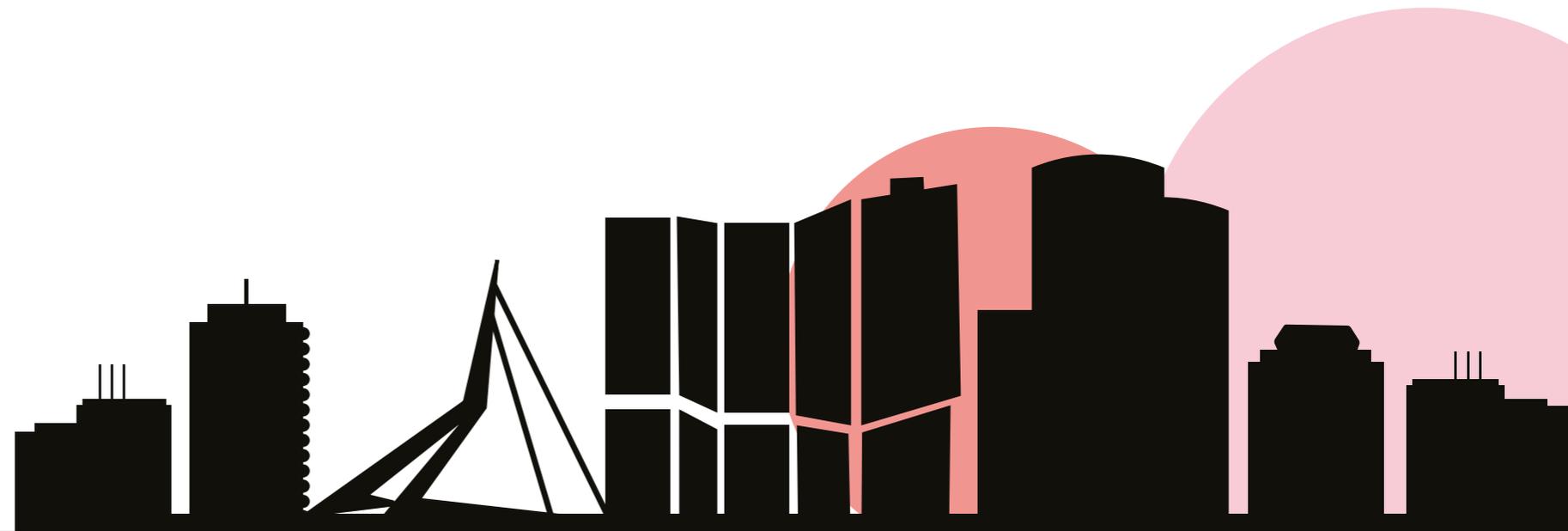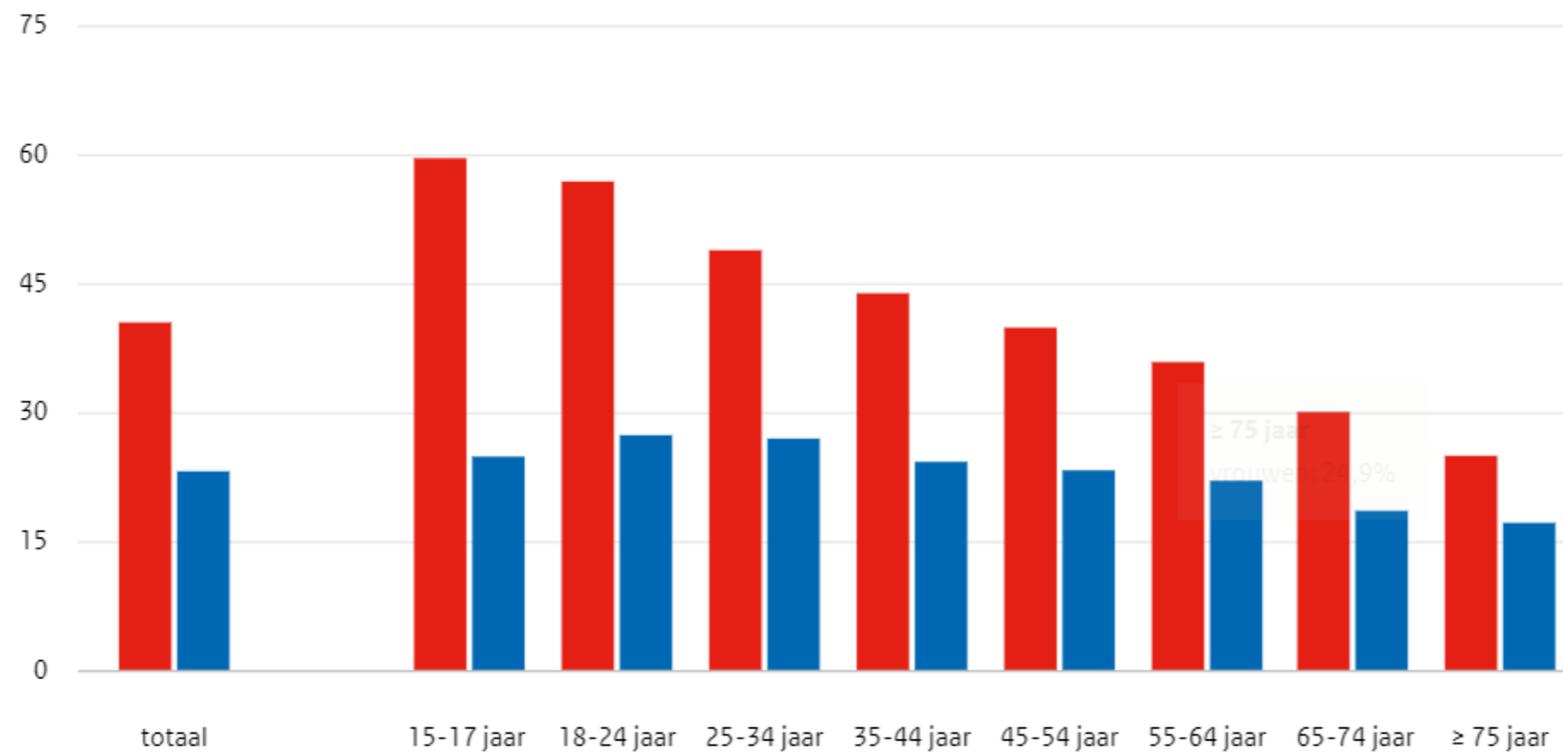# A FEMALE FUTURE

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*Developing gender inclusive neighbourhoods
in Rotterdam-Zuid*

THE PROBLEM

Gender inequality
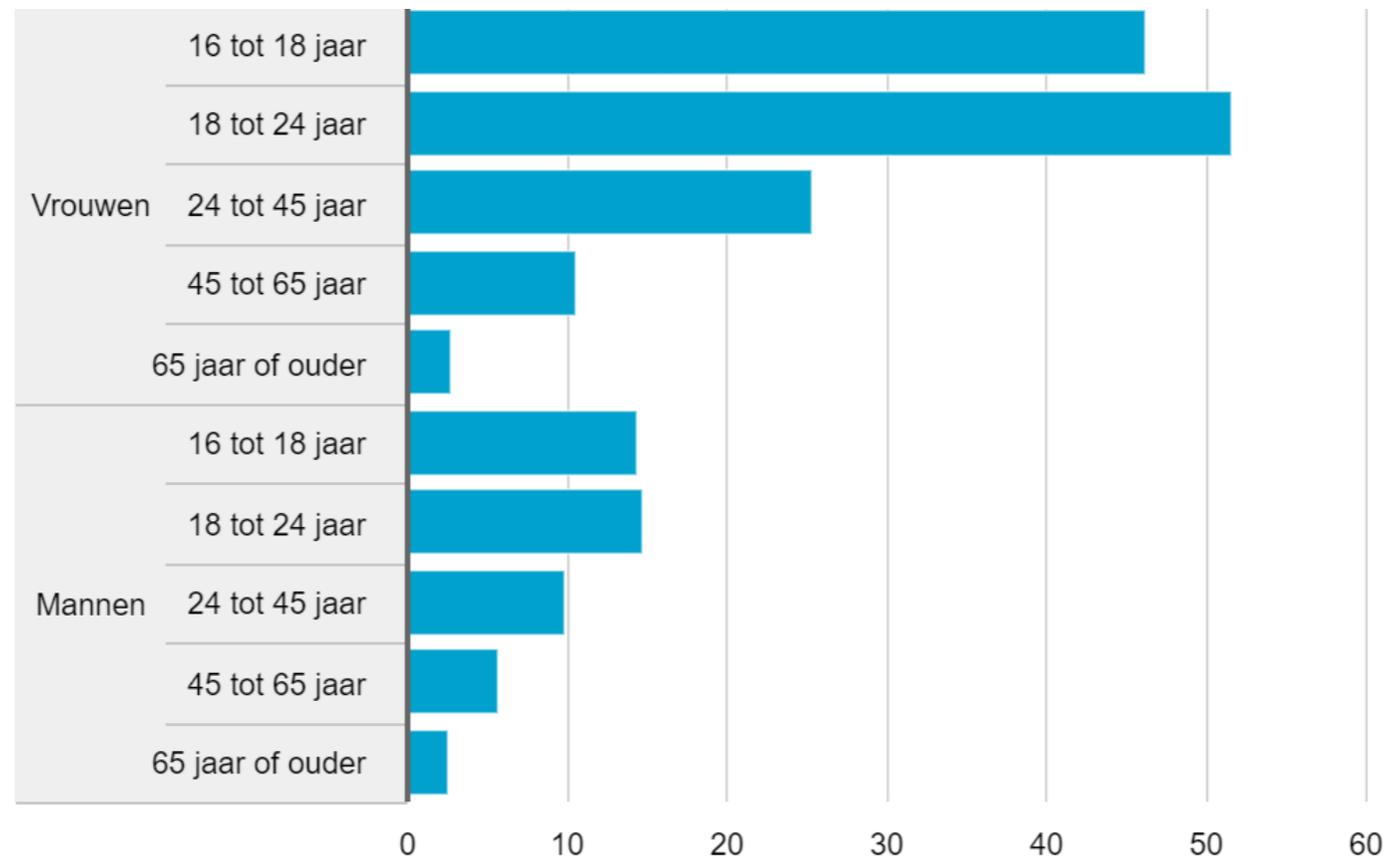
Feelings of unsafety

Percentage of people ever feeling unsafe (CBS, 2019)

THE PROBLEM

Gender inequality

Feelings of unsafety

Percentage of victims of sexual harrassment, 2022 (CBS, 2023)
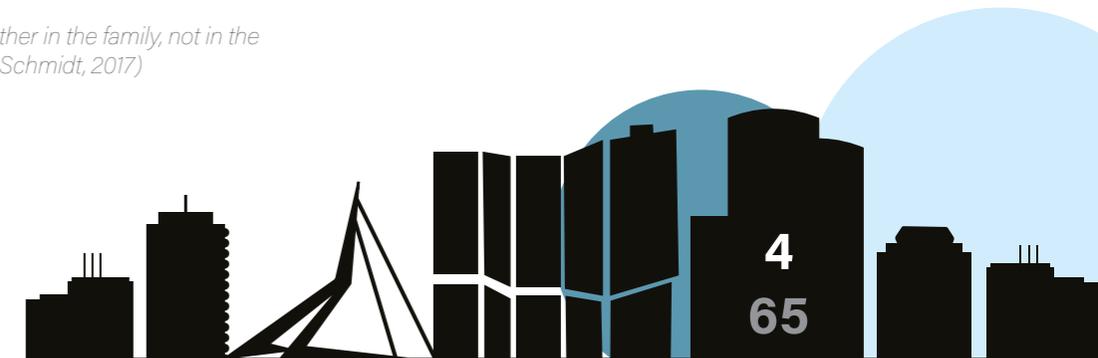
THE PROBLEM

Gender inequality
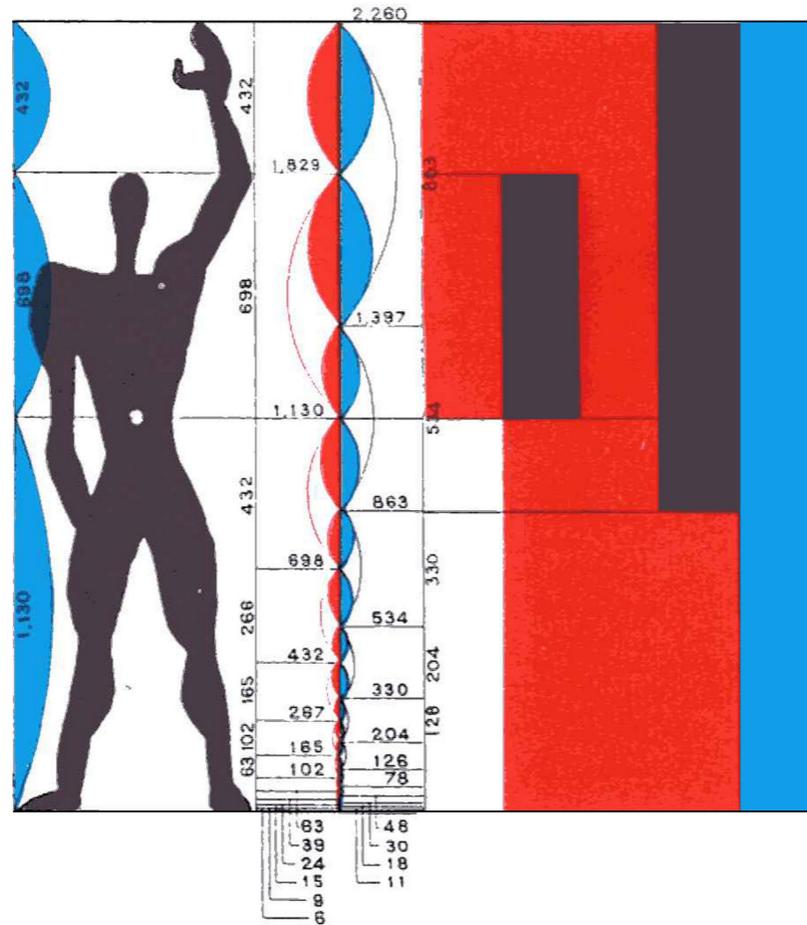
Historic patriarchal ideas

Illustration from the 1950s, translated into "Mother in the family, not in the factory!" (Katholieke Arbeiders Beweging via Schmidt, 2017)
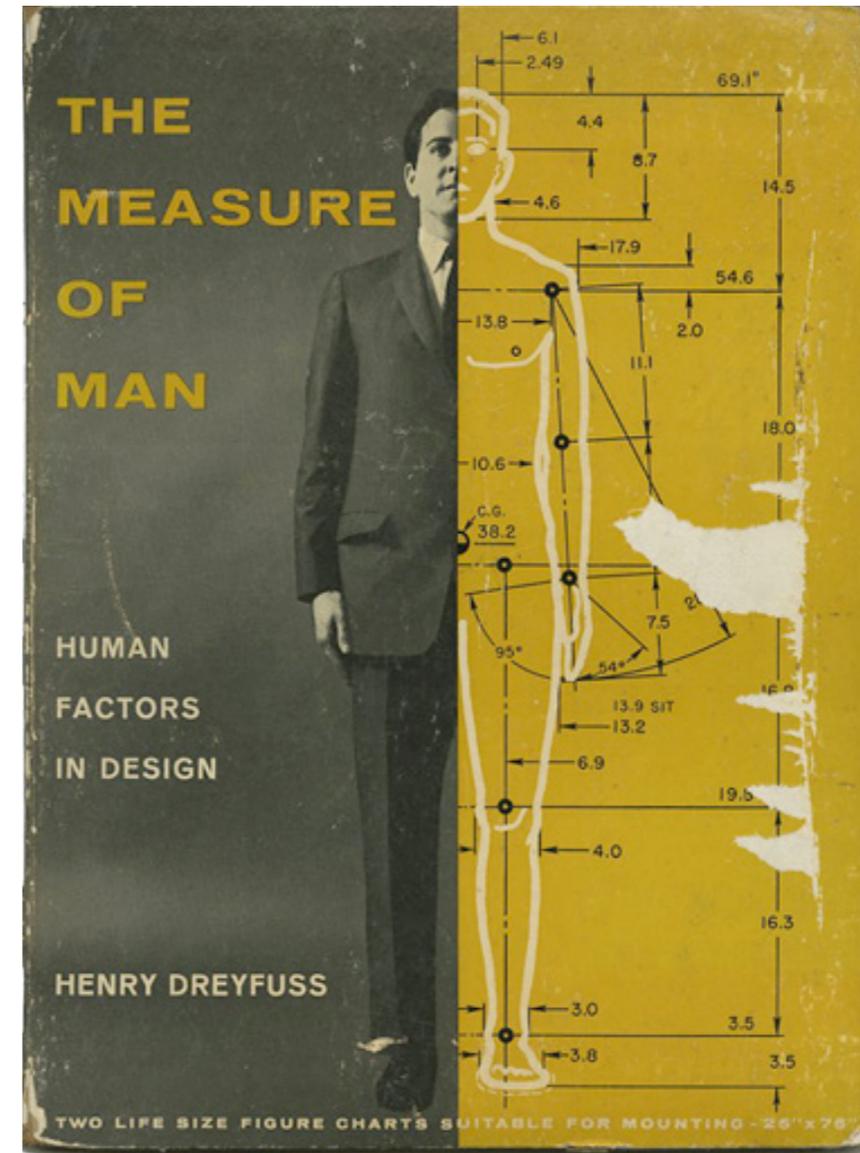
THE PROBLEM

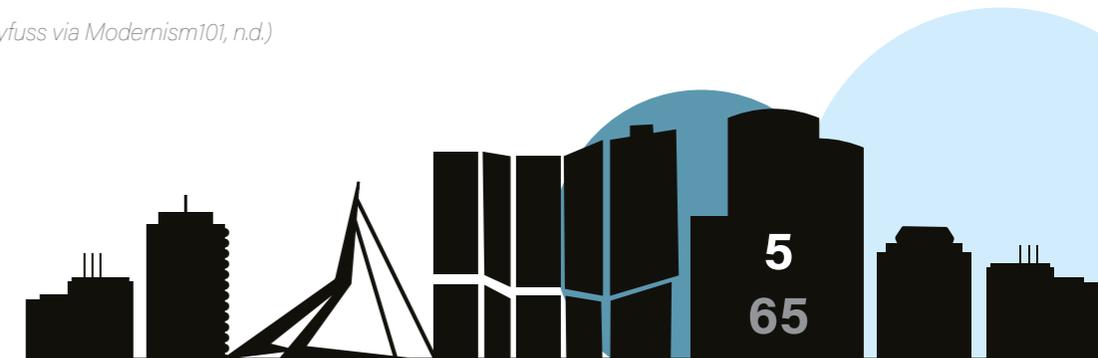## Gender inequality

Historic patriarchal ideas

Le Modulor by le Corbusier (Forgemind ArchiMedia via Flickr, 2010)

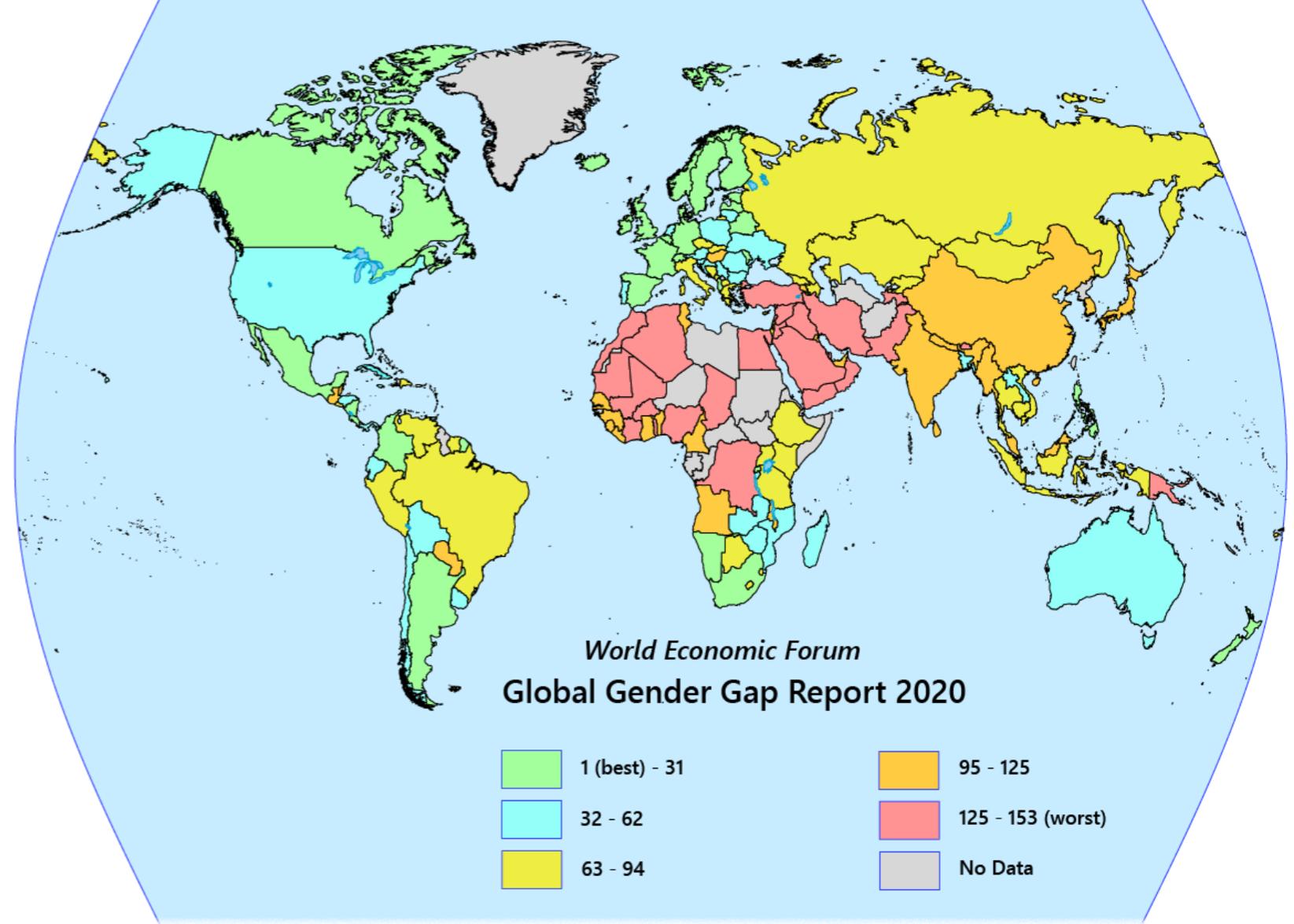*the Measure of Man by Henry Dreyfuss (Dreyfuss via Modernism101, n.d.)*

