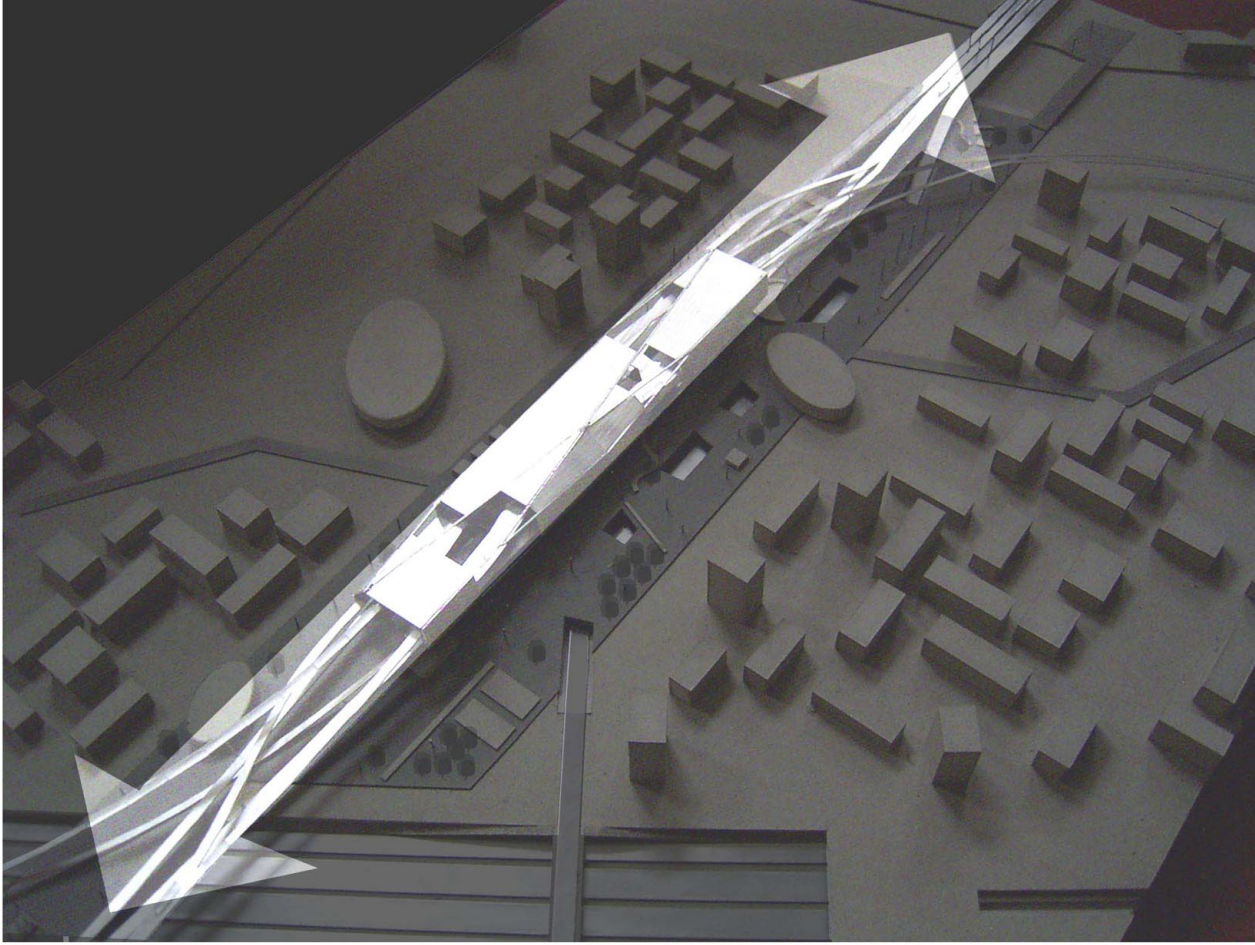


transferium utrecht

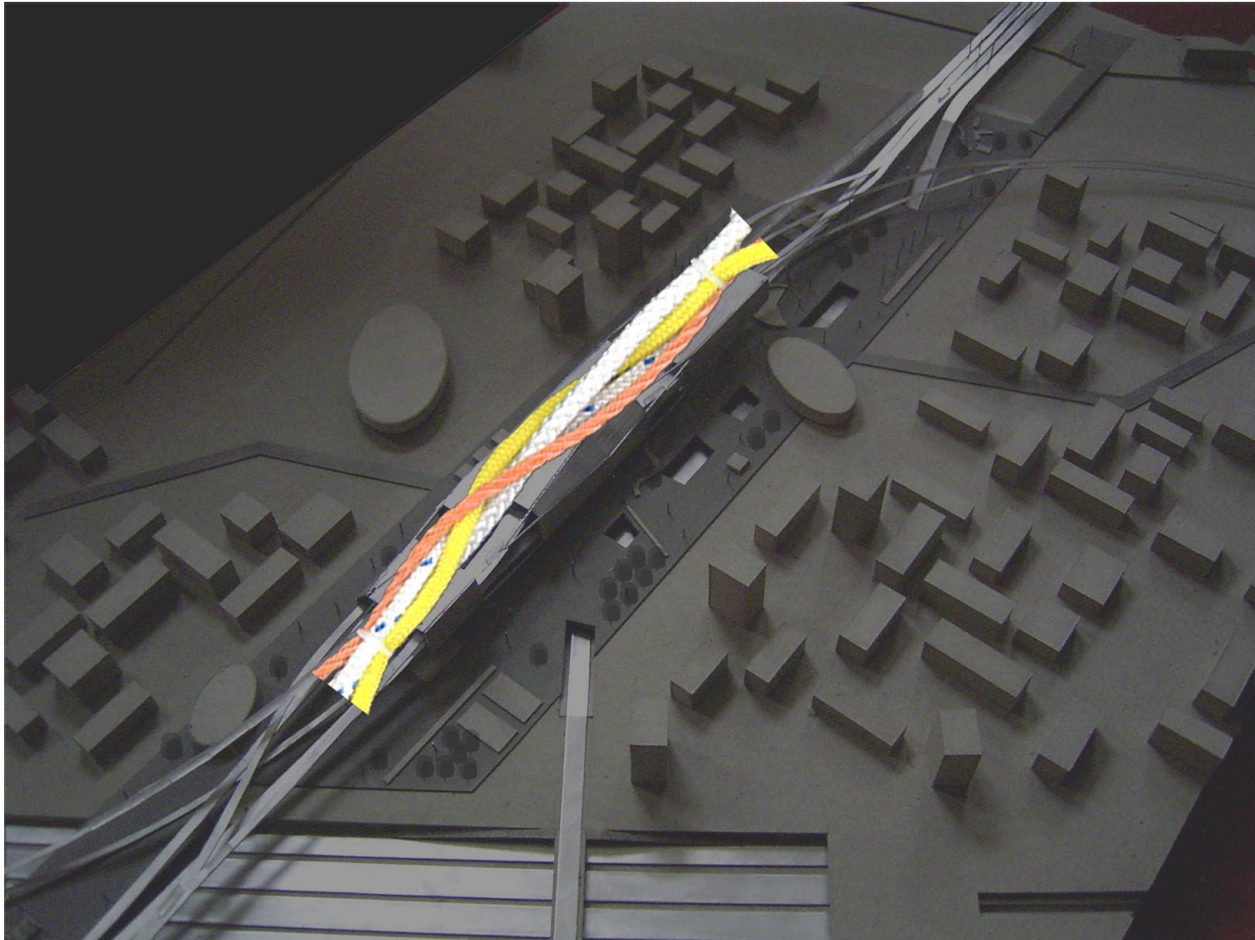
falk schneemann
fschneemann@yahoo.de



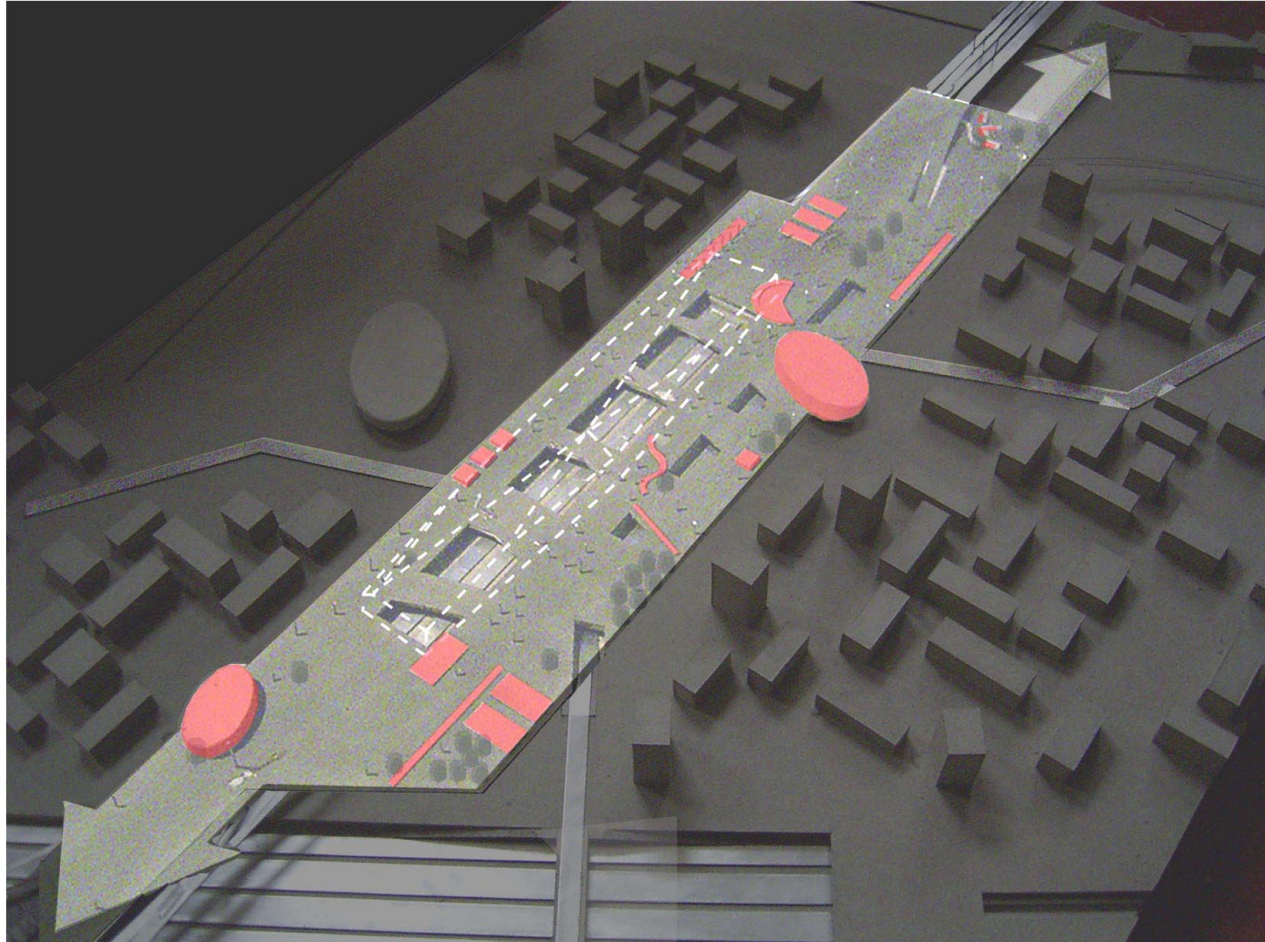
urban conveyor



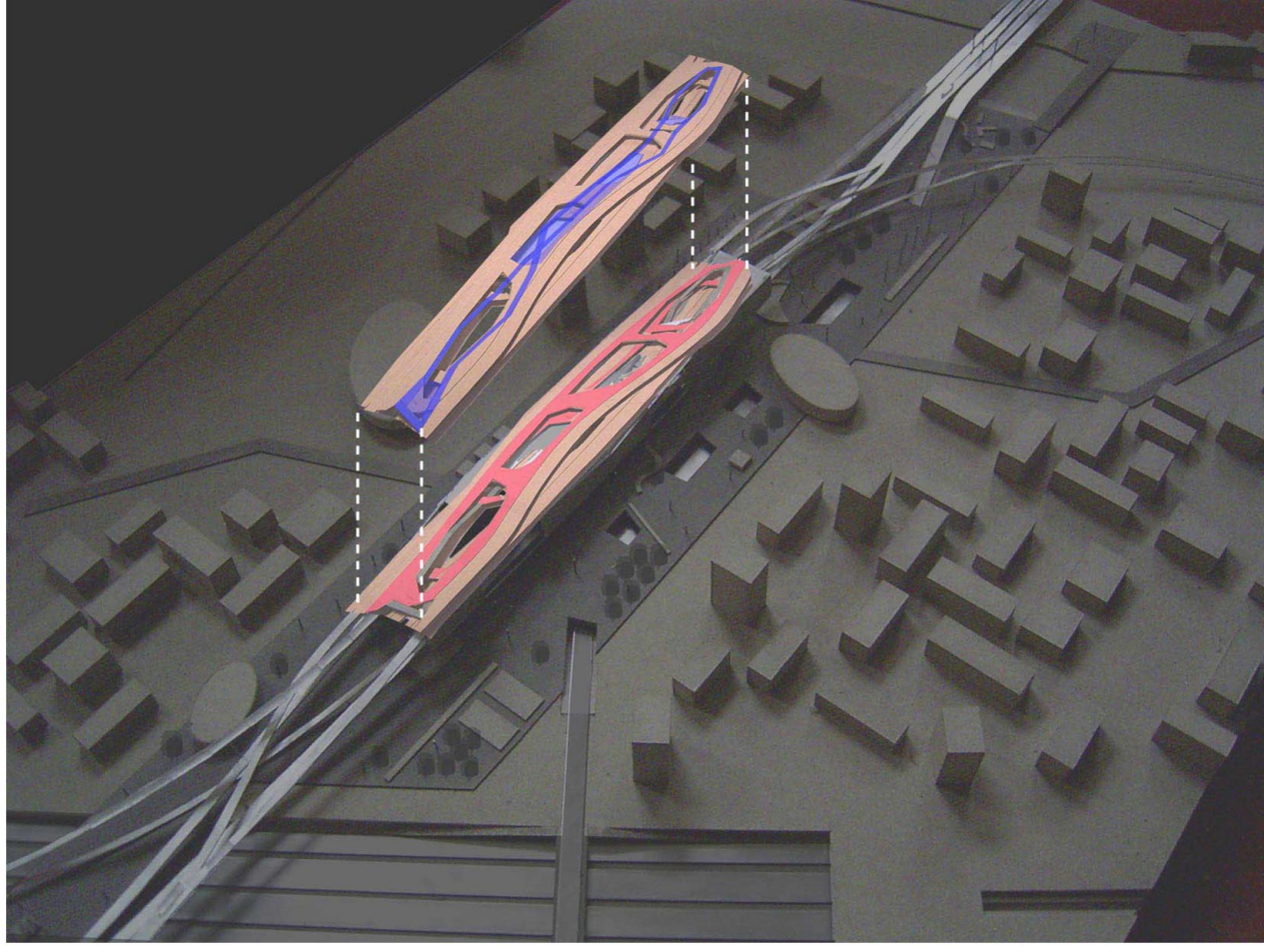
vertical station



vector park



esmiralda



Transferium Utrecht
final project Falk Schneemann

fschneemann@yahoo.de

supervisors:

architecture: Anthony Hoete

urban design: Boudewijn Bach

building technology: Elise van Dooren

technical university Delft

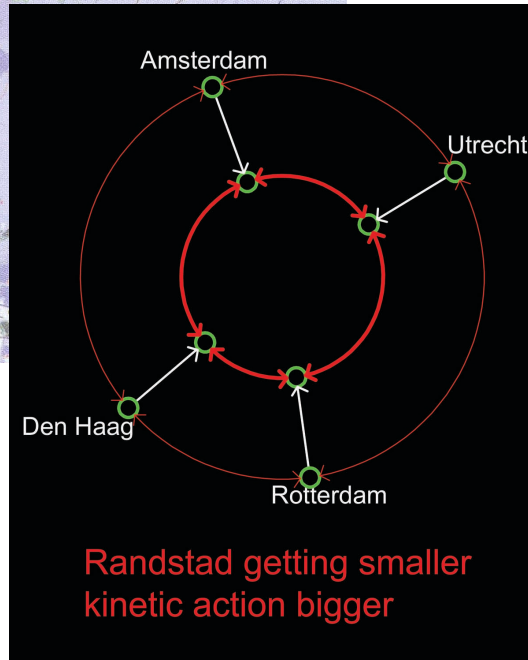
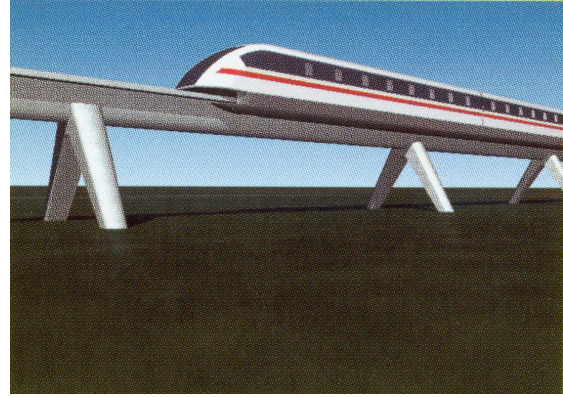
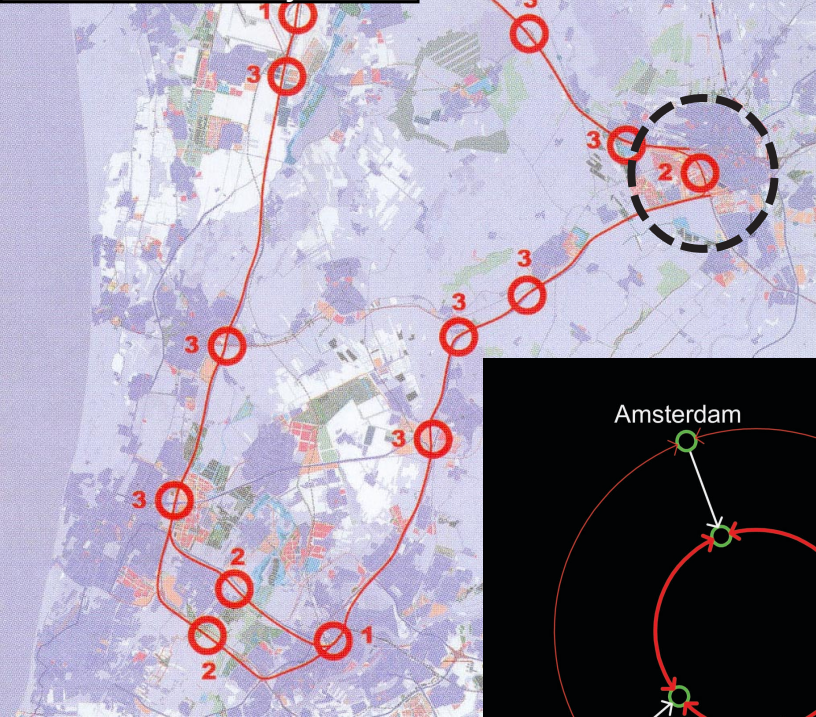
june 2003

The Dutch cities of Amsterdam, Den Haag, Rotterdam and Utrecht form the compact „metroloop“ popularly referred to as the Randstad, or „Rim City“, Europe’s densest conurbation. A number of government initiatives have investigated the potential for a high-speed magnetic levitation („maglev“) rail system to solve the growing mobility problem in this rapidly expanding urban cluster. The Transferium is a design proposal by Falk Schneemann for an interchange in Utrecht, located at the intersection of maglev, railway, highway and local traffic networks. The Transferium is sited on the border between the historic city, with 350.000 inhabitants, and a new quarter, with 75.000 inhabitants. Although the Transferium is designed for a specific site it can also be seen as an urban prototype, configurable to other locations and transfer modes. In the Transferium, excessive consumption of valuable realty is avoided by the spatial economics of the station’s vertical organisation. This results in a footprint 50% smaller than that of a traditional station with a similar number of platforms. To avoid the congestion typical around a railway station, the Transferium creates an „urban conveyor“, with the four transfer – maglev train, train, bus and car- over four stacked levels.

1 context	p 6-7
2 design target	p 8-9
3 urban conveyor	p 10-15
4 bundle- vertical station	p 16-29
5 programming	p 30-31
6 flows- esmiralda	p 32-45
7 orientation	p 46-47
8 skin- challenge of XXL	p 48-53
9 construction and materialisation	p 54-59
10 vector park	p 60-63

context

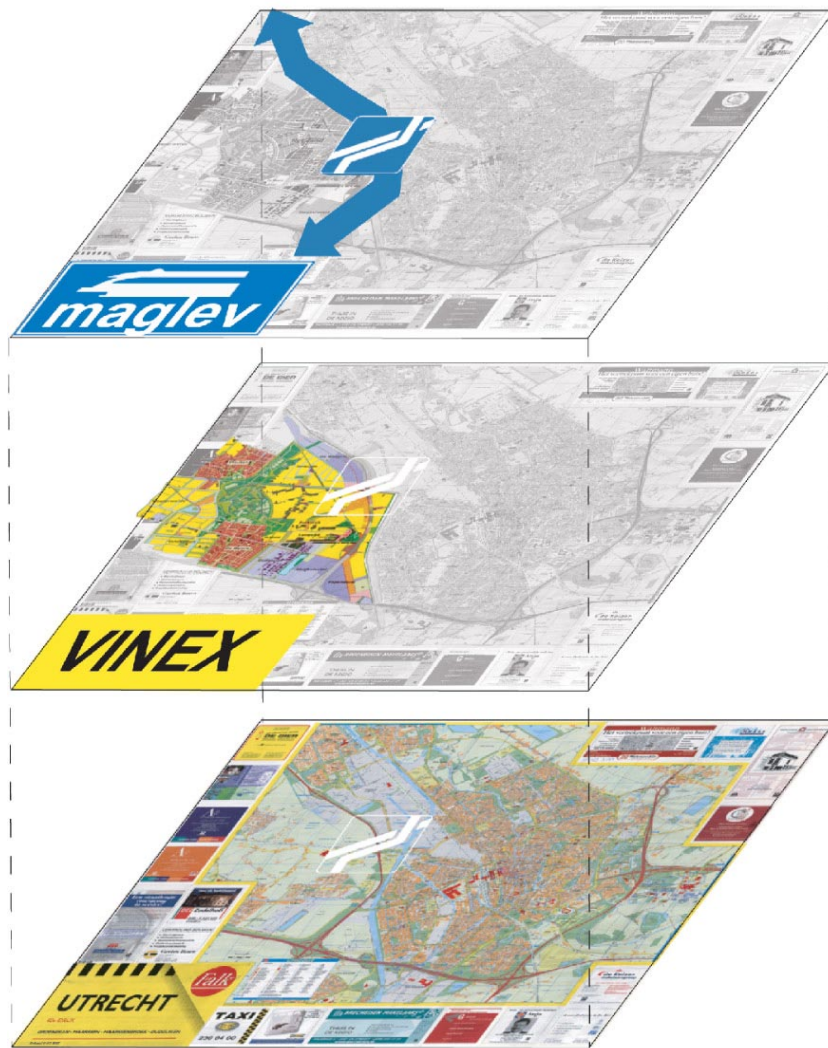
randstad mobility



- 1: distance = speed x time
- 2: time = constant
- 3: speed = faster and faster
so: distance = bigger and bigger
so: world = smaller and smaller

With about 350 persons/sqkm The Netherlands have the highest average density in the world. In the south of the country the cities of Amsterdam, Den Haag, Rotterdam, Leiden and Utrecht form a conurbation with crowding mobility problems. The highways are jammed constantly and public transport seems not to be able to offer an acceptable alternative. The government and the “Consortium Transrapid Nederland” (joined venture of ABN Amro, Siemens, Ballast Nedam and others) have investigated studies that propose a high-speed magnetic levitation – the maglev- in the Randstad. With a top speed up to 400 km/h and running 24 hours a day in small intervals this “Rondje Randstad” could shrink travel times by 60%. As a smaller travelling resistance results in bigger distances travelled (law of...) the Rondje Randstad would have impact on economy, social and cultural live (“quantum leap”).

