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From isolated to integrated

The research on improvement of connectivity in Railway Station Areas (RSA) in Chinese high-density city centers by applying the Dutch experience to Shanghai station



Contents

1. Motivation

initial understanding of connectivity design in RSA

2. Problem statement

3. the summary of Dutch experience

How does Dutch interpret/ improve the connectivity in RSA, from personal perspective?

4. Application in Shanghai

Shanghai vision with three keywords

Specific proposals for the four aspects

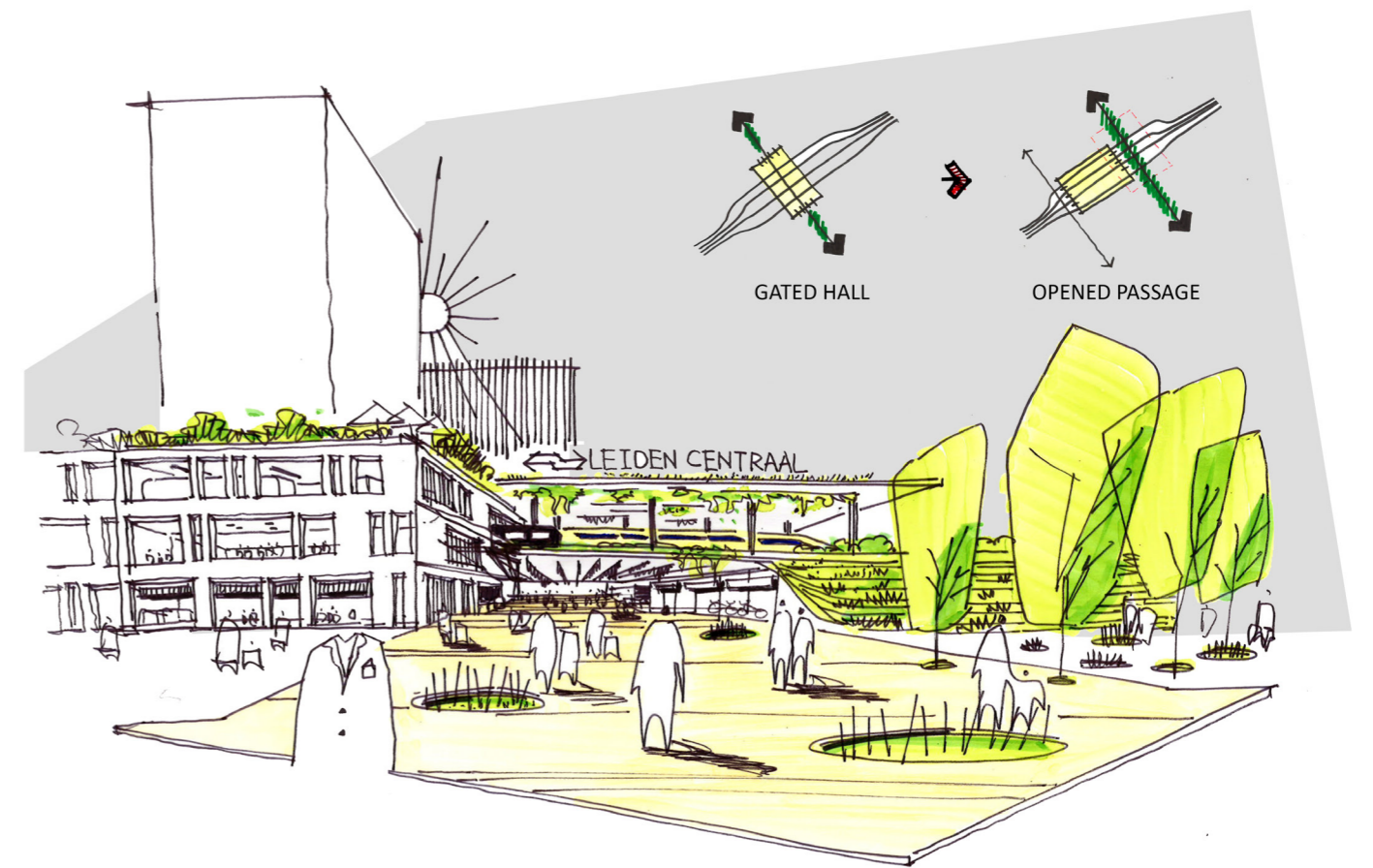
Integration of four proposals and the pilot projects

1 Motivation



Motivation

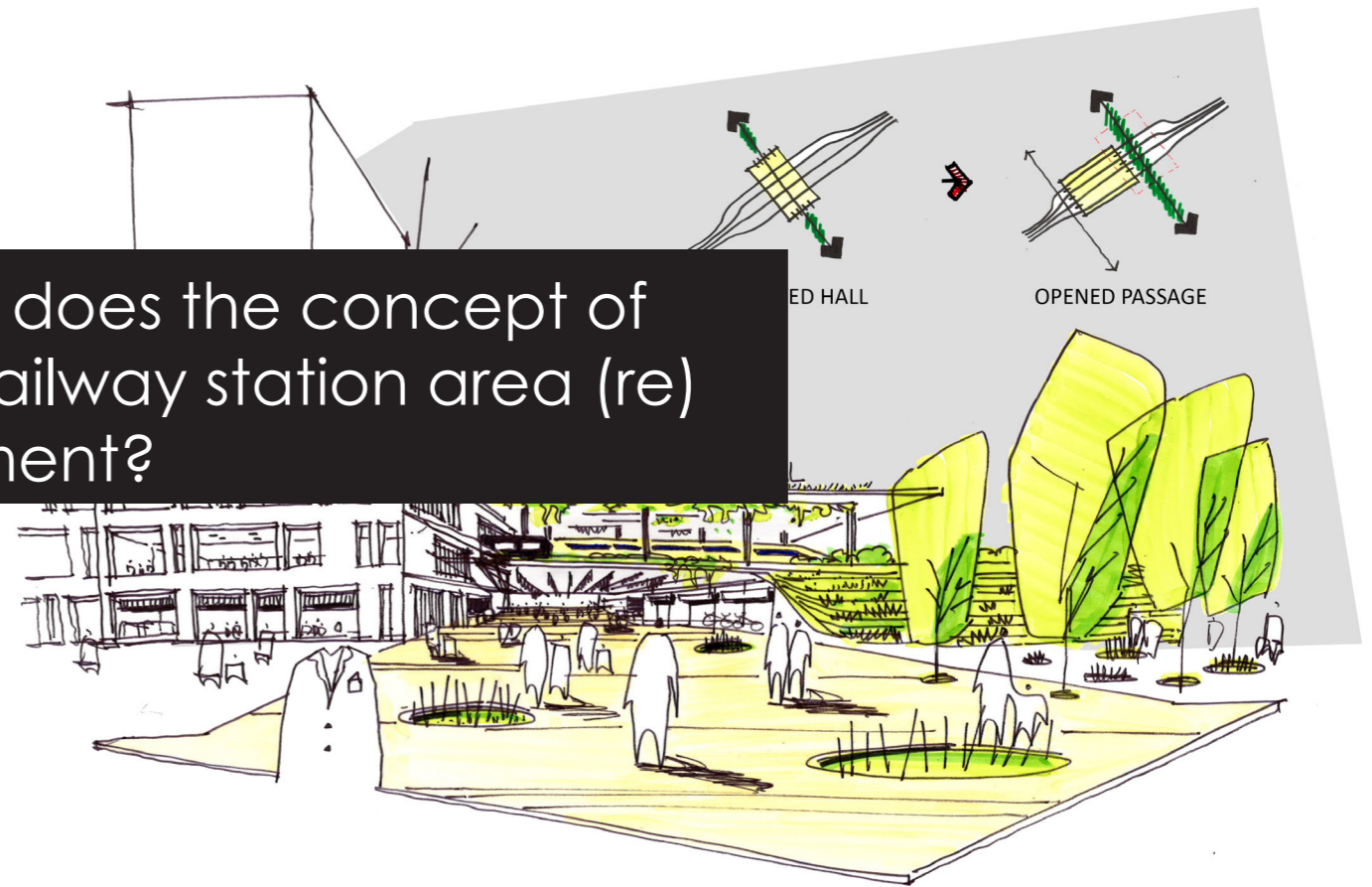
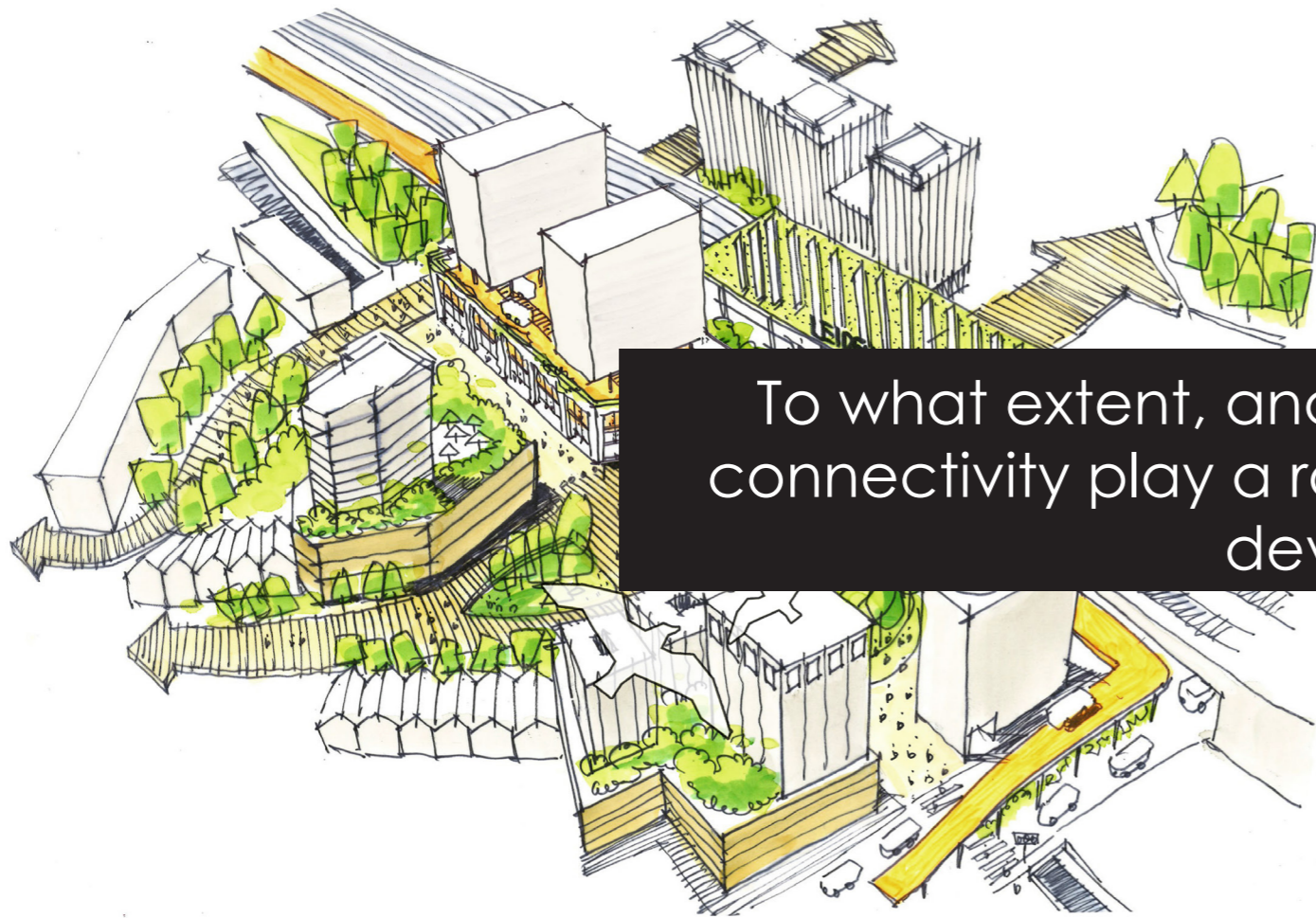
Internship project-Redevelopment of Leiden Central Station Area



Motivation

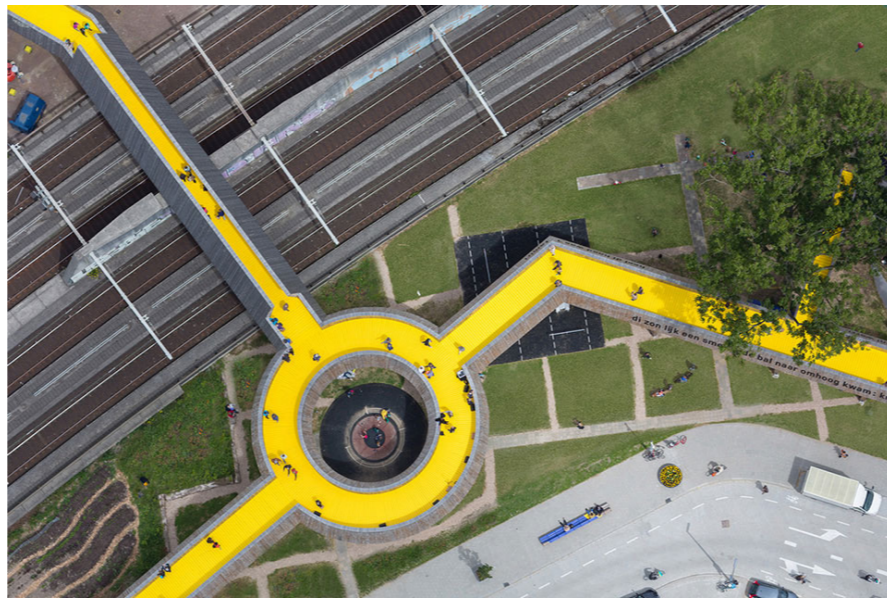
Internship project-Redevelopment of Leiden Central Station Area

To what extent, and how, does the concept of connectivity play a role in railway station area (re) development?



Dutch database

The large amount on-going Dutch projects which also focus on reducing the barrier effect.

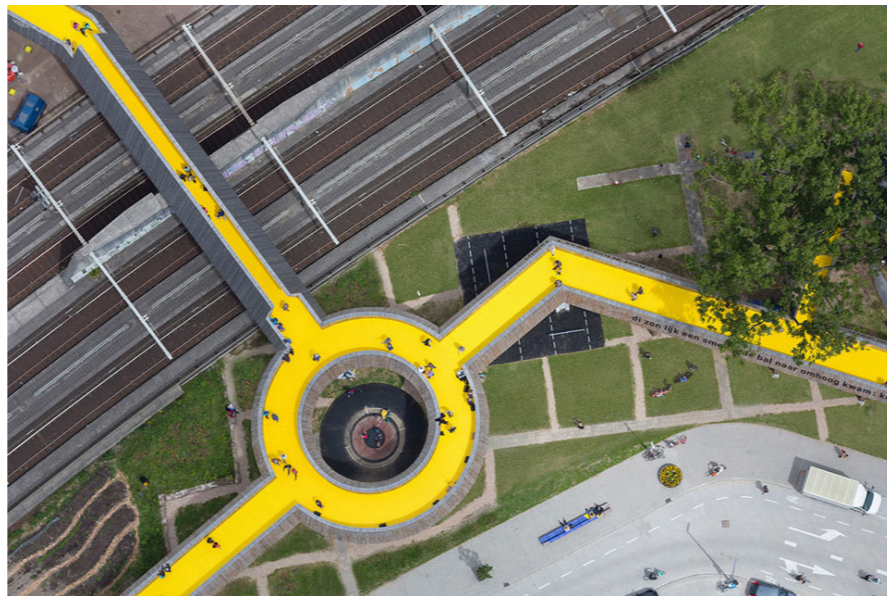


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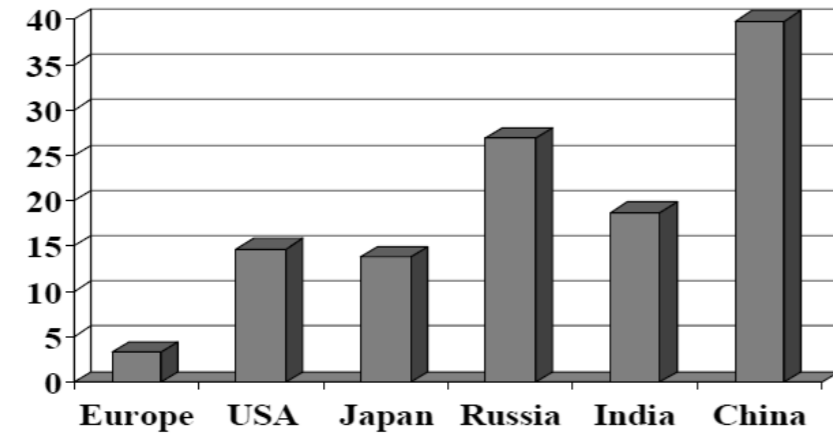


All these projects are not only transforming station buildings, but also their connecting surroundings.

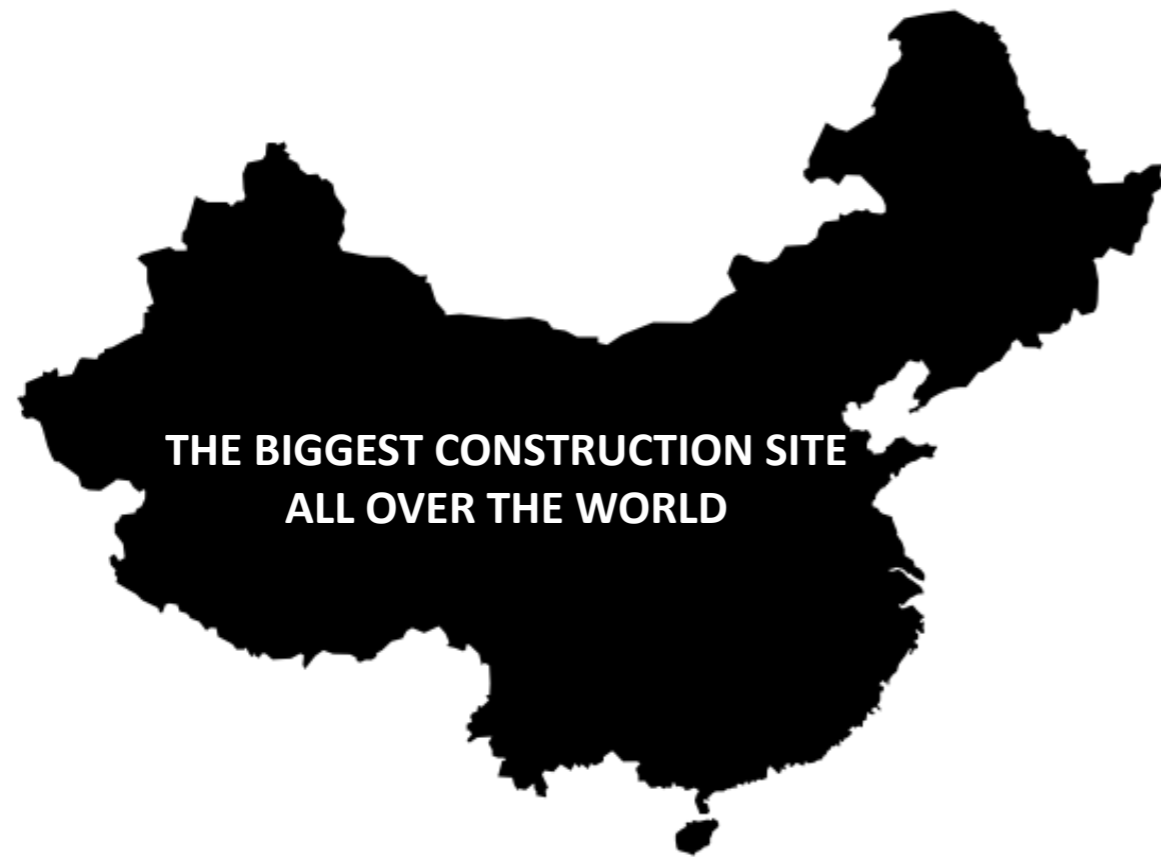


The condition in China

The large amount on-going Chinese projects which need pay more attention to the connectivity topic.

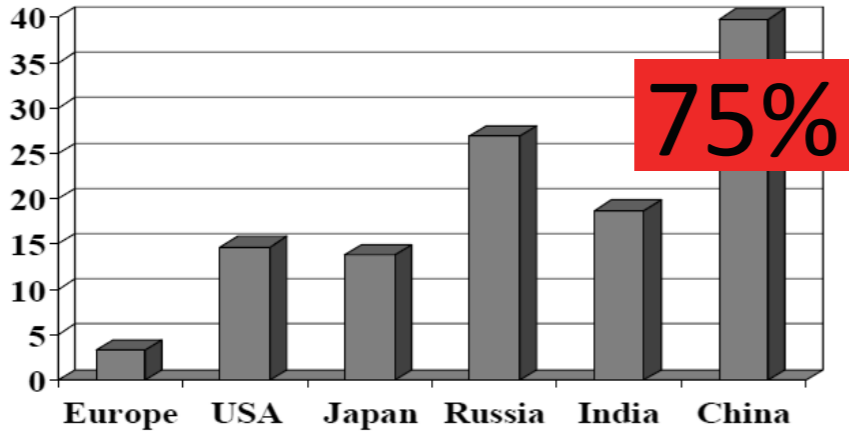


2017 Traffic units/route-Km(mills), the World Bank

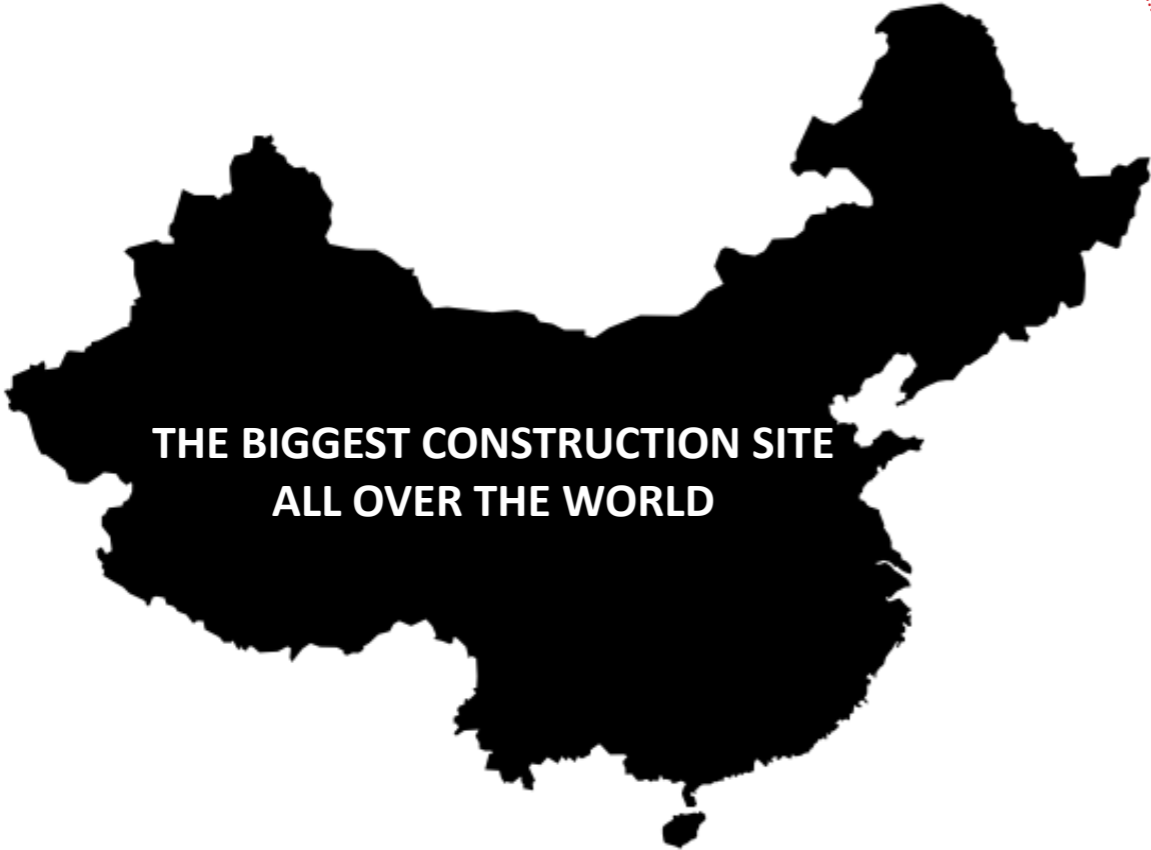


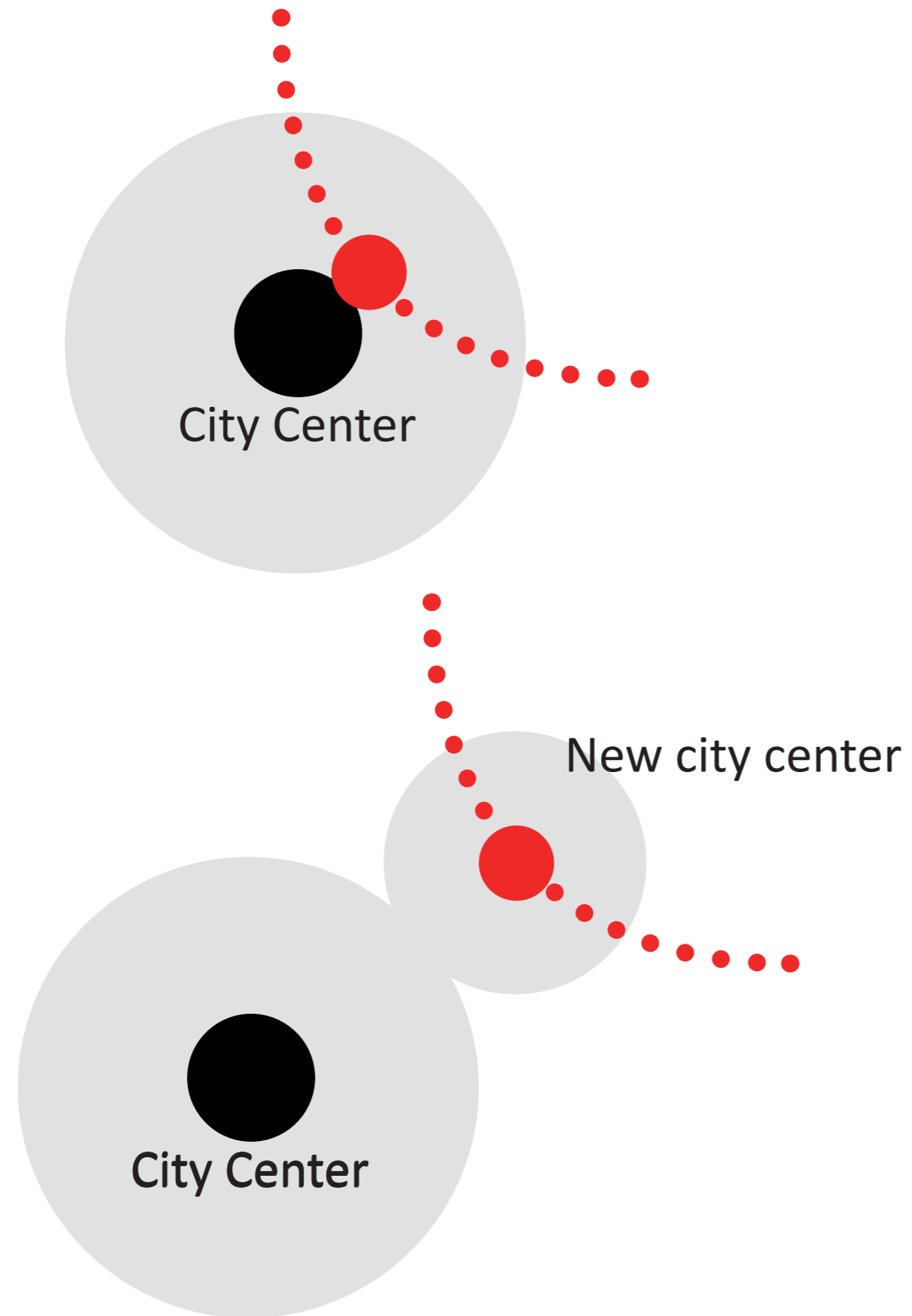
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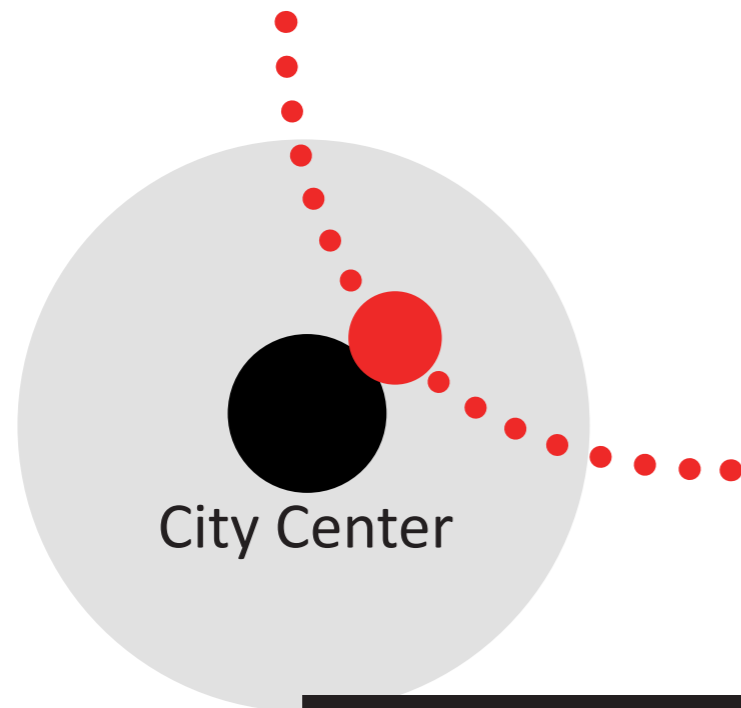
2017 Traffic units/route-Km(mills), the World Bank





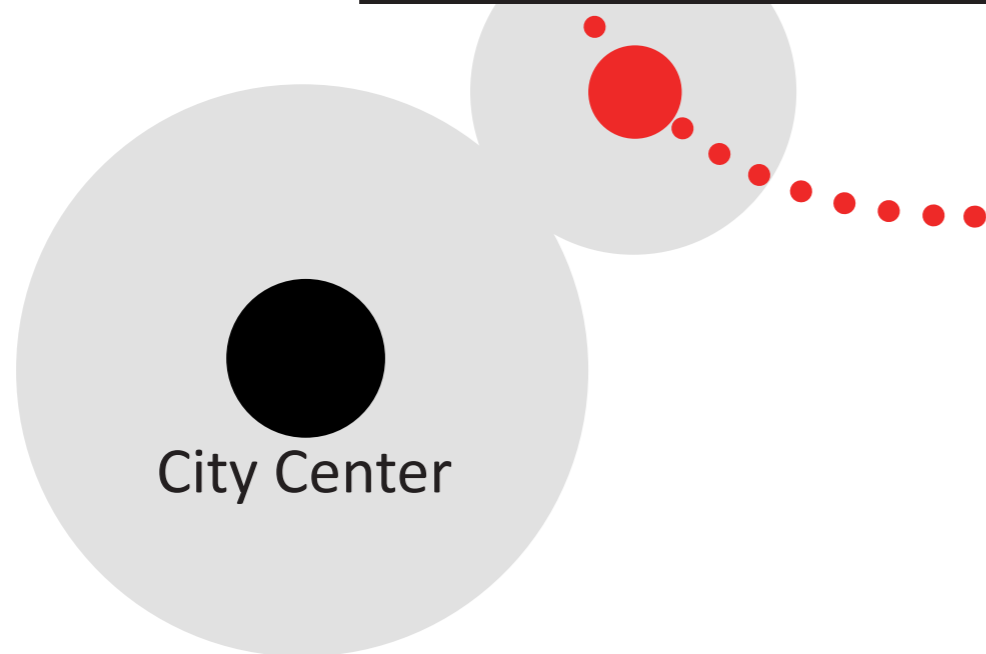
In Netherlands, the redevelopment of railway station area is seen as an opportunity **to strengthen local economies of city centers**.

In China, the newly built-up railway station are are placed in the **suburb** area, being expected to act as a driving force to motivate the new development. So the barrier effect the Netherlands facing now is the problems China will have in the future.



In Netherlands, the redevelopment of railway station area is seen as an opportunity **to strengthen local economies of city centers.**

As the Netherlands is ahead in the process of urbanization and redevelopment of station areas, I choose the Netherlands as the study case.



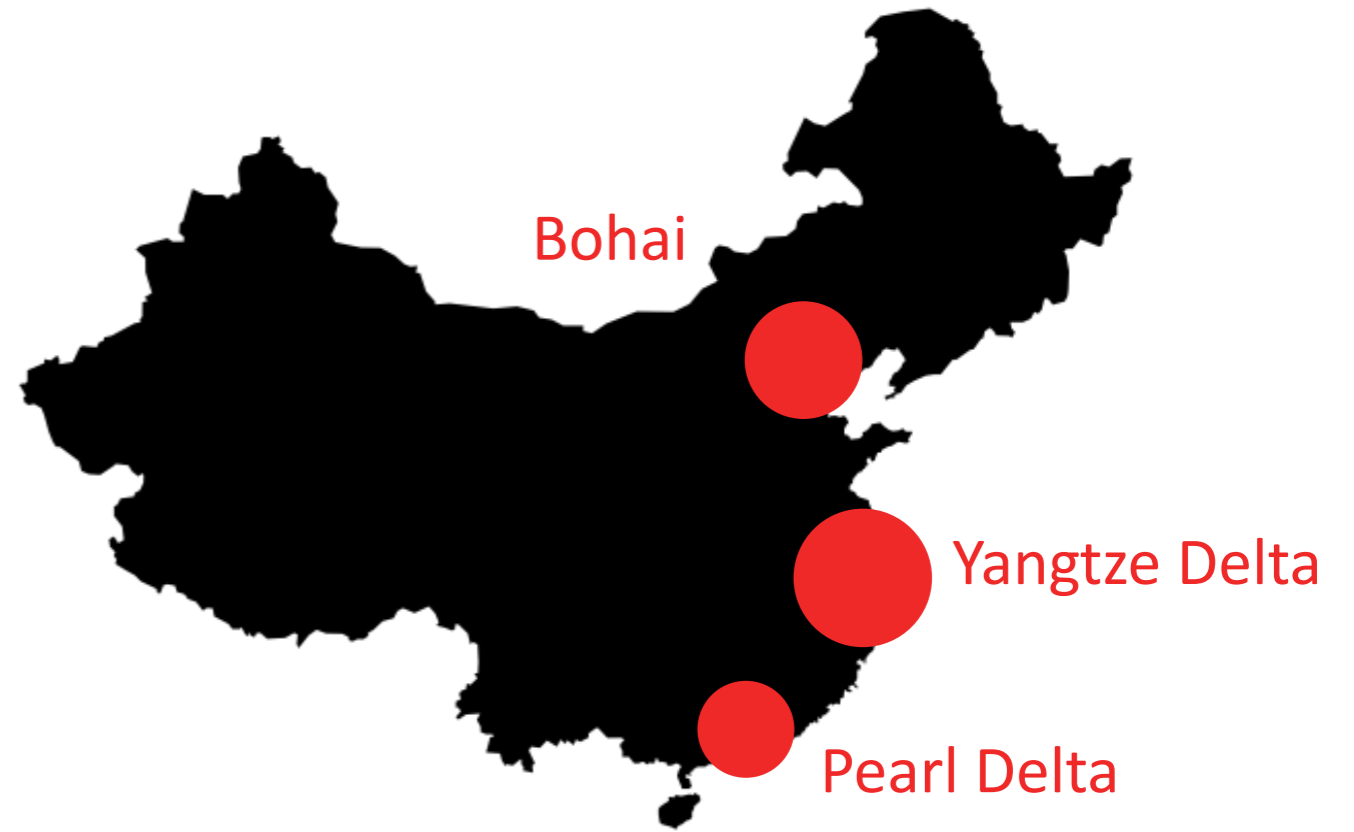
In China, the newly built-up railway station are placed in the **suburb** area, being expected to act as a driving force to motivate the new development. So the barrier effect the Netherlands facing now is the problems China will have in the future.

Why is Shanghai selected as the test object?

Regional key node both on two networks



Four vertical & four horizontal corridors

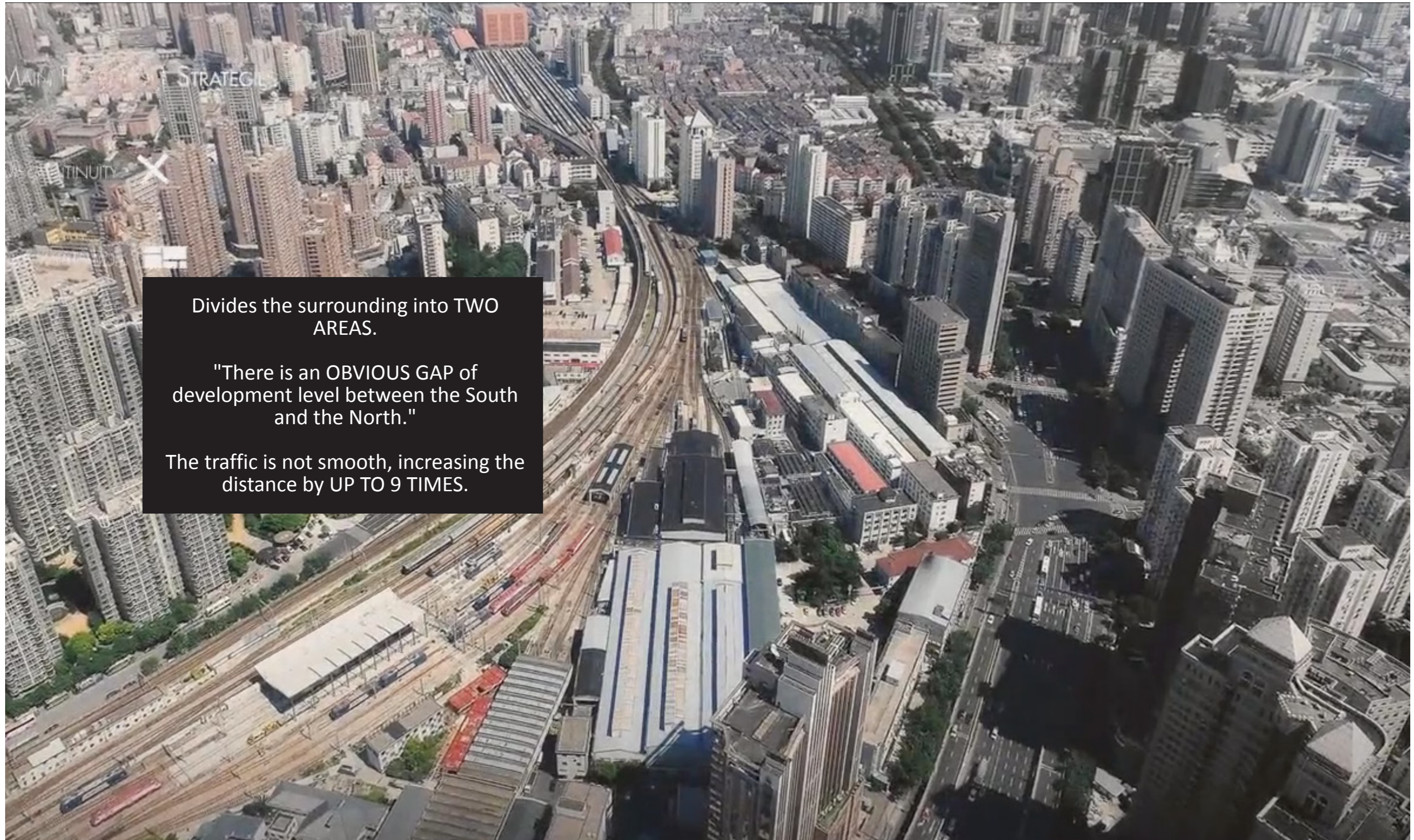


Three MLTDP regional intercity systems

The Government approved the Mid and Long-Term Development Plan (MLTDP) in 2004

Why is Shanghai selected as the test object?

Typical representative



Divides the surrounding into TWO AREAS.

"There is an OBVIOUS GAP of development level between the South and the North."

The traffic is not smooth, increasing the distance by UP TO 9 TIMES.

Why is Shanghai selected as the test object?