THE PROBLEM

Gender inequality

Current gender gap

Europe

60
years

until
the gender gap
is closed

South-East Asia

197
years

World Economic Forum
Global Gender Gap Report 2020

🟩 1 (best) - 31		🟧 95 - 125	
🟦 32 - 62		🟥 125 - 153 (worst)	
🟨 63 - 94		⬜ No Data	

Map of the world ranking from the WEF Global Gender Gap Report 2020 (Jerome Taylor via Wikipedia, 2020)
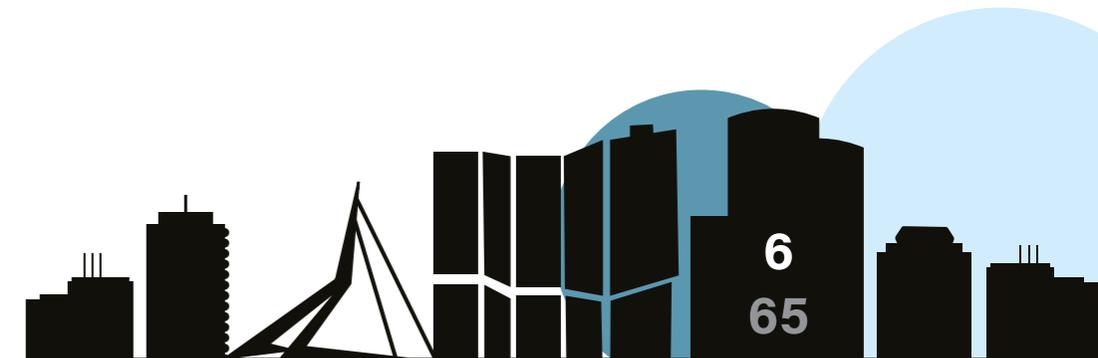
THE PROBLEM

Gender inequality

In design

PASSENGER SEAT SCALE

RISK OF SEATBELT INJURY

HEAD
NECK
CHEST
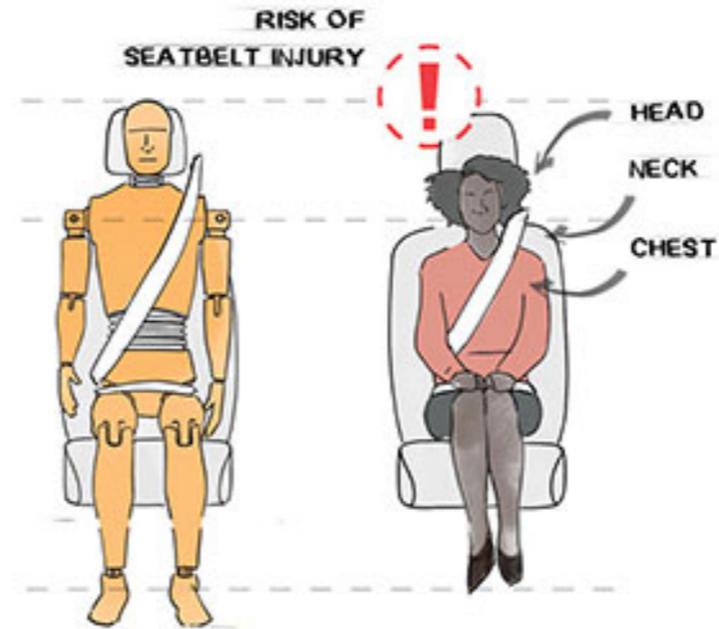
CRASH DUMMY, BASED OFF OF 50th PERCENTILE MALE

FEMALE, REPRESENTING 50th PERCENTILE HEIGHT

Gender inequality in the design of airbags (Criado Perez, 2019)

DISTANCE FROM AIRBAG

MEN
WOMEN

RISK OF AIRBAG INJURY
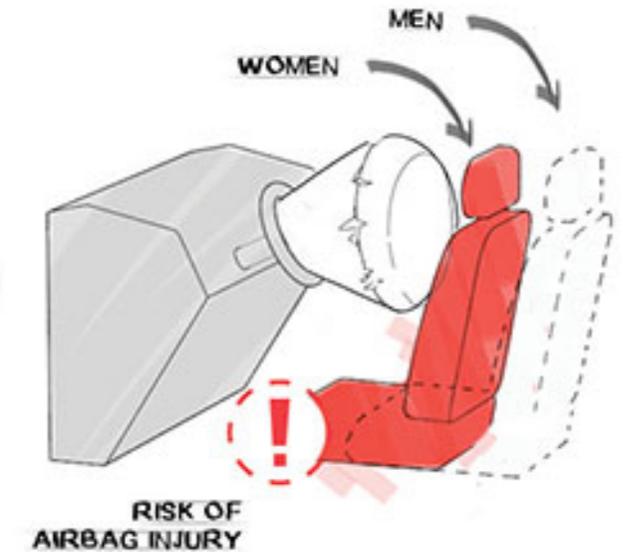
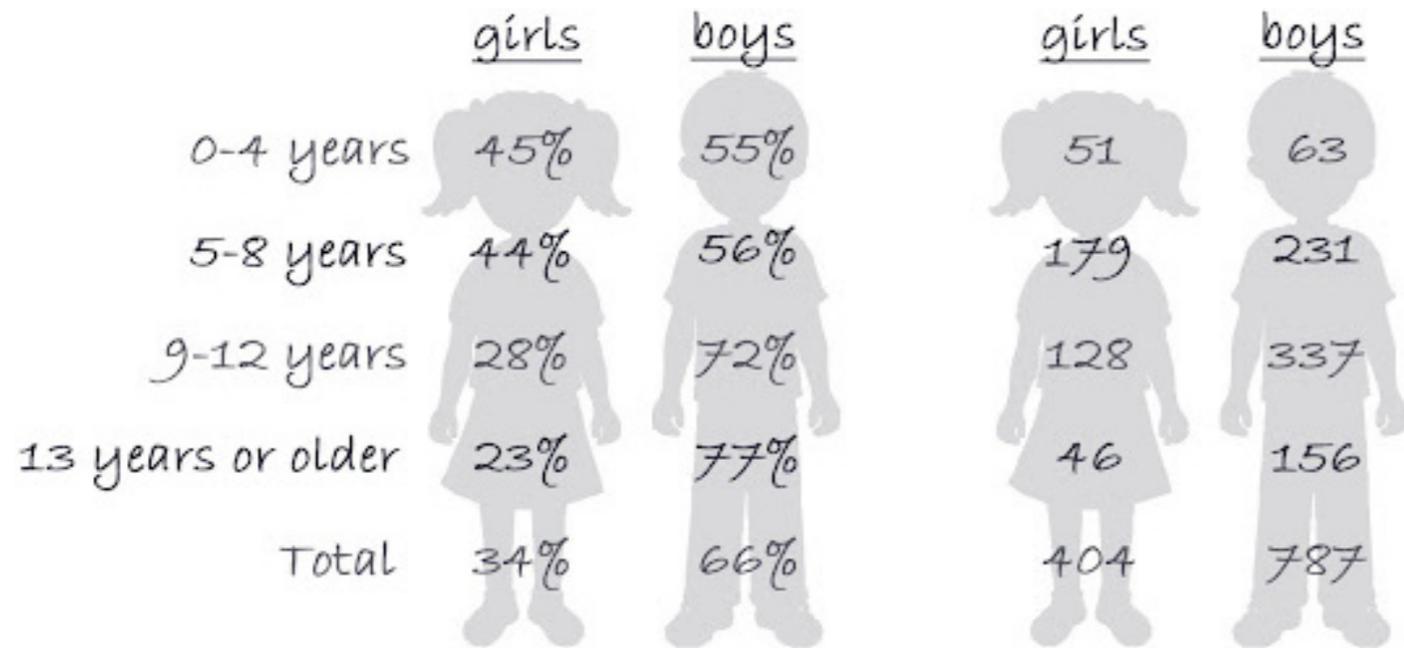SEATS DESIGNED FOR LARGER USERS REQIRE MANY WOMEN TO MOVE SEAT FAR FORWARD TO REACH PEDALS AND STEERING WHEEL

A FEMALE FUTURE

THE PROBLEM

Gender inequality

In urban environments

	girls	boys		girls	boys
0-4 years	45%	55%		51	63
5-8 years	44%	56%		179	231
9-12 years	28%	72%		128	337
13 years or older	23%	77%		46	156
Total	34%	66%		404	787

Amounts of children playing outside, by gender (Urban Springtime, 2021)

A mother with two children
Sitting on a bench, snacking, playing
Staying

A group of children
Playing at school during break
Staying

Two elderly people
Spontaneous meeting, making small-talk
Moving, then staying

A young boy
Looking for someone to play with, or waiting for somebody
Moving, then staying

A child
Playing on the playground equipment
Staying

An elderly man
Throwing out the trash
Moving

A young-adult
Driving through the neighbourhood on a scooter
Moving

A group of teenagers
Playing football
Staying

User-analysis of a public space in Hillesluis, Rotterdam-Zuid. Only one woman was present during observations (Author, 2022)

A FEMALE FUTURE

TOWARDS GENDER EQUALITY

Approach

Hypothesis

Women use and perceive the city differently than men.

TOWARDS GENDER EQUALITY

Approach

Hypothesis

Women use and perceive the city differently than men.

Current cities have been built by and for men, with traditional household roles in mind.

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Current cities have been built by and for men, with traditional household roles in mind.

Thus, the city is not built for women.

TOWARDS GENDER EQUALITY

Approach

Hypothesis

Women use and perceive the city differently than men.

Current cities have been built by and for men, with traditional household roles in mind.

Thus, the city is not built for women.

This calls for a redesign of the city that is gender inclusive.

TOWARDS GENDER EQUALITY

Approach

Research questions

"*How can cities be redesigned to be gender inclusive?*"

The social

SQ1
(In which ways) does gender relate to the built environment?

Fusion

SQ3
How can gender equality in Rotterdam Zuid be achieved through urban design?

The spatial

SQ2
Focusing on the case of Rotterdam-Zuid, in which ways does the built environment currently cater to gender inclusivity?

SQ4
In which ways can the principles used in Rotterdam-Zuid be applied to all urban environments?

TOWARDS GENDER EQUALITY

Approach

Framework
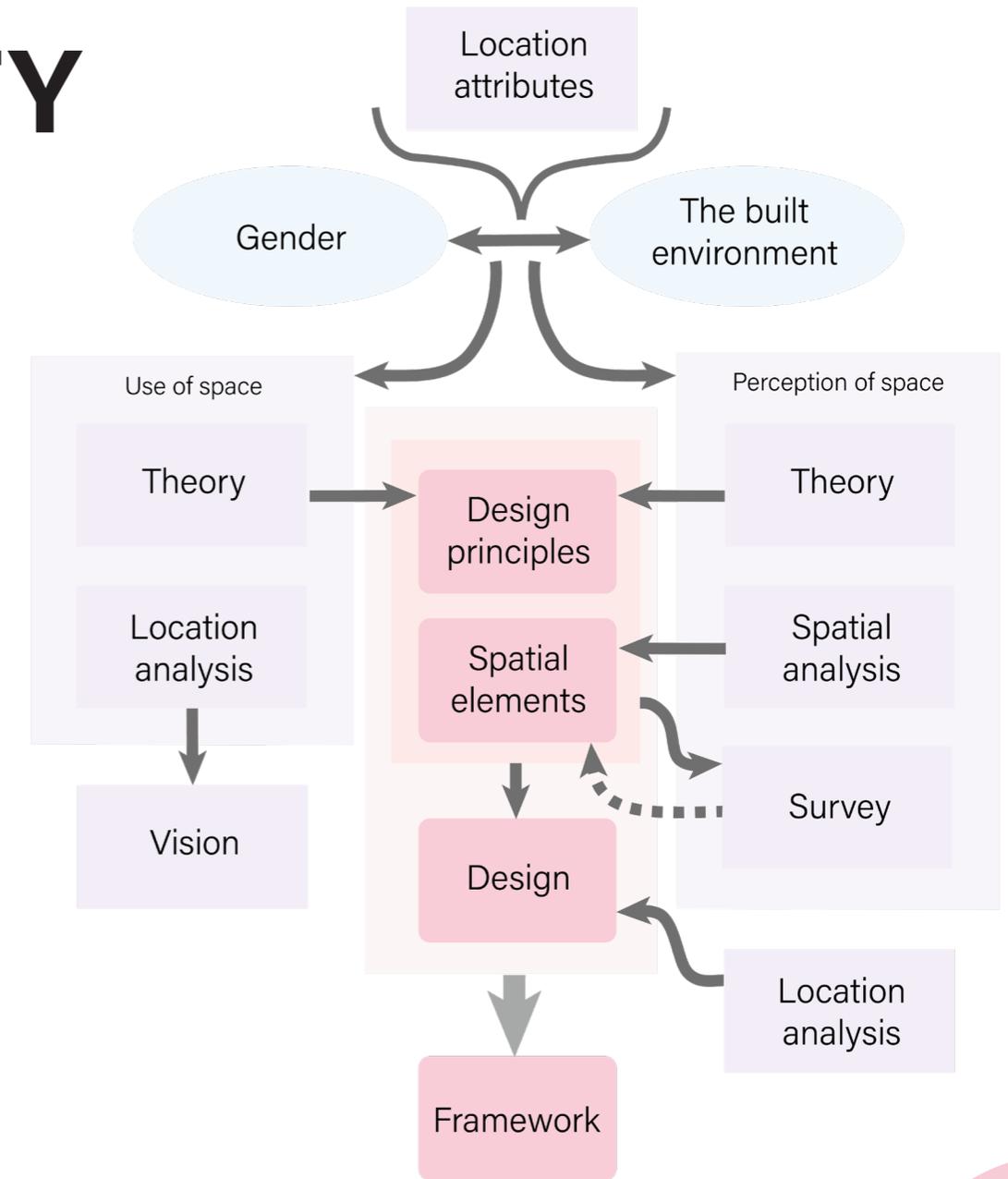
Related concepts and approach to the project (Author, 2023)

TOWARDS GENDER EQUALITY

Theory

Use and perception

Intuition

Lived
space
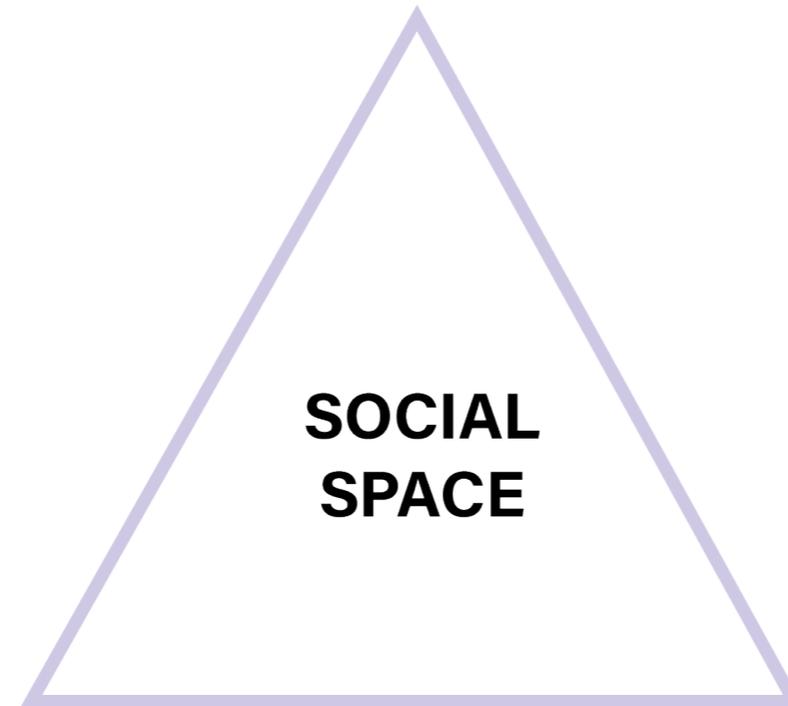
SOCIAL
SPACE

Instinct

Intellect

Perceived
space

Conceived
space

The triad of social space (Author, 2023, adapted from Lefebvre, 1991)

A FEMALE FUTURE
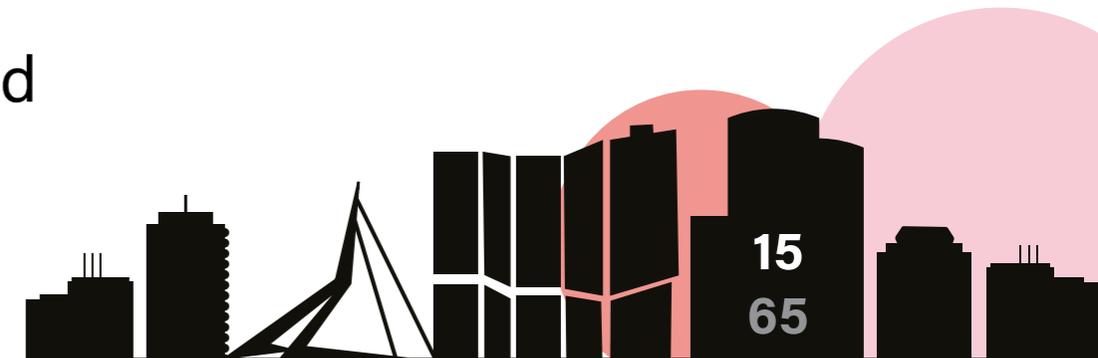
TOWARDS GENDER EQUALITY

Theory

Use and perception
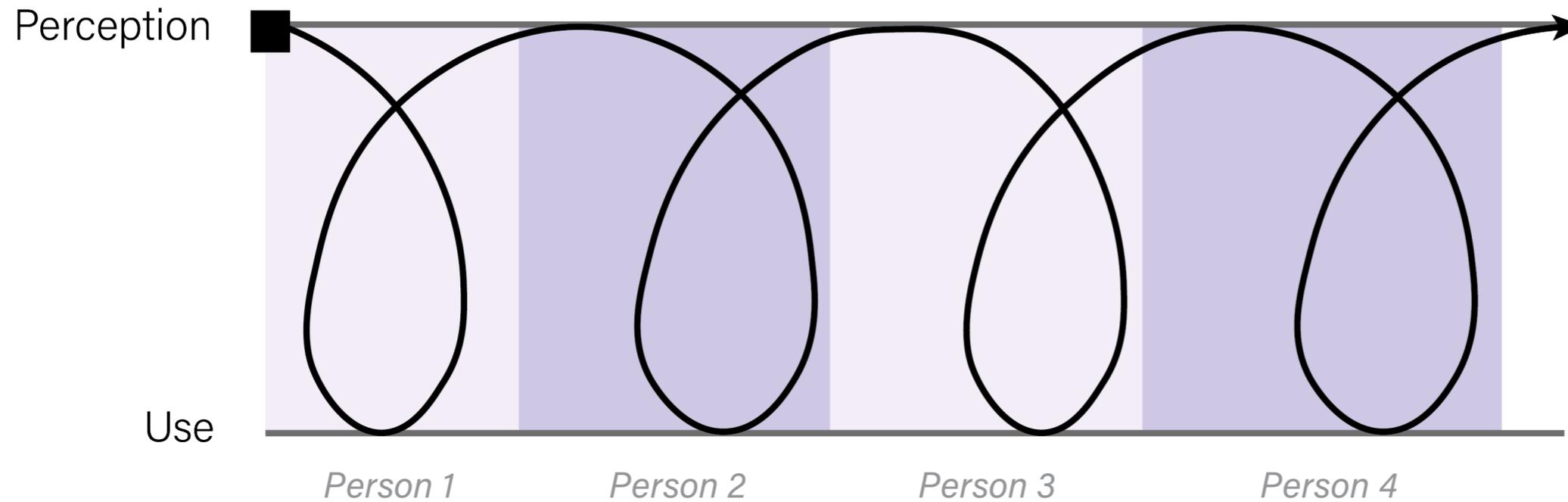
Relation between perception and use of space (Author, 2023)

TOWARDS GENDER EQUALITY

Theory
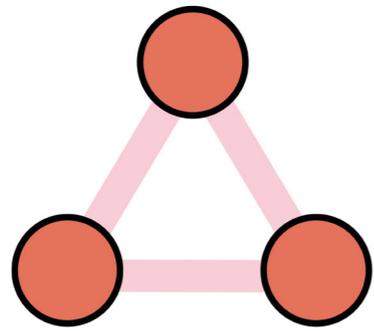
Design principles
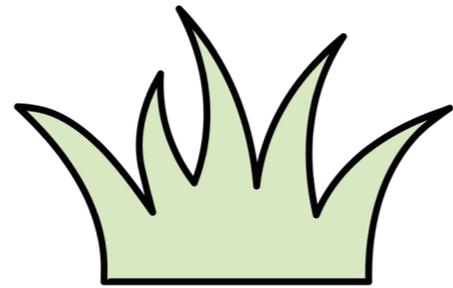
Network   Green structure   Amenities
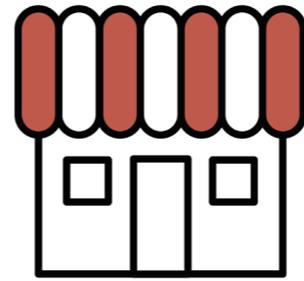
TOWARDS GENDER EQUALITY