This project is based on the studies of the Consortium Transrapid Nederland and a feasibility study by E. Segers.



Terminals are proposed not in the hart of the cities but with connection to the highway. The city of Utrecht was chosen as the projection plane for the case study Transferium. The position on the problematic joint between the historic city and the vinex quarter Leidsche Rijn give the transferium great potential to influence the whole urban cluster.

An interchange for the high-speed maglev
on the joint between
the historic city of Utrecht (350.000 inhabitants)
and a new vinex quarter (75.000 inhabitants)
a key position within the urban cluster.

Transferium is an academic case study
projected on a concrete situation
and developed far enough
to proof that it could be built

dream was to unite the almost diabolic
but extremely fascinating characteristics
of traffic infrastructure

and

the potential of traffic architecture
to host some of the
most tasty and exciting public domains

it should not be another loos fitting hybrid
of warehouse taste programmes
but exploit and innovate the inherent
potential of this design task
with emphasis on the complex organisation



transferium is not simply another transfer
facility

it's innovation goes far beyond the
configuration of the vertical station.

here architecture and infrastructure become
one unity which works perfect as a machine,
but is also a carrier of complex meanings, a
host for unique and provoking spaces and
places,

and not to forget an urban catalyst.

urban conveyor

connecting urban enclaves

A home - maglev

1.7 km bike 6 min
 4.5 km bus 10 min
 1 km bus conv. 1 min
 7.2 km = 17min + 1 staps

B home - maglev

1.7 km bike 6 min
 4 km bus conv. 4 min
 5.7 km = 10min + 1 stap

C home - park

6.5 km bike 20 min
 6.5 km = 20min

D university - maglev

0.5 km walking 8 min
 9 km bus conv. 9 min
 9.5 km = 17min + 1 staps

E A2 - maglev

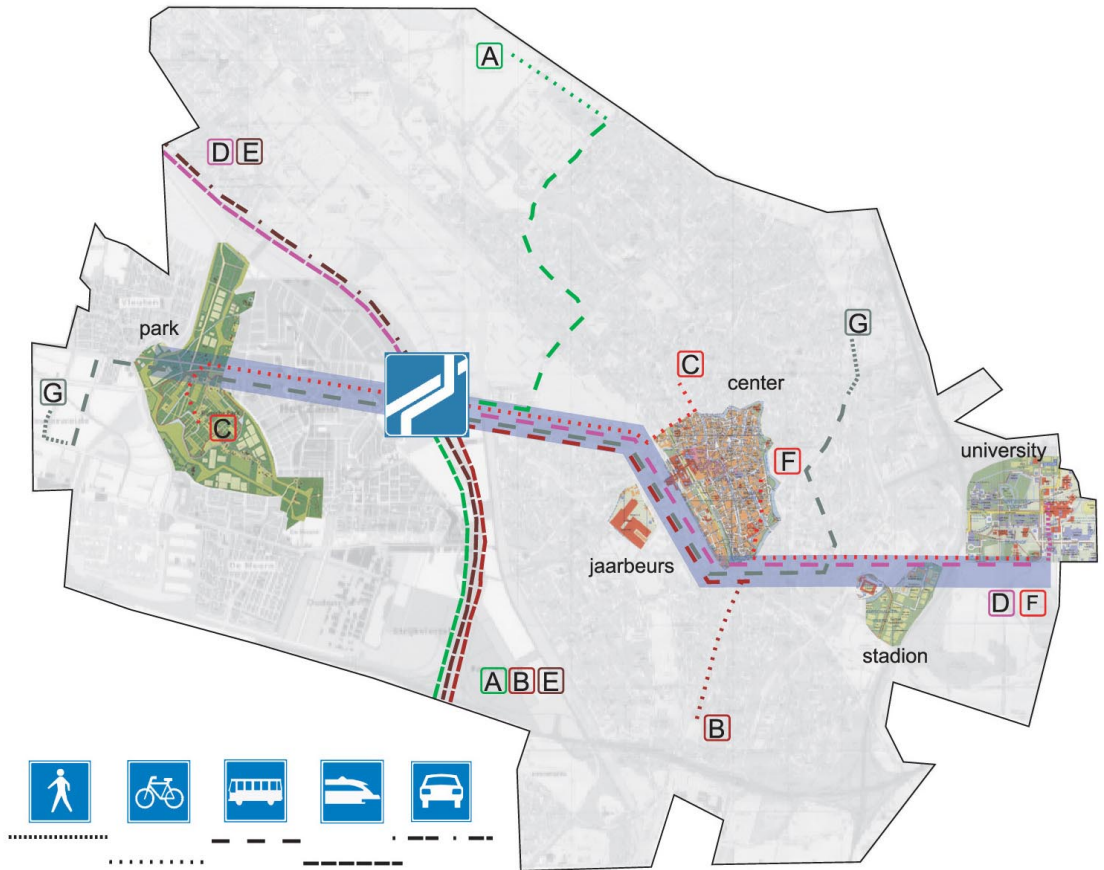
1 stap 5 -10 min

F home - university

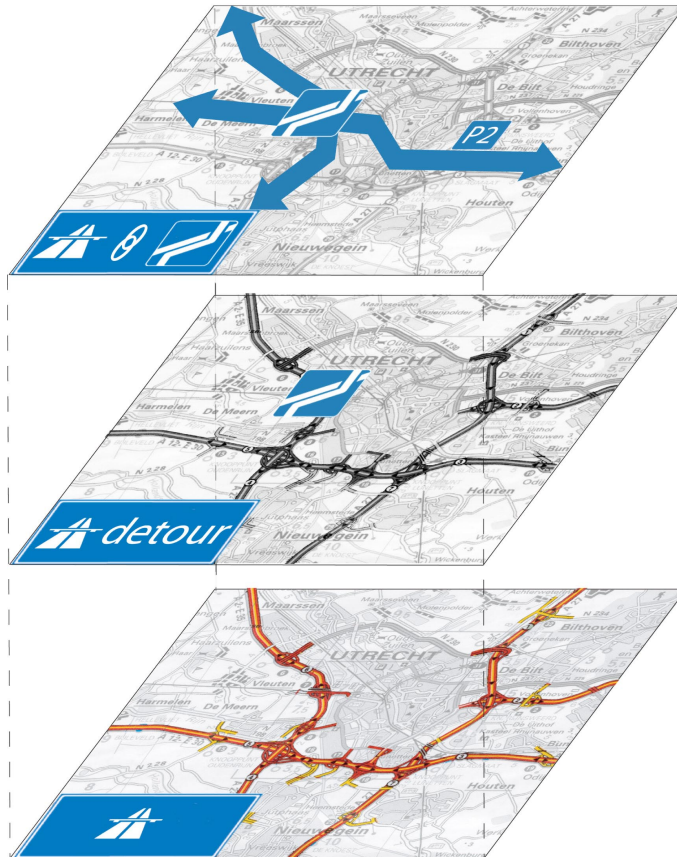
4.5 km bike 14 min
 4.5 km = 14 min

G home - friend

0.75 km bike 6 min
 5 km bus 12 min
 8 km bus conv. 8 min
 13.75 km = 26min + 1 stap



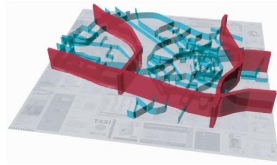
a vain connecting the enclaves of the city
 all city-buses hit the conveyor
 no need to change them
 old city, new city and Transferium
 linked by a new hierarchy of transportation
 infrastructure



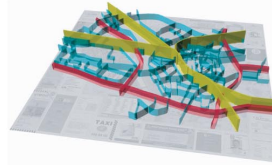
access from the highway on both sides
of the city.
advanced park and ride



old situation



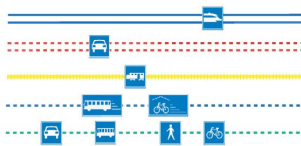
02.00 good flow no NS



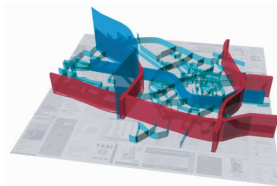
09.30 nogo on highway



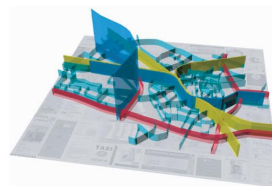
14.00 good flow



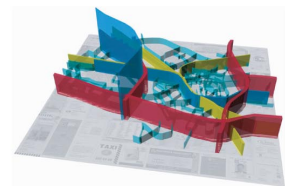
new situation



02.00 good flow no NS



09.30 nogo on highway



14.00 good flow

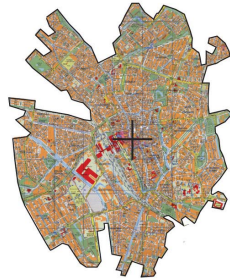
the maglev and the conveyor change the
speed-topography
of Utrecht evidently

the highway loses it's dominating but deceitful role

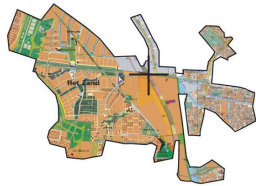
the radius in which public and manpowered
transportation works convenient
is enormously increased



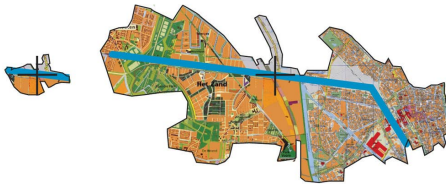
projection
center Utrecht



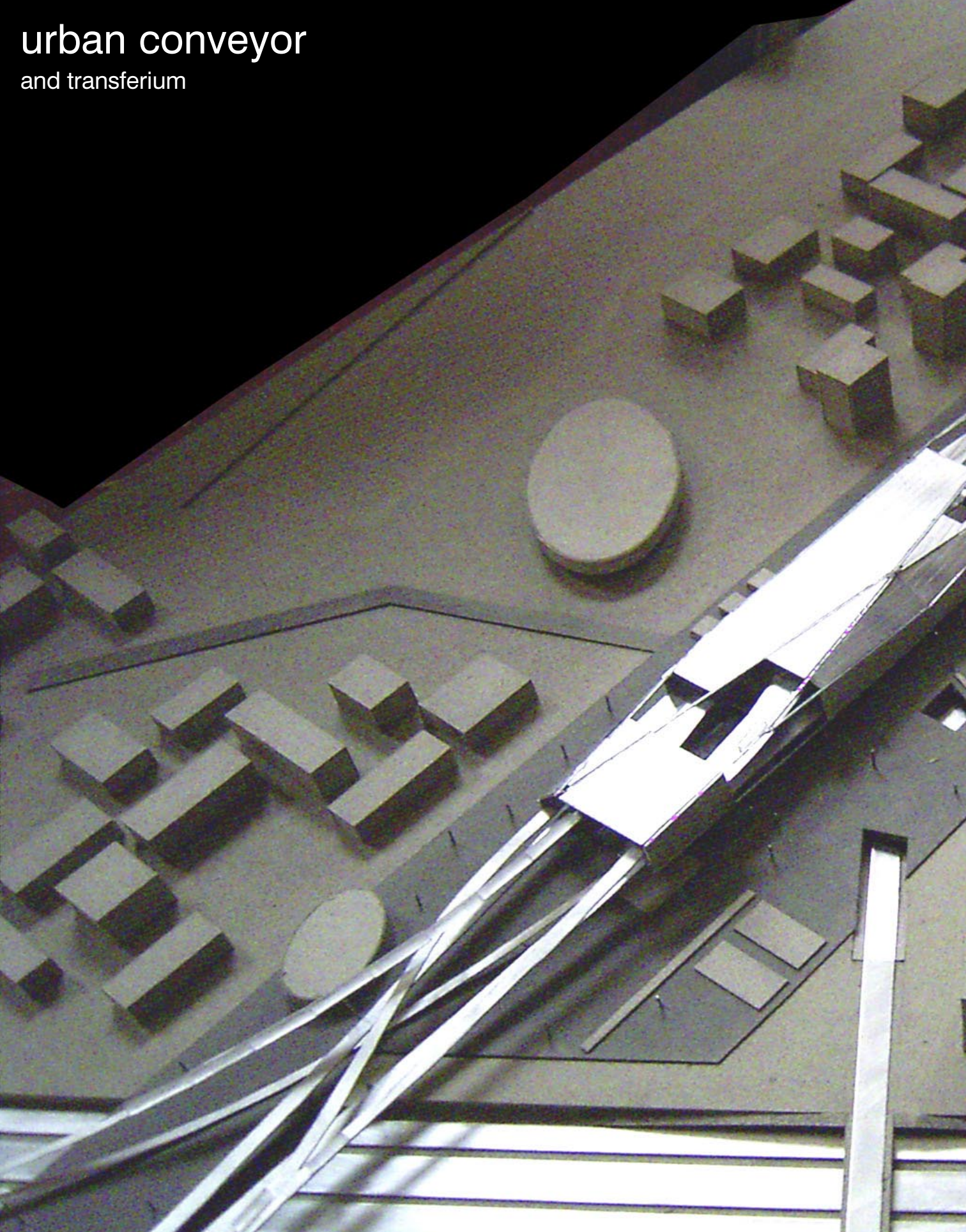
projection
plot Tranferium

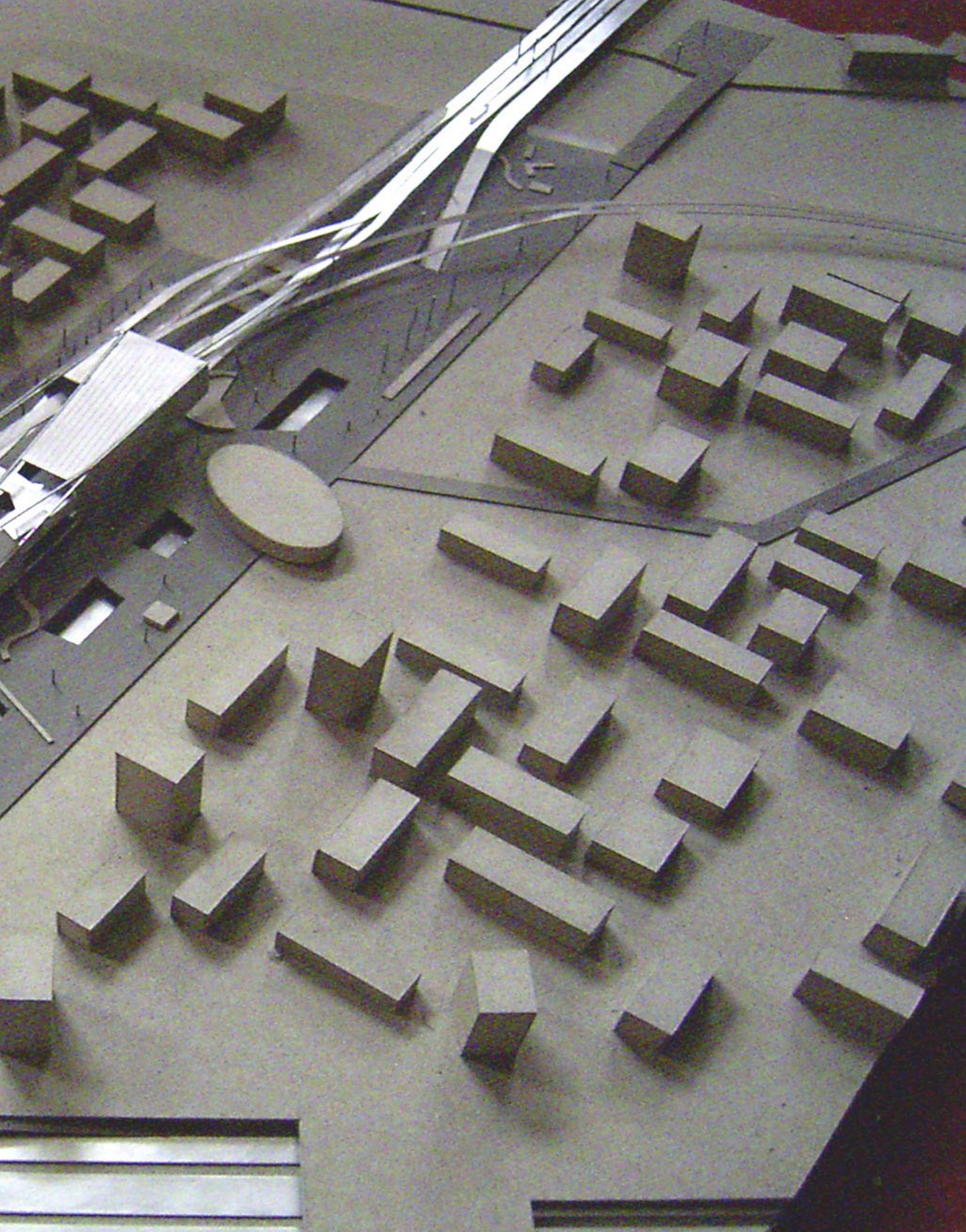


projection
plot + conveyor



urban conveyor and transferium





The need to eliminate any visual obstruction between any two means of transport that are to be linked

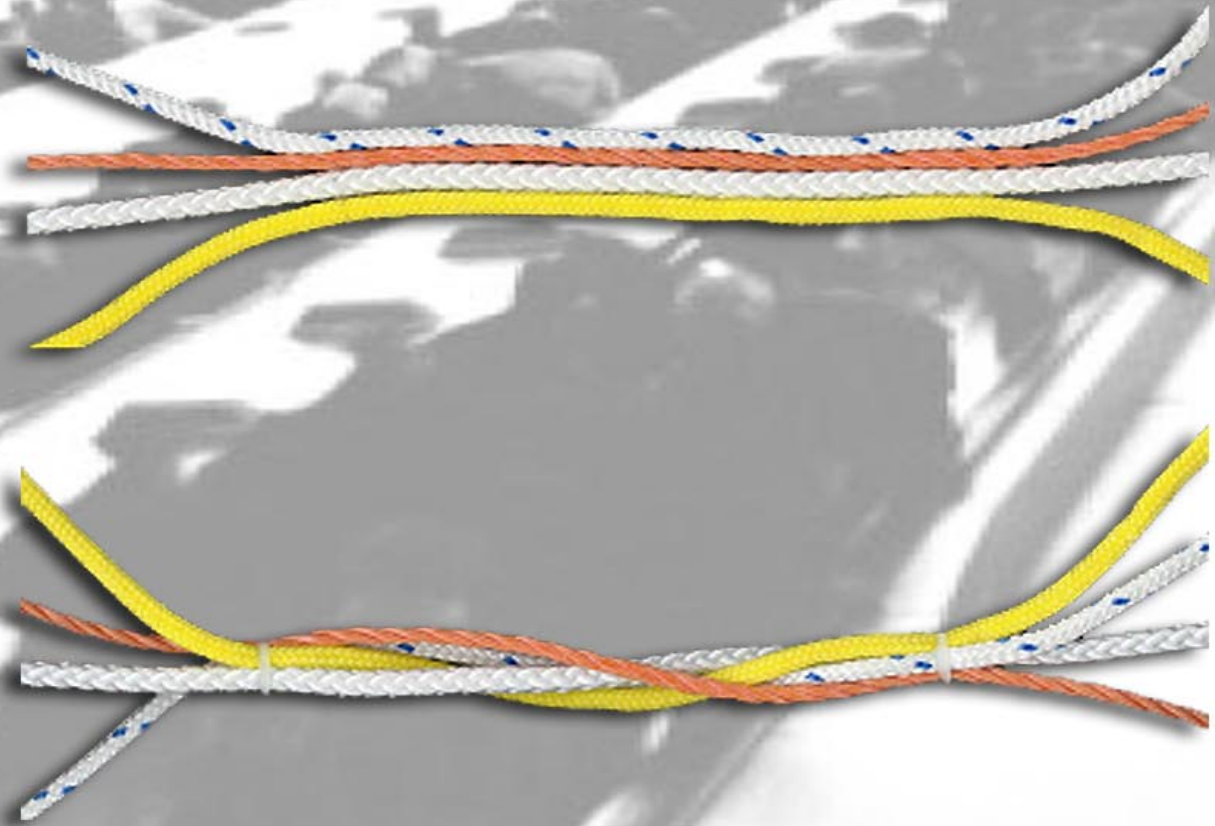
The provision of at least one point of total visual orientation

The maximization of any such points

A veto on any indirect (or chained) link between any two means of transport

Volumetric compactness of the transfer space for the sake of urbanity

Reducing to a minimum the average detour-factor imposed on any desired transfer link etc.



