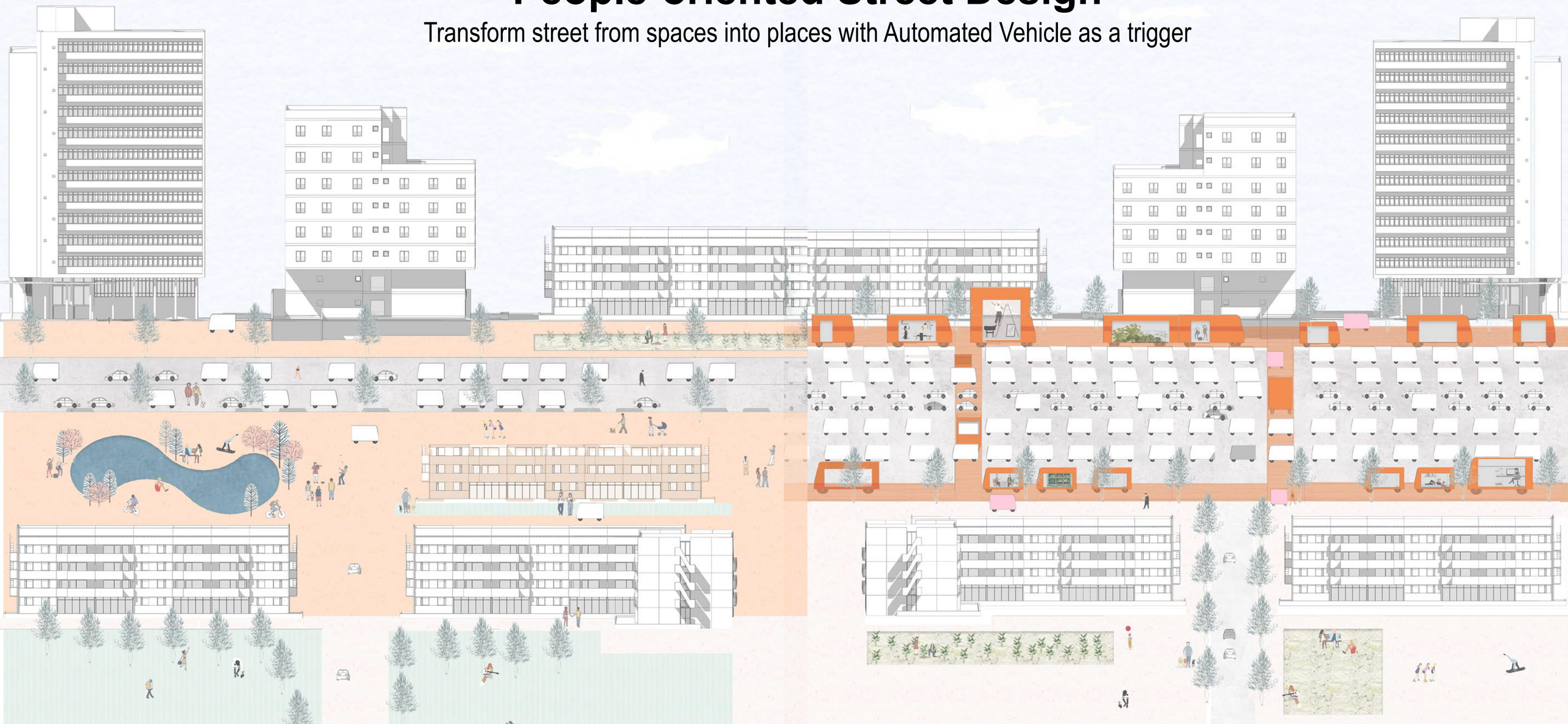
People-oriented Street Design

Transform street from spaces into places with Automated Vehicle as a trigger

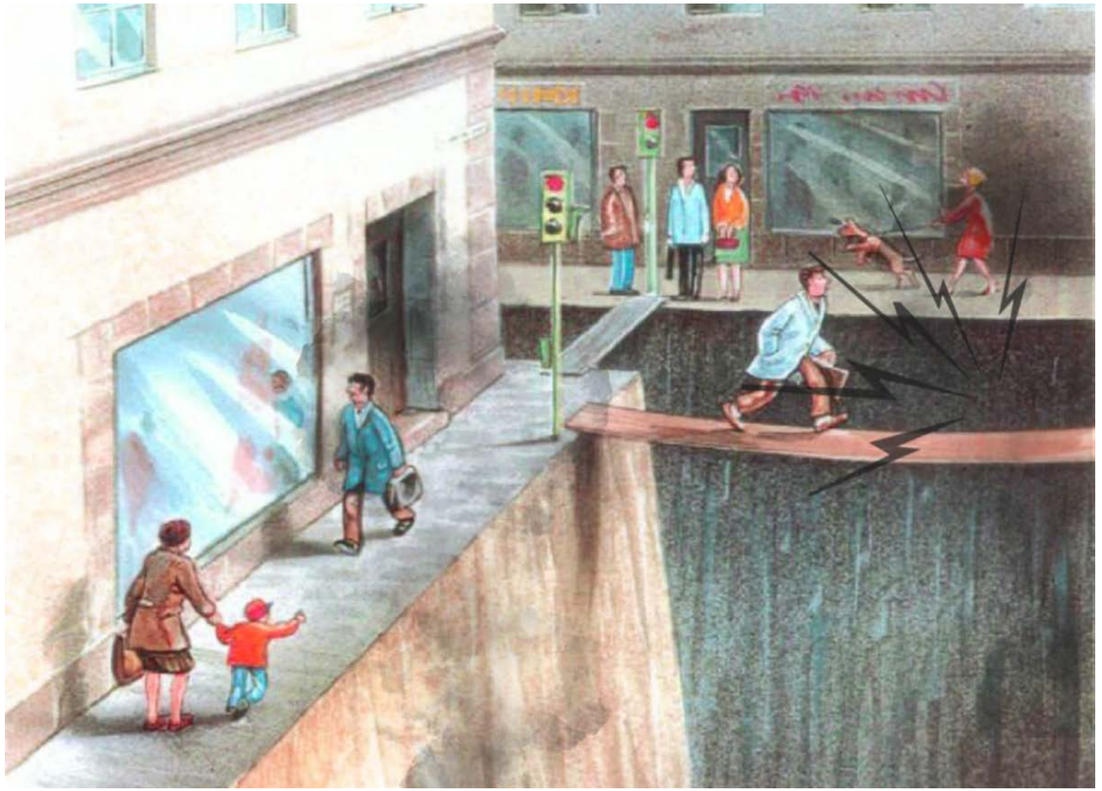


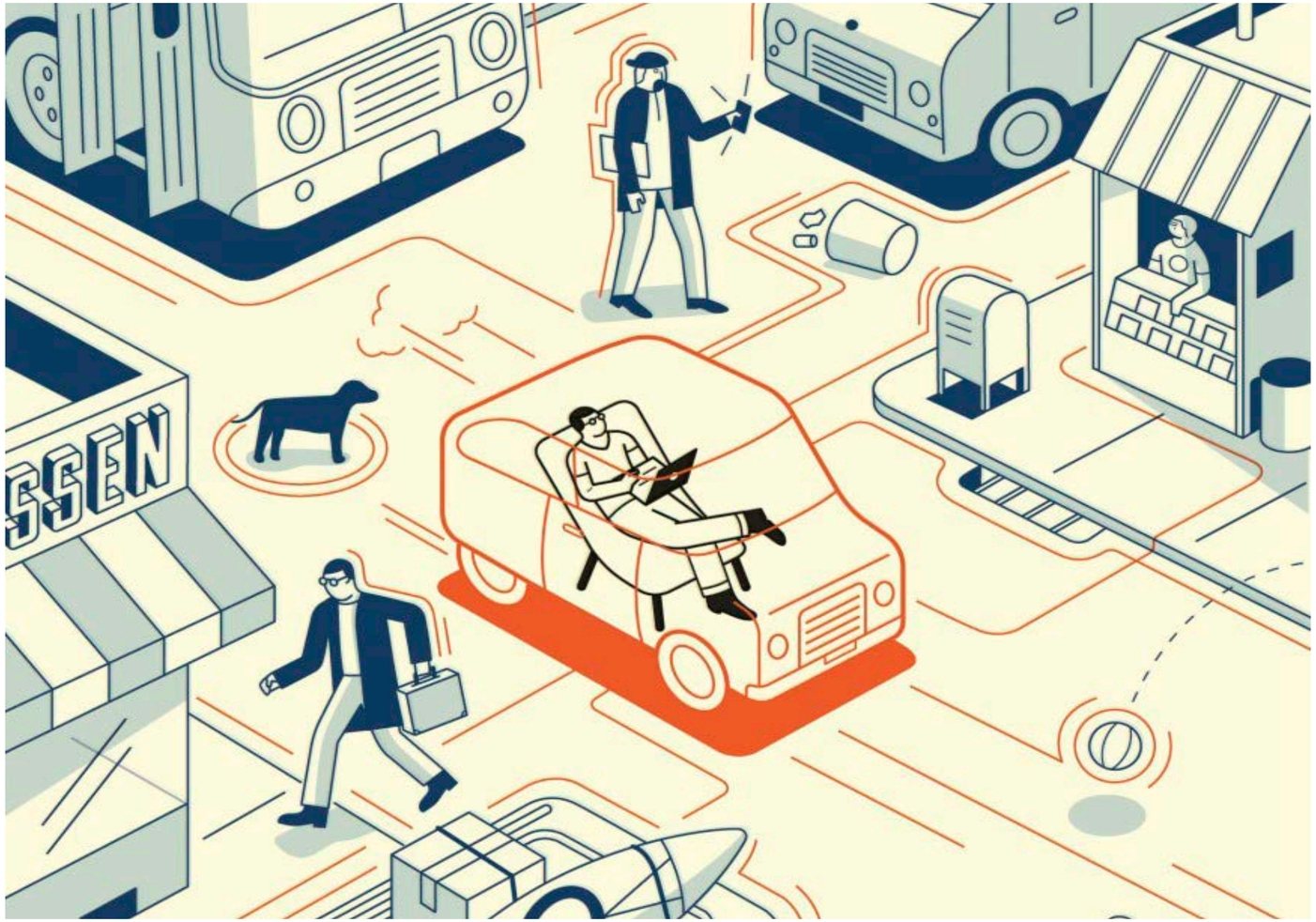
Pedestrian priority street

Car-oriented street

Street in the past

Street nowadays

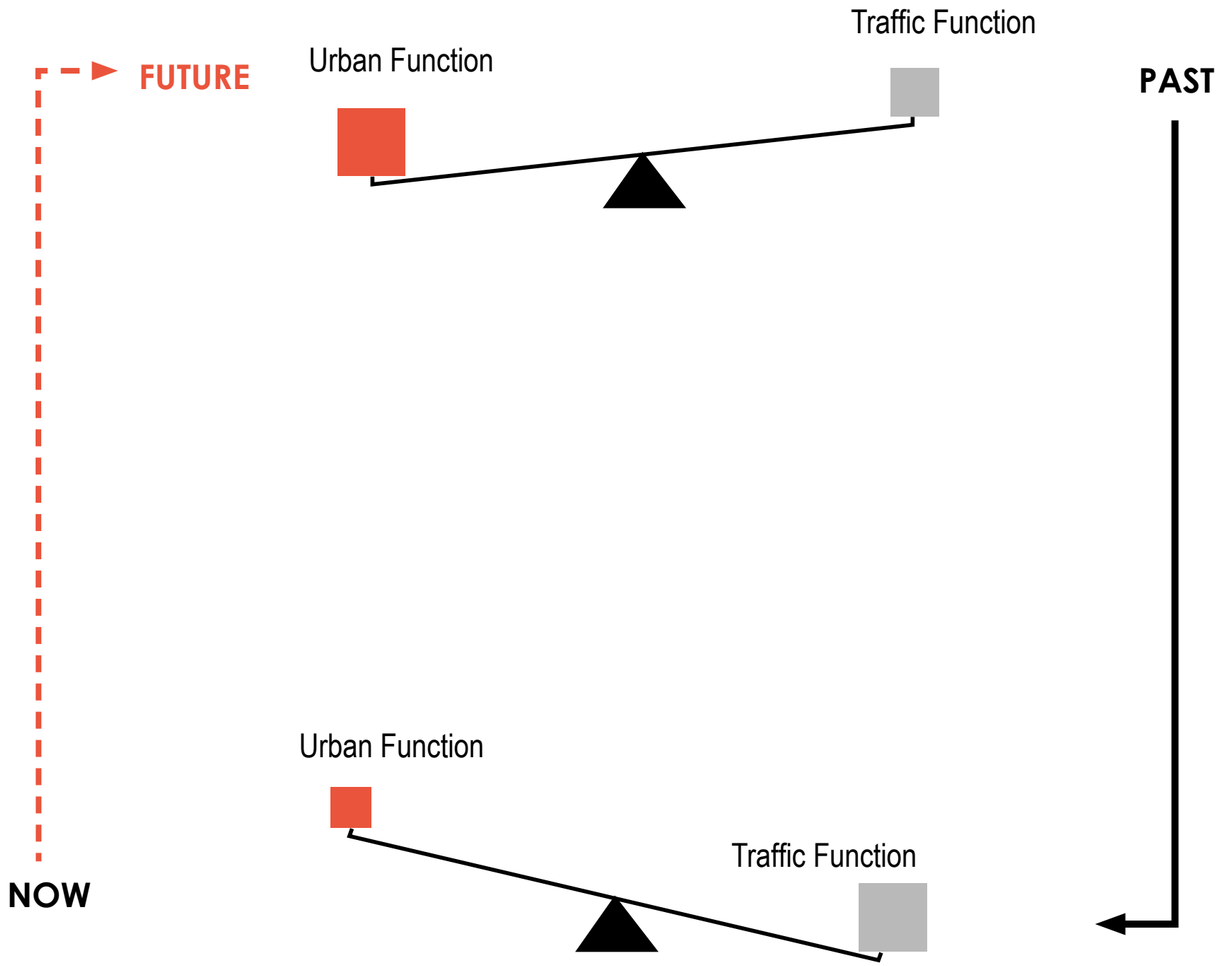


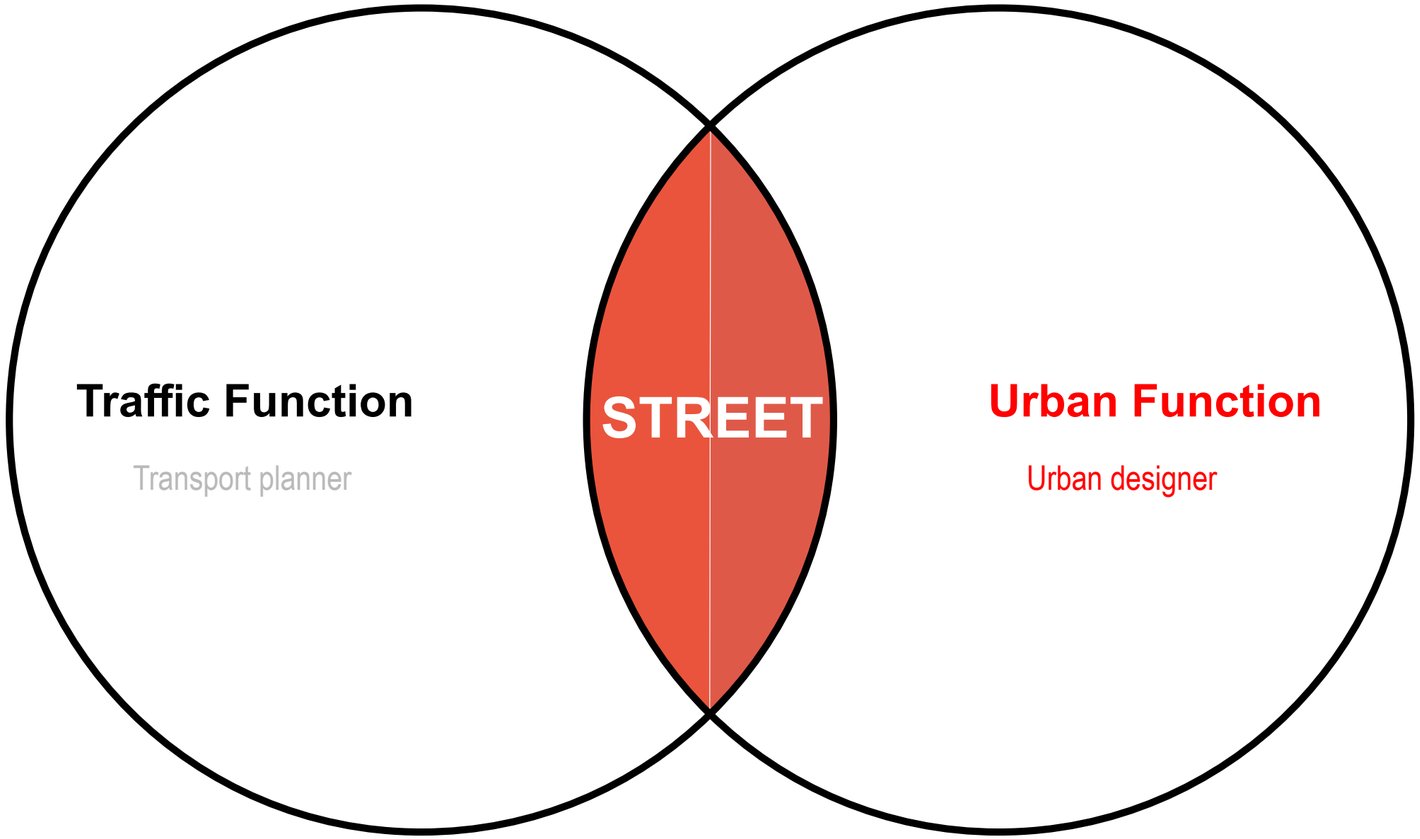


A change in transport mode (from horse power to the internal combustion engine) was more than just a technological regime change, but more like an urban revolution and it might seem to need a 'counterrevolution' to put it right.

----Stephen Marshall

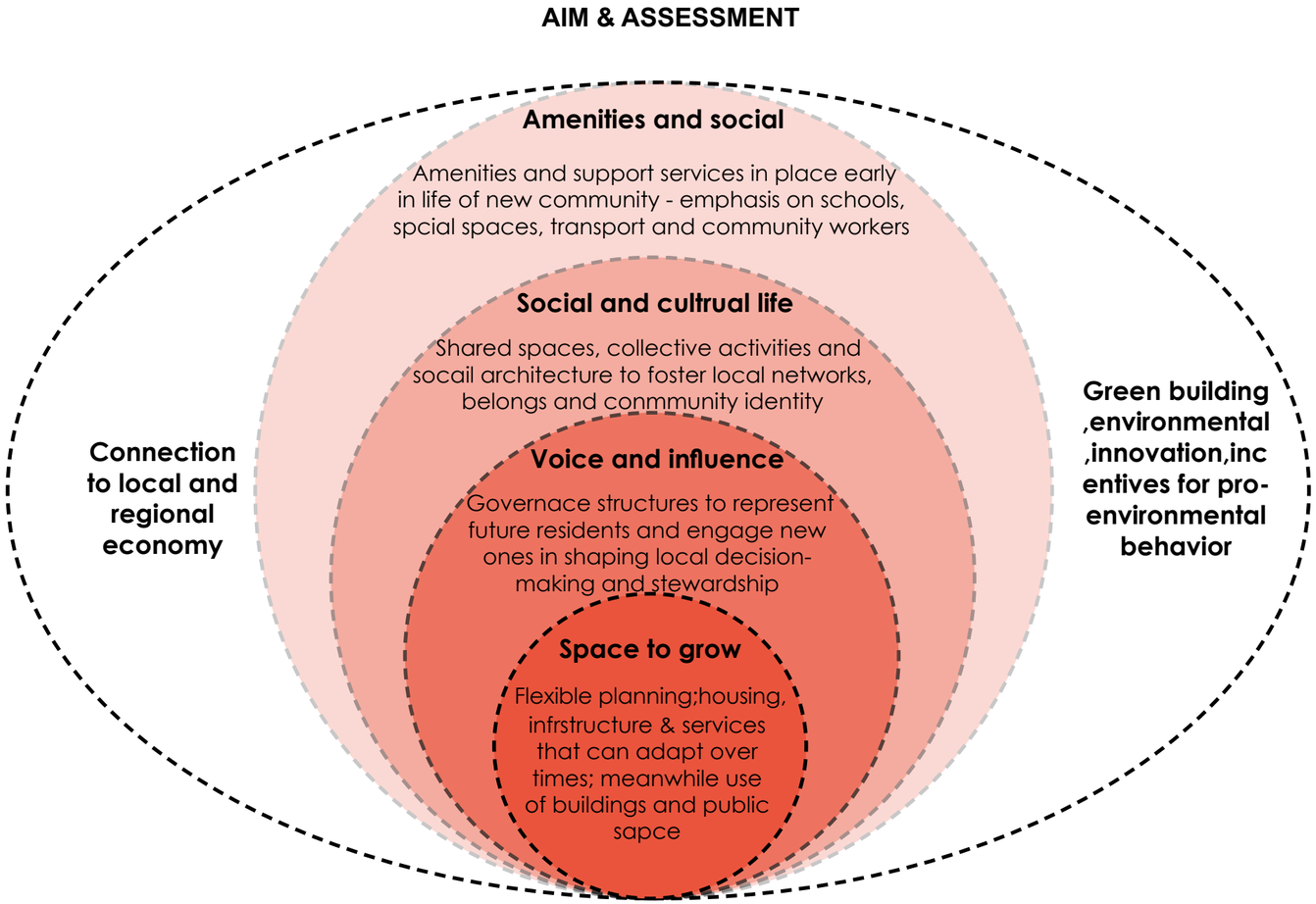
RESERACH AIM





To what extent and in what way can automated vehicle be a trigger to transform automobile-oriented street into people-oriented street when it is 100% used ?

CHARACTERISTIC OF PEOPLE-ORIENTED STREET



According to the Western Australia Council of Social Services (WACOSS): "Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively **support the capacity of current and future generations to create healthy and liveable communities**. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life."

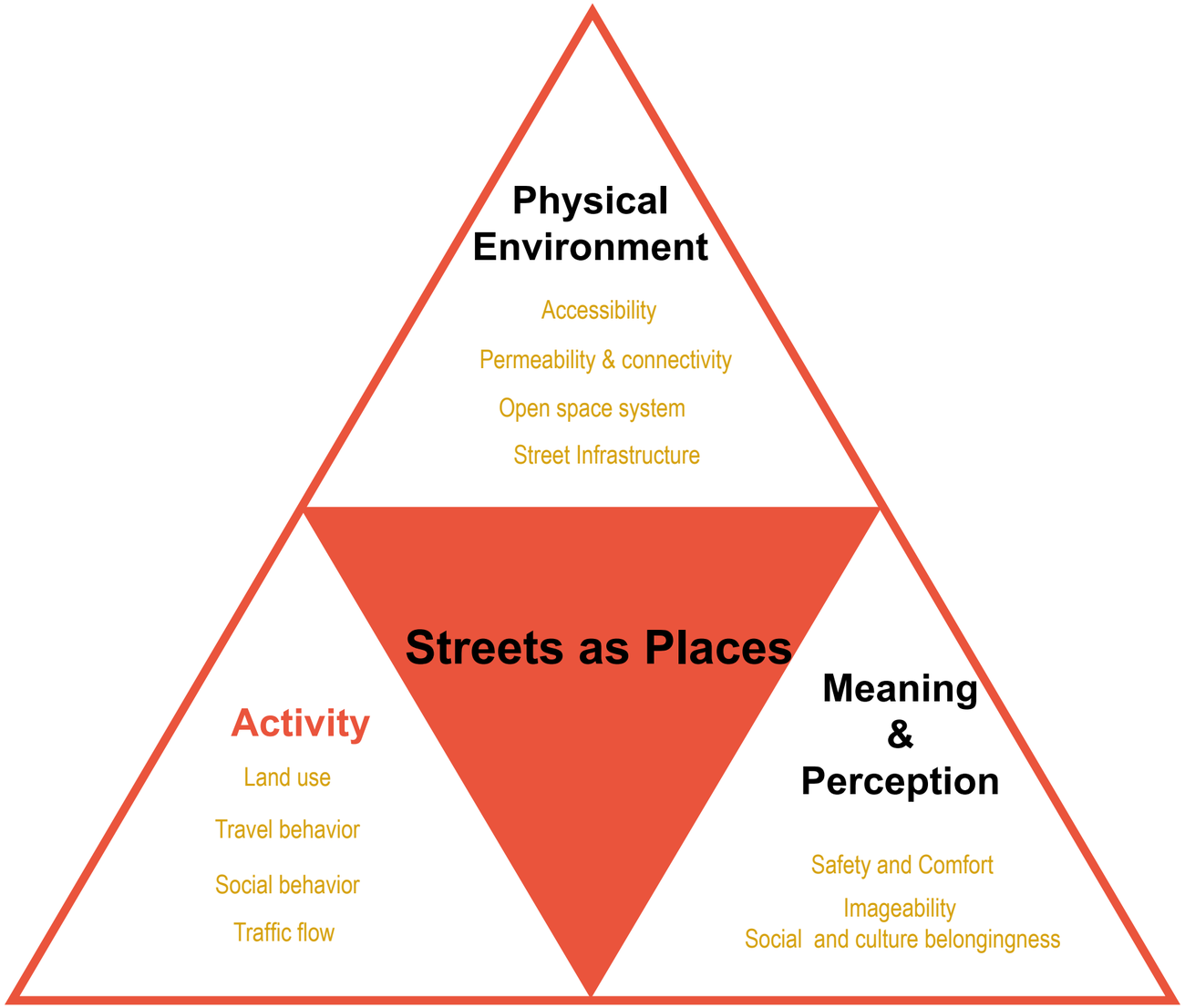
DESIGN CONCEPT

Streets as Places

Streets as Places is about helping people begin to see streets in their entirety: not just their function in transporting people and goods, but the vital role they play in animating **the social and economic life of communities**. It's about communities owning and reclaiming their streets, participating in civic life, and having a direct impact on how their public spaces look, function, and feel. In the project it means safer sidewalks for pedetrians and cyclists and diverse public spaces in different communities, thus to tackle the main problems mentioned above.

