

# THESIS report

Designing for Integration

...with Infrastructure as a tool for Urban re-nwal: in the case of Feijenoord & the HEF

- *Shruti Maliwar*



**Author: Shruti Maliwar**  
**Student number: 4513037**

**First mentor: Leo Van Den Burg, Els Bet, Robert Nottrot**

**Thesis: Report**

**Delft University of Technology (TUD)**  
**Faculty of Architecture and the Built Environment**

**Department Urbanism**  
**Explore Lab**

**2628 BL Delft Postbus 52600 AA Delft The Netherlands**  
**Graduation year: MSc 4**

**Keywords: The Hef bridge; home; memory; public place typology; urban renewal; infrastructure; Rotterdam**

INTEGRATION of public infrastructure to address spatial and social FRAGMENTATION

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**3. USE MEMORY AS A TOOL FOR DESIGN- relate to theory of 'home' and 'memory'**



# Introduction

INTEGRATION of public infrastructure to address spatial and social FRAGMENTATION

When I started researching, initially it seemed that Rotterdam has a confused identity and it was hard to find the differences in the spatial fragments of the city. The current architecture was seemingly unassuming. The great glass city could fit into a category of anonymous 'exhibitionist' architecture that could belong anywhere.

I started by studying the development changes after 2 major events changed the fabric of the city - the Second world war and the shift of the harbors westwards. The development of the South of Rotterdam- Kop Van Zuid, after the shift of the harbors westwards, led to a large vacuum in what used to be the heart of the city. The infrastructure that once was created to primarily relate to shipping, now had to cater to a different use, the HEF bridge being a prime example of this.

However, in the course of my study I realized that this blurred identity is what the essence of Rotterdam is. It is not confused, it is an optimistic city full of opportunities, creating new identities. It is a fast paced city, constantly in flux. This has characteristically penetrated the South of Rotterdam as well.

**In such a fast paced city, does infrastructure integrate itself rapidly enough? Can it also be more than a physical connection and also work a public place typology to connect people?**

I wanted to use infrastructure as a grid, as something to orient towards, within a city in flux, by integrating it into the public realm. This would mean different interpretations of what the HEF could be, as well as for future infrastructure, and with a new bridge connection already being planned by the city, I zoomed into the strip/core between east and west Feijenoord as my site.

It was important to keep switching scales to then see how this strip would fit within the larger infrastructure and public networks of Feijenoord.

## PROBLEM DEFINITION:

### ROTTERDAM:

- Rotterdam is chosen an example of a city in constant flux, based specifically due to 2 main events- the bombing of Rotterdam in 1940 and the shift of the harbors westwards- 1970's, focussing on the shift of harbor Westwards.

- During the industrial revolution a new hotspot for harbors and industry arose on the south side of the Maas. This zone expanded more and more to the west in the beginning of the 20th century because of the distance to sea, the depth and the ships become larger and bigger. After World War II the technological developments took a flight and Rotterdam decided to invest in other industry's than trade and transshipment. Petrol became very important together with containershipping. Because of the enormous ships needed for these industry's and the explosive growth much larger harbors had to be dug and built much closer to the sea.

- In this way the main harbor activity moved more and more to the west and away from the living area's which lead to abandoned harbors and industrial area's.

This also led to fragmentation in the South of Rotterdam, as the infrastructure that catered to the shipping industry no longer served that function, and in certain cases was abandoned- like the HEF.

With new developments like Feijenoord city, slated to come up actively over the next decade, this will require 2 things:

1. Infrastructure to support new traffic and movement intake.
2. To integrate this infrastructure in the diverse urban fabric and everyday life of Feijenoord- preserving its identity, while still responding to the grand architectural gestures, that initiate innovation and economic growth of Rotterdam.

(The current 3 main bridges- Erasmus bridge, the

HEF bridge and the Botlek bridge are at maximum capacity. Travelling to the South of the river is therefore a concern. There is a need for more bridges to be added and therefore the municipality has proposed another connection to the South bank of the river, from Willemsbrug bridge.)

### THE HEF:

- Large infrastructural networks such as transportation, water systems, defense systems, dykes, usually leave a permanent mark on the spatial structure and built image of a city- *Meyer, 1999*

- As an example of infrastructure abandoned due to the shift of harbors, the HEF bridge and its context was taken as a starting point into Feijenoord.

The design intervention attempts to integrate the HEF as a public building rather than an abandoned monument, and integrate it as part of bicycle infrastructure and a pedestrian bridge for locals and tourists into Feijenoord, to address contemporary issues today.

- Lastly, there is a question of identity which is experienced, when it comes to public spaces in these areas. Thus this is viewed as an opportunity to lend identity to Feijenoord, and functionality to the HEF bridge itself by its inclusion within the urban fabric.

The project is an approach to address the current issues of Feijenoord by developing a strategy to design a more connected and inclusive typology of public place. This is considered as a plug-in to the existing infrastructural networks of Rotterdam- using other qualities of the region.

The main objective is to integrate new infrastructure and developments into the daily life of Feijenoord with design elements and program that act as activators for an interactive, inclusive public place. To offer a collective identity to Feijenoord, and a different way of moving and viewing the neighborhood.

# Research Questions

## RESEARCH GOALS:

**To research how fragmentation/integration - Social and Spatial occurred in Kop Van Zuid, and how it continues to occur- specifically with regards to infrastructure, after the shift of the harbors westwards.**

**To analyze what Spatial and Social consequences such developments have brought and would bring for this region.**

## SUB-GOALS:

**To plan connections and development scenarios for upcoming projects in Feijenoord- specifically to design connections and infrastructure for increased traffic intake.**

**To question the role of the HEF as a monument in these contexts of flux.  
Re-use of qualities of culture and heritage as attached to the HEF bridge and integrate it within the infrastructure.**

## DESIGN GOALS + INTENDED PRODUCTS:

**A masterplan integrating new developments in Feijenoord- and subsequent connections.**

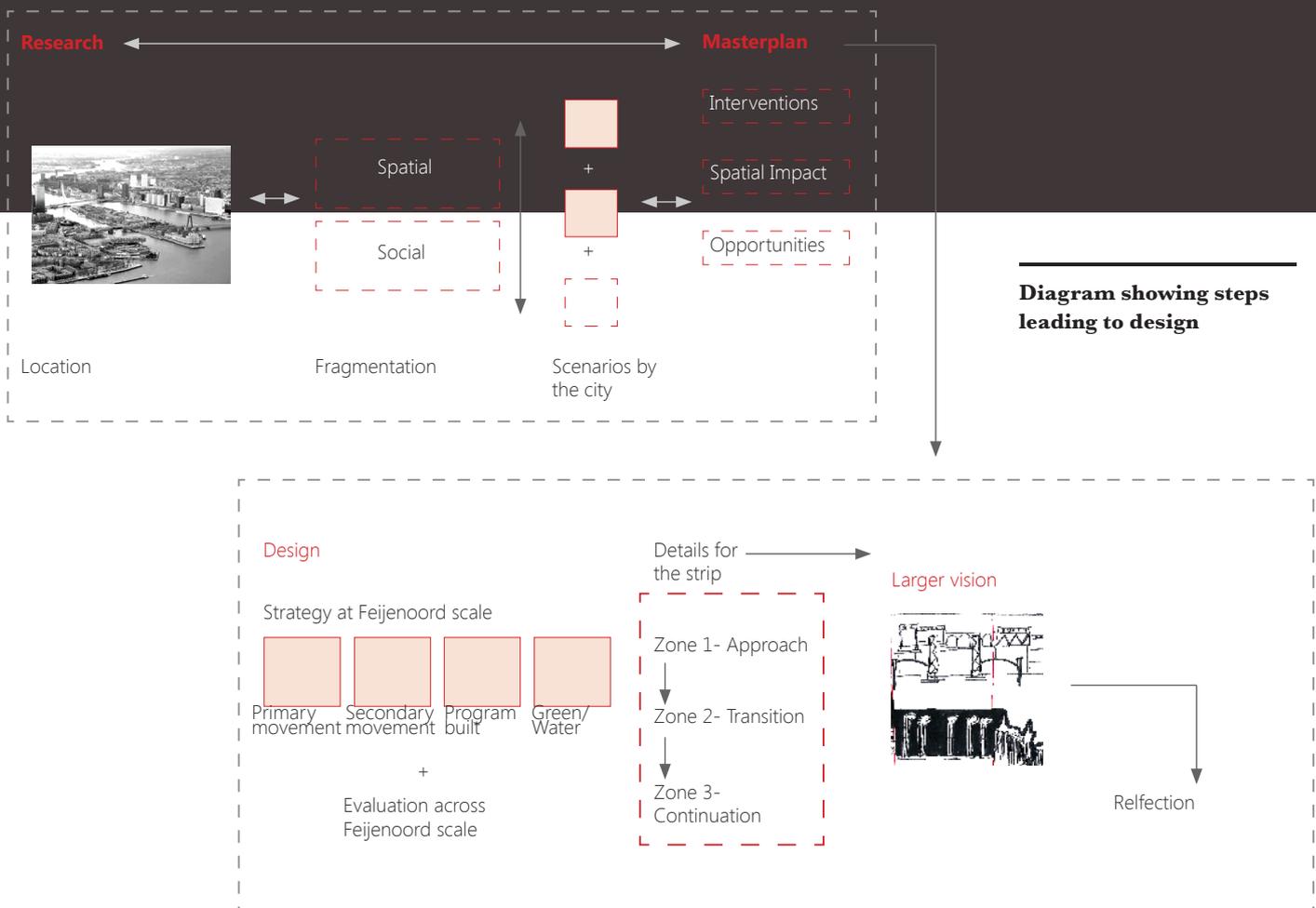
**To design a strategy resolving and organizing movement in Feijenoord- ensuring a smooth plug-into the existing transport network of Rotterdam.**

**This is followed by determining programmatic connections and tools for designing the in-between spaces.** The main aim of the design strategy is to design for interactive and integrated movement within Feijenoord, to create a new public place design strategy and typology.

**To consider the new bridge connection proposed by the municipality as a starting point for interventions. The design projects work towards integrating this bridge into the everyday life of Feijenoord.**

# Methodology

## INTEGRATION of infrastructure within Feijenoord to address spatial and social FRAGMENTATION



# Methodology

## METHODS AND TOOLS"

### THEORY OF 'HOME'

### 3 SCALES: CITY SCALE, NEIGHBORHOOD SCALE AND LOCALIZED DESIGN INTERVENTION

The analysis and the design solutions all take place over 3 scales- the city, the neighborhood and a more detailed localized intervention in Feijenoord.

### LOCATION

Rotterdam is chosen an example of a city in constant flux.

With new developments like Feijenoord city, slated to come up actively over the next decade, this will require 2 things:

1. Infrastructure to support new traffic and movement intake and opportunities.
2. To integrate this infrastructure in the urban fabric and everyday life of Feijenoord- preserving its identity, while still responding to the grand architectural gestures, that initiate innovation and economic growth of Rotterdam.

### ANALYSIS OF SOCIAL AND SPATIAL FRAGMENTATION IN FEIJENOORD

Mapping the existing social, movement and built environment of Feijenoord, and how it relates to a larger context was carried out.

Apart from the research gathered through the archives, traffic department of Rotterdam and other sources, site analysis was conducted in particularly Feijenoord. This involved demarcating areas of conflict and opportunity along the public spaces in Feijenoord. Barriers and missing links were concluded with an intent to be addressed with the design solutions.

Case studies for similar infrastructural projects were conducted- one for new binnenwag, and another for Lan Op Zuid to extract issues and solutions used for the same.

Data informing income, education, house ownership, employment was also used in comparison to other neighborhoods.

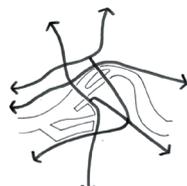
### MUNICIPALITY: DEVELOPMENT OF 3 SCENARIOS

An analysis of future developments that are slated to come up in Feijenoord was conducted based on NPRZ plans and meetings with the municipality of Rotterdam, that is also currently working on developing 3 scenarios for Feijenoord.

### Municipal scenarios:

The city has planned for several developments in the Feijenoord area. For the larger development strategy, they follow 3 scenarios which they presented to developers that have existing or new projects coming up in the area, and will be presenting to the national government. They continue to experiment with these general scenarios concerning housing, infrastructure and public space in Feijenoord, leaving the design proposals open-ended.

For the design, as a first step, I used the three scenarios as proposed by the municipality to build upon the masterplan- making decisions derived from either of the scenarios.



## MASTERPLAN FOR FEIJENOORD- 7 INTERVENTIONS STEPS- SPATIAL IMPACTS AND OPPORTUNITIES GENERATED

Based on the research and discussions with the municipality- 3 interventions were included on site and designed for:

- The new connection from Willemsbrug to Feijenoord
- Entrepot as the new metro station
- HEF Quartier

Other projects included in the masterplan scale.

Further steps were made to integrate the larger scenarios, with the new interventions.

This led to determining the spatial impacts of the projects and the opportunities derived.

### DESIGN STRATEGY

The main aim of the design strategy was to design for interactive and integrated movement within Feijenoord, to create a new public place design strategy and typology- promoting diverse, porous and better connected places and people.

For this the strategy was isolate as 4 layer:

1. Resolving primary infrastructure- vehicular- cars, buses and shared vehicles
2. Organizing a secondary movement network- bicyclists and pedestrians
3. Designing the in-between spaces- through programmatic pavillions
4. Development of landscape and the waterfront

The spatial interventions of the new bridge, how it continues into Feijenoord, the metro station and the harbor led to creating an analysis drawing of how to connect or close these primary infrastructure functions.

• Circulation drawings for all different modes of transport within Feijenoord were drawn:

1. Private Vehicles- cars
2. Public vehicles based on different capacities: Taxis/ buses/ possible tram or trolley connections
3. Cyclists and 2 wheelers
4. Pedestrian
5. Water-based transport

• Following this analysis the number of lanes/speeds/

directions of movement/one-way:two-way was determined.

• This led to formalizing a heavy vehicle- high mobility traffic infrastructure which connected the main bridge into Rosestraat

• Other roads were designed following the required hierarchy and traffic flow.

• Pedestrian+Shared areas were determined.

• The infrastructure that was created led to in-between spaces being formed that required designing, and integration.

### LOCALIZED INTERVENTION- DESIGN PROJECT IN DETAIL

The design strategy was further explore in detail using plans and visualizations- showing a sequence of spaces from the Hef bridge- southwards- till the end junction of the paperclip. There were zoned into the following:

1. The approach
2. The transition
3. The community

- based on how the program shift from a more public-tourism based approach to more private community spaces.

### IMPACT OF INTERVENTION ON FEIJENOORD- EVALUATION

Finally, certain conclusions drawings were made to test if the design works with the intended goalls of integration, connectivity, diverse-multi-use spaces.

# Location



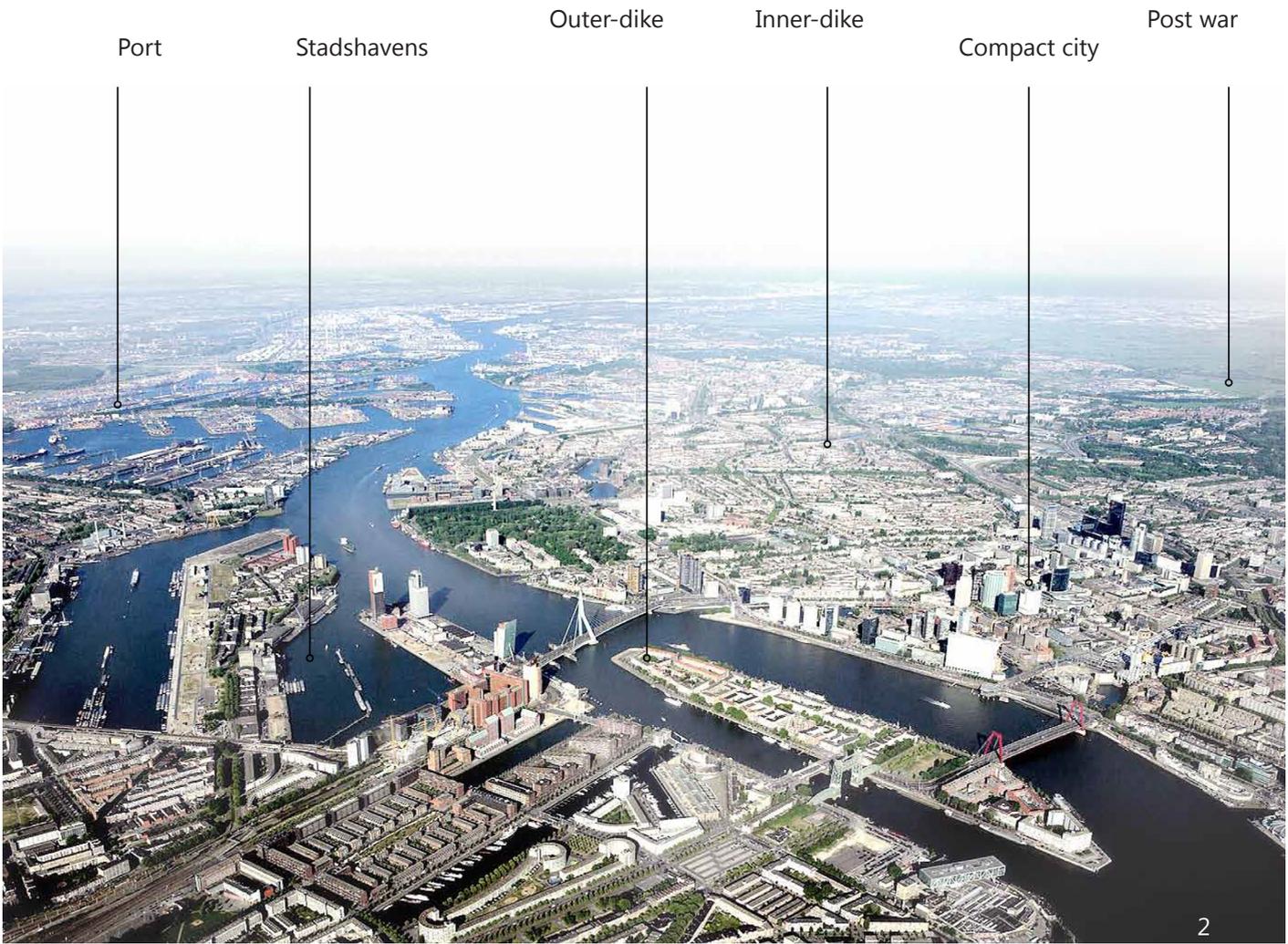




1.

# Location

Source:  
Fig 1/2 Rotterdam climate  
initiative



Port

Stadshavens

Outer-dike

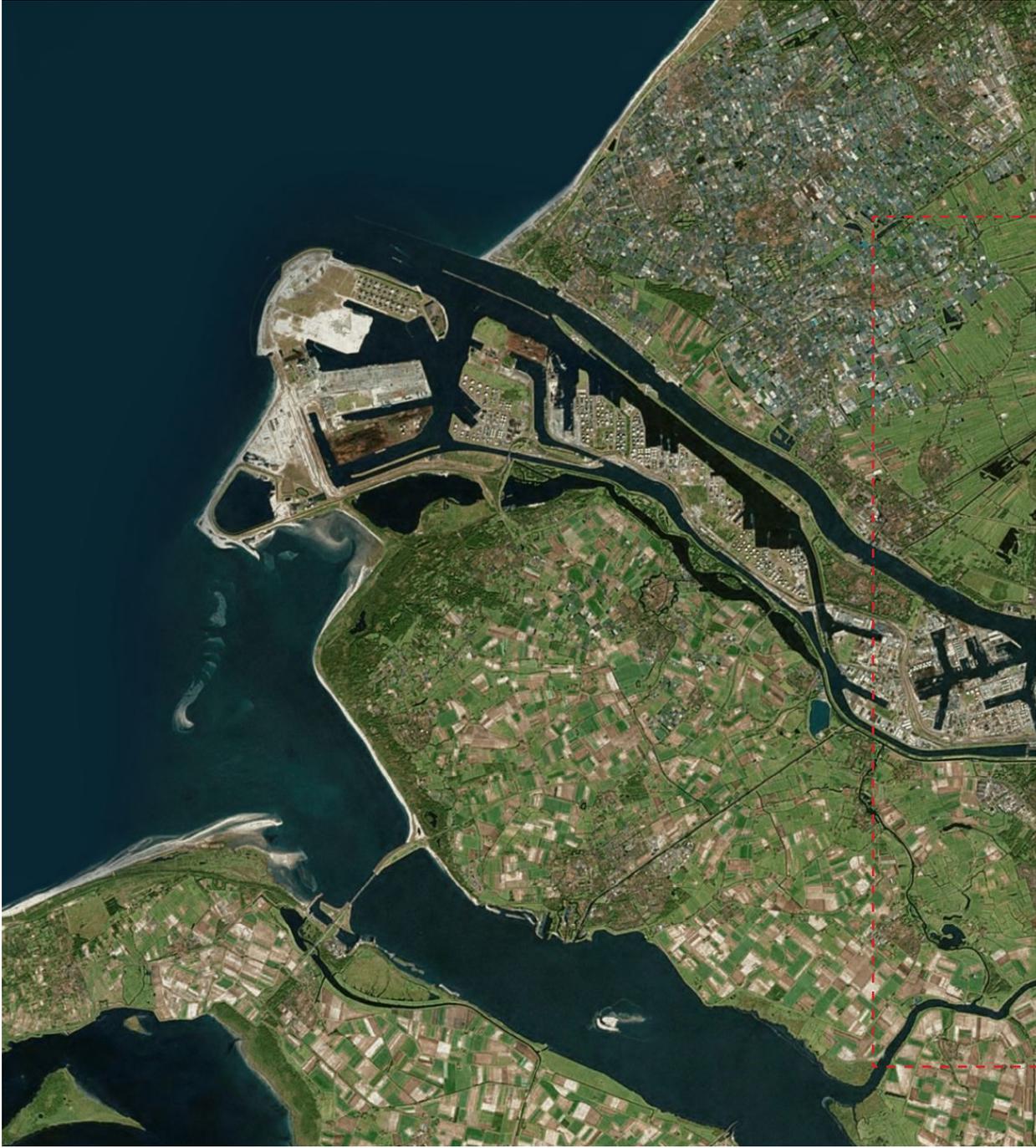
Inner-dike

Compact city

Post war

2

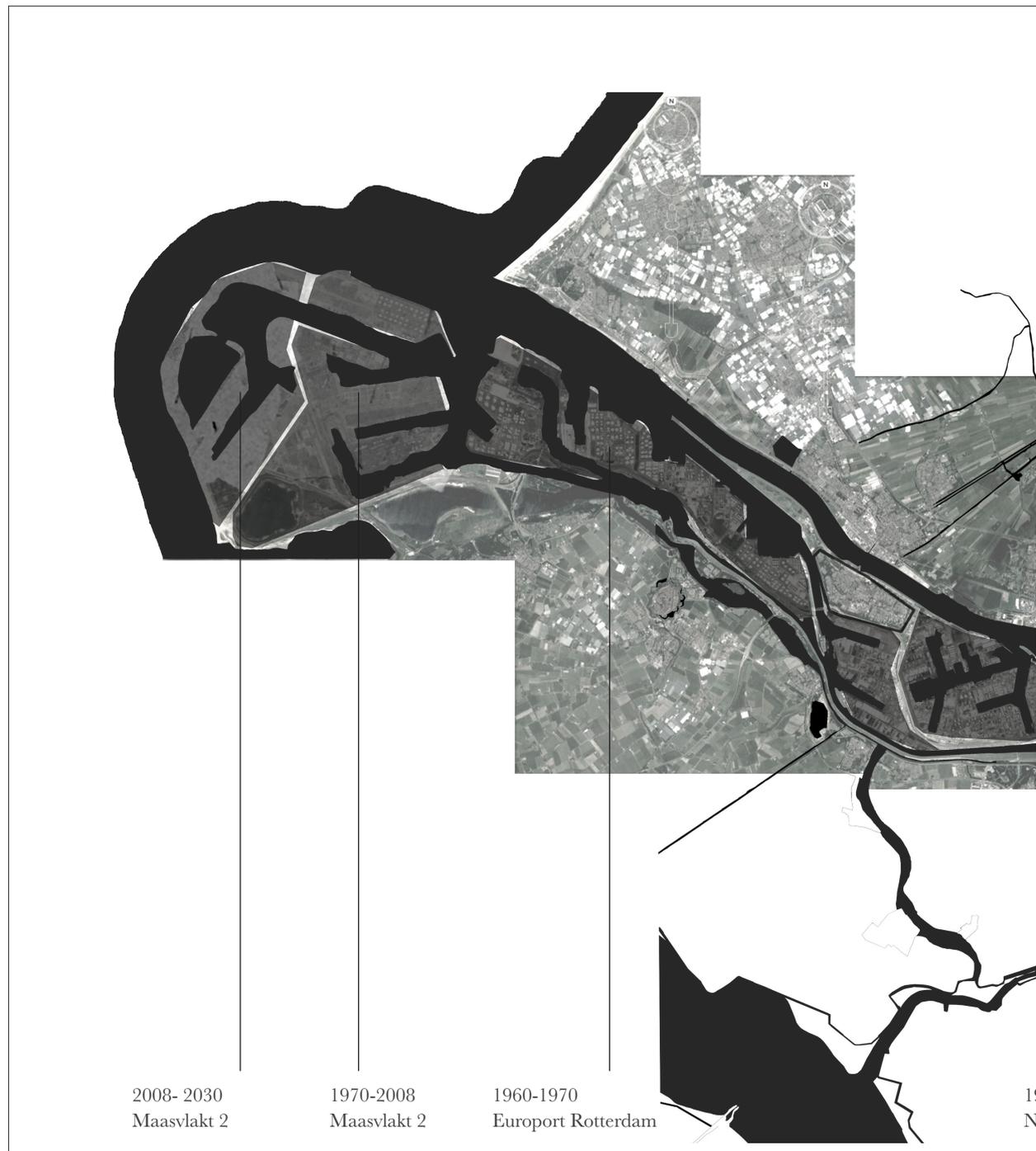
# Scope of Site





Source:  
Google Earth

# The main event- Shift of Industry





1946-1960  
New Harbor

1st and 2nd petroleum port  
1920-1940

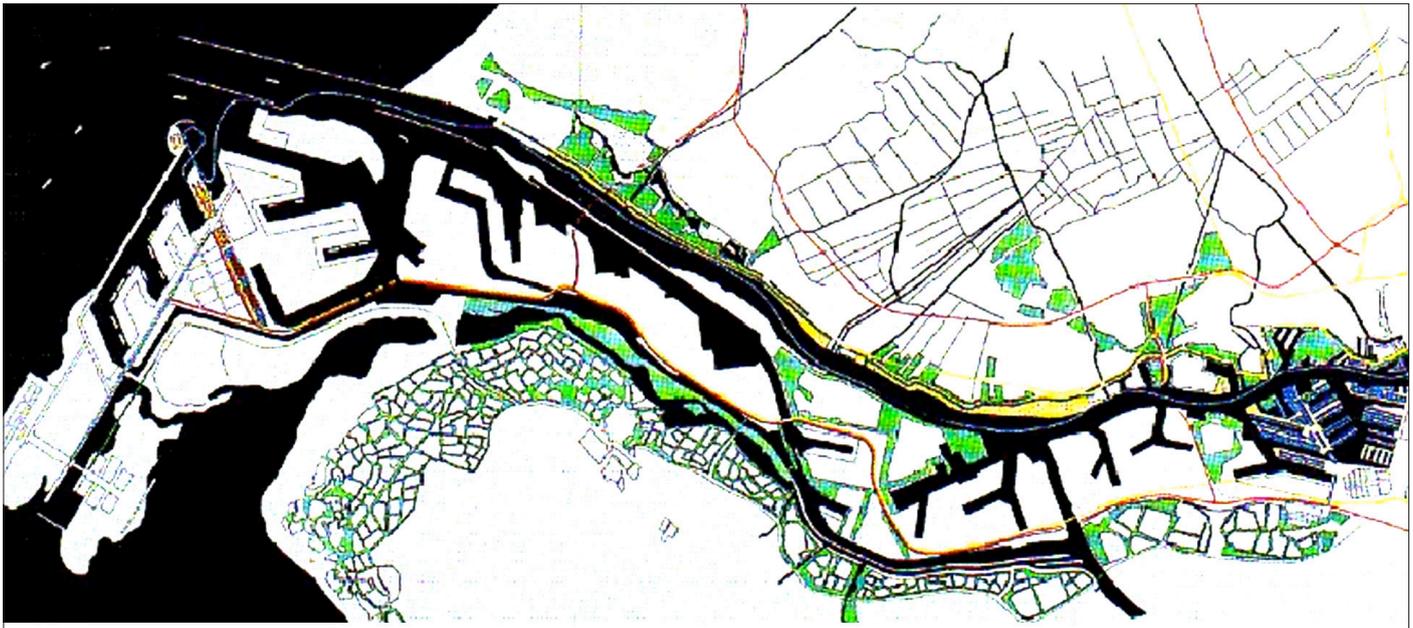
Old harbor  
1400-1800

Bombing of the city centre -  
1940

Former trade areas  
1800-1900

Source:  
Author

# Shift of Industry



A few design proposals regarding the shift of the focus of the port, further West, in the direction of the modern working port.

Koolhaas:

An improved connection between Highway A4 and the national highway network was vital to a new symbiosis of highway infrastructure and port infrastructure and, consequently, to the creation of new economic activities and new urban programs.

Roel Bakker's proposal:

Relation between city and port can no longer be related to a single location.

His design:

A 40KM long area between the Kop Van Zuid and the coast was to accommodate different mutual relationships between city and port, each of which based on the specific conditions provided by its location. An intensive blend of Urban functions and port activities for the Waalhaven area. Roel Bakker's proposal:

A scenic parkway as a central element in the harbor landscape and a new type of multi-functional public

space.

Main access route to port-related industry, but given the nature of an urban attraction+ city/coast road.

RESULT: A new network of public areas emerged, relation between city+port.

## 20th century\_ Variety of concepts

Reason?

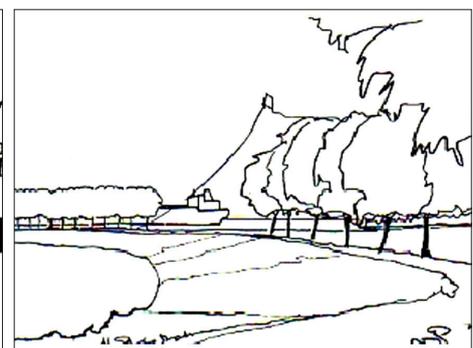
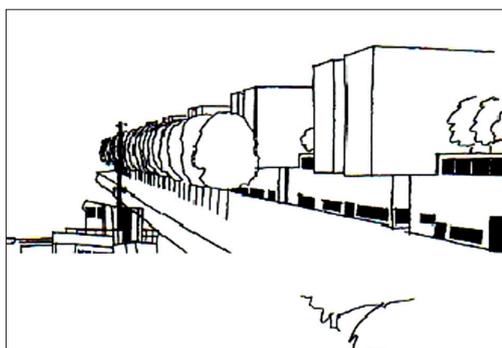
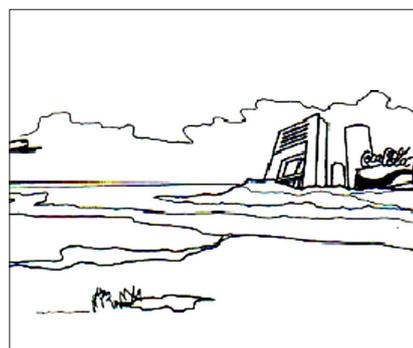
The changeability of the port+ its ongoing increase in scale

Before the 19th century, port was a localized phenomenon

Position+ Size changed very little in the course of 3 centuries

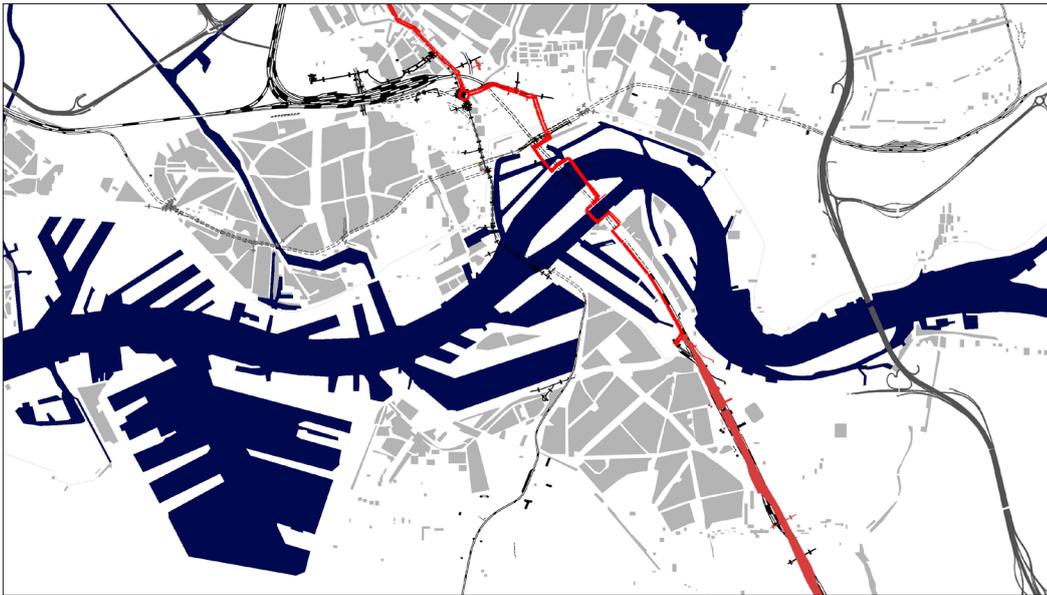
RESULT: These attempts combine the search for new functions for obsolete infrastructural elements (old harbor areas) with the realization of new elements- roads, highways, rail facilities, airports

Source:  
City and port, 1999

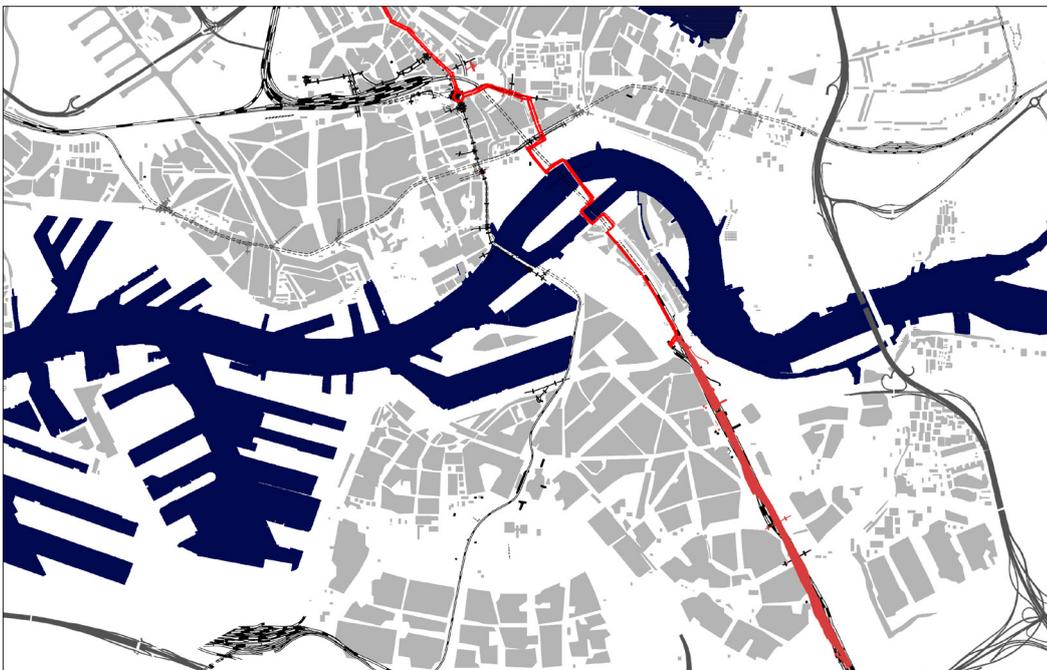


Source:  
City and port, 1999

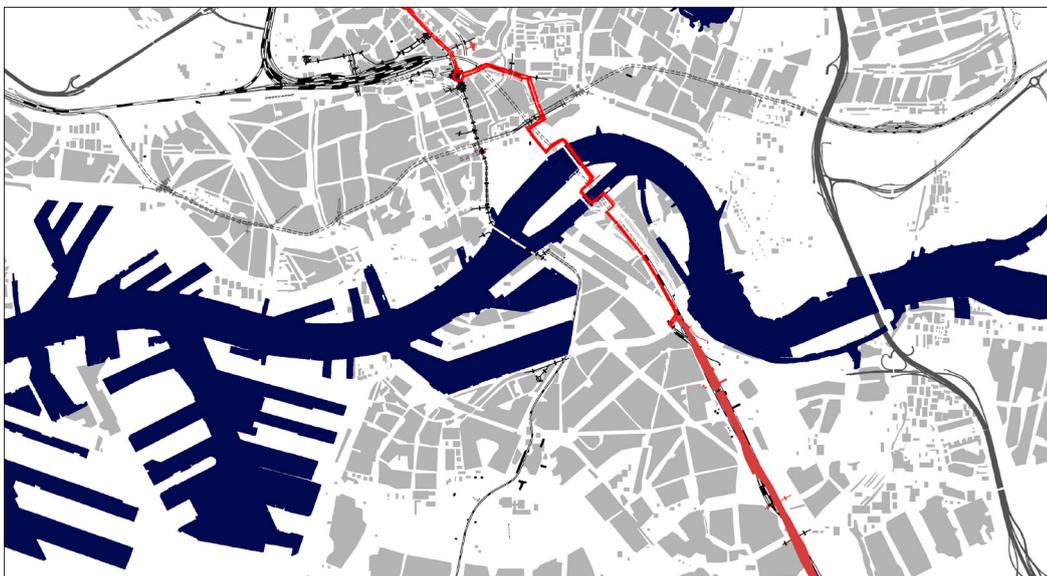
# Development of Built Environment



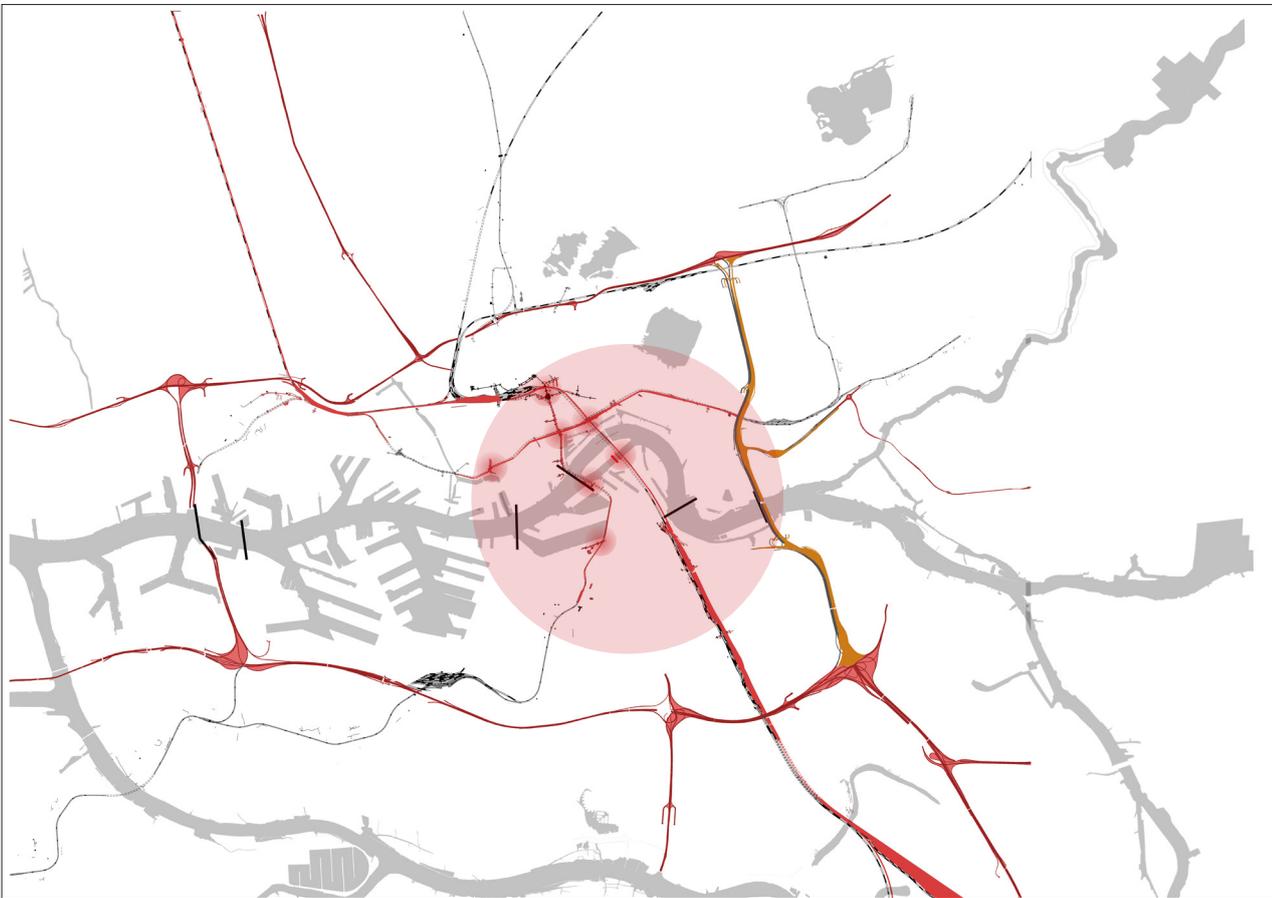
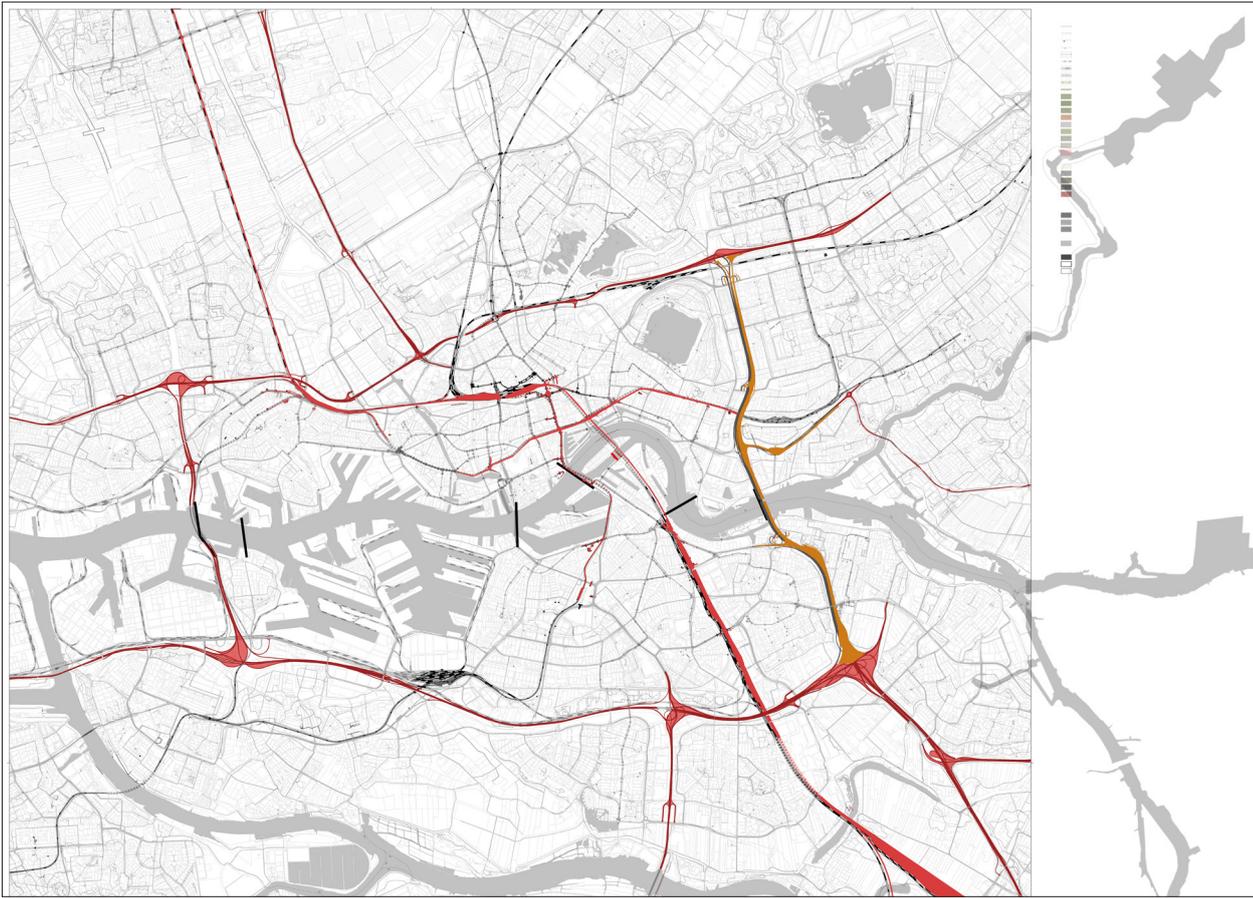
1940



1965

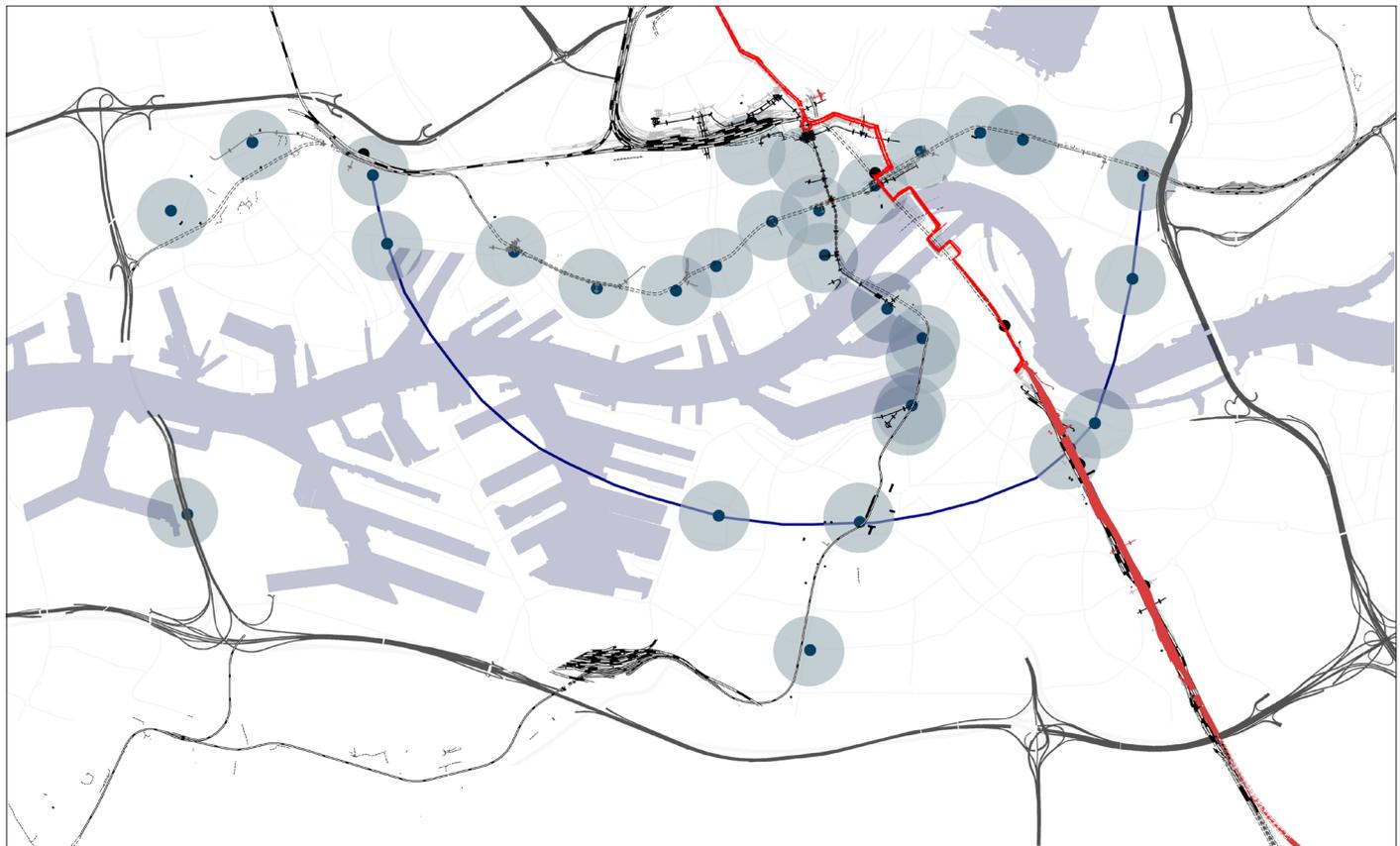


2009



Source: Author- based on official documents: Rotterdam traffic plan

# Infrastructure



- Existing metro network
- Proposed metro line
- Metro cover area-500m
- Metro stop

There are plans for improvement of the connectivity at the city level post several proposals. One of these plans introduce the idea of the development of a new metro line that would make the connection of west – south – east in Rotterdam. This new line would bring a lot of advantages again in the south part of the city, by increasing its public transport accessibility and creating an integrated public transport network that connects all part of the city. The highest advantage of this development would be brought in the location of the future stops of the new metro line: Stadshave, Zuidplein and Feijenoord stadium.