no bottle necks
full length contact
volumetric compactness

the infrastructure itself becomes an architectonic
element of space and meaning

bundle



12.36.57

3

INFO

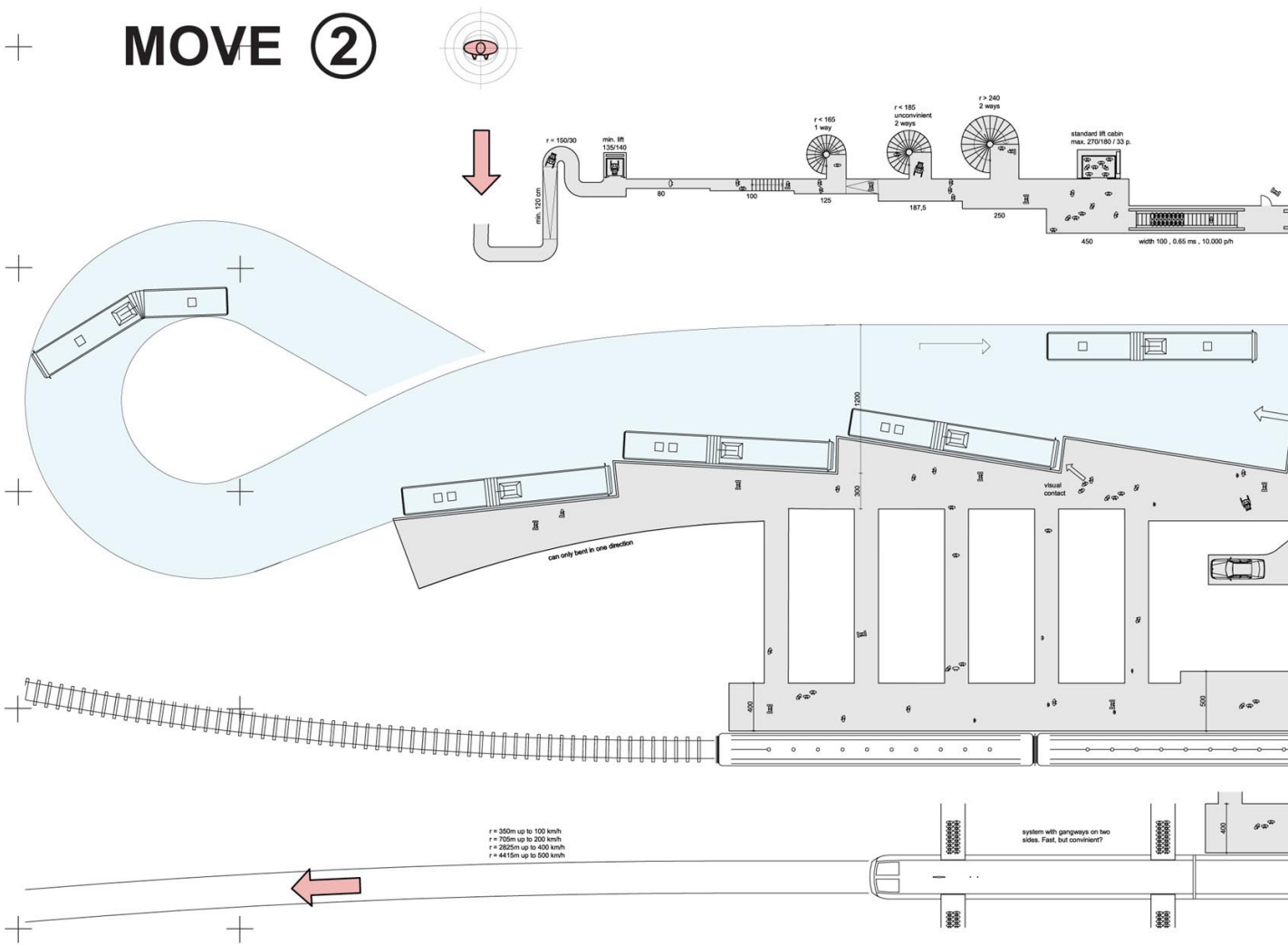
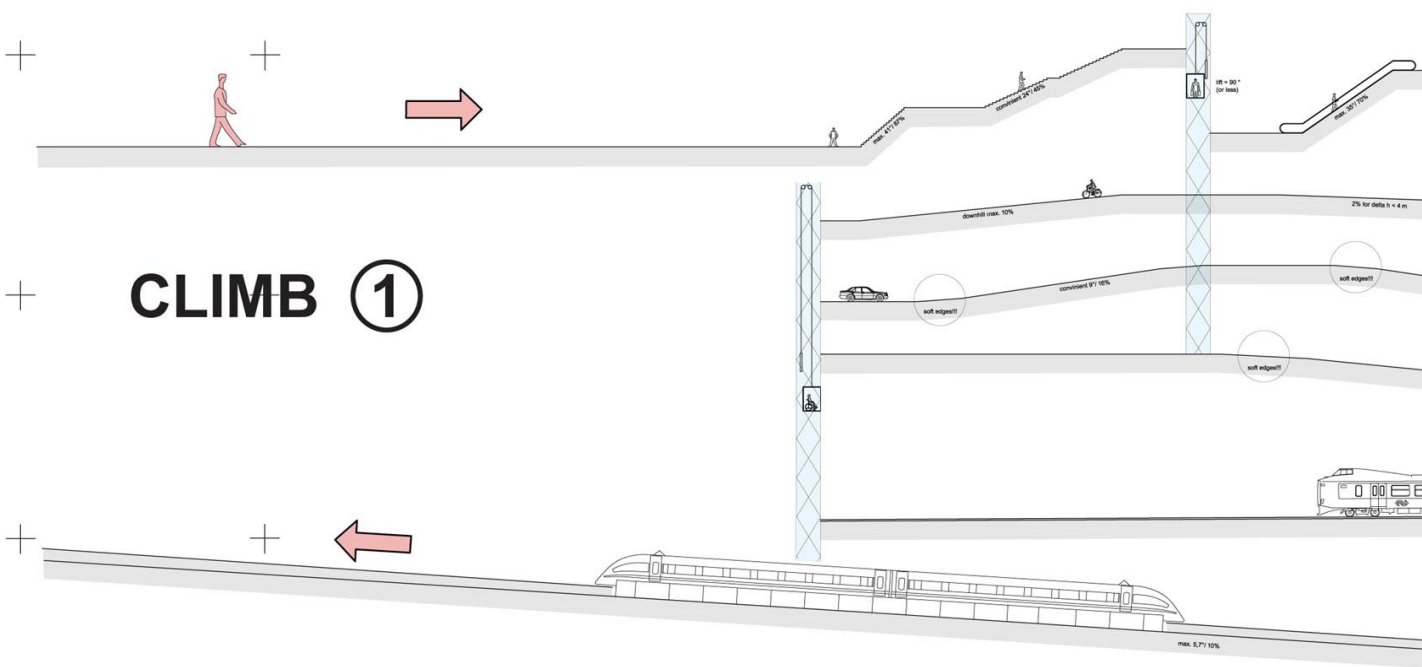
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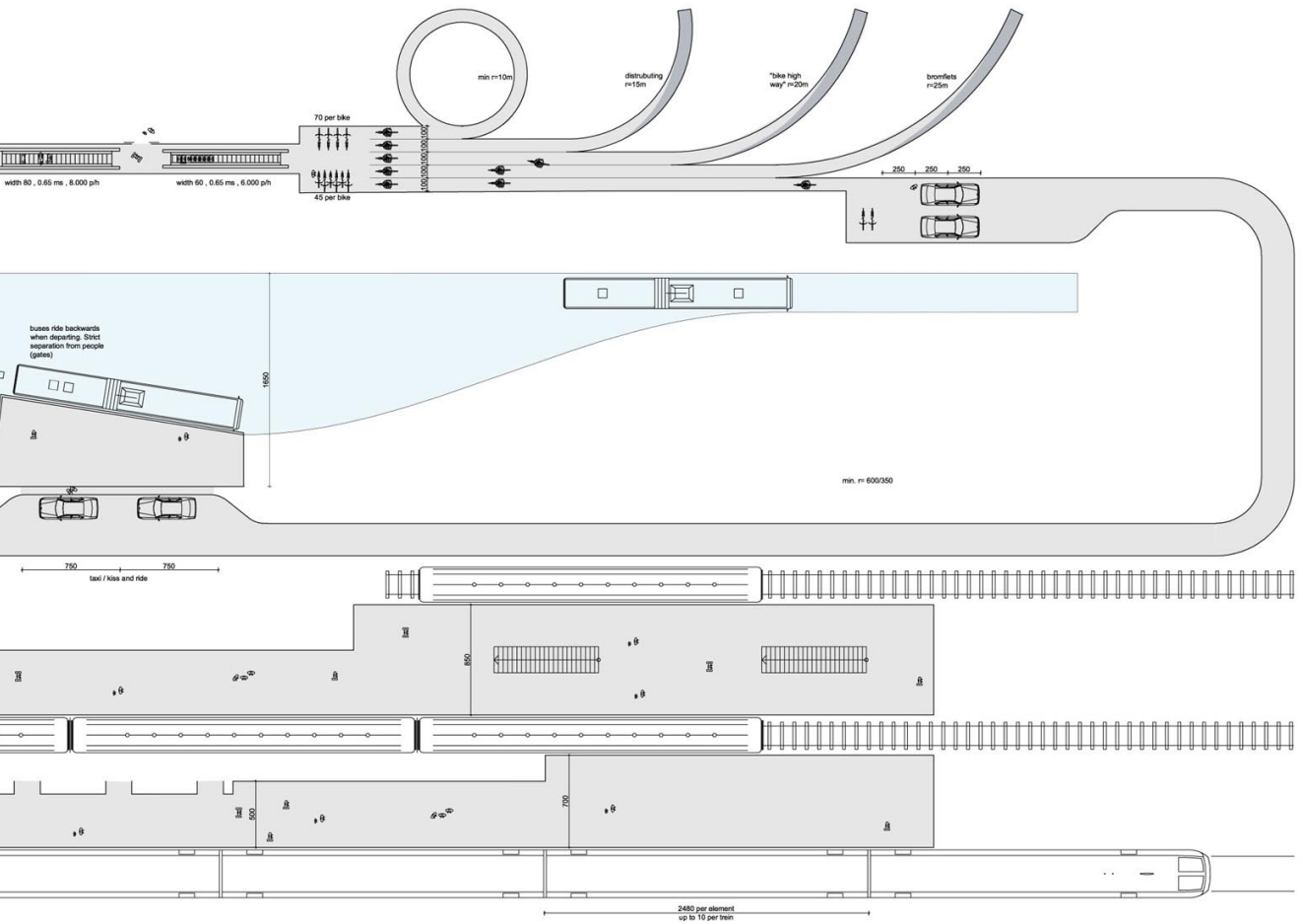
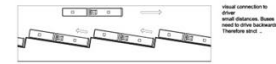
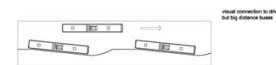
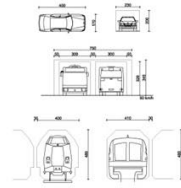
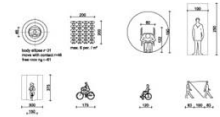
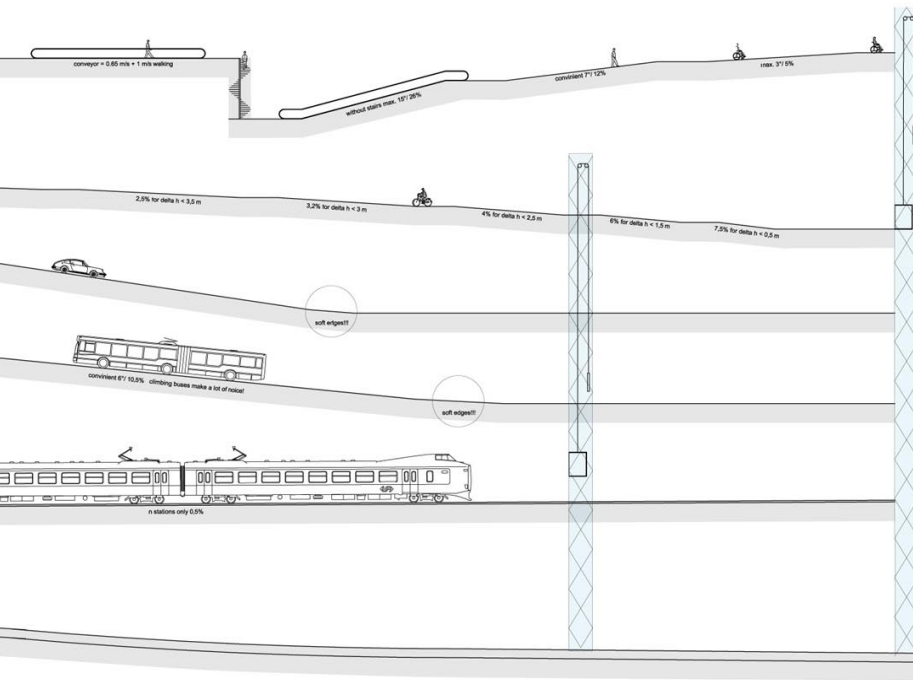
7

2

TIME

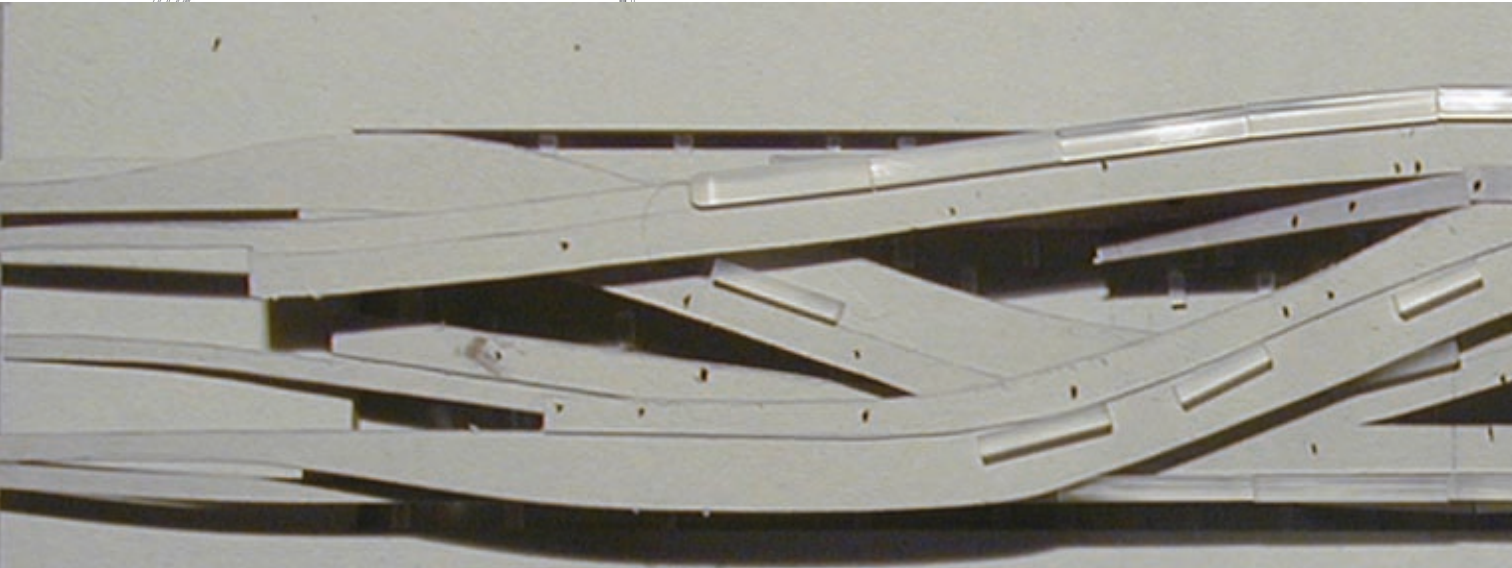
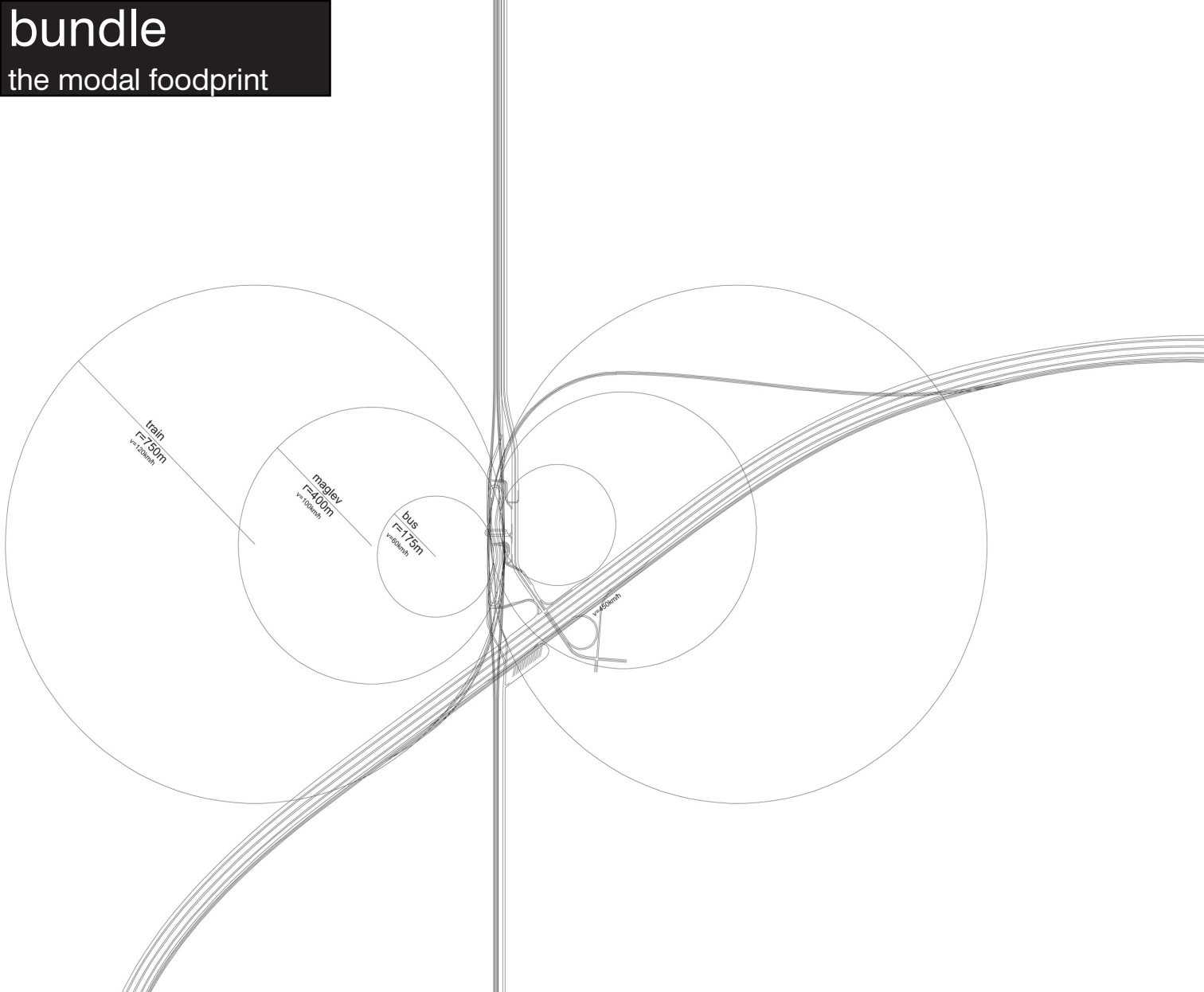
TIME





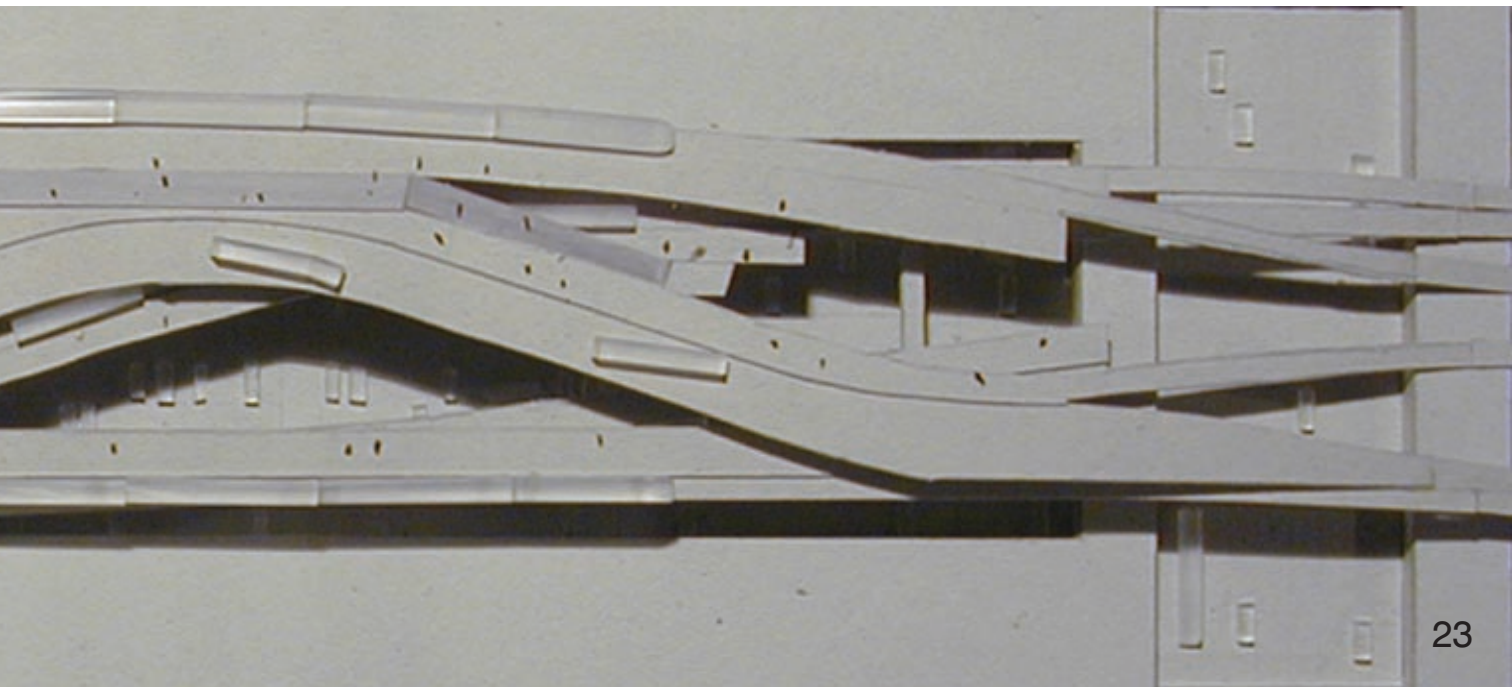
bundle

the modal footprint



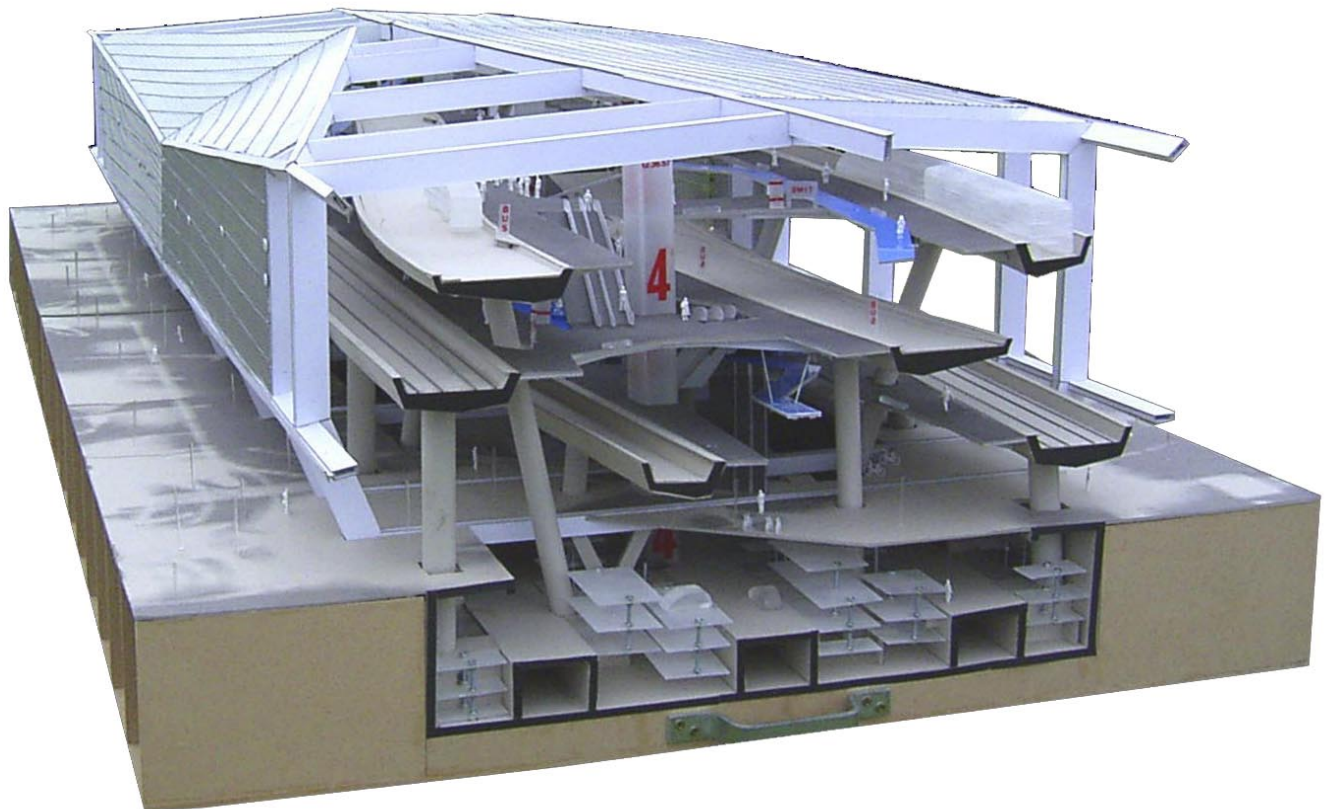
As investigated with the
toolbox
every traffic mode has a characteristic
capability to bent
this with relation to its characteristic speed
this footprint is used
to give the bundle its first shape
which can than be tweaked
according to all other demands

