



# **“HYBRID HIGHWAY LANDSCAPE”**

## **Integrating Highway into Urban Context**

### **Highway A40 in Duisburg**

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Landscape Architecture  
Graduation LAB 2016/2017

Flowscapes  
04/07/2017

**Research**

by

**Design**

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# **INTRODUCTION**

Fascination

Problem Statement

Research Thesis & Objective

Relevance to Studio

# Fascination: harmony between highway & city



General Narrative  
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# Highway Evolution: Parkway to Highway



Parkway, related to context



Urban Highway, detached from context

## Different Relationship with Context

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# Flowscapes: Transportation Infrastructure



URBANIZATION

PRODUCT OF MODERN CITY

NEW SPATIAL FORM

FACTOR OF URBAN LANDSCAPE

NEGATIVE IMPACT

Relevance to Studio

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# 1. Urban Fragmentation—Non-place



General Narrative—Problem Statement

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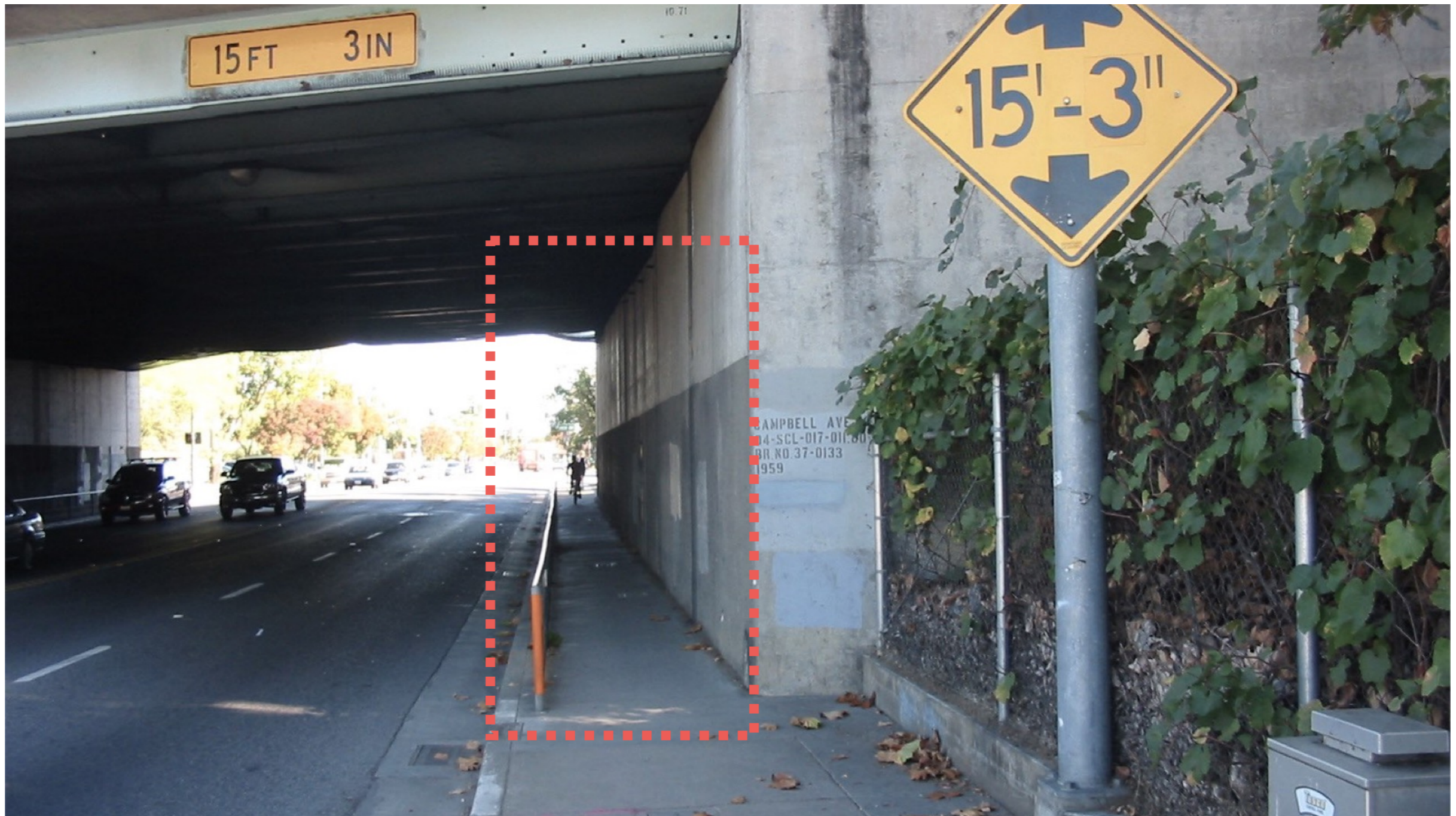
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## 2. Urban Barrier-Limited Unpleasant Crossing



General Narrative—Problem Statement

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# 3. Environmental Pollution-Air and Noise



General Narrative—Problem Statement

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# 4. Poor Aesthetic Quality-Isolated



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# Conclusion & Research Thesis

“HYBRID HIGHWAY LANDSCAPE”  
Integrating Highway into Urban Context



Conclusion & Research Thesis

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# Research Objective

To explore the potentials of  
“Hybrid Highway Landscape”

Conclusion & Research Thesis

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# What actualizes the “Hybrid Highway Landscape”?

Conclusion & Research Thesis

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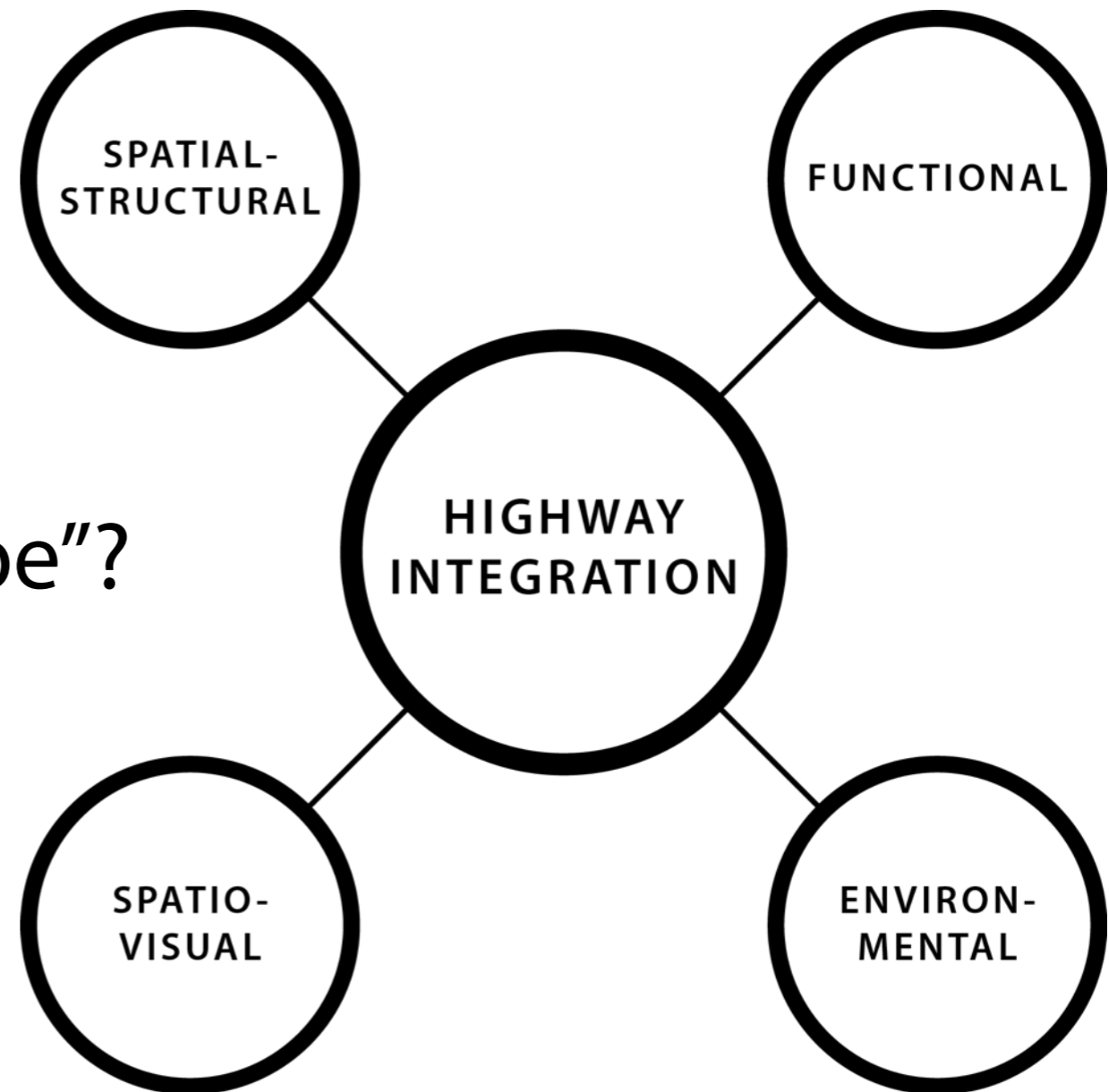
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# **METHODOLOGY FRAMEWORK**

Four Lenses toward “Hybrid”  
Theory Background  
Principles

# What actualizes the “Hybrid Highway Landscape”?

1. Spatial-Structural Aspect
2. Functional Aspect
3. Environmental Aspect
4. Spatio-Visual Aspect



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Four Lenses toward “Hybrid”  
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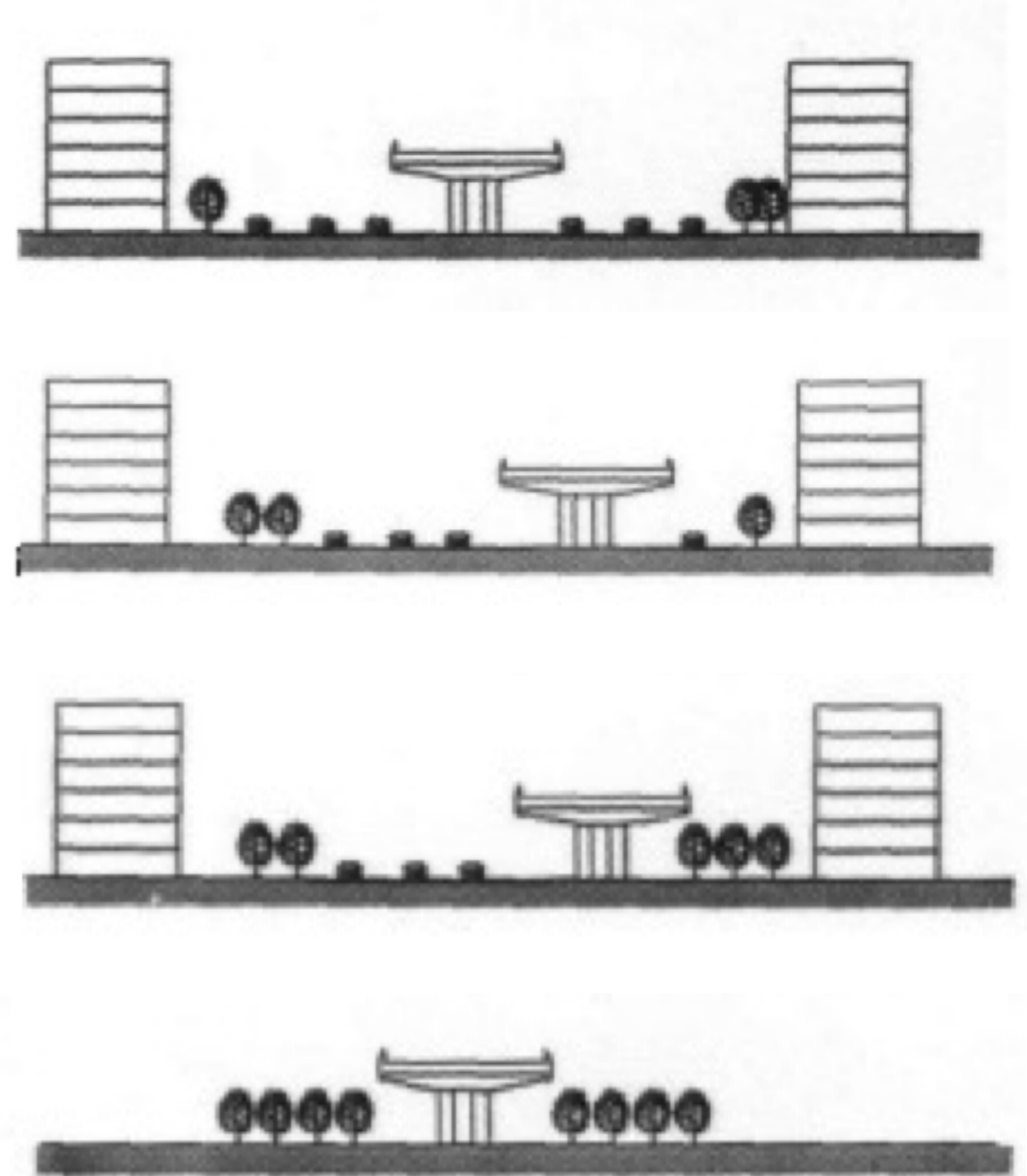
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# 1. Spatial-Structural Aspect

Spatial Relationship between Highway and Urban Environment

Space Adjacent to Highway as Urban Fragments

How to tie urban fragments together by highway integration?



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Theory Background

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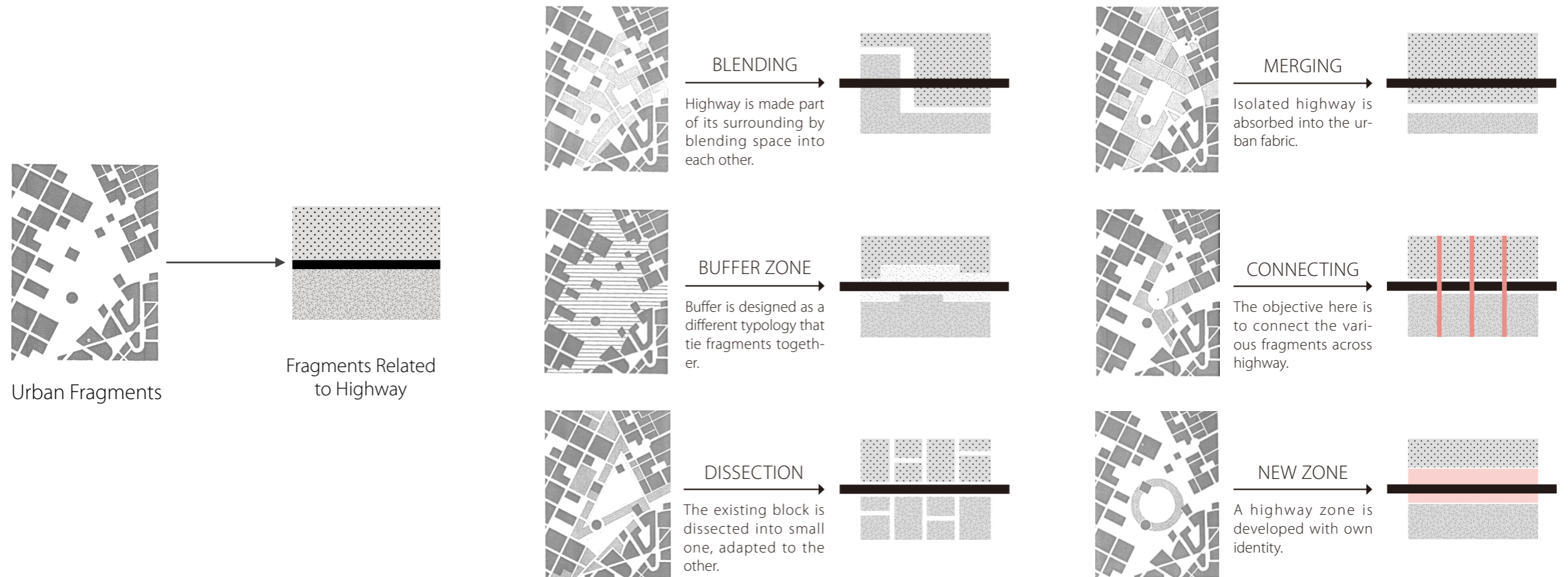
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# 1. Spatial-Structural Aspect

## Translating 'Principles towards Urban Fragmentation' into Highway Issue



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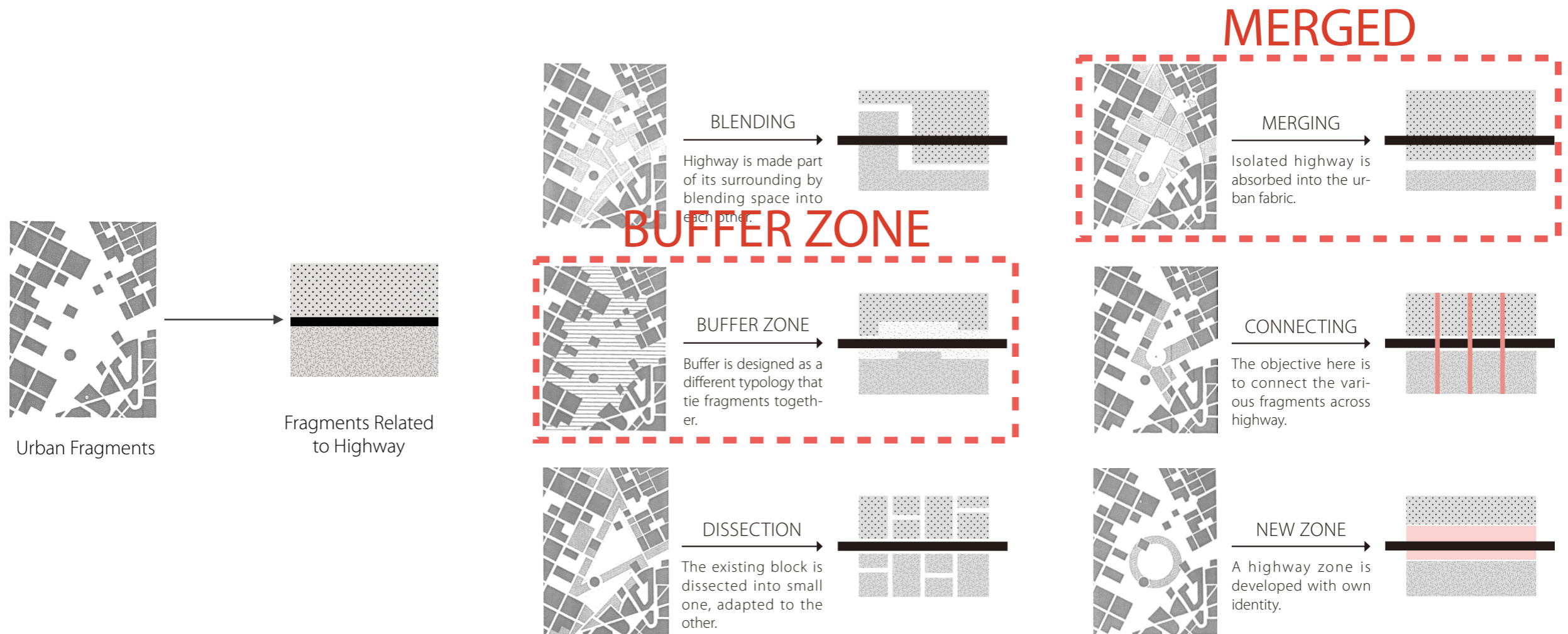
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# 1. Spatial-Structural Aspect