Theory
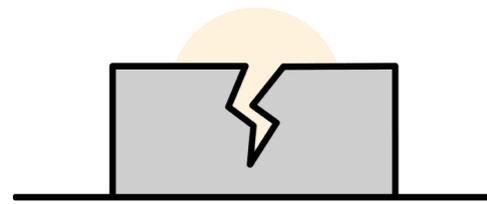
Design principles
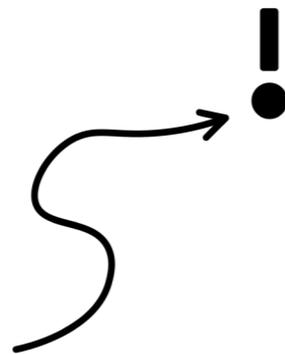
Break barriers   Wayfinding   Viewpoints
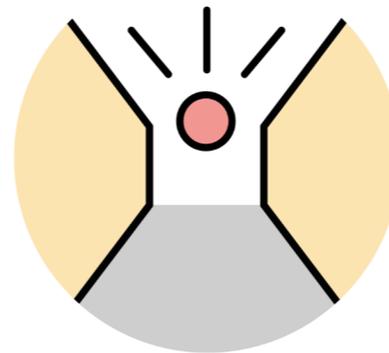
TOWARDS GENDER EQUALITY

Theory

Design principles
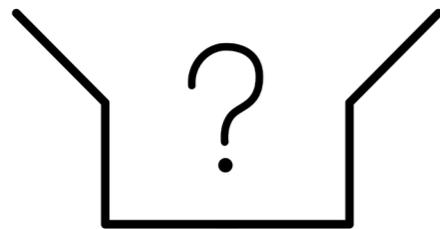
Ownership
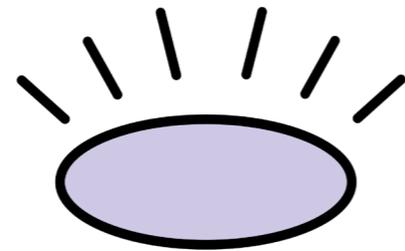
Identity
of place
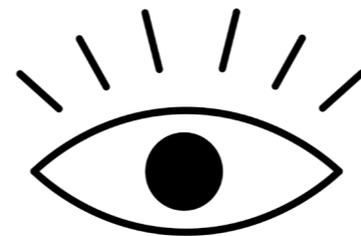
Being seen

ANALYSIS

Rotterdam-Zuid
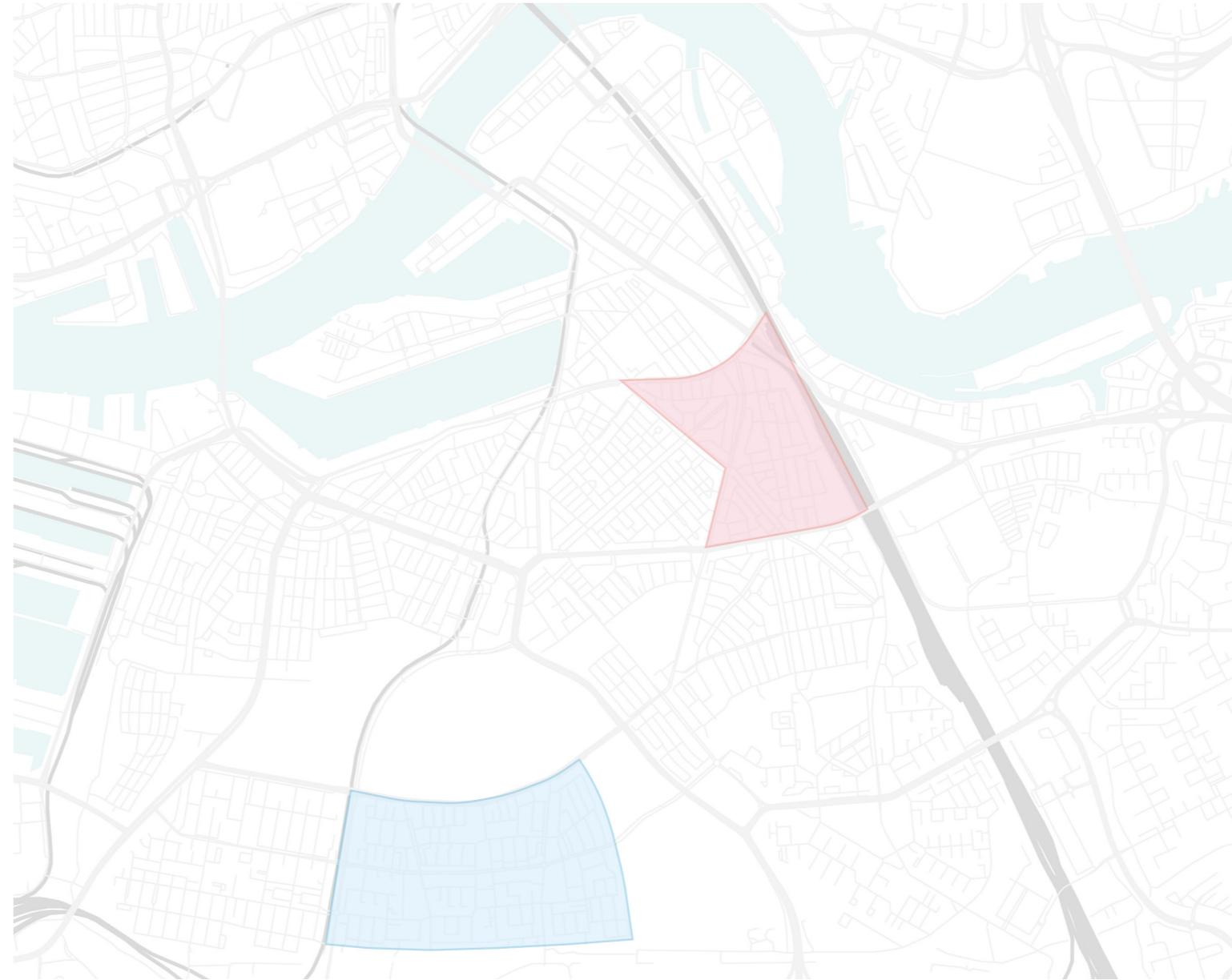
ANALYSIS

Rotterdam-Zuid

Liveability

Liveability compared to the Dutch average (Leefbaarometer, 2023)

Neighbourhood profile of the Charlois and Feyenoord-district in Rotterdam-Zuid (Gemeente Rotterdam, 2023)
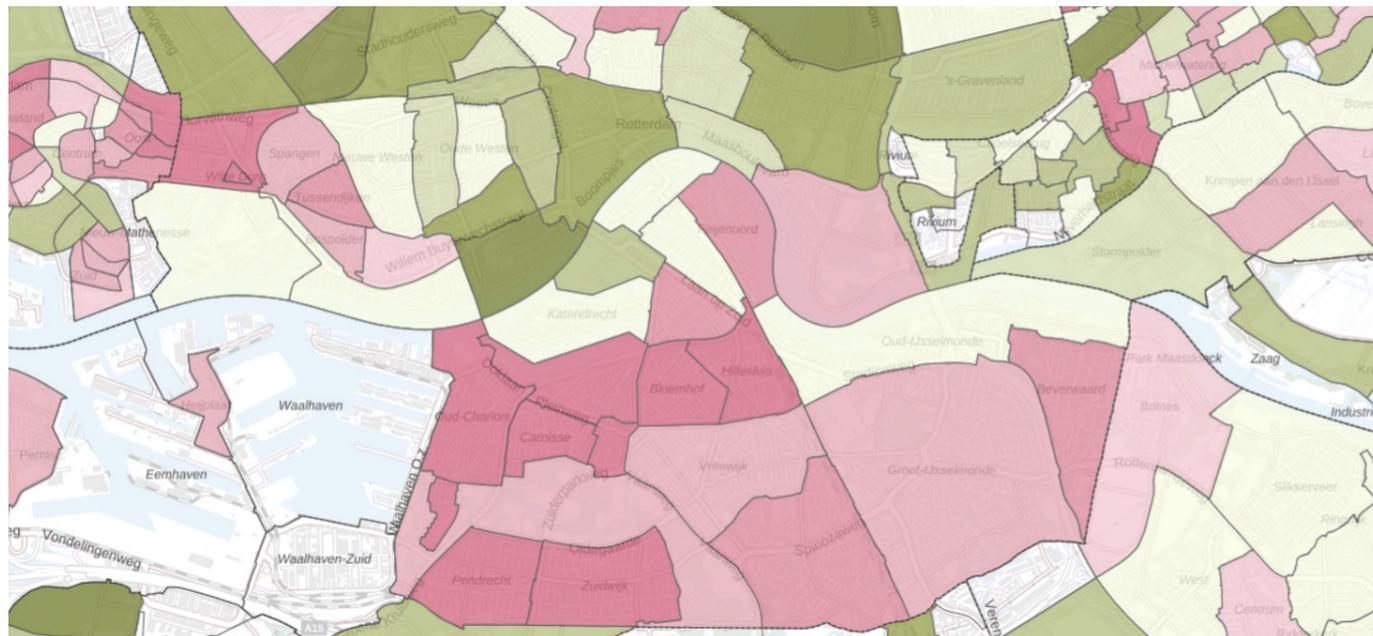
A FEMALE FUTURE
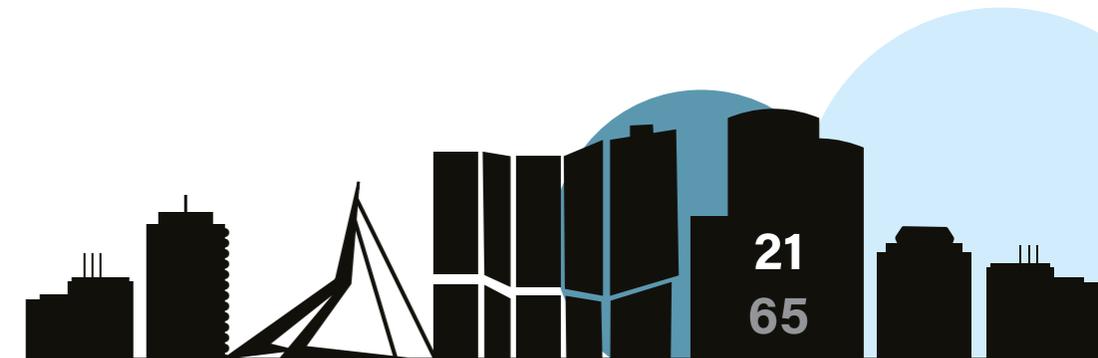
ANALYSIS
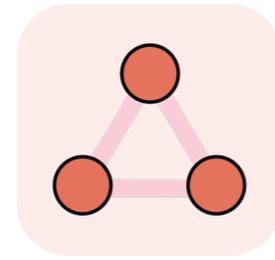
Rotterdam-Zuid

Car network
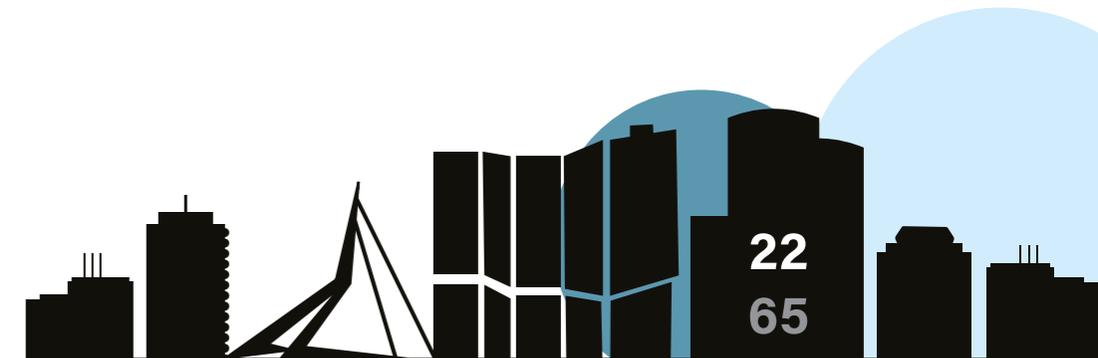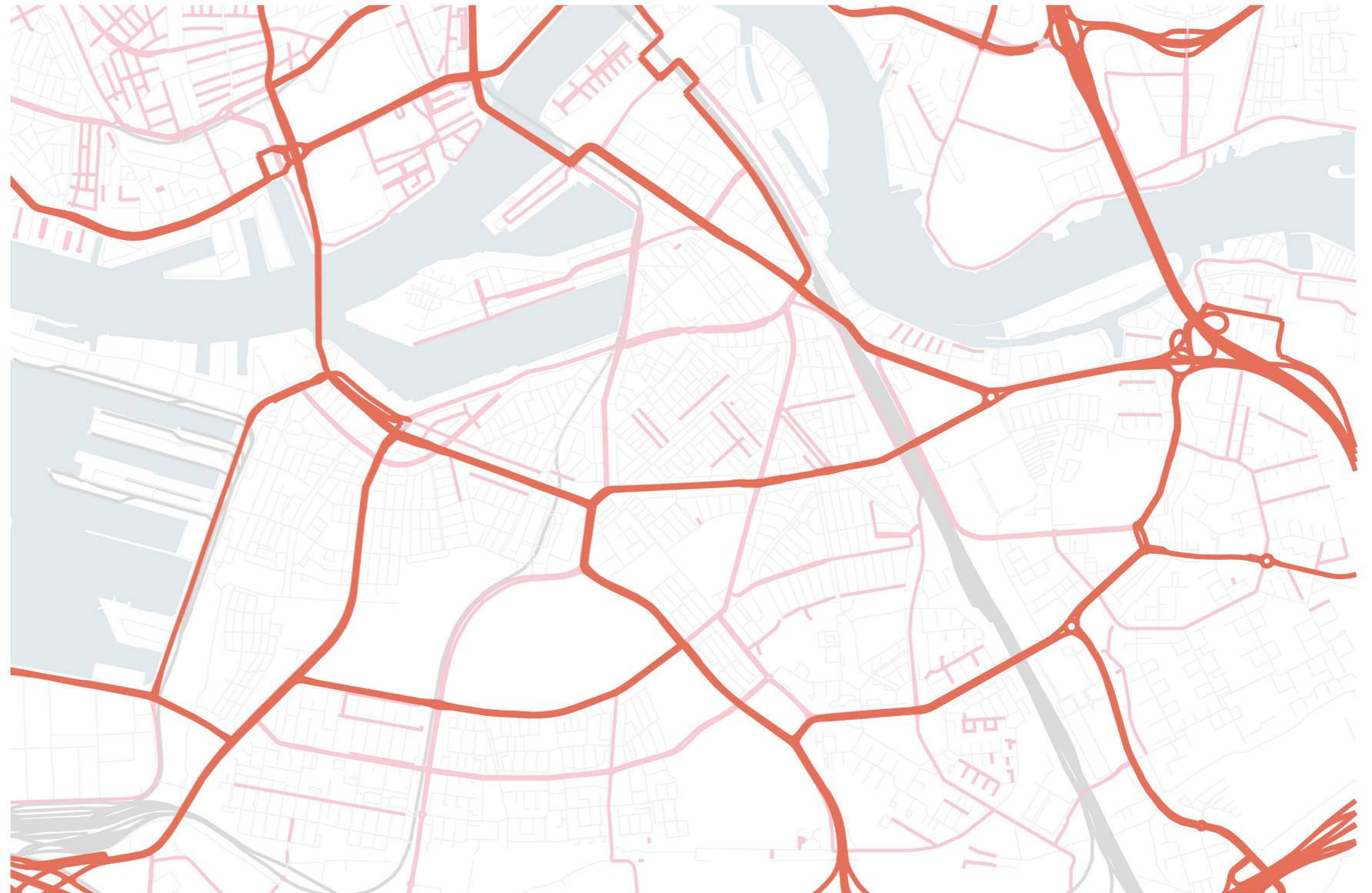
ANALYSIS

Rotterdam-Zuid
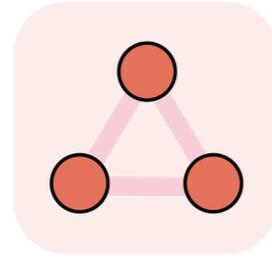
Access to cars

OVERALL TRANSPORTATION ACCESS

	Dutch	Western	Non-western
car	69%	53%	34%
bike	85%	73%	50%

no car	28%
no bike	11%
no car or bike	16%

NOORD

car	47%
bike	74%
public transport	92%

ZUID

car	57%
bike	69%
public transport	85%

A FEMALE FUTURE

ANALYSIS

Rotterdam-Zuid

Trip-chaining

Accessibility

CENTRE
38.000 residents
6.300 addresses/km²

WILHELMINAPLEIN
27.500 per day

ZUID
3.600 per day

FEYENOORD
77.000 residents
4.900 addresses/km²

CHARLOIS
70.000 residents
3.800 addresses/km²

ZUIDPLEIN
39.900 per day

LOMBARDIJEN
6.700 per day
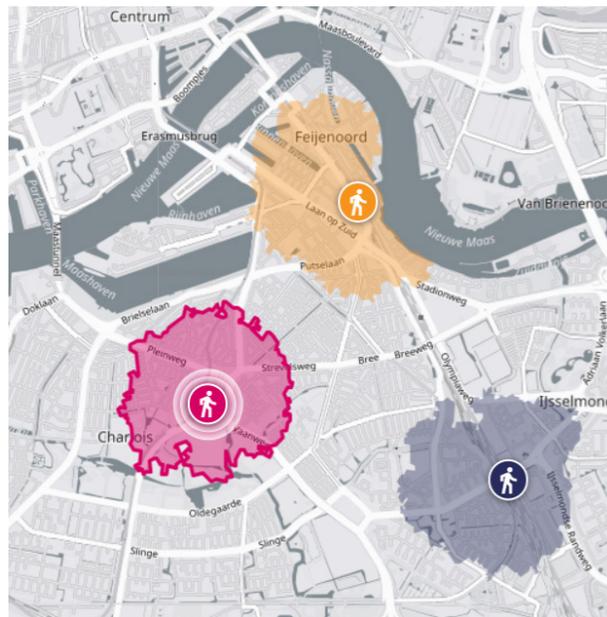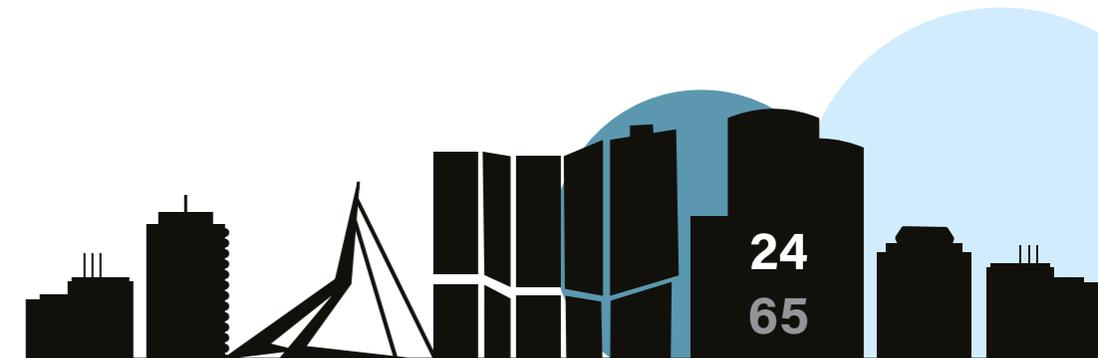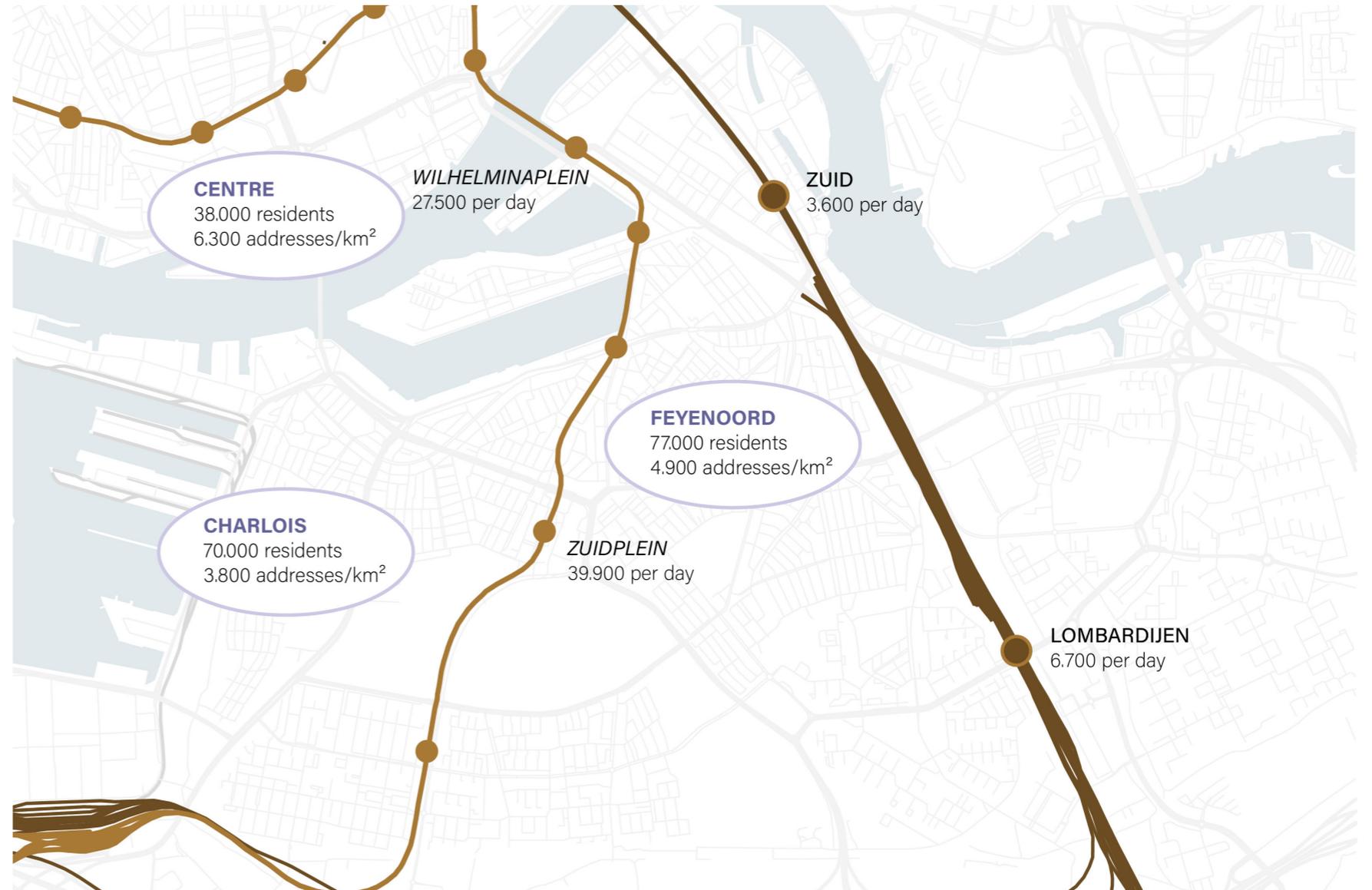
ANALYSIS

