

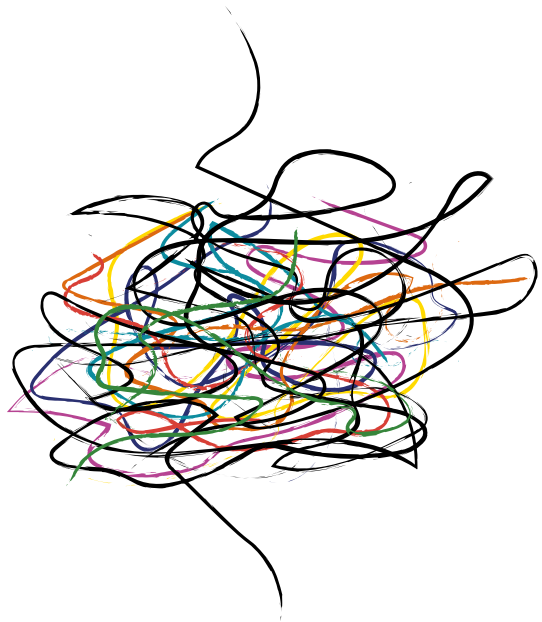
Image source: https://www.duic.nl/

SUSTAINABLE DENSIFICATION IN UTRECHT

Testing the Open Space Strategy in Riverenwijk

Jelle Dekker - 4978110
P5 Presentation
First mentor | Claudiu Forgaci
Second mentor | Ulf Hackauf
July, 2021

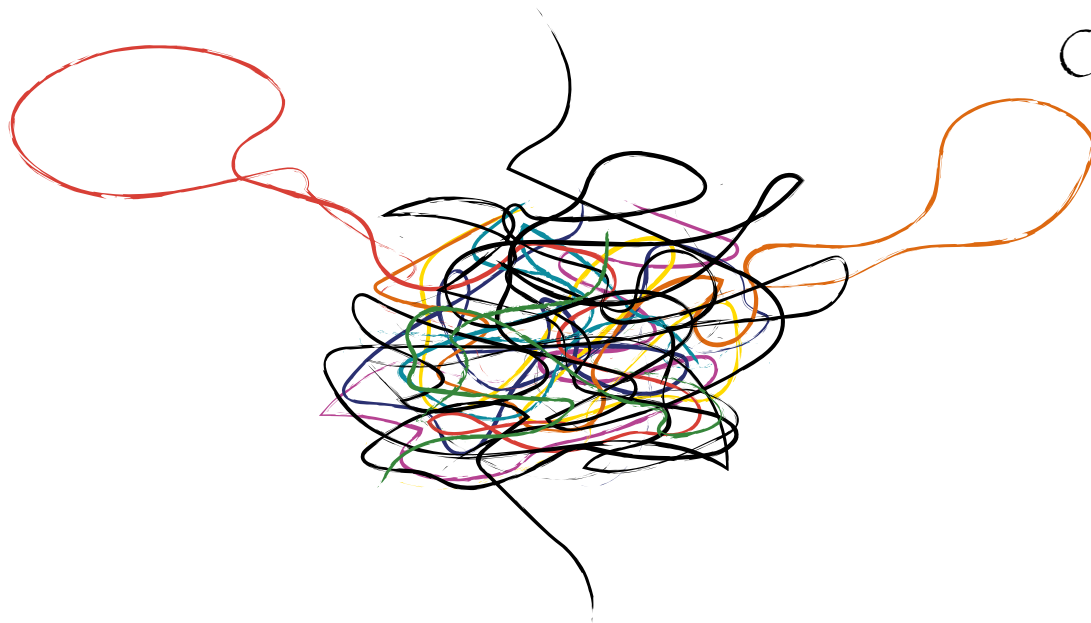
Urban design

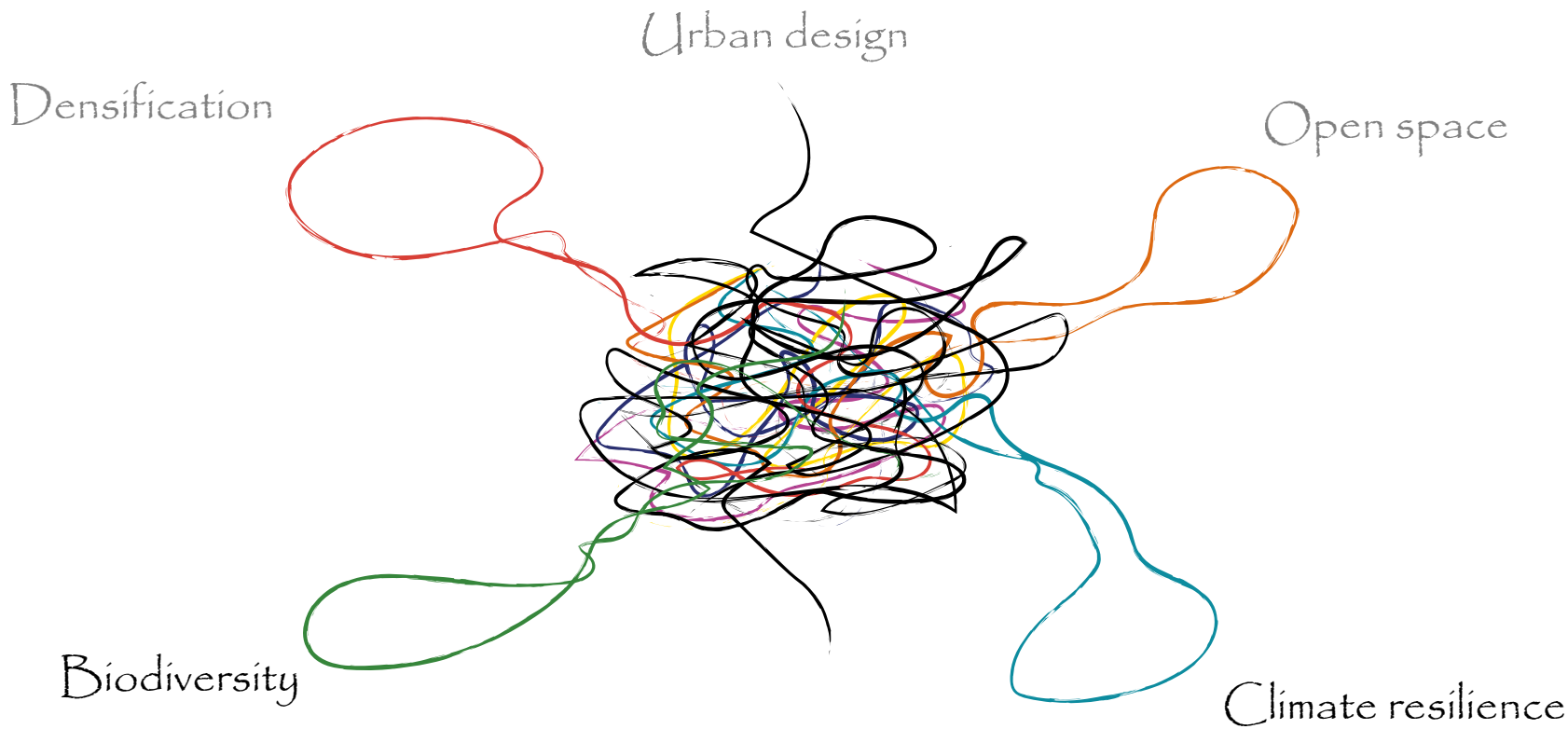


Urban design

Densification

Open space




Urban design
Densification
Open space
Biodiversity
Climate resilience

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CONTEXT

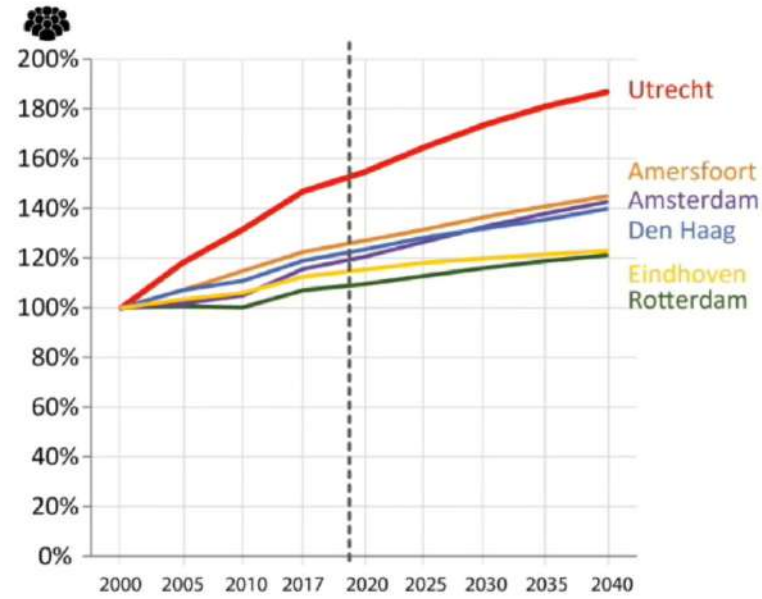
Growing urban population

Dutch population growth



Source: Cities in the Netherlands, PBL Netherlands Environmental Assessment Agency (2016)

Polycentric growth

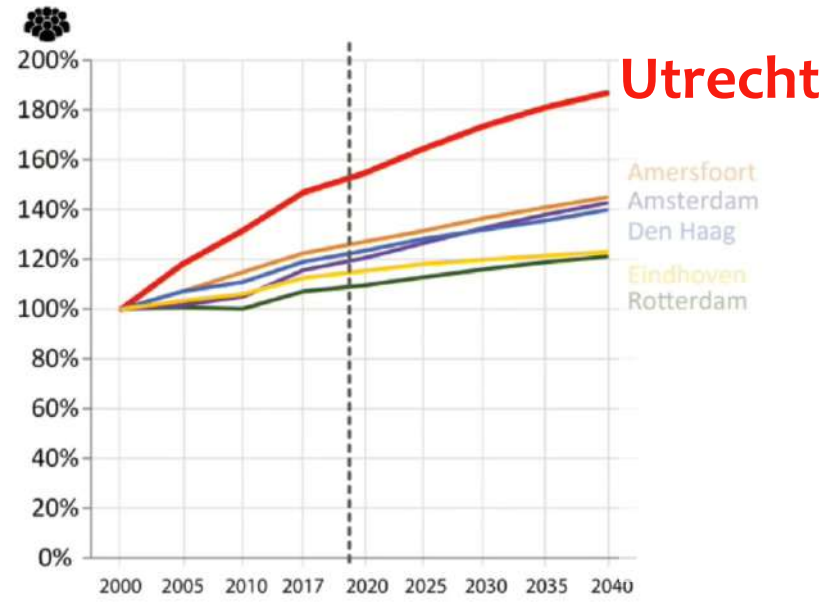


Source: Ruimtelijke Strategie Utrecht 2040, Gemeente Utrecht (2021)

Growing urban population

Growth in Utrecht

	2020	2040
Inhabitants	352.940	455.000
Housing stock	153.845	+ 60.000
Jobs	261.165	+ 70.000



Source: Ruimtelijke Strategie Utrecht 2040, Gemeente Utrecht (2021)

Growing urban population



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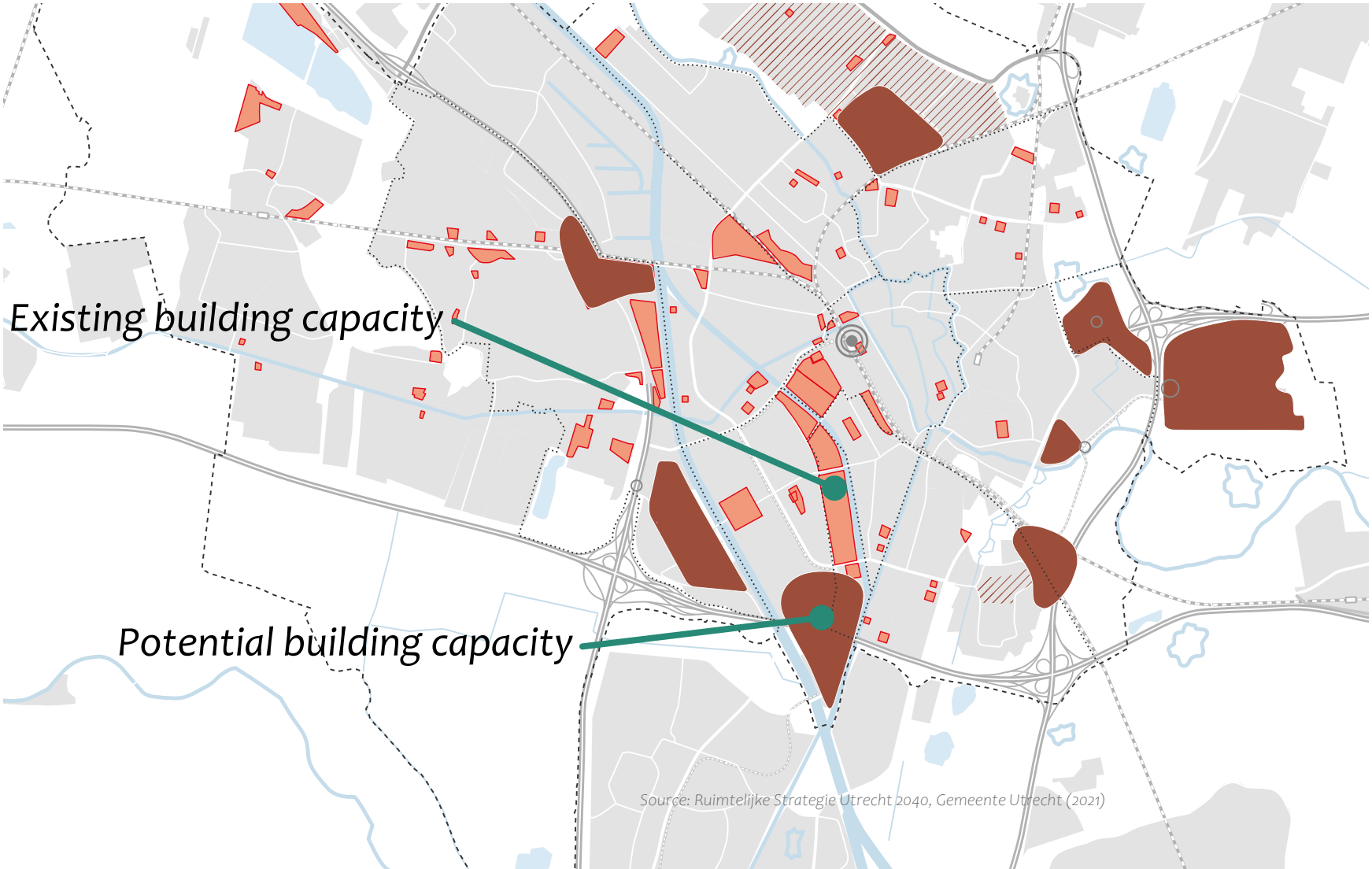
The Compact City