Translating 'Principles towards Urban Fragmentation' into Highway Issue



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# 2. Functional Aspect

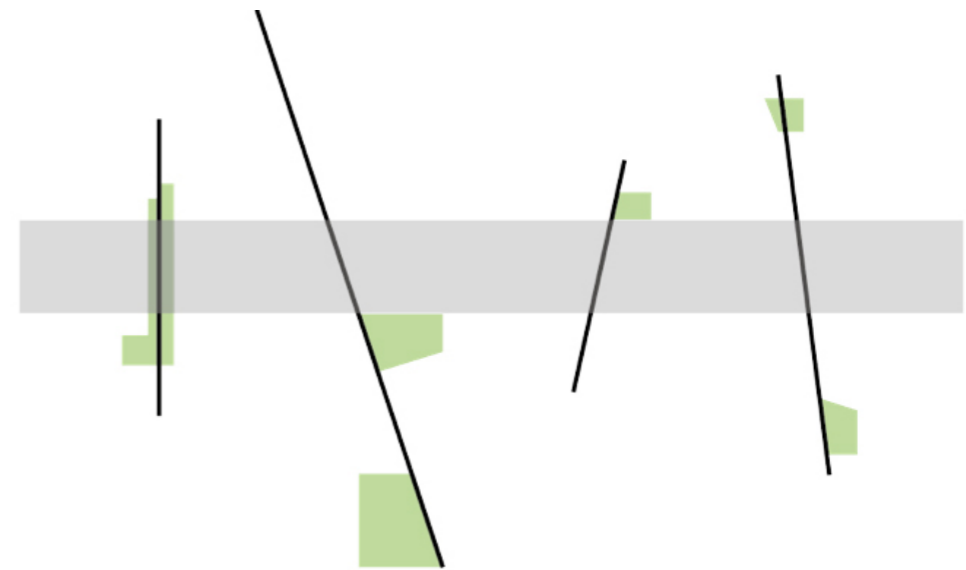
Relationship between Highway and Urban Network



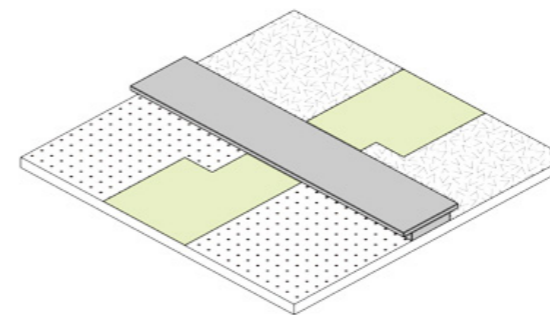
Intersection with City Road



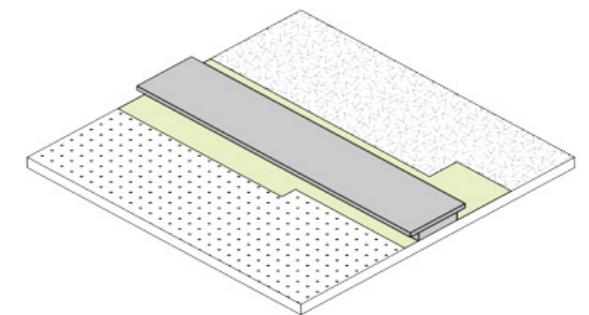
How to dissolve the urban barrier by enhancing connection?



connection across Highway



space under the highway



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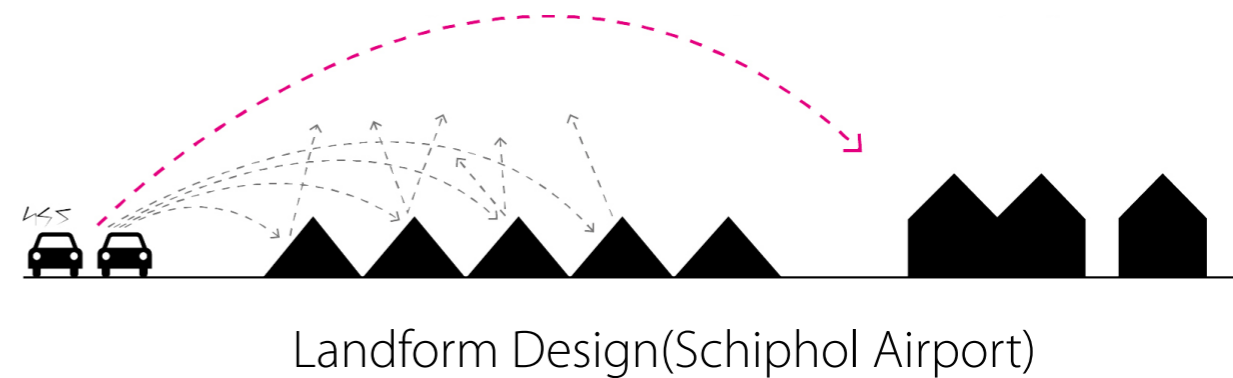
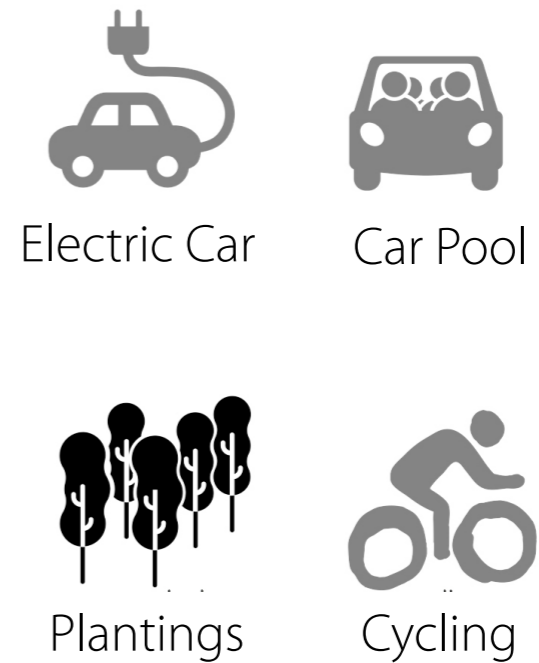
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# 3. Environmental Aspect

Environmental impacts that highway brings to the city

air and noise pollution

How to reduce the pollution by landscape architectural method?



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# 4. Spatio-Visual Aspect

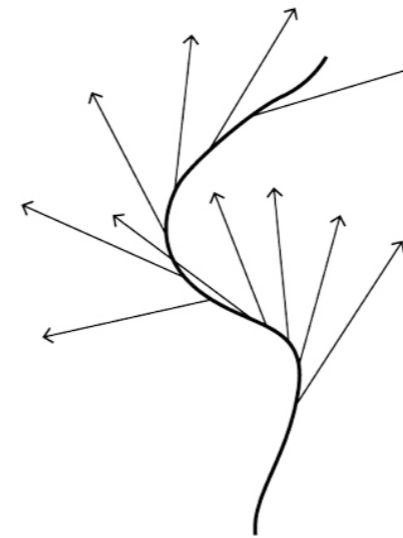
Visual quality of highway  
for its user



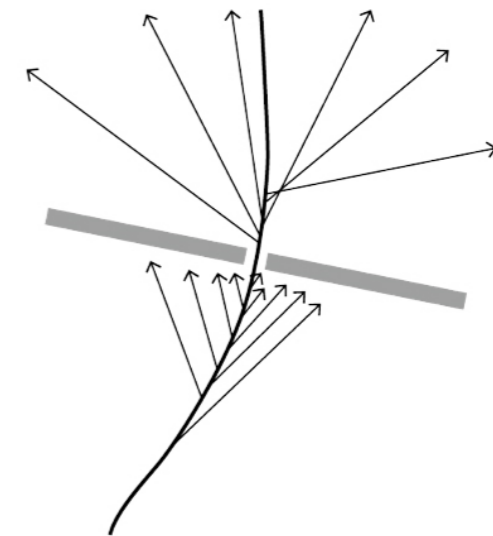
highway user as subject  
urban landscape as object



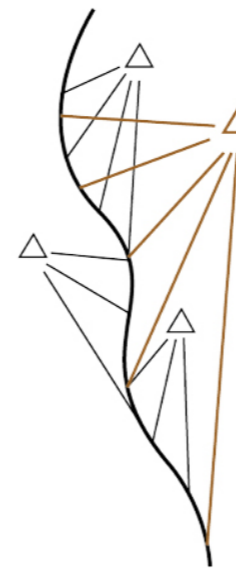
How to embrace urban image  
during highway driving?



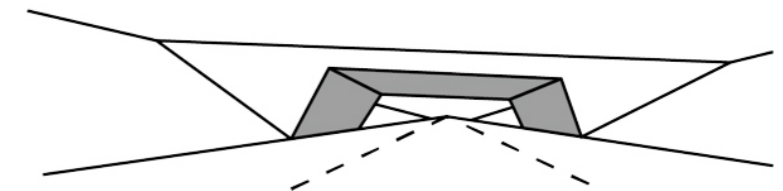
Tipping and Pointing



Important Barrier



Goal Approach



Overhead Structure

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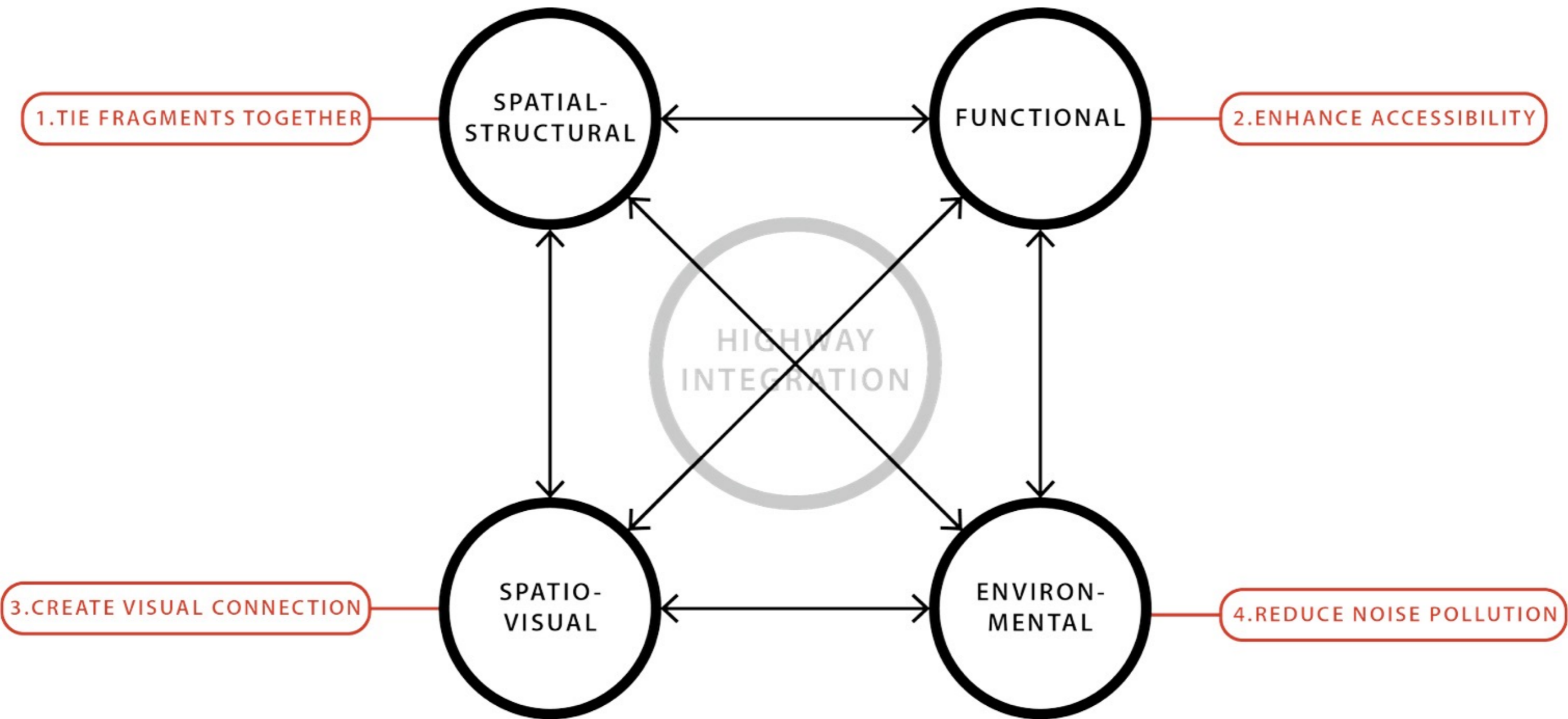
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# Balance among Lenses



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# **SITE ANALYSIS**

Spatial-Structural Aspect

Functional Aspect

Environmental Aspect

Spatio-Visual Aspect



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# Diagnose—Negative Impression



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Diagnose  
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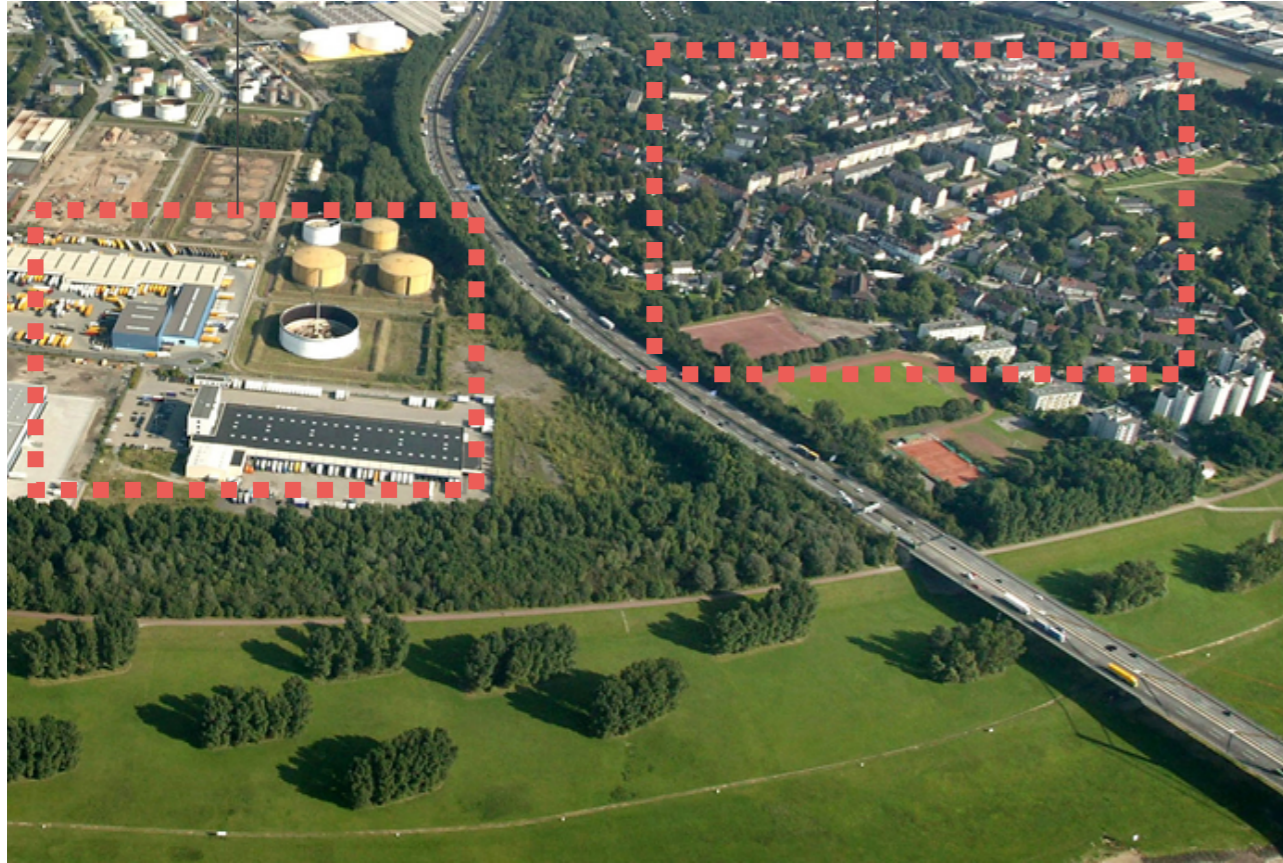
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# 1. Spatial-Structural Aspect

Big scale,  
Enclosed Block

Small scale,  
well connected Block

Small scale,  
Isolated Neighborhood



Urban Fragments Related to Highway

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Spatial-Structural Aspect

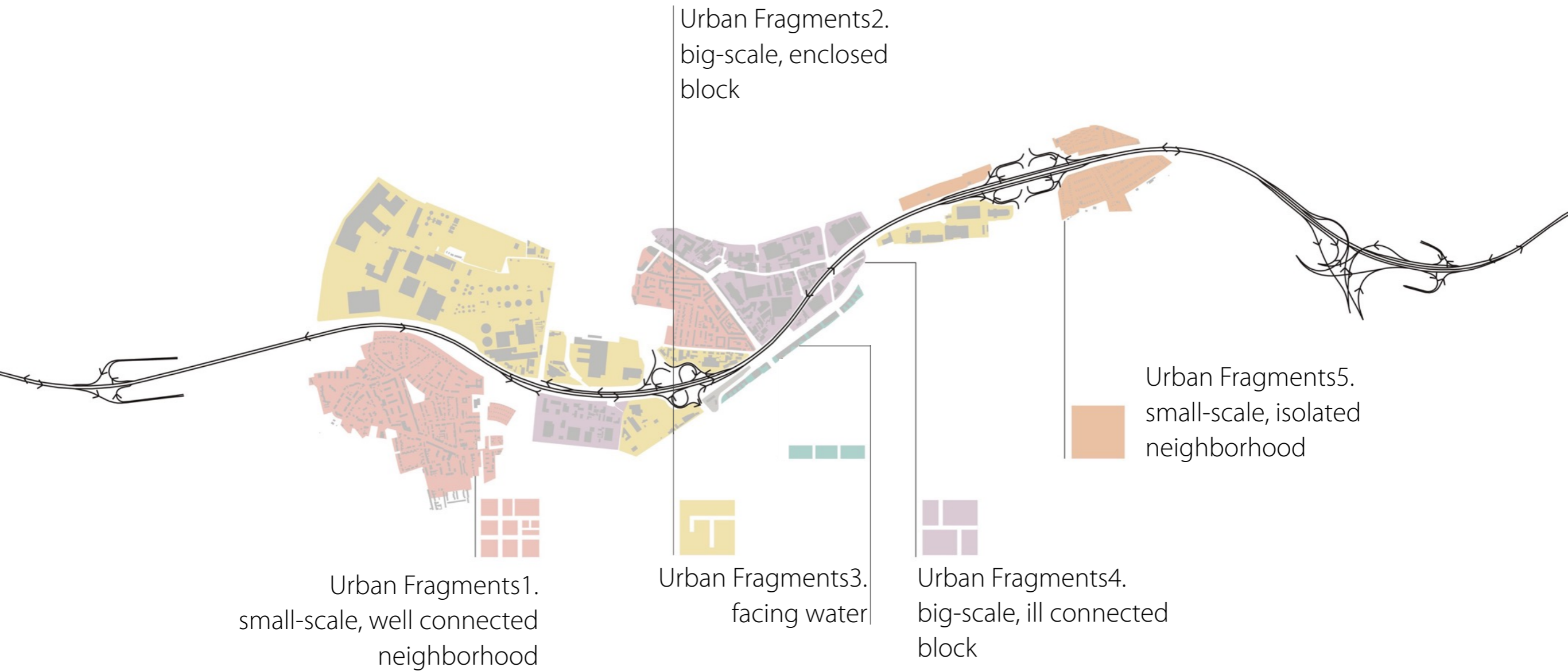
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# 1. Spatial-Structural Aspect