Source: Based on Historische atlas van Rotterdam. Nijmegen; Rotterdam: Nai010 uitgevers; Havens van Amsterdam en Rotterdam sinds 1870



1940



1965



2017

# Waterways

Water development - 2017

- Around 1870 the New Waterway was dug. A canal and the straightened river now went straight through the dunes to make Rotterdam much more accessible. The distance to the harbour became much smaller, there was almost no silting anymore and larger ships could enter the harbors.
- In the beginning the harbour grew around the city center. But moved westwards later, to make the distance smaller for the ships coming from sea. Moreover these ships became bigger and had much greater drafts.
- Because of the industrialisation, especially in the Ruhr-area in Germany large amounts of ore were needed for the steel production. Rotterdam was the perfect spot for import and transportation of the ores over the Rhine river. Large harbours were dug around and over living area's and villages like Katendrecht here and later Pernis.
- Large harbours were dug on the south side of the river together with living area's. These harbours were more for the shipping inland than for the ships coming from sea.
- The former industrial and living areas at the south side of the river became ragged after most company's left to the west. In the last two decades it has been and is being transformed into a modern urban living area. With Kop van Zuid as main example.
- Rotterdam's old city center was almost completely destroyed during World War II. At the former dense city center high, functional and modern buildings arose along wide roads, big roundabouts and broad trottoirs. The water became redundant and the amount of canals was greatly reduced.
- After the war the trade in petrol became much more important for Rotterdam. Next to that the technique improved greatly and larger and larger ships, like oiltankers came in use. They needed a great depth and large harbors. That's why new larger harbours were constructed even further to the west. During the 60's and 70's almost all quays along the rivers were used. This was the time the city decided to build in the former dunes (Europoort) and later even to build artificial harbours in the sea.
- Former busy harbours like the Maas- and Rijnhaven became less and less functional and used over time. Almost all ships and activity went to the west of the city and the once so busy harbours and quays became empty and silent. Currently they are hardly in use and are now destined as an area for a trendy and urban living environment by the municipality.

Plans made to orient the city towards the river



Should it orient itself to the West? Build upon De Jongh's monumental canals+ avenues?

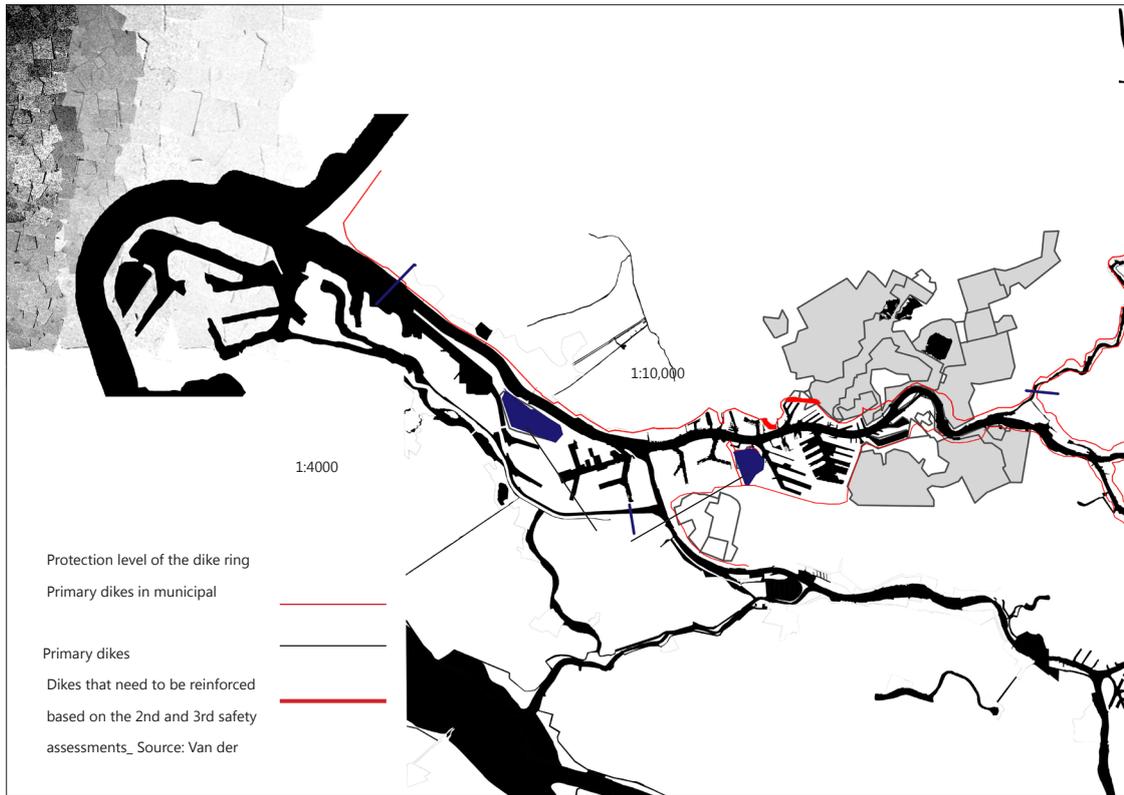
Or use the heritage of Witteveen's green wedge+ tunnel route?

Rose's concept: The urban front faces the river, while the port lies to the rear.

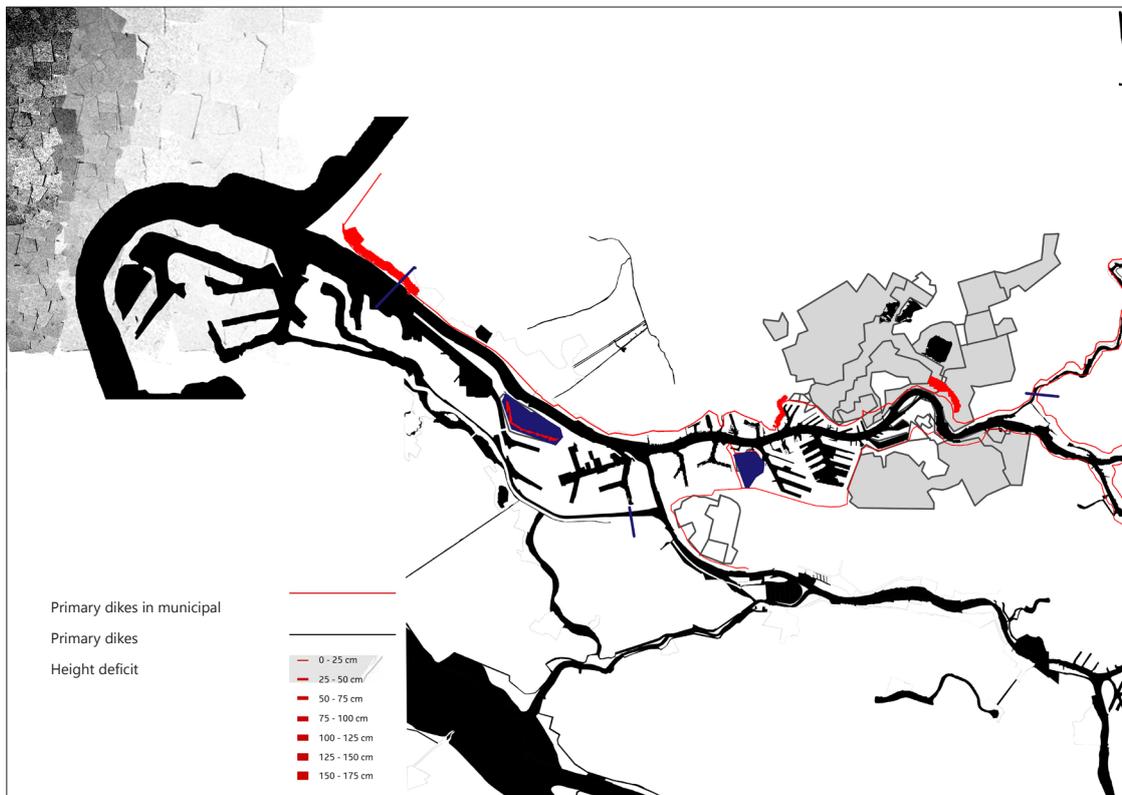
+ Maas Boulevard as the 'Window to the River?'

Source: Author- based on official documents, City and port, 1993

# Growth of the Waterways



Current levels of protection

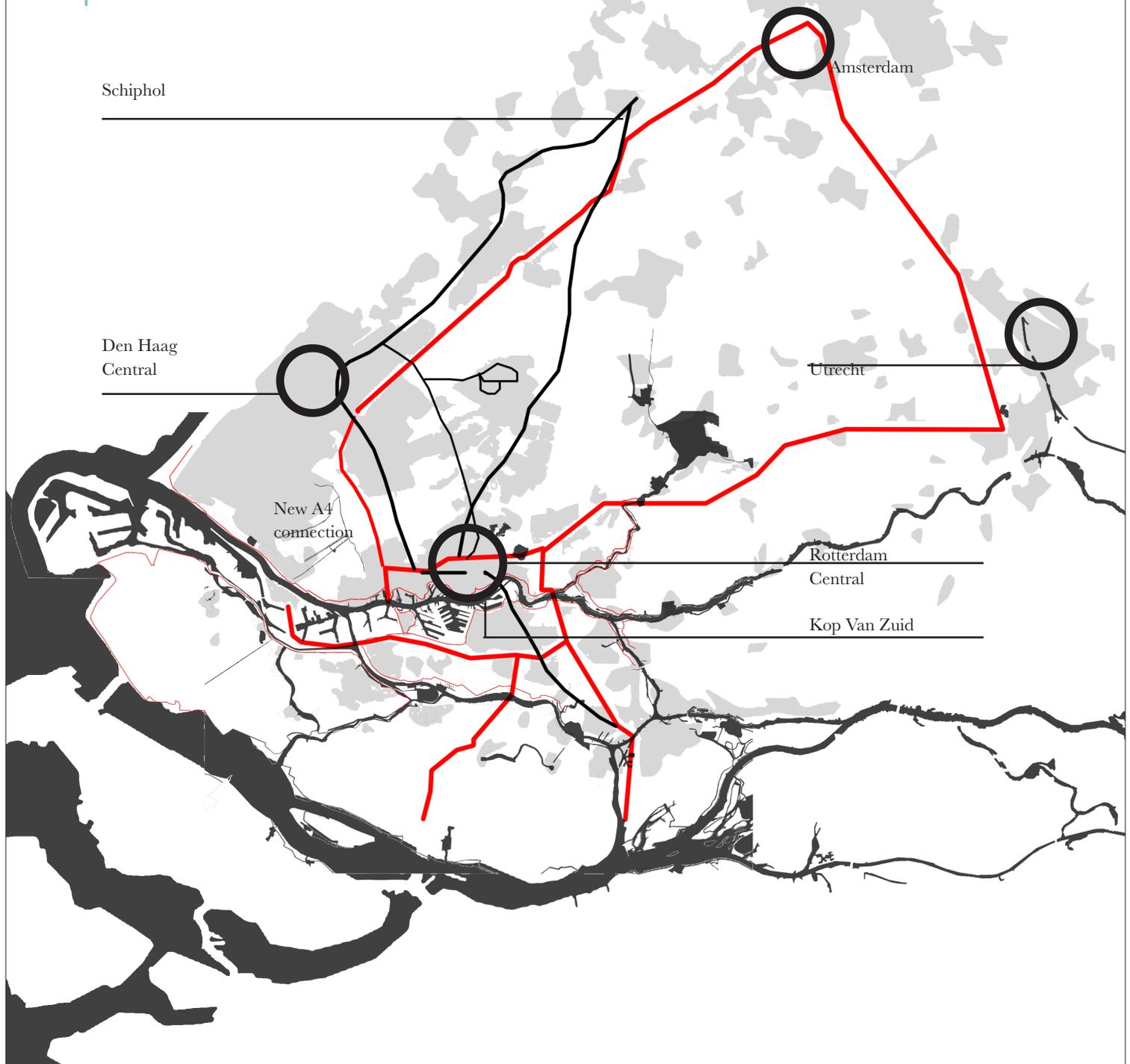


Dike height deficit in 2100\_w+ climate scenario

Source: Author- based on site analysis and official documents- Rotterdam Climate initiative

Scope of Site

# Kop Van Zuid in the Randstad Context

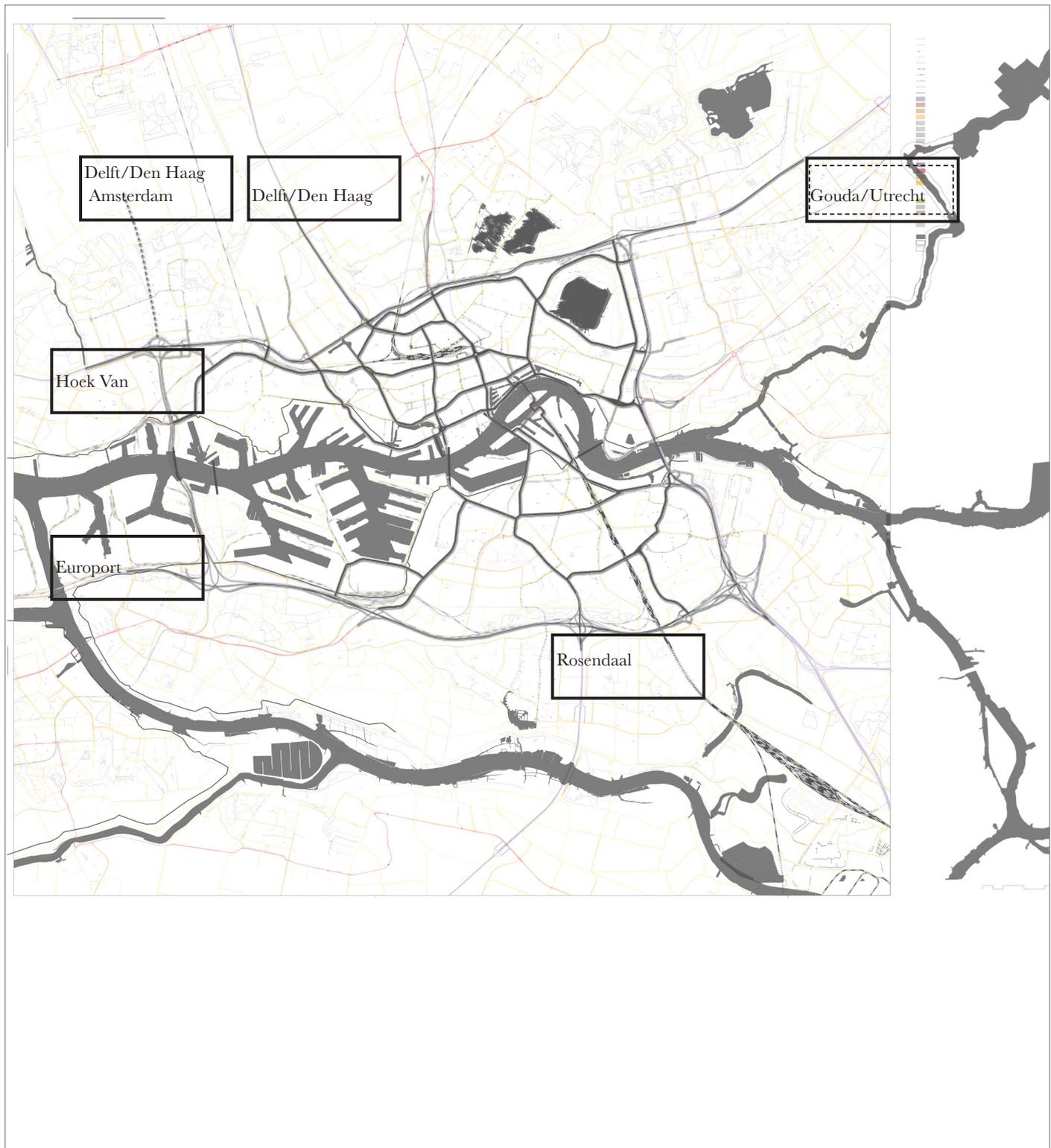


- The city of Rotterdam makes a part of the Southern Ring of the Randstad, together with the city of The Hague.
- Rotterdam occupies a key location in the public transport system at the regional scale, with a high speed train connection with the cities of Brussels, Paris and London.
- Furthermore, Rotterdam is also very well connected with the highway system, with very good links with Belgium, and the Randstad Ring, which is going to be

further improved by an extension of the A4 highway in between Rotterdam and The Hague.

- The location of the Kop van Zuid area is at a key position in both the city and the regional context, with direct connection to the train system, and with connections to highway entrance at a distance of under 2km.

Source: Based on Historische atlas van Rotterdam. Nijmegen; Rotterdam: Nai010 uitgevers; Havens van Amsterdam en Rotterdam sinds 1870



- Development in the South, in Kop van Zuid serves an important function in the city of Rotterdam. The neighbourhood located on the south bank of the river Maas represents an extension of the city centre in the south part of the city and is a connector of the two sides of the river.

- However, the outcomes of the initial development by the municipality and also through different competition proposals like AIR, in Kop van Zuid, the impact on the residents and specially less affluent neighborhoods does not meet a large degree of its

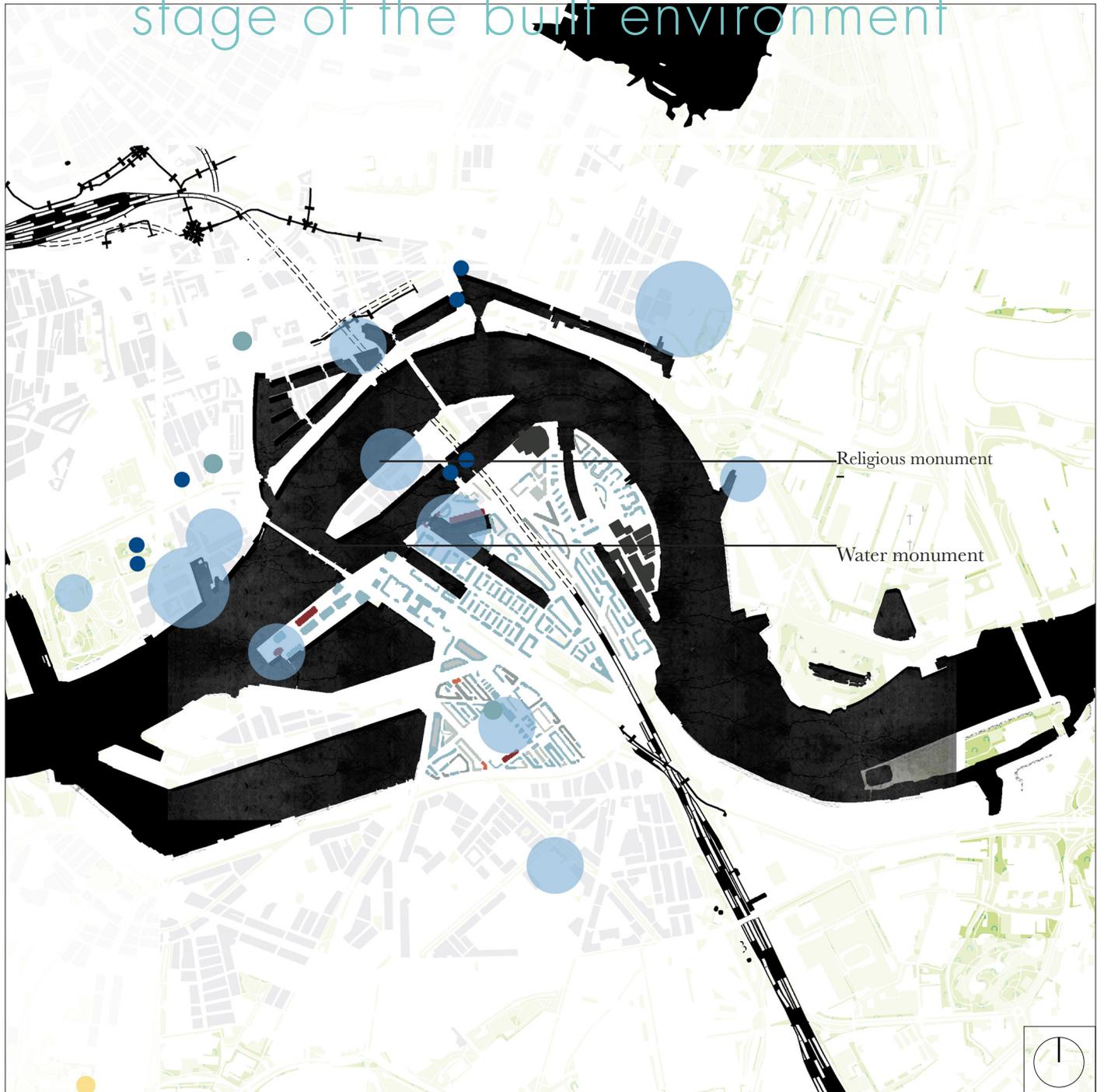
social objectives.

- The in-cohesive strategies moreover produced disconnect between the spatial and social fragments in the area.

- As a result, even though highly designed and formally landscaped, public space in Kop van Zuid, unused, while in the other neighborhoods, abandoned, littered and considered unsafe.

Source: Author- based on official documents

# Building period and Current stage of the built environment



• The building period analysis reveals which is the character of the existing urban fabric, while the current conditions indicate buildings that will need extra attention in coming years, and can be subject to transformation.

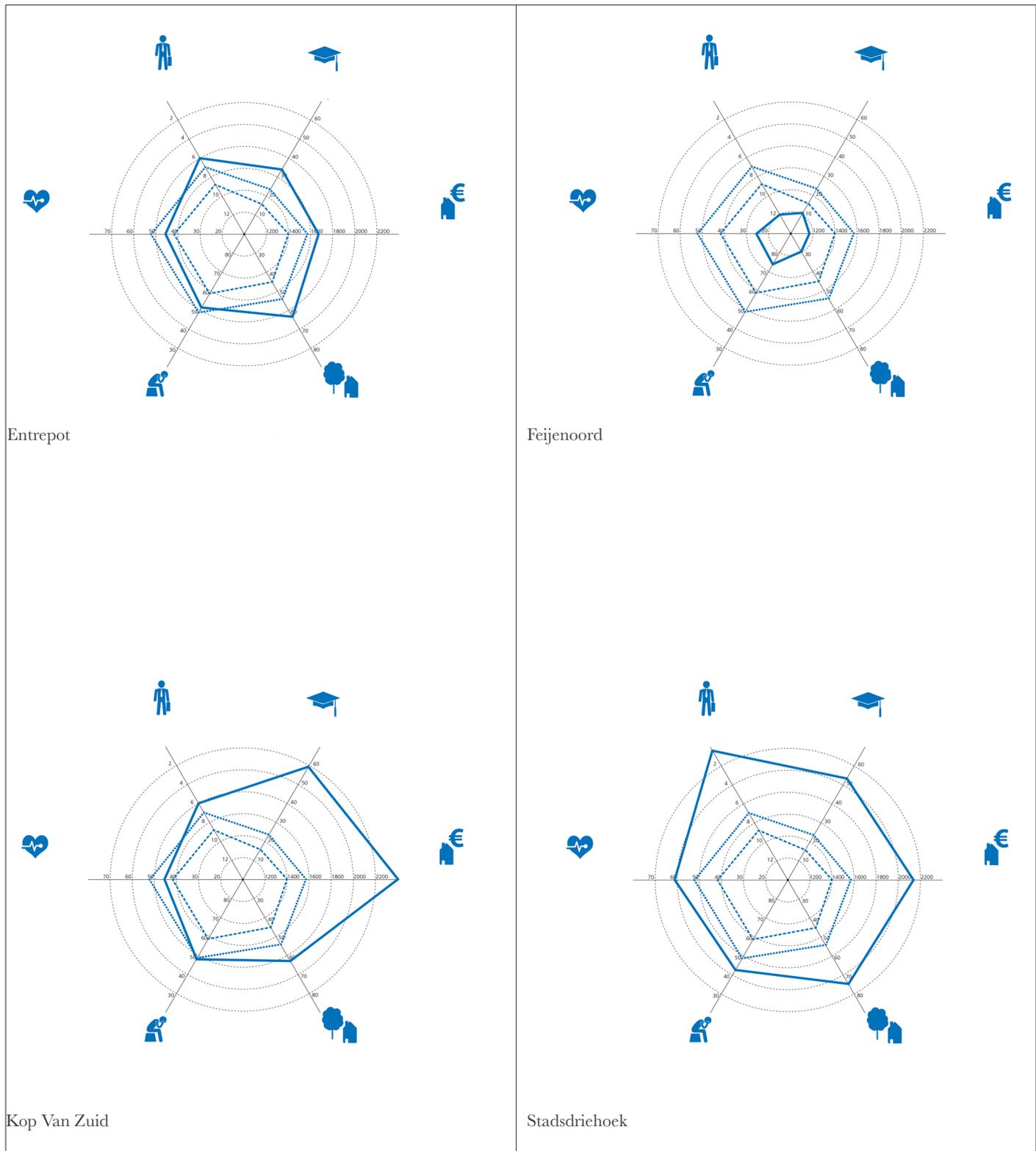
• In Feijenoord, the highest percentage of built environment is represented by post war housing, which creates an urban environment with little variety in terms of housing typologies. This type of urban fabric offers a potential for

transformation and also to provide more character to the area.

Source: Author- based on site analysis and official documents

- Constructed after 1975
- Original bldg
- Industrial bldg
- Monument
- Town Monument
- Original bldg renewed

# Comparision\_Social statistics



Work unemployment 19 to 64 years in%      Education completed HBO / WO 15 to 75 years in%      WOZ average woz value per m2 in euros      Housing environment ample 19+ in%      Loneliness moderate to very serious lonely, 19+ in%      Health experienced health good / very good, 65+ in%



# Landuse



Kop Van Zuid is still under transformation, and for the next decade, projects have been planned in the area- therefore the transformation process will continue.

The vacant land, and also the main core- Willems axis, comprises of a lot of green areas, and this causes barriers between the West and the east sides of Feijenoord.

- In the residential areas, 50000 homes have been planned by the year 2040

- The Eastern coast of Feijenoord is where the industries are located and the creative sector of Feijenoord as well. This does not fall within the daily routine of the local residents that live here. It also acts as a barrier to the waterfront, as the industries dont allow for public access to the waterfront.

As a conclusion- the clusters of landuse are mono-programmatic, and need to have more mixed use development. Infrastructure along with program that caters to the different user groups, can be used to better connect these regions.

Source: Author- based on site analysis and official documents



# Ownership



■ Rented  
■ Owned

There is 90% social housing, especially situated in the east of Feijenoord. The quality of these buildings is very poor- and the public amenities provided for the area as well.

As part of a development scenario for the area, the neighborhood in the east is to be made more autonomous and have sufficient improvement with regards to public functions.

The infrastructure and the missing links within the same are to ensure better connectivity from the East to the West of Feijenoord- also link it to the

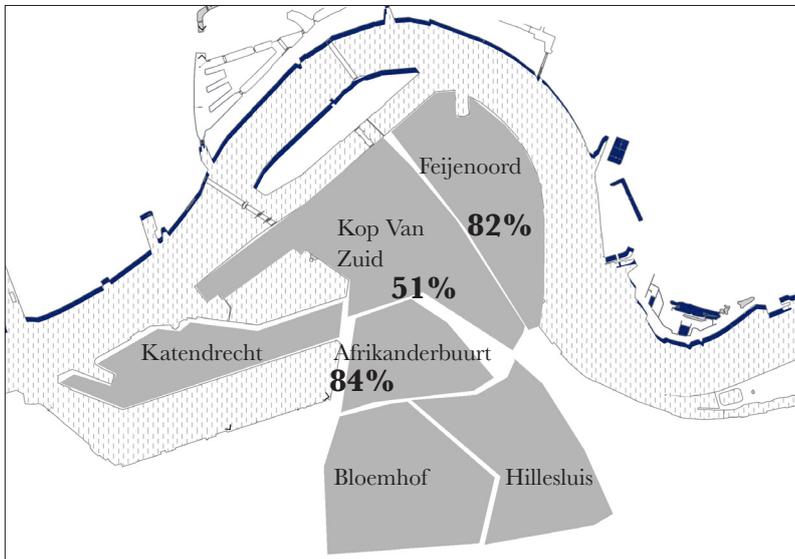
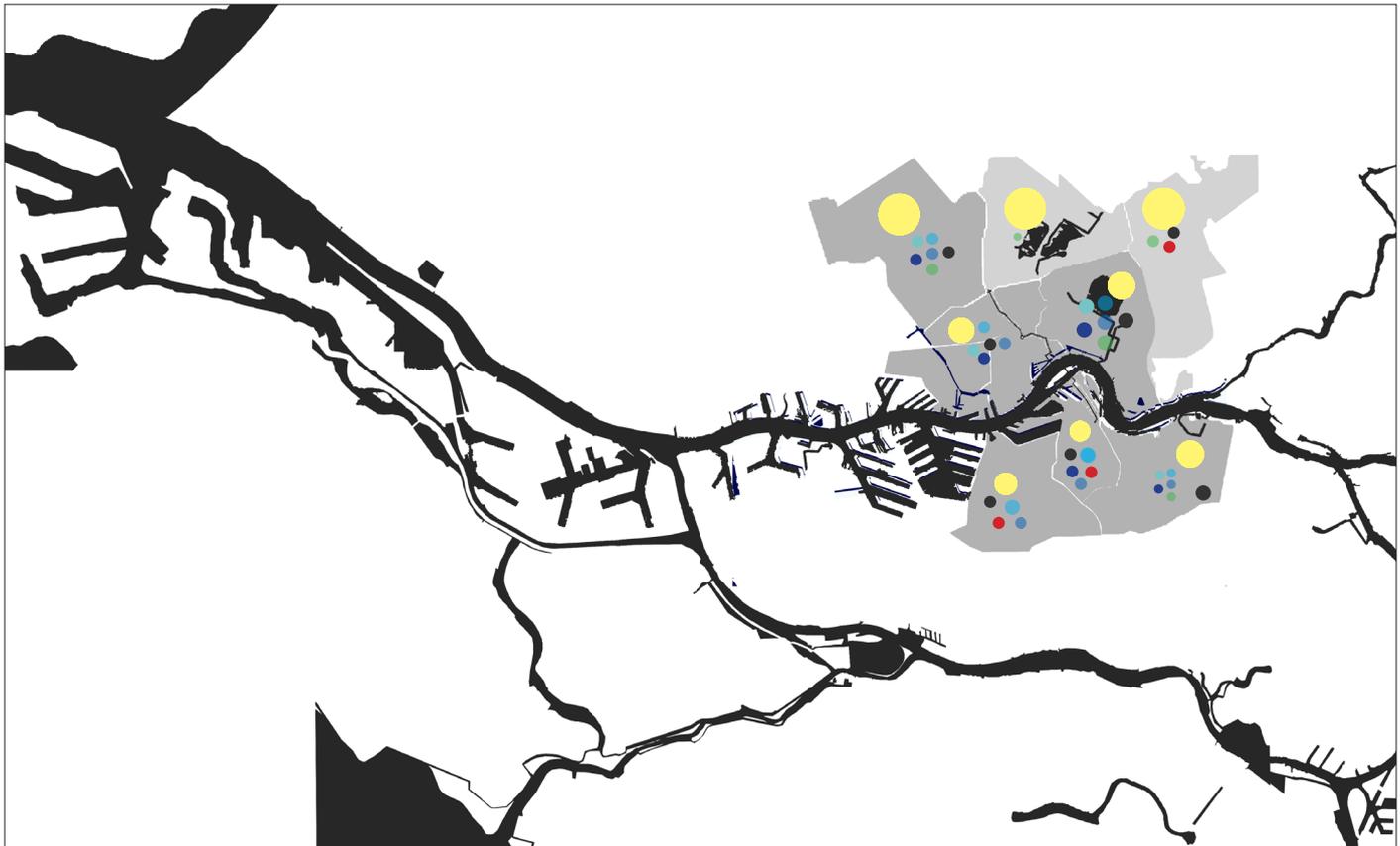
neighborhoods of Kop Van Zuid and Afrikaanderwijk.

The main housing agency that owns the rented housing in the area is Weenawonen and they have also been involved in the municipal discussions.

Source: Author- based on site analysis and official documents



# Ethnicity



- Dutch
- Kaapverdianen
- Marokkanen
- Turken
- Surinamers
- Antillanen
- Other non westerners
- Outside the EU
- Other Westnars

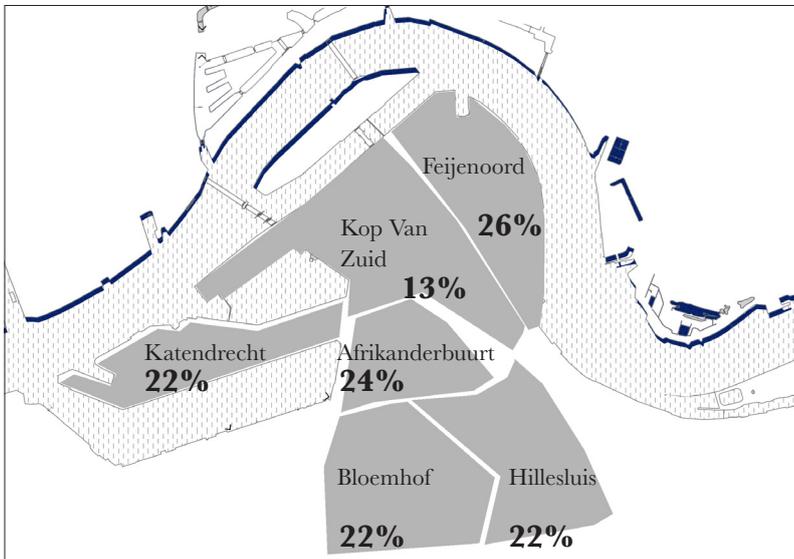
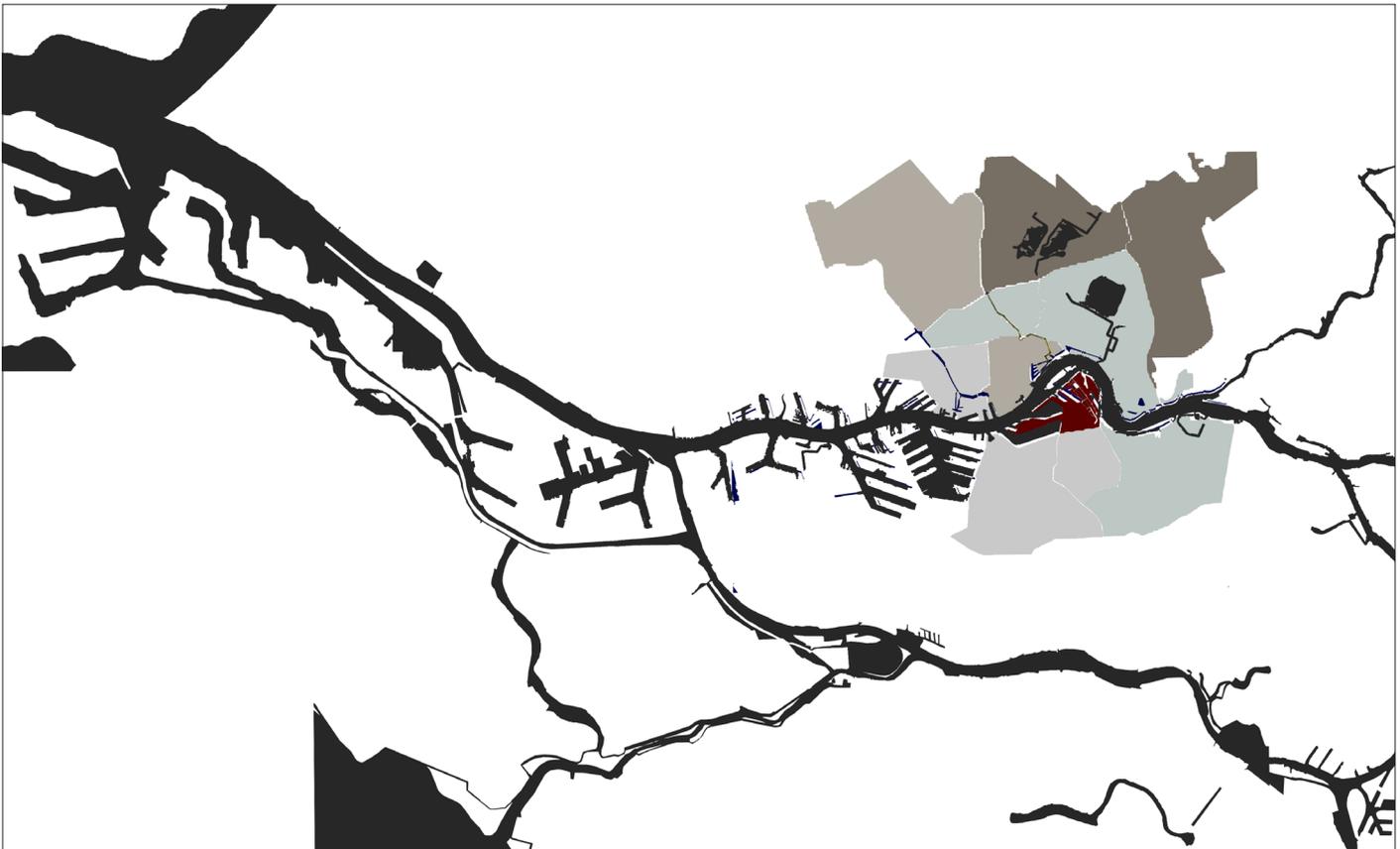
• Rotterdam has 45% of its population as foreigners with 173 nationalities, of which 8% is represented by Turkish immigrants. In Feijenoord there are 82% foreigners, of which 28% Turkish, while in Kop van Zuid there are 51% foreigners, of which 4% Turkish. This could mean that the Turkish culture represents a strong part of the identity of Feijenoord, however diversity is the best way to describe the identity of the neighborhood.

• This high diversity illustrates the diversity in demands that are raised from the public

space, which leads to the question of how best to design an inclusive environment for the all.

Source: Based on Historische atlas van Rotterdam. Nijmegen; Rotterdam: Nai010 uitgevers; Havens van Amsterdam en Rotterdam sinds 1870

# Income



Income per household

- Despite the large amount of Turks, Surinamese, Antilleans and Moroccans living here, this has not led to a multicultural recognizable immigrant environment, with regards to work opportunities.

- There is a mismatch with the amount of young people and the large workforce in this district and the neighbourhoods around it.

- A high unemployment has disruptive effects on the liveability in the neighbourhood, and also reduces long-term opportunities for the younger generation to remain back in the

neighborhood. Developing conditions for new job opportunities in Feijenoord and therefore a more sustainable economy is vital.