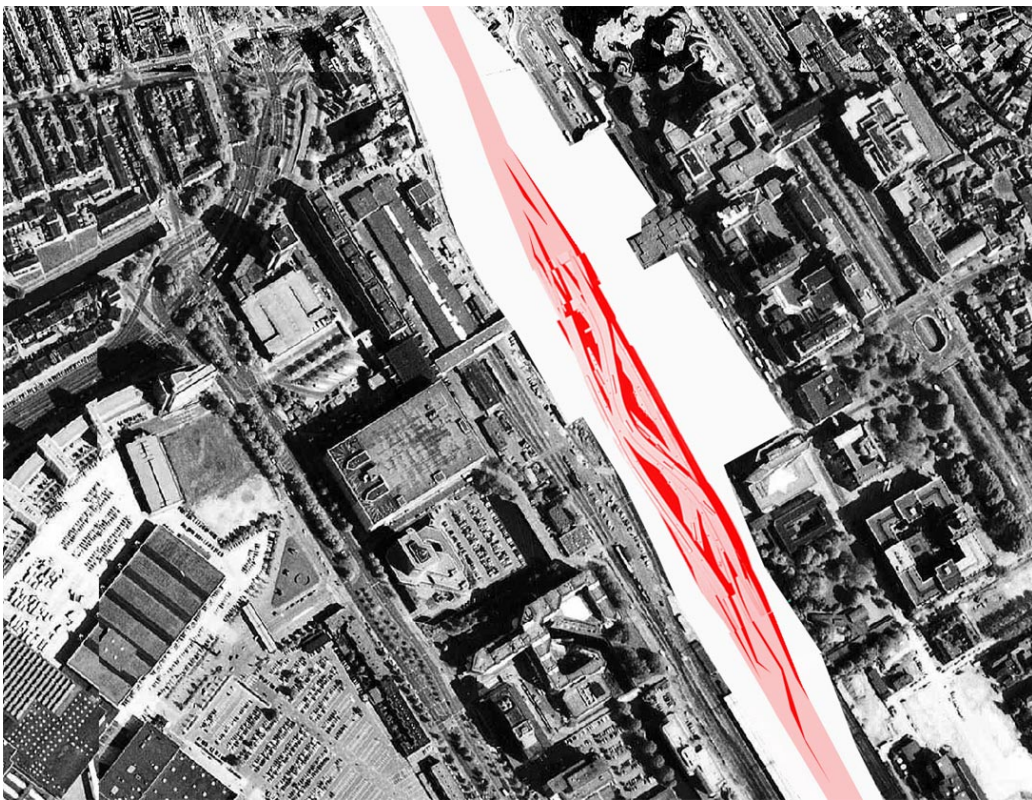
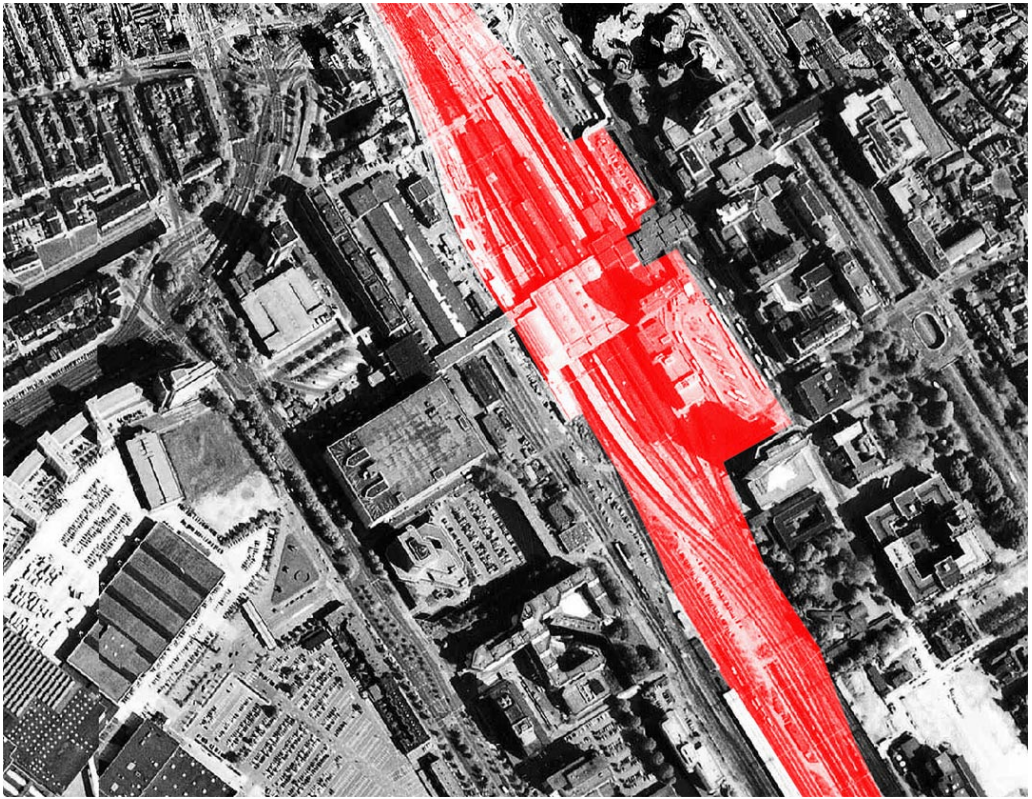
Maglev, bus (conveyor) and train
are the canalized public traffic means
involved in the Transferium
each of them in two directions.
therefore six platforms

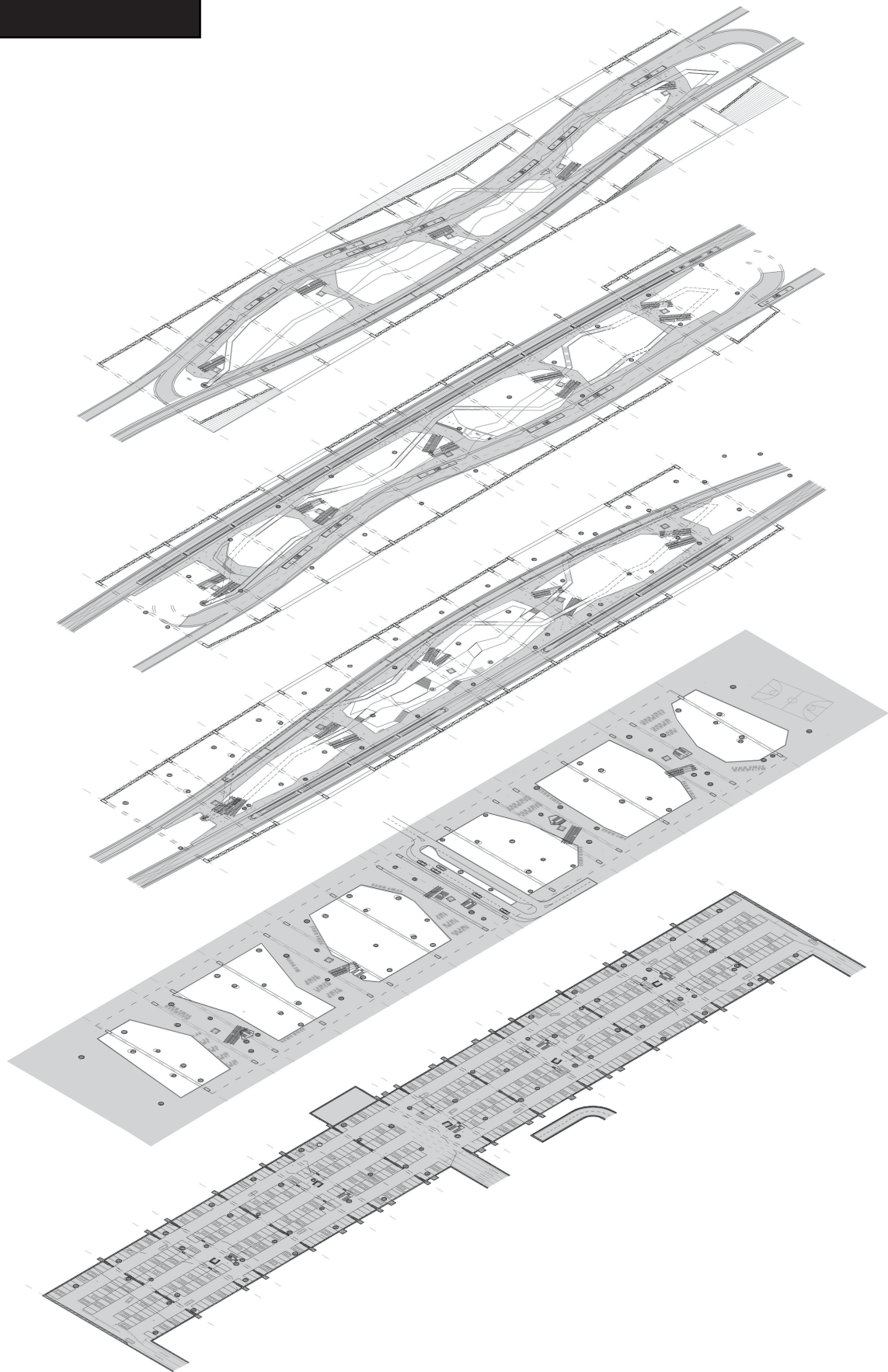


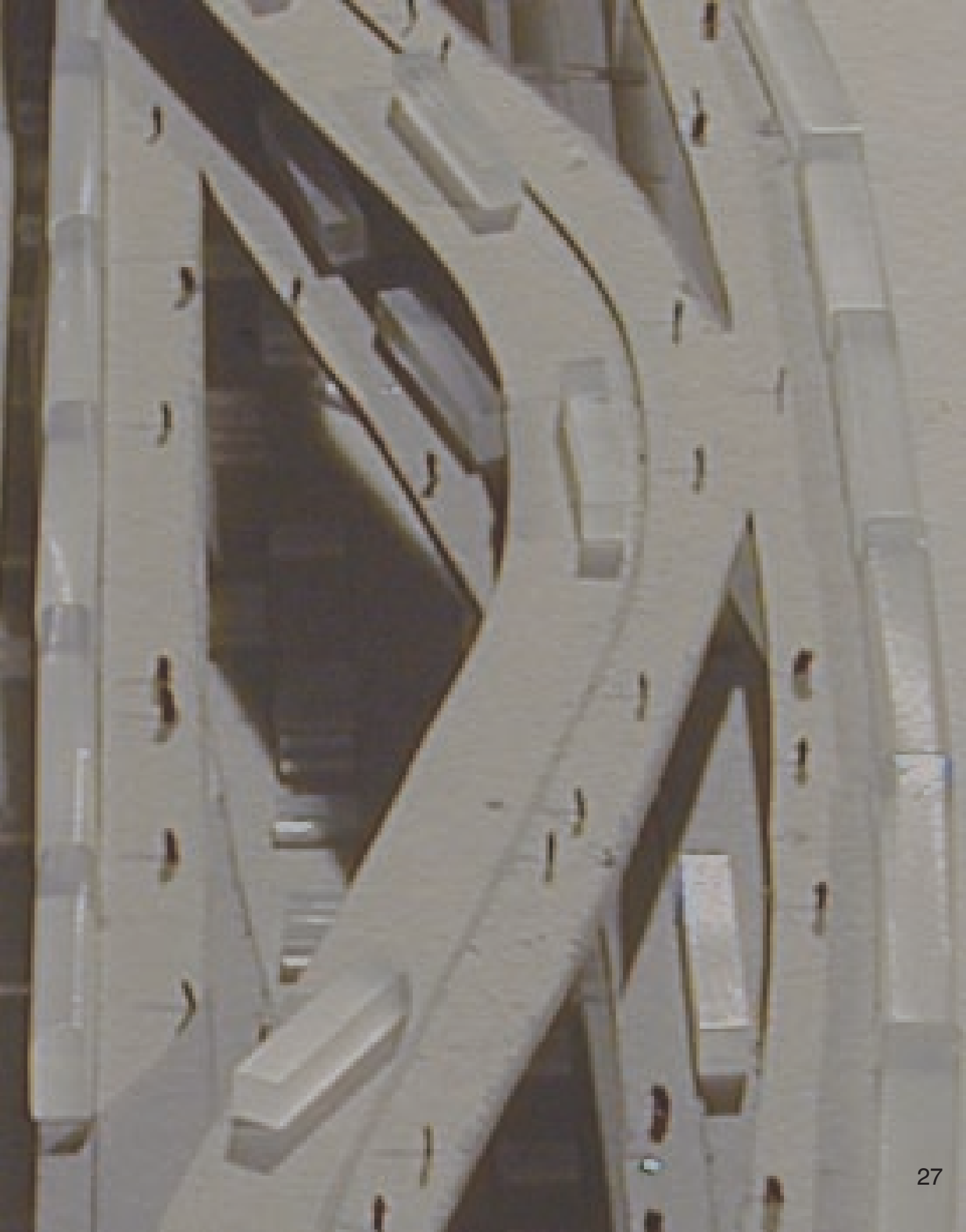
As the bundle is lifted above city level
it does not form a barrier
for the cross flows of the city.

Because of it's volumetric compactness
it has only half the footprint of
a comparable classic station
valuable realty
can be given back to the city

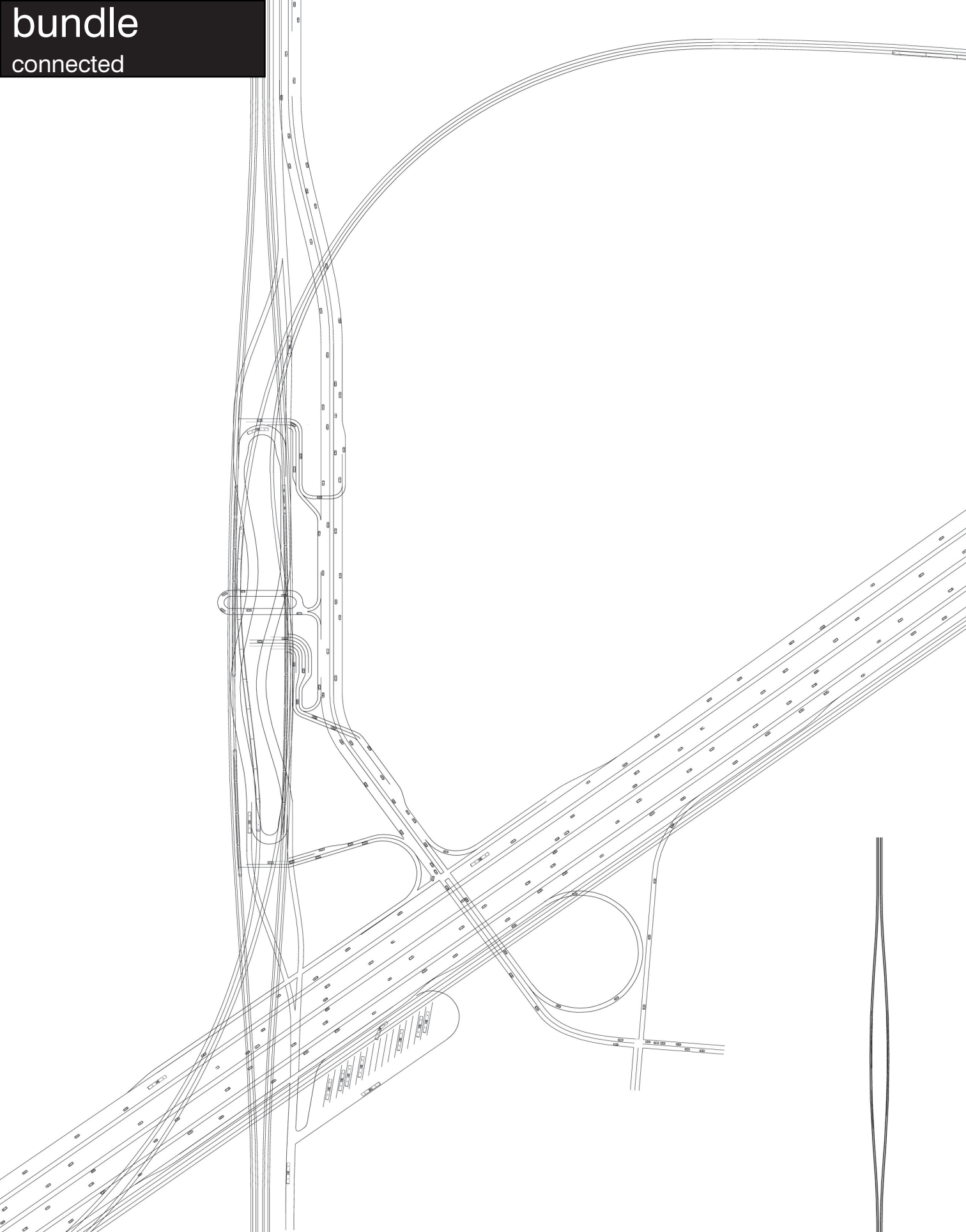


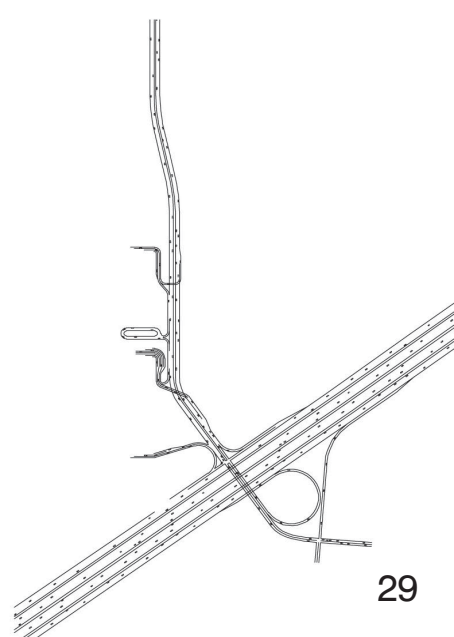
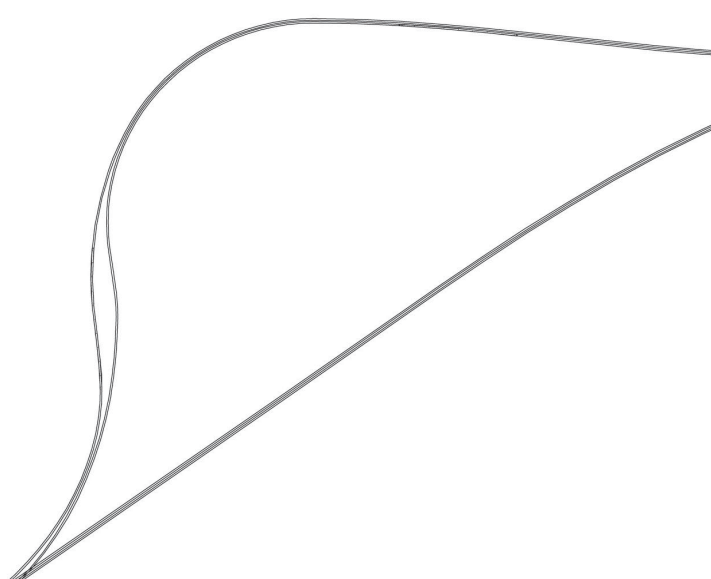
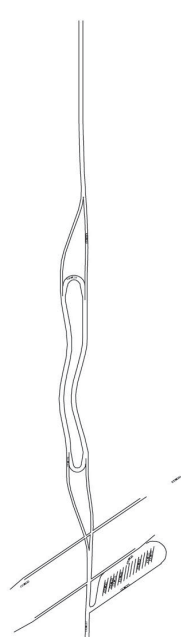
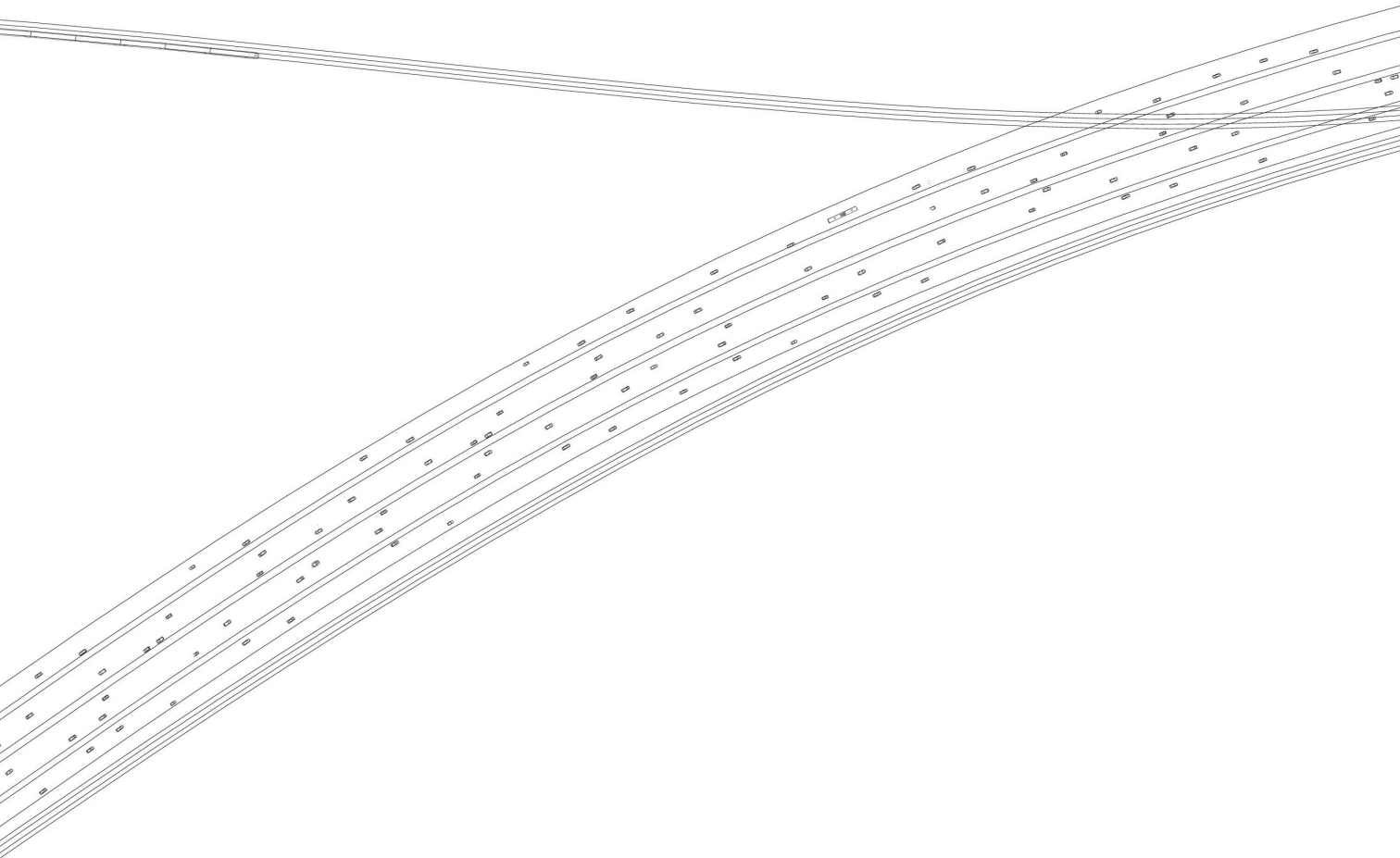






bundle
connected

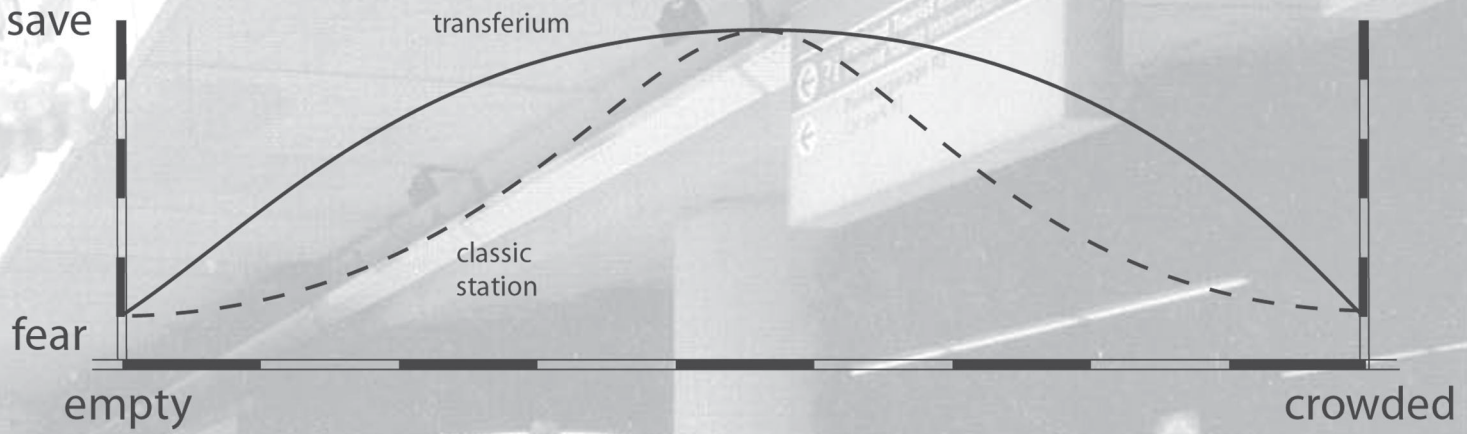




Two observations on contemporary stations and architecture set the framework for programming the transferium.