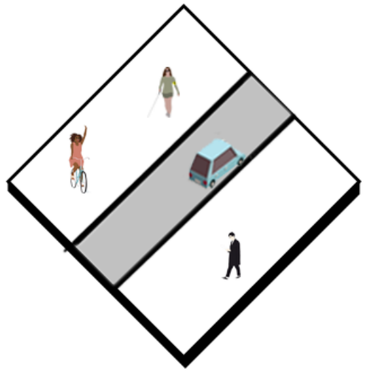
DESIGN CONCEPT

Streets as Places

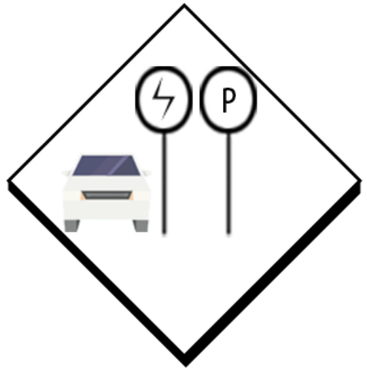


ACTIVITY TYPOLOGY

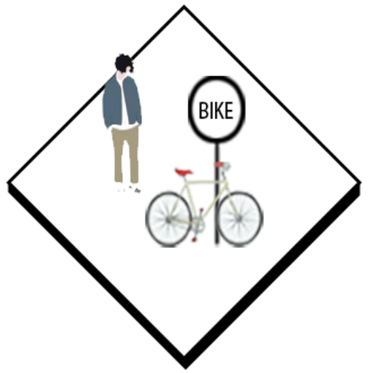
Traffic function
--travel behavior



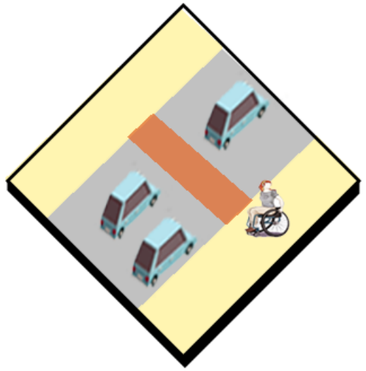
Width of Sidewalks and roadways



Facility for AVs



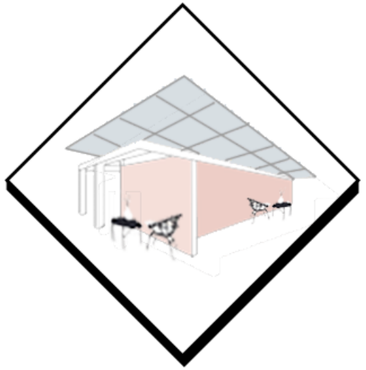
Facility for people



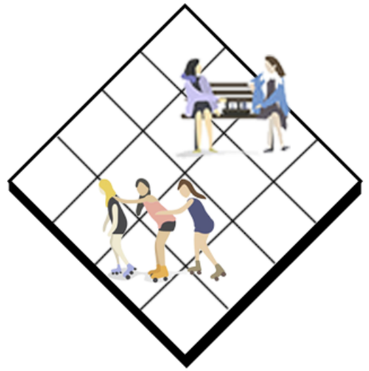
Interaction & crossings

Urban function
--sociall behavior

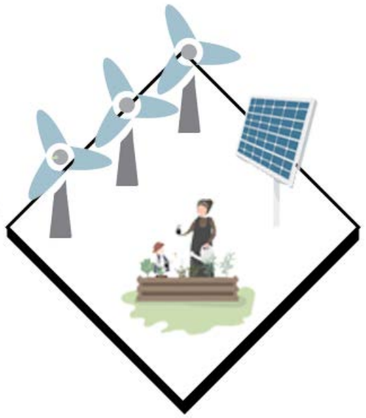
Parks



Densification



Squares



Energy &Food

AUTOMATED VEHICLE AS A TRIGGER

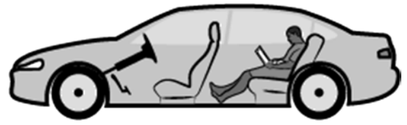
Level 0

Level 1

Level 2

WE ARE HERE

Level 3

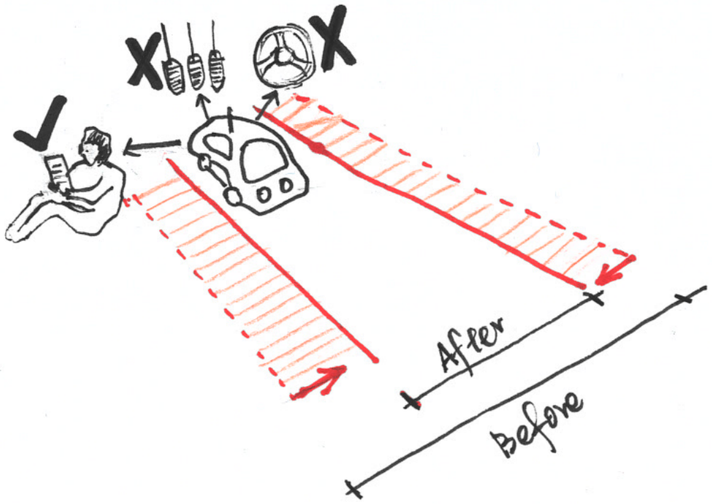


Level 4

PROJECT ASSUMPTION

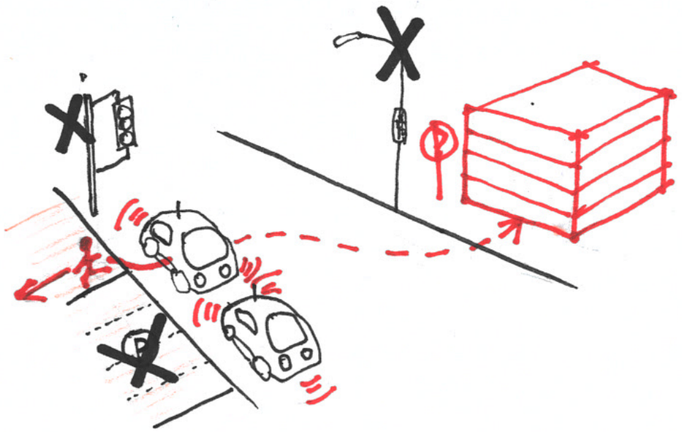
Level 5

Size and drive

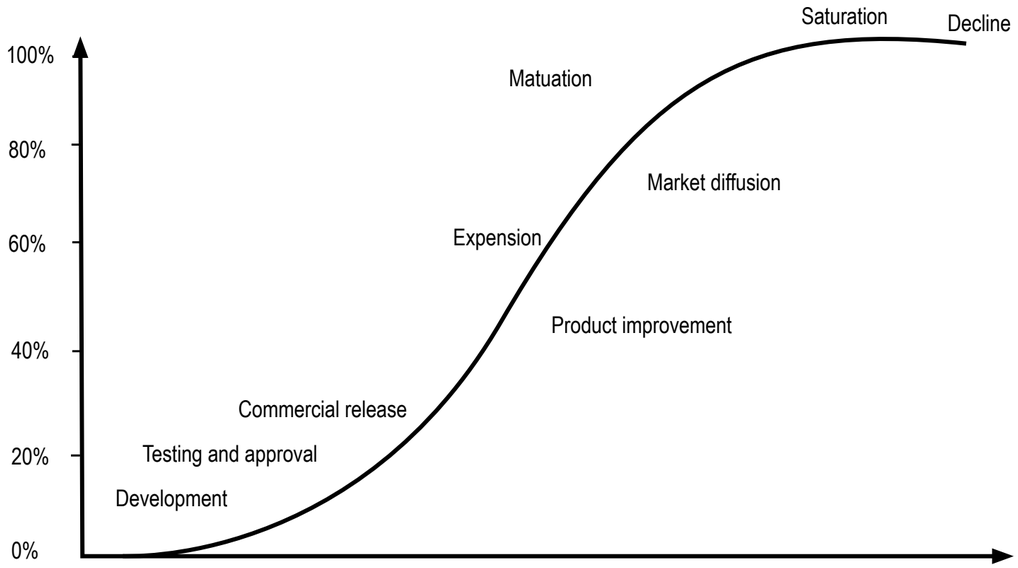


Interaction with people

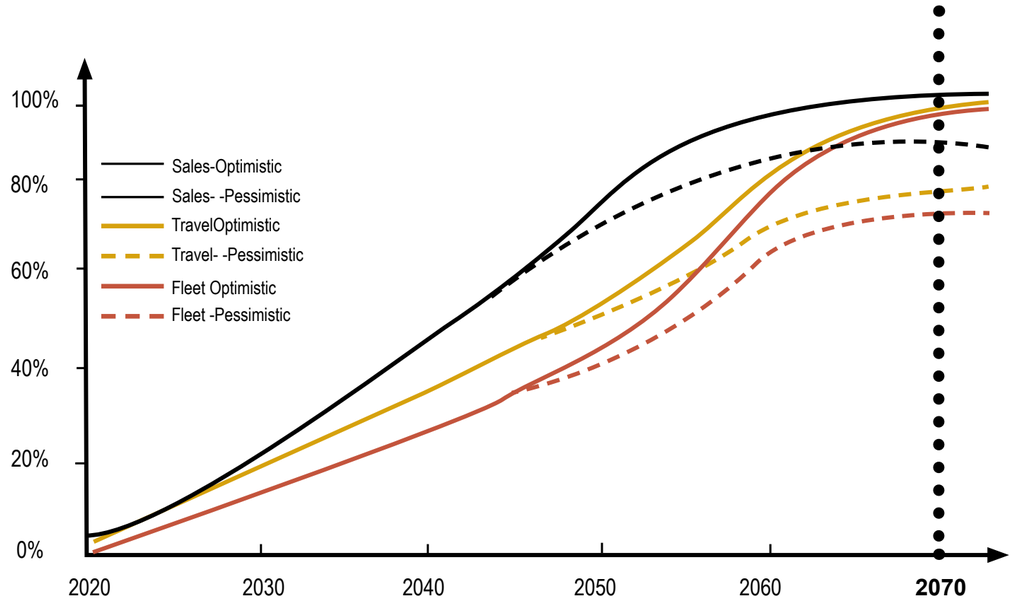
Street spatial change



General product S Curve



Prediction of AVs



AUTOMATED VEHICLE AS A TRIGGER

Prediction 1

AUTOMATED VEHICLE AS A TRIGGER

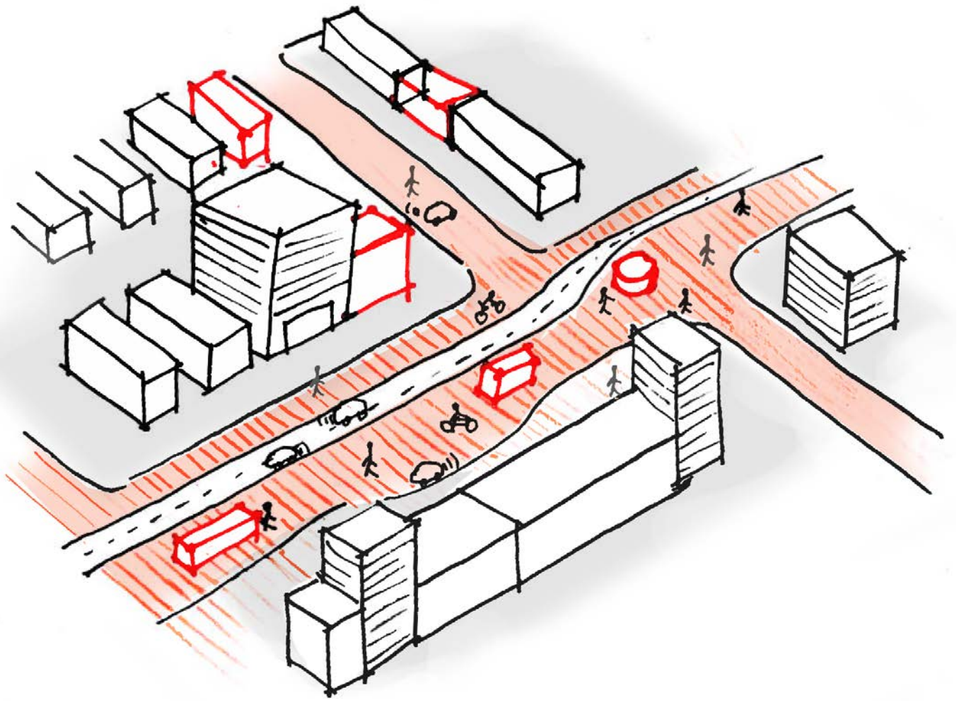
Prediction 2

SCENARIO BUILDING

TWO EXTREME THINKING MODEL

EXTREME 1

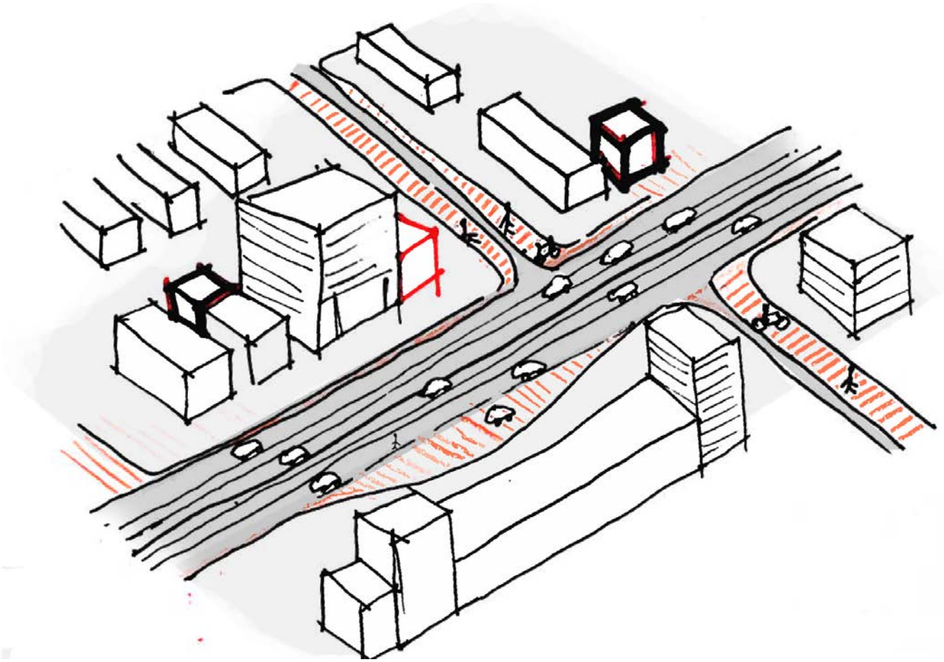
Minimum traffic flow
Minimum drving miles and time



_POLICY: High taxes on VMT and parking
Coordinated system and shared mode
_Spatial: No parking space in streets
Controled access

EXTREME 2

Maximum traffic flow
Maximum drving miles and time



_POLICY: Low taxes on VMT and parking
Uncoordinated system and indivadual ownership
_Spatial: Keep parking space in streets
Free speed and access

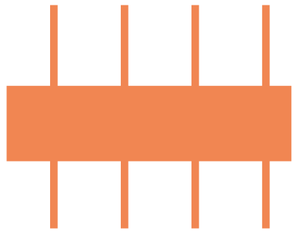
SCENARIO BUILDING

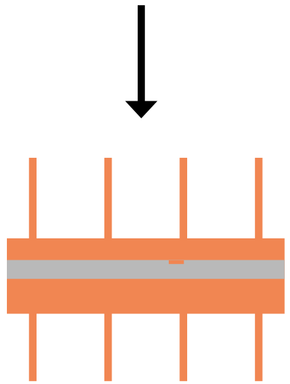
SYMBIOSIS STREET

Traffic Function

+

Urban function



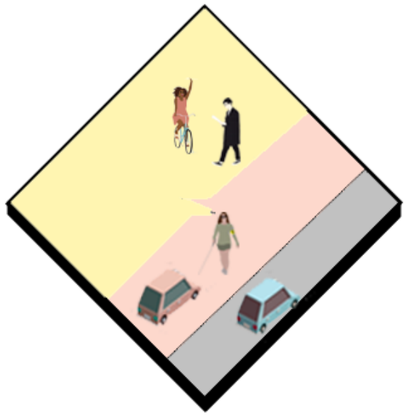


Symbiosis street

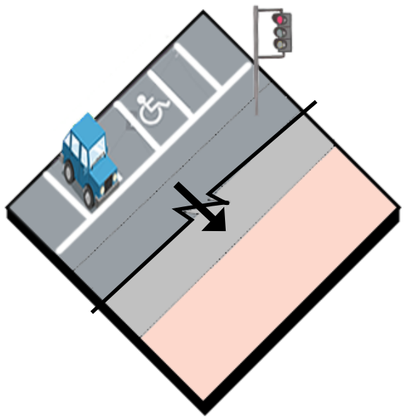
SYMBIOSIS STREET

NEW ACTIVITY TYPOLOGY

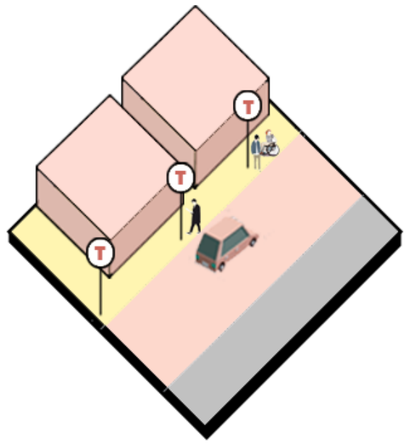
Traffic function
--travel behavior



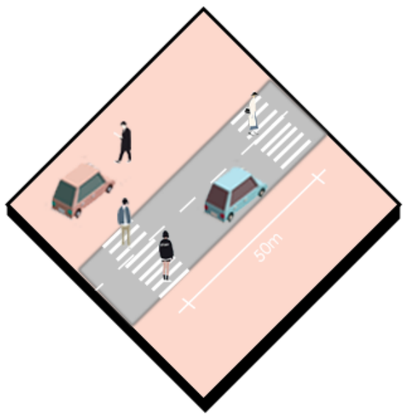
Wider sidewalks



No parking on street



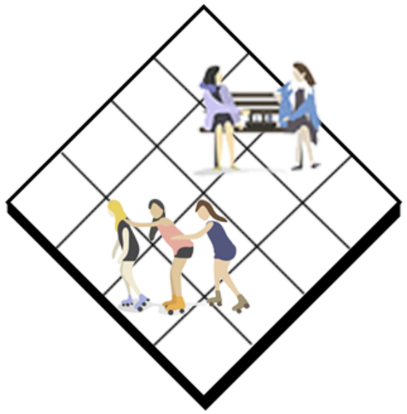
Transit stop per 50m



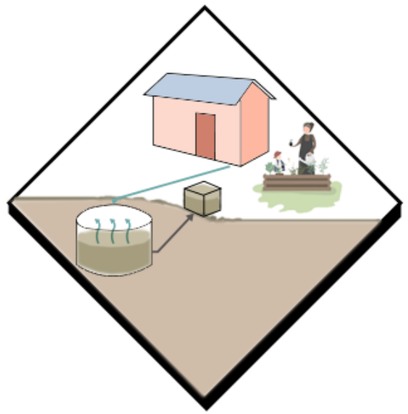
Flexible digital crossing

Urban function
--sociall behavior

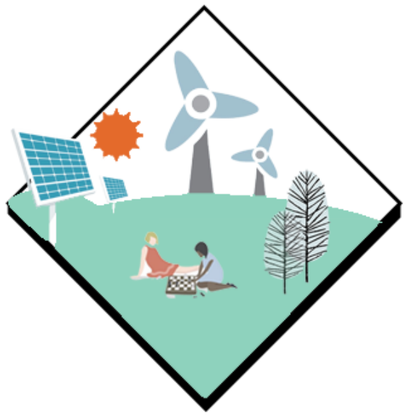
Accessible green&blue



Social interaction space



Urban farn & biomass

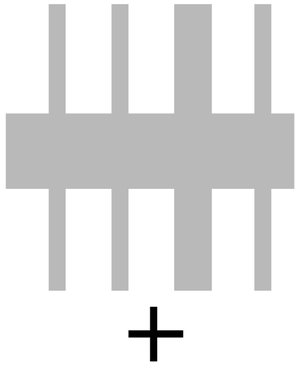


Clean energy

SCENARIO BUILDING

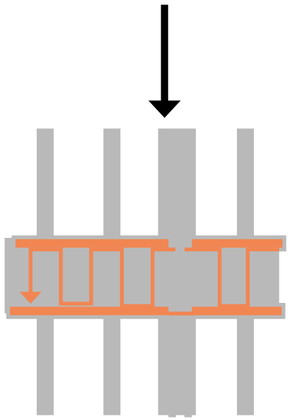
FLUID STREET

Traffic Function



Urban function

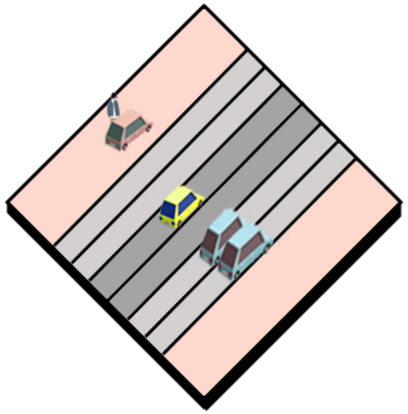
Fluid street



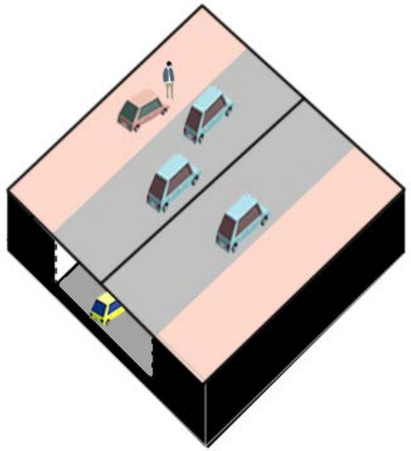
SYMBIOSIS STREET

NEW ACTIVITY TYPOLOGY

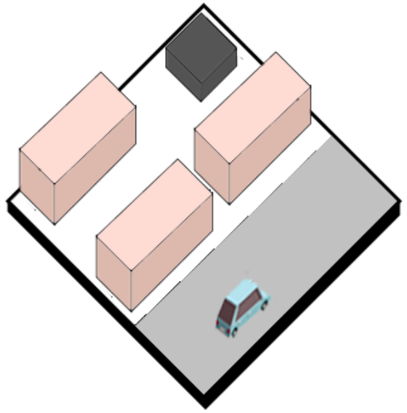
Traffic function
--travel behavior



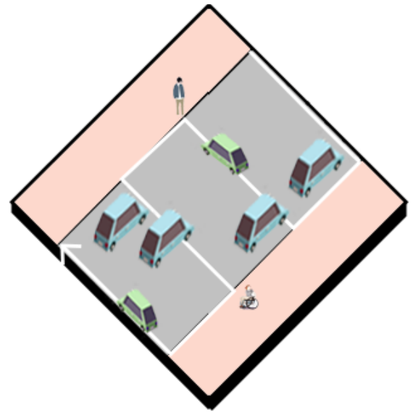
Wide roadways



Express tunnel

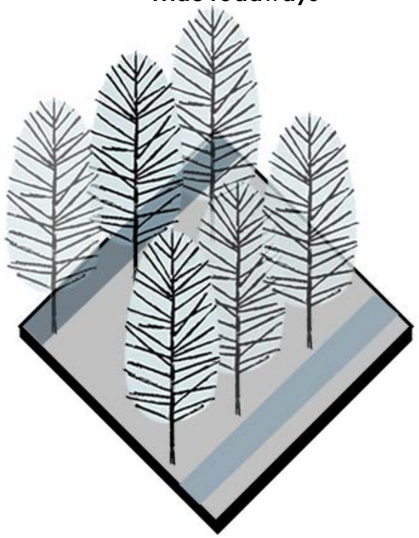


Neighborhood parking lot

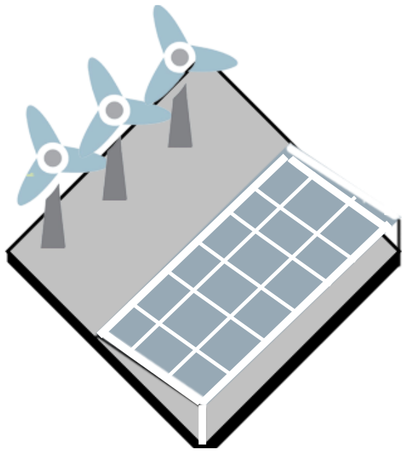


AV Crossing shuttle

Urban function
--sociall behavior

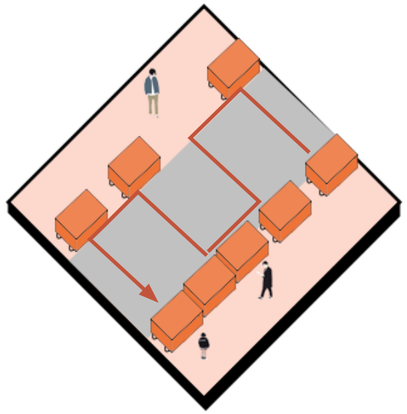


Street for technical green &blue

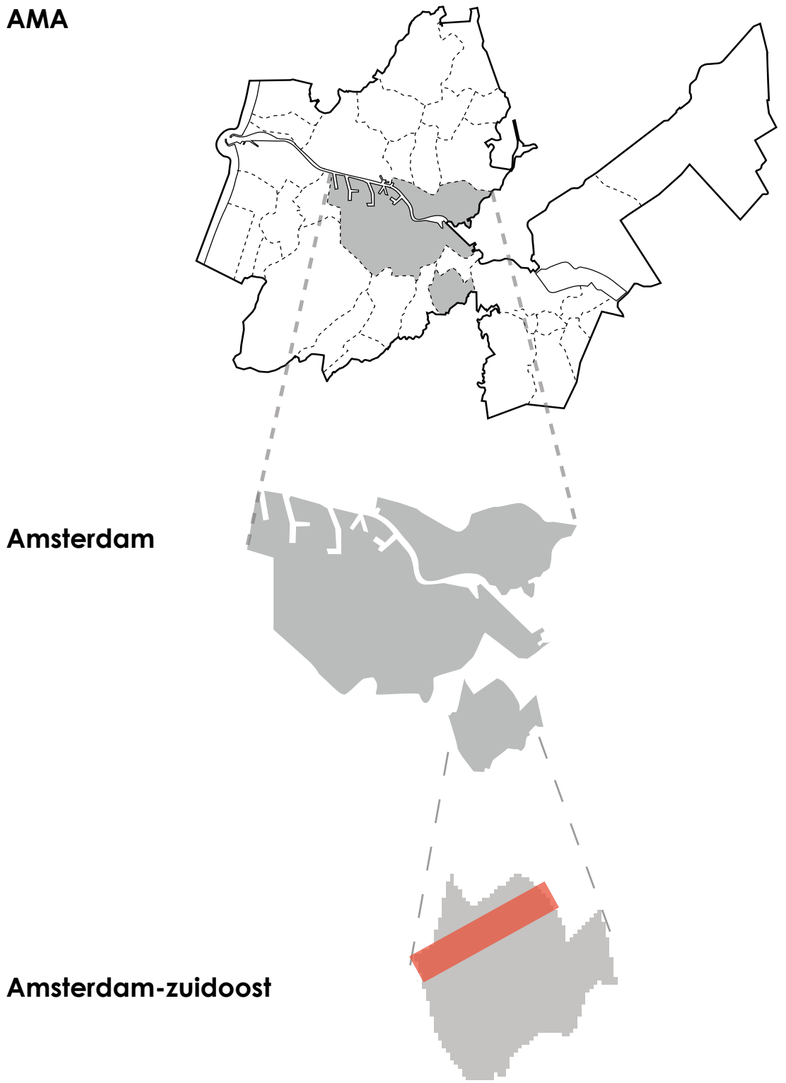


Street for energy produce

Neighborhood social space

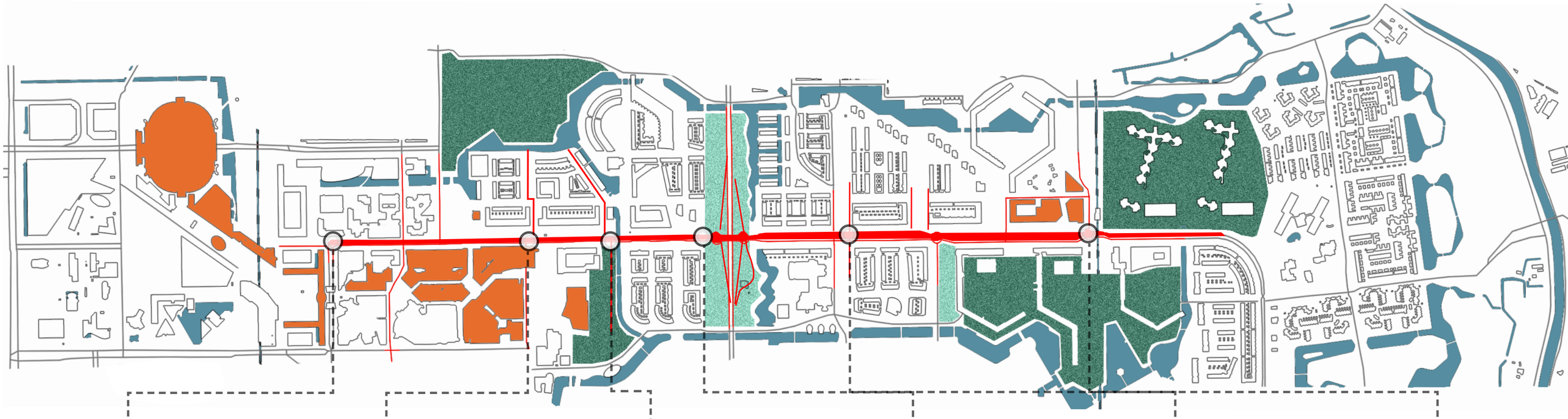


AVs as Moving urban project


AMA
Amsterdam
Amsterdam-zuidoost

Street Assessment-Urban function

Open social space
Mixed-functional building
Water
Technical green
Recreational green



