vulnerable
neighbourhoods requires capital investment across
financial, institutional, and physical domains.

RELATED TO
C1, C2, C3, E4, E10, E11, R3, R7, R8

(ED) (RP) (CA)

'Leefsingel' in Carnisse, Rotterdam - appropiation of public space through provision of space and materials with the help of Buurtklimaatje

clarification

Empowering sustainable action in vulnerable neighbourhoods is necessary to achieve environmental and social justice. However, vulnerable neighbourhoods often lack the resources needed to take action towards sustainability. When people do not have enough money to buy food, they will most certainly not have the funds to buy plants for their facade gardens. The complexity that is related to getting permits or securing funds is another hurdle towards undertaking action in the neighbourhood. Therefore, capital investment across financial, institutional, and physical domains is essential to support and enable stewardship actions.

practical implication

Financial capital can be supplemented through funding and grants, but also through the supplementation of materials, such as plants or tools.

Institutional capital, such as policies, regulations, and partnerships, is essential to support and coordinate sustainable action across different sectors, stakeholders, and communities.

Physical capital, such as the provision of public spaces, and green amenities can empower citizens that do not have ownership over their own outdoor space. By entrusting locals with the maintenance of public spaces, such as courtyards or zones in public parks, pride in the community can be fostered.

SOURCES
Bennett, Whitty, Finkbeiner, Bassett, Gelcich and Allison, 2018
Buurklimaatje, 2023
Interview Samenhuis Ernaast
Own observations

highlighting
zones for
appropiaton

transparant boundaries
to indicate ownership
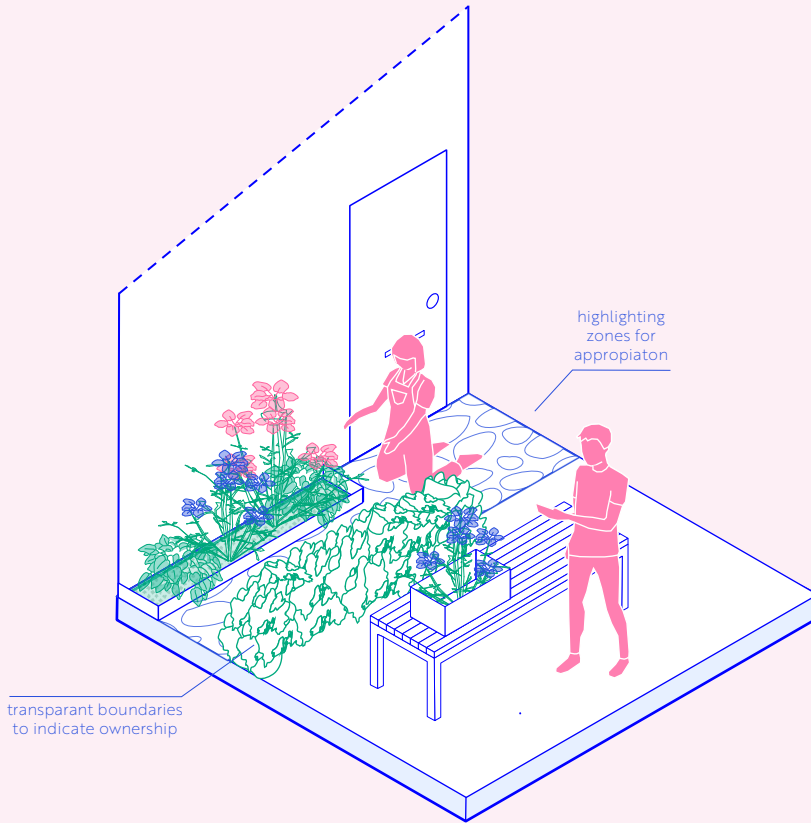
R6 Inhabiting the inbetween

People will take better care of their environment
when they are allowed to take ownership of the zones
inbetween the public and the private.