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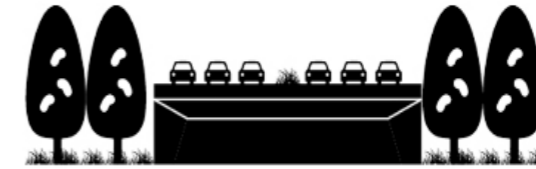
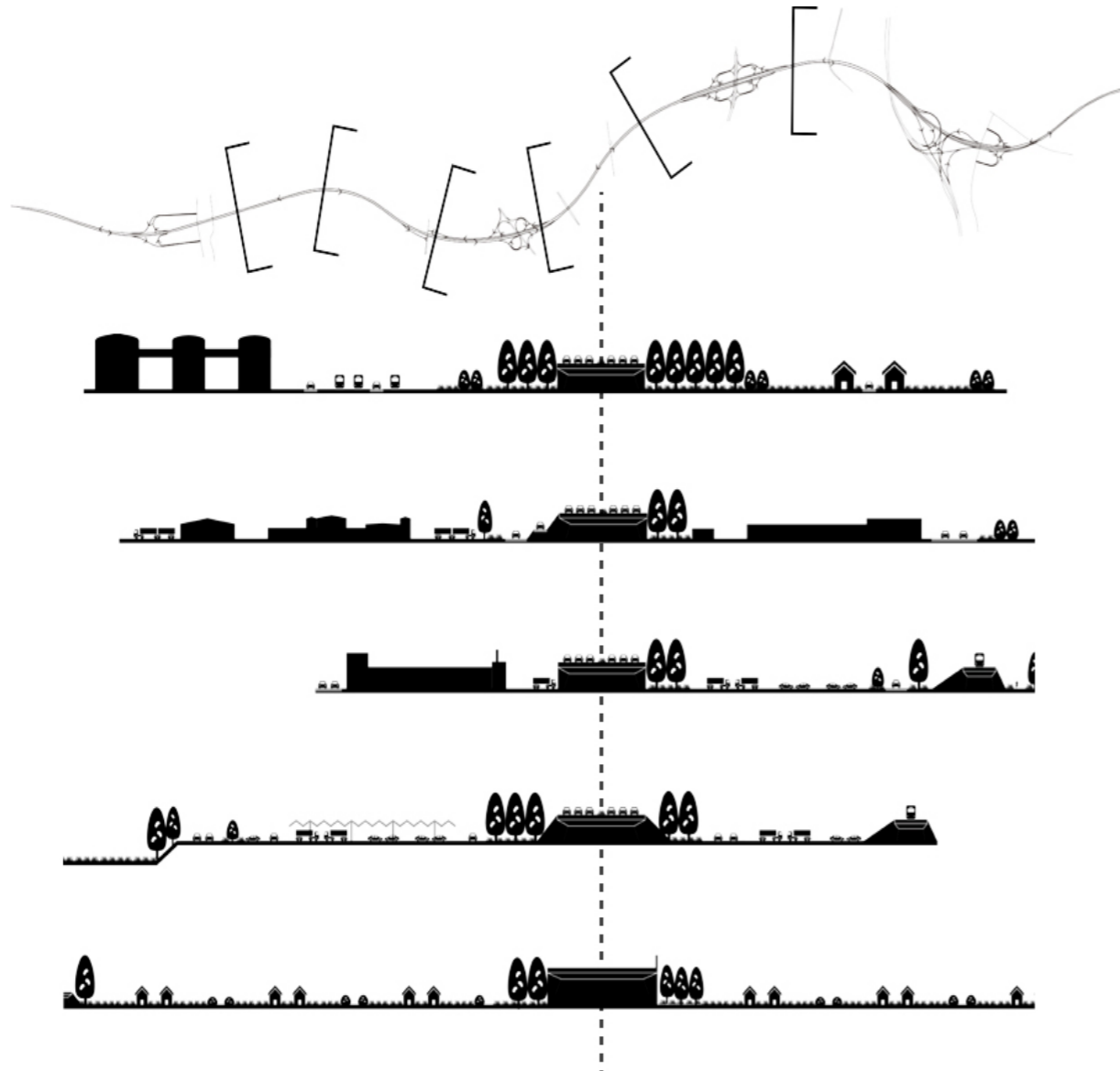
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# 1. Spatial-Structural Aspect—Interface



1. Embankment with tree barrier



2. Opening under space



3. Dike with slope



4. Dike with roads

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# 2. Functional Aspect



Limited and Unpleasant Crossing

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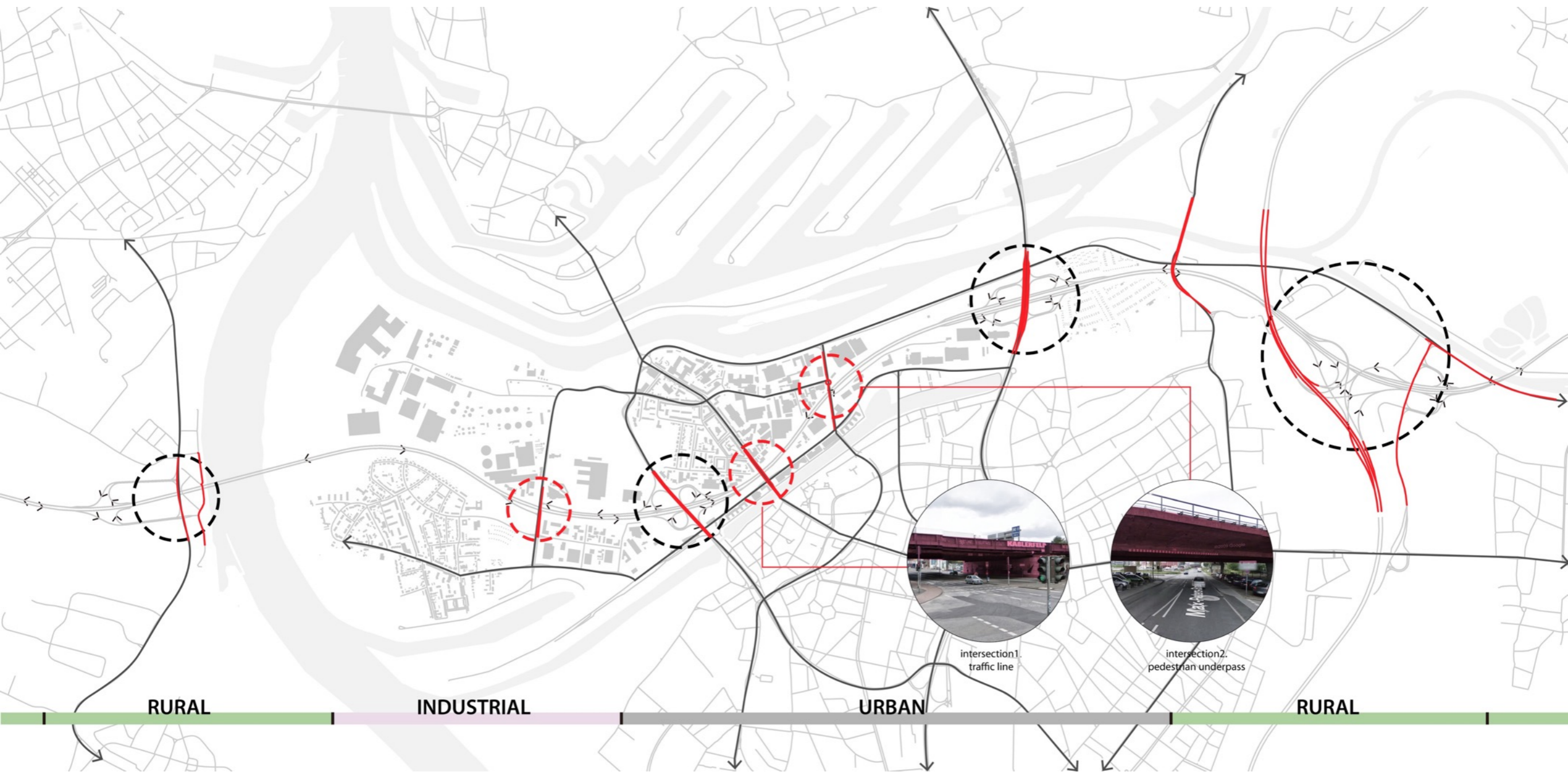
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# 2. Functional Aspect



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# 3. Environmental Aspect



Wall as hard barrier



Trees as soft barrier

## Highway Pollution Barrier

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# 3. Environmental Aspect



noise reduction wall



planting



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# 4. Spatio-Visual Aspect



River view over Rhine



Continuous tree belt

## Visual Enclosure

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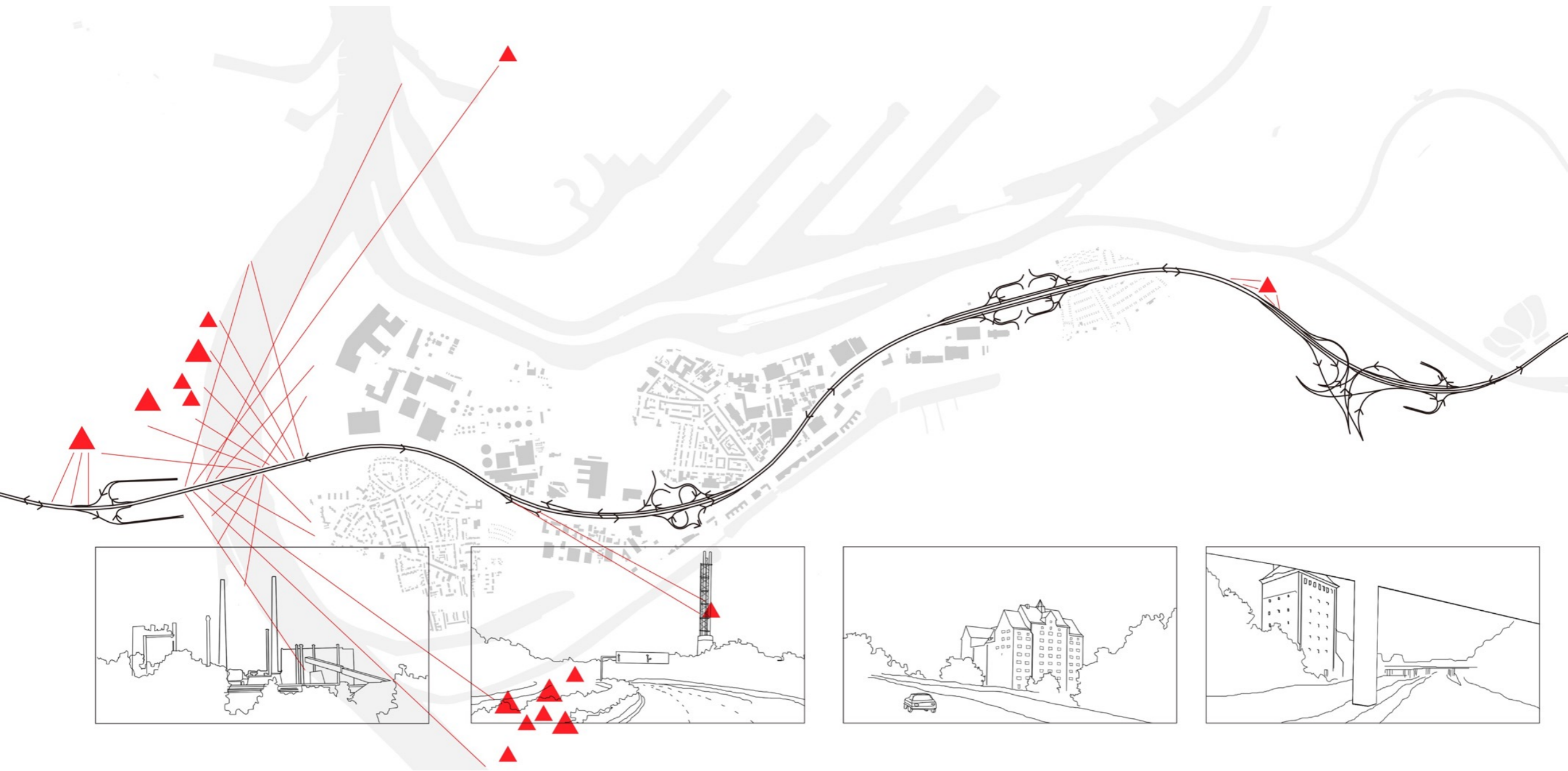
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# 4. Spatio-Visual Aspect



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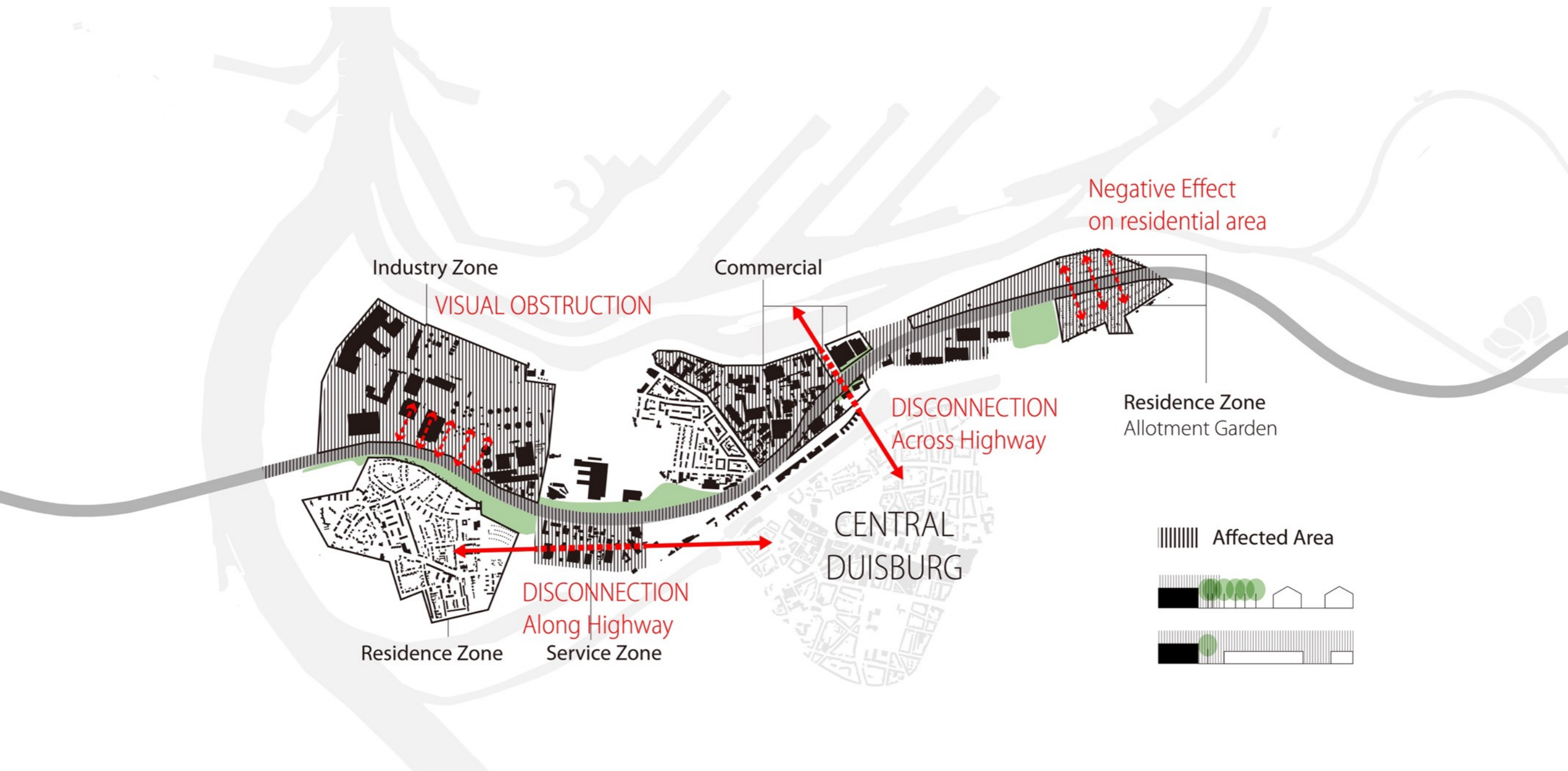
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# Challenges & Potentials



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# **STRATEGY**

Spatial-Structural Aspect

Functional Aspect

Environmental Aspect

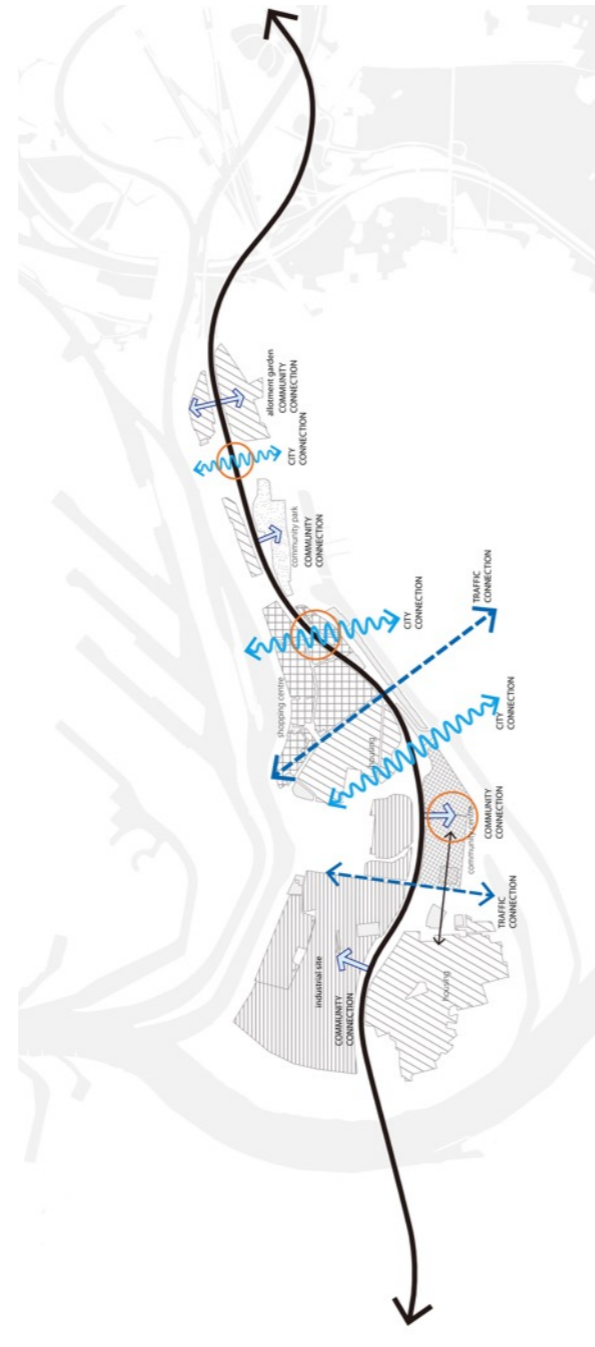
Spatio-Visual Aspect

1. spatial-structural  
Regenerate the space  
along A40

2. functional  
Rebuild connections  
across A40

3. environmental  
Integrate the pollution  
barrier with landscape

4. spatio-visual  
Enrich the visual  
experience for driver



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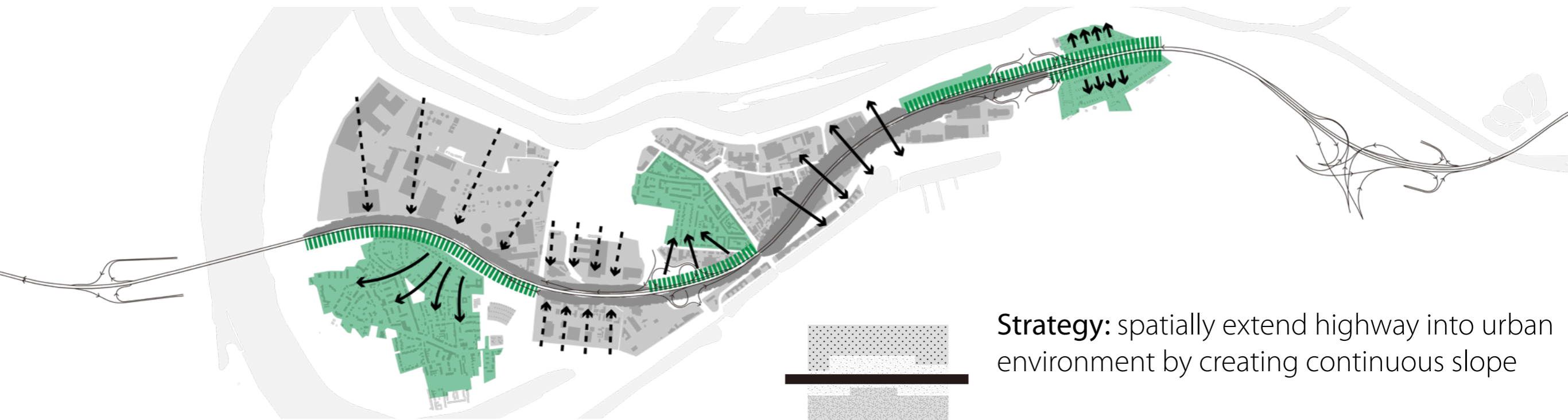
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Four Strategies  
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# 1. Regenerate the space- Highway 'Dike'