City center commercial

City center street

Park

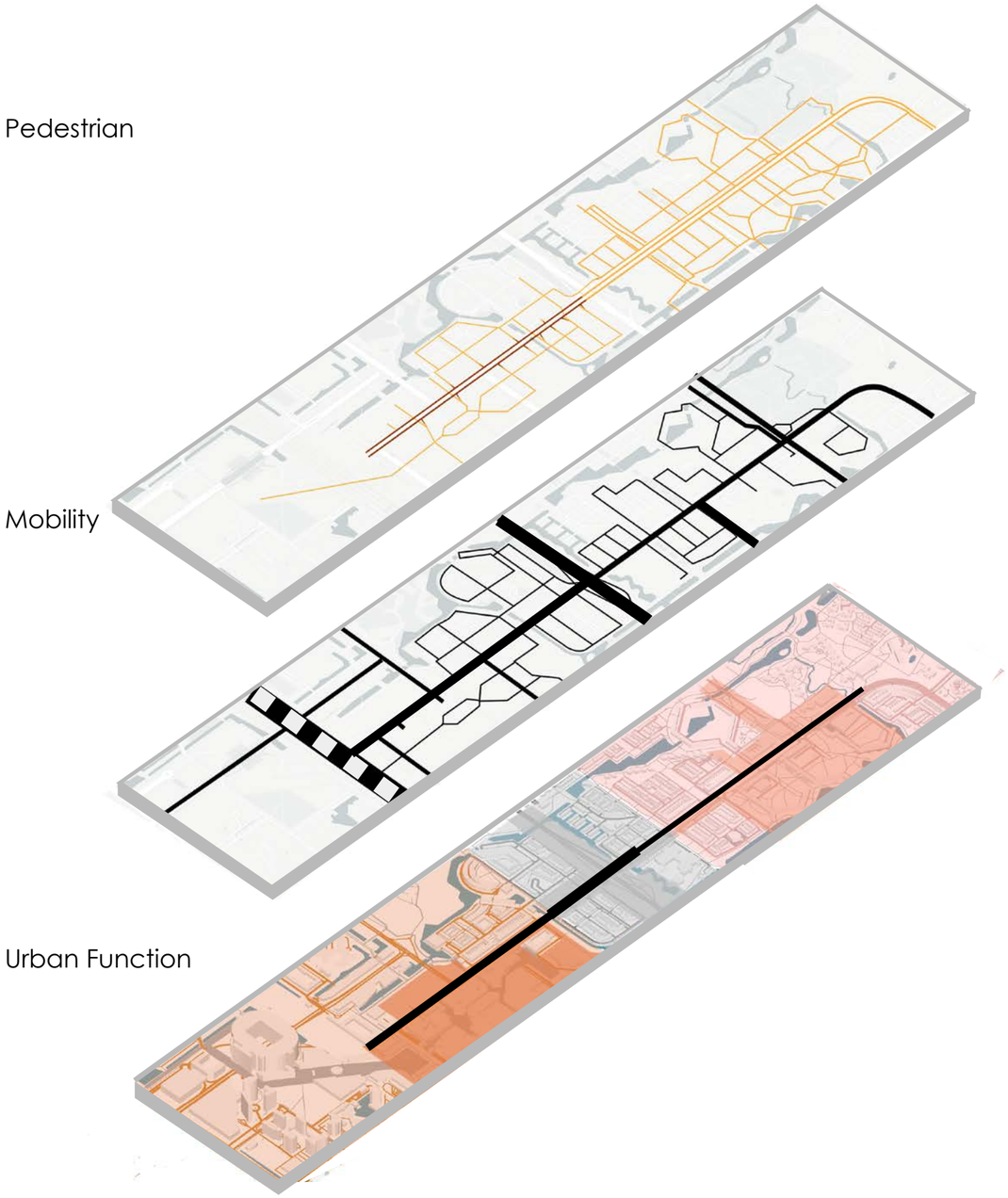
Highway zone

Neighborhood connector

Neighborhood

CONTEXT INTRODUCTION

Street Assessment-Street type



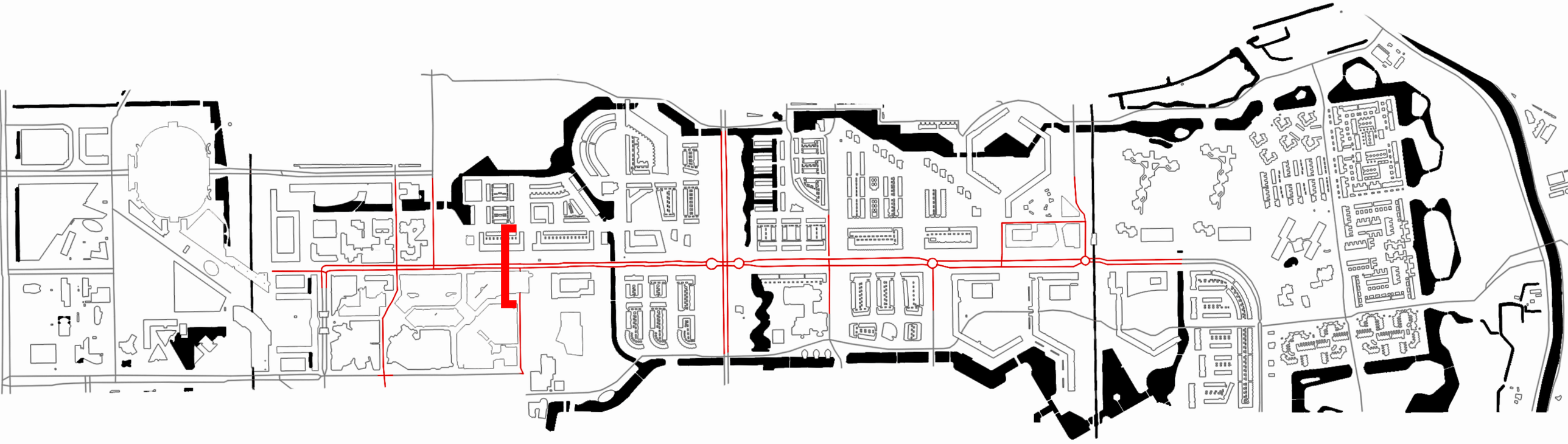
Underground
Ground level

Railway
Highway
City street
Neighborhood connector
Neighborhood street

City center area
Highway zone
Neighborhood

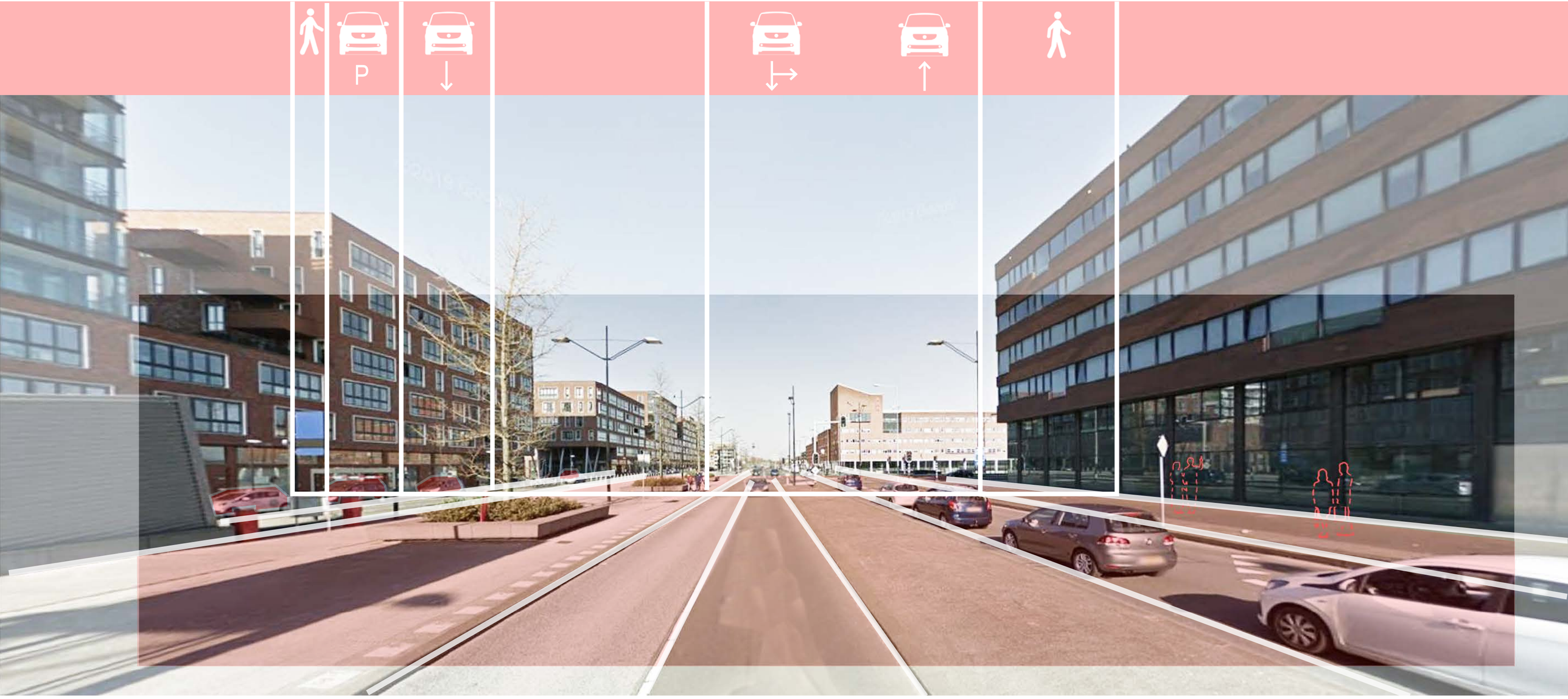
Street Assessment-Street type

City street



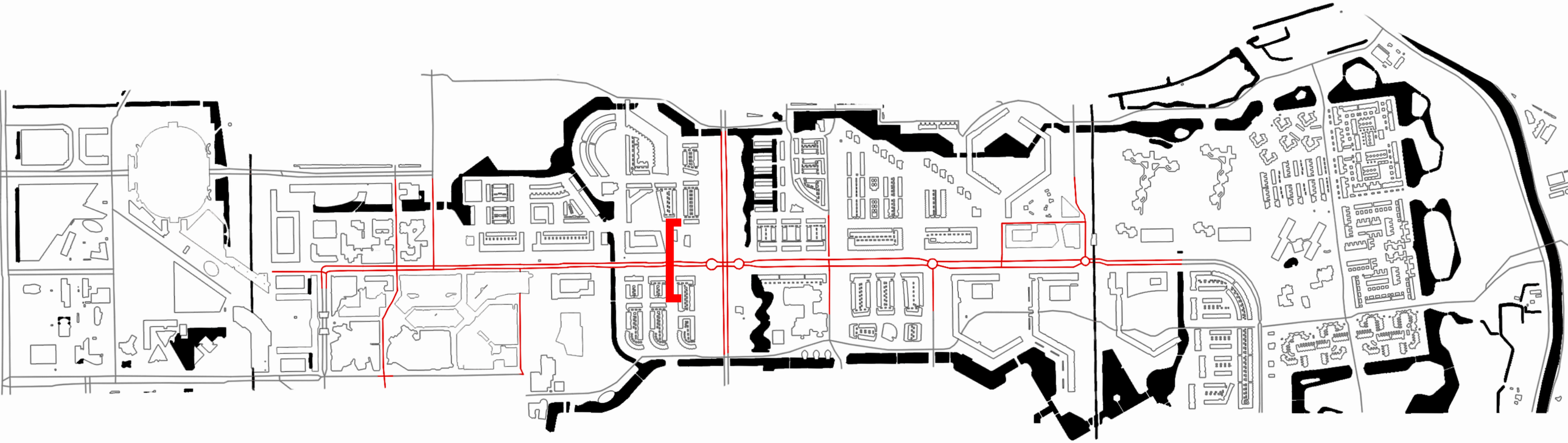
Street Assessment-Street type

City street



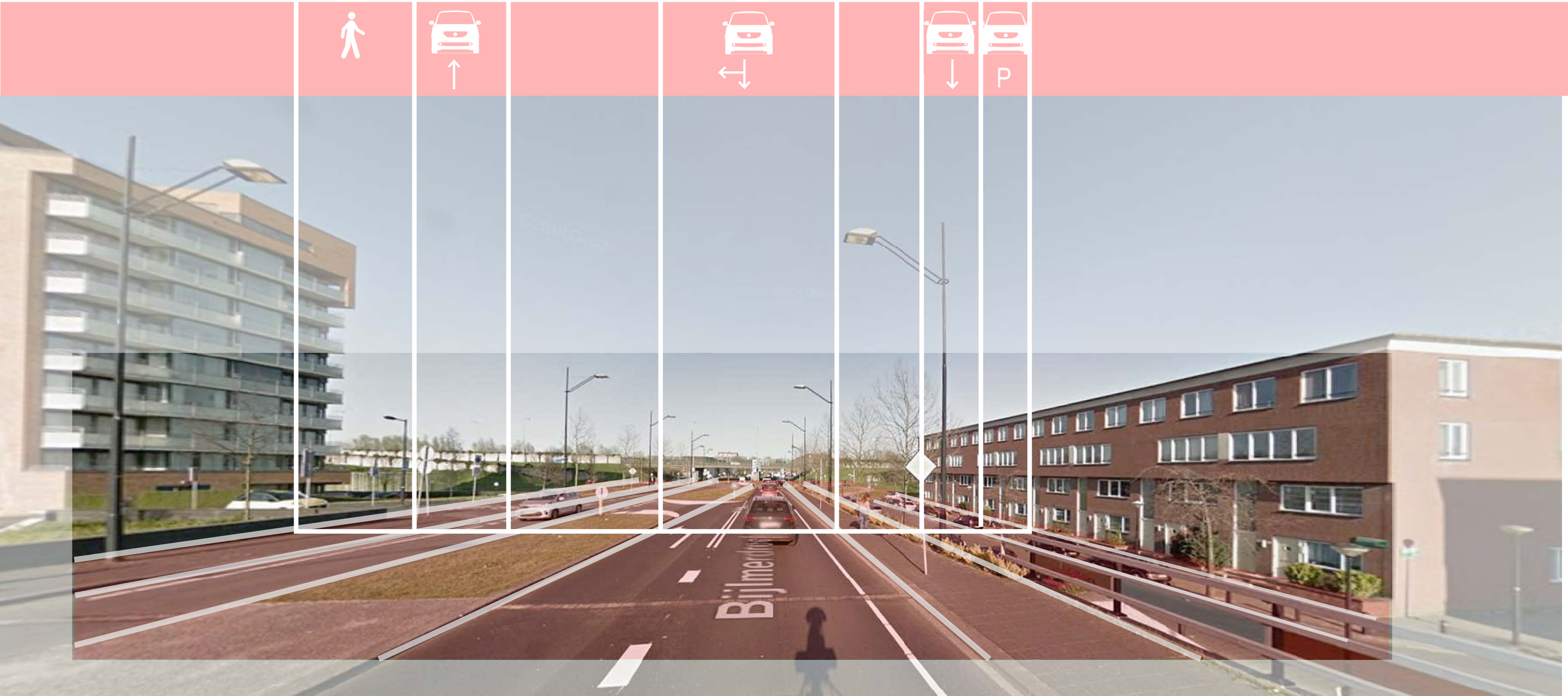
Street Assessment-Street type

Highway



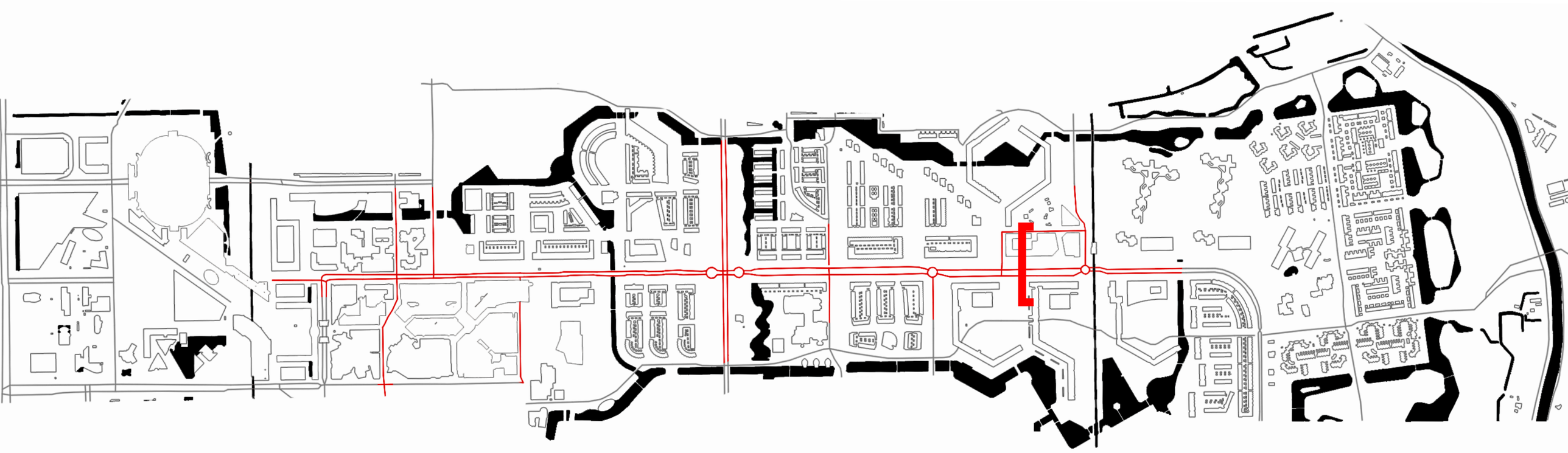
Street Assessment-Street type

Highway



Street Assessment-Street type

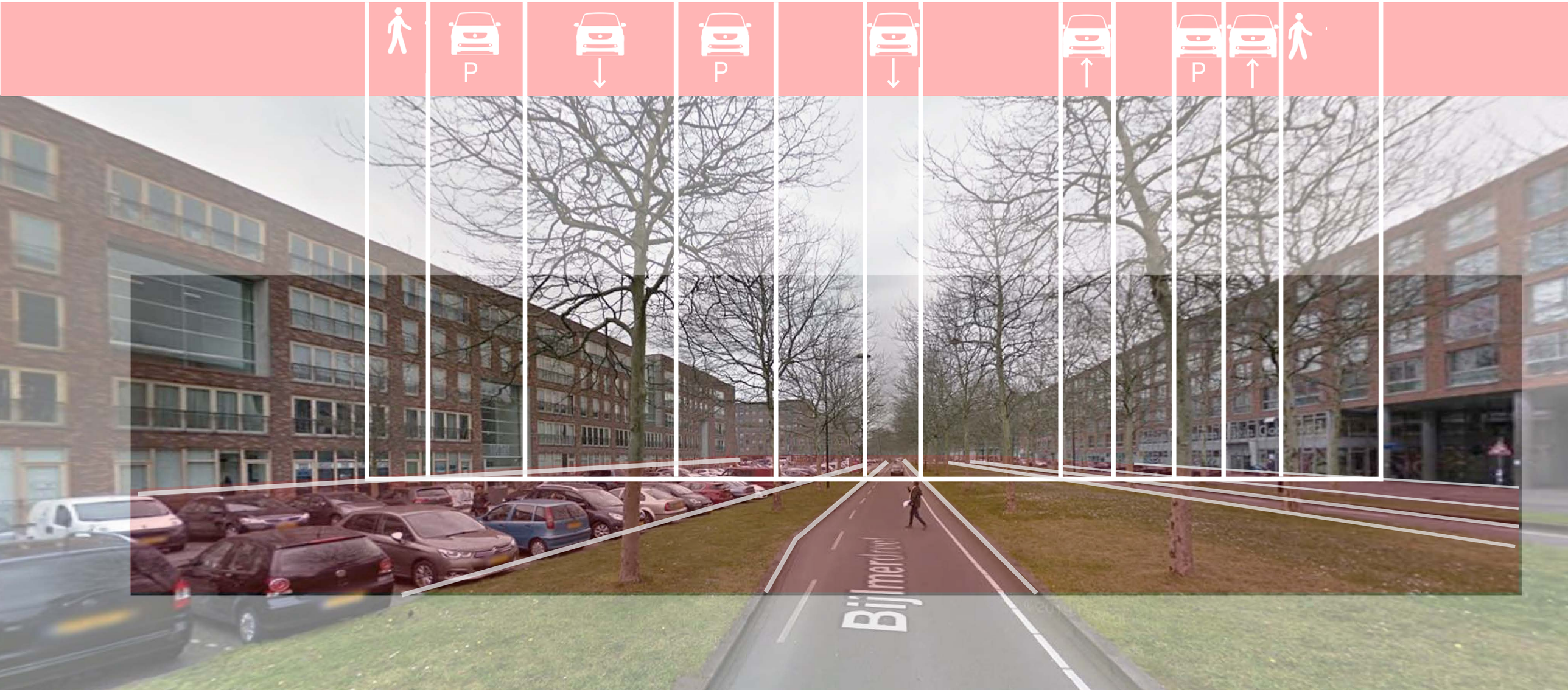
Neighborhood street



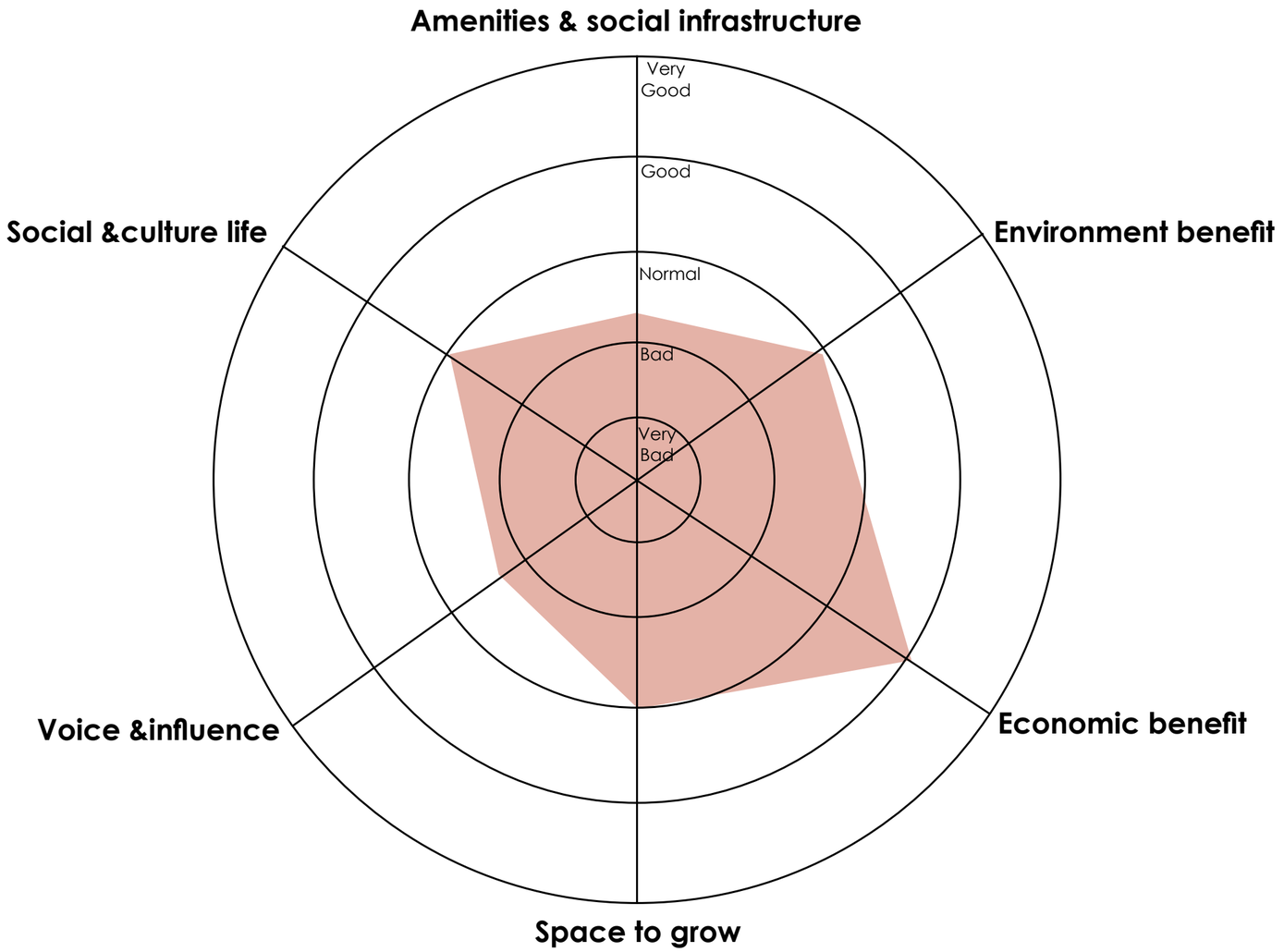
PROBLEM ANALYSIS

Street Assessment-Street type

Neighborhood street



Street Assessment



PROBLEM ANALYSIS

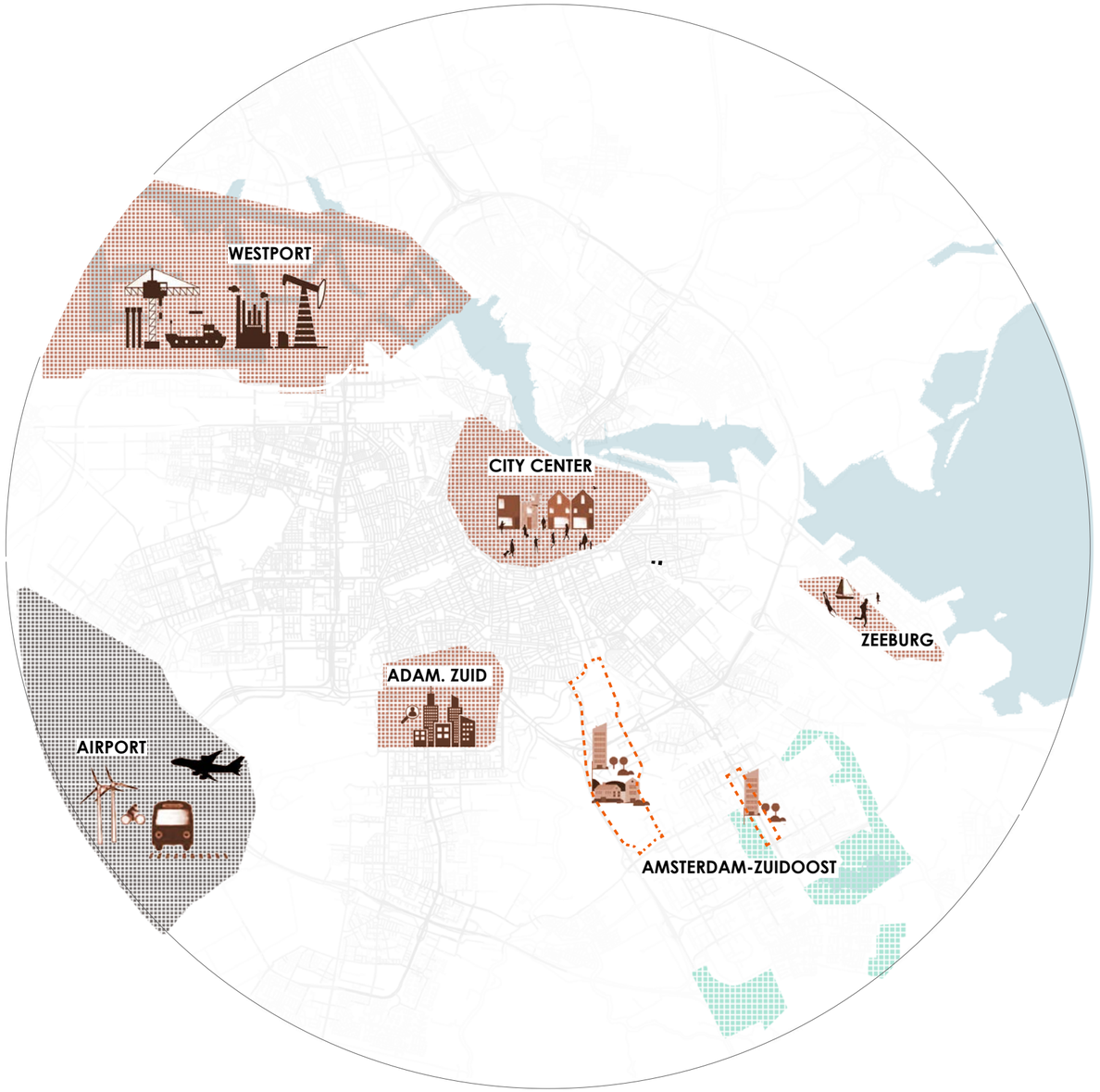
City Scale

City Scale-Urban function

-Requirement of jobs and recreation

-Adequate natural sources and parks

-City expension towards Amsterdam center

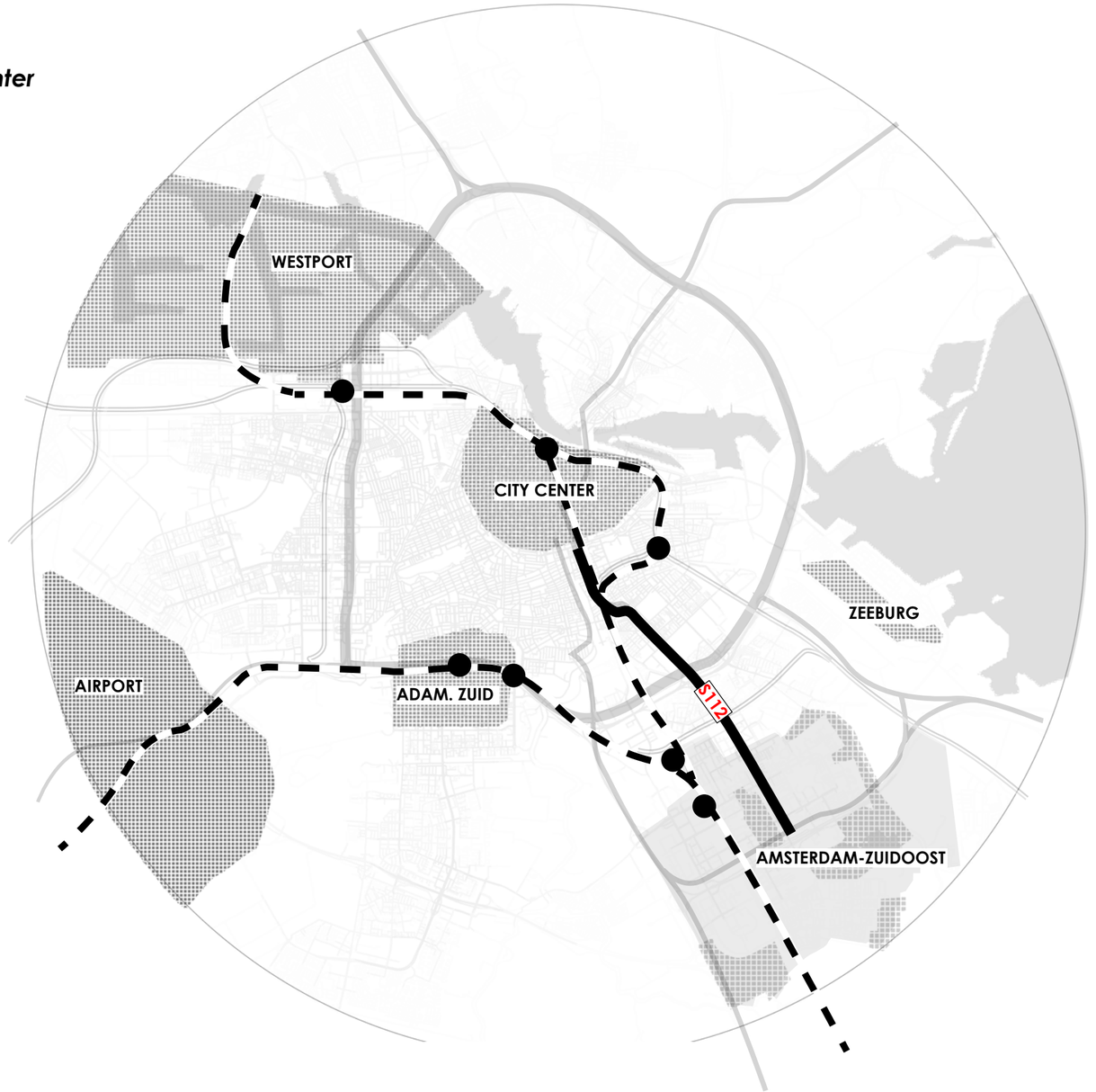


PROBLEM ANALYSIS

City Scale- Mobility

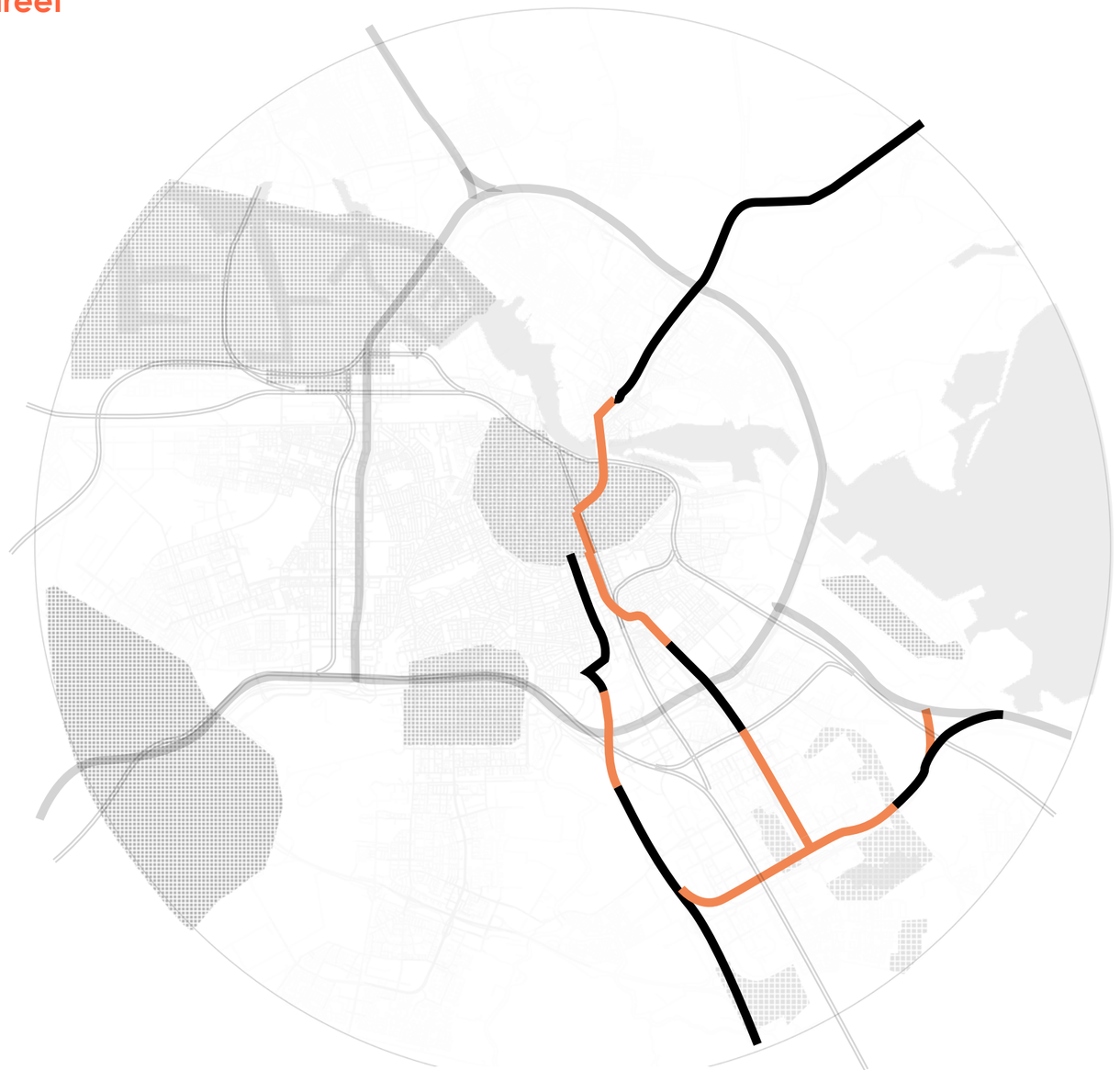
-S112 as the main corridor to Amsterdam center