Focus on adding more built volume to open spaces in the city, resulting in a

Built Space Strategy



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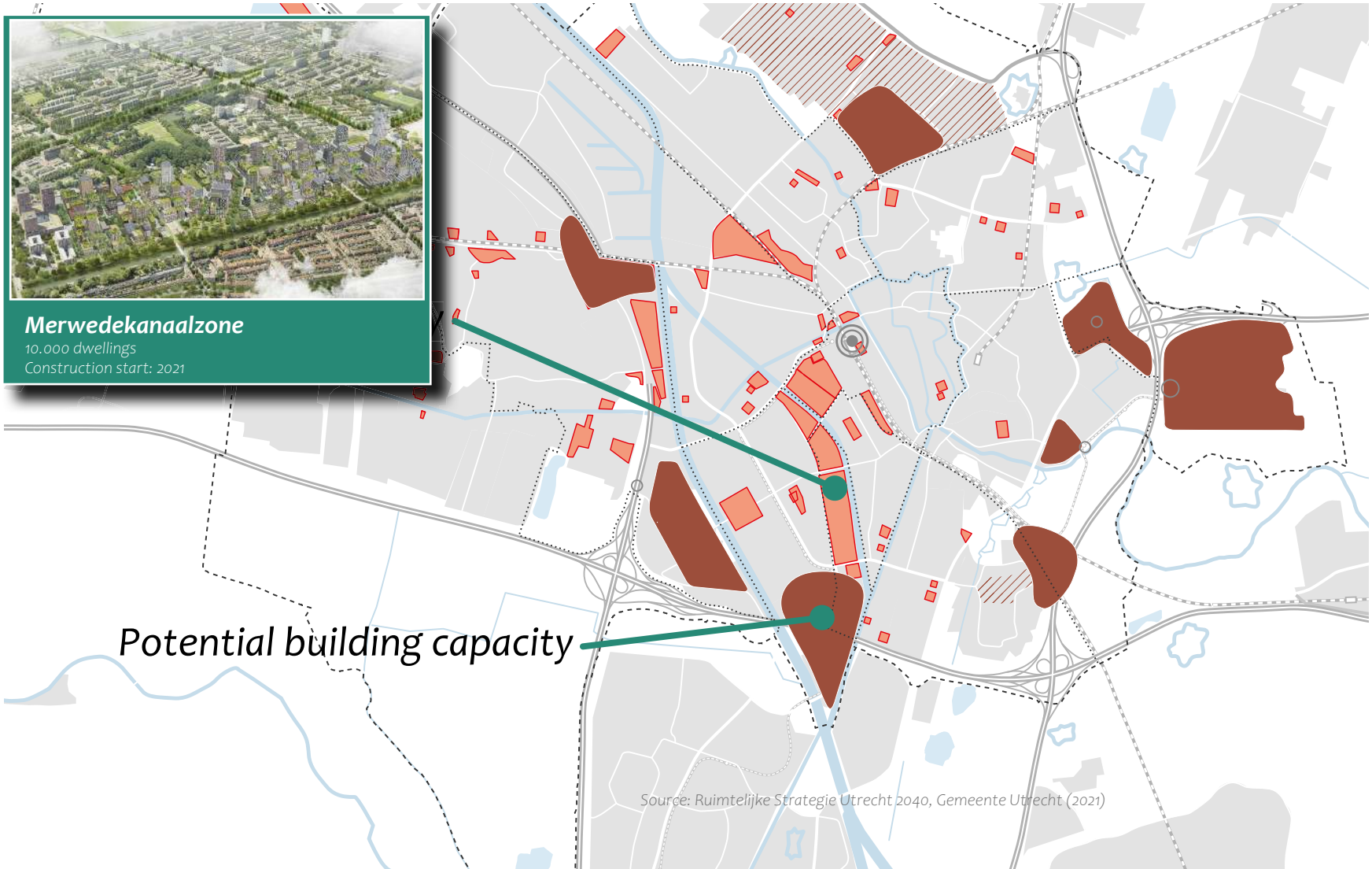
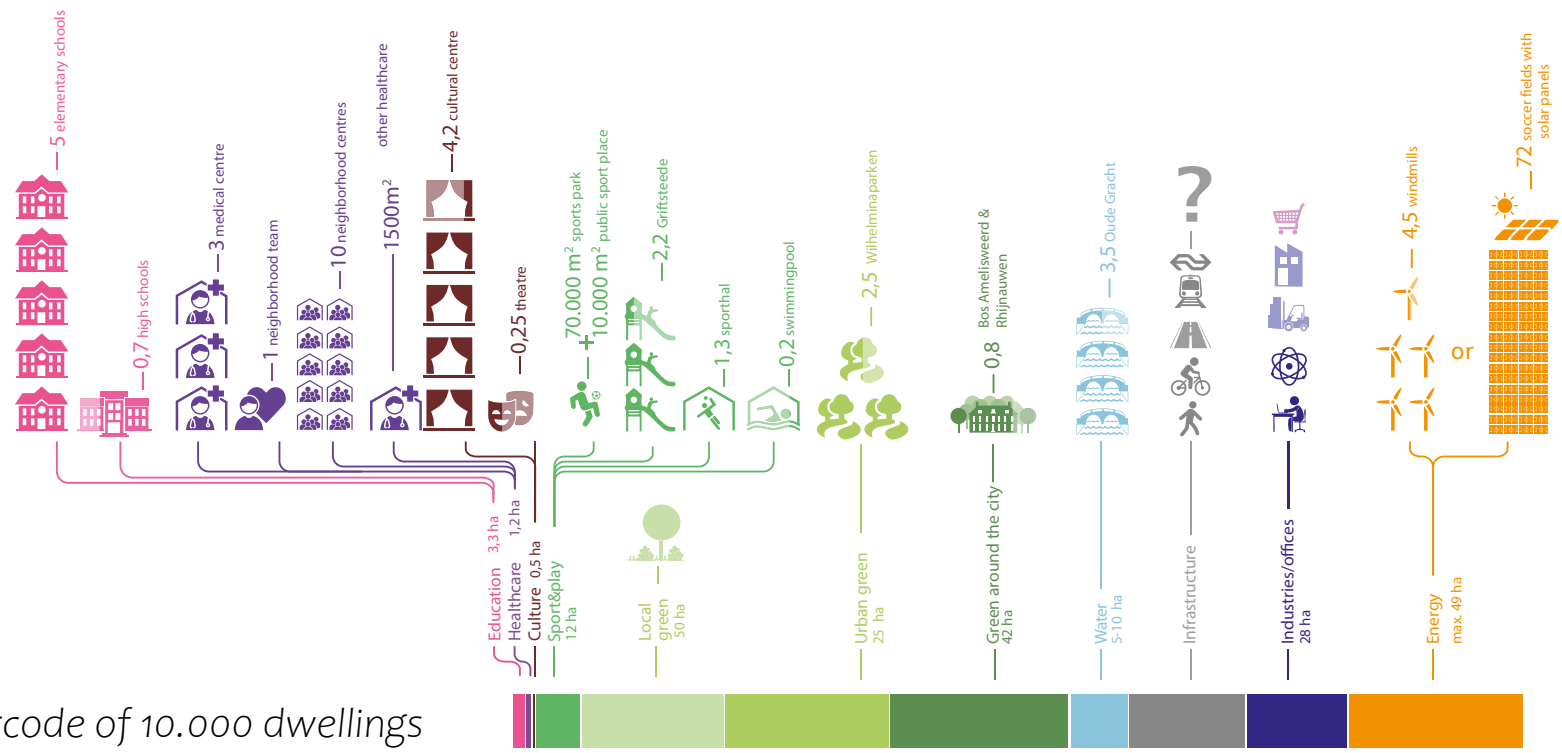


Source: Ruimtelijke Strategie Utrecht 2040, Gemeente Utrecht (2021)

PROBLEM FRAMING

Space to live

More dwellings -> More residents -> large claim on space which is more than ‘just a home’



Barcode of 10.000 dwellings

Source: Ruimtelijke Strategie Utrecht 2040, Gemeente Utrecht (2021)

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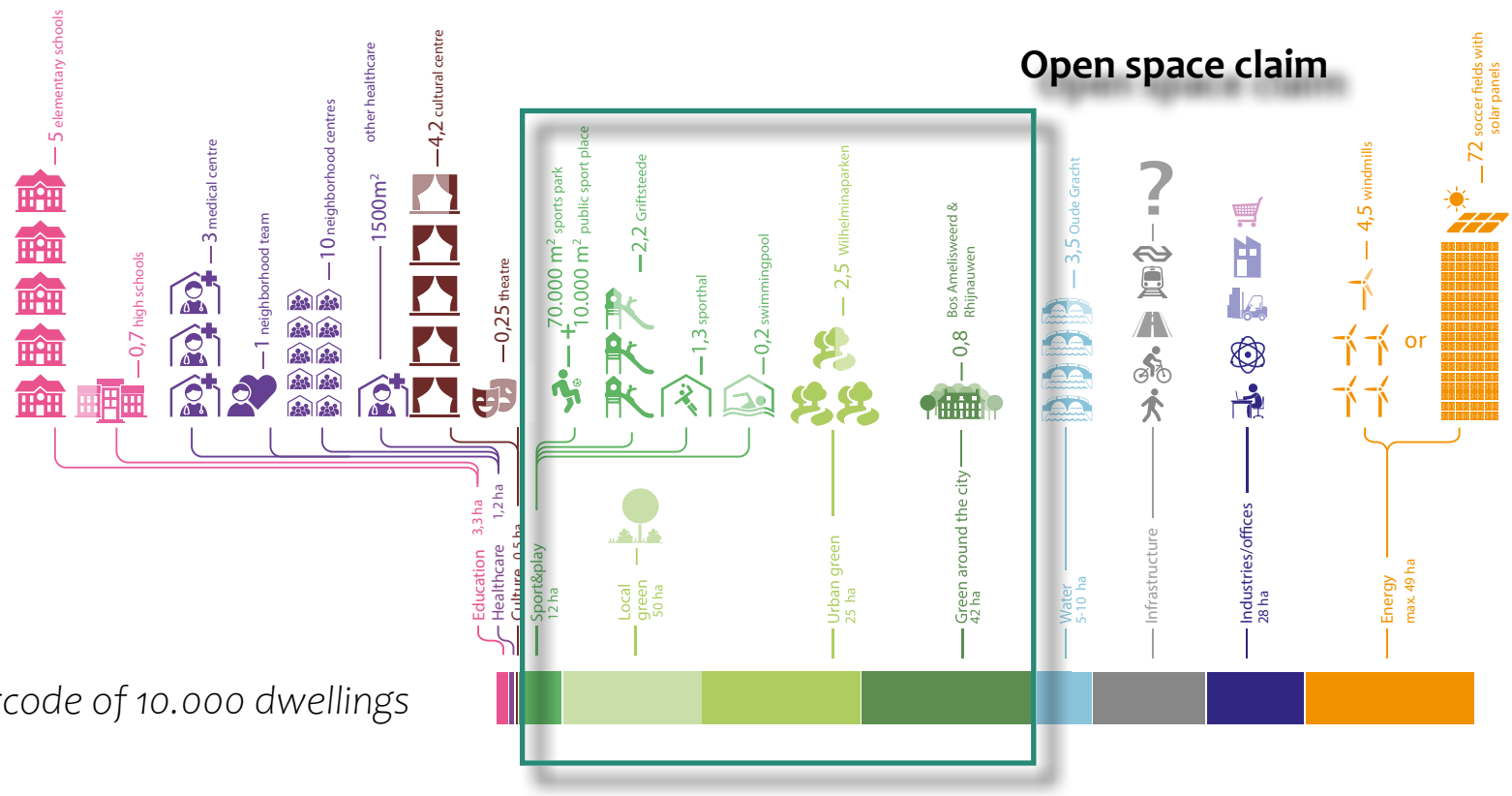


Barcode of 10.000 dwellings

Source: Ruimtelijke Strategie Utrecht 2040, Gemeente Utrecht (2021)

Lack in quantity

Infill developments will act like a parasite on existing open space

No place to **‘Decompact’** in the Compact city

Lowering the **urban liveability**



Source: https://indebuurt.nl/utrecht/

Lack in quantity

Especially in **Corona times**



Source: https://indebuurt.nl/utrecht/



Source: https://www.onderzoeksraad.nl/

In 30 minutes...

...72 Passers-by



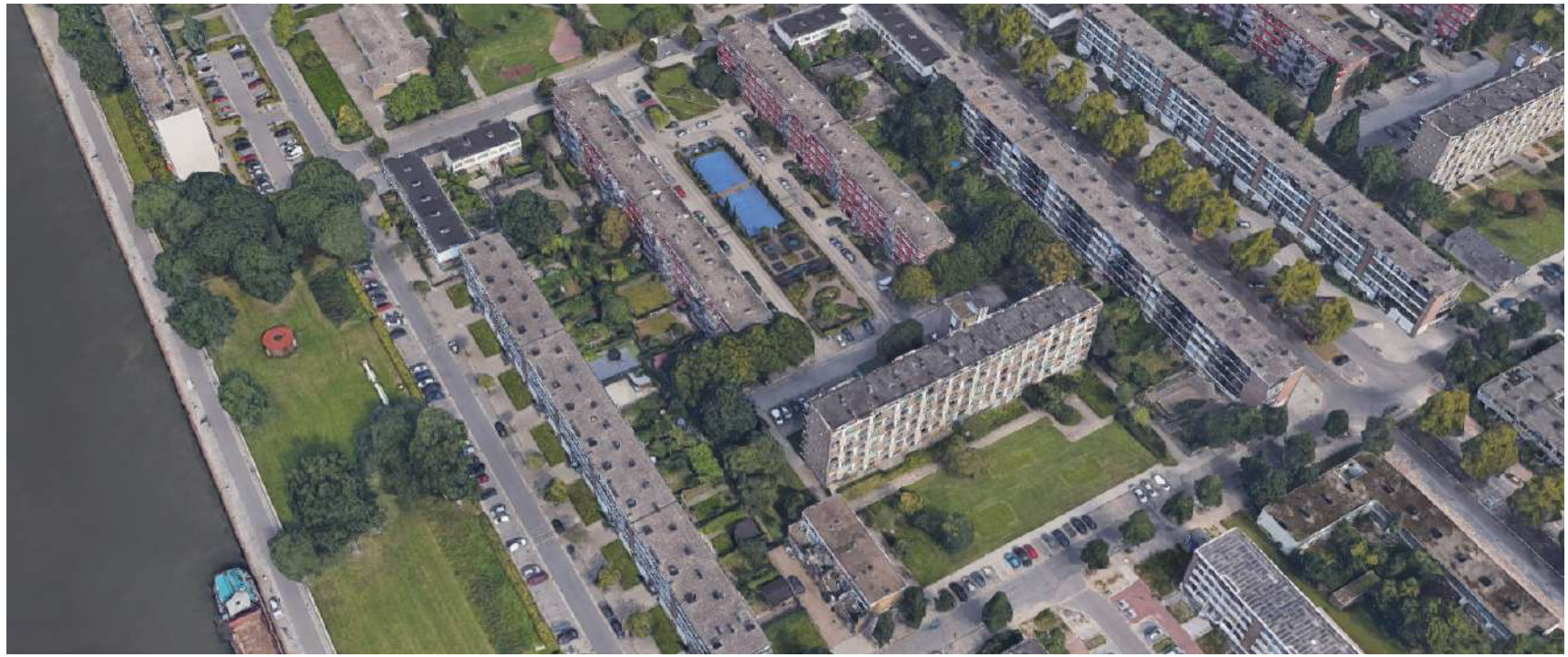
...122 Passers-by

Lack in quality

Sufficient quantity is not immediatly high urban liveability

Good qualitative design of integrated open spaces is just as important.