Typical representative

Policy & Opportunity



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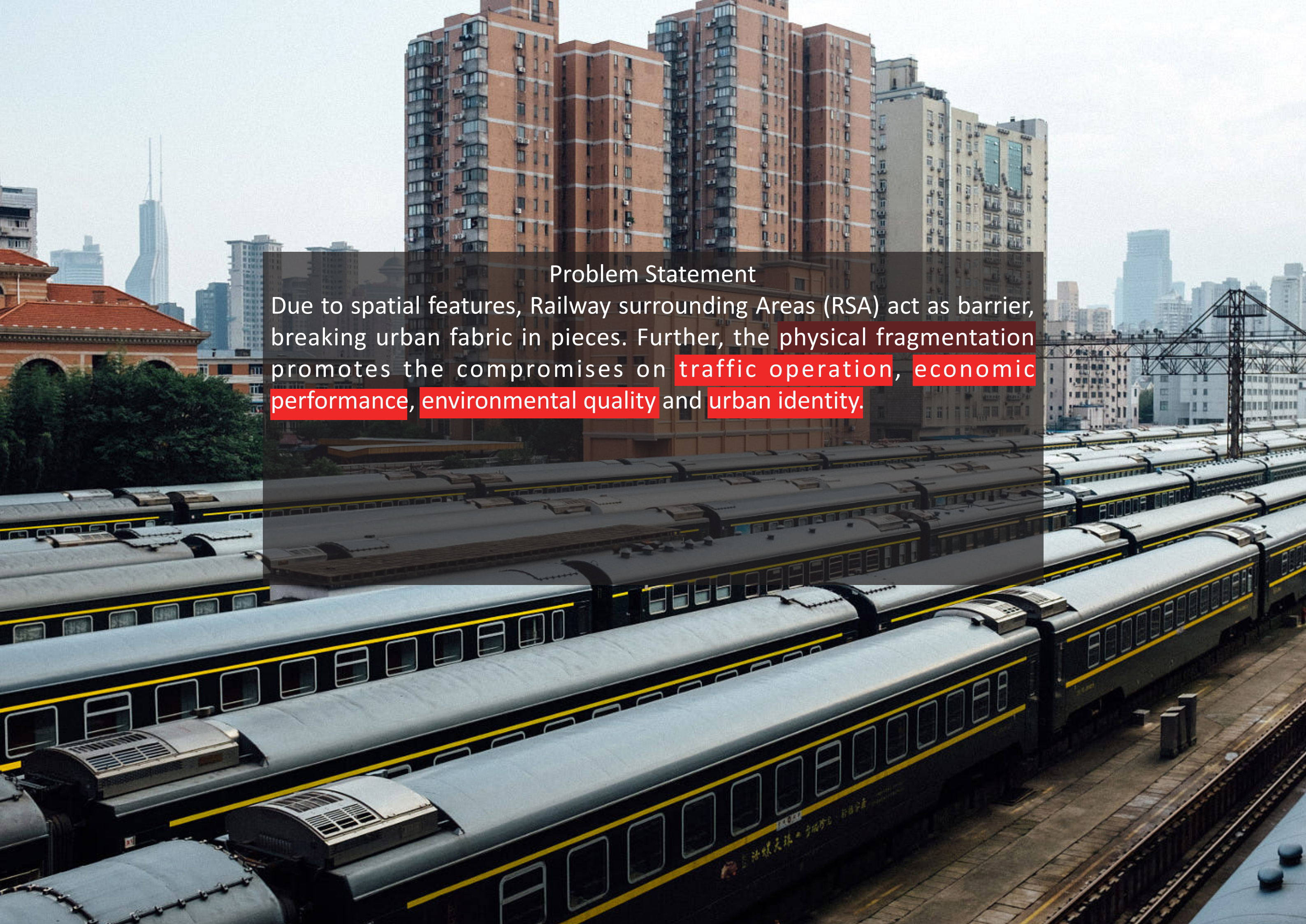
In August 2014, the General Office of the State Council issued the opinions:

"Encourage the INTENSIVE USE of railway land, Development of underground space, Compatible with a certain percentage of OTHER FUNCTIONS"



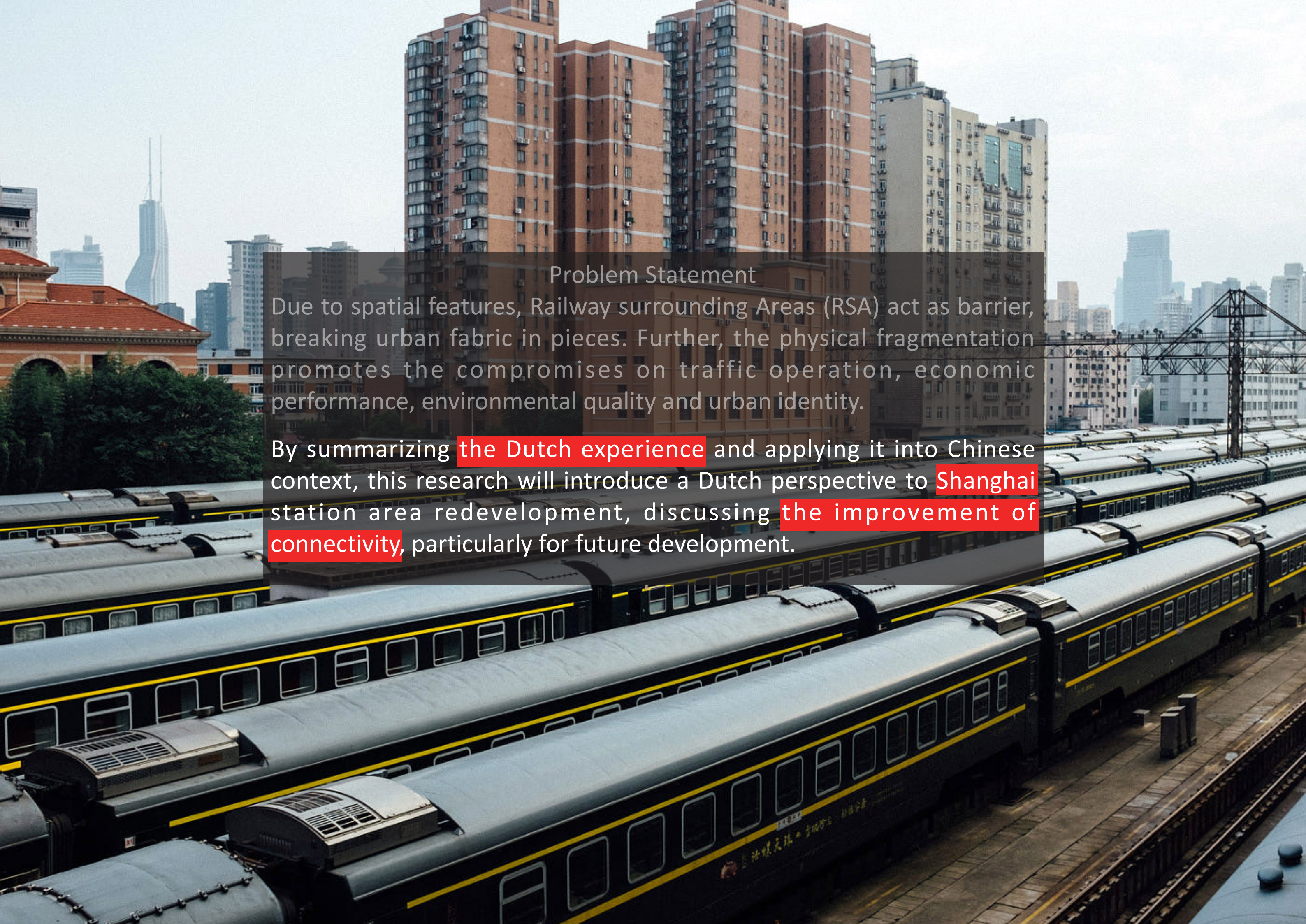
Problem Statement

2



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Due to spatial features, Railway surrounding Areas (RSA) act as barrier, breaking urban fabric in pieces. Further, the physical fragmentation promotes the compromises on traffic operation, economic performance, environmental quality and urban identity.



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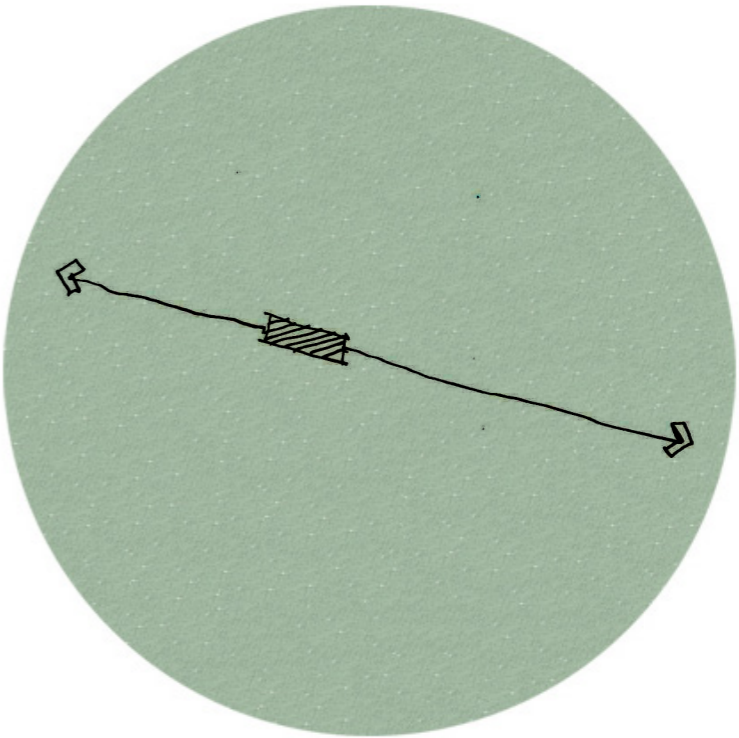
By summarizing **the Dutch experience** and applying it into Chinese context, this research will introduce a Dutch perspective to **Shanghai** station area redevelopment, discussing **the improvement of connectivity**, particularly for future development.



the Dutch experience

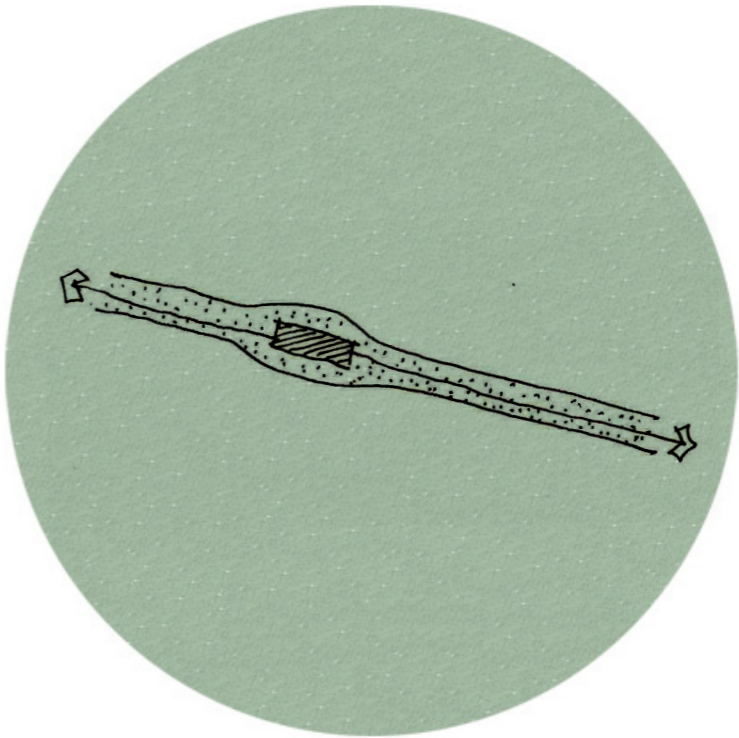
3

Elaboration of the Dutch experience



Railway station area

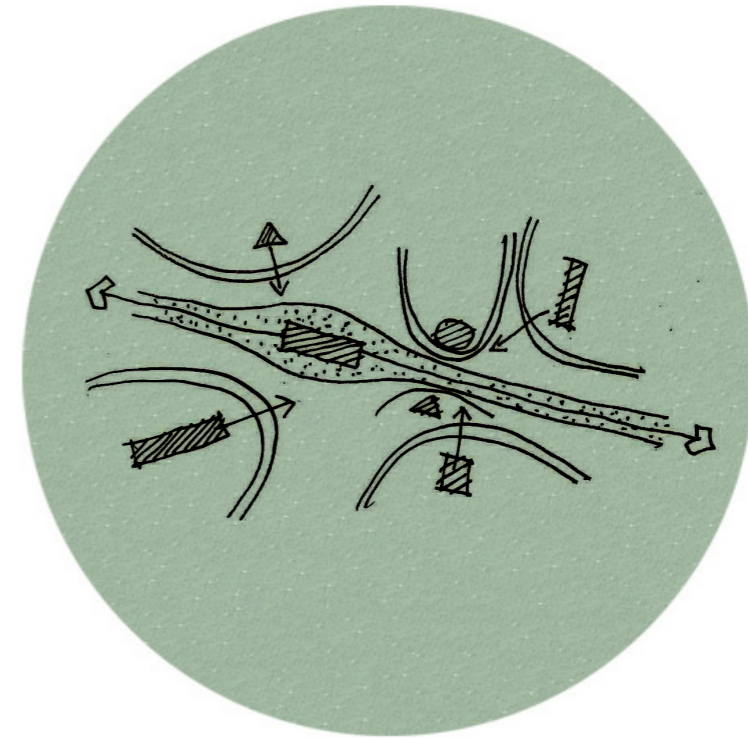
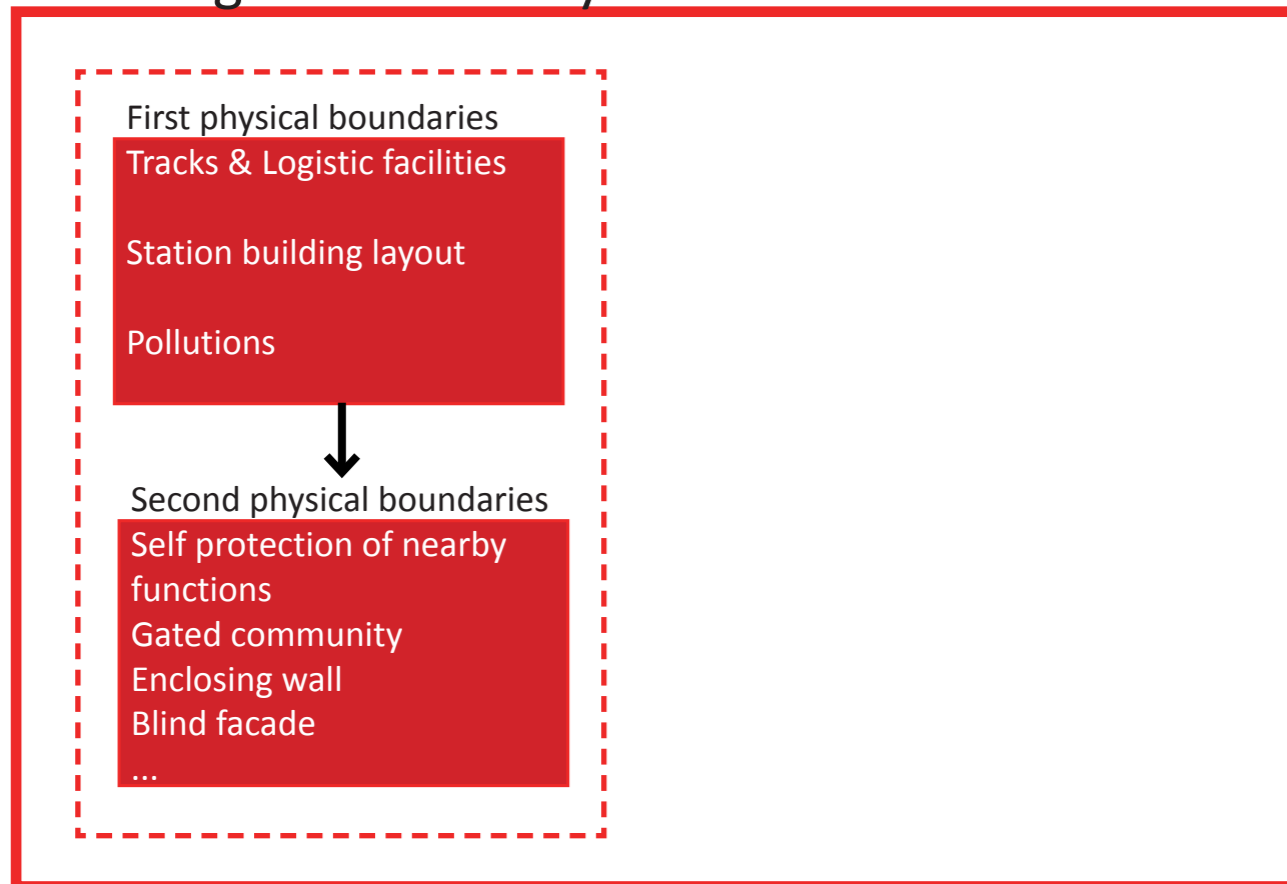
Elaboration of the Dutch experience



Railway station area
First layer of physical boundaries

Elaboration of the Dutch experience

Tangible boundary

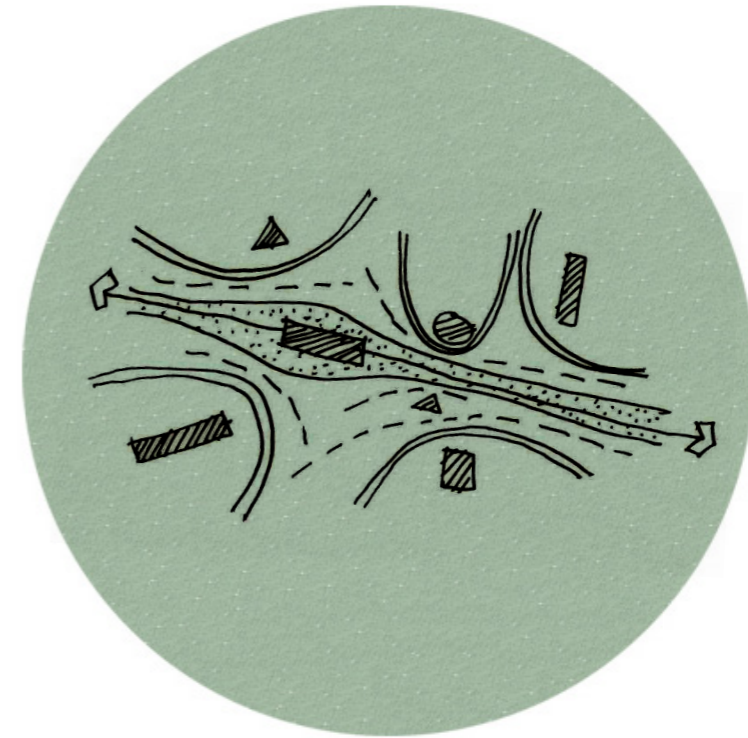
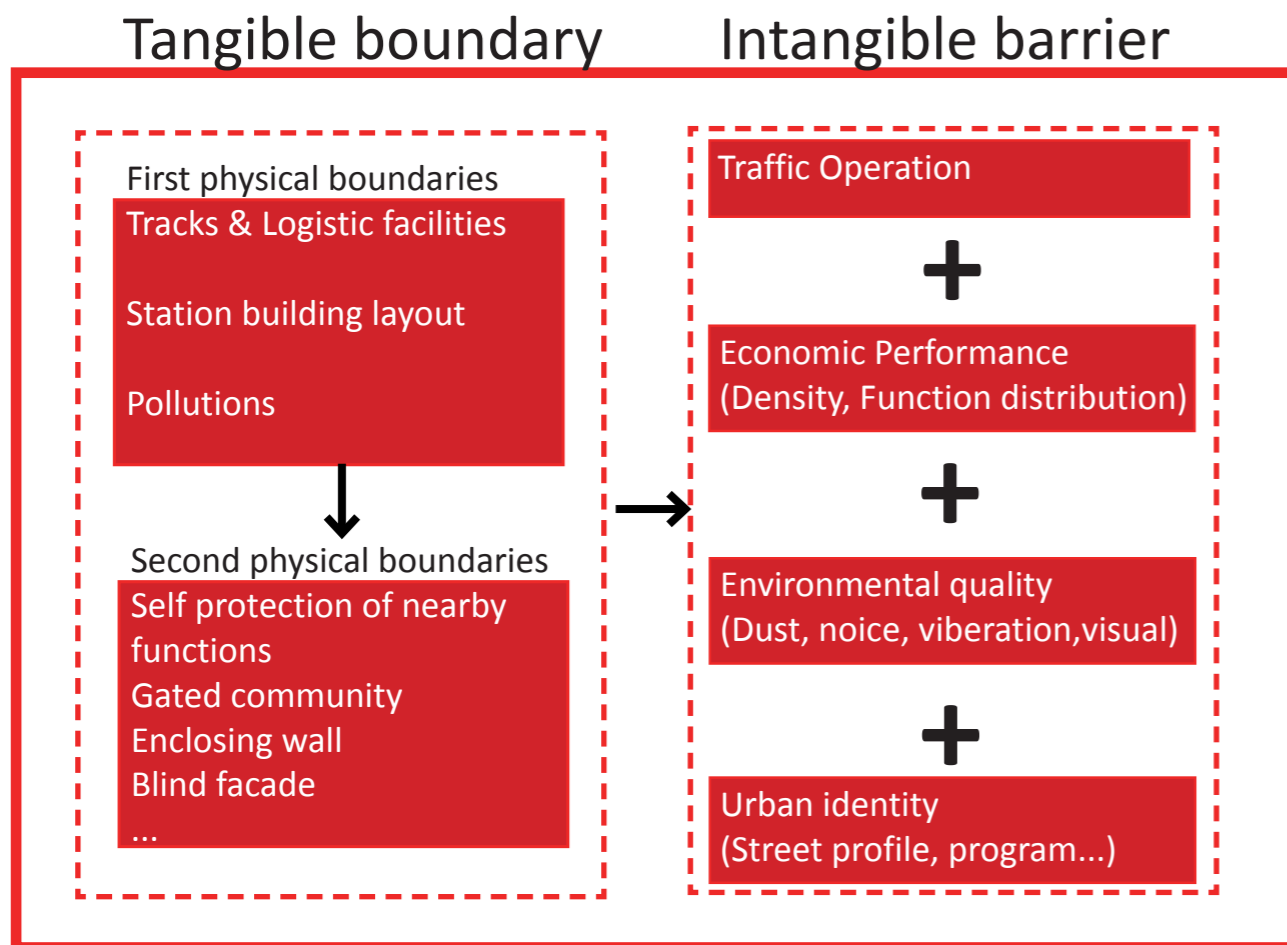


Railway station area

First layer of physical boundaries

Second layer of physical boundaries

Elaboration of the Dutch experience



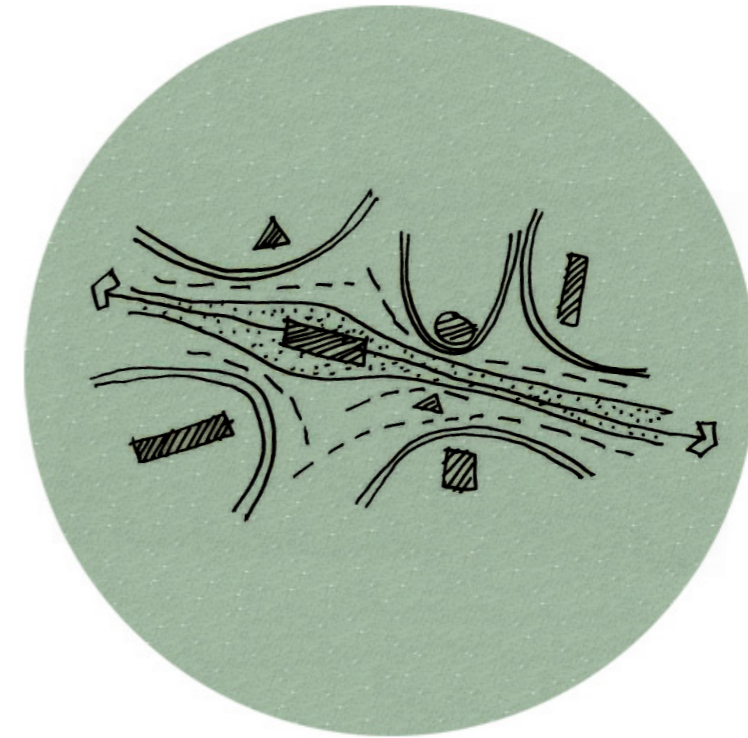
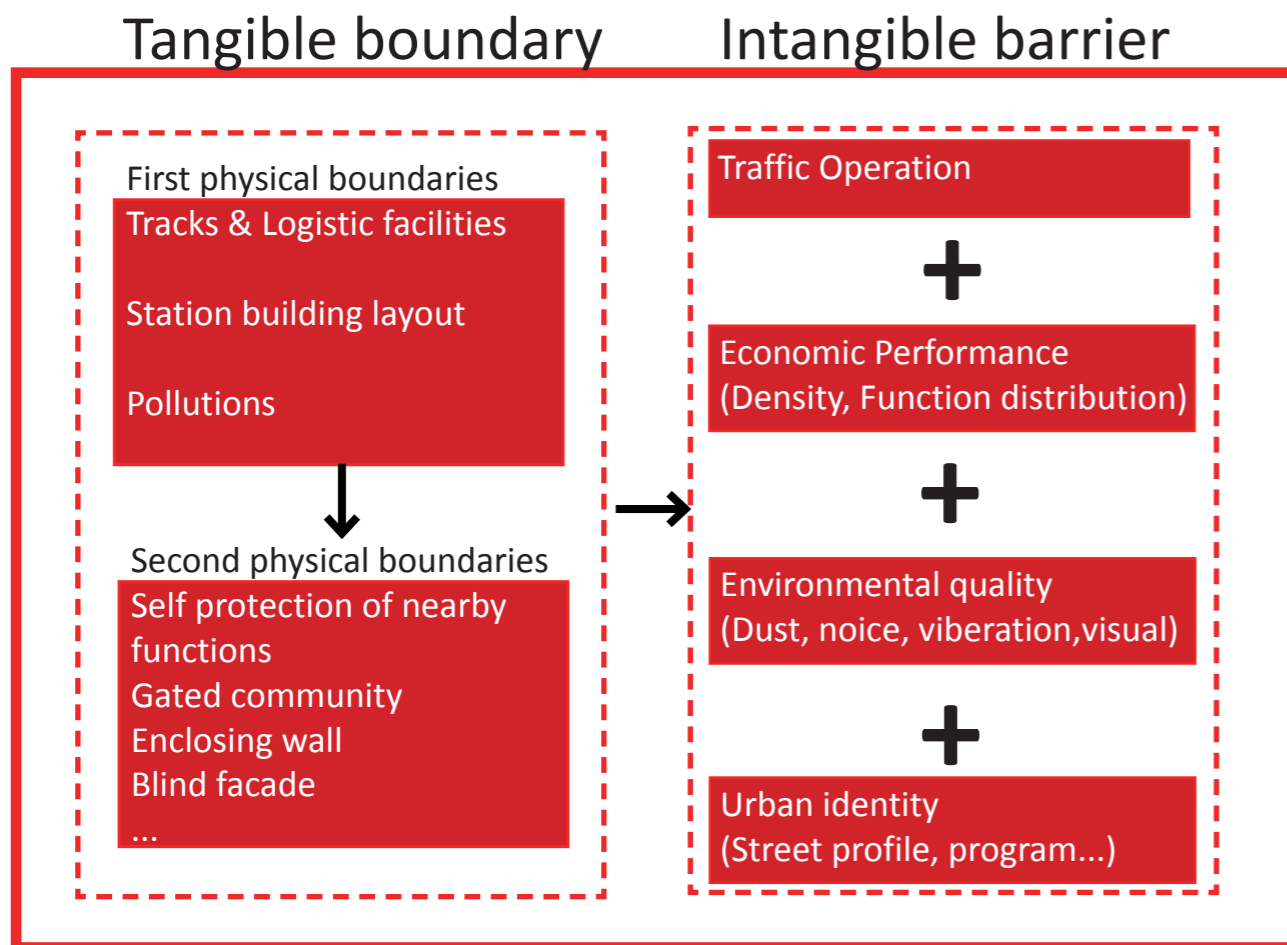
Railway station area

First layer of physical boundaries

Second layer of physical boundaries

Intangible boundaries

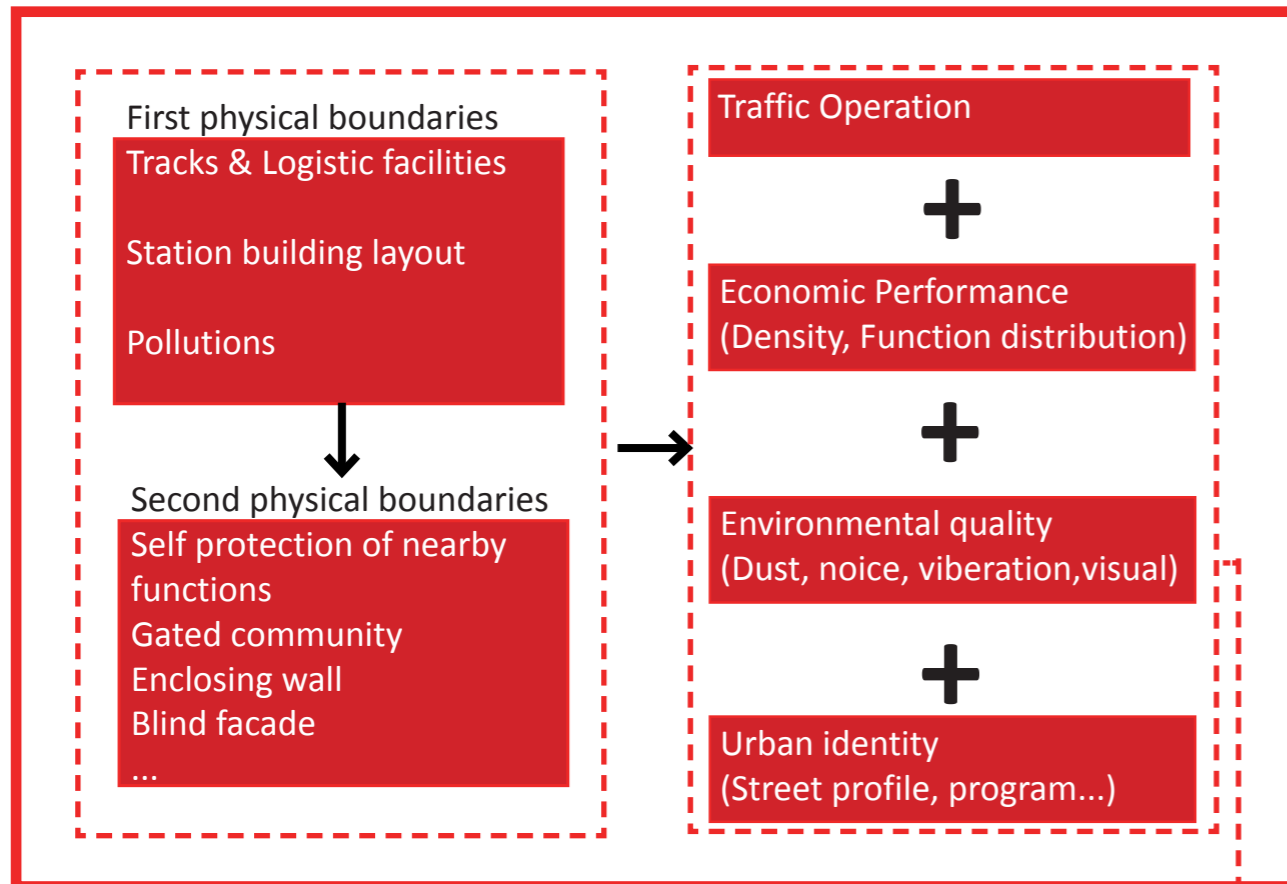
Elaboration of the Dutch experience



Extension of connectivity concept:
Traffic network, environmental quality,
economic performance and urban identity.

Elaboration of the Dutch experience

How to reduce the barrier effect?

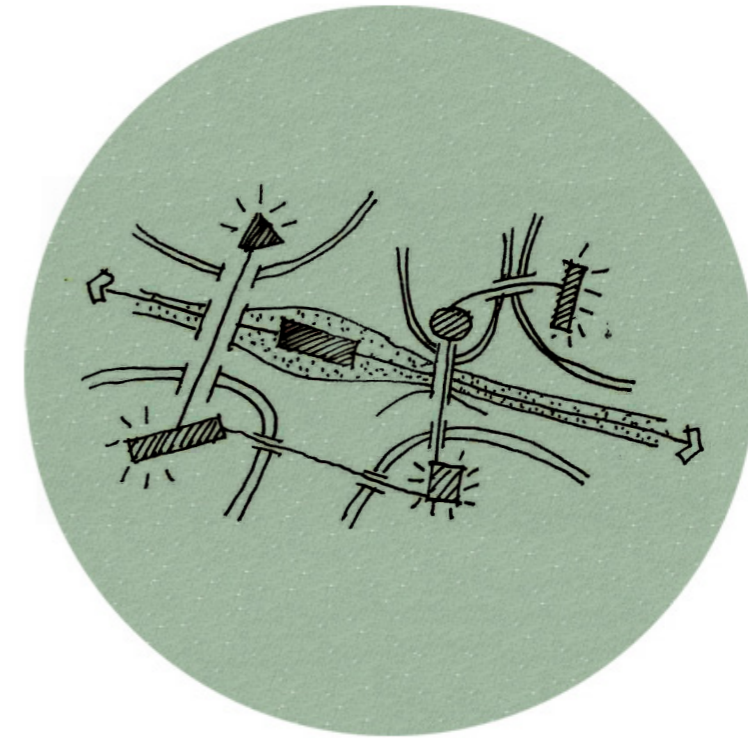


Step 1

Urgency/potential from big picture

Intended Product:

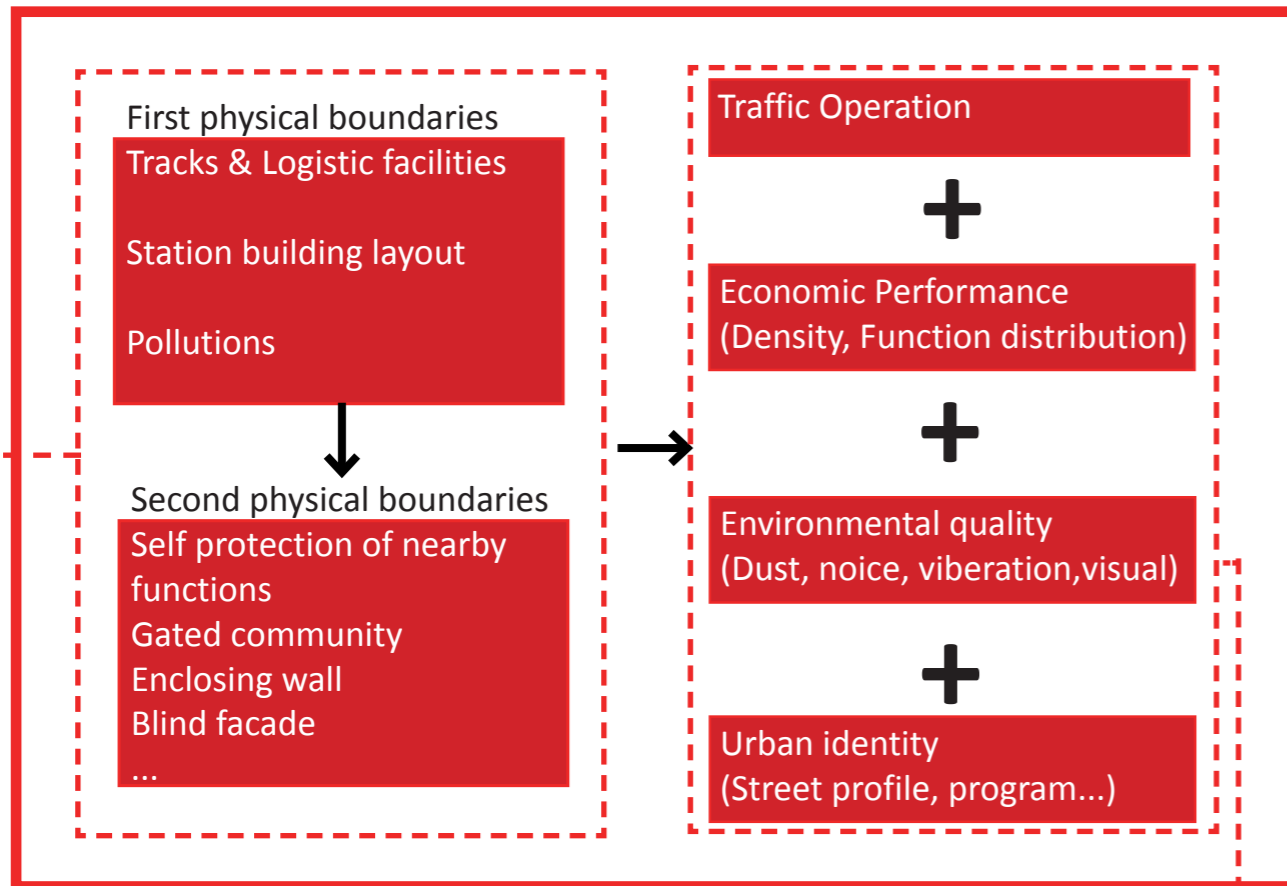
Vision
Scenario



1. Possible reasons for connections

Elaboration of the Dutch experience

How to reduce the barrier effect?

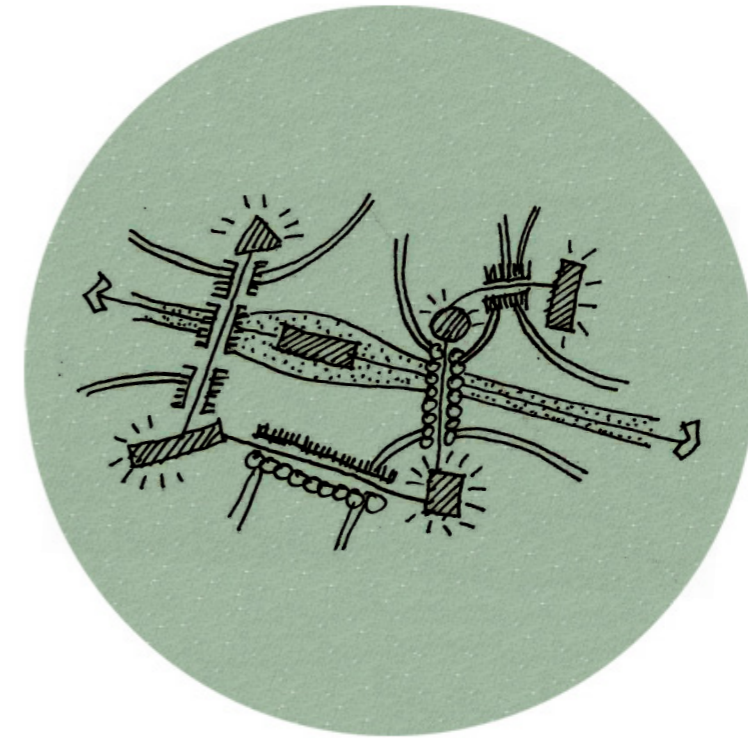


Step 2
Cross the physical barriers

Intended Product:
Footbridge/tunnel design
Station layout design
Buffer zone design

Step 1
Urgency/potential from big picture

Intended Product:
Vision
Scenario

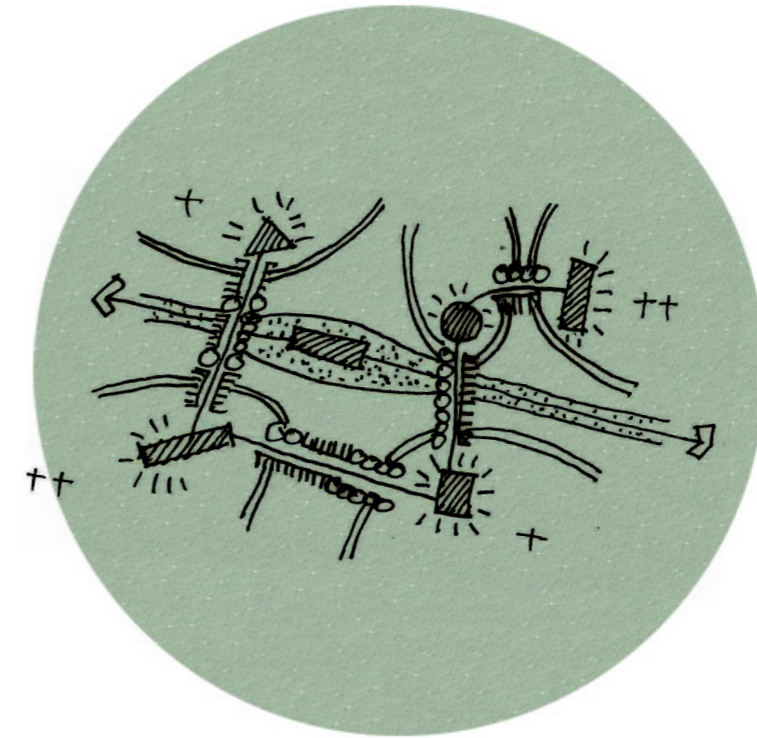
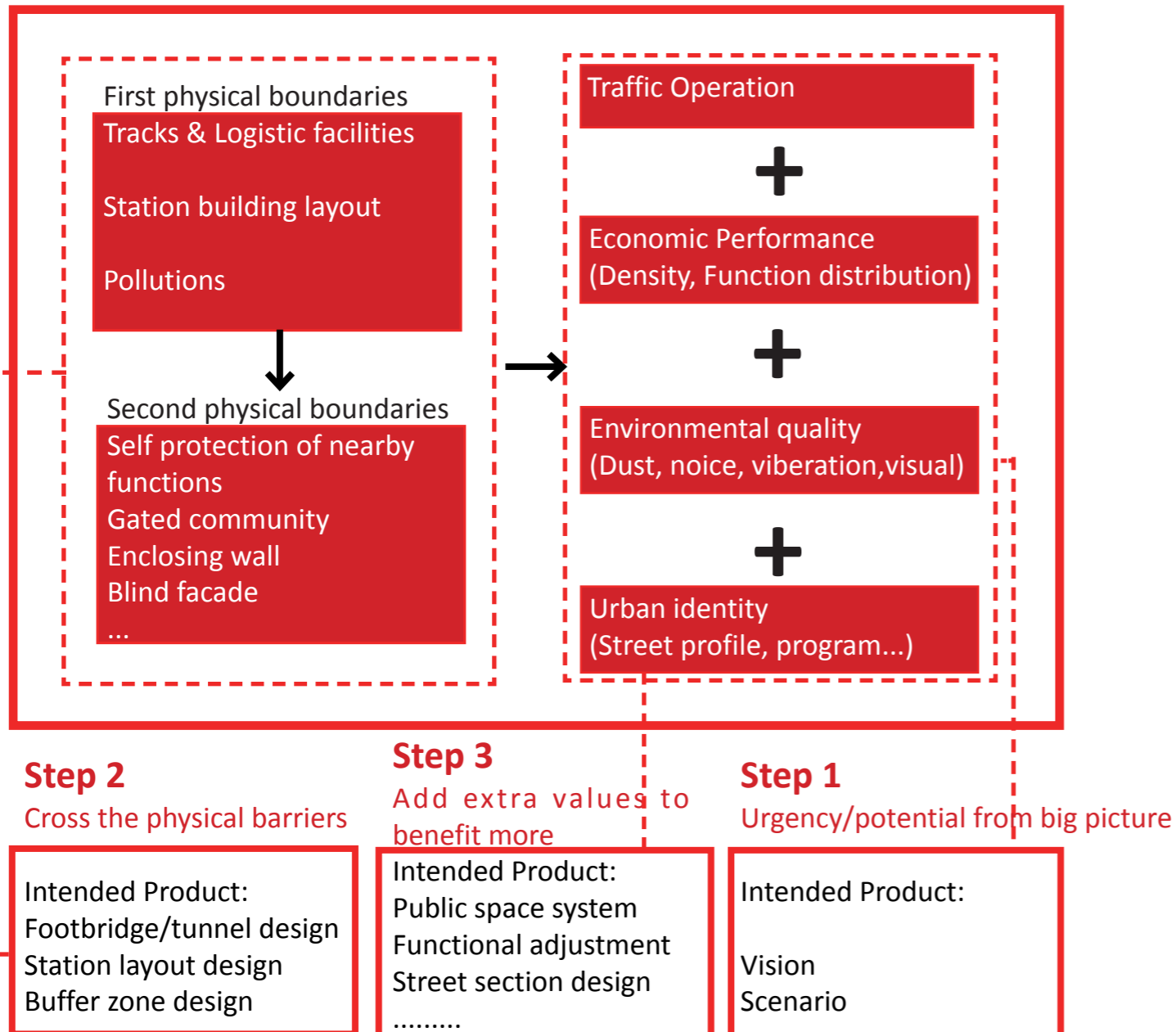


1. Possible reasons for connections

2. Space-making, overcome the physical barriers

Elaboration of the Dutch experience

How to reduce the barrier effect?