-Mainly rely on Railway



City Scale_Proposal for Symbiosis street

-Highway transformation



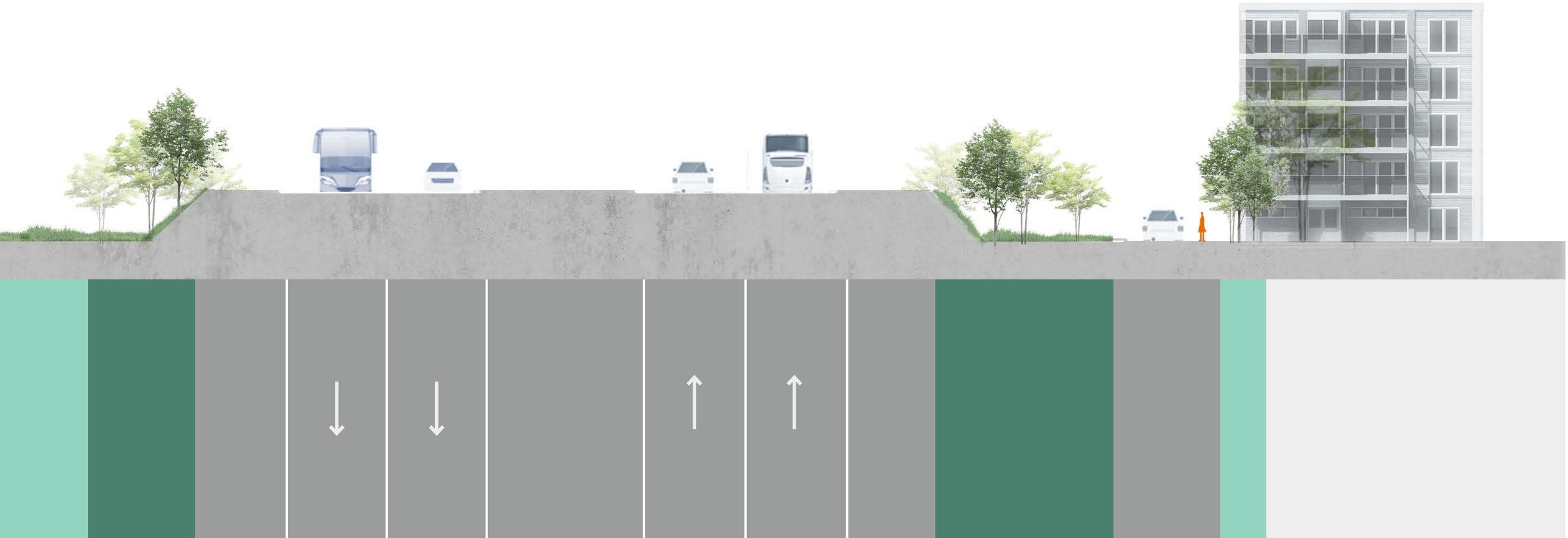
Traffic corridor

New transdormation

City Scale_Proposal for Symbiosis street

-Highway transformation

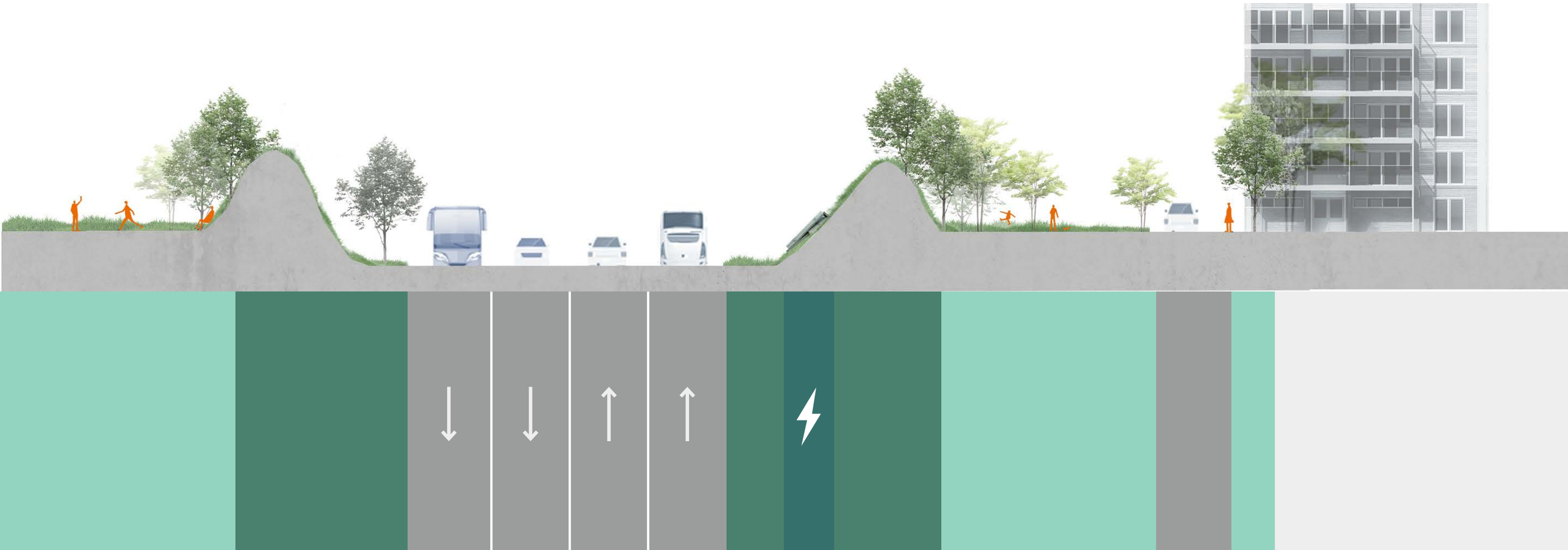
Before



City Scale_Proposal for Symbiosis street

-Highway transformation

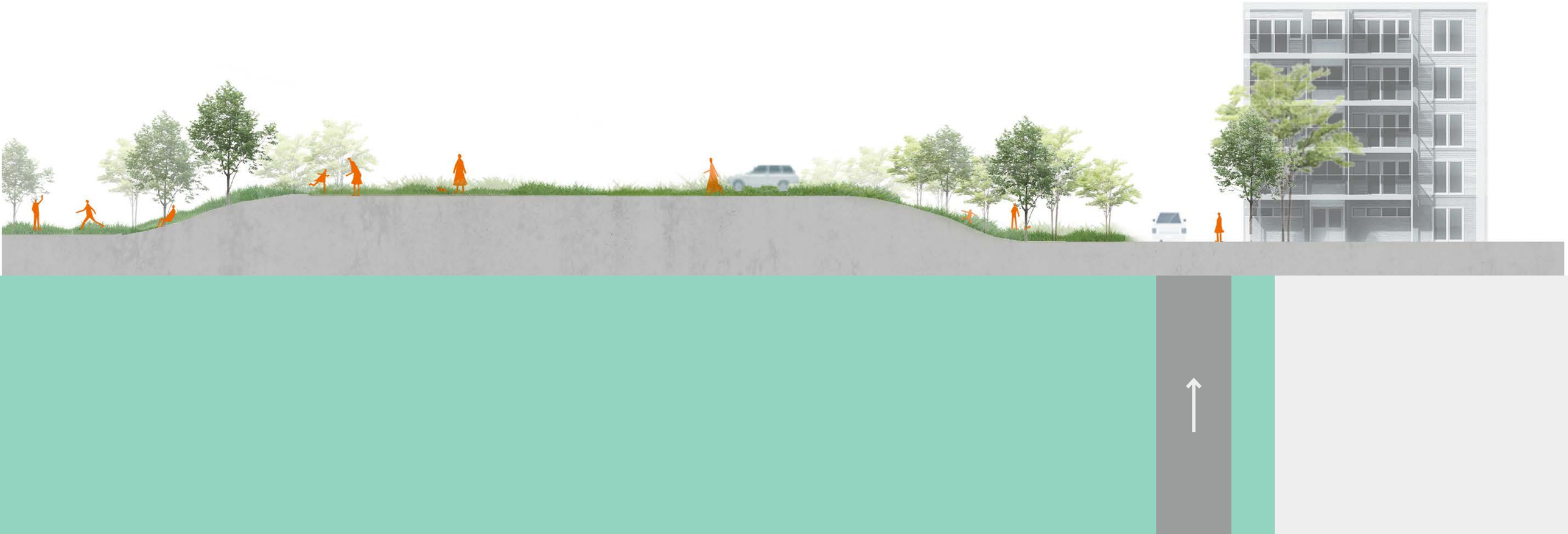
After



City Scale_Proposal for Symbiosis street

-Highway transformation

After



PROBLEM ANALYSIS

City Scale_Proposal for Fluid street

-Highway/City street transformation

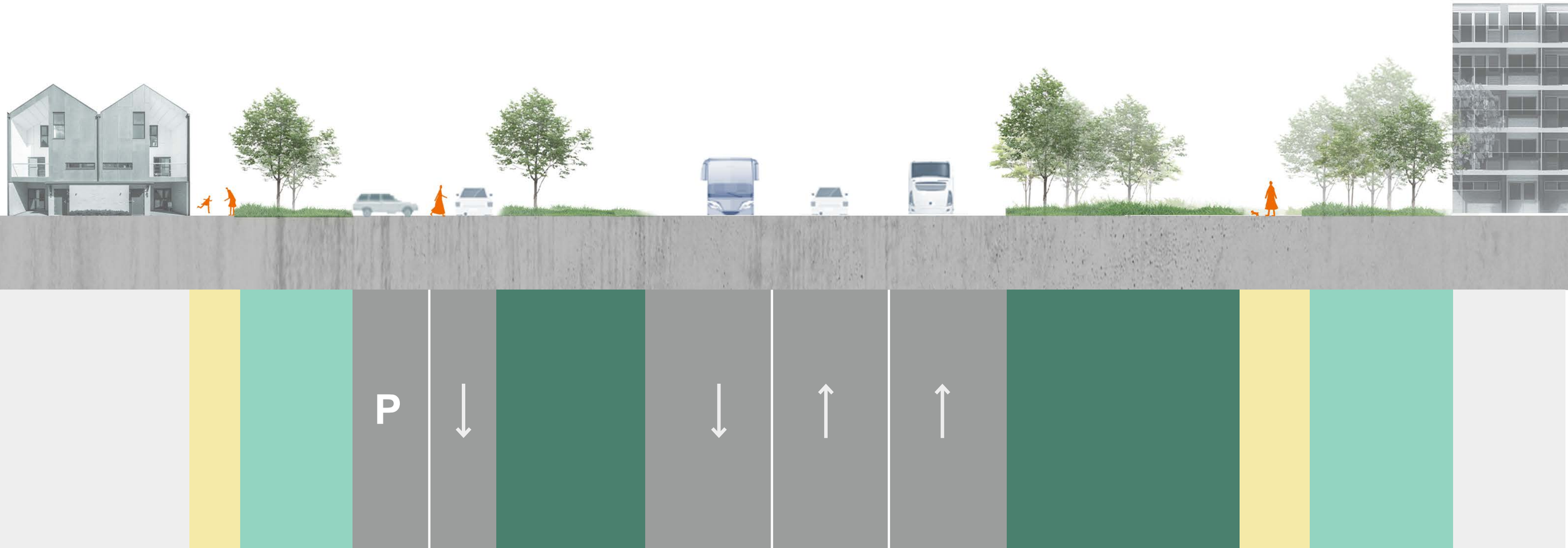
Traffic corridor

Urban projects corridor

City Scale_Proposal for Fluid street

-Highway/City street transformation

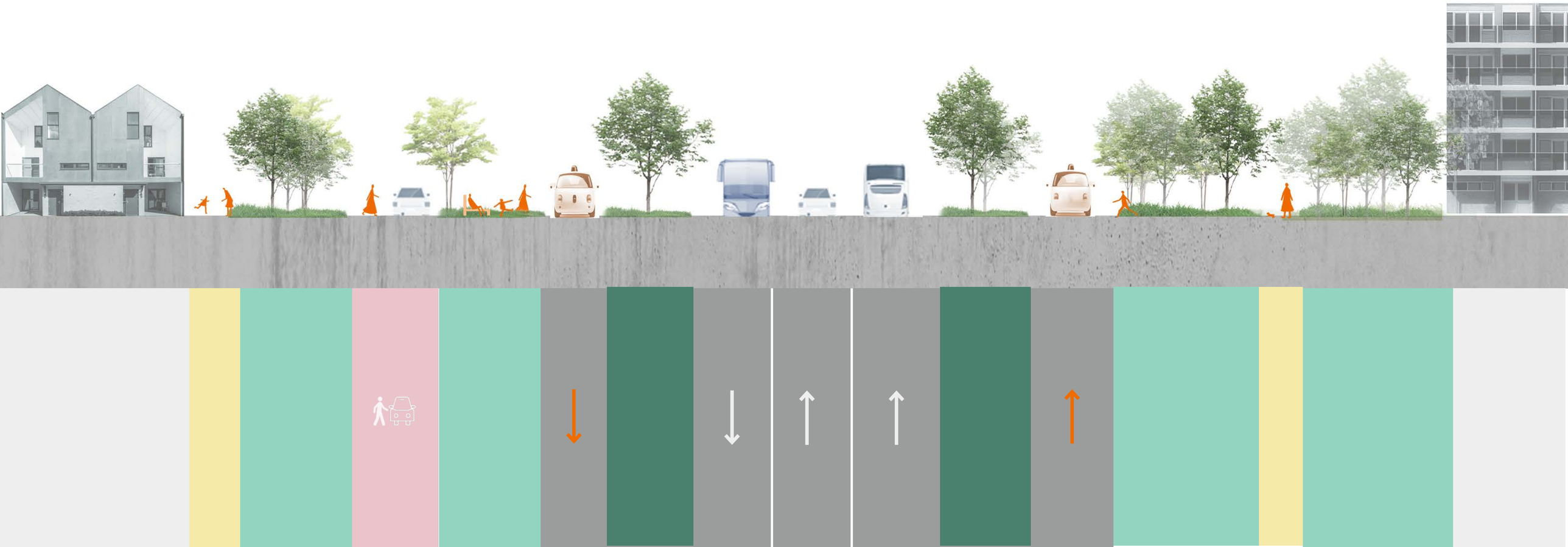
Before



City Scale_Proposal for Fluid street

-Highway/City street transformation

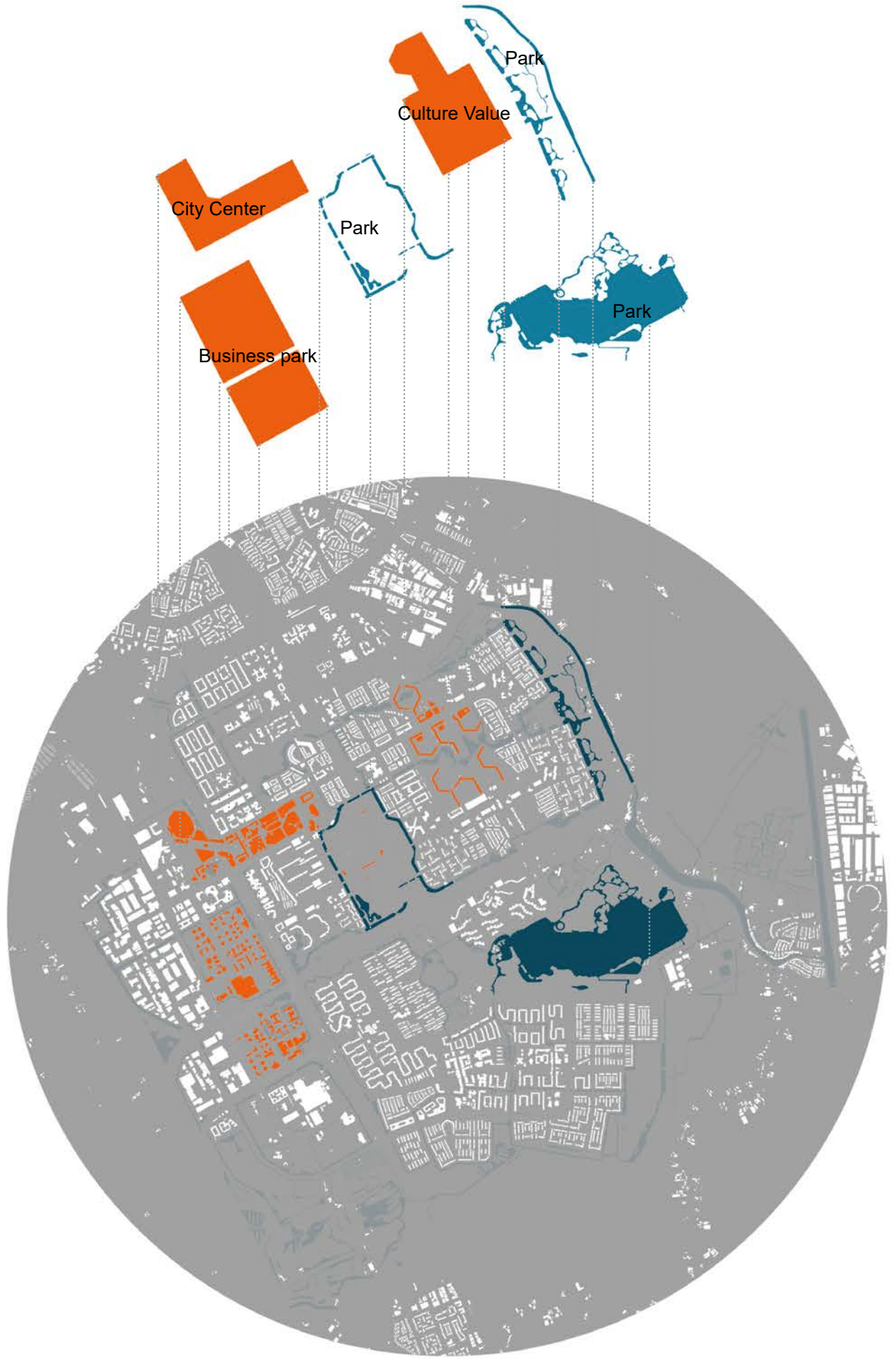
After



PROBLEM ANALYSIS

Local Scale

-Variety of values

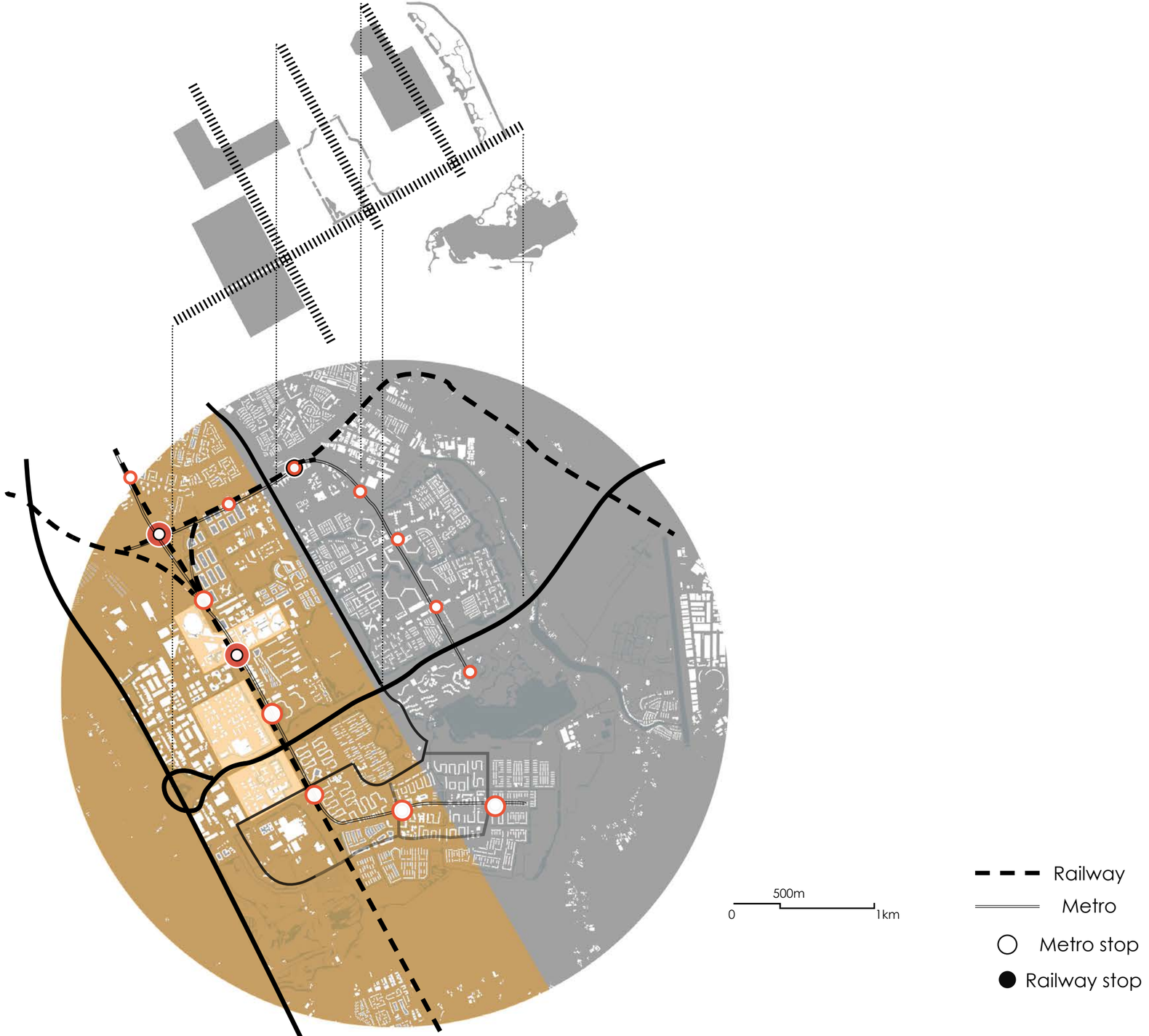


PROBLEM ANALYSIS

Local Scale

