



Urban Strolls

[A reflection on pedestrians situation in heavy traffic urban space]

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2019 SPRING MASTER THESIS

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CHALMERS

/Urban Strolls . A reflection on pedestrians situation in heavy traffic urban space
/Improve pedestrians walking experience through the medium of space
formation, traffic organization and human sensation
/key words: pedestrians . overpass . movement space . experience space .
landscape architecture . topographical . walkable city

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Chalmers University of Technology
Department of Architecture and Civil Engineering
Master Thesis in Urban Challenges Direction
Gothenburg, Sweden 2019

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**"...We shape our buildings
and afterwards they shape
us. They regulate the course
of our lives."**

*-----Winston Churchill, addressing the English
Architectural Association, 1924*

THANKS TO:

Kengo Skorick, as my examiner, you encouraged me all the time during the whole process and always gave me new perspectives when I got stuck.

Joaquim Tarrasó and **Emilio Da Cruz Brandao**, as my supervisors, you always gave me good suggestions during every single tutorials, and pushed me to think over and over to achieve a higher level.

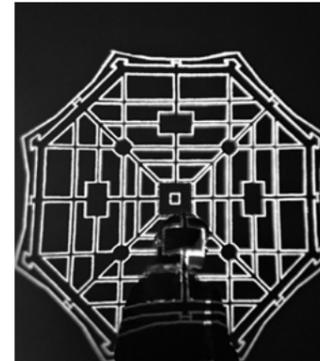
Peter Christensson for sharing your knowledge and books to me even though I had no direct relationship to your thesis direction.

My best friends **Jinnuo** and **Amal** for always cheering me up.

Pengyu and **Qilong** for giving me academic suggestions and help.

All my **student colleagues** in Urban Challenges Direction for all the good time that we had and helps from each other.

And my dearest **Mom and Dad** for always supporting me no matter of what and let me feel that I am not alone even I am far from my home in China.



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Shanghai . China

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[Source of Inspiration]

The idea of this master thesis topic came from a daily habit, which is taking pictures to the feet when standing on different places. After a bunch of collections, it has been found that walking experience plays a lot for pedestrian, and it is an important part of the daily life for everyone.

[Current Situation]

When we look back to Gothenburg city nowadays, pedestrians seem to be placed as the least important stakeholder in urban planning, it seems does not matter that much if people need to detour around vehicles, but then after 50 years, the city will not be owned by citizens any more, instead, vehicles are the real owner.

When we look back to Gothenburg city nowadays, pedestrians seem to be placed as the least important stakeholder in urban planning, it seems does not matter that much if people need to detour around vehicles, but then after 50 years, the city will not be owned by citizens any more, instead, vehicles are the real owner.



ABSTRACT



I PREAMBLE

[Thesis Question]

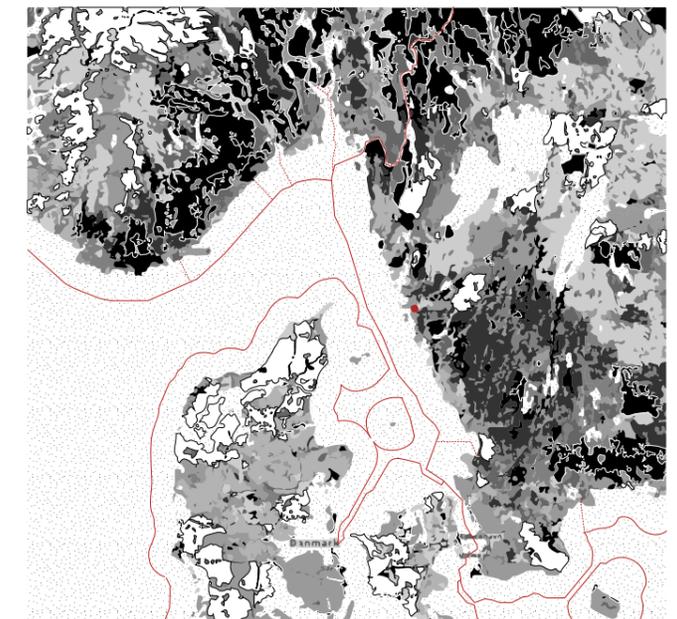
The aim of this master thesis is to discuss "how urban environment affect pedestrians' walking experience in a heavy traffic area in Gothenburg thereby build it into a walkable city?"

Gothenburg is the freight center of Sweden where hundreds of thousands of freights happen in the city every day, which commands a high speed and qualified traffic system. Simultaneously, the city itself is also the second largest city in Sweden. Till year of 2019, there have been 581822 citizens living in this 447.8 km² city,(Gothenburg Population, 2019) which create a big challenge to urban public space, especially pedestrians' walking space. The fact is, the space for pedestrians are decreasing as the space for traffic and freight increased a lot, and in most cases, pedestrians share the space with huge amount of traffic, they were first pushed upon the building façade and then squeezed along shrinking sidewalks (Jan Gehl, 2010) which is an unsafe and awkward experience.

As the city is developing, the government and municipality usually put more focus on how to build the roads wider, bridge longer and tunnel deeper, the basic rights of pedestrians are being continuously reduced. Those industrial infrastructures split the city up into several small pieces which create more barriers for pedestrians to break.

When we look back into the city itself. The outer periphery of Gothenburg is mainly occupied by overpass and wide roads for traffic. However, these areas are also with way more residential area than the city center. Heavy traffic whizzing right besides pedestrians, the feeling of insecurity and fear when walking along the street or crossing a road happens to everyone who must go across the area. At the same time walking itself feels so boring when there is nothing to look at and nowhere to stay for a while.

Simultaneously, those areas with a complex traffic system always has a more interesting and potential site than a normal street in the city center, and compared to most Asian cities, the overpass here in Gothenburg are way smaller, and is more suitable for human scale. Thus, a landscape architecture which will be lifted above the existing traffic roads is a possible and unique solution in nordic country.



A PHILOSOPHY OF WALKING

[What gives you freedoms]

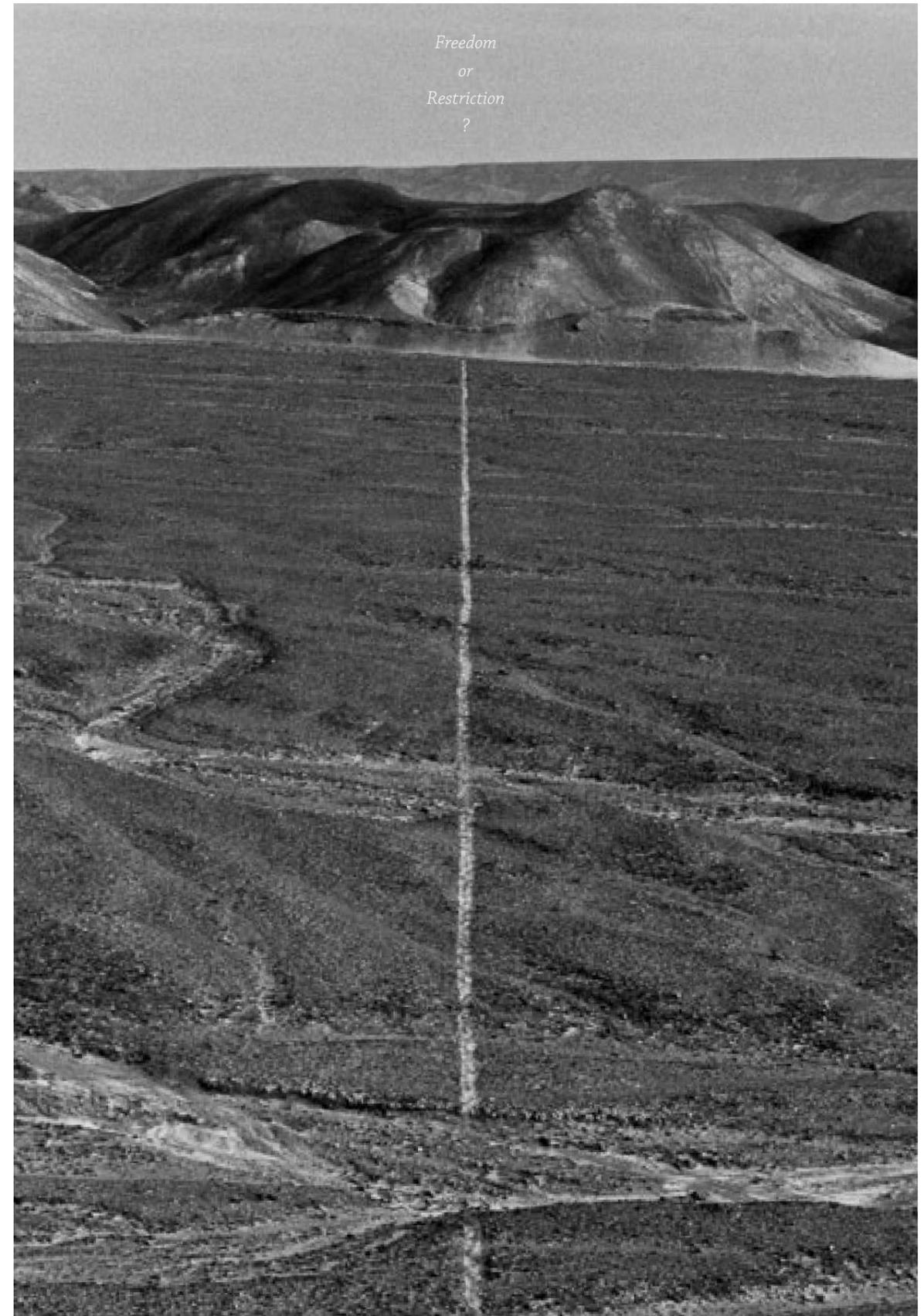
Before getting into the analysis and design, the first question I asked myself was "What does walking mean for me? How to define walking? And what is the philosophy of walking?"

As a human being, no one can avoid walking during everyday's life, it is as important as breathing and drinking but we seldom notice its importance. What makes it imperative but also unheeded is probably because we never only walking while walking.

Frédéric Gros published his famous book of walking [Marcher, une philosophie] first in 2011: "First of all, there is the suspensive freedom that comes by walking, even a simple short stroll: throwing off the burden of cares, forgetting business for a time. You choose to leave the office behind, go out, stroll around, think about other things. With a longer excursion of several days, the process of self-liberation is accentuated: you escape the constraints of work, throw off the yoke of routine. But how could walking make you feel this freedom more than a long journey?" (Frédéric Gros, A Philosophy of Walking, 2011)

There is always a contradiction between freedom and limitation, but they can also exist within the same host. Walking is such a special host.

Richard Long produced his art piece "Walking a Line in Peru" in 1972, in which he expressed his art spirit—— they consist in the art of walking itself, and his art is made by walking. It is hard to tell whether walking gives the freedom or limit somehow in such an art work. (Richard Long, 1972)

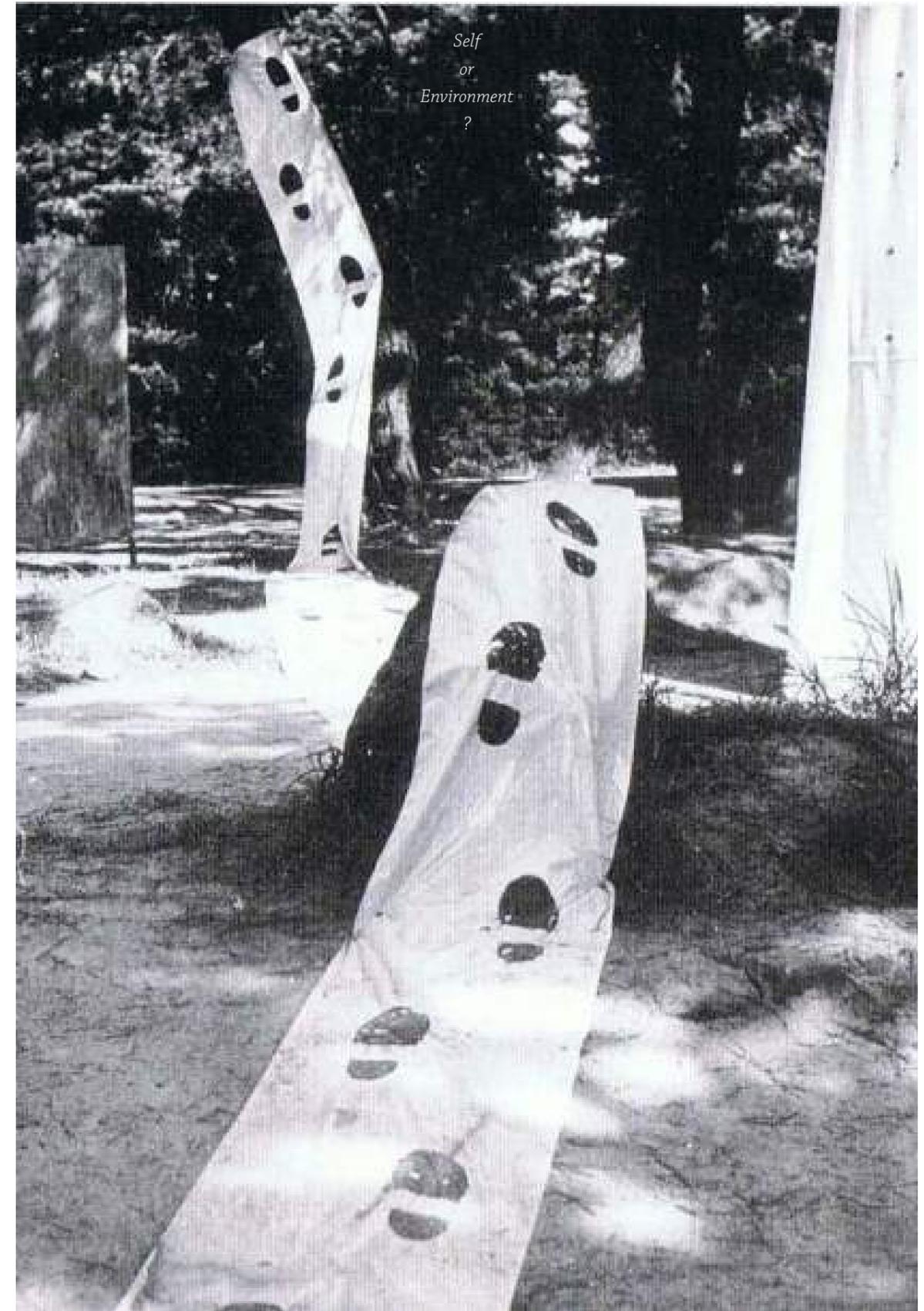


[What makes it beyond movement]

Rebecca Solnit released her [Wanderlust: A History of Walking] in the year 2000, in which she wrote "Walking itself is the intentional act closest to the unwilled rhythms of the body, to breathing and the beating of the heart. It strikes a delicate balance between working and idling, being and doing. It is a bodily labor that produces nothing but thoughts, experiences, arrivals." (Rebecca Solnit, Wanderlust: A History of Walking, 2000)

Walking can be a pure body movement, but it can also be beyond that. A series of landscape can create a better walking sequence, as Gros said "...It is still ruled by powerful necessities. To complete a given stage you have to walk so many hours, meaning so many paces; scope for improvisation is limited, you aren't wandering down garden paths and you have to turn the right way at junctions, or you'll regret it." (Frédéric Gros, 2011) Therefore, this is not just a movement happens to a single person, instead, walking itself tightly links human and environment.

In the 1950s in Japan the Gutai group began to use the human body as a tool for pictorial gesture. Artists like Shiraga painted large informal calligraphic works using their footprints. Kanayama put the footprints on a canvas to construct a path that moves from the ground into the trees. (Kanayama, 1950s) ->



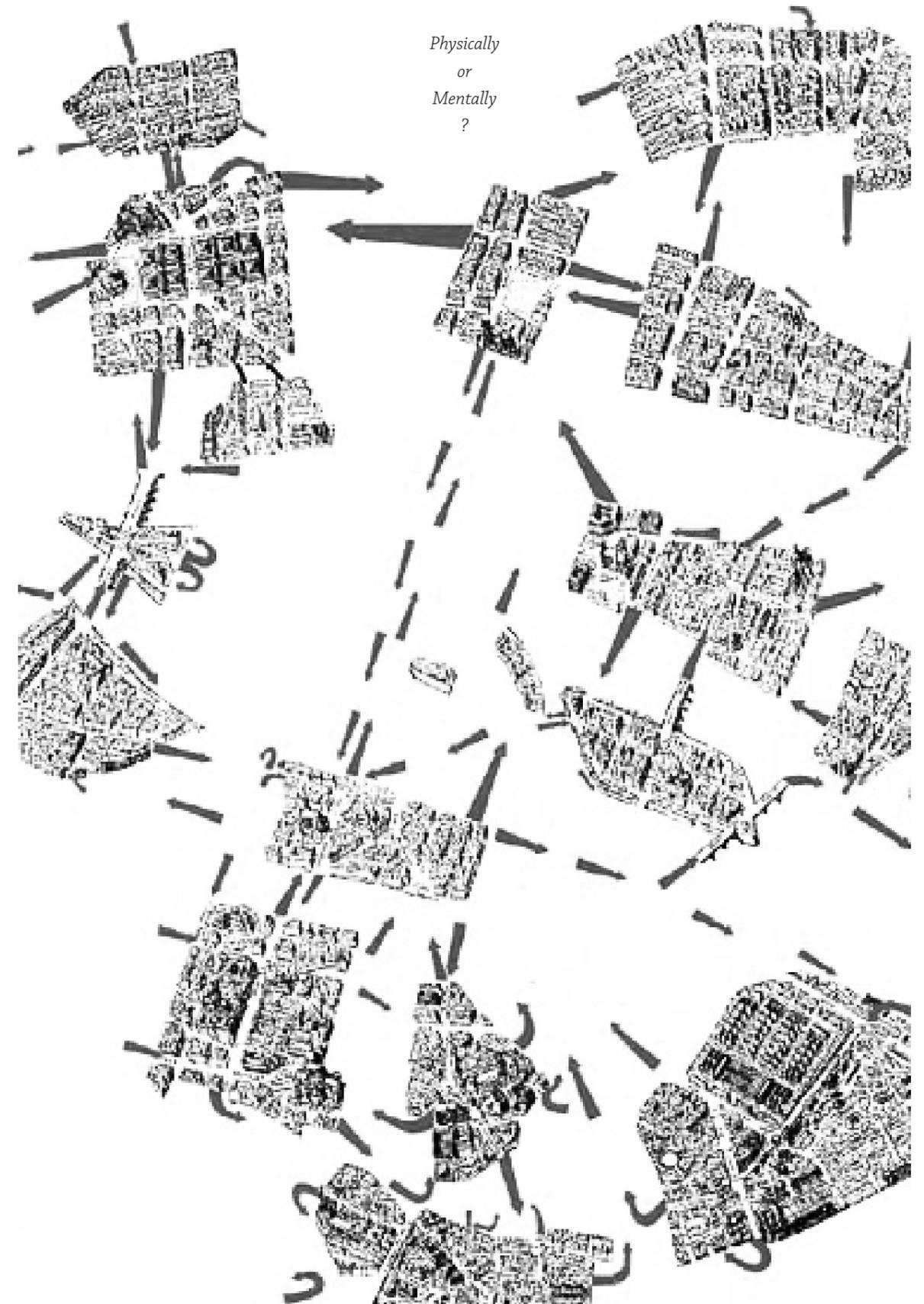
[What has a psychological impact]

"Days of slow walking are very long: they make you live longer, because you have allowed every hour, every minute, every second to breathe, to deepen, instead of filling them up by straining the joints." (Frédéric Gros, 2011) As Gros stated.

"Slowness means cleaving perfectly to time, and walking has this magic to make the time so closely that the seconds fall one by one, drop by drop like the steady dripping of a tap on stone... It is one of the secrets of walking that a slow approach to landscapes that gradually renders them familiar...When we are walking, it isn't so much that we are drawing nearer, more that the things out there become more and more insistent in our body. The landscape is a set of tastes, colors, scents which the body absorbs." (Frédéric Gros, 2011)

Speed, always the theme of walking, can also be changed dramatically by walking. It is an interaction for both pedestrian and road. But beyond speed, it is the whole procedure of walking has an psychological impact on human.

One very tangible expression of psychogeographical studies, were the series of maps of Paris which Guy Debord produced in the late 1950's and which were shown in "The First Psychogeographic Exhibition" ("Première exposition de psychgéographie") in 1957. These maps, derived from Debord's psychogeographic studies, were made through the method of 'détournement' ('the integration of past or gift artistic creation into a superior environmental construction') within which fragments of existing works area unit taken and rearranged or close to provide new meanings. (Guy Debord, 1950's)



WALKING and SPACE



[Movement and Space, they never work alone]

"Walking causes a repetitive, spontaneous poetry to rise naturally to the lips, words as simple as the sound of footsteps on the road. There also seems to be an echo of walking in the practice of two choruses singing a psalm in alternate verses, each on a single note, a practice that makes it possible to chant and listen by turns...And just as Claudel said that sound renders silence accessible and useful, it ought to be said that walking renders presence accessible and useful." (Frédéric Gros, 2011)

Gros pointed out that walking is never a single movement. In another word, walking always has an physical impact on surrounding environment as well as a psychological impact to the one who walk inside that environment.

Movement and surrounding space, thus never work alone.