Rotterdam-Zuid

Trip-chaining

Accessibility

ANALYSIS
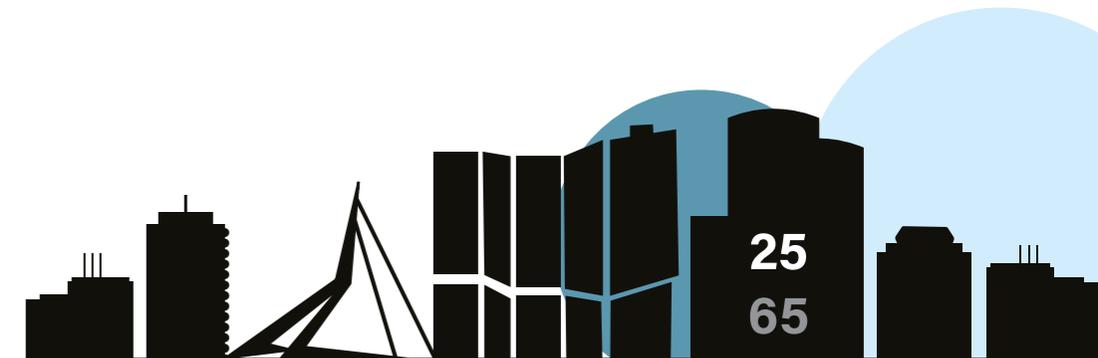
Rotterdam-Zuid
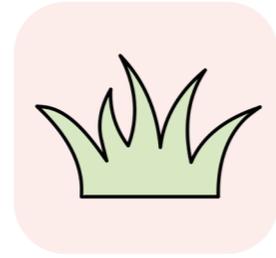
Disconnected

Contrast

ANALYSIS

Rotterdam-Zuid
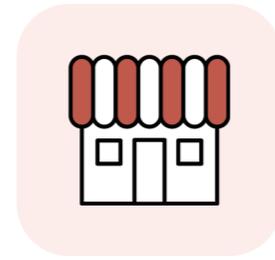
Splintered streets

Corner stores

Recreation/culture
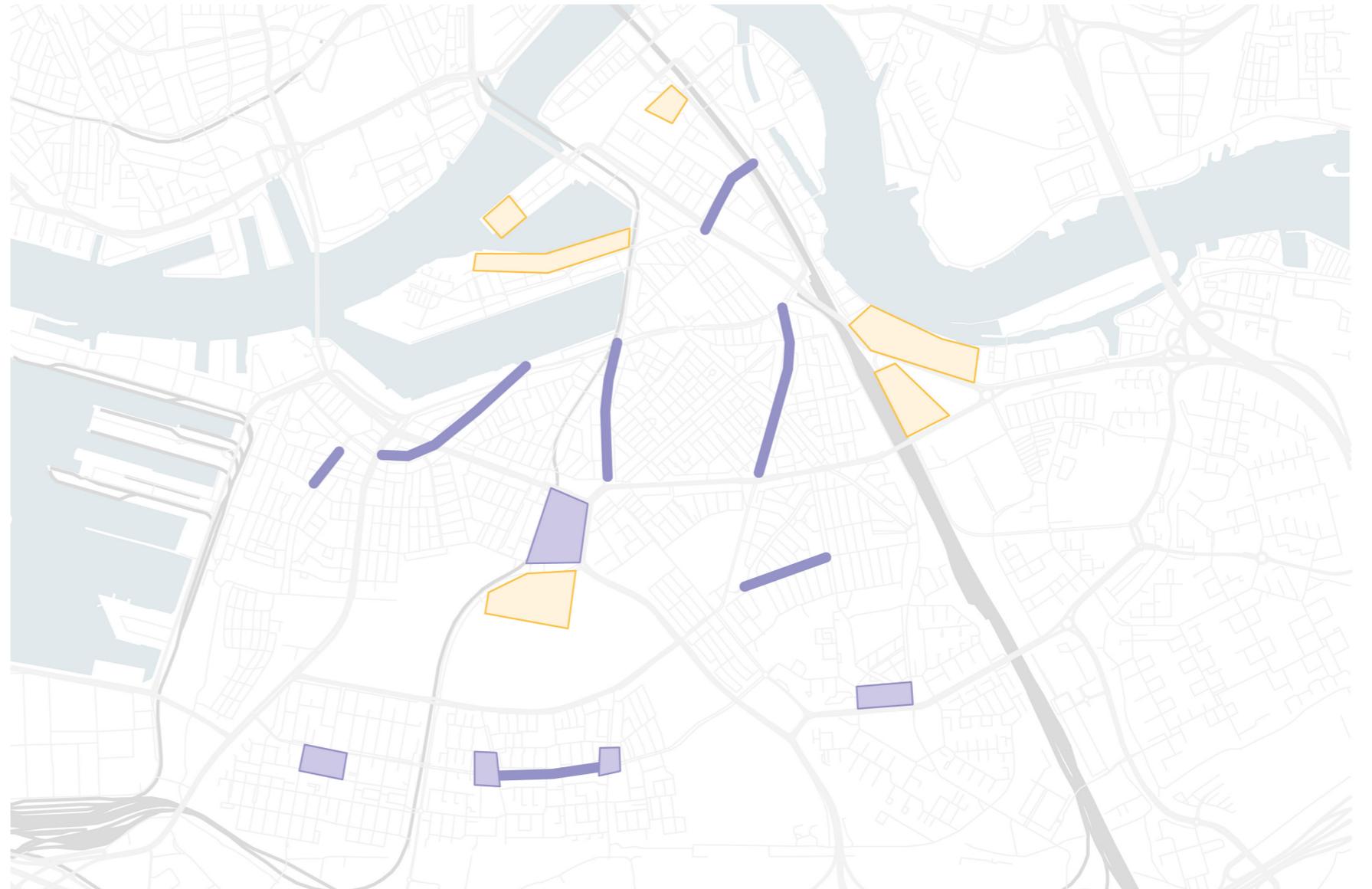
ANALYSIS

Rotterdam-Zuid
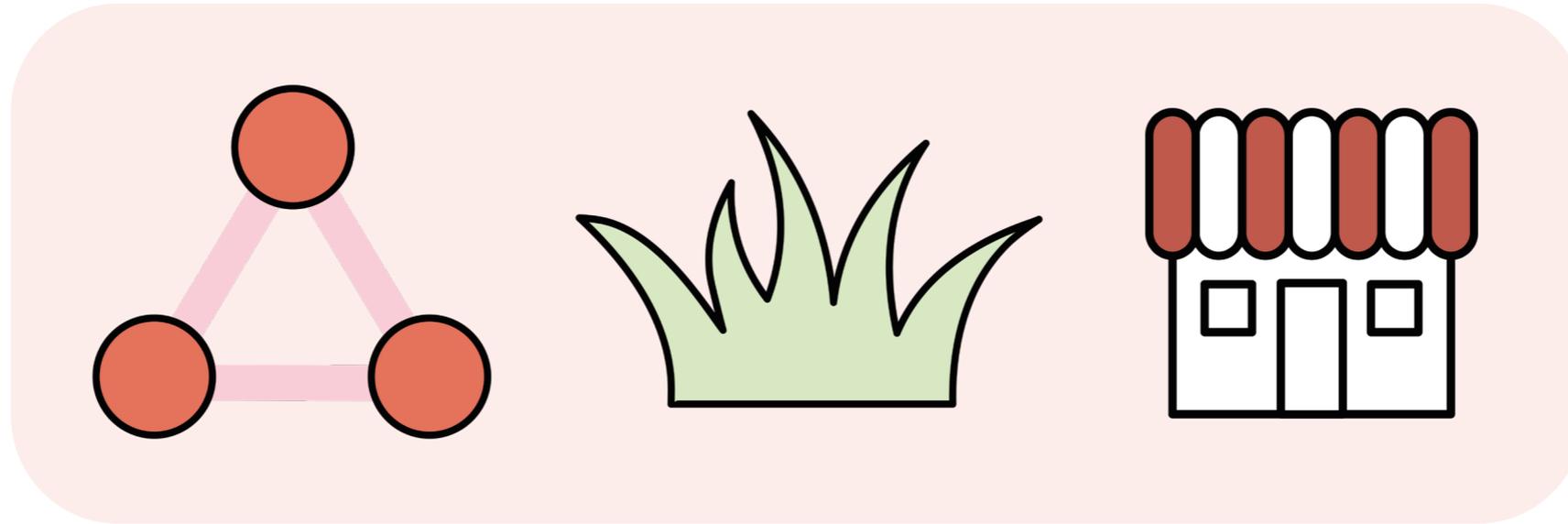
Connectivity
Public transport
Slow traffic

Connected
green structure

Integrate amenities
Use waterfront
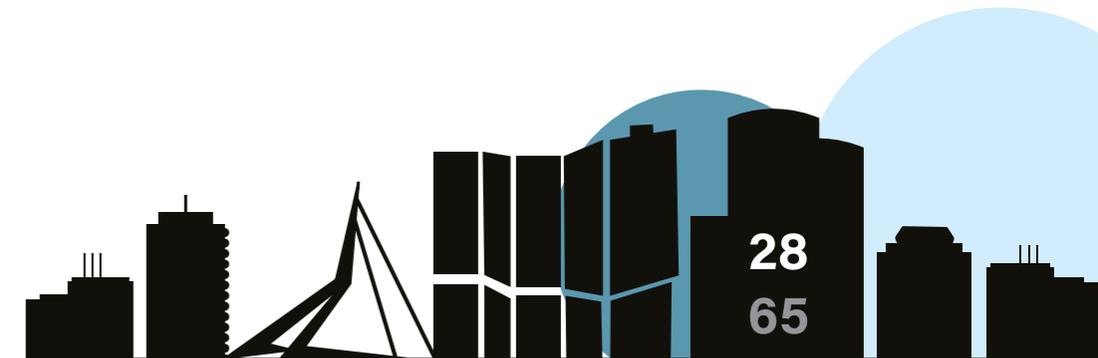
VISION FOR ZUID

New metro line

Slow traffic in green structure

Easier access to amenities

Corner stores

Historic village cores

ANALYSIS
Neighbourhoods

Hillesluis	Zuidwijk
1900-1930 (pre-war)	1950-1960 (post-war)
12.000 inhabitants	14.000 inhabitants
Splintered development	De wijkgedachte
Negligence, crime, poverty	*Cohesion, poverty, safety*
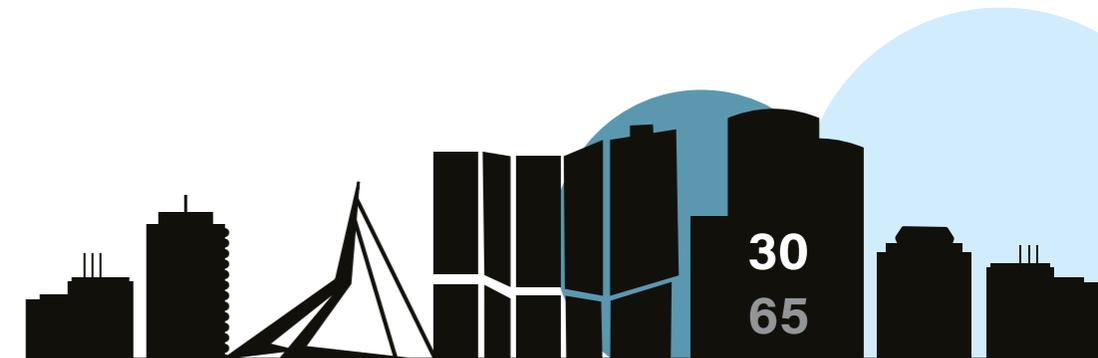
ANALYSIS

Structures
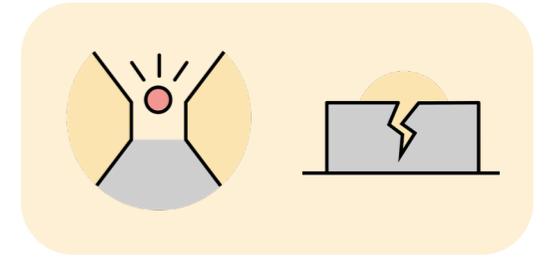
*Free shapes
Less green and blue*
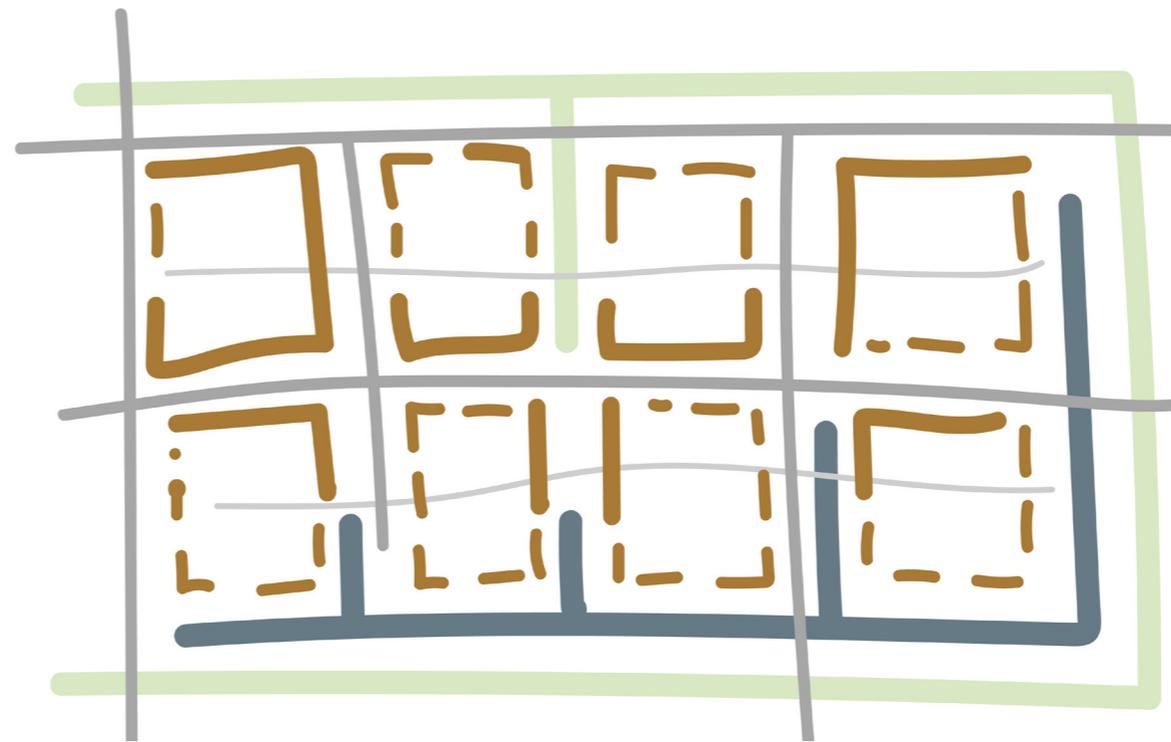
*Orthogonal
Green and blue*

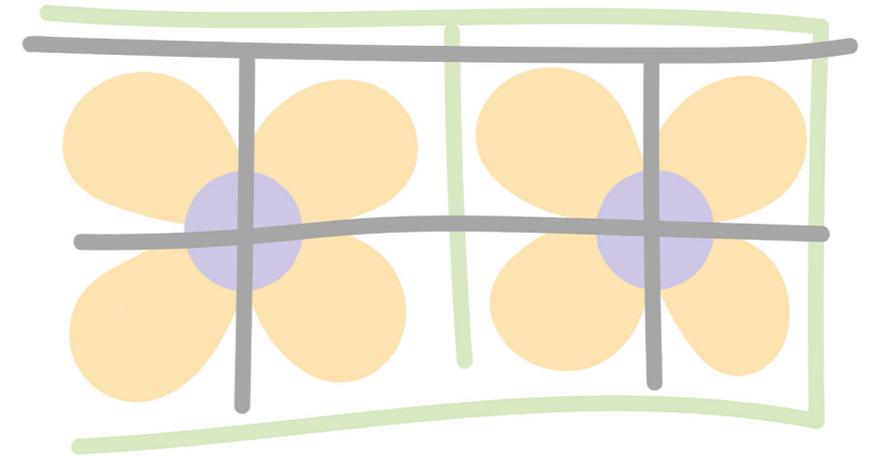# ANALYSIS

Amenities
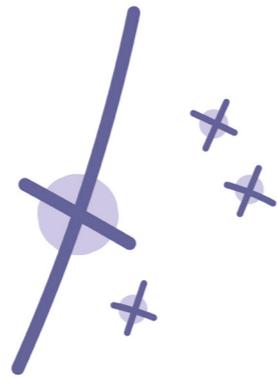
One main street
Higher buildings

Corner stores
Less structured

Clustered and structured
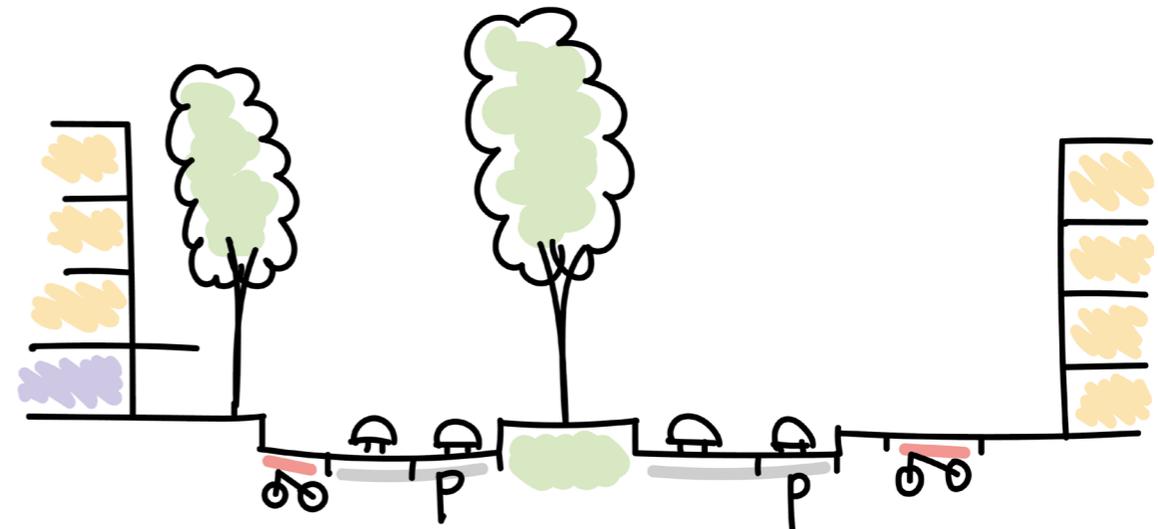
A FEMALE FUTURE