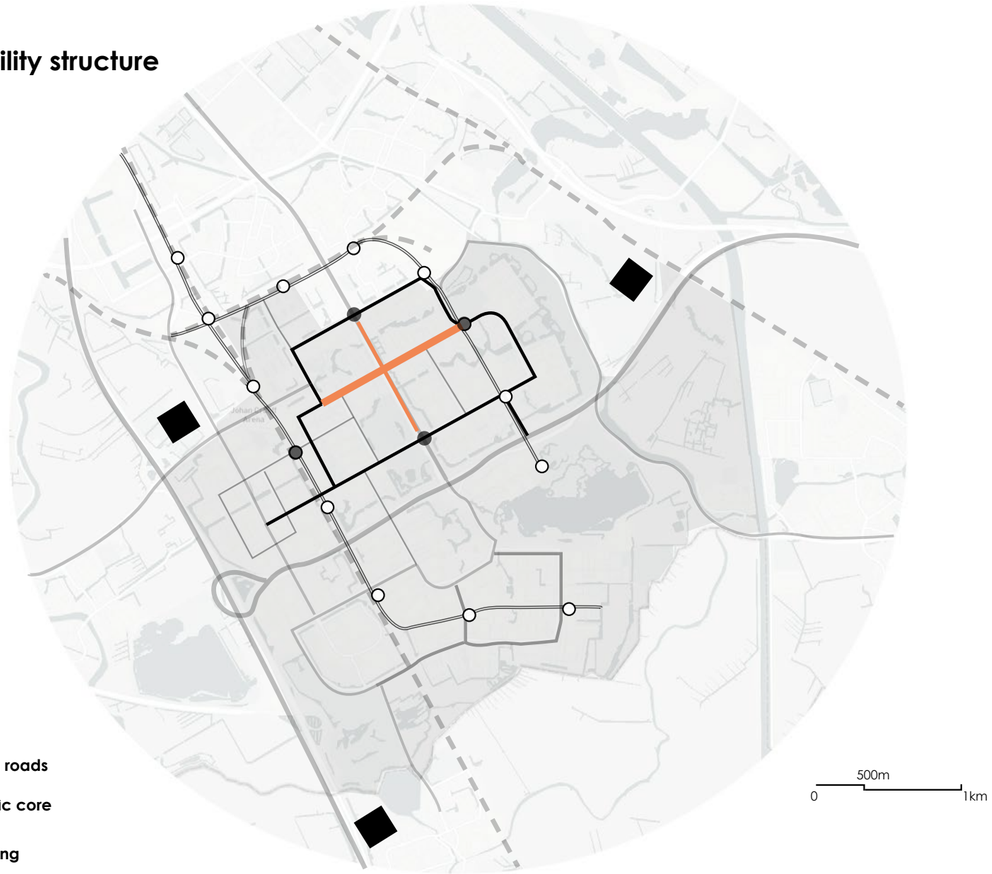
-Seperated urban blocks

-Unbalanced use of public transportation

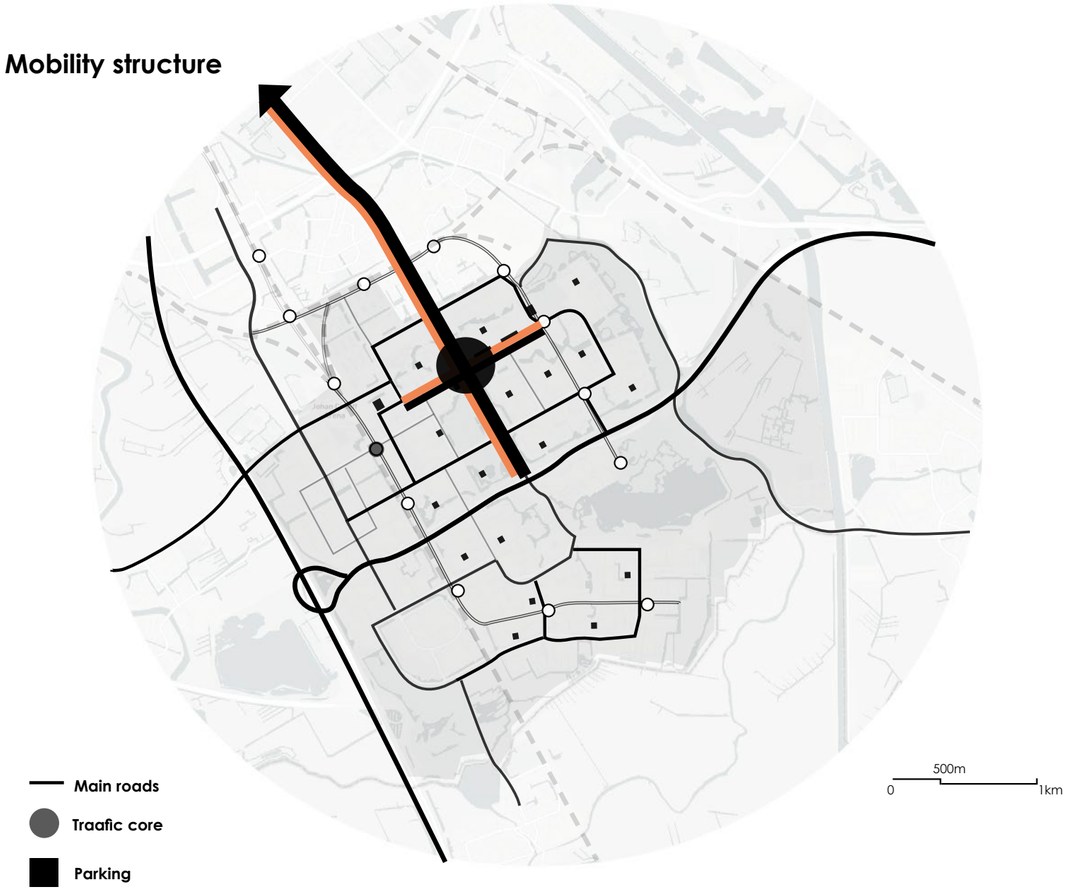


Local Scale_Proposal for two scenarios

Mobility structure



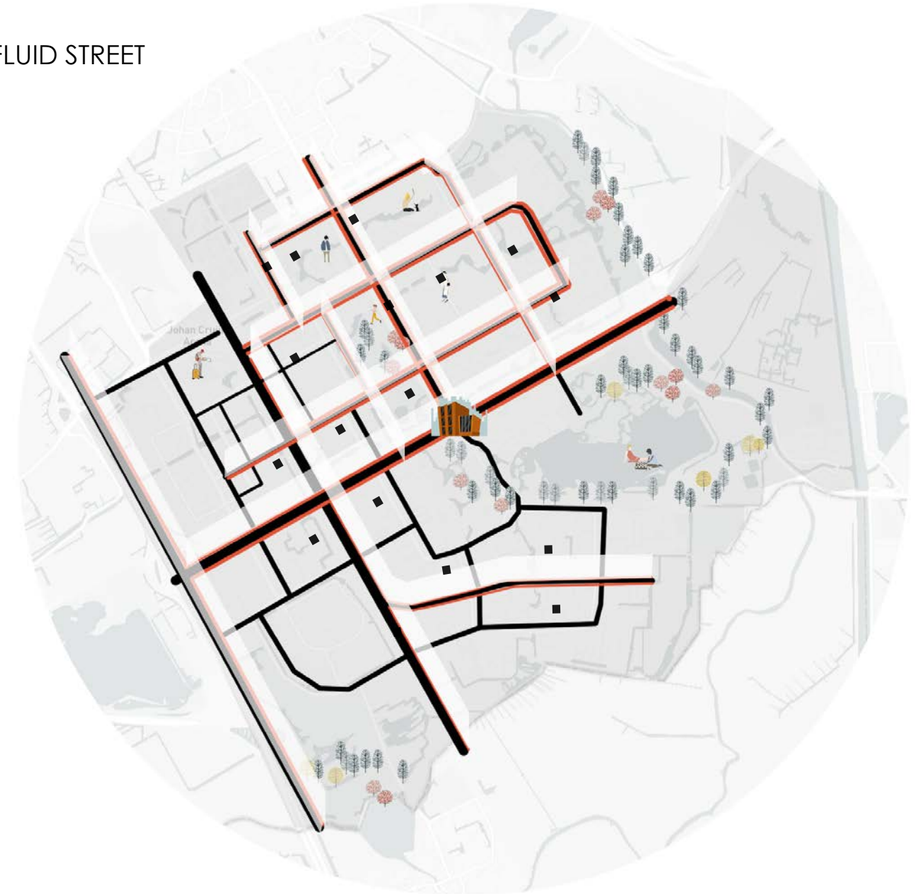
Mobility structure



Local Scale_Proposal for fluid street

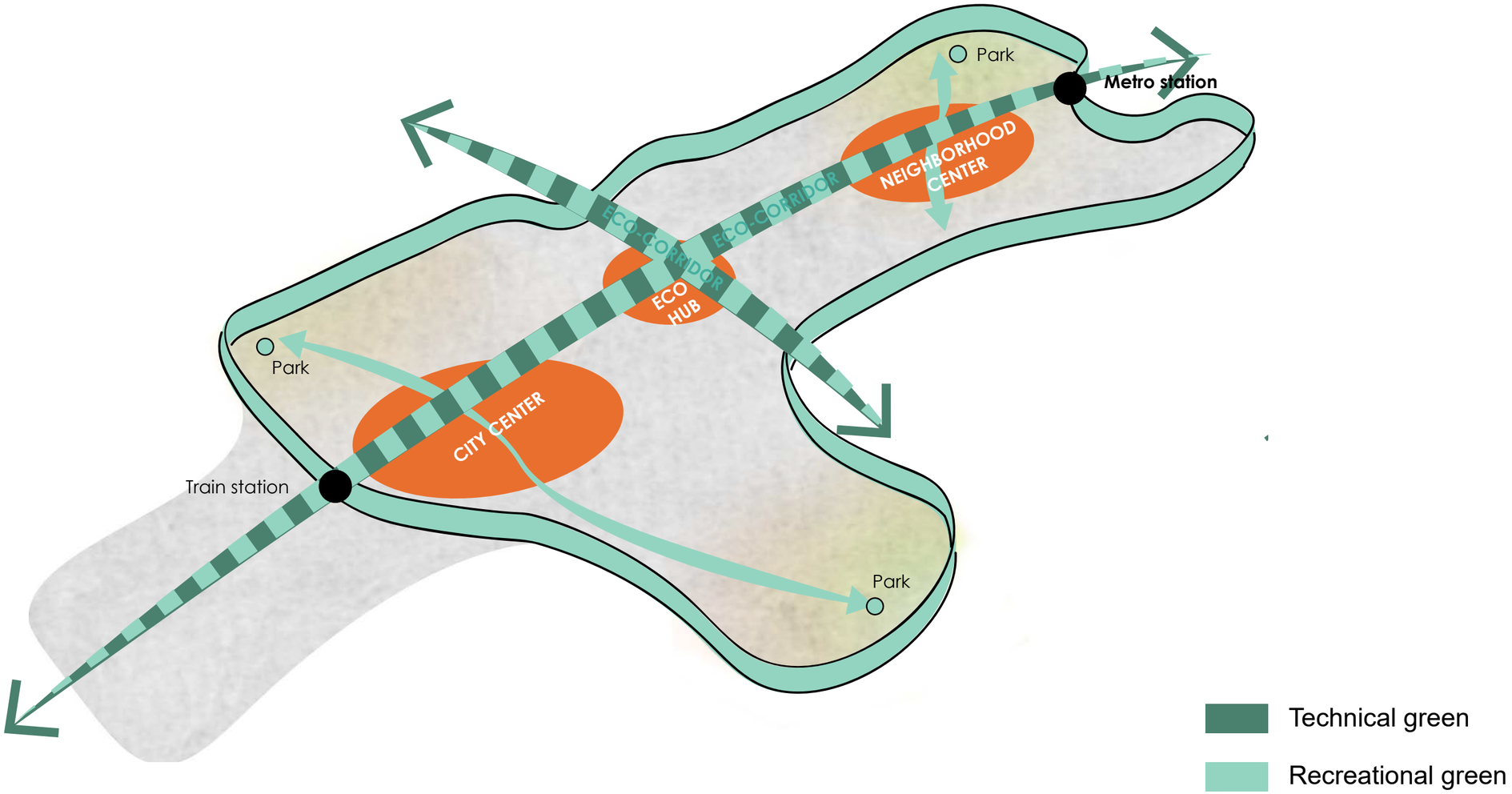
SYMBIOSIS STREET

FLUID STREET



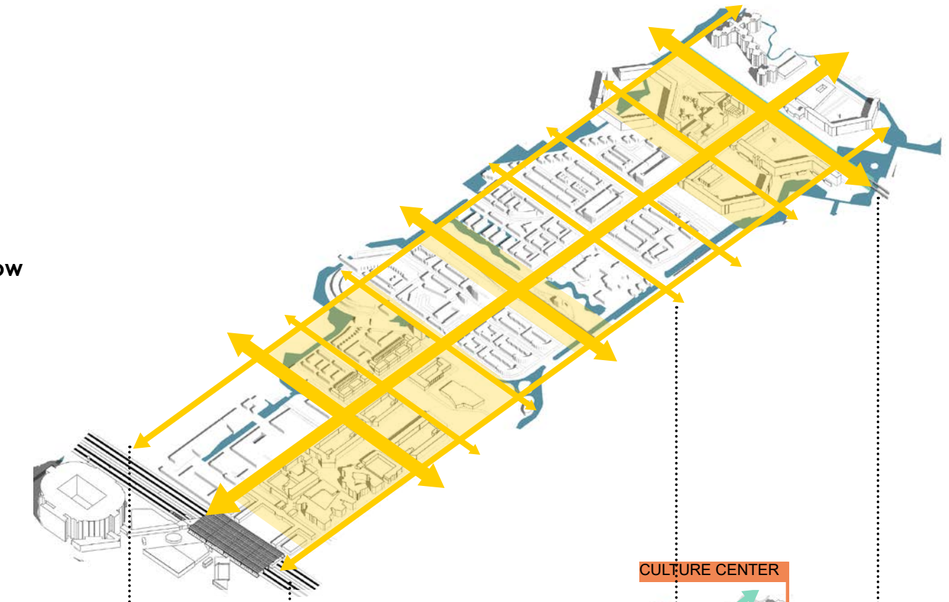
Parking

Symbiosis street_conceptual design

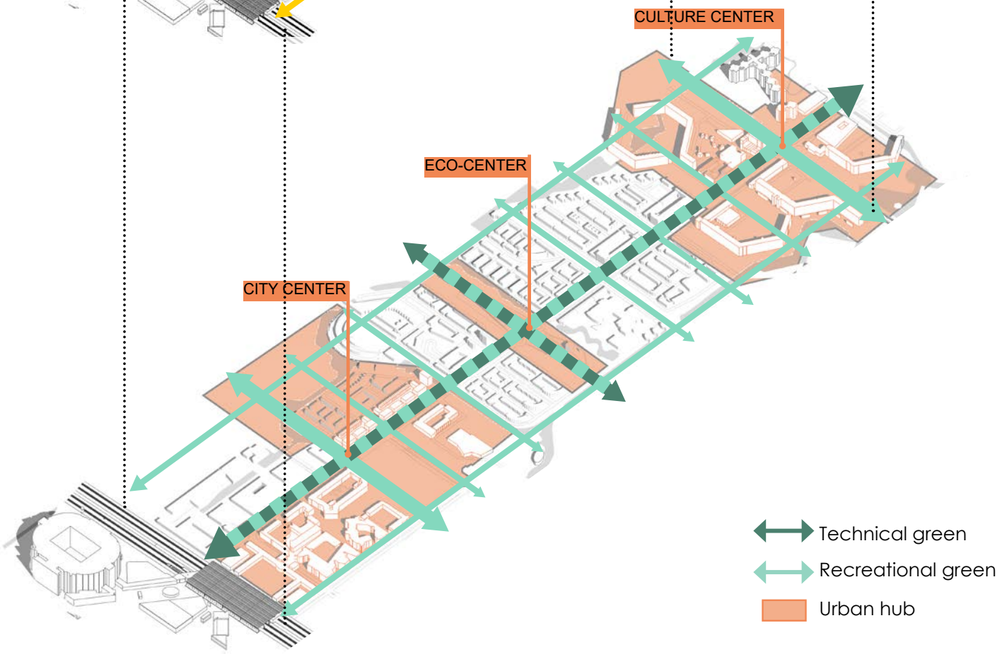


Symbiosis street_conceptual design

People's activity flow

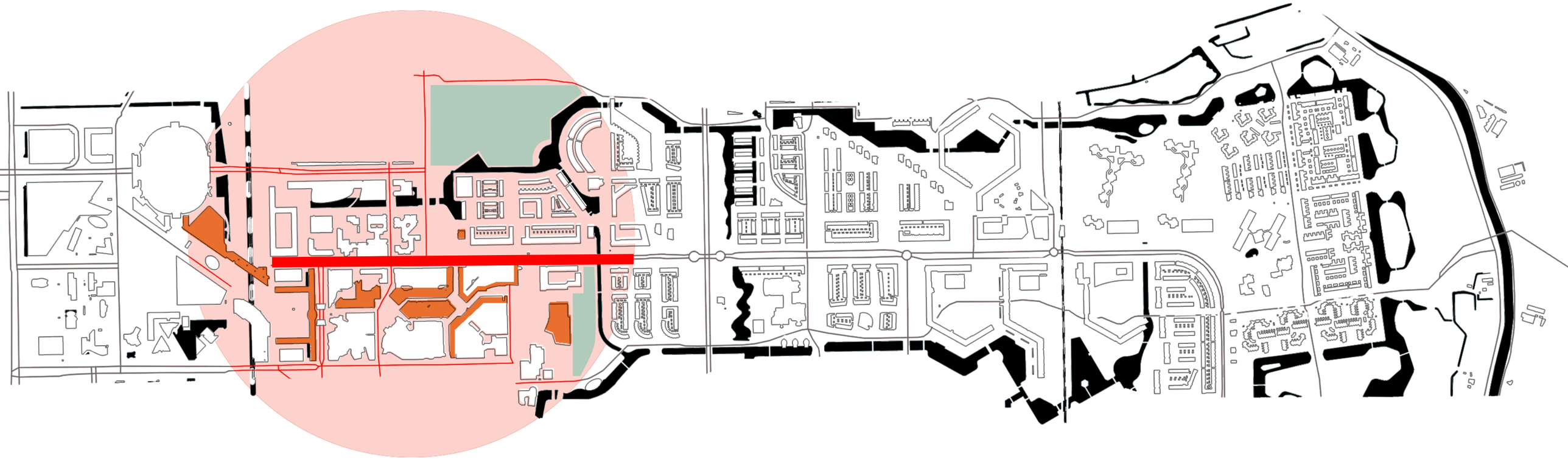


Street strcuture



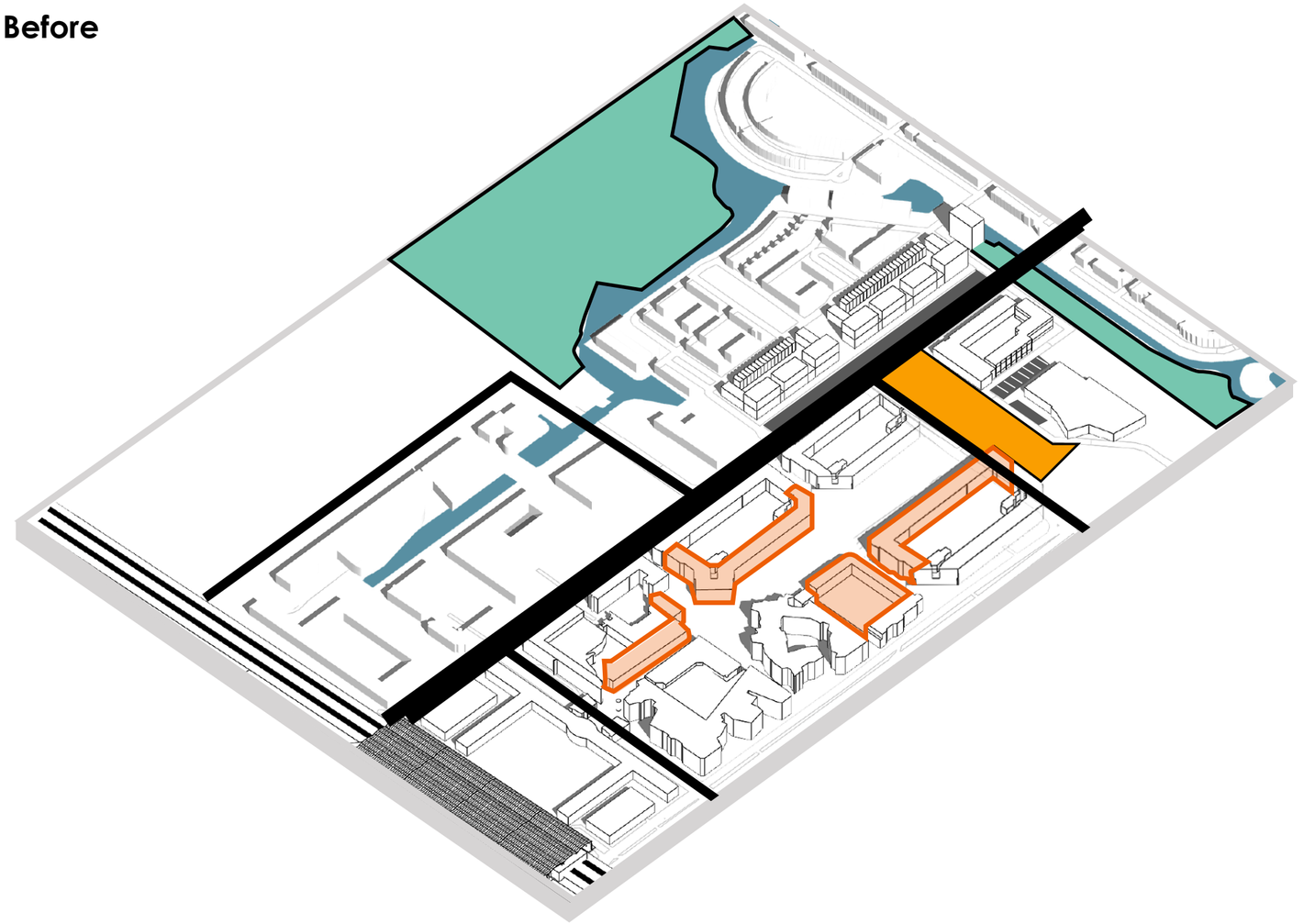
STREET DESIGN

Symbiosis street_city center



Symbiosis street_city center

Before



Mixed-functional building

Open social space

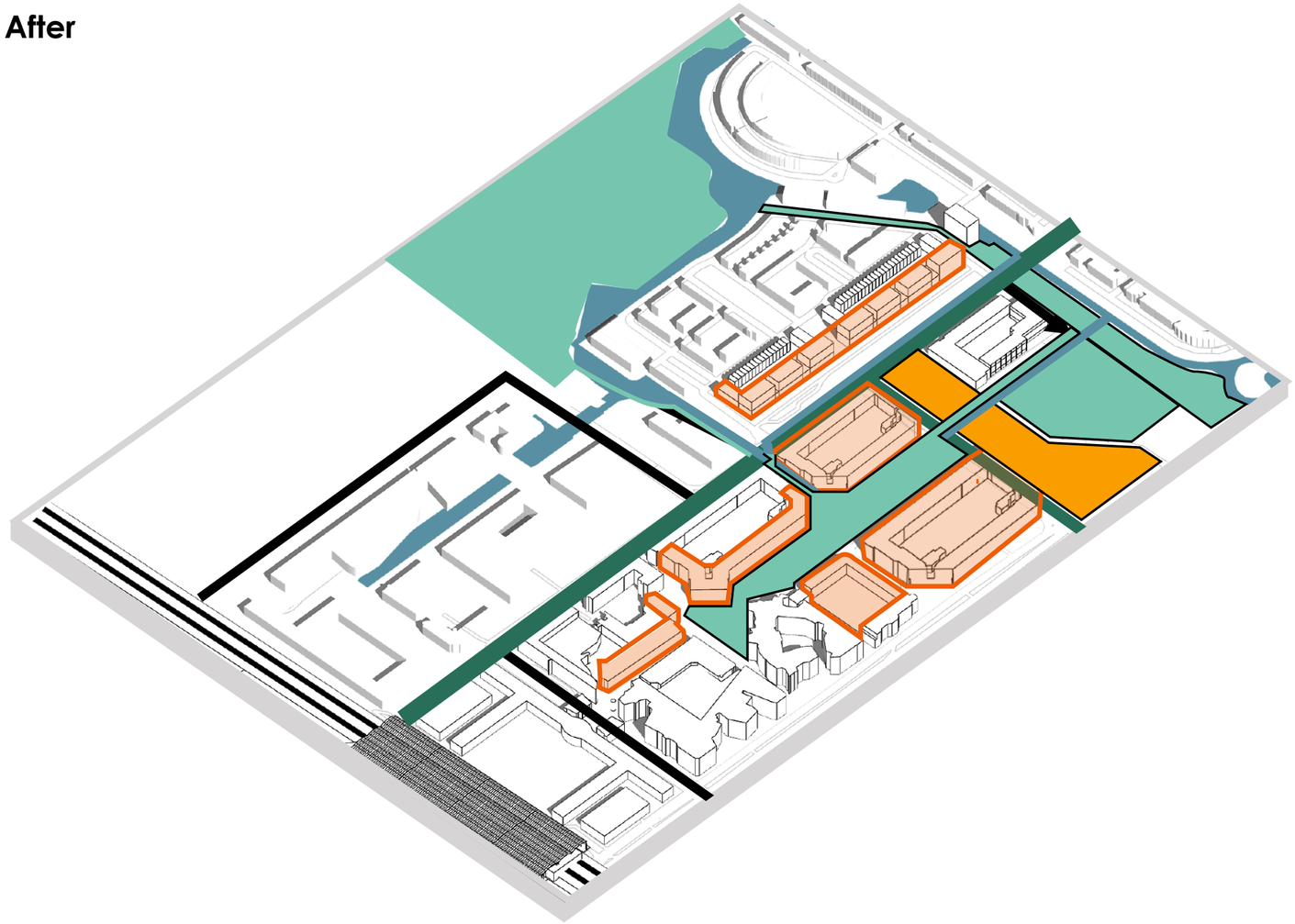
Technical green

Water

Recreational green

Symbiosis street_city center

After



Mixed-functional building

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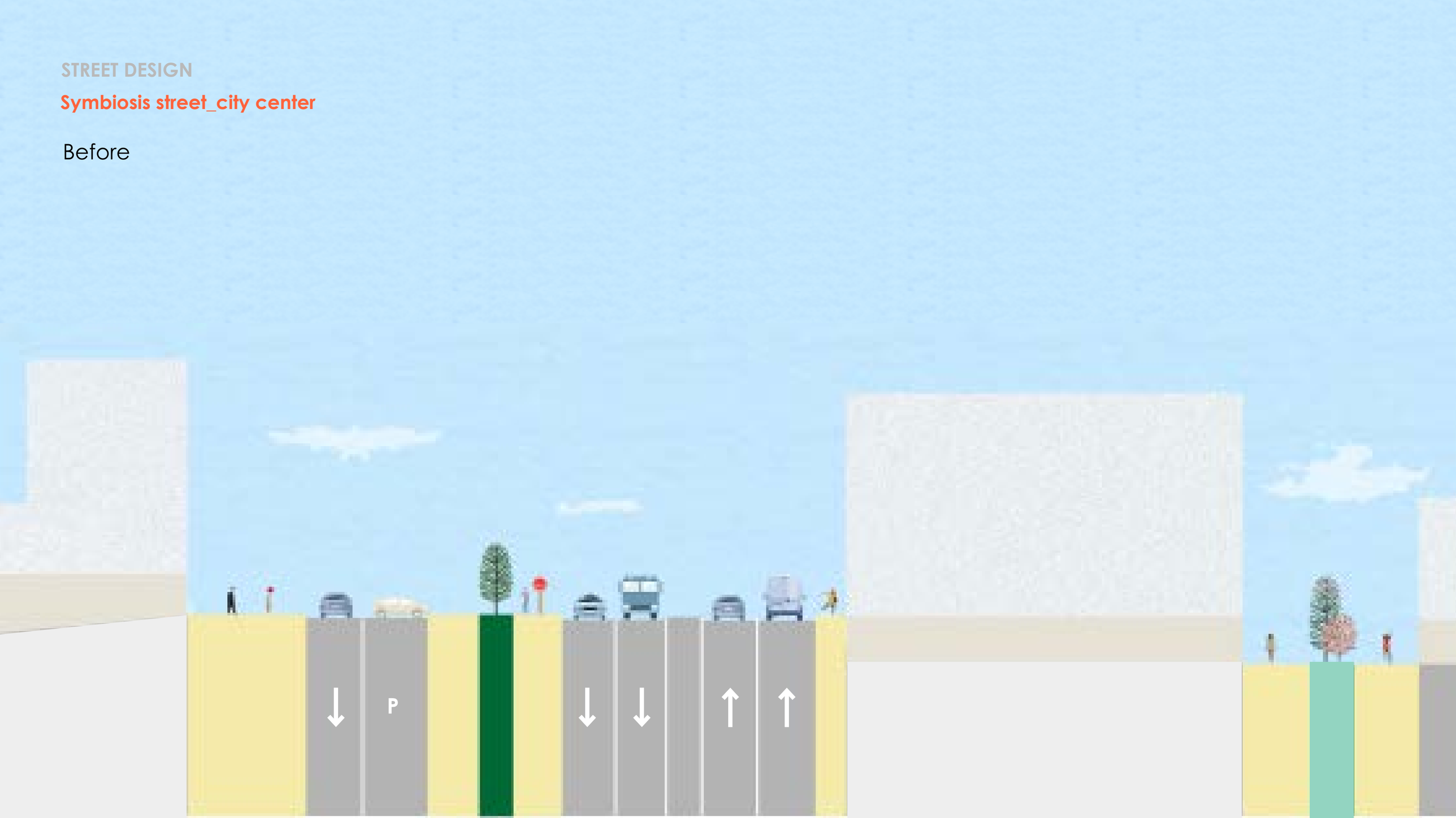
STREET DESIGN