**Strategy:** spatially extend highway into urban environment by creating continuous slope

**Application:** small-scale and private space as buffer or boundary



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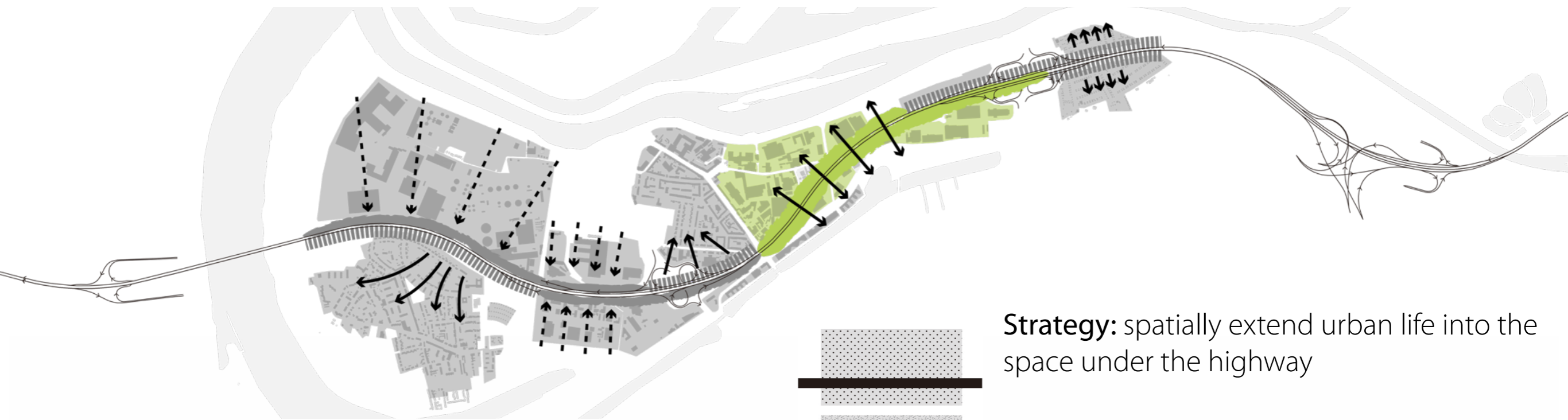
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# 1. Regenerate the space—Under Highway



**Strategy:** spatially extend urban life into the space under the highway

**Application:** public space with social involvement



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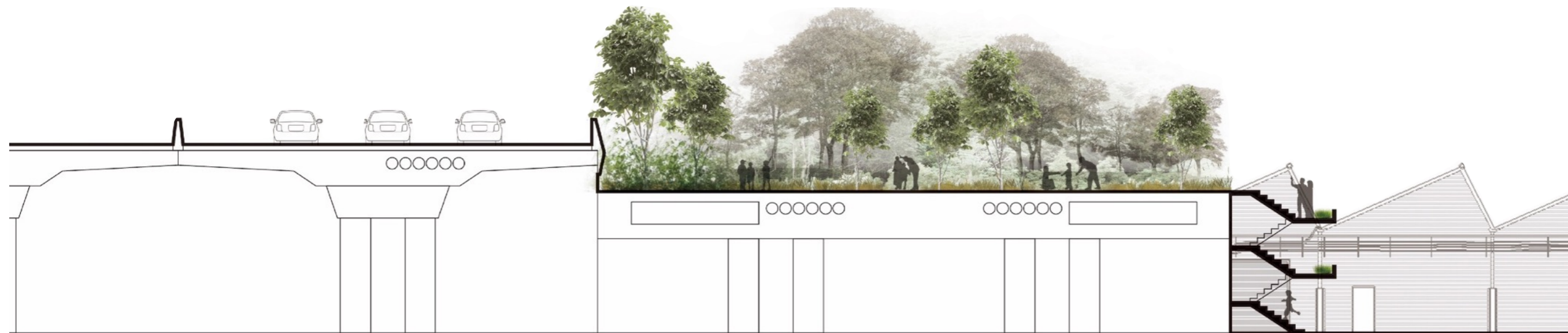
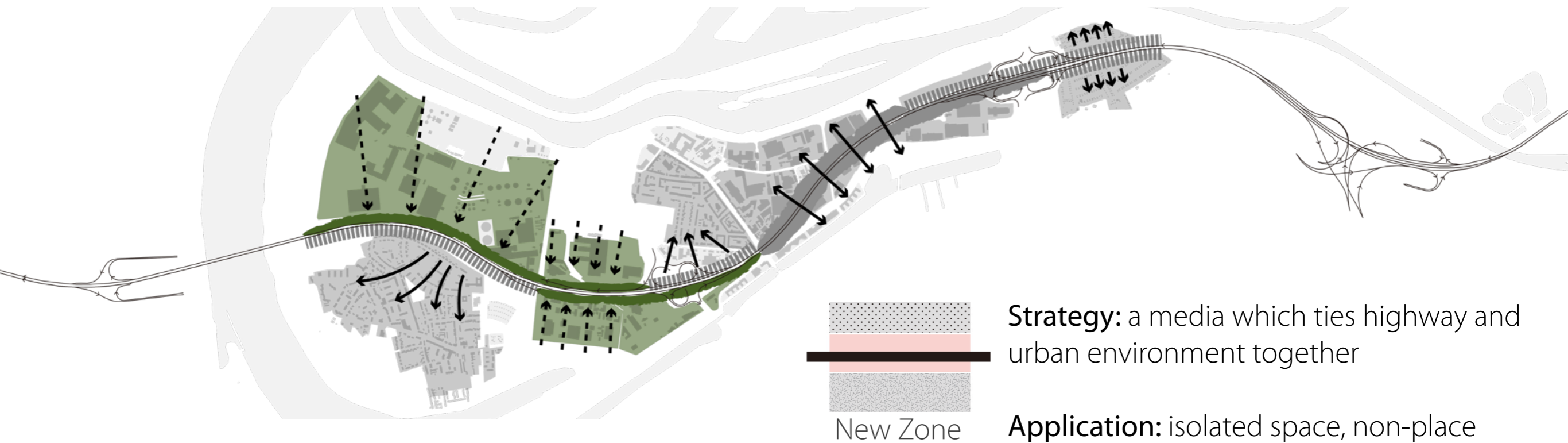
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# 1. Regenerate the space—Elevated Park



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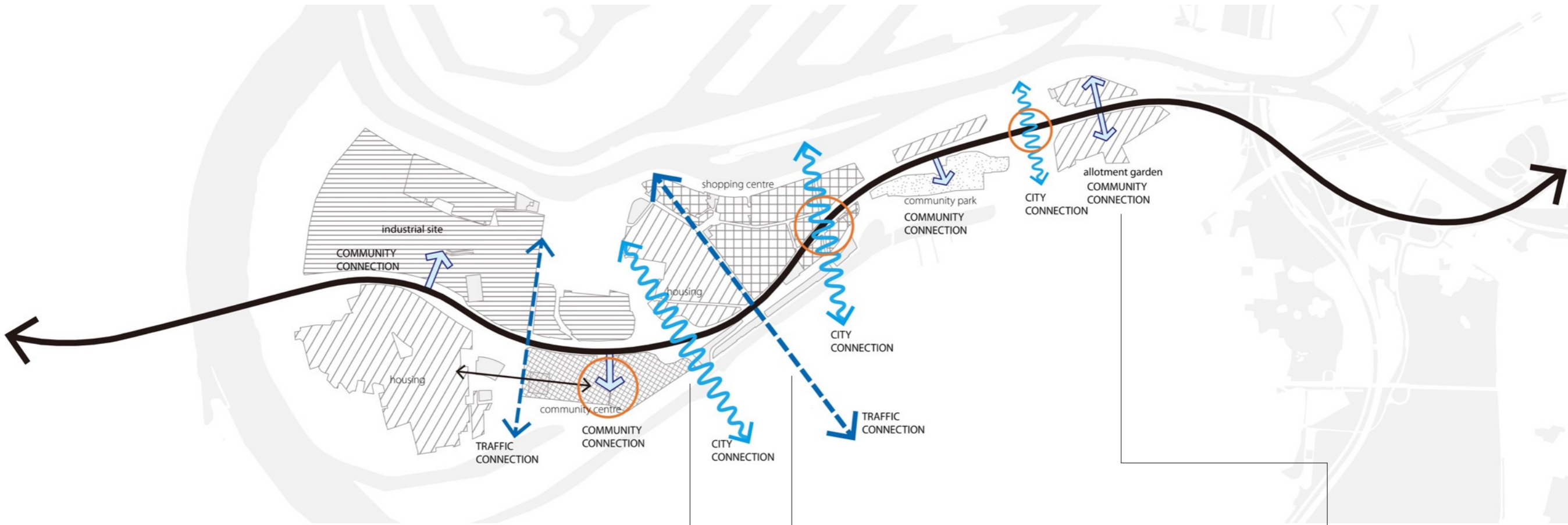
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# 2. Rebuild Connection Across A40



City Connection



Traffic Connection



Community Connection

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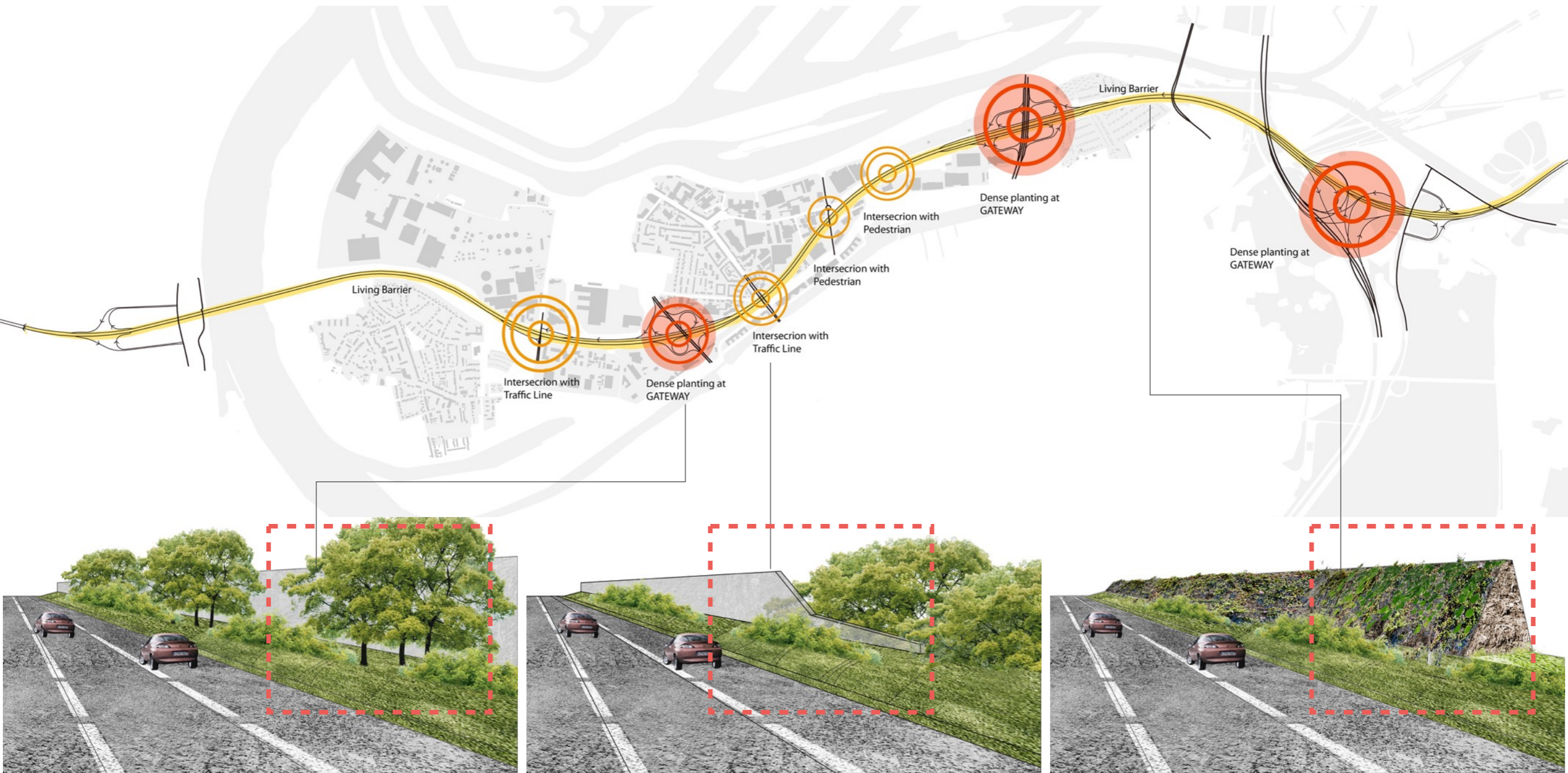
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# 3. Integrate Pollution Barrier with Landscape



Soft Barrier

Integration of landscape and barrier

Living Barrier

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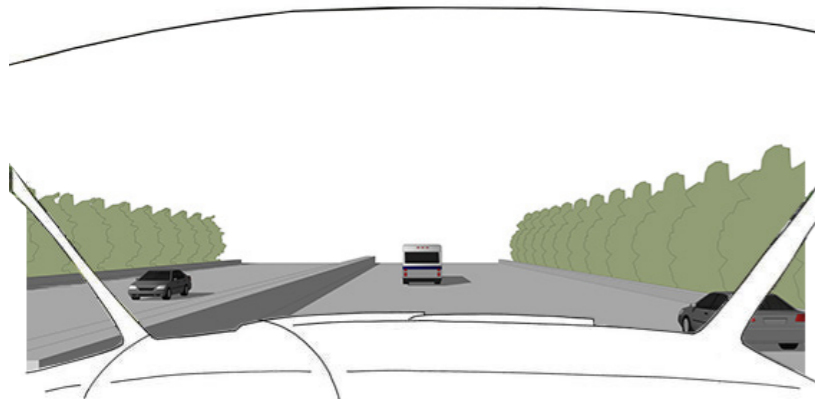
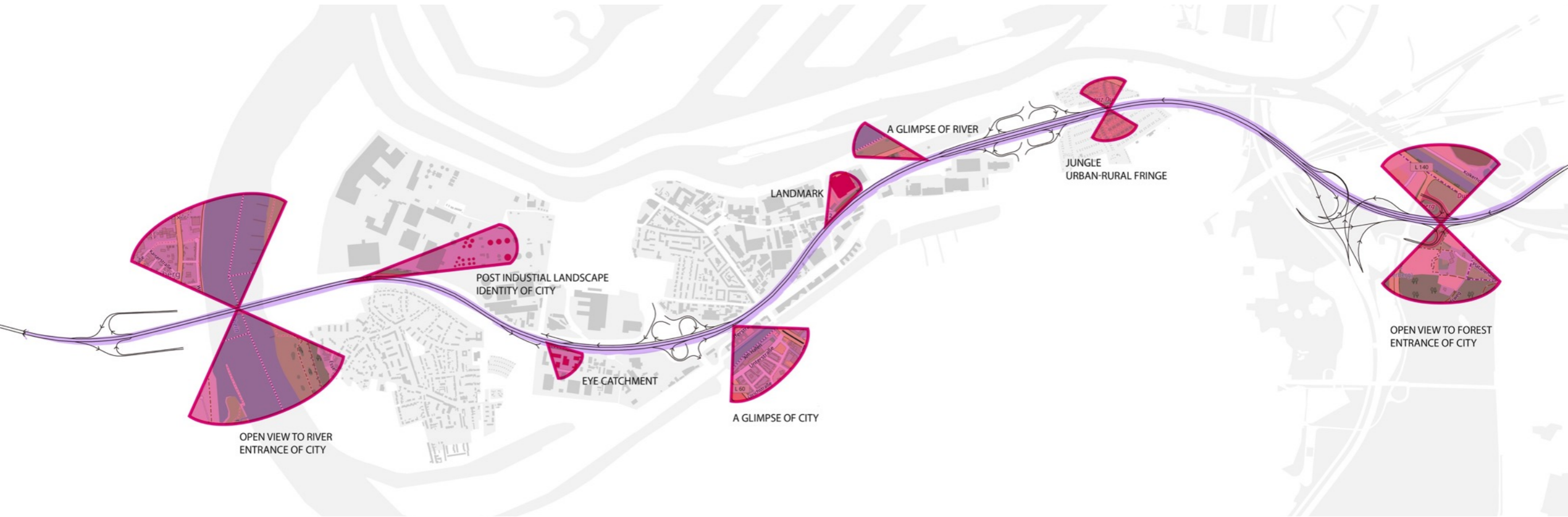
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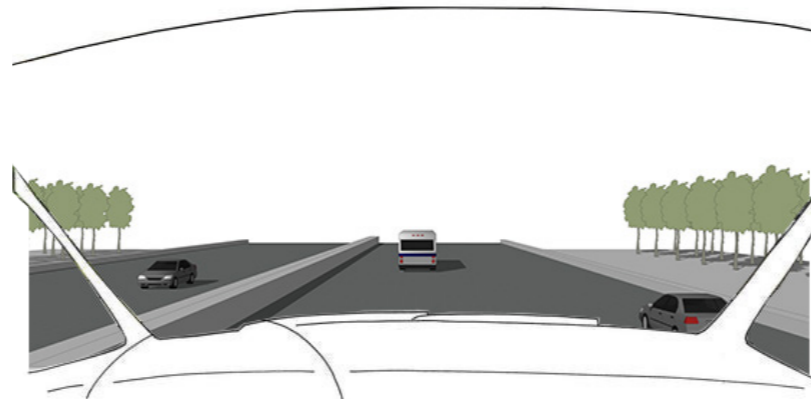
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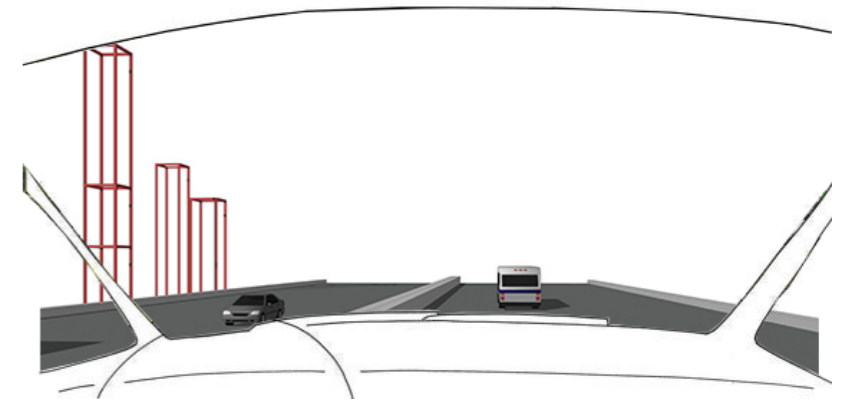
# 4. Enrich Visual Experience during Driving



Tree as screen



Broad view



Eye-catchment

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# Combination of Four Strategies

4

Enrich the visual experience for driver

3

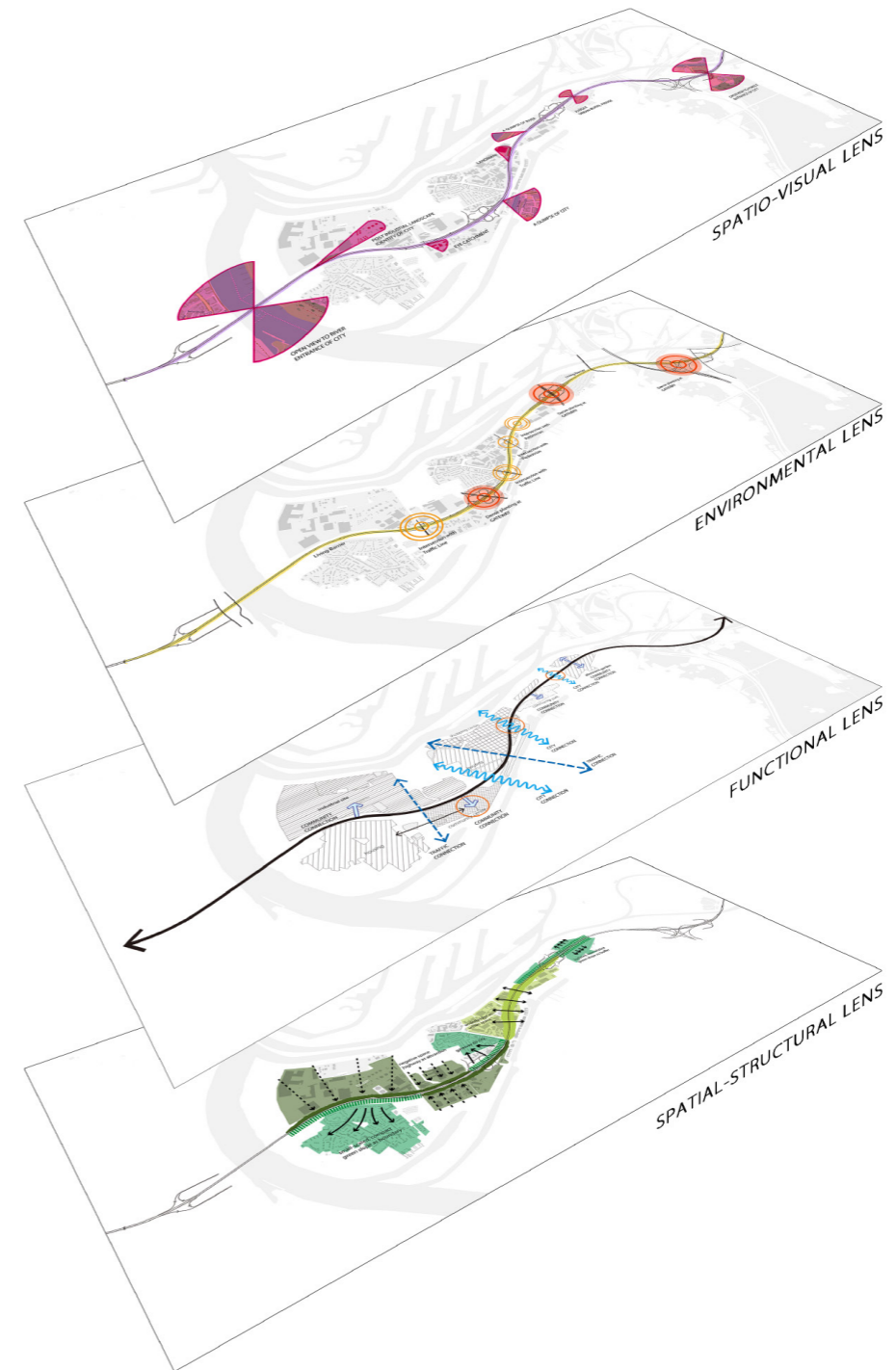
Integrate the pollution barrier with landscape