1. Possible reasons for connections
2. Space-making, overcome the physical barriers
3. Add values

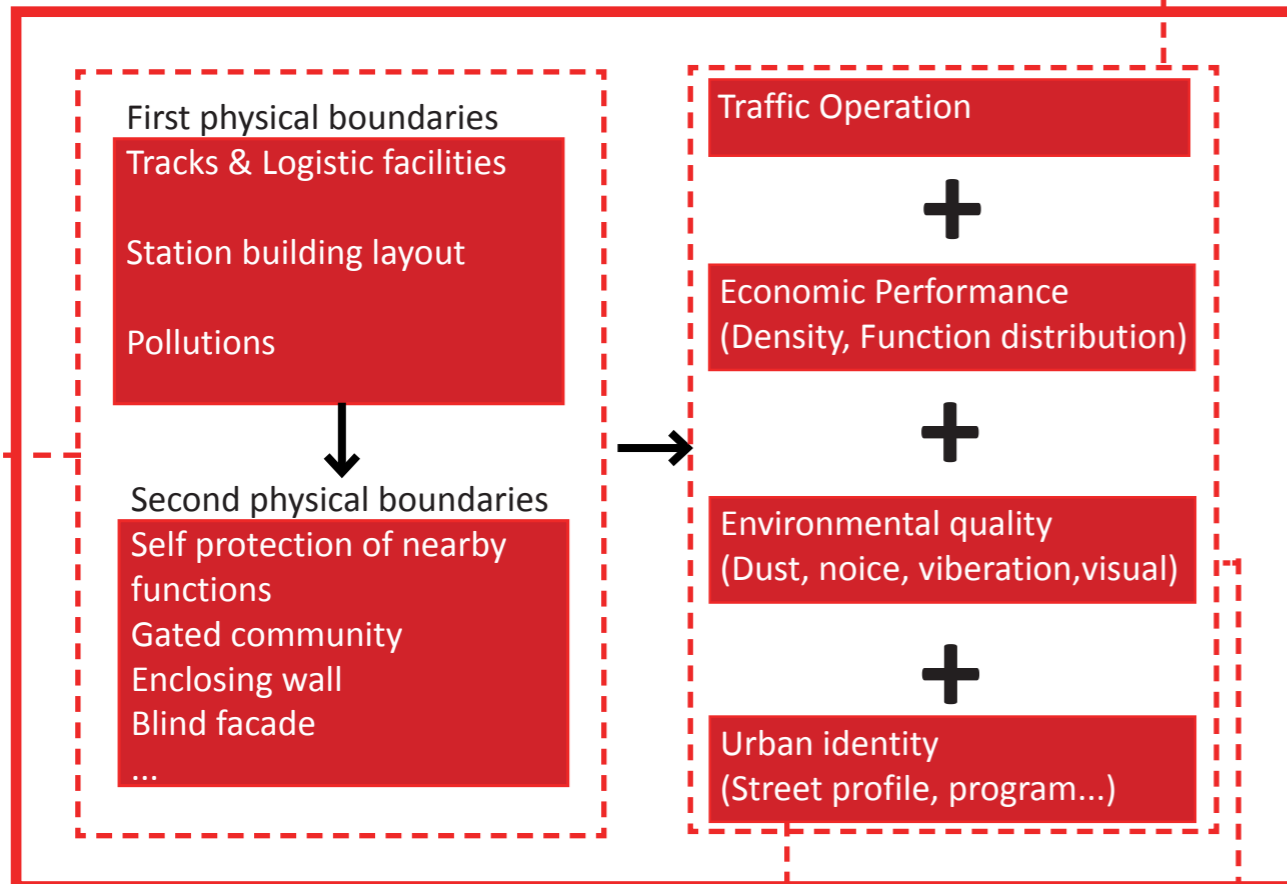
Elaboration of the Dutch experience

Step 4

Feasibility assessment

Intended Product:
Financial cost budget
Phase design

How to reduce the barrier effect?



Step 2

Cross the physical barriers

Intended Product:
Footbridge/tunnel design
Station layout design
Buffer zone design

Step 3

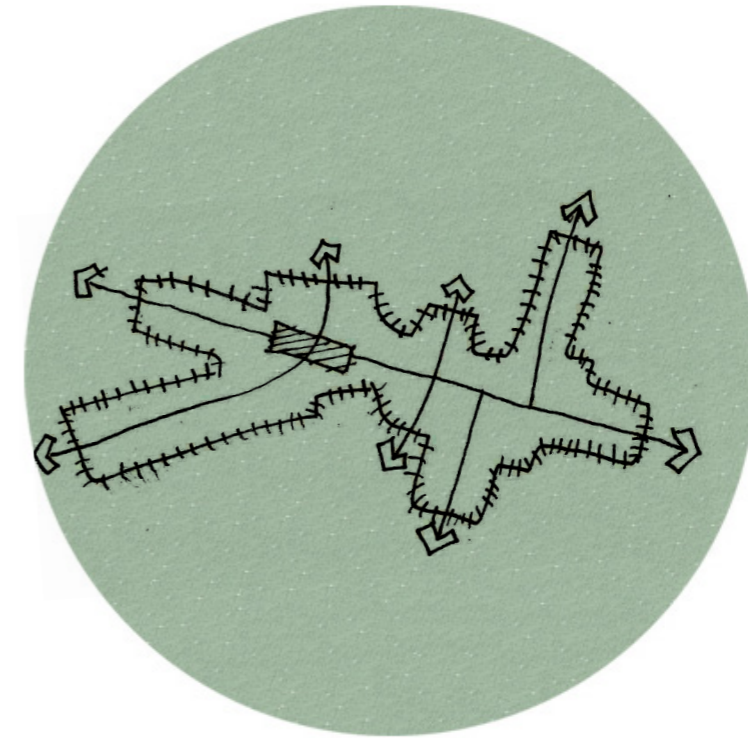
Add extra values to benefit more

Intended Product:
Public space system
Functional adjustment
Street section design
.....

Step 1

Urgency/potential from big picture

Intended Product:
Vision
Scenario



1. Possible reasons for connections

2. Space-making, overcome the physical barriers

3. Add values

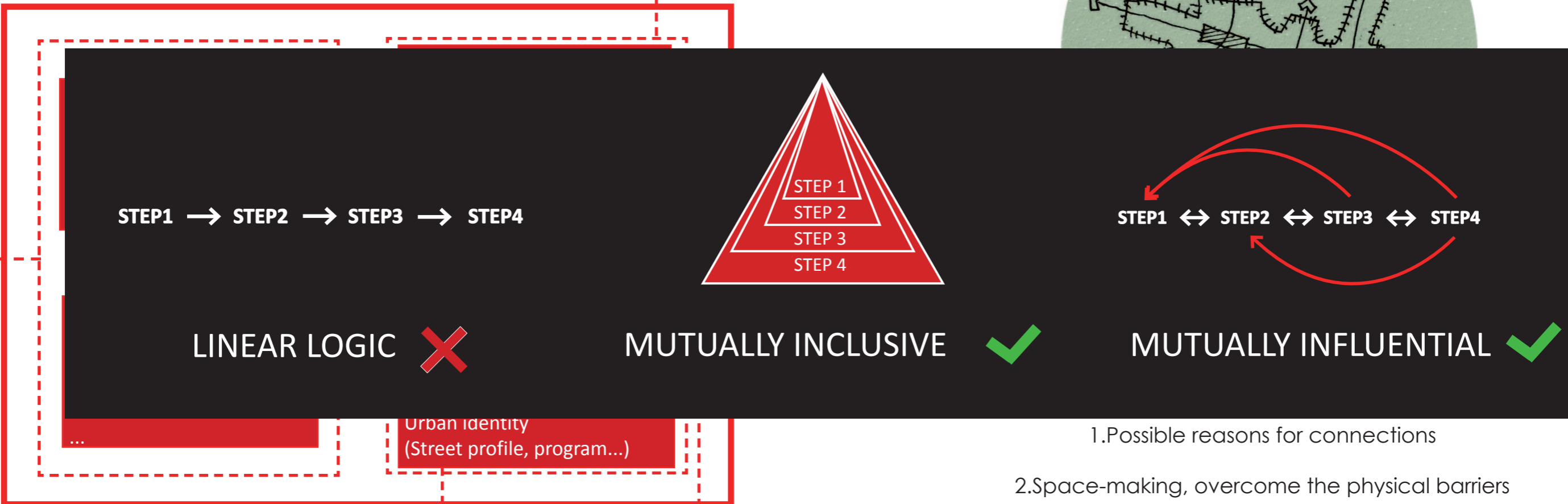
4. Feasibility assessment

Elaboration of the Dutch experience

Step 4 Feasibility assessment

Intended Product:
Financial cost budget
Phase design

How to reduce the barrier effect?



1. Possible reasons for connections
2. Space-making, overcome the physical barriers
3. Add values
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Scenario

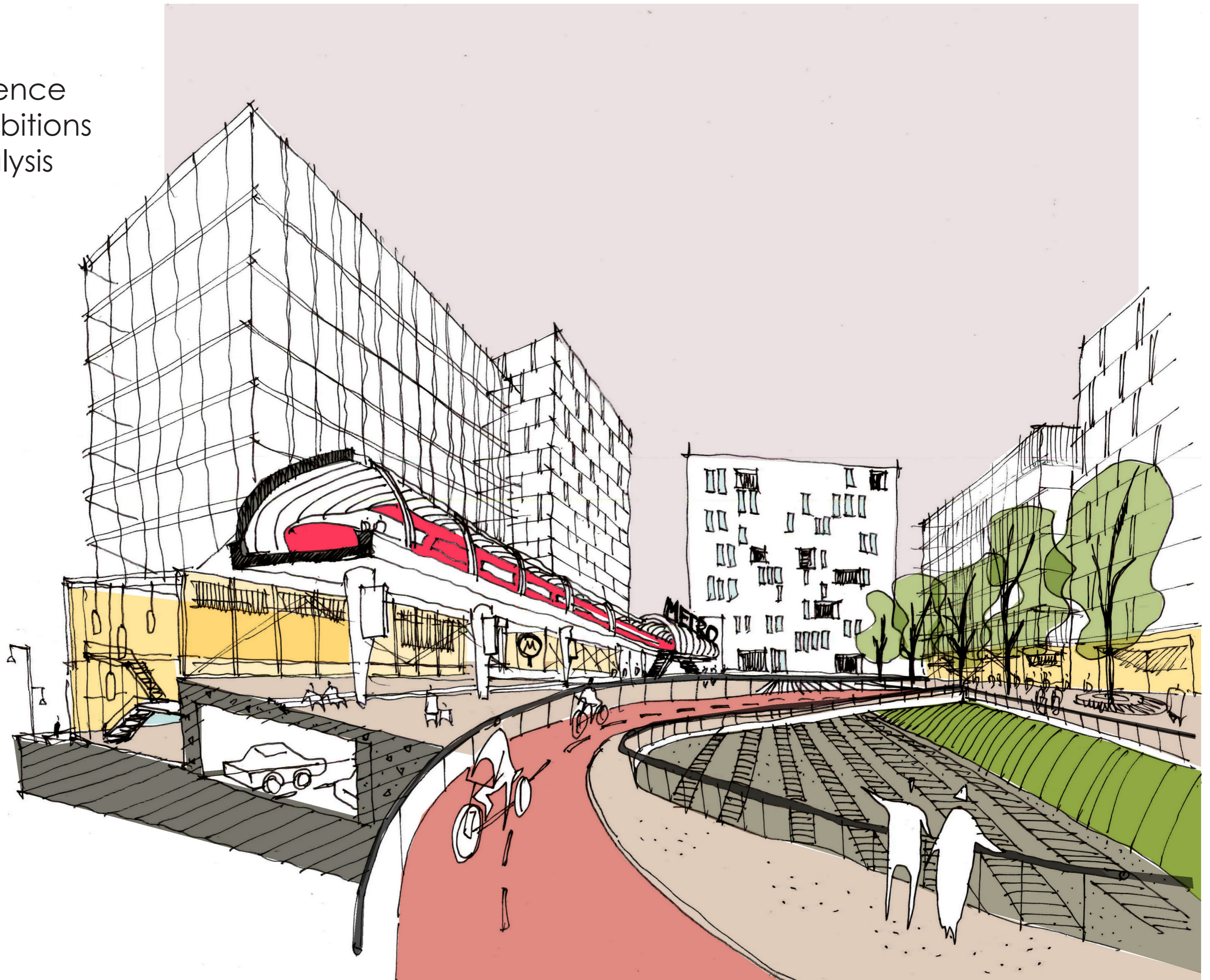
Application in Shanghai, China
-Vision
-Four proposals
-Integration: Pilot projects

4



Vision

- +Dutch experience
- +Shanghai Ambitions
- +Basic site analysis



Vision

+Inclusive



1 INCLUSIVE € 🌱 SH

High-Density,
Mixed-Use building cluster,
being attractive for all,
instead of only for commuters.

Vision

+Inclusive

+Multimodal transport

1 INCLUSIVE € 🌱 SH

High-Density,
Mixed-Use building cluster,
being attractive for all,
instead of only for commuters.



2 🏠 €

MULTIMODAL TRANSPORT

Multimodal transport hub,
realizing daily life circle within
15 min.

Vision

- +Inclusive
- +Multimodal transport
- +A readable image

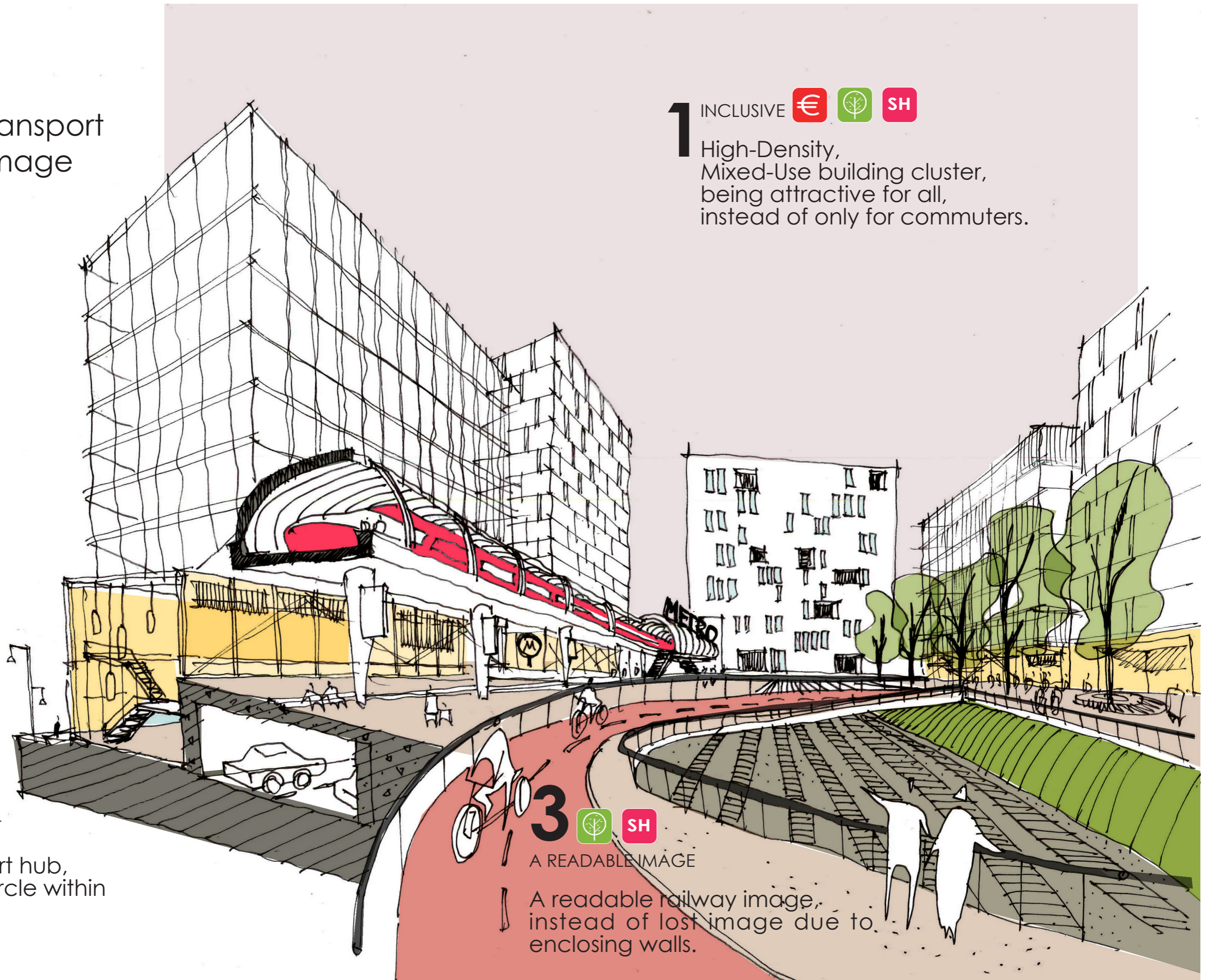
1 INCLUSIVE € 🌱 SH
High-Density,
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2 🏠 €
MULTIMODAL TRANSPORT

Multimodal transport hub,
realizing daily life circle within
15 min.

3 🌱 SH
A READABLE IMAGE

A readable railway image,
instead of lost image due to
enclosing walls.



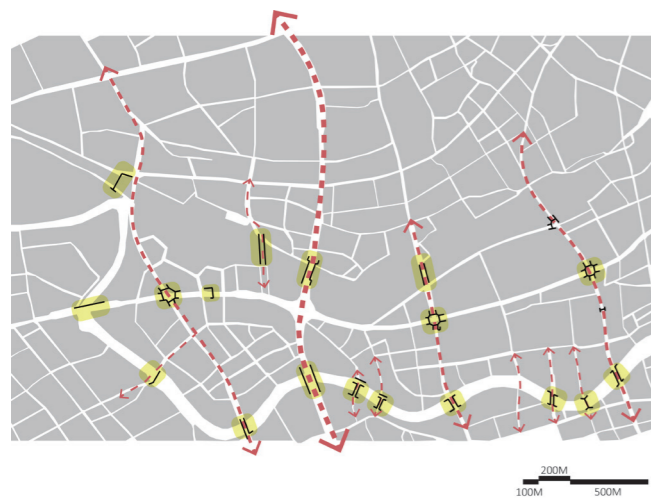
 Network operation

 Economic Performance

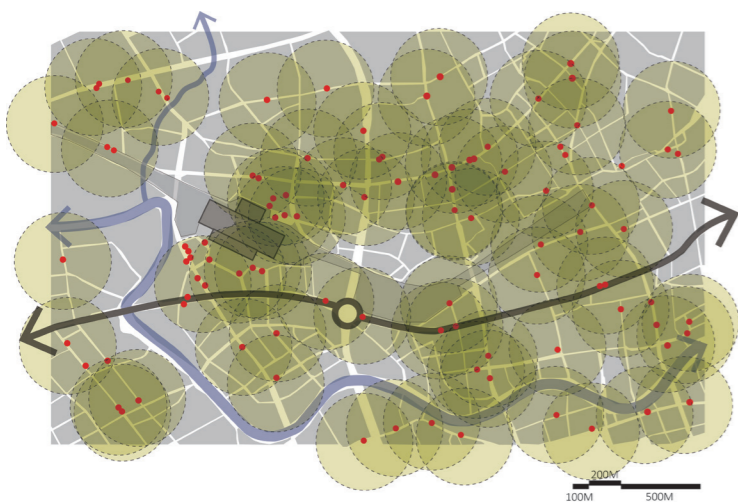
 Environmental Quality

 Urban Identity

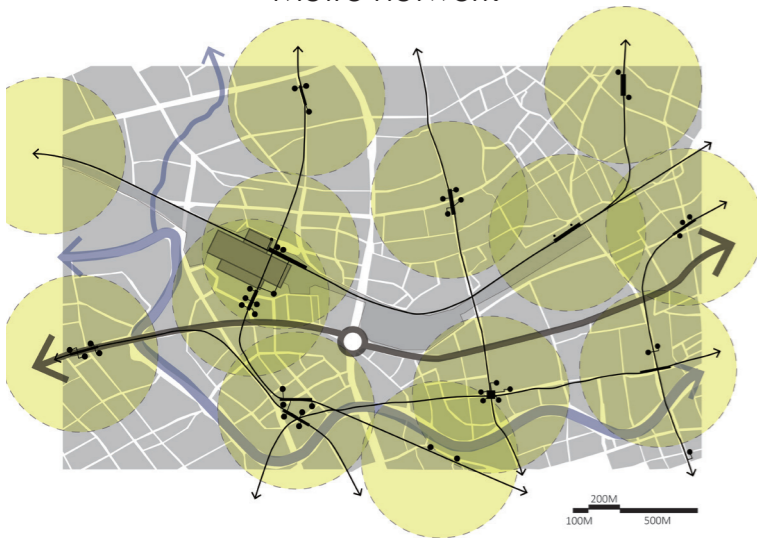
Pedestrian system



Bus network



Metro network



Existing developed areas



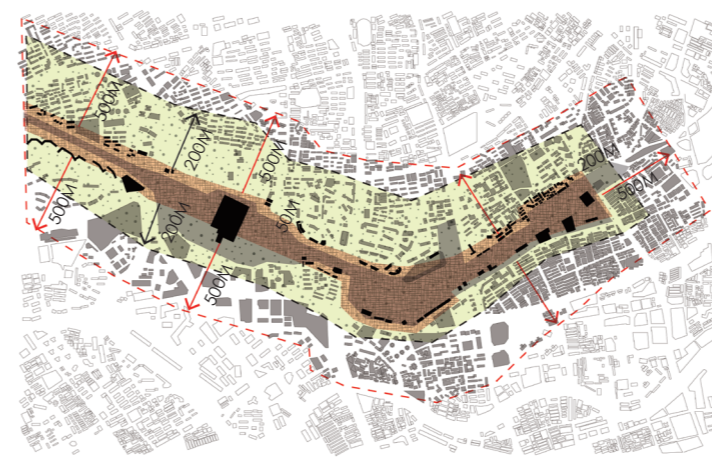
Building quality



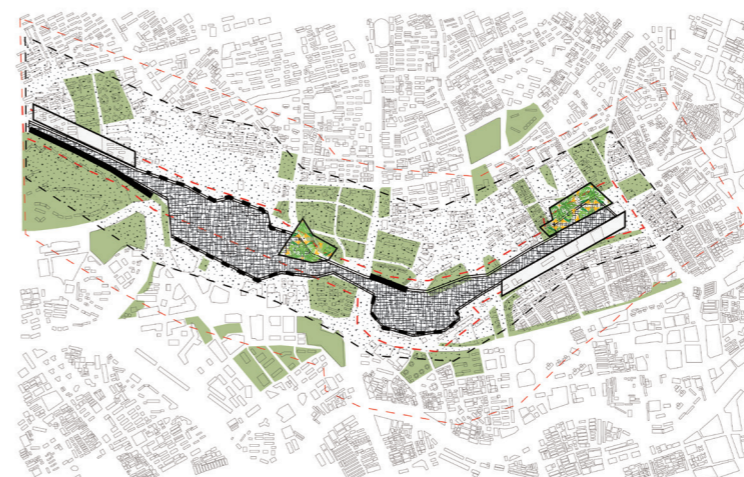
Traffic nodes



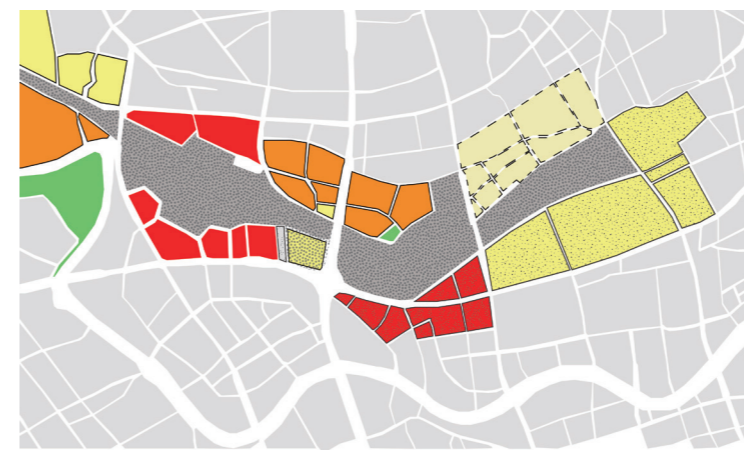
Pollution regions



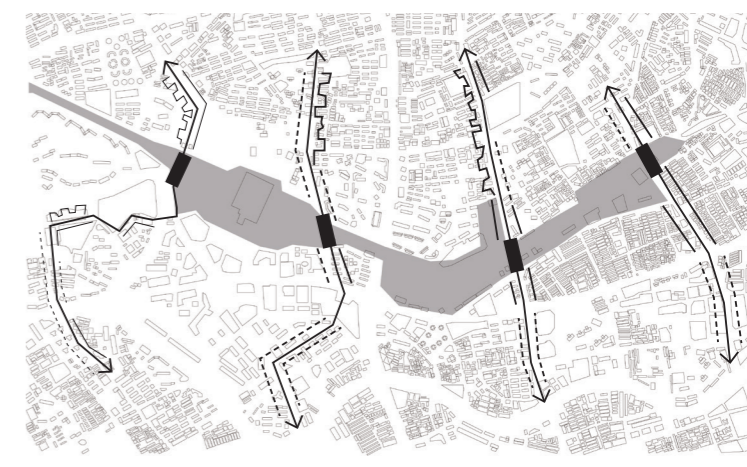
Existing solutions



High request function



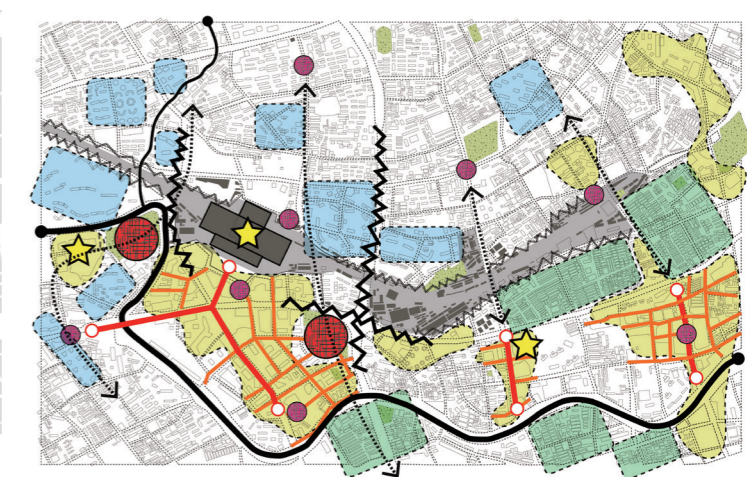
Skyline



Waterfront space




Mental map



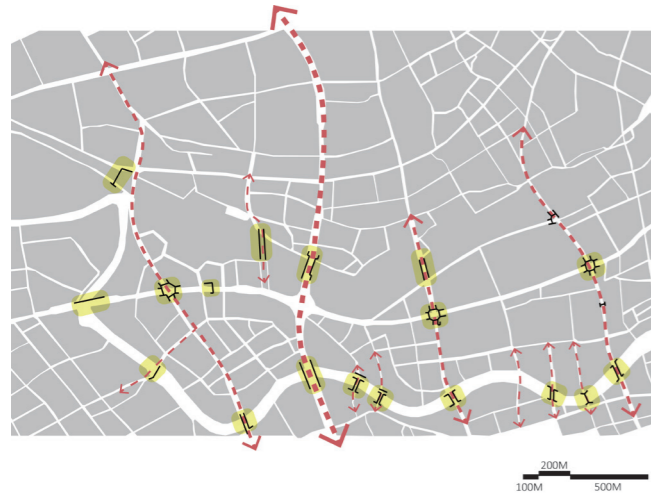
 Network operation

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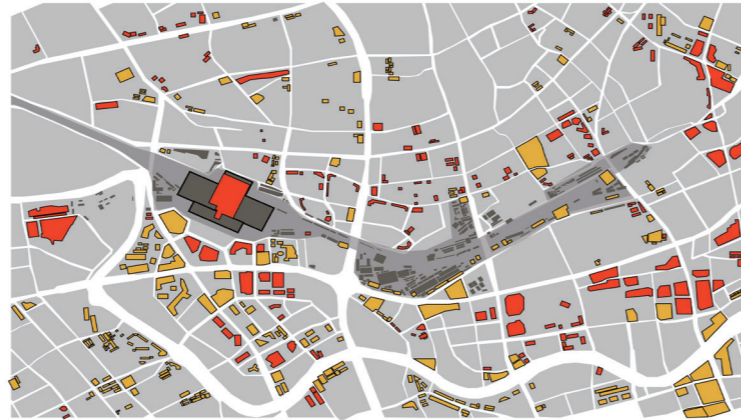
Pedestrian system



Bus network



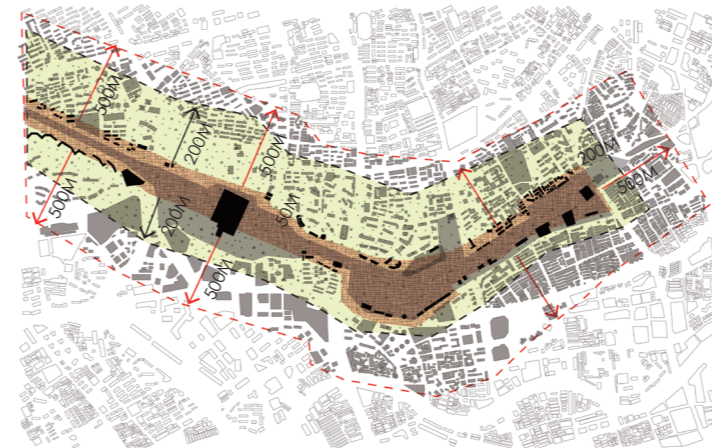
Existing developed areas



Building quality



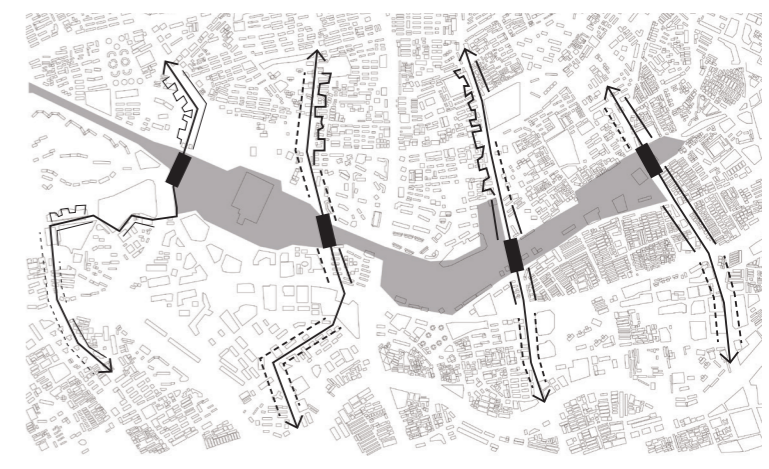
Pollution regions



Existing solutions



Skyline



Waterfront space



By mapping, we can clarify every component to explain a complex phenomenon, then give corresponding designs.

Metro network



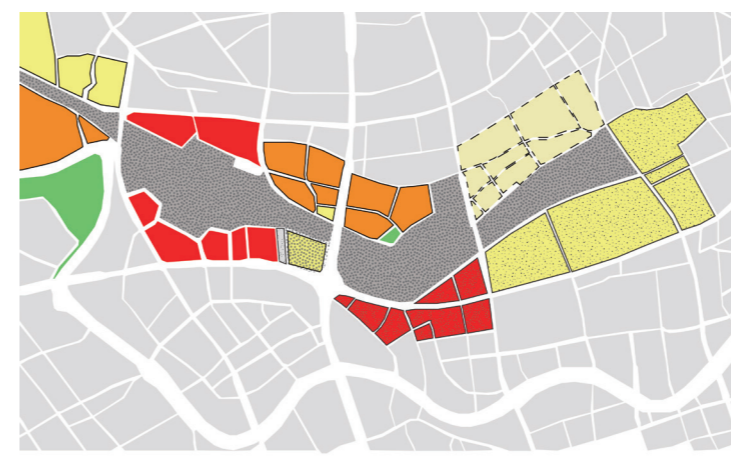
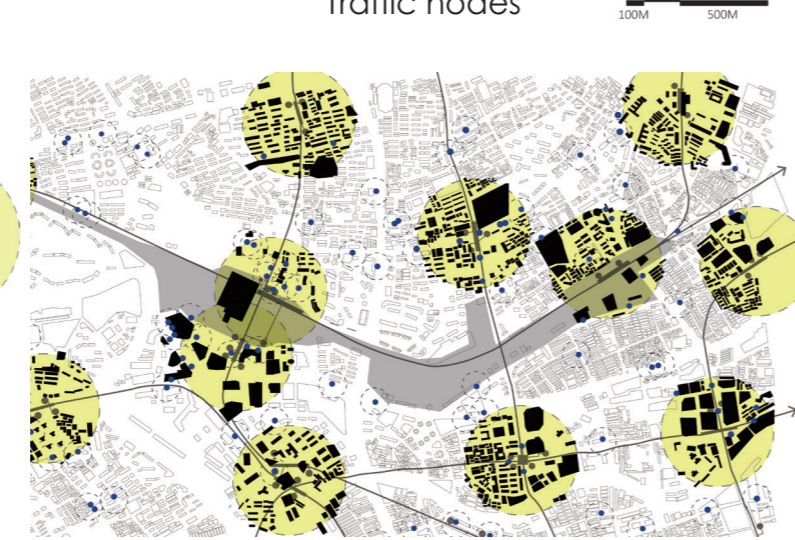
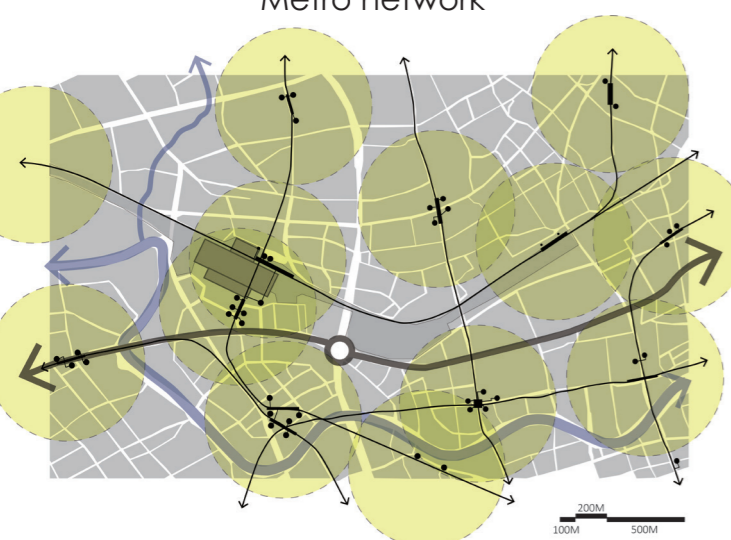
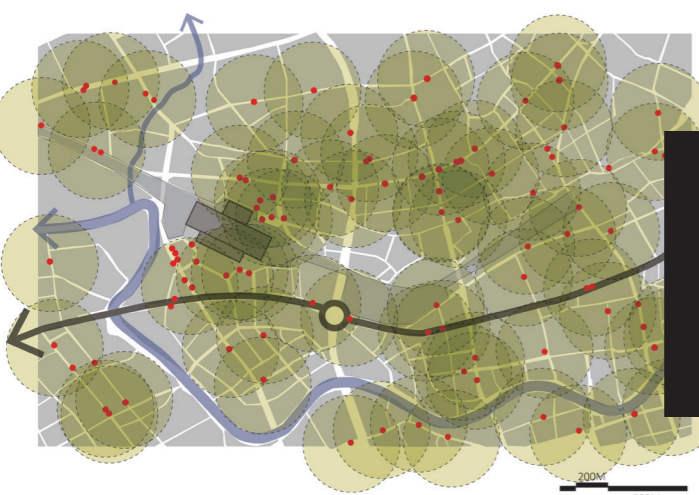
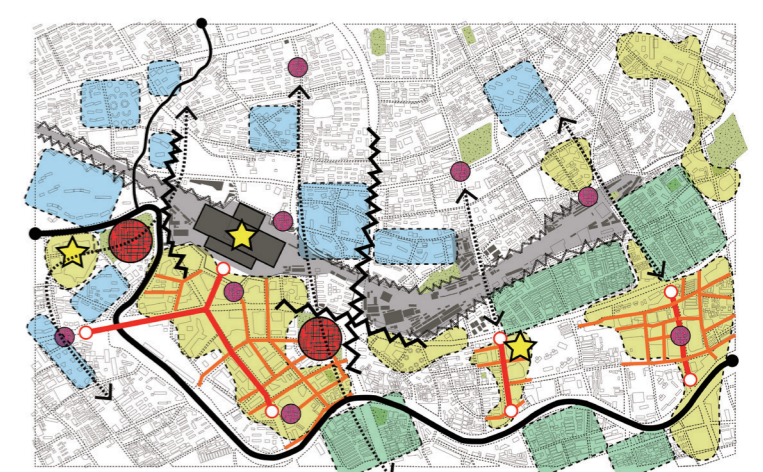
Traffic nodes



High request function



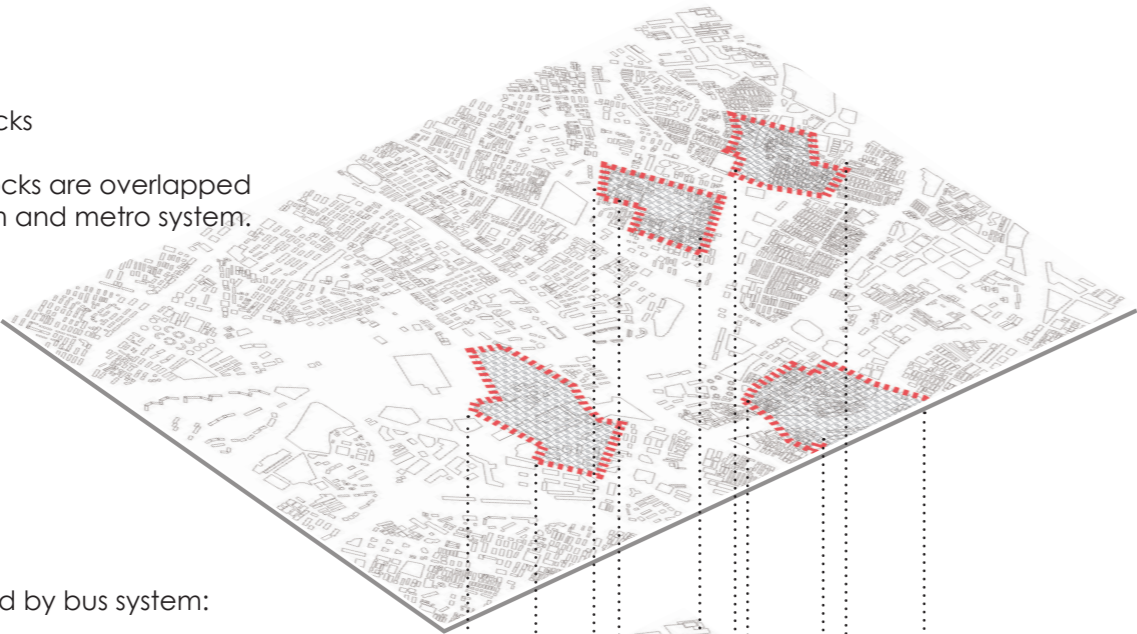
Mental map



Economic potentials

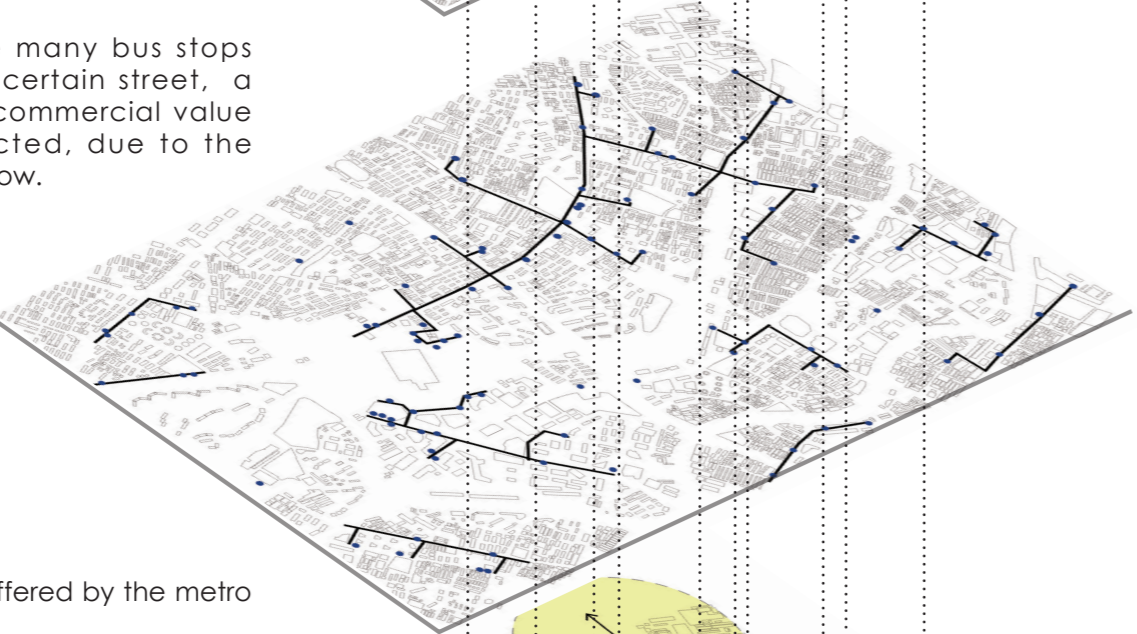
High potential blocks

These selected blocks are overlapped by both bus system and metro system.