Symbiosis street_city center

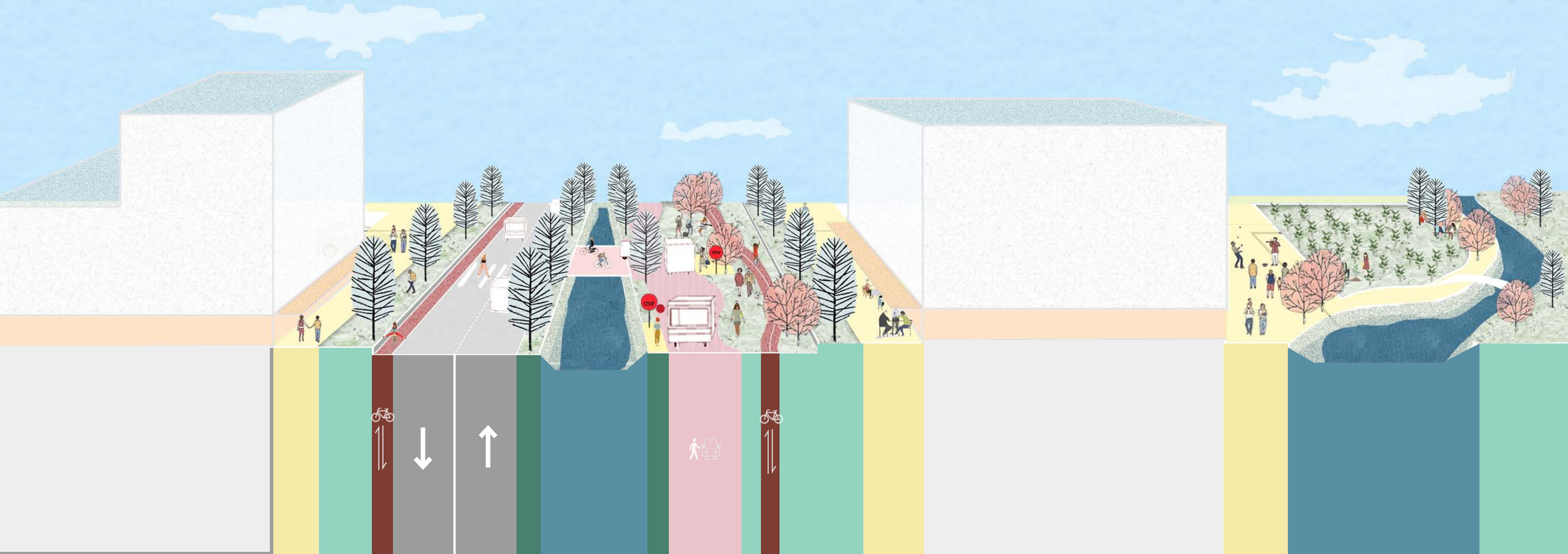
Before



STREET DESIGN

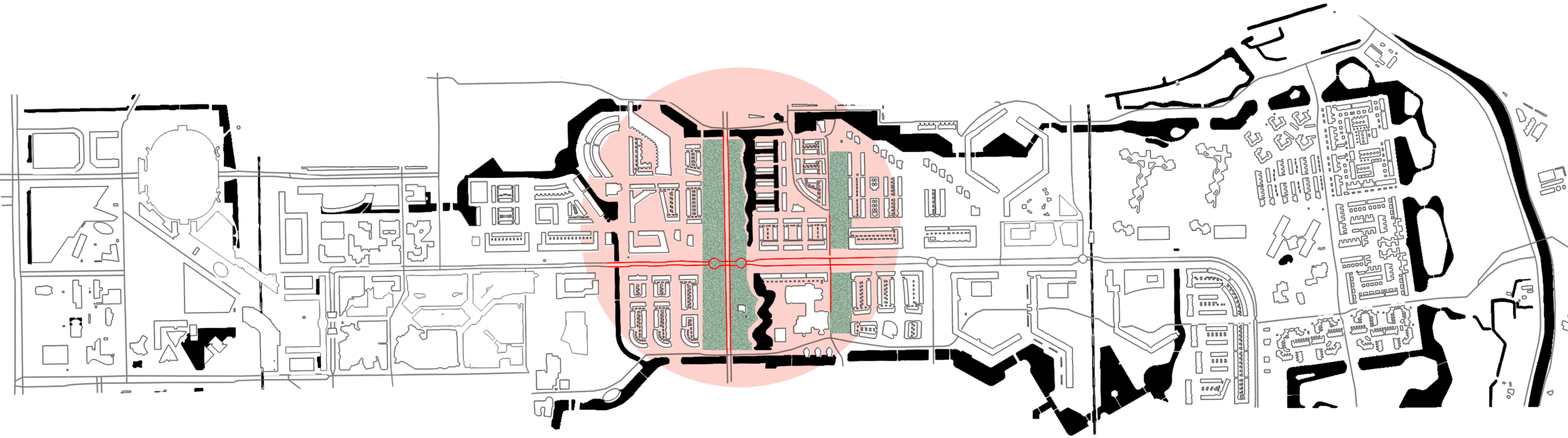
Symbiosis street_city center

After



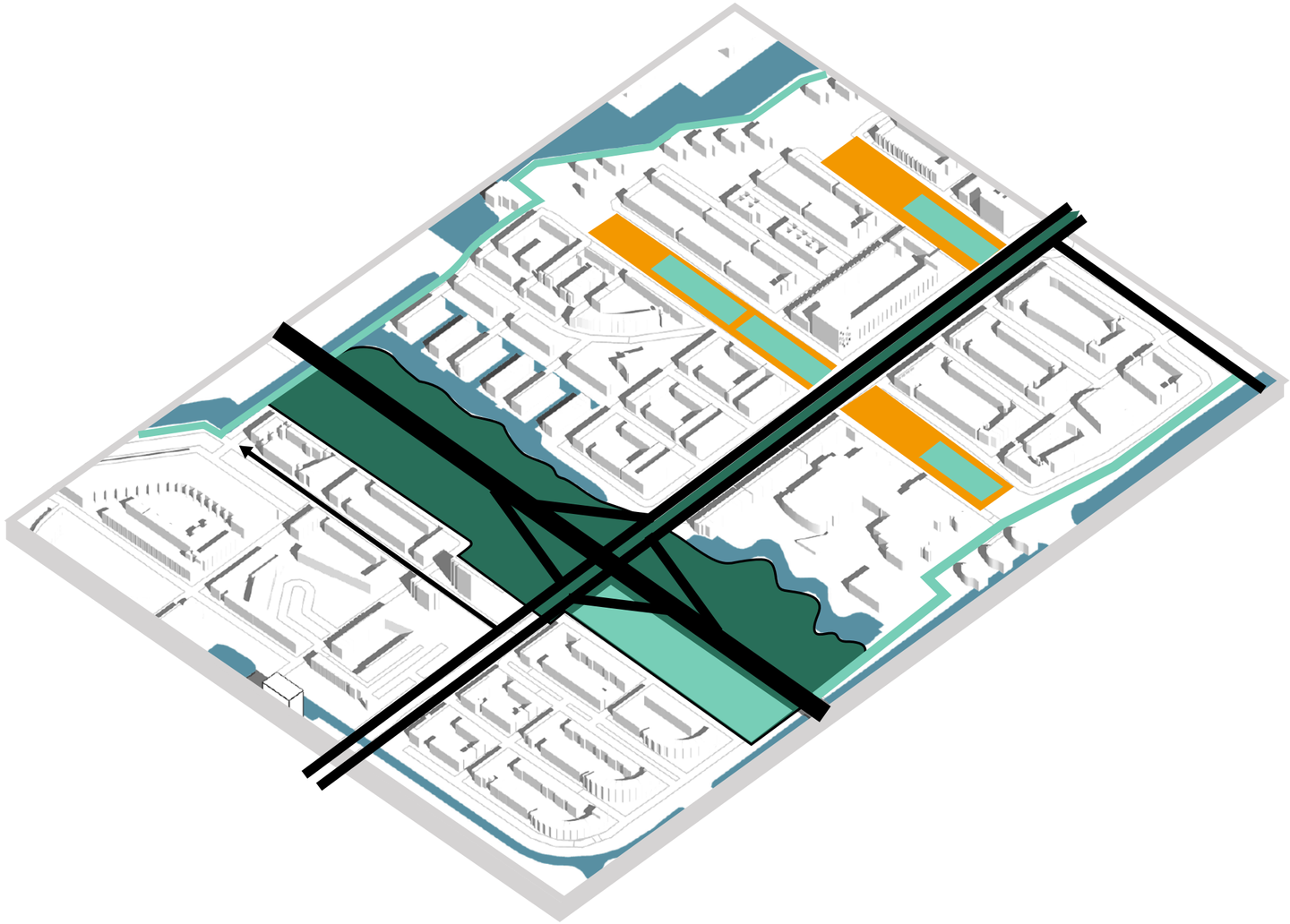
STREET DESIGN

Symbiosis street_Highway area



STREET DESIGN

Symbiosis street_Highway area



Mixed-functional building

Open social space

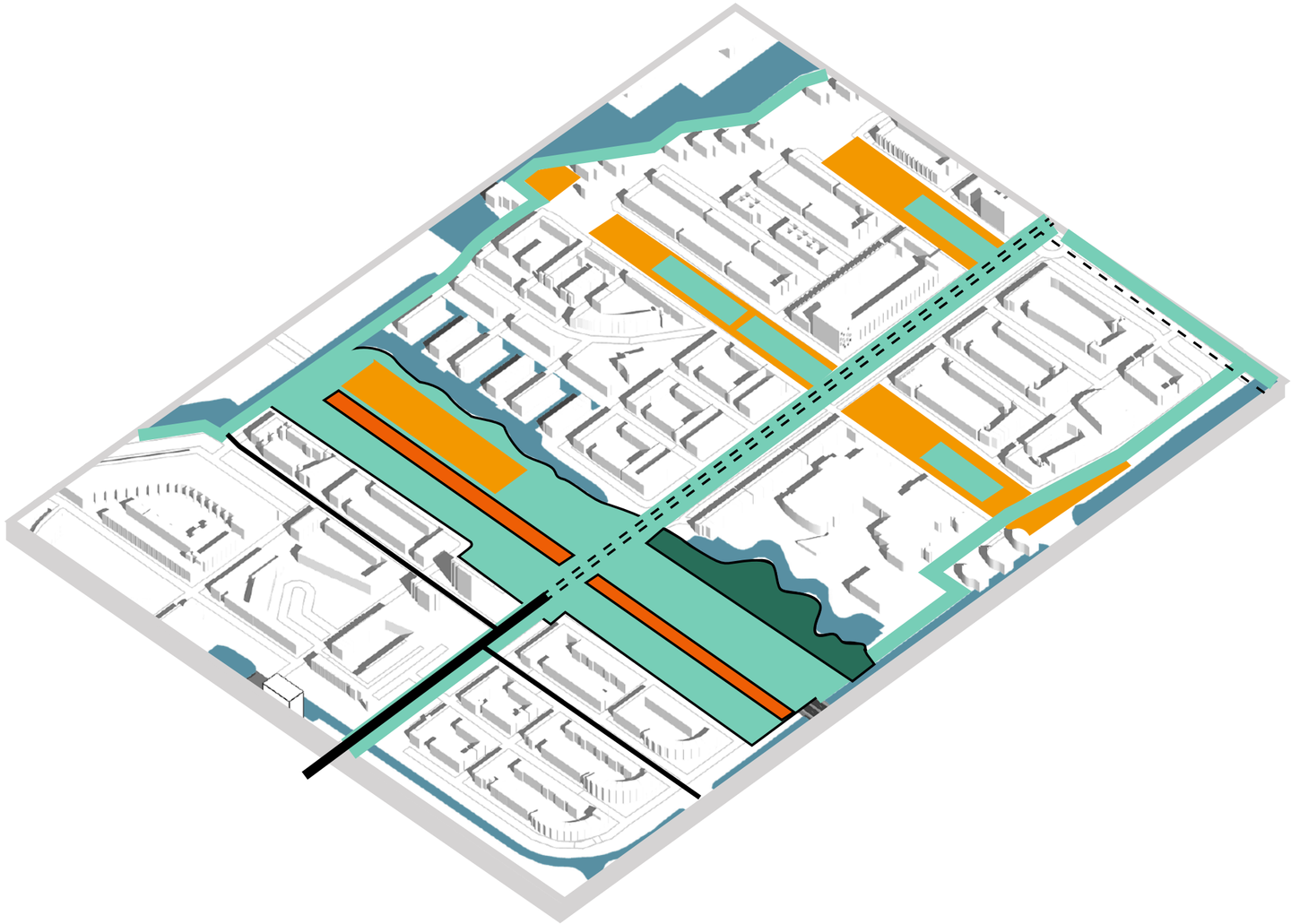
Technical green

Water

Recreational green

STREET DESIGN

Symbiosis street_Highway area



Mixed-functional building

Open social space

Technical green

Water

Recreational green

STREET DESIGN

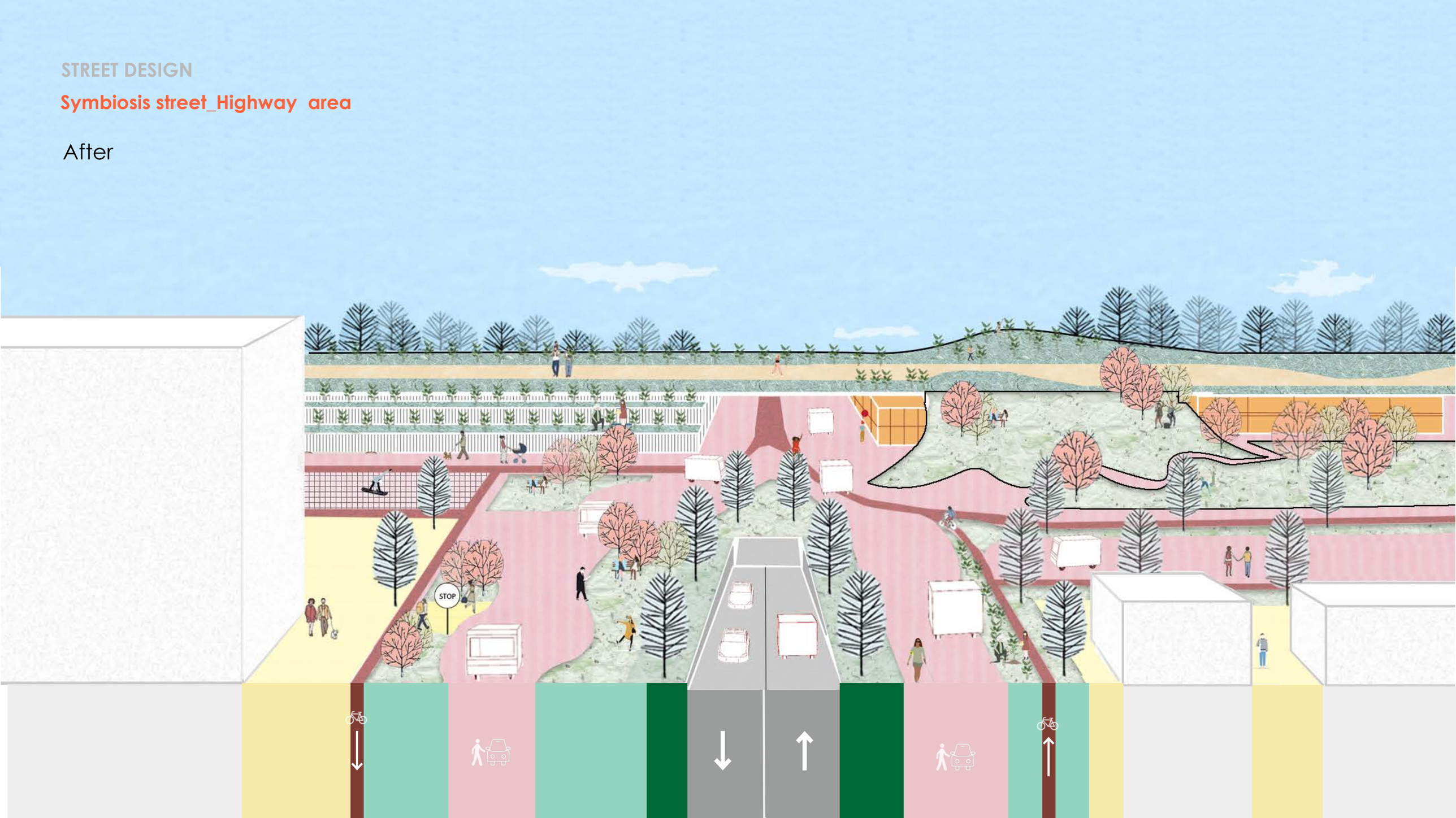
Symbiosis street_Highway area

Before

STREET DESIGN

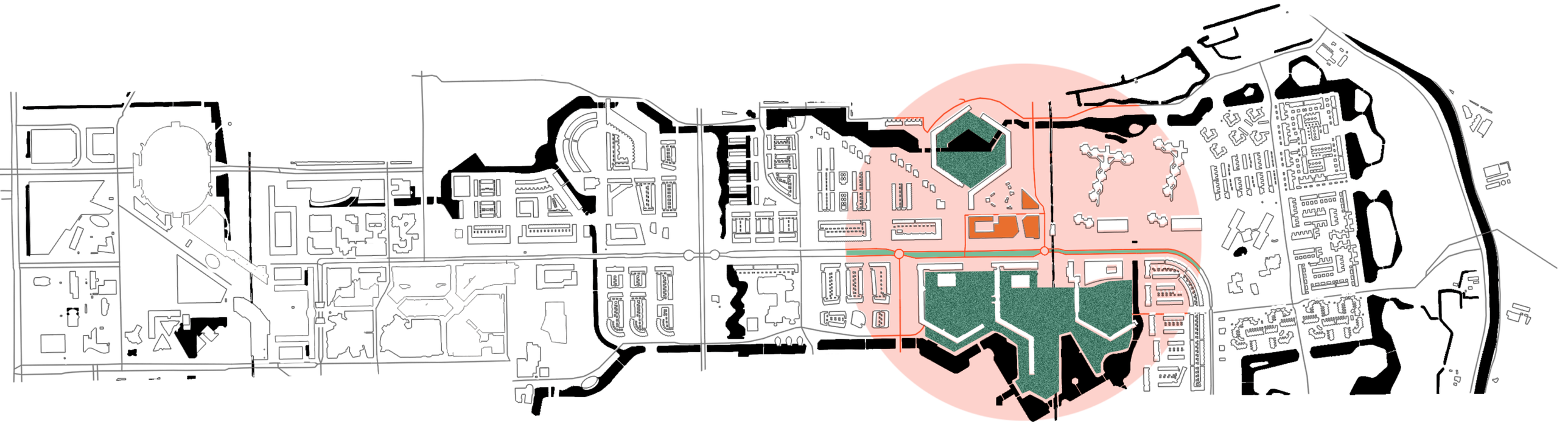
Symbiosis street_Highway area

After

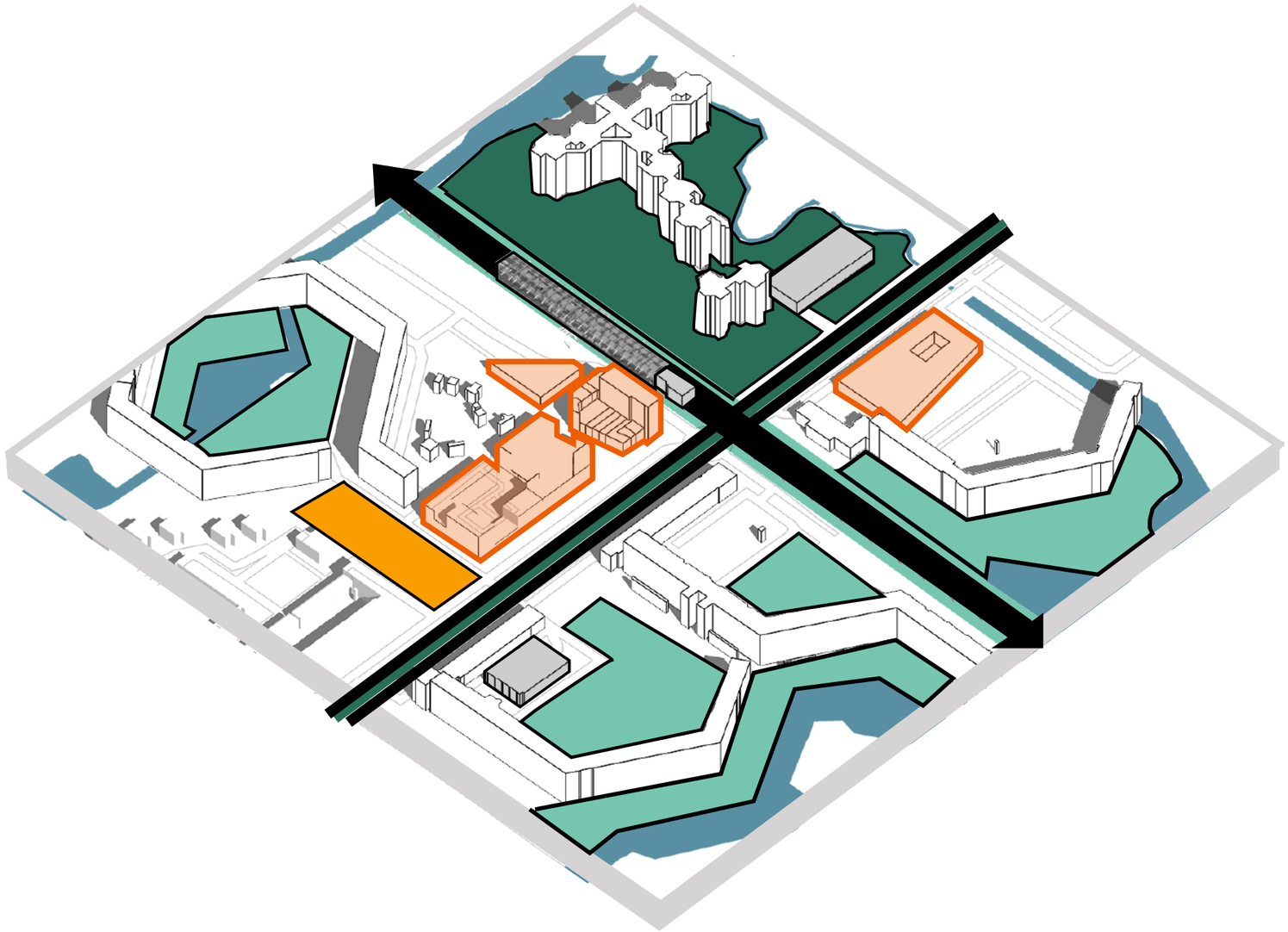


STREET DESIGN

Street Scale_Neighborhood



Street Scale_Neighborhood



Mixed-functional building

Open social space

Technical green

Water

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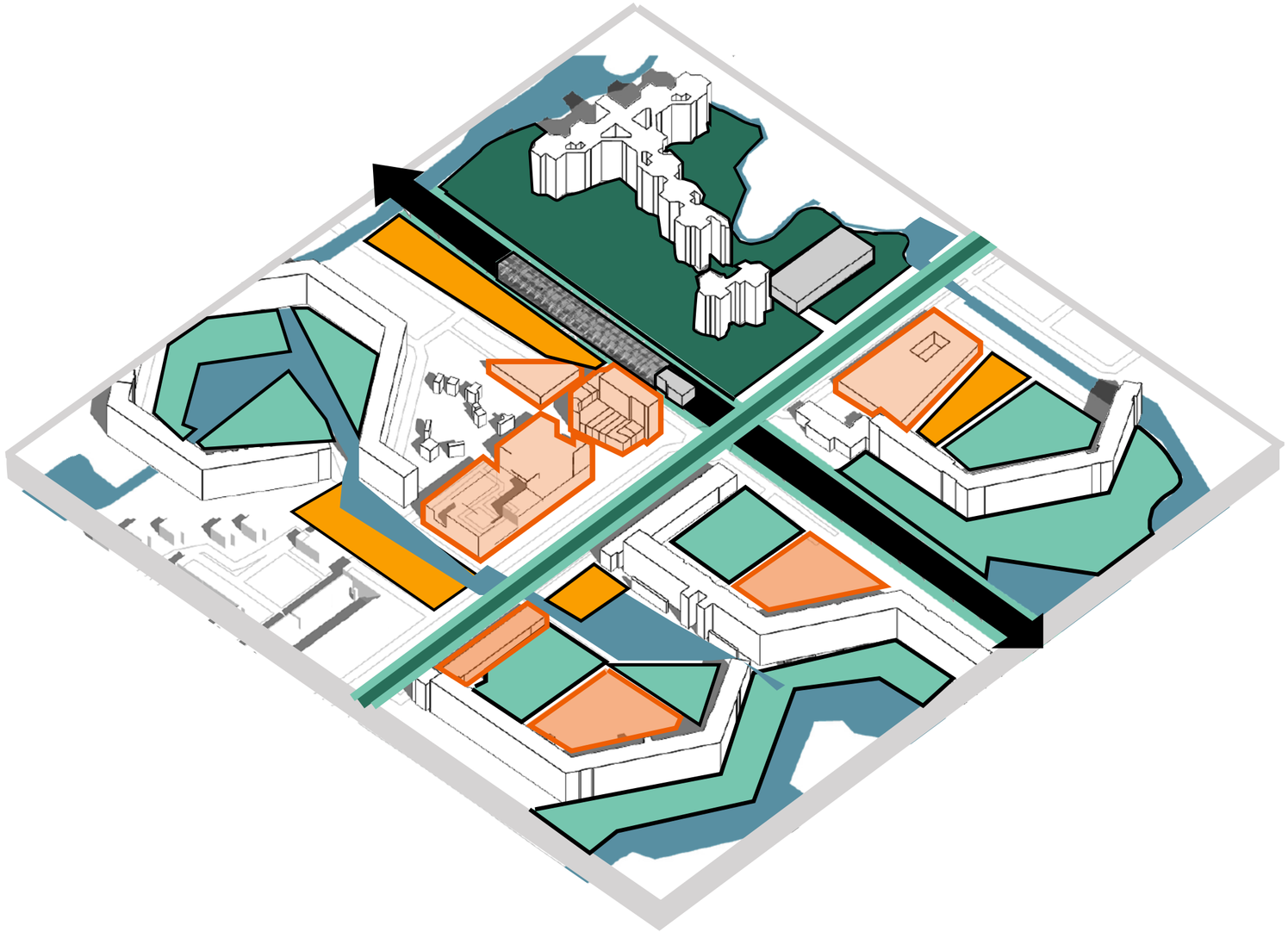
Street Scale_Neighborhood