<- The art work "Secant" created by Carl Andre in 1977 was a milestone for contemporary art. Carl's technique involved neither sculpting nor carving, instead, he relied exclusively on proportions that were in accordance with the environment. This work emphasizes on exploration, acting as both a path for the viewer and a means to strengthen the concept of "place". (Carl Andre, 1977)

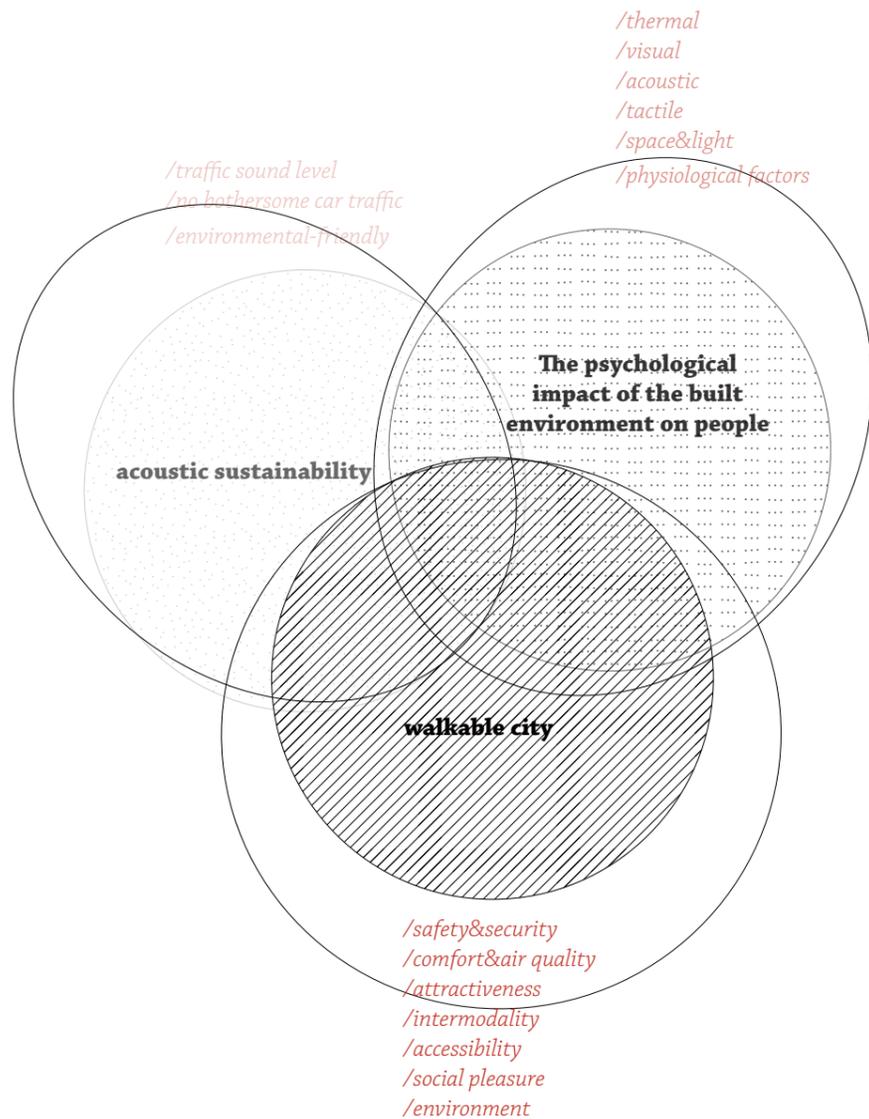
DISCOURSE

The discourse of this master thesis will mainly focus on three parts, which are "walkable city", "the psychological impact of the built environment on people" and "acoustic sustainability".

To explain the first part of discourse, safety and security should be the first problem to solve, then we can talk about comfort and air quality, the attractiveness of the design itself as well as surroundings, intermodality, accessibility to each important direction, social pleasure and the environment itself.

The second important part of discourse is the psychological impact of the built environment on people, mainly reflects in the five senses of human, space and light of the environment and physiological factors.

For the third part of discourse, acoustic sustainability should be considered, as the sound pollution from vehicles is one of the most serious pollutions to the city environment, to reduce negative sound impact should also be included in the thesis.



DELIMITATION

The delimitation will be the guideline of future design that which part should be considered first and put into the most important place.

The first part will talk about the aspects of social, acoustic and biodiversity. In the social aspect, the design should let social inclusion happen more frequently, and get as much as citizens involved in this 'untouchable area'; in the acoustic aspect, sound pollution should be reduced as much as possible by the new installations, and give pedestrian a relative comfortable experience when using the space; in the biodiversity aspect, since there are various of plants on the site, get these biological be part of the design is also quite important.

In the second part, the city should be a meeting place, where the aspects like accessibility, shared space, movement and program hierachy should be considered. A nice urban space should be merged with various functions, at the same time, movement spaces which are the main sidewalks and experience spaces which are the functional areas should work with each other so that the whole site will be more integrated and barriers will be simultaneously reduced.

The third part is about build the area into a safe and healthy place, which will mainly talk about how to follow the rule 'pedestrian first', and improve walking experience, at the same time, spatial quality should also be considered. As Jan Gehl wrote in his book <Cities for People>, "...And when speed in urban areas is increased from 5 to 60 or 100km/h, all spatial dimensions increase dramatically, and images and visions for likely cityscapes follow along." (Jan Gehl,2004)Therefore, the idea is to put pedestrian and traffic into different levels. The design will not change existing traffic system but try to find a way bypass the heavy traffic which may bring high risks of unsafety. In the long term development, the existing overpass for both pedestrians and vehicles might be removed, so the ideal situation is that the new intervention can still be the 'bridge' in this area which does not rely on the current structure.

The last part is about studys on pedestrian, which will mainly study envionmental psychology, their behavior analysis and physical contact.

| | IT'S NOT ABOUT | IT'S ABOUT |
|---------------------------|---------------------------------|----------------------------|
| the city as meeting place | economic | social |
| | multifunctional cultural center | acoustic |
| safe and healthy city | seasonal influence | biodiversity |
| | huge change of traffic system | accessibility |
| pedestrian study | traffic pollution | shared space |
| | ergonomics | movement |
| | | program hierachy |
| | | pedestrian first |
| | | improve walking experience |
| | | spatial quality |
| | | environmental psychology |
| | | behavior analysis |
| | | physical contact |

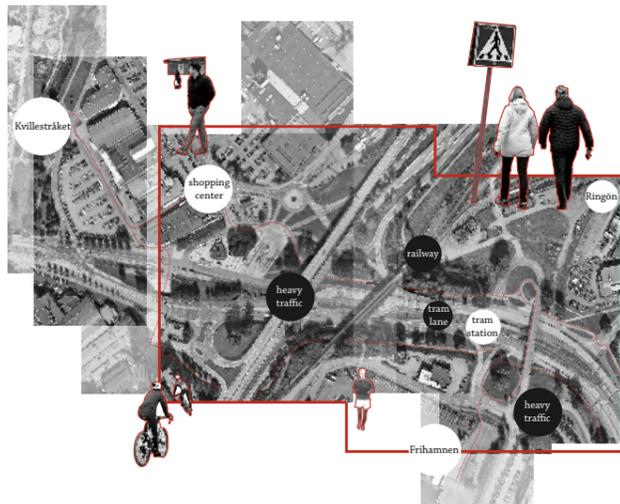
ACTANTS & STAKEHOLDERS

The main stakeholder in my case is pedestrians with different motivations as well as cyclist and huge amount of traffic.

Among the pedestrians, there are those who only go across the area, jogging, or to take a tram or bus. Simultaneously, with a lot of attractions surrounded by, a large amount of pedestrians are here for those attractions.

Some parts of the sidewalk are really comfortable to walk on with a certain distance to the traffic area, but most of them is unsafe, boring and complicated to walk across.

Based on the main group of stakeholders, how to keep the main function of the area and improve the walking experience at the same time is the main issue of this thesis project.



stakeholders

heavy traffic

cyclist

pedestrian

activities

to an attraction

to take a tram/bus

just go across

jogging

RELEVANCE

architecture

provide a solution for other similar traffic situation

environment

break the barrier, more integrated public space

pedestrian friendly

environmental sustainability, reduce sound pollution

social

social inclusion & interaction more often

pedestrian safety & comfort

METHODOLOGY

Qualitative & Quantitative Method

The project will be a design that trying to solve the problem of embarrassing situation of pedestrians in a heavy traffic area. It will be a landscape architecture with a structure that allows people to go through the space easily and comfortably as well as experience the space itself. On a larger scale, it can also connect the area to surrounding hot spots.

Method:

A series of different methods will be mix-used in the whole process of design.

Case and Literature studies

Since the project has quite a lot aspects that has not been fully studied in previous education background, literature study is quite important to gain these knowledge; from looking at other built or unbuilt references, some unnecessary mistakes could be avoided during the process, and it can also explain better theoretical approaches in a real public space case.

Site and Scenario analysis

The site in this case is an important starting point, which tells the weaknesses and opportunities in a real urban situation. Furthermore, getting a clear clue to the context of the site and surrounding areas can gain a higher value to the design itself.

Observations

Observations of both pedestrians and the site are used to understand the users behavior and site potentials better.

[Written Description]

people's behavior
existing traffic situation
surrounding environment

[Photograph & Video]

[Audio Recording]

sound from walking on the ground
sound from the traffic
sound from the wind

Tools:

Physical models will be used as analog to advance design, and a lot of digital tools will be used to get a visual testing for the design, such as grasshopper, which will be used for testing different material that will influence the walking experience and rhino, which can create a direct impression of the design.

[Extract GPS information]

tools using: openstreetmap
TomTom City

Technologies:

Since the design in a way care about people's emotion and objective feelings while walking, some speculative methods of explaining the design might be used.

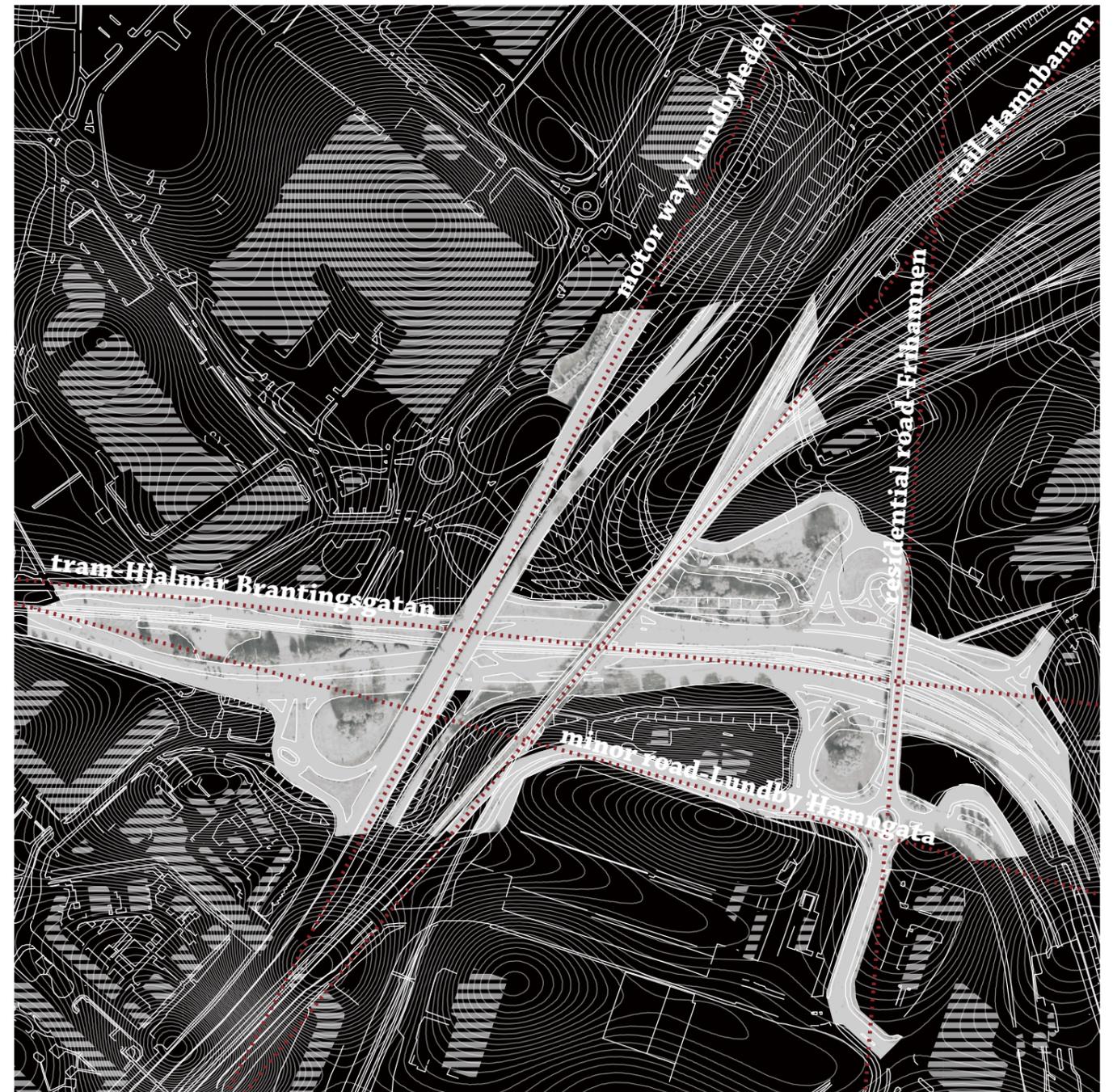
[Grasshopper Shortest Path]

tools using: grasshopper in Rhino



II
CONTEXT

SITE DESCRIPTION



Hjalmar Brantingsgatan Transportation Hub

Located at a triangular area among Frihamnen, Ringön and Backaplan, Hjalmar Brantingsgatan Transportation Hub is one of the most important transportation center in Gothenburg city. Besides public transportation system, huge amount of private cars and trucks speeding across the area every day and every second. Five directions of main roads create the feature of this complicated place where pedestrians have no choice but to walk along the edge of the road or go down into a dark and wet underground tunnel to reach another place.

II. CHALLENGE: HEAVY TRAFFIC

secondary road ●●●●

minor/
unclassified Road ●●●●

tertiary road ●●●●

residential road ●●●●

path ●●●

cycle path ●●○

foot path ●○○

motor way ●

steps ●

service road ○

tram ○

rail ○



[Road Hierachy]

12 different hierachy roads formed this complex traffic network. When walking in this area, it is hard to be distracted by surrounded views but only pay attention to the roads that you are walking on. There are too many unsafe factors need to be concerned.

Legend: allowed access

- Foot ●
- Motor Vehicles ●●
- Bicycles ●●●
- Horses ●●●●
- None ○
- Not specified-bicycles ○
- Not specified-horses ○

Resource: OpenStreetMap



[On-time Traffic Situation]

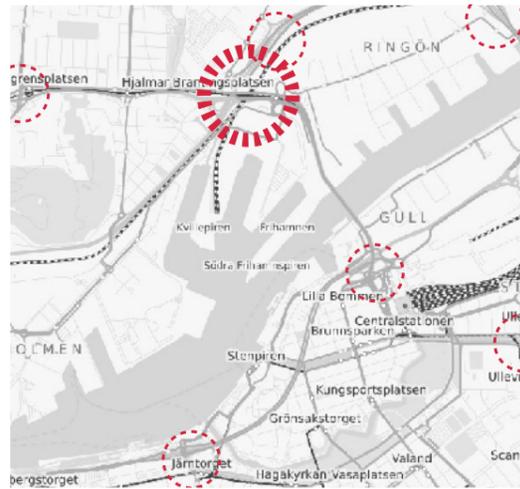
During the daytime, traffic roads also need to be faced with different levels of congestion which make it even impossible to have a continuous walking experience.

Legend: road congestion

- Closed ●
- Slow ●●
- Slight Congestion ●●●
- Good ●●●●
- Optimal ●●●●●

Resource: TomTom City

III. CHALLENGE: SOUND POLLUTION



① no shelter
heavy wind, freezing
loud traffic noise
several motor vehicle lane

② no zebra crossing
heavy traffic
inconvenient to cross

③ intensive traffic
narrow pedestrian space
feel dangerous

④ the way to bus station
intensive traffic
tuyere

⑤ inconvenient to cross
tuyere

⑥ under the bridge
seperated from the big traffic
bicycle lane | sidewalk
loud noise

⑦ safer area
bicycle lane / sidewalk

⑧ downhill pedestrian tunnel
bicycle lane / sidewalk
feel safe

⑨ uphill pedestrian tunnel
bicycle lane + sidewalk
feel safe

⑩ greening isolates motor lanes
feel very safe visually



⑪ relatively safe
bicycle lane | sidewalk
seperated from the big traffic
loud noise

⑫ best environment
bicycle lane / sidewalk
low noise

⑬ feel unsafe
with vehicles front and back

⑭ bicycle lane | sidewalk
feel safe visually

⑮ no zebra crossing
motor vehicle lane | sidewalk
pretty unsafe

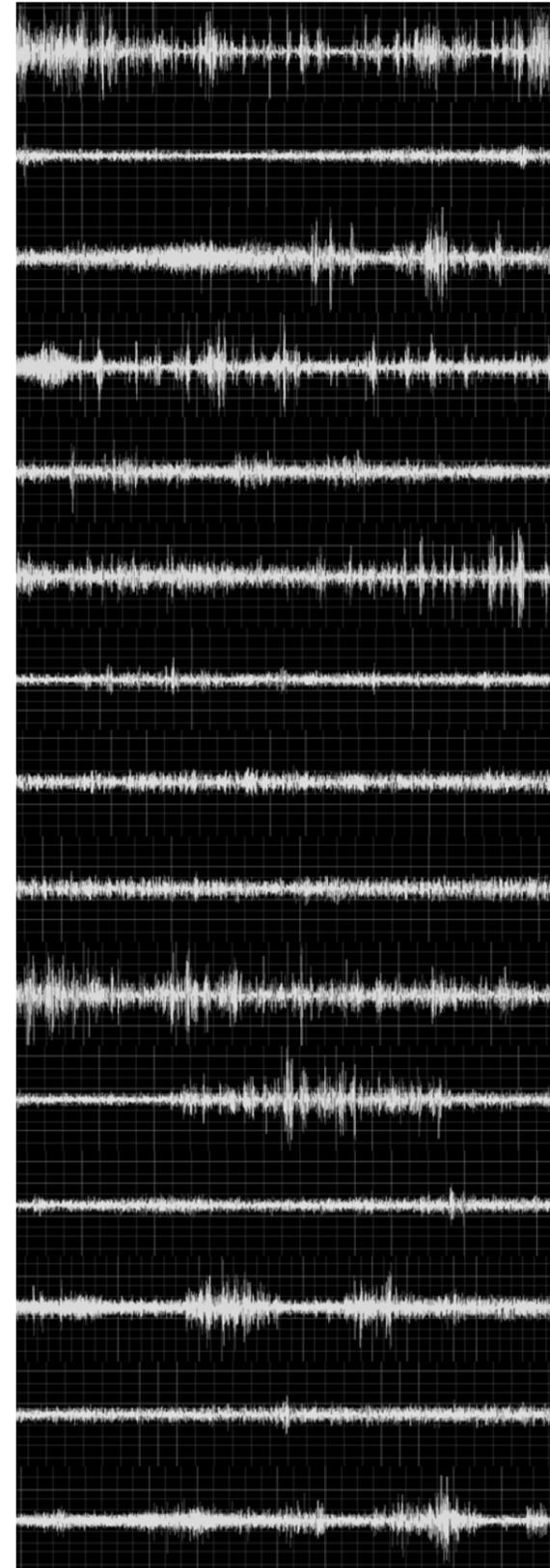
⑯ under the motorway
seperated from the big traffic
bicycle lane | sidewalk
large open space

⑰ bus station
unsafe to go cross

⑱ downhill pedestrian tunnel
bicycle lane / sidewalk
dark, feel unsafe

⑲ outside pedestrian tunnel
bicycle lane + sidewalk
feel safe and comfortable

⑳ safe pedestrian roads
open and wide vision



[Recorded Sound Level On Site]

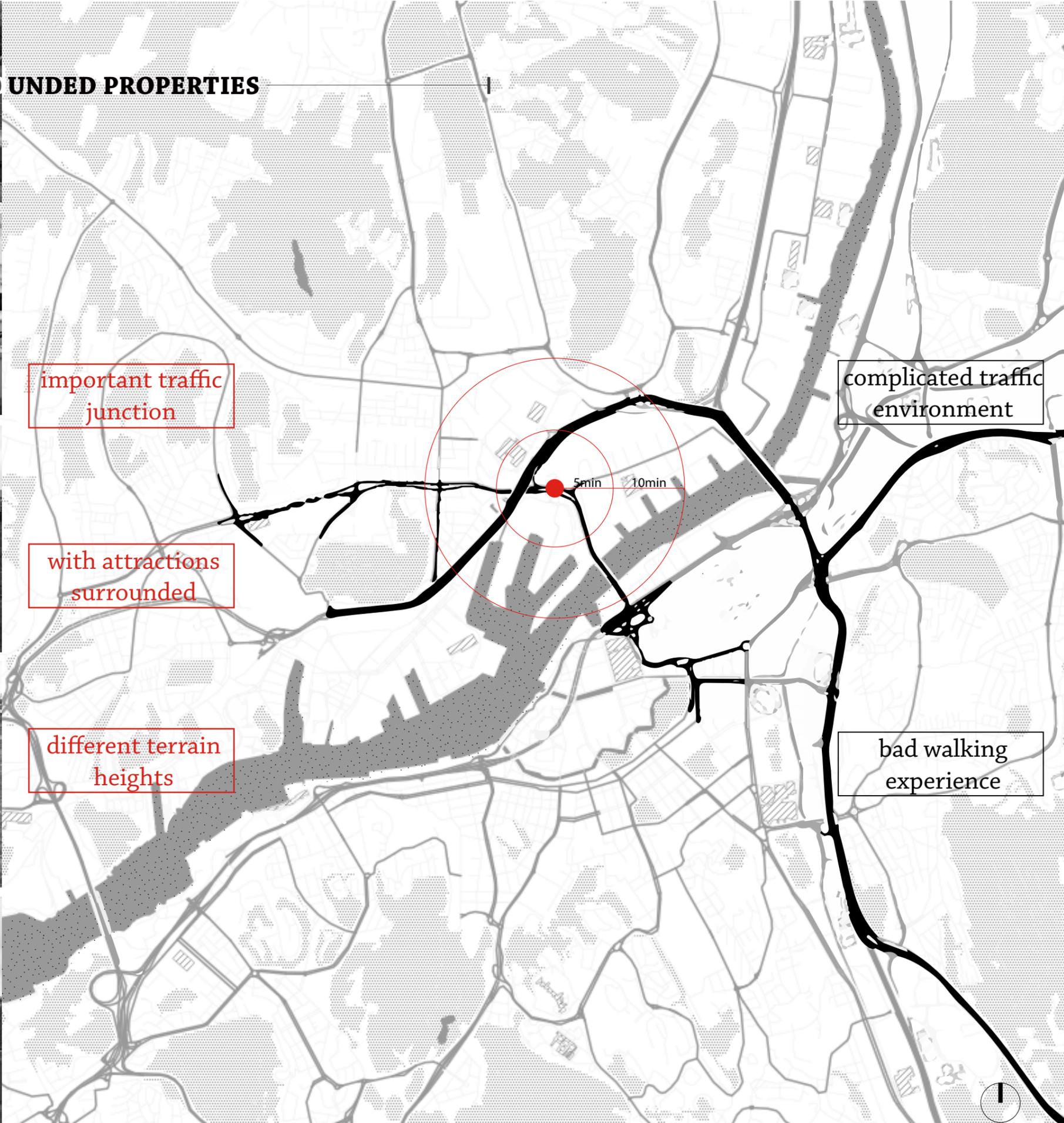
During the site visit, several sound records has also been made while walking along the current pedestrian paths, and it appears that the sound level tells the openness of the pedestrian path as well as the distance to traffic.