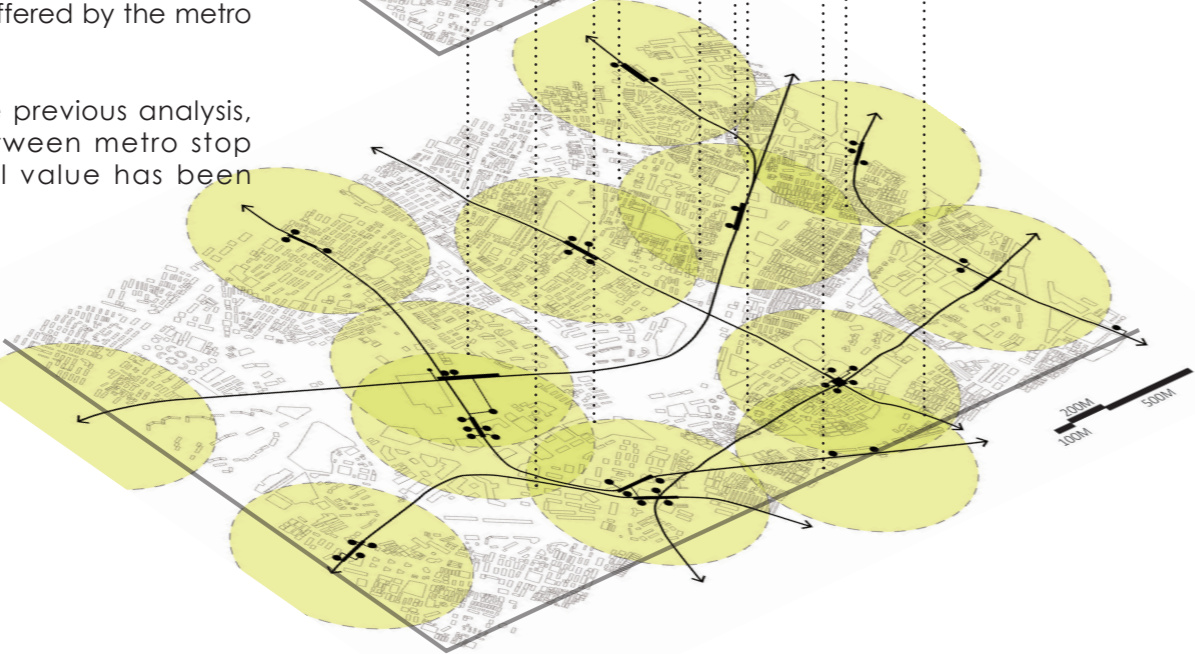
People flow offered by bus system:

When there are many bus stops placing on one certain street, a higher possible commercial value could be expected, due to the intensive people flow.



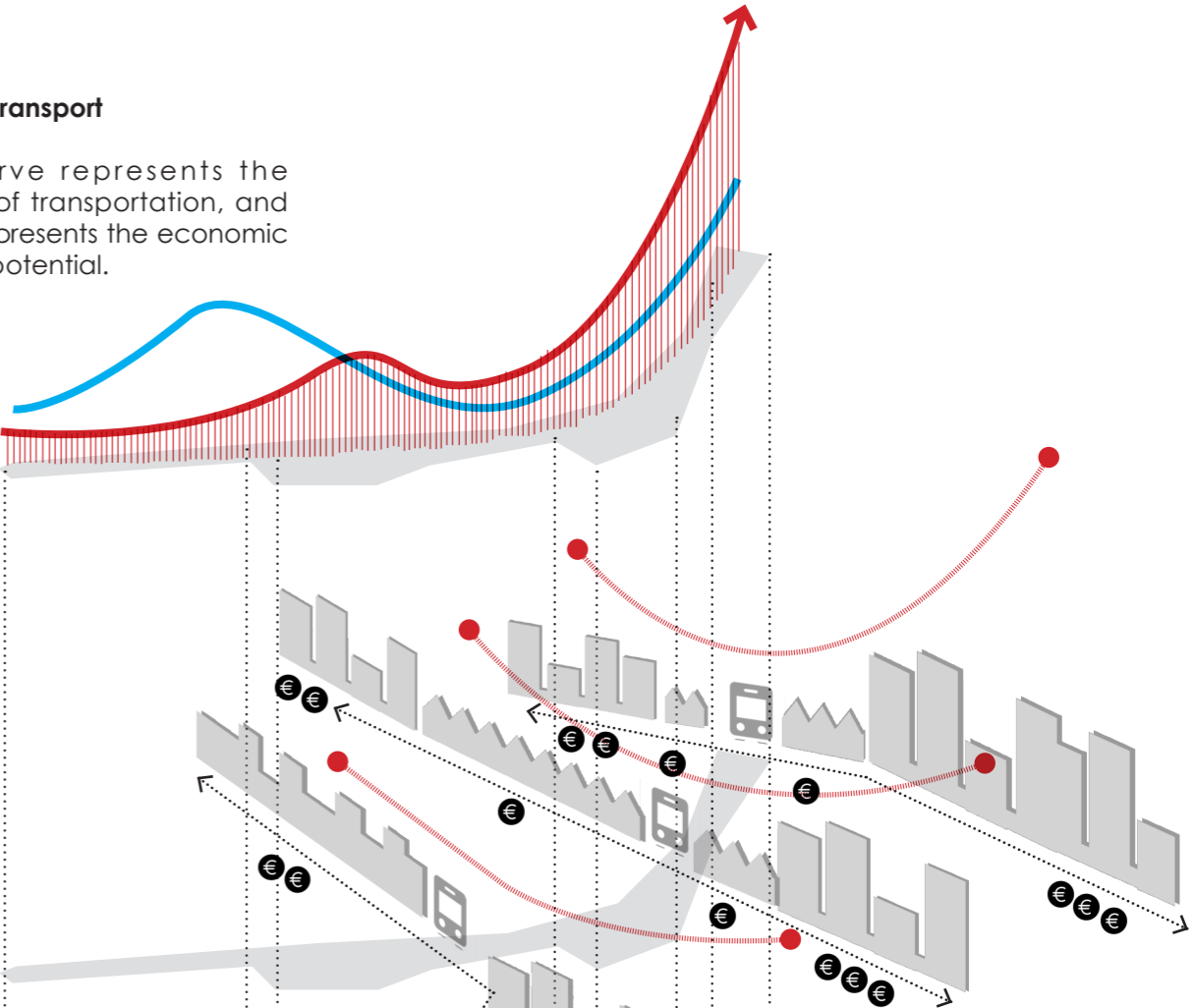
People fountain offered by the metro system:

According to the previous analysis, a strong link between metro stop and commercial value has been discovered



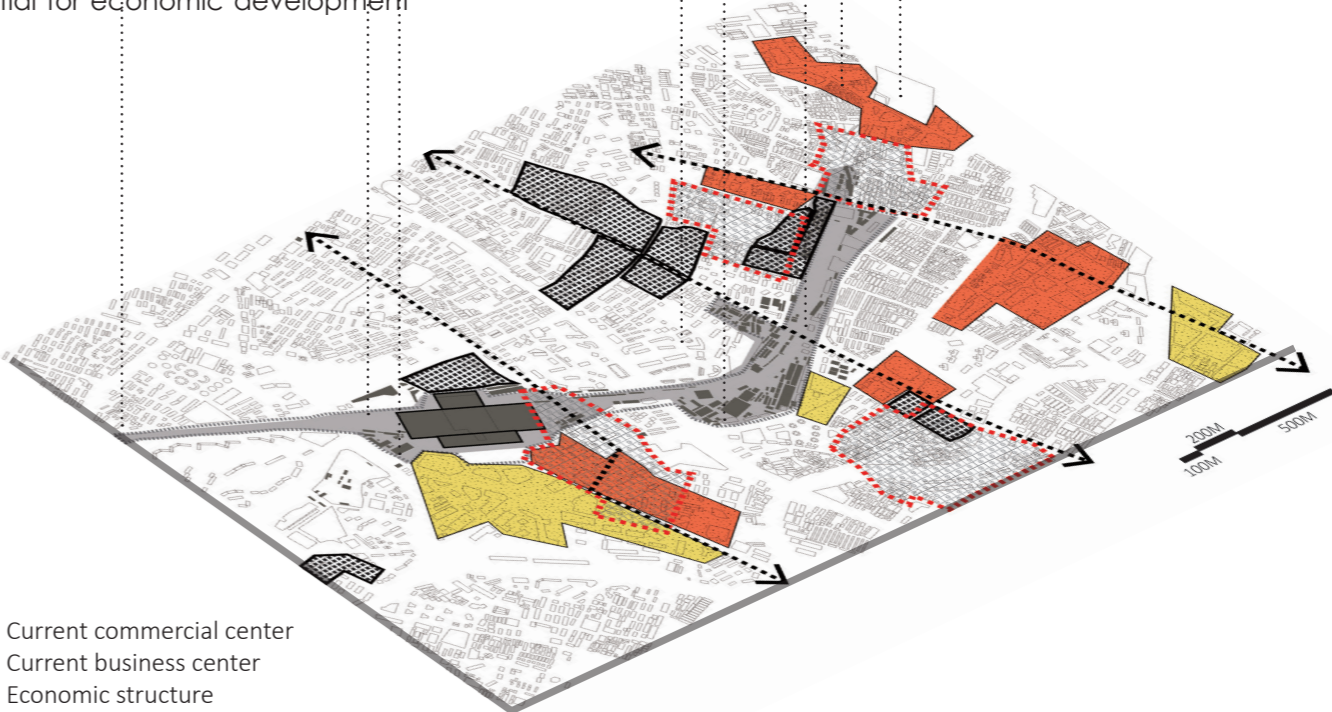
Economy and transport

The blue curve represents the convenience of transportation, and the red one represents the economic development potential.



Potential Curve

The closer the economically developed area is to the train station area, the steeper the curve is. The larger the gap between the high point and the low point is, the more potential for economic development it has.



- Current commercial center
- Current business center
- Economic structure
- Potential space

Proposed Economic Structure



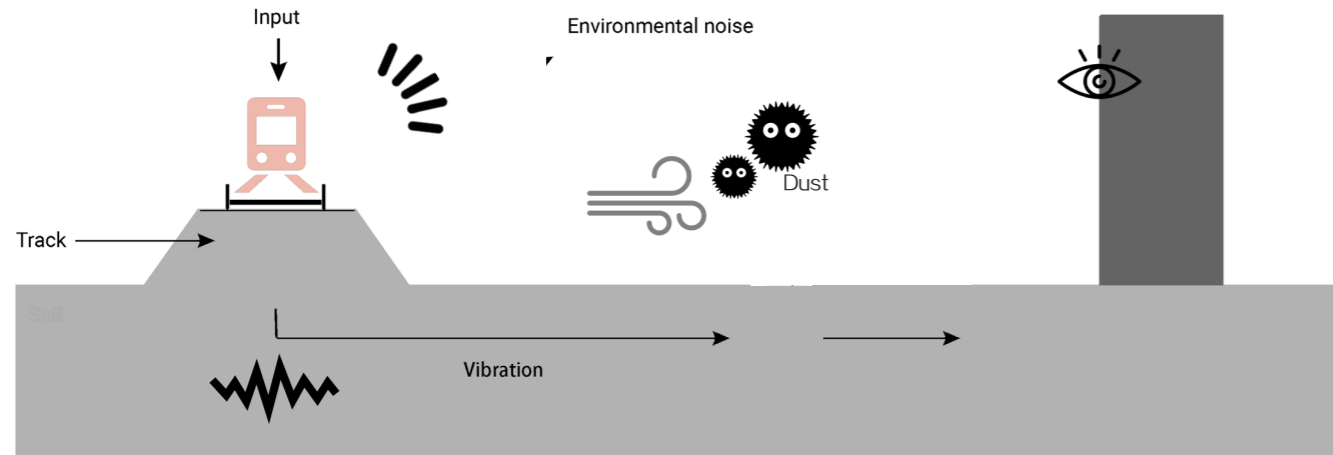
As the map above shows, on the north-south direction, the new economic development axis in Shanghai station area should focus on the east side of the station, which is the end part of the rail yard. It locates close to a metro stop, and also in the middle of the developed commercial street. Moreover, a large area of low-quality logistic function and low-rise bungalows offer the sufficient space for possible investment.



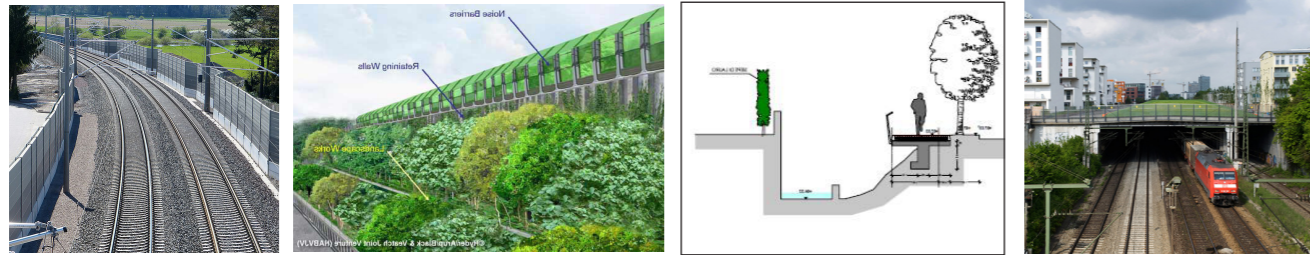
Environmental quality urgency

Physical influence of railway

1. Visual influence (mainly for the residential building on the northern side)
2. Dust pollution (Influenced by wind orientation)
3. Noise pollution within 50M (Reduce 3 dB per 10M)
4. Vibration (Theoretical range: 500M)

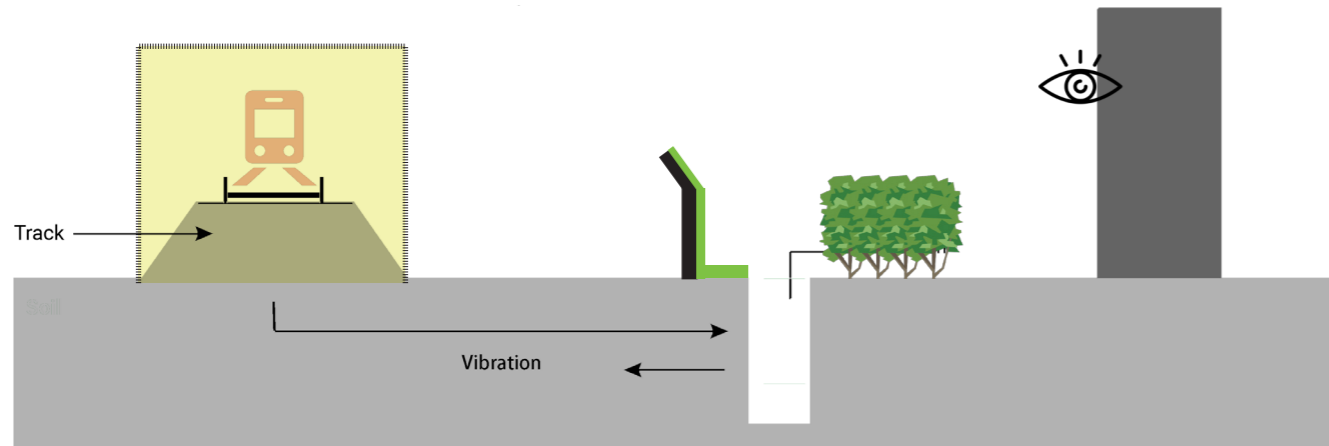


Regular solutions

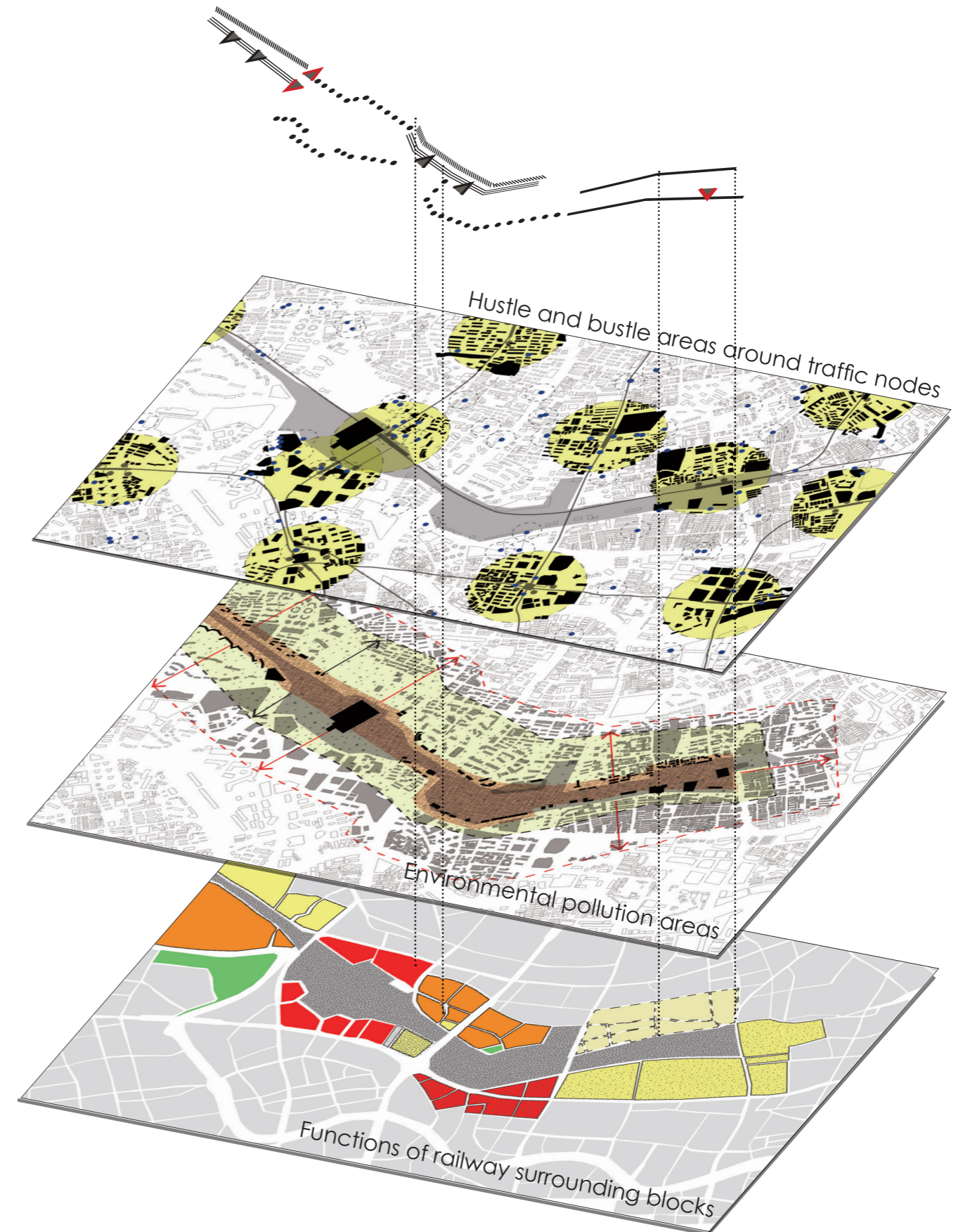


1. Enclosing wall for noise
2. Greenery for noise and dust
3. Trench for Vibration
4. Cover for all kinds

Financial cost/Space consuming

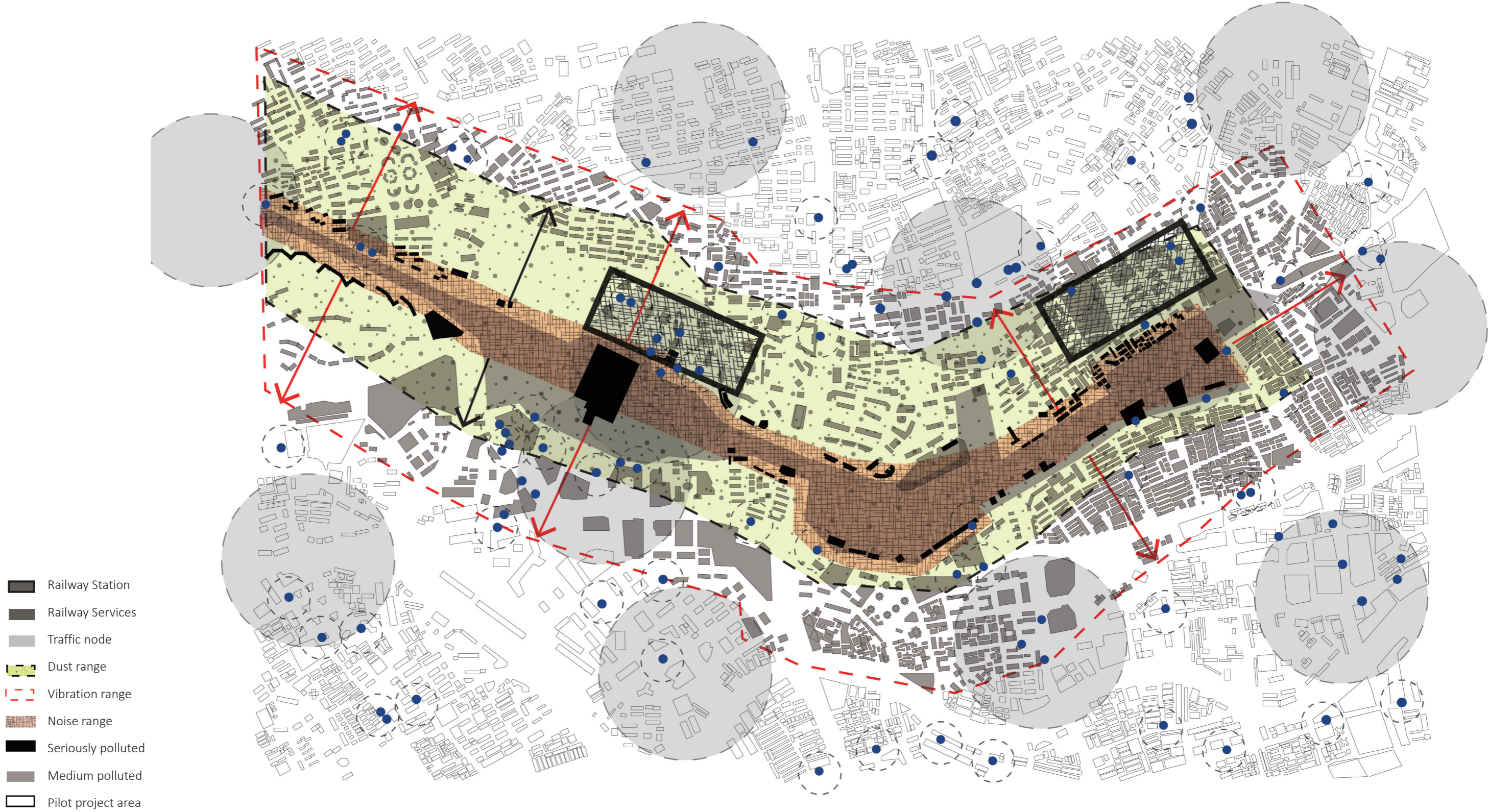


- the Boundary with dust issue
- the Boundary with noise issue
- Hustle and Bustle boundary
- Limited space
- Visual influence for high-rise
- Spots which should open to public



Proposed environmental Quality Map

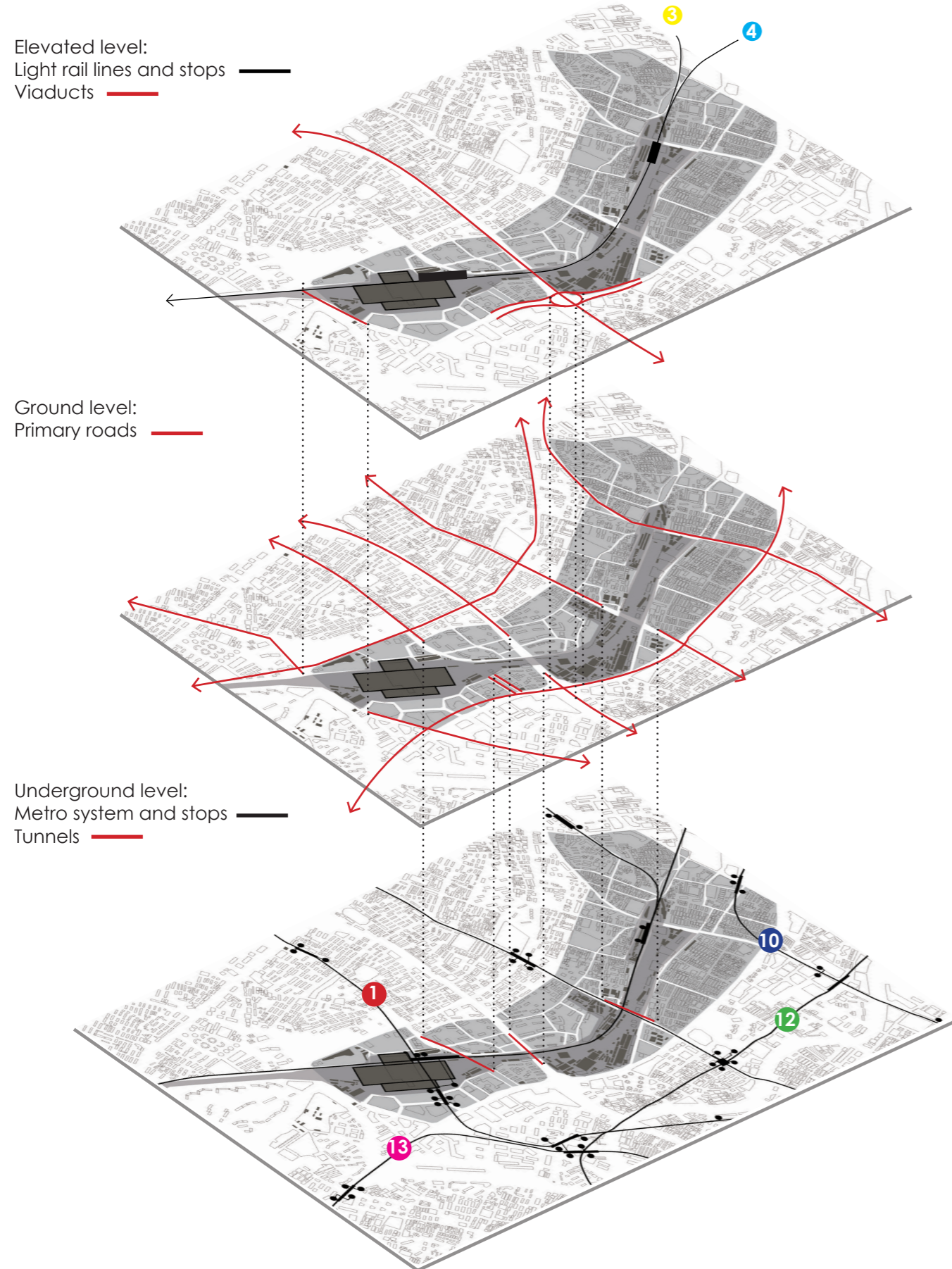
Mainly focusing on pollutions caused by trains



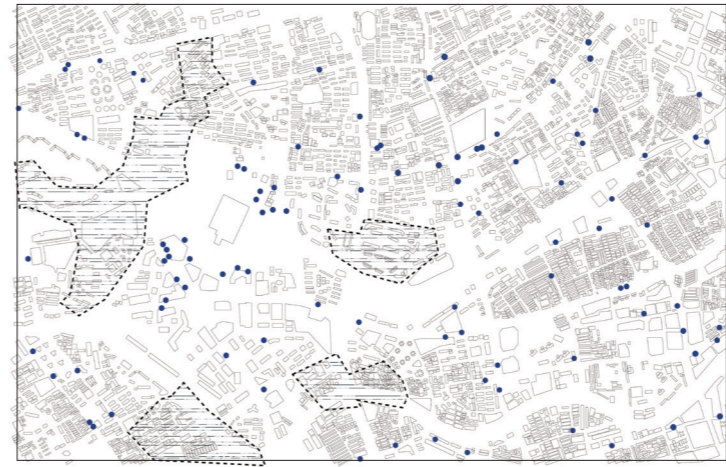
In addition to passengers, there are a variety of environmental pollutions along with the railroad tracks, namely dust, noise, vibration and visual impact. These physical effects greatly downgrade the surrounding space quality, especially for residential functions. Moreover, the agglomeration effect of the railway station also gathered other transportation facilities, creating a hustle and bustle environment with a large number of users. After considering these effects comprehensively, the two regions which are suffering from the most prominent pollution, are selected



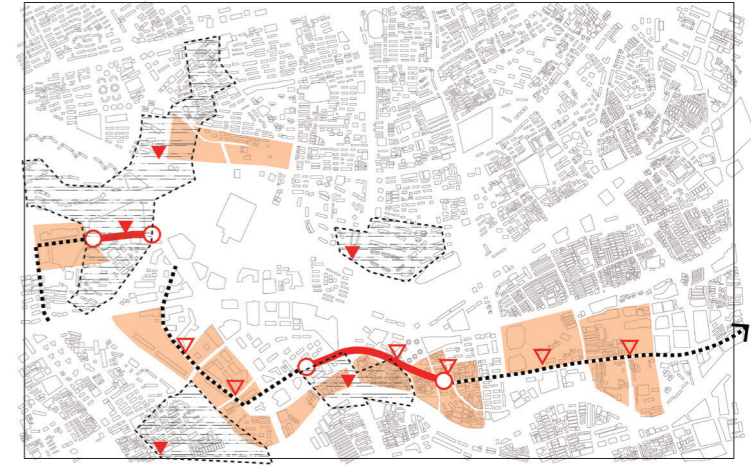
Traffic operation



poorly connected area of bus system



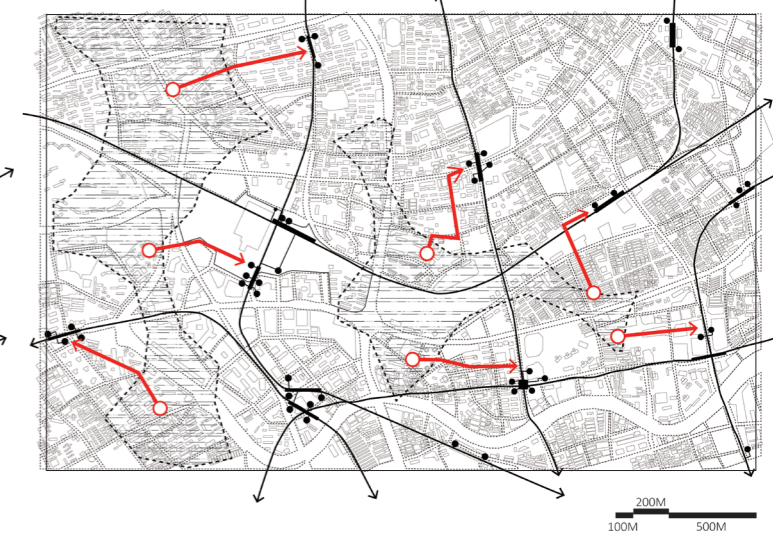
Introduce new bus stops and promote new bus lines in the developing blocks



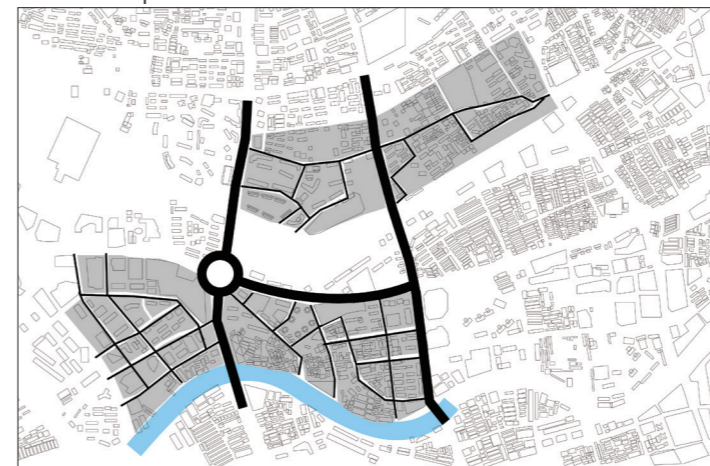
Uncovered area of Metro system



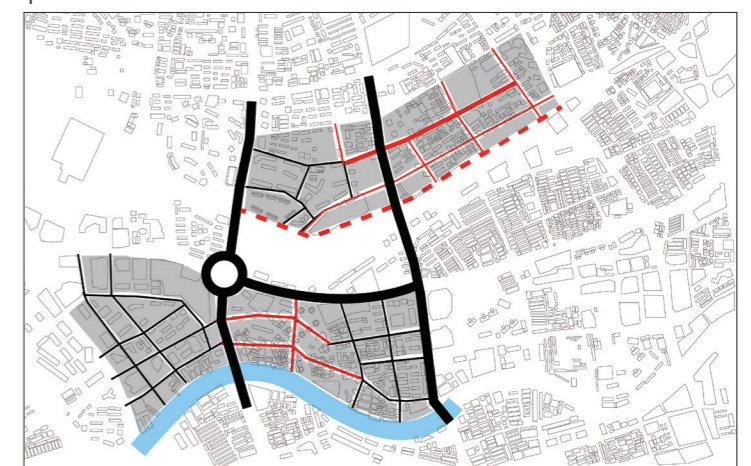
Open gated communities which block the routes leading to metro stations, reducing the detour.



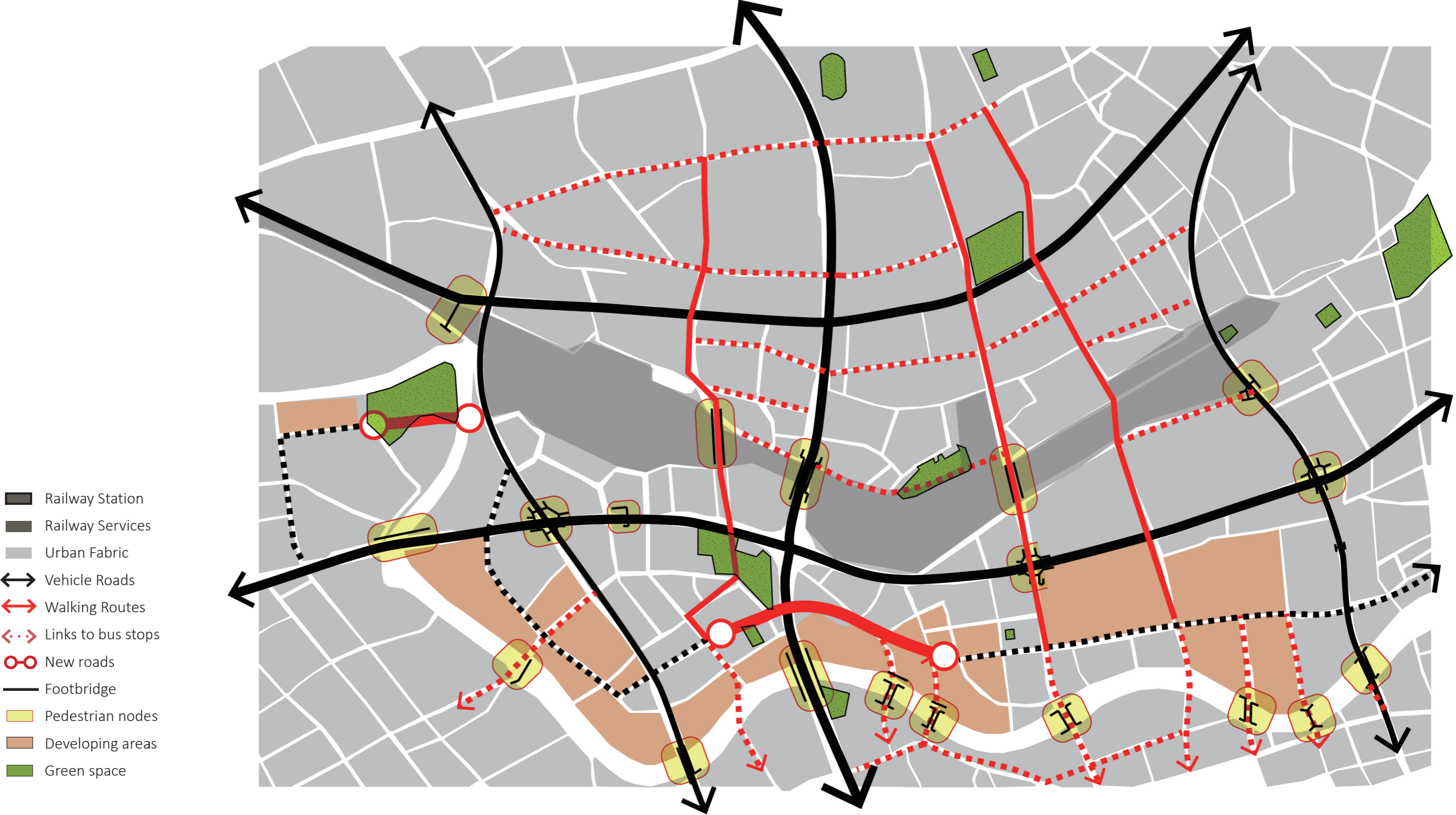
Road system: Tortuous network
 Strange shape blocks further lead to the difficulty of development.



Adjust tortuous network which has high economic potentials

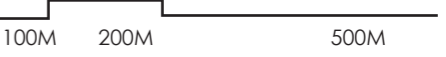


Traffic operation
Proposed Traffic Structure

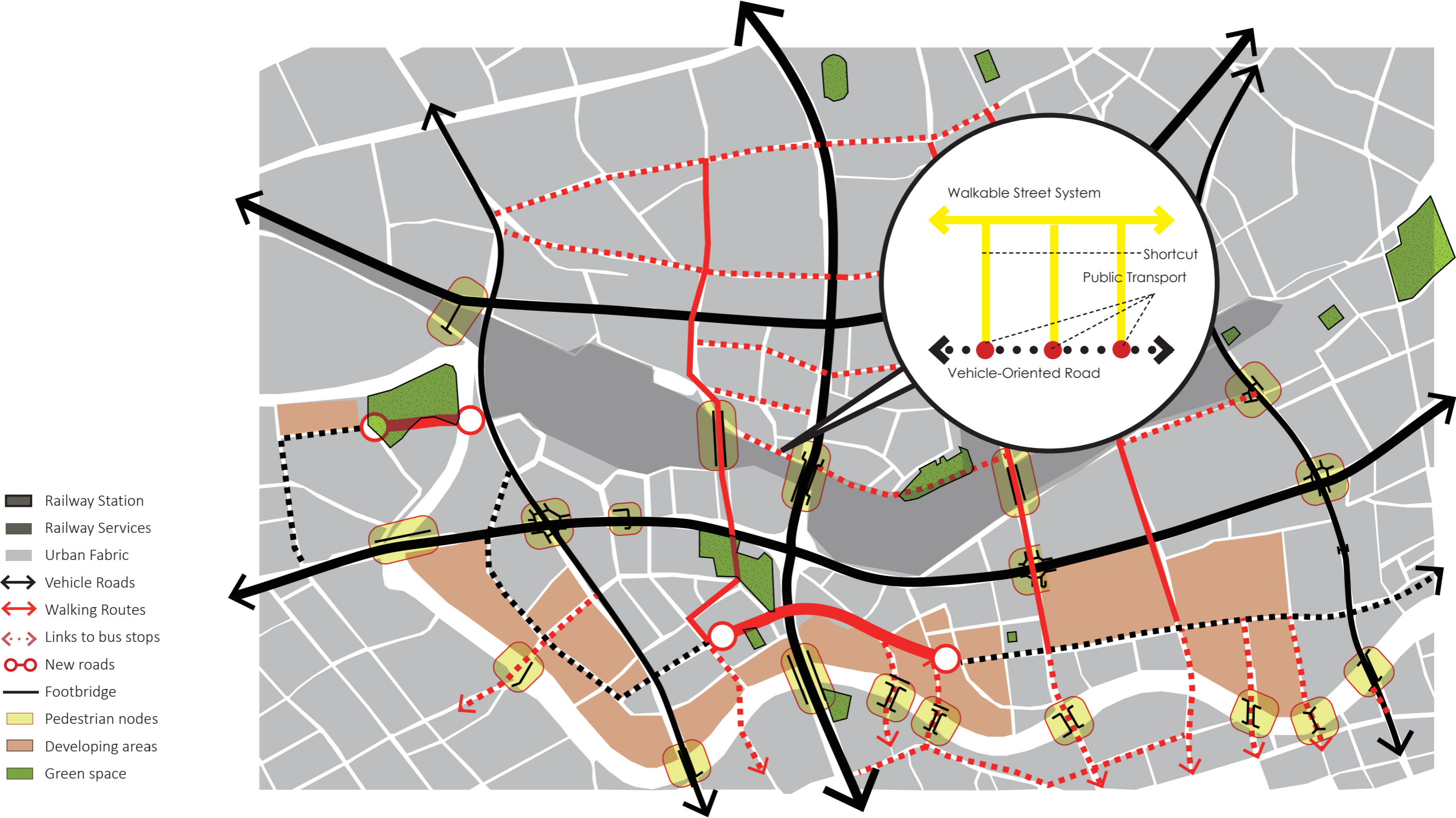


The approach needed for proposal is to ensure a dense enough pedestrian and bicycle network such that large detour factors are not imposed on cyclists and especially pedestrians. This can be achieved with a clear and direct network structure, increasing density of the street and path network. At the same time, the small-scale block also helps to provide a finer grid of public pedestrian paths.

All in all, for new proposal, the following movements are encouraged, namely block redistribution, adding extra roads, introducing slow traffic, the road section optimization and dead-ends relink.