2

Rebuild connections across A40

1

Regenerate the space along A40



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# Masterplan



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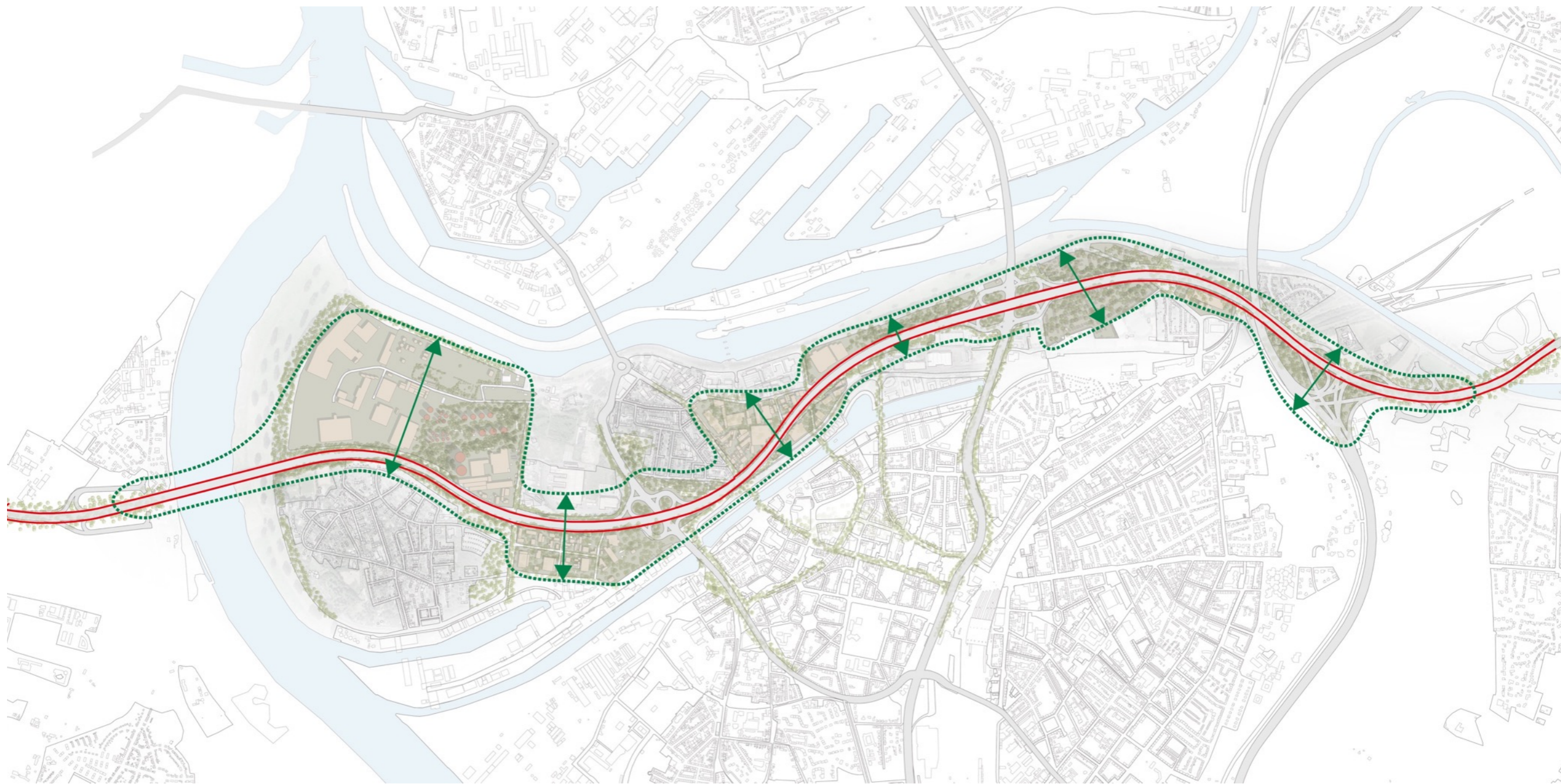
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# Isolated Line to An Integral Zone



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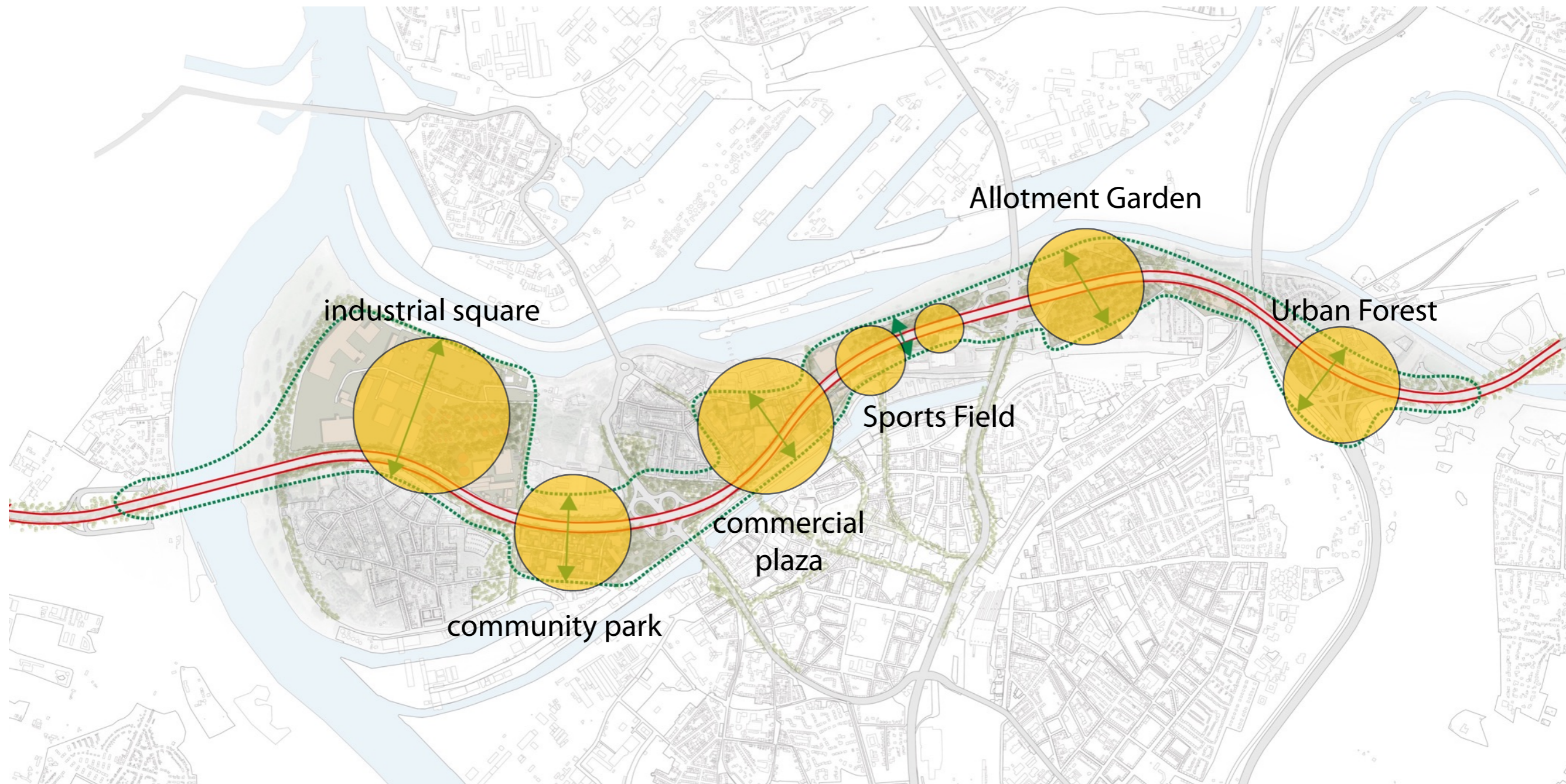
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# Isolated Line to An Integral Zone



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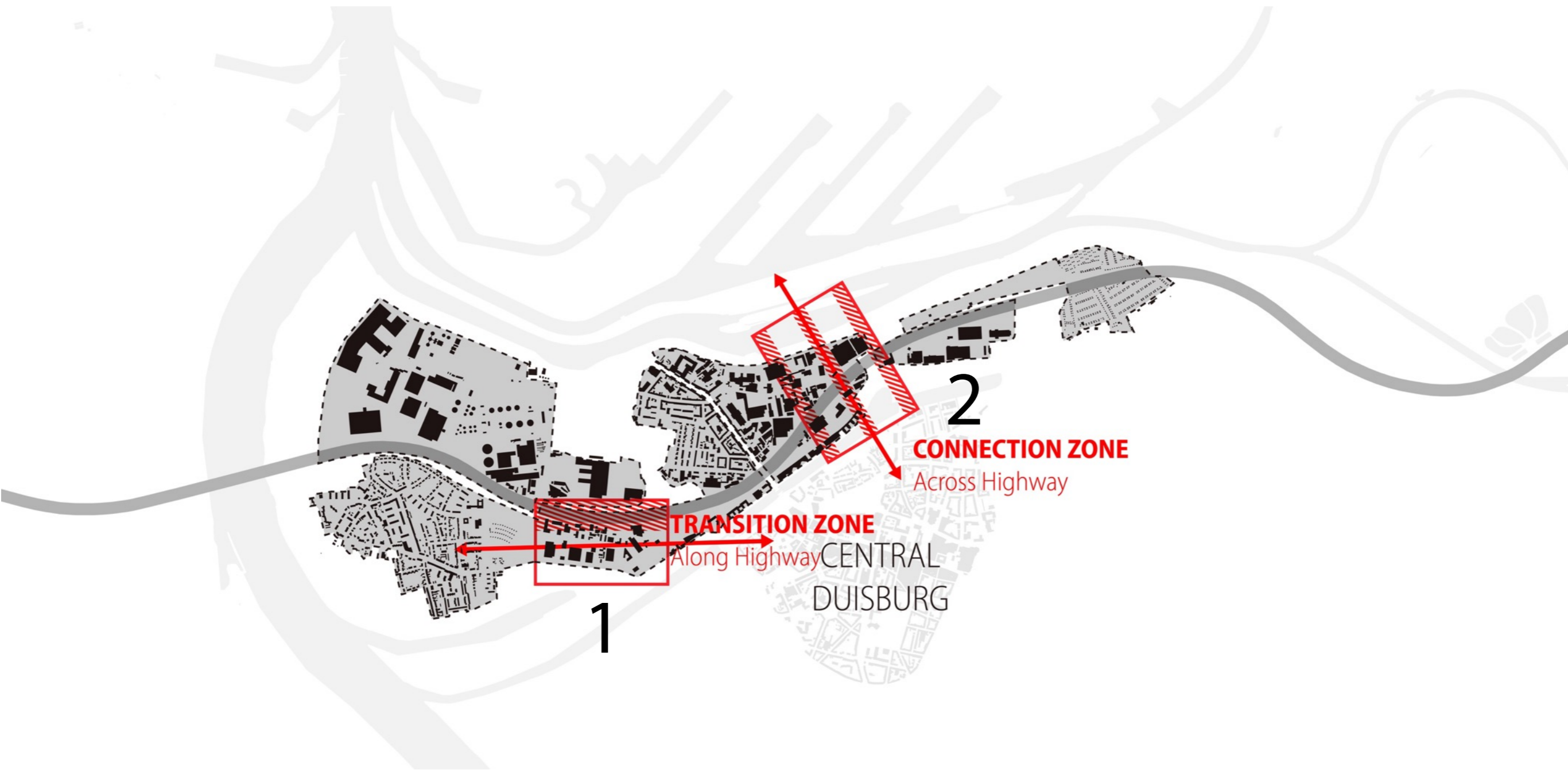
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Transition Zone Along A40

Connection Zone Across A40



# Two Experimental Sites



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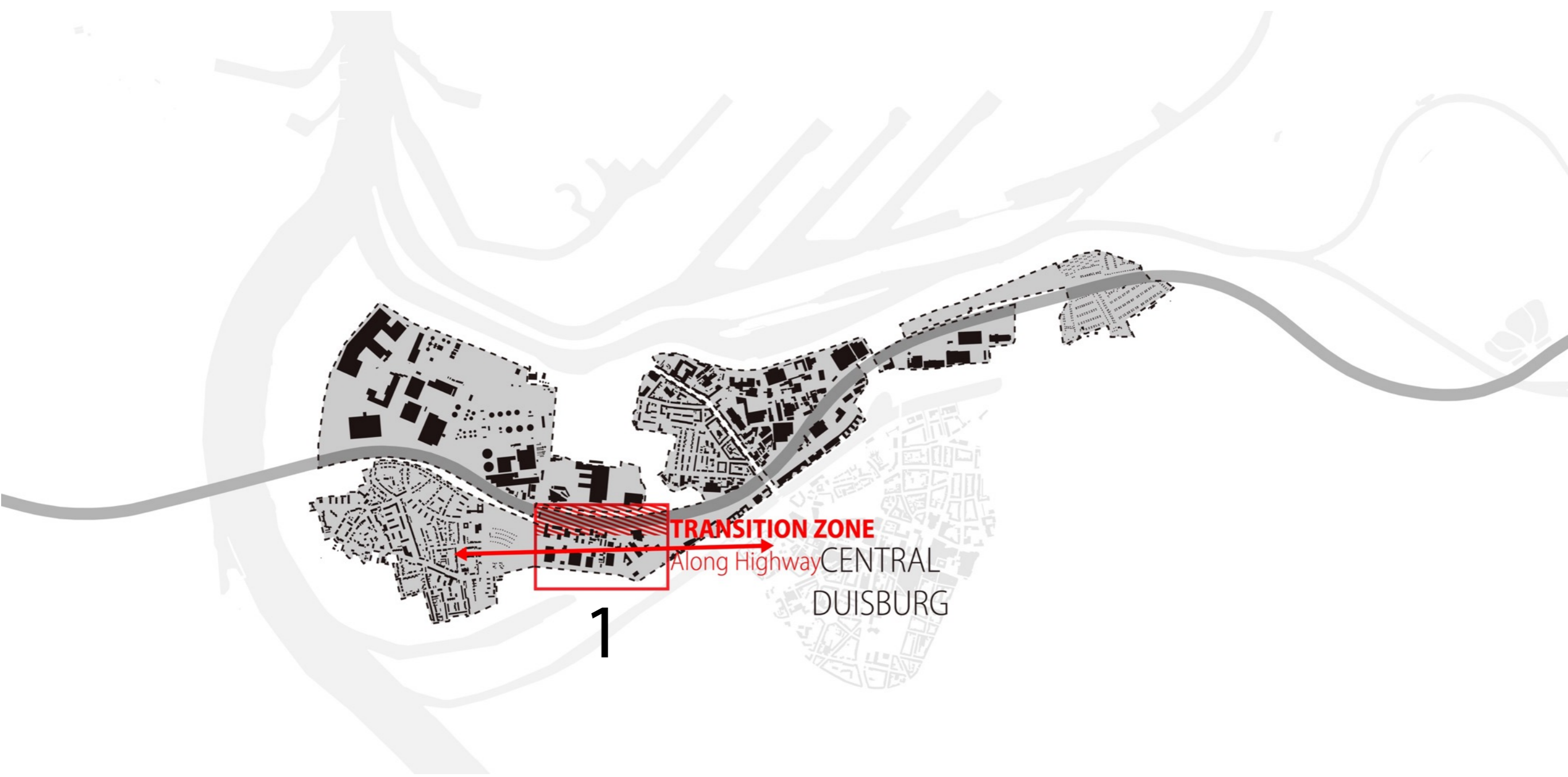
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# NON-PLACE

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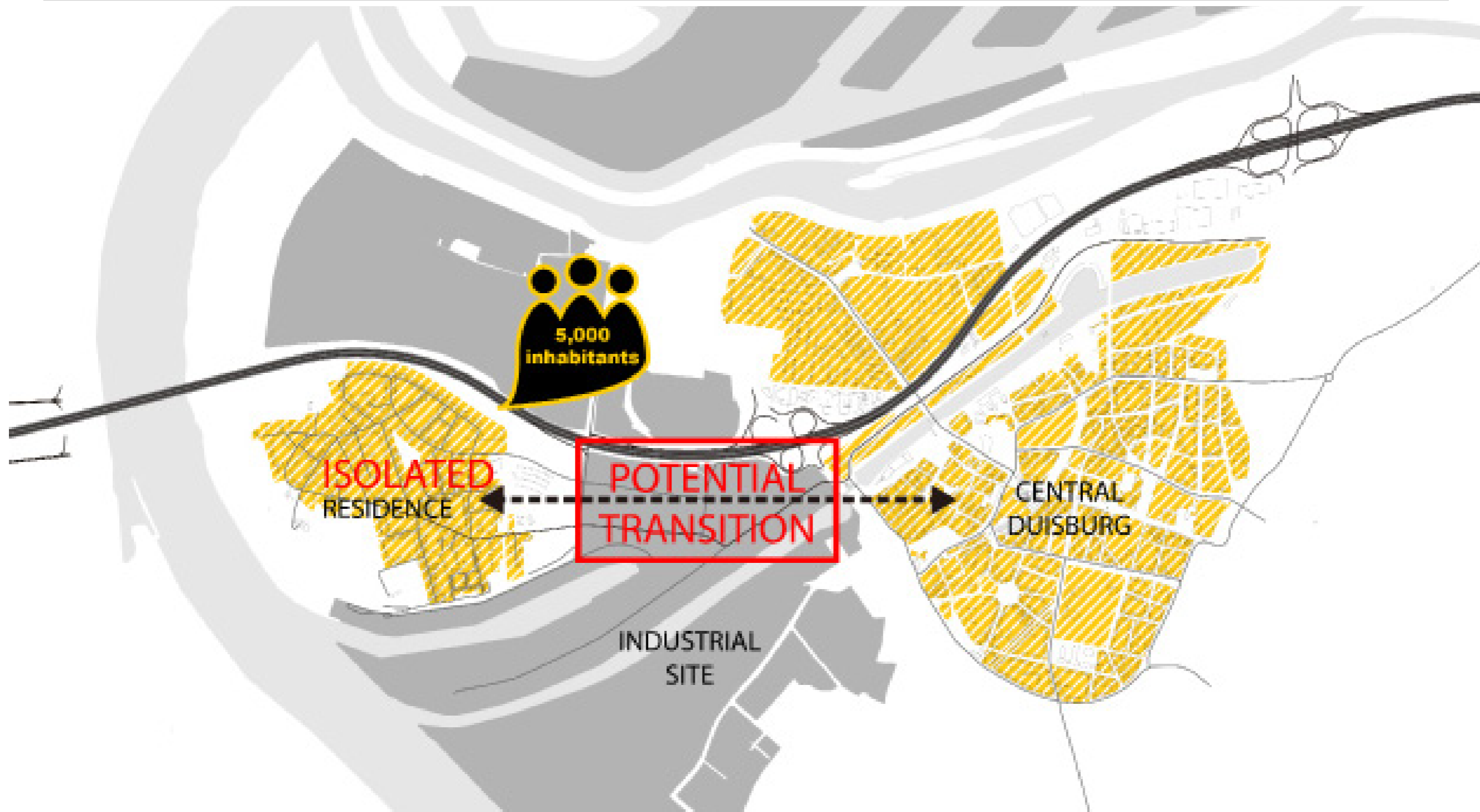
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# Site Analysis