Kanaleneiland - Utrecht



Source: Google maps

Environmental qualities

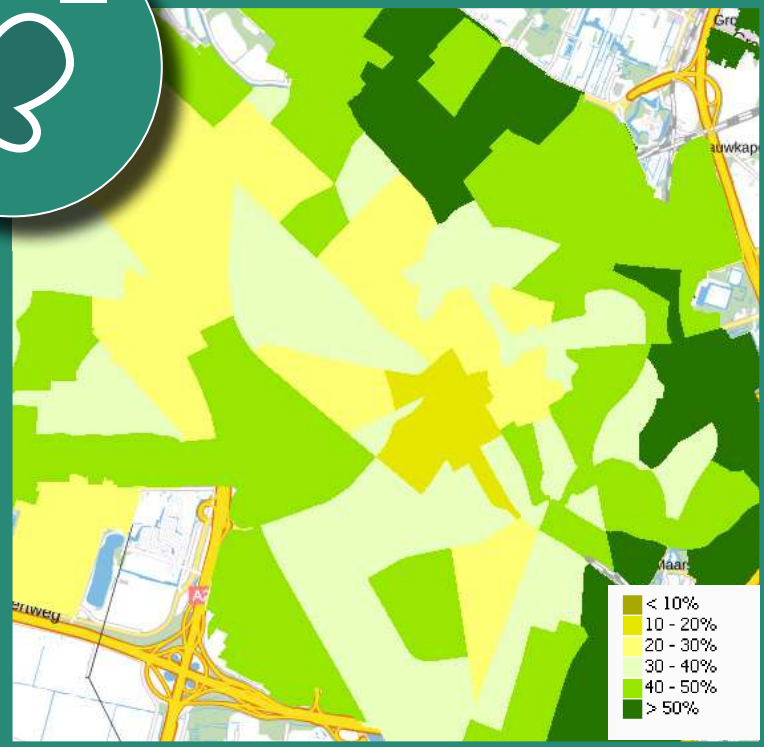
Open spaces are key elements in mitigating two major environmental trends:

Biodiversity loss and **Climate adaptation**

Environmental qualities

Open spaces are key elements in mitigating two major environmental trends:
Biodiversity loss and **Climate adaptation**

Percentage of green surface





Source: klimaateffectatlas.nl

Environmental qualities

Open spaces are key elements in mitigating two major environmental trends:

Biodiversity loss and **Climate adaptation**

Risk of flooding





Source: klimaateffectatlas.nl

RESEARCH AIM

The main aim of this research is to ***design*** the city from its ***open spaces***, which are so essential for the quality of urban life. The challenges of densification, climate resilience and biodiversity loss should be examined from the redesign in ***quantity*** and ***quality*** of open space.

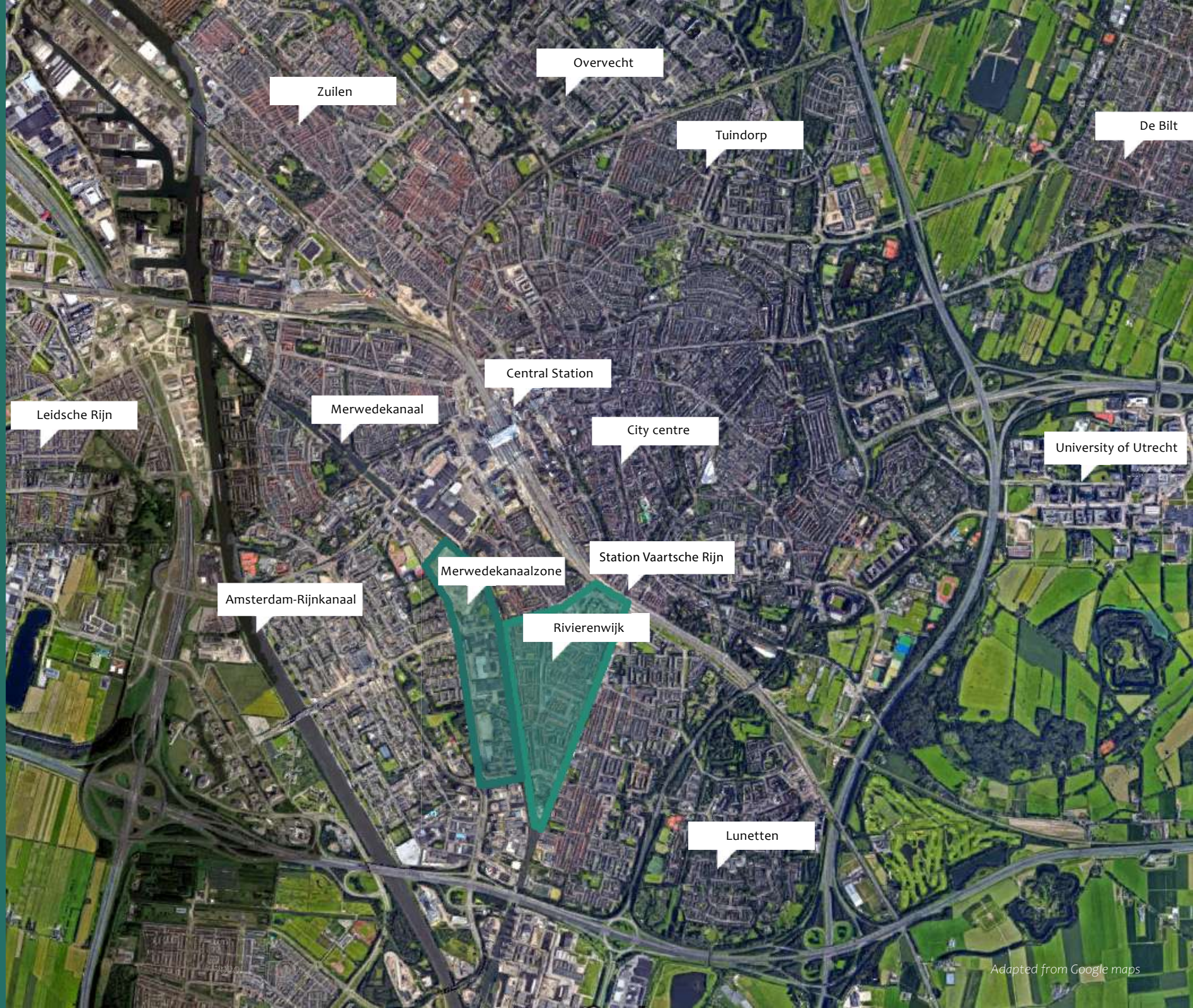
RESEARCH AIM

The main aim of this research is to ***design*** the city from its ***open spaces***, which are so essential for the quality of urban life. The challenges of densification, climate resilience and biodiversity loss should be examined from the redesign in ***quantity*** and ***quality*** of open space.

Open Space Strategy

RESEARCH OUTCOME

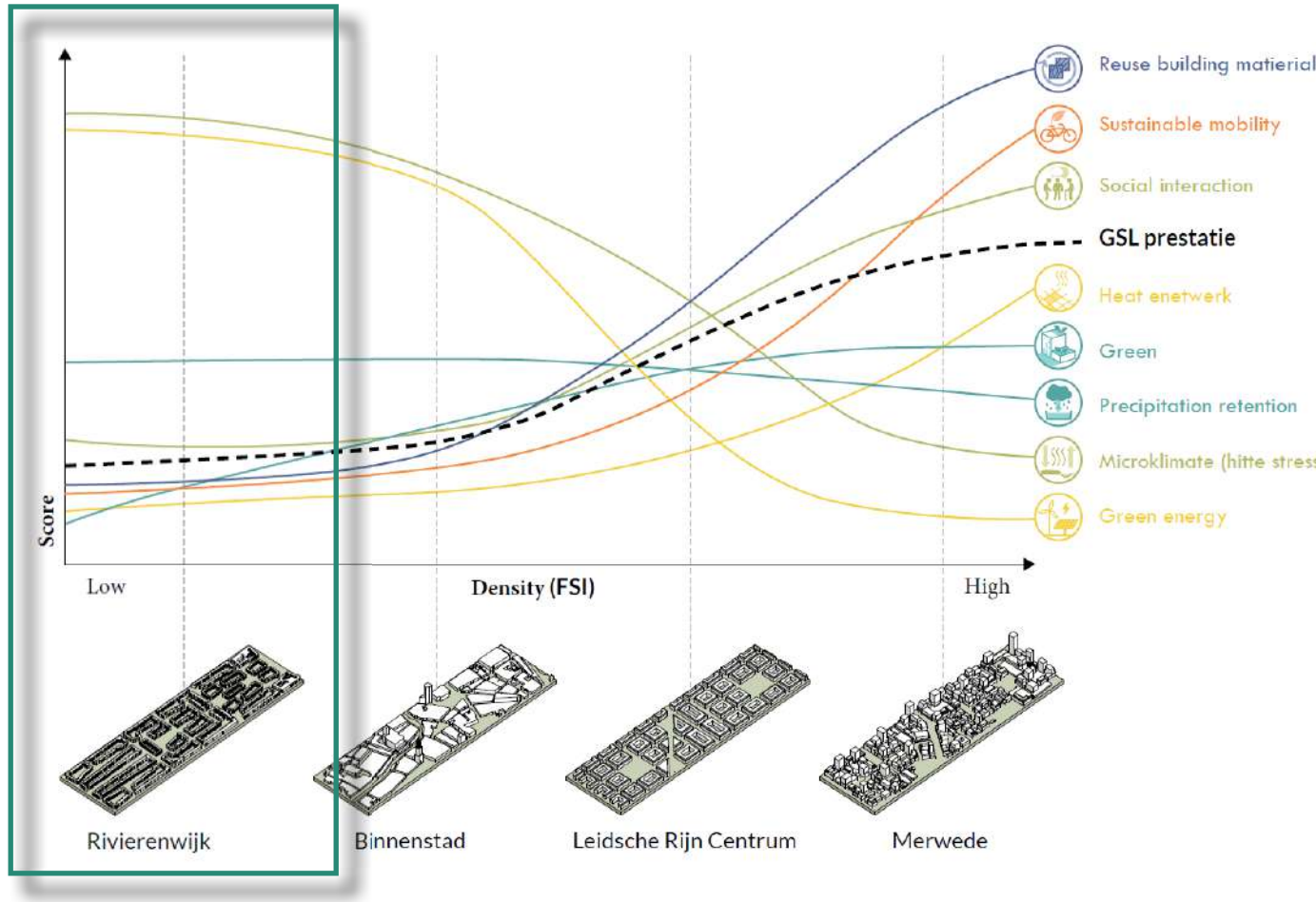
LOCATION



Adapted from Google maps

Rivierenwijk qualities

Currently performing poorly in many topics regarding urban liveability and sustainability

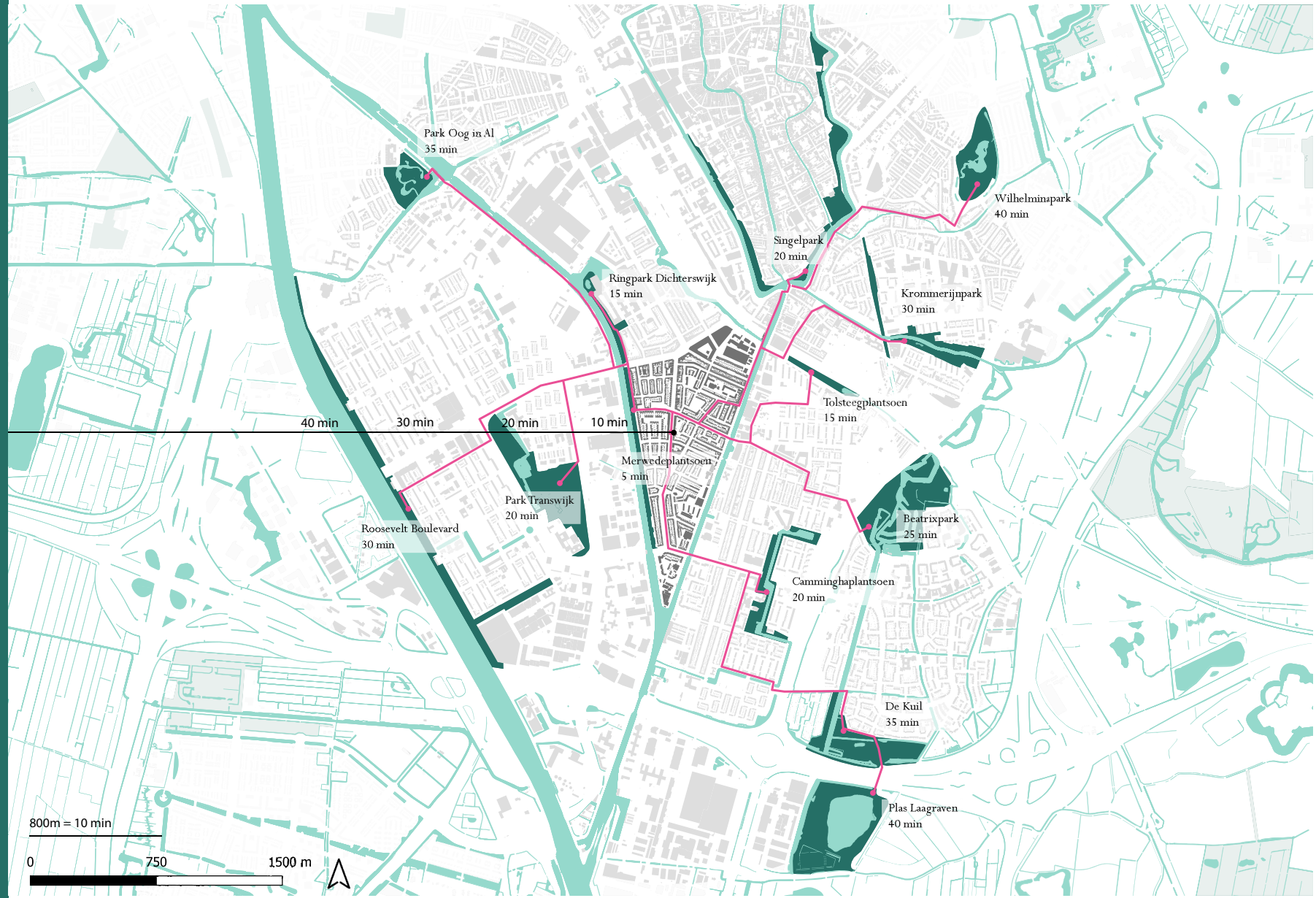


Source: Voorlopig Ontwerp Stedenbouwkundig Plan MERWEDE (2019)