As Gros wrote in the book , one always walks in silence...You are out of the world's chatter, its corridor echoes, its muttering. Walking: it hits you initially like Associate in Nursing huge inhaling the ears. You feel the silence as if it were a good contemporary wind processing away clouds.(Frédéric Gros, 2011)

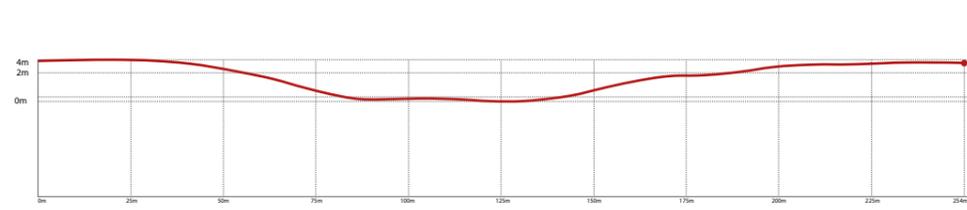
But when there is no beautiful sound but only crazy noises whistling in the ears, how can walking become an enjoyable tour?



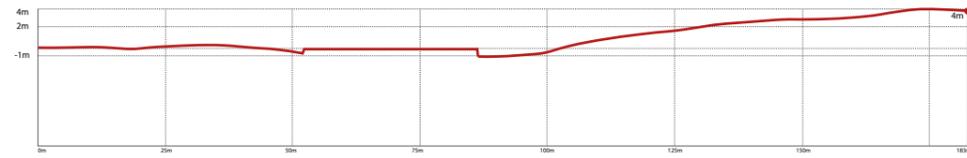
I. OPPORTUNITY: SURROUNDED PROPERTIES



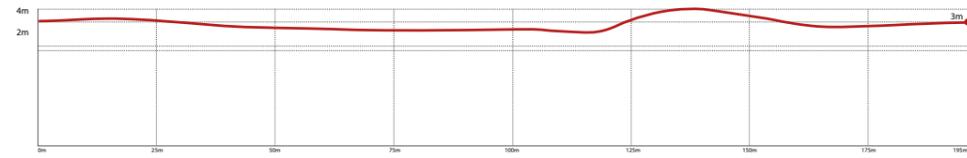
II. OPPORTUNITY: TOPOGRAPHY



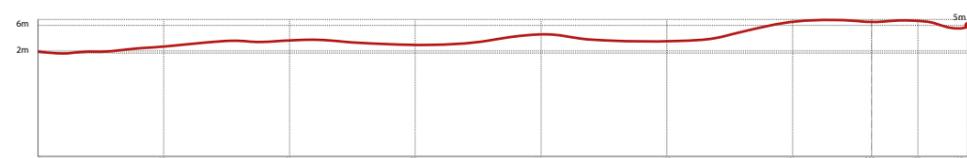
A-A section



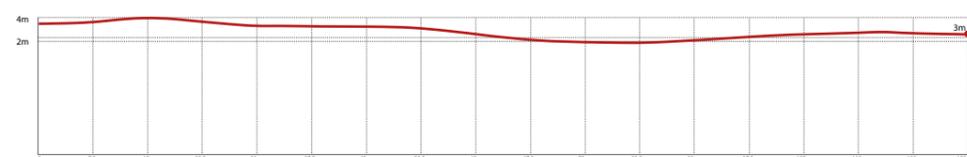
B-B section



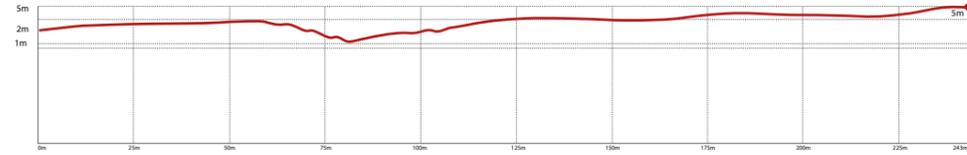
C-C section



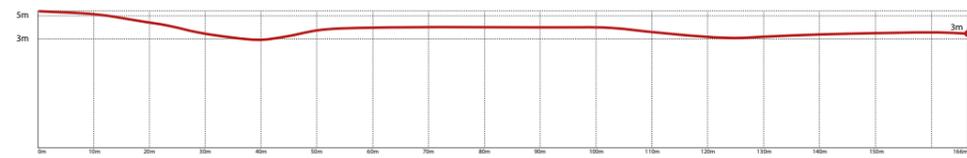
D-D section



E-E section



F-F section



G-G section



ANALYSIS SUMMARY

Problems

- long distance(boring)
- too close to busy traffic(unsafe)
- visually(uncomfortable)
- olfactory(bad smell)
- hearing(noisy)

Divergent thinking

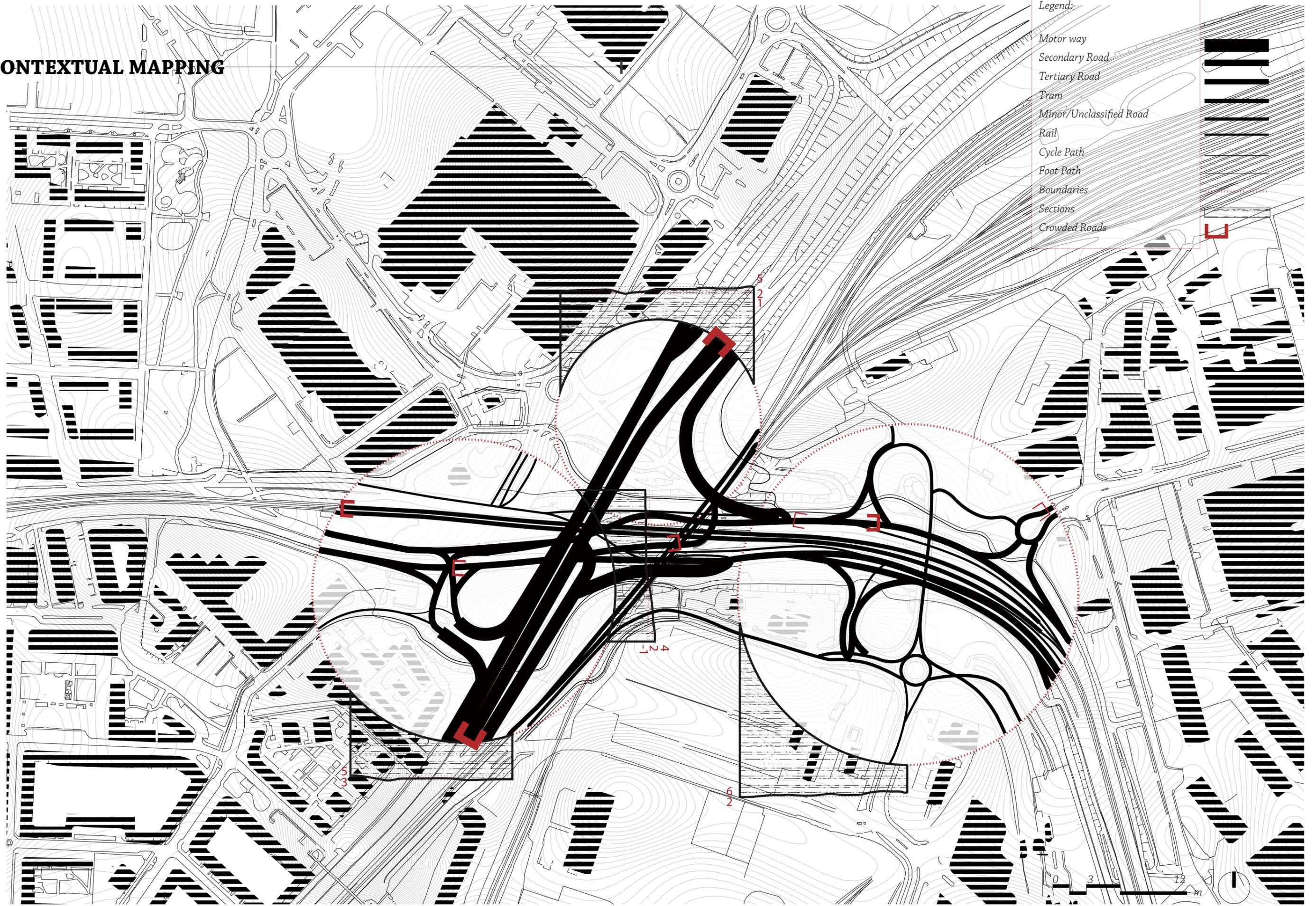
- people have a low sense of a long, boring road
- empty accessible area is nowhere
- segmented walking space
- feel unsafe when there is no visual barrier
- psychological impact
- behavioral influence

Possible solution

- merge movement space and experience space
- spatial division by density
- multi-dimensional space
- design from the five senses of people
- how built environment influence emotion&behavior

After a bunch of data collections and site analysis, it became more and more interesting that superficially the place was an unwelcomed area but there have been a lot of opportunities hidden behind. How to overcome these weaknesses and create it into a valuable place became the main question that led the whole design process later on.

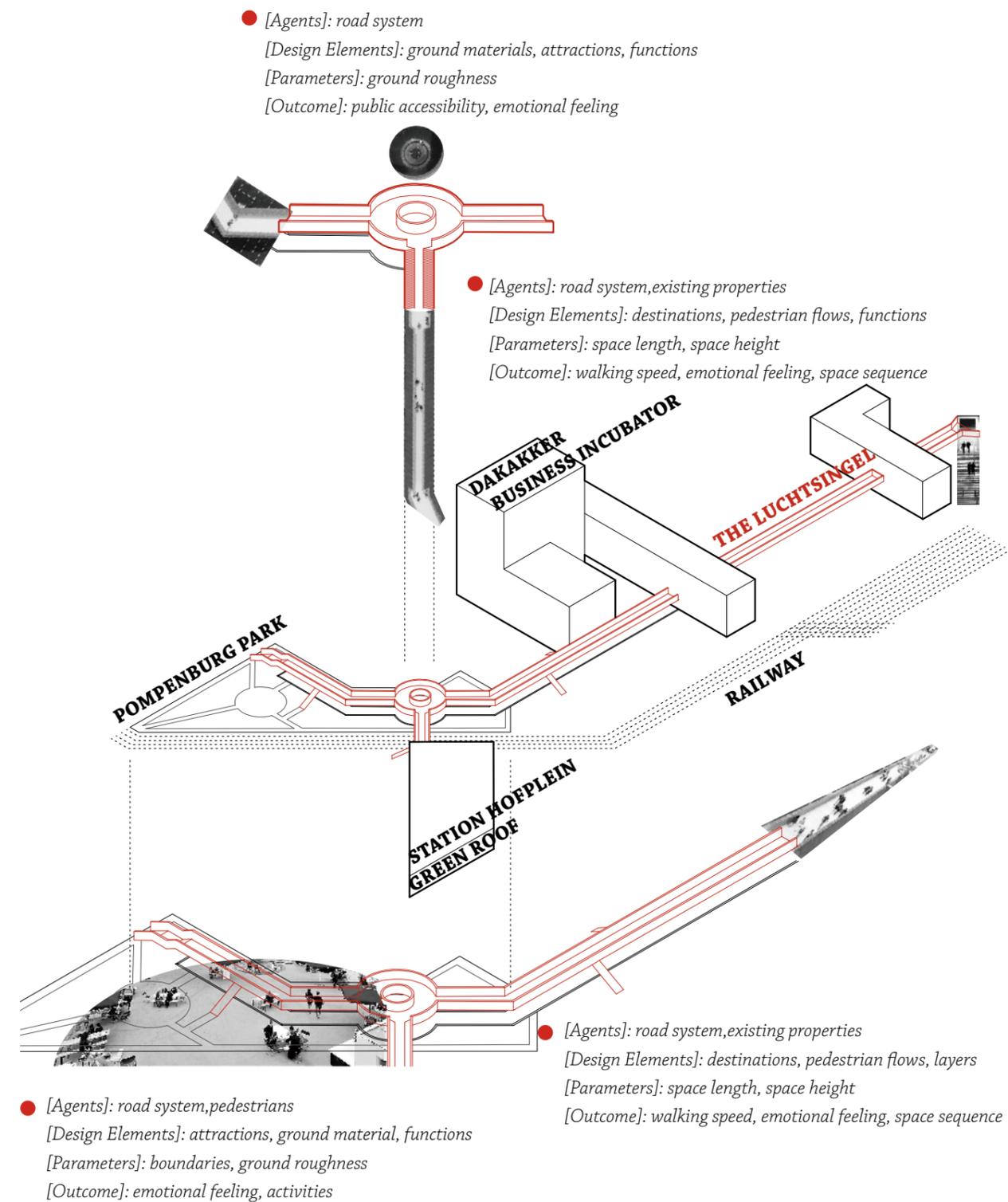
CONTEXTUAL MAPPING



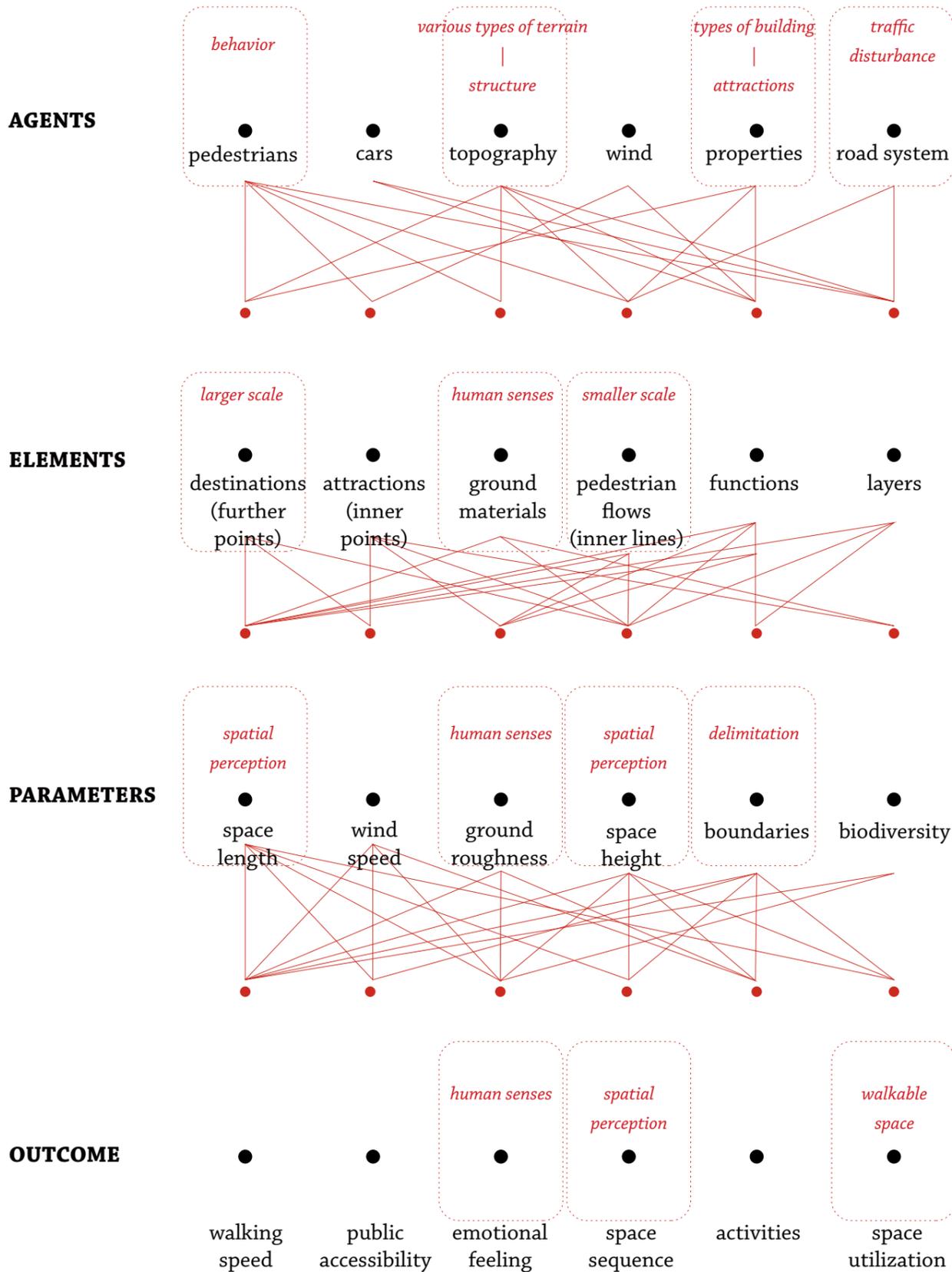
LEARN FROM 'Luchtsingel Rotterdam'



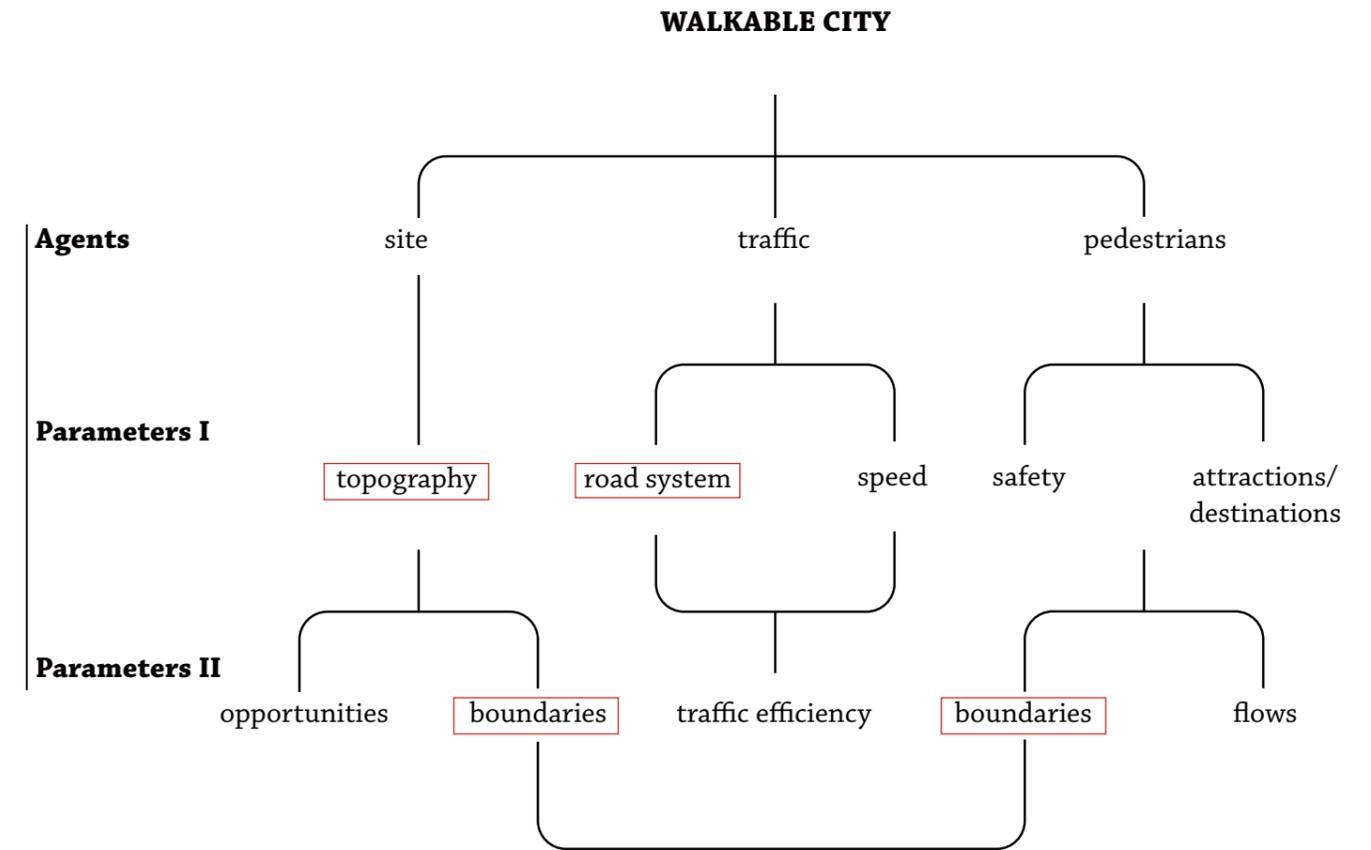
III STRATEGY



DESIGN ELEMENTS



MIND MAP

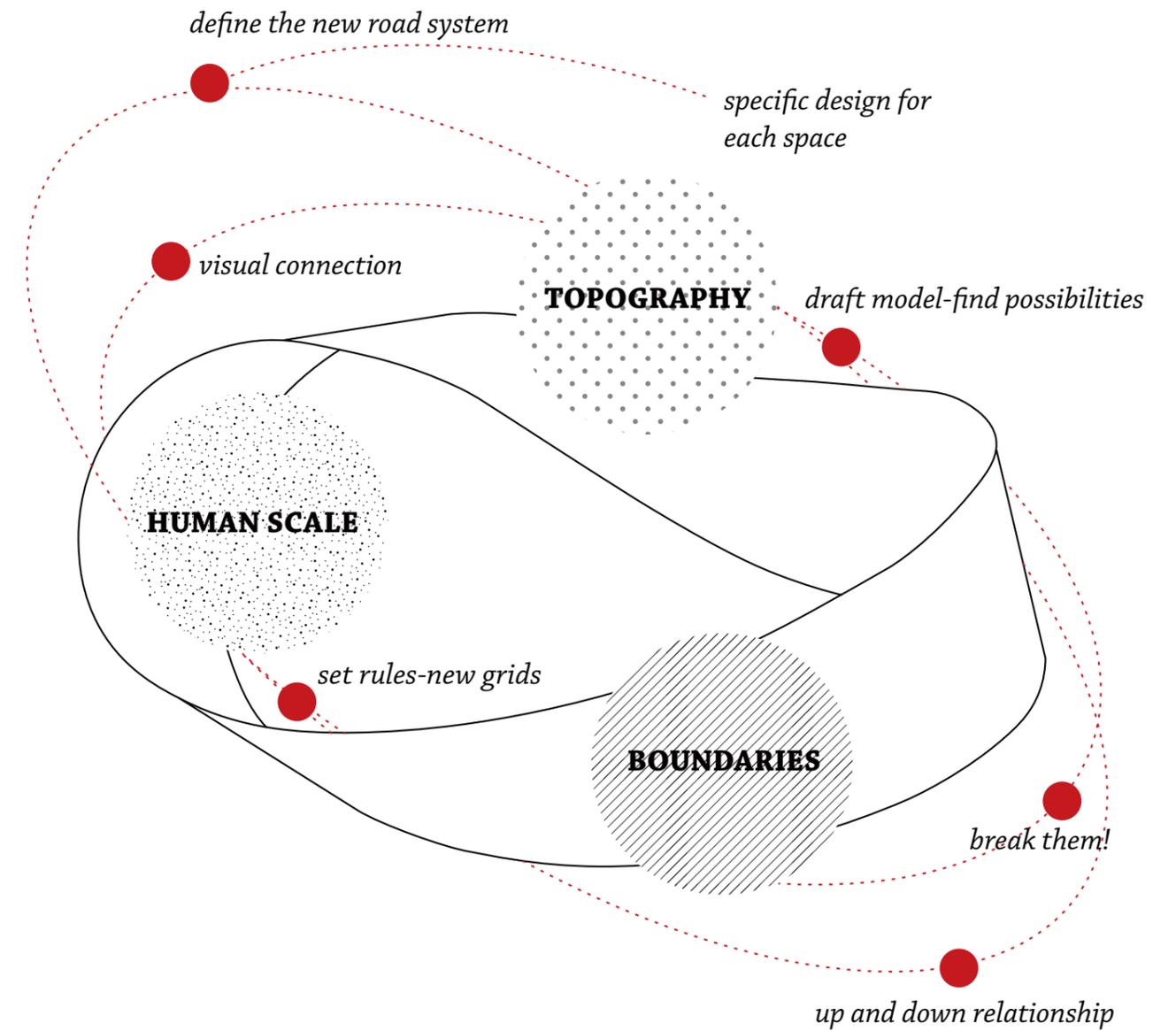


Based on the site analysis and theory study, the idea of "Walkable City" came out from the mist, in which has topography, road system and boundaries as the three main parameters. Topography in a way is related to accessibility; boundary is a mixture of both breakable and retainable barriers; road system is related to human behavior, which will be discussed more in the human scale. The following implementation is based on this mind map.