Source: Based on Historische atlas van Rotterdam. Nijmegen; Rotterdam: Nai010 uitgevers; Havens van Amsterdam en Rotterdam sinds 1870



Infrastructure



Built



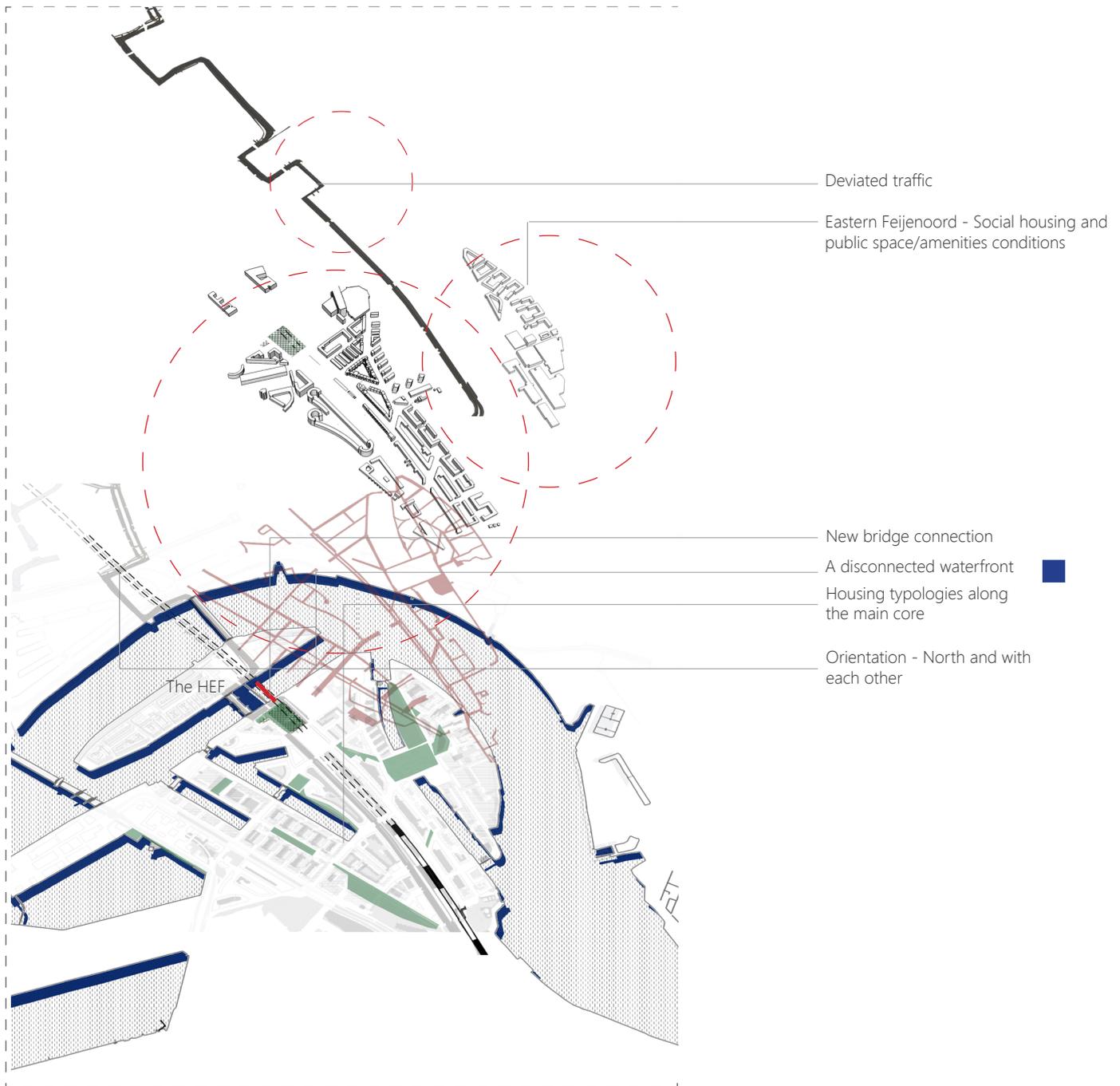
Parks



Waterfront

## Strategy Layers

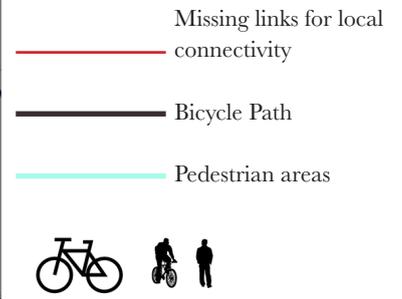
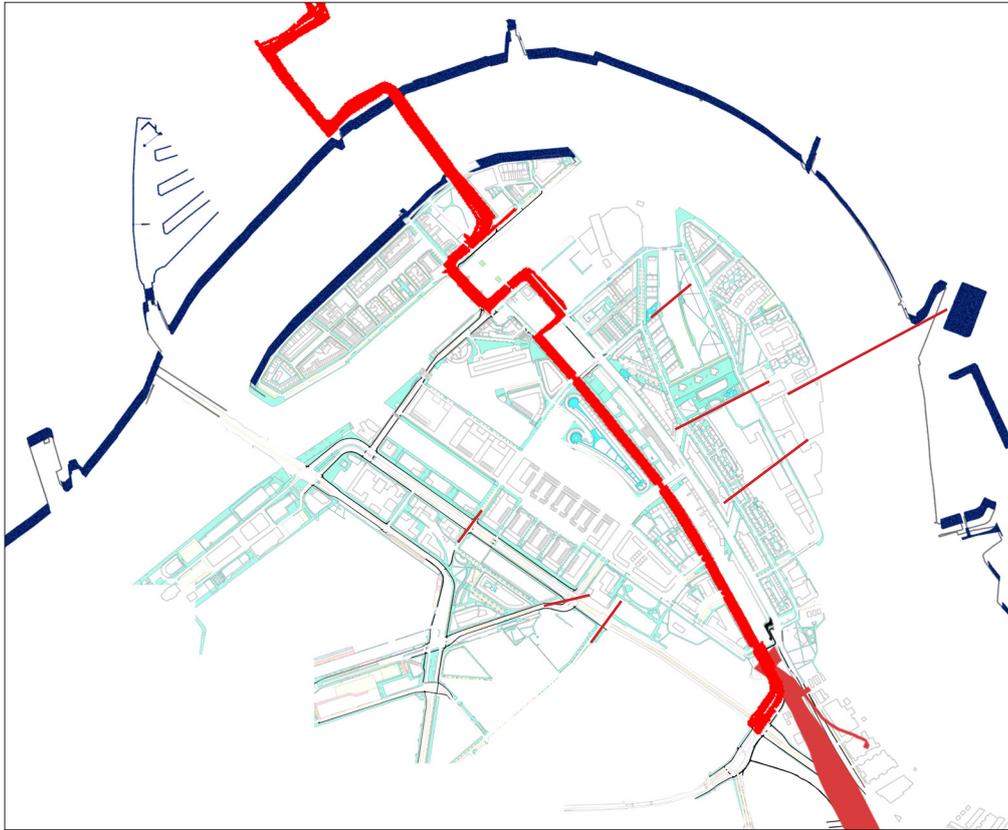
### Demarcating Spatial fragments



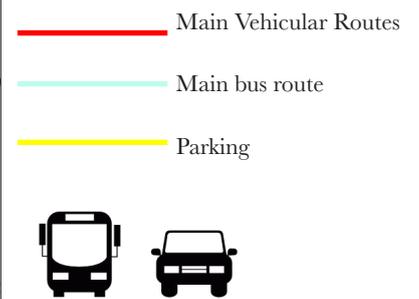
The broader research investigations that led to 4 thematic layers for further research specifically in Feijenoord: The strip (Rosestraat/Oranjestraat), The waterfront, public space use and the square at the HEF

Source:  
Author

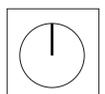
# Existing Street structure



Filling in the missing links and and strenghtening existing connections- to have a continuous local bicycle track, and shared streets



Filling in the missing links and and strenghtening existing connections- to have a continuous local bicycle track, and shared streets



**The Strip\_ Position within larger infrastructure**



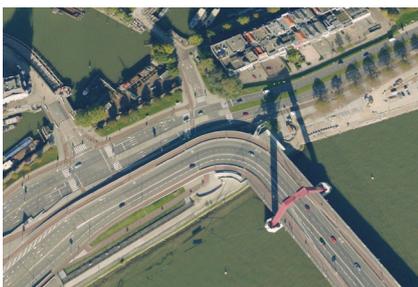
**How to design for maximum bridge use and capacity, and the consequences of this development on an already fragmented Feijenoord?**

**How to integrate the bridge- and thereby infrastructure as a new typology and function of public space in Feijenoord.**

Junctions addressed through the design- text to be included



Junction1



Junction2



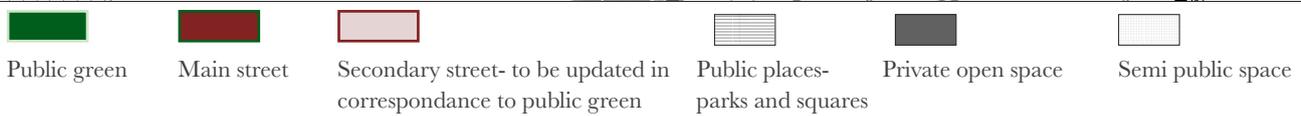
Junction3



Junction4

Source: Author- based on site analysis and official documents

# Typologies of Public Space



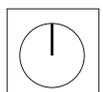
The relation between public space analysis to infrastructure, built environment, waterfront and green areas is carried out to indicate conflicts, and opportunities where design interventions can take place.

The existing situation of the neighborhoods is studied and relationship between everyday public life and integration of the spatial themes within everyday public life is conducted.

The degree of permeability of the buildings was analyzed, also then based on the built typologies of

teh different blocks. Accessibility could also then be measured, to enetually have better connections with the rest of the neighborhood.

The proposed relationship between these everyday circulation spaces on site, is designed for as public places.

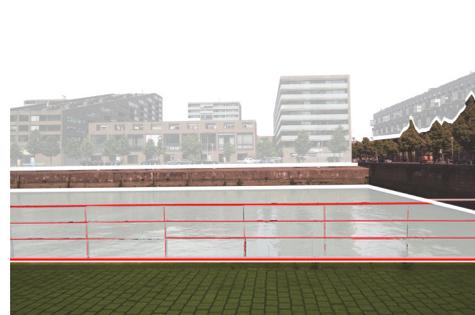


# Relationship with Infrastructure- in Feijenoord

Public spaces adjacent to main infrastructure



Demarcation of different elements  
conflicts/barriers



Railing+Walkway



Not enough crossings  
Opportunity to design usage



Fence  
Seating



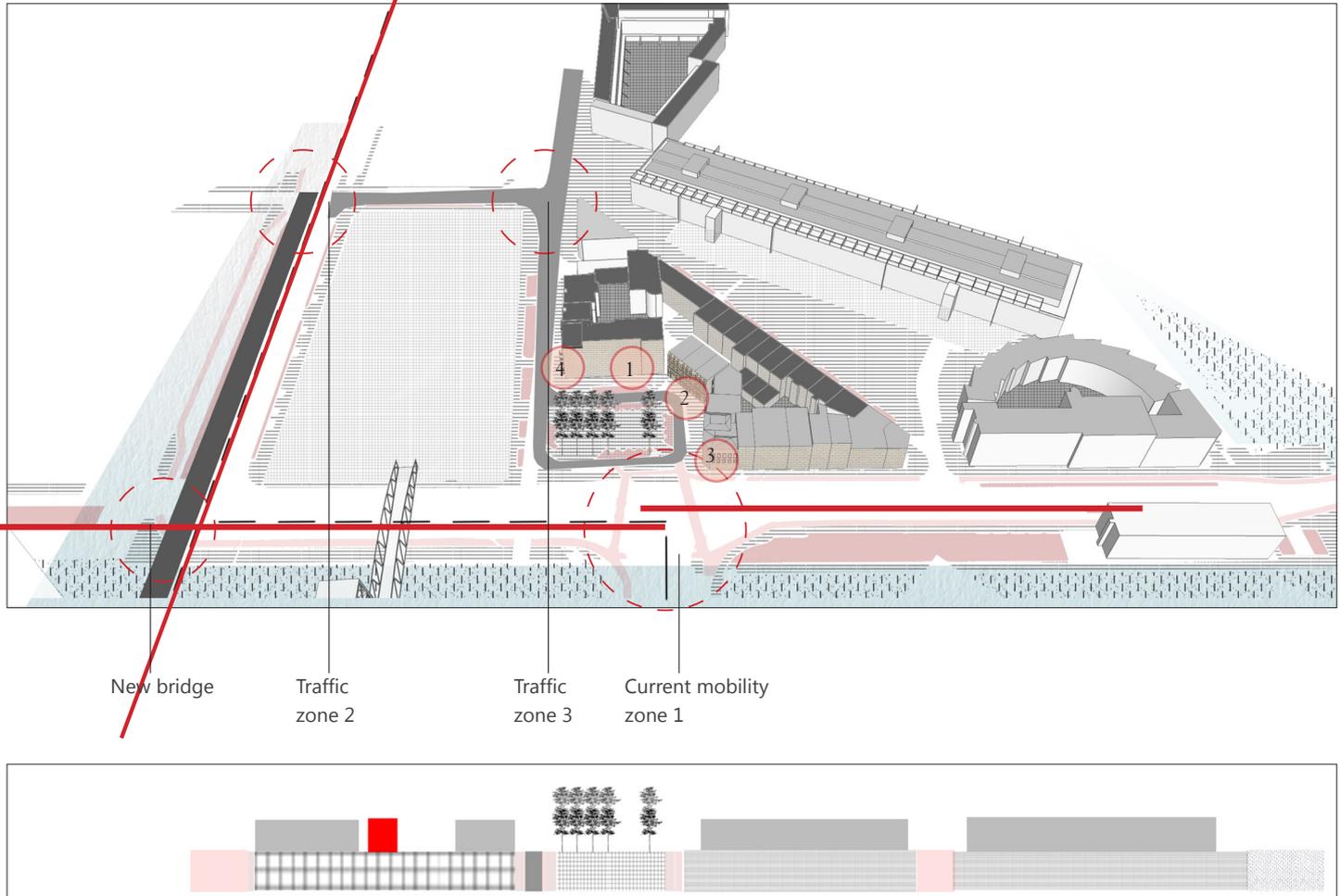
Fence  
pedestrian road



Source: Author- based on site analysis

# Typology of buildings around the strip\_Zone 1

The approach - Scattered development + transition zone



Parking Main square + HEF + bldg Main Small square Road - car+bikes + bldgs Parking Road - car+bikes + bldgs Water Parking Parking



1



2



3



4

- The typology along the main entrance is scattered and makes for an uninviting space, primarily due to incomplete and disconnected movement patterns. The current traffic from Konningebrug diverts at the junction demarcated above, and this causes disruption in pedestrian and cyclist movement.
- The HEF quarter has currently been allocated to the community for use, but is lying in abandon.
- Parking around the waterfront and the green areas in this neighborhood also disrupts smooth crossings and

pedestrian movement.

- There are shops along the ground floor, however they do not cater to the needs of the community, and therefore act as a hinderance instead.
- Small interventions to extend the threshold towards a more community oriented approach are demonstrated and carried forward in the final design proposal.

Source: Author- based on site analysis and official documents

Facades



Residential ground level



Commercial ground level



Attempt to introduce mixed use ground floor



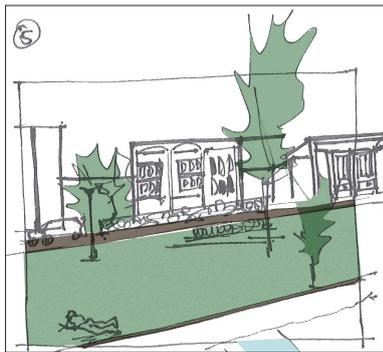
Attempt to introduce mixed use ground floor

Source: Author- based on site analysis and official documents

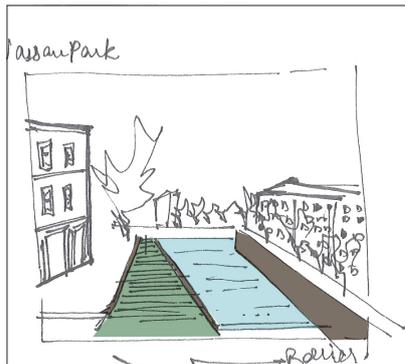
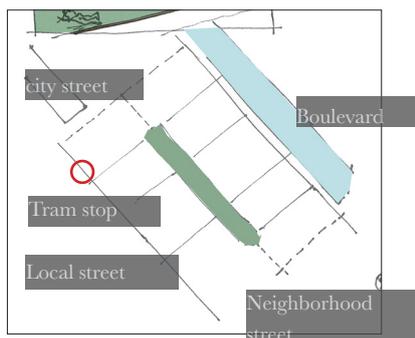
# Typology of the formal green areas- parks and their relationship to the context

Typology of public parks- specifically formally design spaces which are primarily non functional and are not inclusive spaces for Feijrnoord- due to a number of barriers.

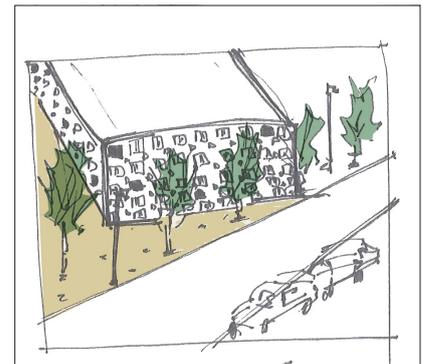
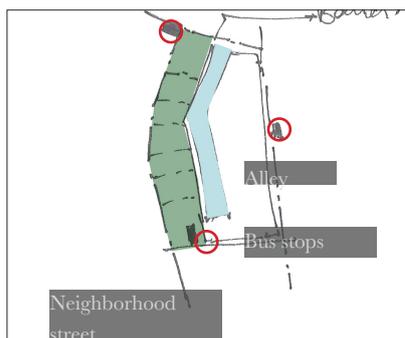
1. The type of adjacent street- hierarchy does not match function and program
2. Spatial barriers like parking
3. Not maintained well- abandoned spaces



Witteveenplein

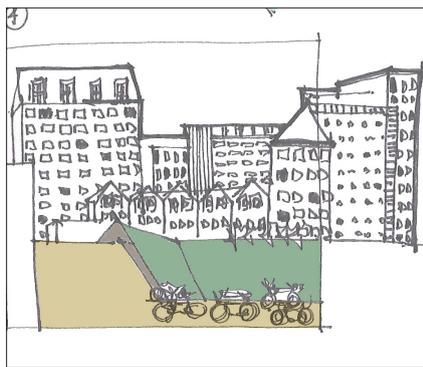


Nassau Park



Lodewijk Pincoweg

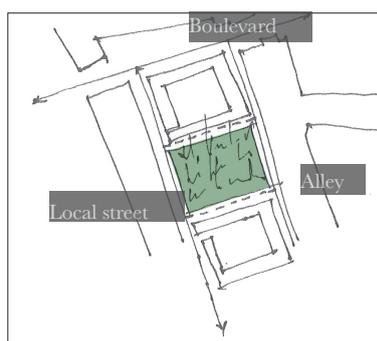
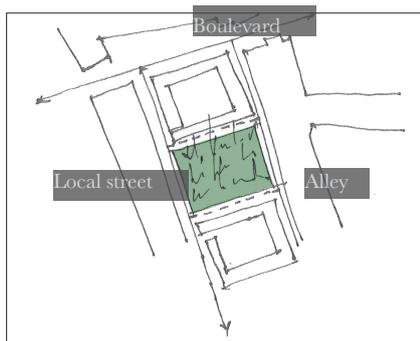




Plein Loods 24

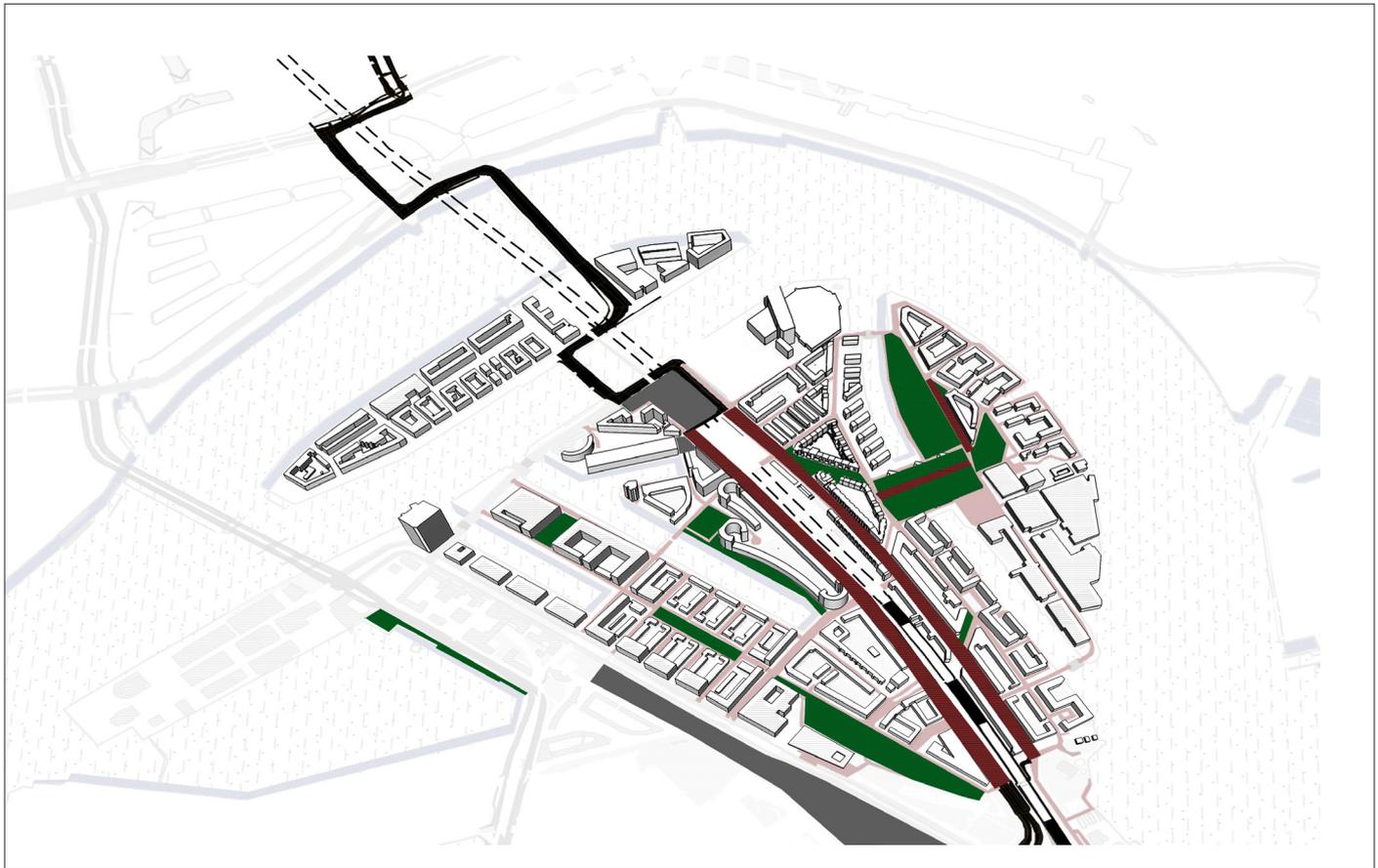


Nassau Park



Source:  
Author- based on site  
analysis and official docu-  
ments

# Parks in relationship to Infrastructure



Public green



Main street

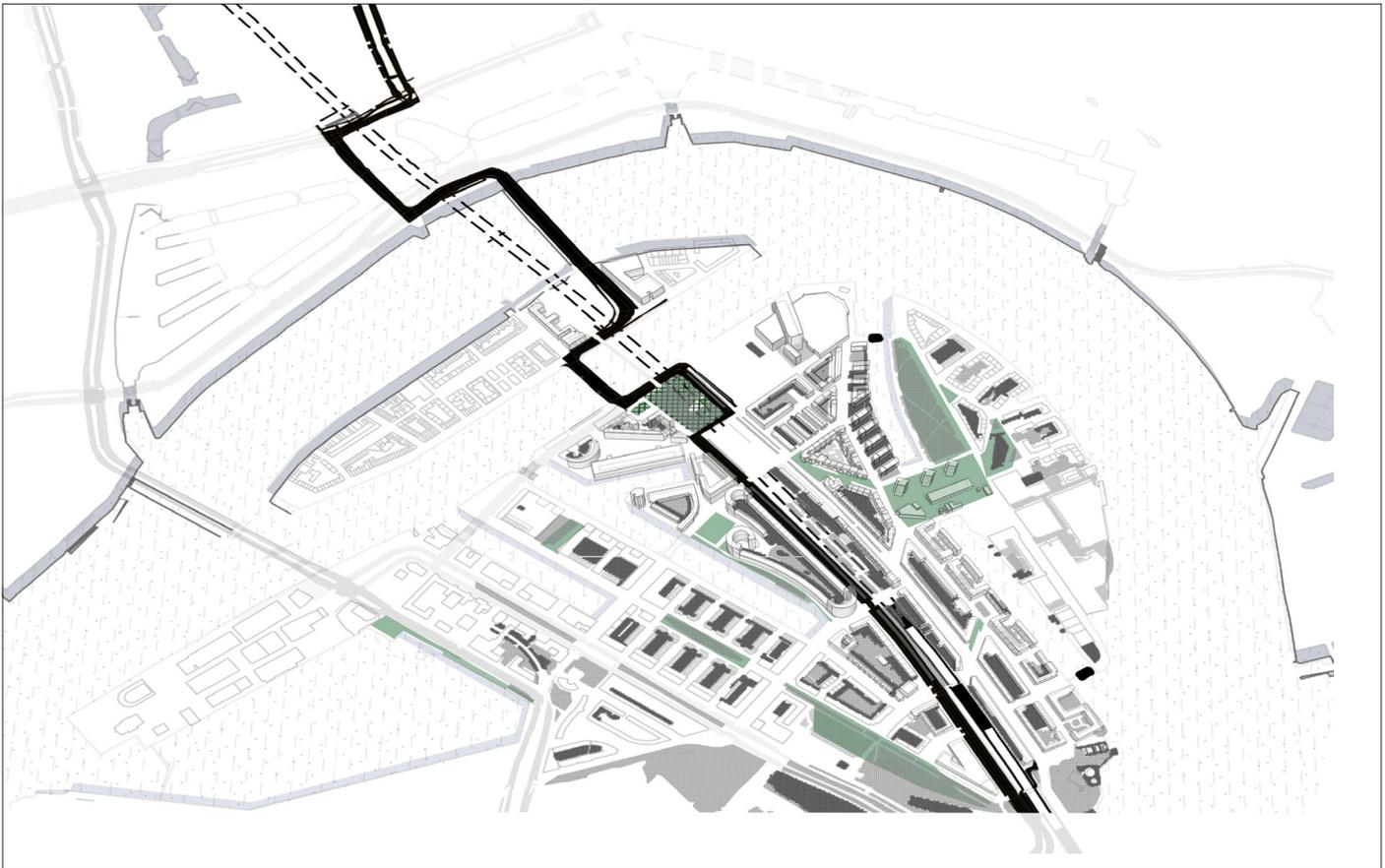


Secondary street- to be updated in  
correspondance to public green

Spatialization of formal public greens in the area- and the mis-connection with the infrastructure- leading to unused, abandoned public spaces- with no diversity formally, or in terms of program.

Source:  
Author

## Different types of public spaces- Overview



-  Public places-parks and squares
-  Private open space
-  Semi public space

Here, the more informal public inbetween spaces are demarcated- and further analysed specifically with the site area in place

The public spaces here are very inwards looking in nature, and therefore street activity is restricted- no eyes on the street- due to blank, lengthy facades.

The potential for the public space network has considered based on three different aspects: the characteristics, the functions, and the morphology, based on which it has been determined the way these public spaces contribute into the whole public space network.

### Characteristics

The characteristics of the public space refers to the materialization of the public space, and considers the

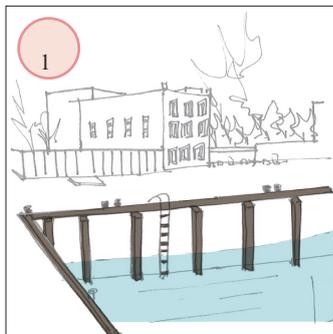
degree of specificity that the public space is presenting, the attributes of the public space: so the public space a place to stay, to traverse, is centrally or sub-centrally located, is paved or with grass, and the use pattern so is the public space is physical and mentally accessible during evening time and day time.

### Morphology

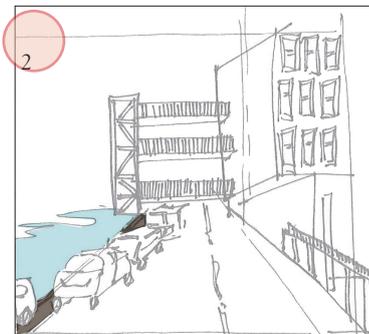
The morphology of the public space, and the connectivity with the different street hierarchy, determine that certain functions can take place. These are further resolved and elaborated in the design.

Source:  
Author

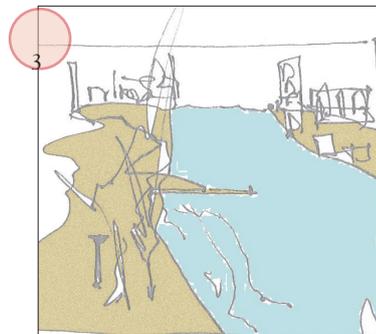
# Spatial Barriers along the Waterfront



1 Breakwater- wooden posts - anchors



2 Parking - main road - industry



3 Natural insert - break water - quiet housing

Potentials for Intervention- Why? These are already 'landscaped' waterfronts although underutilized

Elements guiding waterfront activity.. or lack thereof. While certain waterfront are designed based on function- where the harbors are present, others are inaccessible due to the presence of industries that have made waterfronts inaccessible to the public.

The analysis focuses on showing the disconnection of infrastructure from the waterfronts in the South of Rotterdam- along the main river body and the quays.

The relationship of the waterfront to the inland is also studied based on the immediate function of the inland.

Physical elements that interfere with permeability of the waterfront within the urban fabric of Feijenoord like wooden post and anchors for the harbors, the quality of the waterfront- from natural to more formally landscaped are isolated.

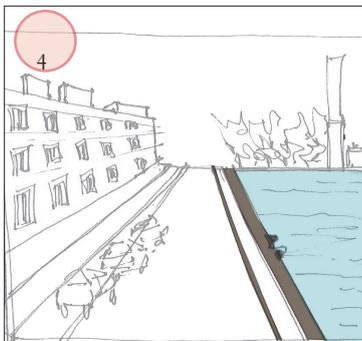
In the following pages, the different characteristics of the waterfront are then identified are inclusive, attractive, scattered, focussed, ornamental- based on the relationships to the immediate inland- physical and functional.

Therefore certain conclusions are made regarding why there is a conflict in this relationship, and therefore a disconnect. In some cases its due to high speed infrastructure which doesnt allow clear access to the waterfront, or due to parking allocated directly behind the water.

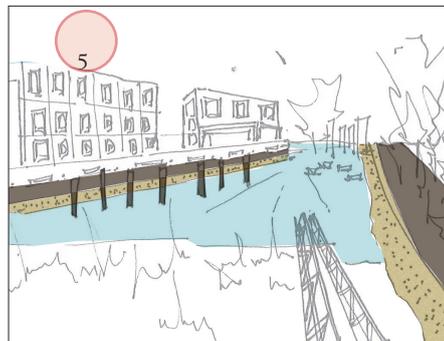
The design then attempt to resolve these conflicts- and re-define the characteristics of the waterfronts in the scope of the site chosen.

Tools: The overall vision is to blur the boundary between the city-side and the waters- by creating improved access to the waterfront. Specific design principles for the waterfront aim to improve pedestrian access at key points across the barrier.

Upgrade links to vibrant city areas to bring the life of the city to the water and vice versa.



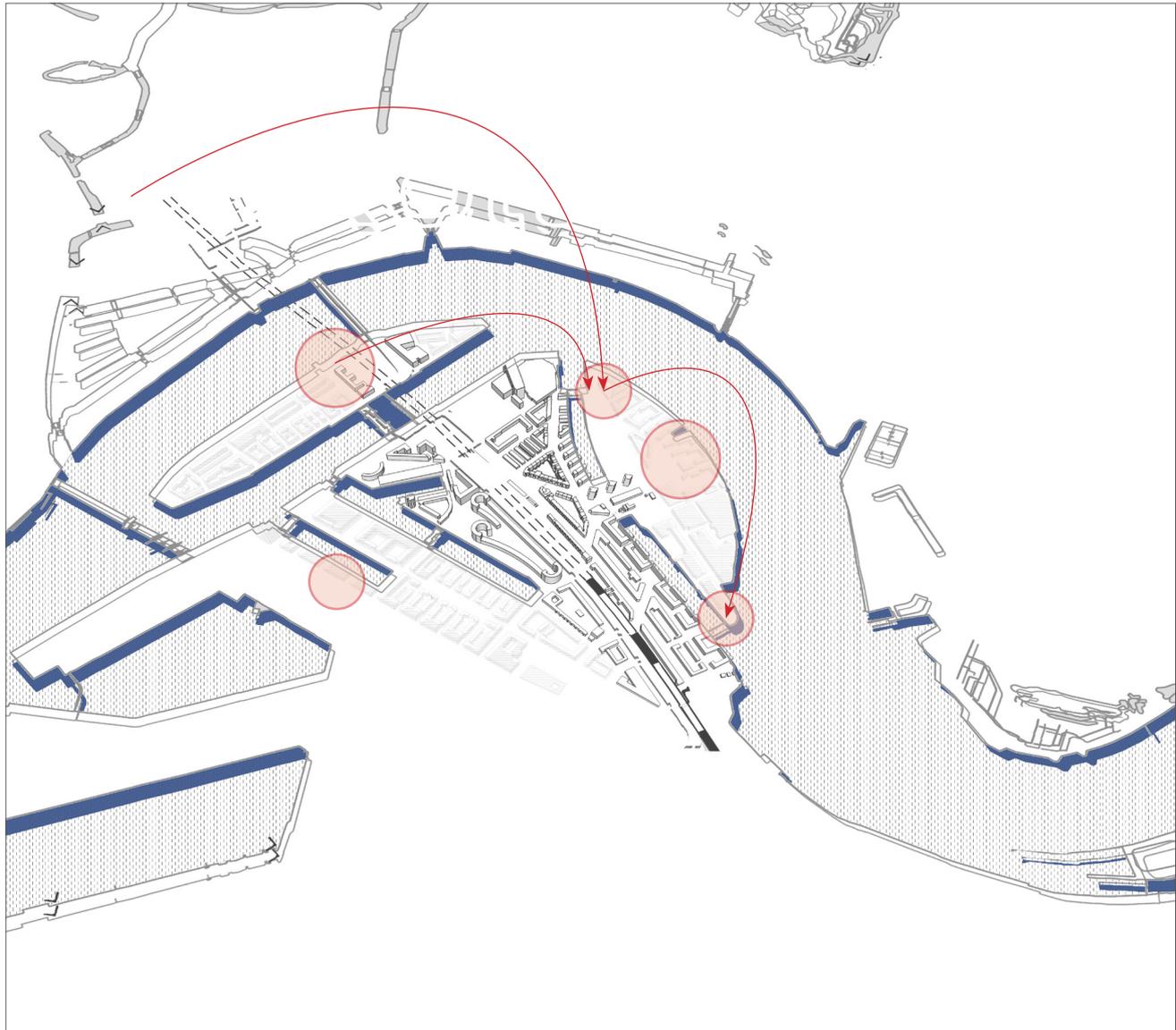
Tram line - Parking - Anchors- public promenade



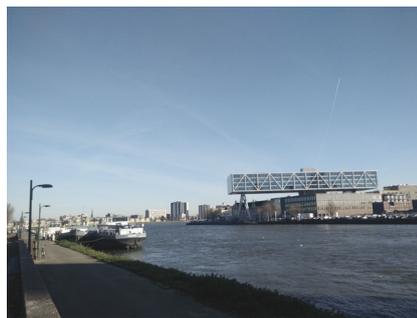
Break water - Wooden posts - open landscape - 'pier'

Source:  
Author

# Spatial Barriers along the Waterfront



Feijenoordhaven



Towards the Hef



Eastern waterfront

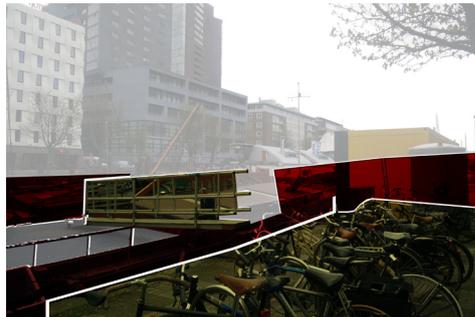
Waterfronts along the Willemsaxis



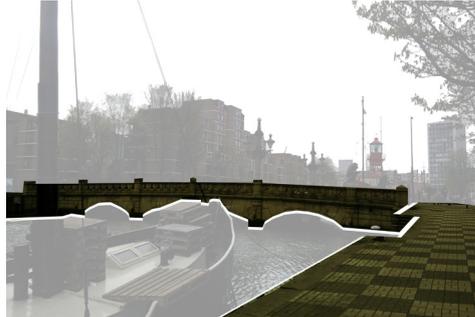
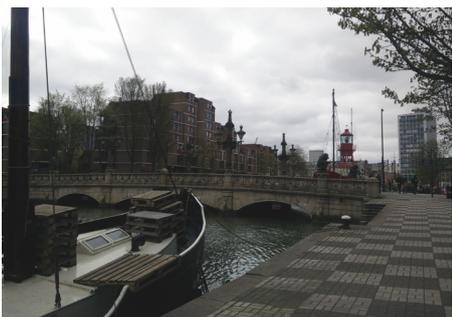
Demarcation of different elements  
conflicts/barriers



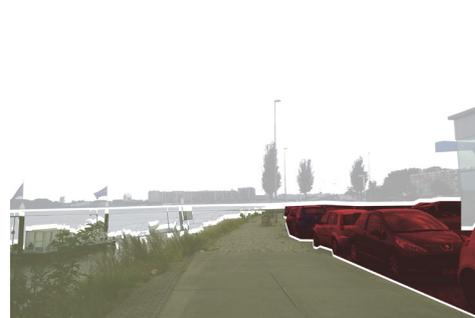
Fence  
Seating for waterfront+access



Fence- barb wire  
cycling road+bridge



Railing allowing overview  
pedestrian road



Parking  
pedestrian road

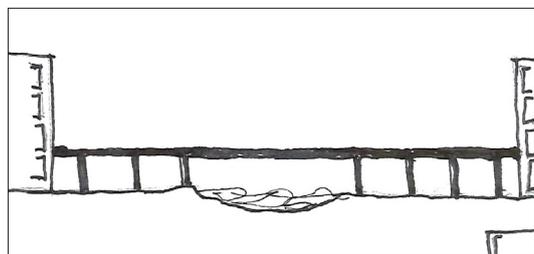
Piekstraat

Images by author

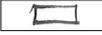
# Waterfront to Inland connection

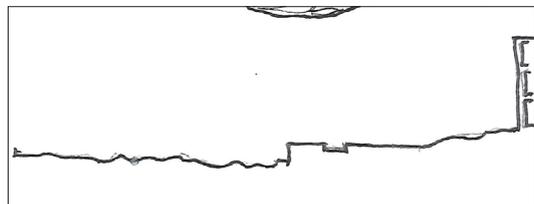


Analysis to determine the different relationships of the water with the immediate inland- infrastructure, built and green

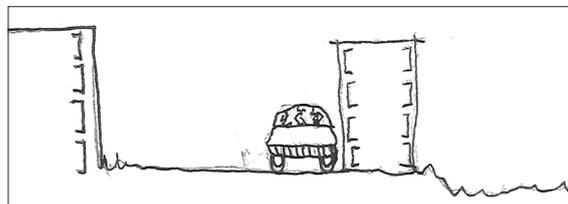


1

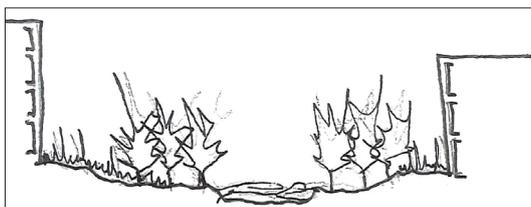
-  Paved\_Used by public
-  Paved\_Unused by public
-  Unused by public
-  Used\_Natural
-  Unused\_Outer parking\_Road
-  Used\_Hard edge



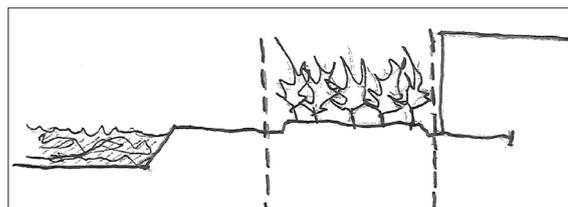
2



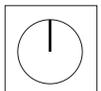
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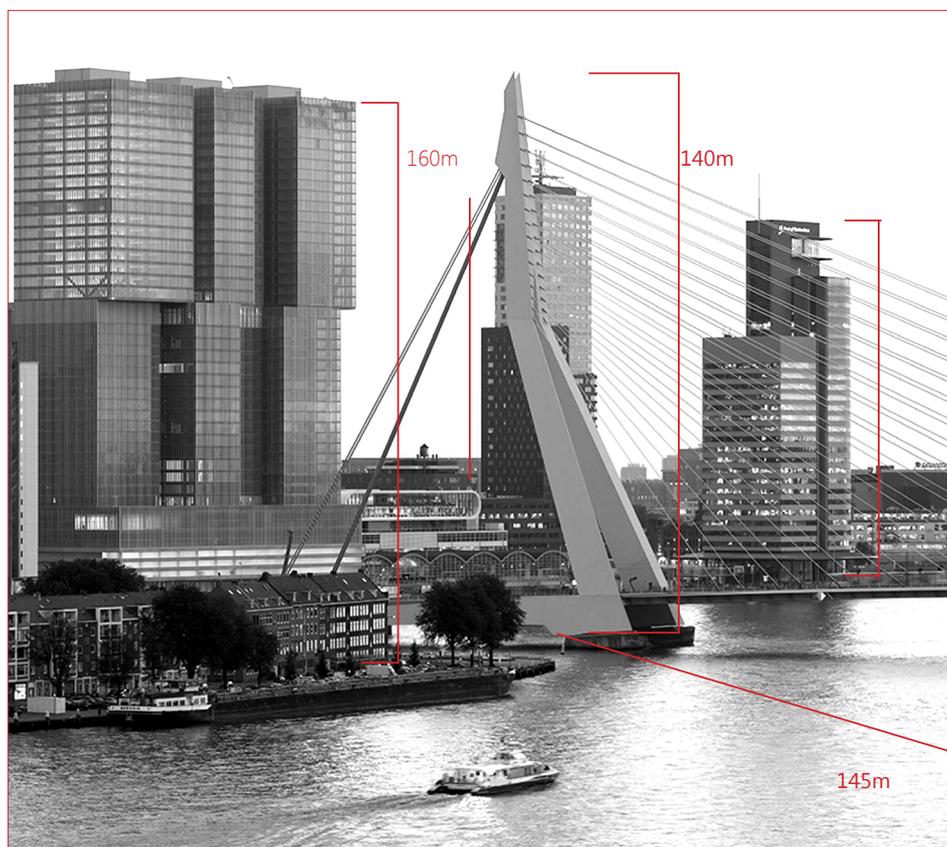


5



Source:  
Author- based on of-  
ficial documents and site  
analysis

# Vertical Rotterdam



Vertical facades facing the waterfront

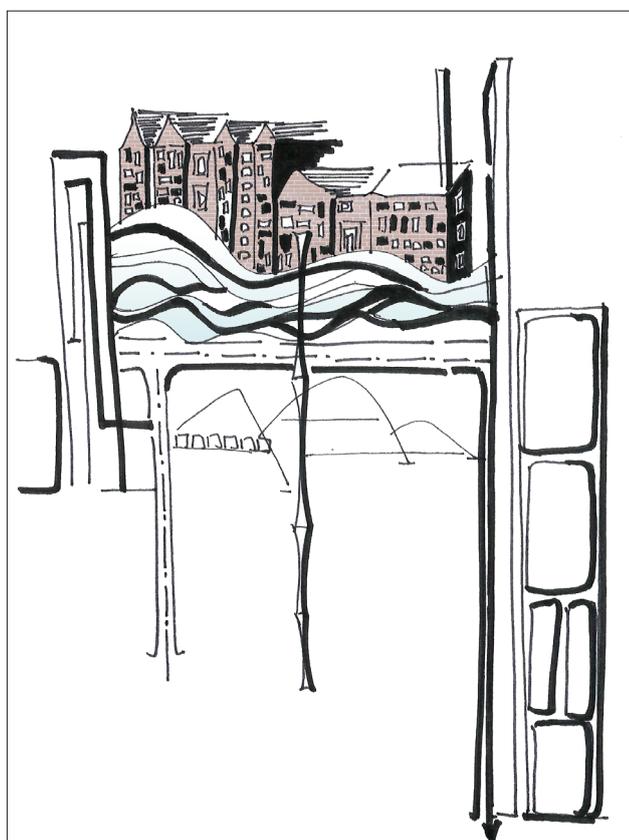


Illustration by author

Source: verkeerinbeeld.nl

# The HEF Bridge

The bridge lies between the North Island and Feyenoord. The adjacent Koninginnebrug was for normal traffic. It formed the connection over the Nieuwe Maas between the North Island and the city on the north bank with the adjacent Willemsbrug.

- The HEF was especially 'in the twenties and thirties an inspiration for writers, filmmakers and photographers such as Paul Schuitema, Joris Ivens (1928 Bridge) and Andor von Barsy.
- The bridge was rammed in 1918 by a steamship. Designer of the new bridge was Pieter Joosting (1867-1942), Head of Bridges Department of the Dutch Railways. He designed the new rail link

across the Koningshaven a lift with two lift towers

where a movable bridge portion could be increased. In March 1925, work on the lift was started. William Bridge was raised and the construction of a new Koninginnebrug commenced.

- On October 31, 1927 the lift bridge came into use.
- With the commissioning of the Willem tunnel on September 15, 1993 the lift bridge was unnecessary. It was slated to be demolished and thus disappear from the cityscape. But the city council for maintaining the lift decided on December 16, 1993 whereby it was preserved as an industrial monument.



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- The heritage quality of the HEF bridge is used as a catalyst in the design strategy and it is included as a functional part of the movement network within Feijenoord.