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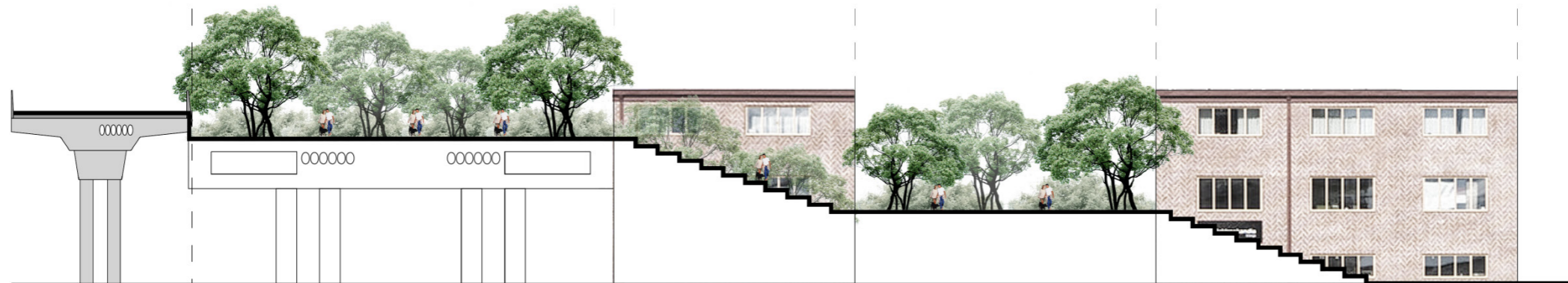
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# Design Attempts

Attempt1. open the space for city road



Attempt2. elevated park accessible for city



Attempt3. slope as boundary



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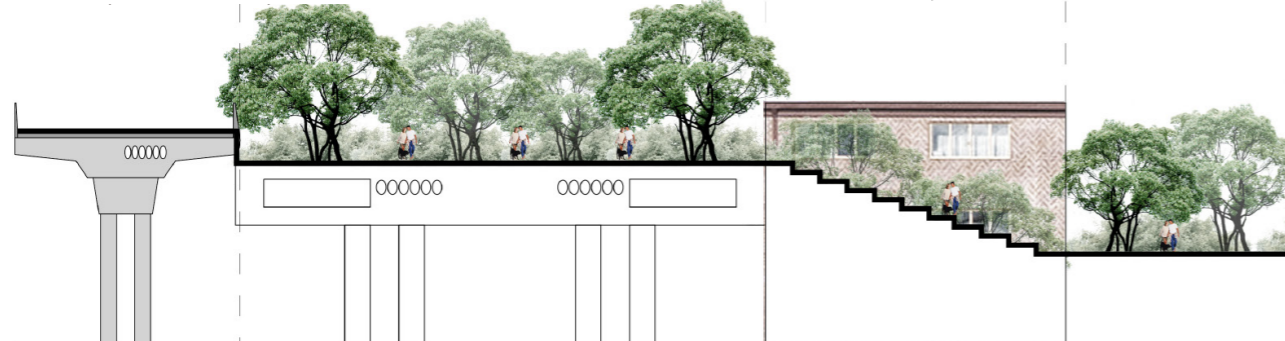
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# Design Attempts—Discussion

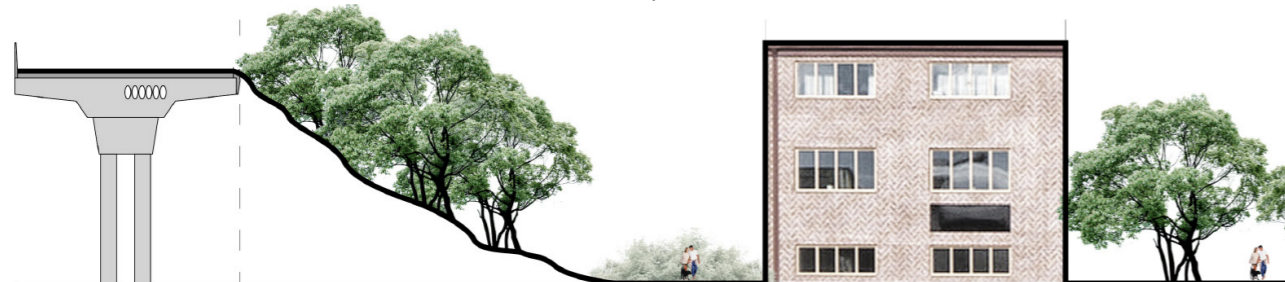
Attempt1. open the space for city road



Attempt2. elevated park accessible for city



Attempt3. slope as boundary



Spatial Quality	Accessibility	Space Utilization	Pollution Reducing
—	+ —	+	+
+	+	+	+ —
+	+ —	—	+ —

**BEST!**

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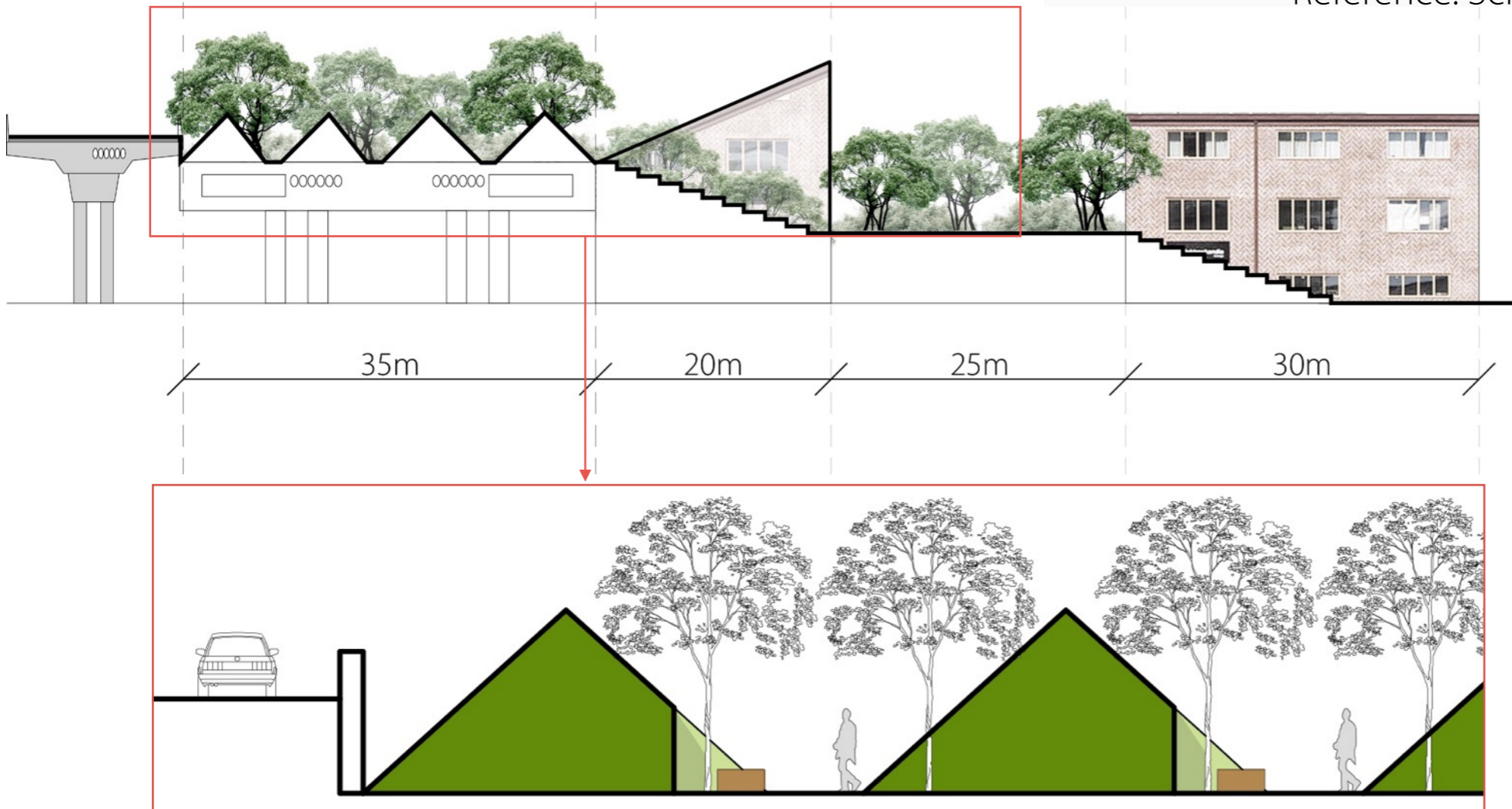
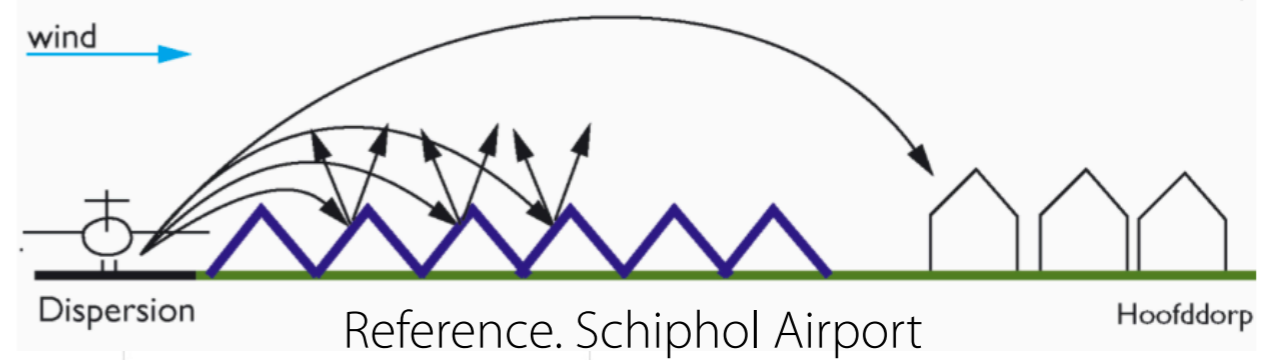
Transition Zone Along A40

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# Design Attempts

## RIBBED, ELEVATED PARK



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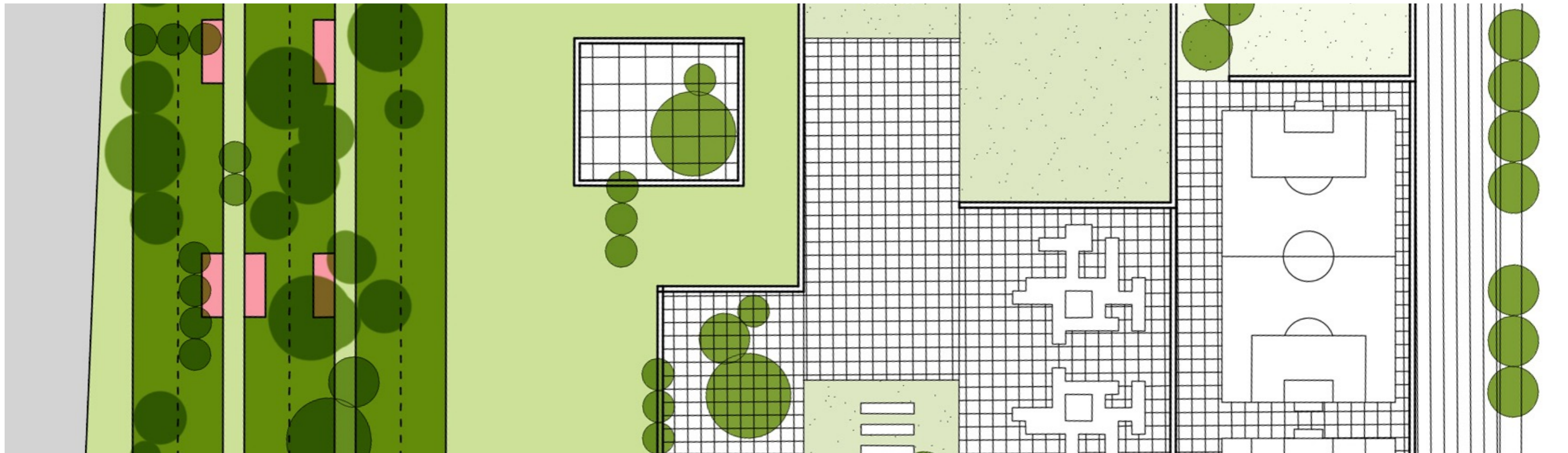
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# Design Attempts to Plan



ribbed, elevated park

community centre

housing

garden

TRANSITION ZONE: Public → Private

Mix-used → Living

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# Plan

TRANSITION ZONE: Public → Private

Mix-used → Living



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# Elevated, Ribbed Park



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# Highway Perspective



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# Continuous Terrace



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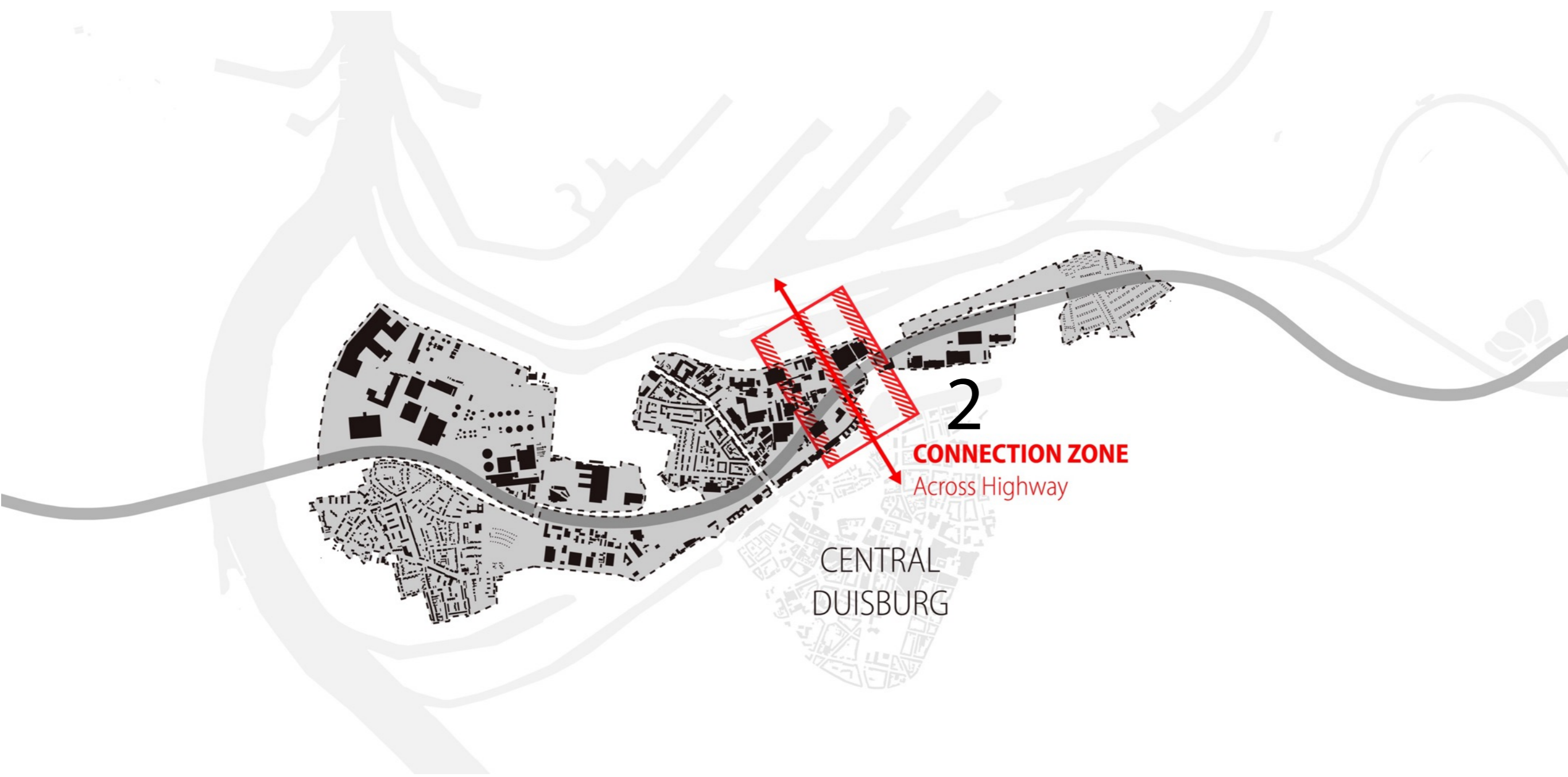
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# UNPLEASANT CROSSING

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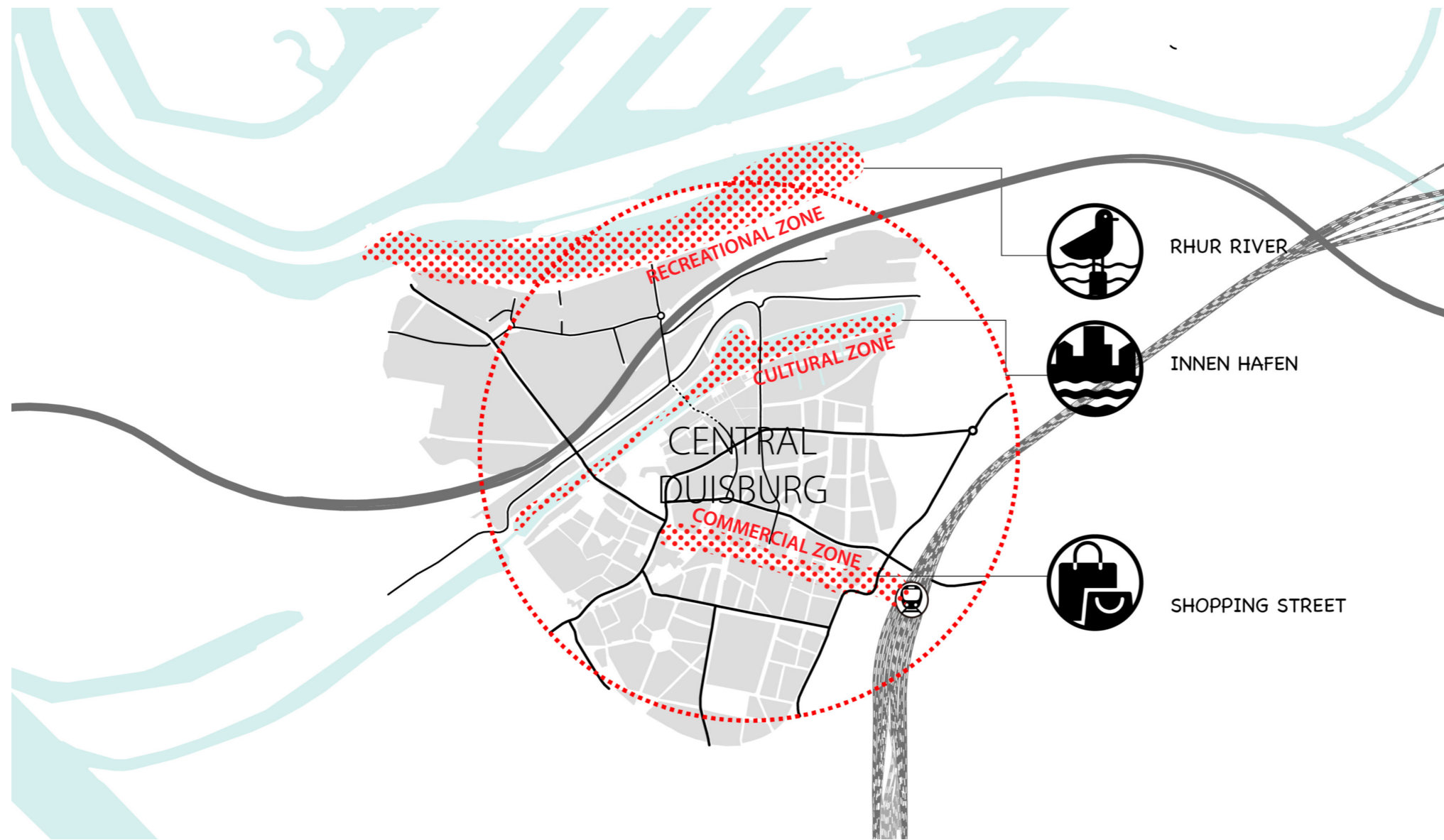
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# Site Analysis—three parallel zone with activity