First is the fact that the classic station hall is superfluous nowadays as tickets and information are available on the platform and there are no more hours of waiting.

Second observation is that the state of contemporary architecture is one, which promotes programmatic hybridization and ambiguity. This often results in looser fit of different programs, a lack of identity and a “warehouse taste”. In contrast to this the railway stations of our days are some of the most characteristic and tasty public spaces of the cities. They offer a big number of obscured and exciting programs and situations, which only need to be fine-tuned to maximize public security and urge people to perceive those very special places. Nightclubs, mega cinemas, and shopping malls will only decrease the security and uniqueness of those places.



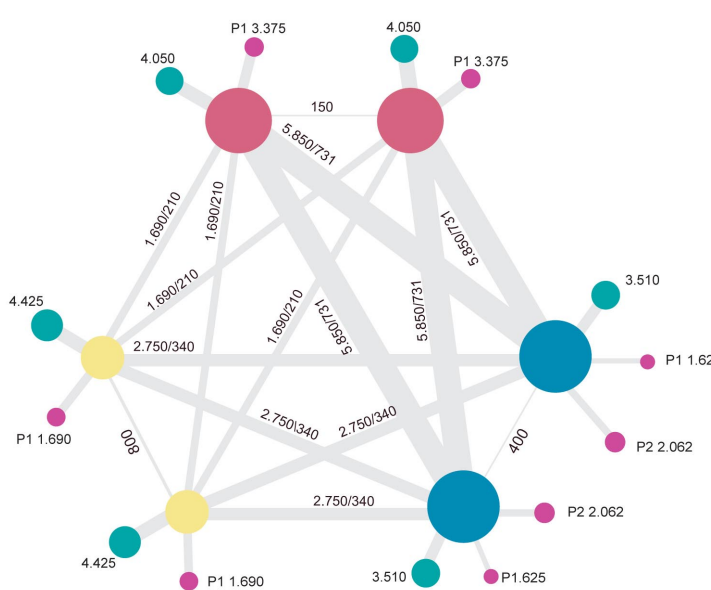
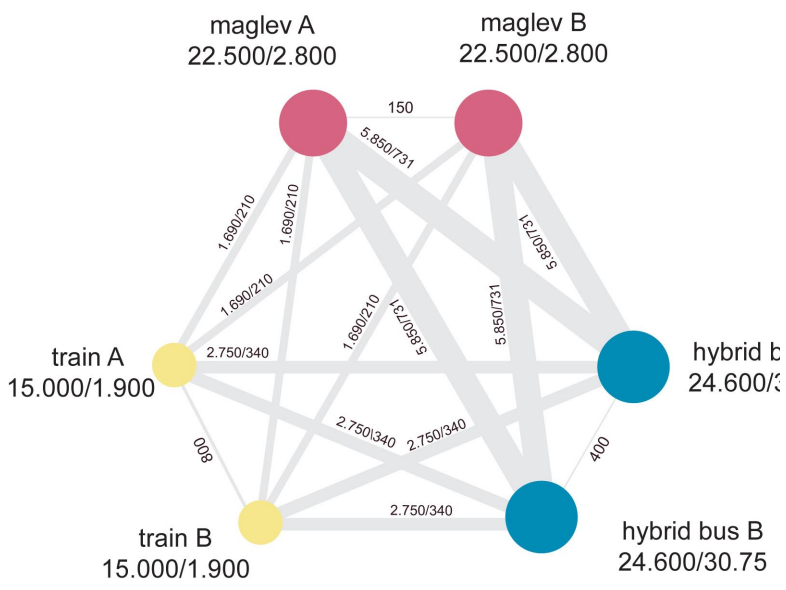
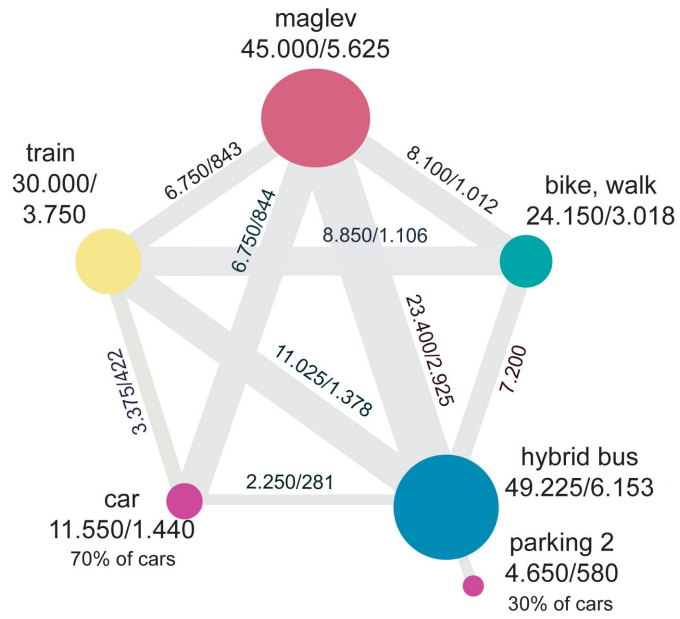
tweaking the inherent

1500 m² of on-the-rush-shopping
guarantee the convenience of the traveler

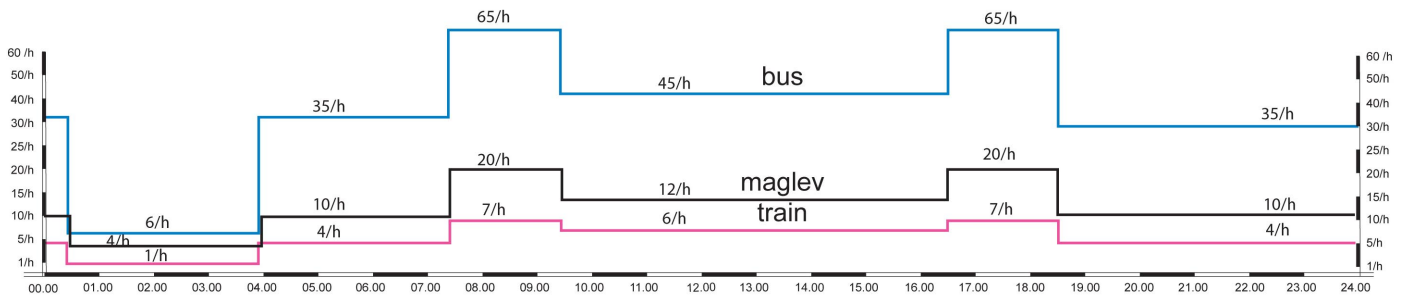
bars, sun decks and other places to hang out
invited to enjoy the uniqueness of place and space

program composition
and spatial configuration
result in the feeling of public security

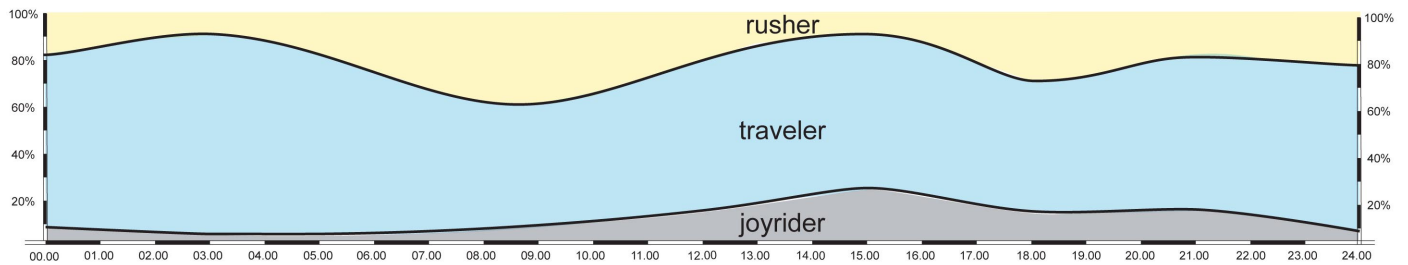
flows quantities



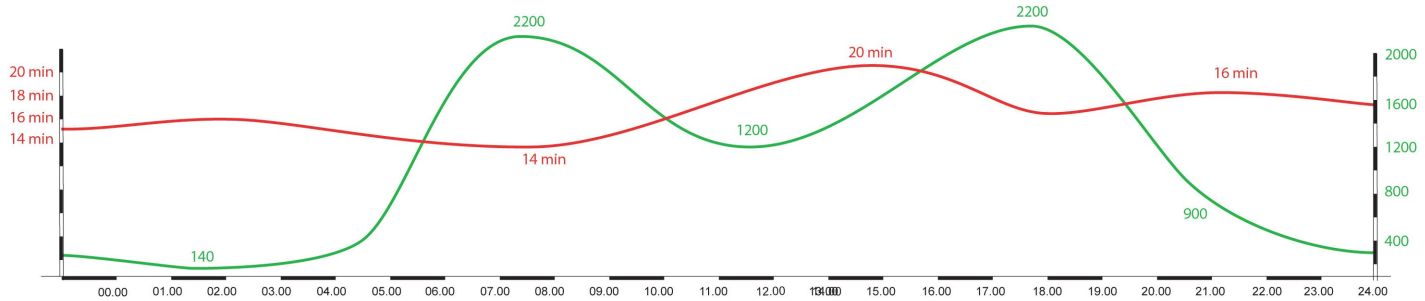
modal split, platform split and total split indicate the quantity of all intermodal movements within the Transferium per 24 hours and for the peak hour



timetable vehicles per hour



percentage type of users



average duration of stay and number of people present

about 70.000 people passing the Transferium a day
 9.000 of them in the peak hour

$$\text{peak hour} = \frac{1}{8} \times 24 \text{ h}$$

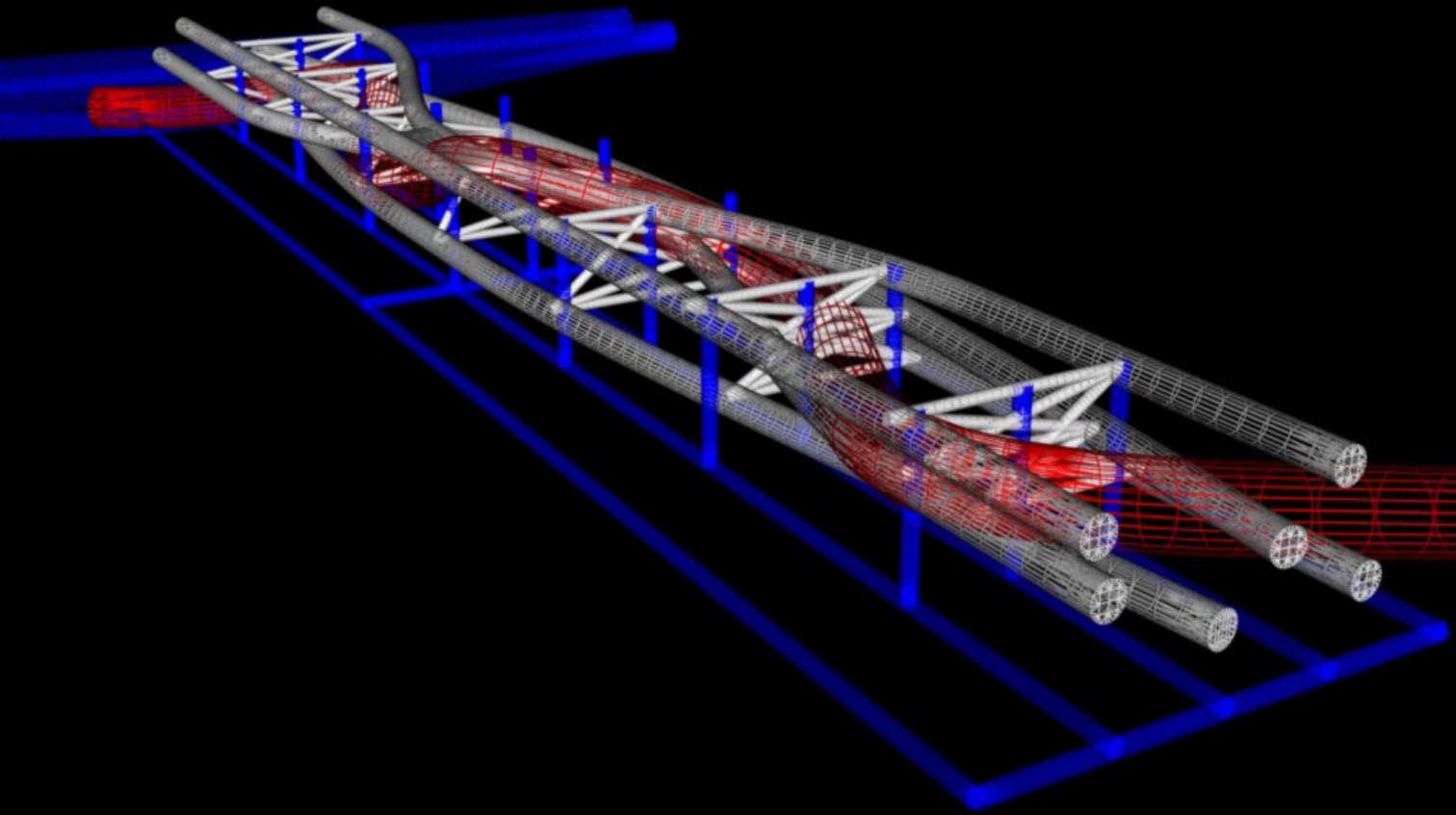
In Esmeralda, city of water, a network of canals and a network of streets span and intersect each other. To go from one place to another you have always the choice between land and boat: and since the shortest distance between two points in Esmeralda is not a straight line but a zigzag that ramifies in tortuous optional routes, the ways that to each passer-by are never two, but many, and they increase further for those who alternate a stretch by boat with one on dry land.

And so Esmeralda's inhabitants are spared the boredom of following the same streets every day. And that is not all: the network of routes is not arranged on one level, but follows instead an up-and-down course of steps, landings, cambered bridges, hanging streets. Combining segments of the various routes, elevated or on ground level, each inhabitant can enjoy every day the pleasure of a new itinerary to reach the same places. The most fixed and calm lives in Esmeralda are spent without any repetition.

Secret and adventurous lives, here as elsewhere, are subject to greater restrictions. Esmeralda's cats, thieves, illicit lovers move along higher, discontinuous ways, dropping from rooftop to a balcony, following guttering with acrobat's steps. Below, the rats run in darkness of the sewers, one behind the other's trail, along with conspirators and smugglers: they peep out of manholes and drainpipes, they slip through double bottoms and ditches, from one hiding place to another they drag crusts of cheese, contraband goods, kegs of gunpowder, crossing the city's compactness pierced by the spokes of underground.

A map of Esmeralda should include, marked in different coloured inks, all these routes, solid and liquid, evident and hidden. It is more difficult to fix on the map swallows, who cut the air over the roofs, dropping long invisible parabolas with their still wings, darting to gulp a mosquito, spiralling upward, grazing a pinnacle, dominating from every point of their airy paths all the points of the city.

from Italo Calvino: trading cities



two three-dimensional pedestrian systems
intersecting and spanning each other

the short circuit system:

platforms and five hubs with elevators
and escalators

guarantee for optimal flow
and self speaking orientation

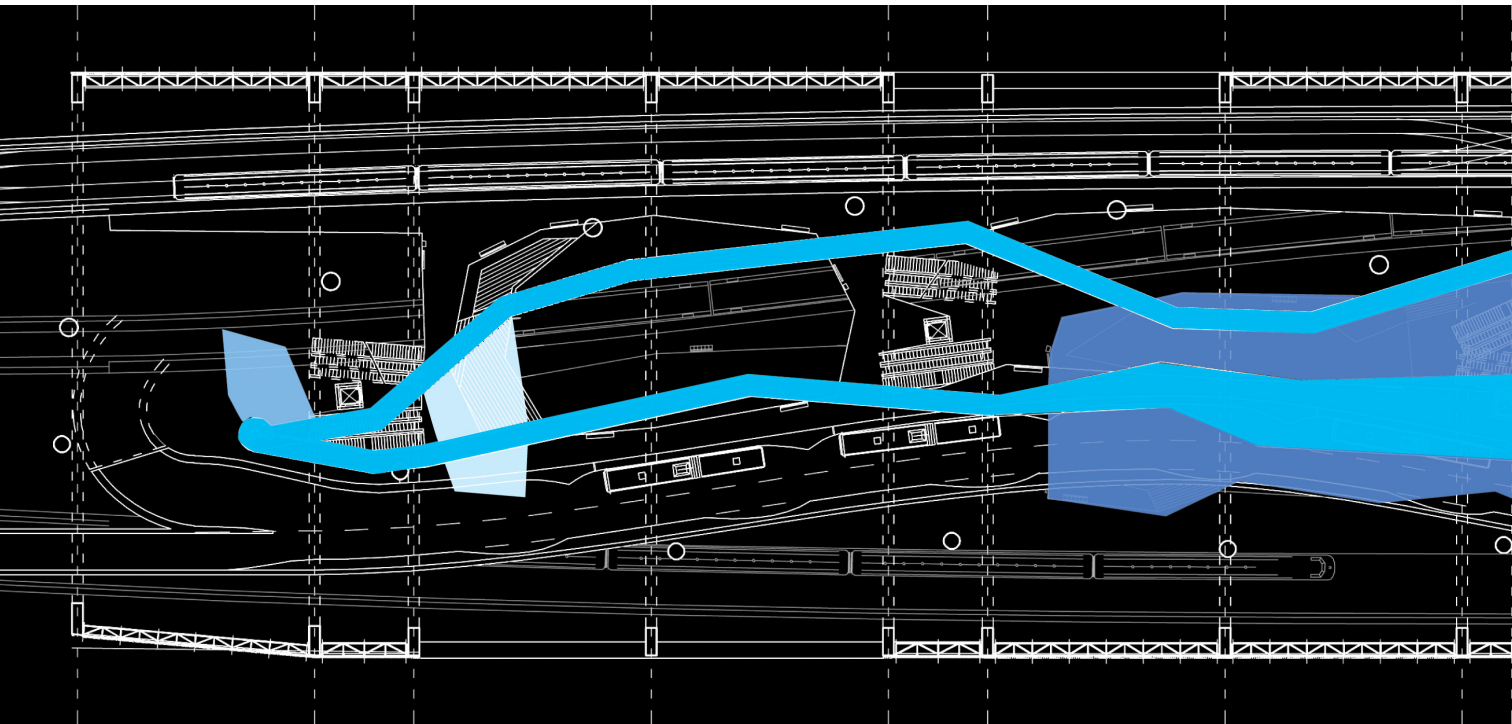
esmiralda:

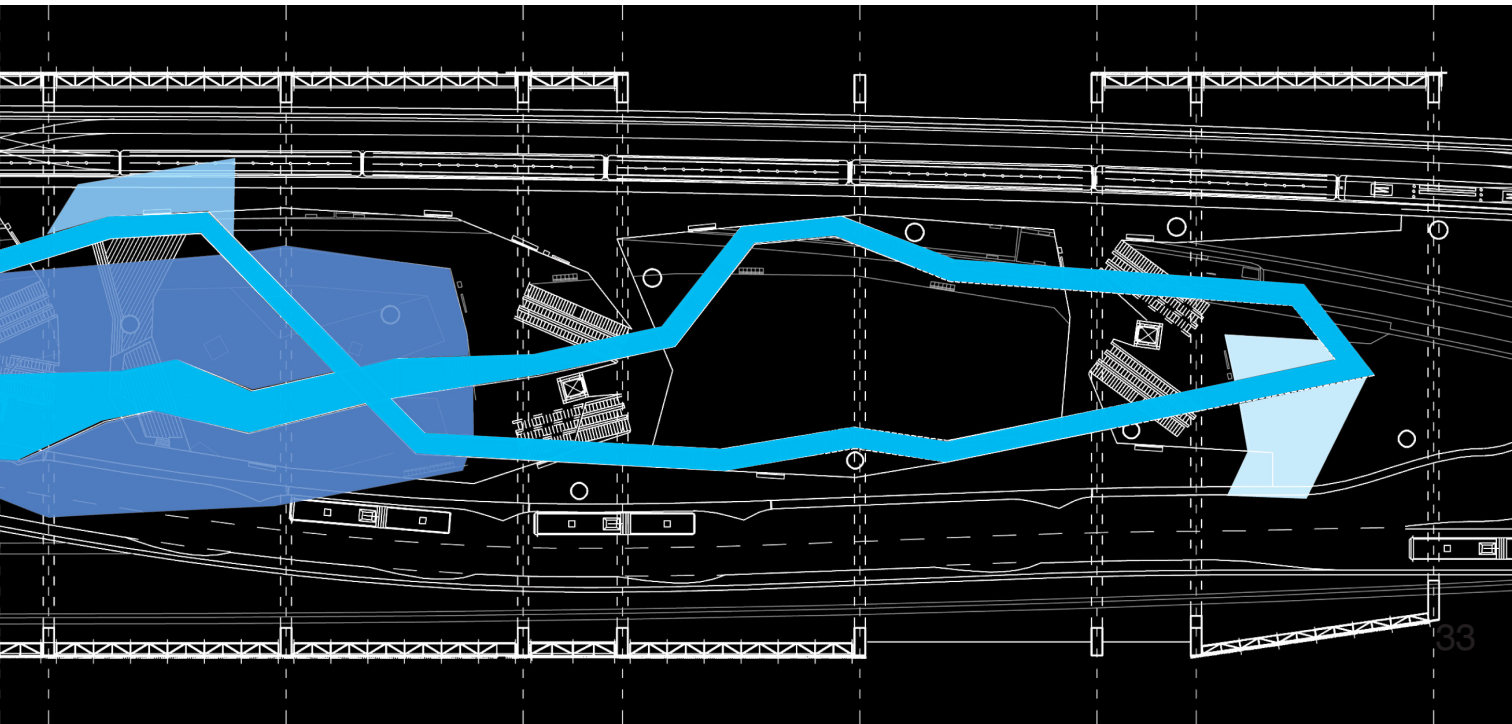
the unfolded transformation of the former
station hall

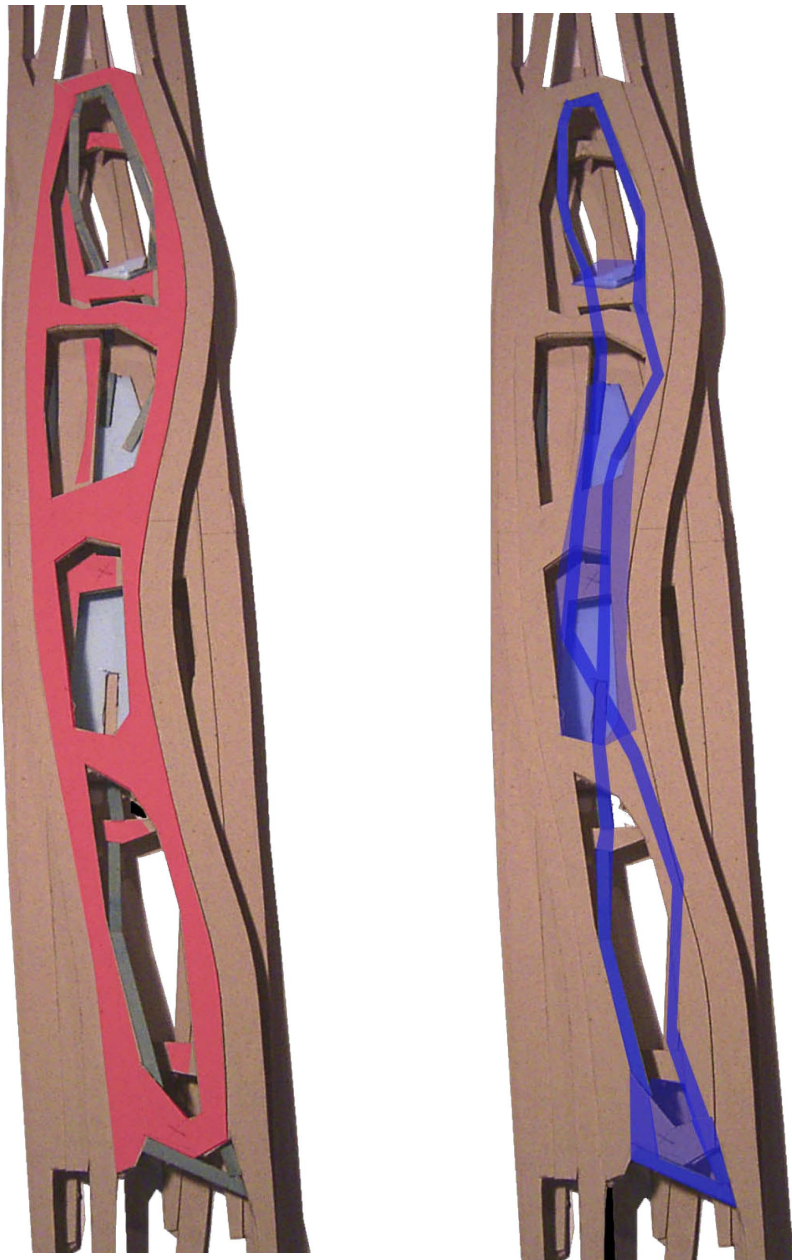
cascading in between the platforms

part of it are all programmatic events:

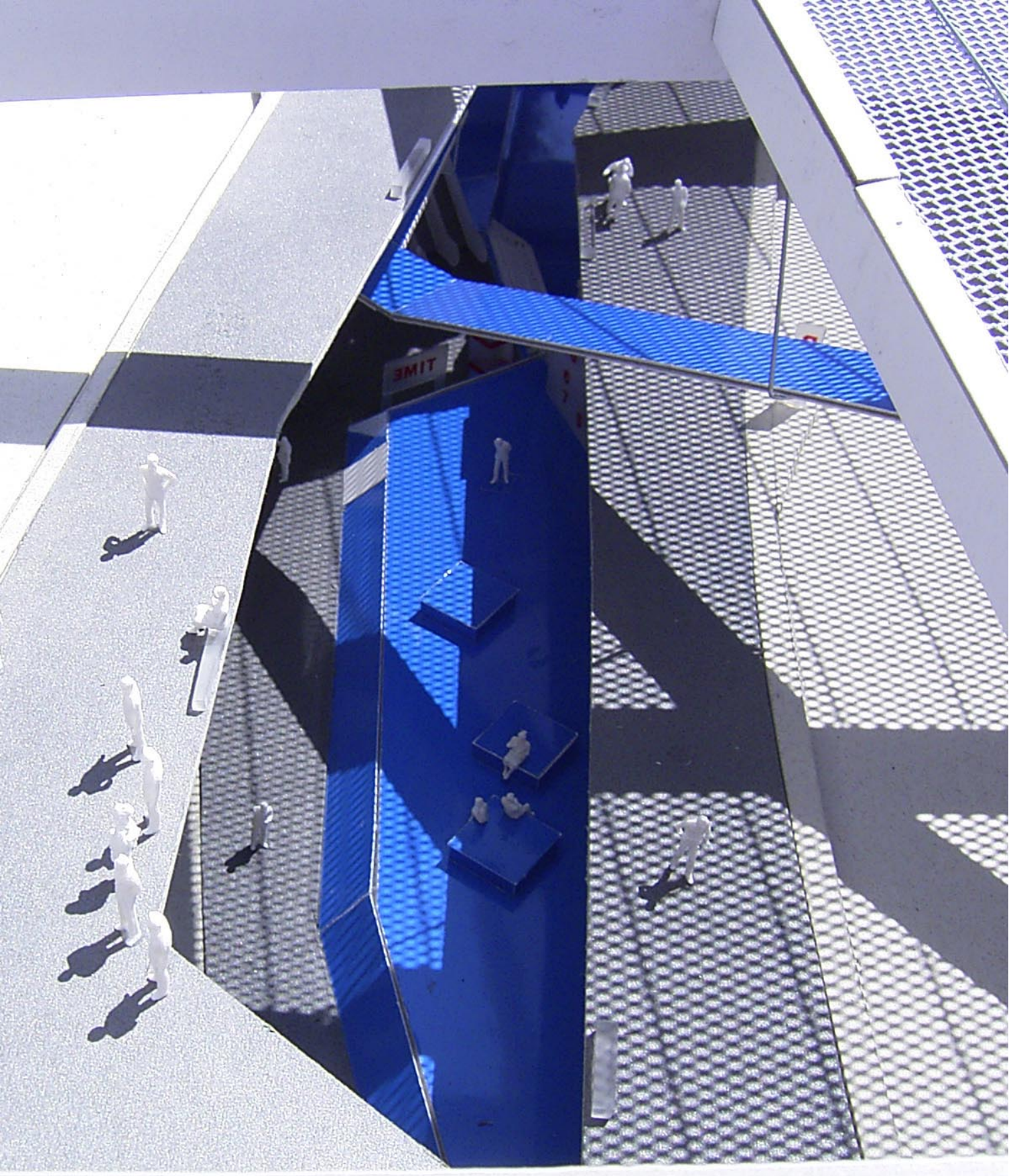
central plaza with shopping (+1), bar(+2),
lounge(+2), sun deck(+3)





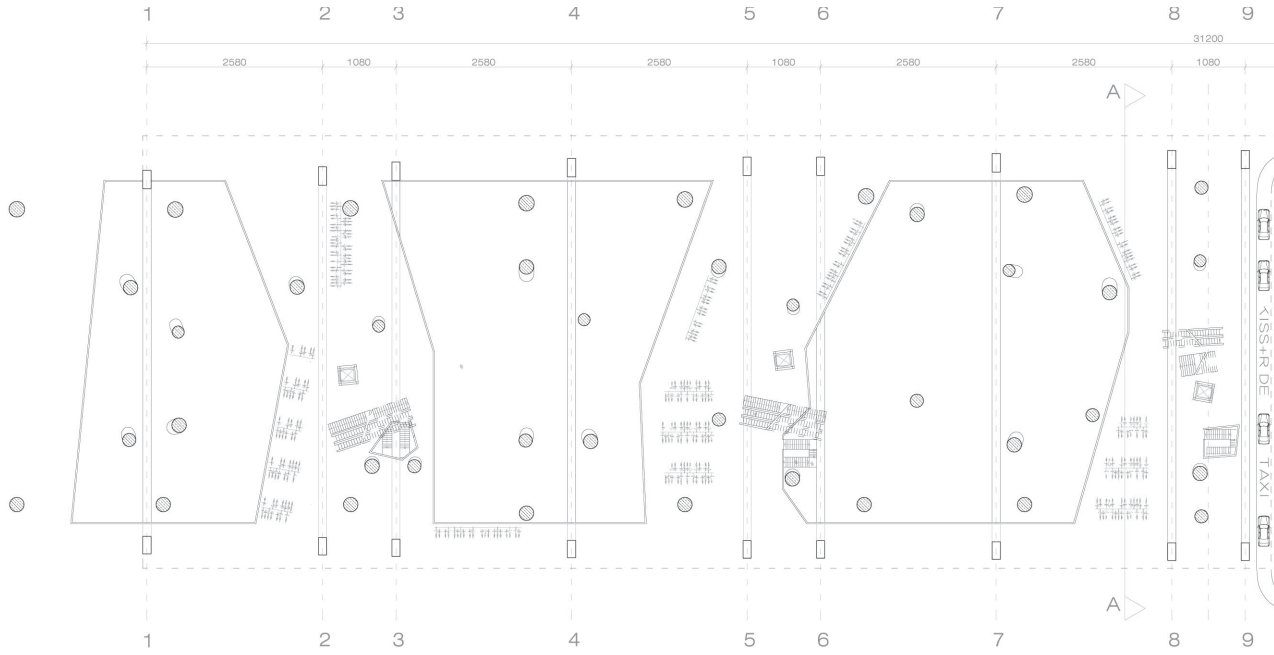


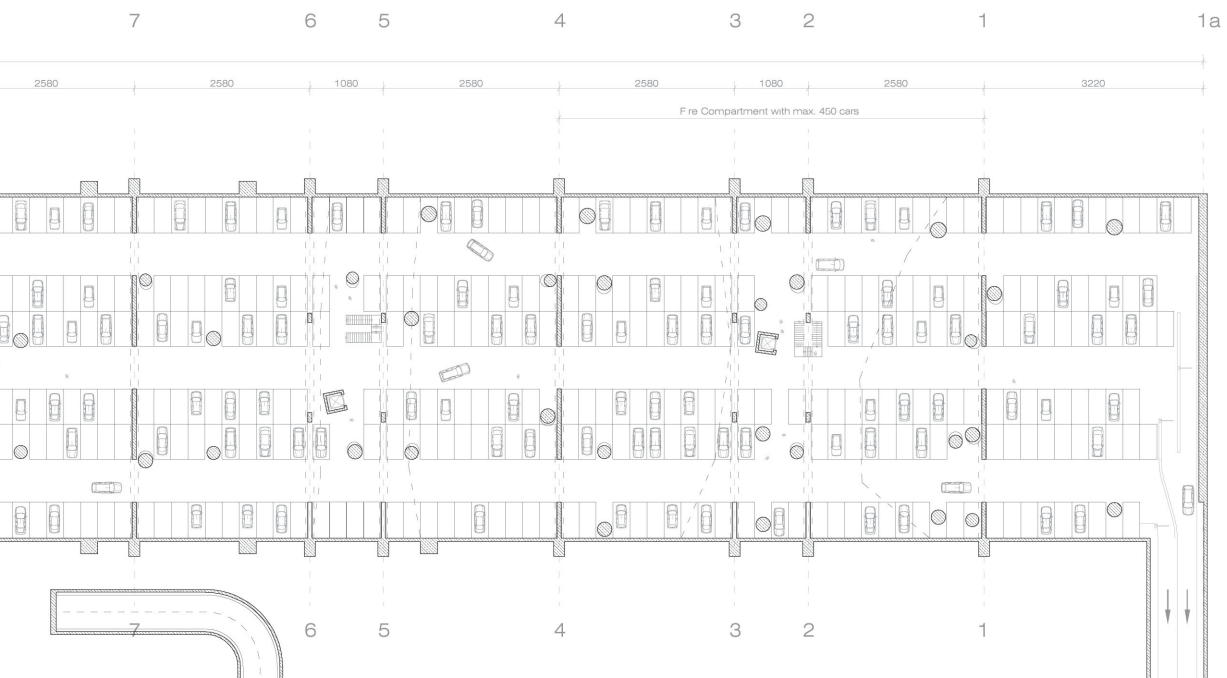
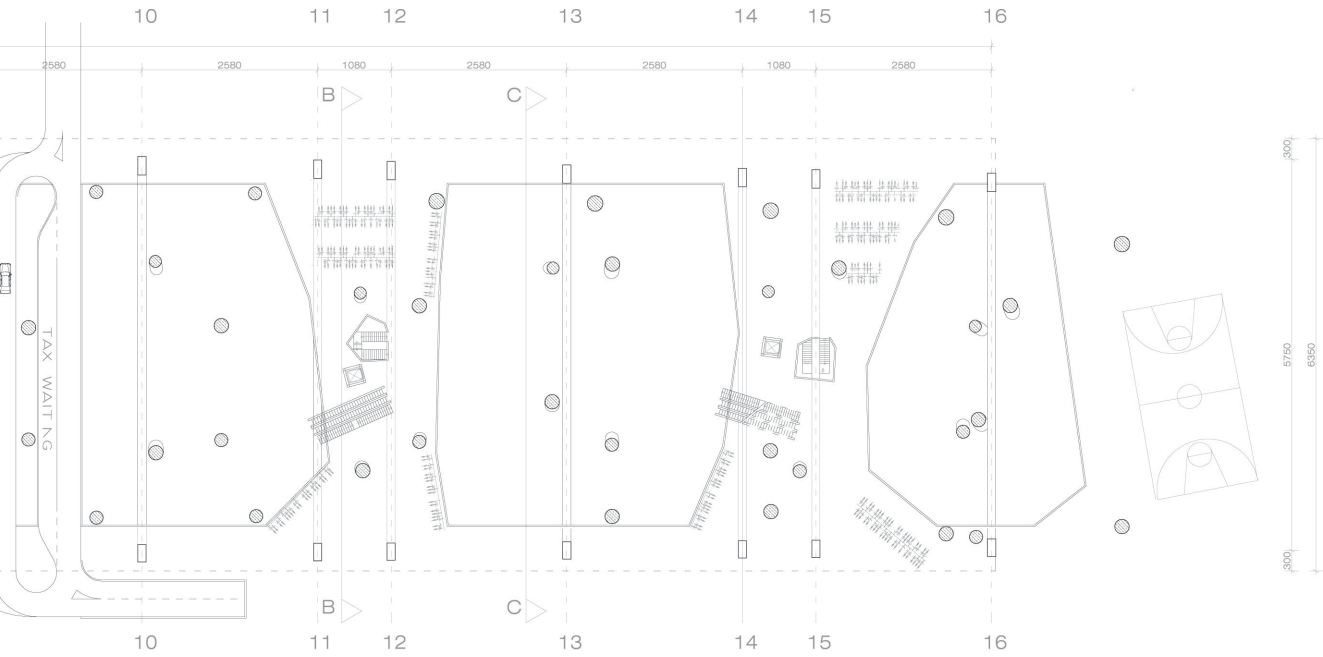
the number of five hubs fits demands of stations with high occupation.
the system could be adopted to other situations by changing the number of hubs



flows-plans

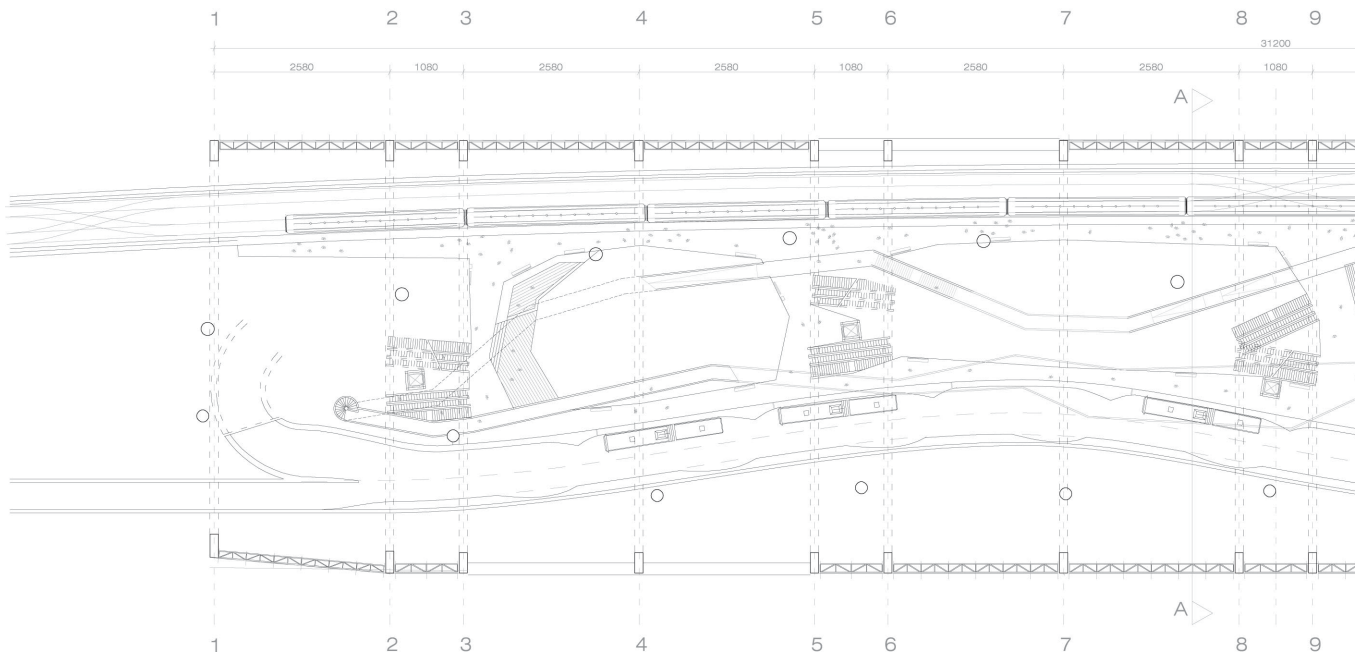
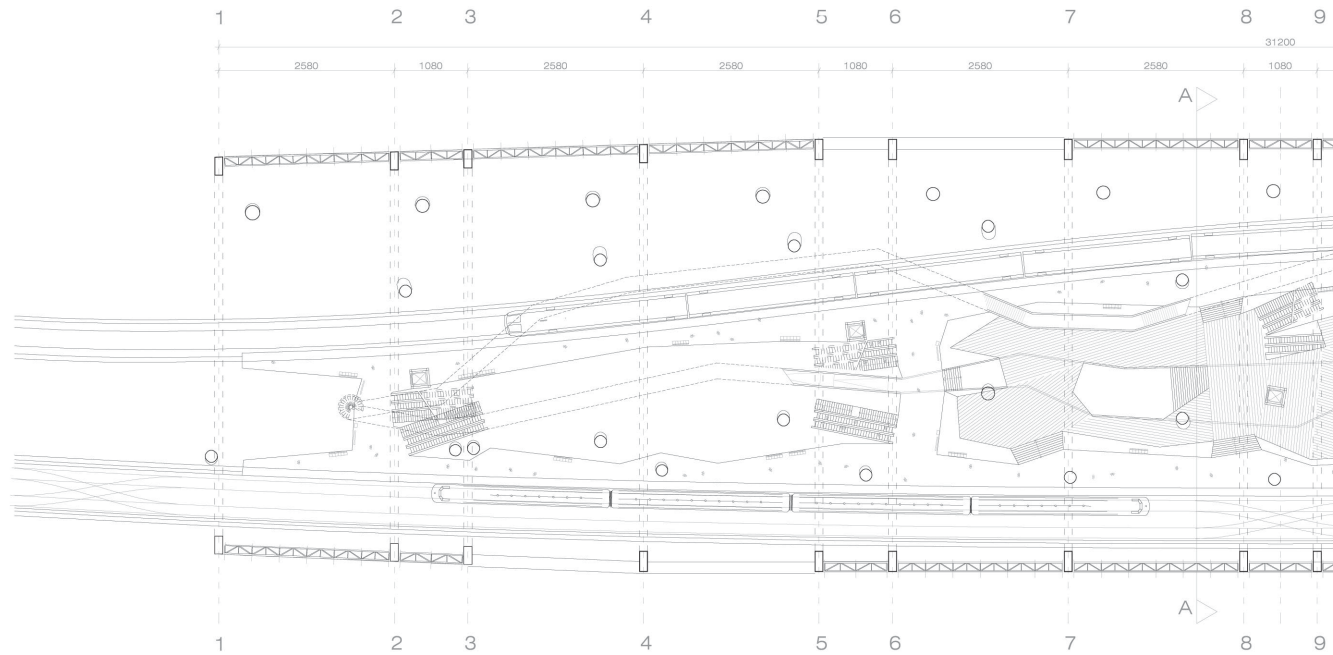
parking + city level