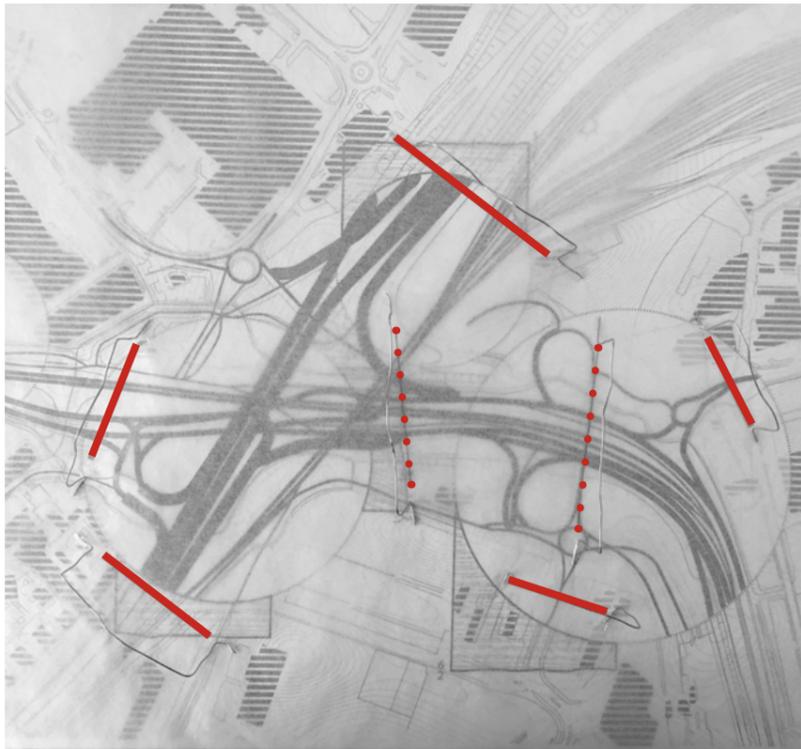
IV INTERVENTION

DESIGN LOOP



The design went through a repetitive thinking about “Topography-Boundaries-Human Scale”. It is started with an observation of existing topography and I tried to find opportunities from it to create new accessibilities. Then it went through boundaries where I discussed which boundaries I want to break and which part I want to keep as the outframe of my design. Later on, it went to human scale where I thought more about how people could feel in a smaller scale. This design loop guided the whole design process and made the whole structure rigid and logical.

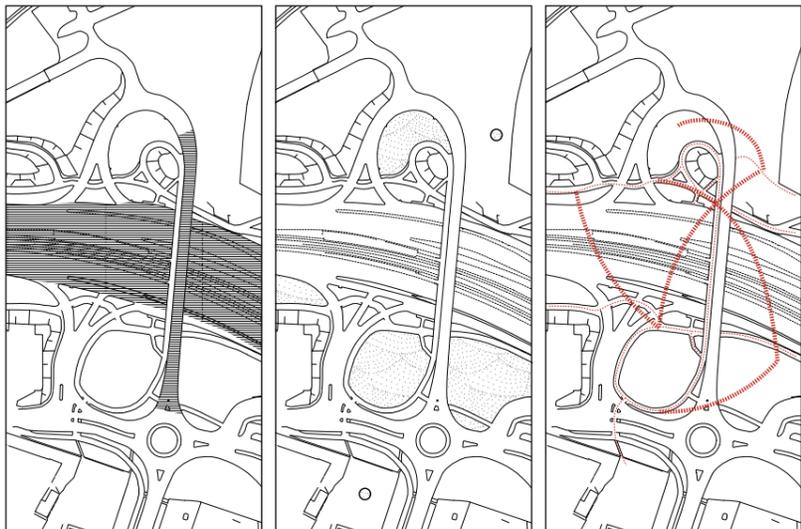
I. WORK WITH: TOPOGRAPHY



1. where are the existing obstacles?

2. where is the opportunistic area?

3. which part of accessibility need to be improved?



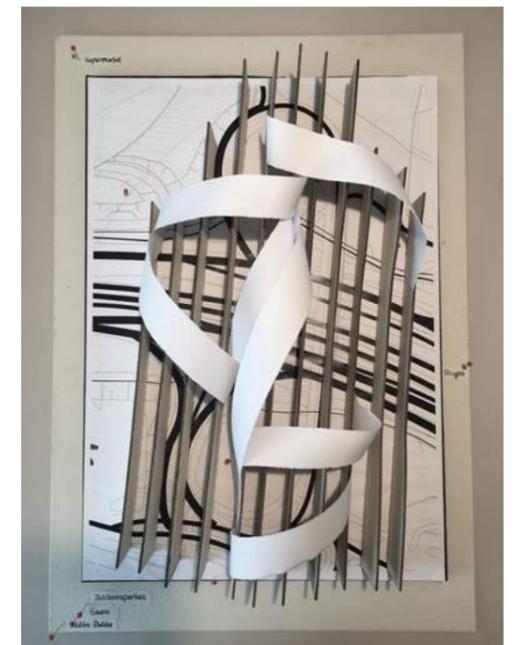
1. map and inner sections



2. sections overlook



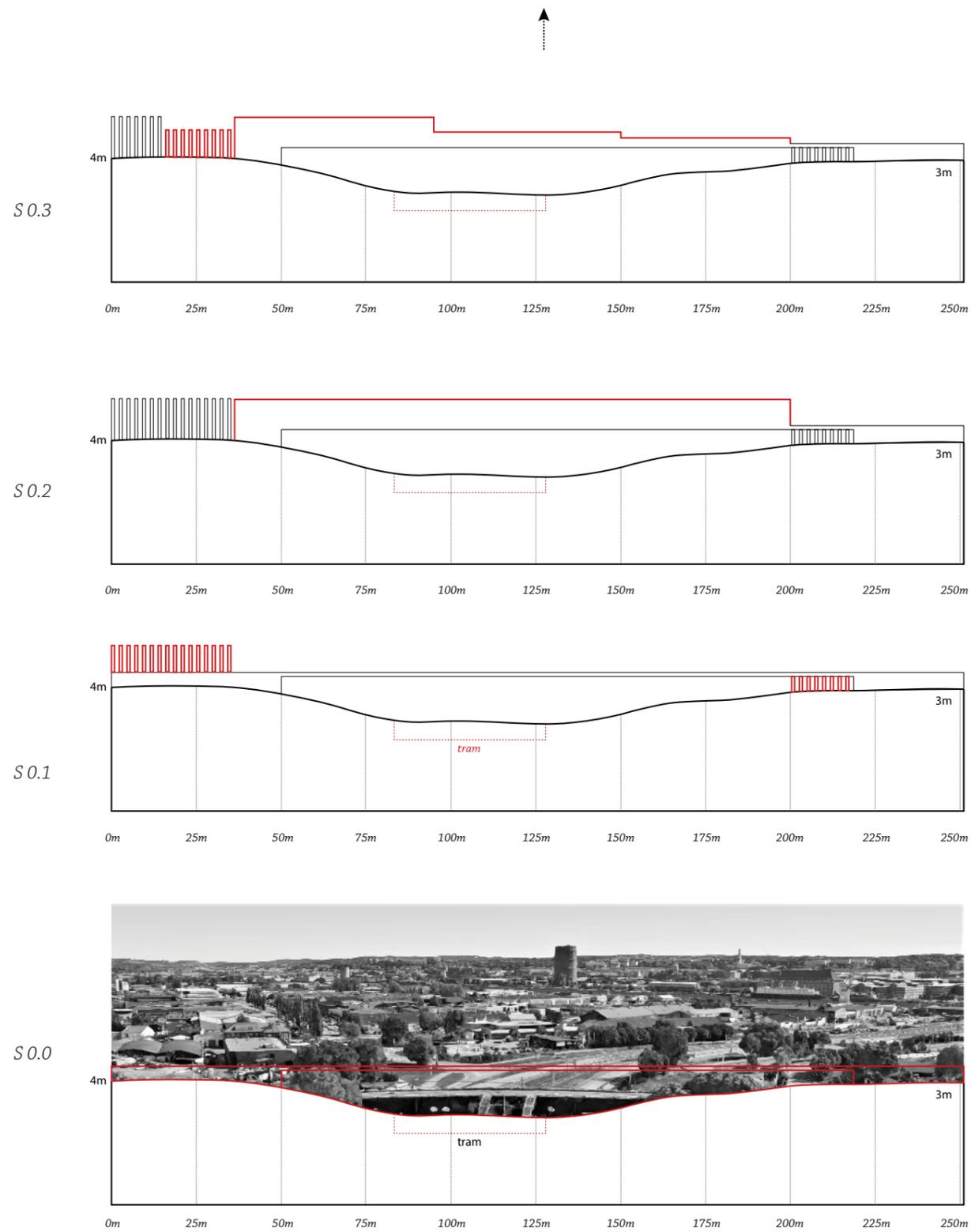
3. with open vistas



4. where to have new accessibility?

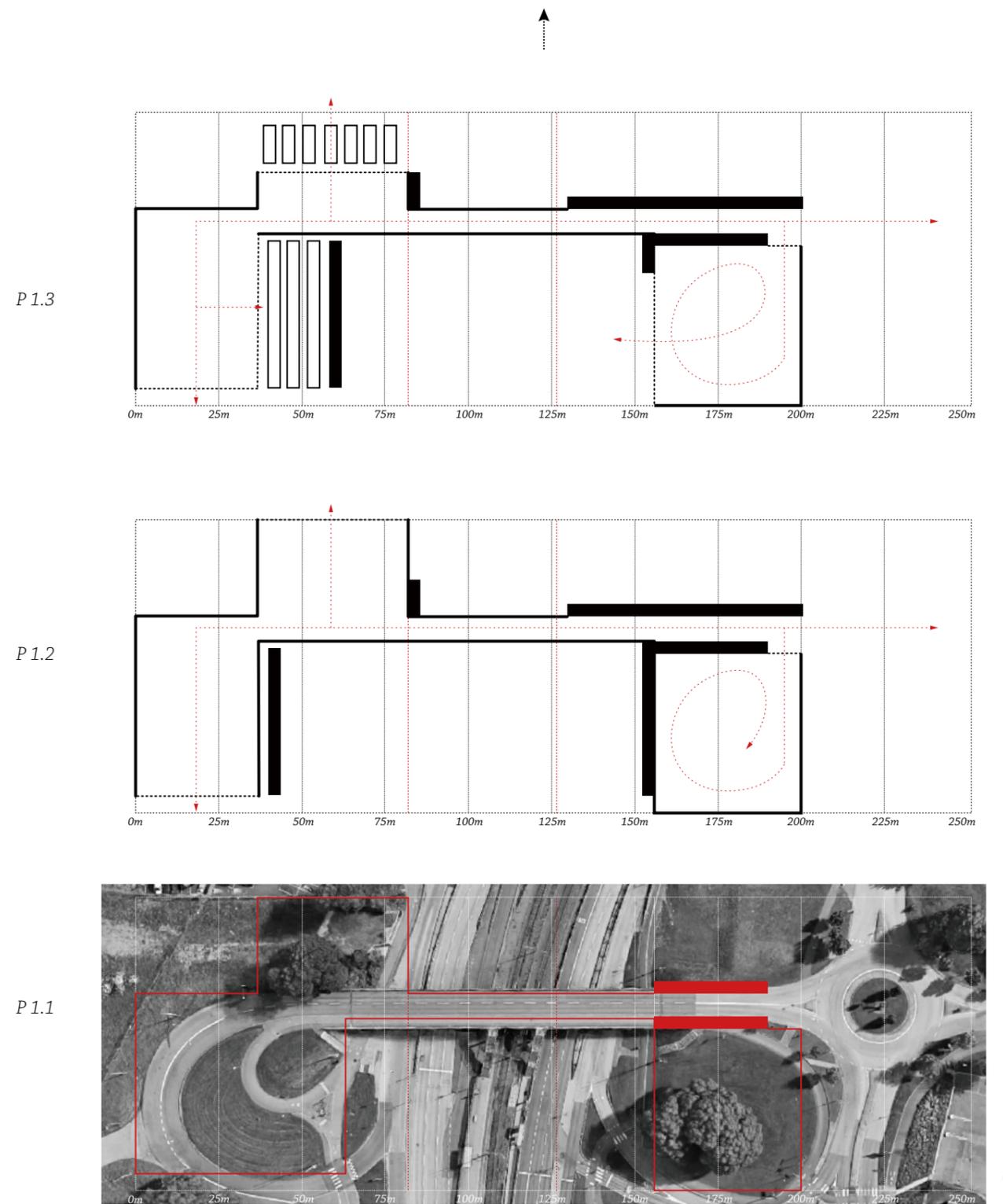
0. Sections

[draft sketch on height differences according to existing topography]



1. Plans-Accessibility

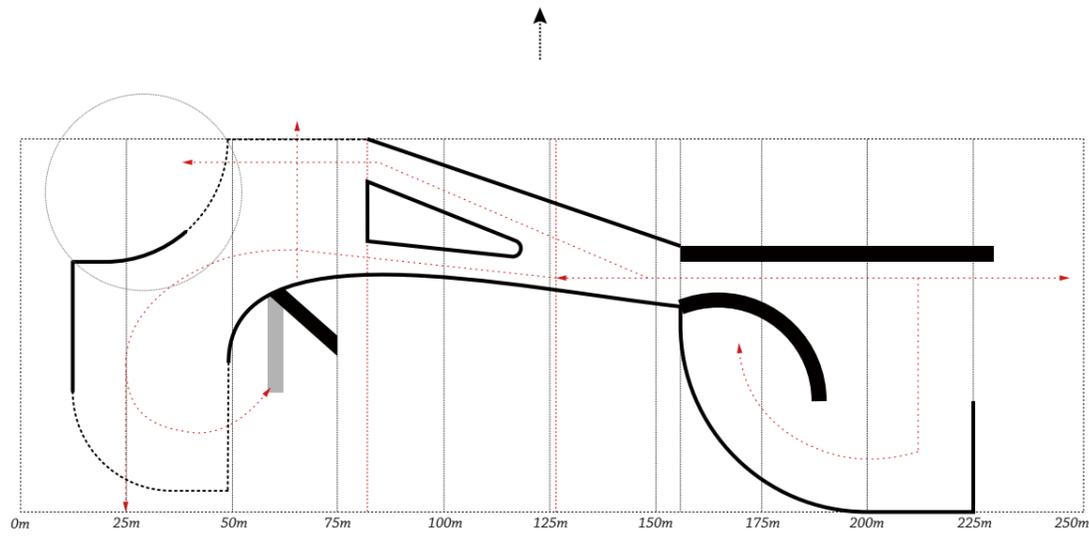
[a tentative idea about new accessibilities based on current overpass]



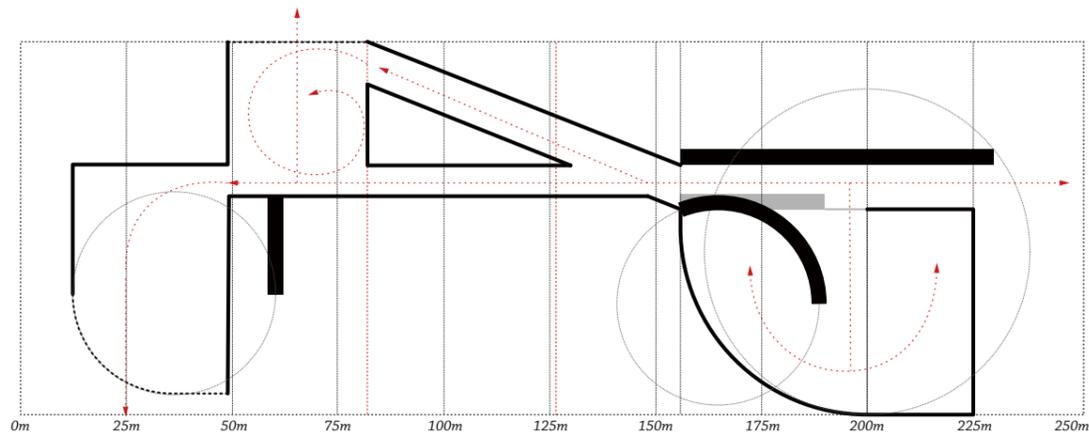
2. Plans-Directions

[a tentative idea about new directions]