ANALYSIS

Ideas
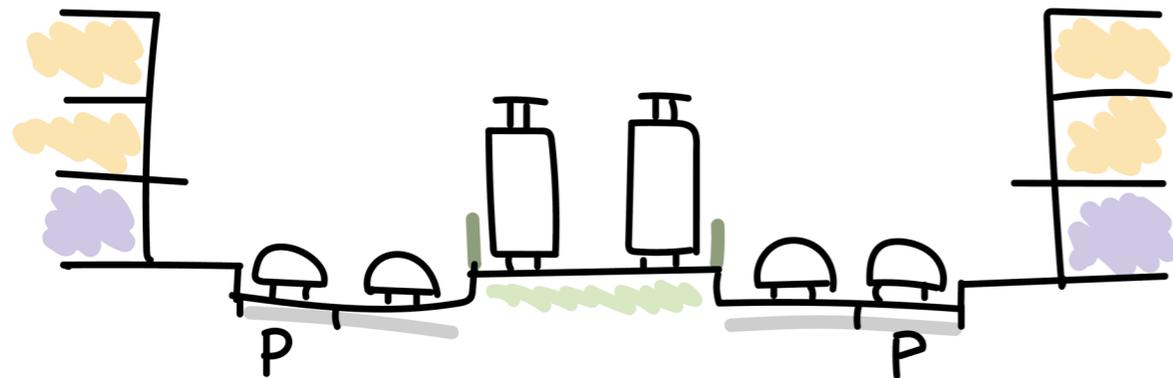
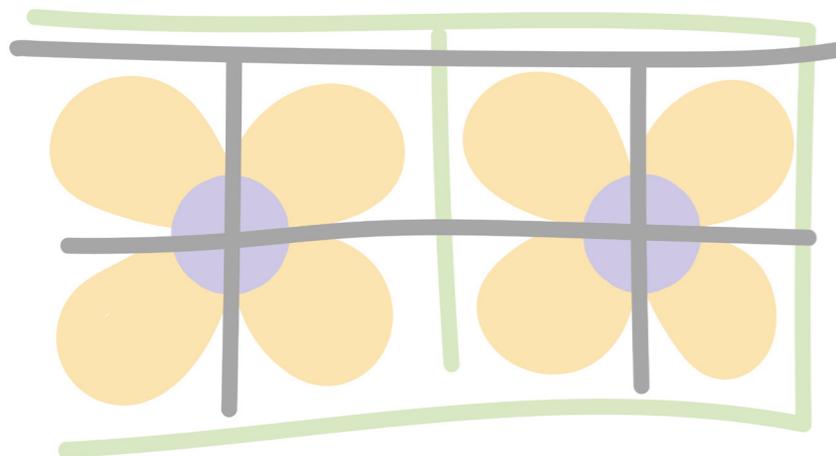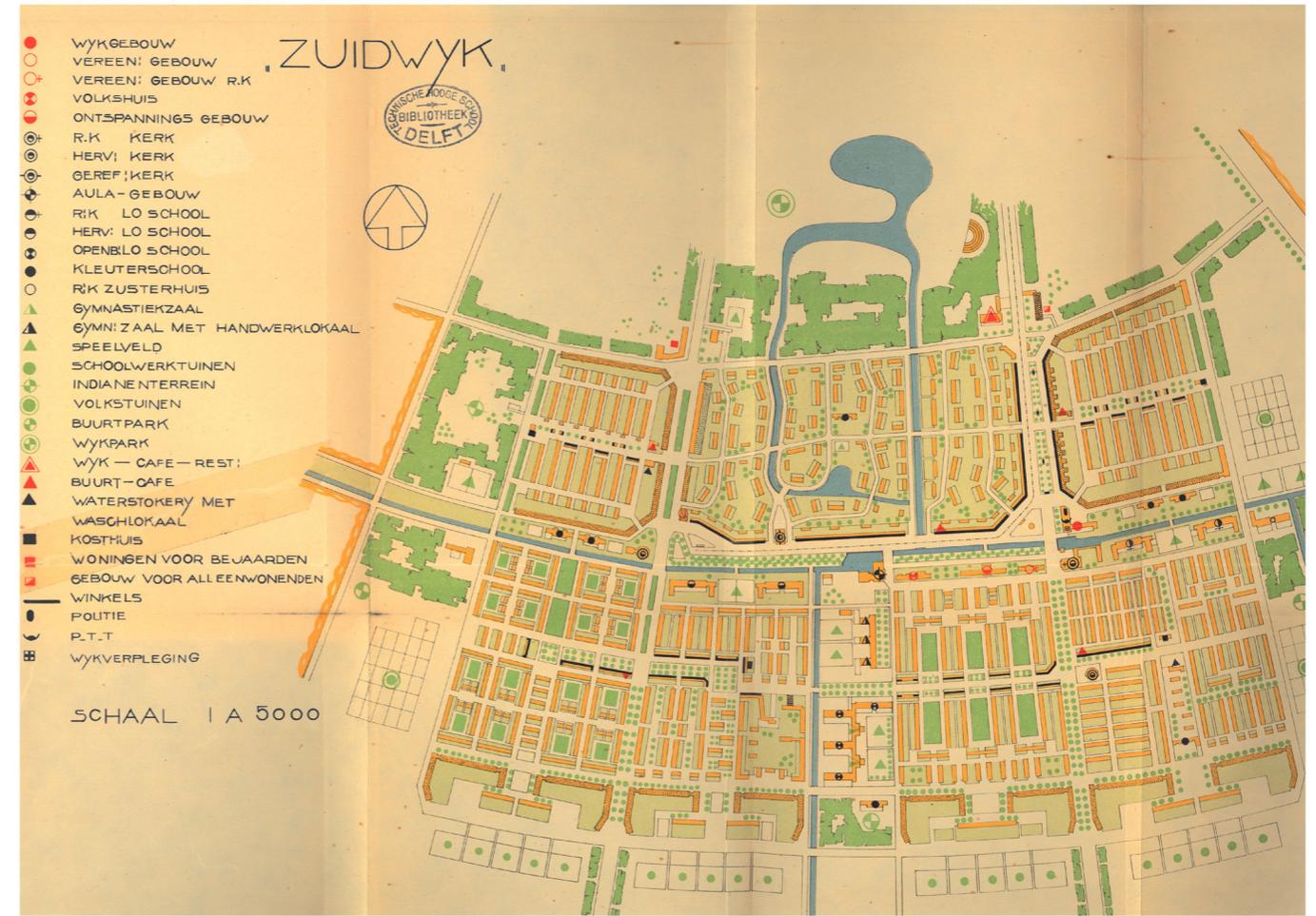Harbour business
Private housing development

Post-war structured
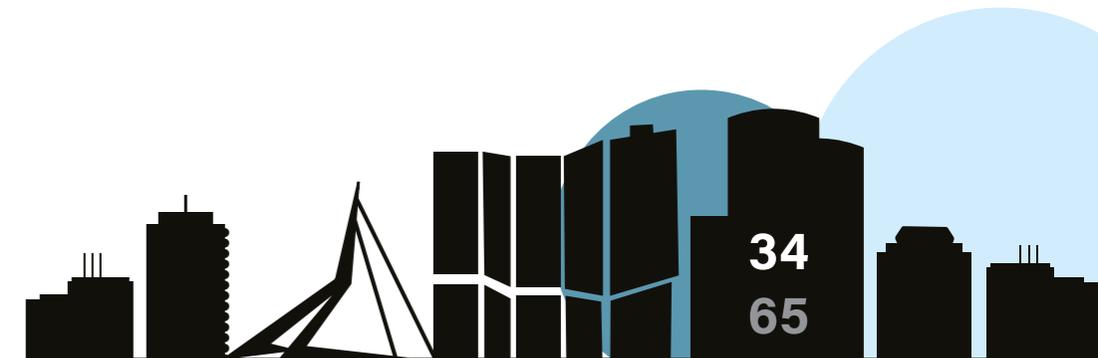Wijkgedachte

ANALYSIS

De wijkgedachte

Spacious

Rings of privacy

Orthogonal

Scheme explaining the traditional family as the core of the urban community in de wijkgedachte (via Rijksdienst van het Cultureel Erfgoed, n.d.)
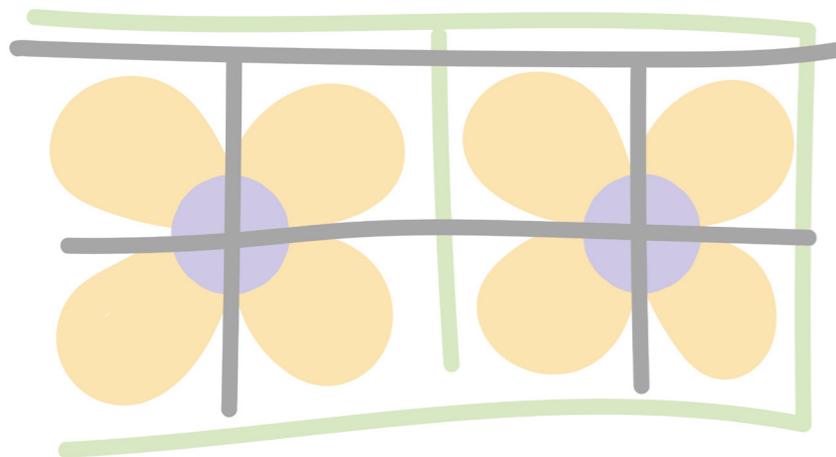

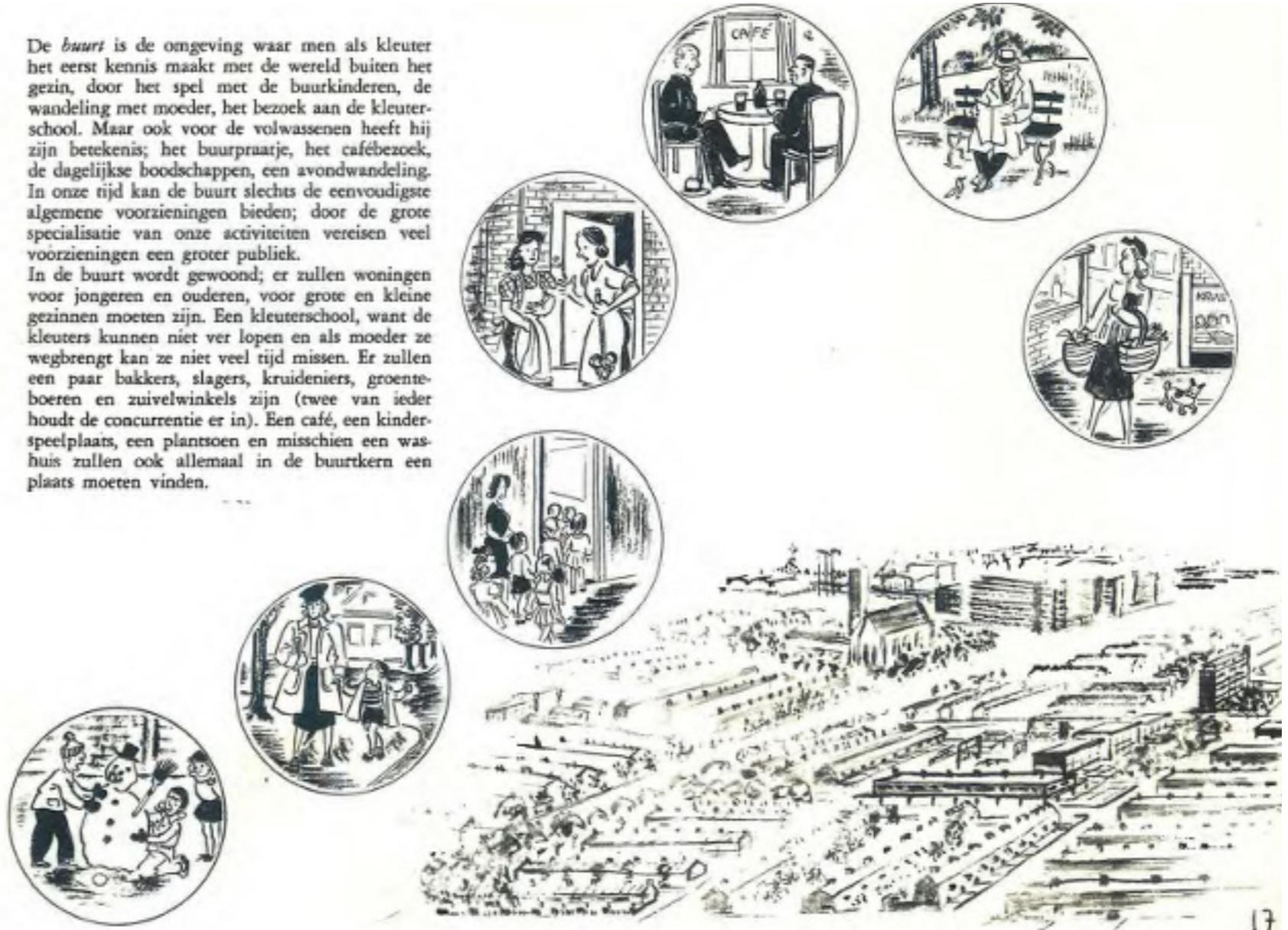**A FEMALE FUTURE**

ANALYSIS

De wijkgedachte

Gender-specific activities

Traditional households

Car-focused

De *buurt* is de omgeving waar men als kleuter het eerst kennis maakt met de wereld buiten het gezin, door het spel met de buurkinderen, de wandeling met moeder, het bezoek aan de kleuterschool. Maar ook voor de volwassenen heeft hij zijn betekenis; het buurpraatje, het cafébezoek, de dagelijkse boodschappen, een avondwandeling. In onze tijd kan de buurt slechts de eenvoudigste algemene voorzieningen bieden; door de grote specialisatie van onze activiteiten vereisen veel voorzieningen een groter publiek.

In de buurt wordt gewoond; er zullen woningen voor jongeren en ouderen, voor grote en kleine gezinnen moeten zijn. Een kleuterschool, want de kleuters kunnen niet ver lopen en als moeder ze wegbrengt kan ze niet veel tijd missen. Er zullen een paar bakkers, slagers, kruideniers, groenteboeren en zuivelwinkels zijn (twee van ieder houdt de concurrentie er in). Een café, een kinderspeelplaats, een plantsoen en misschien een washuis zullen ook allemaal in de buurtkern een plaats moeten vinden.
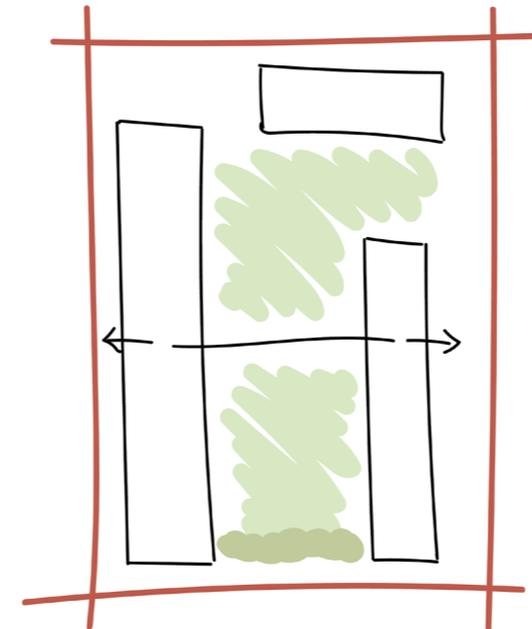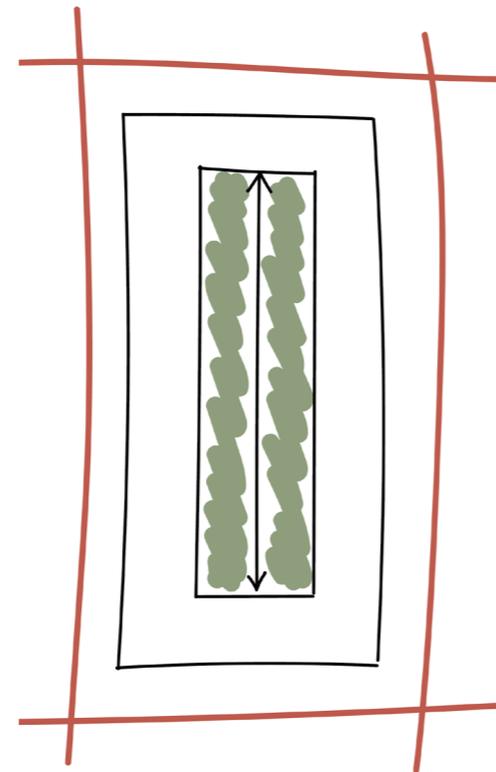
ANALYSIS

History

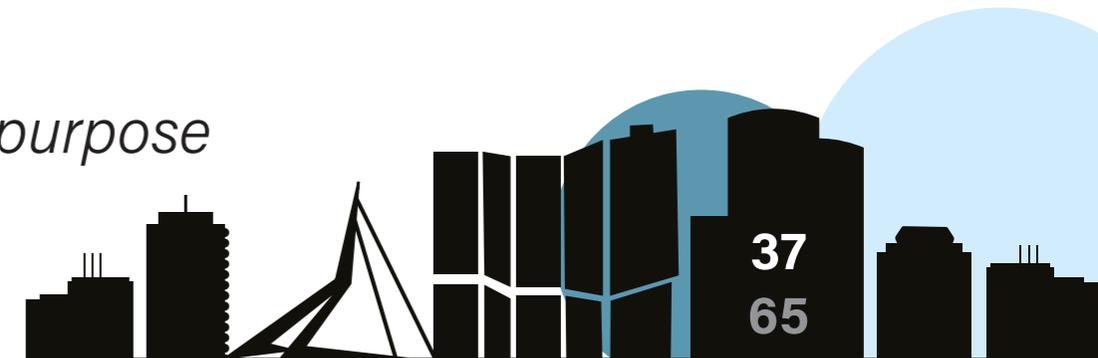*Old polder and dike structure*

Historic layer disappeared

Legend (left map):
- Railroad (1872)
- Dyke
- (Toll)road
- Municipal border
- Polder structure

Legend (right map):
- (Toll)road
- Polder structure

ANALYSIS

Blocks

Closed blocks
Less public green

Open blocks
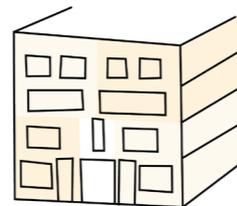*Green without purpose*

A FEMALE FUTURE

ANALYSIS
Typologies

Similar typologies
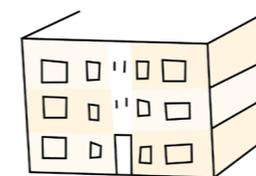*Different atmospheres*
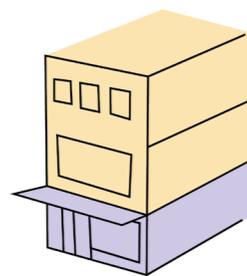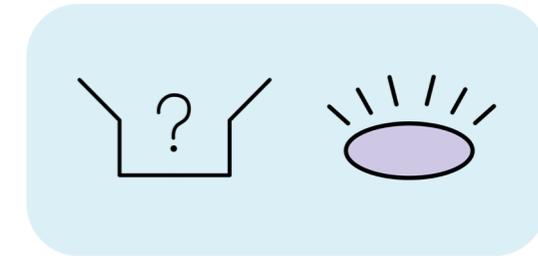
Living and retail

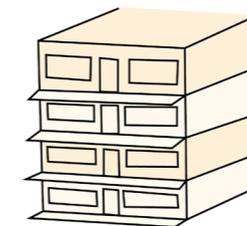Upstairs-downstairs apartment (beneden-bovenwoning)
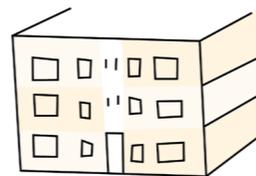
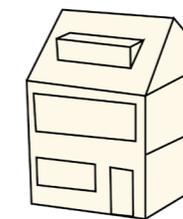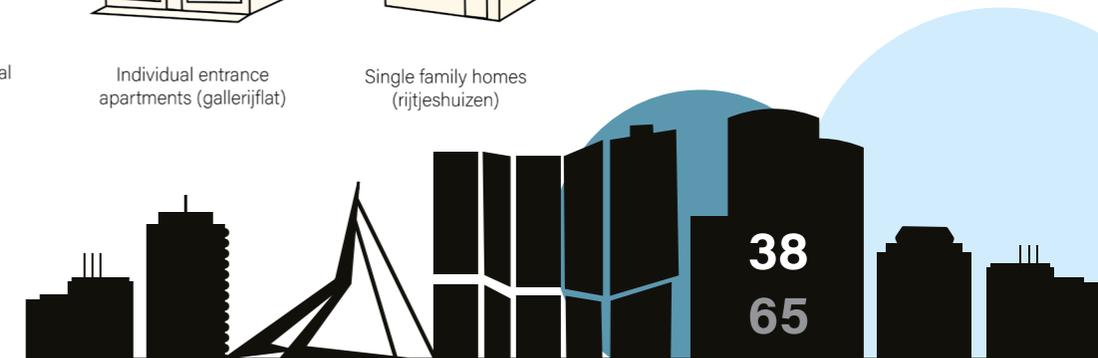Apartments with communal entrances (portiekflat)
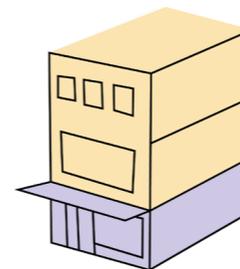
Living and retail