Urban open spaces



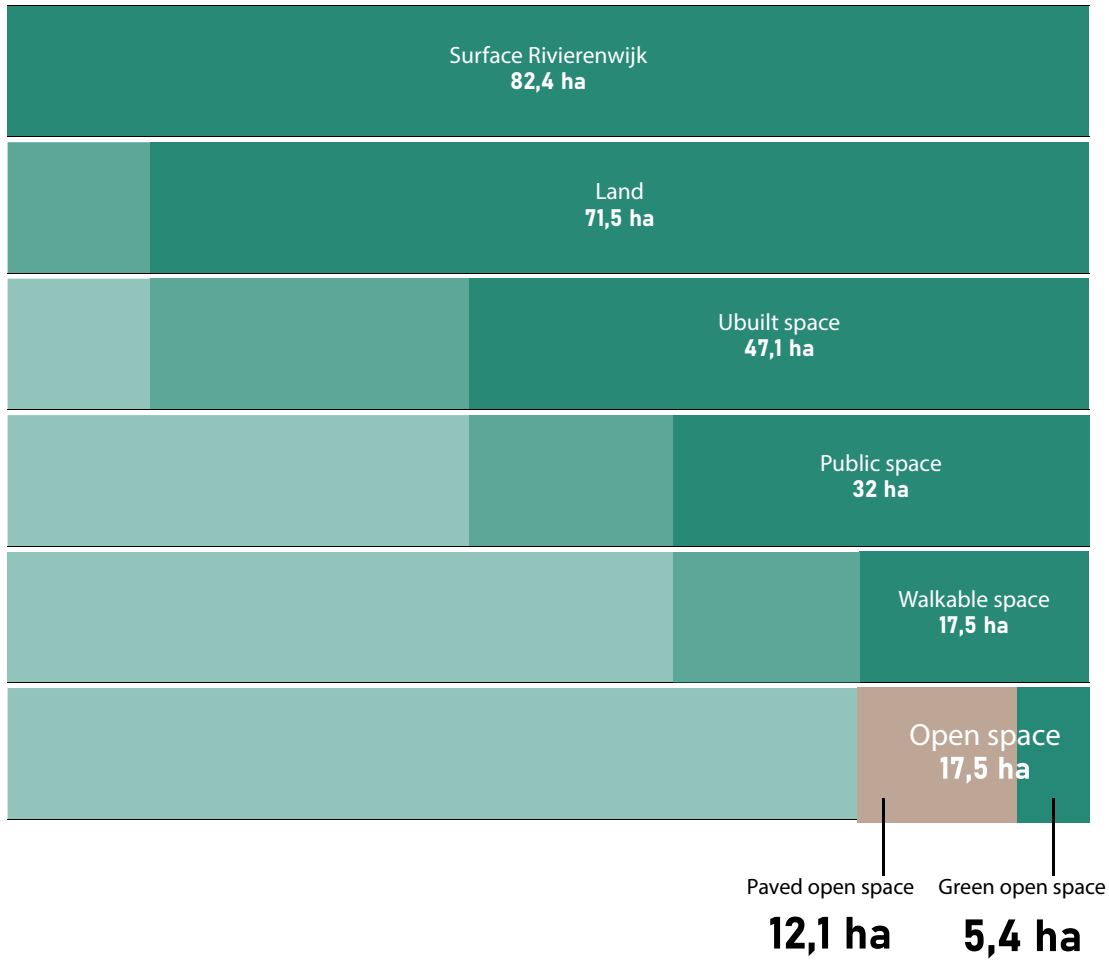
Urban open spaces



Urban open spaces



Local open space





Local open space

Footpaths



Squares



Sidewalks



Parks & green areas



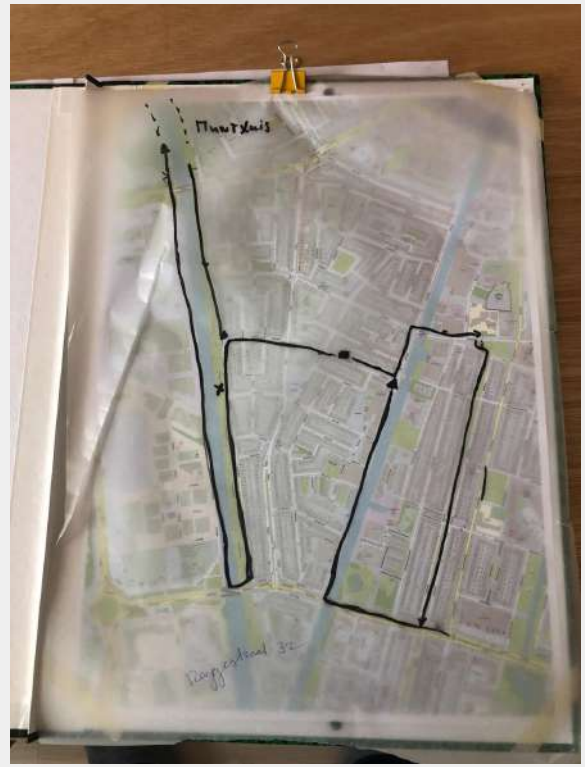
Open space quality

Interviews & Spatial analysis

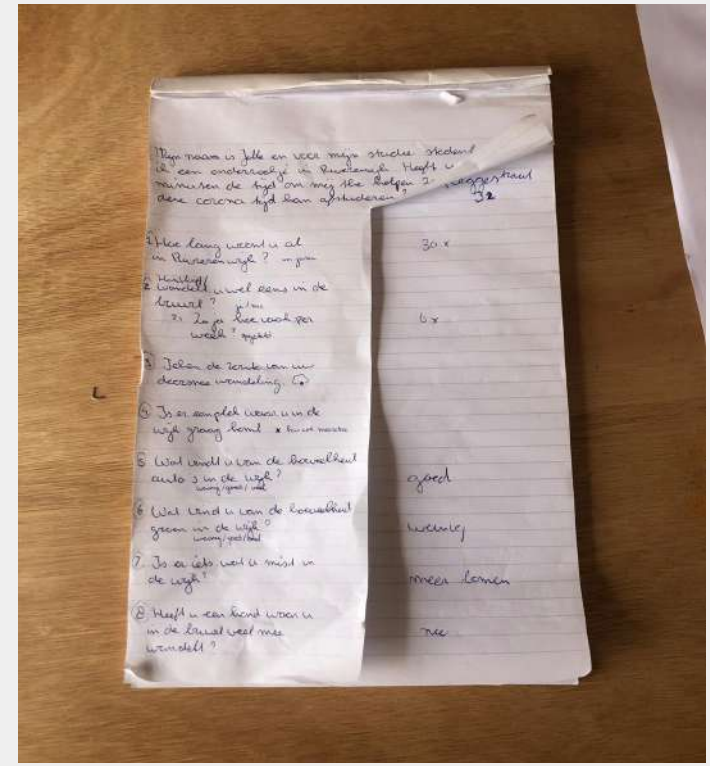
Sample group of 59 residents

Jelle Dekker
April, 2021

1. Which spaces are used?



2. Improvements & opinions



Interviews



Veilinhaven
Muntsluis
Park Oog en Al

Centrum
Ledige Erf
Oude gracht
Station Vaartsche Rijn

Cafe 'De Ketelhuis'
Cafe 'De Zagerij'

Park Transwijk
Amsterdam-Rijnkanaal

Cafe 'Op Zuid'

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nkanaal

Cafe 'Op Zuid'

Interviews



Interviews

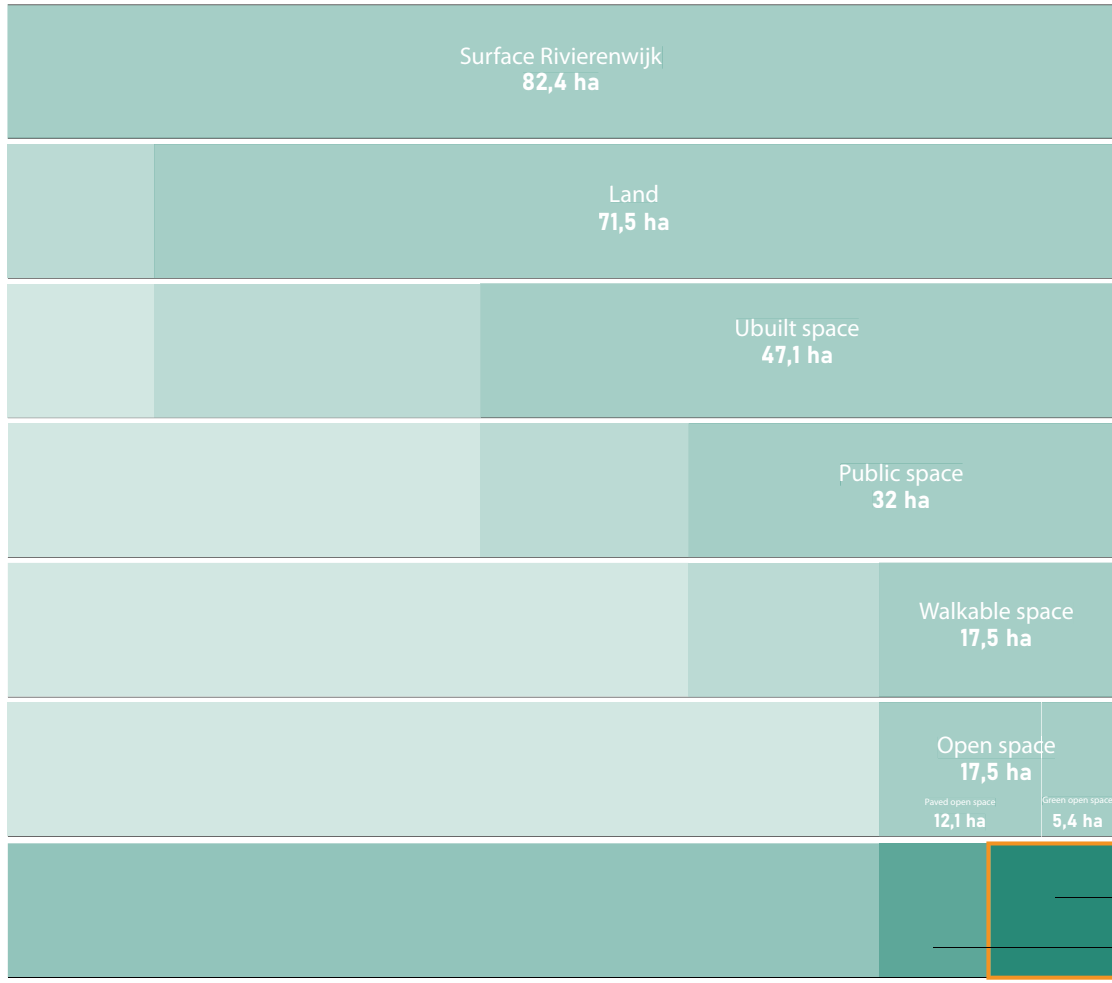
Unsafe!



Inaccessible!