RELATED TO
C2, C5, C6, E4, E9, E12, R3, R7
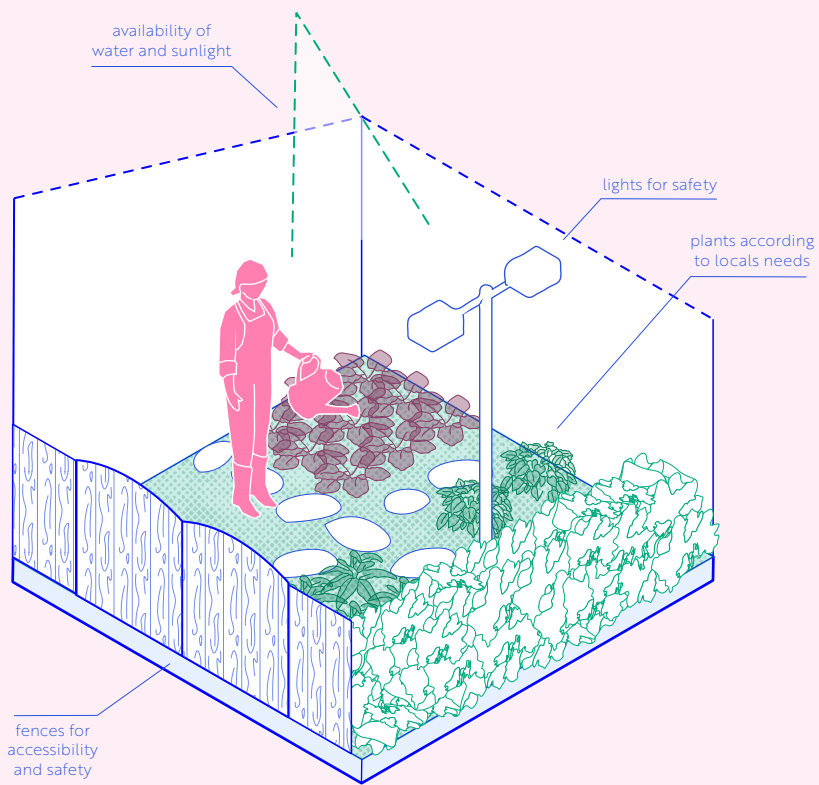
ED RP CA

clarification

There are several strategies that exist to promote place attachment. Rather than a legal ownership, we can understand place attachment as a psychological ownership. Through design we can become more attached to places that are designed with temporary place-making and opportunities for ownership in mind. Emphasising liminal zones - the zones inbetween the public and the private - allows for such appropiation. Softening the boundaries between public and private will foster a sense of responsibility - say stewardship - towards the close environment. From this mindset sustainable behaviour in the form of feelings of responsibility can follow.

practical implication

Design can play an important role in allowing residents to take ownership of space. There are a variety of typologies that lend themselves well for residential appropiation, such as courtyards, sidewalks, the plinths of buildings and alleyways. All are related closely to both private and public sphere. Ownership can therefore be taken on micro-scales at the frontdoor to the meso-scale in the 'backyard'. Material design can play a role in designating areas for appropiation, highlighting zones with colours or textures. Ownership can also be signified by the use of fences and gates, sending a message of local control. To signify publicness, however, it is important to design fences and gates with transparancy in mind.

SOURCES
Dialogues with residents
Interview Chantal van der Leest
Harteveld and Asadollahi Asl Zarkhah, 2021
Kuo, Su, Want, Kiatsakared and Chen, 2021
Platt, 2006

availability of
water and sunlight

lights for safety

plants according
to locals needs

fences for
accessibility
and safety

R7 Engage, connect, protect

Courtyard community gardens promote participation in ecological activities and reduces crime through a stronger relationship between people and nature.

RELATED TO
C1, C2, C3, R1, R2, R3, R5, R6

"Every [urban greening] project is custom work"

Quote from the municipality of The Hague

ED RP CA

clarification

Courtyards, often found as urban leftover spaces, make for an ideal location for community gardens due to their central location and enclosed nature within residential buildings, which provides privacy and a sense of security for community members. Such shared spaces can foster a sense of community ownership and responsibility, while promoting ecological awareness and environmental stewardship. Through exposure to biospheric symbolism in the form of plants, community members develop a stronger connection to nature and sustainable living practices. Furthermore, research has demonstrated that the presence of green spaces, such as community gardens, can have a positive impact on crime rates in urban areas. Hence, courtyards can play a crucial role in building stronger relations to the natural world, therefore strengthening environmental awareness, and reducing crime in urban communities.