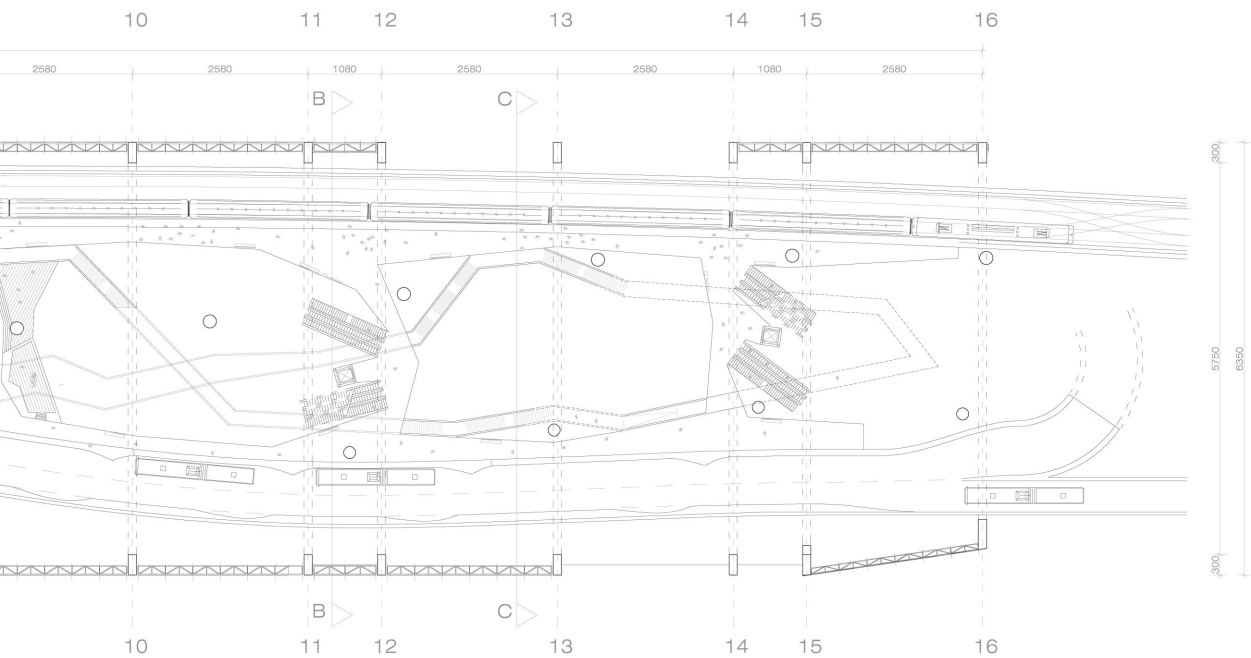
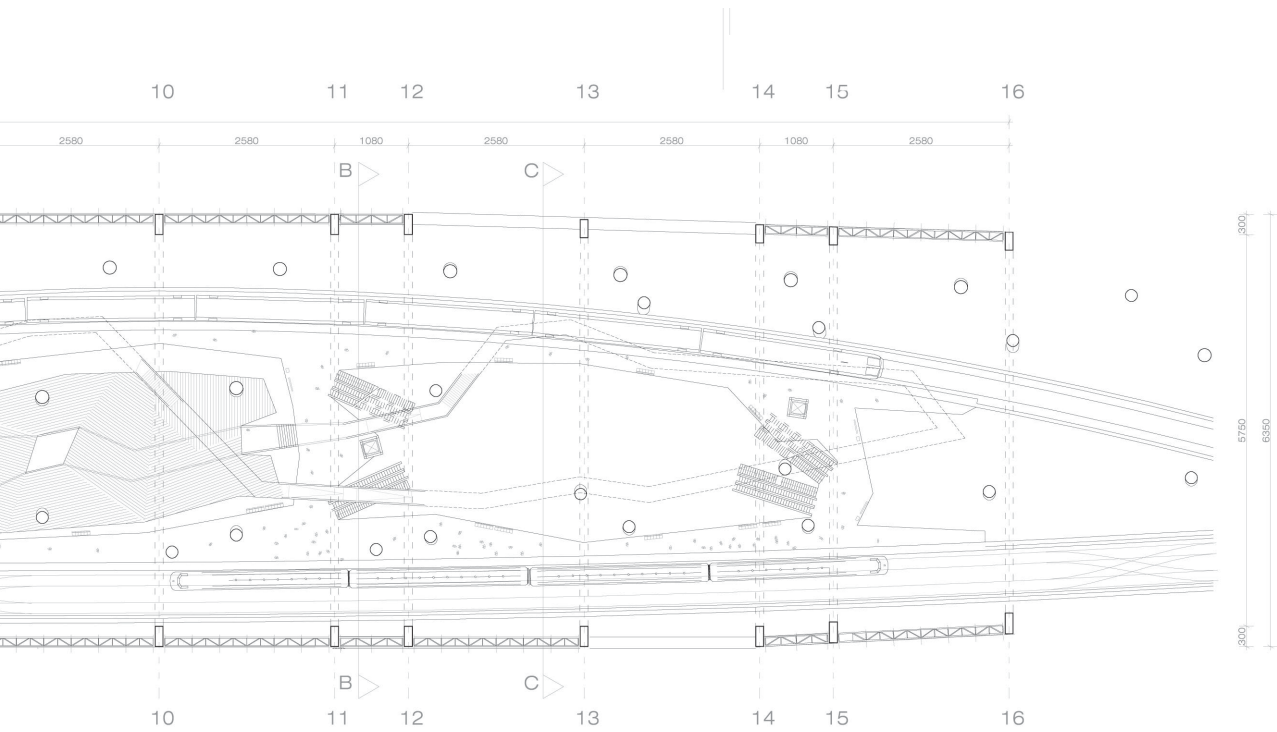


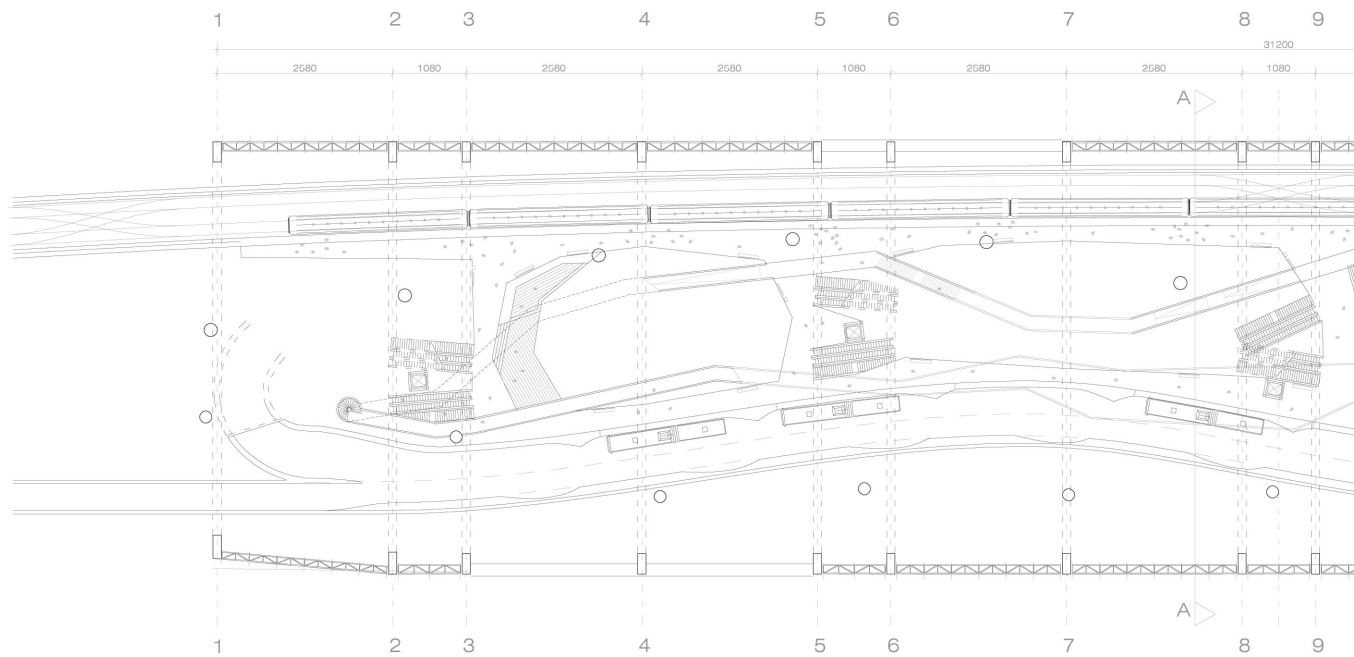


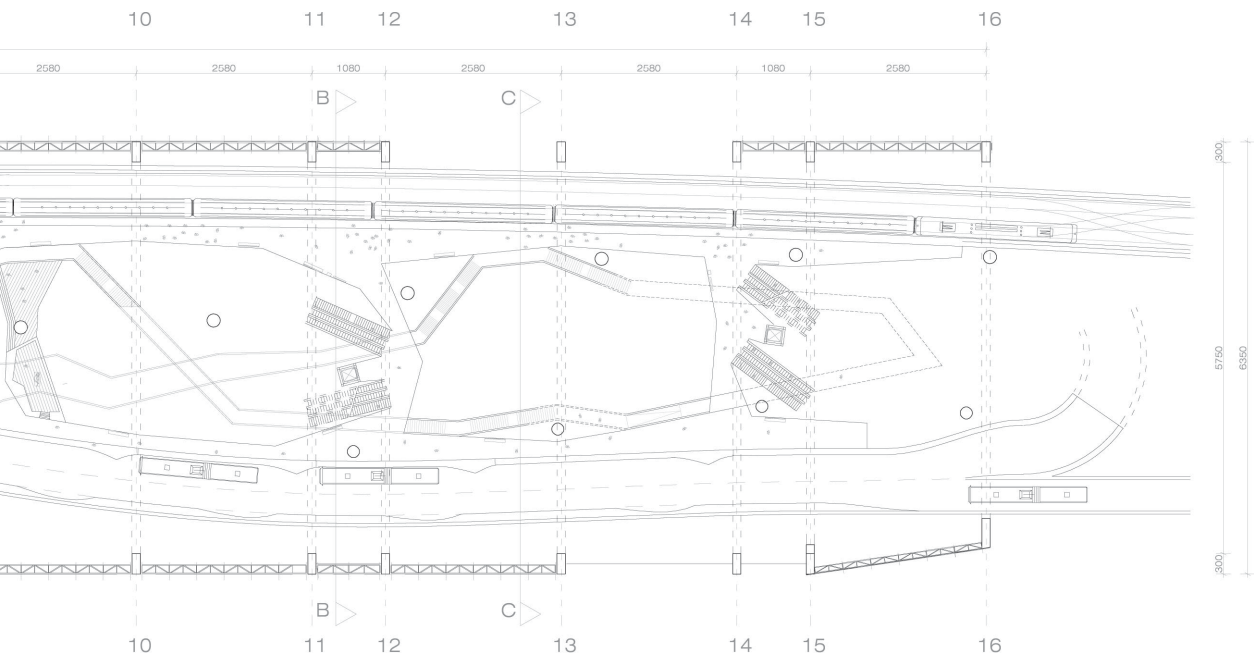
flows-plans

interchange level 1+2



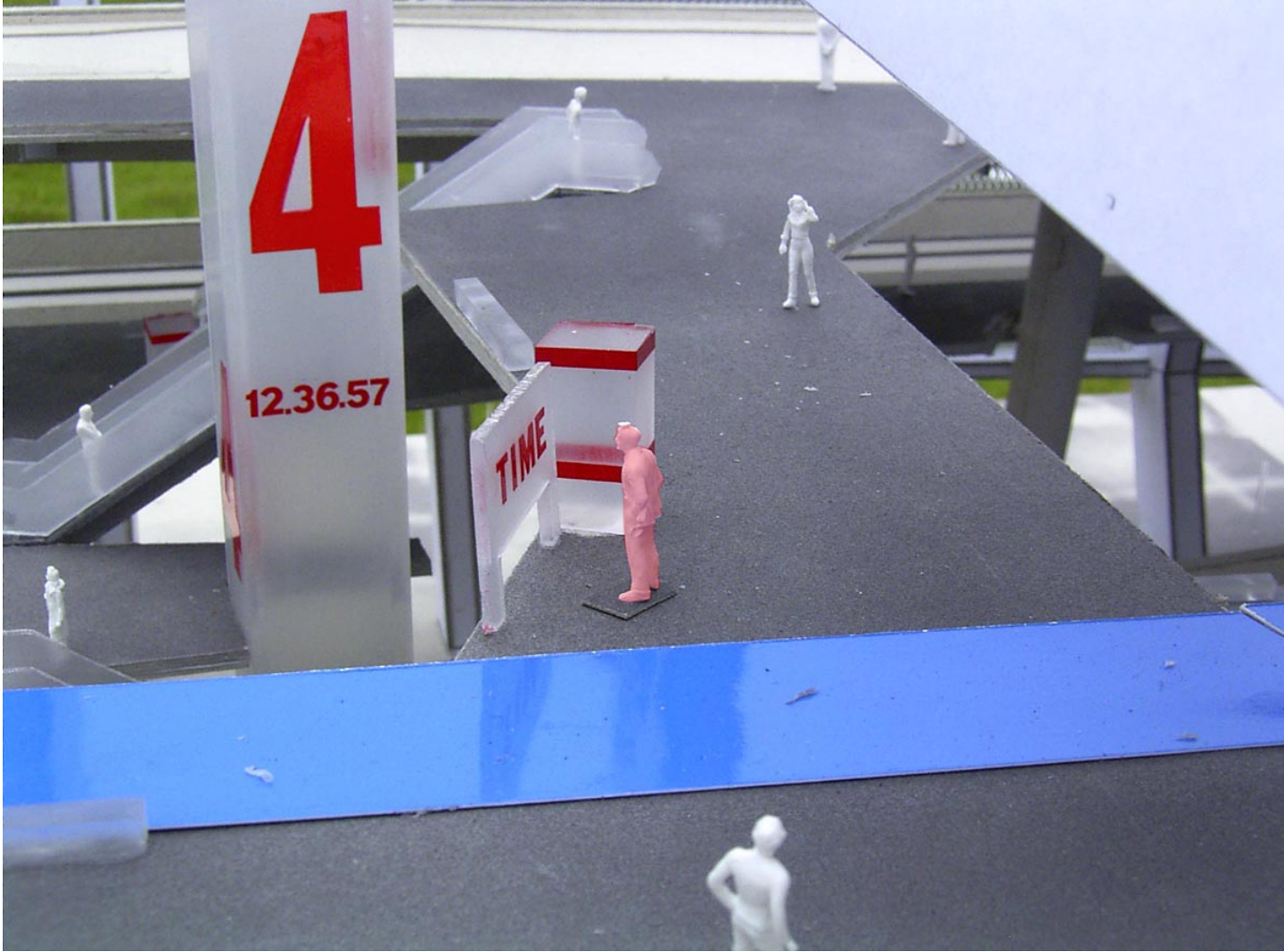






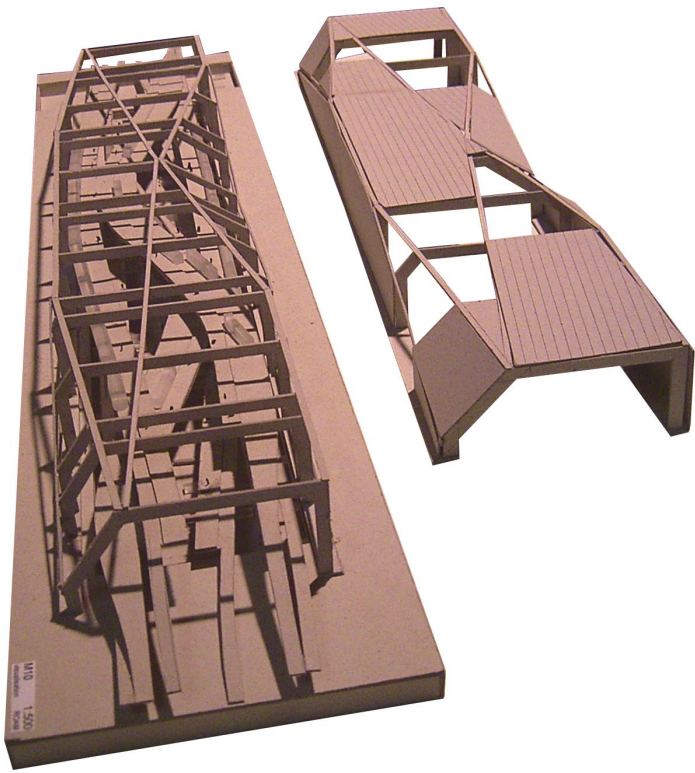


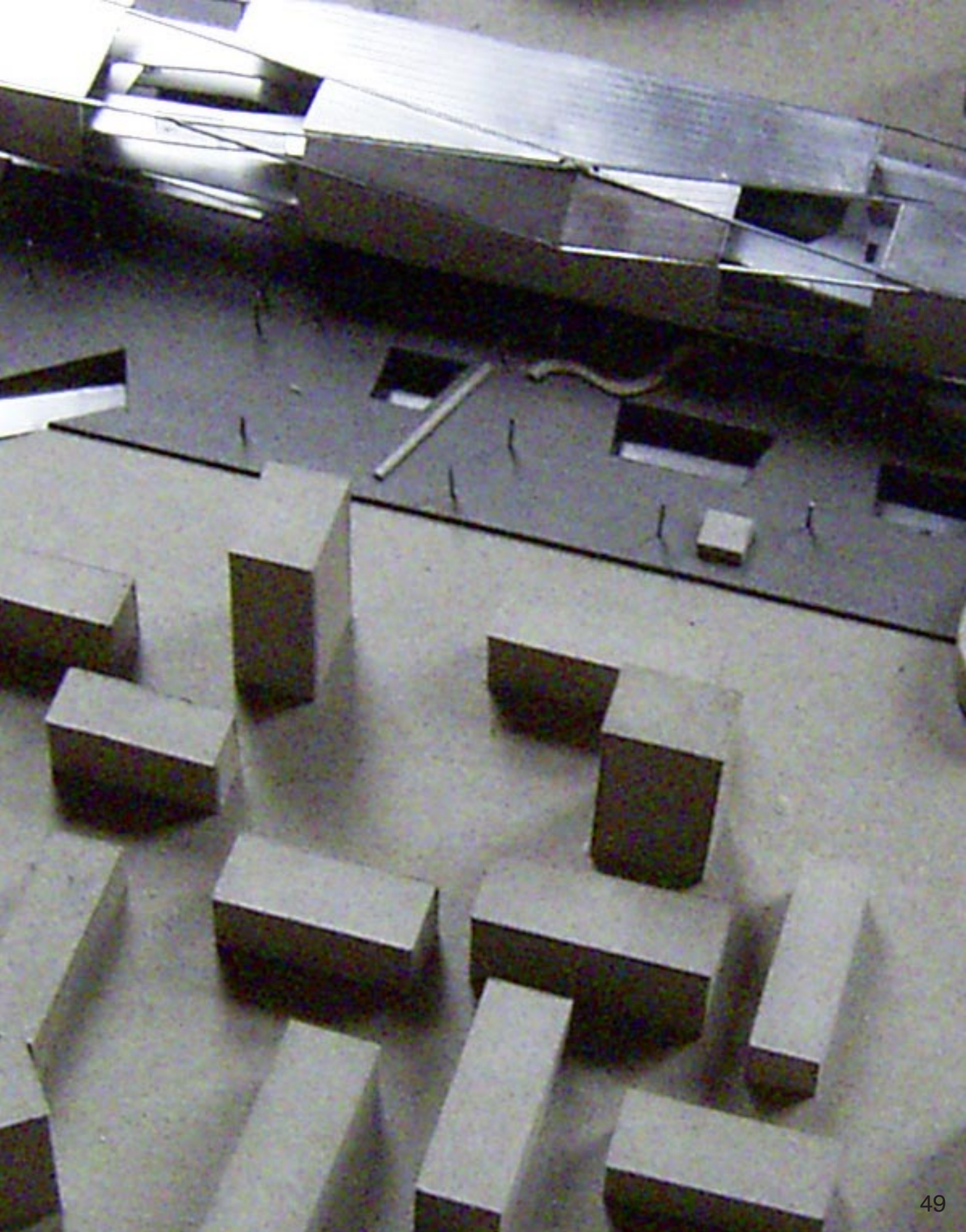
plaza, bars, sundecks, spiral stairs, ramps...
places to recognize and remember,
places which provoke human interaction
surprises and confrontation.
They will develop their meaning and taste
through time and make the transferium
everything than an non place.

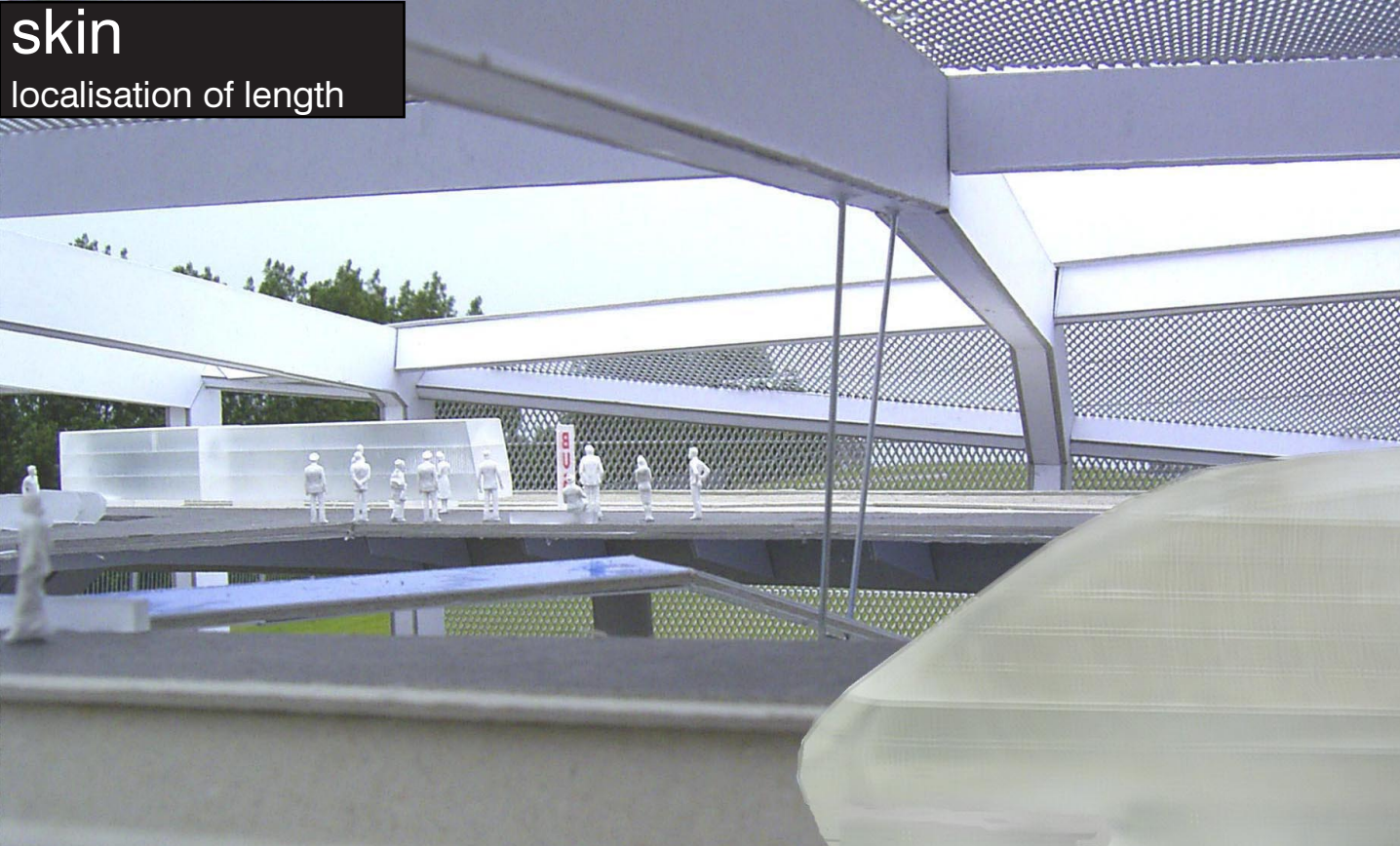


the hubs are points of total interchange and information. they are indicated to the visitor by the rythem of the portals, the material of the skin and the dominat presence of the lifts which act as big information boards.
orientation becomes selfspeaking.