Conclusion



Open space analysis

High quality open space Frequent used open space

Low quality open space Unused open space

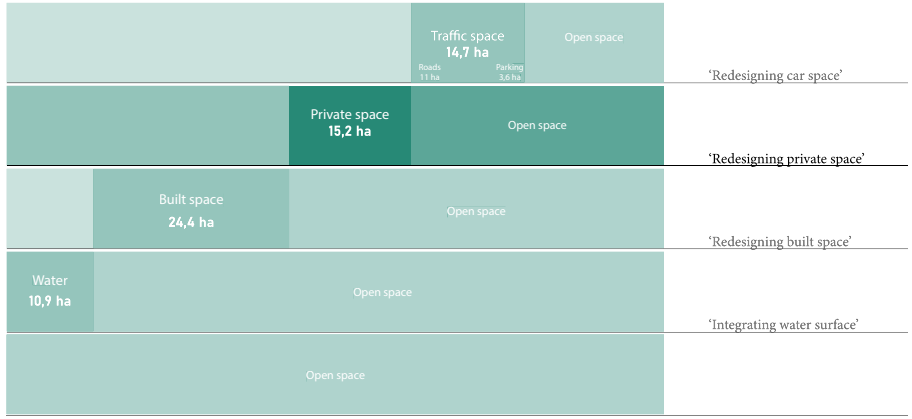
Adding quantity

Community gardens



Private space





Potential open space

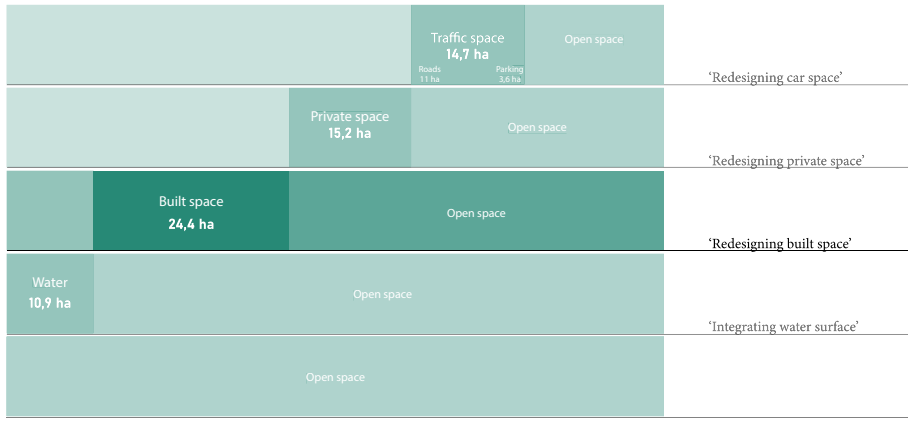
Adding quantity

Roof top gardens



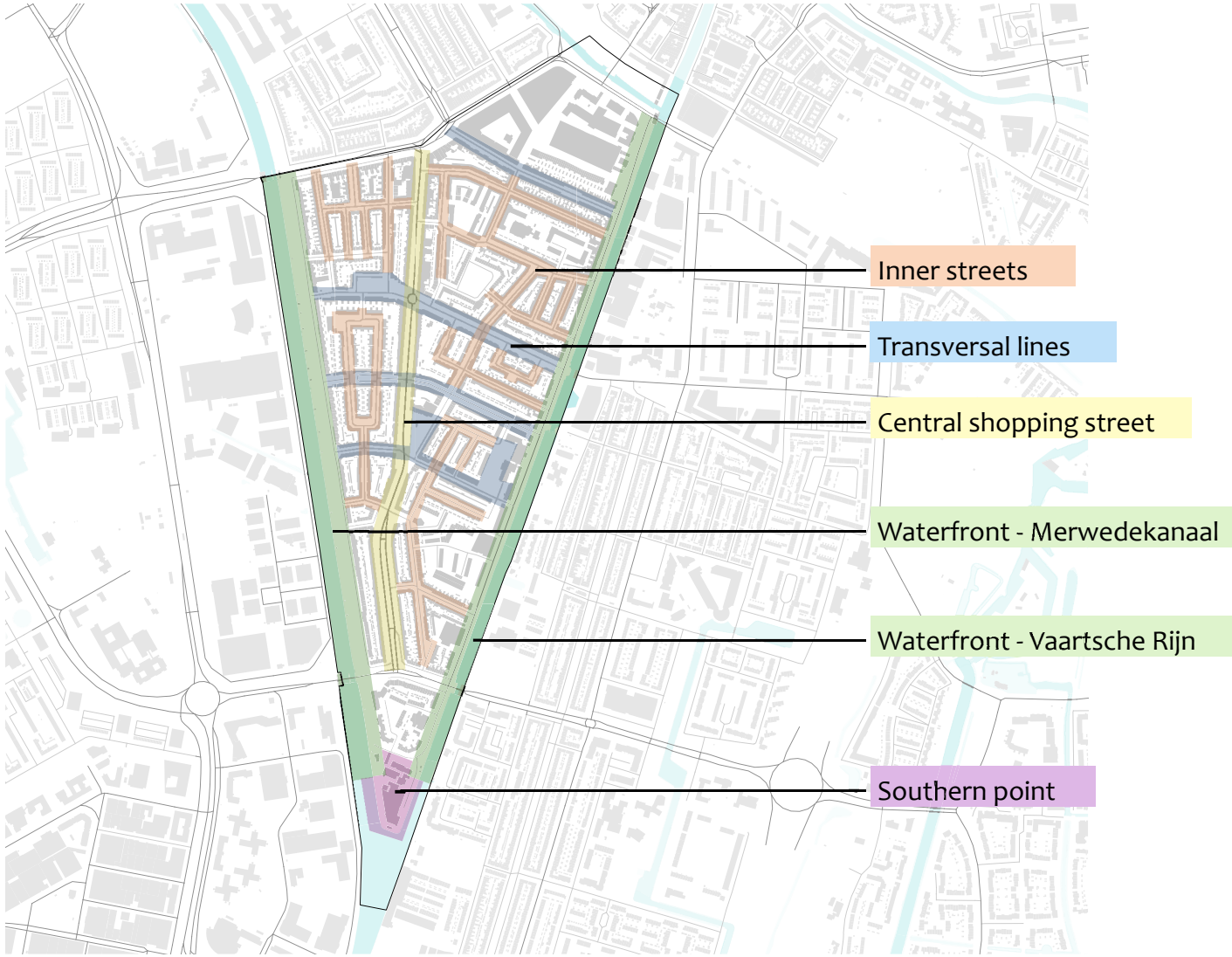
Built space





Potential open space

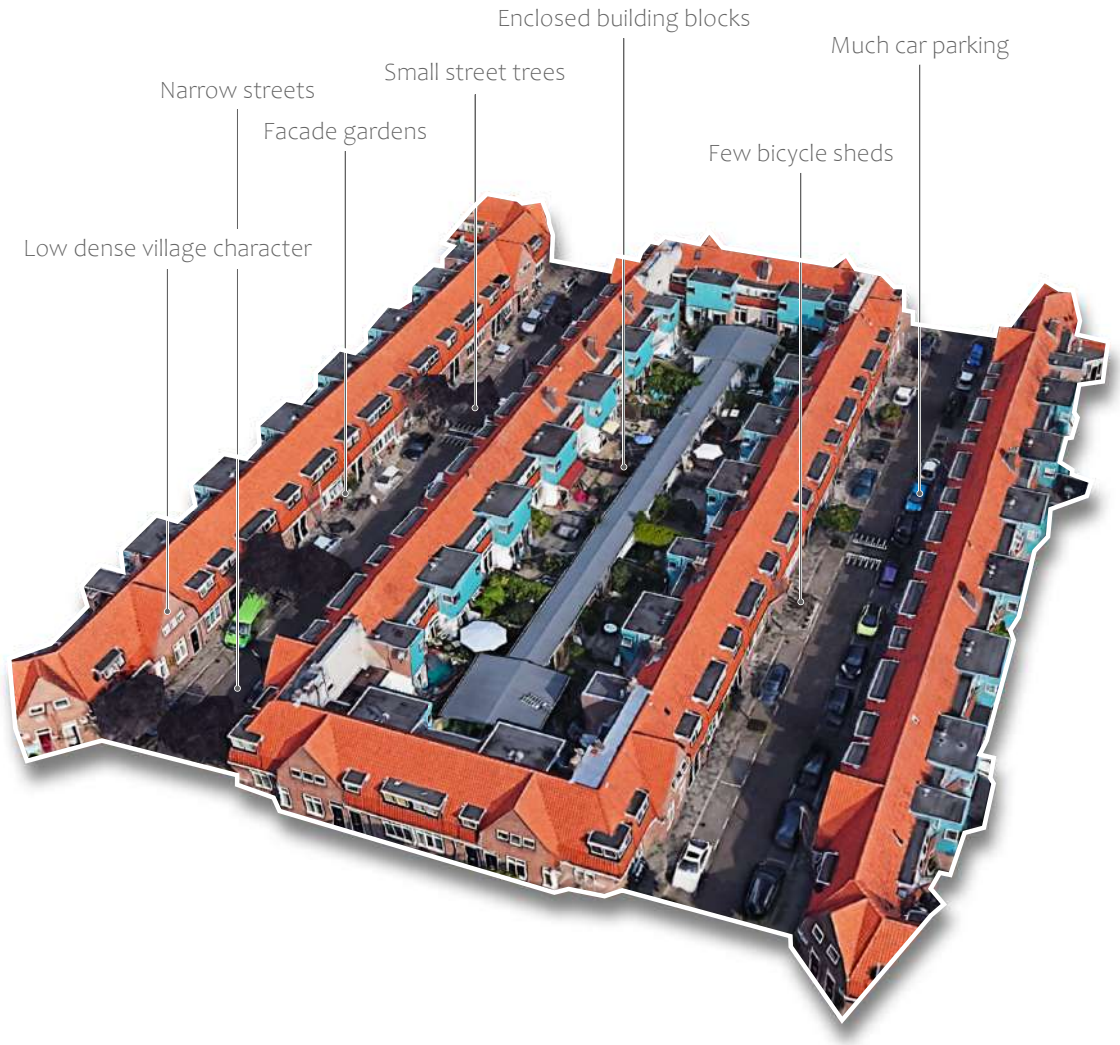
Typology


Inner streets
Transversal lines
Central shopping street
Waterfront - Merwedekanaal
Waterfront - Vaartsche Rijn
Southern point

Typology

Innerstreets

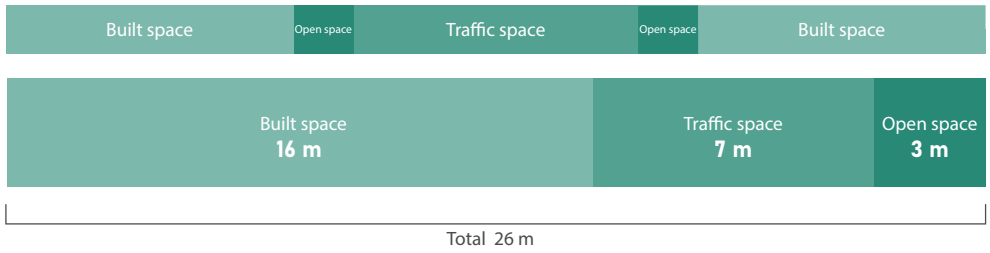





0
2.5
5
8
1.5
2
3
2
1.5
8

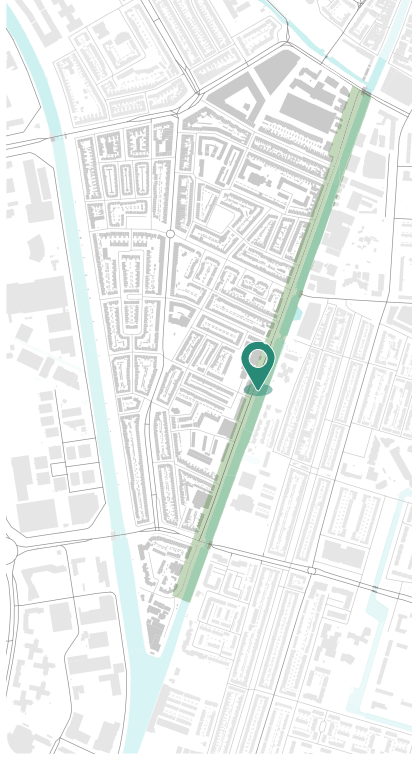





Built space
Open space
Traffic space
Open space
Built space
Built space
16 m
Traffic space
7 m
Open space
3 m
Total 26 m