Figure 3: Shows the present condition of the landing of the bridge



Image 1,2,3 Source: Author



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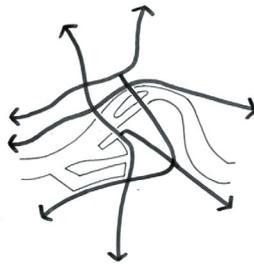
Images taken from film:  
Joris Ivens, De Brug,  
Vimeo,  
Rotterdam Municipal  
Archives

Scenarios- based on new  
developments

Urban Level



Governmental level



Feijenoord- Neighborhood level



The main strip between Rosestraat and  
Orangeboomstraat

# Future development for Feijenoord



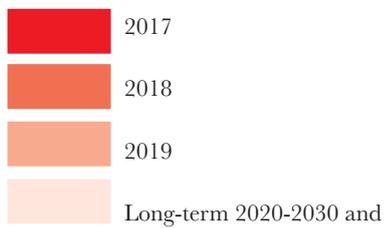
-  Floating experimental work spaces
-  Social housing Feijenoord
-  Hef Kwartier
-  Housing at Veerlaan
-  Parkstad Feijenoord city
-  The HEF bridge
-  New connection
-  Pedestrian bridge
-  Nodes to be strengthened

Source:  
 Author based on NPRZ  
 plans+municipal discussions



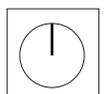


1. Willemsbrug West
2. Wijnhaven/Glashaven/Scheepmakershaven
3. Boompjes
4. Hefkwartier
5. Nassauhaven
6. Hefblok
7. Entrepotblok
8. Zinkerblok
9. Dukdalschool
10. Persoonsdam
11. Rijtuigweg
12. Piekstraat
13. Persoonshaven / Steenplaat
14. Pols
15. Bloemfontein
16. Parkstad
17. Stadionpark fase 1
18. Stadionpark fase 2

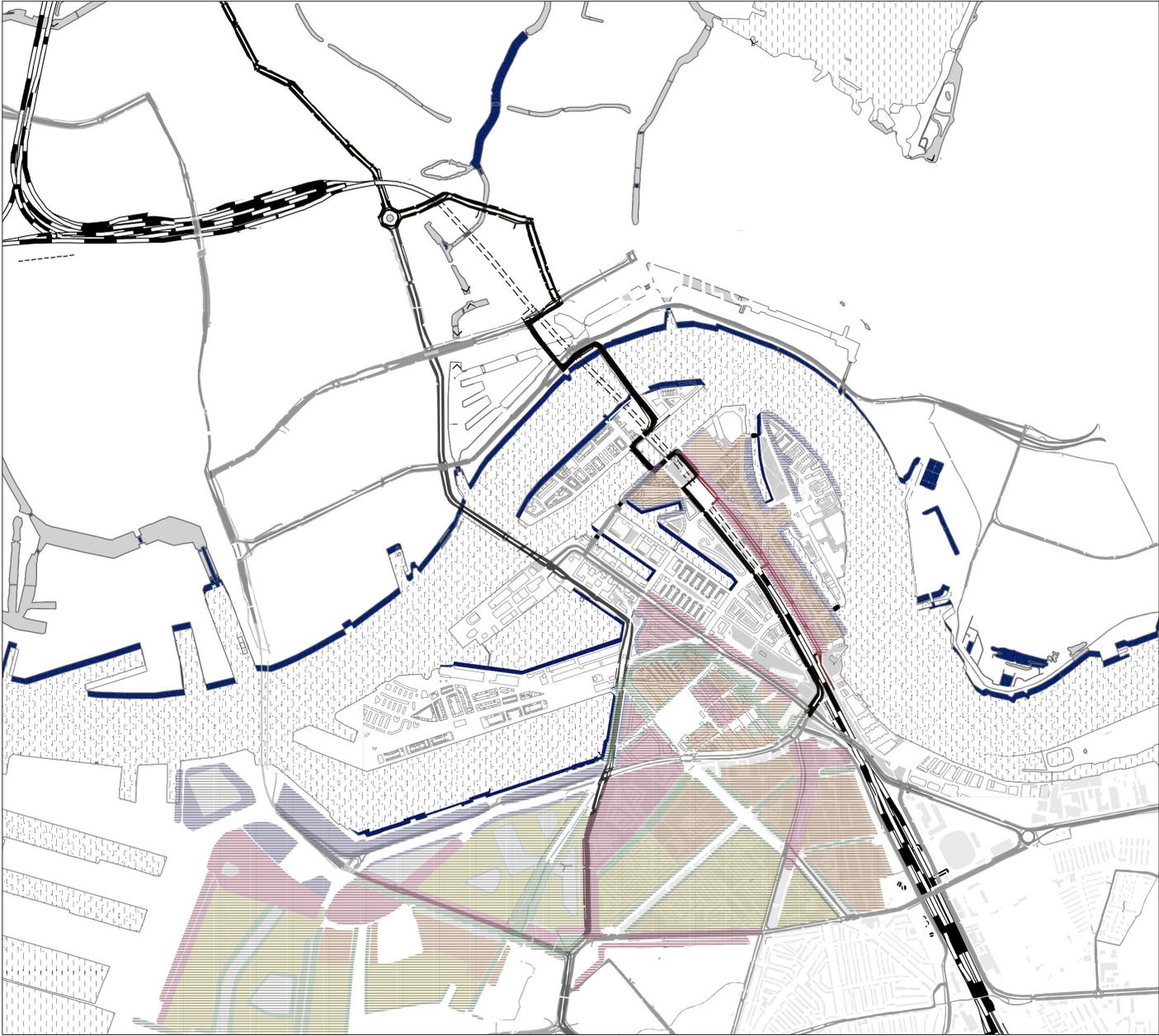


Source:  
Author based on NPRZ  
plans

Source:  
Author



# Future development for Feijenoord

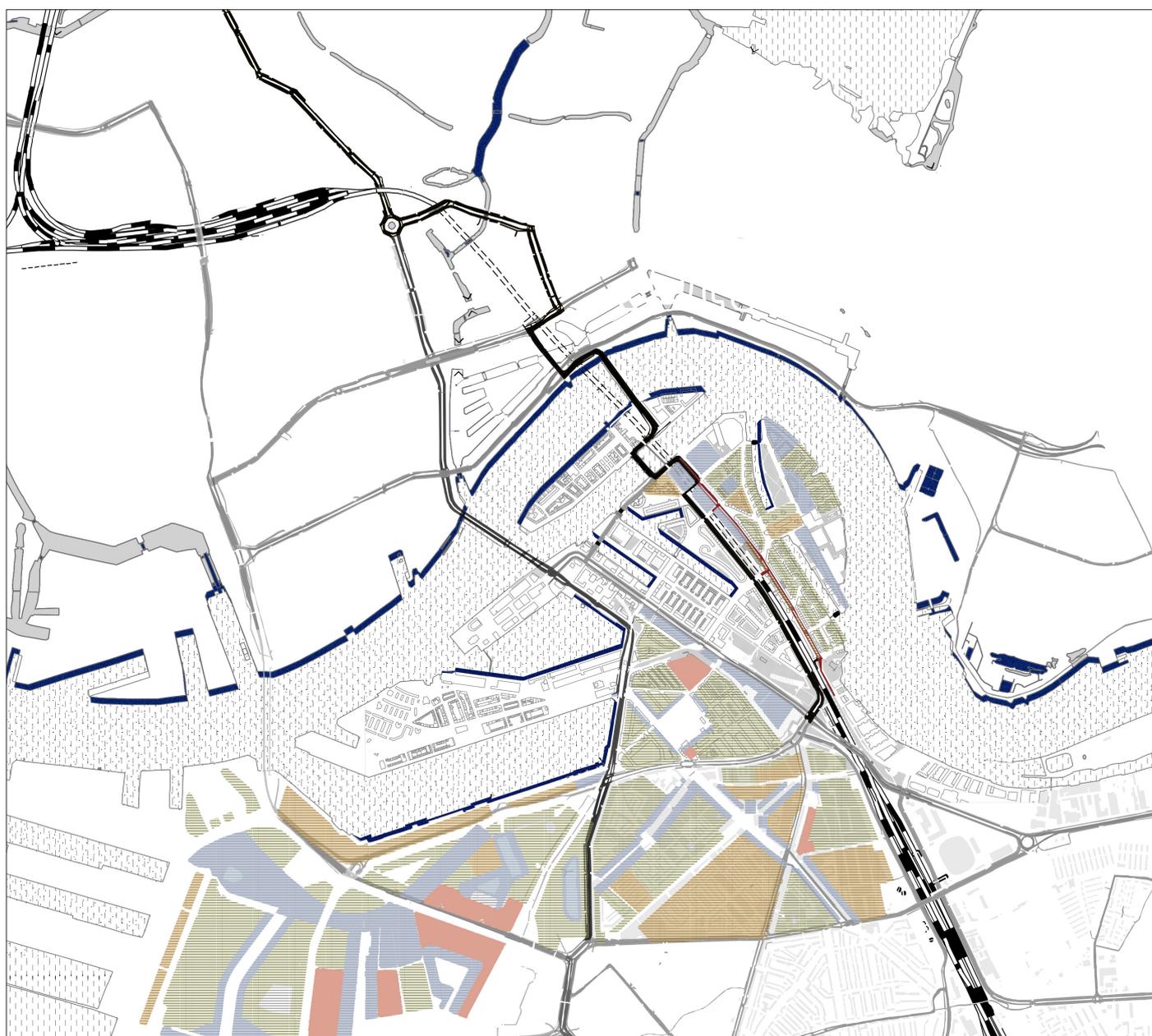


- Riverstad
- Quiet living 1
- Quiet living 2
- Quiet living 3
- City Housing

Source:  
Author based on  
plans



# Future development for Feijenoord

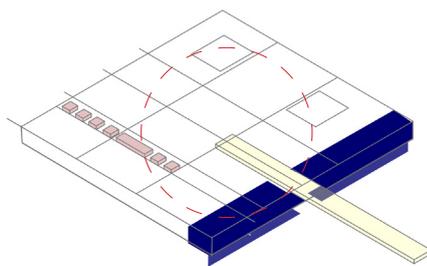


- Management
- Potentie
- Transformatie
- Differentiation

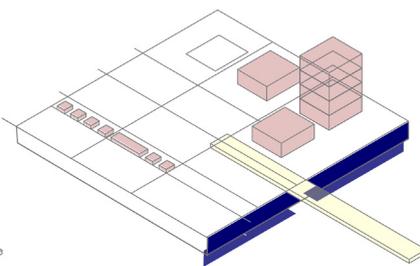
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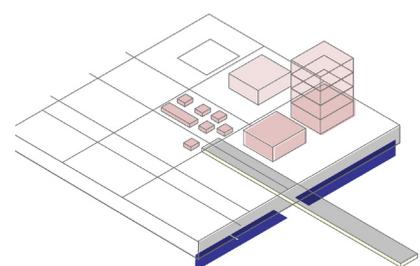
# Metropolis on the Maas



Current situation- unused open space at the landing



Transformation of the HEF square and Rosestraat to a transport hub- Manhattanization. Clustering of shops and high rise housing developments along the waterfront and core



For the 1st scenario the city has proposed a scenario which they also refer to as the Manhattanization of the Maas. This scenario has the maximum large scale implications on the urban footprint of Feijenoord. The main reasons for this scale of interventions are as follows:

#### Metropolis on the Maas

- To create an internationally attractive business climate- in order to generate developer interest in Feijenoord
- Mix of living, working and visiting
- High-quality environment
- Presence of the river is felt everywhere
- Primate with pedestrian
- Pleasant city at eye level
- high-frequency (region) metro
- New Station Entrepot
- P + R hubs near the diamond
- Old Hague Water Hub
- References: Trees, Station Square, Grotekerklein, Binnenrotte, Wilhelminapier

#### INTERVENTIONS:

##### 1. The new bridge connection:

Introduction of a new connection parallel to the HEF bridge, connecting the Willemsbrug bridge to the South of Rotterdam.

Why? All other bridges are at maximum capacity, therefore there is a need for a new bridge to also connect it better to the North of Rotterdam, the city centre.

##### 2. A new metro station:

At the Entrepot, following the MAAS tunnel-construction completed in 1942, a new metro station is proposed, thereby also looking at the area at the landing of the HEF bridge as a mobility zone.

Why? To increase metro frequency and also to generate developer interest in the area.

##### 3. Development of the HEF square:

As a consequence of the new bridge connection and the construction of the metro station, the square at the landing of the HEF bridge becomes a mobility zone of sorts, and needs to be designed. The broader goal of this intervention was also to form a relationship between the square of the new bridge+ the HEF and the square at the base of the Erasmus bridge.

Although the adjacent road down South, Posthumalaan, does not fully function as intended as a high mobility road, the square has acted as a catalyst for development of Wilhelminapier and the waterfront along the Erasmus bridge.

Why? To integrate these infrastructural interventions within the urban fabric of the city.

##### 4. Rotterdam Zuid station:

Rotterdam Zuid station is re-positioned and re-designed as shown. It connects to the strategy for a high frequency metro station. Re-development of the station is to thereby act as a catalyst.

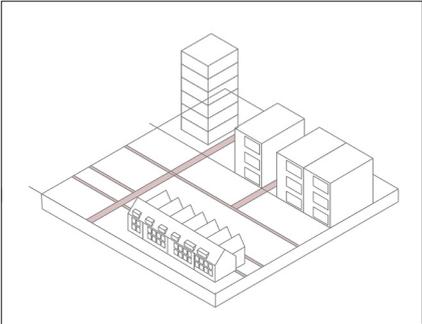
##### 5. High Mobility bridge from the Eastern waterfront to Feijenoord city:

There is a proposal for a high mobility connection in the South of Feijenoord- to connect it to Feijenoord city. Also specifics of the bridge have not been decided (traffic capacity- car lanes, speed) this will be of similar capacity as the Erasmus bridge.

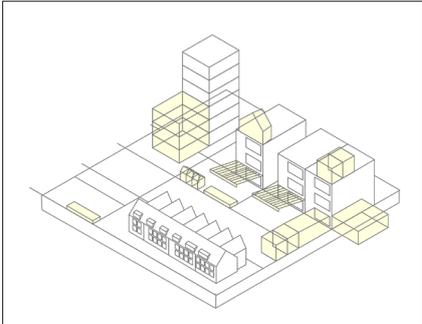
Why? As the South of Rotterdam is undergoing heavy development, and will continue to do so, the connections from the North of Rotterdam to the South will also have to be increased in number. Feijenoord city will be ready by 2022 (estimated) and therefore this particular bridge is a priority on the agenda for development of Rotterdam South.

Source:  
Municipality of Rotterdam

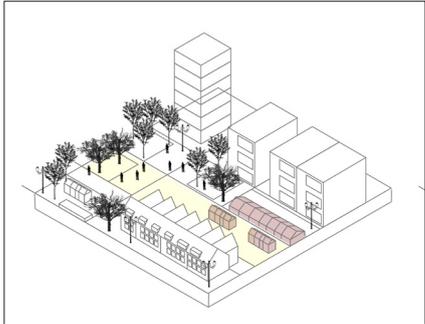
# Vibrant Streets



Current situation- no relationship between the interior and exterior



Create opportunities and program for interior- exterior exchange. Make streets vibrant, as an analogy of the city centre of the South.



The second scenario involves viewing the streets in Feijenoord as the city centre. Strengthening of the existing street structure and making it more inclusive and vibrant is the goal of this scenario.

Orangeboomstraat is to be activated with program and diverse functions, while Rosestraat is to carry the main volume of traffic, as its profile has the capacity to do so.

There is an attempt to also have greener living areas, also within the profile of the streets amidst the constant development in Feijenoord. The broader goals include:

- To integrate primary infrastructure with cyclist and pedestrian movement
- Strengthen east-west axes
- Urban grid in all wind directions
- New bridge Feijenoord
- Vibrant urban environment along lanes
- Quiet urban environment behind it
- HOV Blaak - Entrepot/Feijenoord - Feijenoord City
- New green axis to outdoor area
- References: New Binnenweg, Laan on South, Coolsingel, Fireplate

#### INTERVENTIONS:

1. The new bridge connection: (Present in this scenario also- see explanation on pg.)

2. A new metro station: (Explanation on pg.)

3. Rotterdam Zuid station: (Explanation on pg.)

4. Introduction of a tram line:

A tram line is introduced along the new bridge that is proposed and follows Orangeboomstraat down South. Consequently, stop for this tram line are to be designed.

Why? An important aim of this scenario is to activate Orangeboomstraat as a community street, by strengthening and addition of program, thereby to initiate maximum pedestrian/cyclist usage of the street. Introduction of the tram and the tram stops is to help give an road level experience and connections within Feijenoord, apart from the metro.

5. High Mobility bridge from the Eastern waterfront to Feijenoord city: (Explanation on pg.)

6. New pedestrian/cyclist bridge from Naussauhaven to Erasmus University:

A new link for pedestrians and cyclists has been proposed to connect Feijenoord West to the Erasmus bridge.

Why? This bridge is around a residential neighborhood and in order to retain a certain quality, of quiet, green suburbs, the bridge connection has been proposed. This would also enable a direct connection to the Erasmus University from Spikermanstraat in Feijenoord.

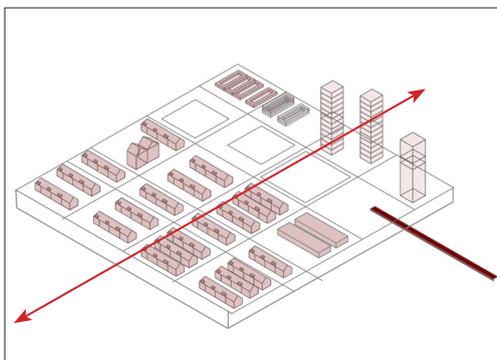
7. Street Profiles:

The current profiles and proportions of the streets- particularly Rosestraat and Orangeboomstraat are re-worked.

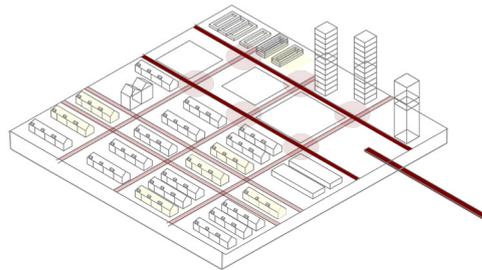
Why? To accommodate better traffic flows and to make them greener. As per the present situation the streets in some areas have far too much pedestrian areas- for instance, of up to 10 metres near the Paperklip- which does not suit the need at that particular junction. The streets are thereby adjusted- Rosestraat for smooth traffic flow, interspersed with green- and Orangeboomstraat to be a vibrant, active street acting as a catalyst for community involvement.

Source:  
Municipality of Rotterdam

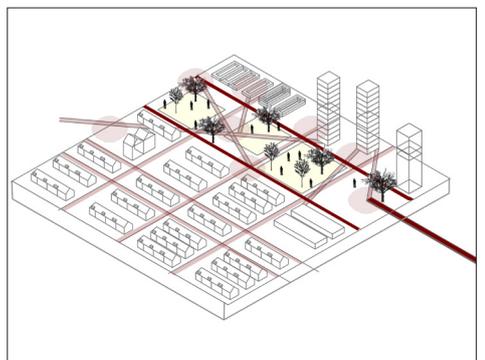
# Neighborhood Character



Why? The 'strip' created by Rosestraat- a high mobility traffic road, and Orangeboomstraat- cause a barrier



Reason: Introduce program, and make porous by breaking apart the 'strip'



Work on the 'nodes' to initiate development

The third scenario as proposed, is the one with the least amount of intervention by the municipality. The aim is to group smaller neighborhoods within Feijenoord, and strengthen each one individually- by adding public amenities and schools per neighborhood. Thus there is more of an organic, contextual development that follows- with certain ideas about how to link the neighborhoods as well. Each neighborhood starts functioning autonomously to an extent. Even the new connection parallel to the HEF bridge has not been proposed in this scenario.

- Enhance qualities per neighborhood
- Program and public space per neighborhood else
- Every neighborhood contributes something towards the larger whole
- Other/separate mobility profiles per neighborhood
- Use existing stations, also Rotterdam

South

- Demand-driven innovative transport from knots
- Feijenoord as an island
- Oranjeboom focuses on city streets
- Entrepot focus on cymbals
- References: Piekstraat, ZoHo, Wijnhaven, Cool

#### INTERVENTIONS:

1. Rotterdam Zuid station: (Explanation on pg.)

2. High Mobility bridge from the Eastern waterfront to Feijenoord city: (Explanation on pg.)

3. The Loop:

A low mobility loop is introduced as a connector for the different neighborhoods. This would also work as a test case for new types of vehicles- like a small electric tram.

Why? In order to develop new modes of transport, this loop acts as an experiment, and test site. It also connects the now autonomous neighborhoods, especially the East of Feijenoord, to the main infrastructure network.

Source:  
Municipality of Rotterdam

# Conclusions

The research led to isolating 4 conclusions specific to the site stretching between the HEF bridge and the newly planned Feijenoord city, and also its reaction to the context immediately around. Subsequently, these became the primary investigations and led to the themes for design.

**Focussing on the disconnect between infrastructure- waterfronts, landscape, built environment as spatial layers- and how this disrupts the everyday life of Feijenoord- and will continue to do so with incoming developments-** certain conclusions were summarized, therefore leading to what needs to be designed.

1. Introduction of the new connection paralleling the HEF bridge - with the new developments coming up in the area, there will be an increase in the amount of traffic.

All current bridges along the Maas are at maximum capacity. A new connection has been planned to the East of the HEF bridge, which also eases the current deviated flow of traffic to the South of the Williamsbrug bridge- right into Orangeboomstraat.

**How to design for maximum bridge use and capacity, and the consequences of this development on an already fragmented Feijenoord?**

**How to integrate the bridge- and thereby infrastructure as a new typology and function of public space in Feijenoord.**

2. With the incoming developments, there is also a need for further infrastructure- a metro station for a higher frequency line, and a harbor- with a capacity for 25 small boats.

The metro line requires for subsequent infrastructure- a bus stop, drop-off point for private and public vehicles, parking, an entrance square, cycle and pedestrian connections.

**How to integrate supporting infrastructural functions within the new bridge, and its continuation into Feijenoord?**

2. A need for re-orientation and appropriation of the waterfront - The introduction of the new connection allows for heavy traffic to move away from the waterfront between Orangeboomstraat and Rosestraat, which is currently disconnected with the public network as well as the spatial environment in Feijenoord.

The addition of the harbor gives it an opportunity to connect with the public network, but also by pedestrianizing it there is opportunity to design a public waterfront.

**How to re-inforce connectivity among the different waterfronts and the 'water to inland' in Feijenoord?**

3. Currently, the public spaces - open squares, soft landscaping, and even the public buildings like the entrepot are highly underutilized.

**How to make the area attractive to initiate better use of the public space and amenities?**

4. Designing the approach for the new bridge, and also the extension of the HEF bridge as it enters HEF park, which is currently given to the community for appropriation, but inactively used, creating another barrier between the 2 sides of Rosestraat and Orangeboomstraat-

Design it as part of the infrastructural requirement for Feijenoord- a bicycle network connecting it to Noordieland, makes it a functional monument, and gives identity to infrastructure and public networks of Feijenoord.

The new infrastructure and its continuation within Feijenoord gives an opportunity to also build along the main core, to add functionality and program by means of pavillions- a reason to gather and create public place, by the action of the people gathered.

### **Can the HEF bridge as a monument play a role in a constantly changing Feijenoord?**

Design brief:

The spatial interventions of the new bridge, how it continues into Feijenoord, the metro station and the harbor led to creating an analysis drawing of how to connect or close these primary infrastructure functions.

Circulation drawings for all different modes of transport within Feijenoord were drawn:

1. Private Vehicles- cars
2. Public vehicles based on different capacities: Taxis/ buses/ possible tram or trolley connections
3. Cyclists and 2 wheelers
4. Pedestrian
5. Water-based transport

Following this analysis the number of lanes/speeds/ directions of movement/one-way:two-way was determined.

This led to formalizing a heavy vehicle- high mobility traffic infrastructure which connected the main bridge into Rosestraat

Other roads are to be designed following the required hierarchy and traffic flow.

Pedestrian areas to be determined.

The infrastructure that was created led to in-between spaces being formed that required designing, and integration.

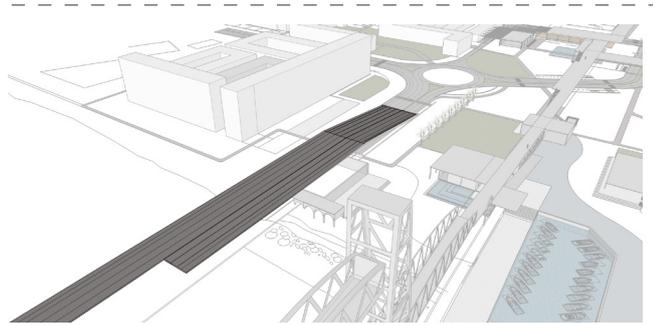
HEF AS HOME

Source:  
Author

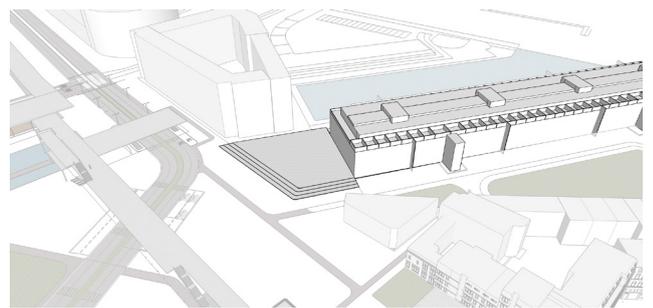
Masterplan

**INTEGRATION of infrastructure as a public place, within the everyday life of Feijenoord to address spatial and social FRAGMENTATION**

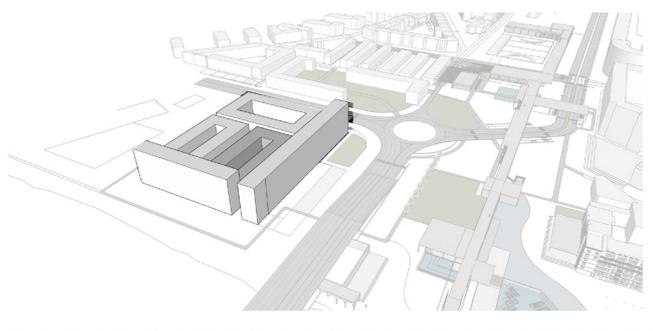
**From the municipal scenarios, apart from the larger themes, 3 interventions were taken as a starting point. The strategy following the consequences of these developments.**



1. The new bridge



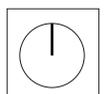
2. Entrepot as a metro station



3. HEF Quartier

Source:  
Author

# Masterplan\_Projects



# Masterplan\_Intervention Steps

Plug into the existing street structure and connections:

- The goal foremost is to resolve the problem of incoming traffic due to new developments in Feijenoord, and connect it to the larger main infrastructural network of Rotterdam.
- Integrate it into the public place network of Feijenoord.

This is done taking into account 3 new interventions on site- the new bridge connection, the metro station and HEF kwartier.

1. Create a new connection to relieve traffic going to the South of Rotterdam- from Willemsbrug bridge down South-

Spatial Impact:

- Elevate the bridge to generate porosity.
- Extend the bridge further into Feijenoord, so that the waterfront remains usable and open- underneath the bridge
- Pedestrianization of the waterfront
- Plan for exits, and viewing platforms around the exits

The new bridge is continued within Feijenoord and a number of intervention steps are carried out to integrate the bridge, designed for heavy traffic capacity.

2. Introduce a roundabout as the safest solution for vehicular traffic movement.

Spatial Impact:

- Integrate it into the built environment- the buildings around- HEF kwartier and the building at the junction of Roetengstraat and Orangeboomstraat.

3. Change existing road hierarchy - create a ring/loop, determining road mobility- speed+load: 50km/hr as you move to the east of Feijenoord.

Spatial Implication:

- Pedestrian and bicycle movement only, for Orangeboomstraat.
- There is a new possibility to introduce function and group existing landuse.

4. Introduction of the entropot as a metro station for better frequency regional metro connections- new line to come up.

Spatial Implication:

- On a larger scale this would require amenities for the area: drop off points, exits, bus stop, parking,
- opportunities for new businesses to come up around the area- which now functions as a transit hub

4. Pedestrian+cyclist- low mobility road for school area.

Spatial Impact:

- Integrating the quay as a place with easy access and viewed along with the school and creative industry sector; and the residential areas as a group- creating condition for possible mixed use functions for the quay.
- Re-orient public areas of the school towards the quay- South.
- re-design the fencing which currently acts as a rigid border.

5. Pedestrianization to lead to a bridge to get to the East- create a link to Erasmus university.

Spatial Impact:

- A pedestrian bridge- to form a continuous connection to the east, across the river.

3. Make area attractive and densify- Involve other agencies to participate- like Unilever, Vestia

Spatial Impact:

- Programmatic and dynamic connections could result in restaurant spaces for the area- with these participants in mind.
- Opportunity for new functions in existing public space- transforming space into place

6. Orangeboomstraat to have more local function- strengthen street character.

- Pedestrianization of the street and a larger continuation. Ground floor can start getting commercialized.

7. Water front strategy- make accessible for pedestrians and cyclists

WHY? The waterfront is currently underused and without identity.

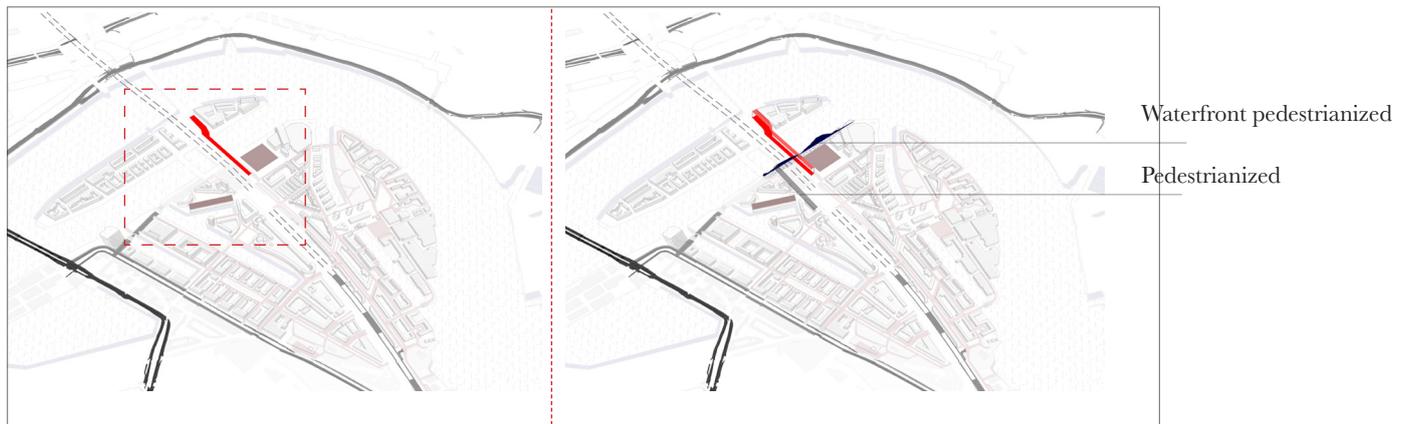
Feijenoord has turned its back from the river due to the infrastructural layout, and the function and typology of the built environment that lies directly behind it.

**The quality of the waterfront depends on the amount of space left behind that identifies with it- Lynch and Cullen**

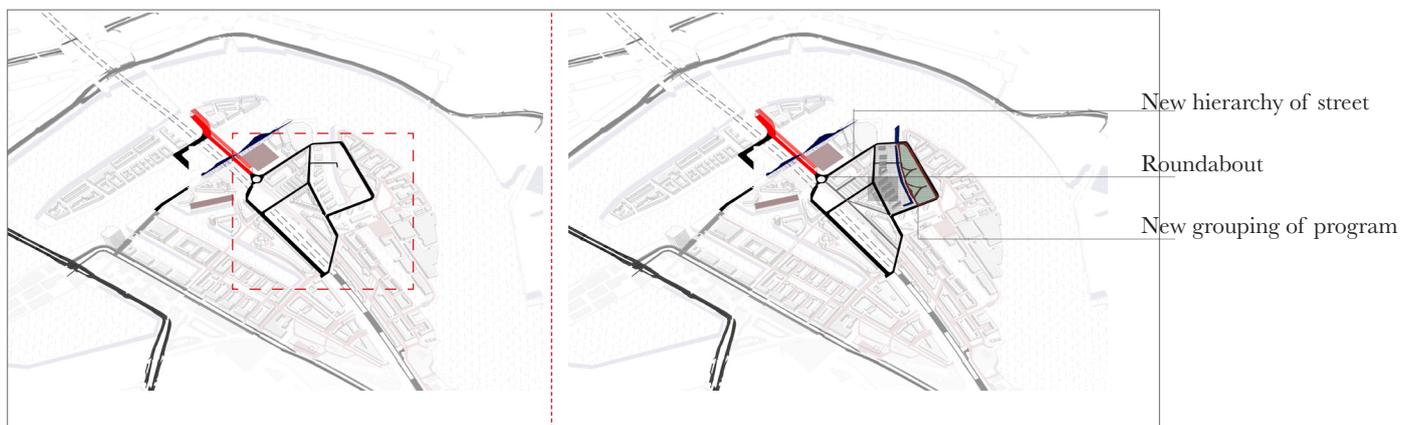
**8. Landscape- To distinguish borders between infrastructure and other functions- gain a sense of privacy.**

Source:  
Author

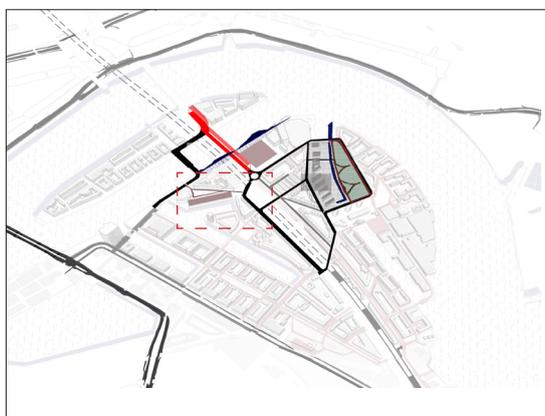
# Diagrams for steps



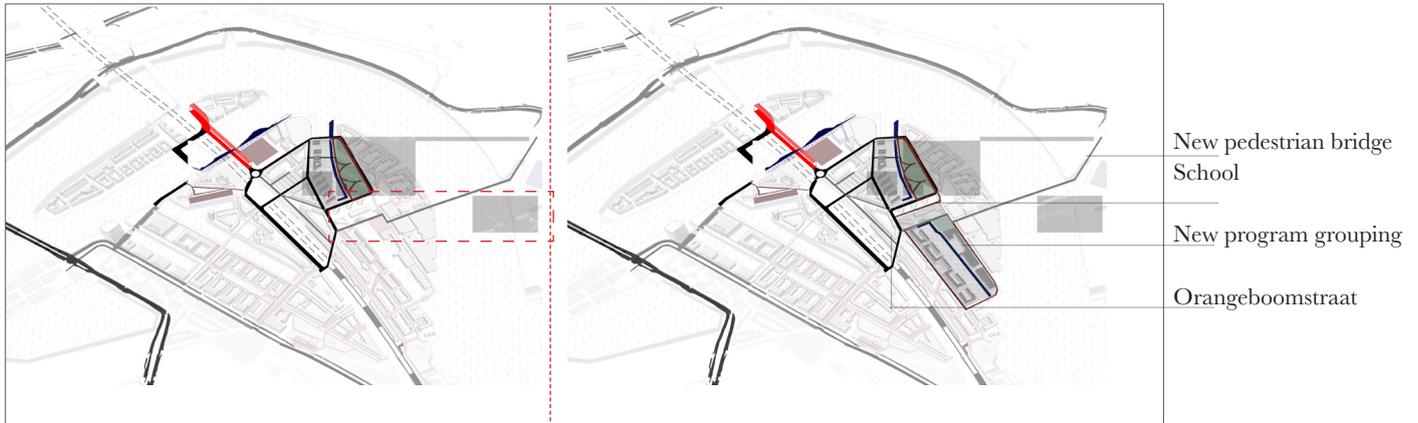
Intervention: New bridge connection  
 Impact: **Elevated** to generate porosity between the two disconnected sides of Feijenoord.  
 Stretch of waterfront starting at Rosestraat- eastwards, pedestrianized.



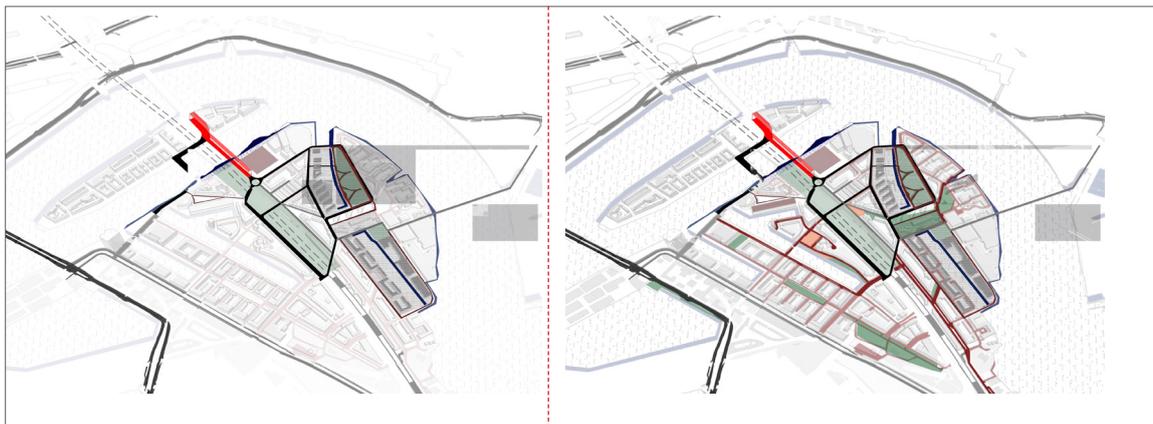
Intervention: Continuation of the bridge as a loop into Feijenoord, changing the existing hierarchy of street+ roundabout for smooth traffic flow.  
 Impact: Orangeboomstraat now a shared street with pedestrian and cyclist priority  
 Loop acts as a catalyst for generating mixed usage of space- by grouping residential, water and park functions- and connecting them to a larger network. Dynamic connections are formed- for instance, employees from unilever can visit the park, where there is now opportunity to create more social spaces like restaurants. Shops can be added as an attraction.



Intervention: The entrepot- metro line to be constructed as a short term future development project.  
 Impact- Gives necessity to plan for drop-off points, exits and parking in the area- therefore street structure of Rosestraat also changed to accommodate the same. Square outside the entrepot to be activated and envisioned as a shared space.  
 Area to function as a transit node to attract developer interest. Creation of new job opportunities for Feijenoord. Also reactivating a heritage structure will uplift the neighborhood living quality in this area and provide a sense of identity.

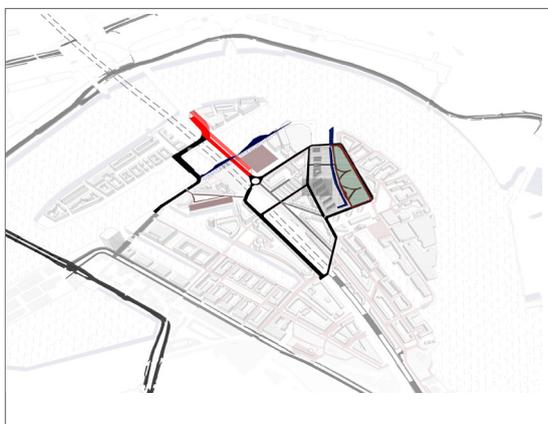


Intervention: Pedestrianization (+bicycle infra) for road outside the school + to continue to Erasmus University- as a bridge  
 Impact: New grouping and activation of quay outside school, along with the square. Mix of residential and industry built activity. Continuity over the river and connection to the Eastern river bank.  
 Orangeboomstraat also pedestrianized and strengthened in character



**Waterfront:** Larger goal is to make the entire waterfront stretch accessible, user friendly and diverse - from Feijenoord city, to the western banks in the upcoming years.  
 (Explored in design strategies)

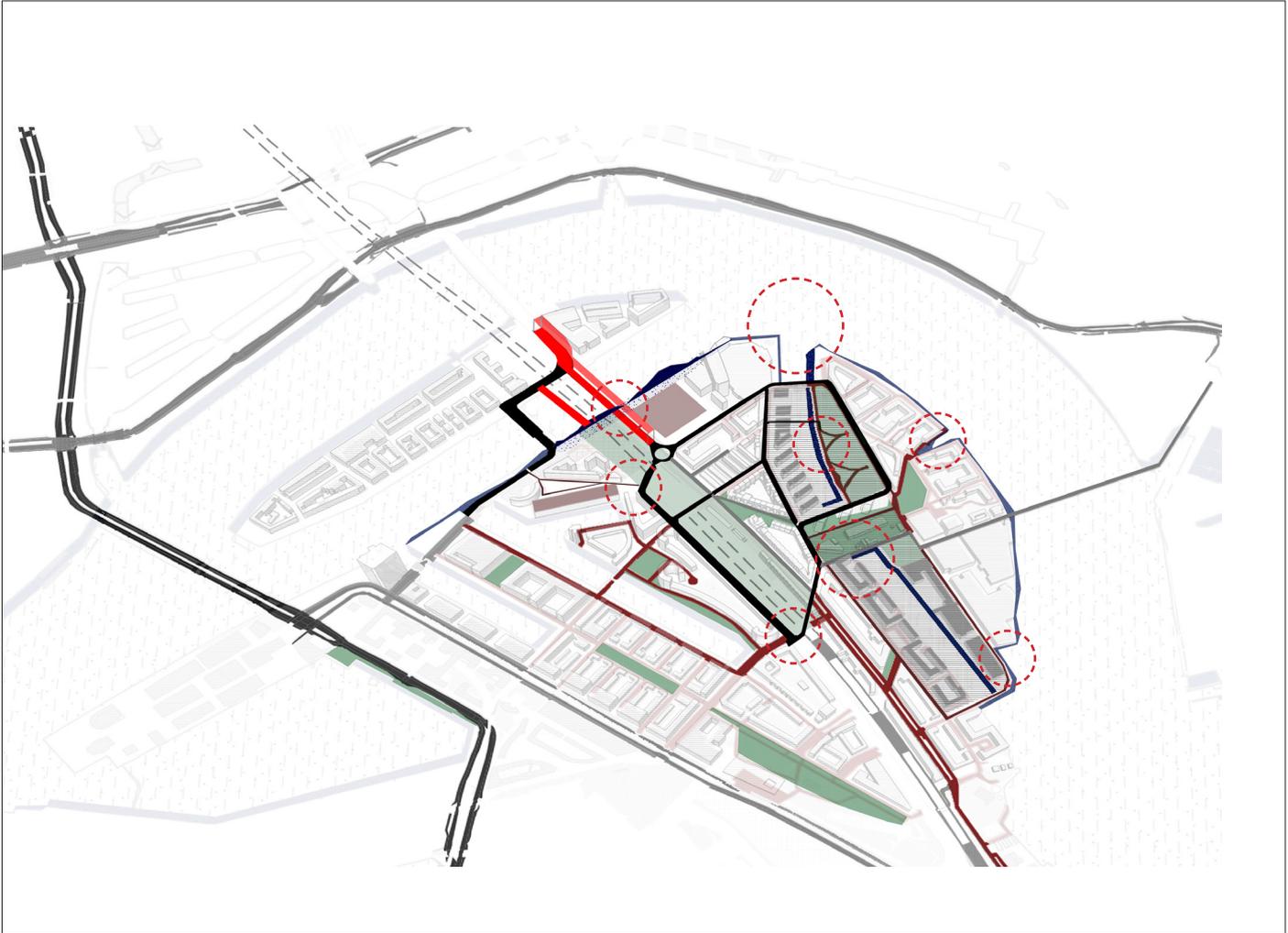
**Green:** To make the core- between East and West Feijenoord as green as possible- and connect it to the existing green network and the waterfront. Different typologies are given to the green spaces. Also to start implementing grey water re-cycling and water retention strategies. (Explored in design strategies)



Source:  
 Author

**Inclusion and extension of the HEF bridge** into the urban life of Feinoord- as bicycle infrastructure and part of tourism- to act as a catalyst to bind the different design strategies (explored below) and give new life to a monument- as a new type of public place. Gives the infrastructure strategy a sense of identity.





Overview- with zones marking opportunities in the area



Bridge		Main route		Green areas		Pedestrian street to erasmus university		Existing	
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Larger opportunities arising within Feijenoord from masterplan:

1. More space between water and main infrastructure
2. Opportunity for new functions in existing public space- transforming space into place
3. More integrated and fluent- smooth traffic flow.
4. Transit node along HEF park and the Entrepot
5. Pedestrian bridge- South bridge as an attraction
6. Traffic flows and tourism to initiate re-activation of the HEF bridge and the Entrepot
7. New dynamic connections generated between neighborhoods in Feijenoord, because of the physical infrastructure



# Design Strategies

<p style="text-align: center;">MOVEMENT Primary</p> <p>Movement- Vehicular (cars, buses, shared vehicles- 4 wheel, also water transport) is determined based on current connections- and new developments in Feijenoord, specifically: The new bridge, Entrepot as a station and Hef Quartier</p>	<p style="text-align: center;">MOVEMENT Secondary</p> <p>Movement- Bicycle and Pedestrian- A secondary entwork of street is layed out based on the new main infrastructure network, to ensure East-West connectivity and also to the North and the Waterfront. Old and new infra+developments in Feijenoord. To develop an identity for Feijenoord, the HEF bridge is integrated as a tourist and local bicycle infrastructural bridge, and extended Southwards</p>	<p style="text-align: center;">PAVILIONS Program</p> <p>Pavillions are distributed along the old and the new infrastructure, based on the context around them. This houses program as required to support the new infrastructure and connectivity in Feijenoord. Formally, they are distributed along the core. Programatically the shift from public program in the North, to community based in the South</p>	<p style="text-align: center;">LANDSCAPE + WATERFRONT- THE IN-BETWEEN</p> <p>Landscape infils, and trees are added to strenghten the street structure and soften the physcial impact of the new infrastructure. The landscape acts as an infil, and is connected everywhere via the secondary street structure , also to the existing green spaces. The waterfront is given different characteristics and is connected to the green. Strategies for water retention.</p>
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The design is planned using 4 strategies:

1. Movement- Vehicular
2. Movement- Pedestrian + Bicycling
3. Pavillions
4. Landscape + Waterfront

The scope was site was designed in this order, but also negotiatons were made to the form of the previous steps, on addition of new layers.