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# Green Network



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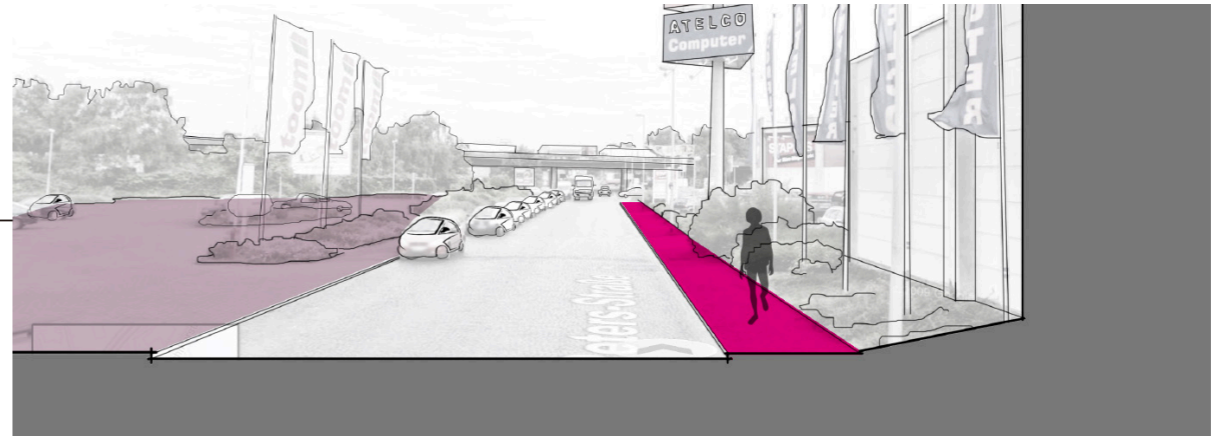
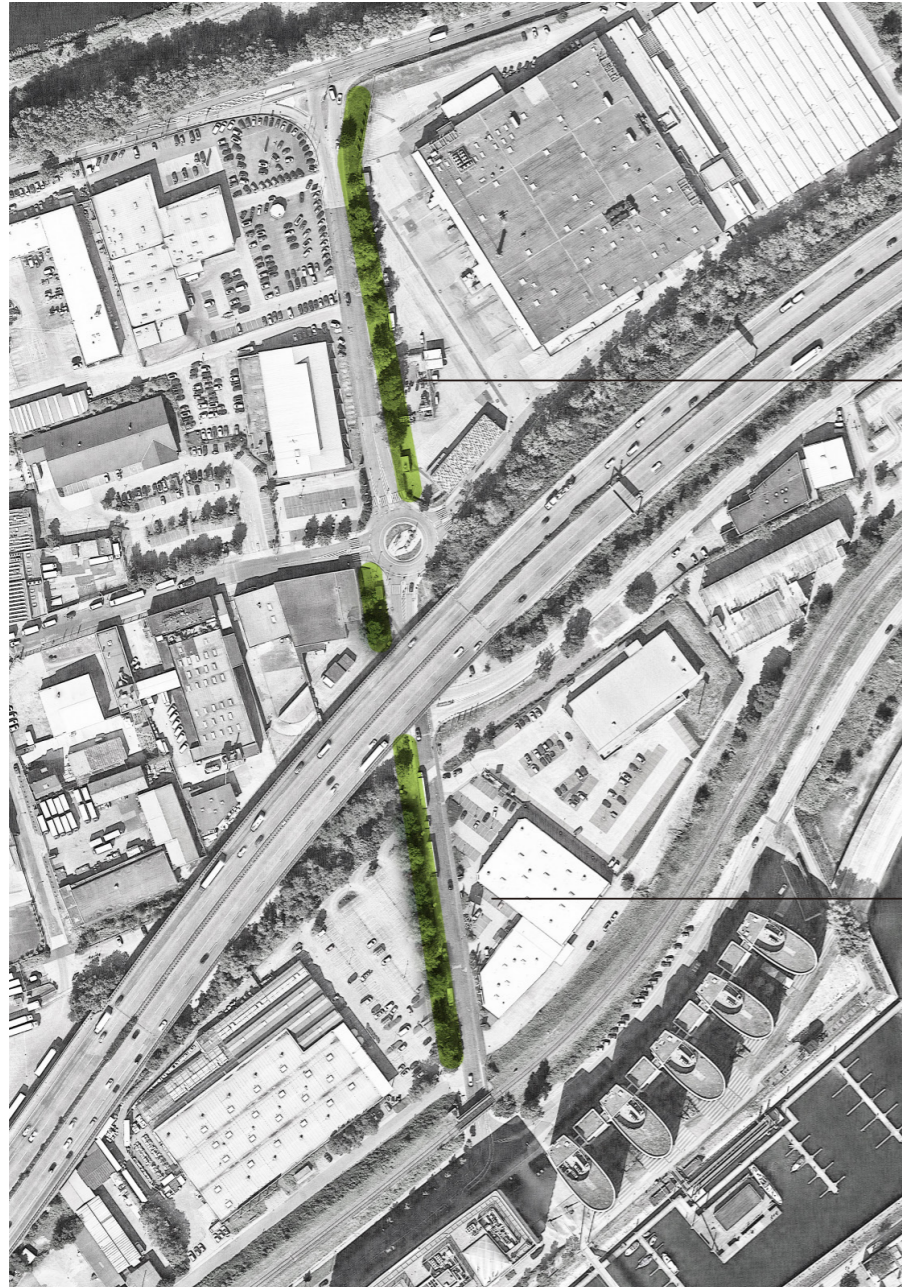
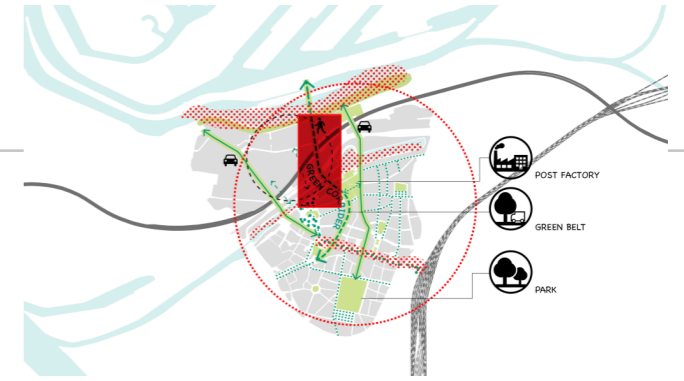
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# Site Analysis—pedestrian



Pedestrian Right



Pedestrian Left

DISCONTINUOUS

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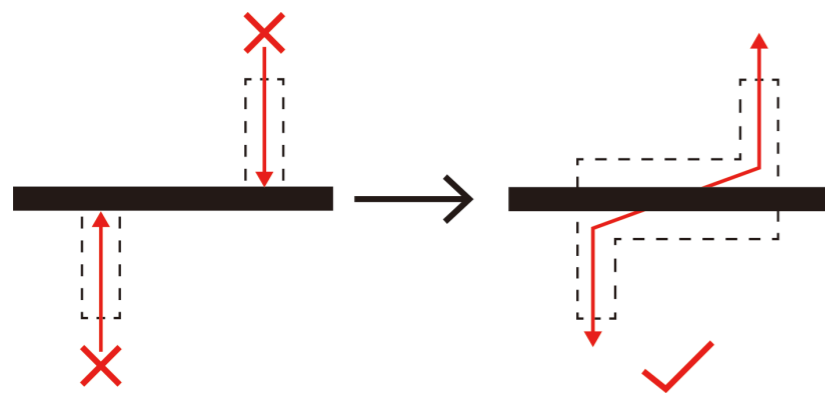
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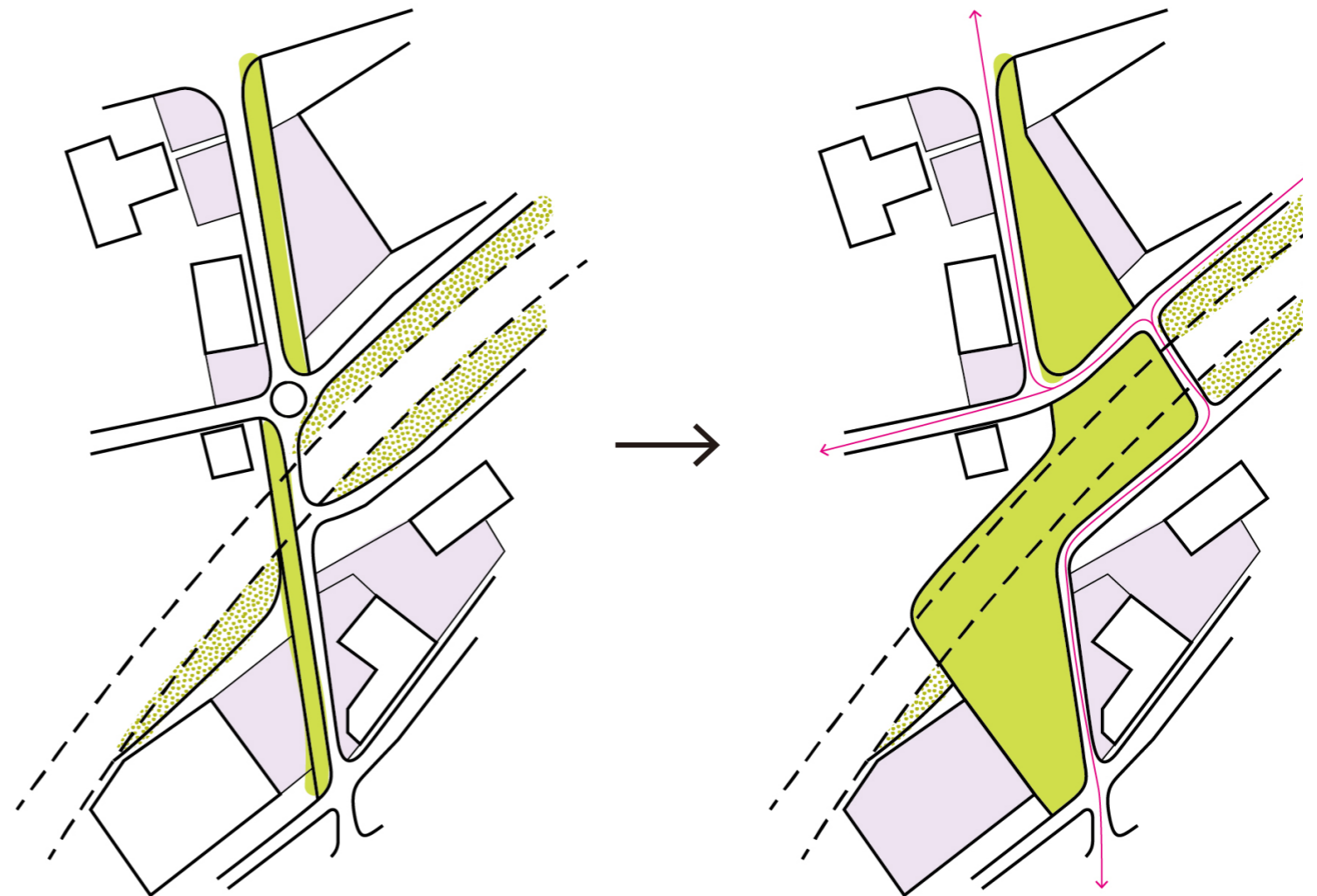
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# Design Attempts



A connection zone is created due to urban space of both sides of highway. By improving spatial quality under highway, the continuity is enhanced.



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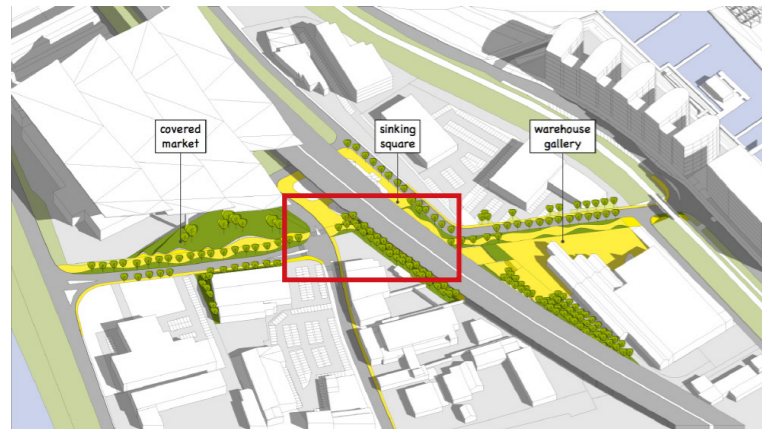
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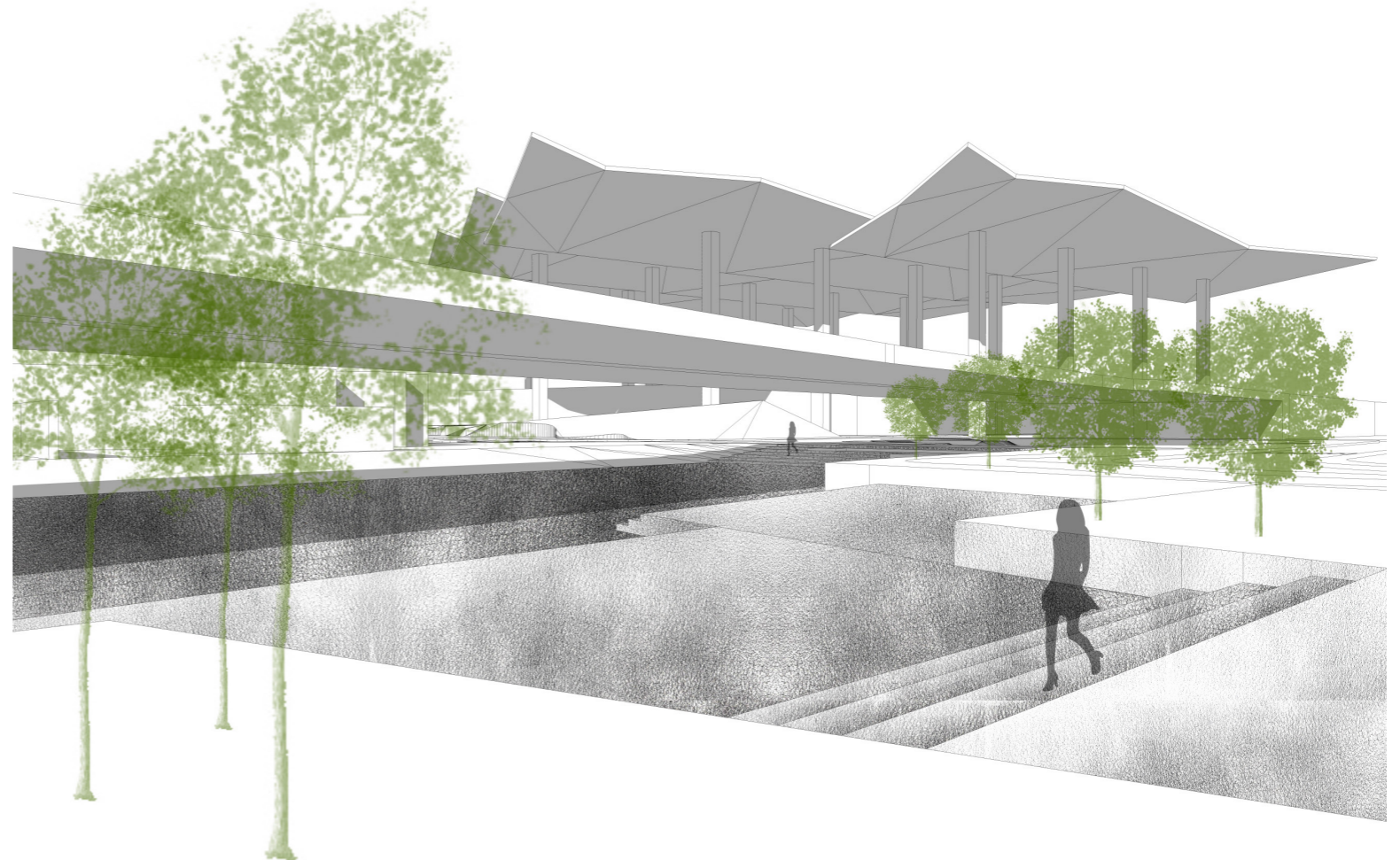
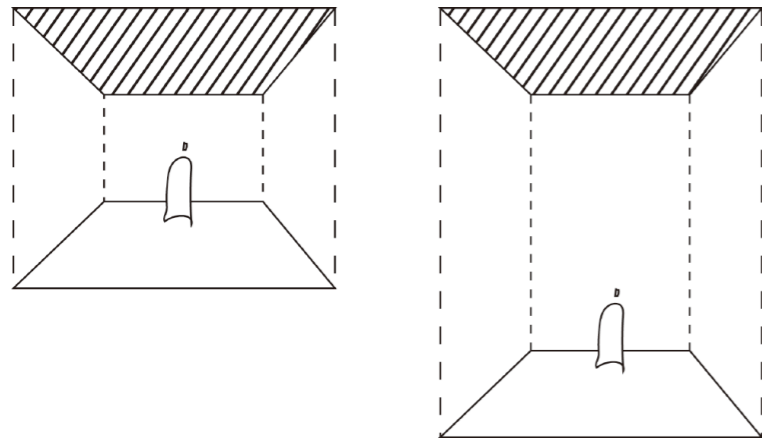
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# Sinking the underpass



Under the highway, ground level is lowered to be a sunken square in order to improve the spatial quality.



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# Plan



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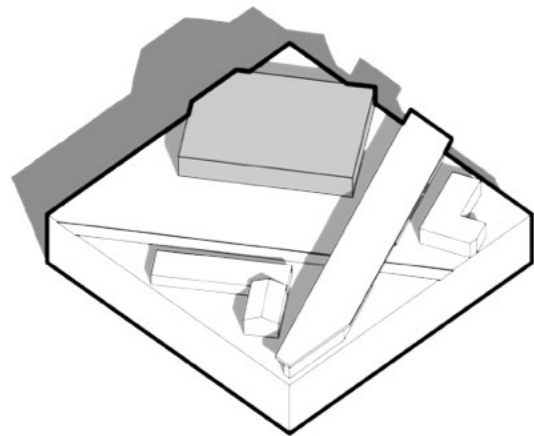
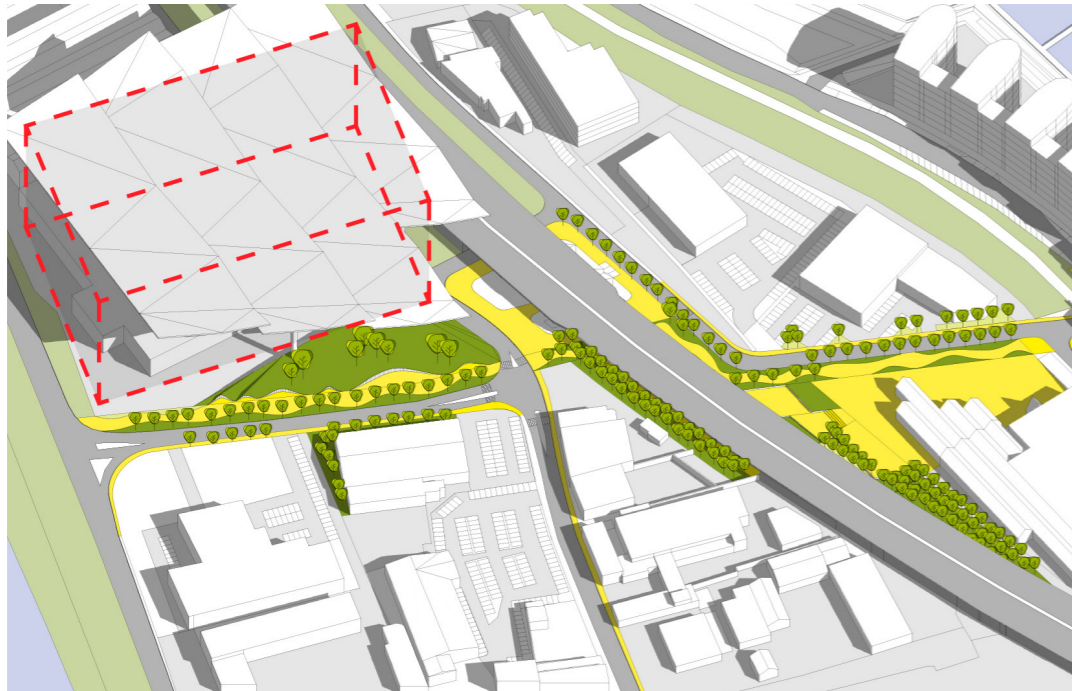
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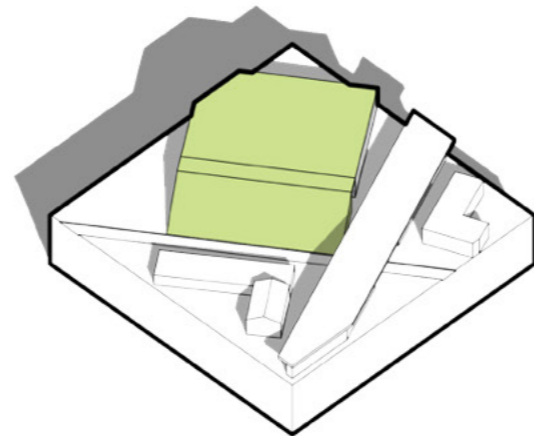
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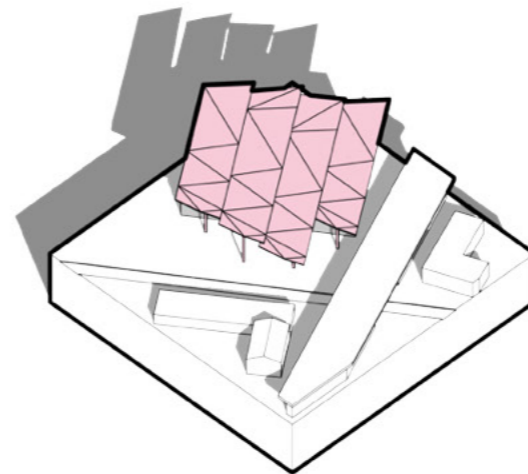
# Focus for both city and highway