Traffic operation
Proposed Traffic Structure



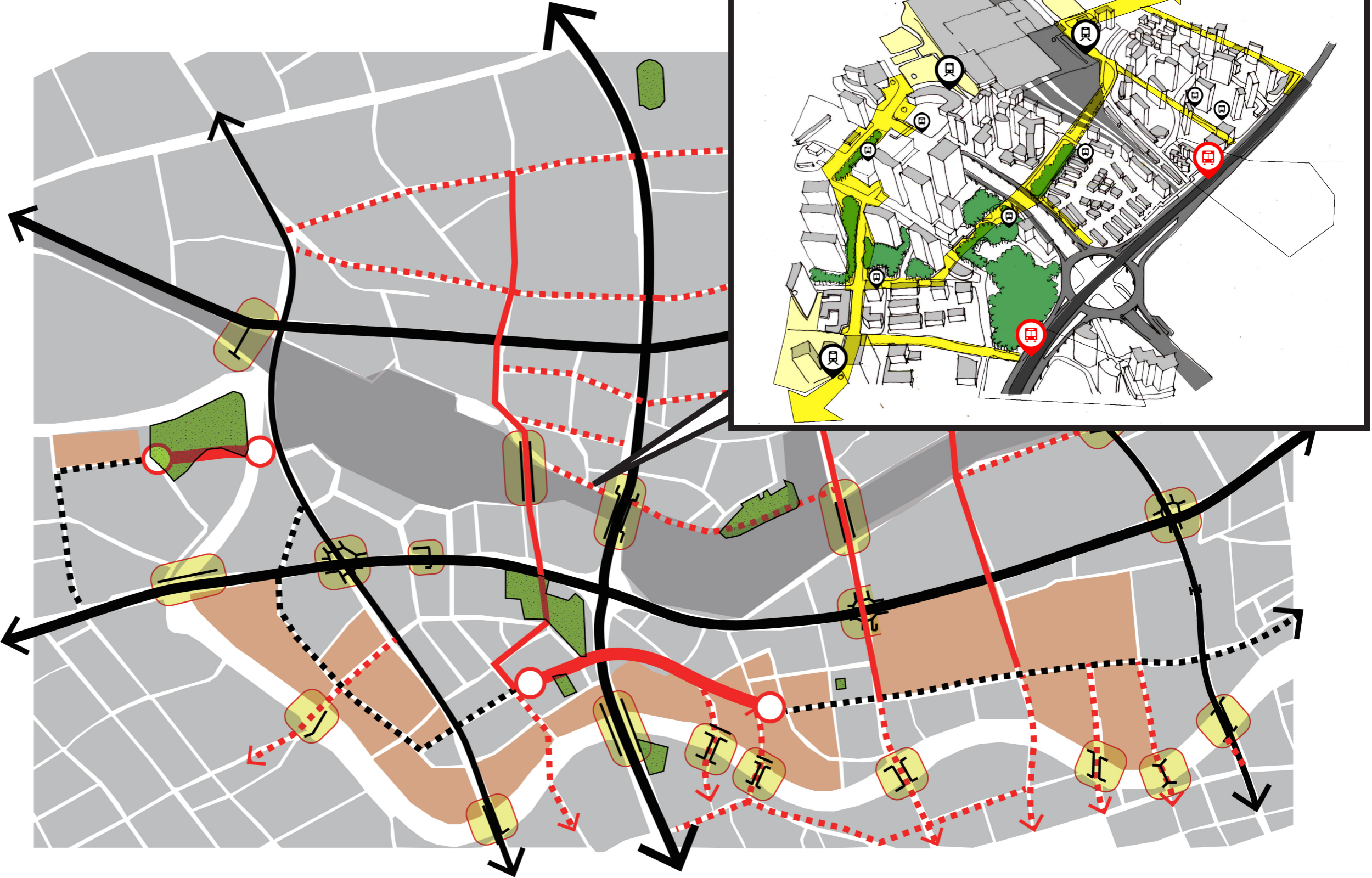
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Traffic operation
Proposed Traffic Structure

-  Railway Station
-  Railway Services
-  Urban Fabric
-  Vehicle Roads
-  Walking Routes
-  Links to bus stops
-  New roads
-  Footbridge
-  Pedestrian nodes
-  Developing areas
-  Green space



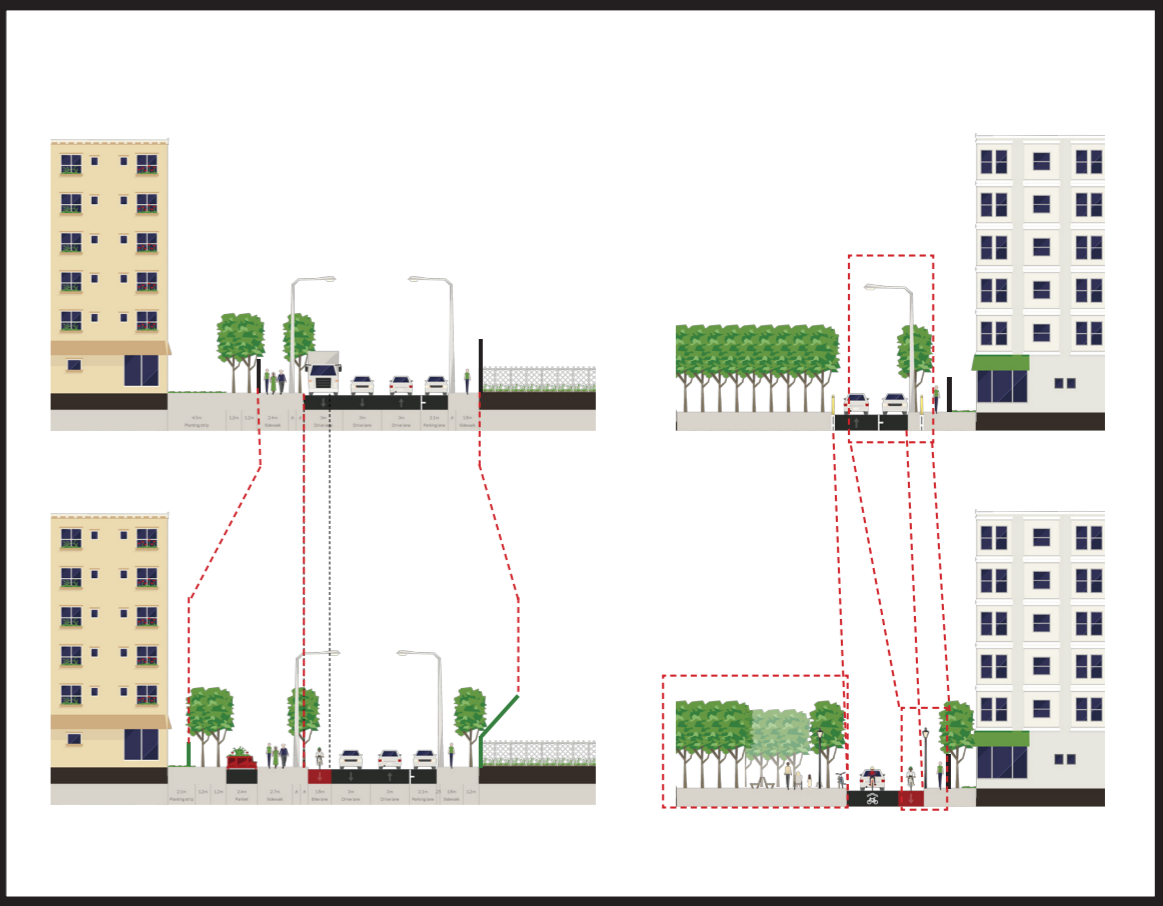
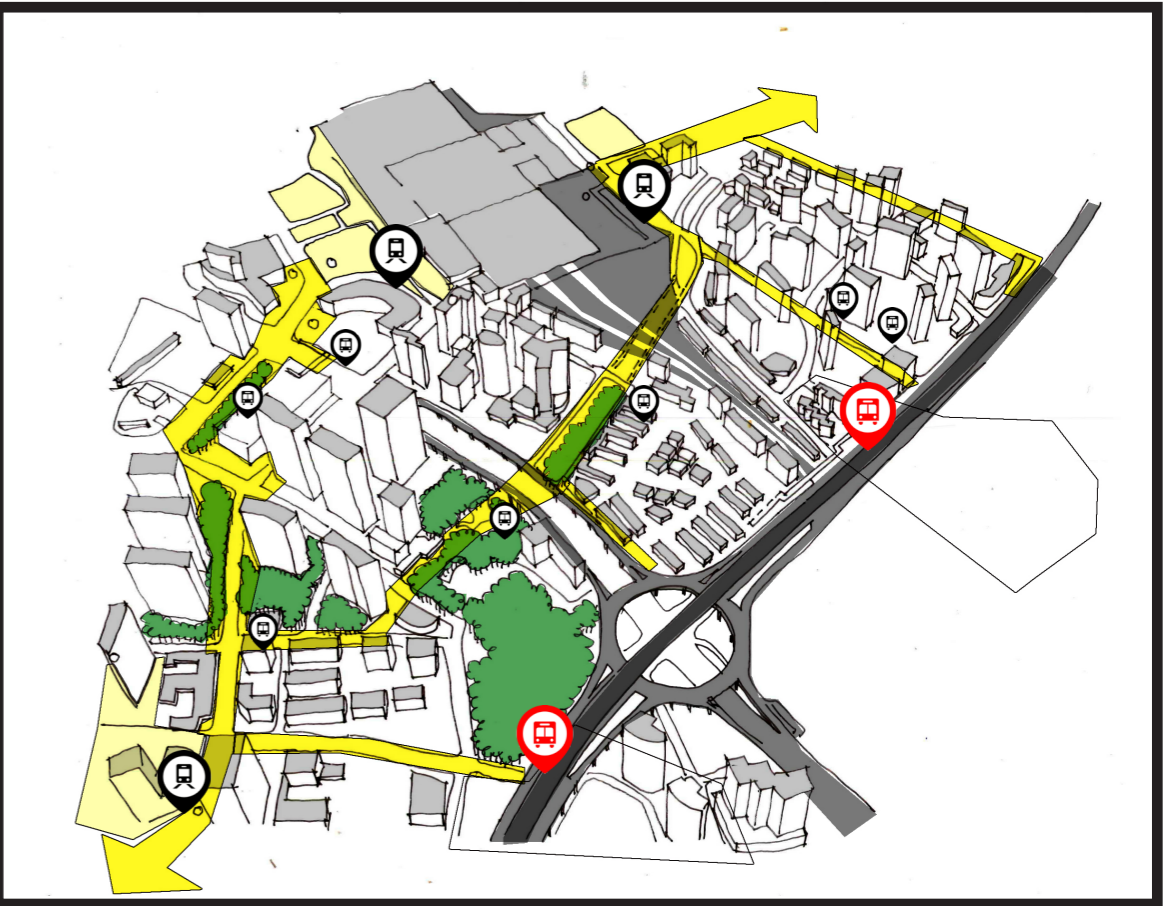
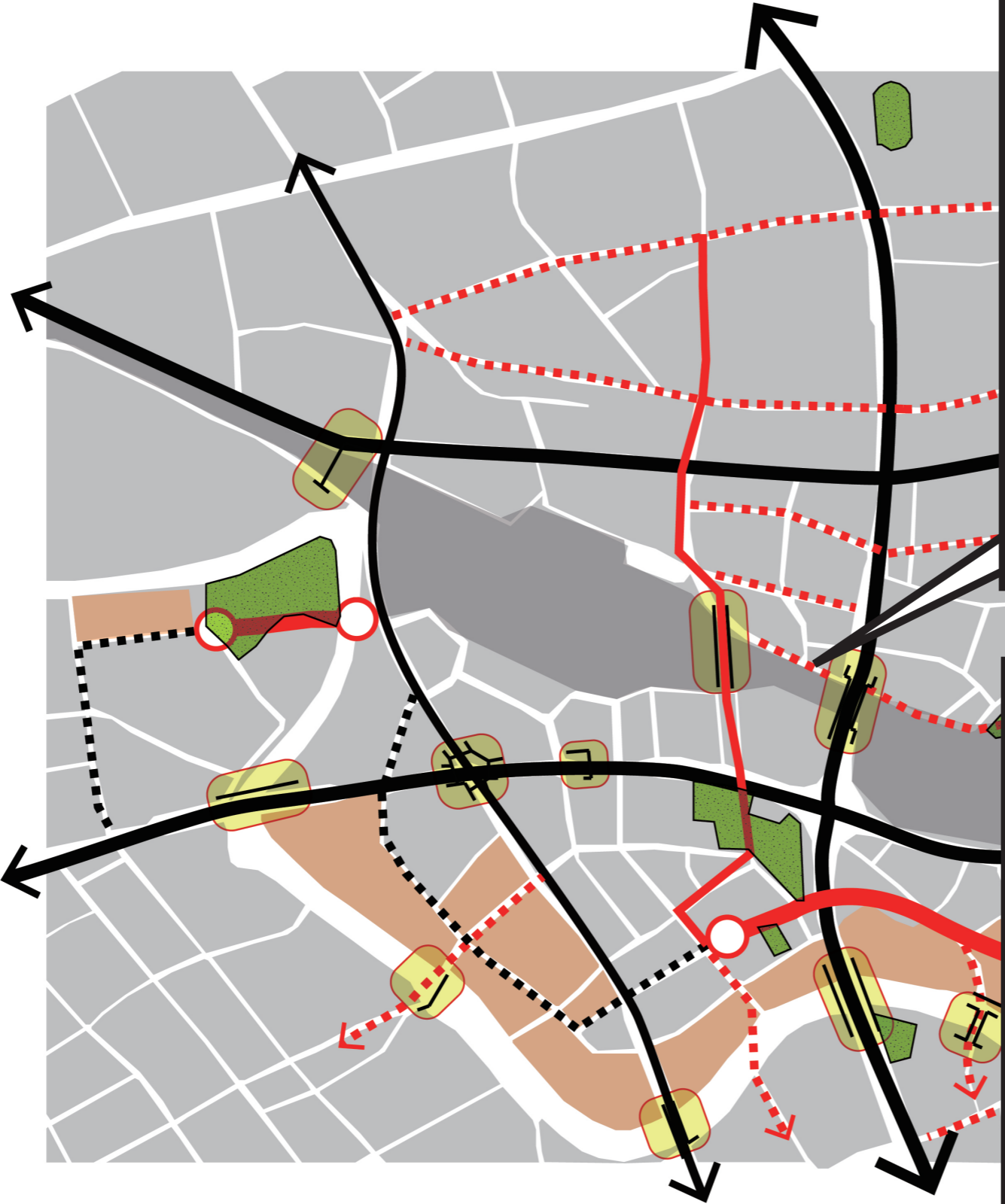
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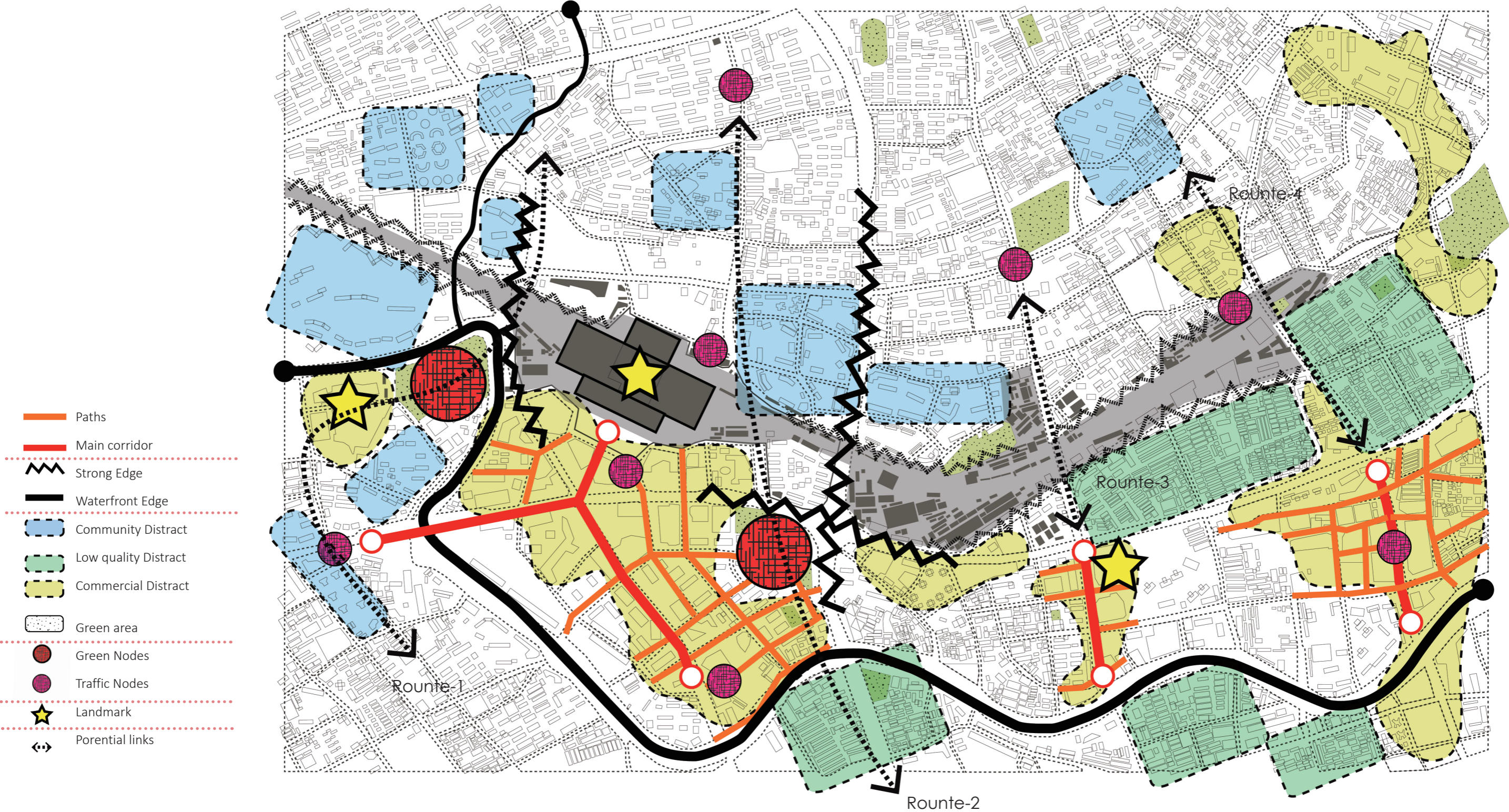
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All in all, for new proposal, the following movements are encouraged, namely block redistribution, adding extra roads, introducing slow traffic, the road section optimization and dead-ends relink.

100M 200M 500M

Urban identity

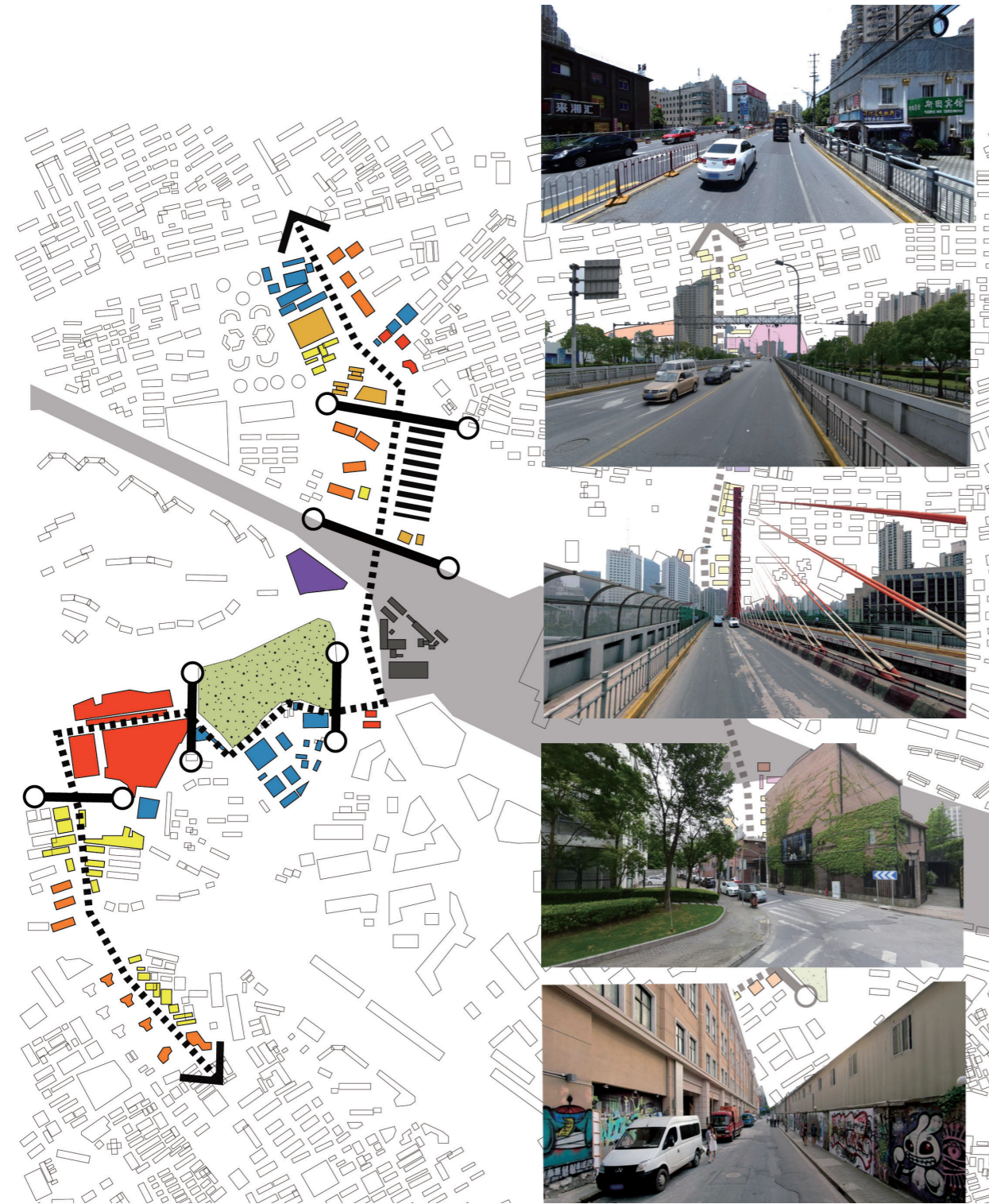
Mental Map by Kevin Lynch



Lynch proposes that these mental maps consist of five elements: (1) paths: routes along which people move throughout the city; (2) edges: boundaries and breaks in continuity; (3) districts: areas characterized by common characteristics; (4) nodes: strategic focus points for orientation like squares and junctions; and (5) landmarks: external points of orientation, usually a easily identifiable physical object in the urban landscape. Among these five elements, paths are much more important, since they contribute to the urban mobility. According to his theory, four paths are standing out, showing more potentials due to the link more elements than the other paths.

Three indexes for describing the street atmosphere

the degree of mix use
the presence of greenery
the skyline



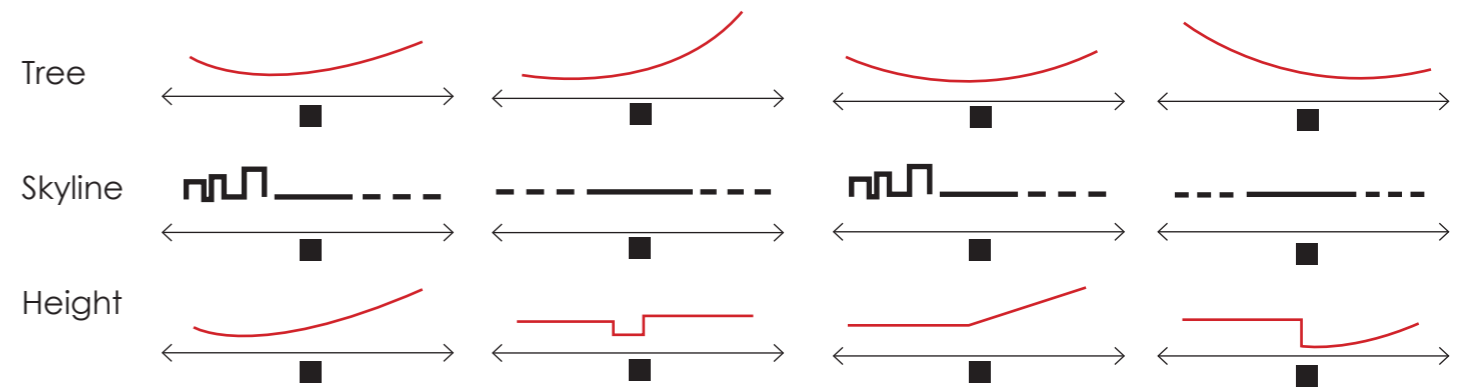
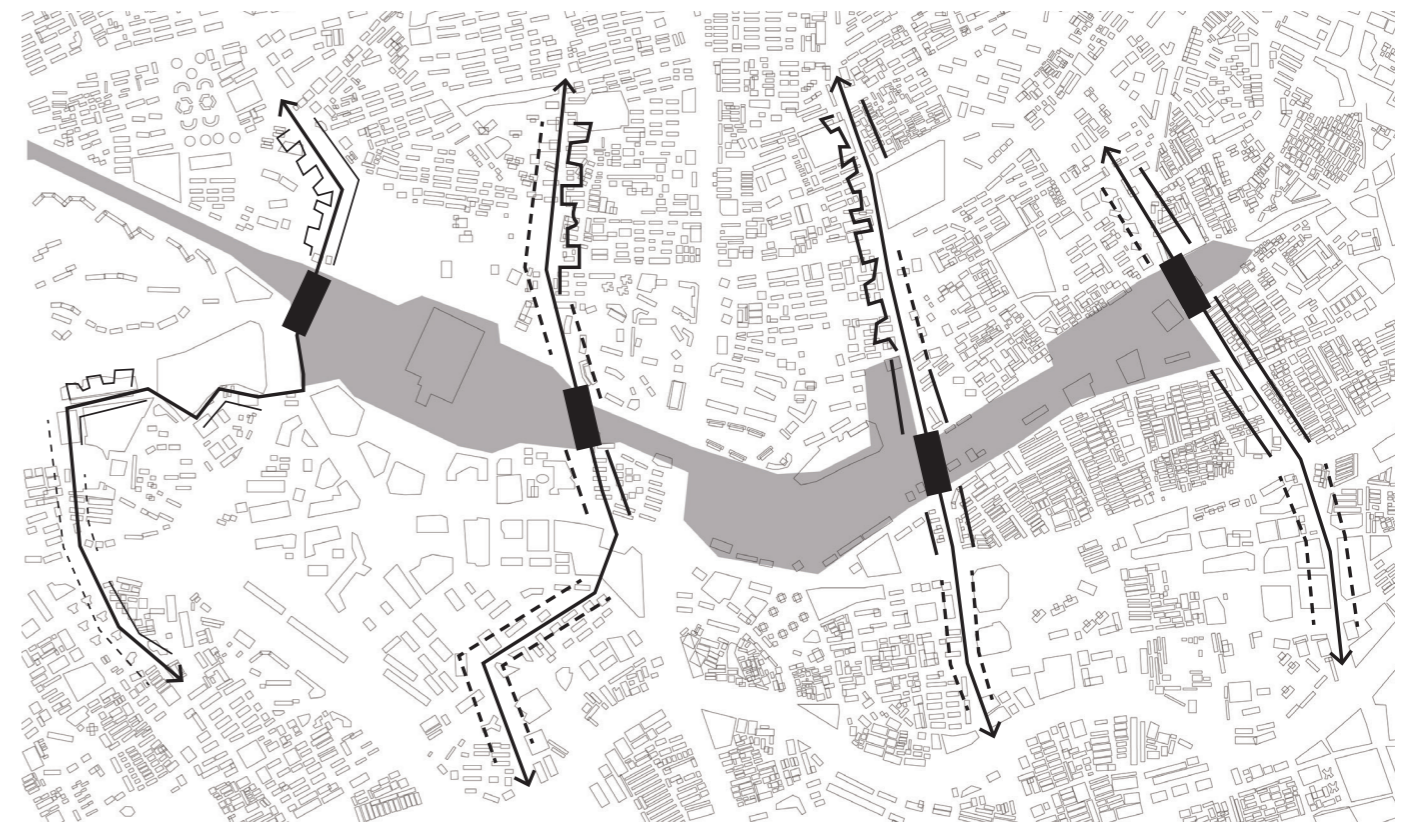
1. Complete & continuous



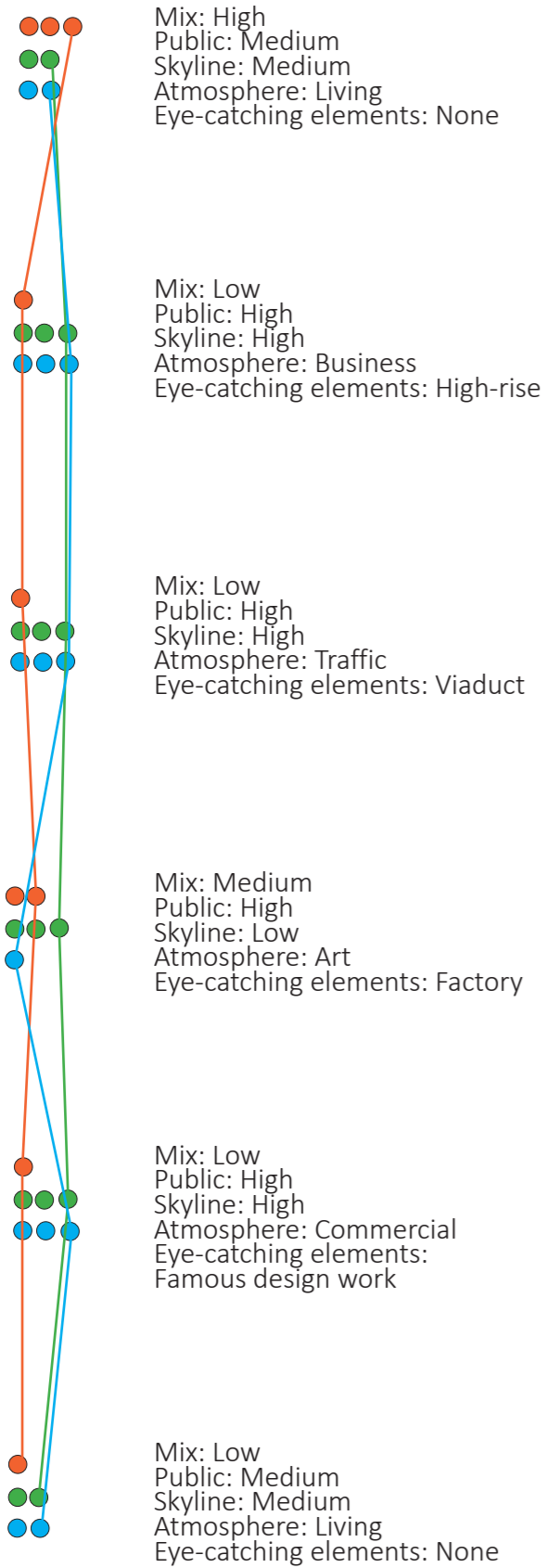
2. Varied & continuous



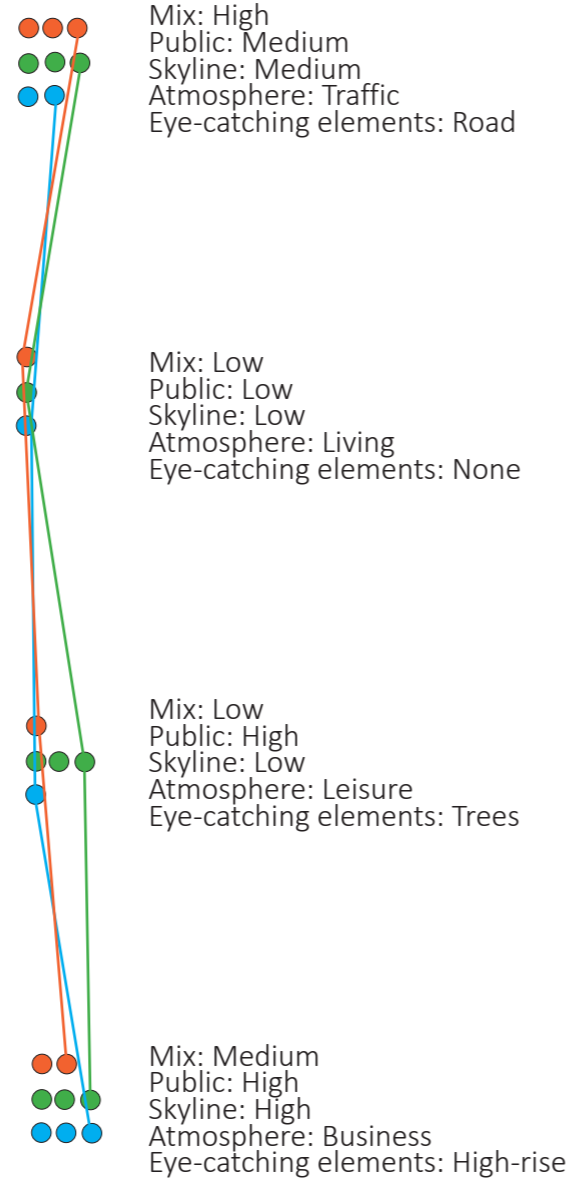
3. Varied & seperated



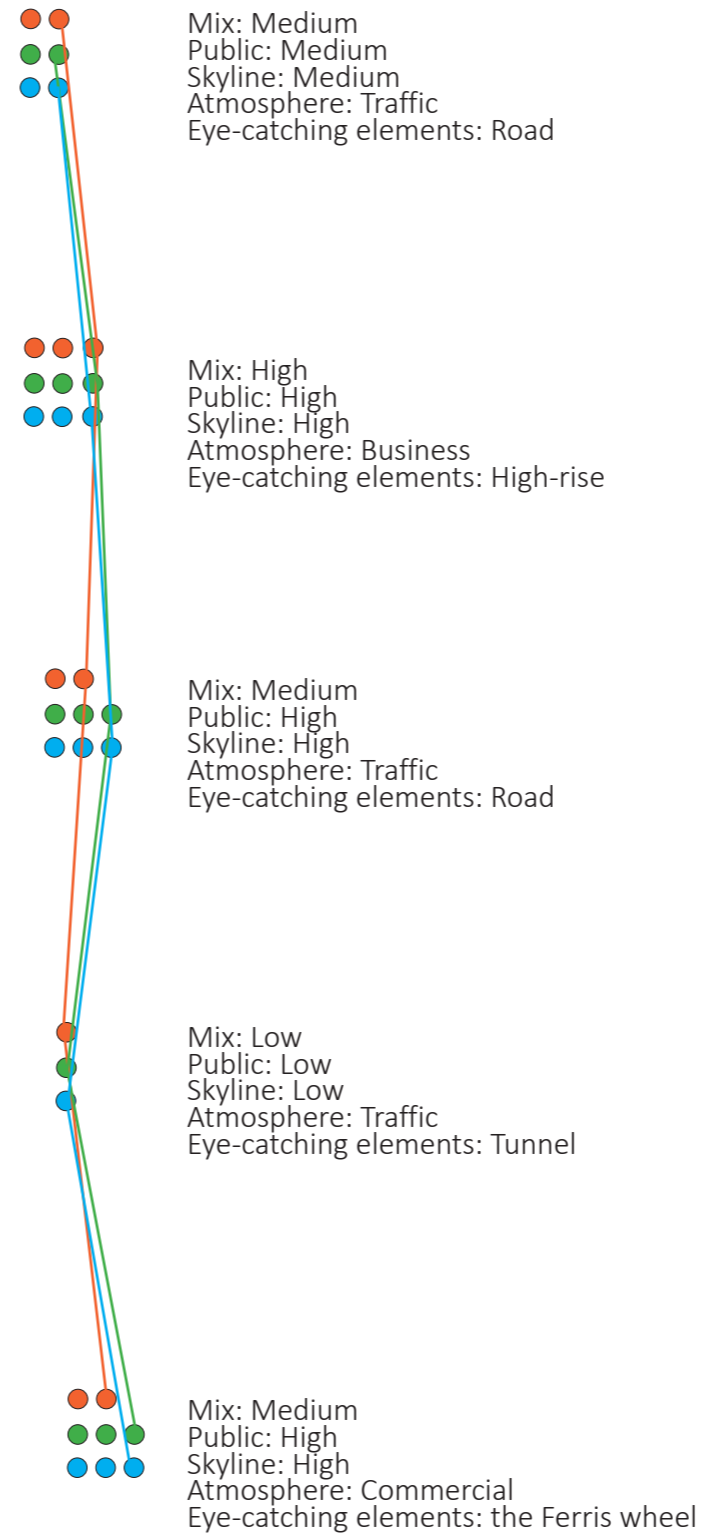
Route-1



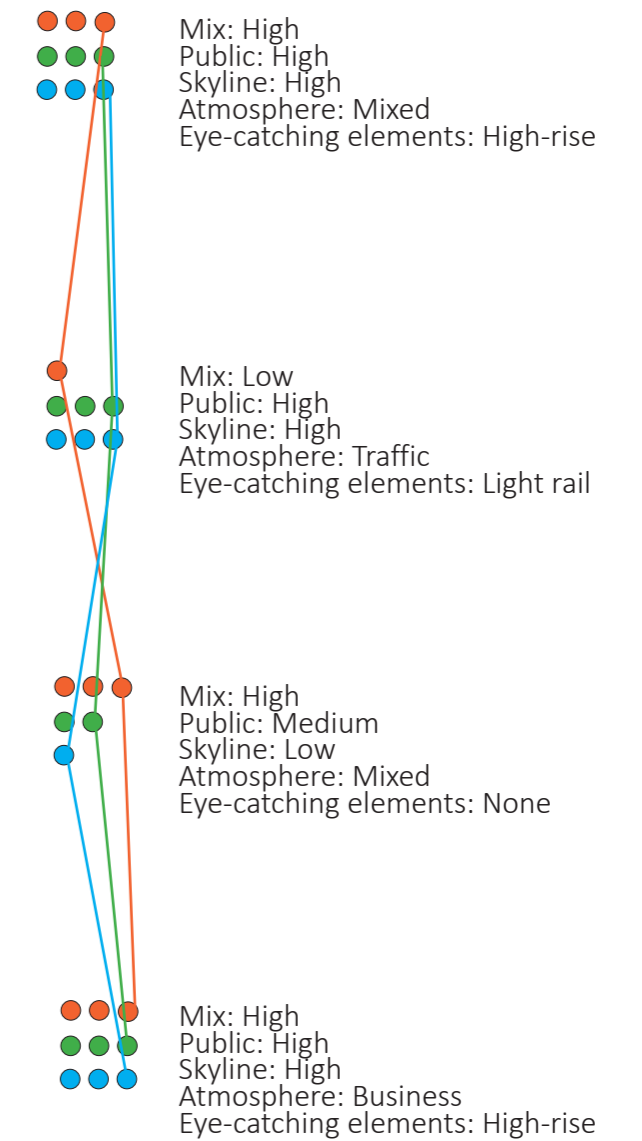
Route-2



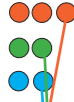
Route-3



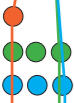
Route-4




Route-1




Mix: High
Public: Medium
Skyline: Medium
Atmosphere: Living
Eye-catching elements: None




Mix: Low
Public: High
Skyline: High
Atmosphere: Business
Eye-catching elements: High-rise




Mix: Low
Public: High
Skyline: High
Atmosphere: Traffic
Eye-catching elements: Viaduct



Mix: Medium
Public: High
Skyline: Low
Atmosphere: Art
Eye-catching elements: Factory




Mix: Low
Public: High
Skyline: High
Atmosphere: Commercial
Eye-catching elements: Famous design work




Mix: Low
Public: Medium
Skyline: Medium
Atmosphere: Living
Eye-catching elements: None


Route-2




Mix: High
Public: Medium
Skyline: Medium
Atmosphere: Traffic
Eye-catching elements: Road



Mix: Low
Public: Low
Skyline: Low
Atmosphere: Living
Eye-catching elements: None




Mix: Low
Public: High
Skyline: Low
Atmosphere: Leisure
Eye-catching elements: Trees




Mix: Medium
Public: High
Skyline: High
Atmosphere: Business
Eye-catching elements: High-rise


Route-3




Mix: Medium
Public: Medium
Skyline: Medium
Atmosphere: Traffic
Eye-catching elements: Road




Mix: High
Public: High
Skyline: High
Atmosphere: Business
Eye-catching elements: High-rise



Mix: Medium
Public: High
Skyline: High
Atmosphere: Traffic
Eye-catching elements: Road




Mix: Low
Public: Low
Skyline: Low
Atmosphere: Traffic
Eye-catching elements: Tunnel




Mix: Medium
Public: High
Skyline: High
Atmosphere: Commercial
Eye-catching elements: the Ferris wheel


Route-4




Mix: High
Public: High
Skyline: High
Atmosphere: Mixed
Eye-catching elements: High-rise



Mix: Low
Public: High
Skyline: High
Atmosphere: Traffic
Eye-catching elements: Light rail

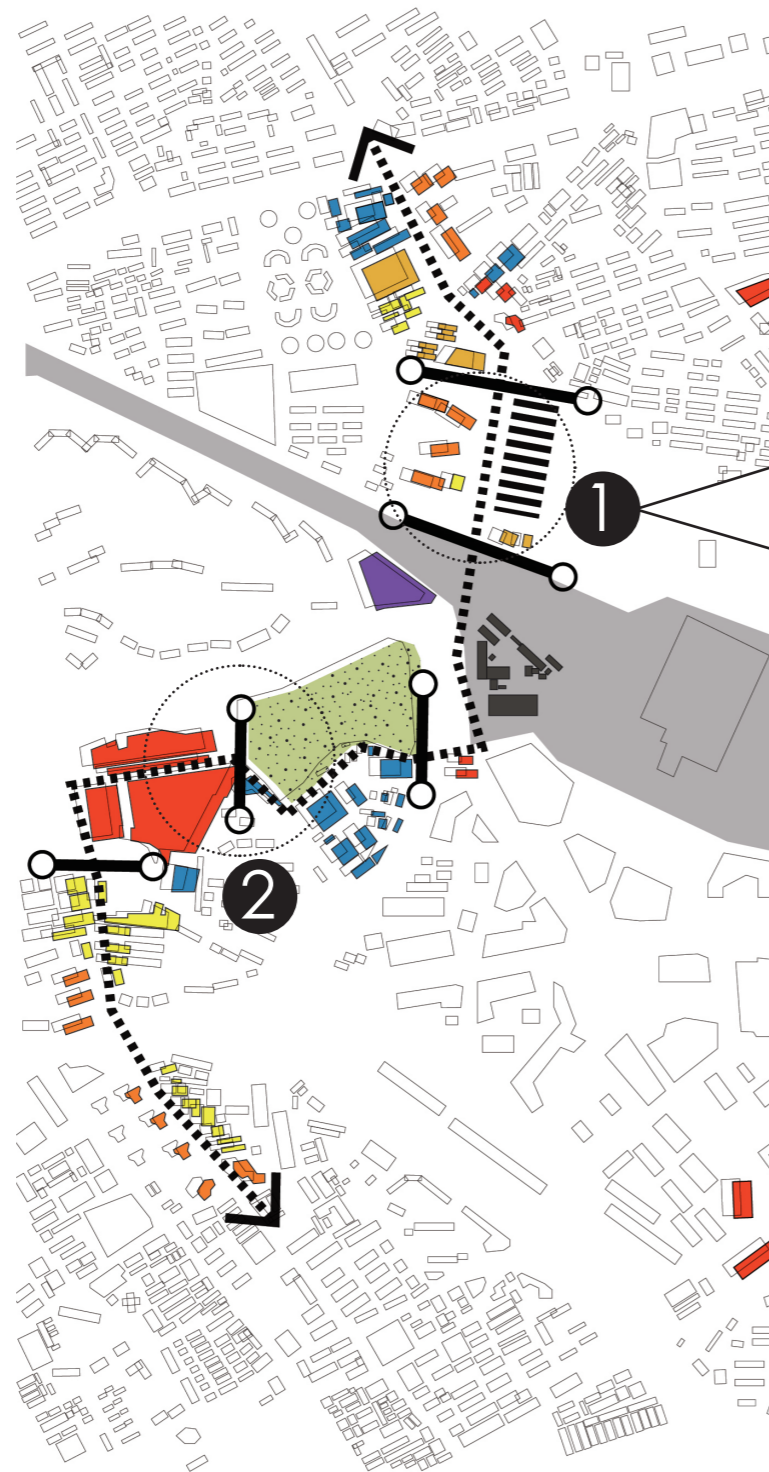


Mix: High
Public: Medium
Skyline: Low
Atmosphere: Mixed
Eye-catching elements: None



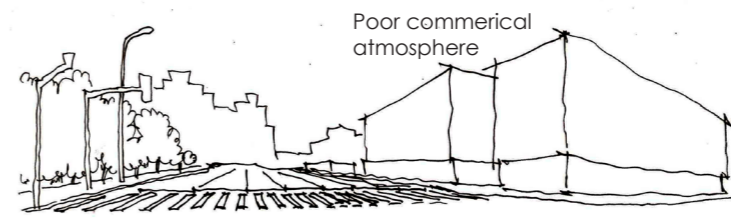
Mix: High
Public: High
Skyline: High
Atmosphere: Business
Eye-catching elements: High-rise

Potential links and selected nodes

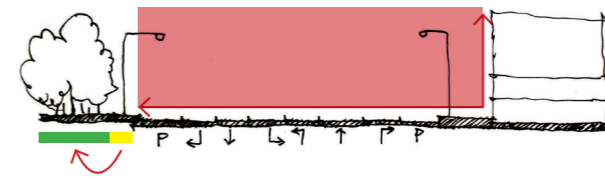


1 2

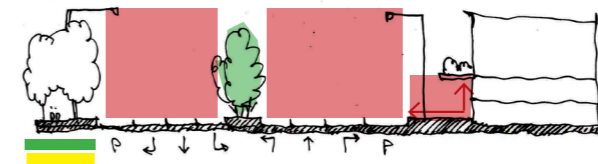
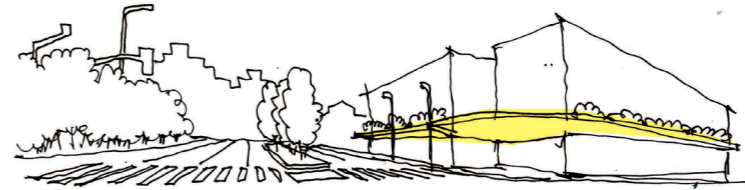
Problem:
Excessively wide roads reduce the commercial atmosphere and living environment on both sides



Negative Greenery



Suggestion:
Introduce trees to the middle of roads, adjusting the section from 8-lane roads into two four-lane roads.