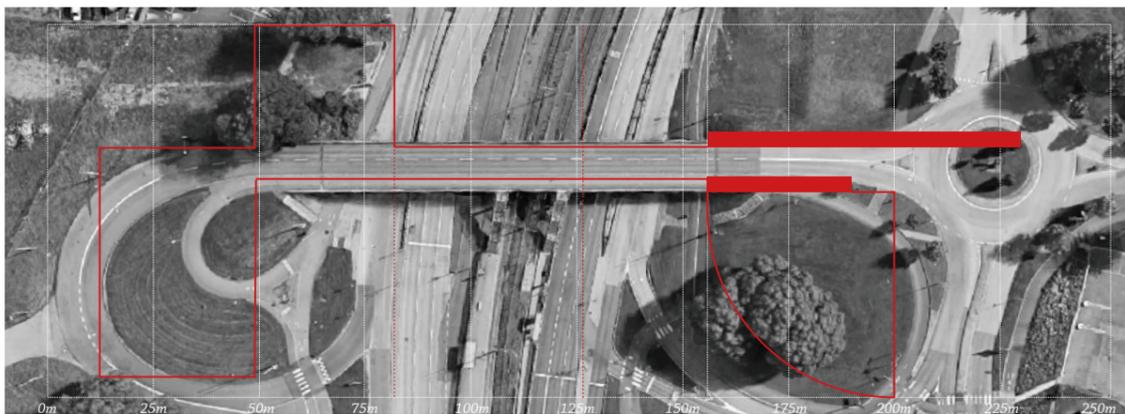
D 2.3



D 2.2



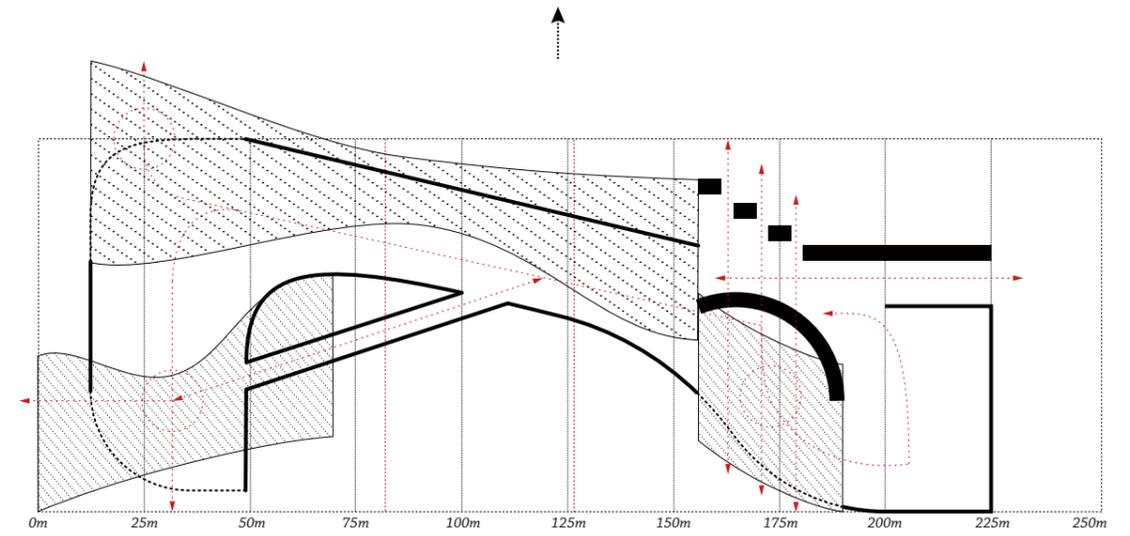
D 2.1



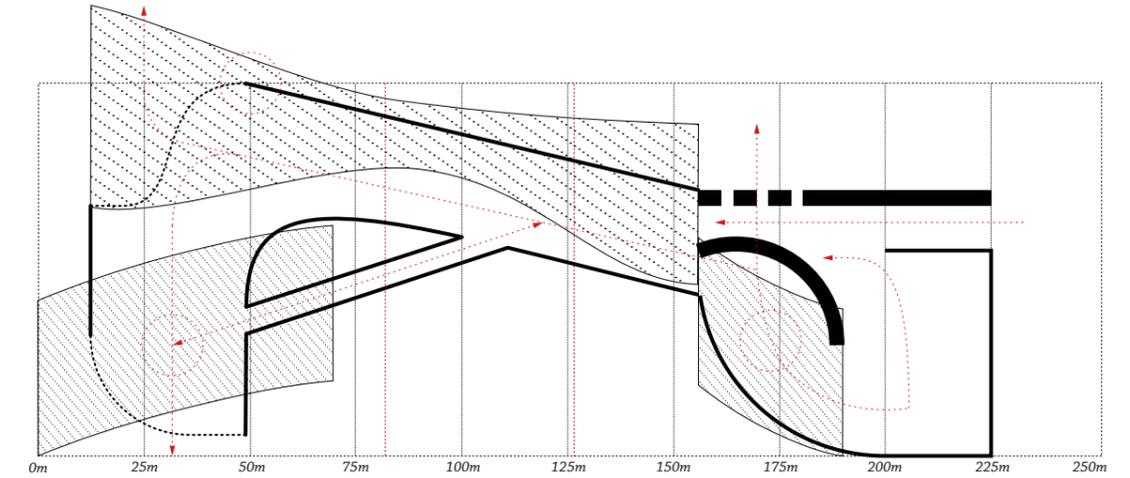
3. Plans-Overlapped functions

[a tentative idea about creating new functional areas]

F 3.3



F 3.2

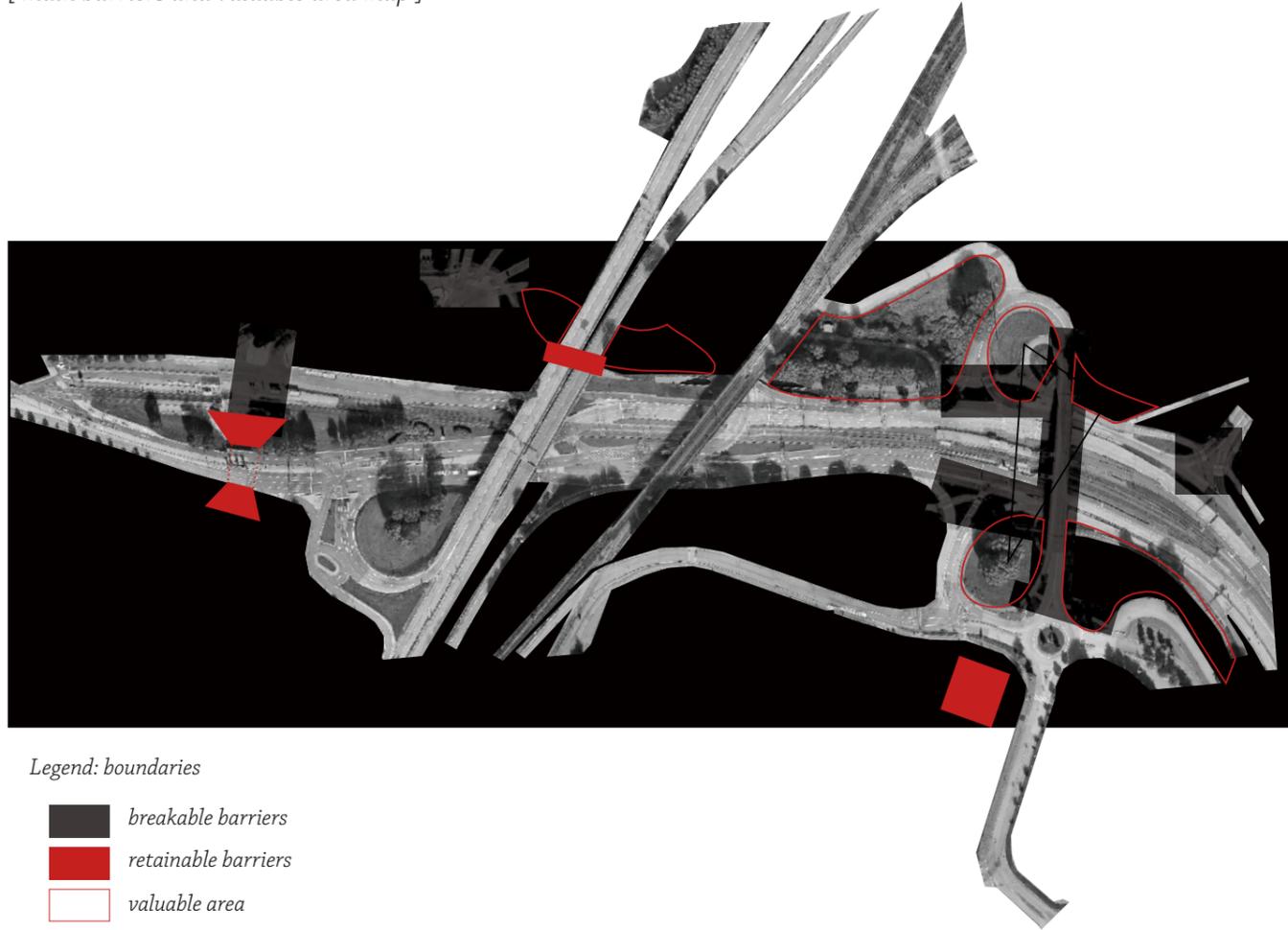


F 3.1



II. WORK WITH: BOUNDARIES

[main barriers and valuable area map]



Legend: boundaries

- breakable barriers
- retainable barriers
- valuable area

Boundaries here are one of the main difficulties for pedestrians to overcome, everytime when someone try to get from one side to another, there are several hard choices to make.

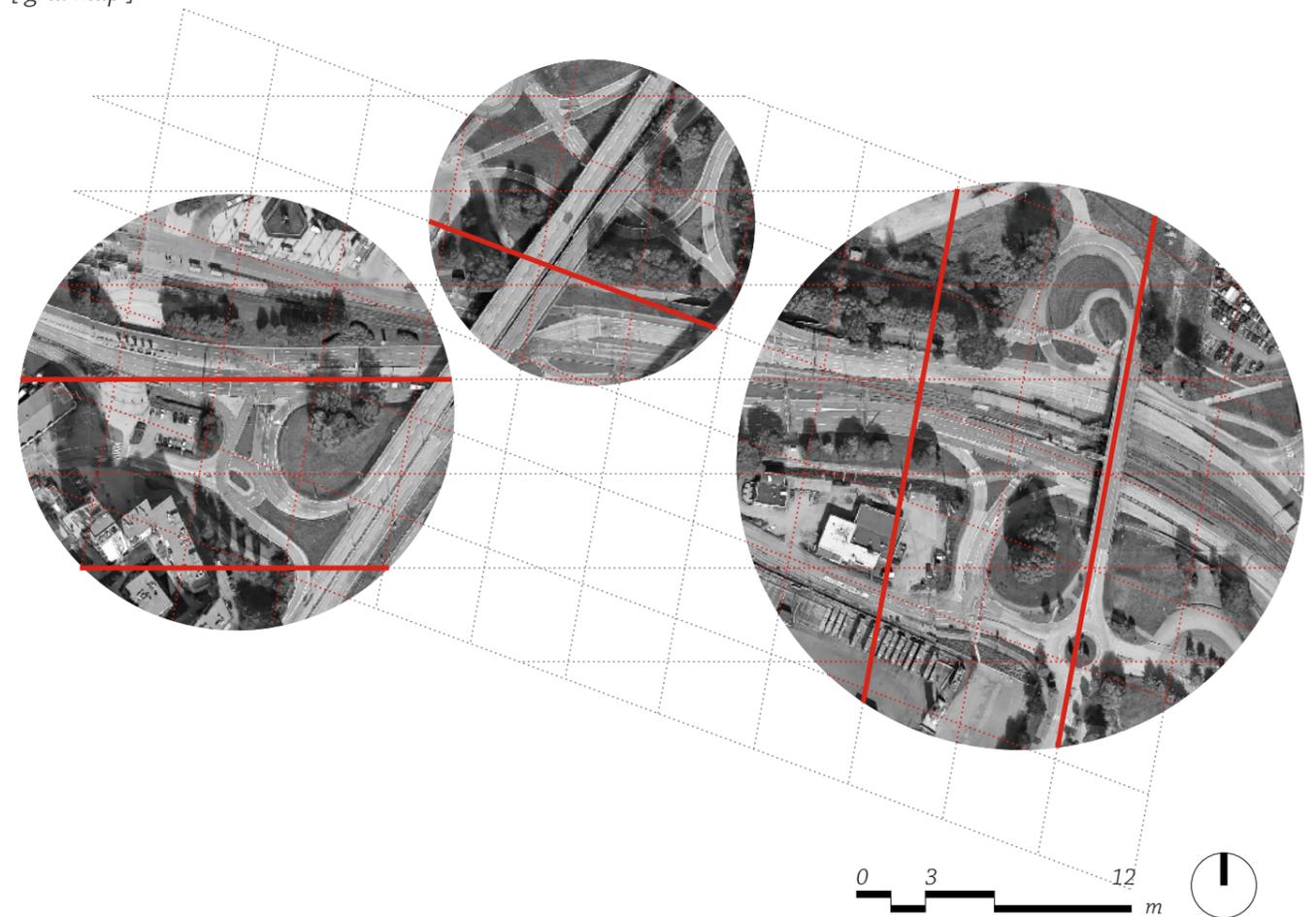
The first one is a vague pedestrian route. It is hard to define which way should go visually, which may cause hesitation and doubts when crossing a heavy traffic area; the second one is detoured roads, which make the tour even more boring and exhausting; the third one is 'zero-distance' to traffic roads, it is quite easy to find many cases like this here: cars speeding pass with loud noise and strong wind, when it comes to a rainy day, it could get worse with rain splashing on pedestrians. Due to such a short distance and without any physical protections, pedestrians have to stay close to the other edge of the road

With these boundaries, a lot of opportunistic open areas are created at the same time. Right now they are not used in an efficient way, but with such a large area, quite a lot of activities and possibilities can happen there.

Walking across the whole area, it is not difficult to see that the eastern part of the site has more complicated but potential area based on the topography difference. Continue walking through the tunnel, it appears a wide open area with an interesting under-bridge space to be discovered. After turning around at the market area, here is Hjalmar Brantingsgatan public transportation center, and just next to it is the foot path as well as cycle path connecting to the southern part of the site.

III. WORK WITH: HUMAN SCALES

[grid map]

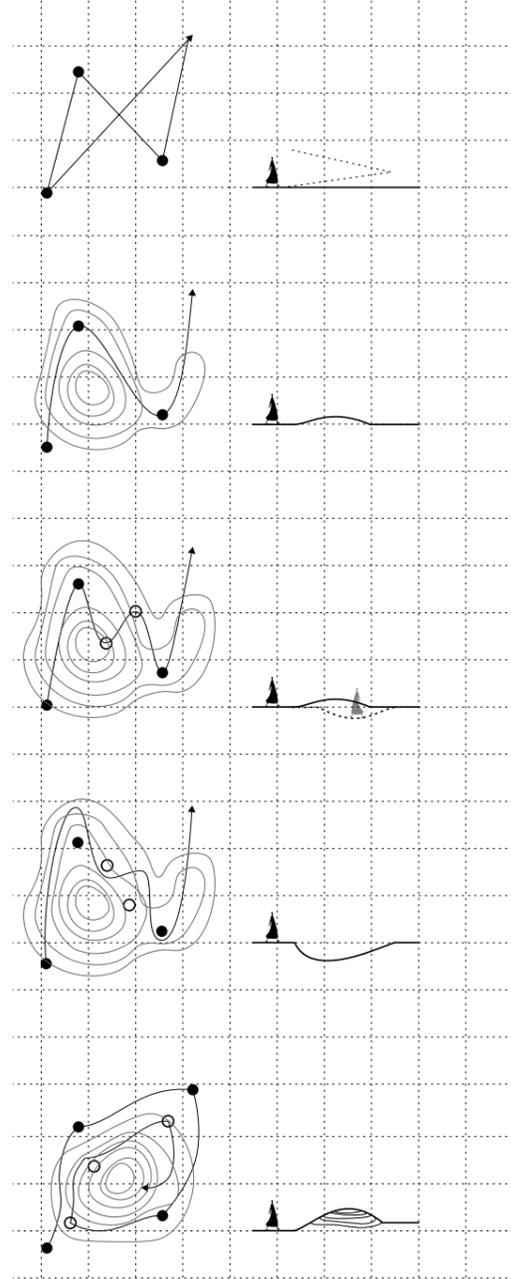


"When we walk at our usual speed of four to five km/h (2.5-3mph), we have time to see what is happening in front of us and where to place our feet on the path ahead. If we meet other people, we can see them from a distance of 100 meters (110 yards). It takes between 60 and 70 seconds before we actually meet face to face."
 —Jan Gehl. <Cities for people> Chapter 2. Senses and Scale, 2.1 Senses and scale"

An overlapped grid with 100m and 50m distance has been set accordingly. Every 100 meters, it should be guaranteed that there is a main functional area which is the main attraction and experience space, and every 50 meters, the connections (pedestrian routes) should have a visual difference no matter it is the height or direction, this is to avoid the "tiring length perspective".

NEW PEDESTRIAN ROAD SYSTEM

[movement and topography]



direct connection
 /shortcut /no relationship with leftover space
 flat ground/
 pass straightly/

single curved connection
 /hairpin curve /have relationship with leftover space
 gentle slope/
 detour/

complex curved connection
 /meandering curve /extra attractions
 gentle slope/
 detour/

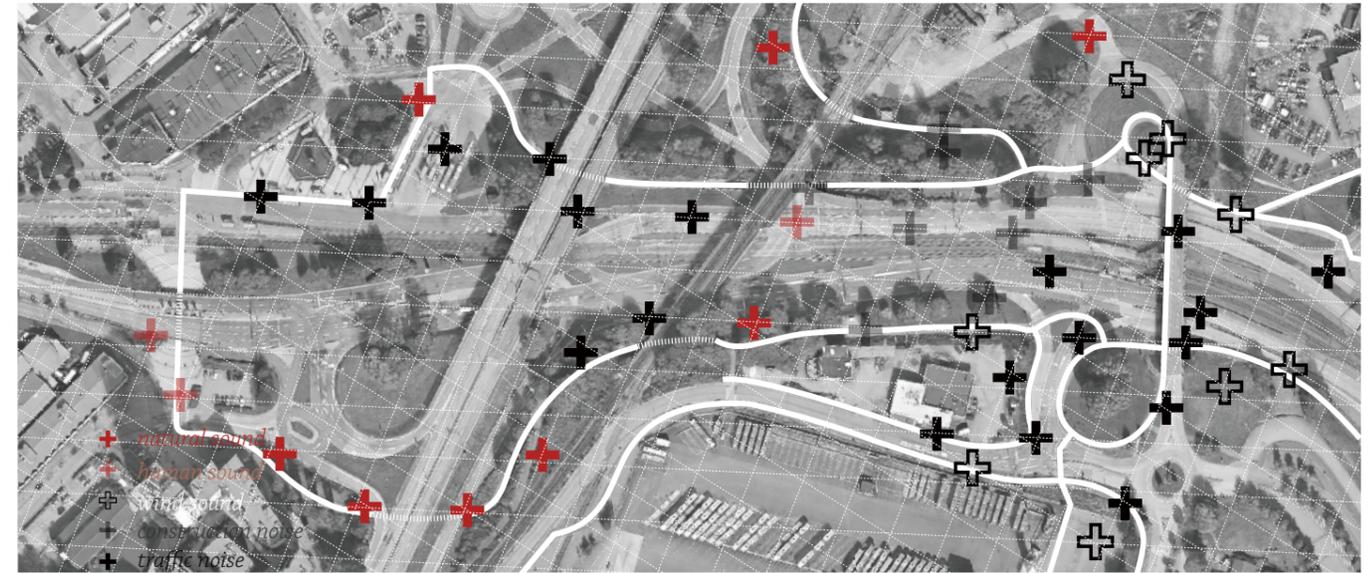
complex curved connection
 /meandering curve /extra attractions
 deep groove/
 detour/

complex curved connection
 /spiral /extra attractions
 steep slope/
 detour/

After a round of analysis, the design focus has been put on creating a new pedestrian system which will not affect existing traffic roads and add extra values for pedestrians to experience at the same time.

The design started with a study between movement and topography. When the ground is flat, the movement is purposeful but also has little relationship with surrounding space; when there is a certain topography, movement becomes twisted and it gives a possibility to create something attractive when there is a turn.

[sound map]

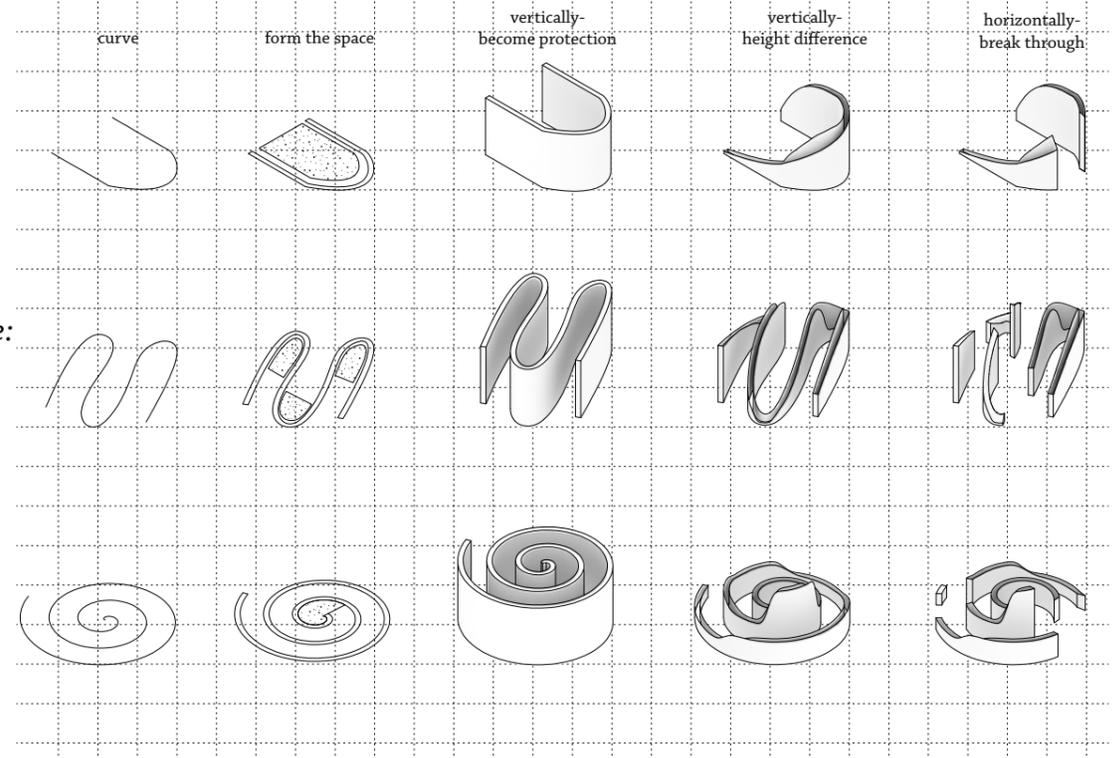


[road typology]

hairpin curve:
 speed: +++
 open space

meandering curve:
 speed: ++
 semi-open space

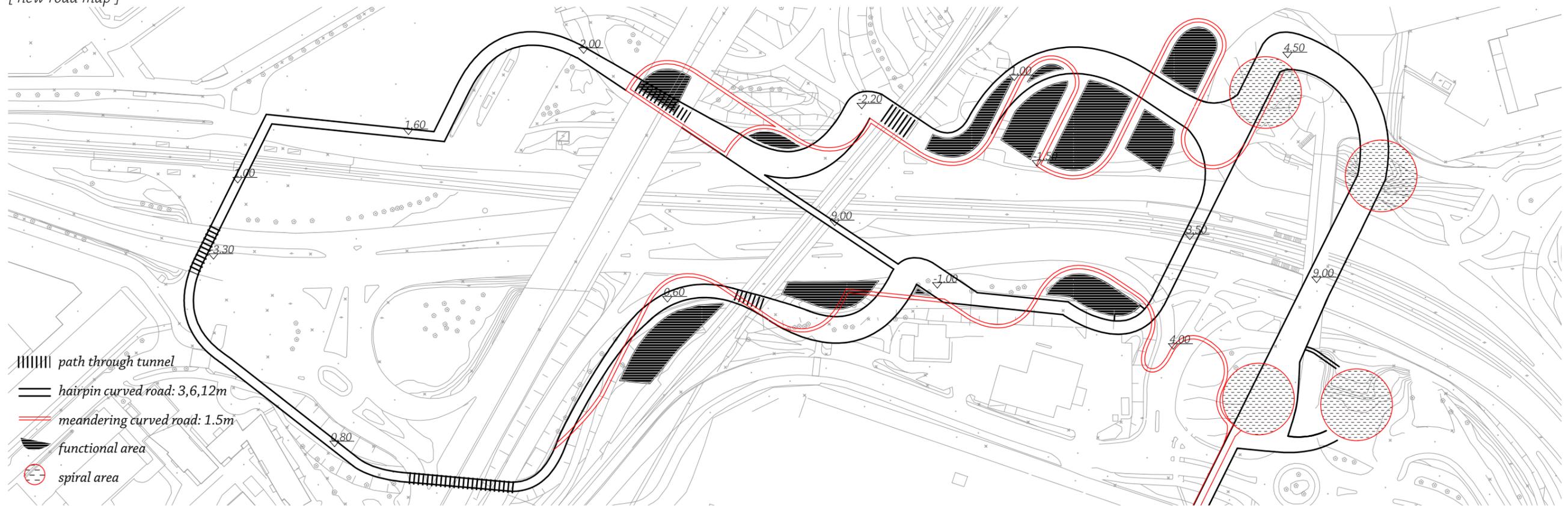
spiral:
 speed: +
 enclosed space



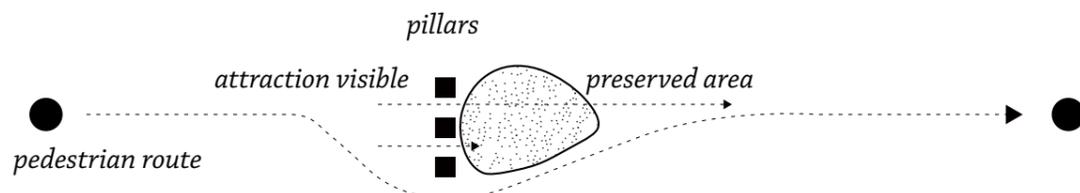
Besides topography, acoustic effect also influence movement a lot. Following the current pedestrian path, I did a sound map which contains both positive sound and negative noise. Where there are more negative noise, there should have more protections for pedestrians.