Apartments with communal entrances (portiekflat)
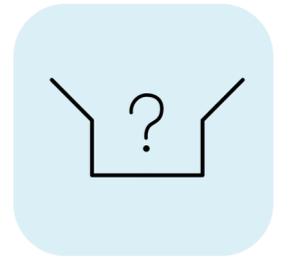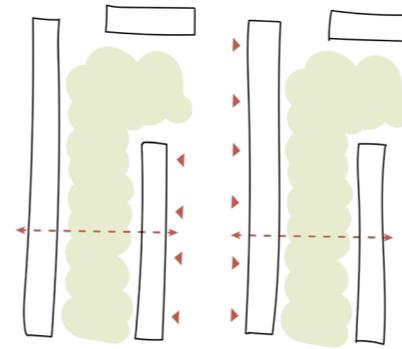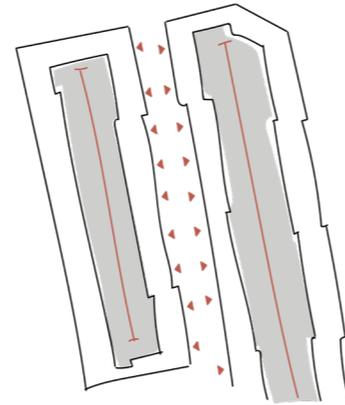
Individual entrance apartments (gallerijflat)
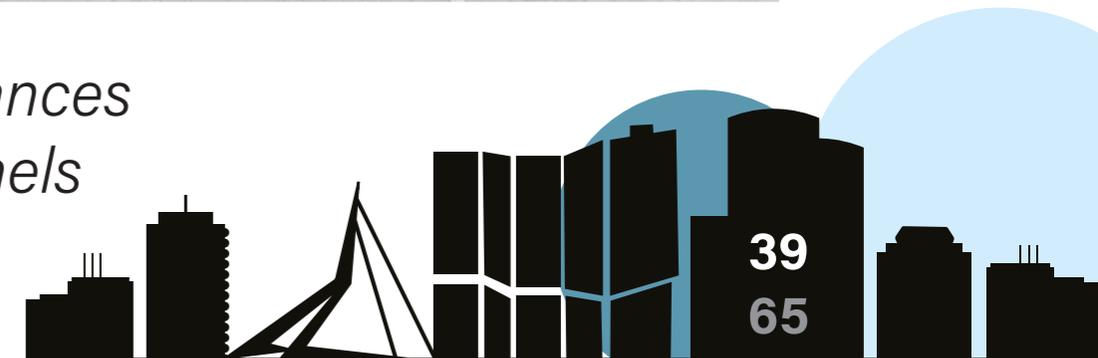
Single family homes (rijtjeshuizen)
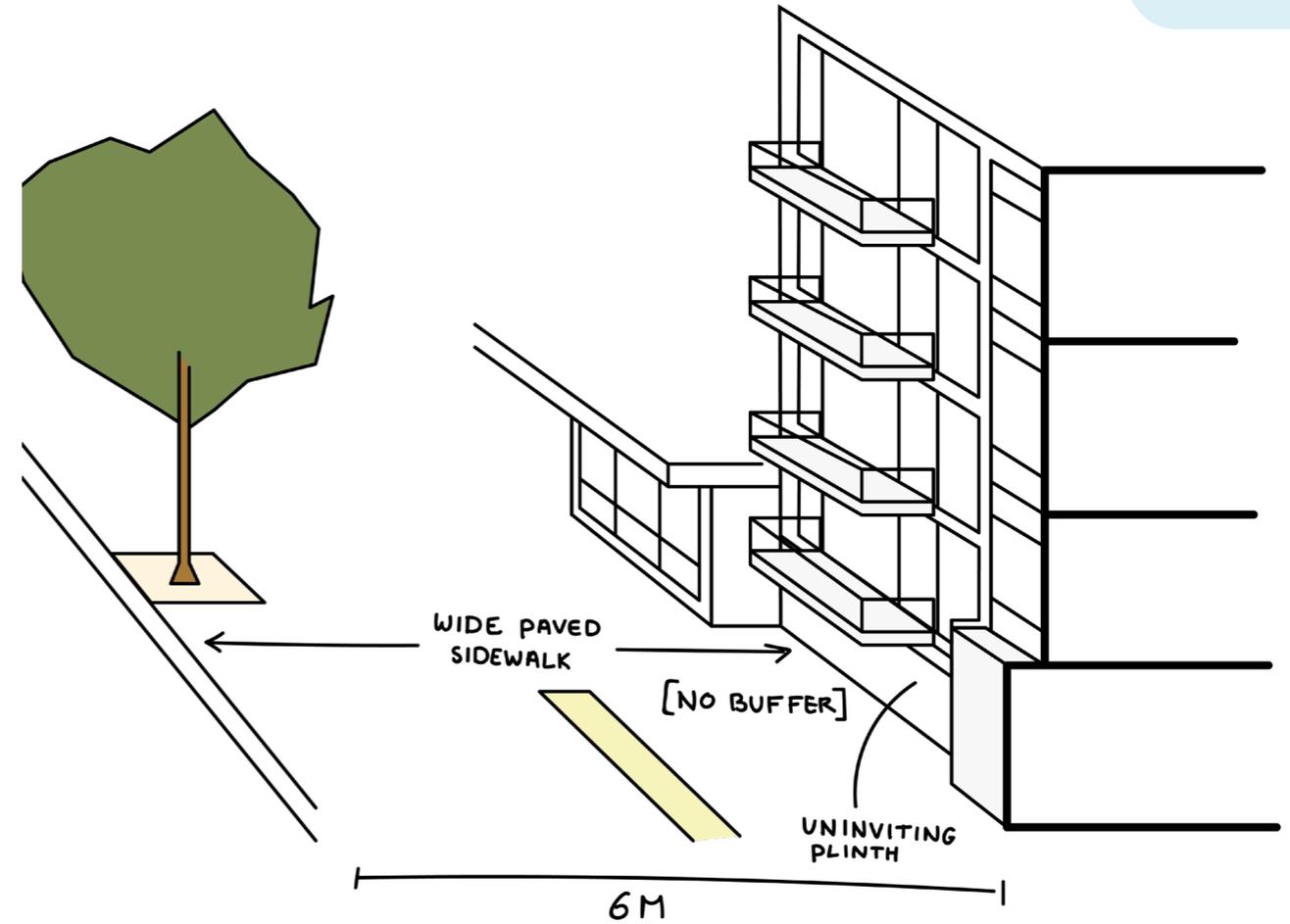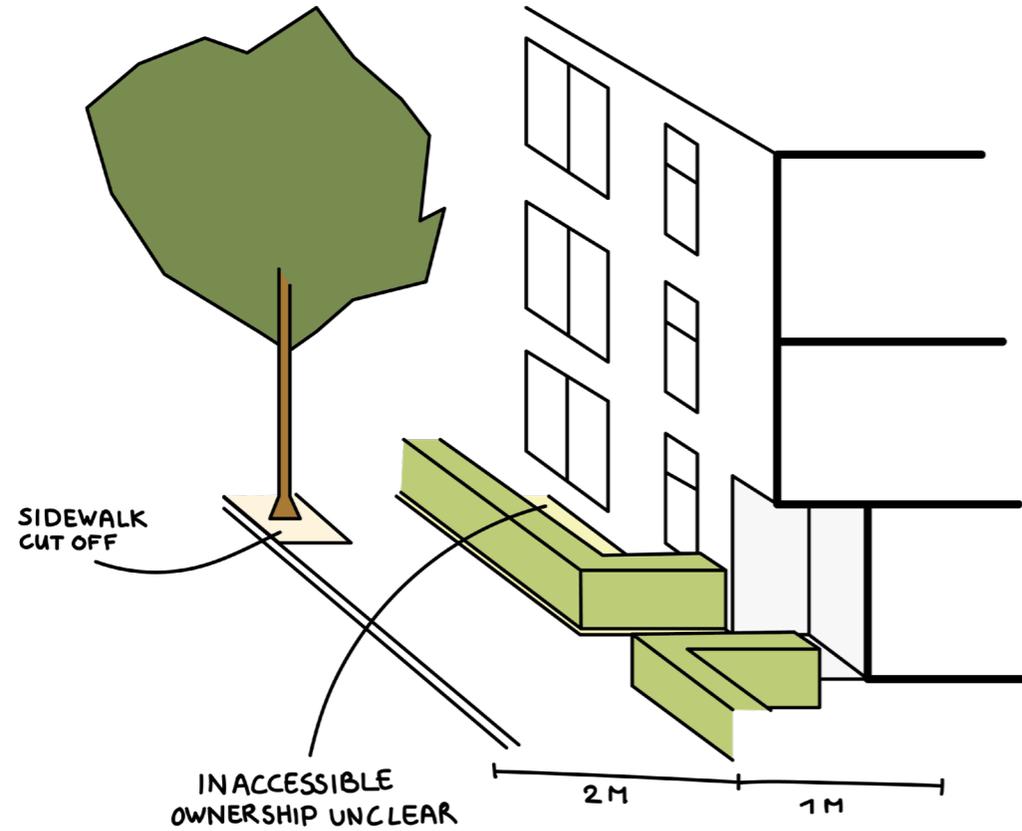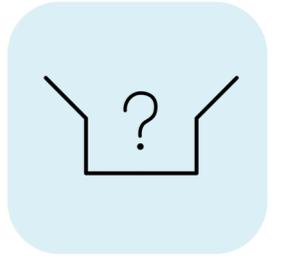
ANALYSIS
Ownership

Hidden entrances

Visible entrances
Hidden tunnels

ANALYSIS

Ownership

SIDEWALK CUT OFF

INACCESSIBLE OWNERSHIP UNCLEAR

2 M

1 M

WIDE PAVED SIDEWALK

[NO BUFFER]

UNINVITING PLINTH

6 M

Inaccessible green
Unclear ownership

Incoherent, wide sidewalk
Uninviting

A FEMALE FUTURE

ANALYSIS

Facades

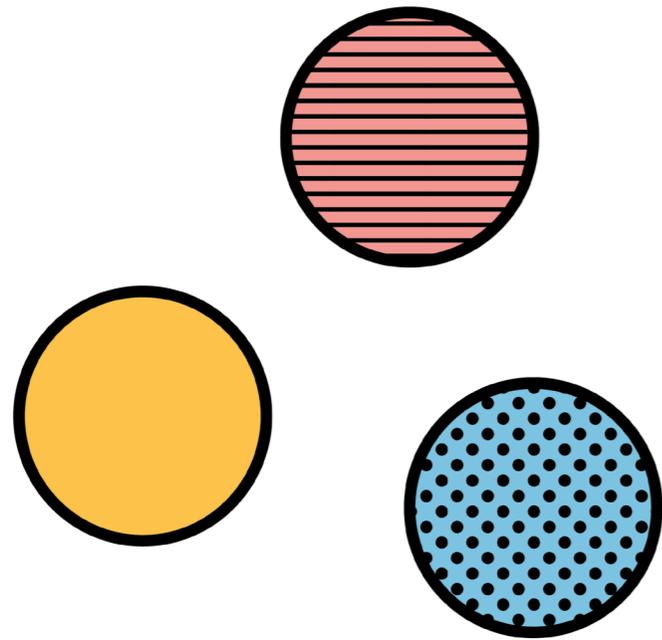*Repetitive*

Chaotic and busy

REPETITIVE ELEMENTS

UNCLEAR OWNERSHIP OF PLINTH

NARROW, LONG PATH

INVISIBLE ENTRANCE

BUSY MANY ELEMENTS

SMALL, CHAOTIC BALCONIES

TUNNEL UNSAFE WALKWAY

[ANONIMOUS]

CLOSED HALF-PLINTH
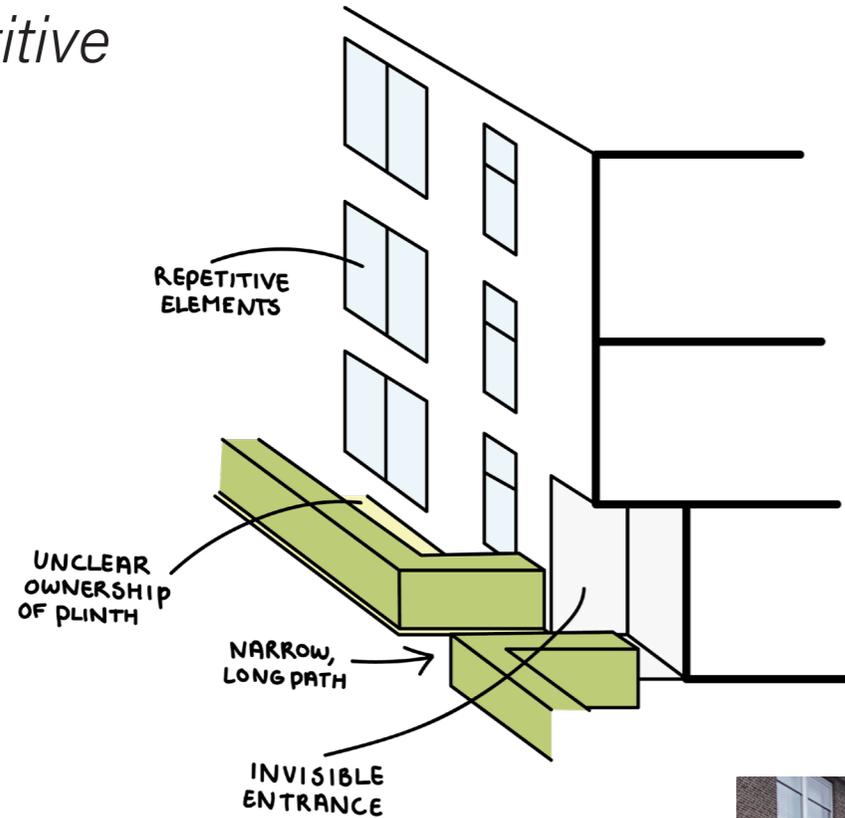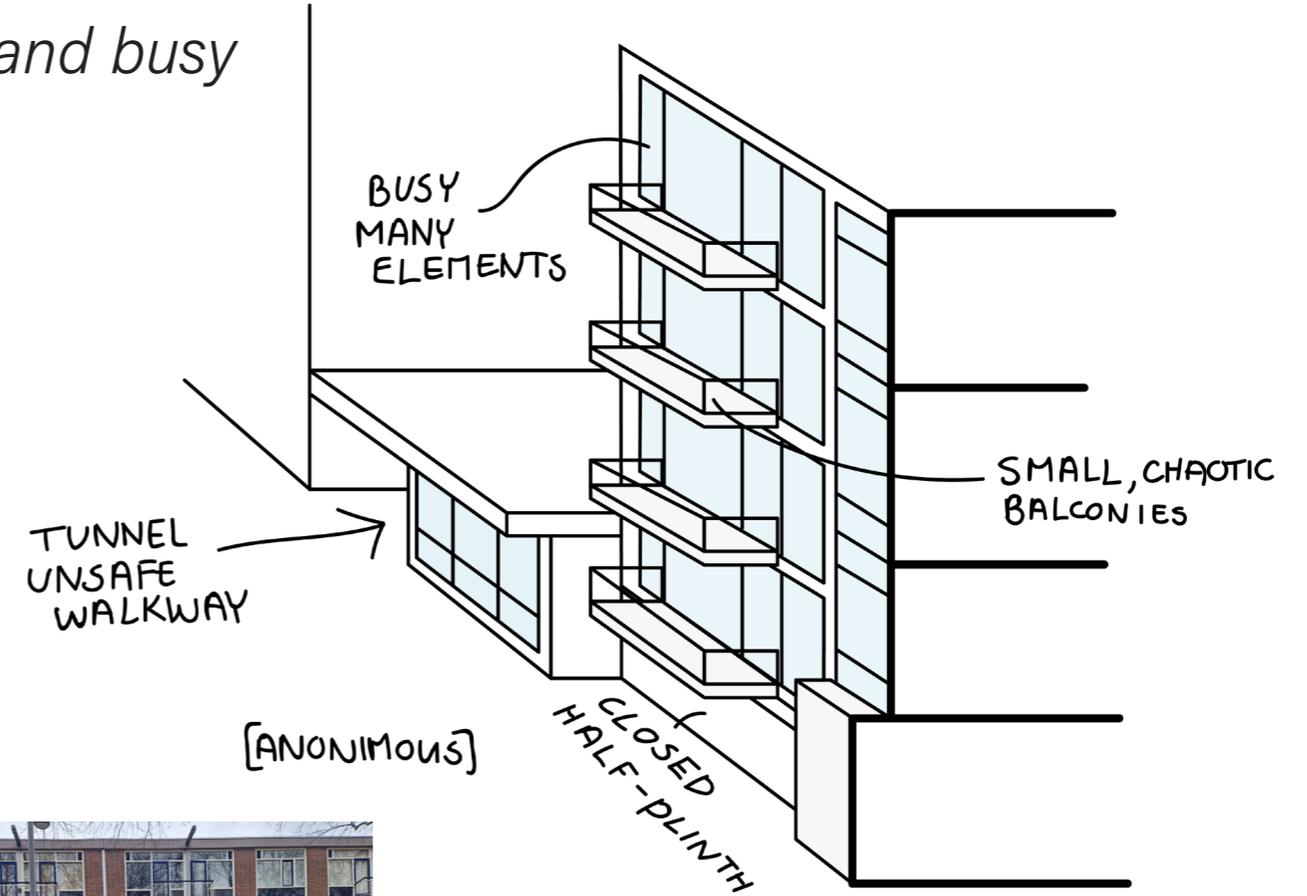
ANALYSIS

Conclusions

DIVERSITY
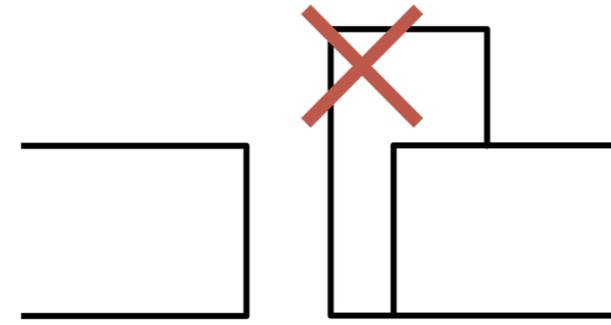
All the same level
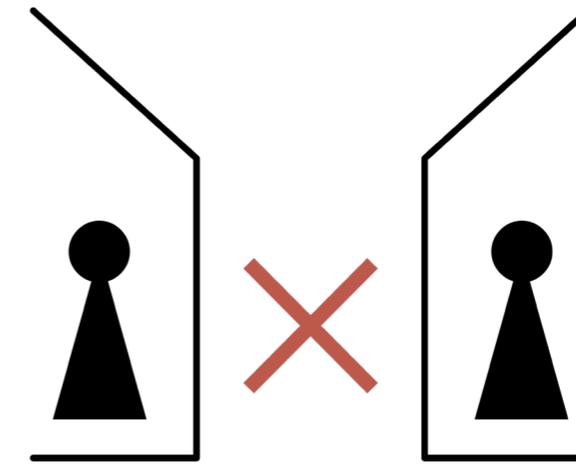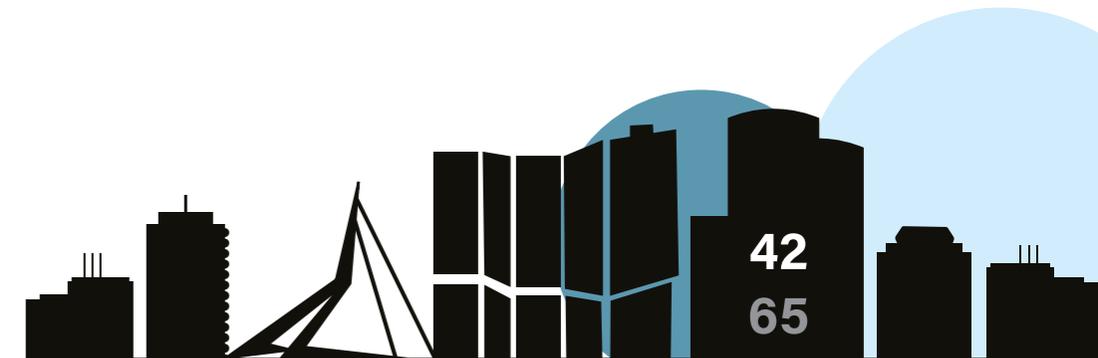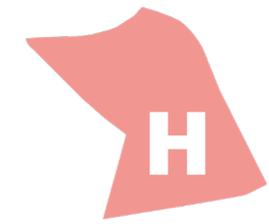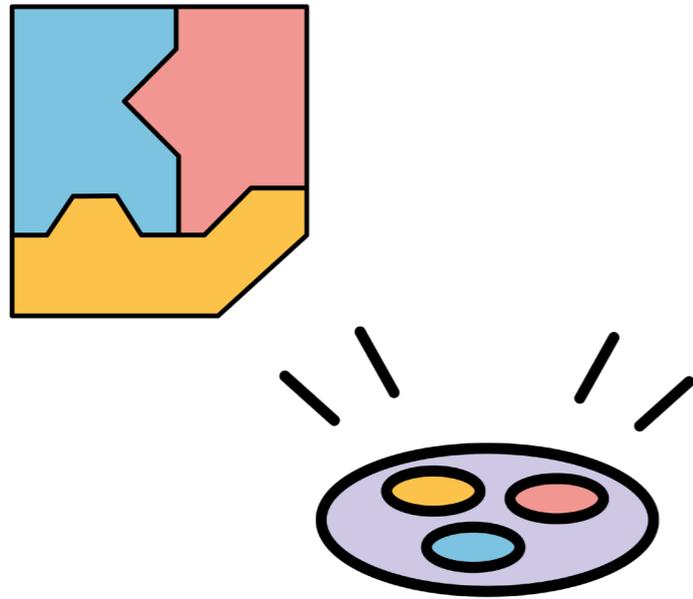
Lack of green

Few public spaces

ANALYSIS

Conclusions

All the same level

CHARACTER & COHERENCE
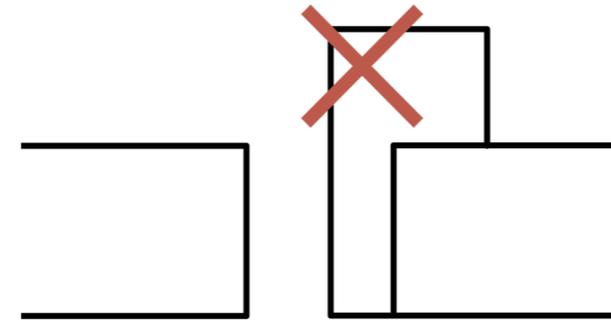
Green without purpose

Unclear ownership

ANALYSIS

Perception

HILLESLUIS
BUSY STREET

FAR & LONG

HOUSES

DARK

THIN GREEN STRIP
NOT ACCESSIBLE

CHAOTIC

FAST CARS

SHOPS
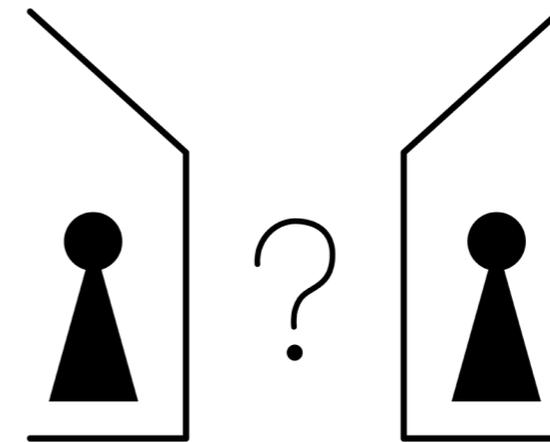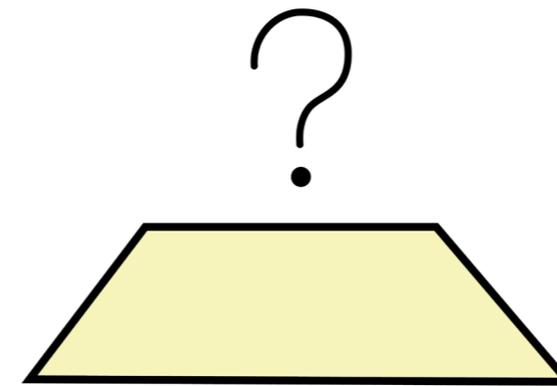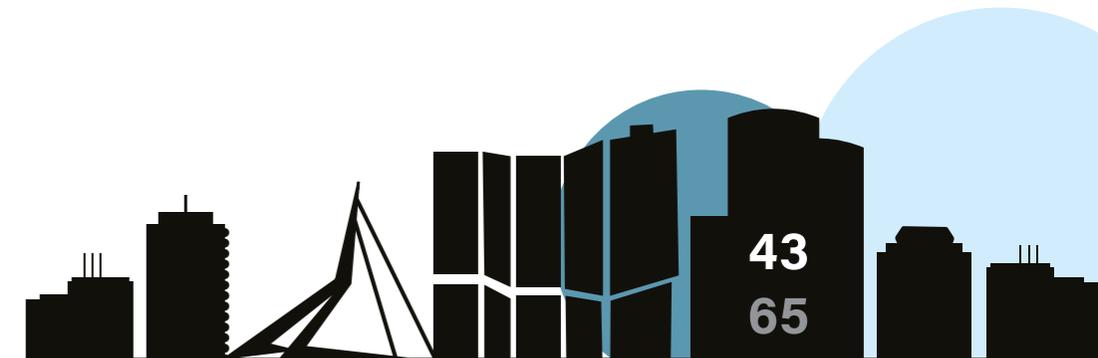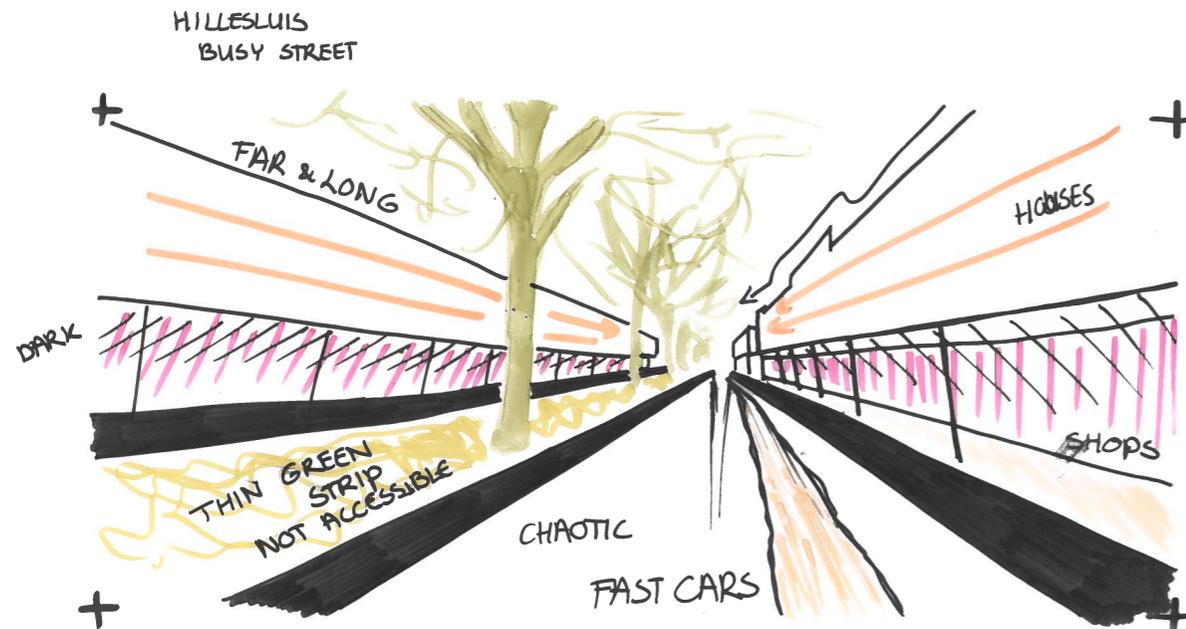
FEELINGS:
OVERWHELMED
ENERGETIC
STRESSED
INVESTED