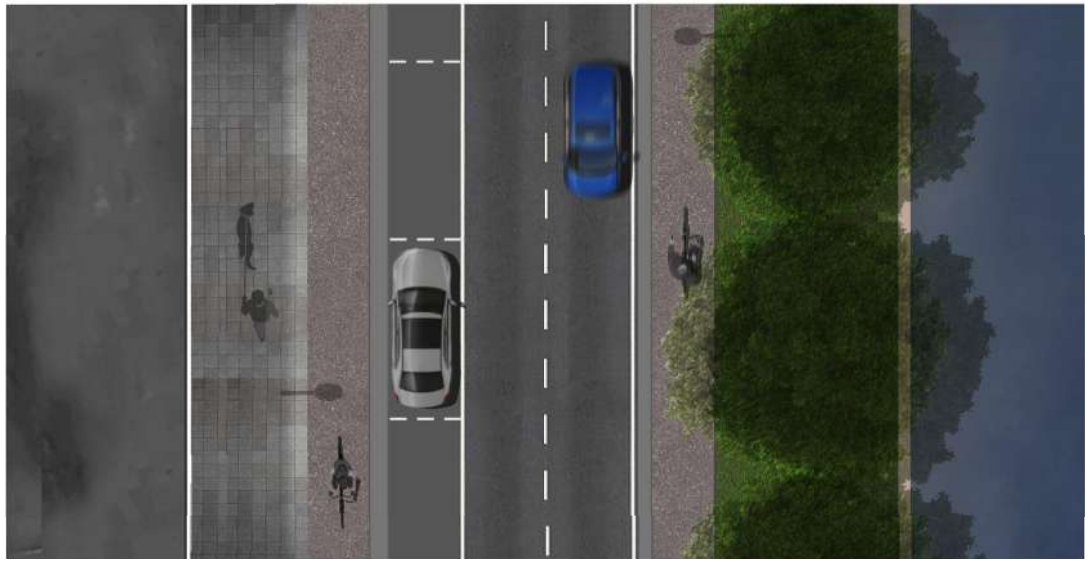
Typology

Waterfront Vaartsche Rijn





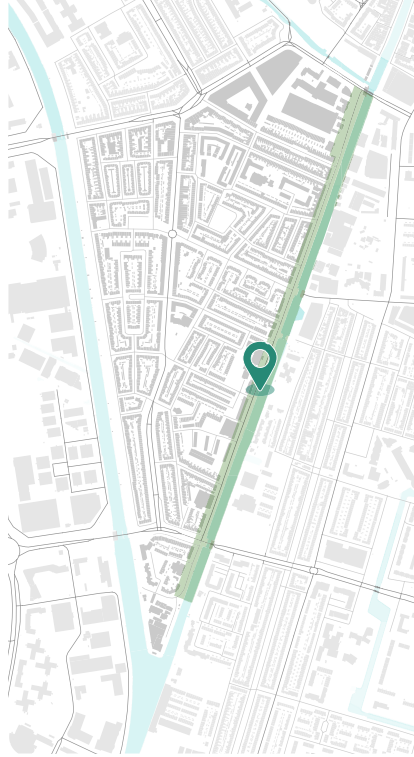

0
2.5
5
5
3.5
2
2
5.5
2
5
5




Built space
Open space
Traffic space
Open space
Water

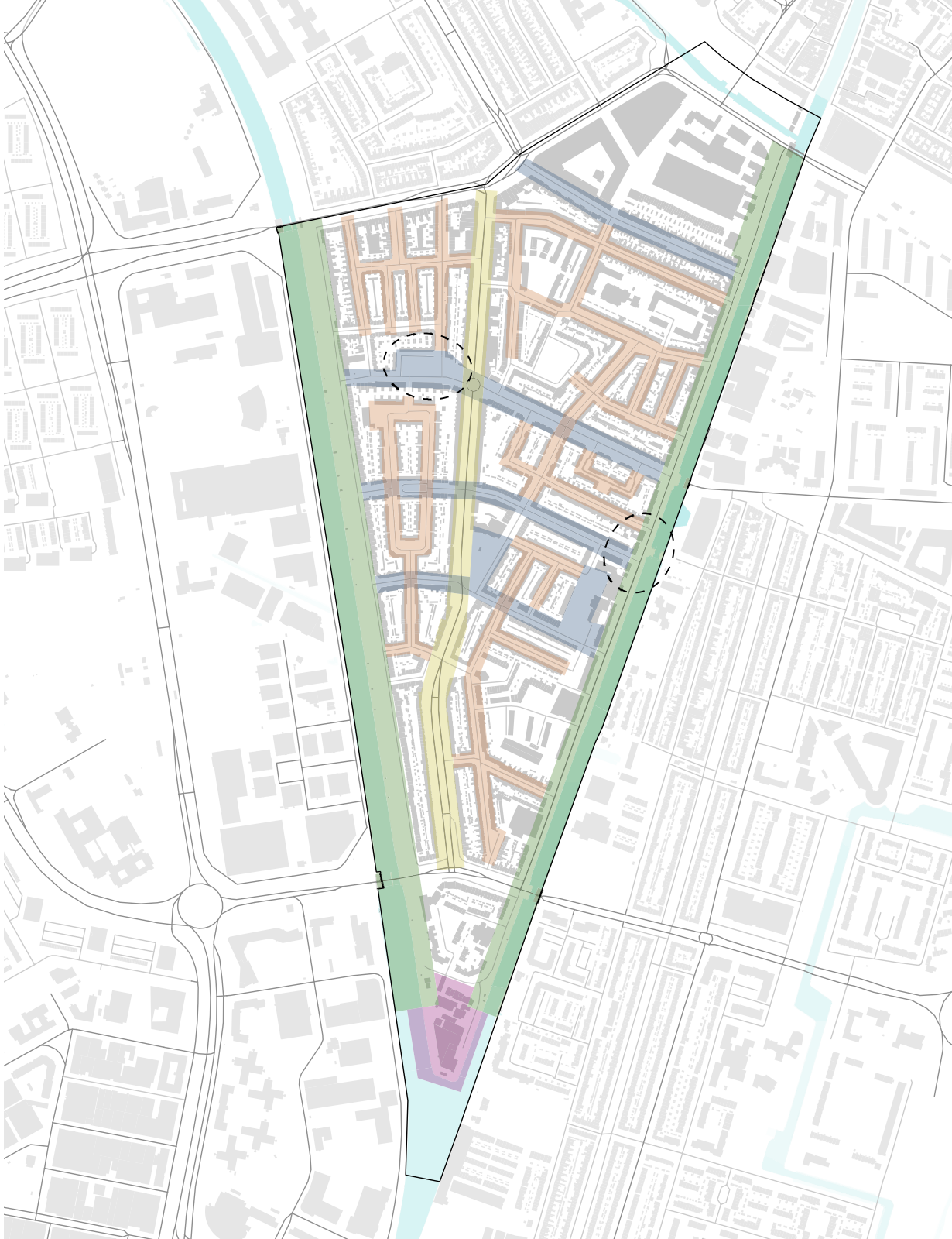

Water
5 m
Built space
5 m
Traffic space
11.5 m
Open space
8.5 m

Total 30 m

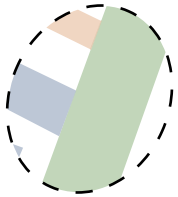


DESIGN OUTCOME

Design locations



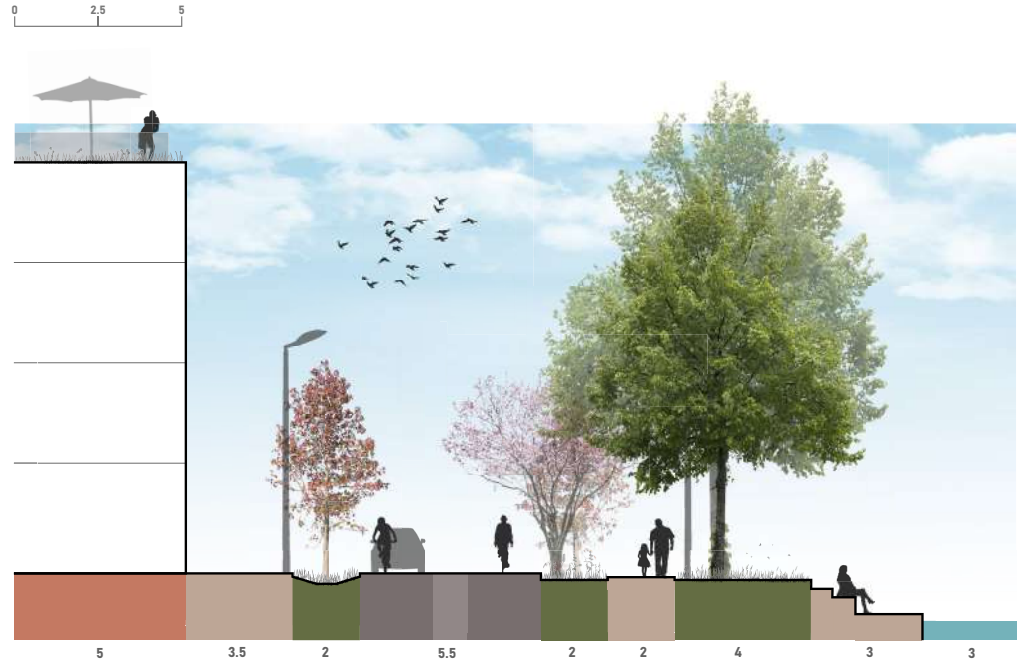
Design location



Vaartsche Rijn waterfront



Design interventions



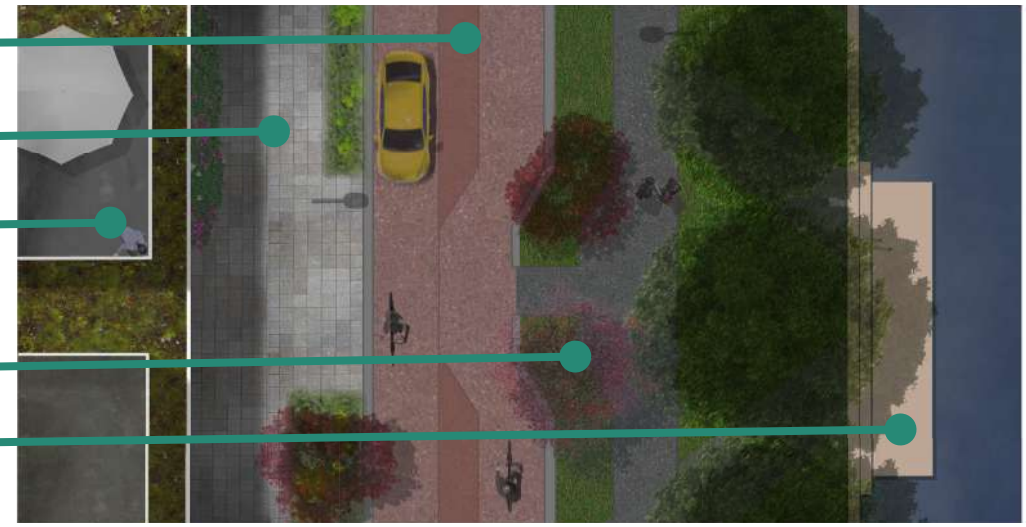
Redefine traffic space

Lively sidewalk

Include rooftops

Diverse green

Accessible waterfront

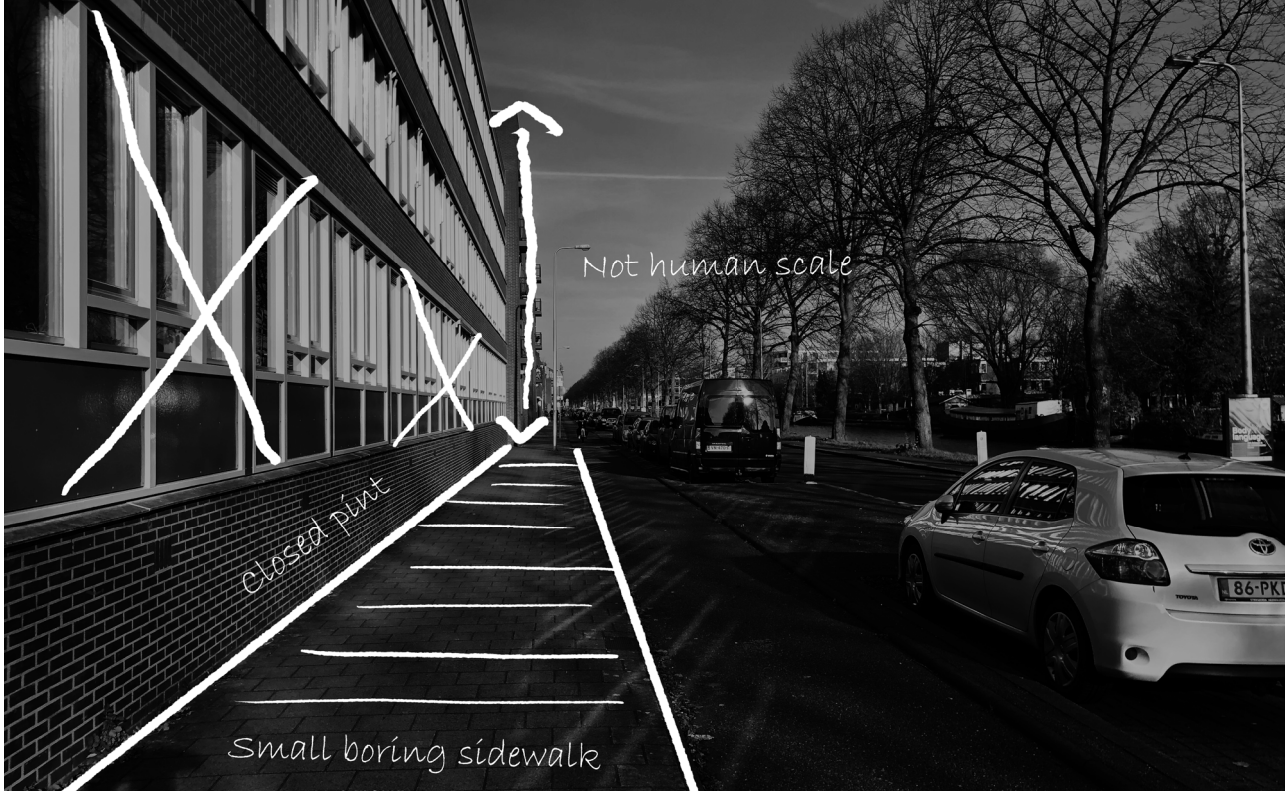




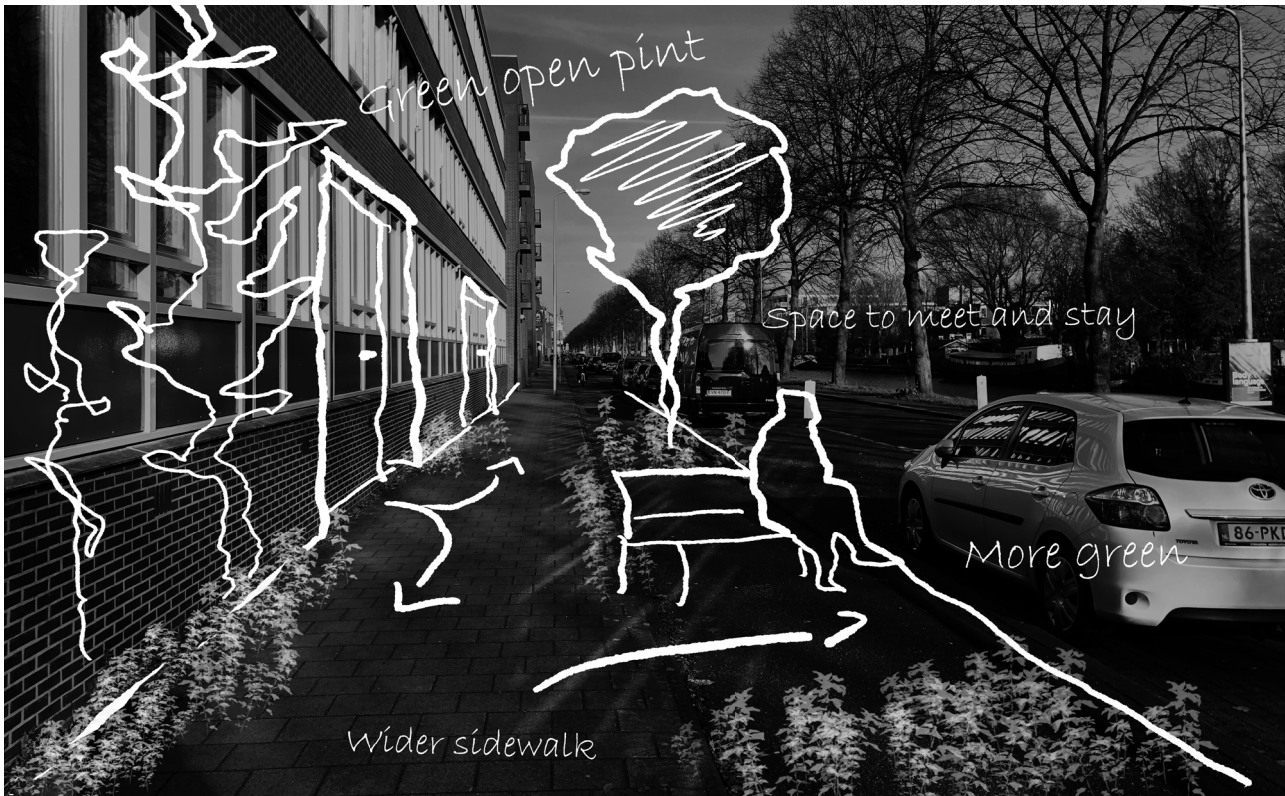


Lively sidewalk

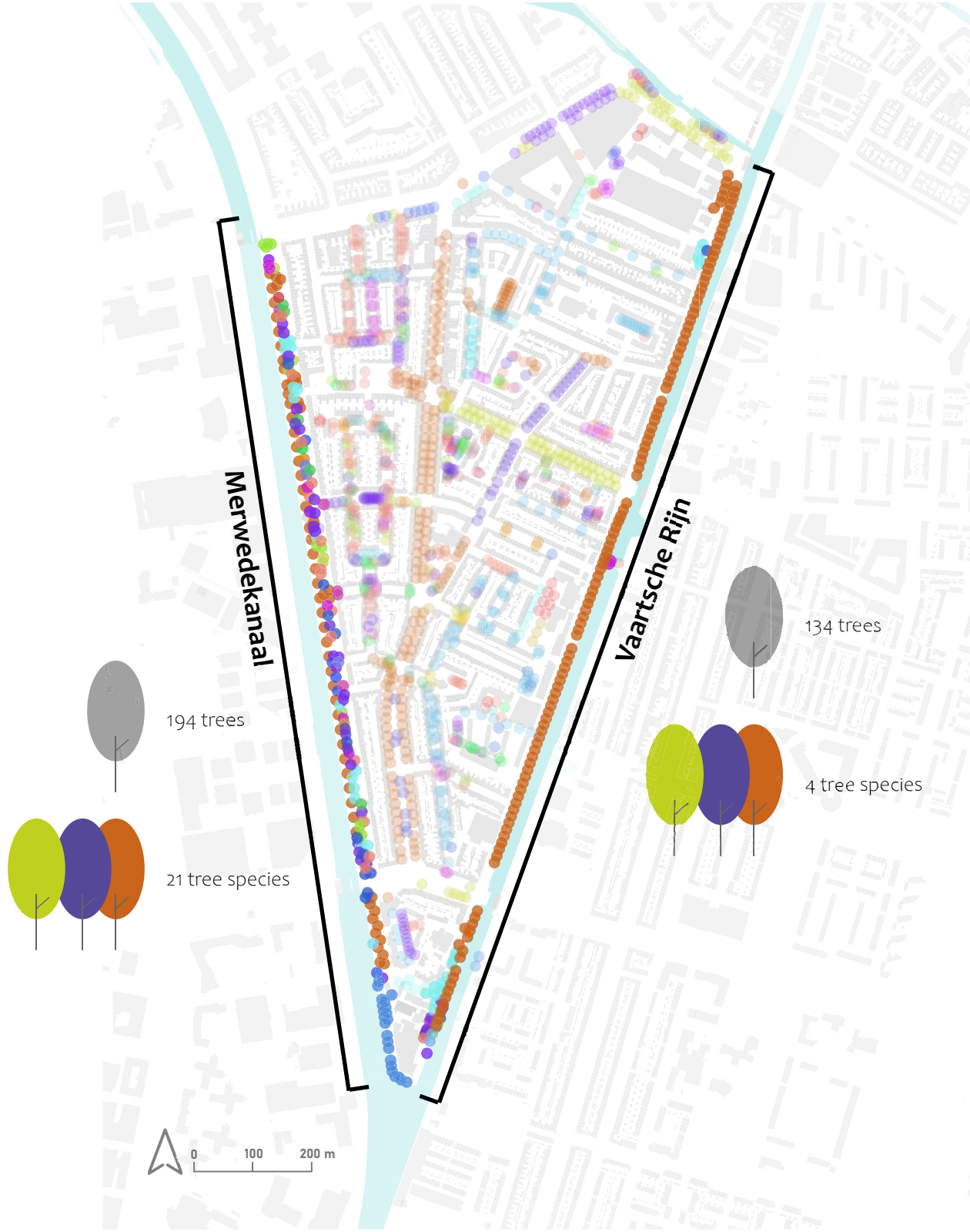
Existing situation



Redesign

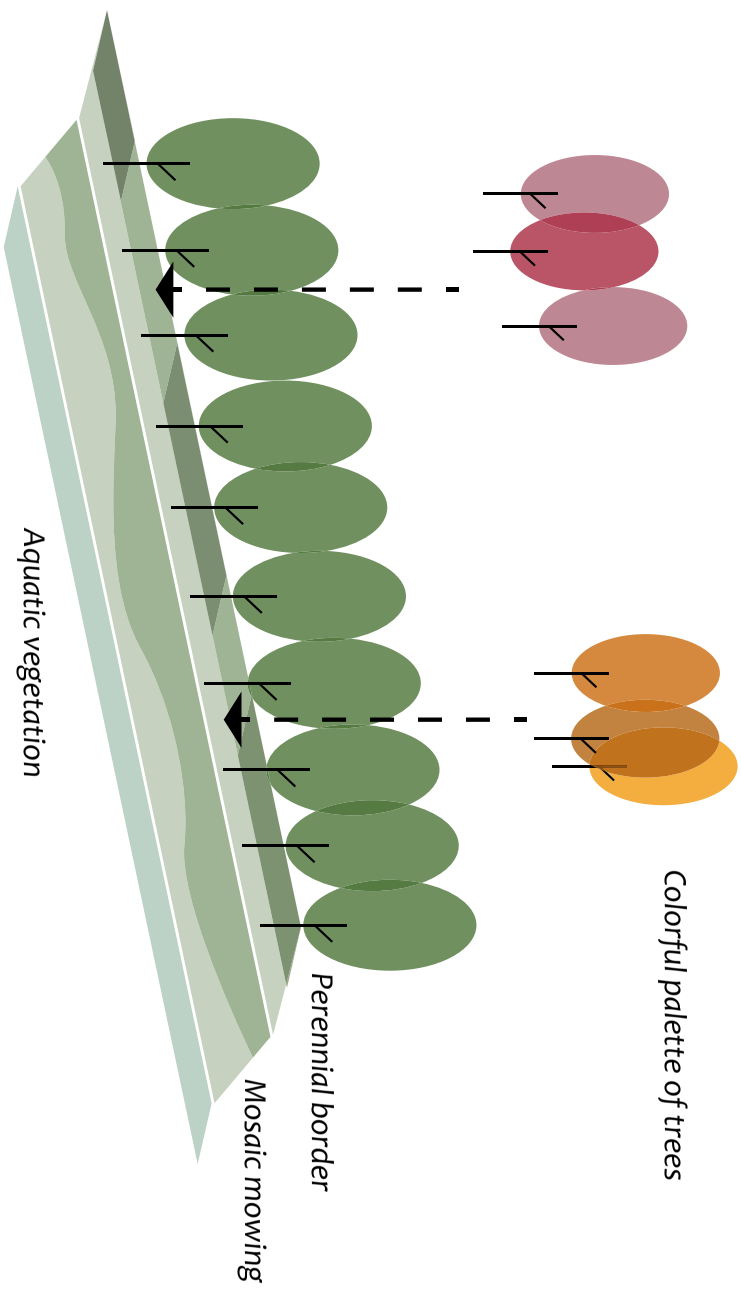


Diverse green

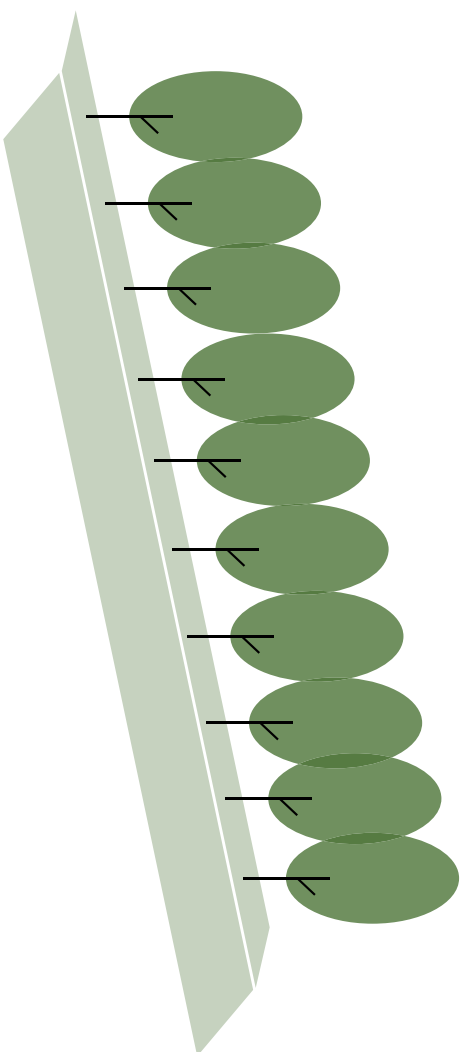


VAARTSCHE RIJN WATERFRONT

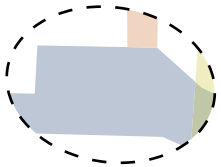