Therefore, three types of curved roads have been introduced to realize this protection. Hairpin curves have the most opened shape so it exists in the place where has more positive sound; meandering curves create more semi-open space where they have a certain routine but also form experience space; spiral should be where has most complicated situation and should be a more closed space.

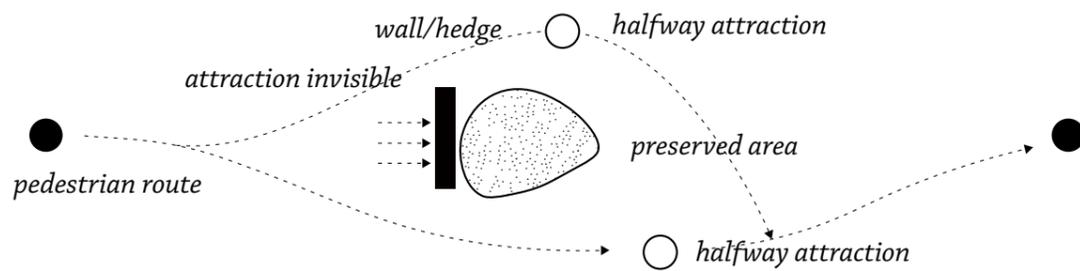
[new road map]



[path and inbetween space guideline]

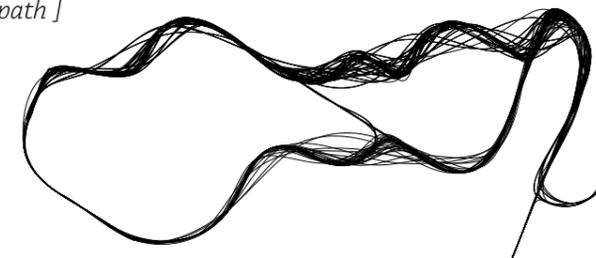


negative control: attraction is visible
unwilling to take the shortcut
follow the path



positive control: attraction is invisible
halfway attraction lead people to turn around
follow the path

[shortest path]

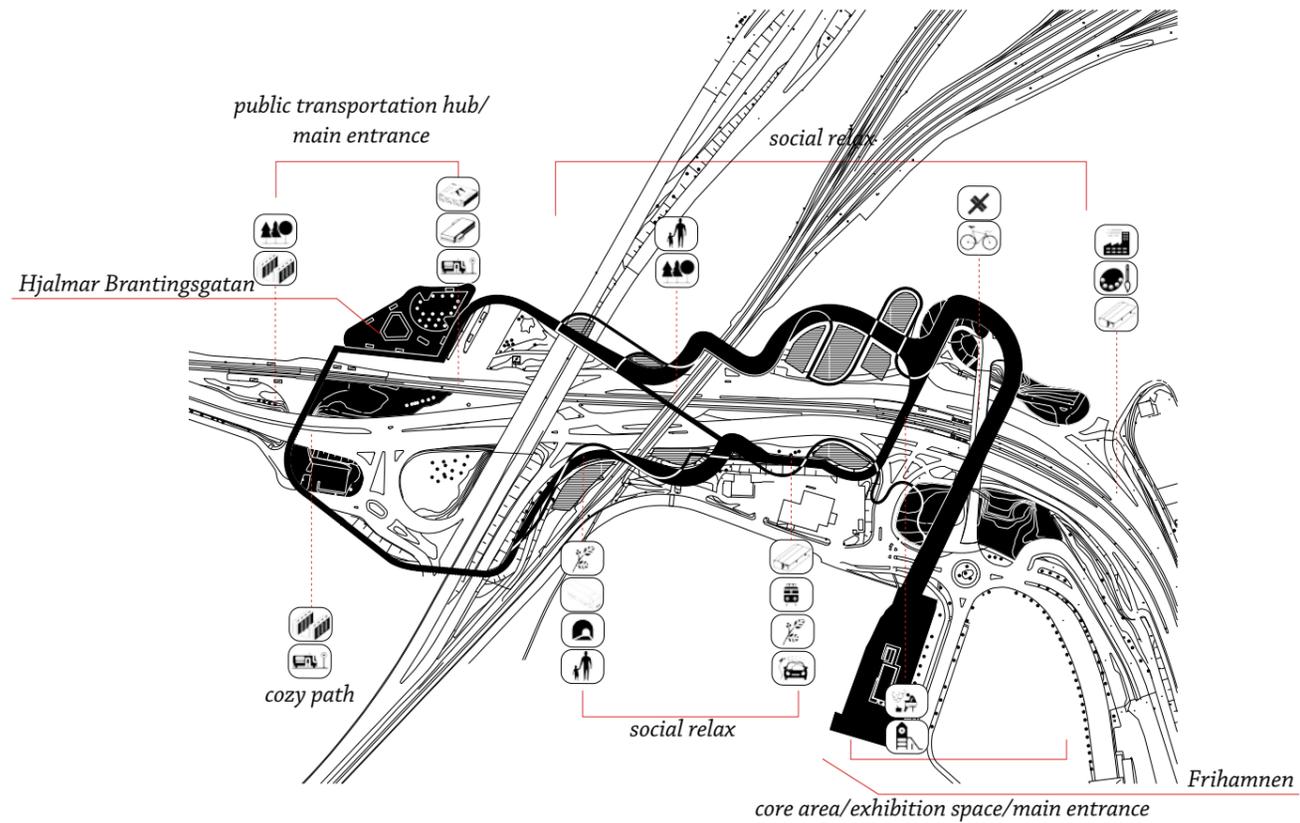


There are two main reasons to have different curves as new roads. The first one is to create visual and acoustic protection, and the second one is to gain space for experiencing. Before people can only go straight without a stop, but now they have spaces and opportunities to experience. A new pedestrian road system with a set of roads and in between spaces therefore has been created.

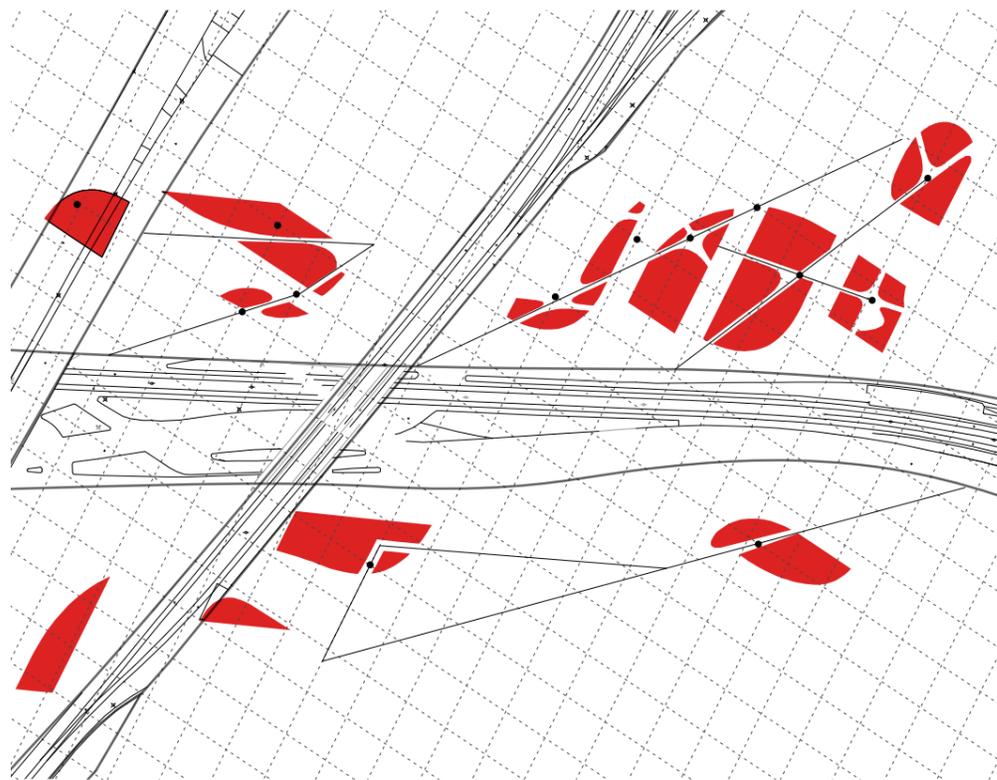
Main medium of intervention: Landscape Architecture
The width of new roads are designed based on the shortest path, which tells which road is more popular thus need to be wider. There are four different widths: 1.5m, 4m, 6m and 12m.

When it comes to landscape architecture, the way how to arrange the relationship between roads and inbetween spaces is the first thing that I thought about.

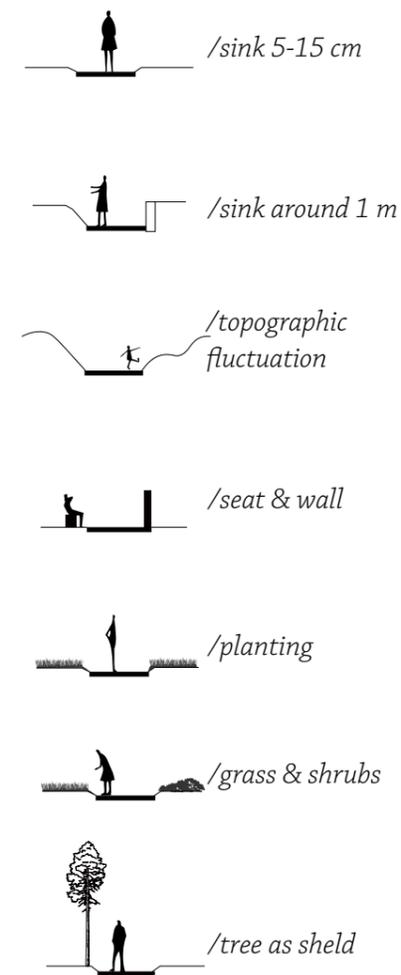
[program intervention]



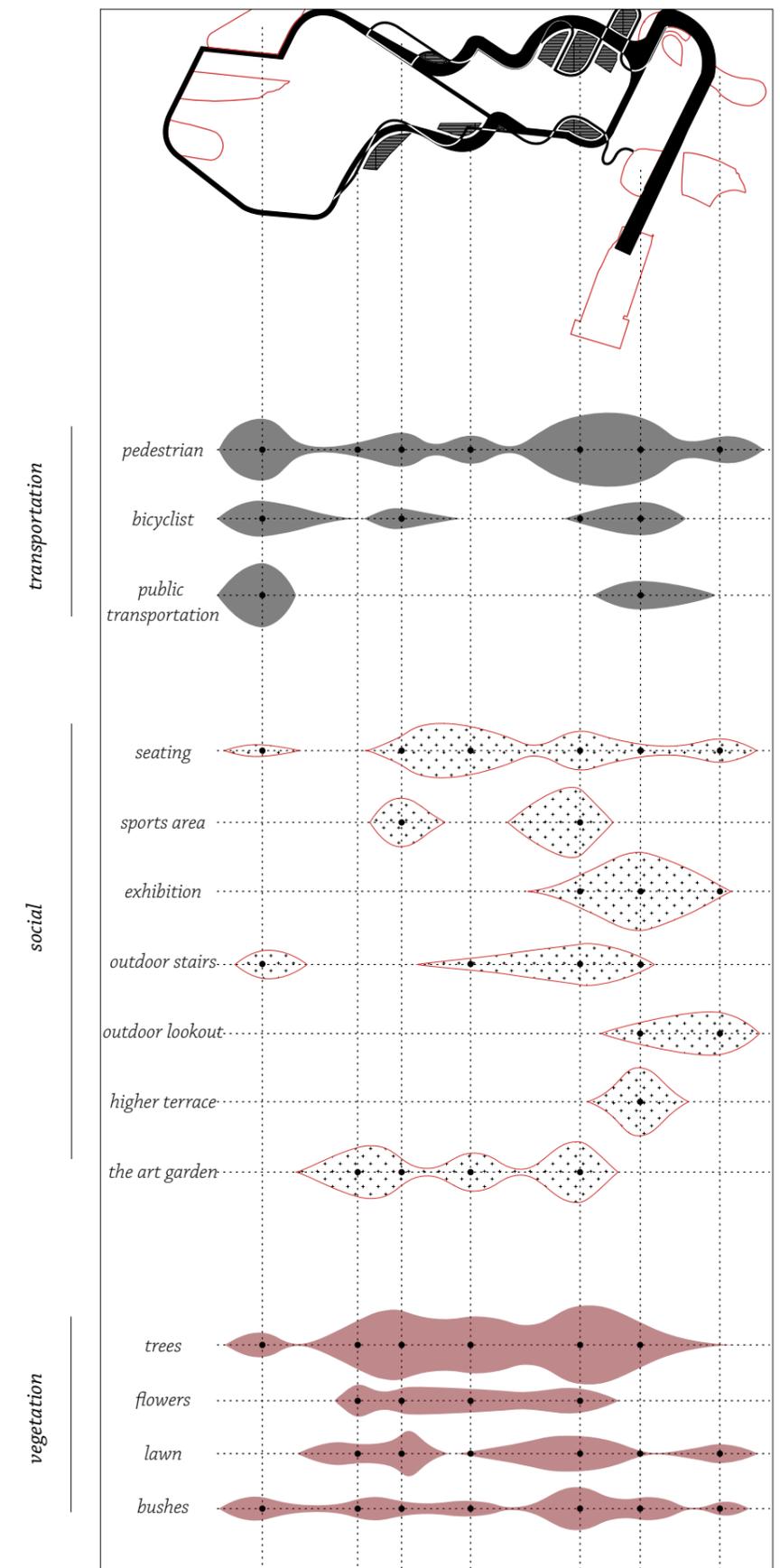
[visual connection & land division]



[road scenario]



[program reshuffled]



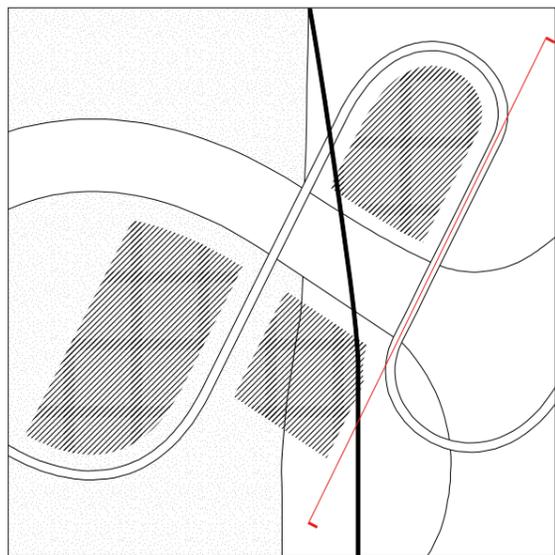
With Hjalmar Brantingsgatan and Frihamnen these two main public transportation station, this area is an excellent space to show all the advantages of the city. The idea is to make it into an open urban 'exhibition' center where showcases the active parts of Frihamnen, Ringön and Backplan.

According to different spatial qualities, the site has been divided into four parts, where different types of programs entwin together and make it into a vivid urban space.

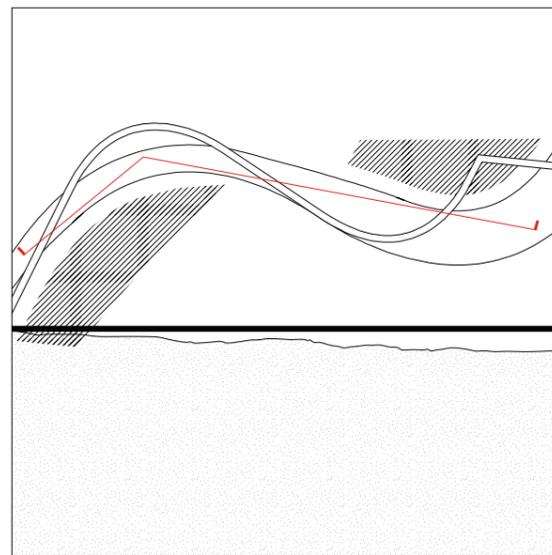
[overall landscape and architecture plan]



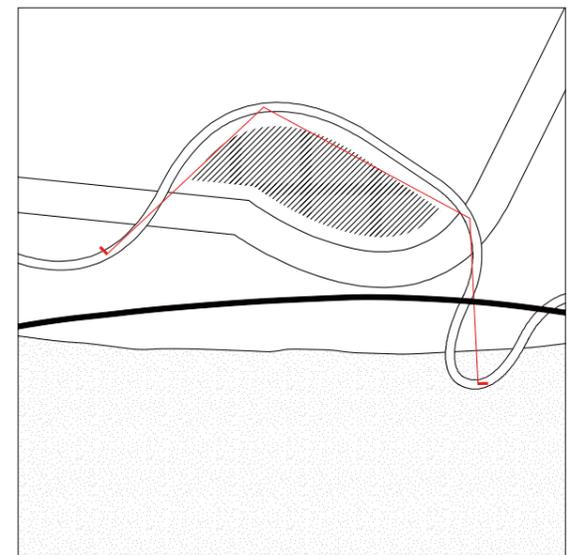
[views, new section & current topography]



*new road section
existing topography*



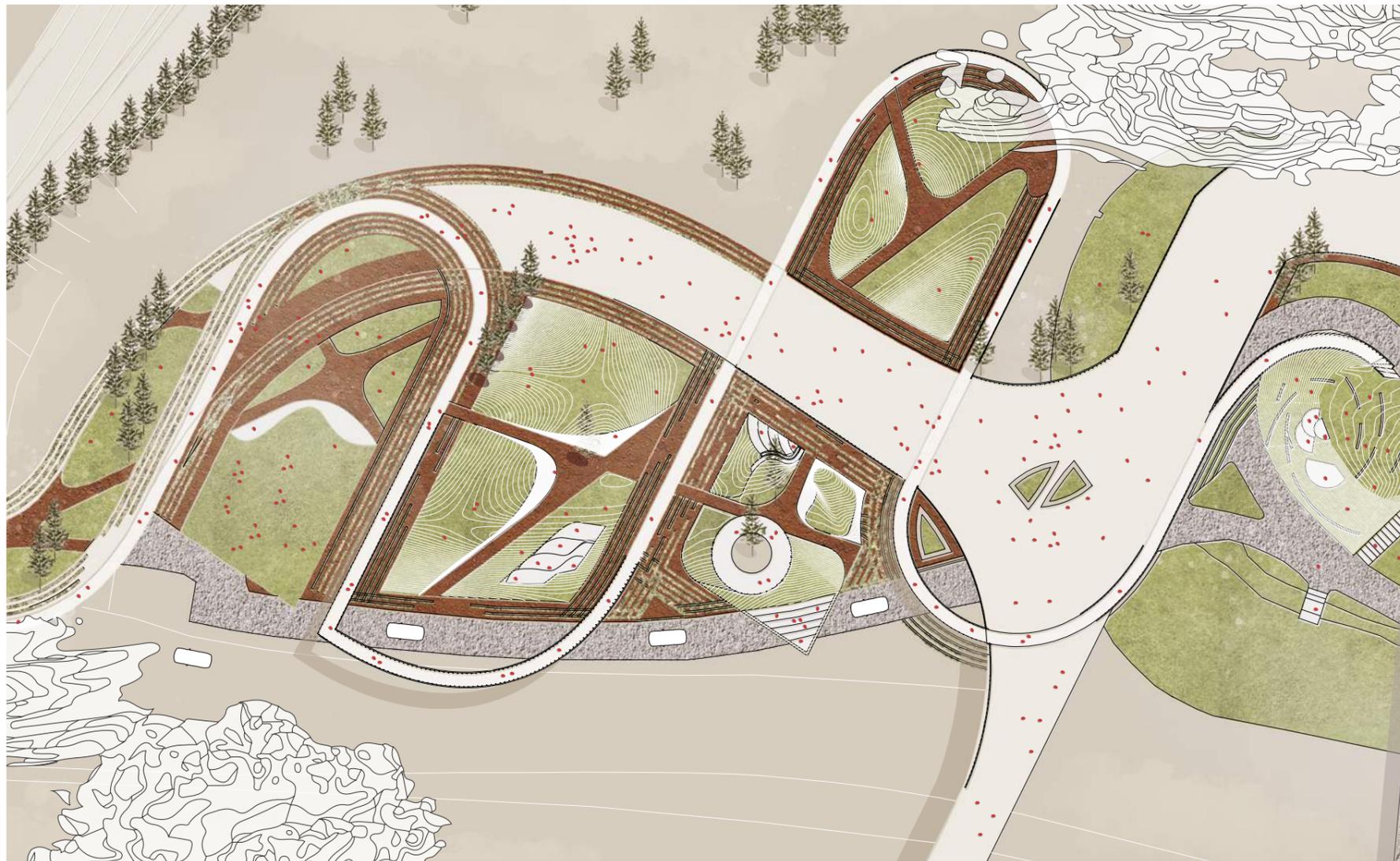
*new road section
existing topography*



*new road section
existing topography*

[Landscape 1 - cozy urban public space]

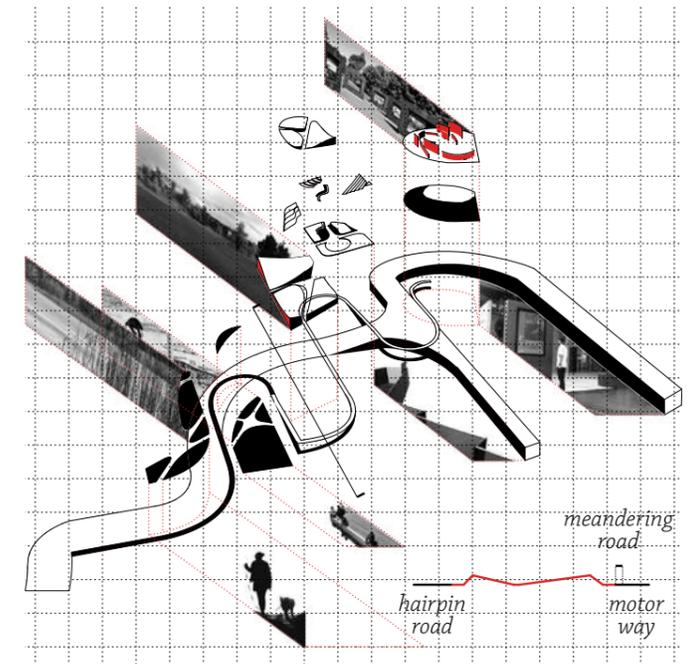
Walking along the wide pedestrian road lifting above the traffic area, a new world appears in front of you, before it was nothing but an under-construction site, now everything has changed. You can choose to walk along the wide hairpin curved road to reach another destination in a short time, or walk along the cozy meandering path and enjoy the greenery social public space in between. Heavy traffic is not visible anymore because of the visual barriers that new paths and public space formed together. With the rugged greenery space, traffic noise can hardly be heard, instead, here is an outdoor garden for everyone.