Most imporantly, the design works as a plugin to the larger infrastructure and public space network of

Feijenoord- coonected to Rotterdam.

Once this system was placed on site, more formal details were made to proved character and qualities to the site, based on the context of teh infrastructure, and what it was supporting.

Source:  
Author

# Design Qualities- goals

## CONTINUITY

Continuity in movement- all the new infrastructure and developments are connected to the existing infrastructure loop- and thereby to a larger public system network

## CONNECTIVITY

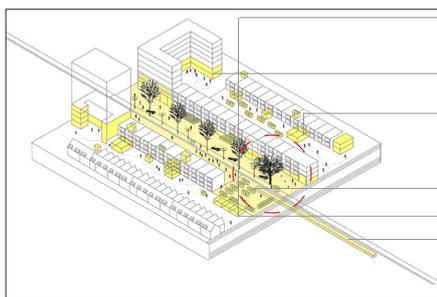
To connect the existing and new developments in Feijenoord- through infra, landscaping, movement, people and water

## POROSITY

Porosity between East and West Feijenoord- through integration of infrastructure. Also porosity in the design- the pavillions, landscaping and Waterfront

## DIVERSITY

Diversity of public places- green, squares, infrastructure, program, aesthetic- to cater to a diverse Feijenoord. Mixed-usage and self-sustaining spaces



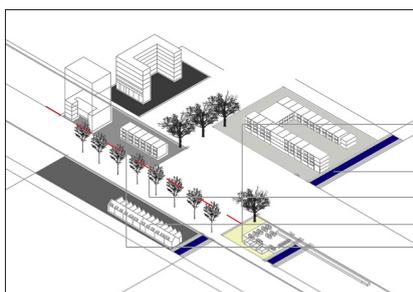
- Street profiles as shared streets
- Urban furniture
- Mixture of functions for lower storeys
- Small businesses/activity
- Refuge area as shared space
- Transport hub
- Tree canopies
- Hef

Expansion: of the built environment



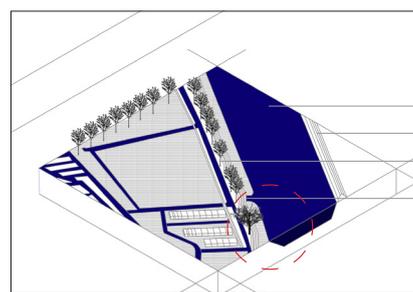
- Open-air market
- Rooftop sports park
- Small businesses/activity
- Shopping- supermarkets
- Diverse nodes - form + activity

Diversification of public space- form and activity



- Monofunctional landscape
- Square
- Landscape
- Water-fronts - Neighborhood
- Industries
- Small-row housing
- Social - housing

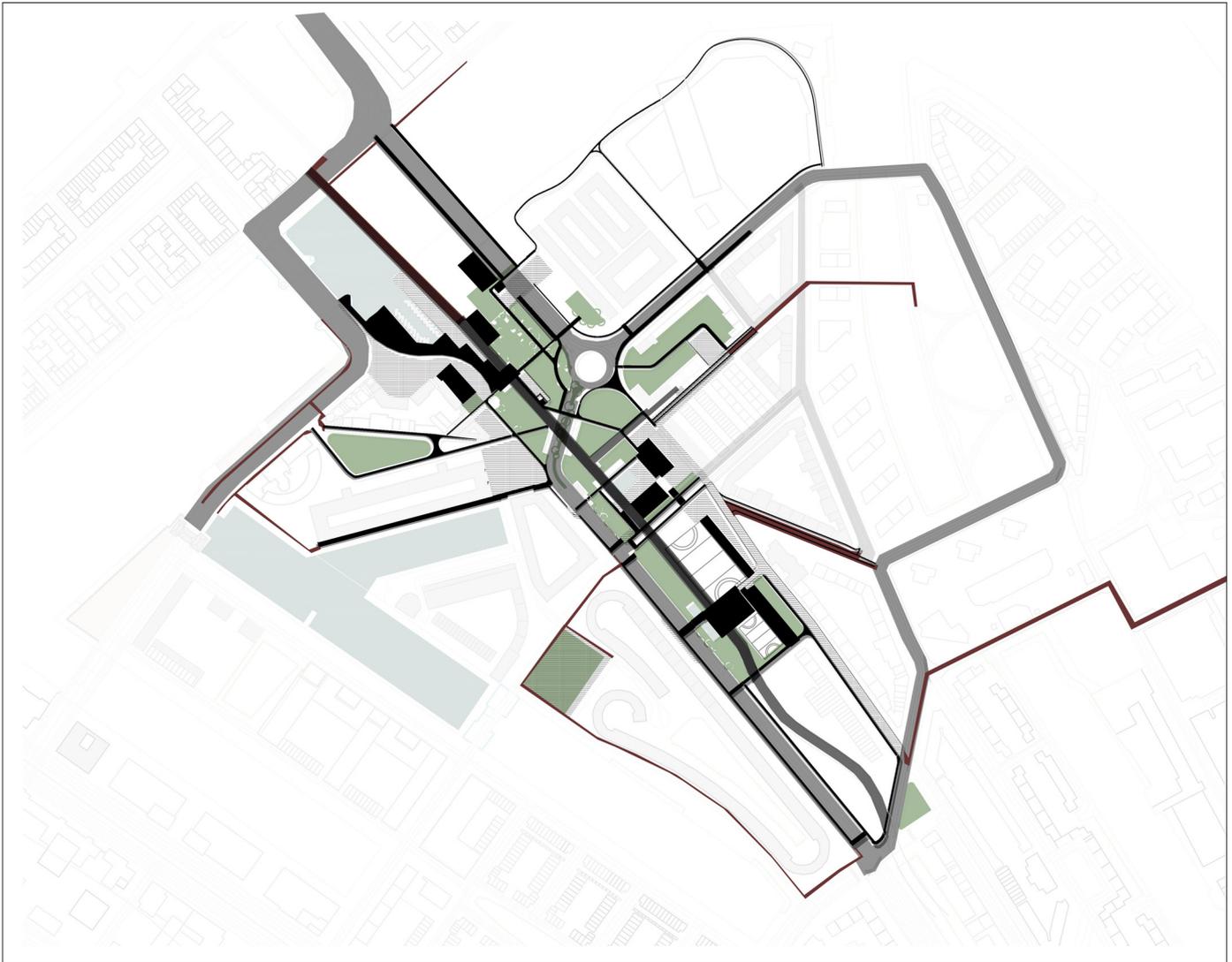
Connection of flows and territory



- Blur waterfront boundaries
- Soft- Landscaping
- Integrate main infrastructure
- Soft inserts

Porosity between the different typologies of waterfronts

# Design Strategy



Primary Movement

Secondary Movement

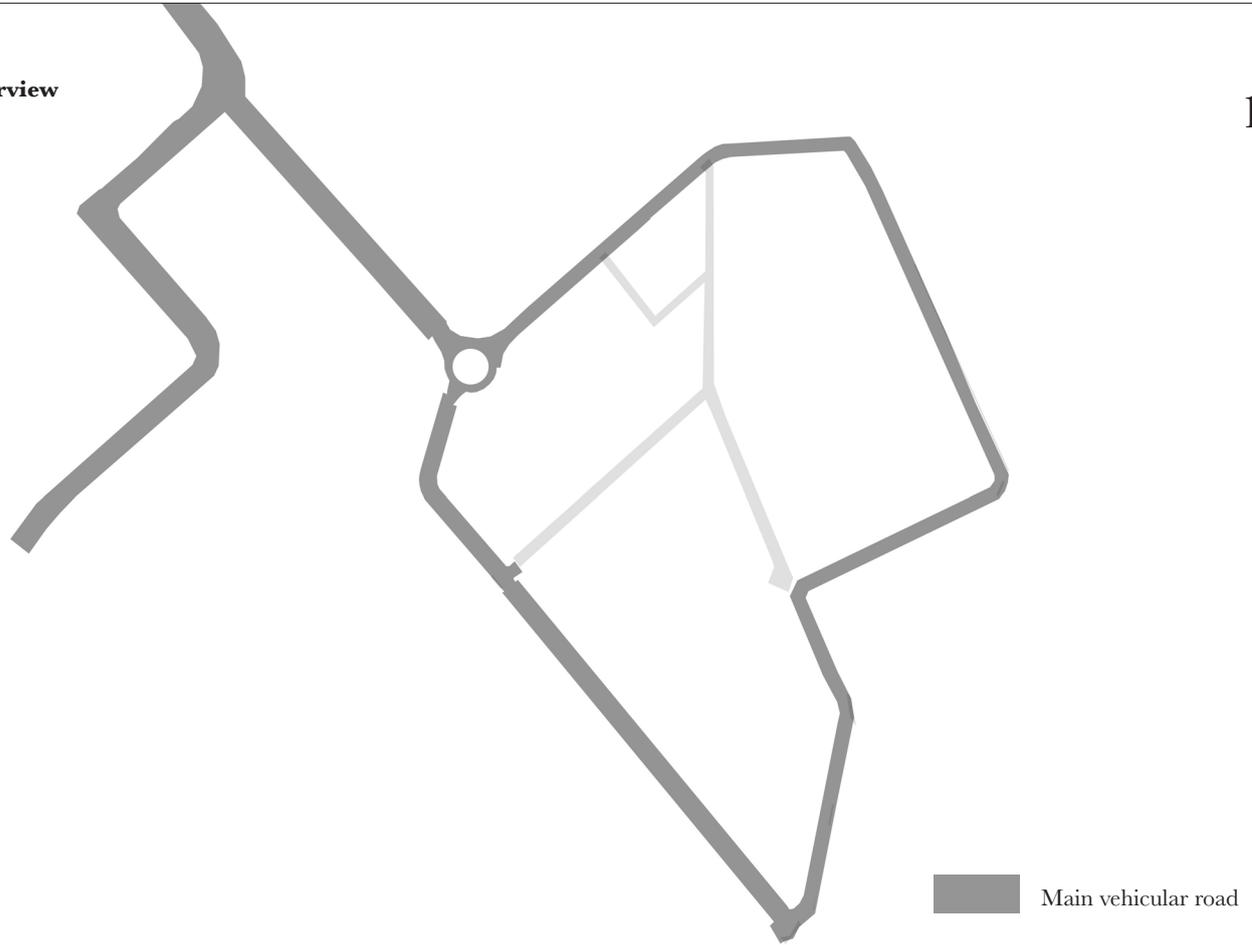
Program pavillions

Green + Water- the inbetweens

**Designing for interactive and integrated movement within Feijenoord, to create a new public place design strategy and typology- promoting diverse, porous and better connected places and people.**

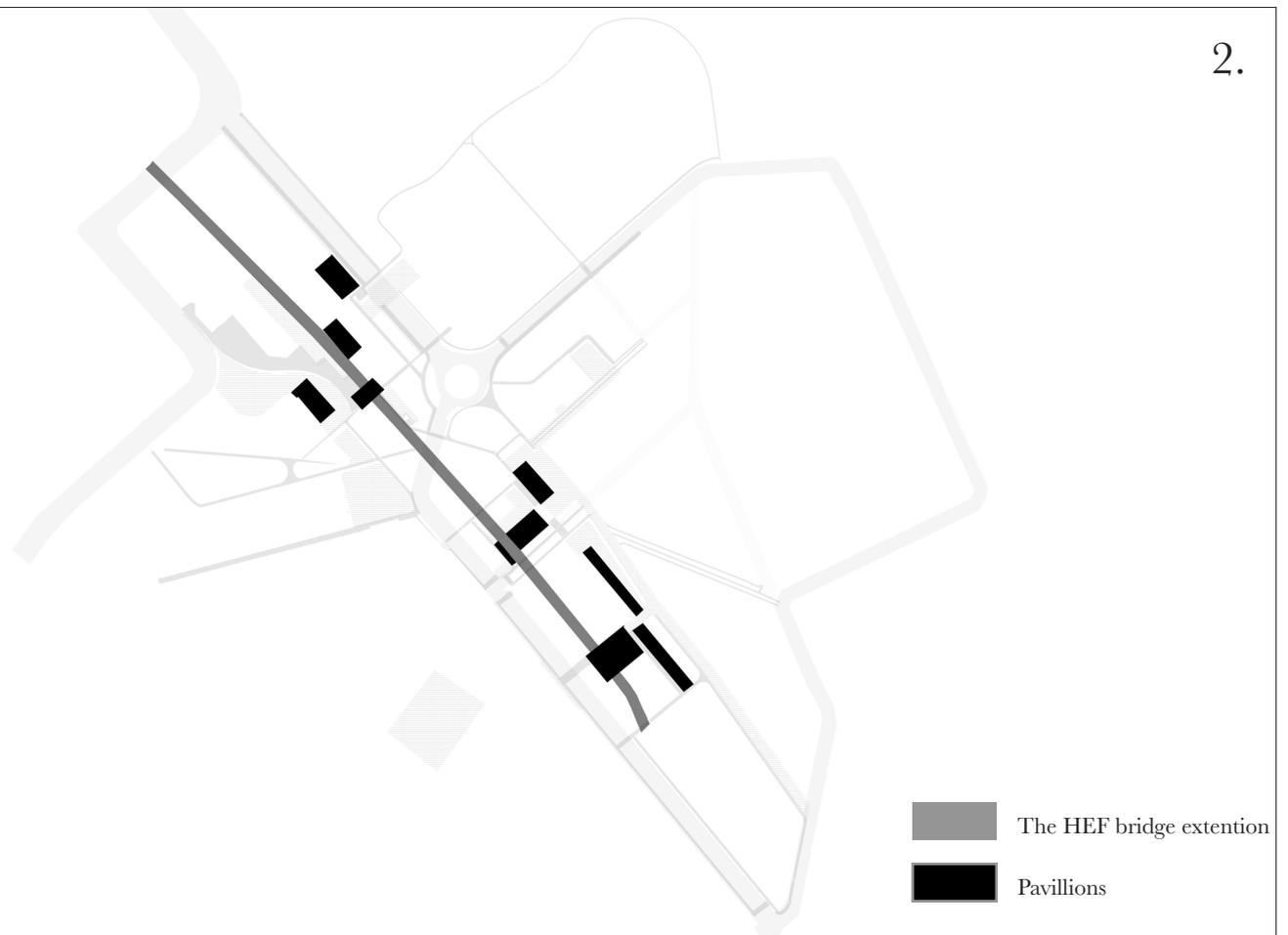
An Overview

1.



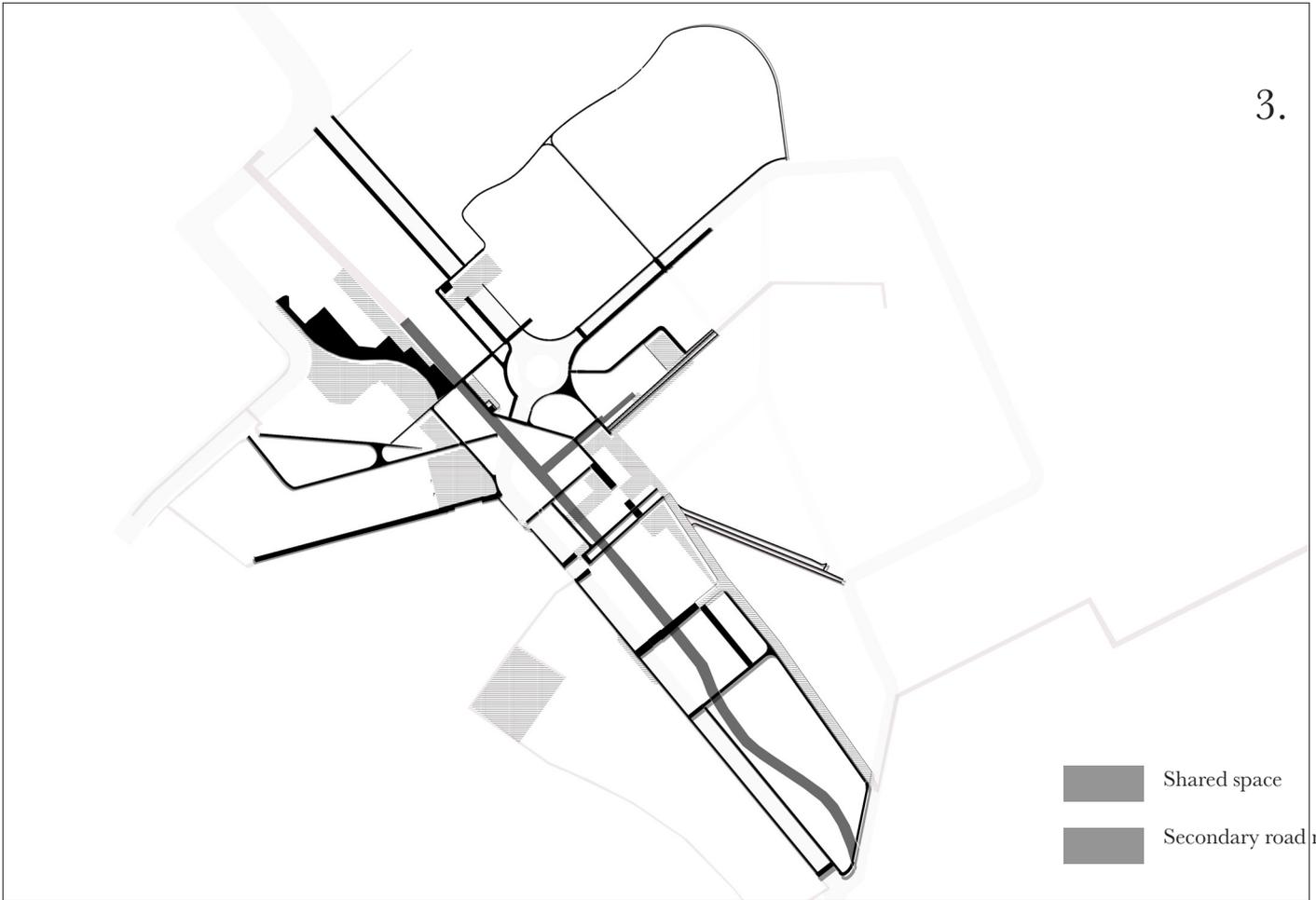
**1. Resolve vehicular movement considering old and new developments in Feijenoord**

2.



**3. Introduction of programme to initiate interaction through the built environment**

3.



**2. Organize secondary road network to link East/West Feijenoord and also the main infrastructure**

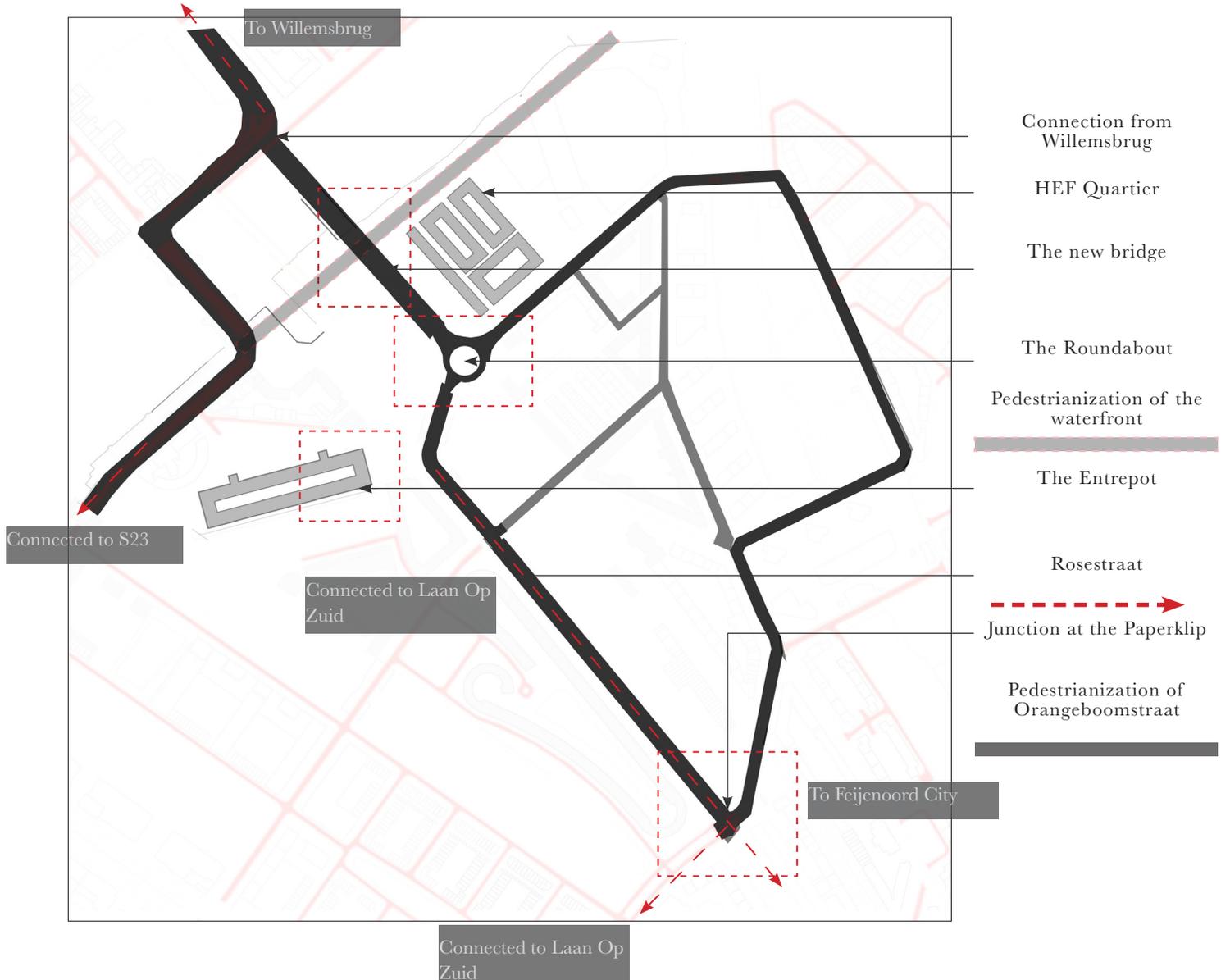
4.



**4. Landscape strategy for the in-between spaces- to bind the infrastructure and the built**

# 1. Organizing Traffic

The quality of spaces was determined firstly based on criteria for organizing traffic and circulation. This comprises of 2 maps for the area, and rules and tools for determining types of streets. Details are included in the zoomed in plans and views, i.e. lane separation, crossings, exits, etc.



STEPS FOR STRUCTURING MOVEMENT IN FEIJENOORD, as a sequence starting up North, based on principles listed above: VEHICULAR

1. Introduction of main new development in the area-

- The new connection
- The metro station at Entrepot
- New harbor
- HEF Quartier

2. Designing new bridge fixing certain qualities:

- Elevating the bridge

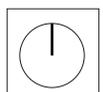
- No of lanes- 5
- Speed Limit- 50kmph

3. Designing a roundabout- refer to page no. for junction design rules.

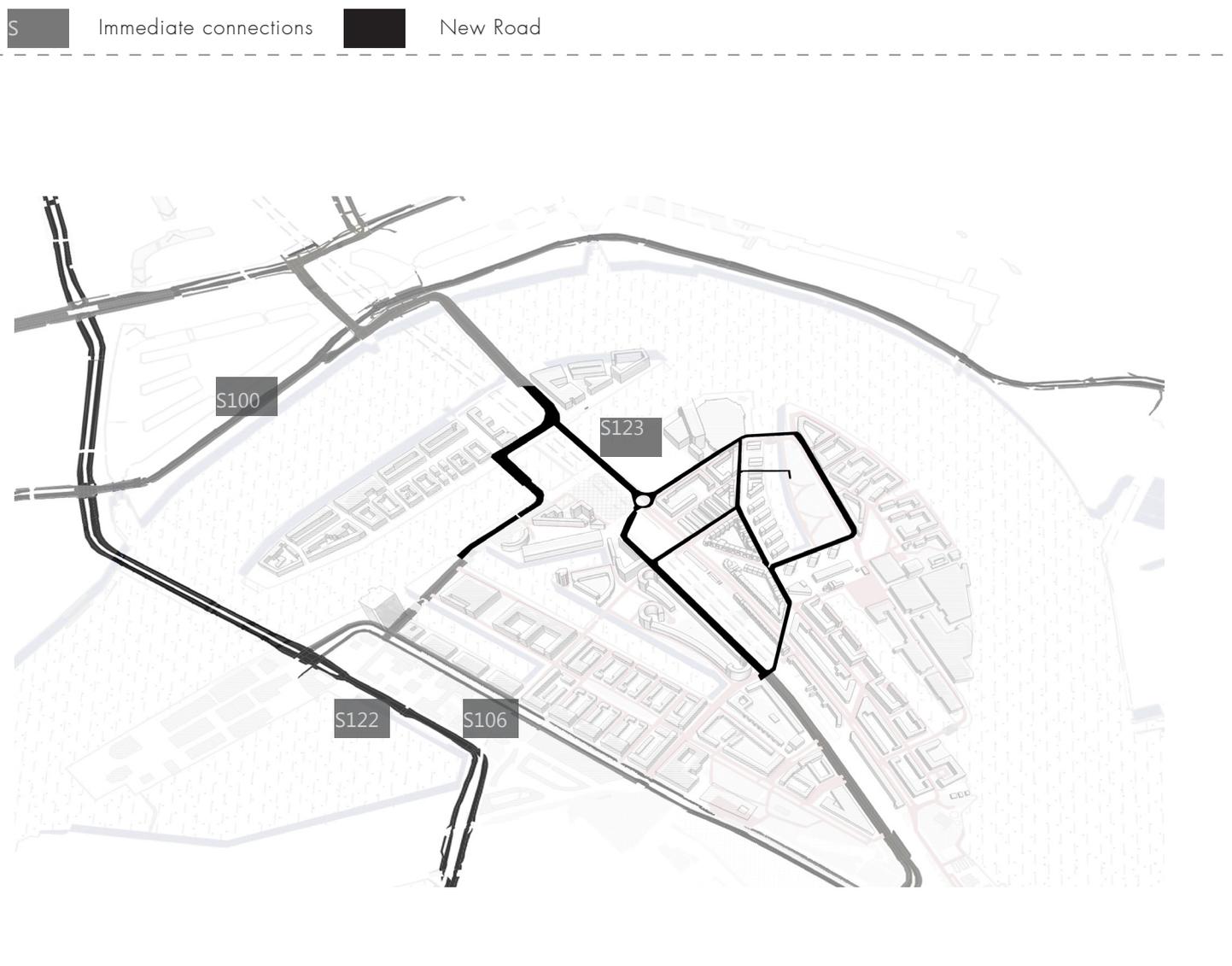
4. Renewed turning radius and street profile for Rosestraat

5. Changing profiles of existing streets, to maximize usage and safety- also pedestrianization+bicycling

Source:  
Author



Map showing positioning of new high mobility and heavy capacity infrastructure entering into Feijenoord, and its immediate connections



**How can the integration of the new bridge into the everyday life of Feijenoord act as a new public place typology?**

- Traffic and movement solutions to connect Feijenoord- For details about city roads labelled above, refer appendix.

AIM for movement strategies:

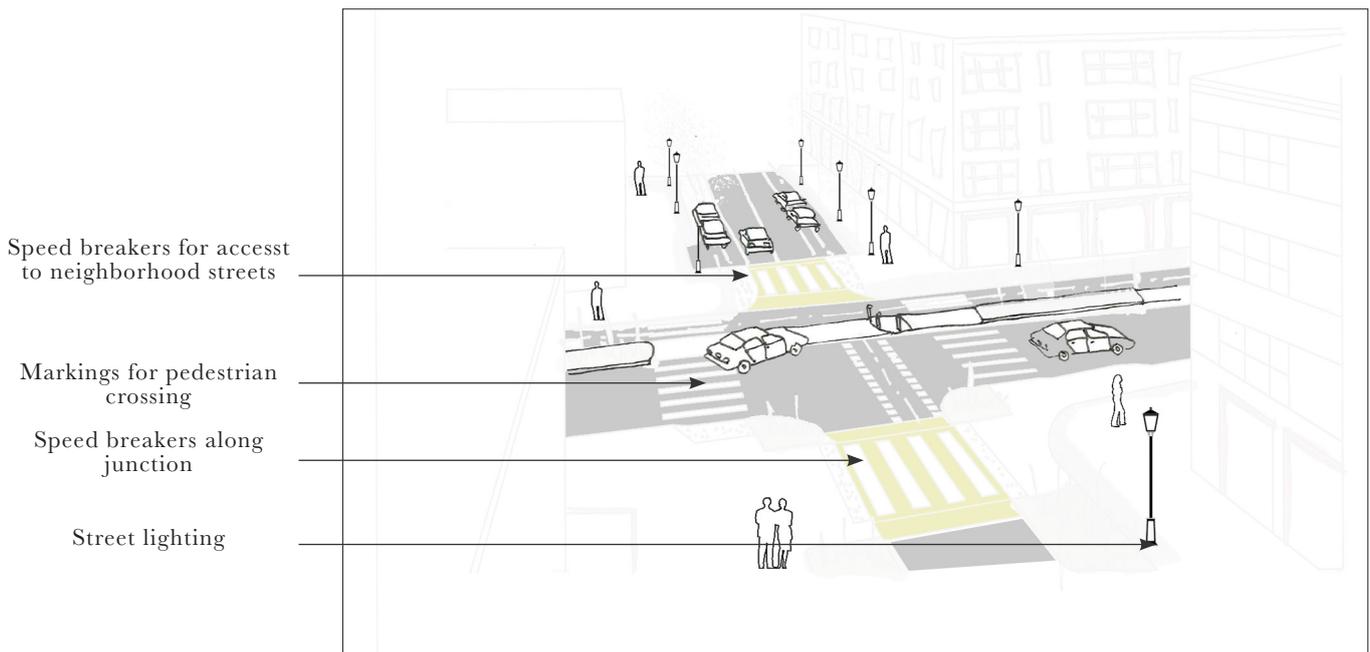
- Make a navigable city
- Create connections to the periphery- fill in missing links
- Create Viable movement patterns
- Improve conditions for walking
- Improve conditions for cycling

Source:  
Author

**Example of junction design- paperclip**



**Integration of major junctions into the life of the city + detailing the same- for maximum safety**



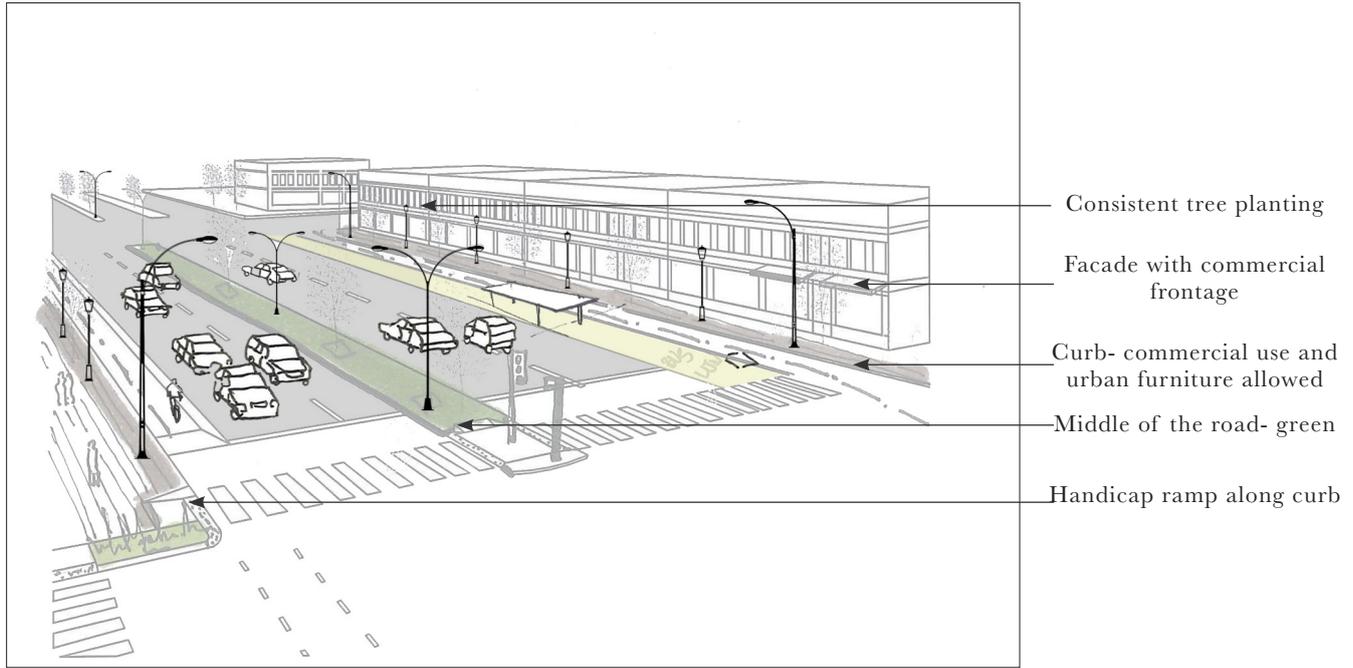
**Design elements for the junction**

For the main junction, the above labelled elements were allocated and designed for. Along with these, certain rules were established.

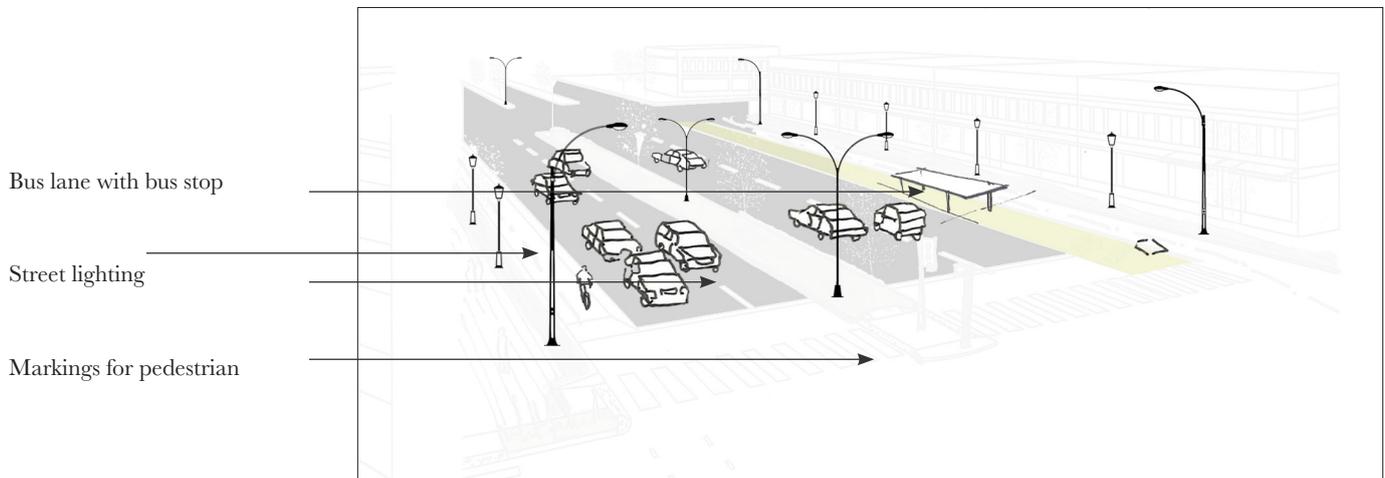
- Built form: Maximum 6 floor- 18m
- First floor setback, to allow for commercial activity: 1.5 m
- Every 60-70m a visual or physical breakthrough, in relation with public spaces
- Pedestrian pathway of min. 5m width to accommodate both public and private seating
- Street corners free of large trees- planters and inbuilt vegetation permitted
- Tree alignments to be consistent to help with wayfinding and acting as soft barriers and guides
- distinctive pavement
- Ground floor at footpath level
- multiple doors
- ground floor facade open, or glazed to allow visual and physical porosity

Source:  
Author

**Example of main public street design- for Rosestraat, outside the metro station**



**The main city street- Rosestraat- designed for maximum traffic flow and integration into Feijenoord**



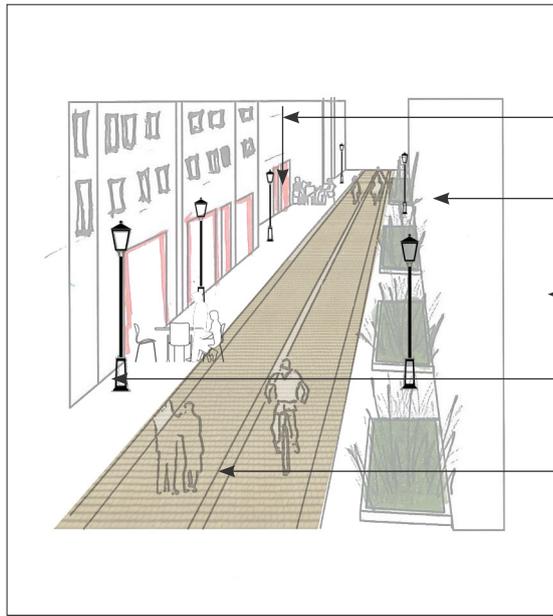
**Design elements for the main street**

For the main junction, the above labelled elements were allocated and designed for. Along with these, certain rules were established.

- Built form: Maximum 6 floor- 18m
- First floor setback, to allow for commercial activity: 1.5 m
- Every 60-70m a visual or physical breakthrough, in relation with public spaces
- Pedestrian pathway of min. 5m width to accommodate both public and private seating
- Street corners free of large trees- planters and inbuilt vegetation permitted
- Tree alignments to be consistent to help with wayfinding and acting as soft barriers and guides
- distinctive pavement
- Ground floor at footpath level
- multiple doors
- ground floor facade open, or glazed to allow visual and physical porosity

Source:  
Author

**Example of shared local street- commercial**



Consistent planters to define edge

Continuous paving

Commercial frontage

Street lighting

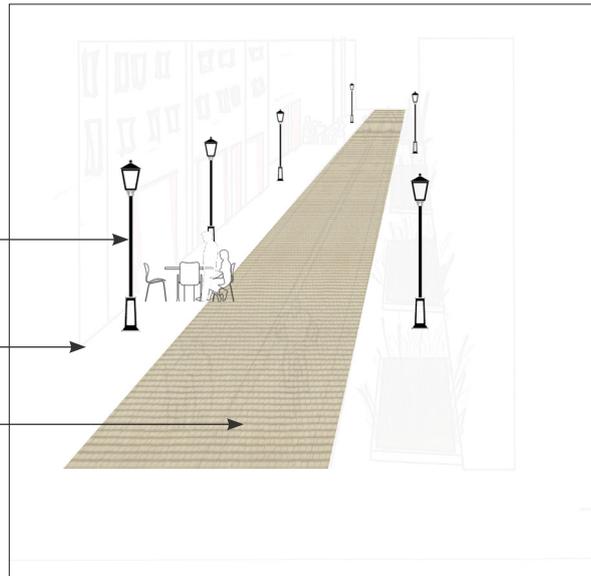
Markings to demaracte certain thresholds

**The street as a shared space- commercial**

Street lighting

Continuos paving

Shared functions



**Design elements for the street- to generate interaction**

For the main junction, the above labelled elements were allocated and designed for. Along with these, ceratin rules were established.

- Built form: Maximum 5 floor- 15m
- Every 60-70m a visual or physical breakthrough, in relation with public spaces
- Street corners free of large trees- planters and inbuilt vegetation permitted
- Tree alignments to be consistent to help with wayfinding and acting as soft barriers and guides
- Continuous pavement
- Ground floor at footpath level
- multiple doors
- ground floor facade open, or glazed to allow visual and physical porosity
- possibility to accomodate front vegetation-gardens

Source:  
Author

**Reference Images for the 3 street typologies**



**Junction design- to be included**

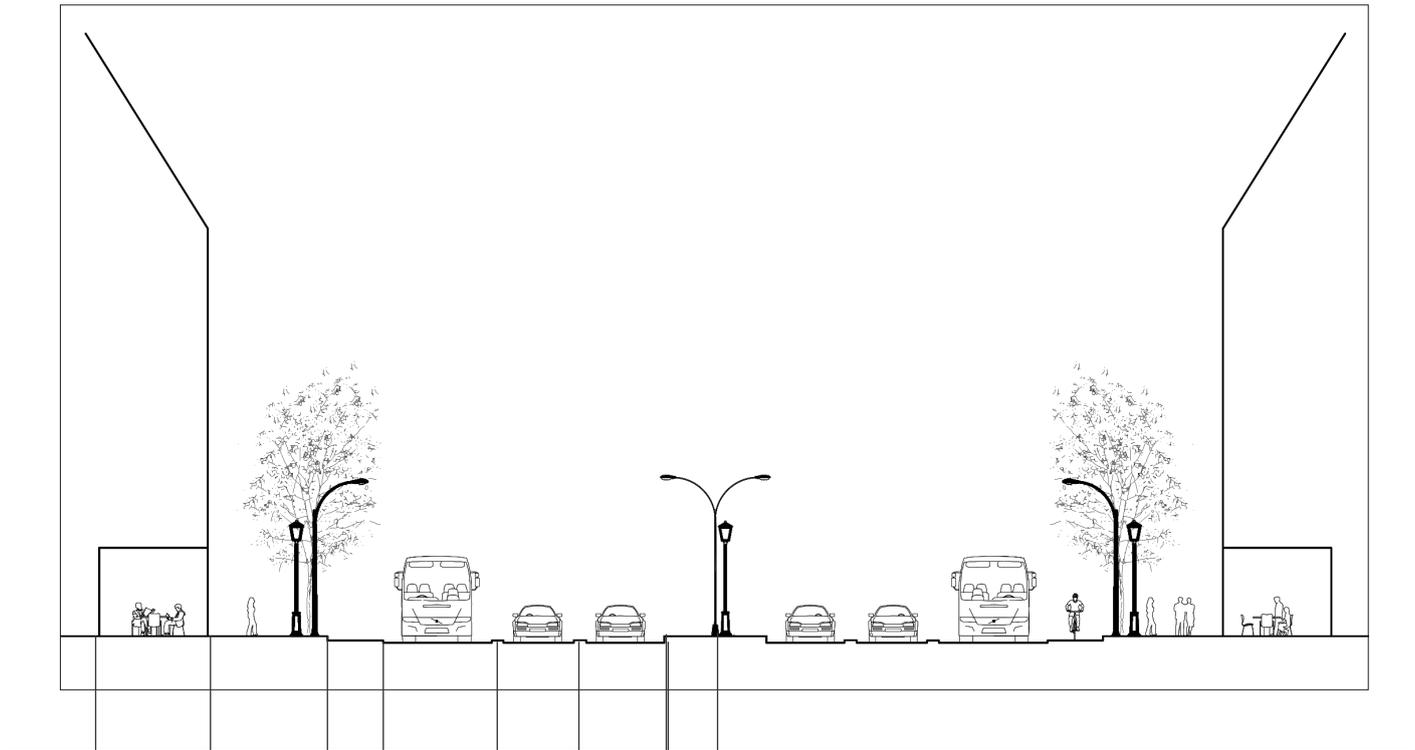


**Main public street- to be included**



**Shared space**

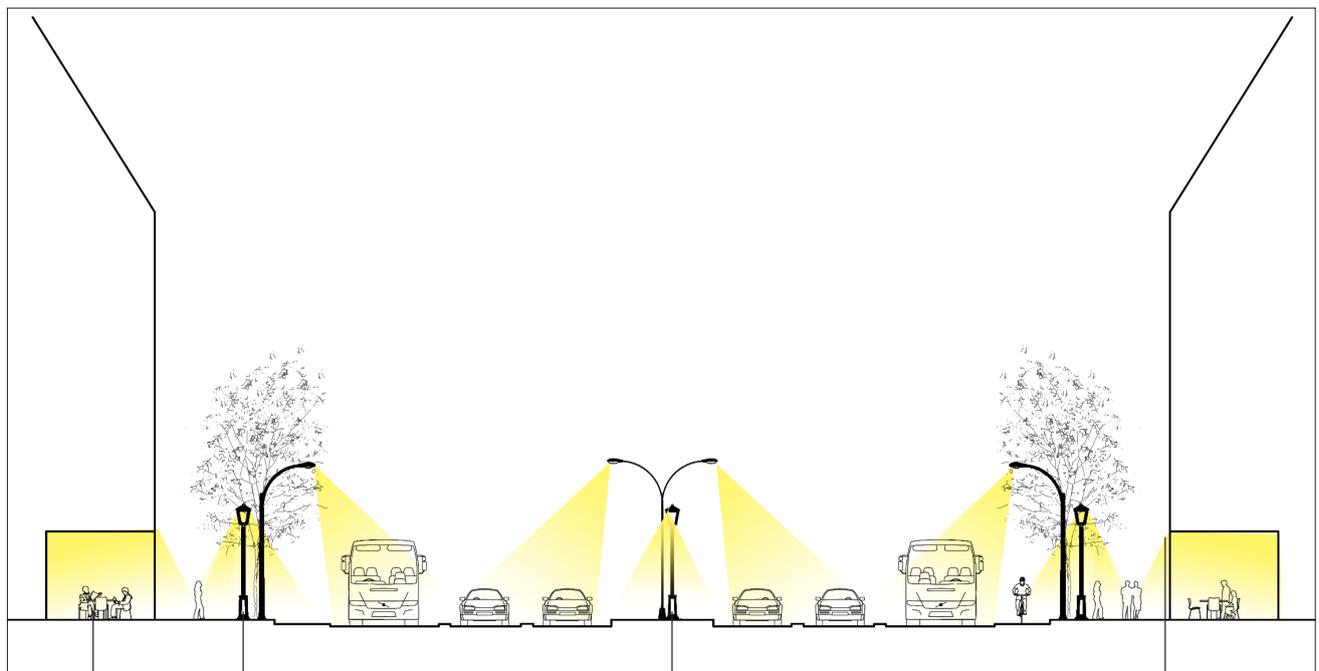
## Lighting Strategy- Example Rosestraat



Shops, displays and cafe seats

Efficient walking width- kept free from all kinds of obstacles

Zone for street furniture



Street lights that give a warm light at the footway

Street lights that light up the carriageway

Lights at entrances to improve feeling of safety

Scenario for night- withdraw activities into the buildings and then light them up

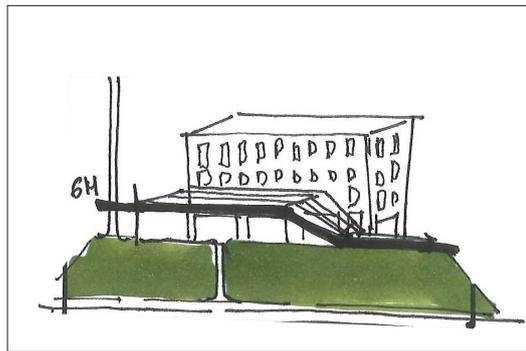
Billboards

Ground lighting in green areas

## Activators

The new connection from Willemsbrug to Feijenoord is elevated to a 6 meter height, to allow for porosity, visual and physical between East and West Feijenoord- including new development of HEF quartier

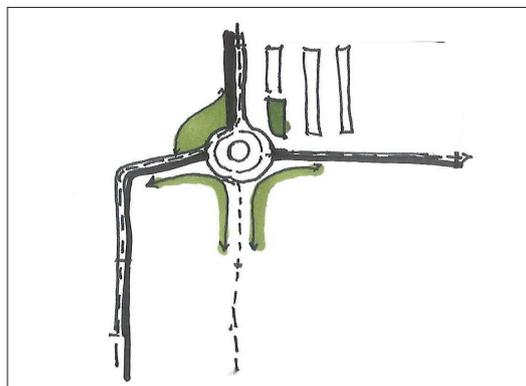
- A slope of 1:12 is considered for the bridge, and the underneath- a minimum of 4.5metres from the ground.
- This connection allows for a pedestrianized + cycle infra waterfront.