ZUIDWYK
BUSY STREET

CHAOTIC

BORING

DARK

SMALL
GREEN OASIS

TOO OPEN

CARS
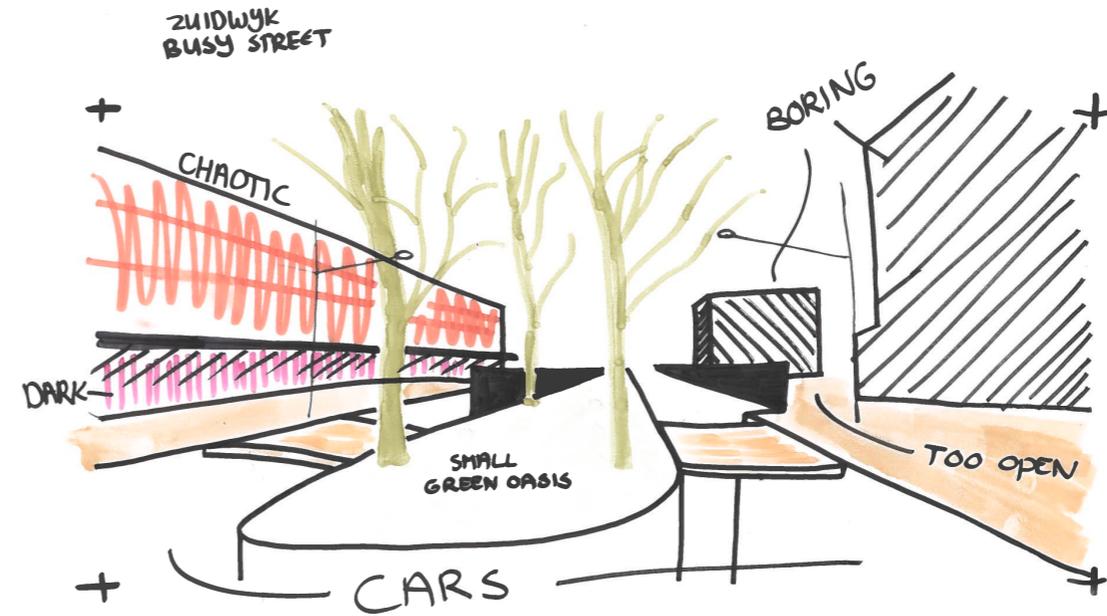
FEELINGS: OVERWHELMED
TENSE
SCARED
UNEASY
CONFIDENT

(UN) SAFE   RELAXED   INVESTED
           TENSE   ESTRANGED
SOOTHING   UNEASY   ALIENATED
CALM
           INSPIRED   SCARED
(UN) COMFORTABLE
EXCITED   ENERGETIC   FOCUSED   EMBARRASSED
           HAPPY   DEPRESSED
ANGRY   STRESSED   SAD   LONELY
        FRUSTRATED
BORED   IRRITATED   CONFIDENT
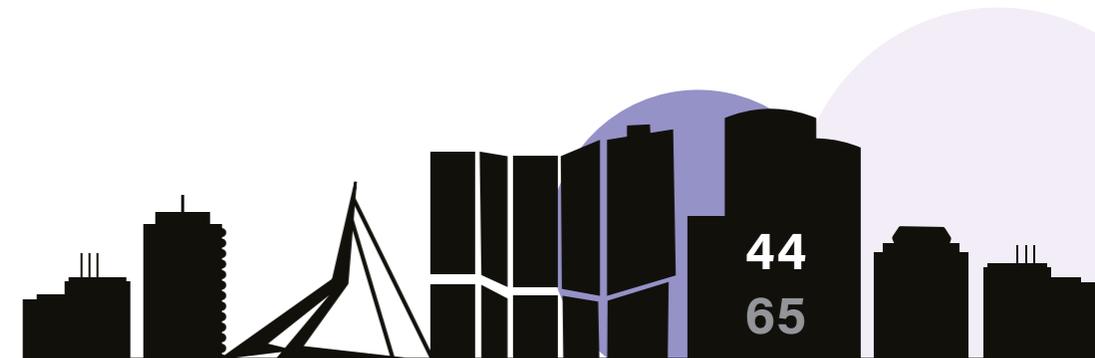
ANALYSIS

Perception
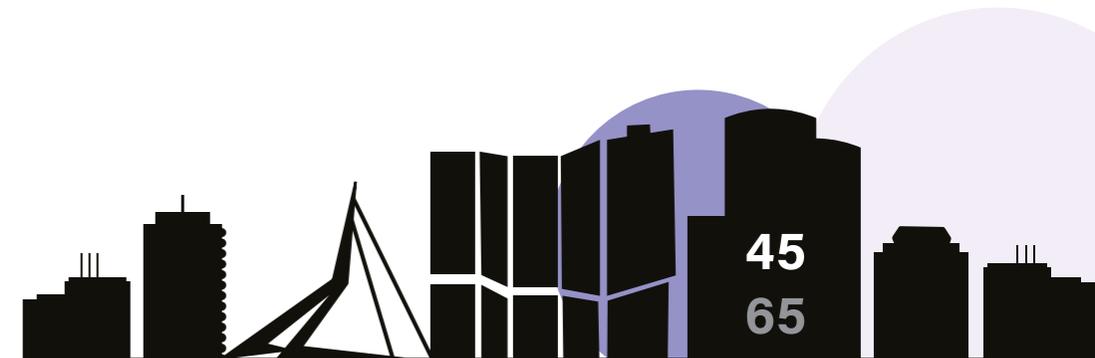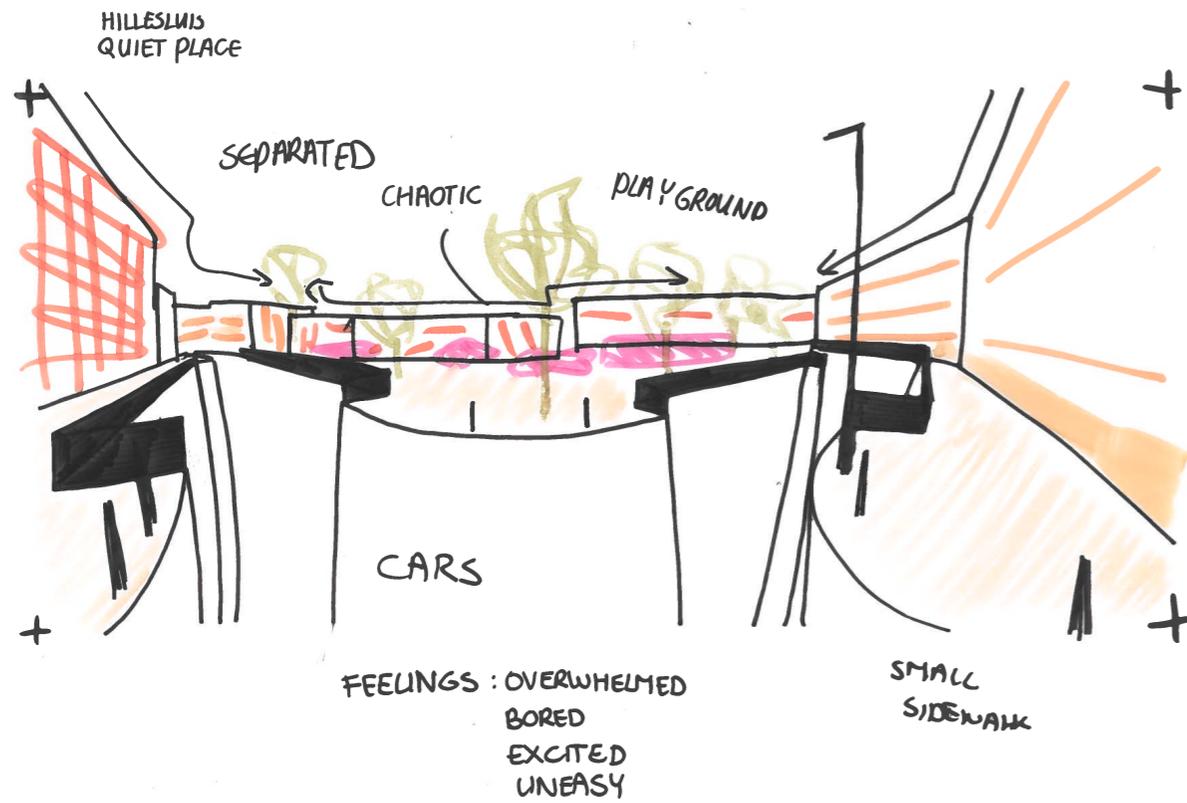
ANALYSIS

Perception

Chaotic vs. quiet

What elements create feelings
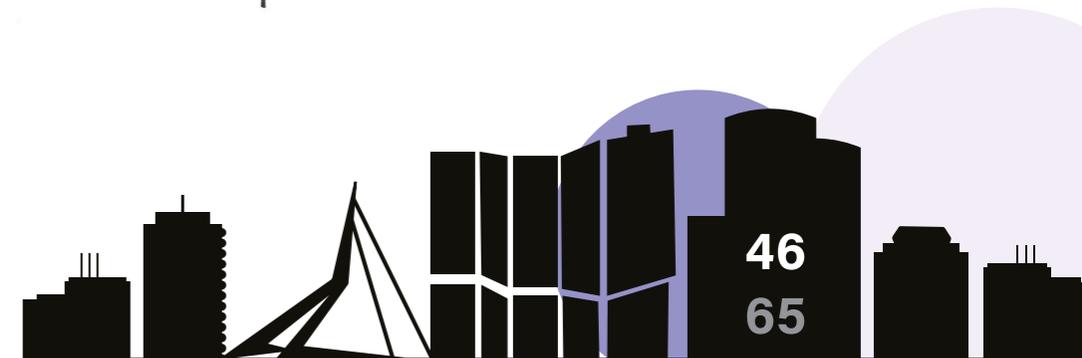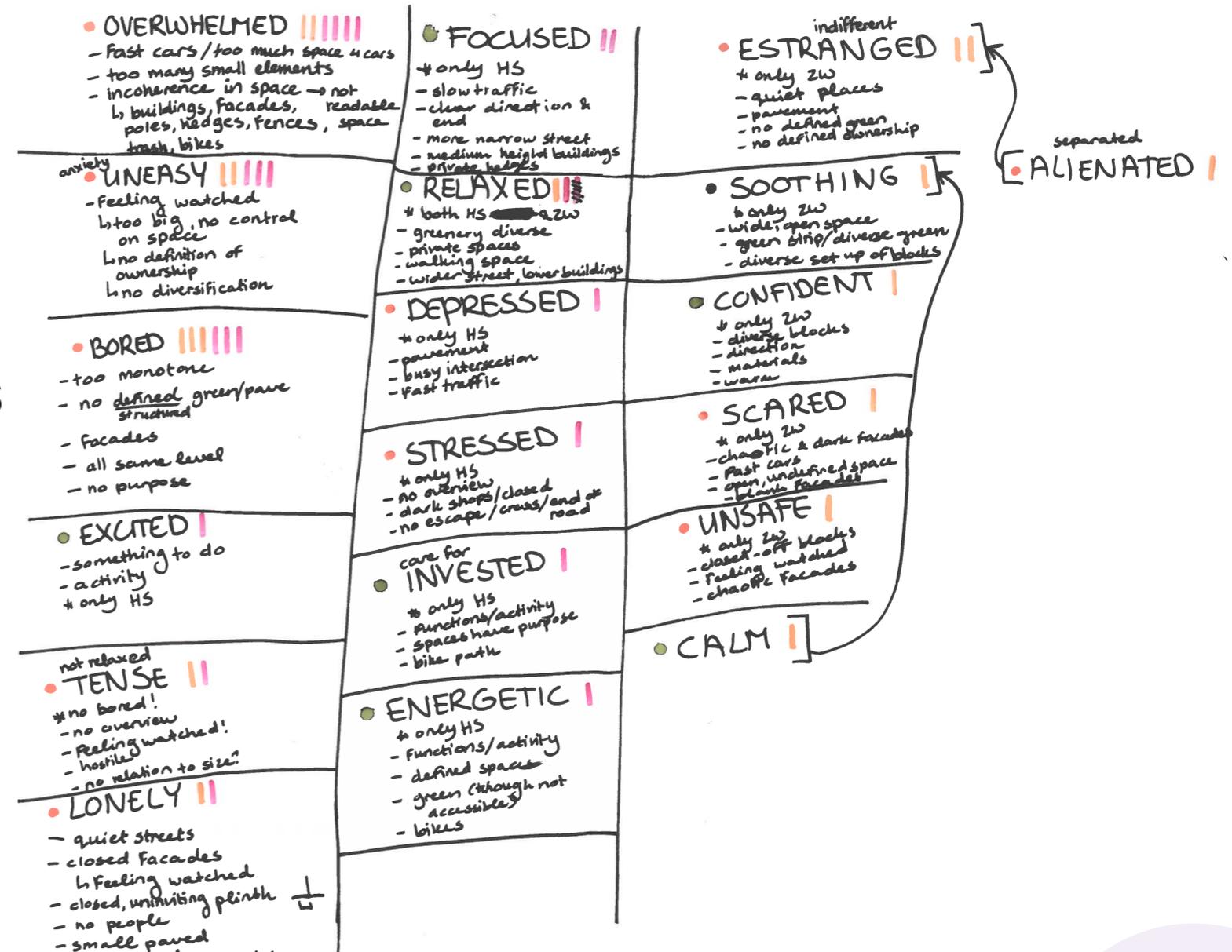
ANALYSIS

Perception

Readability of space

Preference framework

	Understanding	Exploration
Immediate	Coherence	Complexity
Inferred	Legibility	Mystery

Kaplan's preference model (Kaplan & Kaplan, 2005)
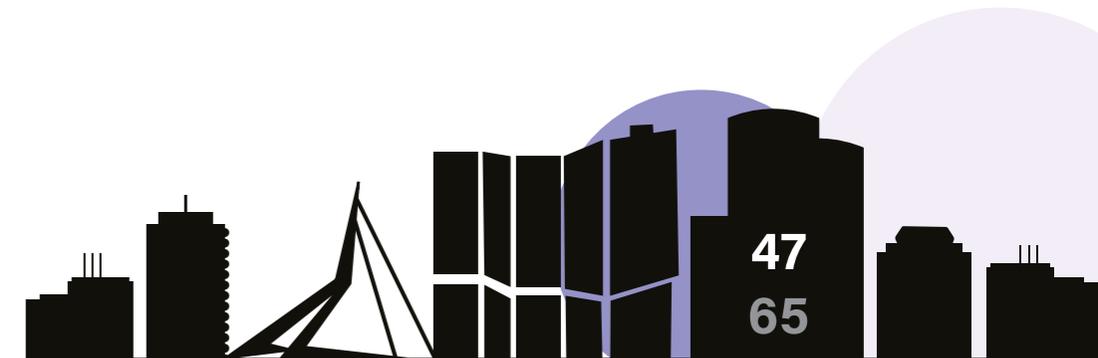
WHAT WOMEN SEE

Survey
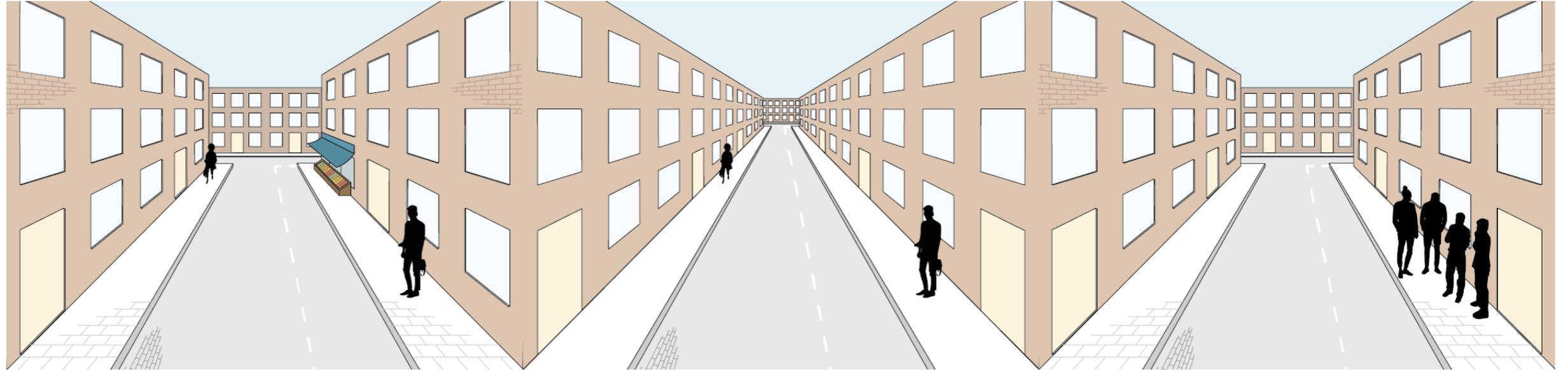
What elements impact perception on space?
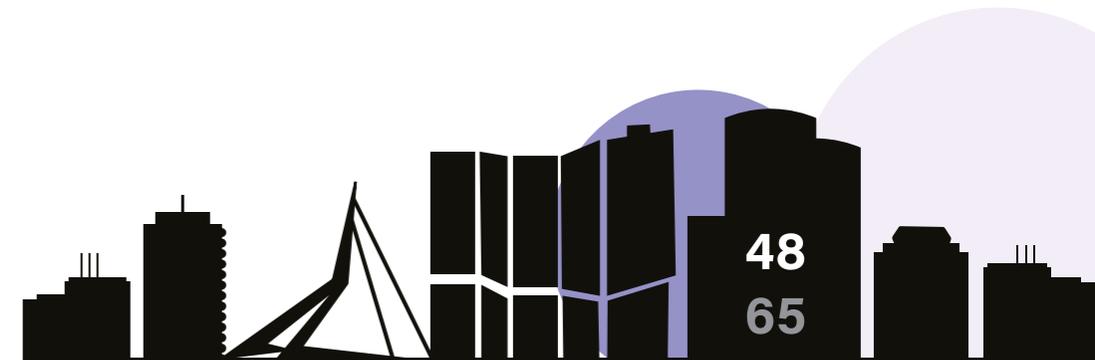
WHAT WOMEN SEE

Survey
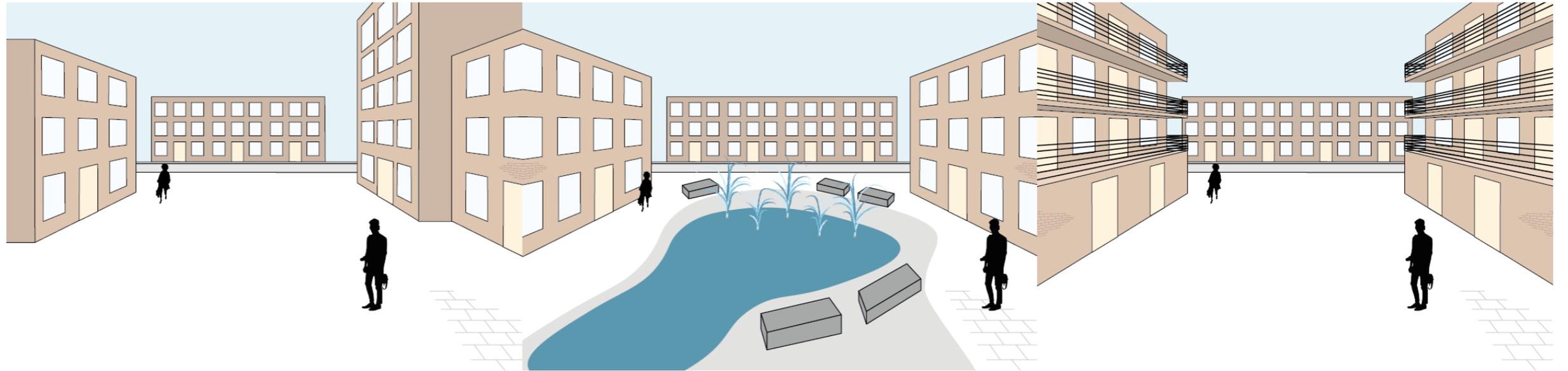
Greenery
Materials
Building structure
Purpose of space