SOURCES
Alan-Mozes and Heller, 2022
Church, 2018
Krasny and Tidball, 2012
Luo and de Wit, 2022

practical implication

Some key factors to consider include the size and layout of the courtyard, accessibility for all community members, availability of sunlight and water, and the types of plants that would thrive in the space. The design should also take into account the needs and preferences of the community members who will be using the garden, both in functional terms, such as shared or private plots, and aesthetical terms, highlighting all senses - sight, smell, touch and taste - through the choice of vegetation. Another important factor is to ensure that the garden is safe and secure, with appropriate fencing and lighting to prevent vandalism or theft. A successful implementation of a community garden in a community courtyard would therefore require a collaborative approach between the urban designer/landscape architect and the community members, meeting the locals needs while leaving enough flexibility within the design for sustainable future initiatives.

seating for enjoying gardens
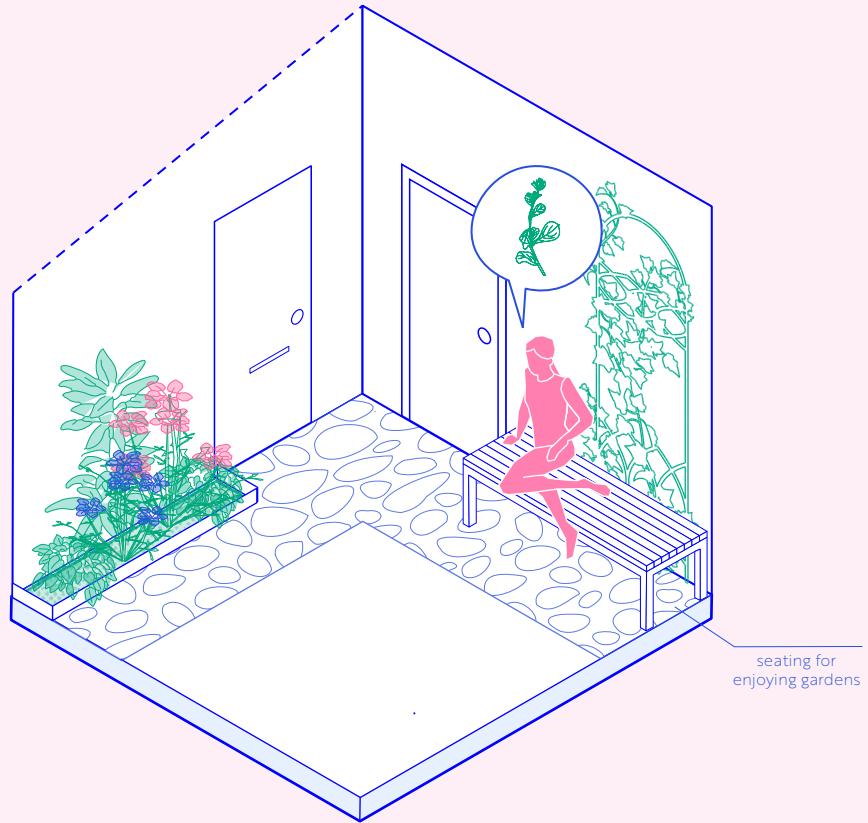
R8 Nature on your doorstep

Facade gardens are a simple way to strenghten the relationship between people and nature.

RELATED TO
C1, C5, C6, E1, R1, R2, R3, R5, R6

" ... construction of facade gardens. That's an instant success. You start lifting tiles in the morning and suddenly in the afternoon, you have a wow-effect."

Quote from Buurtklimaatje

(ED) (RP) (CA)

Facade garden planted by local residents in Carnisse, Rotterdam with help of Buurtklimaatje

clarification

Facade gardens can play a significant role in promoting pro-environmental behavior by providing a green space in urban areas that connects people with nature. By creating a visual and tactile biopsheric symbol, facade gardens can increase people's appreciation for the natural world and enhance their sense of responsibility towards the environment. As a series of points of biodiversity, facade gardens also can have a positive effect on local ecosystems.

practical implication

To facilitate facade gardens in existing urban areas, collaboration with local residents and community-led initiatives is necessary. Suitable buildings with potential facades for gardening can be identified, and residents can be approached to gauge their interest in participating in a facade garden project. By involving residents in the project's design and implementation, a sense of ownership and responsibility towards the garden is created. Local government and urban planners can provide support by offering resources such as funding, materials, and guidance on planting and maintenance. Infrastructure such as water access and structural support for the garden should also be provided. The key to successful implementation of facade gardens is to engage local residents and provide the necessary support to ensure sustainable gardens that enhance the urban environment.

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