**The elevated bridge**

The traffic from the bridge flows into a roundabout, following a counter-clockwise direction, the cars and busses and shared 4 wheelers move into Rosestraat.

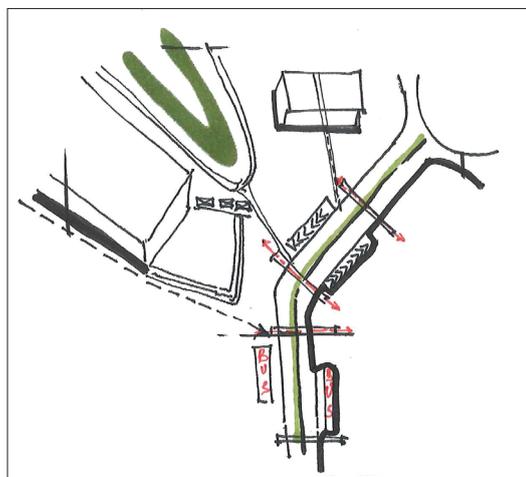
- The access to Orangeboomstraat is pedestrianized.
- The cars go to east Feijenoord through the changed hierarchy of the 'loop'
- The built environment is modified to integrate the roundabout- ground floor is either opened up or commercialized.



**The Roundabout**

• The Entrepot as a metro station is a catalyst for improved connectivity in the area, and subsequently the following is designed:

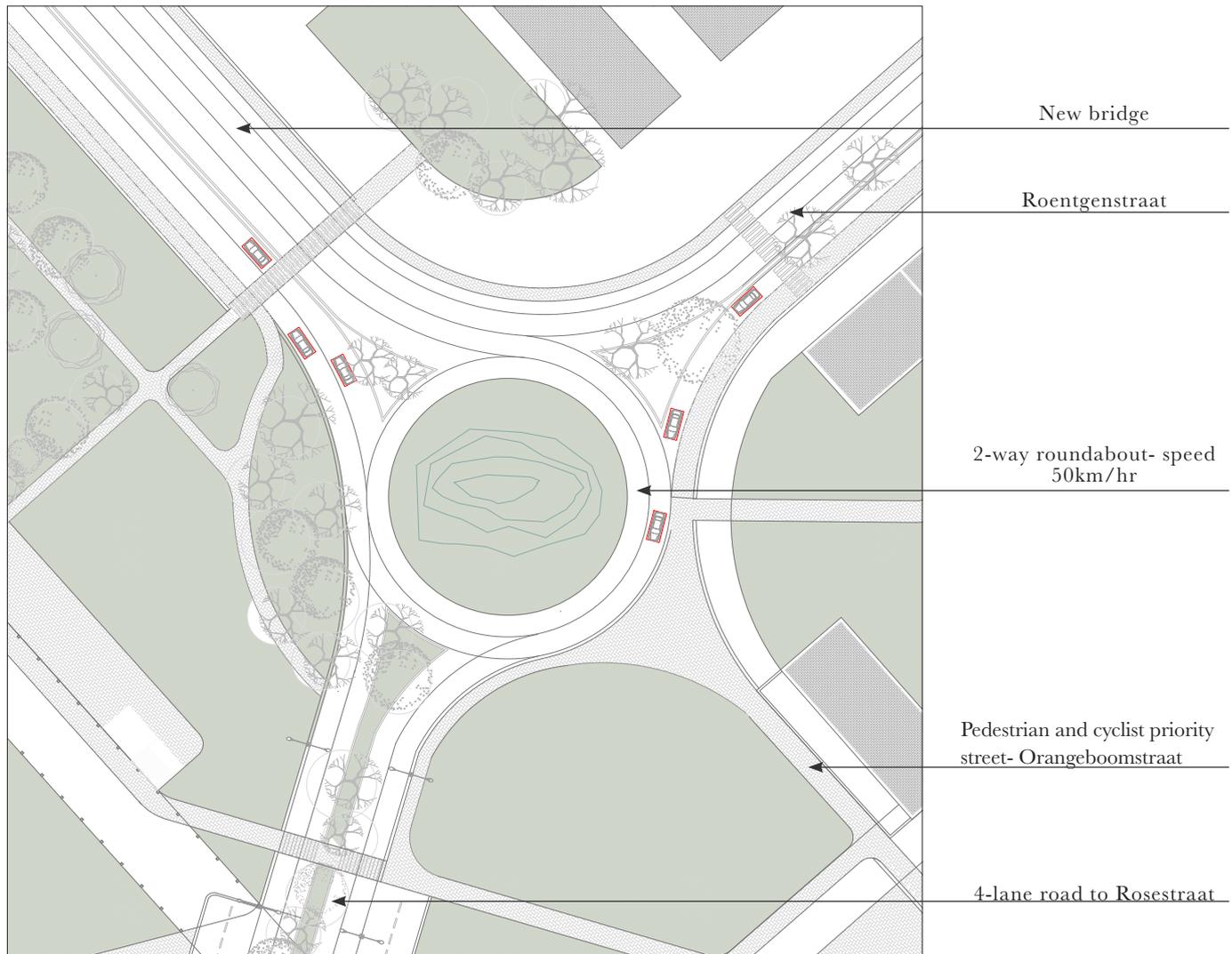
1. The square for flow of people
2. The drop-off area
3. Shared cars pick up points
4. Bus stop is relocated
5. Pedestrian crossings maximized
6. Bike park
7. Ramp for car parking
8. Geometry of Rosestraat to accommodate for station



**The Metro Station**

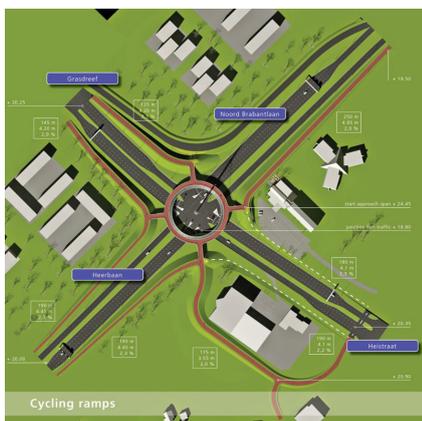
Source:  
Author

# The roundabout



- Landscape
- Pedestrian+cyclist

**Larger drawing to be replaced, with a more detailed version of the roundabout on site**



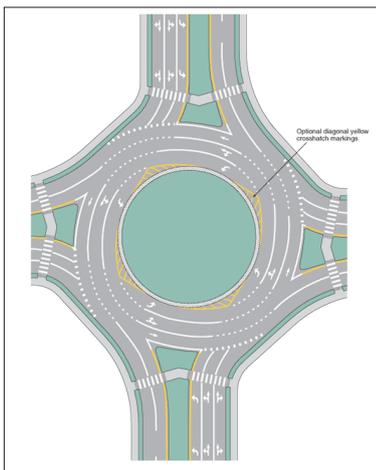
Hoven ring- Eindhoven: Separate bike+pedestrian pathways from vehicular



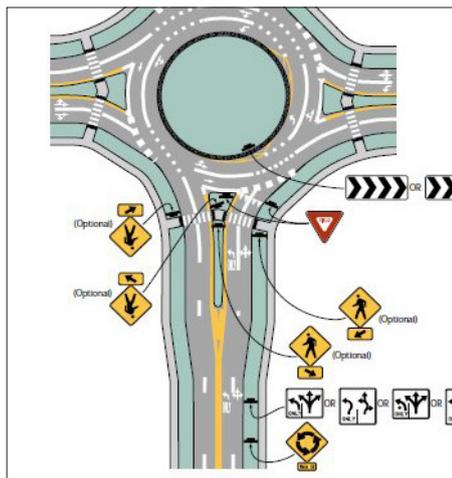
Hoven ring- Eindhoven: Separate bike+pedestrian pathways from vehicular

Source:  
Author

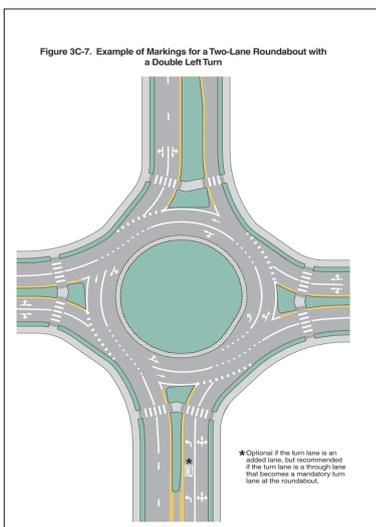
**References for dimensions**



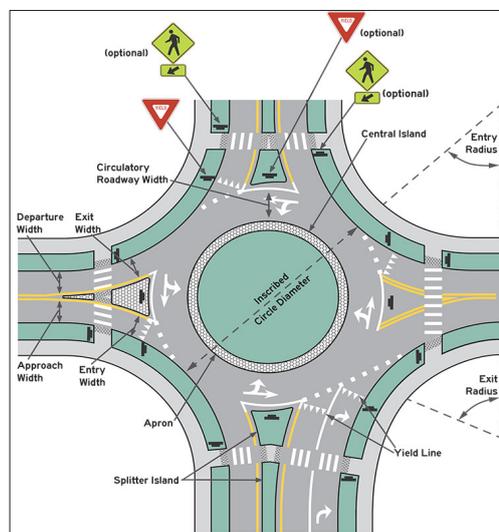
Example of markings for a 3-lane roundabout with 2-lane exits



Details of marking for safety and crossing



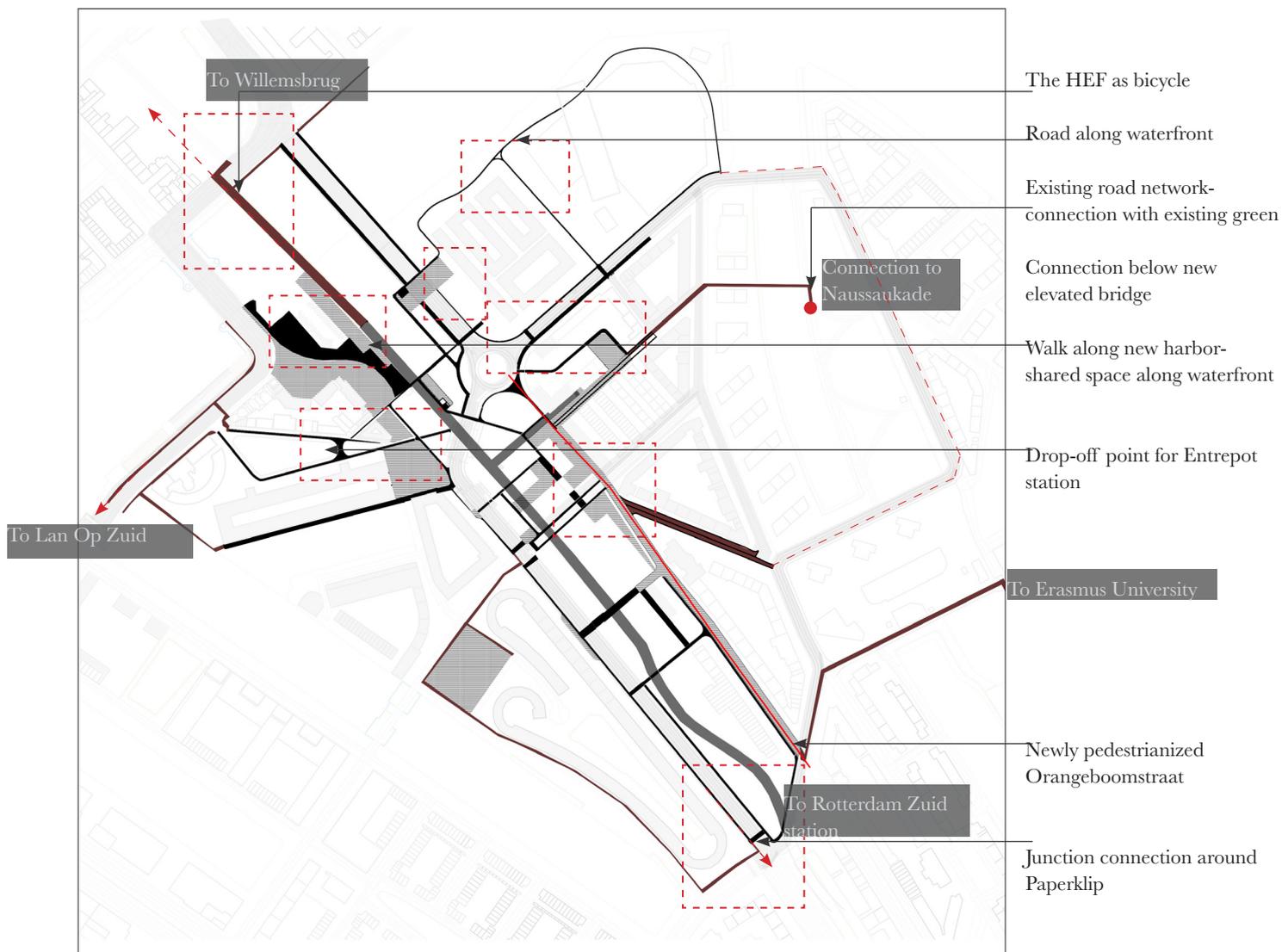
Example of markings for a 2-lane roundabout with a double left turn



Details of marking for safety and crossing

Source:  
Author

## 2. Organizing Movement



STEPS FOR STRUCTURING MOVEMENT  
IN FEIJENOORD, as a sequence starting up  
North, based on principles listed above: BICYCLE,  
PEDESTRAIN AND SHARED.

1.

HEF

Shared space

Existing road network

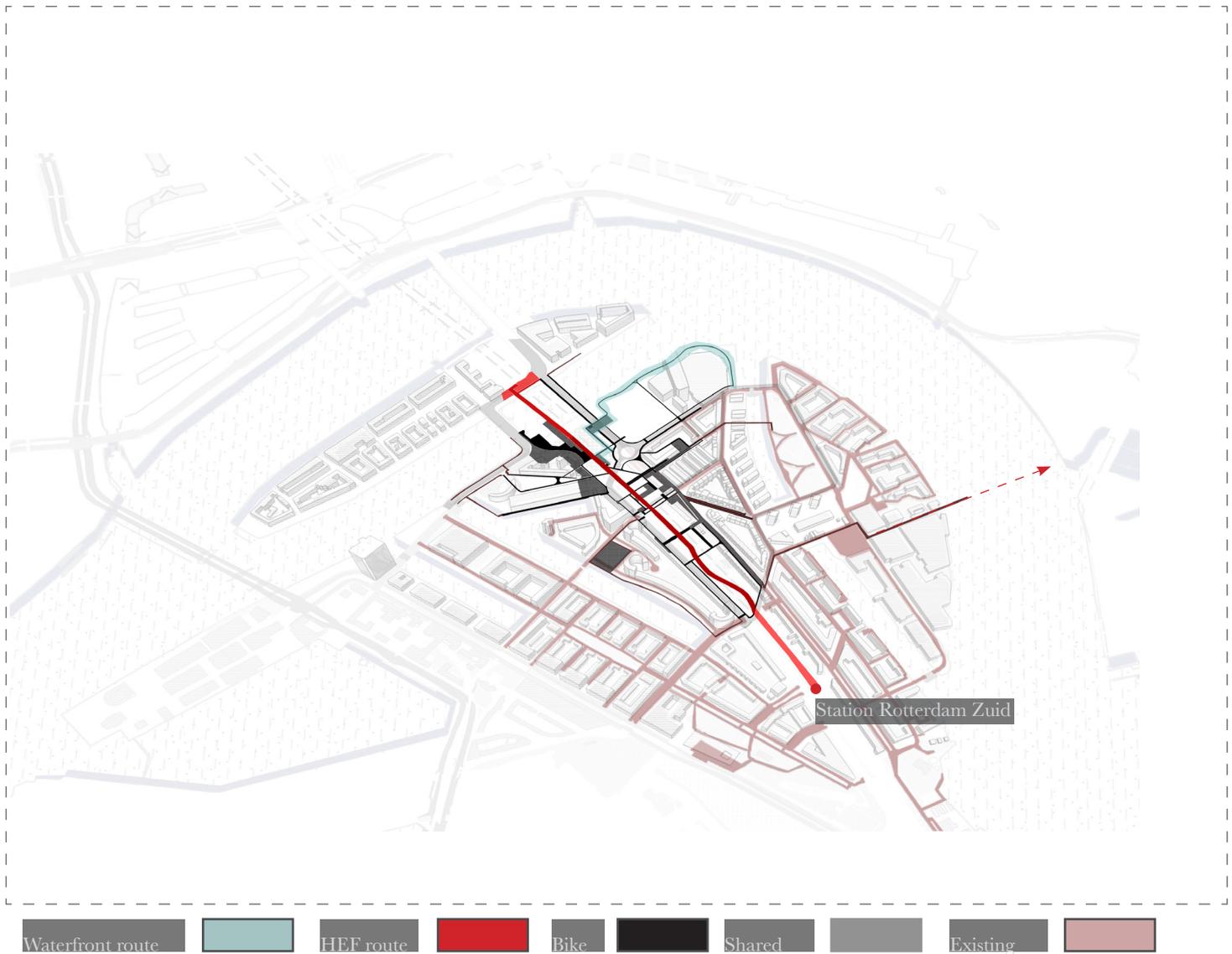
Shared bicycle and pedestrian

Priority bicycle

Priority pedestrian



Map showing newly designed secondary road network and its immediate connections- for further details of the diversity in this network, refer to the zoomed in plans



**Support network to create better connections in Feijenoord. The main intervention being extension of the HEF to give this smaller network of streets an identity.**

Current Problems:

1. Restricted access N/S across the street due to vehicles dominating the streetscape.
2. Over complicated pedestrian crossings and difficult to navigate intersections.
3. A general lack of quality in materials such as paving and urban furniture.
4. A lack of opportunities to pause and stay in area.
5. Confusing signage.
6. Poor lighting.
7. Street profiles dis-proportionate to usage.

Vision:

1. Make a key link between Orangeboomstraat, Roestraat and teh neighborhoods.
2. Tranform the main commercial street into a high quality, pedestrian friendly city street.
3. A series of 'pauses' is planned along the routes, based on program around it- where the people need to come from and go- with a change in paving.
4. Trees are planted along the route to additionally signal this- for orientation.

Source:  
Author

## Activators

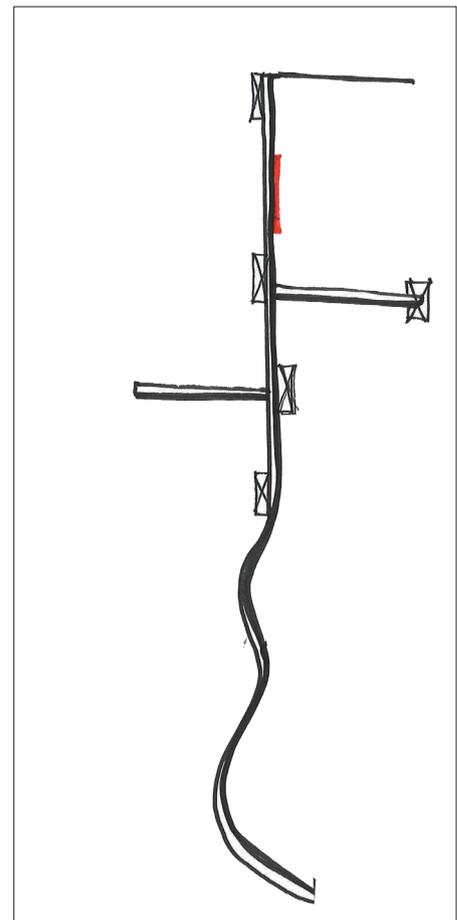
The HEF bridge as bicycle infrastructure is one of the main activators of the area. Exits and entries to this elevated bike bridge are planned based on the starting point, the end and in-between, around the programmed pavilions, the metro station, junctions- existing and new. These exits- with large viewing platforms also become interaction spaces.

- The main aim of this strategy is to better connect the north of the river to the South and give infrastructure in Feijenoord a relatable identity. In the North, this is extended as well, connecting to city road S123.
- This intervention is mainly about giving a new functional life to the HEF as an abandoned monument and infrastructure and integrating it in Feijenoord.
- It also activated a new type of activity in the area- that of bicycle tourism, as an exploration of the HEF and also a new way of seeing Feijenoord.

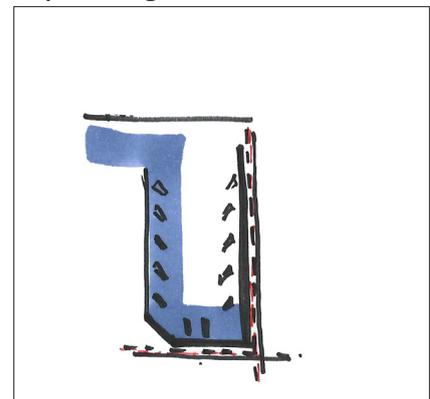
- The new harbor activates the waterfront by initiating a new type of use.
- This leads to new waterfront use like restaurants, and shared spaces created around the harbor.
- it can house 25 mid-sized boats and in the future also be connected to public routing of water transportation.

The concept of shared spaces is introduced with Orangeboomstraat as an example

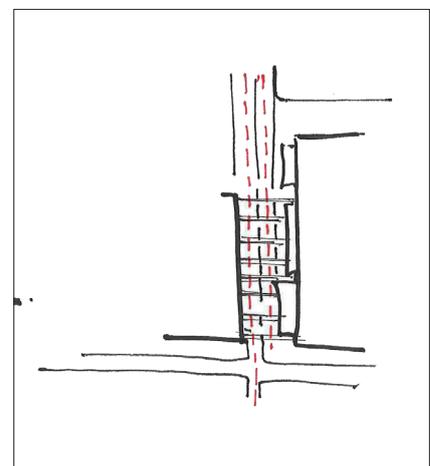
- The roundabout diverts the main vehicular traffic from entering Orangeboomstraat, taking it through the new loop- Roentgenstraat.
- Facades of buildings parallel to the main core are commercialized and the thresholds extended towards the core.
- The street as a city centre analogy is brought forth.



**The HEF extension- as a pedestrian and bicycle bridge**



**The harbor to activate waterfront connection**

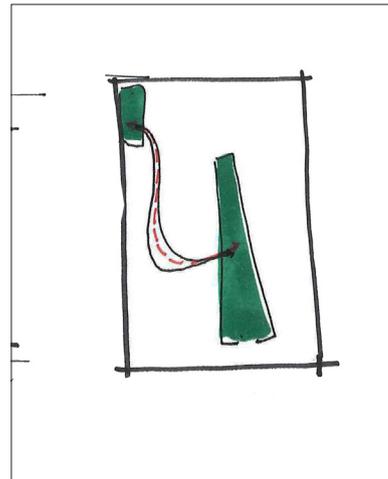


**Orangeboomstraat as a shared street**

- Apart from the physical infrastructural connections, programmatic connections are made to activate public spaces in Feijenoord.

- For example, Unilever is willing to cut short their parking area as it is unrequired in that dimension. Therefore restaurant and hospitality activities could be programmed in those spaces and also within the heritage structure in Naussaukade.

- The secondary road networks help in activating these dynamic connections.

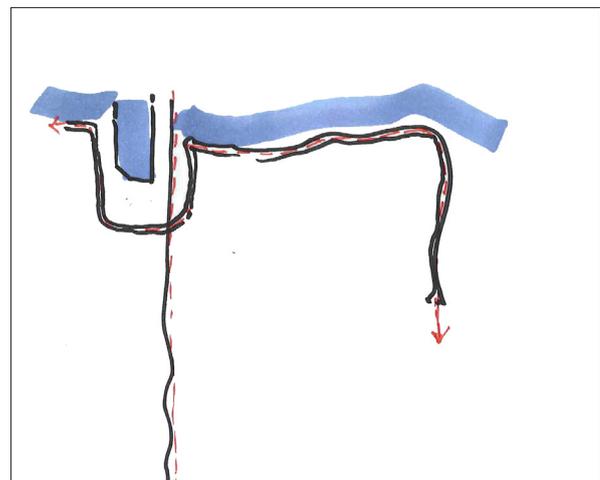


**Programmatic connections made through secondary road network**

- The development of the stretch of waterfront is given different connections and characteristics with the inland.

- The waterfront route that is created offers an opportunity to view all these characteristics continuously.

- The extension of the HEF into Feijenoord also supports the orientation of the waterfront towards Feijenoord, and vice versa.



**Waterfront route to activate connectivity with the waterfront**

Source:  
Author

# Structuring the systems

## Movement

## Organizing the buildings/functions in relation to movement

### 1. Number of directions

**To concentrate\_**  
**Concentration points- 1**  
**direction (compact)**

**To disperse- several**  
**directions (widespread per**  
**system)**

### 1. Distances in-between buildings/functions

**To concentrate**  
**- compact per system**  
**- attractions close together**  
**- narrow facades to**  
**disperse**  
**- attractions far apart**

### 2. Number of alternative routes

**To concentrate\_ 1 street**

**To disperse\_ several**  
**parallel streets- skywalks,**  
**etc.**

### 2. No. of storeys/ levels

**To concentrate\_ 1 street**

**To disperse\_ several**  
**parallel streets- skywalks,**  
**etc.**

### 3. Number of alternative transport systems

**To concentrate\_ 1 street**

**To disperse\_ several**  
**parallel streets-**  
**skywalks, etc.**

### 3. Orientation of buildings/functions

**Entrance doors, windows,**  
**etc.**

**To concentrate**  
**orientation towards**  
**public spaces**

**To disperse orientation**  
**away from public spaces**

### 4. Structurability

**A logical, easy way to**  
**find your way around in**  
**overall structure**

**Using topography, etc.**

### 4. Relations between mobile and pedestrian activities

**To concentrate same**  
**spaces for moving and**  
**staying**

**To disperse separate**  
**systems**

**Table in Process- to add other alternatives+diagrams for site**

# Different means of travel in Feijenoord

## Private Vehicles

### Cars

#### Spatial Intervention:

- The new bridge
- Re-profiling existing streets

#### Speed limit:

Bridge: 50km/hr

Rosestraat: 70km/hr

## Metro

### For higher frequency

#### Spatial Intervention:

The Entrepot

Running between:  
Rotterdam blaak to  
Rotterdam Zuid

Metro line to be  
constructed- through  
existing Maas tunnel

## Bus- Public

### Bus Network:

#### Spatial Intervention:

- Re-location of bus stop due to metro station project feijenoord

- Re-profiling existing streets

- Possible trolley transport

## Water bus/taxi

### For a different

extrovertish

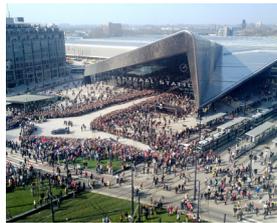
perspective of

## Bicycle

### Spatial Intervention:

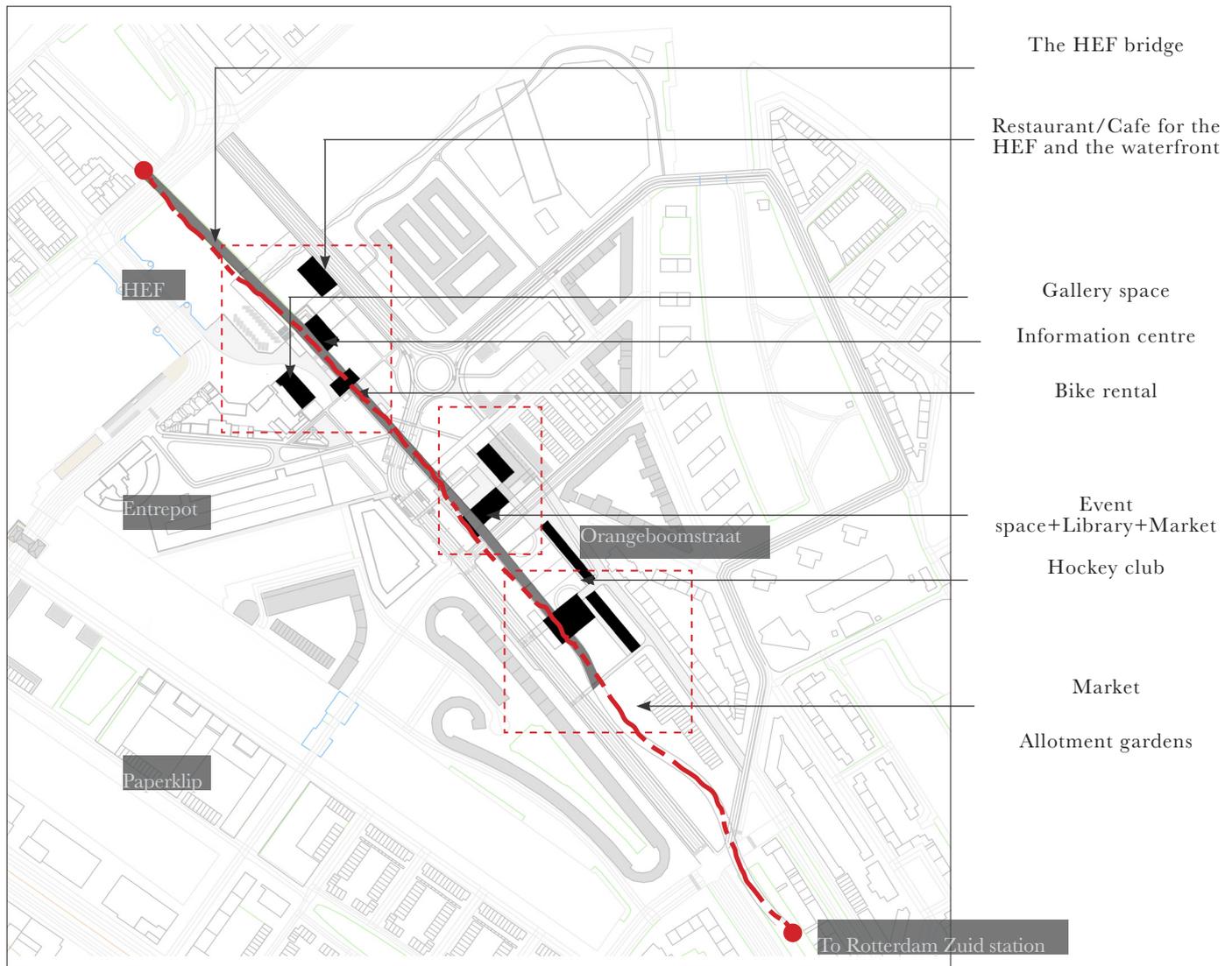
- Re-profiling existing + new bicycle Infrastructure

- The HEF as part of bicycle infrastructure



Source:  
Author

# Program Pavillions



In order to integrate the infrastructure in the everyday life of Feijenoord, the core is programmed by placing different pavilions along the HEF bridge. These initiate further use of this strip of Feijenoord, by housing events and spaces to support the context around them. The programs include:

1. Support structures for the HEF bridge- as a tourist and local bicycle infrastructure:

- Information room
- Gallery space
- Bike rental

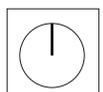
2. Restaurants- for the HEF tourism program and the waterfront

3. Event space, market and library

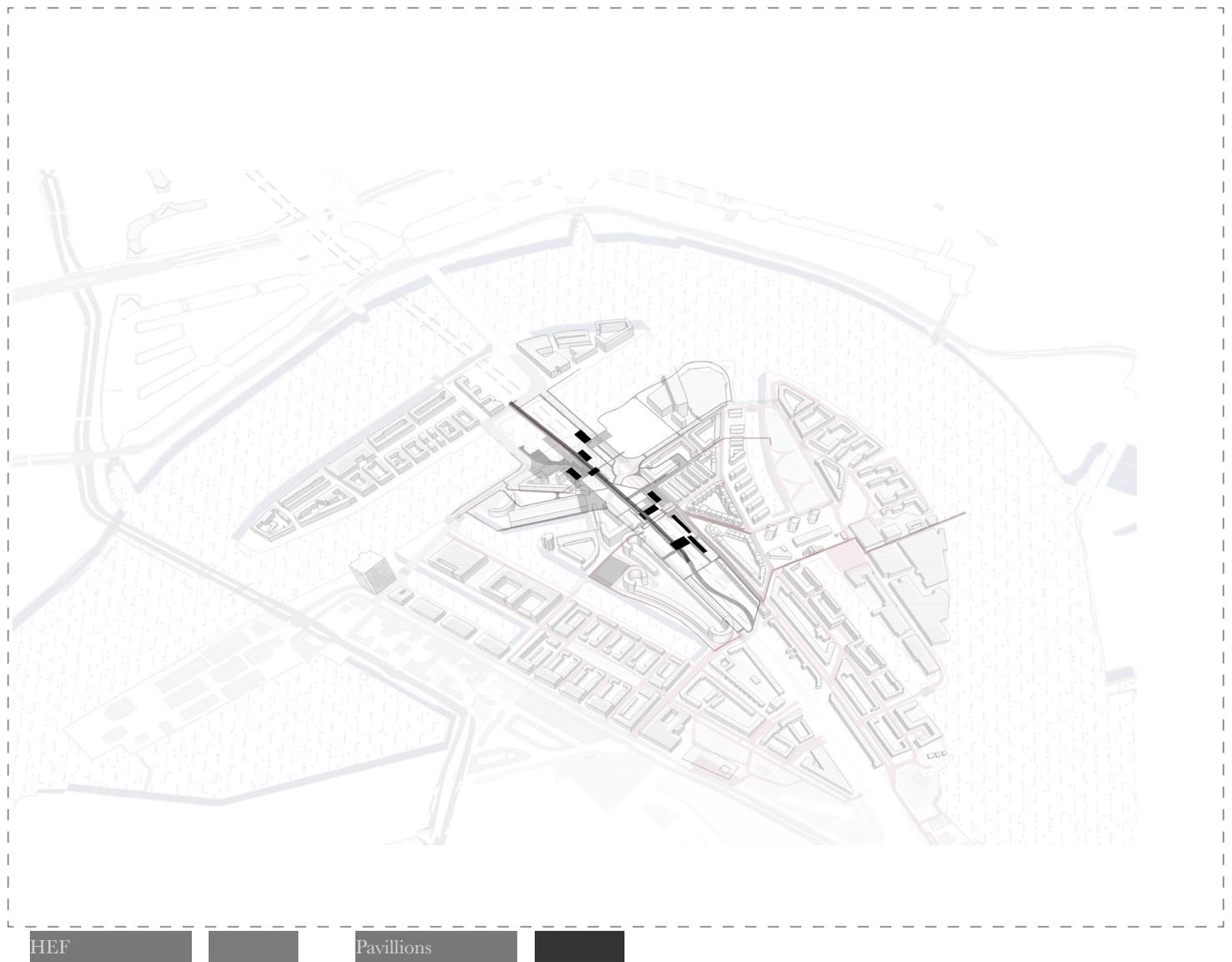
4. Shopping area- along newly pedestrianized Orangeboomstraat

5. Hockey club- relocated from further South, here.

6. Possible allotment gardens



Map showing position of pavillions within the larger secondary street system



**Placement of pavillions and programming, based on what is happening in its immediate context in Feijenoord.**

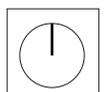
Source:  
Author

# Landscape



The map shows the relationship between the new green and the existing green spaces- in Feijenoord and around. The green spaces within the new scope of site, are connected to the existing green spaces via a secondary road network.

Certain tools are adopted to design the landscape- the green- to connect it to the infrastructure, built environment, existing public places and the waterfront. The landscape is used as a fill for the in-between spaces created by the movement lines. The character of the landscape also changes as we walk inwards- down South in Feijenoord- it becomes more private, more informal and community based.



# Landscape



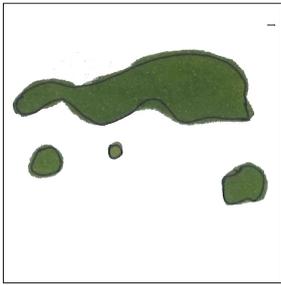
New green-proposed



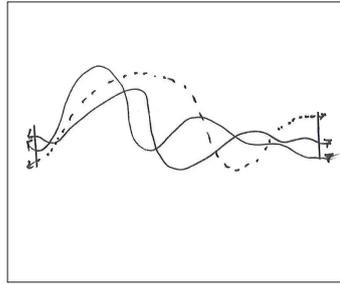
Existing



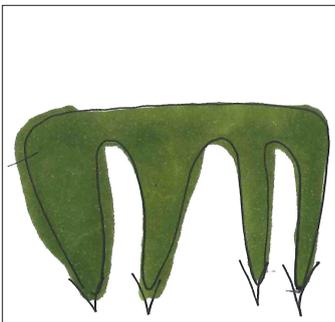
**Tools to activate and functionalize landscapes**



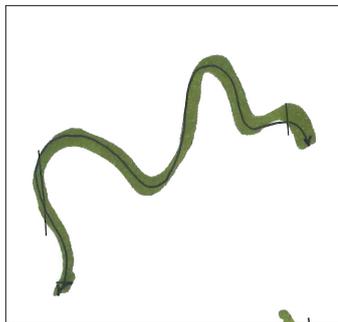
A disconnected green



Undefined edge between urban and green and waterfront



Develop a network of green

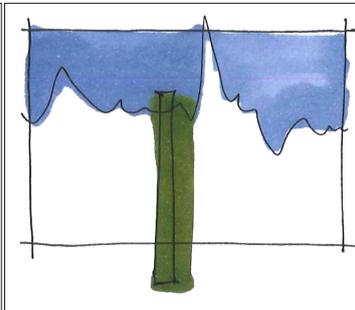


Enhance boundaries by soft-scapes

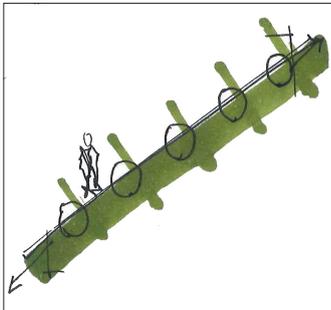
Other general tools applied to site:



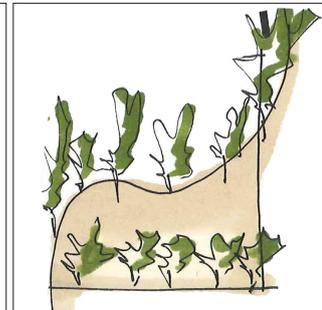
Connections to the waterfront



Green+waterfront



Multipile access points



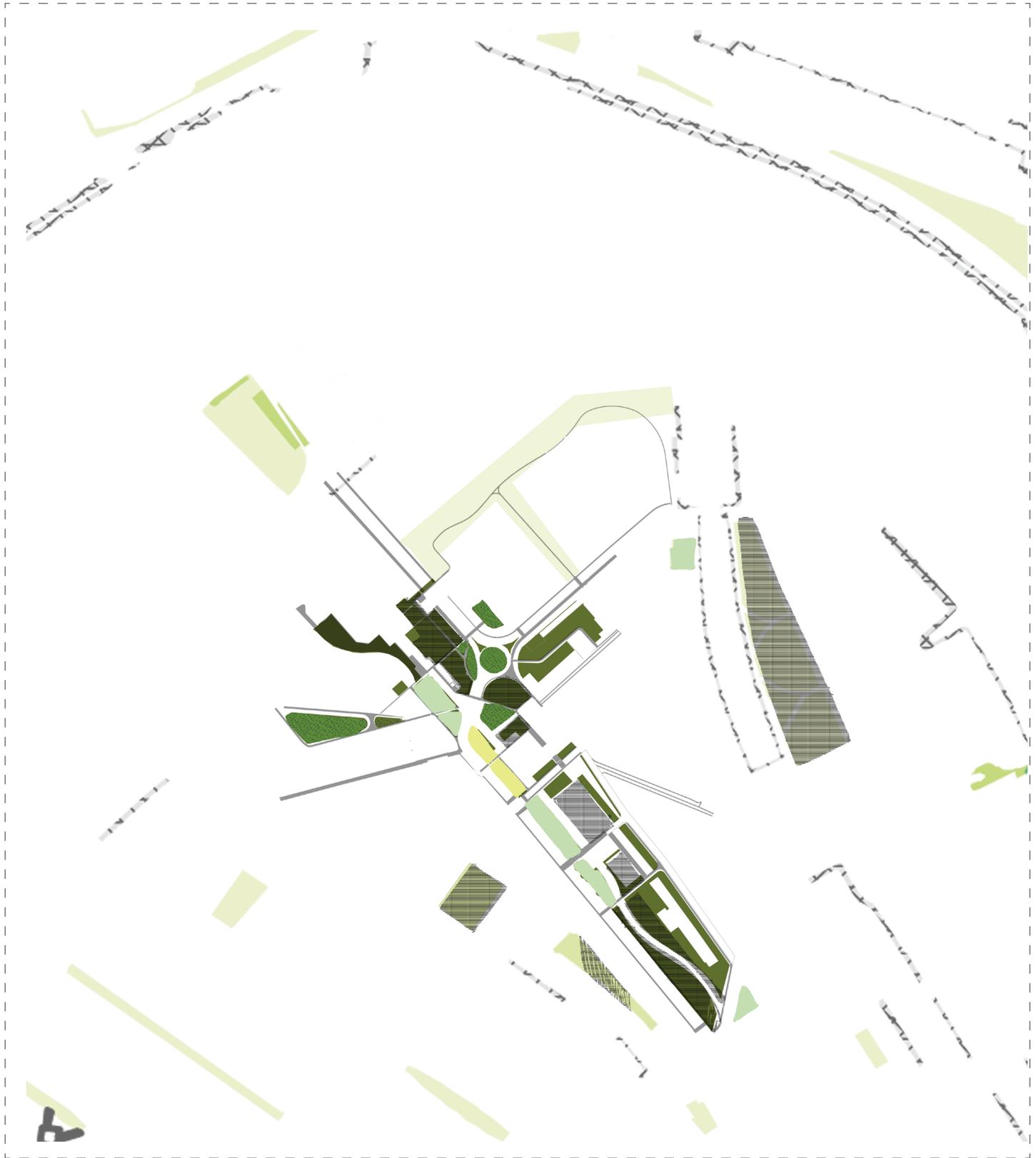
Plant consistent trees- 10,000 trees in 10 years

Current:

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Undefined edge between urban and countryside.</li> <li>2. Disconnected grass space.</li> <li>3. Sparse and inconsistent tree planting.</li> <li>4. COstrained connection and uniform conditions during the seafront.</li> </ol> | <ol style="list-style-type: none"> <li>1. Enhanced strong boundry making protected countryside.</li> <li>2. Develop a network of green fingers.</li> <li>3. Plant 10000 trees in 10 years- policy, to enhance green fingers.</li> <li>6. Create access point along the whole seafront with a range of activities.</li> </ol> |
|---|--|

Proposed:

Different types of green- characterized based on context of Feijenoord



Detail design





# Ground level composition plan

## Zone 1\_The approach

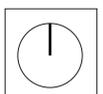
Programmes and infrastructure caters to locals and tourists

## Zone 2\_Transit Hub

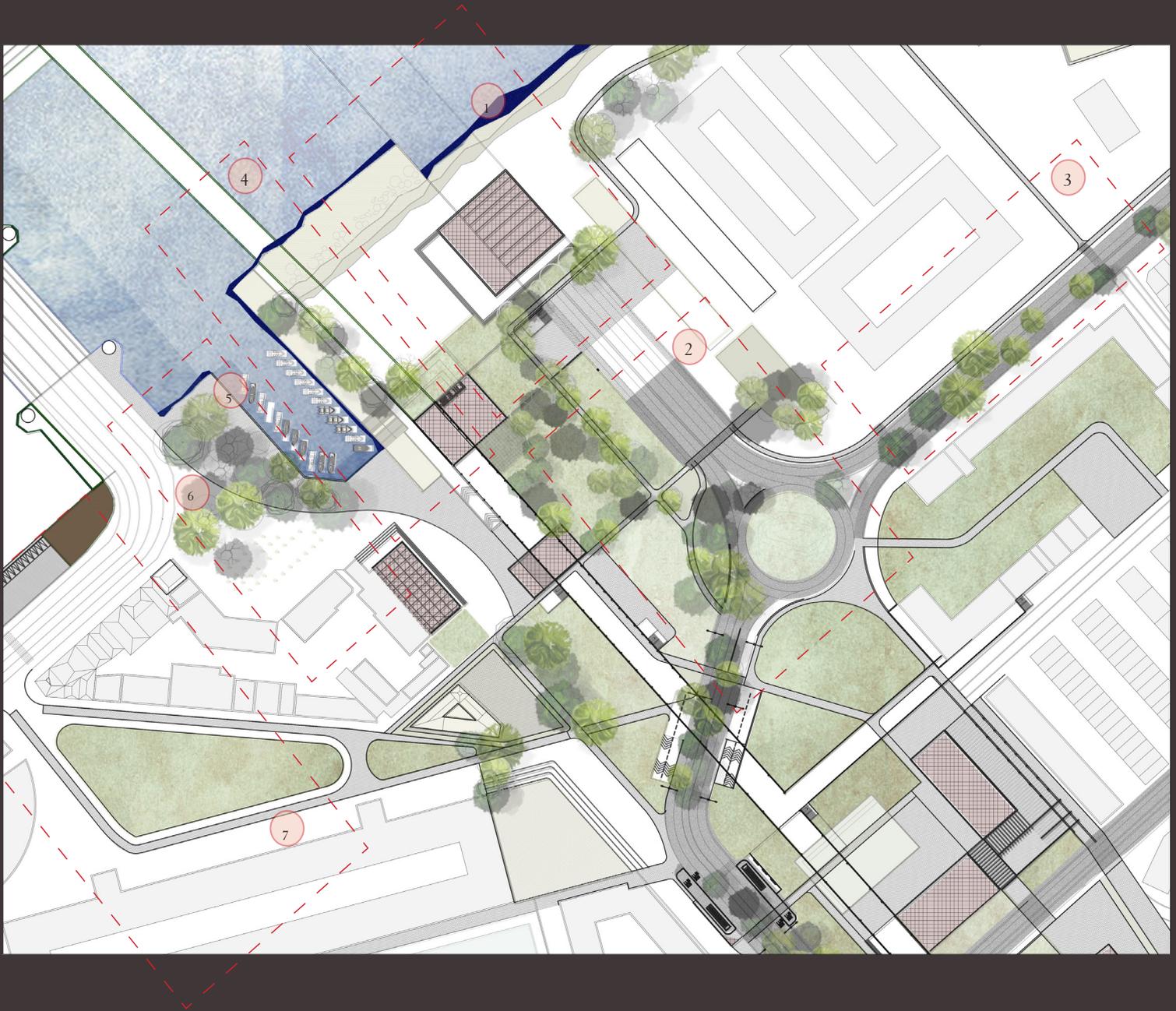
Program starts to transition towards more community involvement

## Zone 3\_Community

Program primarily caters to the community



# Zone 1- The Approach



The zones demarcated are explained according to the sequence/flow of infrastructure

1. The New bridge:

- Defines the waterfront due to being elevated- the waterfront here is converted to a soft-scape with pebbels and sand. It continues more organically with tree plantations as you go eastwards.
- The underneath of the bridge houses a restaurant- there is a pedestrian exit located at this junction- restaurant caters to tourists and locals and the employees at the industries in the area- here unilever.