A FEMALE FUTURE
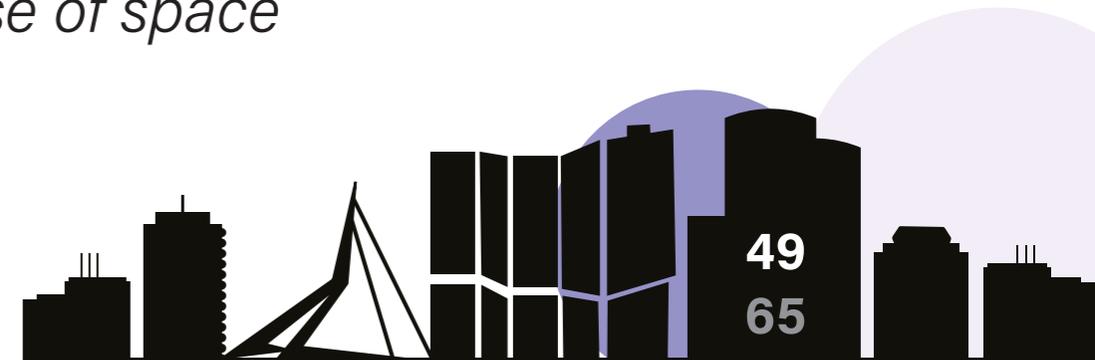
WHAT WOMEN SEE

Street survey

Green is good

No loitering youth,
longer streets,
cars

Variety gives quality

Balconies add safety

Men value cars

A FEMALE FUTURE

50
65
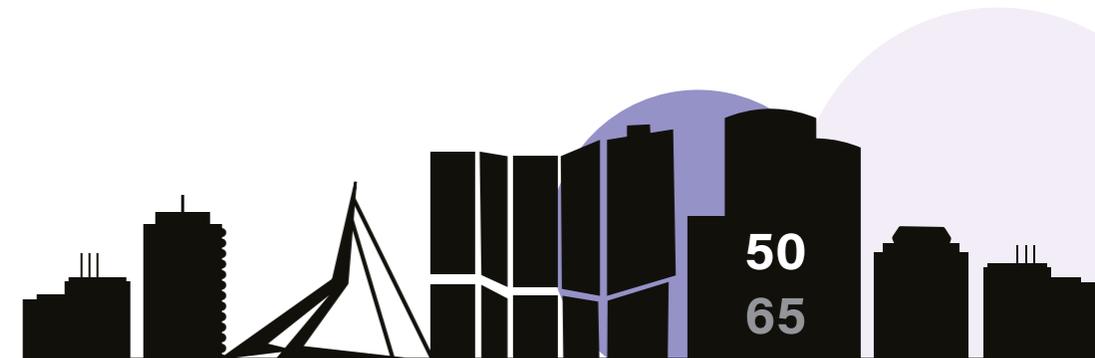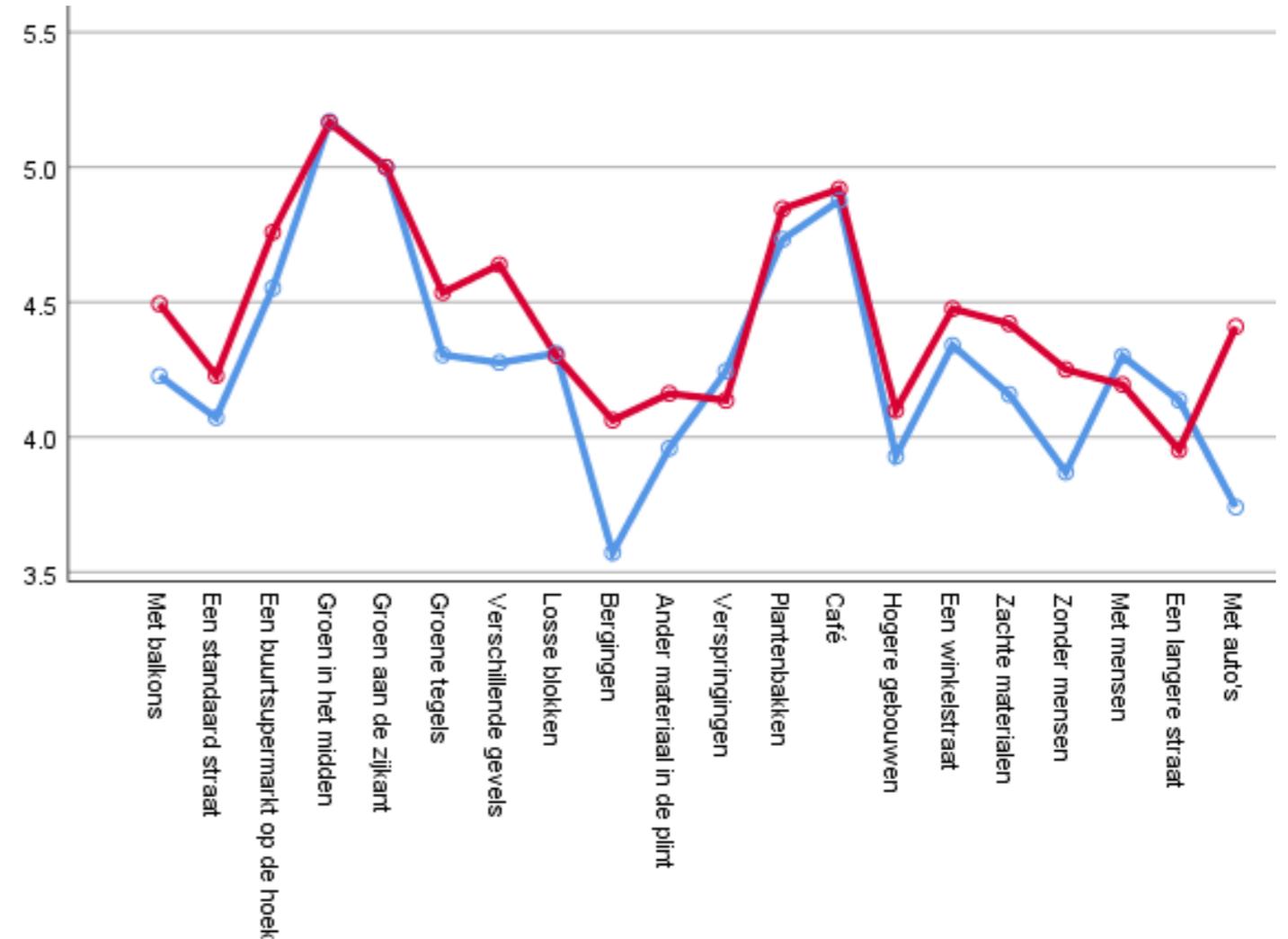
WHAT WOMEN SEE

Square survey
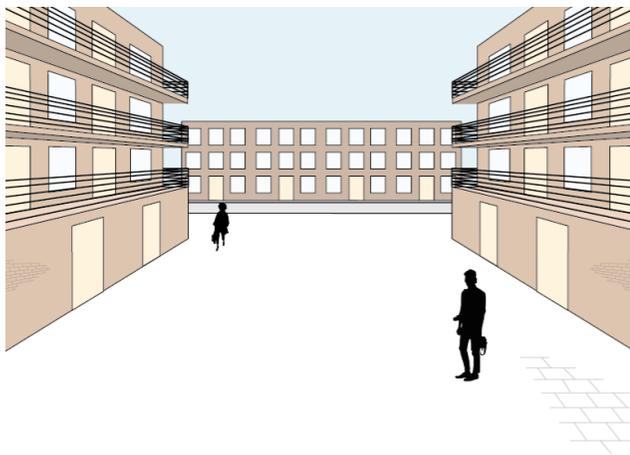
Green is good

Grass field for men

Variety gives quality

Front doors for safety

Park and higher buildings

Men are less sensitive to unsafe spaces

The chart shows values ranging from below 4.0 to 5.5 across the following categories: Achtertuinen, Een standaard plein, Een parkje, Een fonteinwaterspeelplaats, Met gallerijflats, Een grasveld, Waterberging, Hogere gebouwen, Groene gevels, Verschoven blokken, Andere raamindeling, Rijtjeshuizen, Speeltuin, Tegels, Gedeelde moestuin, Enkele bomen
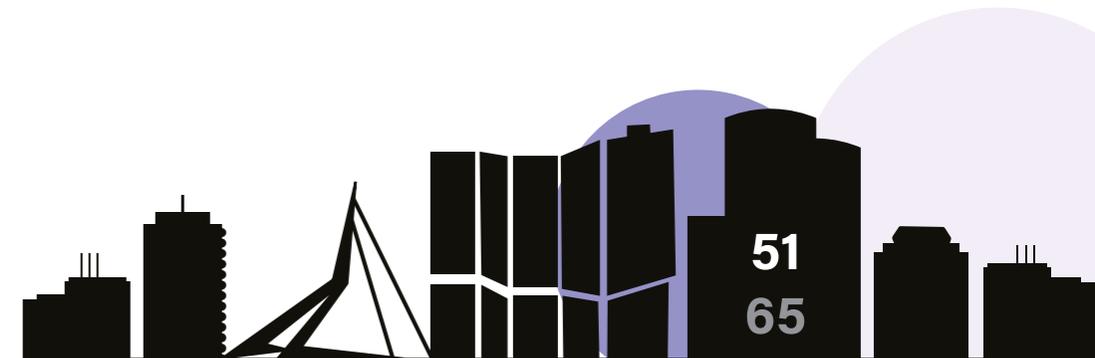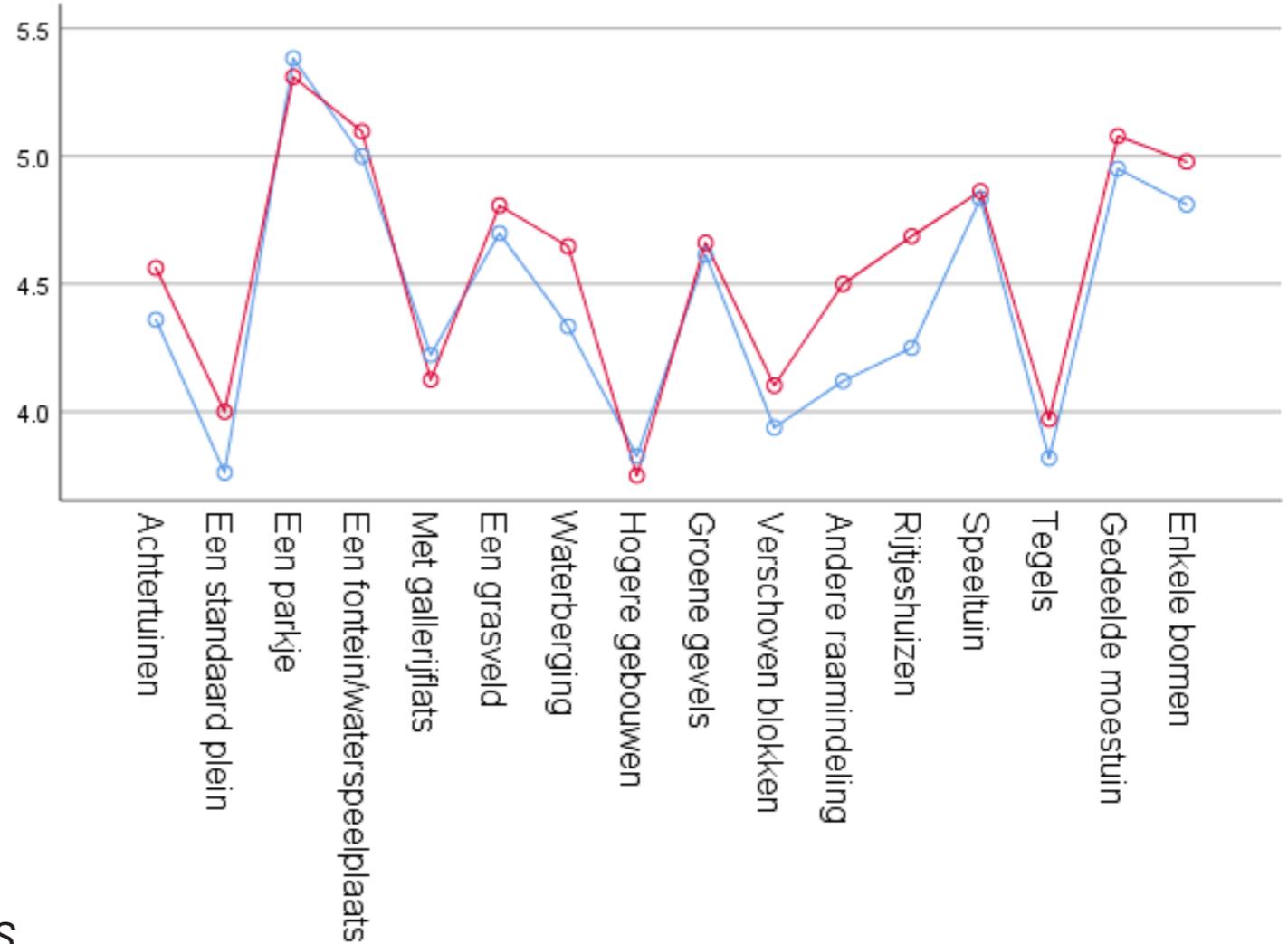
HILLESLUIS

Vision of perception

Connected green structure

Blocks as barriers

Open shopping streets

Corner stores

Landmarks

Barrier
Connector
Landmark
Existing area
Creation of space
Improvement zone

Transport
Fabric/structure
Greenery
Amenities

A FEMALE FUTURE

HILLESLUIS

HILLESLUIS

Continued vision

Preferred elements

Greenery & variety

Car-free

Visible entrances & balconies

HILLESLUIS

HILLESLUIS

Coherent & uniform space

Inviting plinths

Diversity

No more barrier

ZUIDWIJK

Vision of perception

Connected green structure

Blocks as barriers

New metro line

Corner stores

Landmarks

Barrier
Connector
Landmark
Existing area
Creation of space
Improvement zone

Transport
Fabric/structure
Greenery
Amenities
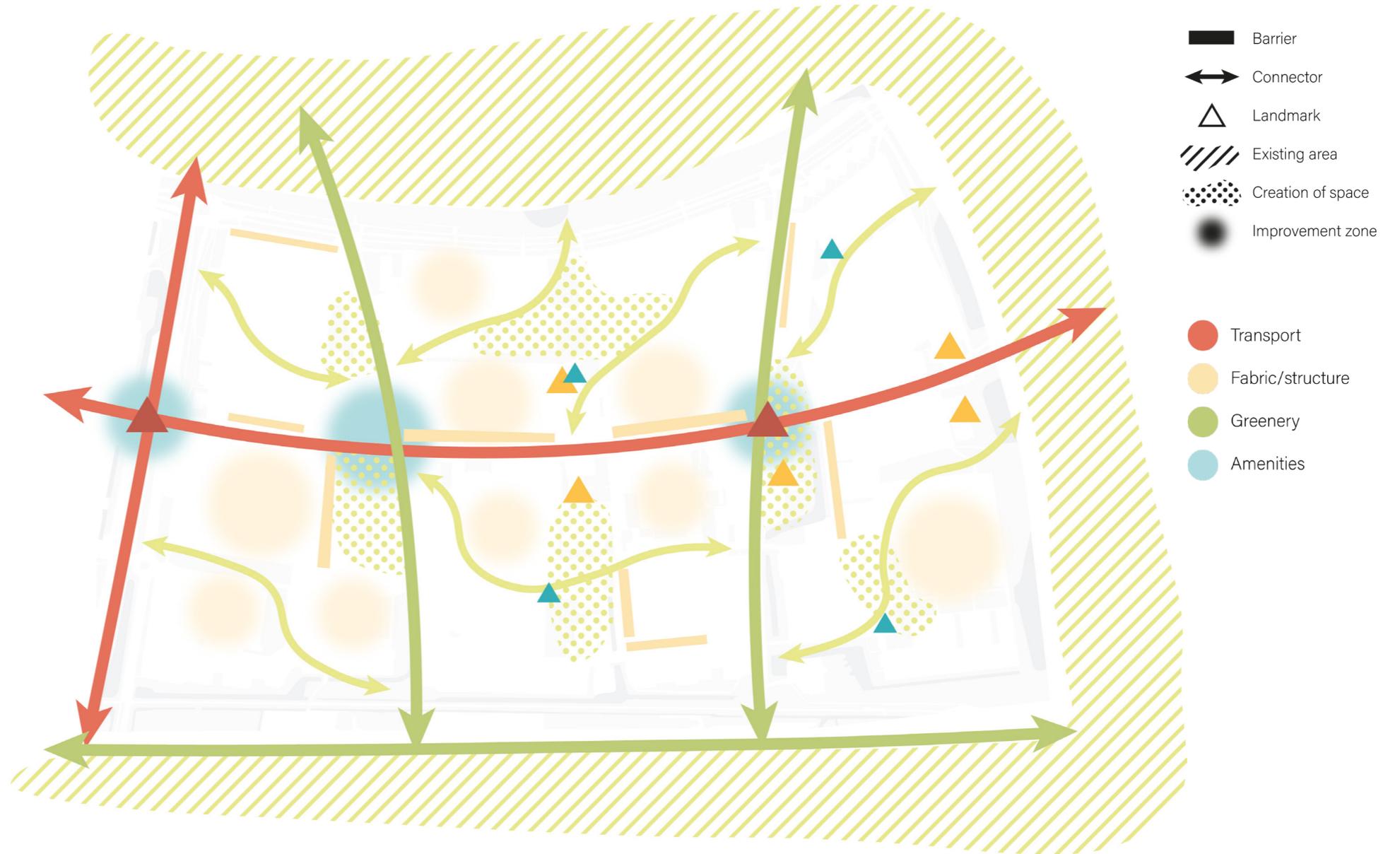
A FEMALE FUTURE

ZUIDWIJK

ZUIDWIJK

Separated traffic streams

Green buffer

Added plinth quality

Diversity

Character

ZUIDWIJK

ZUIDWIJK

Clarity in ownership

Softer plinth

Corner store

Diversity

Identity of space

FRAMEWORK

	Understanding	Exploration
Immediate	Coherence	Complexity
Inferred	Legibility	Mystery

Kaplan's preference model (Kaplan & Kaplan, 2005)

FRAMEWORK

Elements in space

Balance

Vision in space

Female-friendliness of space

Amount of elements

Spatial impact of the elements

Amount of themes from elements
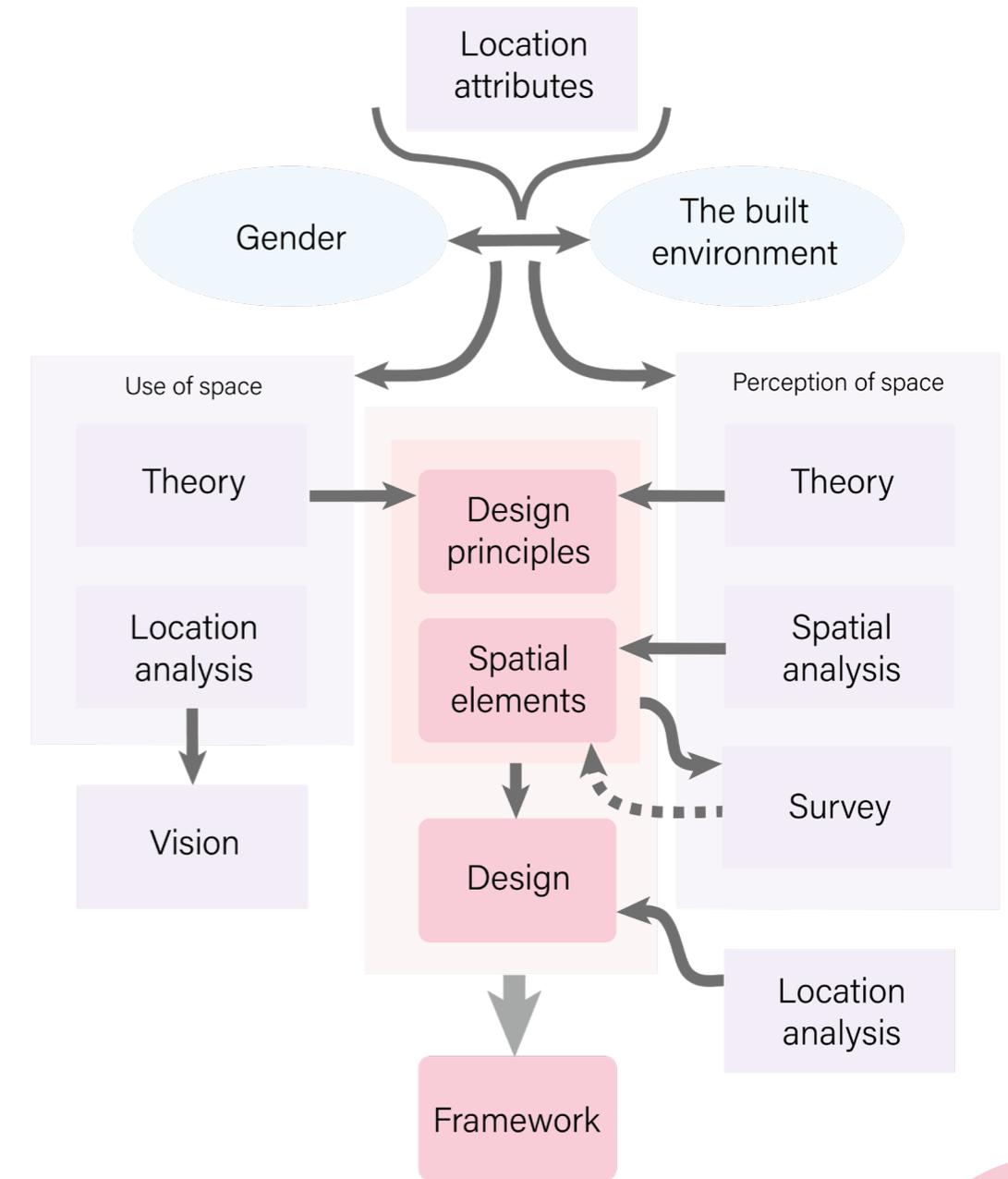
Can you see all?

Can all see you?

CONCLUDING

Design principles

Spatial elements

Design

Framework

A FEMALE FUTURE

Any questions?