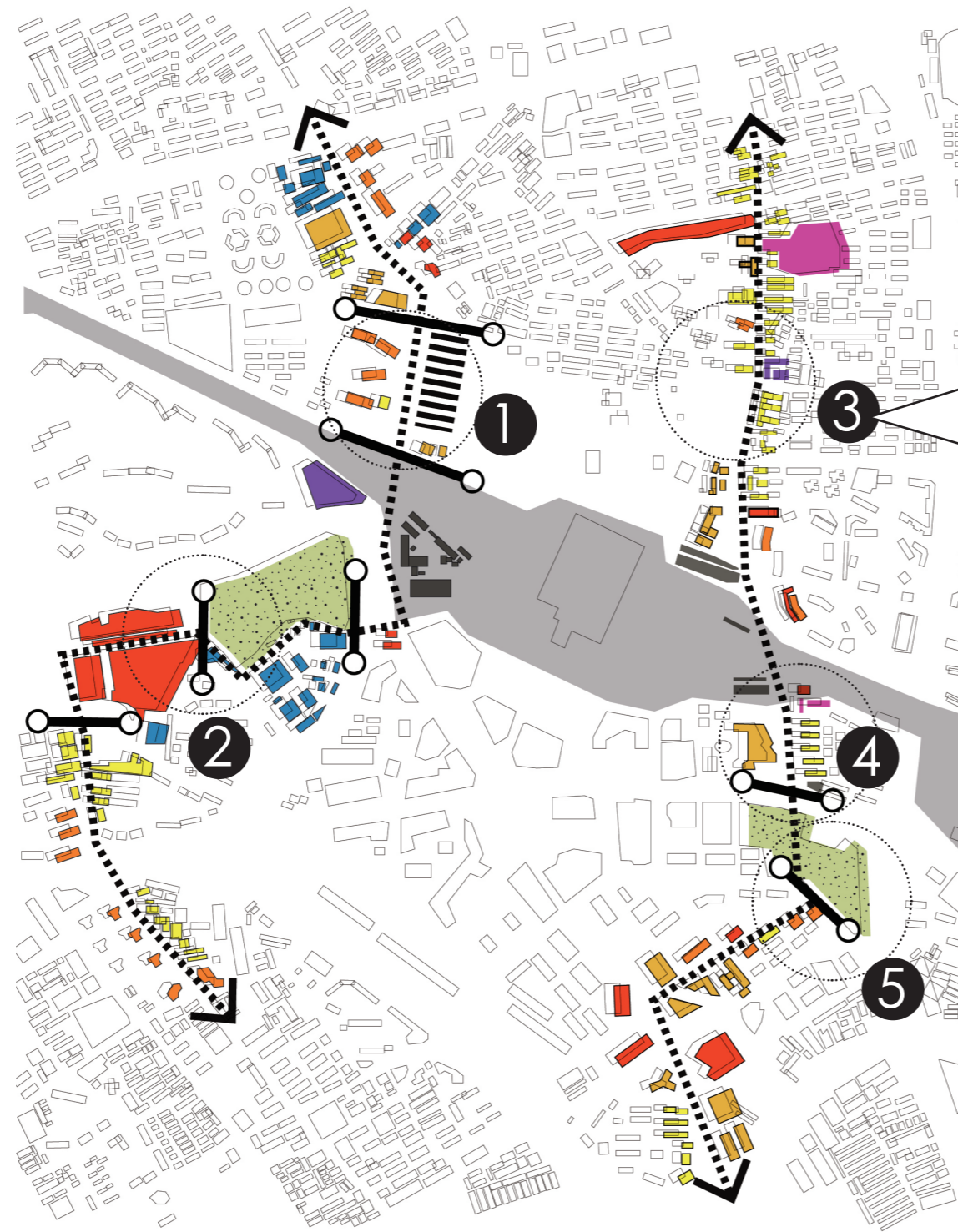
A cityscape is comprised of a series of physical elements, and a mutation of their combination may lead us to perceive a sense of boundaries. These boundaries are either sharp, subtle, or between. The qualities of these edges directly affect the identity of neighborhoods and even the city.

From the public, semi-public to private, from open streets to narrow alleys, from hustle and bustle to quiet, from Gentrification to folk customs, varied barriers request different solutions.

- Commerce
- Low-rise residential
- Medical
- Degree of 'Public'
- High-rise residential
- Park
- Degree of 'Mix'
- Skyline

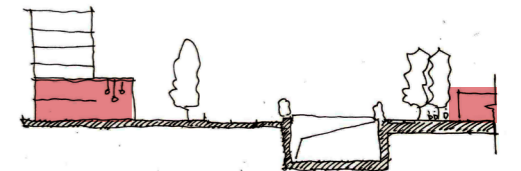
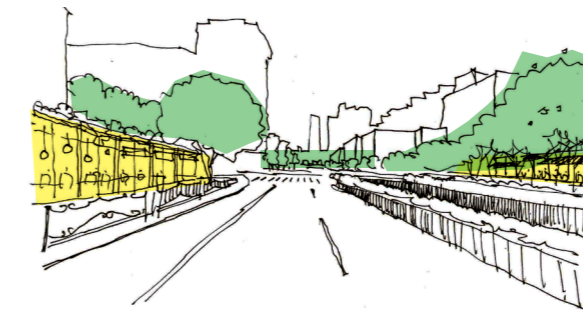
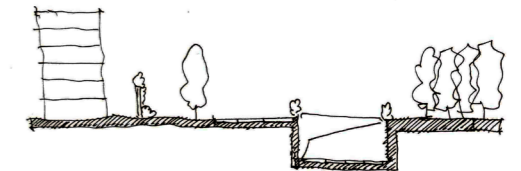


Potential links and selected nodes



3 Problem:
Radical Change of skyline

Suggestion:
Elements like rows of trees that promote linearity and visual contact could be applied. The unified pavement materials for guiding the flow of people could also be useful. These actions make the concept of connection more legible.



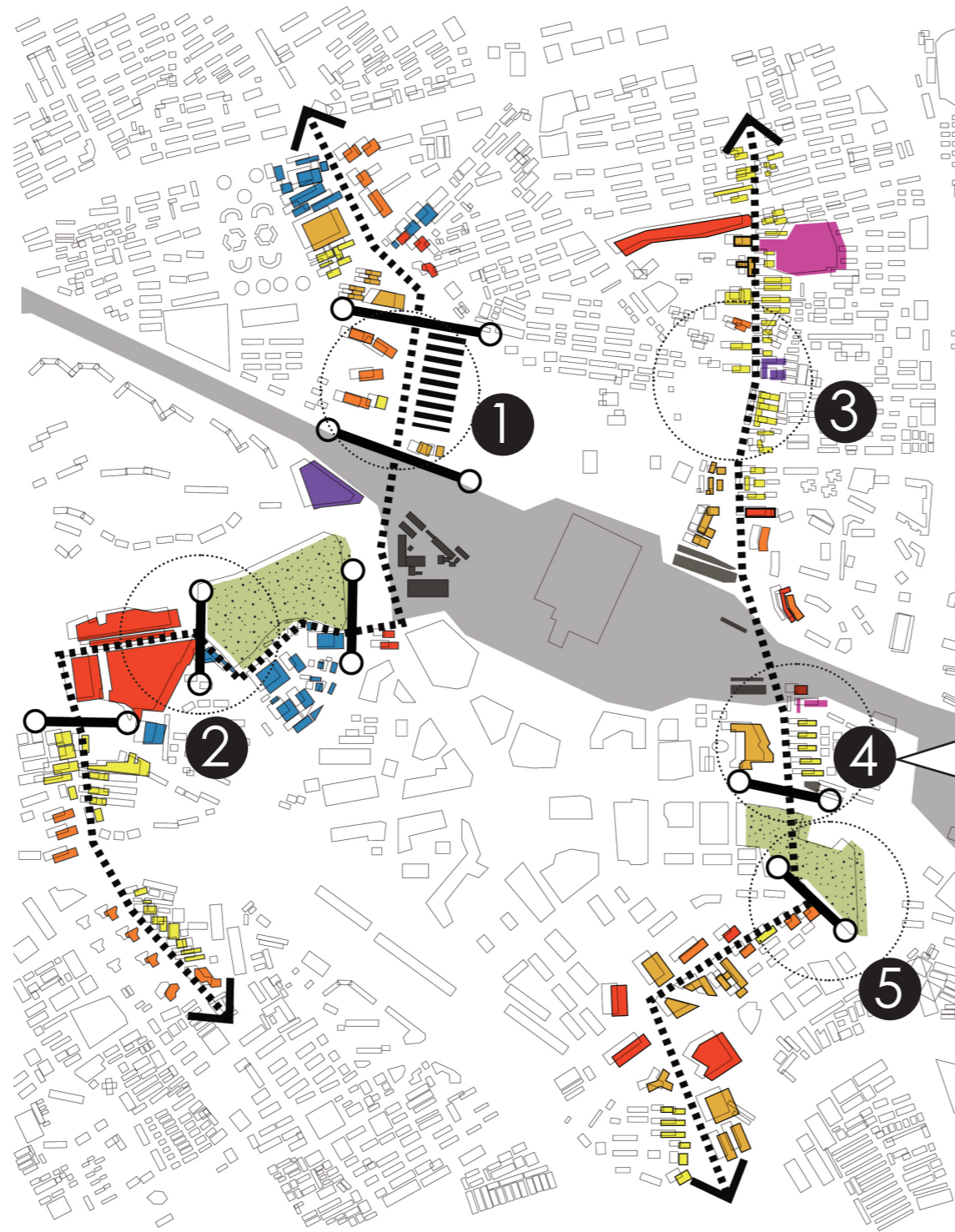
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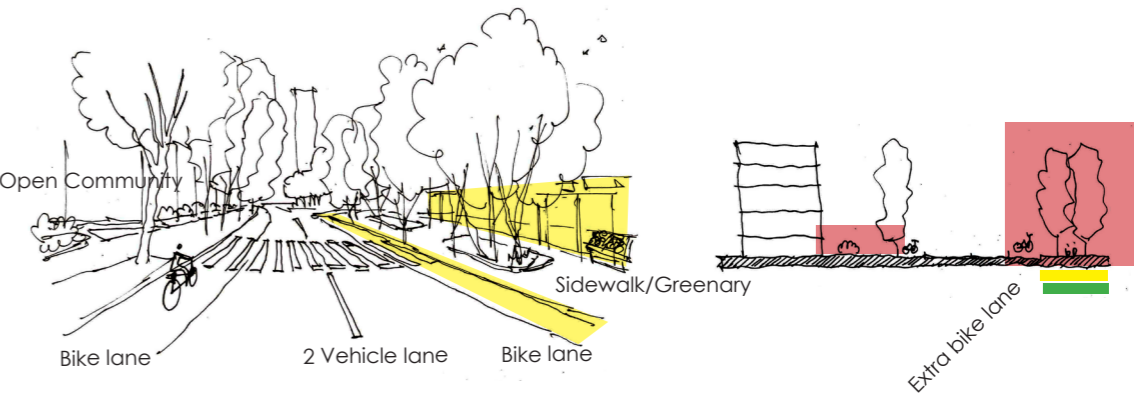
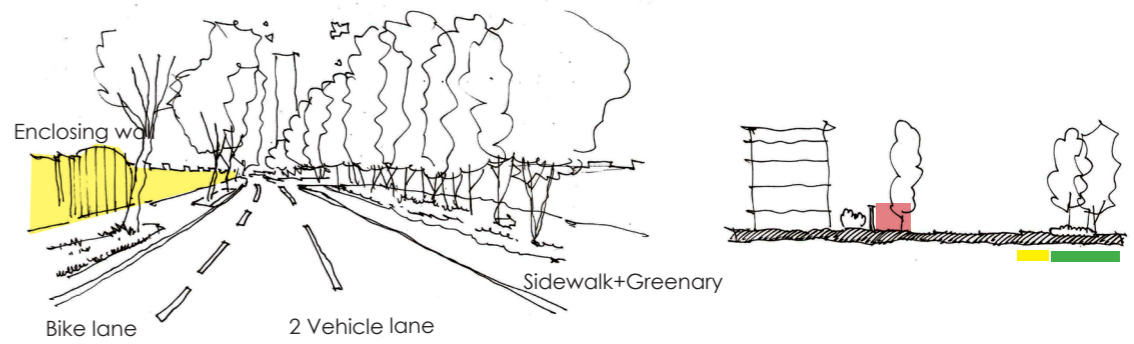
- Commerce
- Low-rise residential
- Medical
- Degree of 'Public'
- Culture
- High-rise residential
- Park
- Degree of 'Mix'
- Skyline

100M 200M 500M

Potential links and selected nodes

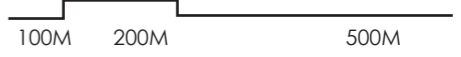


4 Problem: Private community breaks the continuity of public identity.
 Suggestion: Appropriately improve the openness of the community.

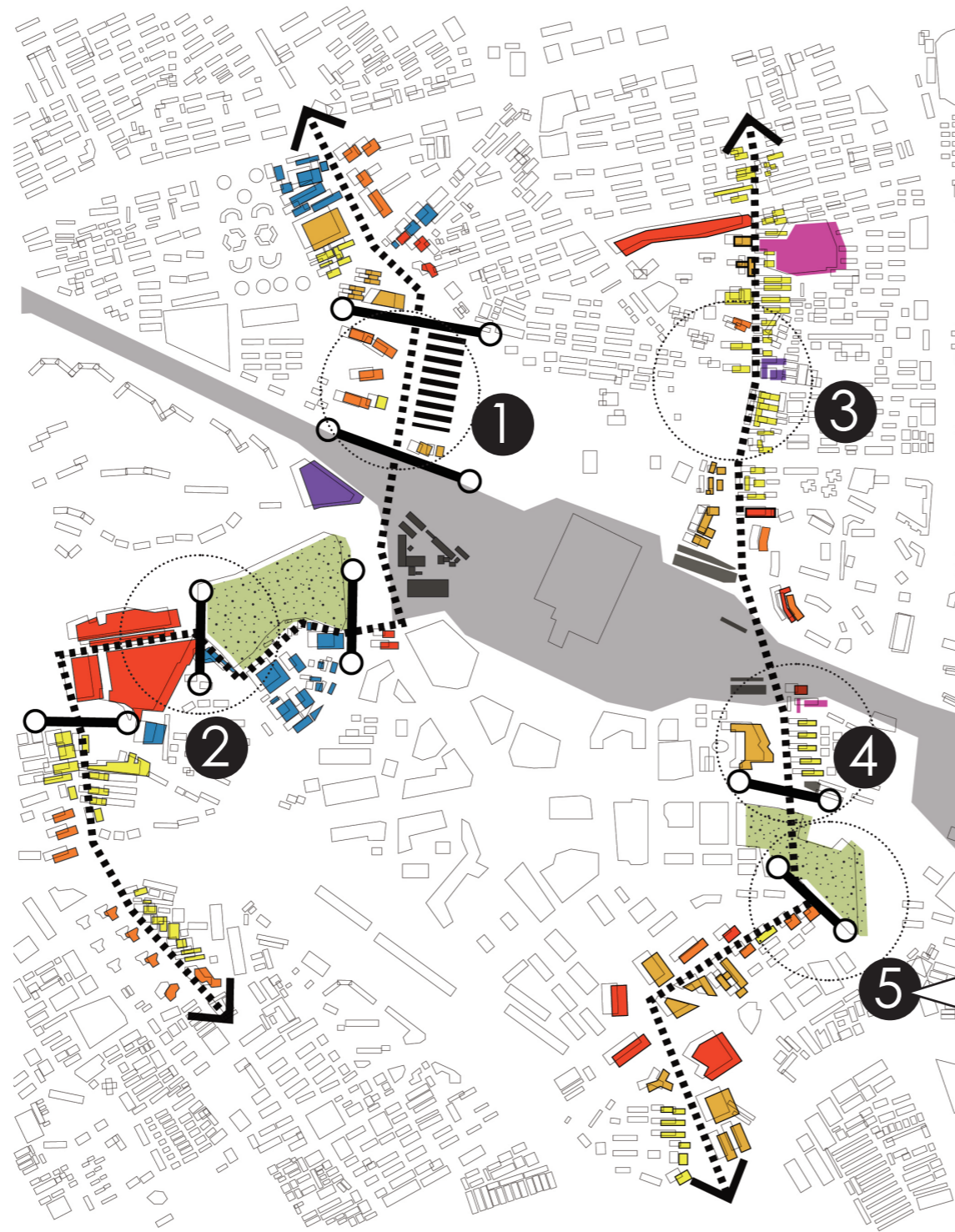


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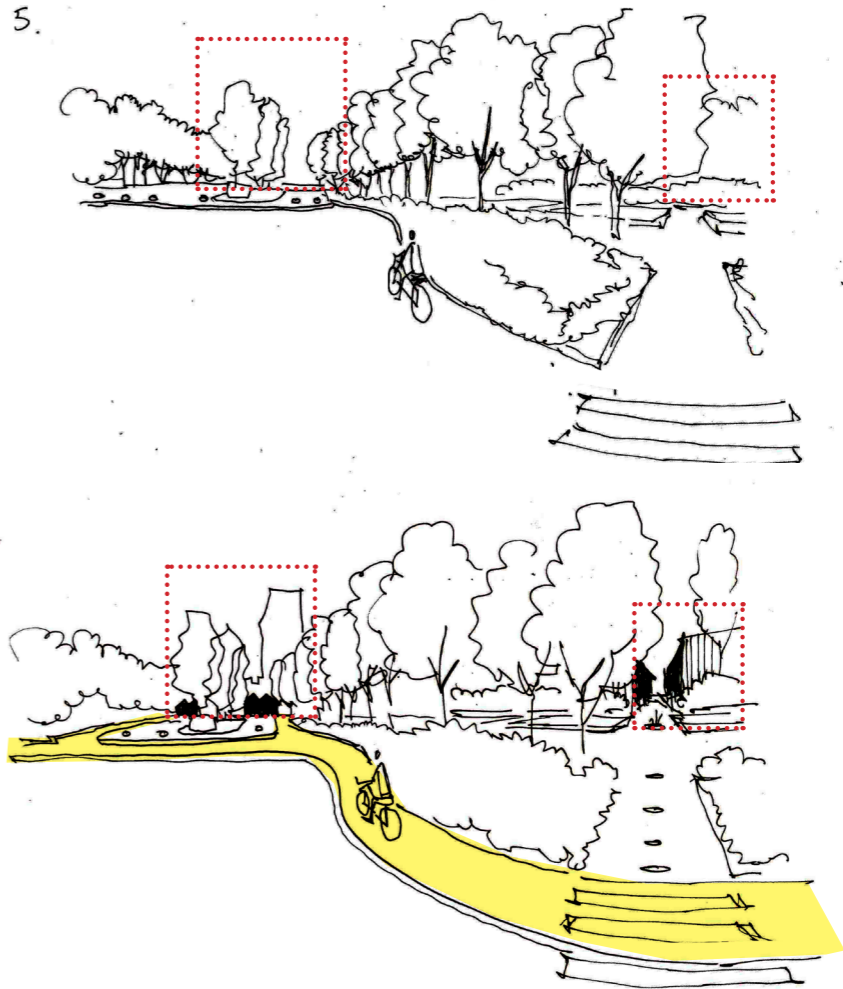


Potential links and selected nodes



5 Problem:
The tortuous road network interrupted the continuity of sight leading to the park.

Suggestion:
Create the visual corridor and strengthen the guidance.



A cityscape is comprised of a series of physical elements, and a mutation of their combination may lead us to perceive a sense of boundaries. These boundaries are either sharp, subtle, or in between. The qualities of these edges directly affect the identity of neighborhoods and even the city.

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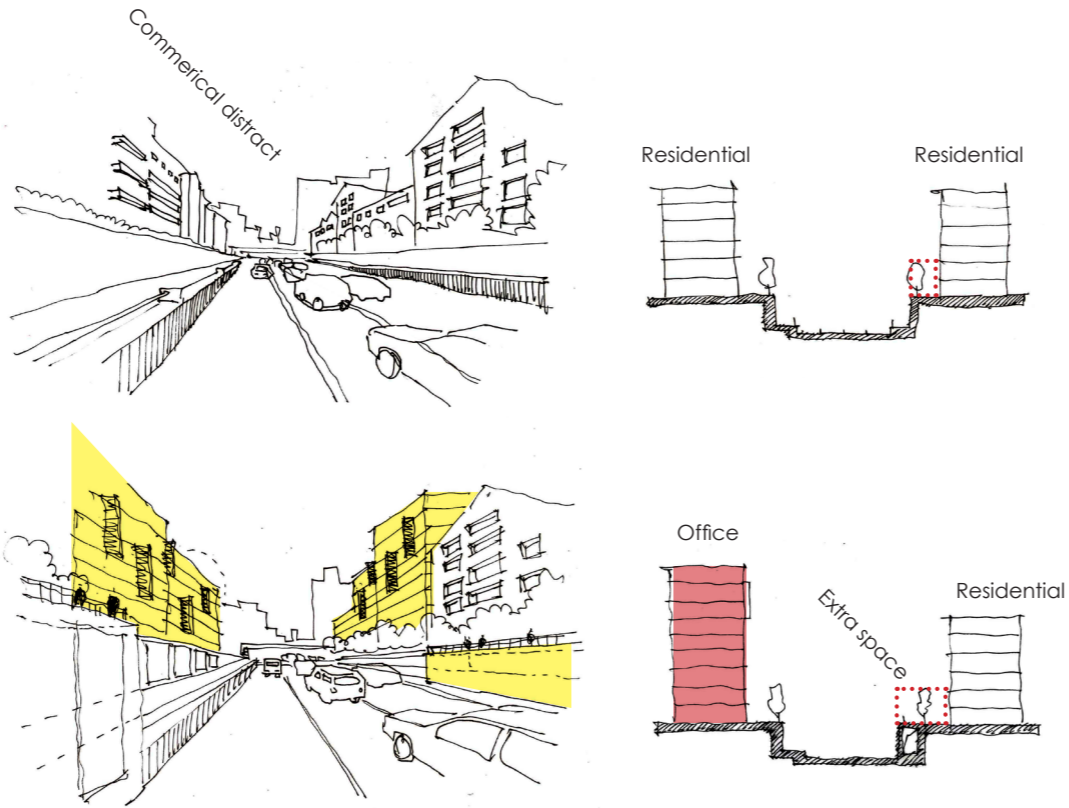


Potential links and selected nodes



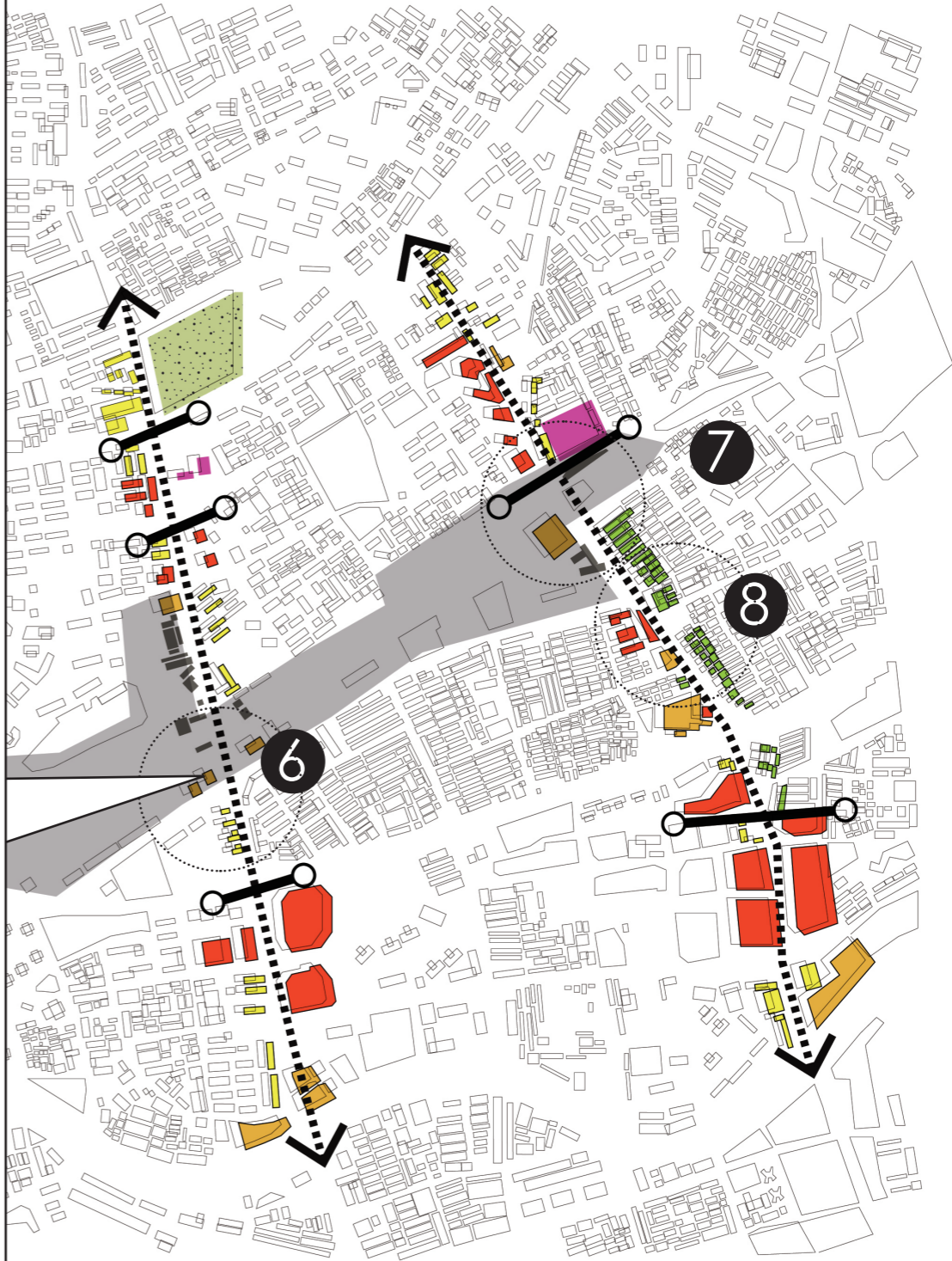
6 Problem: Traffic tunnel downgrades the living quality of the community. On the other side, the existence of residential function breaks the public identity of the whole line.

Suggestion: Replacing living functions with office buildings

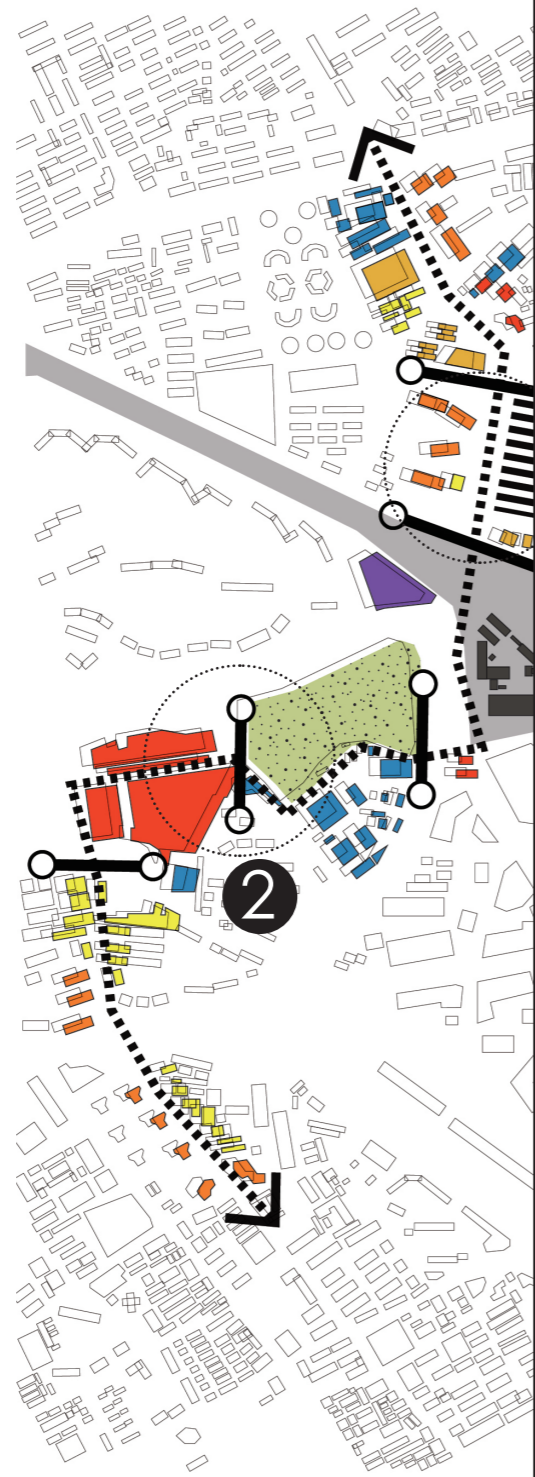


A cityscape is comprised of a series of elements that may lead us to perceive a sense of continuity between them. The qualities of these elements define the city. From the public, semi-public to private, from noisy to quiet, from Gentrification to folk...

- Commerce
- Low-rise
- Culture
- High-rise residential
- Park
- Degree of 'Mix'
- Skyline



Potential links and selected nodes

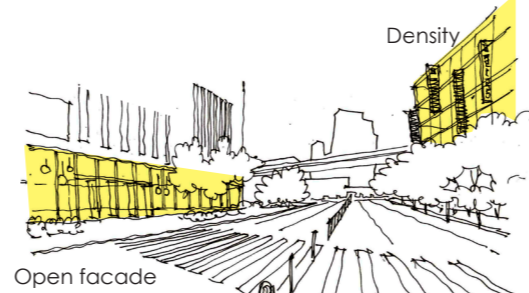
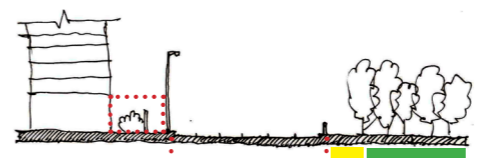
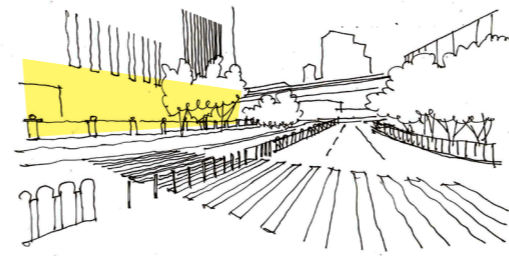


7 8

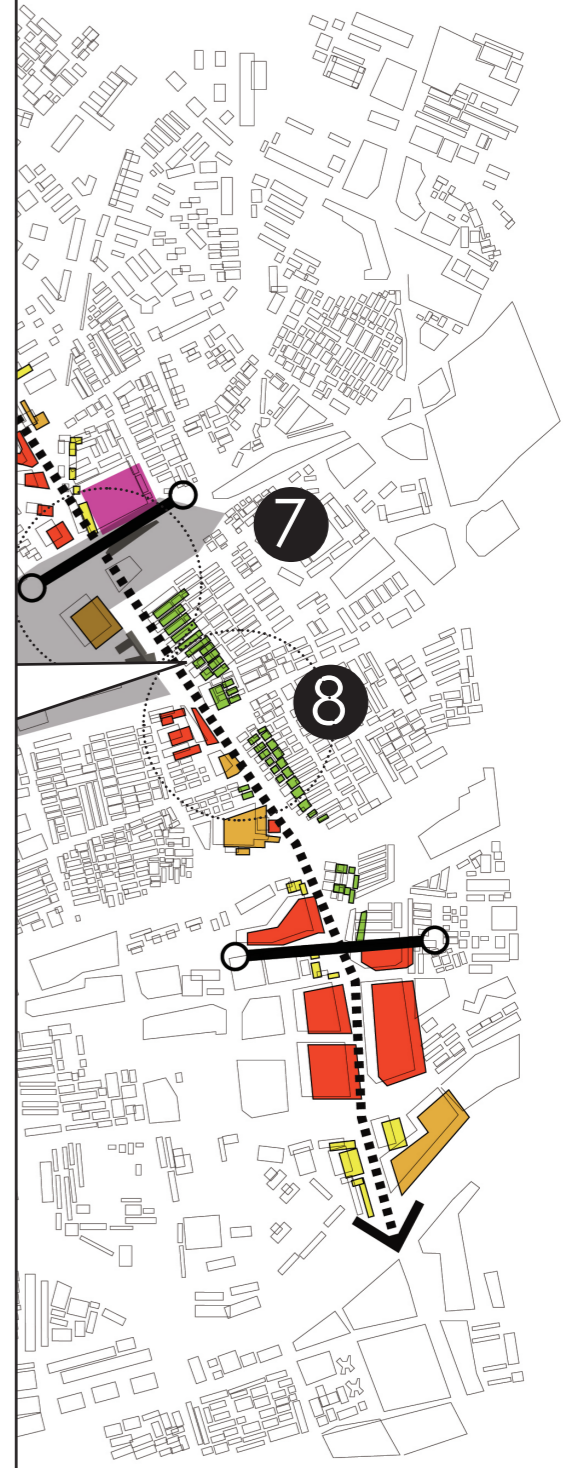
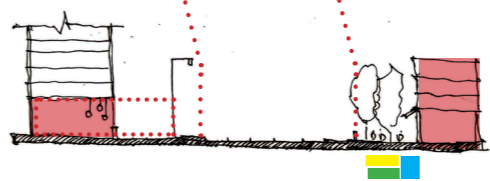
Problem:
Low degree of mixed-use, Low density

Suggestion:
Develop this traffic node into a complex node.
Demolish the low-quality buildings to free up space for possible investments.

Blind facade



Density



A cityscape is comprised of a series of physical elements, and a mutation may lead us to perceive a sense of boundaries. These boundaries are either between. The qualities of these edges directly affect the identity of neighborhood city.