Redesign in green structure



Existing green structure



Design location



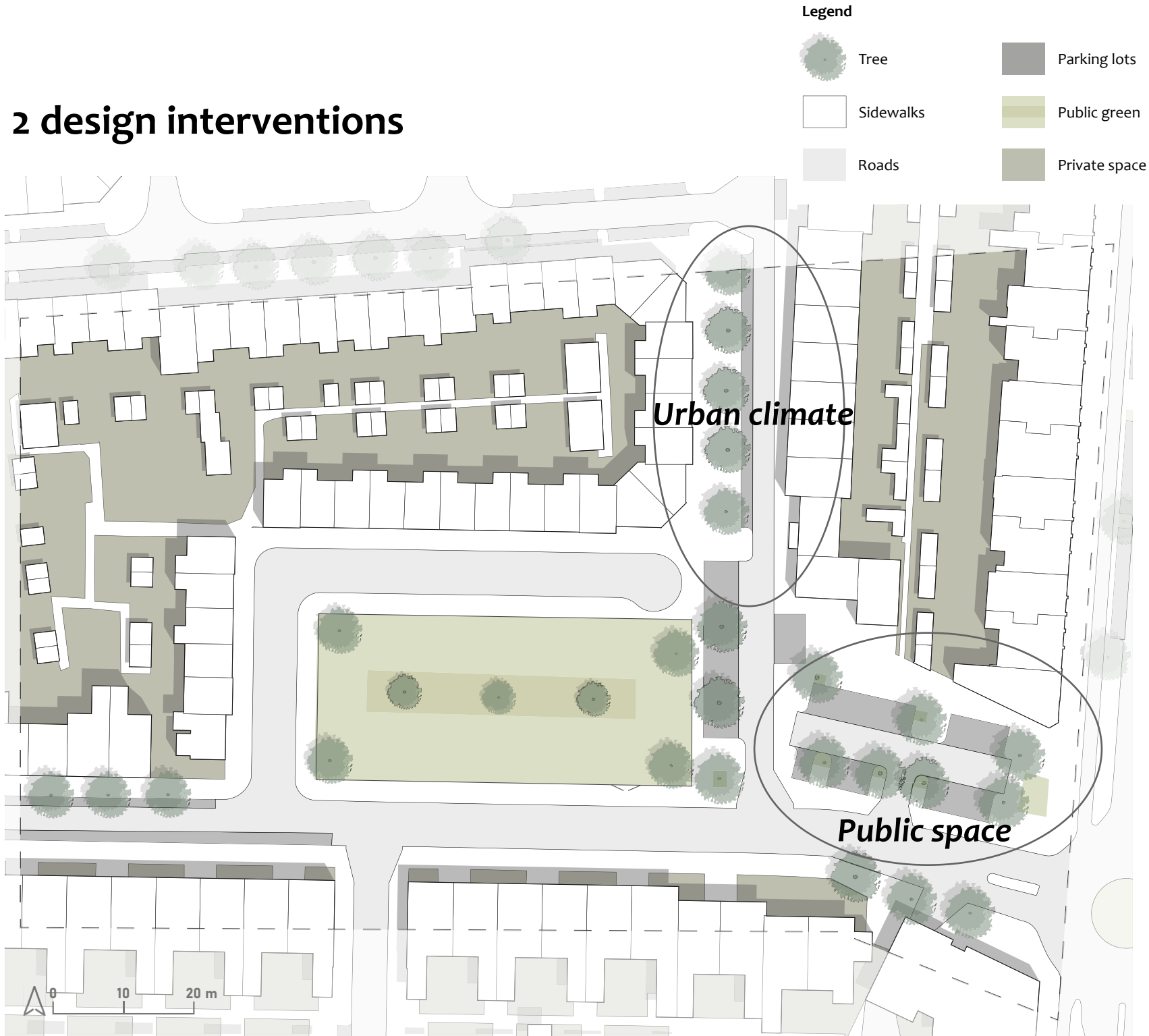
Gated pocket park



Existing situation



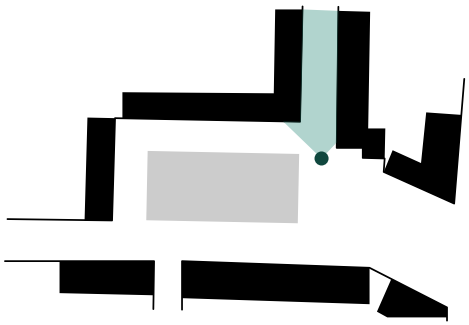
2 design interventions



Urban climate

Existing situation



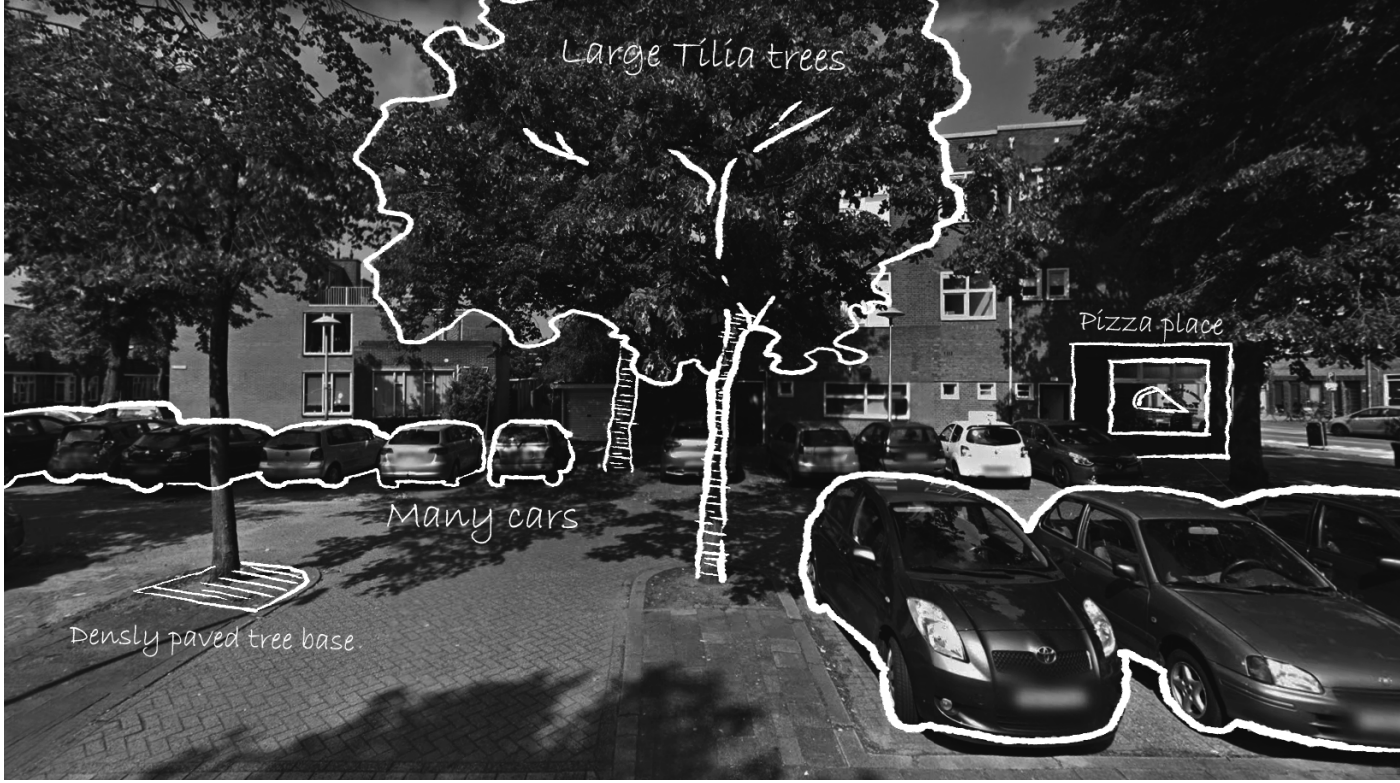


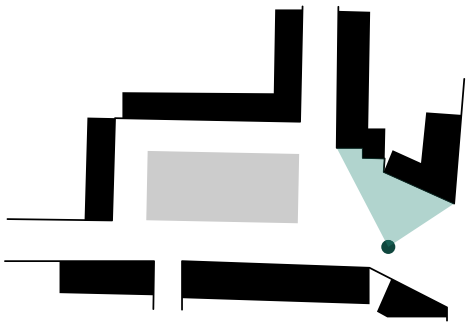
Redesign



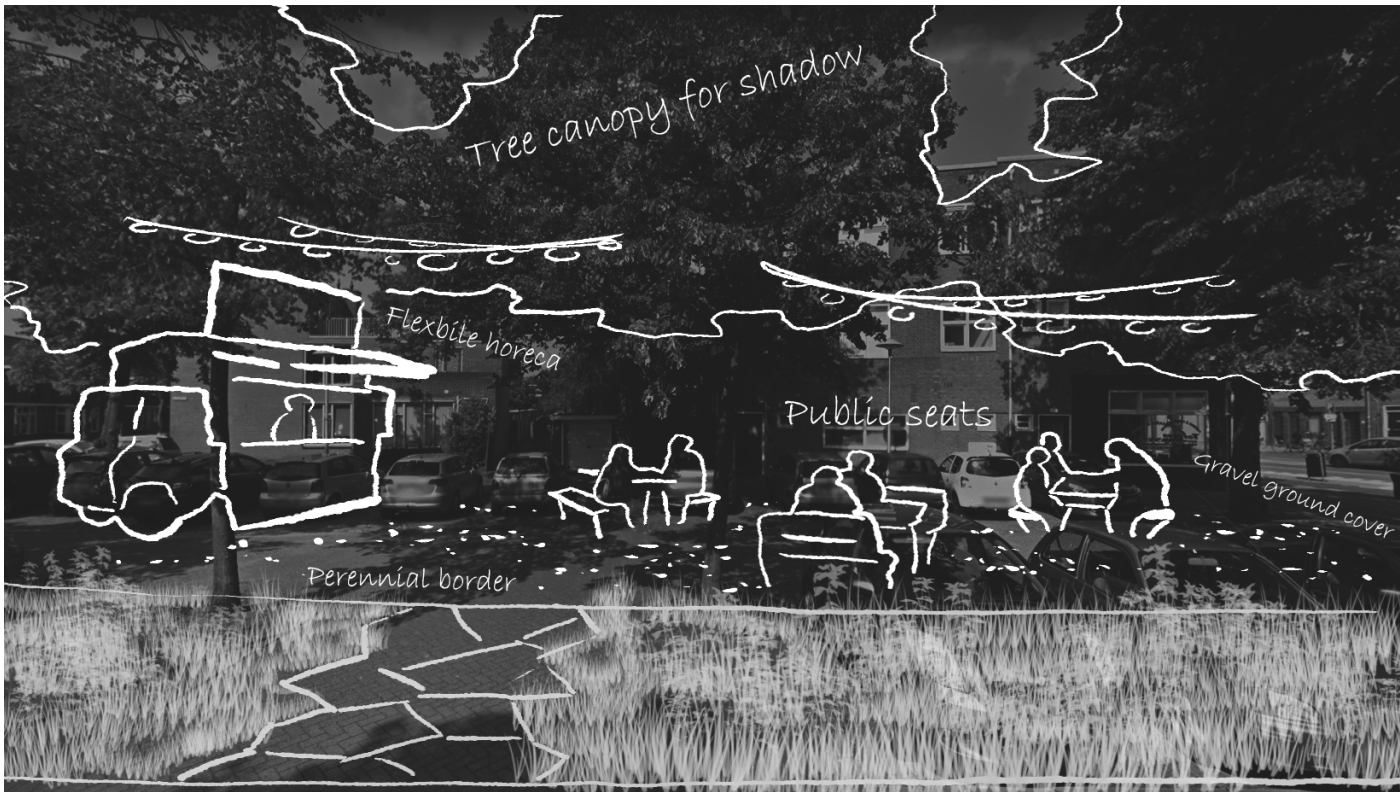
Public space

Existing situation





Redesign

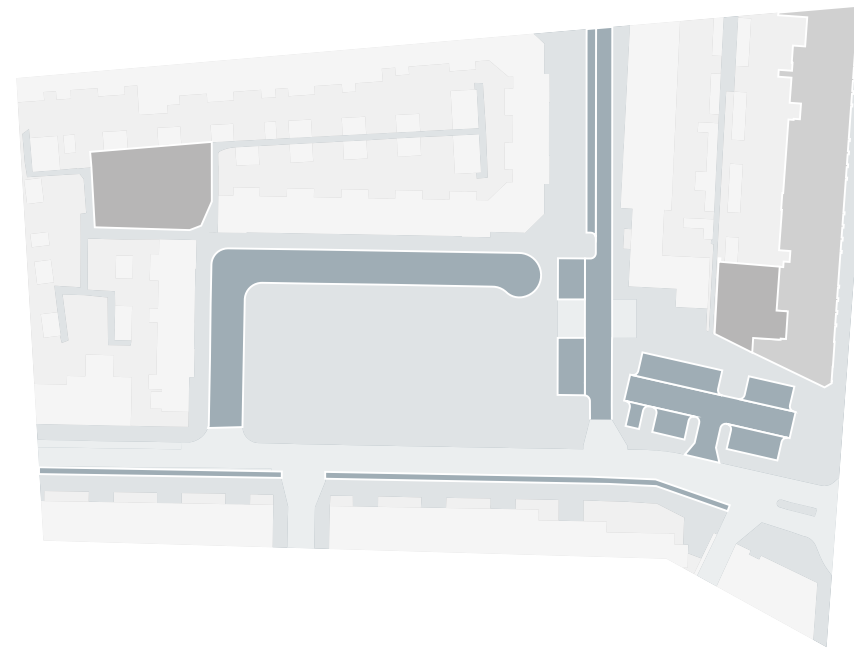


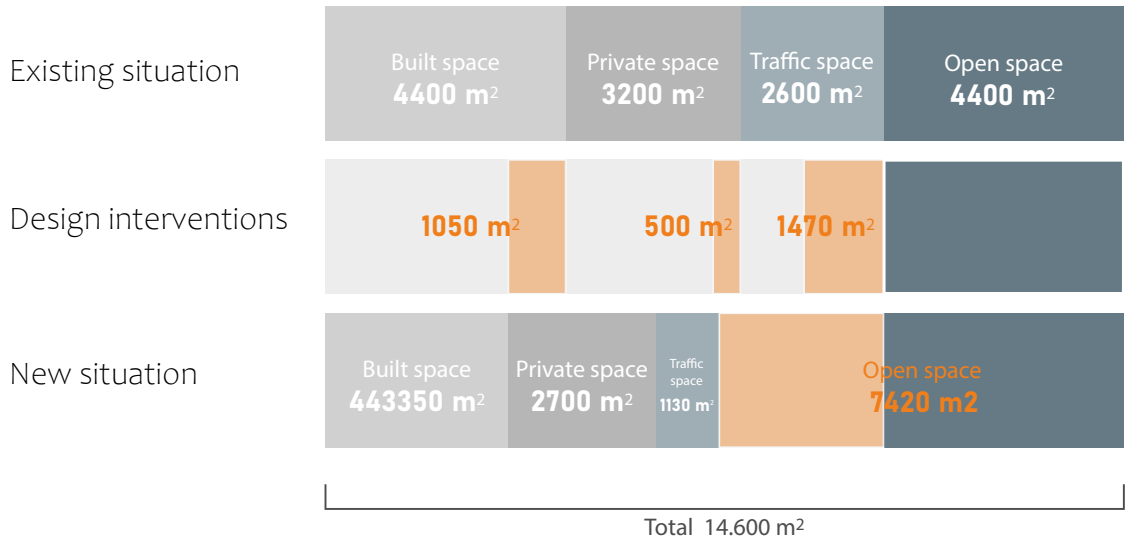
Combined redesign



Redesigning quantity

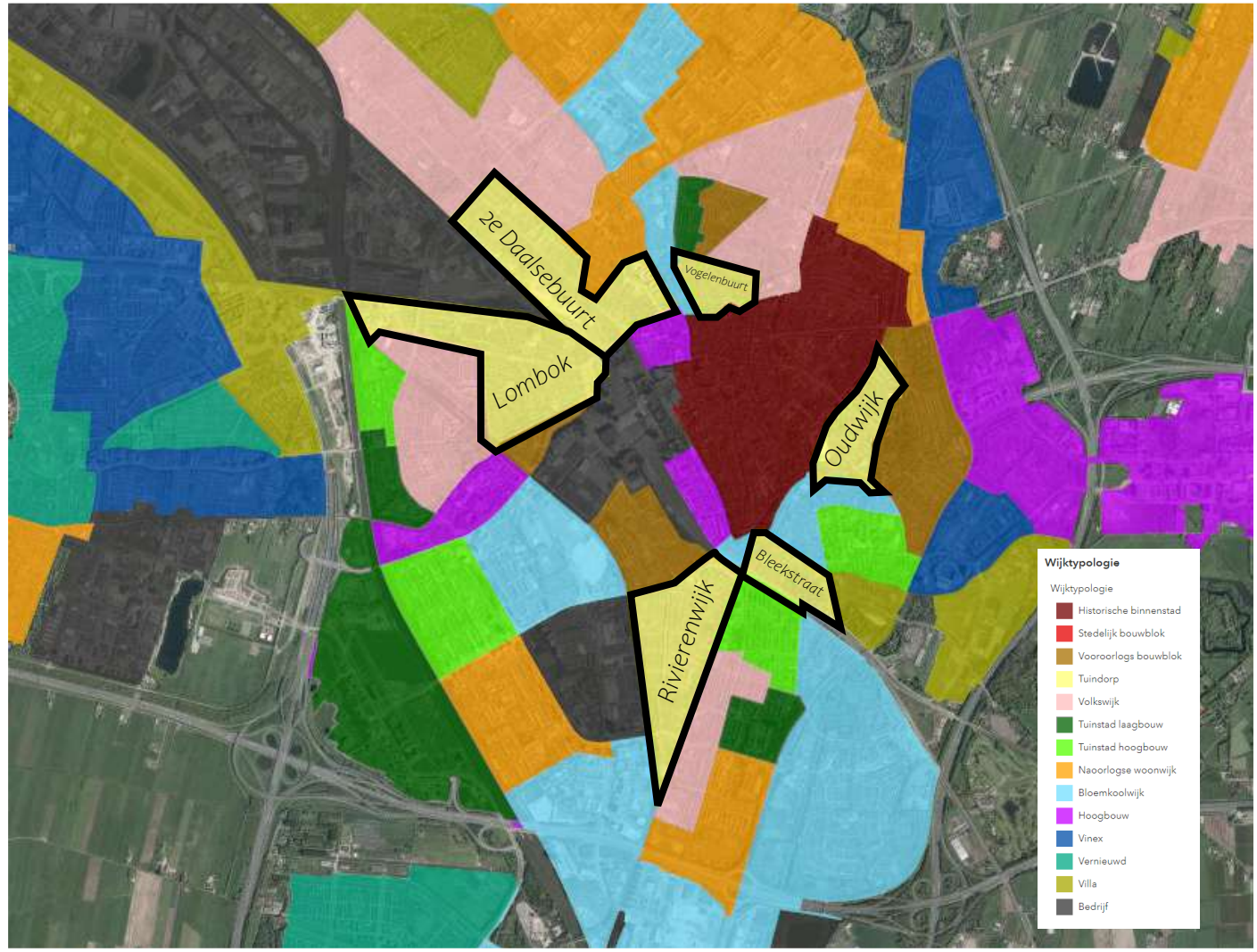
Adding available open space by redesigning potential open space





TRANSFERABILITY

Similar neighborhood typologies



Adapted from Esri Nederland Content

Similar neighborhood typologies

Javastraat - Lombok



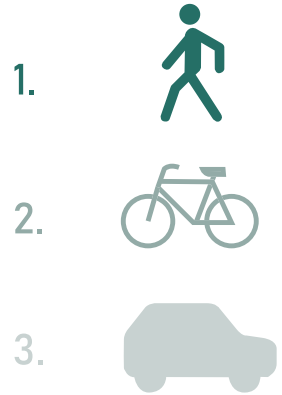
Adapted from Esri Nederland Content

5 Key design principles

More and diverse green



Less priority for car mobility



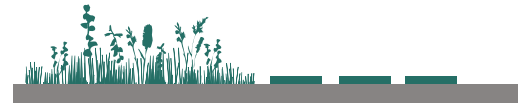
Mixed use public spaces



(Semi) Public community gardens



Soften the hard surface



CONCLUSIONS
&
REFLECTIONS

Key conclusions

*- Always work on both **quantity** and **quality***

*- Clear criteria for open space help in **understanding**, but acknowledge **multifunctionality***

*- A **minimum** of open space per household secures balance, but it should not be leading. Focus on **quality** of open space*

*- First step **maximize** quality of existing open space with help of the residents, in the **whole city***

*- Integrating design principles for **urban ecology** and **climate resilience** improves **environmental qualities** which contribute to urban liveability*



Image source: https://www.duic.nl/

SUSTAINABLE DENSIFICATION IN UTRECHT

Testing the Open Space Strategy in Riverenwijk

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P5 Presentation
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