2. The roundabout:

- For smooth traffic flow into Feijenoord.

3. The Loop:

The loop is introduced to divert traffic away from Orangeboomstraat- going into East Feijenoord- for the local residents and the industries in the south as well as catering to the new developments that are coming into Feijenoord.

4. The HEF:

To bind the smaller fragments of infrastructure, waterfront and program, the HEF bridge is extended into Feijenoord as part of the bicycle infrastructure.

- There are exits positioned based on the context and movement- shared spaces or small square of gathering are formed around the exits. The mid-landings have an increased dimension for furthering interaction.
- This also connects to the pedestrian networks in the north.
- A information centre and a gallery space are located as a consequence of the extension of the HEF.

5. The harbor:

- A small harbor for 25 boats is located to add to the waterfront characteristics and for connectivity to water transport.

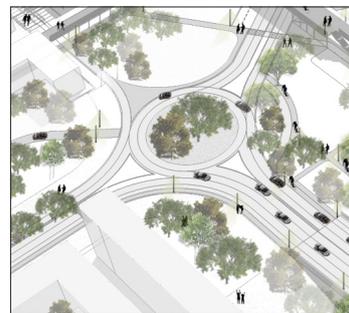
6. The space adjacent has a soft tree barrier to prevent traffic from entering the area.

7. Drop-off point:

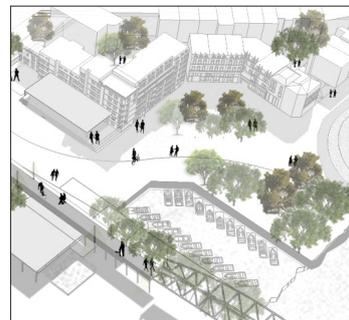
- A drop off point for the entropot- and to access underground basement parking of the entropot is created as a loop.
- A shared street connect this to Rosestraat



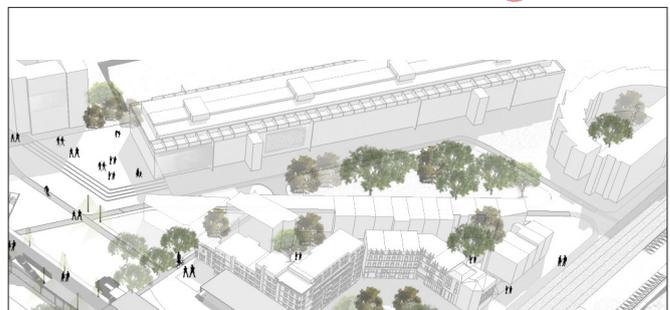
Restaurant+beach



Roundabout Extension



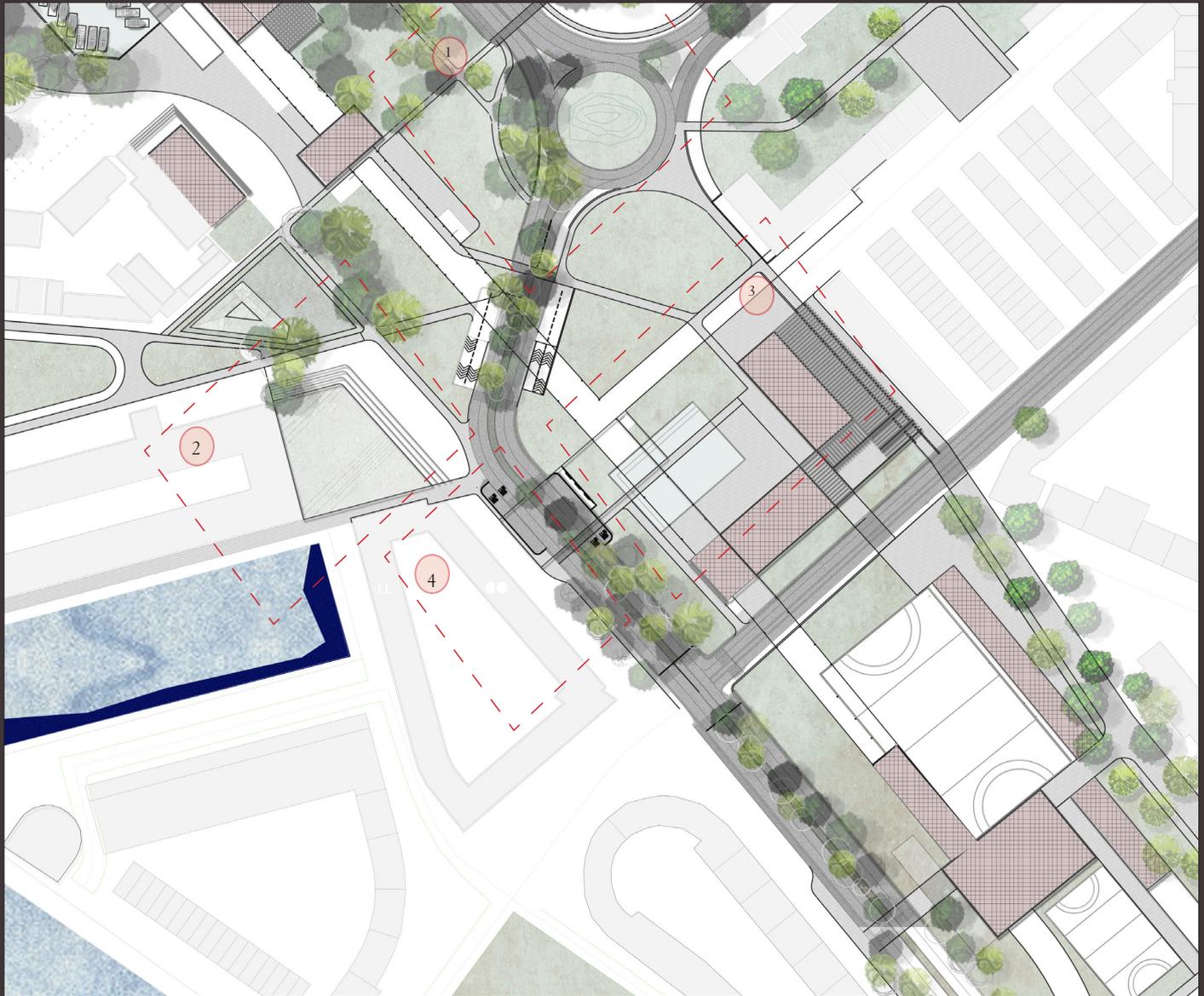
Harbor Square



Drop-off Loop



# Zone 2\_Metro station+public arena



1. The roundabout- Orangeboomstratt connection:

- There is a shared street space which is prioritized for vehicles and pedestrians- that takes us down South.
- The street between the event area and Oranjeboomstraat is also pedestrianized, by including a pergola that extends to the street.

2. Metro Station Entrepot:

- The Metro station looks towards Rosestraat- has a bus stop and a connection to the underground-parking and platform.
- Pedestrian crossings are planned around the same.

3. The Event area:

- This part of the plan consists of an event area- for rent, library space, market space, conference halls, commercial shops.
- There is a waterbody to act as storage for the grey water usage by the buildings and for rain water retention.

4. The HEF:

- The HEF has an extension towards eastern Feijenoord- with a possibility to cross straight from the Entrepot.

5. Rosestraat:

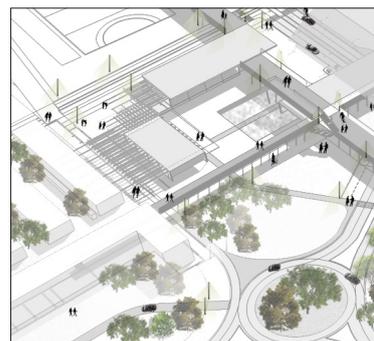
- Bus stop relocated, with a roof extension from the HEF- as a covered/sheltered space.



Entrepot square- exit ramps



Bus Stop



Event Space + Orangeboomstraat connection

# Zone 3\_ Community program



1. Hockey club:

- Primarily for the community
- A pavillion is between the two hockey grounds- the big and the small one
- Also a water storage space

2. Shared space along Paperclip:

3. Allotment gardens:

The HEF continues within the third zone, changing character to suit a more informal community based environment.

4. Junction at the paperclip:

- The loop joins to the junction at the paperclip.



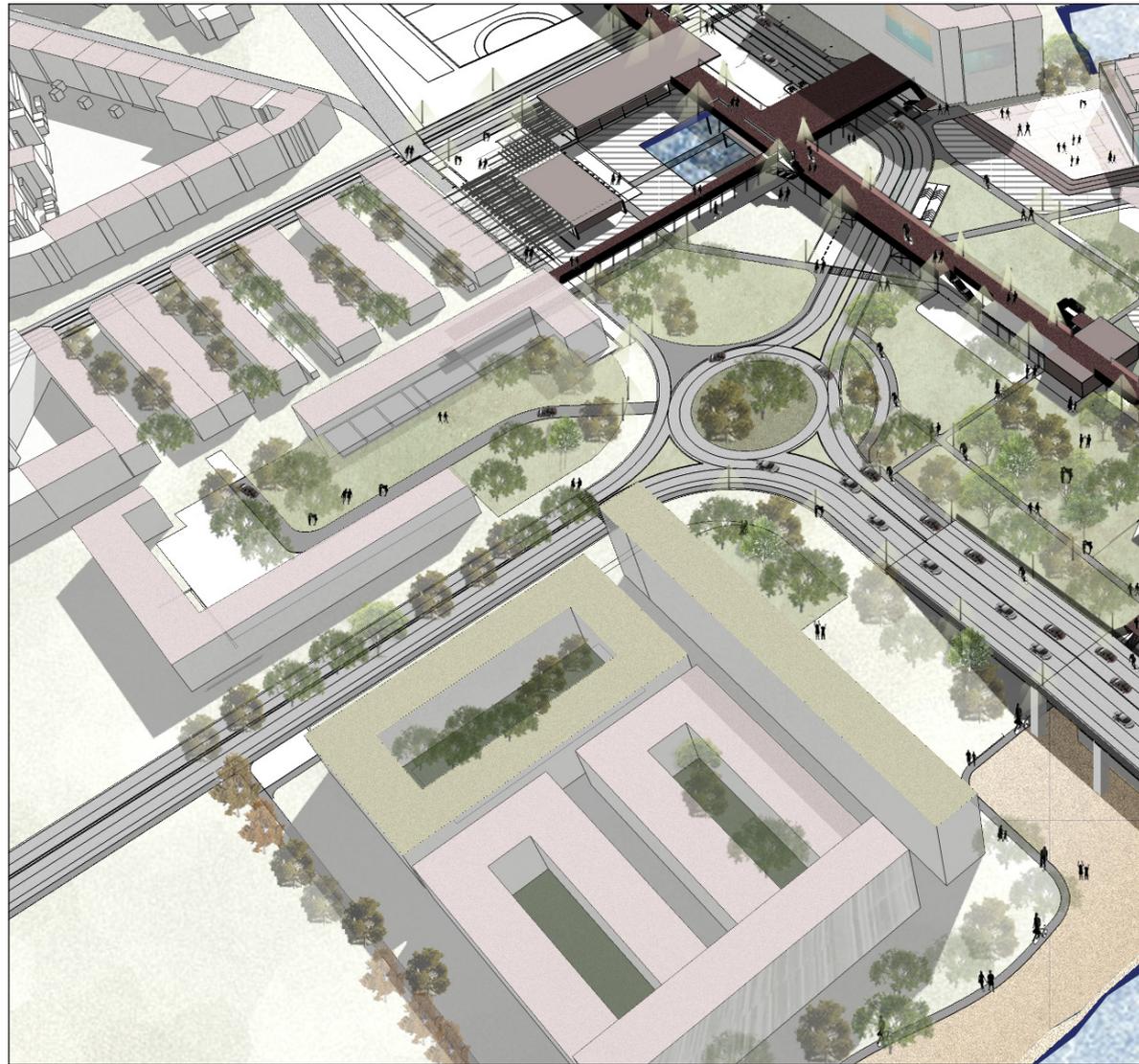
Hockey Club



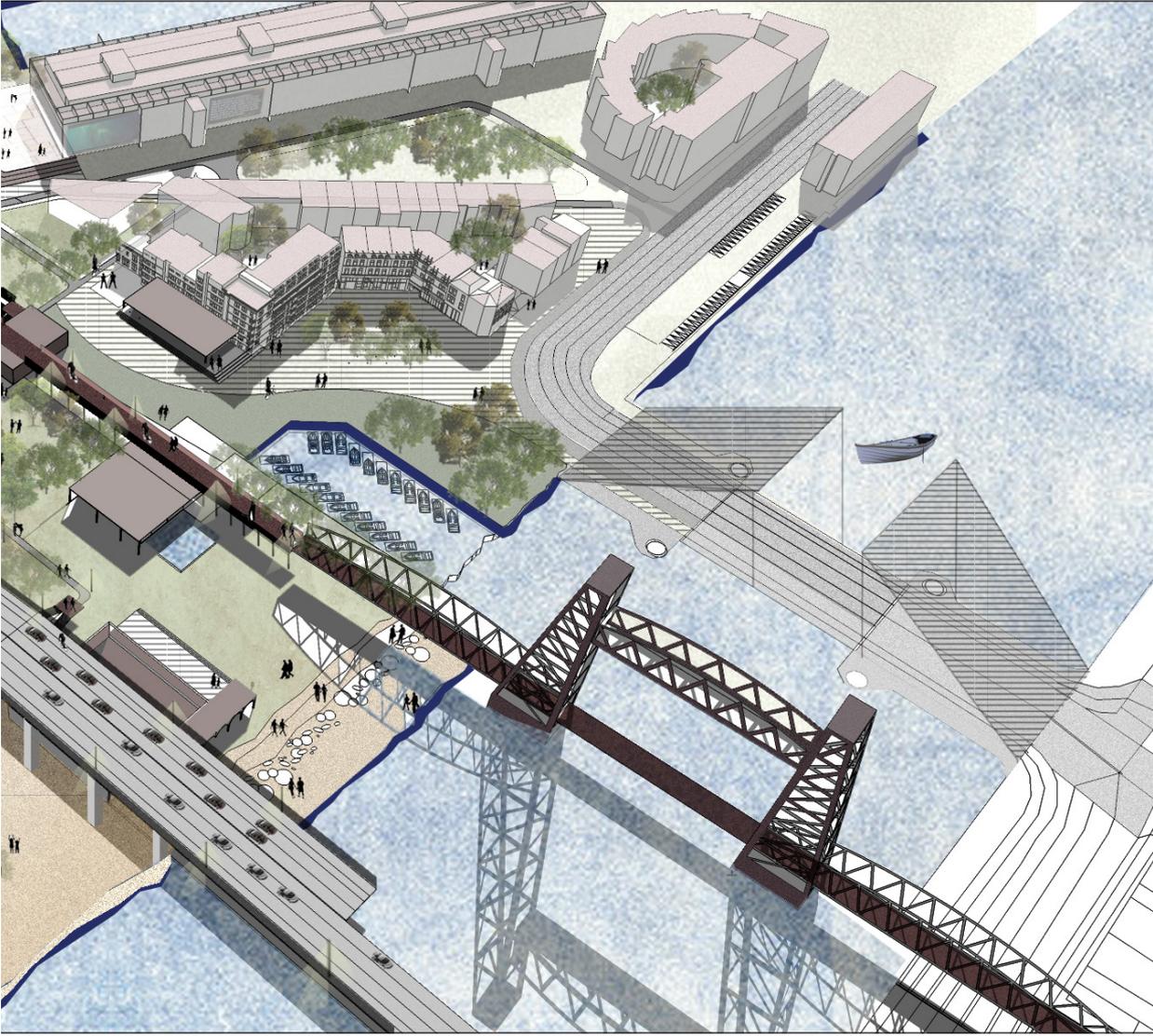
Allotment Gardens + Paperclip Junction



# Overview\_ Part 1



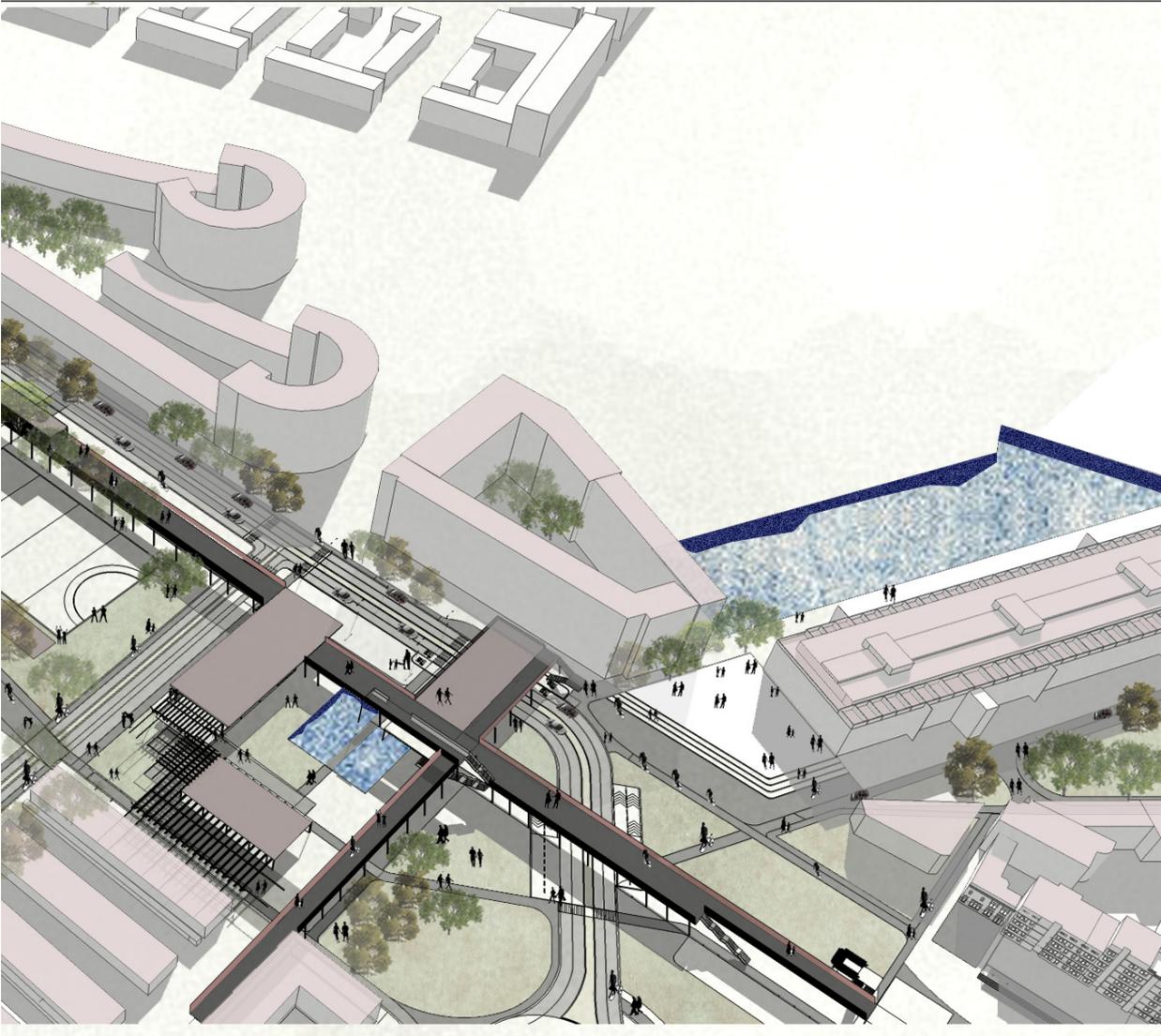
Overview showing a cohesive interpretation of the design strategy- movement patterns- vehicular+pedestrian and design of in-between spaces- EXTENSION OF THE HEF



# Overview\_ Part 2



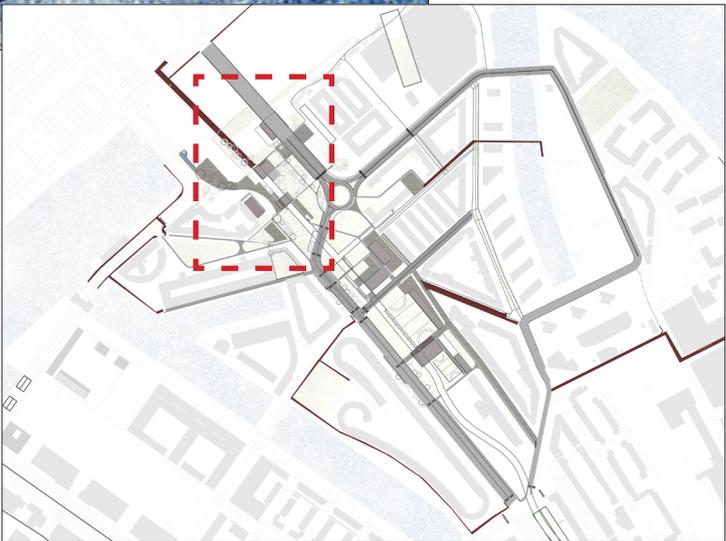
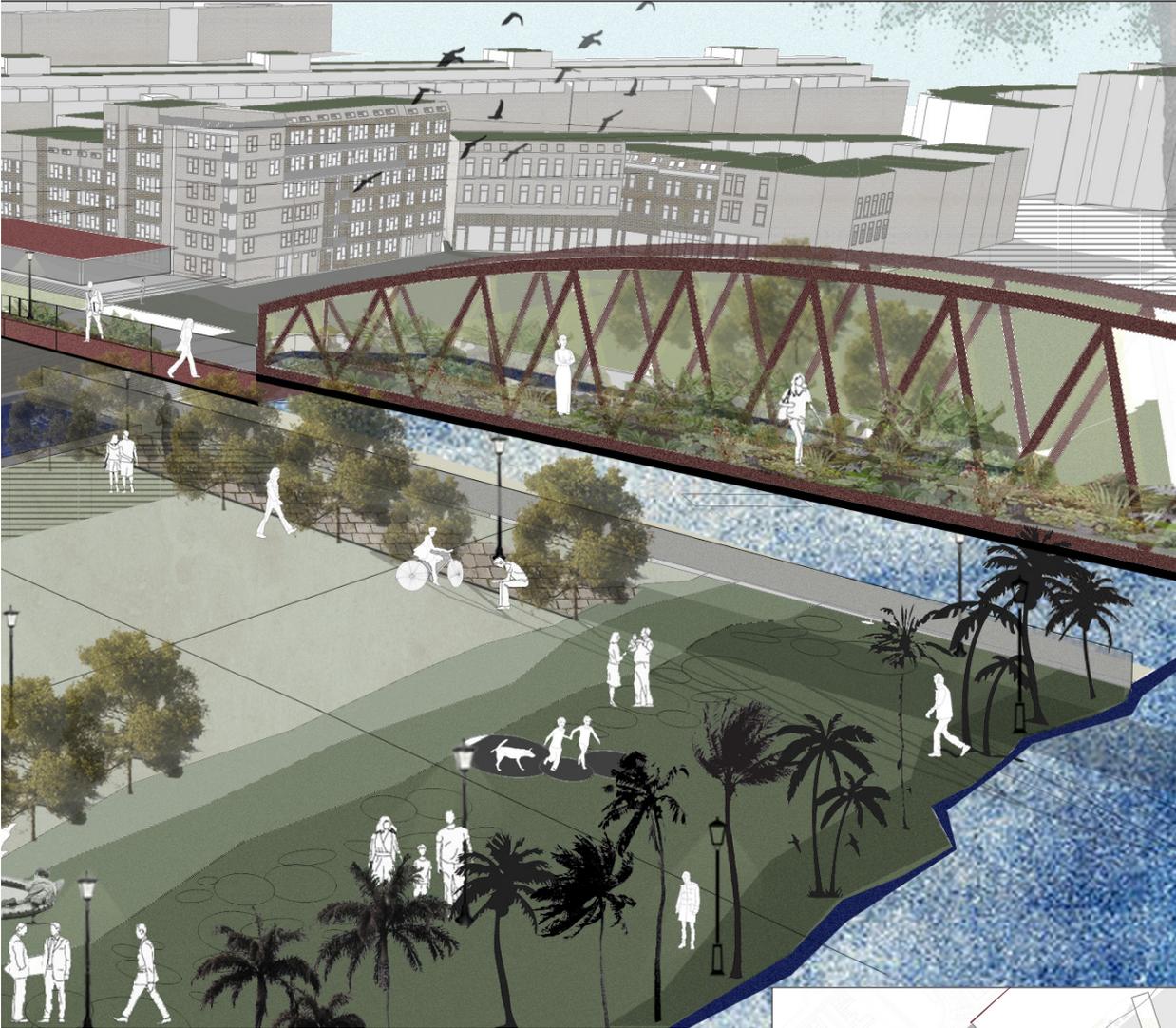
Overview showing a cohesive interpretation of the design strategy- movement patterns- vehicular+pedestrian and design of in-between spaces- CONTINUATION OF THE HEF



# The extension of the HEF- showing corresponding support infrastructure and program



View from the new bridge



# Entrepot- Event area connecting to Orangeboomstraat

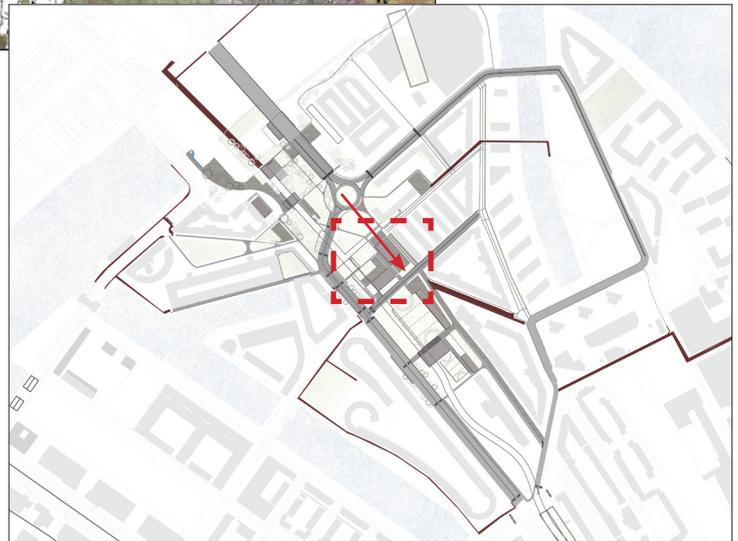
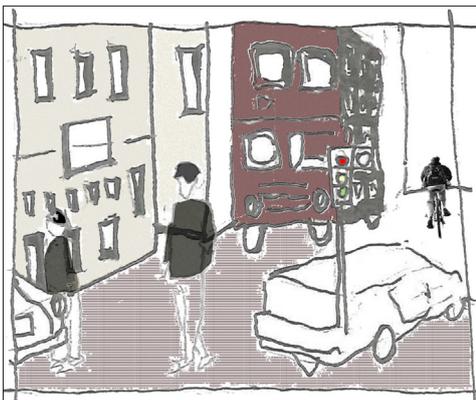
View from the roundabout into Orangeboomstraat- HEF bridge extending into Feijenoord



Shared program area

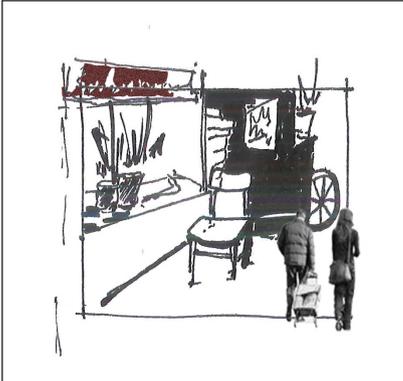
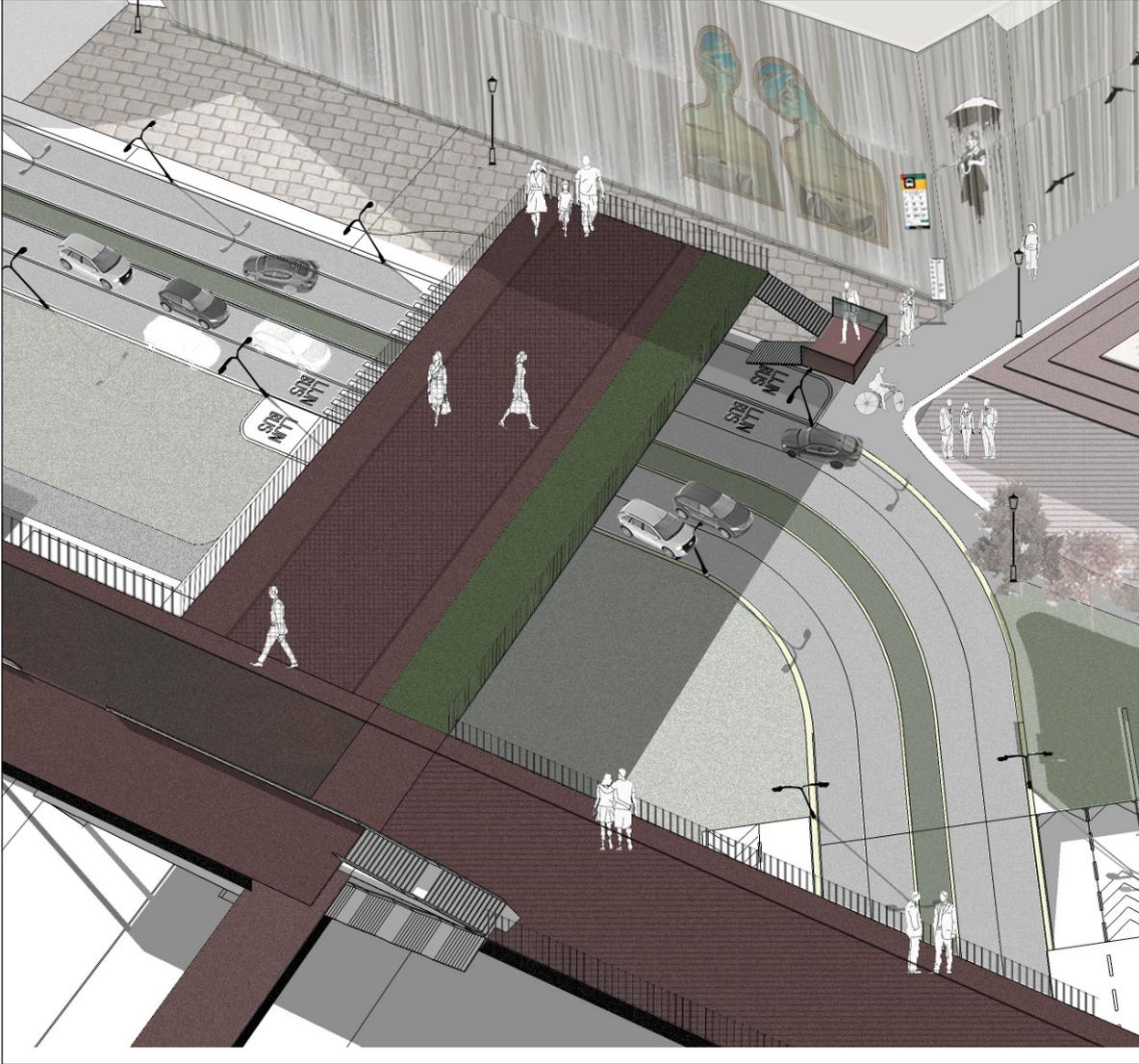