From the public, semi-public to private, from open streets to narrow alleys, from quiet, from Gentrification to folk customs, varied barriers request different s

- Commerce
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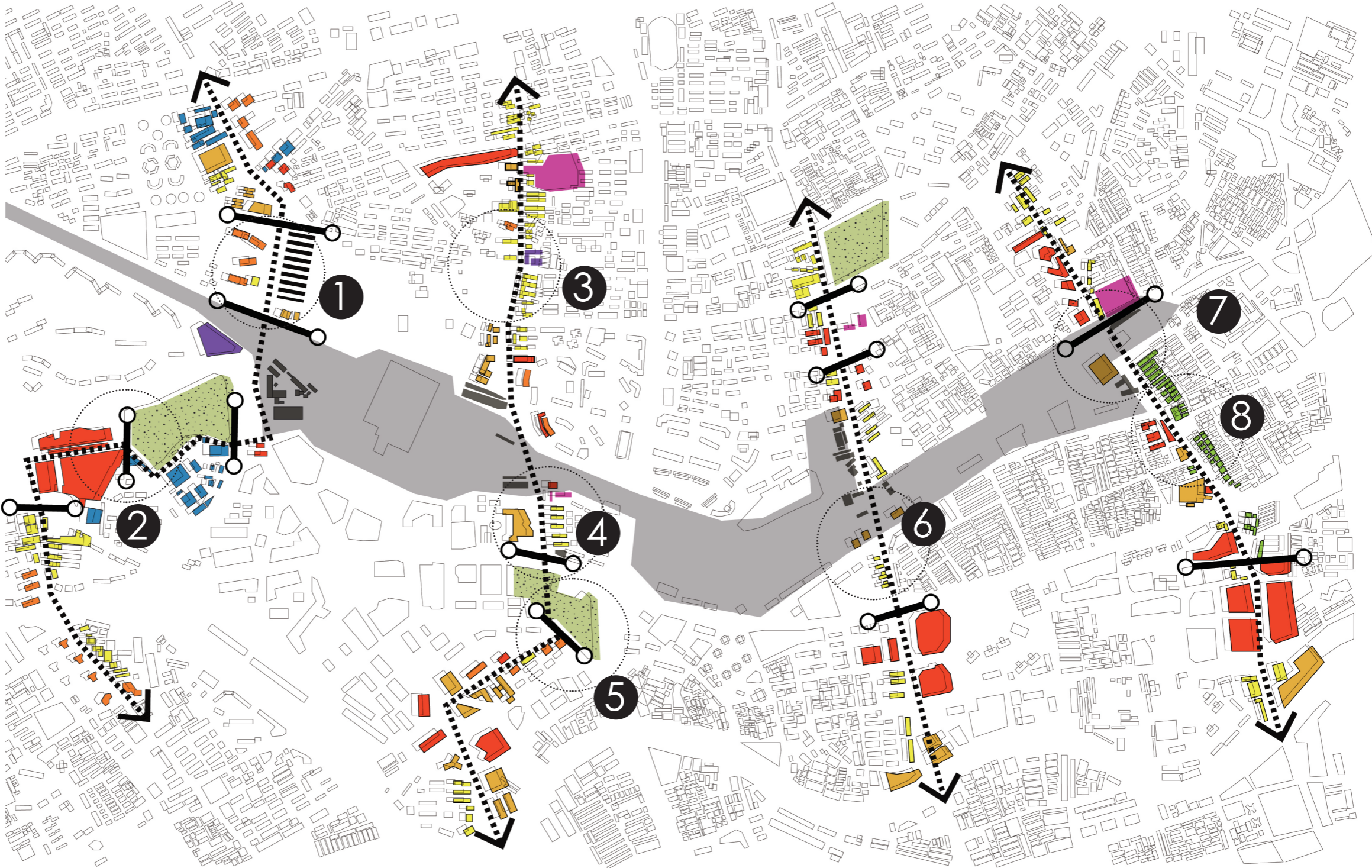
Potential links and selected nodes

Functional adjustment:
1 4 6

Visual improvement:
2 5

Road section adjustment:
3

Economic developments:
7 8



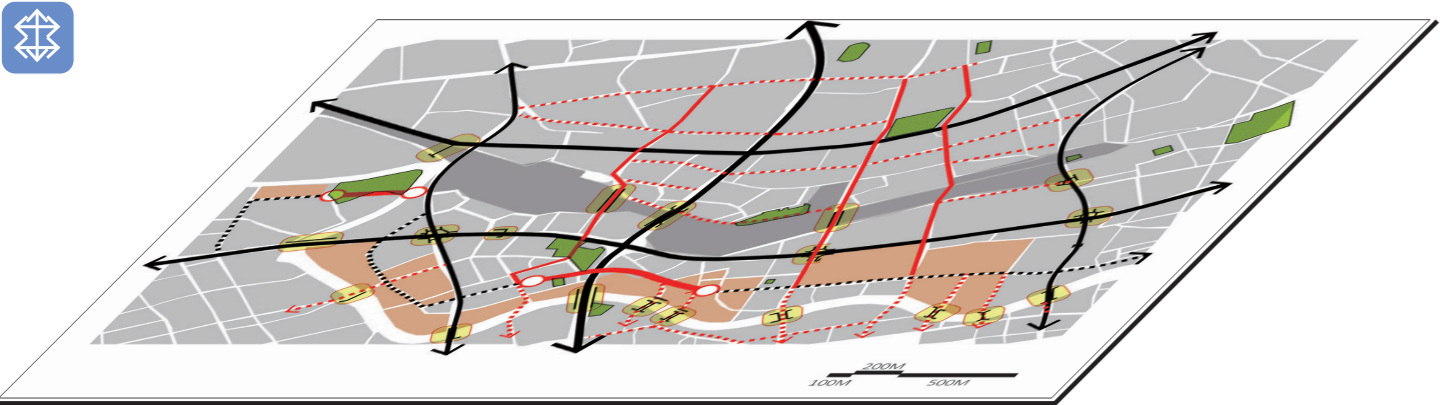
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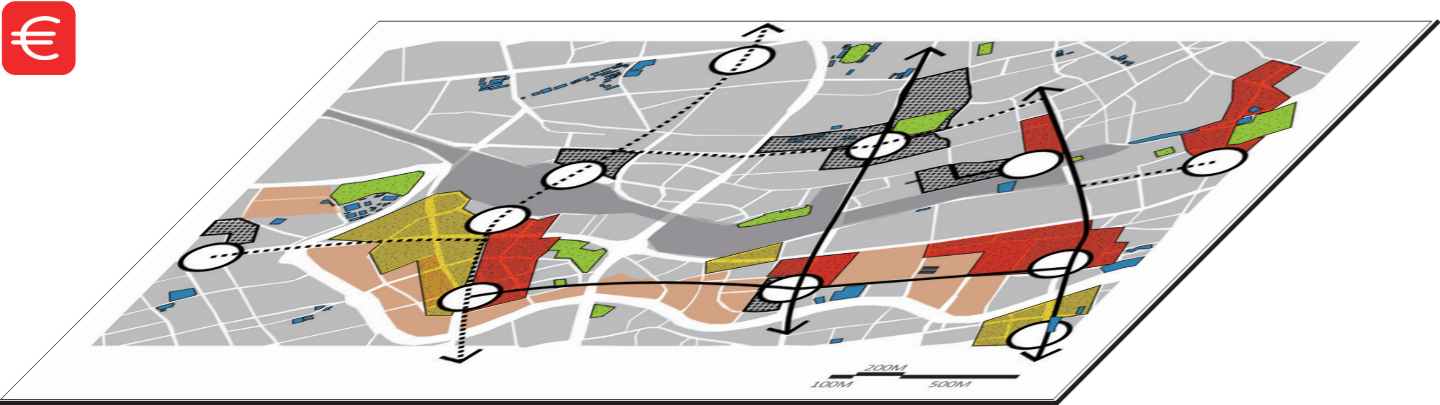
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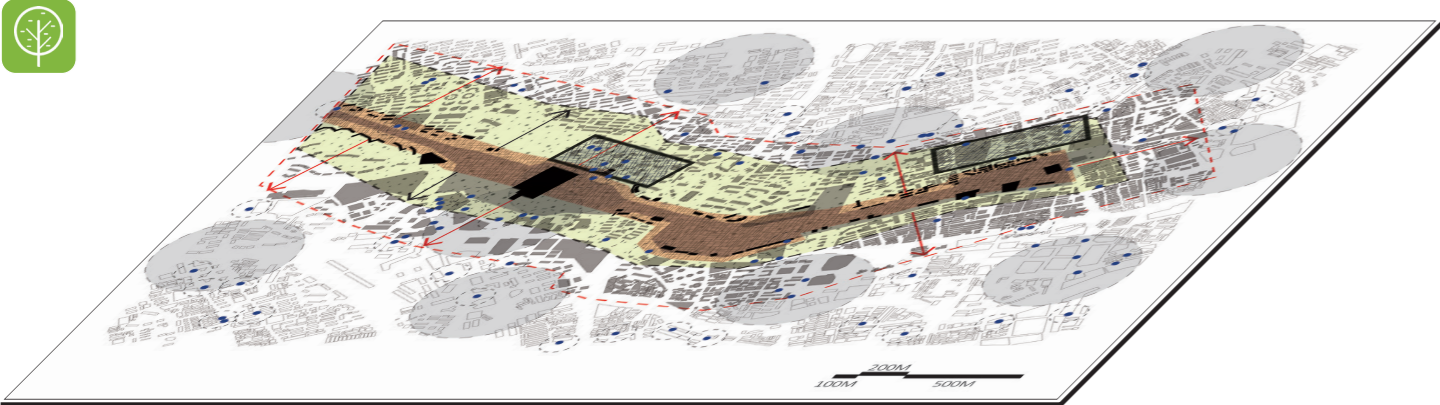
Interrelation between each proposal



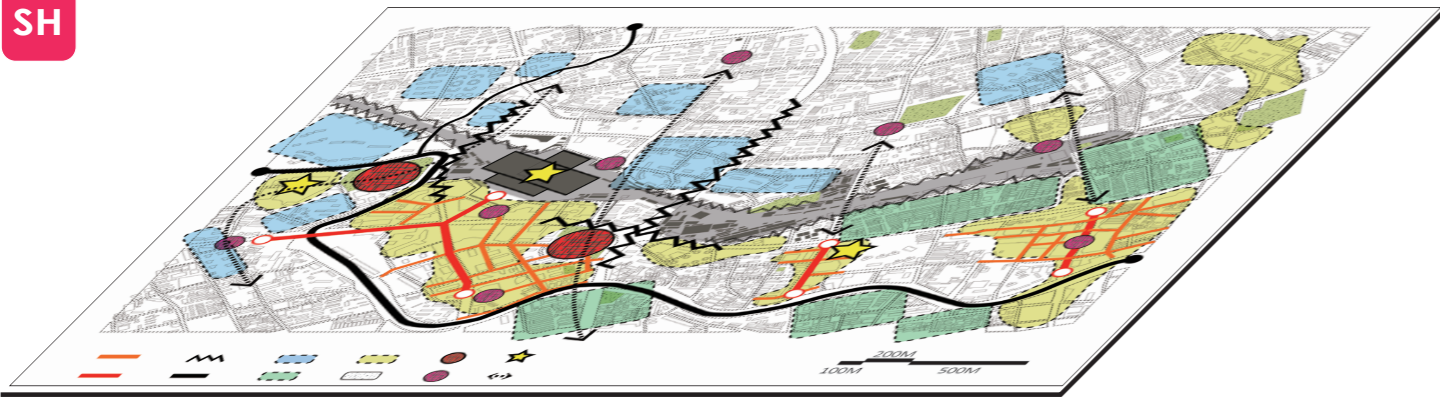
NETWORK OPERATION



ECONOMIC PERFORMANCE

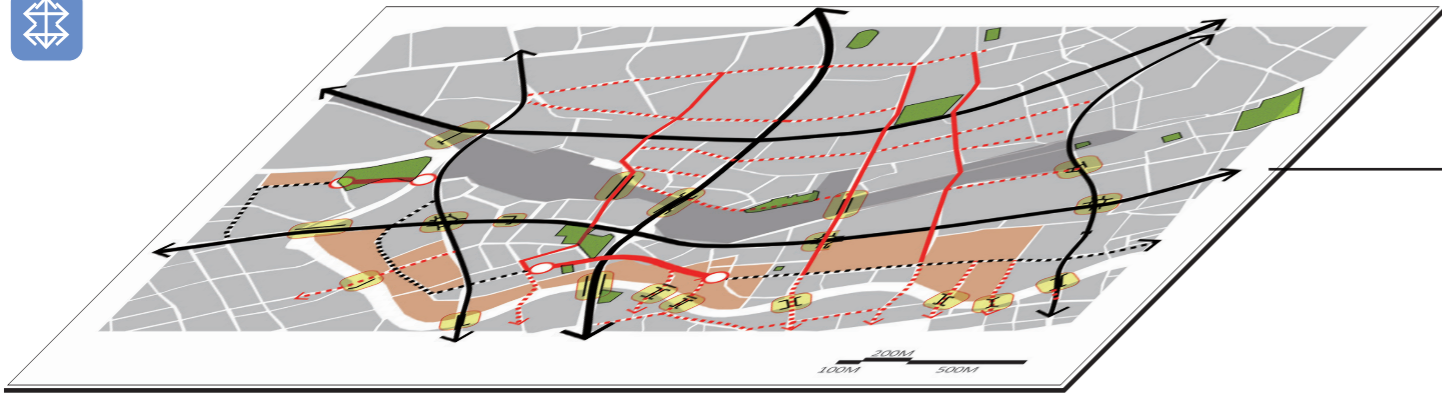


ENVIRONMENTAL QUALITY



URBAN IDENTITY

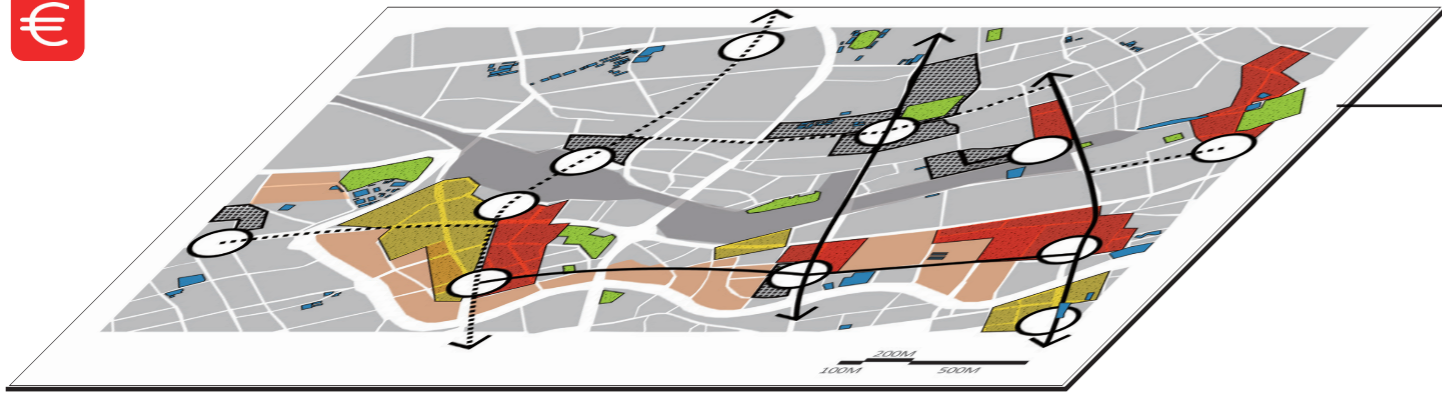
Interrelation between each proposal



NETWORK OPERATION

Designs for network operation:

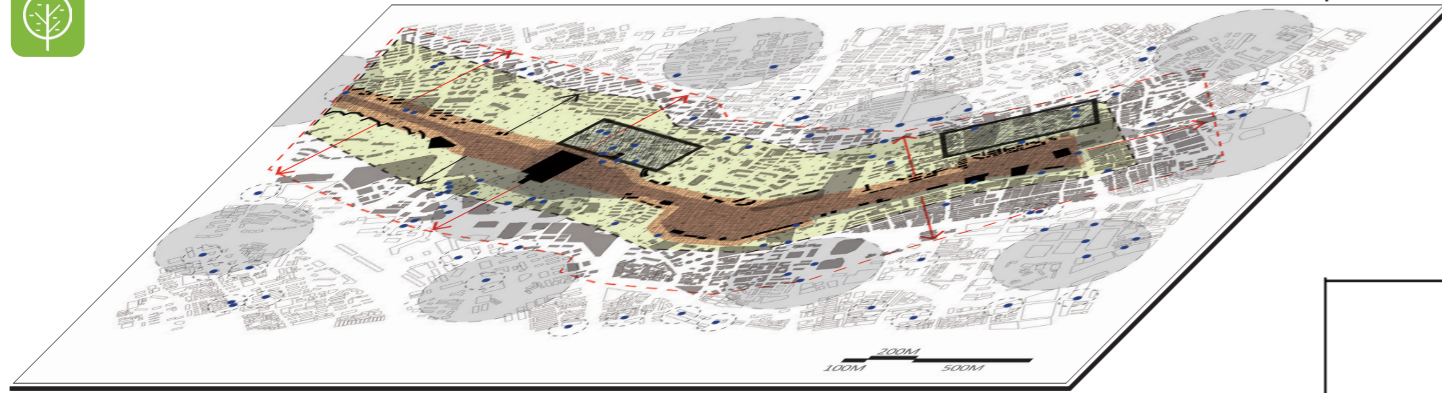
- Change the tortuous road network into a clearer one.
- Add new bus stops to improve the coverage of the public transport
- Open gated community that blocks the routes leading to the metro station for improving the accessibility of metro system.
- Promote new bus routes for further development.



ECONOMIC PERFORMANCE

Designs for economic performance:

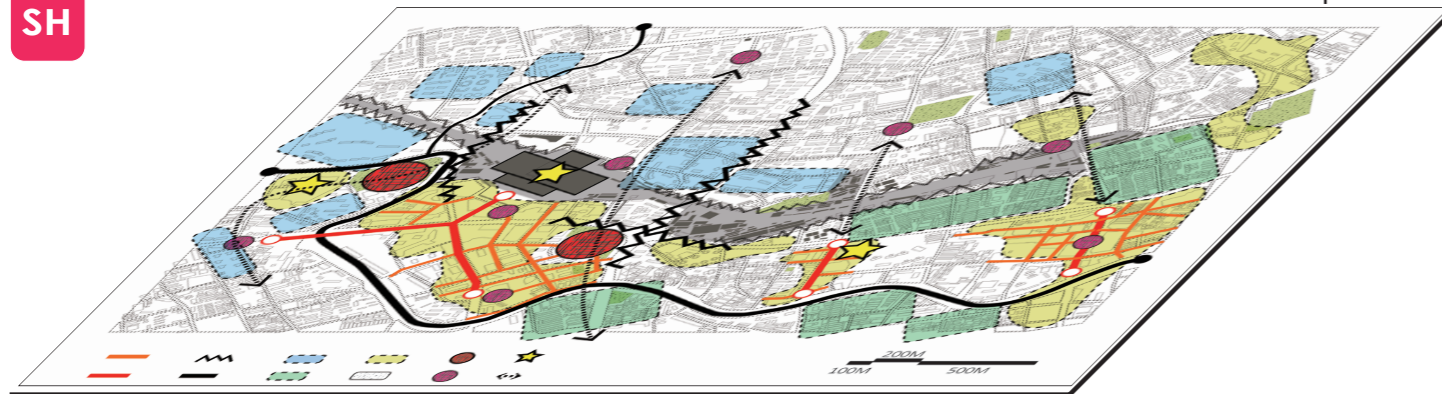
- Transforming the surrounding neighborhoods for promoting a functional mix
- Free up railway logistic area for development
- Designing the new type of mix-use block with legible railway features
- Flexible superstructure above the rail yard



ENVIRONMENTAL QUALITY

Designs for environmental quality:

- Redefining the boundary of rail yard with more concerns of pollutions
- Adding extra quality to the existing tunnels and footbridges



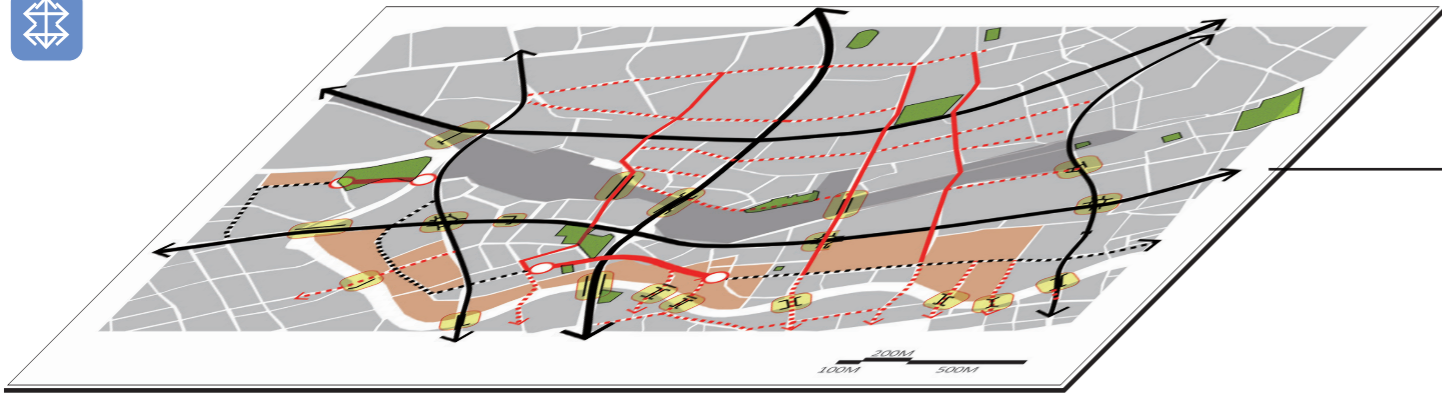
URBAN IDENTITY

Designs for urban identity:

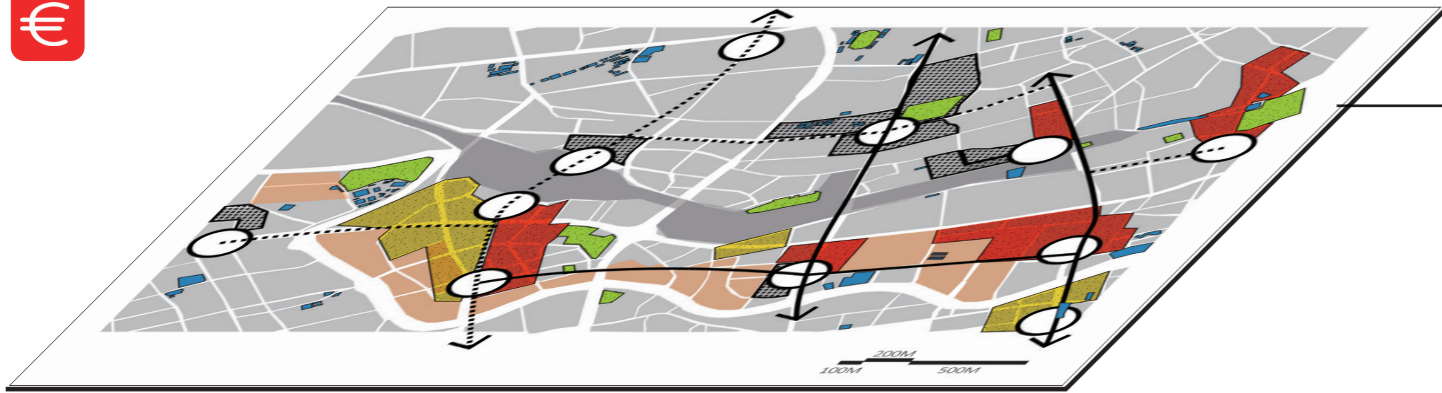
- Highlight several new city axes to strengthen the links with new city icons
- Urbanize the station square by integrating the public resources

Specific designs for each aspect

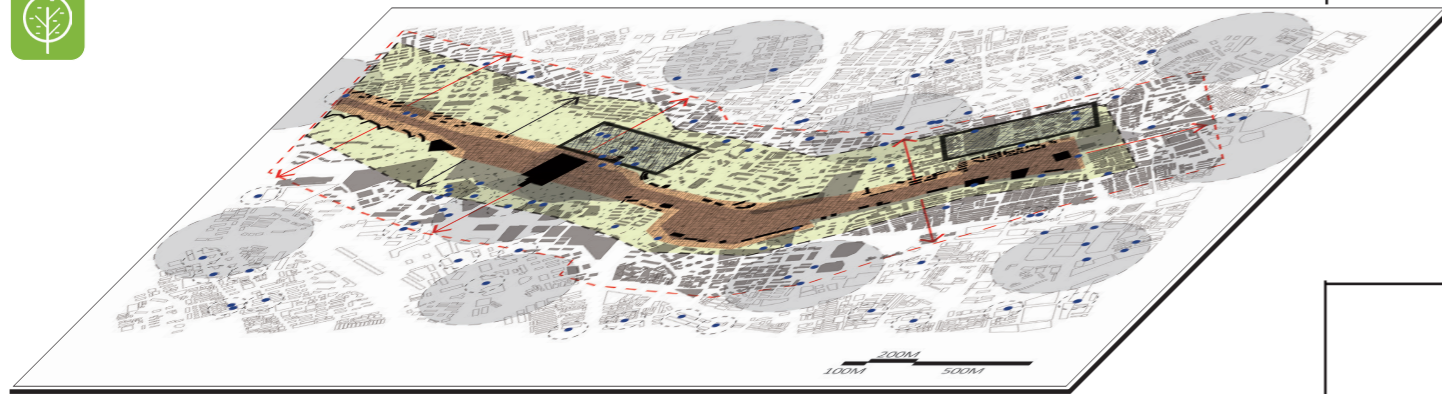
Interrelation between each proposal



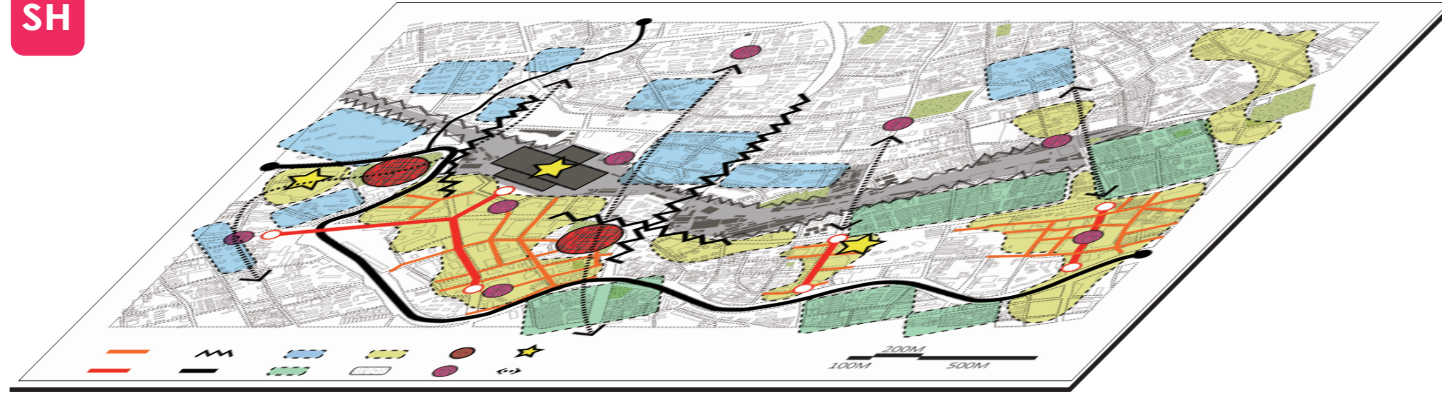
NETWORK OPERATION



ECONOMIC PERFORMANCE







ENVIRONMENTAL QUALITY








URBAN IDENTITY




Designs for network operation:

- Change the tortuous road network into a clearer one. 
- Add new bus stops to improve the coverage of the public transport. 
- Open gated community that blocks the routes leading to the metro station for improving the accessibility of metro system. 
- Promote new bus routes for further development. 







Designs for economic performance:

- Transforming the surrounding neighborhoods for promoting a functional mix.
- Free up railway logistic area for development   
- Designing the new type of mix-use block with legible railway features.
- Flexible superstructure above the rail yard  

Designs for environmental quality:

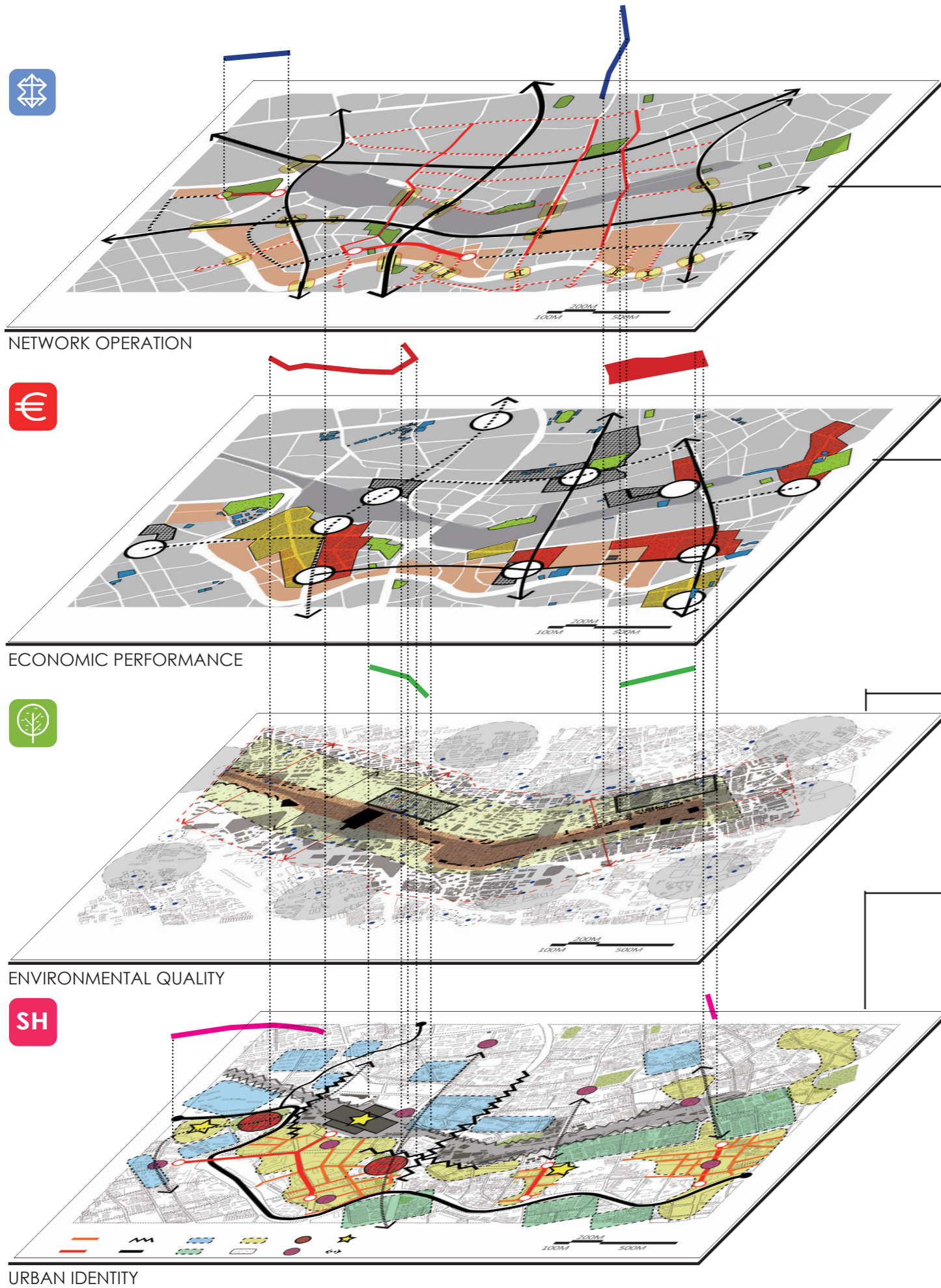
- Redefining the boundary of rail yard with more concerns of pollutions  
- Adding extra quality to the existing tunnels and footbridges 

Designs for urban identity:

- Highlight several new city axes to strengthen the links with new city icons   
- Urbanize the station square by integrating the public resources   

Added values
Starts from A,
but always look at B,C,D

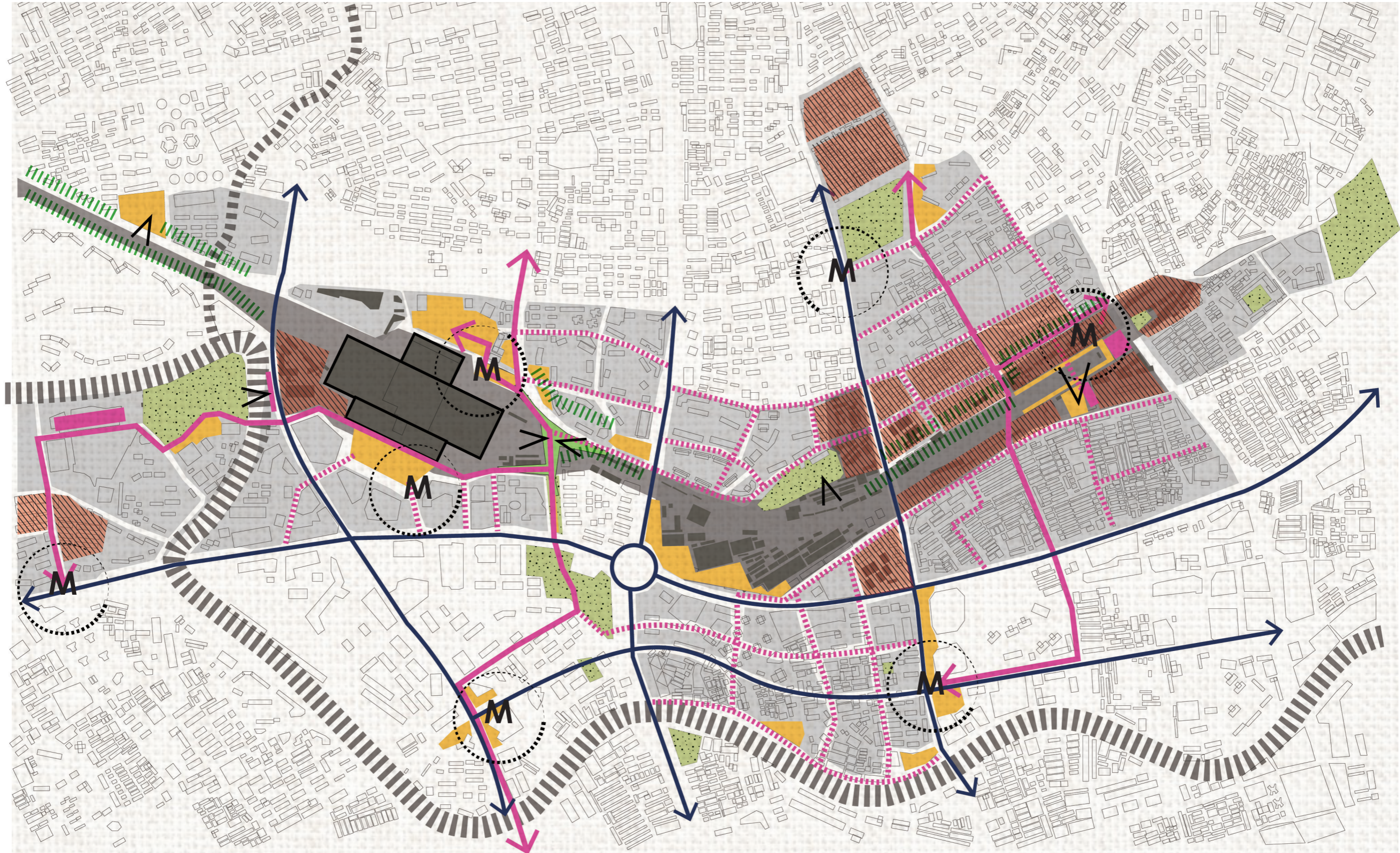
Interrelation between each proposal



- Designs for network operation:
- Change the tortuous road network into a clearer one. **SH**
 - Add new bus stops to improve the coverage of the public transport. **€**
 - Open gated community that blocks the routes leading to the metro station for improving the accessibility of metro system. **SH**
 - Promote new bus routes for further development. **€**
- Designs for economic performance:
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 - Designing the new type of mix-use block with legible railway features.
 - Flexible superstructure above the rail yard **SH** **€**
- Designs for environmental quality:
- Redefining the boundary of rail yard with more concerns of pollutions **SH** **€** **SH**
 - Adding extra quality to the existing tunnels and footbridges **SH**
- Designs for urban identity:
- Highlight several new city axes to strengthen the links with new city icons **SH** **€** **SH**
 - Urbanize the station square by integrating the public resources **SH** **€** **SH**

Overlapping again to find the most valuable spots, which could benefit more aspects.

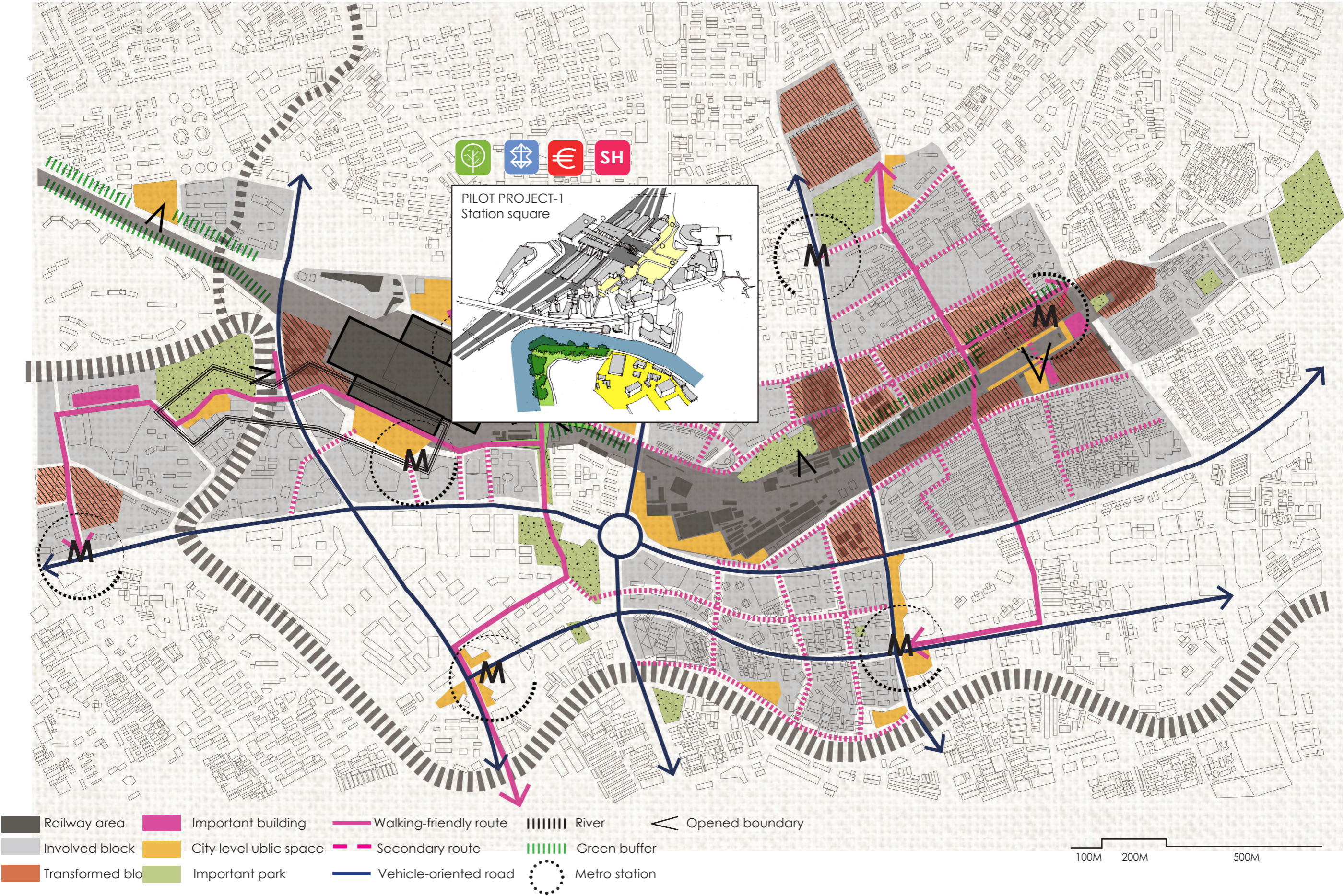
Integration of four proposals



- Railway area
- Important building
- City level public space
- Important park
- Involved block
- Transformed block
- Walking-friendly route
- Secondary route
- Vehicle-oriented road
- River
- Green buffer
- Metro station
- Opened boundary

100M 200M 500M

Integration of four proposals



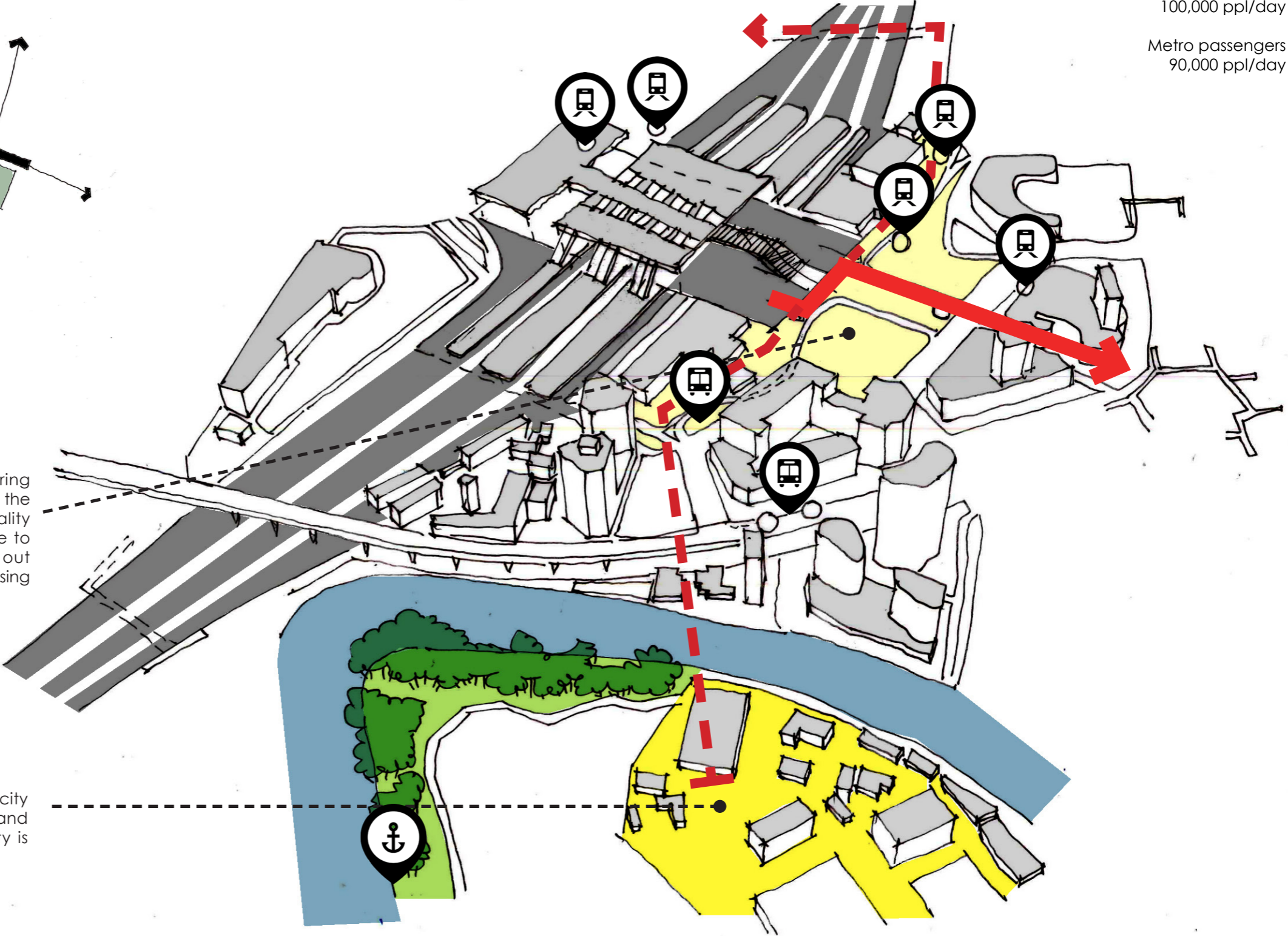
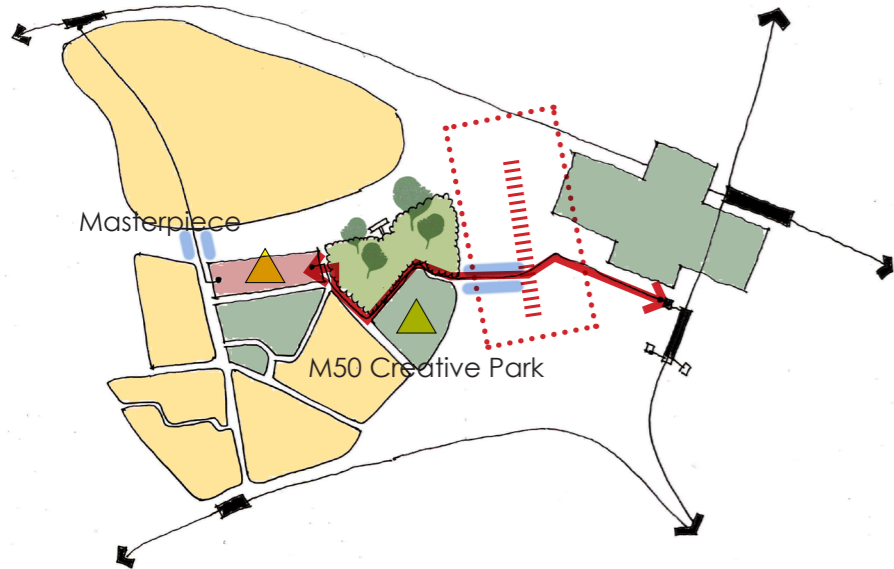
Reason-stimulate unused public resources



Pilot project-1
Station Square

Railway passengers
100,000 ppl/day

Metro passengers
90,000 ppl/day



Passenger Square

The railway station, as well as metro station, bring the hung amount of passengers into the site, but the surrounding couldn't host them with a high-quality environment. So the most of passengers decide to leave as soon as possible instead of hanging out there, which means the commercial potential is losing and enclave conditions exist for sure.

M50 Creative Park

M50 is an important growing art location in the city center of Shanghai. But due to its end position and blockiness of residential blocks, the accessibility is poor, which limits its development.

Space-making: Overcome five Obstacles



Pilot project-1 Station Square

Railway passengers
100,000 ppl/day

Metro passengers
90,000 ppl/day

Public toilet

standing in the middle of the street.



65 spots+30 spots

The parking lot of Hotel and logistic departments



Front space of buildings in the city center often filled with ground parking lots. It assumes that people are driving, which results in an unfriendly walking environment.