STREET DESIGN

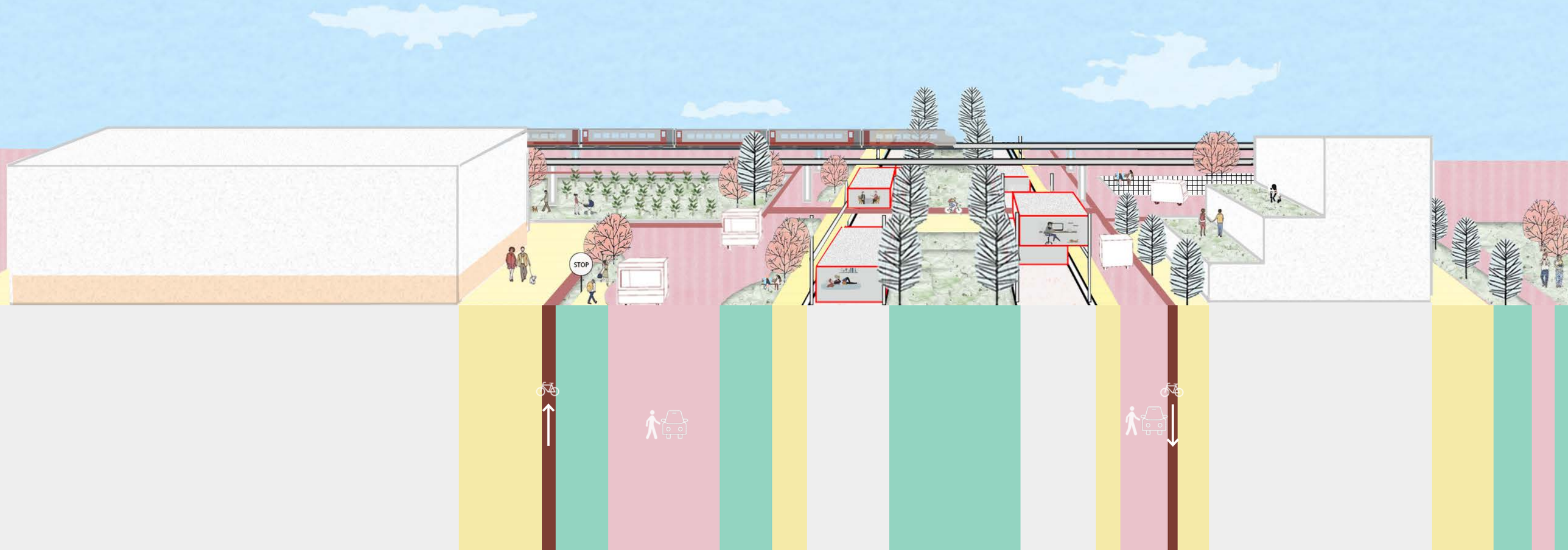
Symbiosis street_Neighborhood

Before

STREET DESIGN

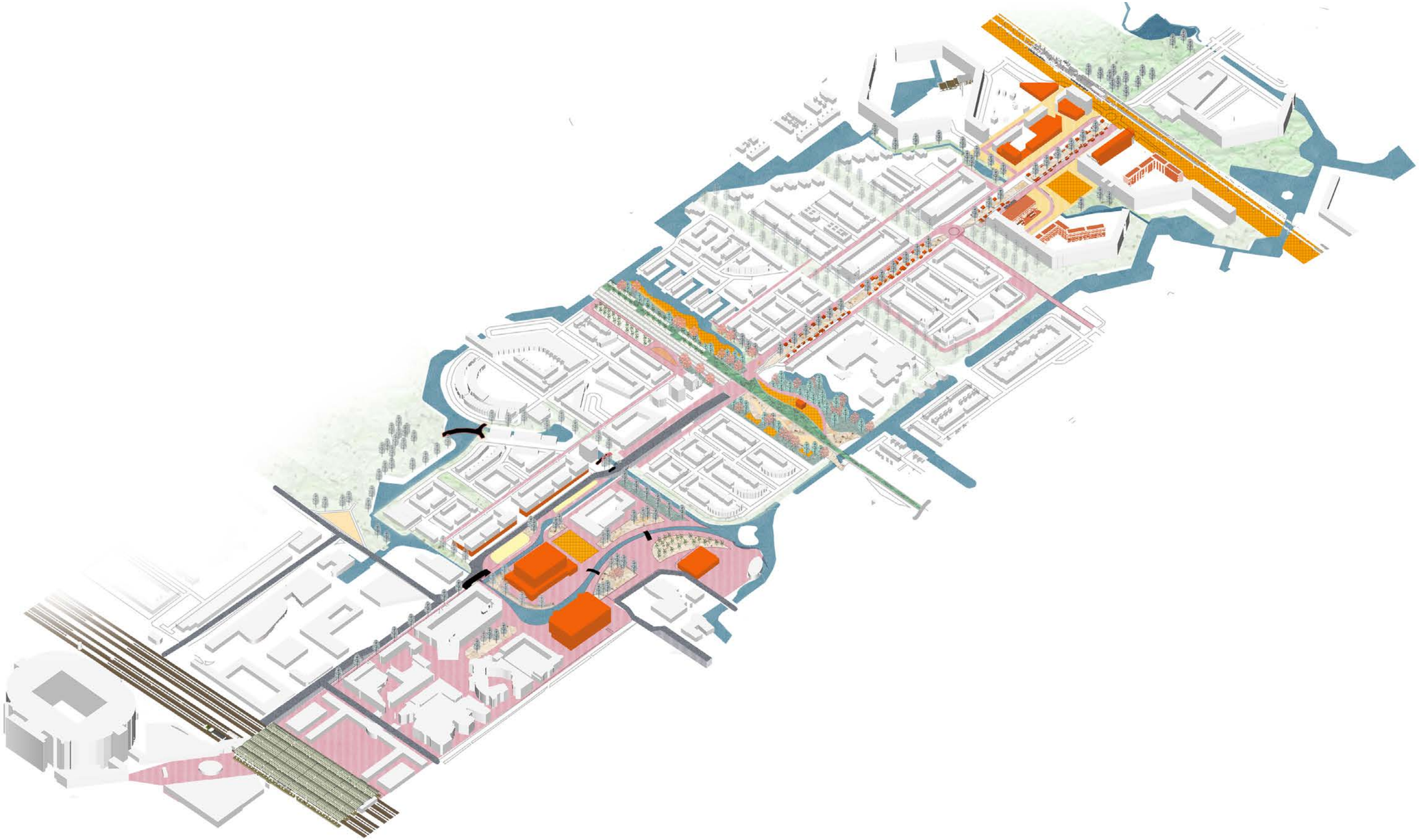
Symbiosis street_Neighborhood

After



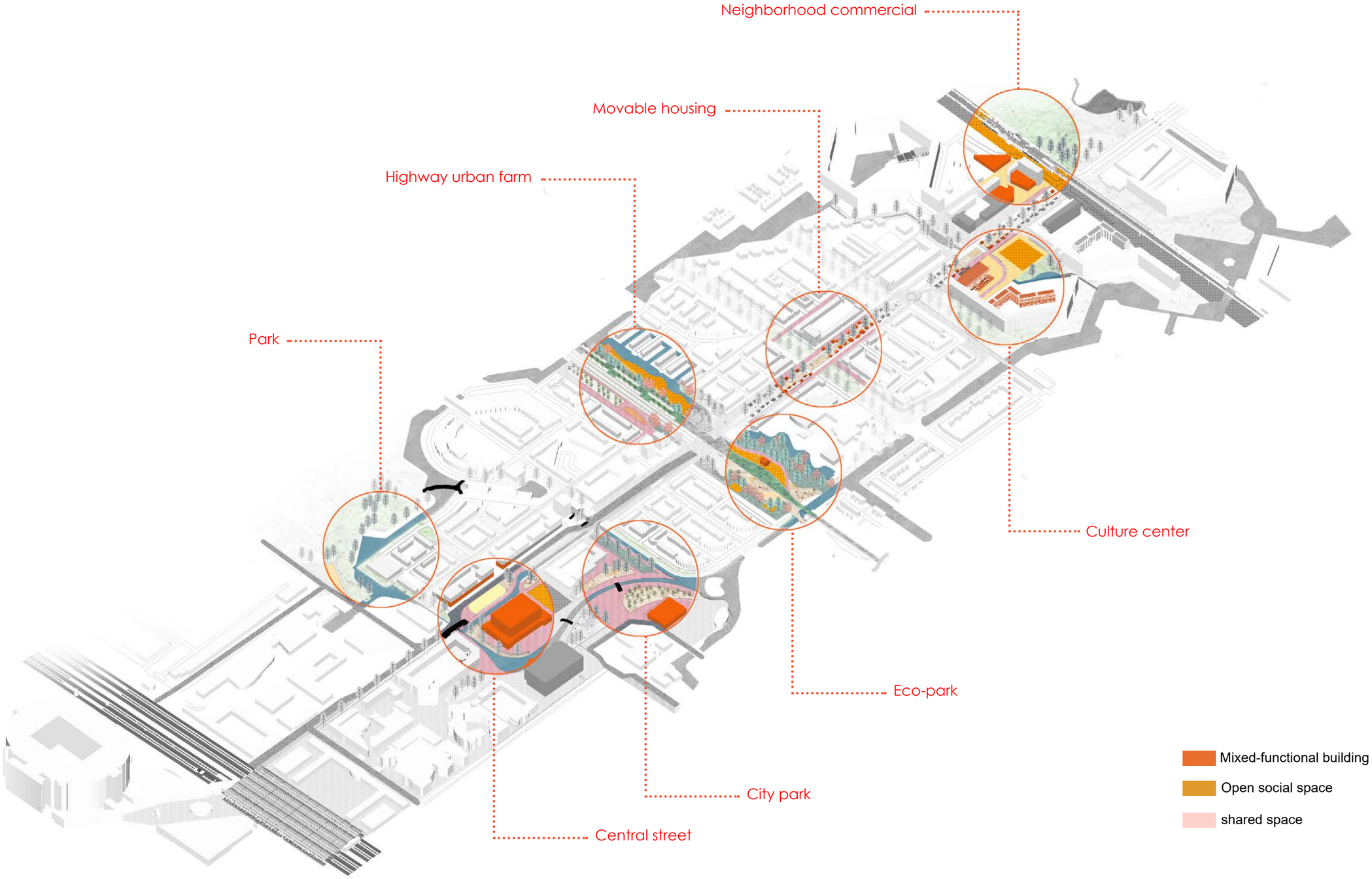
STREET DESIGN

Symbiosis street



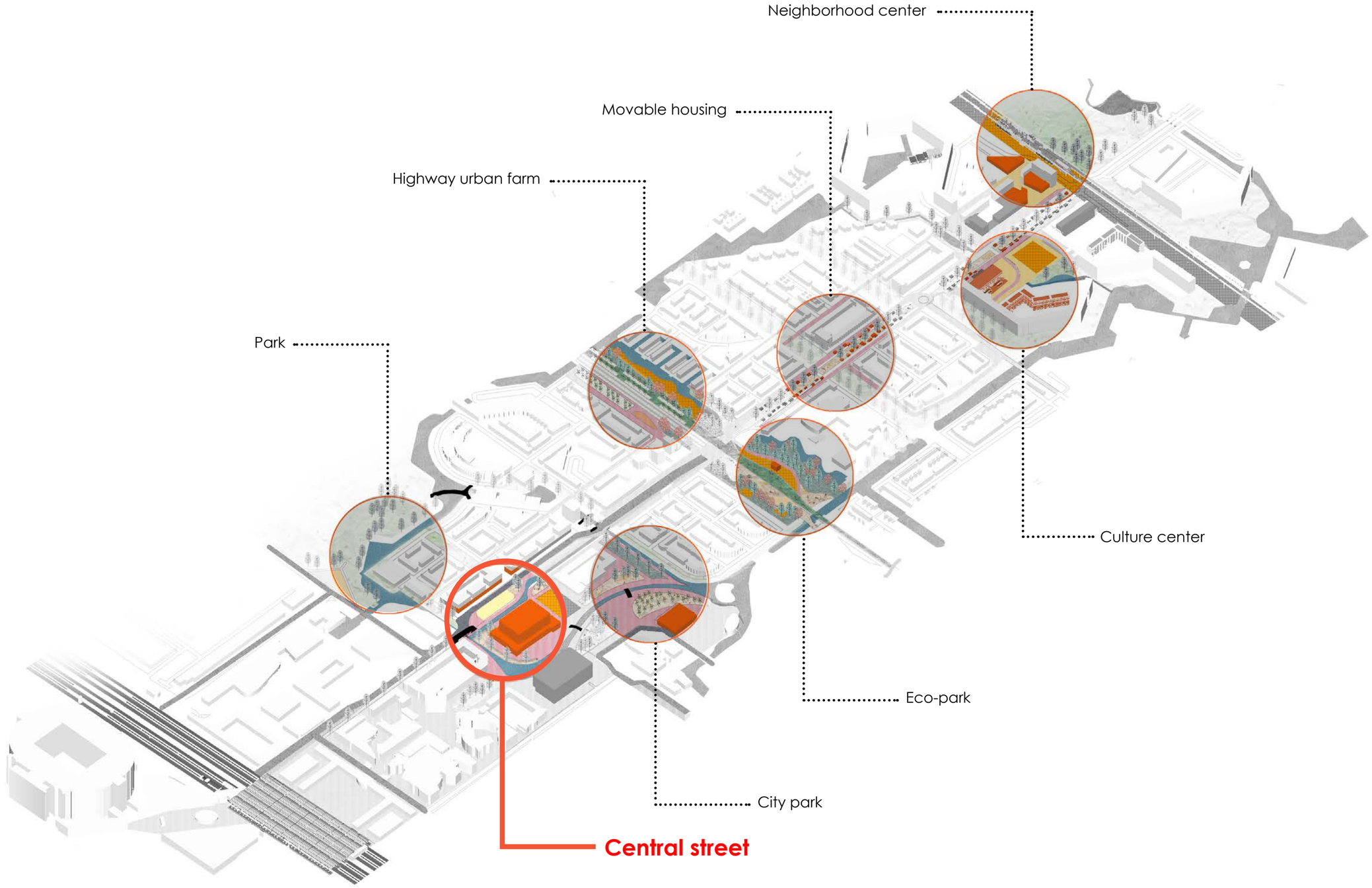
STREET DESIGN

Symbiosis street



STREET DESIGN

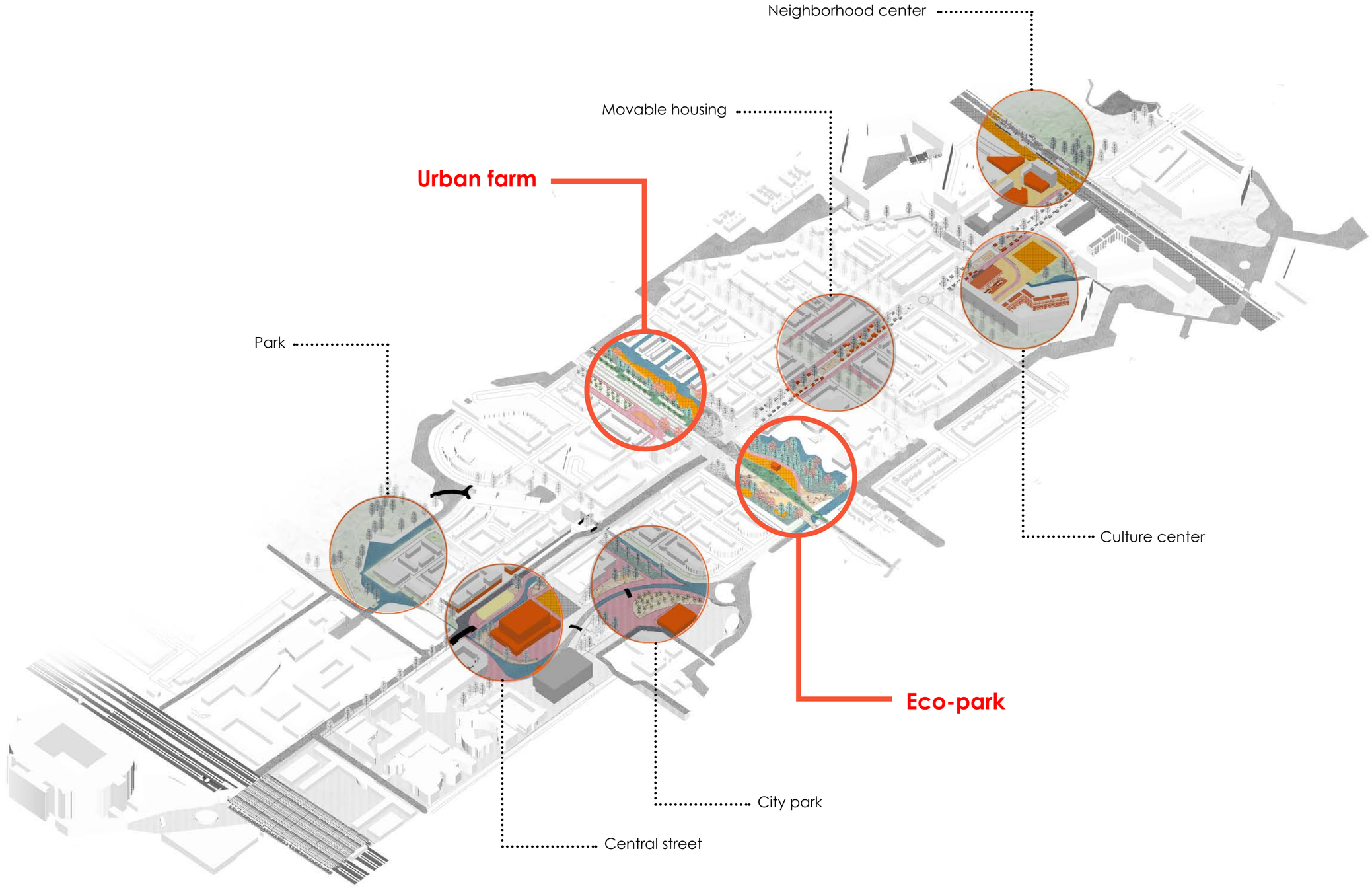
Symbiosis street



RAC Intellibus
RAC Intellibus

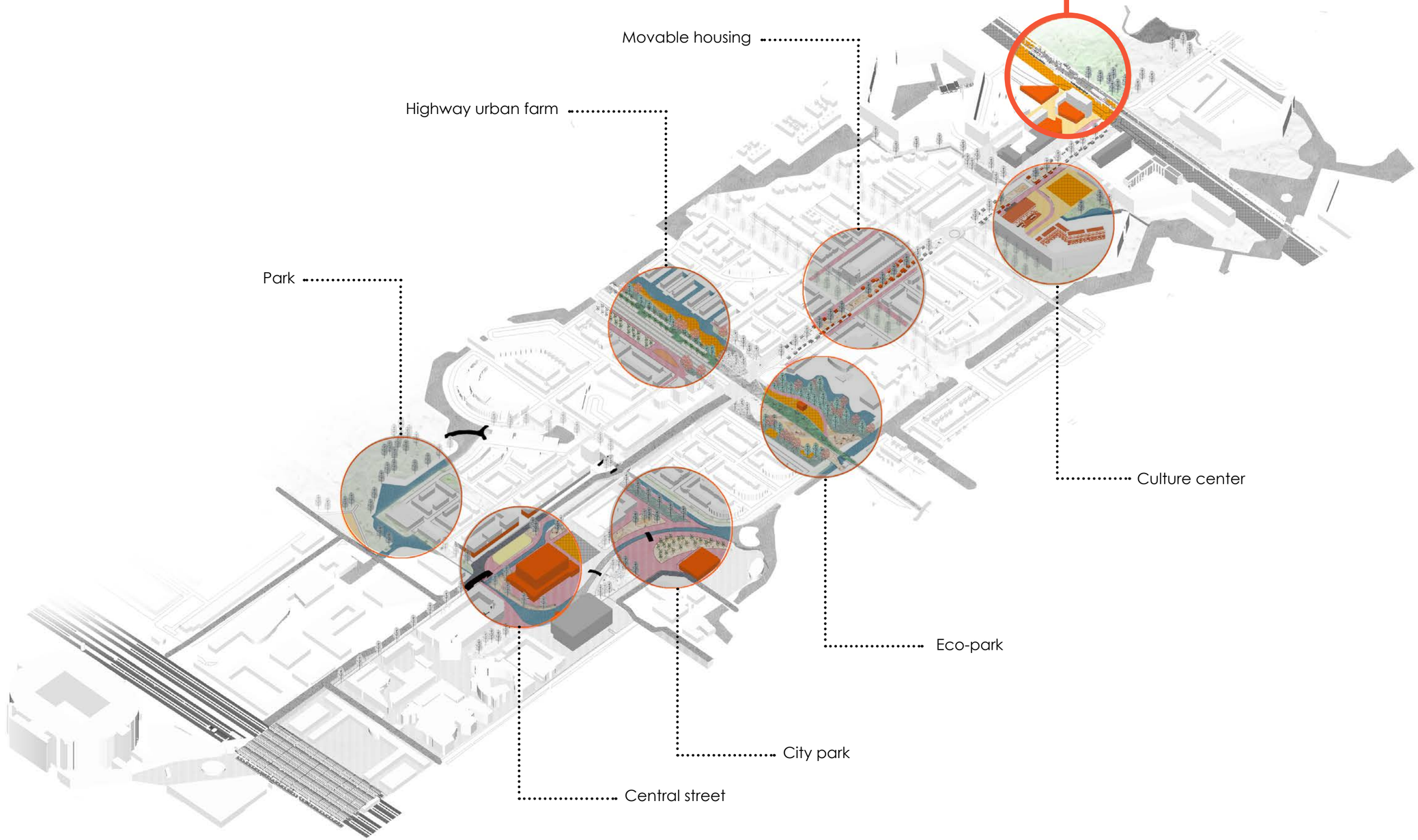
STREET DESIGN

Symbiosis street



STREET DESIGN

Symbiosis street

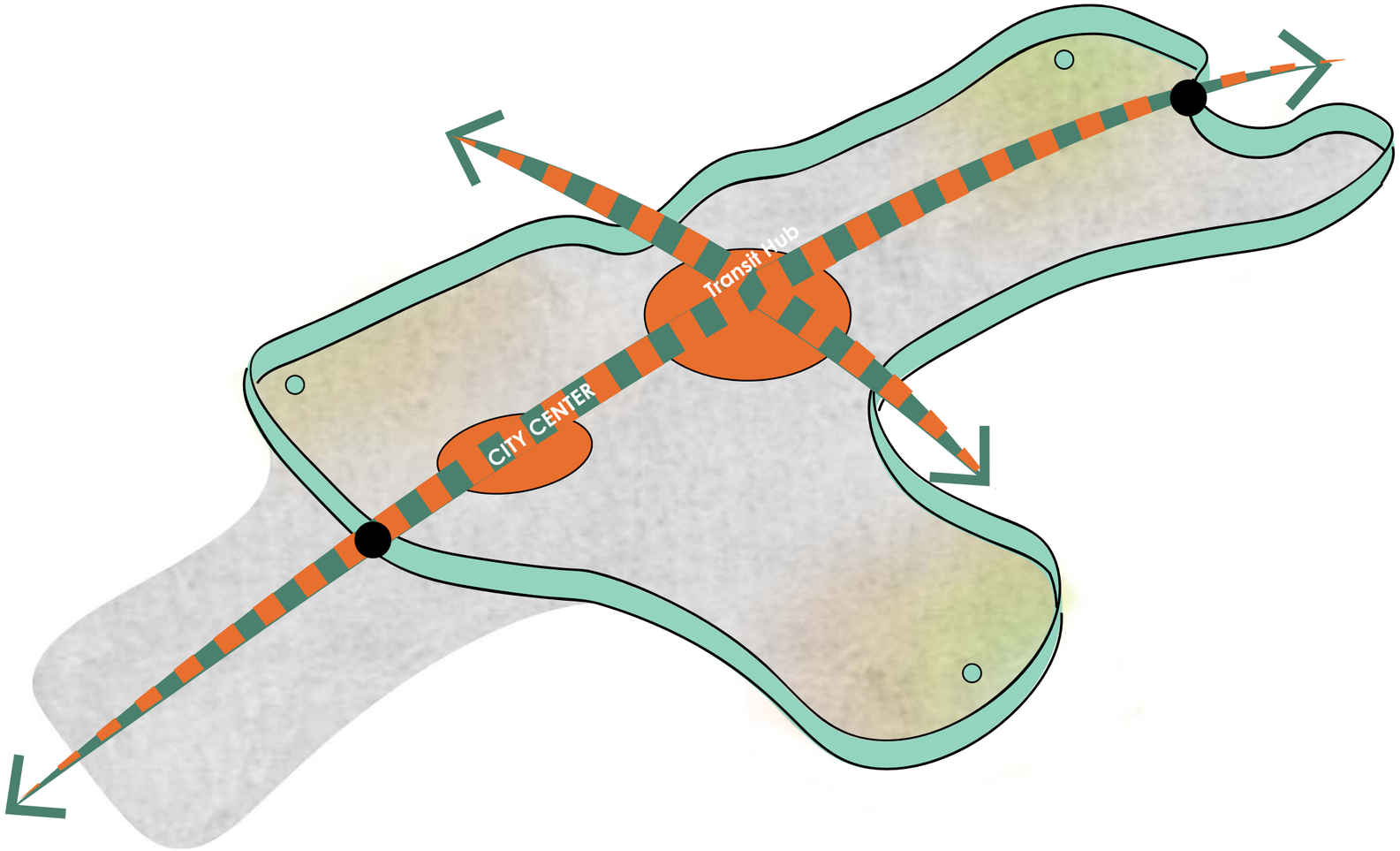


STREET AS PLACES

Low Accessibility	High Accessibility
Low Permeability	High Permeability
Low quality of open space system	High quality of open space system
mono street function	Diverse street function
Low level of Active travel	High level of Active travel
Low level of Public transport	High level of Public transport
Low level of social interaction	High level of social interaction
Safety and Comfort	Safety and Comfort
Small amount of Traffic flow	Large amount of Traffic flow
Lack of street identity	Strong street identity
Low sense of conmmunity	High sense of conmmunity