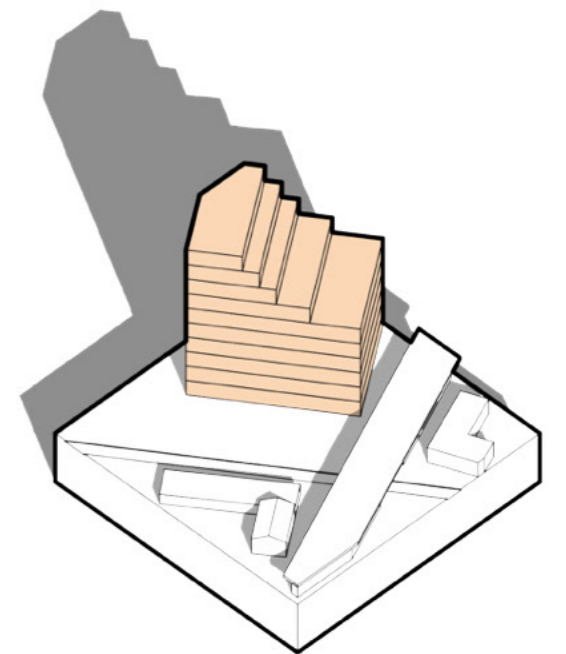
current situation



minimal design



in-between design



maximal design

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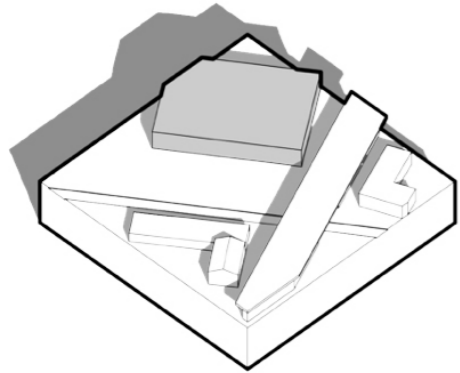
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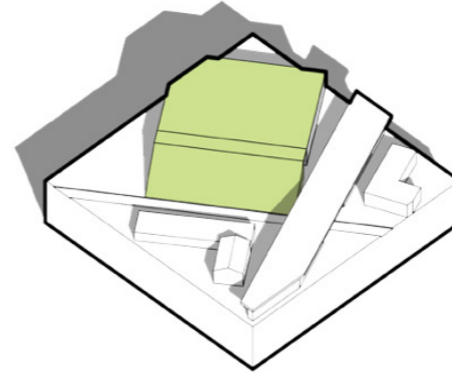
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# Focus for both city and highway

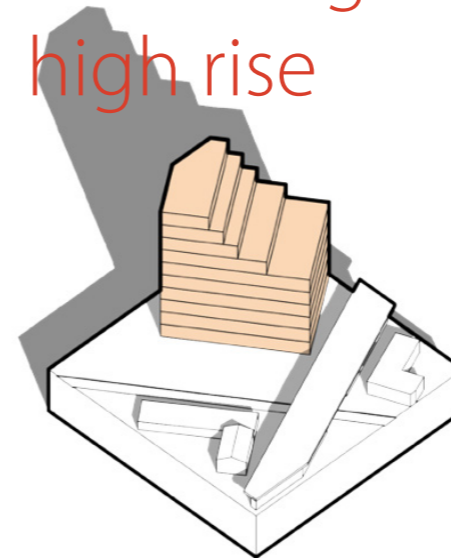
current situation



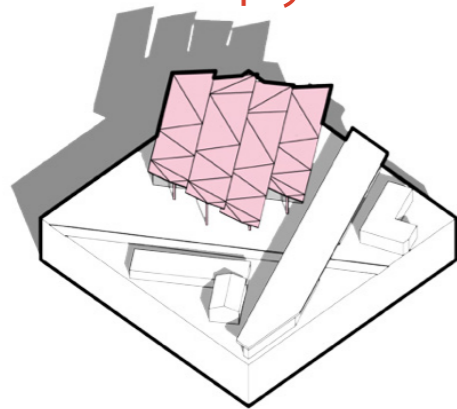
1. MIN design park



2. MAX design high rise



3. medium design canopy



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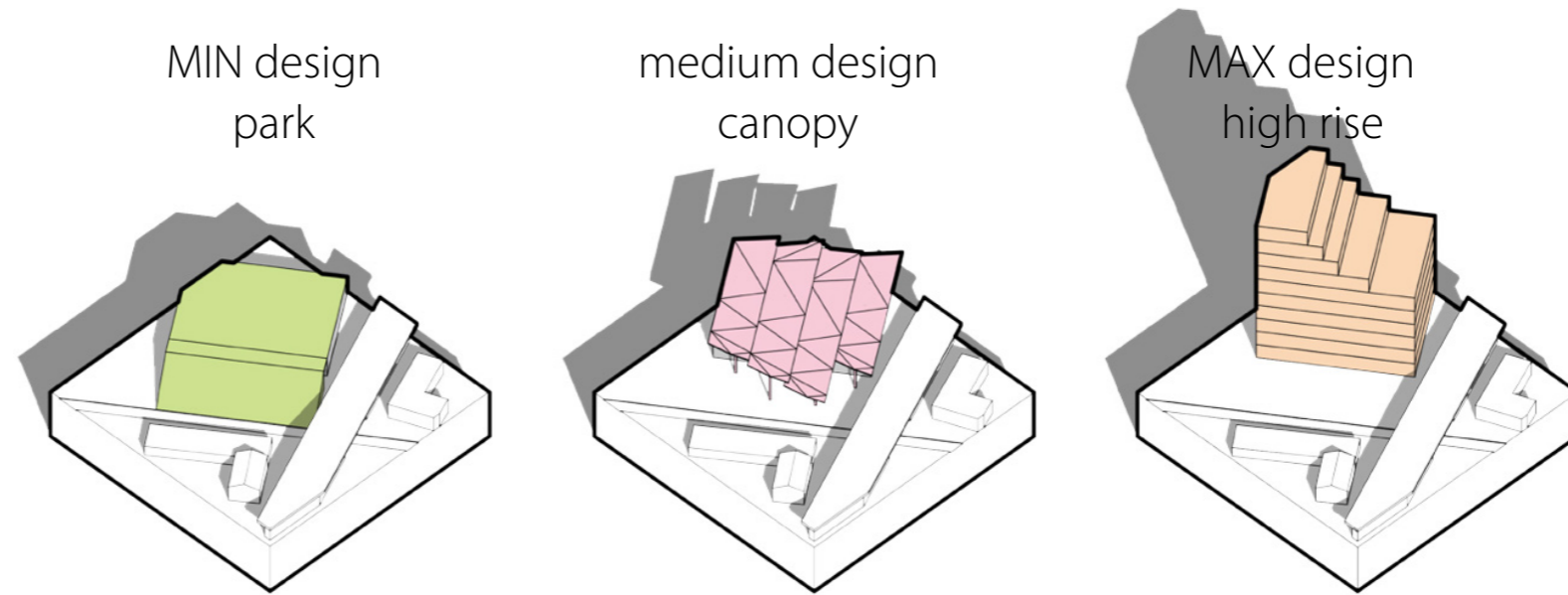
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# Evaluation-‘Canopy Space’



Visual Quality	—	+	+
Value for Neighbor	—	+	+
Impact on Urban Pattern	+	+	—

**BEST!**

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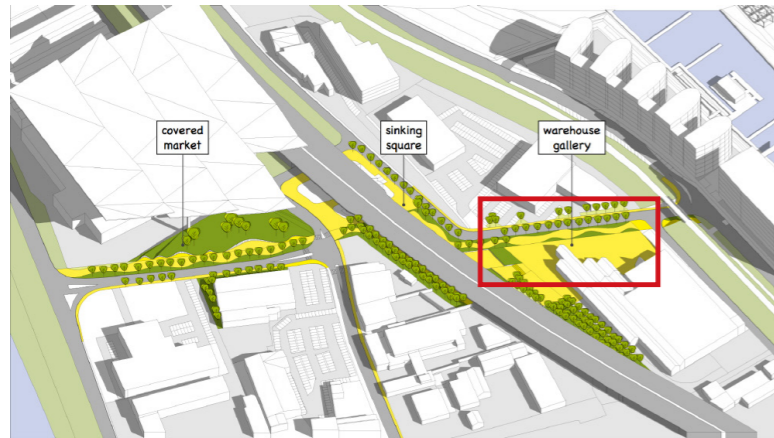
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# Play with the Canopy



In front of the anchor building, a series of space of human scale are designed for staying.



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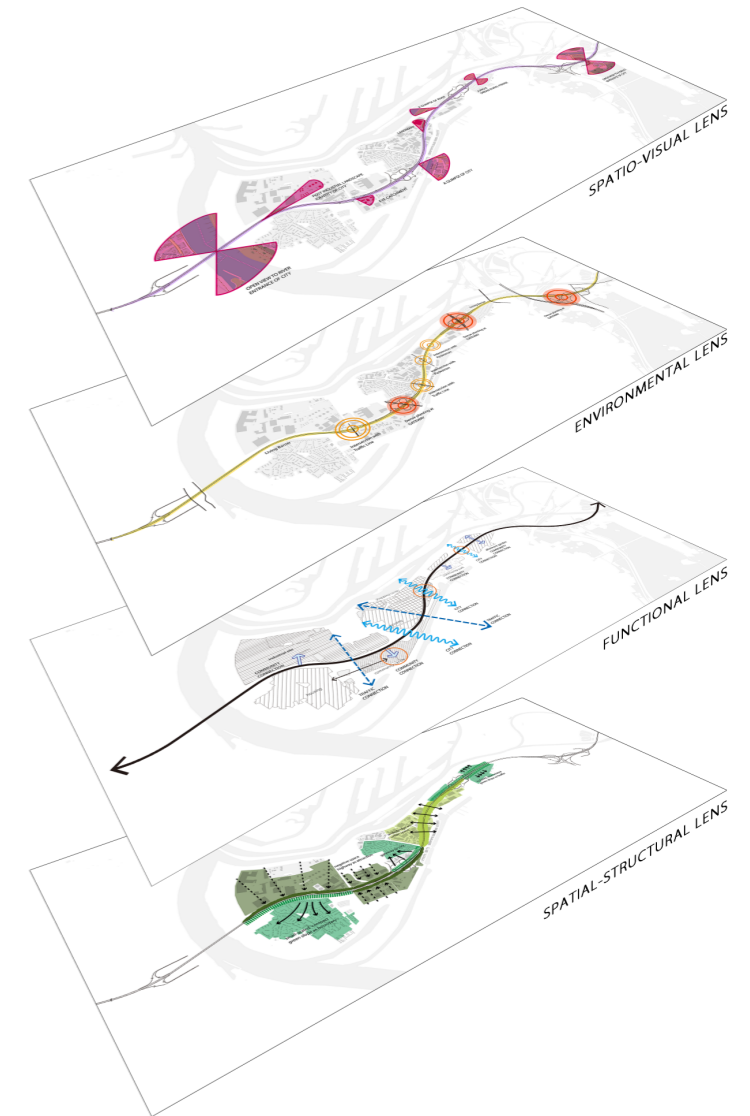


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Reflection on the City Scale

Reflection on the Application

# Does it actualize the 'Hybrid Highway Landscape'?



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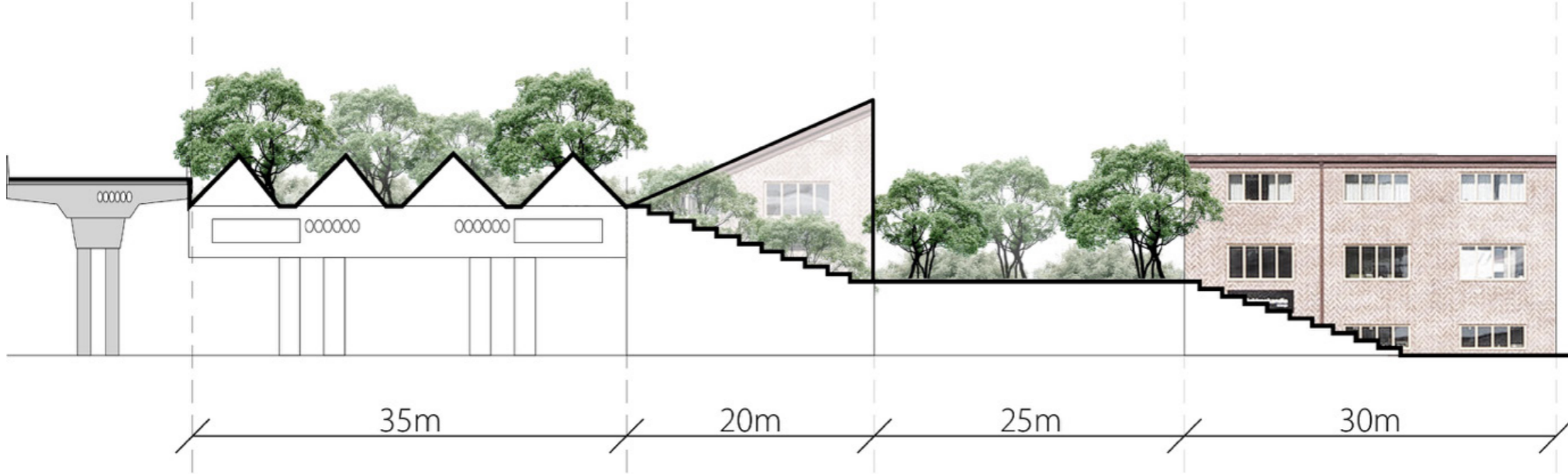
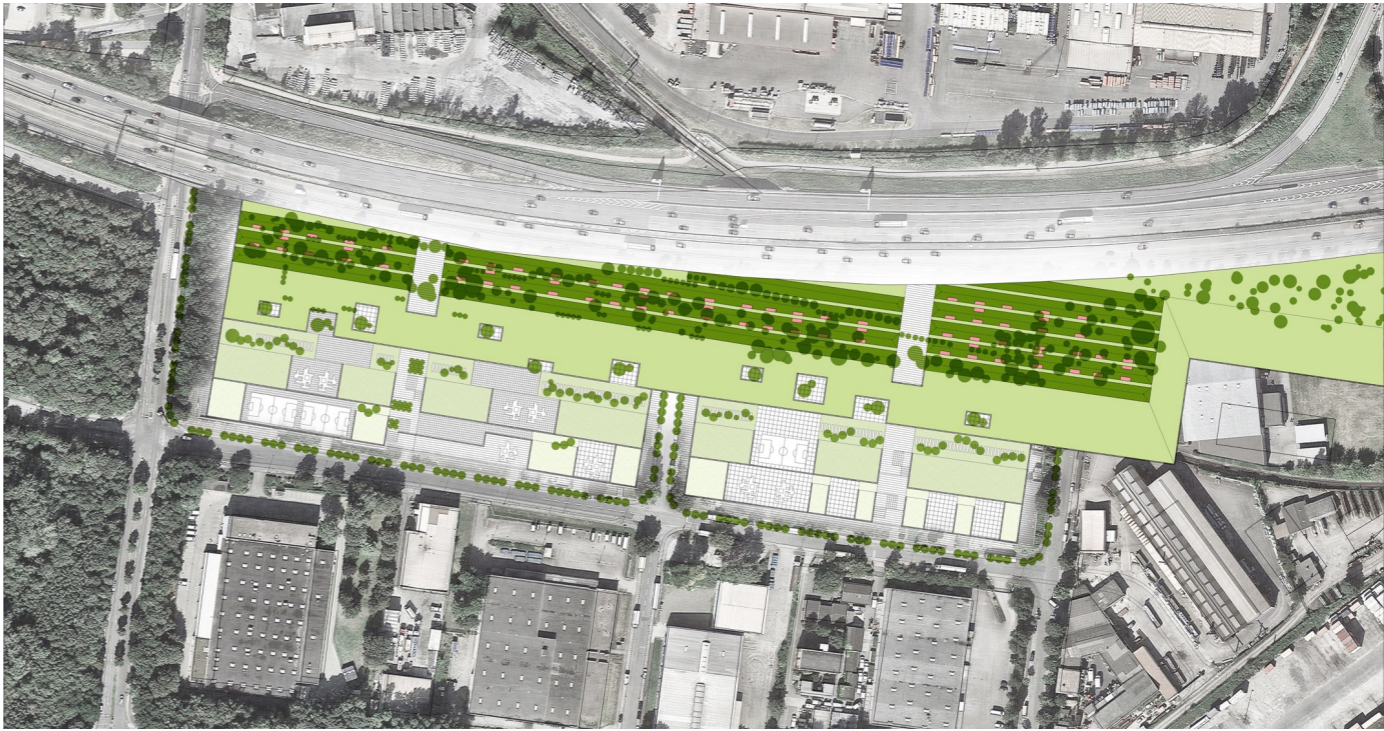
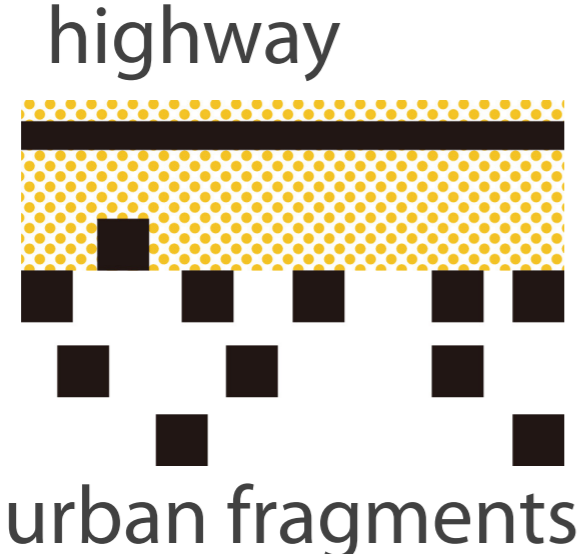
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# Transition zone along highway



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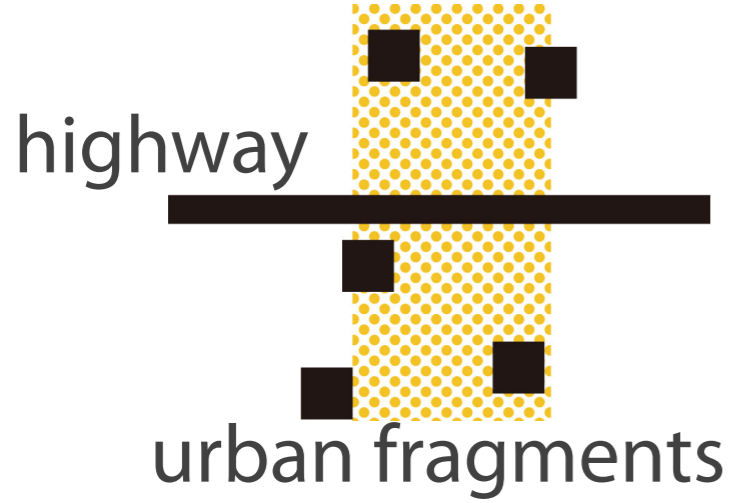
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# Connection zone across highway



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# Conclusion



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**Thanks!**