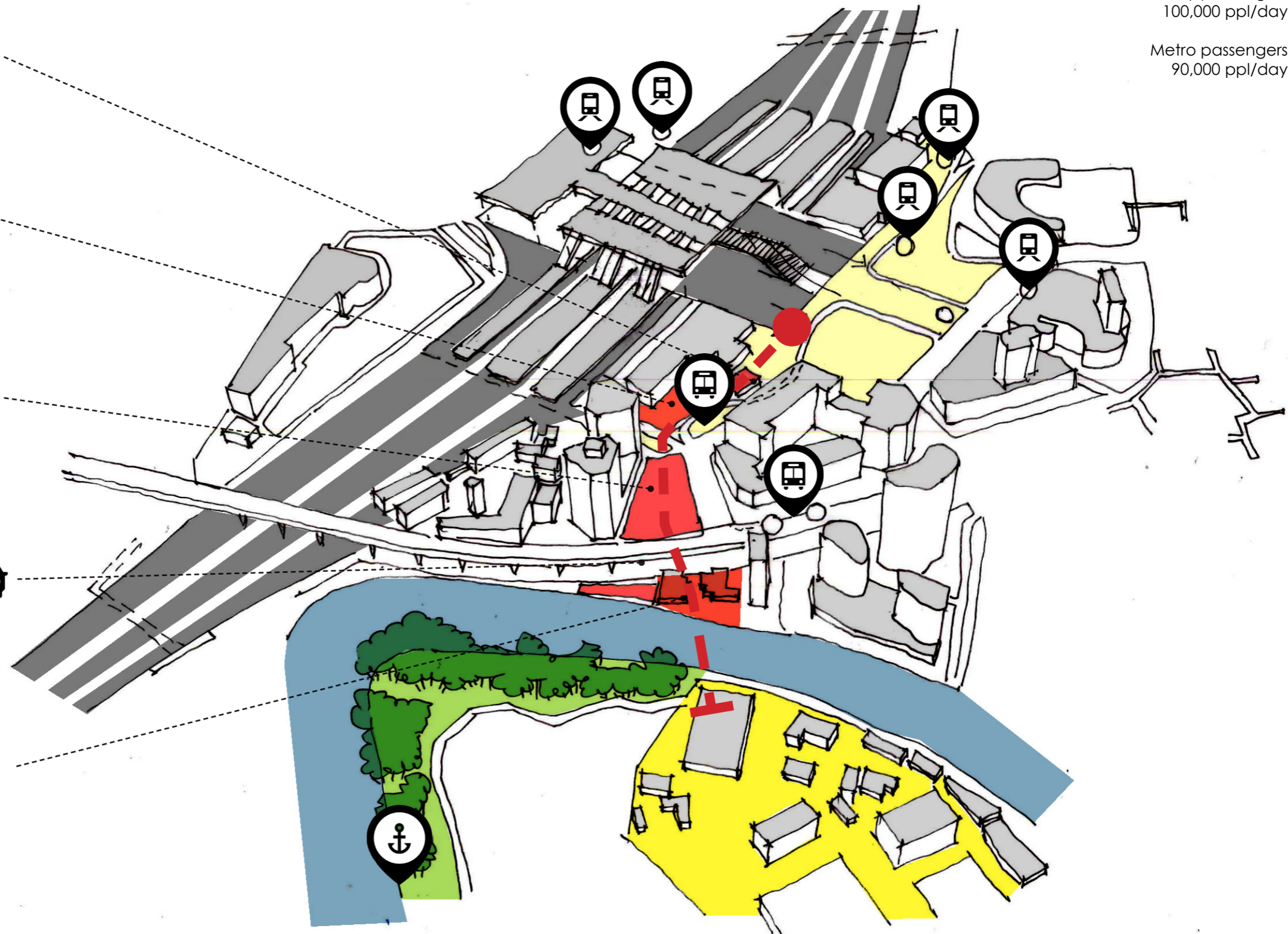
Four Lanes

road under a viaduct



350,000pp/year

Long distance bus station standing next to the inner-city river, blocking the view of water.



Space-making: Overcome five Obstacles



Pilot project-1 Station Square

Railway passengers
100,000 ppl/day

Metro passengers
90,000 ppl/day

300Meters walkable route
leading to waterfront

1. Moving the Toilet

Integrate toilet with the existing building

2. Shifting the Bus station

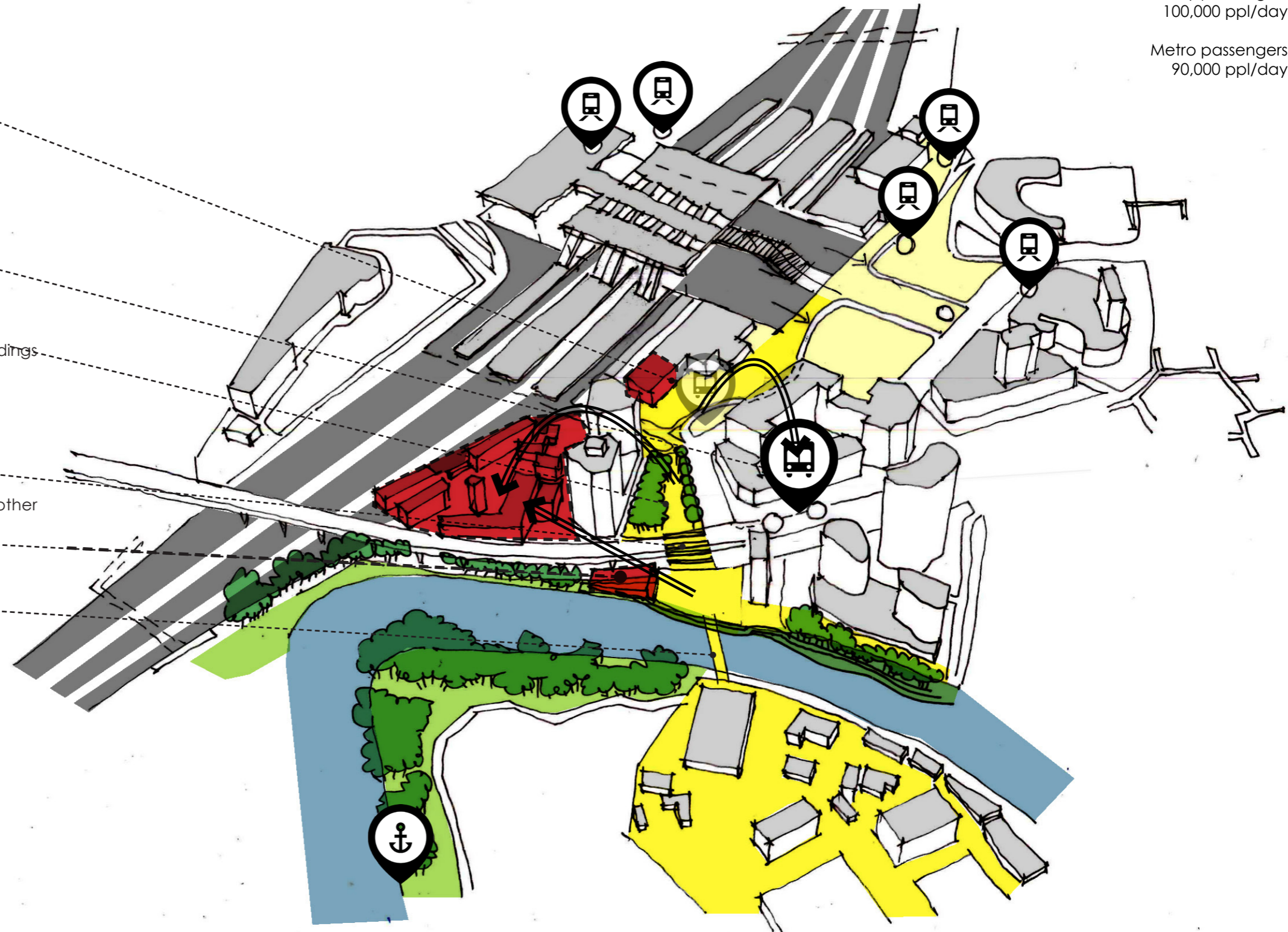
3. Integrating the Parking Lot

Move the front parking lot to the backside of buildings

4. Adding zebra crossing zone

5. Remove the long distance bus station to another location

6. Adding a new footbridge crossing the river.



Space-making: Overcome five Obstacles



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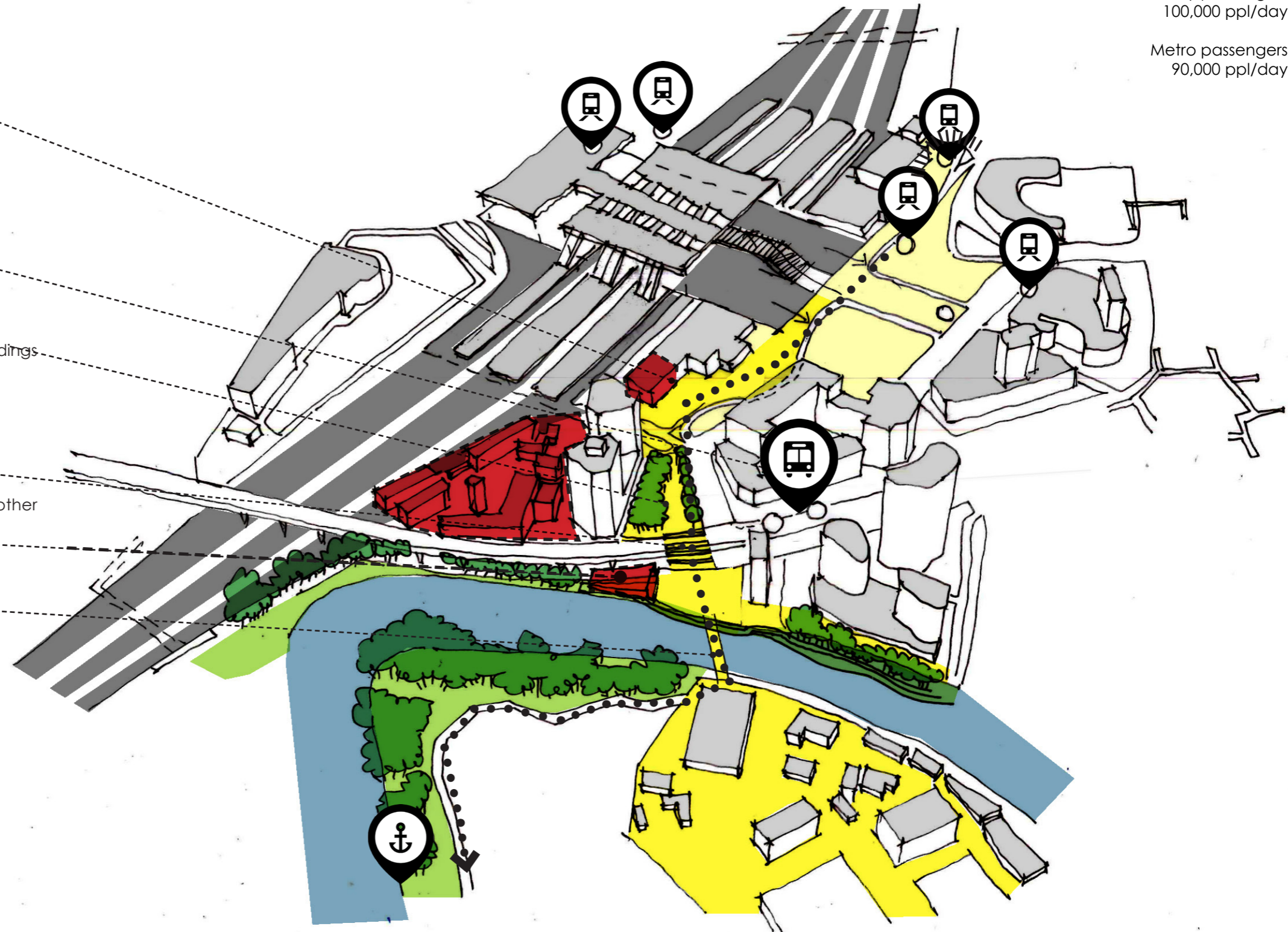
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Added value: Multimodel transport



Pilot project-1 Station Square

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Integrate toilet with the existing building

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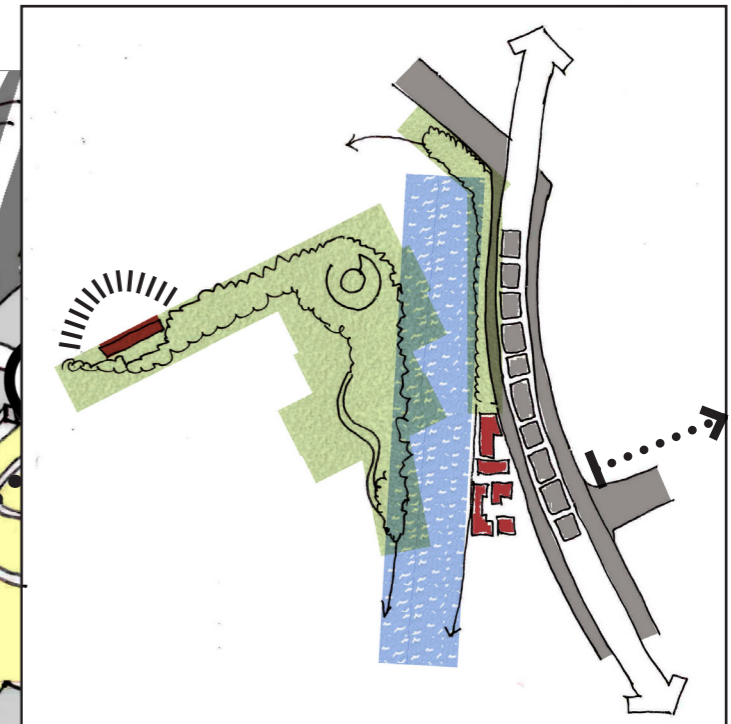
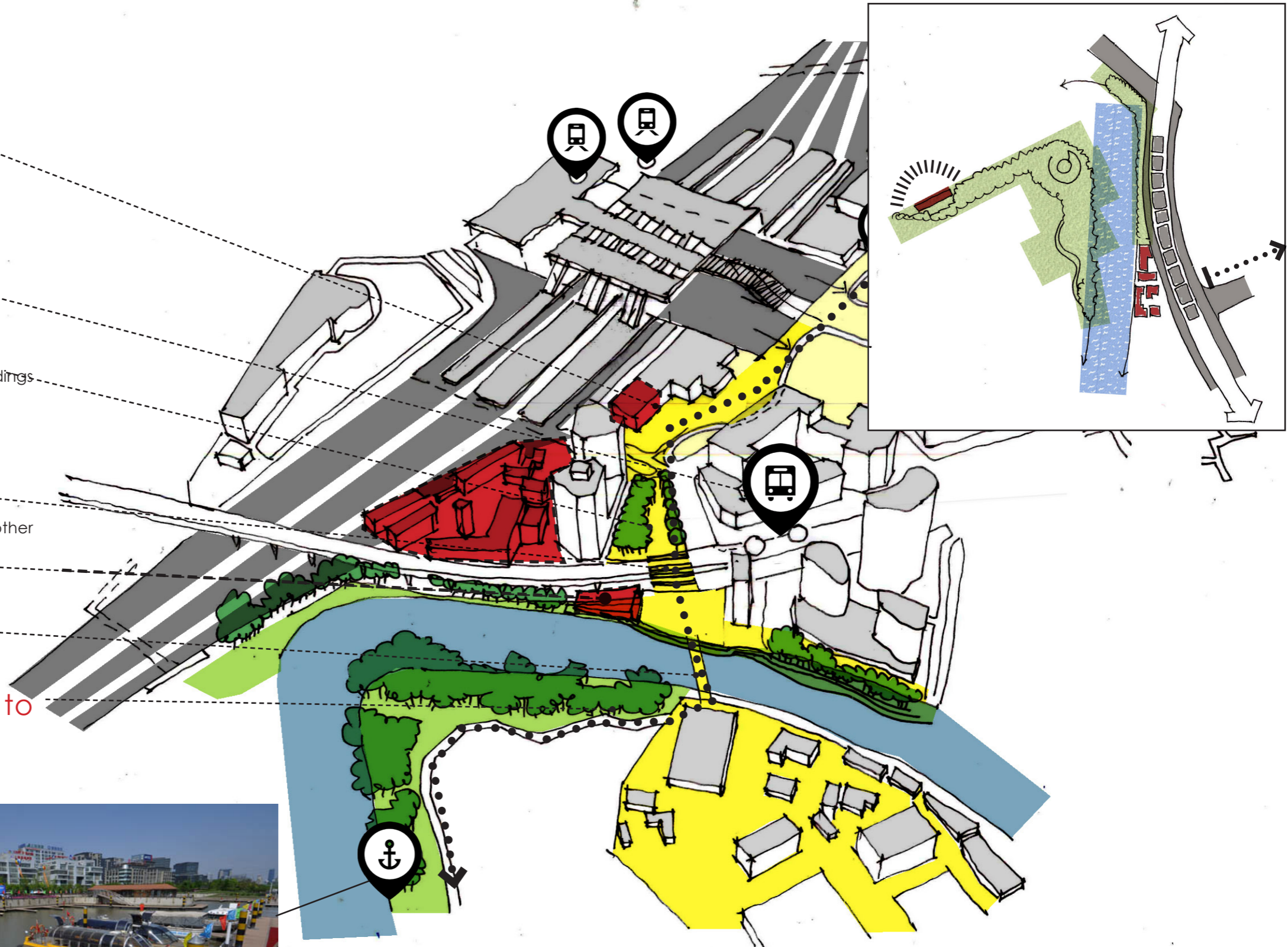
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7. Moving inner-city dock to the station side.



Added value: Multimodel transport

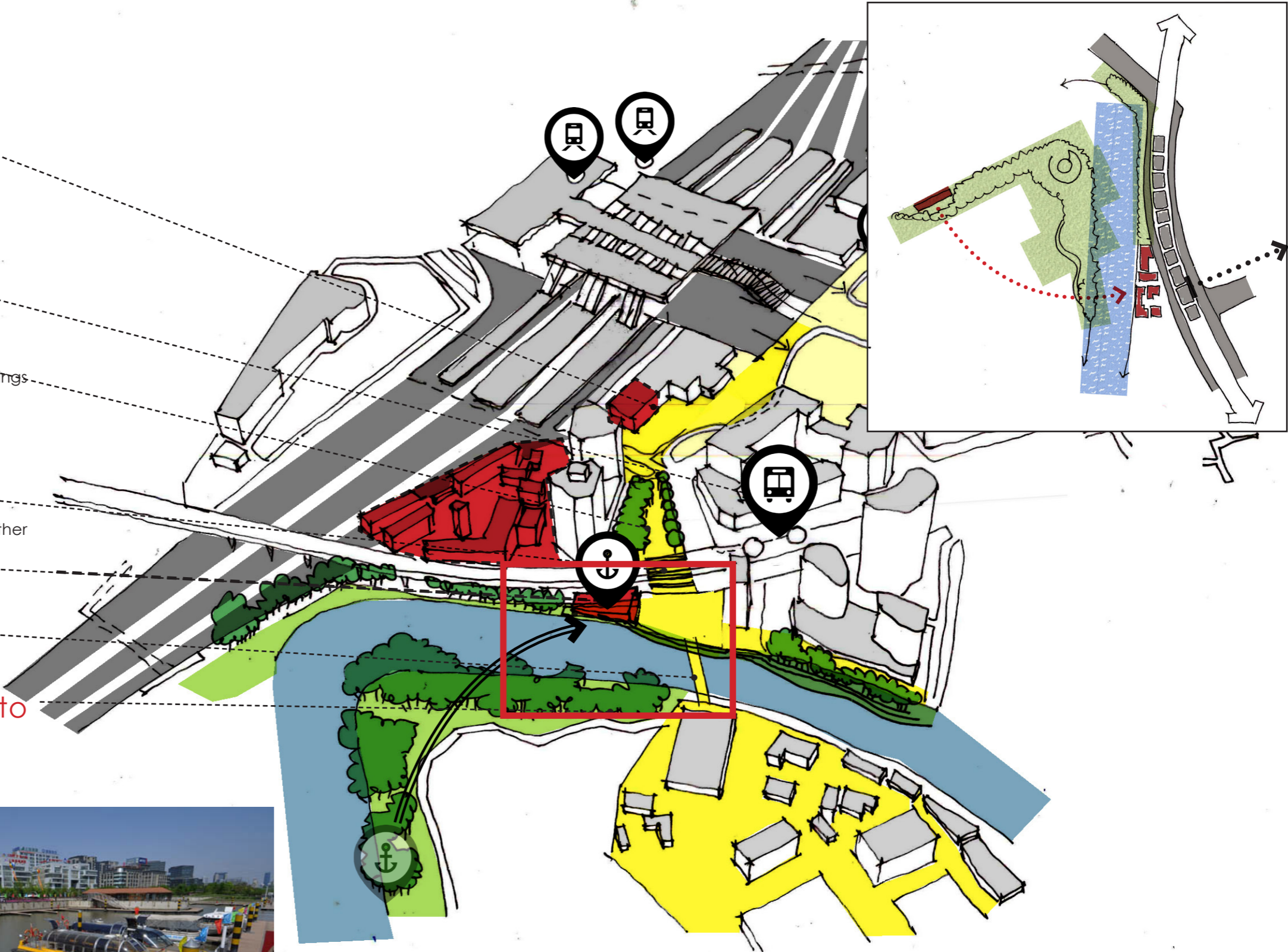


Pilot project-1
Station Square

300Meters walkable route
leading to waterfront

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Integrate toilet with the existing building
- 2. Shifting the Bus station
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Move the front parking lot to the backside of buildings
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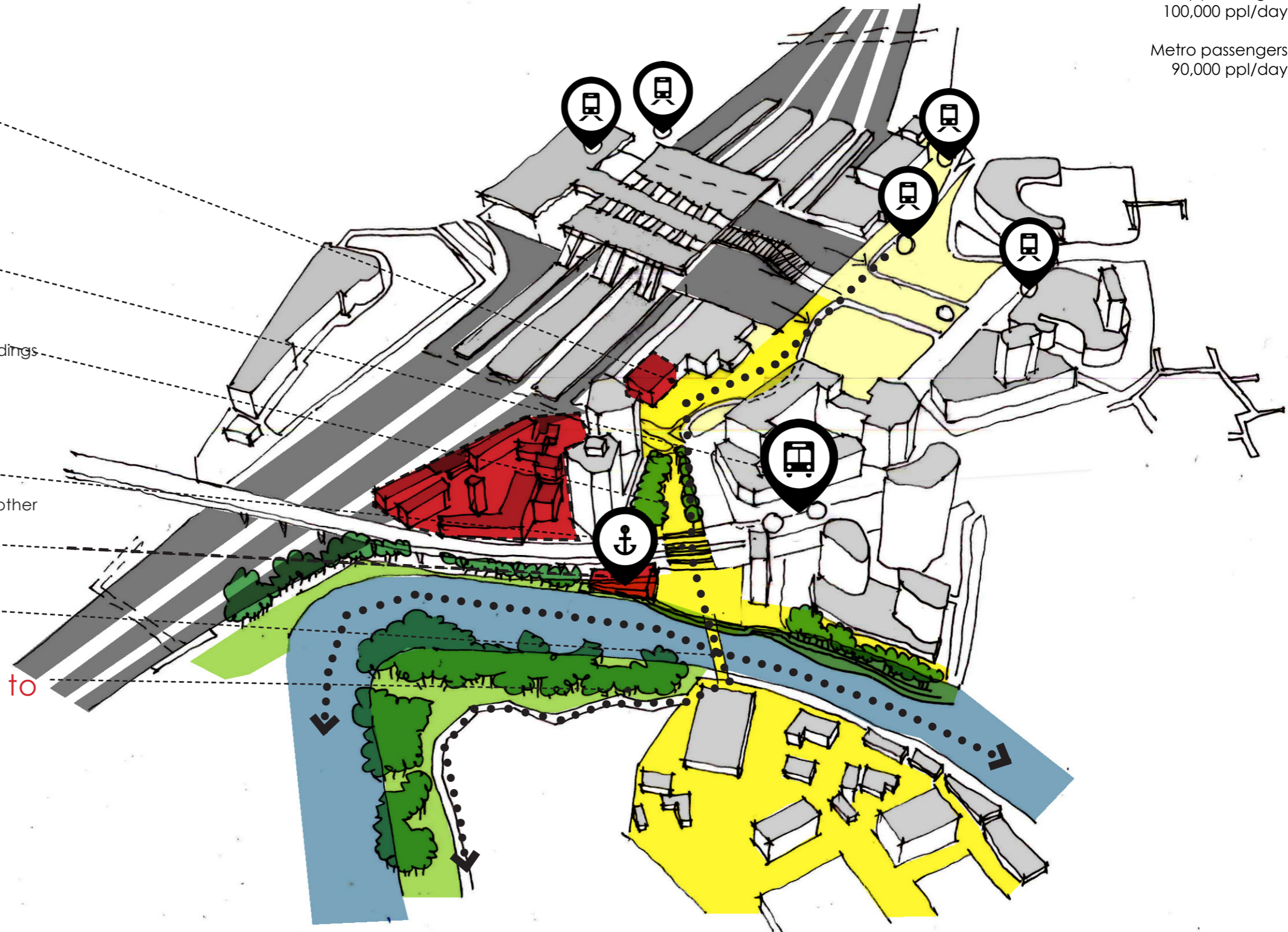
Move the front parking lot to the backside of buildings

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6. Adding a new footbridge crossing the river.

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Added value: Waterfront features



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3. Integrating the Parking Lot
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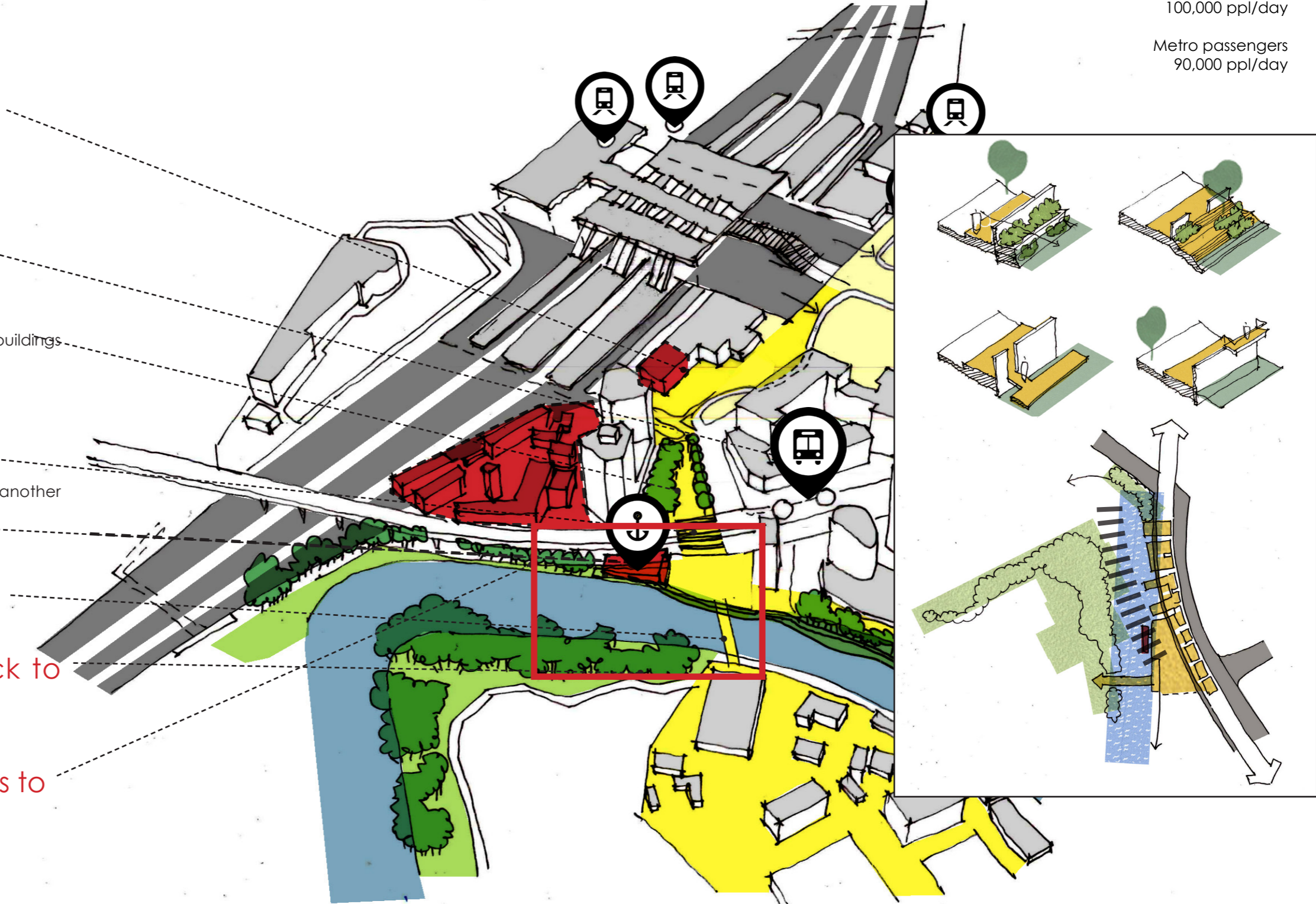
4. Adding zebra crossing zone

5. Remove the long distance bus station to another location

6. Adding a new footbridge crossing the river.

7. Moving inner-city dock to the station side.

8. Add waterfront features to this new connection

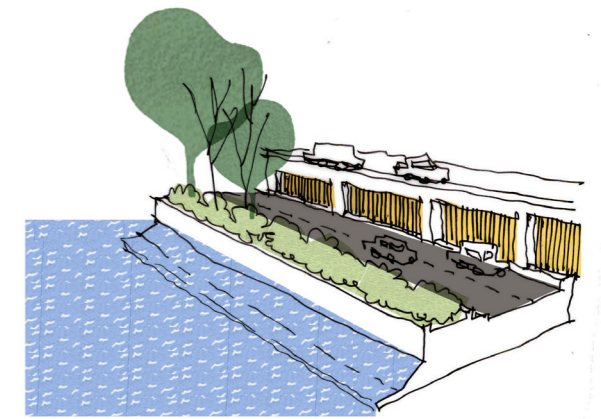




Negative greenery blocking the waterfront space

Low usage road

Not people-oriented function



Before

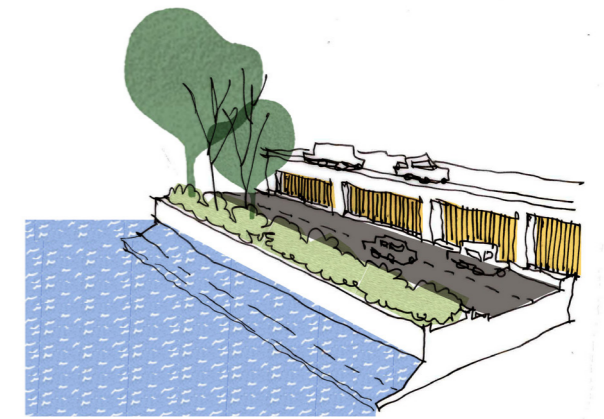
The viaduct formed a physical boundary. Since it located in the middle of the proposed connection, this space under the viaduct and the road between it and river should be more ambitious and could contribute more to urban.



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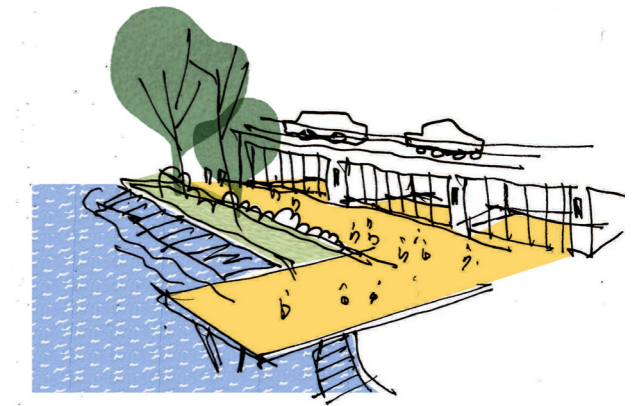
Integrate walkable space with greenery. The little park-along-the-river

€

Functional replacement
Most of the spaces underneath the viaduct are used by urban people-oriented amenities, as bars, restaurants, and small retail shops.

SH

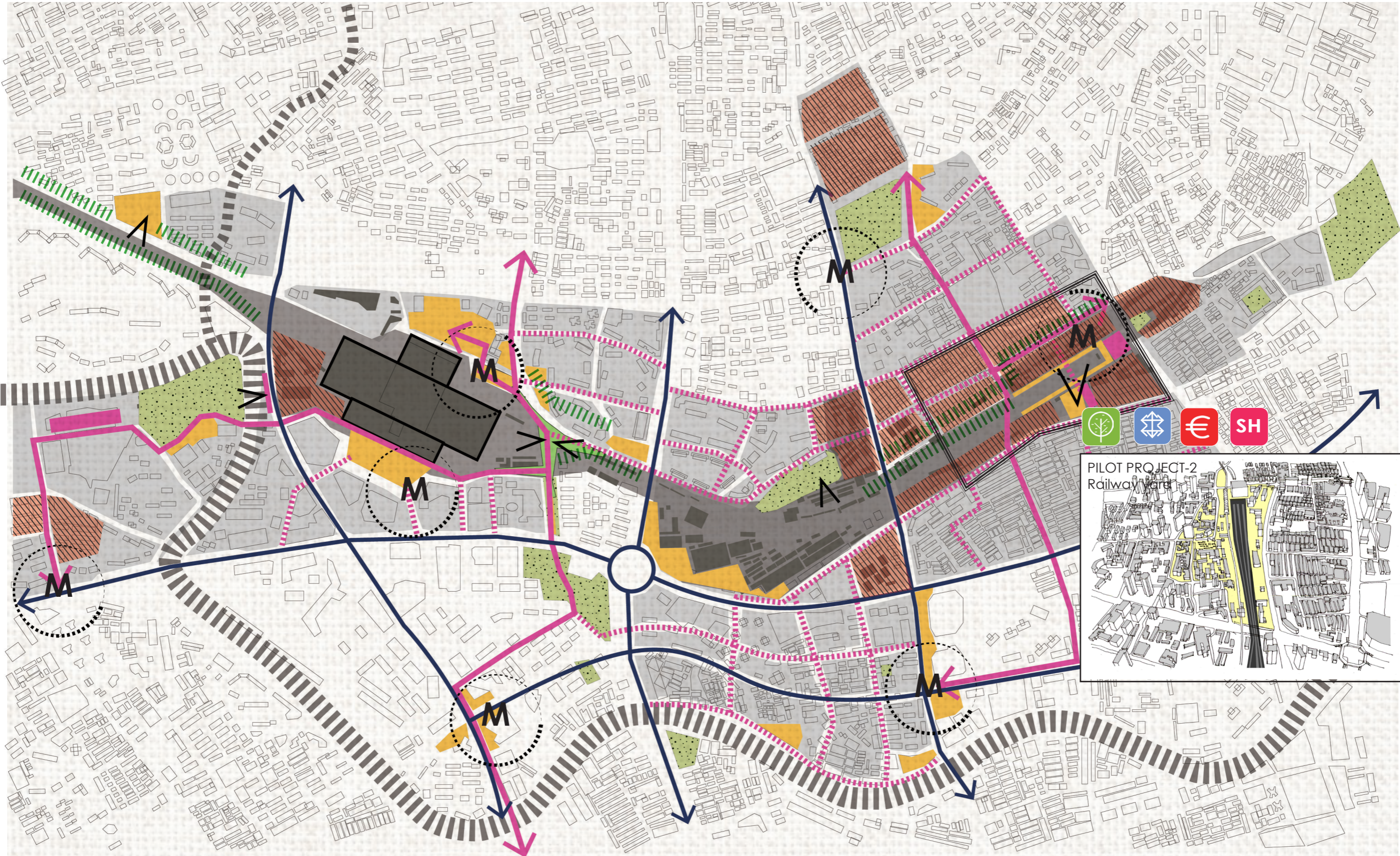
Walkable space
Temporarily limit-use of the road or even permanently remove



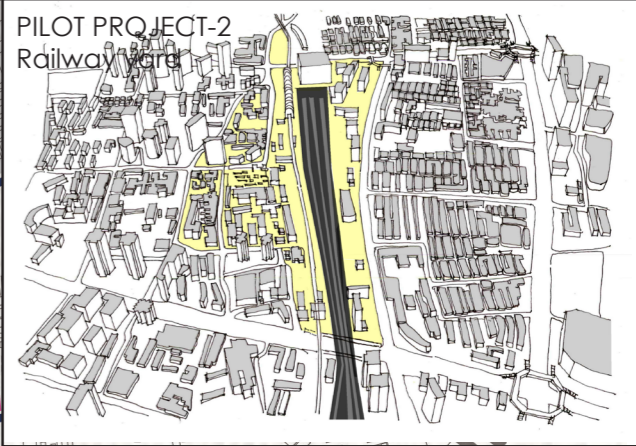
Added values

Establishing temporary or permanent street activities are the easiest ways that can contribute to create an urban identity and boost the economy. With decreasing the barrier effects, the road has to become a more integrated part of the urban structure.

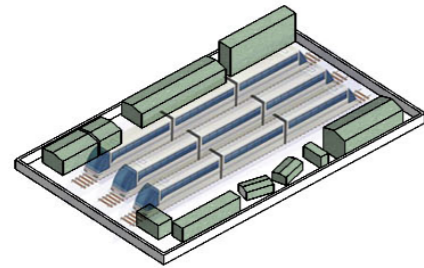
Integration of four proposals



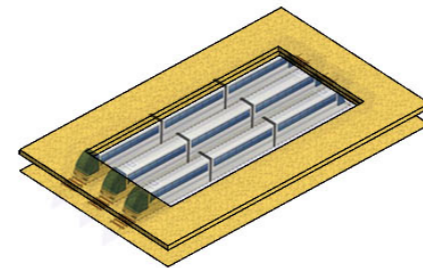
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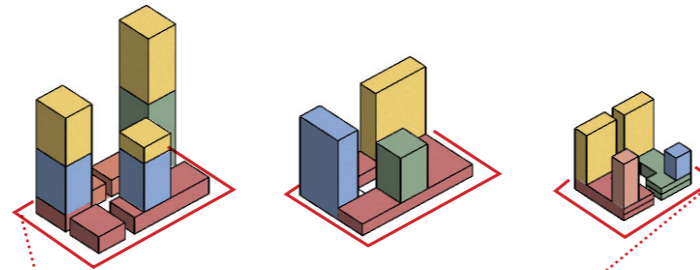
100M 200M 500M



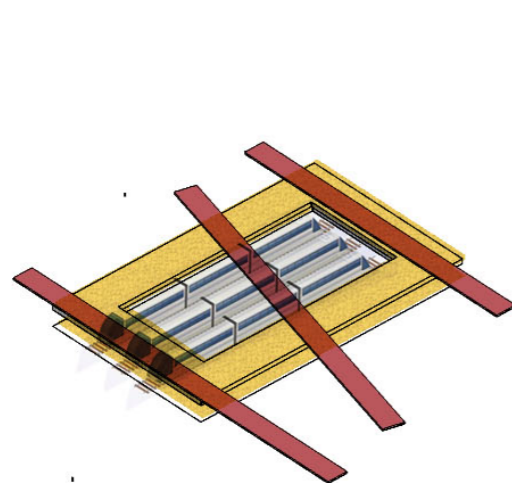
€ 1. Free up space



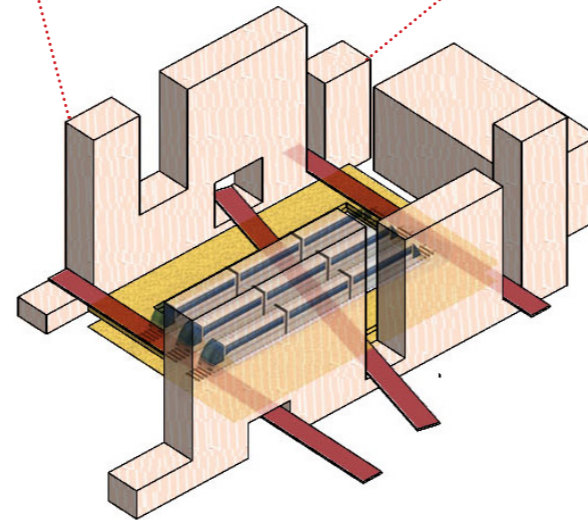
€ 2. Elevated platform redefines the boundary.



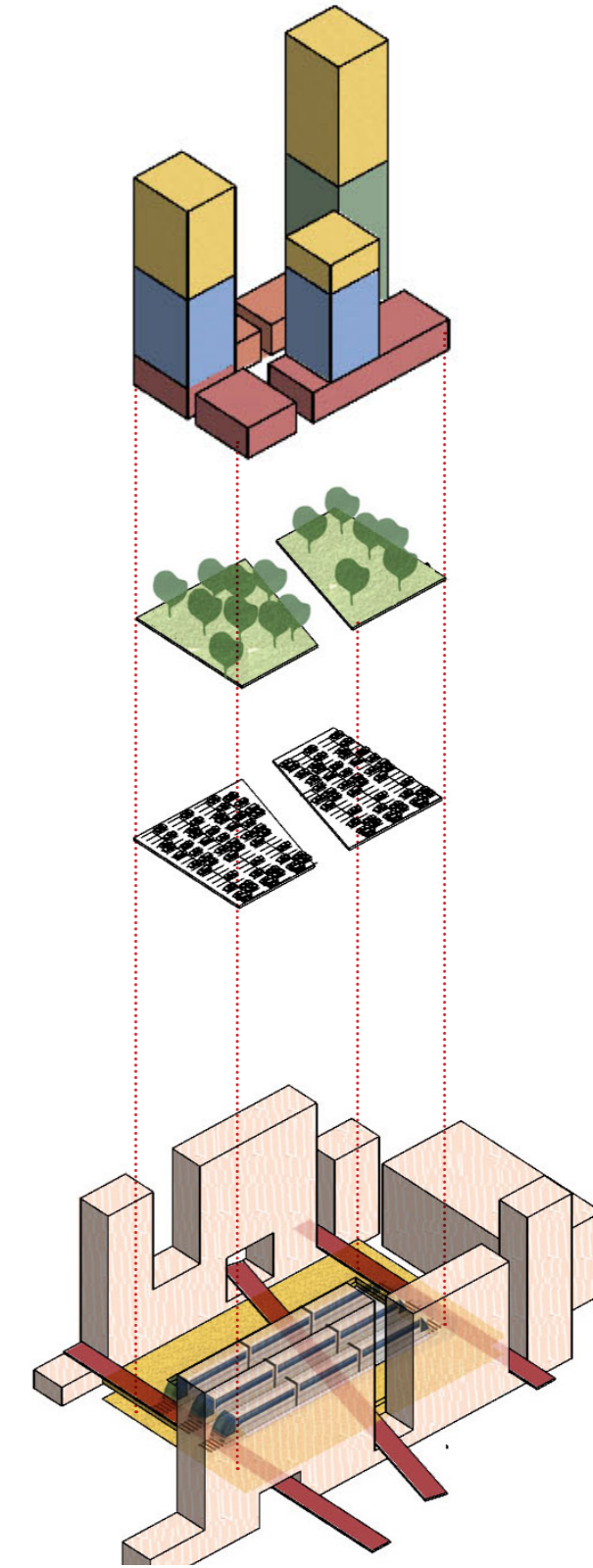
*Block's perimeter: 400m - 1000m long



SH € 3. Open network avoids being another obstacle to the city.



€ 4. Densified edge guarantees economic benefit



€ 5. Flexible follow-up possibilities

Added value: a readable image

I am Shanghai Railway Museum

'I am Shanghai railway, but we are forbidden to talk to each other.'



Added value: a readable image

I am Shanghai Railway Museum

Enclosing wall

'I am Shanghai railway, but we are forbidden to talk to each other.'



Added value: a readable image



Density

Green sound-barrier



Museum Cafe

Viewing platform



Priority to slow traffic





Thanks!

From isolated to integrated

The research on improvement of connectivity in Railway Station Areas (RSA) in Chinese high-density city centers by applying the Dutch experience to Shanghai station