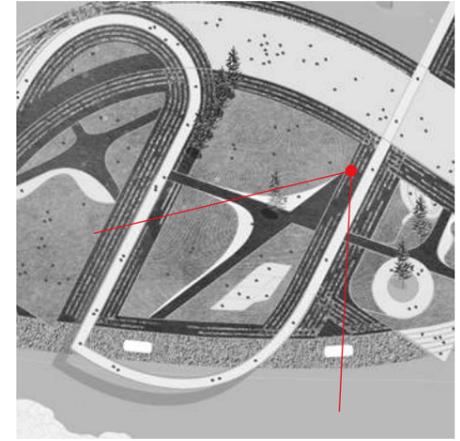


[Perspective]

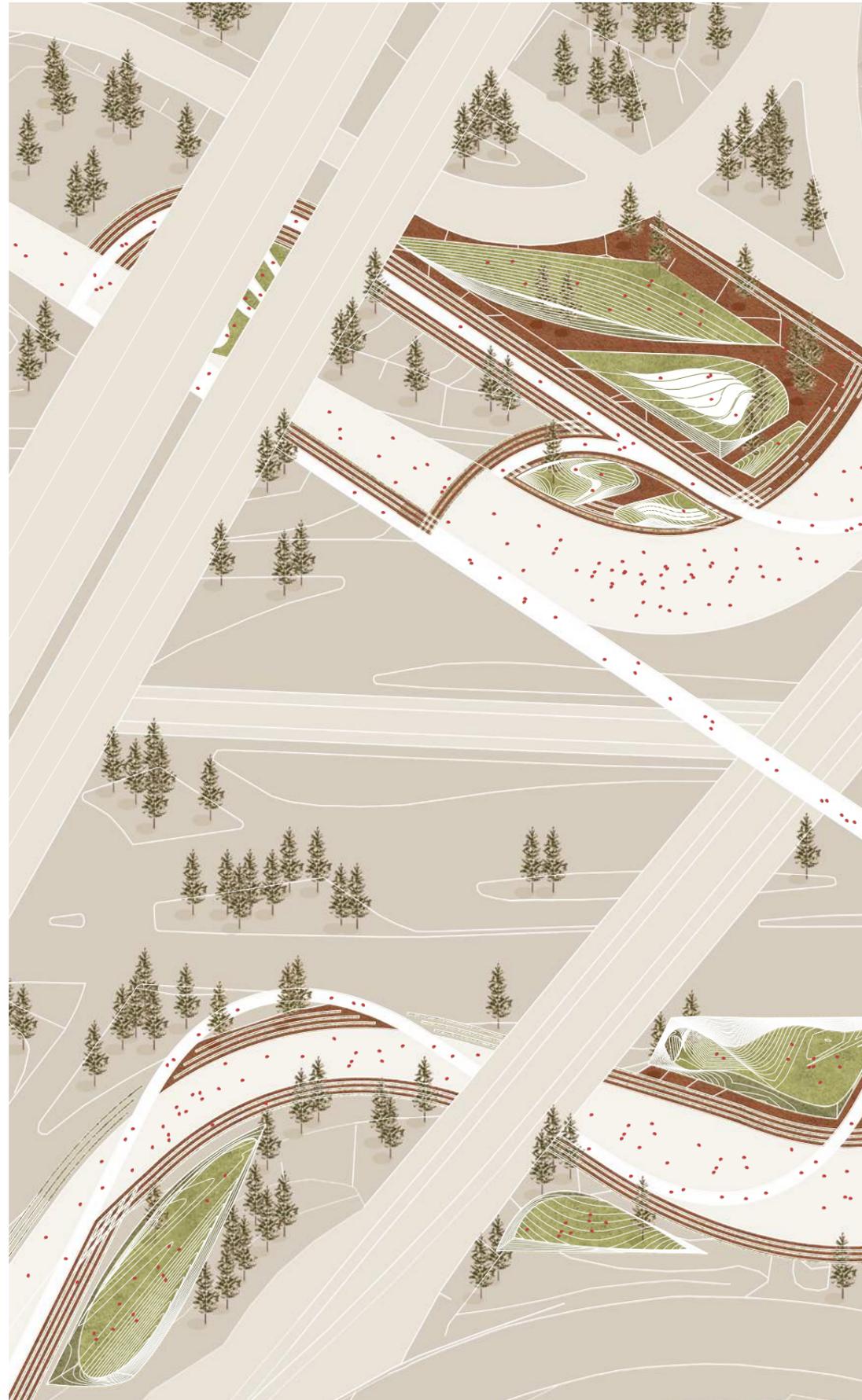


[Interactive Programs]

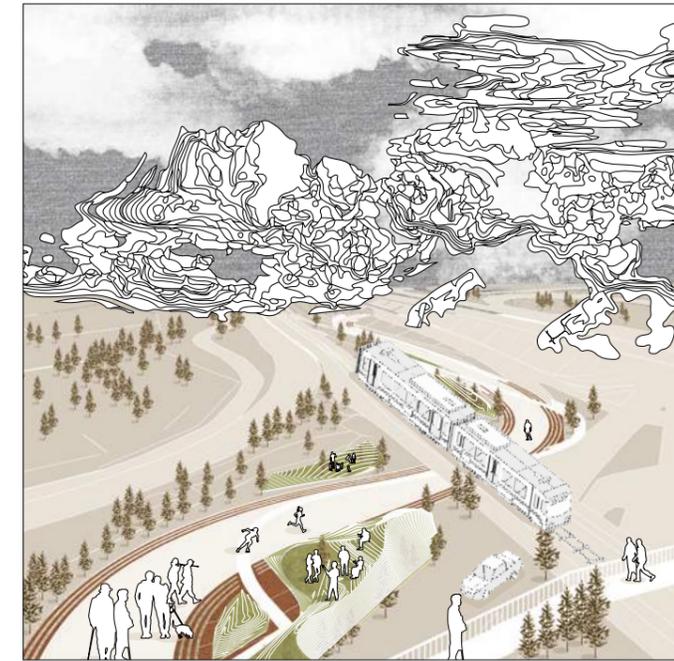




[Landscape 2 - heavy traffic left-over space]



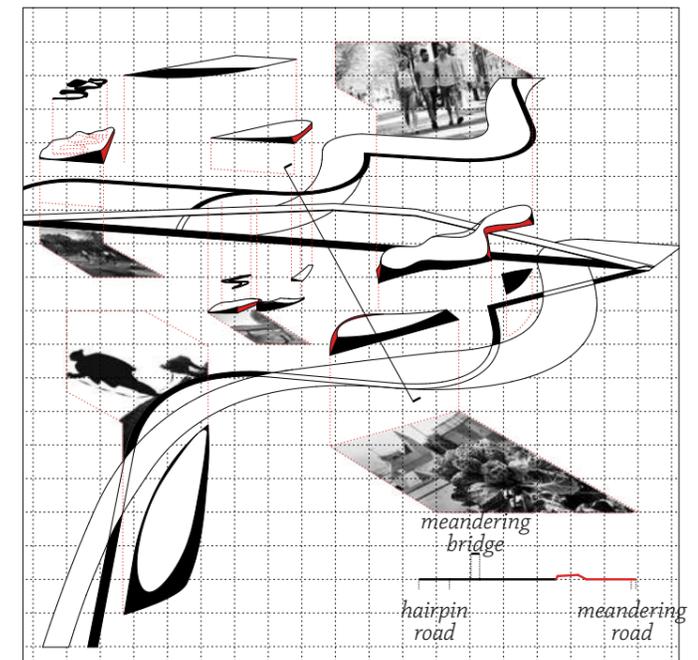
[Perspective]

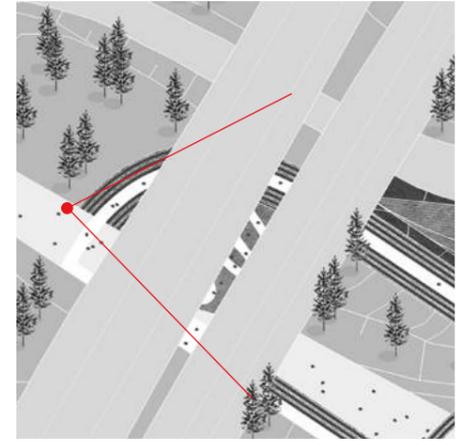


Continue walking, the space becomes even more interesting, you can still see the cars driving fast on the highway, but beneath there is a wide space where is not disturbed at all from the heavy traffic. Before it was a nice but empty area with nobody would like to stop for a while, but now it gives the opportunity for you to choose which way you want to go. Maybe through the meandering road and get into the greenery space? Or maybe walking along the hairpin road and get to the market zone right in front of you? Or even, maybe you want to take a look at the other side of the area and just take a shortcut from the little bridge?

Every choice can lead you to a surprise.

[Interactive Programs]

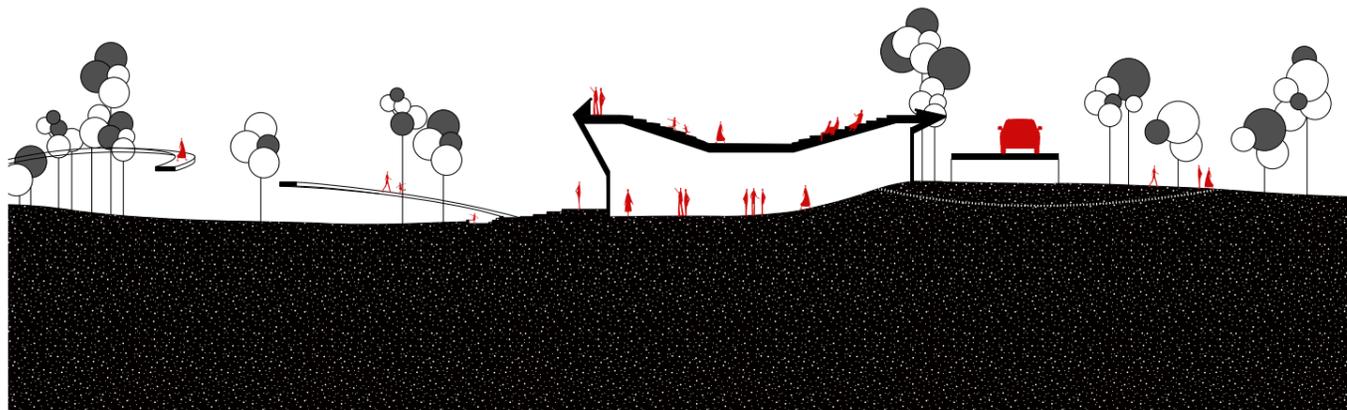




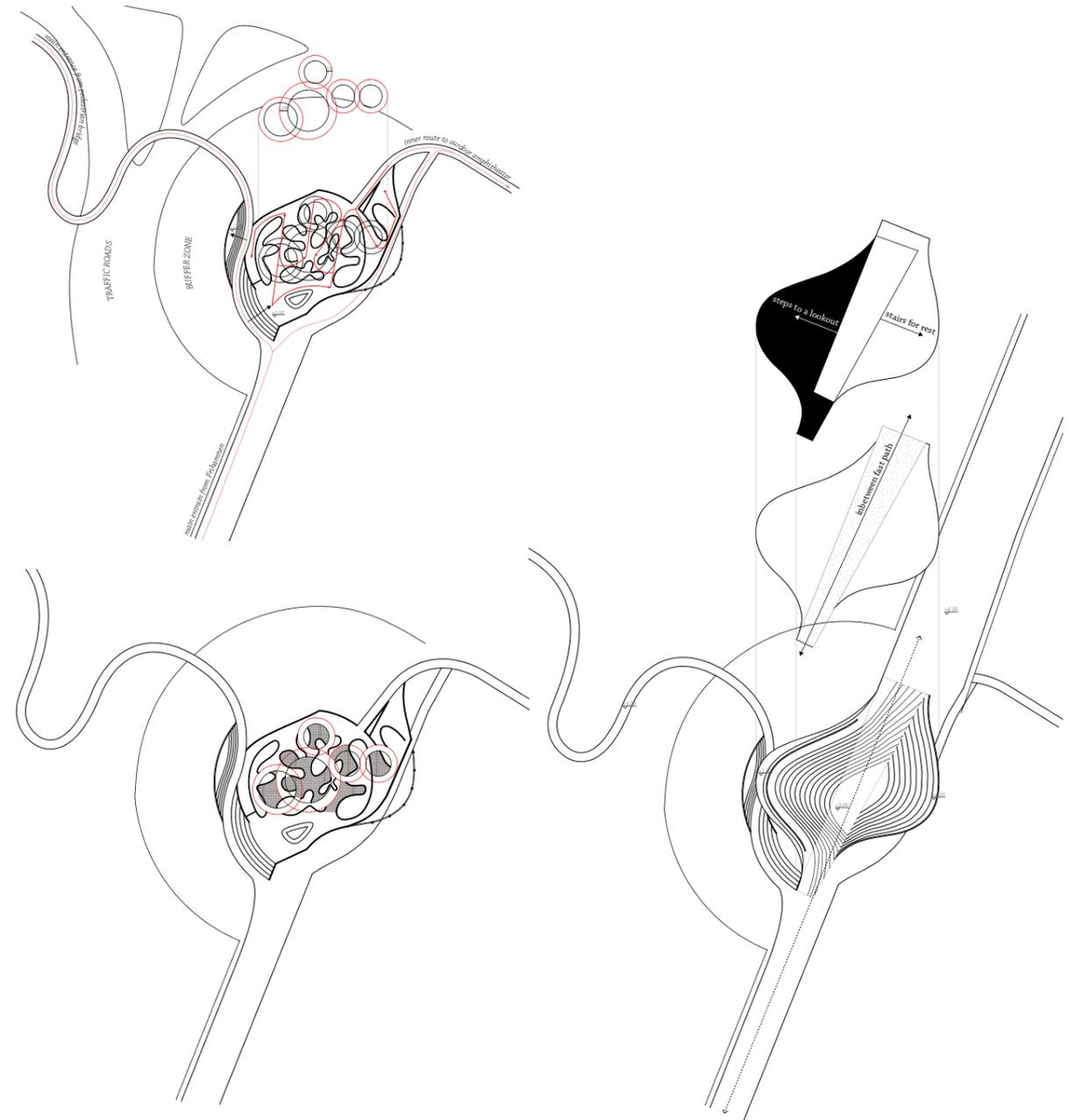
[exhibition space top floor plan]



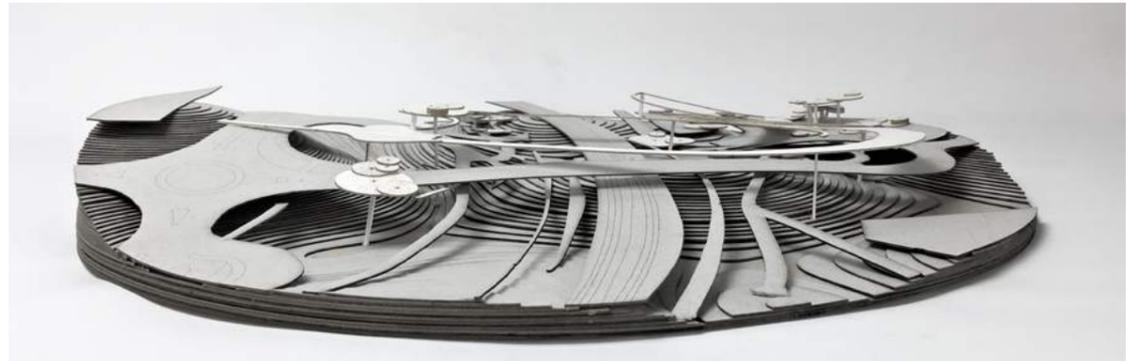
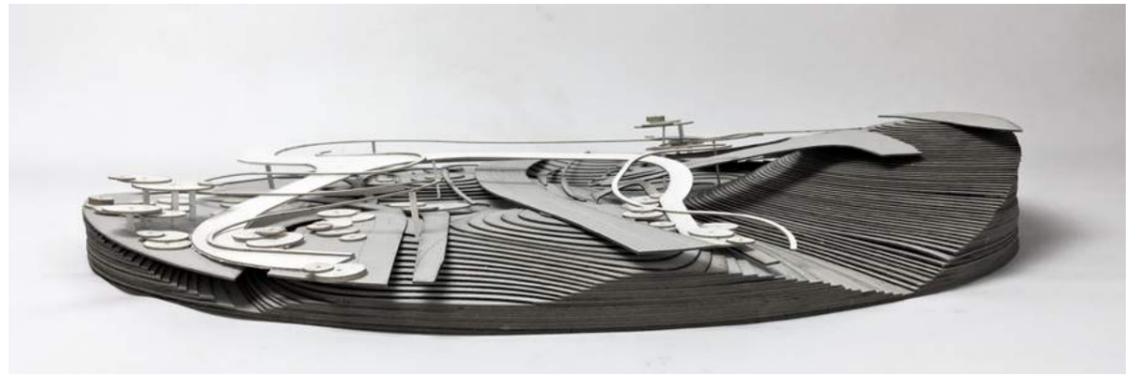
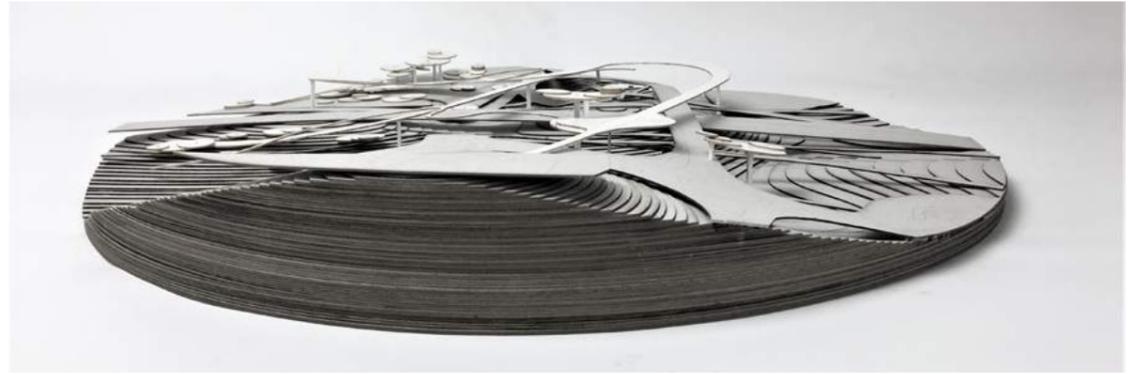
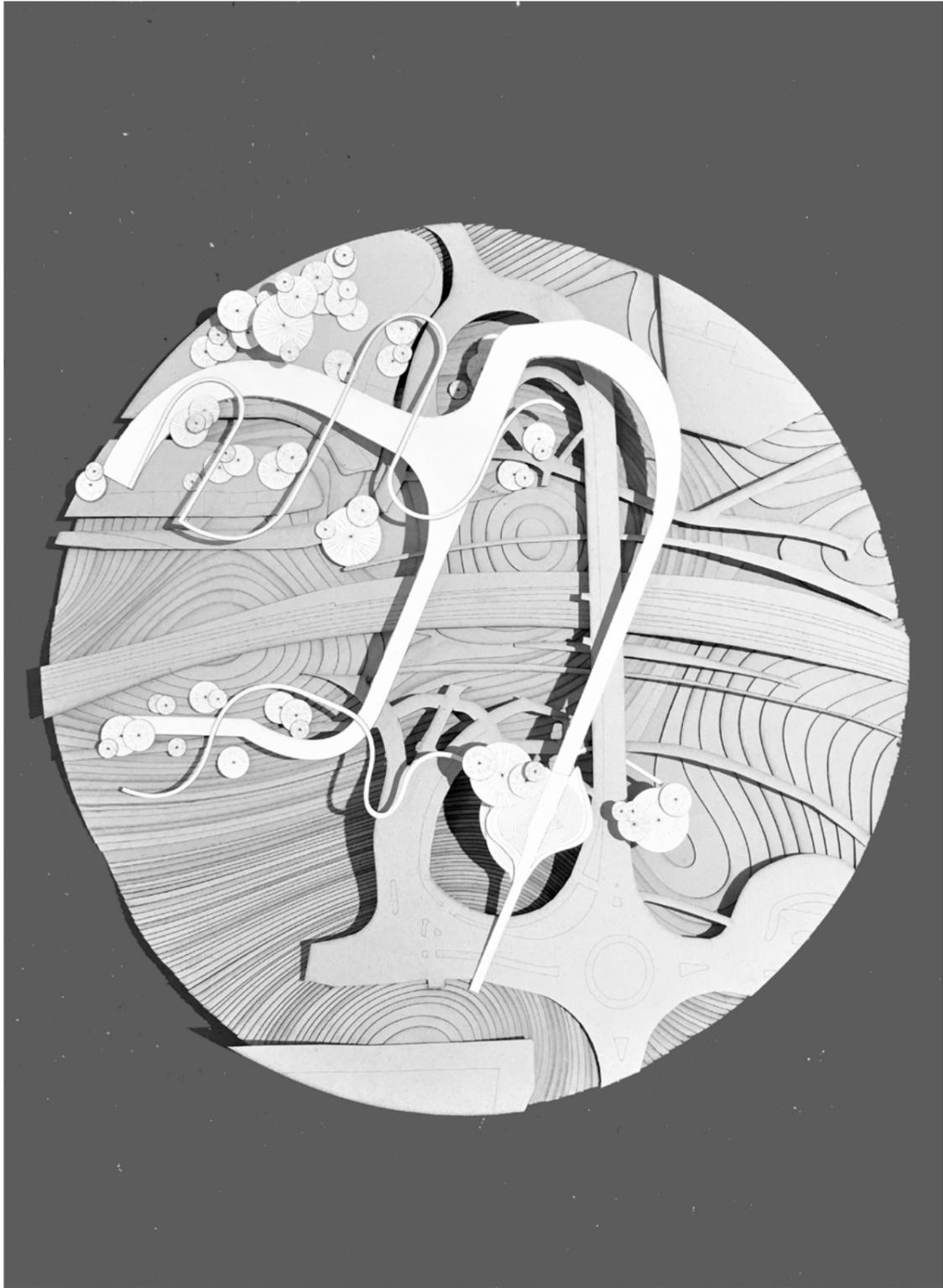
[exhibition space section]