STREET DESIGN

Fluid street_conceptual design

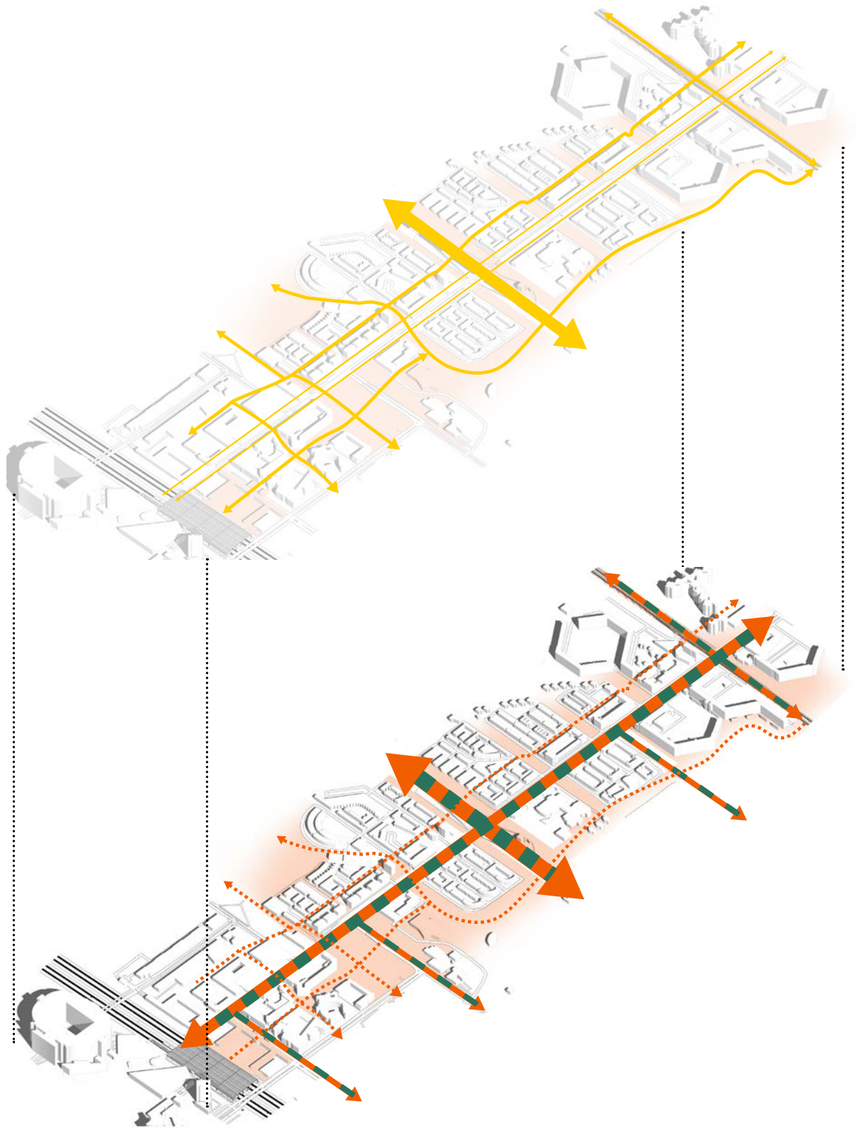


STREET DESIGN

Fluid street_conceptual design

People's activity flow

Street strcuture



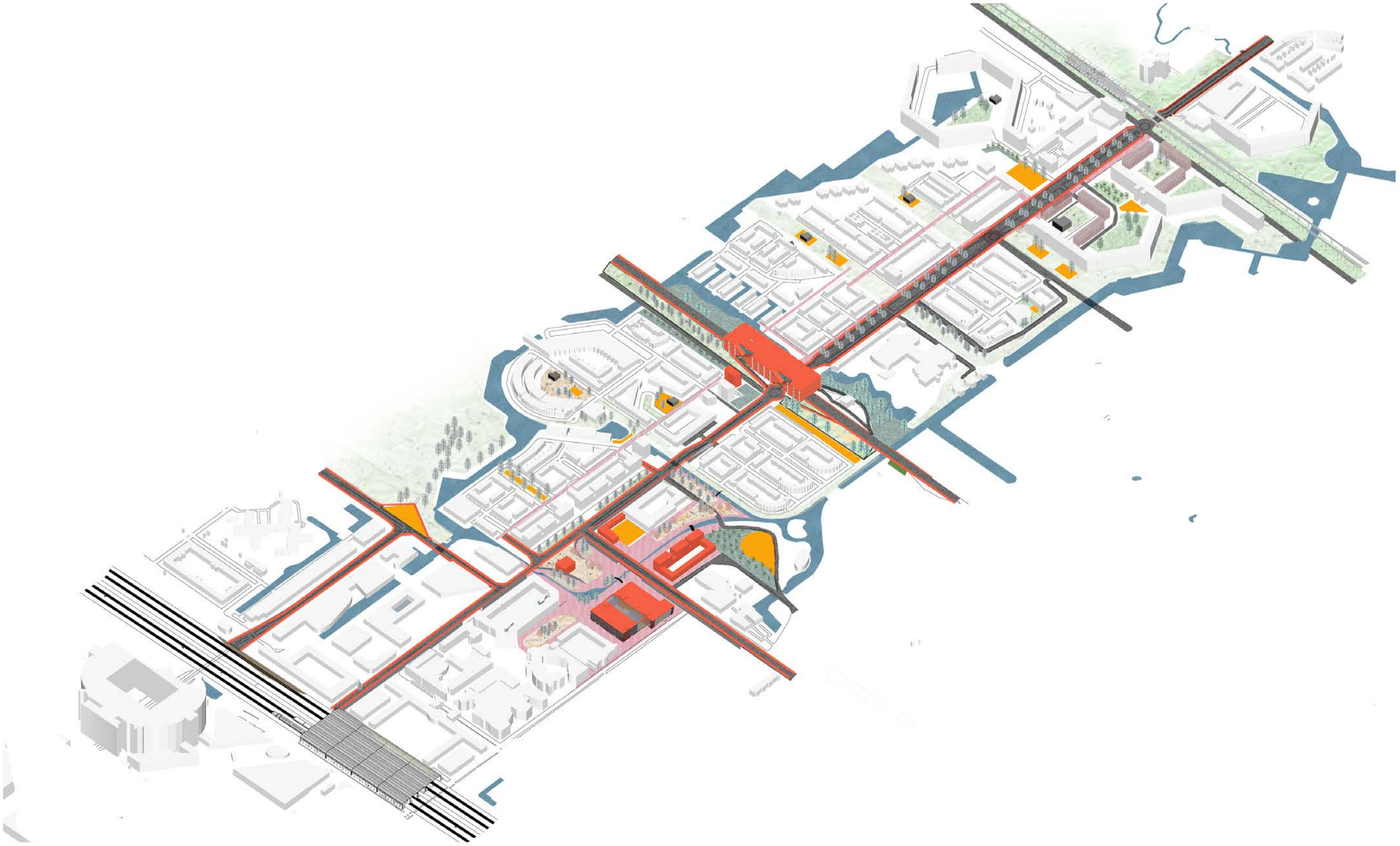
Eco-corridor

Main Corridor of Moving project

Sub Corridor of Moving project

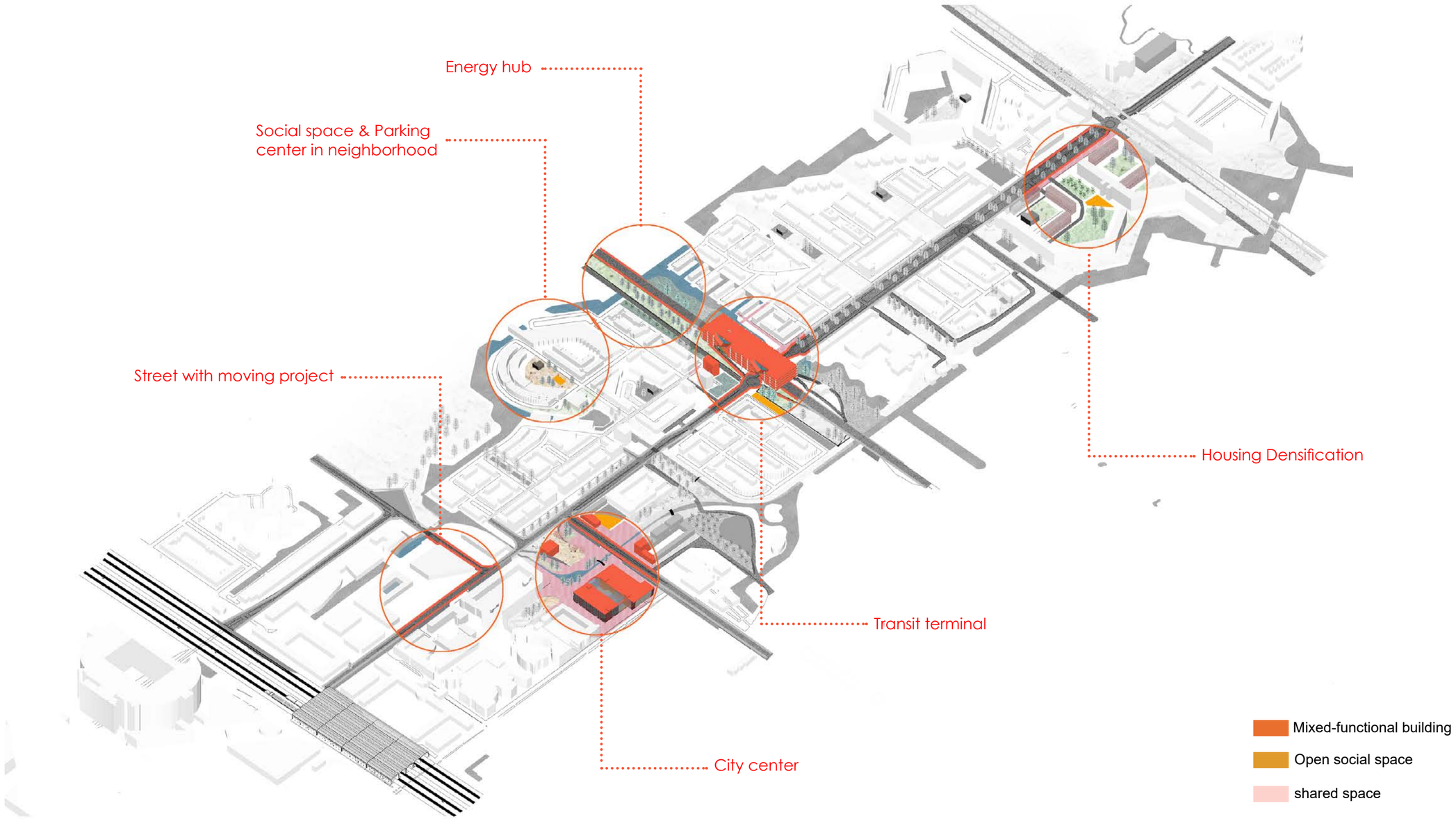
STREET DESIGN

Fluid street



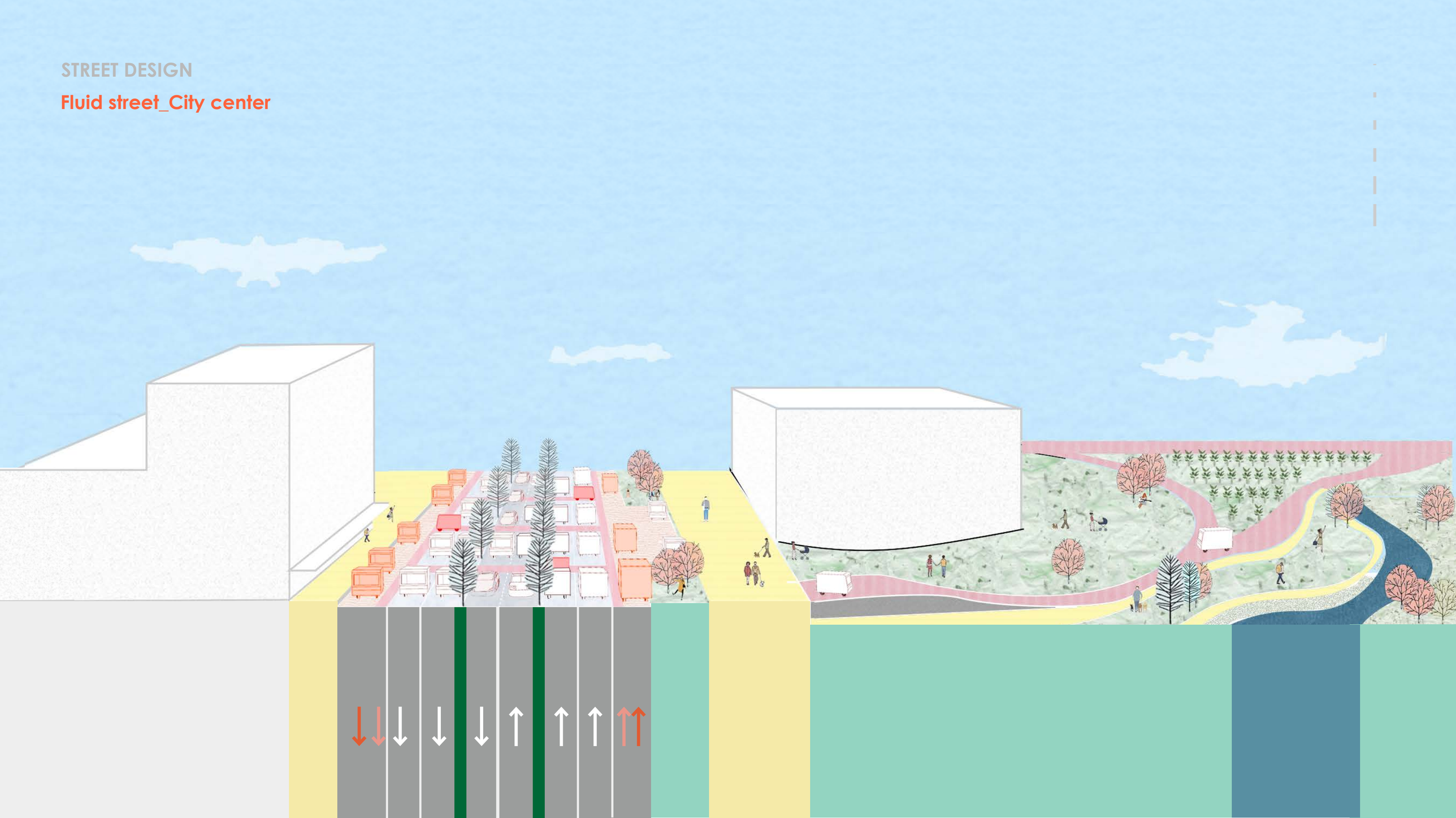
STREET DESIGN

Fluid street



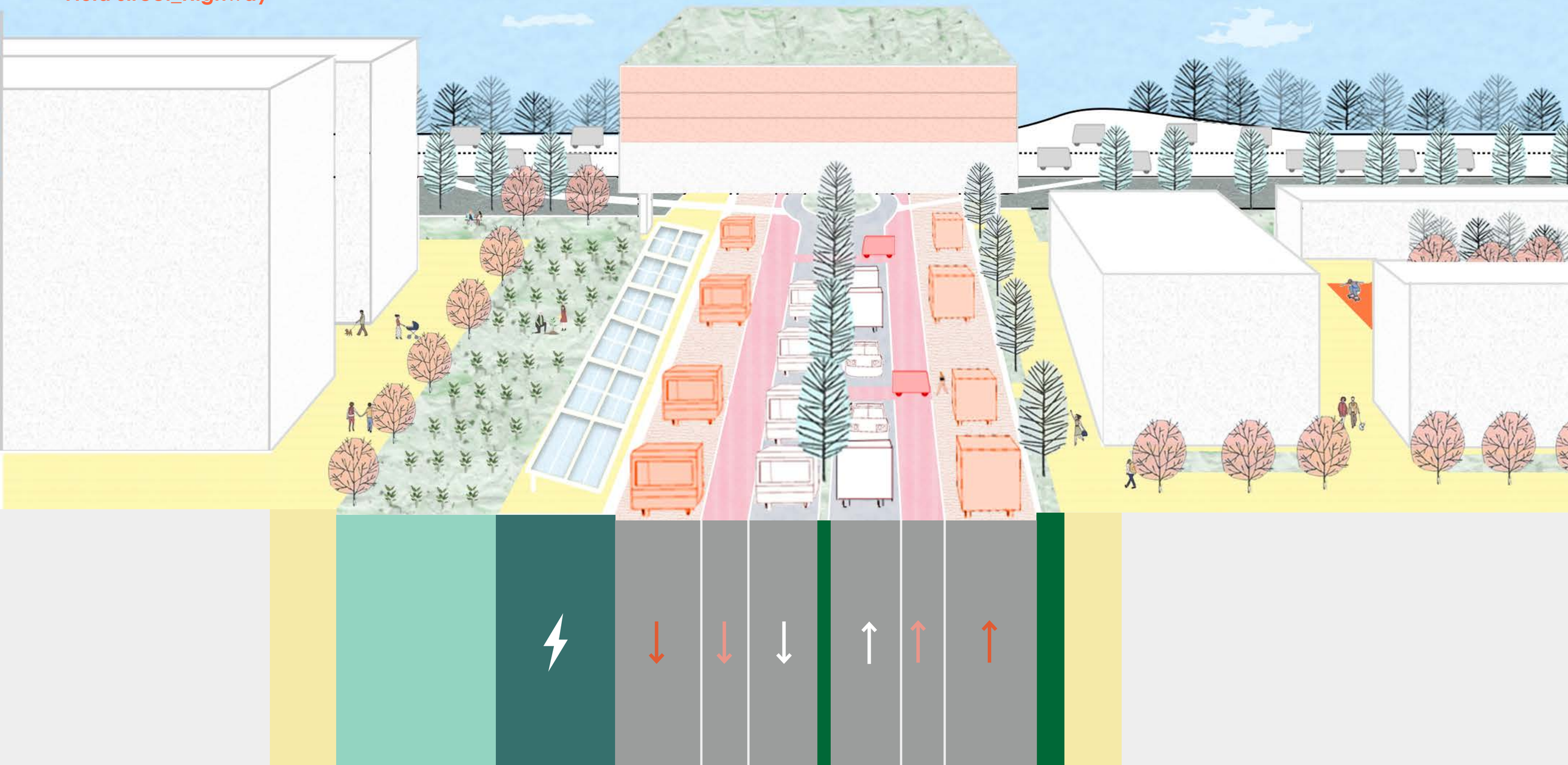
STREET DESIGN

Fluid street_City center



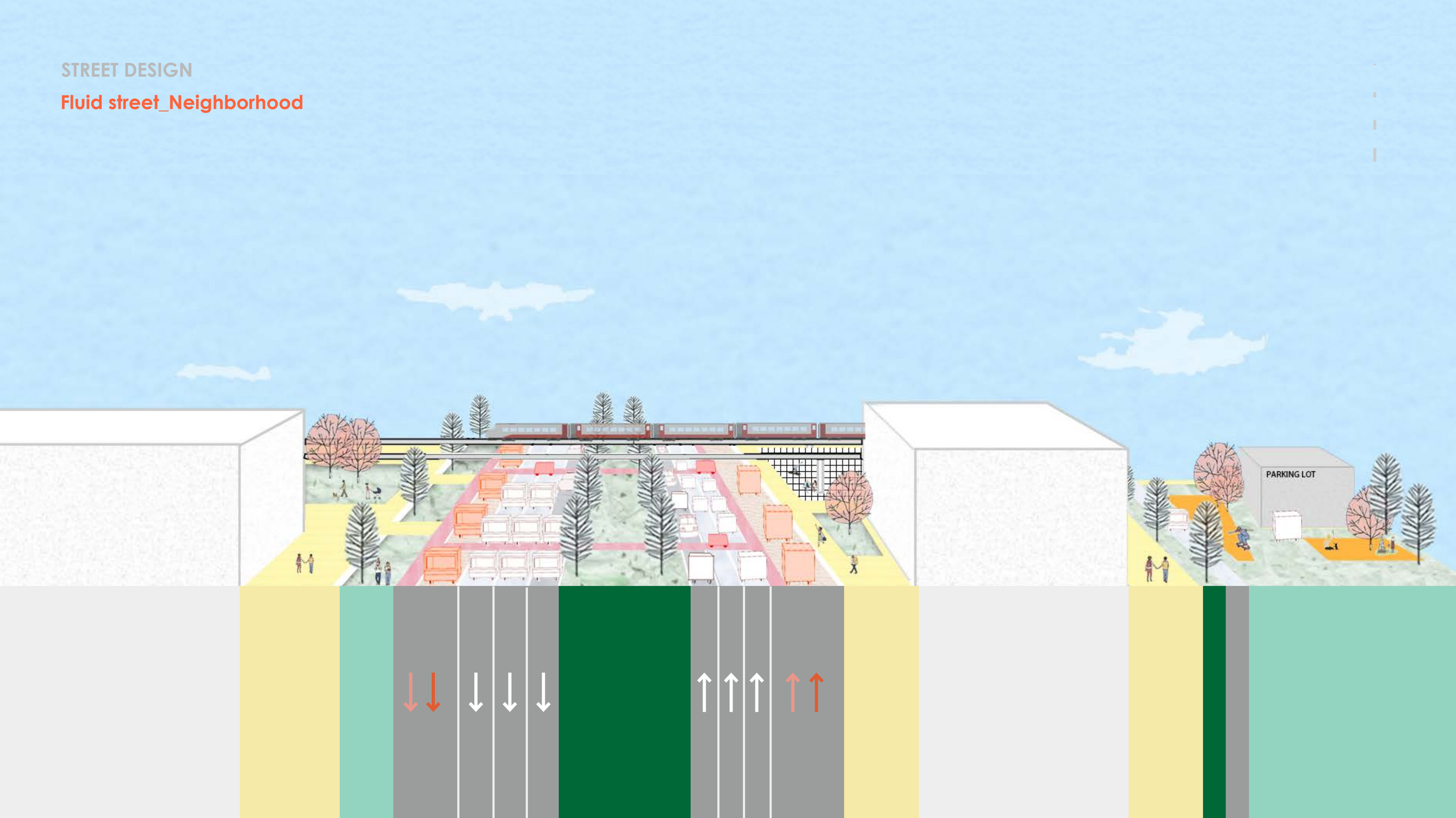
STREET DESIGN

Fluid street_Highway



STREET DESIGN

Fluid street_Neighborhood



Travelling CAFE

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STREET AS PLACES

Low Accessibility	High Accessibility
Low Permeability	High Permeability
Low quality of open space system	High quality of open space system
mono street function	Diverse street function
Low level of Active travel	High level of Active travel
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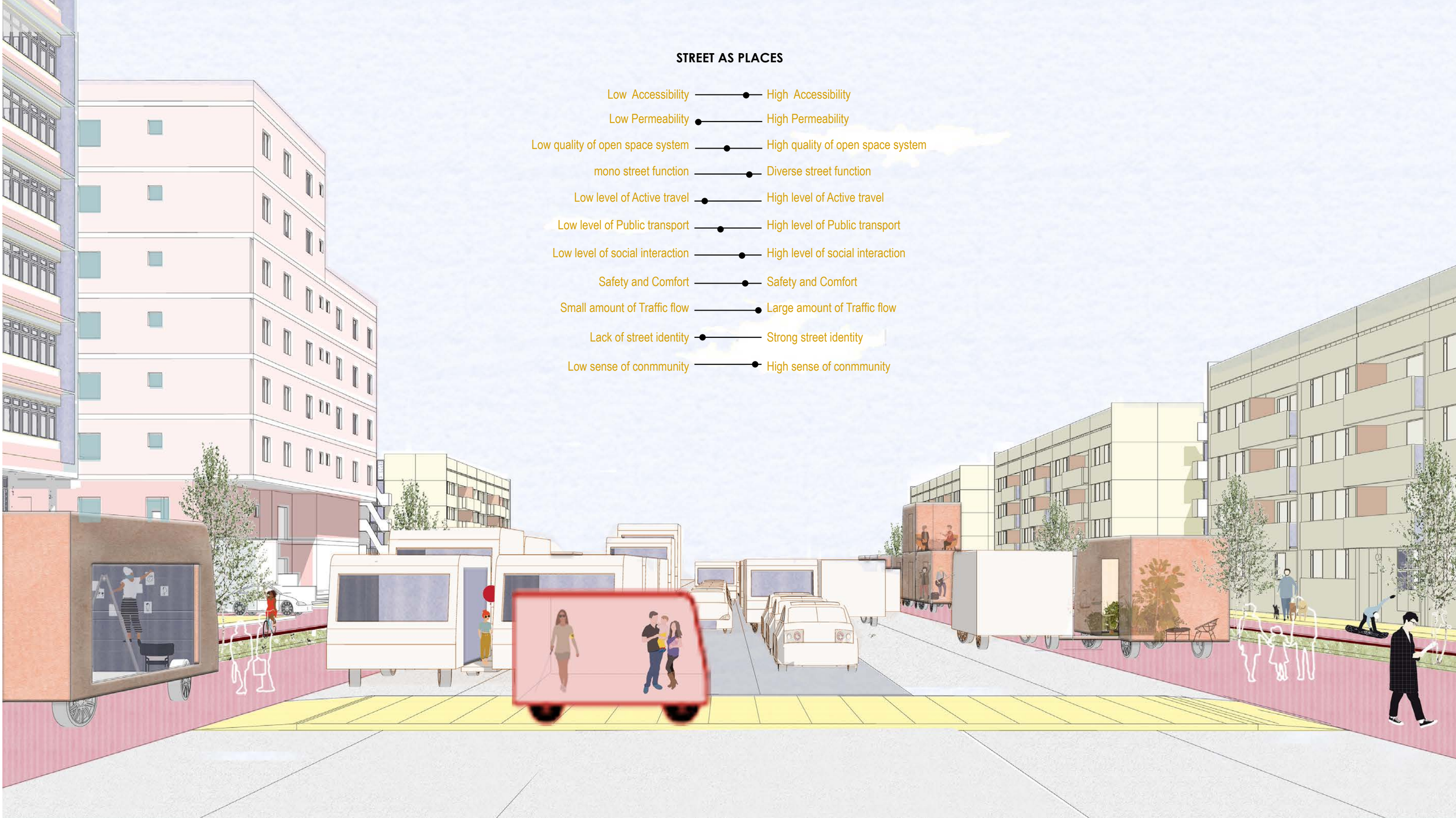
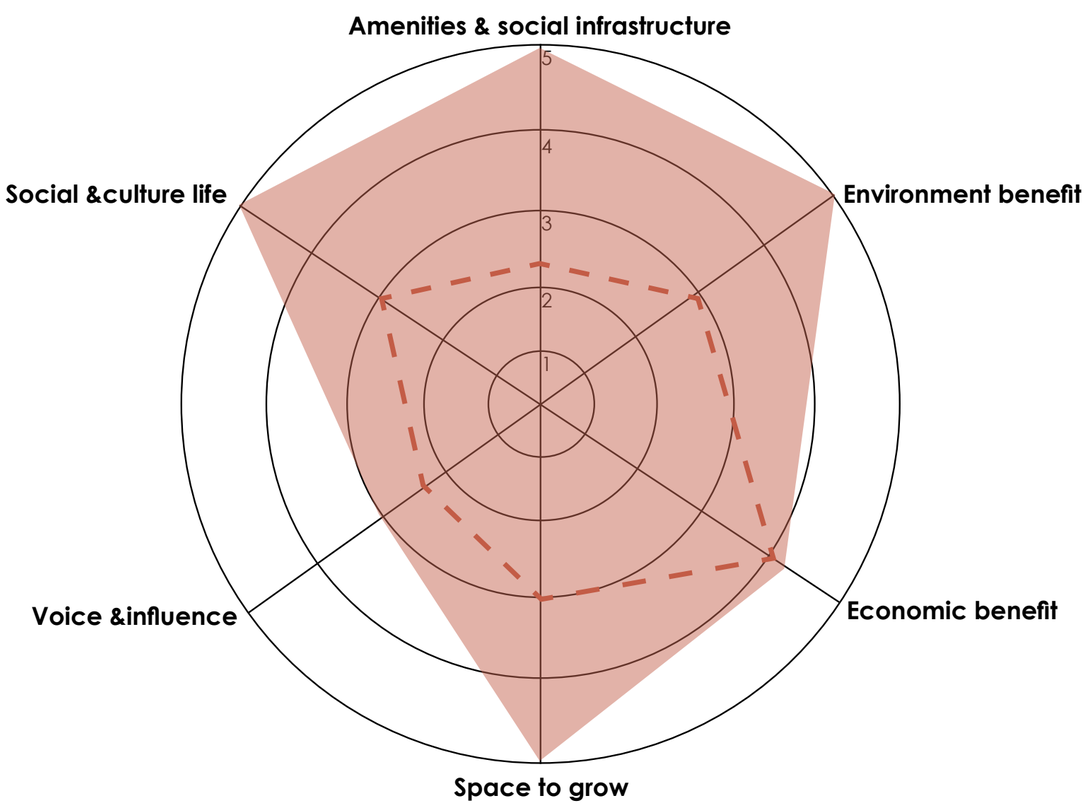
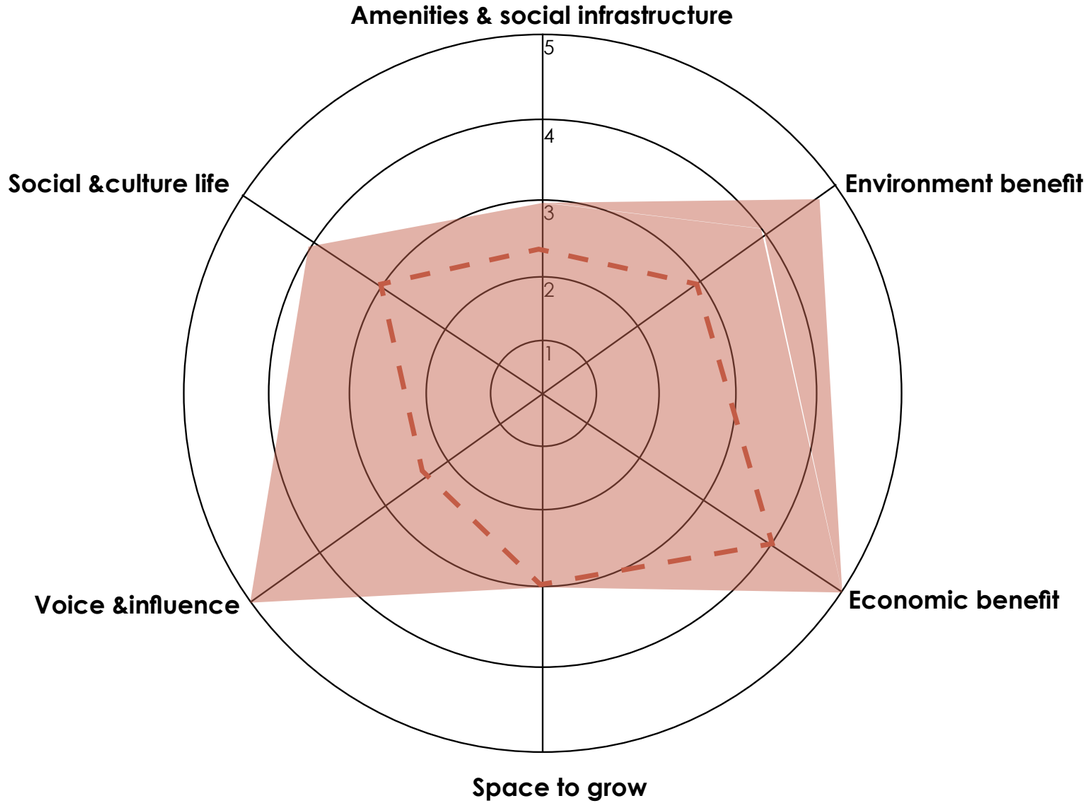
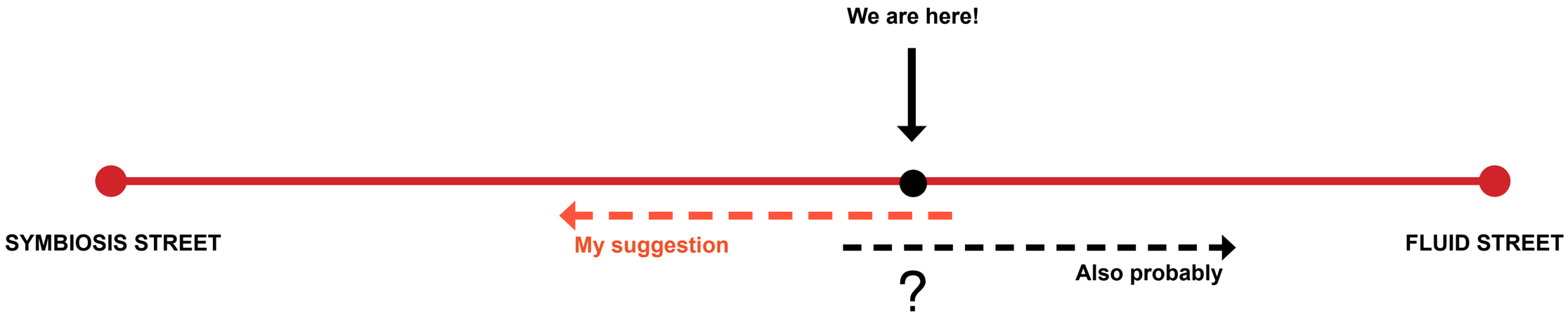




In scenario 1, we can see a more vivid future street with diverse functions and activities, also more sustainable environment. If we are lead to this condition, strict rules for AVs and our travel behavior should be accepted, apart from this, more taxes regarding travel miles, ownership will also be inevitable.On the other hand, we will have more efficient and convenient public transport system, more equal society and less social segragation. While this needs Top-down policy and coorperation of AV companies and everyone of us.



In scenario 2, there will be freedom for everyone to choose their own way to travel, loose policy will encourage indivadual ownership and long travel miles and time on streets. To garuntee the efficiency and safety, there will be no more interactions between people and AVs, people will across street by cars, moving projects provide them with everything and space they need for daily life, their activities actually are restricted in cars, their neighborhoods and different buildings. This kind of new lifestyle makes people rely much more on vehicles, causing privacy and internect safety concerns, and it is unfair for people who cannot afford AVs and rely on public transportation. If we let AVs go, this is probably our future. And it is our choose to lead to which senario.


We are here!
SYMBIOSIS STREET
My suggestion
?
Also probably
FLUID STREET

THANK YOU