Water body- storage+aesthetic feature

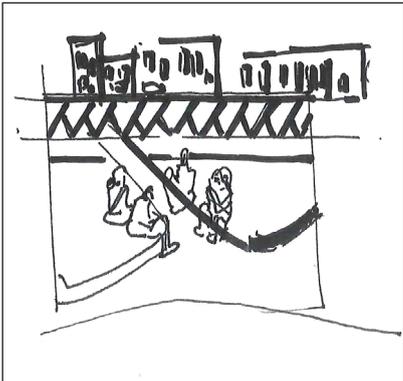


# Entrepot- Overview from the HEF bridge showing area around station as shared

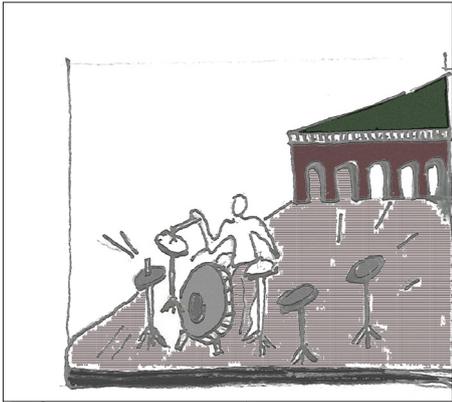
Overview from the HEF bridge



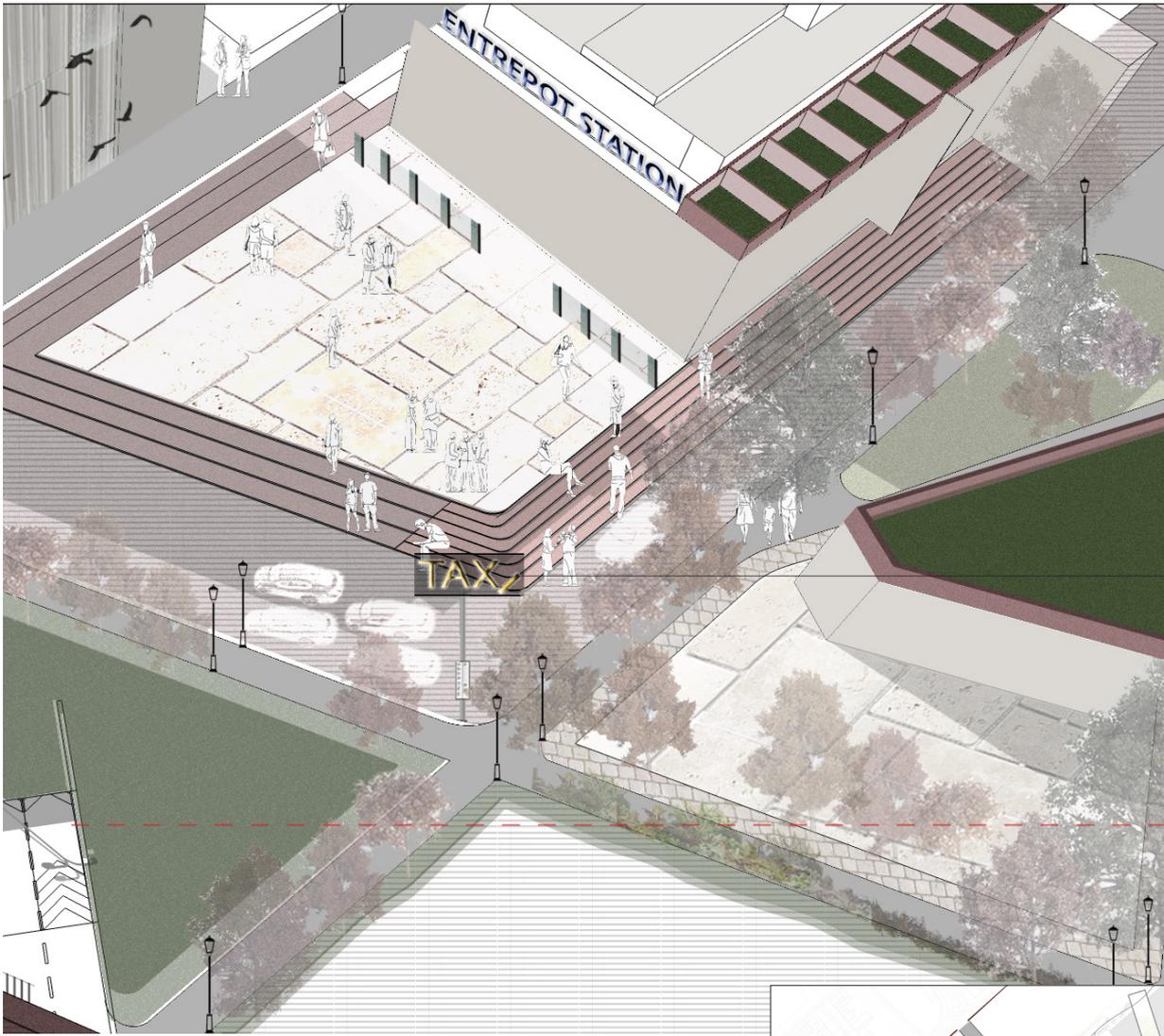
Thresholds extention



Using the curb for gathering

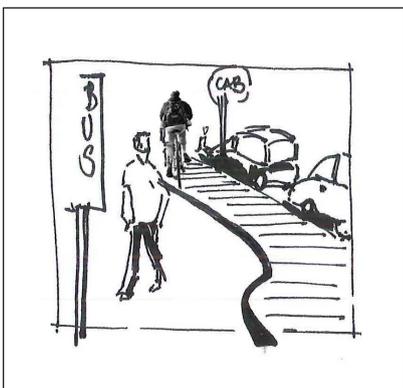


Performance to appropriate entrepot square

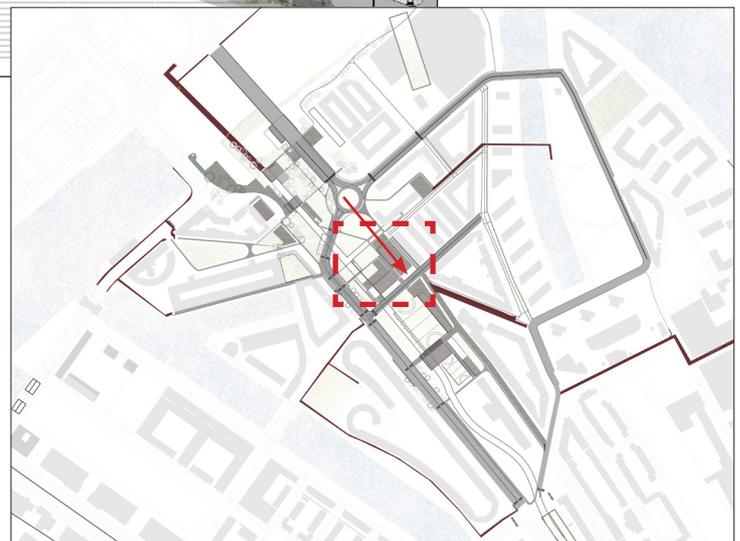


Shared taxi stand

Ramp for entry+exit vehicles



Waiting zones- shared cab stand





Restaurant seating on the shared street



Shared streets-Orangemboomstraat as market street



Interactions around goods+food+department store



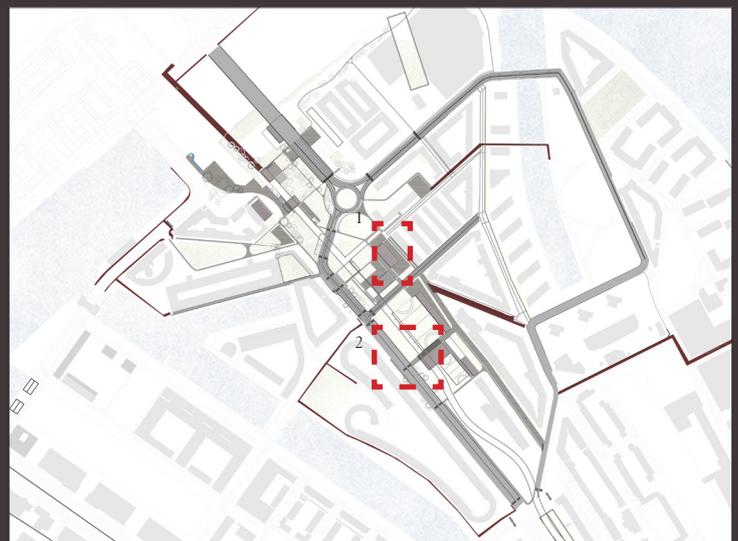
Familiar items like carts



Hockey club for community+gathering area



Adjoining main traffic street with drop-off point

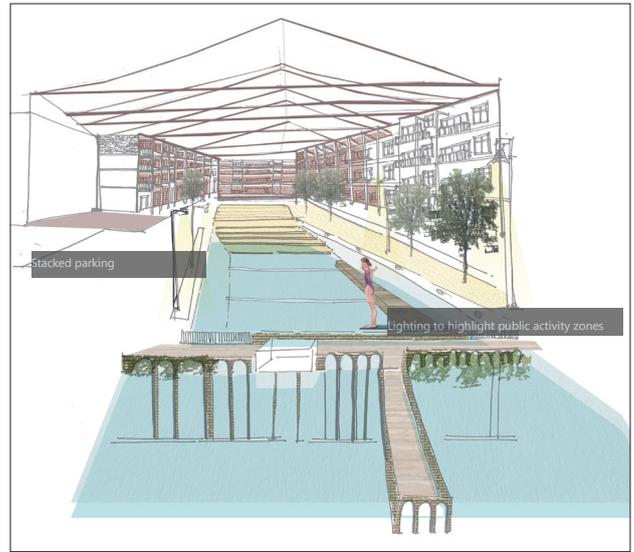




Allotment Gardens- Community area adjoining the paperclip and along Rosestraat



Allotment Gardens

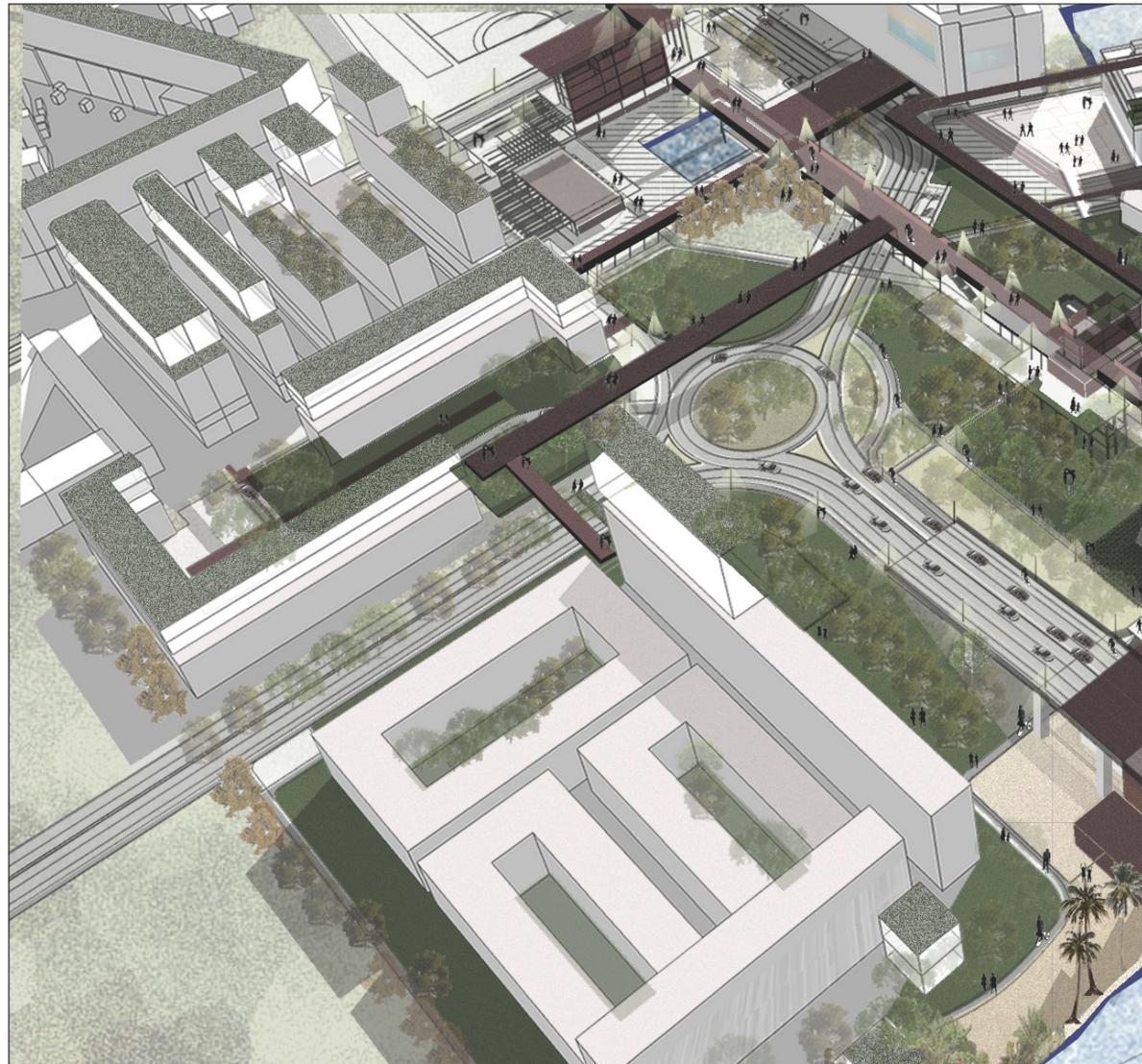


Initial sketches for interventions for adjacent context



# Overview\_ Part 1

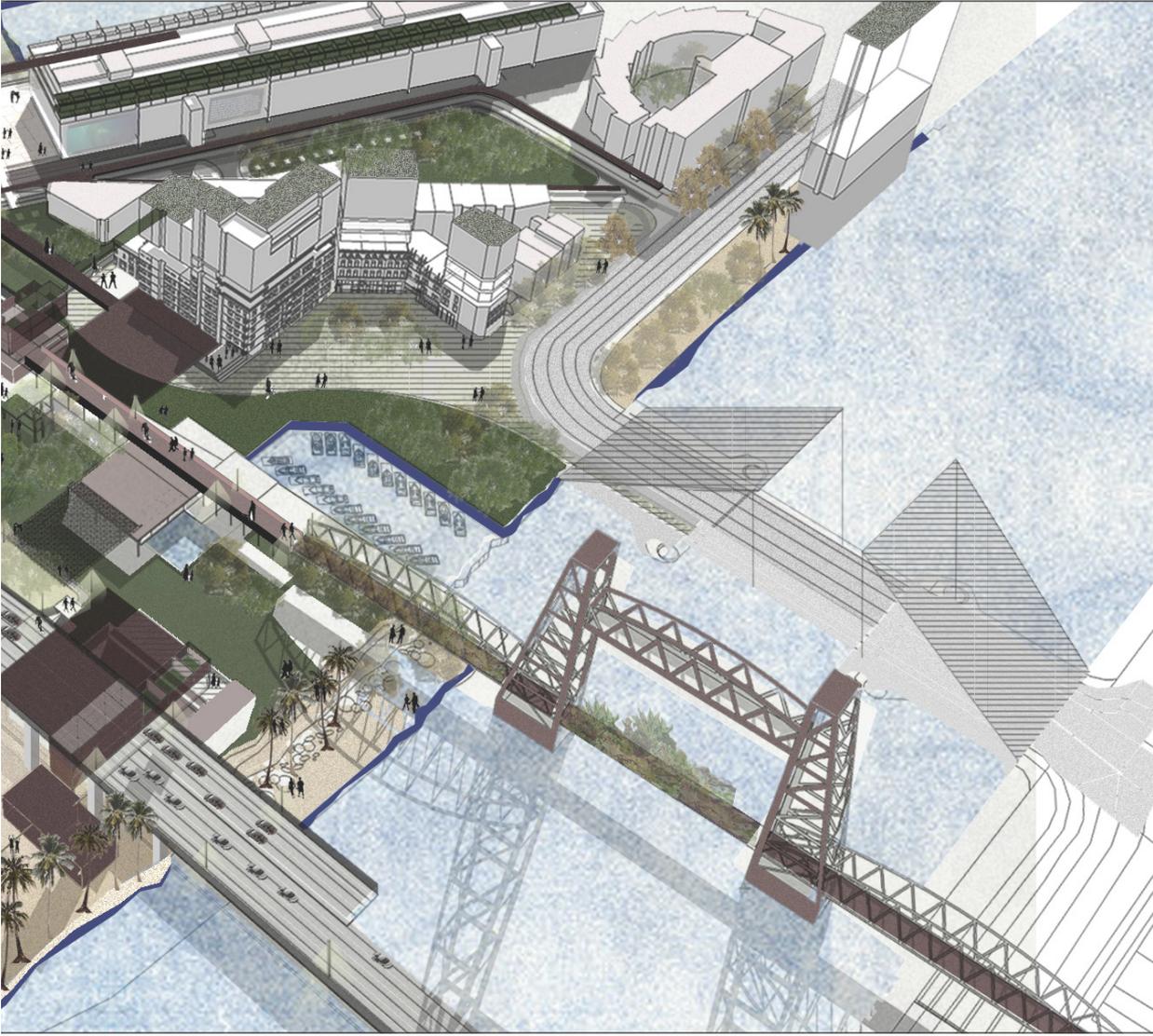
....30 years down the line



The main goal is to address an increasing density in Feijenoord with the upcoming projects.

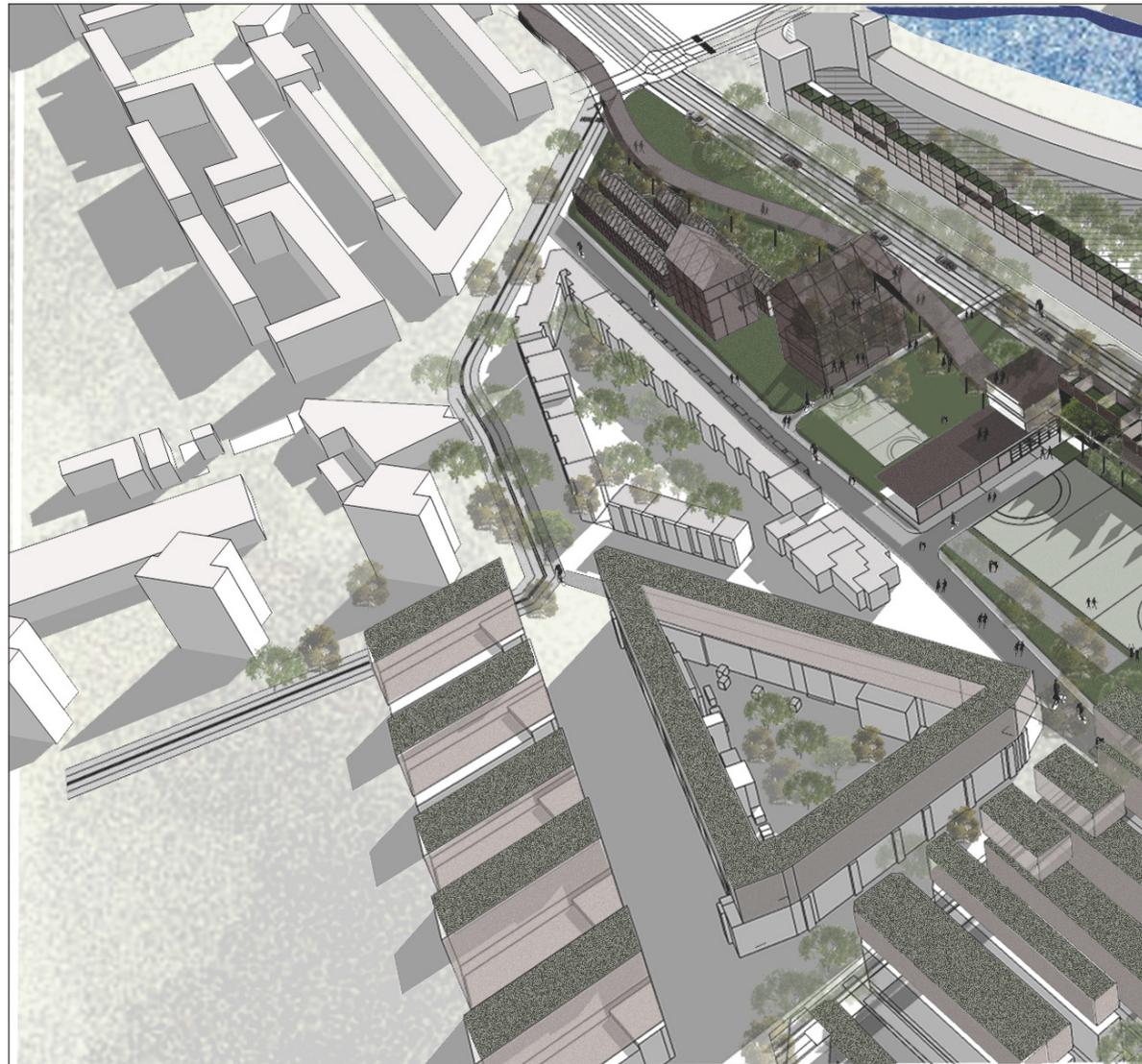
For this, and applying the main design strategy for contextualized development, certain guidelines are applied:

- Secondary street structure to be enhanced
- Infrastructure to be more connected with the built environment
- Can be built vertically
- Existing built environment to be densified
- Green spaces to grow further
- Waterfront to be made accessible to public
- Further exits to be introduced on the first floor level of infrastructure and also the ramps leading down to the station



# Overview\_ Part 2

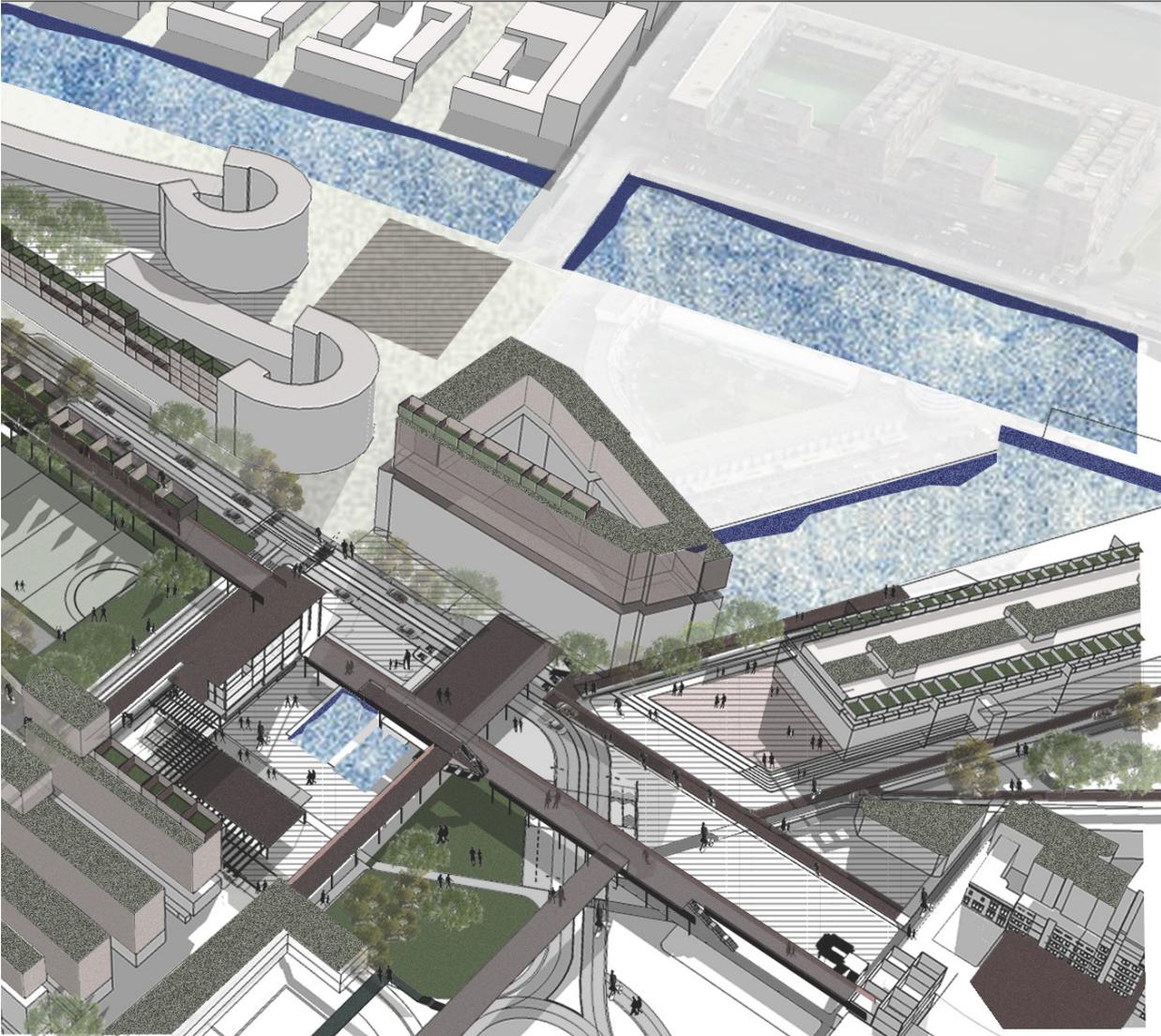
...30 years down the line



Overview showing a cohesive interpretation of the design strategy- movement patterns- vehicular+pedestrian and design of in-between spaces- CONTINUATION OF THE HEF  
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- Secondary street structure to be enhanced
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Summary of Design in relationship to design strategy- first an overview with current google earth view



Google earth image to be related- with high resolution image

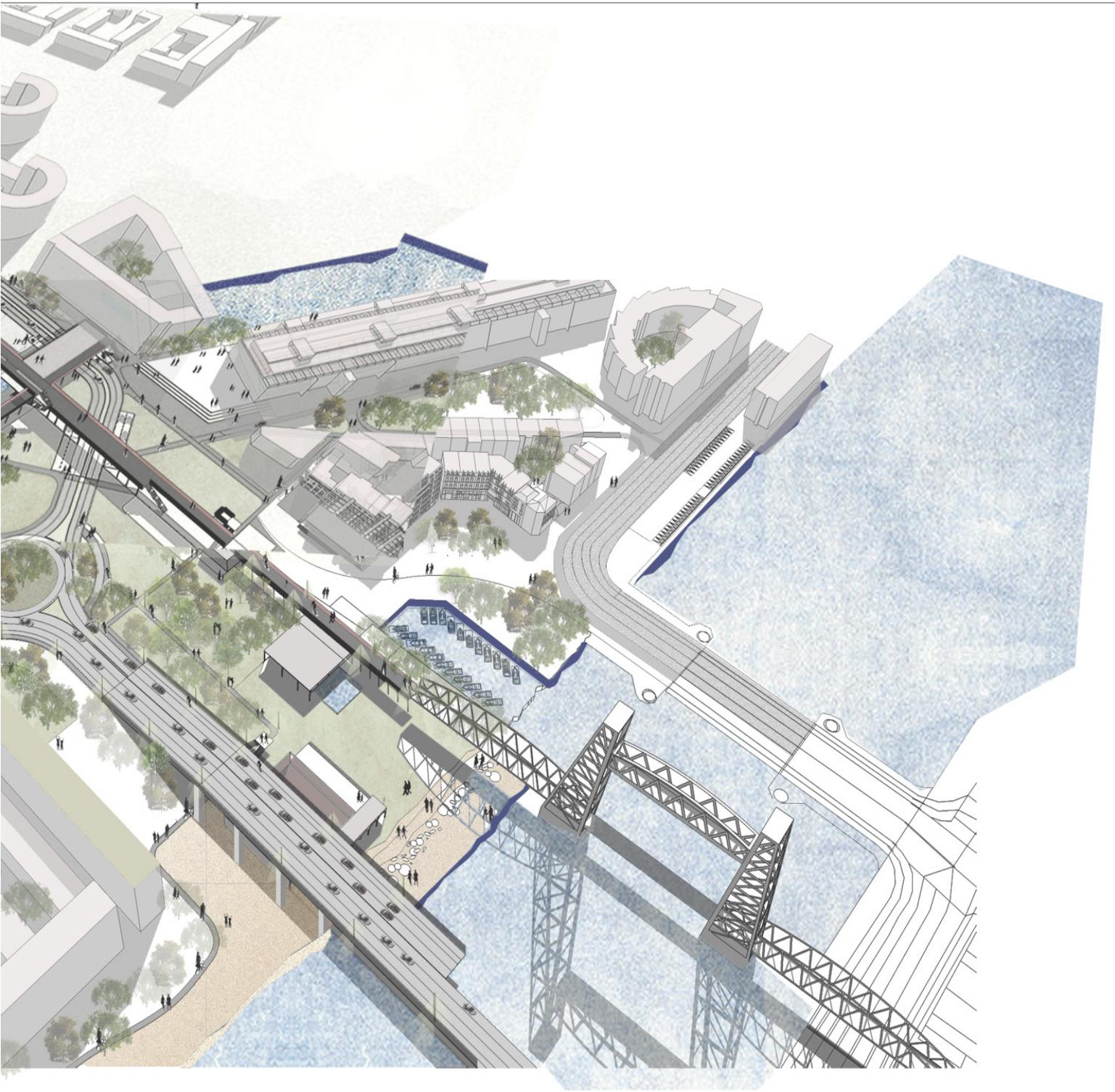
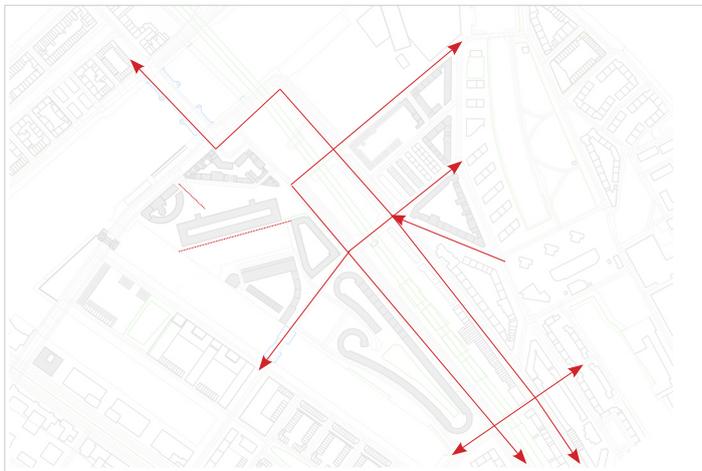
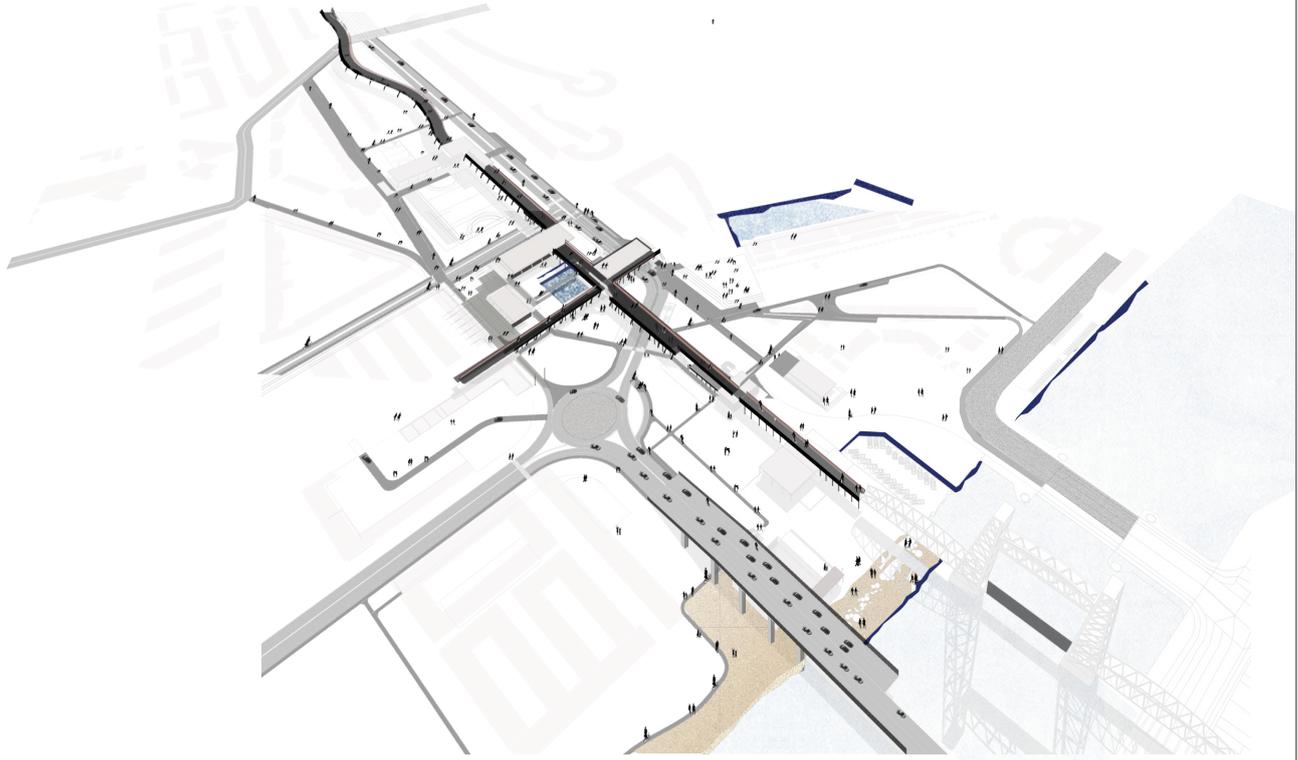
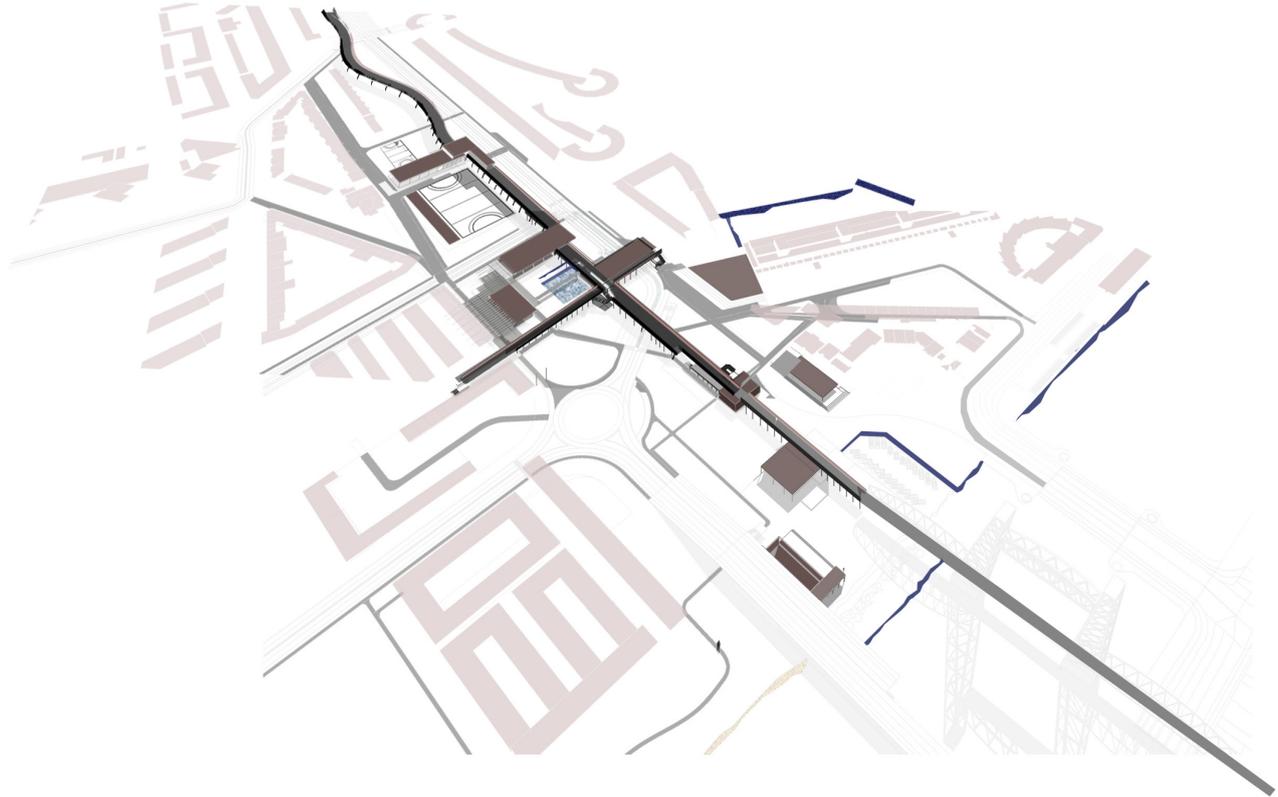


Diagram showing different connections created- pedestrian/cyclist- prior to intervention and after

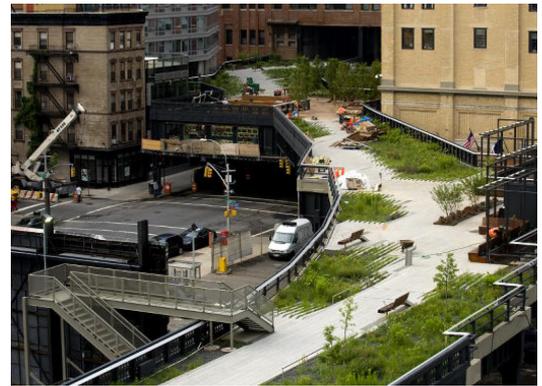
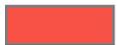


← New connections to activate core and East to West Feijenoord

The HEF and its support structure- program pavillions

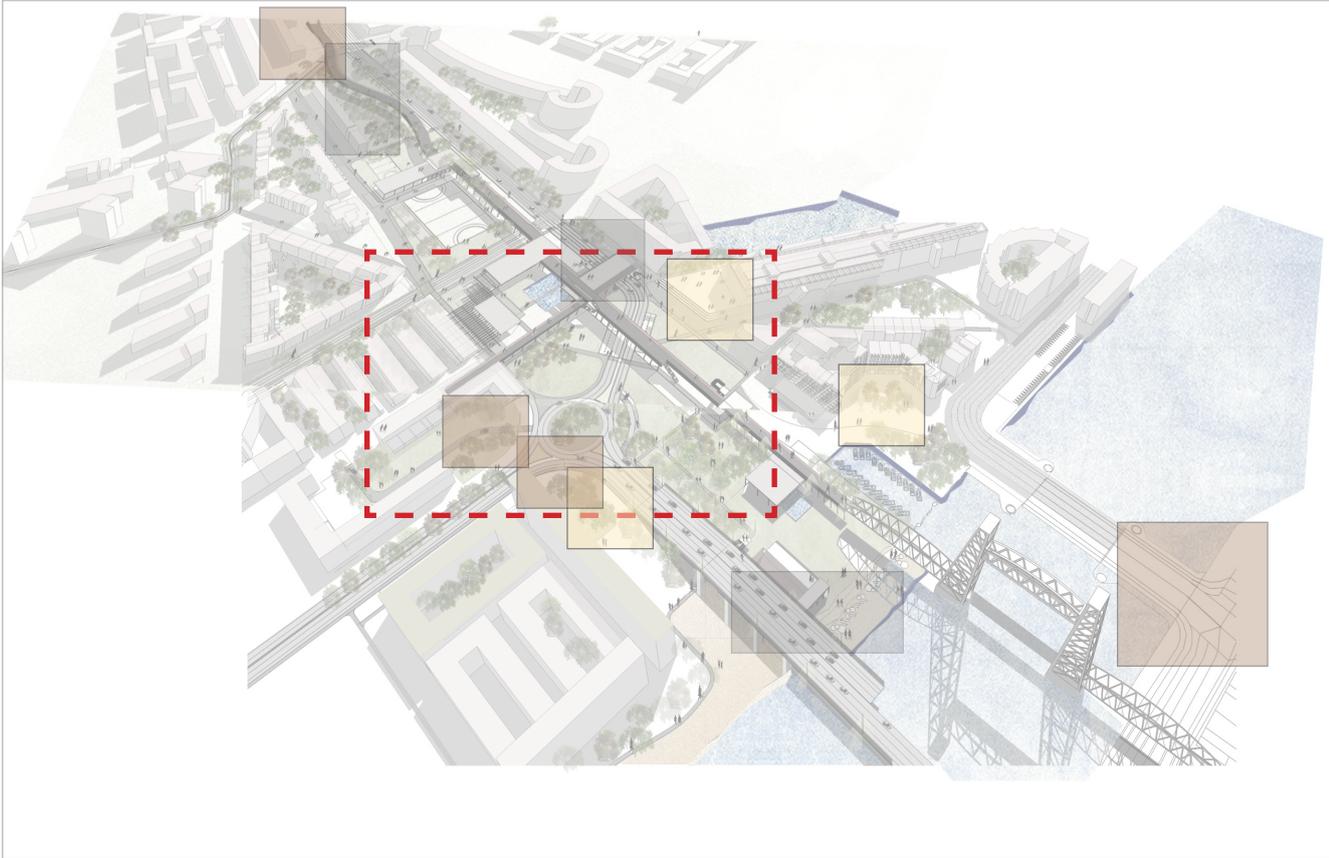


Program pavillions and the immediate activities and context they activate



The Highline, New York

**Different qualities of spaces zoned post design intervention**



- Local meeting point
- Inviting entrance
- Junctions
- City focal point

Green areas along the HEF



## The HEF as a narrative tool in designing a public space network- Hef as home

Abstract – Infrastructural networks such as transportation, water systems, defense systems, dykes, usually leave a permanent mark on the spatial structure and built image of a city. Even when, like in the case of the HEF bridge, it has lost its original function or lying in decay, it leaves the urban form with a lasting impression of its presence, and forms an important part of the collective memory of the city. Thus redesign for such a structure requires recognition of the existing qualities (collective memory), and relationship to its context (as studied over history), the city. The topic, centers around

### 1. Introduction to ‘Uncertainty’

We need a memory of the city, in order to engage with it. There are other ways of producing spaces without architectural means, through the projective experience of them. For the paper, using my graduation project as an example, as well as the act of skateboarding in tracing the memory of cities through a different way of moving to experience space, I would like to address the larger thematic of ‘Memory in the city’ as a narrative.

The project spans 3 scales- Rotterdam- the city and the river, Kop Van Zuid and the HEF bridge. ‘Memory’ is seen as the collective experience of the past, as embedded in space. Projection of this memory onto space, provides a framed(alternative) idea of space (Lefebvre, 1991). The basic object of investigation here is the HEF bridge, and the environment on which it projects itself, The Maas river, in particular the Kop Van Zuid area.

The HEF bridge and Rotterdam are addressed as the intersection of two worlds – the elusive, private space of memory and the contested space of bodies. This is linked as a network through sites along the Maas river that contributed to creating distinct images and relationships with the city of Rotterdam, and in particular, the HEF bridge.

Cities are constantly recorded in many ways, through many instruments and methods, for multiple purposes. But each time that the city is recorded new memories of it appear. There is an attempt to establish a conscious experience of space, by tracing the experience of the HEF bridge and the Maas river through events like the AIR movement by the Rotterdam Arts Council and plans post the 1970’s for the Kop Van Zuid are that helped to define a particular image for it, adding to the memory pool for the collective (Meyer, 2003).

The notion of a place is developed. ‘Collective memory’ (Halbwachs, 1992) is thus used as a tool to establish a network of ‘places’ along the Maas river developed, in coherence with the HEF bridge. There is then a consciousness generated for it by projecting these places to adapt to an uncertain future, with regards to constant new developments in the area and also rising sea water levels and flooding risk, as included in the w+ climate scenario for Rotterdam. Can memory, in an active way, contribute to the production of space within the limits of the city, creating a narrative to build the contemporary and to

the re-design of the HEF bridge to suit a context of today. How can we preserve the physical identity(memory) of a place, while the physical context continues to change? The paper focusses on defining the relevance of memory- through a monument. This is done through framing traces of the city through movement to get a conscious experience of space. Examples of Skateboarding as a projective way of understanding the city, and plans and design for Kop Van Zuid as a receptive way are used to illustrate this. (Lefebvre, 1991)

adapt to a future?

How can the HEF respond to a constantly changing Rotterdam? How do you deal with permanence (the formal language of the HEF as a monument), with contemporary issues being faced today?

### 2. Memory

Taking the city as our environment and as a boundary, is it possible to define one’s experience of it. The experience of the space is co-created with the layers of memory. In that sense, memory contributes to the shaping of spaces. Therefore, what emerges, is the notion of a place, which space is turned to (Lefebvre, 1991). To what extent are we aware of this process and is it possible to be more conscious of it? A projective experience of the city begins with one’s memory – subjective frames that make us familiarize with spaces, turn them into places. On the other hand, collective memory, stand for the collectively constructed image, equally virtual, that we apply – project - on the vision of the city, and identify with it. Here, emerges the notion of memory as an identity-building tool.

Maurice Halbwachs, addressing this in his work on the social construction of memory. ‘How do we use our mental images of the present to reconstruct our past?’ This is complemented by a technological one by Bernard Stiegler (1998), speculating the relationship between the animate and the inanimate, technology and its effect on the human experience of home and also the evolution of technology induced changes that humanity witnesses and remembers. Halbwachs’ primary thesis is based on the clash of individual and collective memory; human memory can only function within a collective context. Collective memory, Halbwachs (1992) asserts, is always selective; various groups of people have different collective memories, which in turn give rise to different modes of behavior. There is a contrast between the perception of events among various groups and during different time periods. Is collective memory thus a construct of social, political and economic conditions around us in a period of time? Memory could be manipulated and distorted, based on a larger perception of time and event, collective or individual (Halbwachs, 1992). The personal memory, or the autobiographical memory is thus always in relation with the collective. The transformation of this spatial

Text to be updated + diagrams to be added

memory is thus always in relation with the collective- and is a major cultural effect of Globalization in our modern world.

The concept of collective memory is also reflected in the observations of Willem Frijhoff (2003), and may be used in dealing with the re- design of a monument like the HEF situated in the city of Rotterdam. 'Collective memory' is seen as an indispensable aspect of the day-to-day use of the city by its inhabitants. Memory is not an objective reconstruction of historical facts, but the result of a 'complex interaction' between the historical, material structure of the city and the diverse social activities practiced by its citizens. Hence, memory is a reorganization of such reference points taken from history; when one finds a common recognition, one finds 'collective memory'. 3 reference points can be used; Material objects, social rituals and testimonials.

In Rotterdam, after World War 2, the past became a subject of nostalgia, with a lack of 'reference points'. The HEF bridge is seen as an illustration of this, as it also fits into all 3 categories defined as 'reference points' for collective memory.

In the case of integrating urban planning and history with collective memory, the arguments never got much further than the intent to do so. After the river, and its harbors were 'discovered' as elements crucial in shaping the city, as bearers of a history of urban planning concepts, and as part of 'collective memory' the question was: To what extent new urban planning strategies, which dealt with the position and significance of the river, could truly escape functionalist tradition (Meyer, 2003). In order to address these concerns, memory is used as a narrative tool, functioning as a frame to look at the city through time and space.

### 3. Framing Memory

Memory is subjective for individuals, and for different social groups. The way one occupies and looks at the city is different. Disparate perceptions are created and distorted by structuring and articulating movement (Tschumi, 1982). Through this, a choice is made to expose a particular fractal of a larger reality. It is a personal choice, which affects the collective. (Halbwachs, 1992) This takes place within a world, that is shaped to portray certain readings of the city, through differences in perception. These may include unlikely confrontations that transform the everyday life. It engenders an awareness of networks which are disguised within the everyday, encounters that offer multiple spatial readings of the city, different from how one might recall them. (Tschumi, 1982)

Through an assemblage of frames, the space assumes a new identity, enabling people to experience what they might otherwise never be able to see (McFarlane, 2011). By choosing to select particular frames that portray the city, we 'look' at space differently. Are we moved by what we see, the present, or is it simply a consequence of how we remember it?

Various social groups have different collective

memories, which in turn give rise to different modes of behavior- and different frames.

By framing the city in different ways, we can compare what would happen when the context of our memories changes- with new developments emerging in cities for instance. It offers a different perception of space through movement as a tool for design, and for remembering- through infrastructure and its occupation through individual movements activities- walking, biking, skateboarding, etc.

### 4. Space

The basic object of investigation or the environment on which we project, through movement, loaded with memories, constantly producing new ones, Space embraces us, and as we familiarize with it, we embrace it with our memory. (Lefebvre, 1991)

As Lefebvre (1991) points out, space is not a container that needs to be filled in, but is an active designer of our social relations. With the passing of time, freedom was provided to 'abstract' this space together with the means of new quantification. A monotonous homogeneity and fragmentation was brought about, as also seen in post war Rotterdam.

Within the homogenization- glass and steel 'transparency', and fragmented spaces of mutually shared identities (Lefebvre, 2003) an illusionary reality is created, making capitalist cities look the same, while creating hierarchies and segregating use of space with the centre and periphery. There is an unrest over an ever- changing image of the city. Within this myriad of opportunities, settling everyday life and collective struggles and the right to create self- created surroundings is amiss. Capitalist production companies, advertising agencies and heavy bureaucratic state procedures also change the context of our memories, manipulating them, causing unrest of the self.

What used to be a natural, organic creation either in biological or creative terms, is now endlessly reproduced, as are most commodities. Space becomes a commodity. Skateboarding as an example again, like art, has perhaps been the only thing able to escape homogenization because it always produces something new, even through making use of the existing. Through bodily experience and appropriation, skateboarders attempt to seize this 'space'

5. Experience of Space through movement leading to the notion of a place: The experience of the city, the movement within it, provides an already framed way of looking at the surrounding environment. If we define experience as embedded in the idea of movement, we can say that moving within the city can provide a way to trace memory.

Cities are constantly recorded in many ways, through many instruments and methods, for multiple purposes. But each time that the city is recorded new memories of it appear. It can be claimed that the one co-exists with the other - memory within the city and the city inside a memory. Can memory, in an active way, contribute to the production of space within the limits of the city? Since the concept of memory as such is related to the past, can we take advantage of it as a progressive and creative architectural tool, that, instead of only the sense of nostalgia, contributes to building up The Contemporary- A monument as a public place?

According to Lefebvre, architecture is an ongoing process that is defined by time, space and human beings. This, as a start, implies the idea of continuity, of movement. There are different spaces which are constructed within the city, with various rhythms. As Lefebvre continues, we can talk about "true space," which is constructed geometrically, physically real, and the "truth of space", which is the one produced socially, by the experience of it- through bodies and motion. (Nietzsche) Lefebvres (1991) continues that the human body is the key to a distinction from monotonous modern architecture. Without the human body there would be no experience of space. Since Lefebvre argues that the body is what perceives space first, through sensory organs, emotions and other qualities, social groups are formed, through our bodies's reaction to our environment. And since our environment is now a creation of abstract and homogenous ideas, and the fabrication of movement, we become a product of that space. An opposition to this oppression of bodies as a product is - Skateboarding.

6. Skateboard and the city, as an illustration:

The experience of skateboarding forces one to look for different uses of the objects and spaces of the city. It is a way of framing it, of looking at it. The moment of skateboarding in the city is both about tracing and about projecting memory in different experiences of the city itself. Production of differential spaces: The act of skateboarding gives one the agency of changing the meaning of elements of the city that were meant to be something else. (Lefebvre, 1991) Space is being physically and bodily re-interpreted. While skateboarding, nothing is added to the existing frame,

but the object is used in a different way from the one they were designed for. 'Differential spaces' are produced.

It provides a precise interpretation to it, a particular imagery at the same time. The way the city is seen changes one's understanding of it. But through movement spaces could also be produced, new places could be defined in the way of passing by.

There is a projective attitude in how movement could experience the city.

7. Relevance/ Conclusion:

The future is now incredible close (and uncertain), it makes us anxious about our personal and professional choices. The HEF bridge as it exists today is not in motion. In order to activate this frame memory is used as a narrative, and by doing so, depending on the imagination and experience of the perceiver, a better understanding of the bridge is created. Memory is thus used as a narrative to frame the bridge and the city.

The HEF bridge cannot be grasped in its complete totality, its steel grid, the foundations, its mechanical systems, the tracks, the gears. To look at the bridge, thus a notion of time is interwoven within its static steel grid. The bridge is studied in shapes of time, and over moments experienced in space- the city, linked by a narrative of 'memory on the water'.

This 'memory' then becomes the framework and the tool for imagining the future scenarios it can undergo, focussing on one- change in the water- rising sea levels. The paper serves as a base for understanding memory as a narrative quality for re-looking at the city. It becomes a way to activate our understanding and perception of a frame or context and for a conscious experience of space, considering the notion of movement and time.

We have to look beyond the standard, functionalist design toolkit at our disposal - there is a realization that other relationships sustain the city's life. Qualities such as empathy, endurance, enthusiasm, trade, agency, conversation, fiction, poems, music and all other types of urban interactions can become tools for our practice- as effective as our conventional design methods. By doing so, our field of 'action' can react against a design of control, exclusion and segregation, thus speculating the personal position and creative role of the 'Interdisciplinary Urbanist'. A new consciousness emerges, understanding the 'tool' as a dynamic network assuming different realities: as an object, an event, a performance or perhaps a craft- as embodied through the

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# Stakeholders

## PUBLIC:

- Municipality of Rotterdam- Defining planning principles
- Pact of Zuid- Feijenoord neighborhoods are part of 11 sites in South of Rotterdam. Through this pact there are going to be investments made for better housing conditions, improvement of public space and for support of local startup entrepreneurs

## RESIDENTS:

- Local residents, neighborhood groups, civic groups, involved in the decision making regarding the transformation of the current urban fabric.
- New Residents- New participants involved in the transformations.

## PRIVATE:

- Developers- Through activating the Entrpot station, new program, and a bridge, developer interest is generated in the area- by new initiating mixed functions.
- Existing Entrepreneurs

## Private:

- Vestia- Main owner of the rental housing.
- Parking companies involved in the construction of guest parking lots inside the blocks
- NGO's:  
Social organizations, youth groups, citizen action groups

# Bibliography

Literature and general practical preference- to be updated

Over the length of my thesis I will be referring to the following papers and books:

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## 2. Media\_Rotterdam\_The HEF

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## 3. Theory\_Home\_Memory

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## 5. Site Research

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