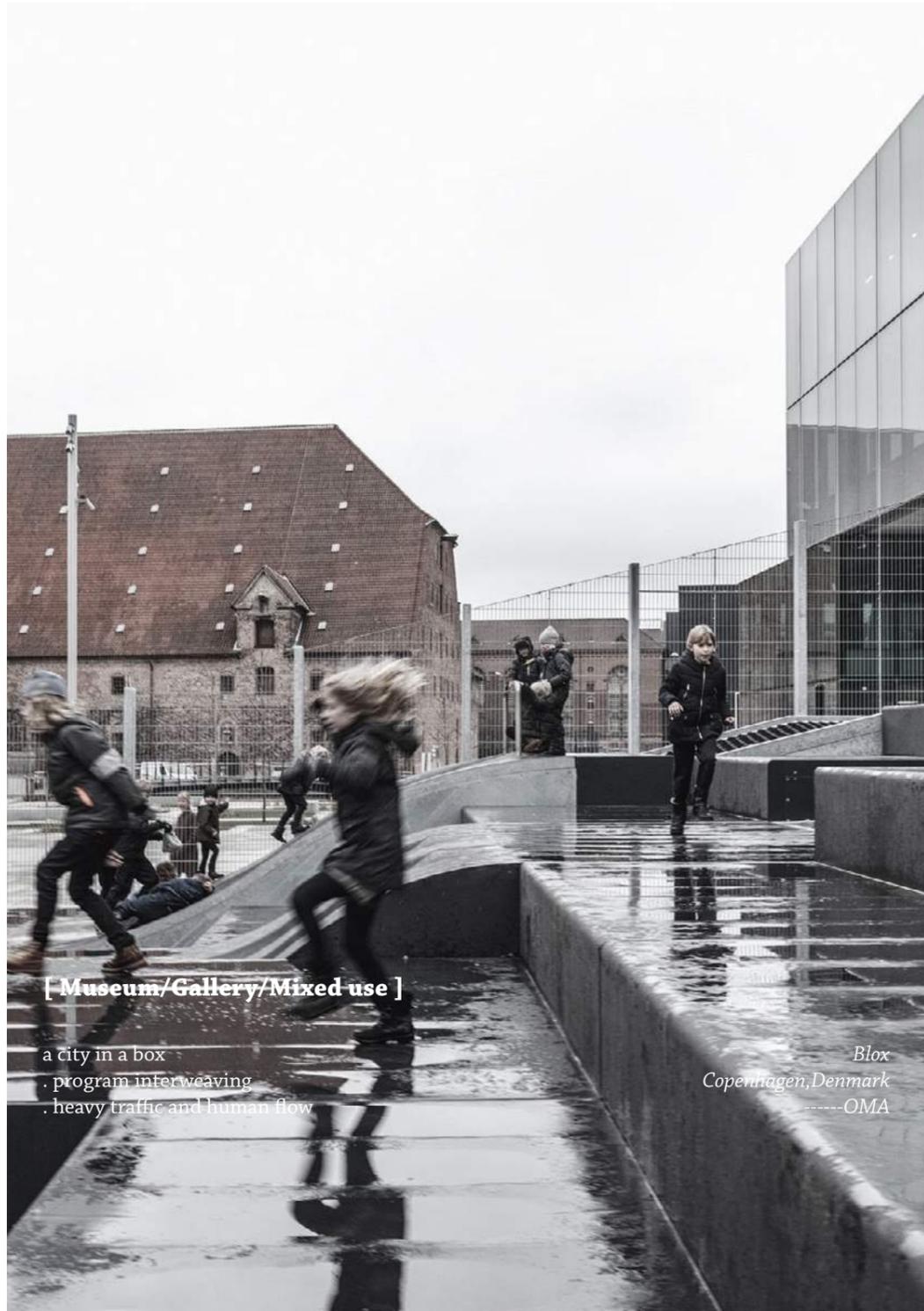


[exhibition space floor plan]



After walking across the little bridge, the path will lead you to an exhibition center. Compared to traditional building, the initial proposal to have this building is not for creating a space but to arrange the road network in a complicated area. It is a combination of hairpin road and meandering road, it is a space for experiencing, seating, outlooking and moving. The roof of the building is connected with the main bridge leading to the other side of the site. In another word, it is the movement that formed this building, not the building formed the movement.



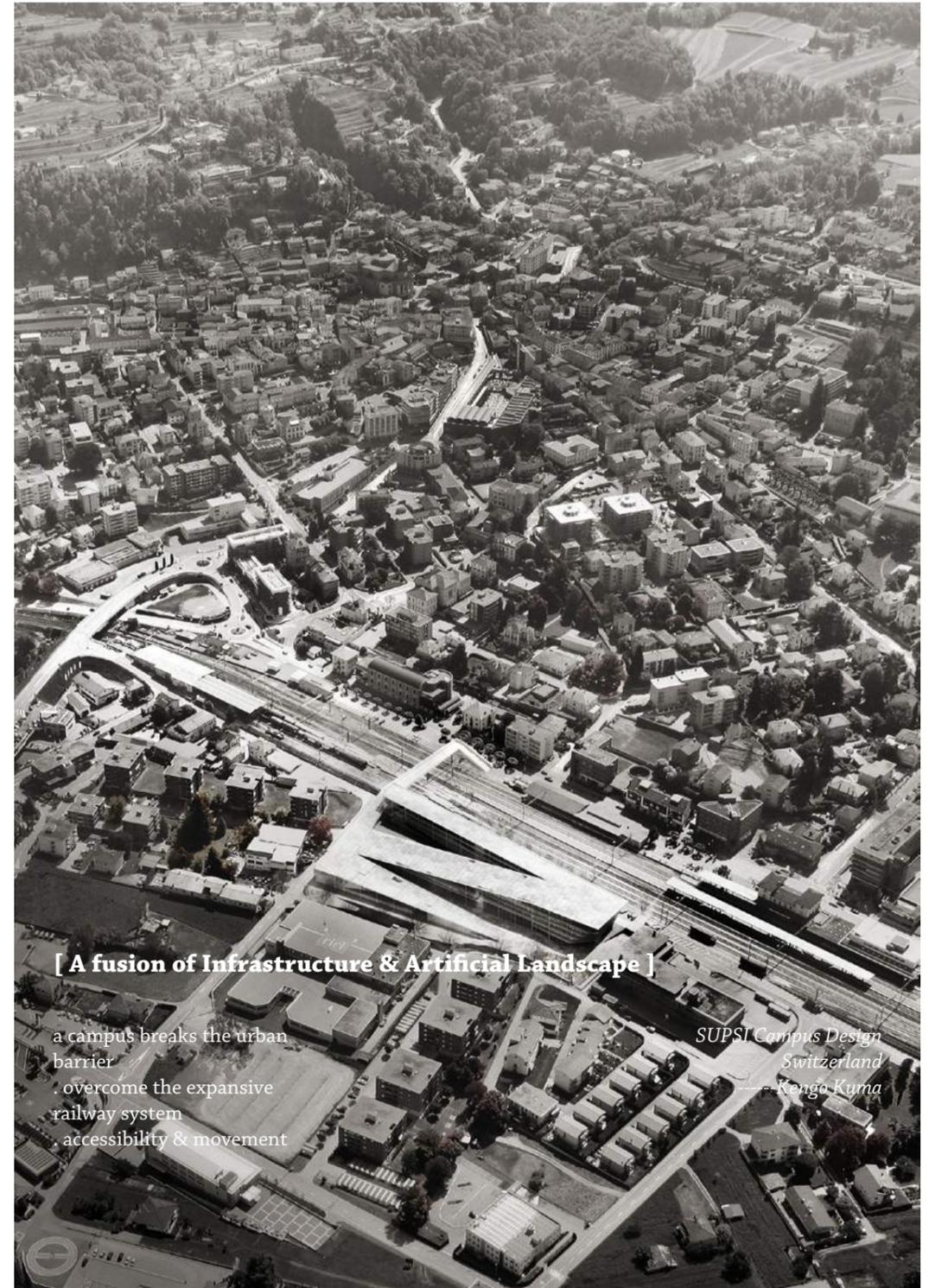


[Museum/Gallery/Mixed-use]

- a city in a box
- . program interweaving
- . heavy traffic and human flow

Blox
Copenhagen, Denmark
-----OMA

source: <https://dac.dk/en/about/dac-in-blox/>



[A fusion of Infrastructure & Artificial Landscape]

- a campus breaks the urban barrier
- . overcome the expansive railway system
- accessibility & movement

SUPSI Campus Design
Switzerland
-----Kengo Kuma

source: <https://www.archdaily.com/347270/supsi-campus-project-kengo-kuma-and-associates>

[Landscape Architecture]

integrated with tourism projects via a pedestrian bridge
 . tourism
 . agriculture
 . pedestrian bridge

Veranda
 Shanghai, China
 -----tf Architecture Office

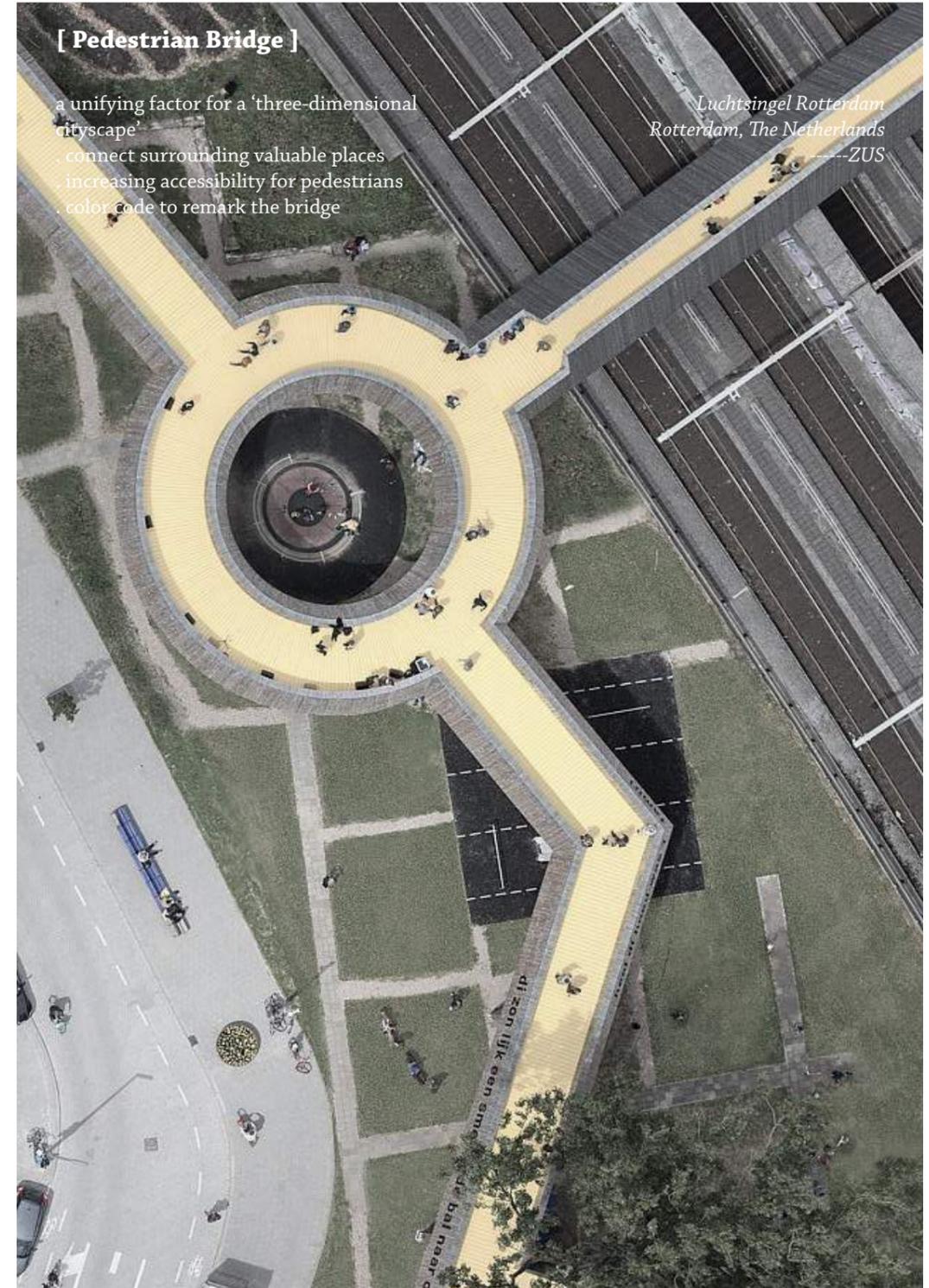


source: <https://www.goood.cn/veranda-in-shanghai-china-by-tf-architecture-office.htm>

[Pedestrian Bridge]

a unifying factor for a 'three-dimensional cityscape'
 . connect surrounding valuable places
 . increasing accessibility for pedestrians
 . color code to remark the bridge

Luchtsingel Rotterdam
 Rotterdam, The Netherlands
 -----ZUS



source: <https://zus.cc/projects/luchtsingel-rotterdam>



source: <https://architizer.com/projects/praca-de-lisboa/>



source: <https://www.archdaily.com/802818/pem-vitre-tetrarc-architectes>

When I started with my master thesis, I was planned to discuss something about human rights, and how does human rights get improved in the urban agenda. But when I got deeper in this topic, "human rights" seemed too big for me to study with. The idea then was to break this topic into a more general issue that the city is facing with and get it more humble and approachable.

To realize this, the first step was to find a specific aspect or stakeholders within this big topic. From these two years living and studying experience in Gothenburg, I decided to go for the most daily but also easily to be ignored phenomenon, which was then focused on the group of pedestrians.

This is a very imperative turn in my thesis, suddenly everyting became clearer and tangible. What makes it even more interesting is that, everyone can be a pedestrian in a certain scenario: when you do not own a private car neither want to take a public transportation; when the weather is so good and you just want to go outside and bath in the sun; when it is not that far from your home to the nearest food market and you just want to get a bottle of milk; when you feel upset and staying in an indoor space will just make you feel worse...in countless cases, you have to use your own body to get you outside, and during the process getting from one to another place, you as a pedestrian have to get a connection to the surrounding environment initiatively or passively.

In most cases, we as human being always ignore this getting related process, taking destinations as the only aim and forgetting about the scenary along the way. This thesis also gave me the opportunity to be slow and feel every single elements while walking.

Compared to other thesis projects in Urban Challenges direction, this thesis started from personal experience and observations, rather than a data collection from interviewing a group of people or organization. However, this personal experience has also been recorded and described in a technical way. Large amounts of sound records and traffic analysis gave the thesis a very strong support.

To find a propriate site, I compared several similar transportation hub in Gothenburg, the one that I chose last which locates among Frihamnen, Ringön and Backaplan is a place with a lot of opportunities yet sadly has not been paid attention with at all. During previous study, I had the experiance to go to this area for a lot of times, but none of the experiance was good. Everytime there were some new problems come out and as a pedestrian, I had no choice but to be strictly careful. After severl sackless self-protection, I realized this safety issue should not be left to pedestrians but urban designers and city government. Since when vehicles come first than pedestrians?

The site has been decided with more tricky problems emerged at the same time. Due to the complexity of the site, there are too many components need to be taken care of, and selecting which one should comes more important became a big challenge.

Collecting data was the first step to get through all the useful information, after searching through articles, books, internet and professional website, the picture was getting much clearer, and combined with my own interventions, the design has been produced step by step. This is the very first time that I have a research by design methodology through a continuous interative process. It is hard to say if this is already a perfect try but at least the process is really precious to me.

Simultaneously, this thesis project gave me the chance to rethink what kind of role do architects and urban designers play during a city's development. In most cases, architects and urban designers care more about worldwide issue and are determined to do big changes. Sometimes, as a group of people who knows best how to observe things neglects the most common daily life. Due to this neglection, unbalanced urban issue are being defaulted as a normal status. This master thesis was produced right from this abnormal phenomenon.

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<https://zus.cc/projects/luchtsingel-rotterdam>

<https://architizer.com/projects/praca-de-lisboa/>

<https://www.archdaily.com/802818/pem-vitre-tetrarc-architectes>

Sketches

visual connections

线轴 road system 构造 - 主要 road 的 logic
景观图景
地形
景观 (地形城市肌理)

远眺 - 城市景观 (眺望台 lookout)
走近 - 城市肌理 (展览中心 exhibition center)
行走 - 城市肌理 (人行路线 road system) } 普通人行路线 outdoor amphitheater

功能 functional area - 主要未定名称功能
展览材料陈列
吸引人
2-3 级具体的 scenario 情景
taxonomy (所有 1m 的类)

collage: exhibition area
创造
标高
远景

collage: lookout
创造
标高
plan

1. project: 3D
2. split topography according to curve
3. offset

道路下沉 5~15cm
1m
道路断开 70~150cm

type 1. hairpin curve

type 2. meandering curves

type 3. spiral

1st. hairpin curves, every 50m.

2nd. meandering curves, every 25m.

3rd. spiral

entrance + pedestrian route
slope to the bridge

path/walls

overlapped - movement space formed experience space.

negative space
experience space

experience space

mix walking speed!

exhibition
amphitheater
lookout
playground

program reshuffle

- exhibition
- entrance
- exit
- the gallery 展览空间
- the art garden 艺术花园
- reception
- crony space 接待空间 (餐饮, souvenir store).

open +++
semi-open ++
enclosed +

outdoor amphitheater

lower / terrace +++
stage ++

art gallery
crony space
Exit

2.5m
Entré
3m 深 10m-20m 柱距 13m (2.6 rthm)
柱距 10m 柱距 13m (2.6 rthm)
柱距 10m 柱距 13m (2.6 rthm)
柱距 10m 柱距 13m (2.6 rthm)

0.28 (rthm)
1/500 = 1/500 (1:500)

室外台阶宽 200 (高 140) 0.28 (rthm)

* Lookout

- indoor lookout +
- outdoor lookout ++
- higher terrace (outdoor?) +++
- indoor window view +++

净高 > 3.6m

playground combined with hairpin curve
doesn't have to be specific

城市空间结构
道路与交通系统
开放空间与步行系统
公共空间与步行系统
使用活动

FEEDBACK from Jacquimo
topography 地形, curve 曲线
地形与曲线 / 地形与曲线
step by step 逐步 method 方法

connection to the city
1. entrance: bus station
2. for diagonal mar (pavement)
small scale - construction.

3. Amanda Maat Museum in Lisbon.
break the spiral.
打破到整个城市。

sound recording + sound wave (sound pollution) photo sound wave

current pedestrian road width: 15m -> 3m
(existing bridge (highest part: 4.5m).
new bridge (8m height). for emergency access, the height limitation

1.36 + 7.82

slope: 1:12, slope length: 57m, bridge height: 8m.

barrier
sound affect

restriction of free height is 4.5m

destination? how to connect? (topography) in which part it should be slow/fast

experience space from movement space.

slow system - experience space.
fast system - movement space

overlapped

fast: speed +++ (no specific space) - shortest path
meandering curves: speed ++ (open space)
slow: meandering curves: speed ++ (semi-open space)
spiral: speed + (enclosed space)

hairpin curves meandering curves spiral

horizontal

vertical

walls as protection frame the view

* "sound mapping" - open space - open space
enclosed + connection + vegetation + protection + function

* "Identified Strategies"

1.5m
4m
6m
12m

3mm
2mm
12mm
24mm

topography - shape method - step by step.

Exhibitions



URBAN STROLLS /

QIANQIAN YU /

2019 SPRING /