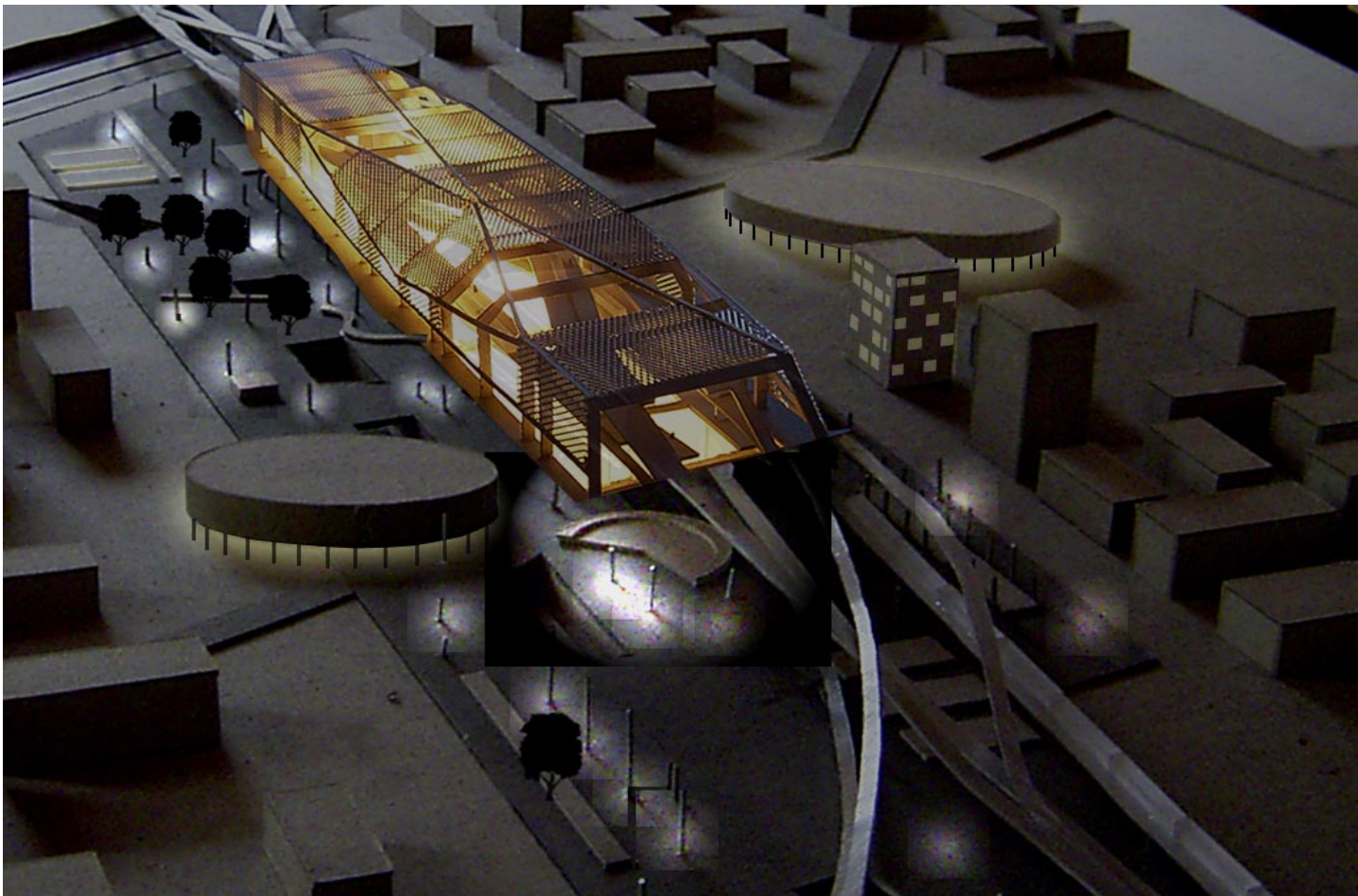
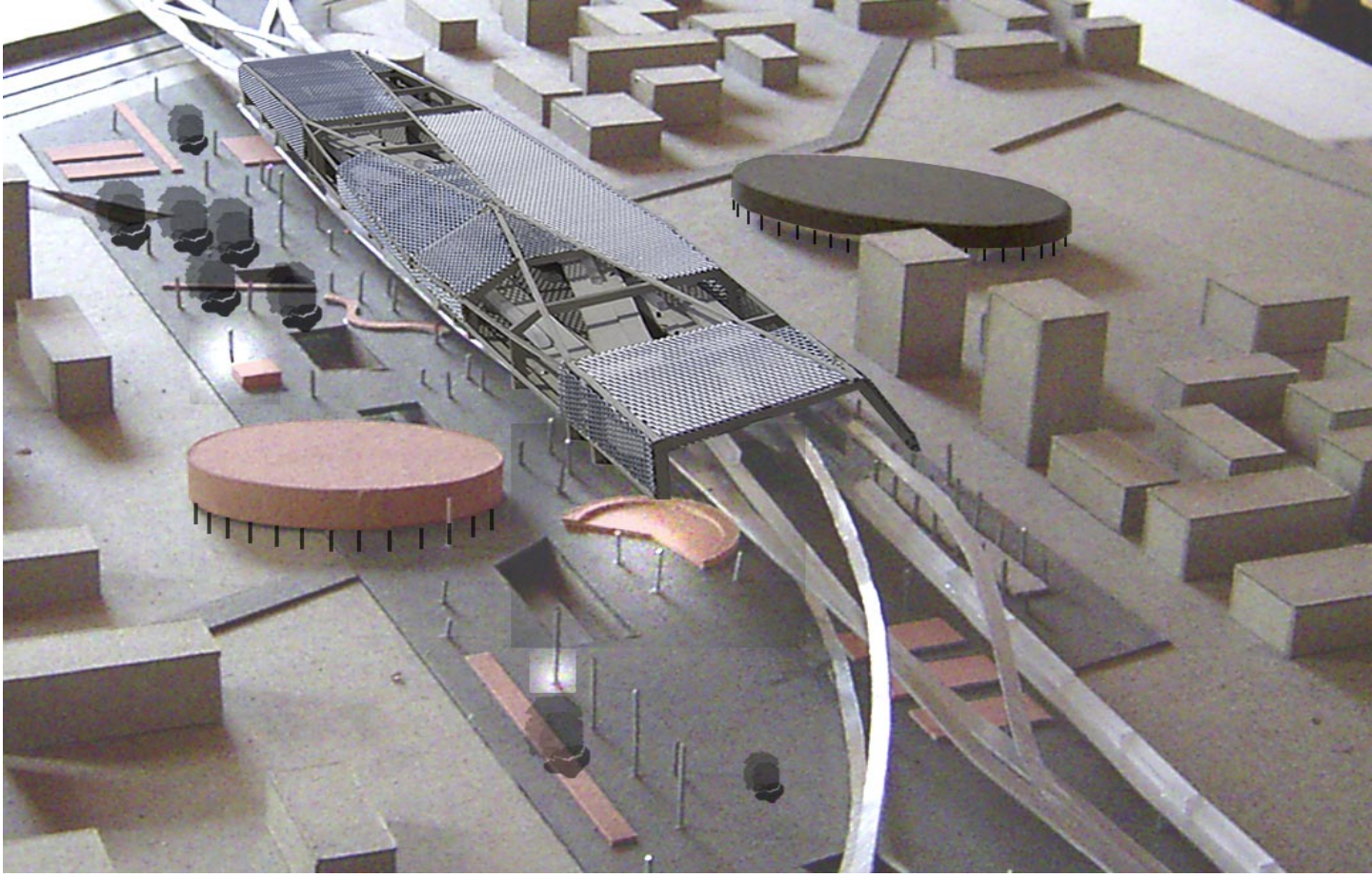
a box, which encloses the bundle
the volume of this box minimized by
cuts following the geometry of the curves
this casing is broken open
to create different local conditions
for the interior
and to enable the city to interfere
with the vivid interior of human scale
no dead monster lying there
but an interactive piece
of architecture





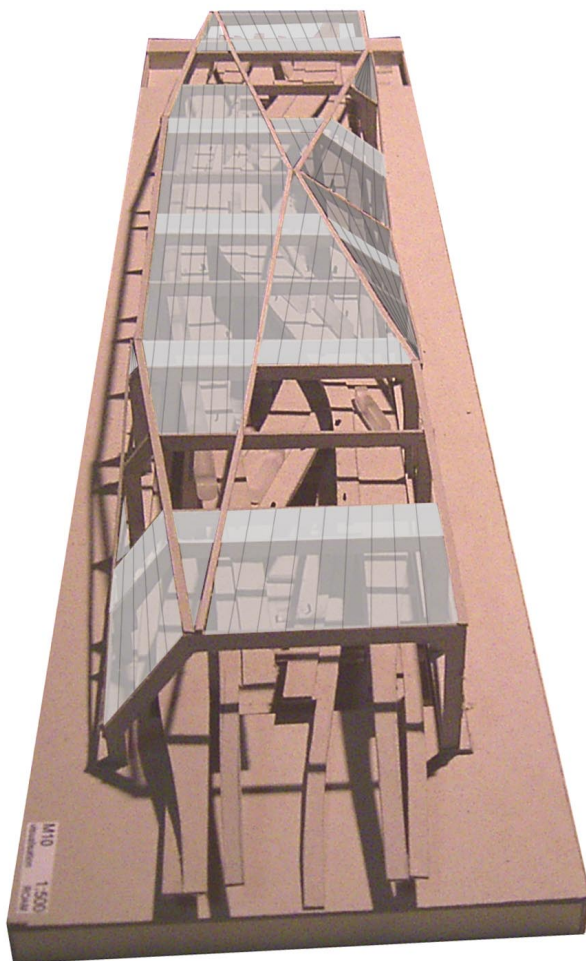


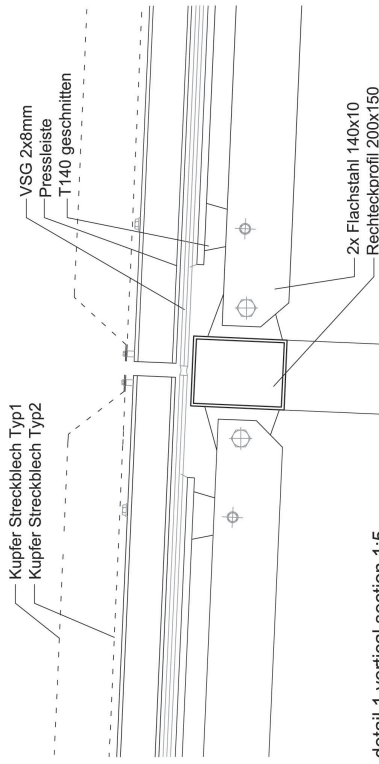
the closed areas of the envelop are first
clad with a glas layer
second is a layer of perforated aluminium
a filter which makes the building
look very different
depending on light conditions.



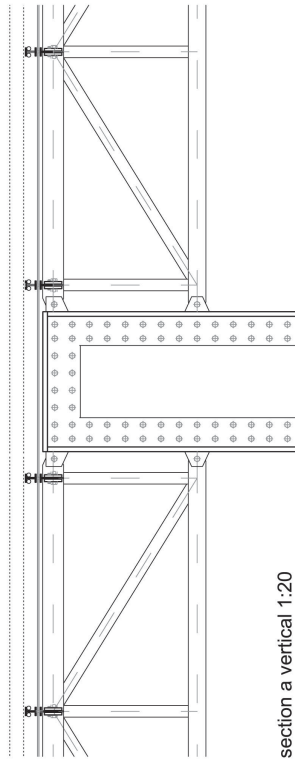
the joints of the aluminium panels
result in lines which
put emphasis on the dynamic of the shape

different nuances of perforation
indicate the hubs, which could be seen as the
entrances of this building.

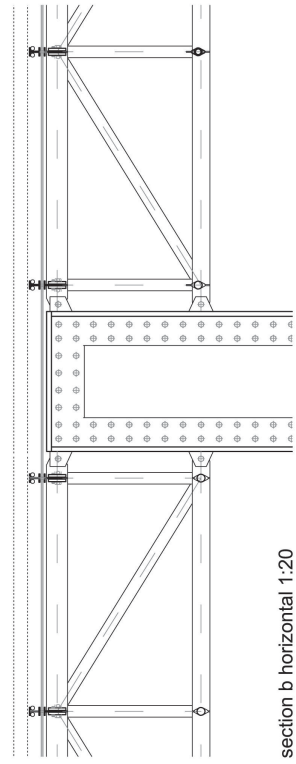




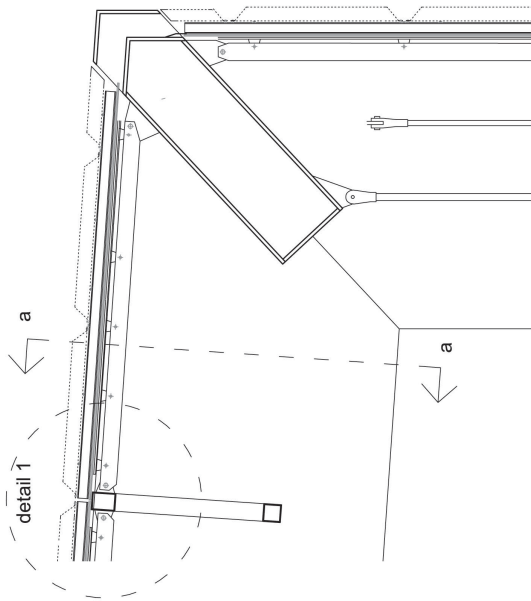
detail 1 vertical section 1:5



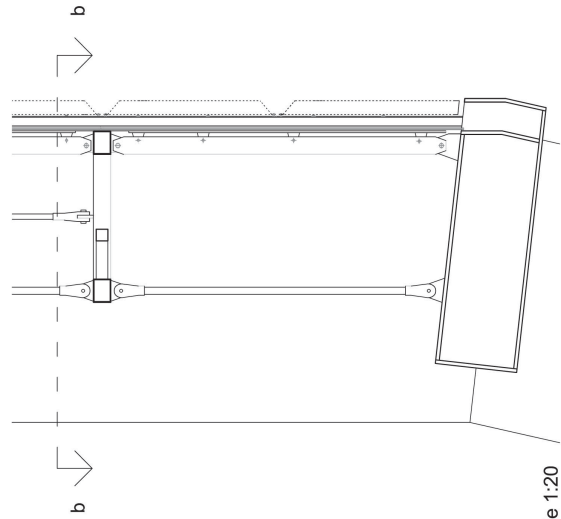
section a vertical 1:20



section b horizontal 1:20



vertical section facade 1:20

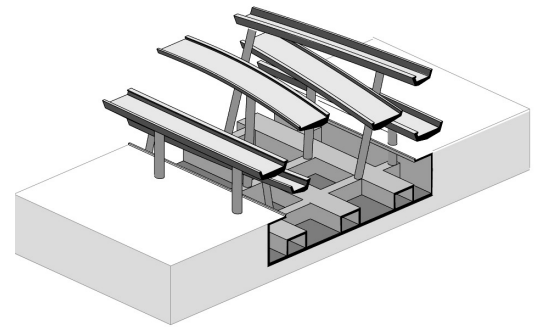


section b horizontal 1:20

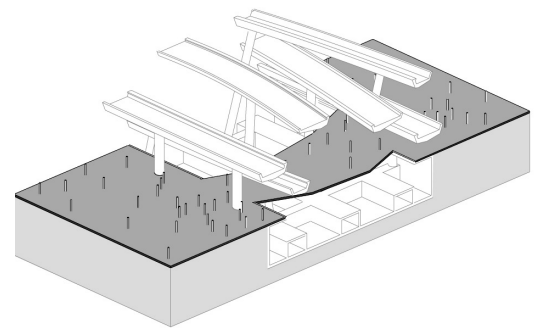
transitium urecht
sca e 1:200
2. peiling
falk schmeemann
delft march 2009

construction materialisation

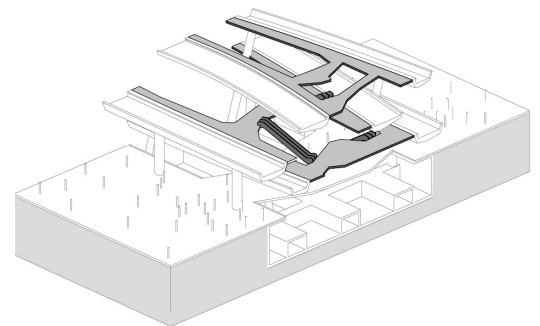
concrete parking pit
concrete tracks on concrete
columns- the infrastructure
curved and crude



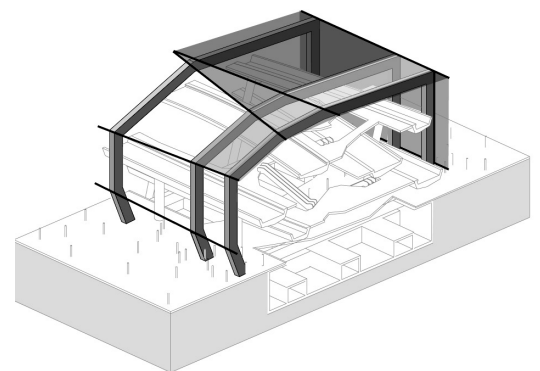
city floating through under the
building

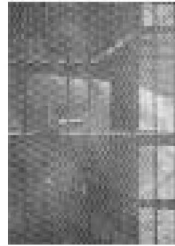
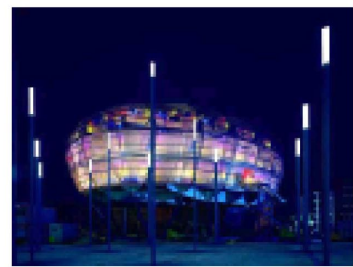
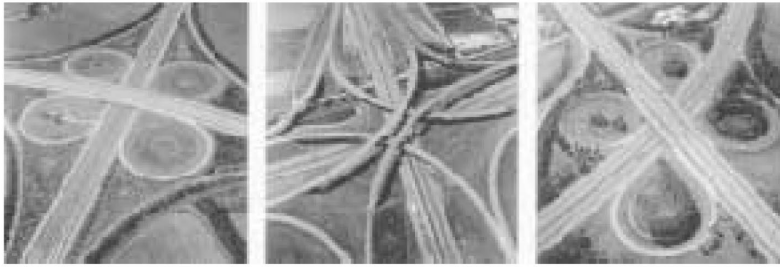


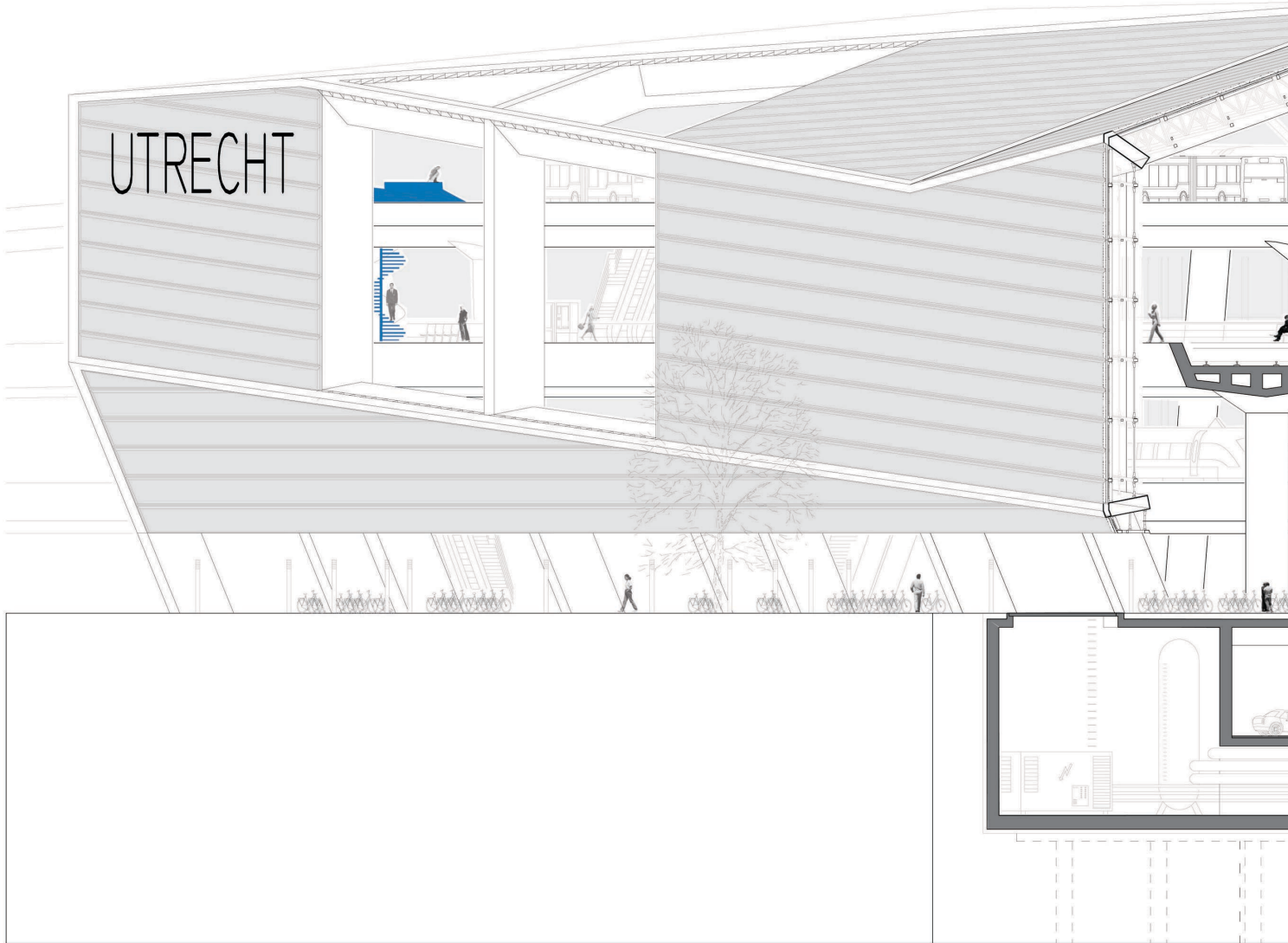
light steel construction
jagged in plan-
the pedestrian circuits

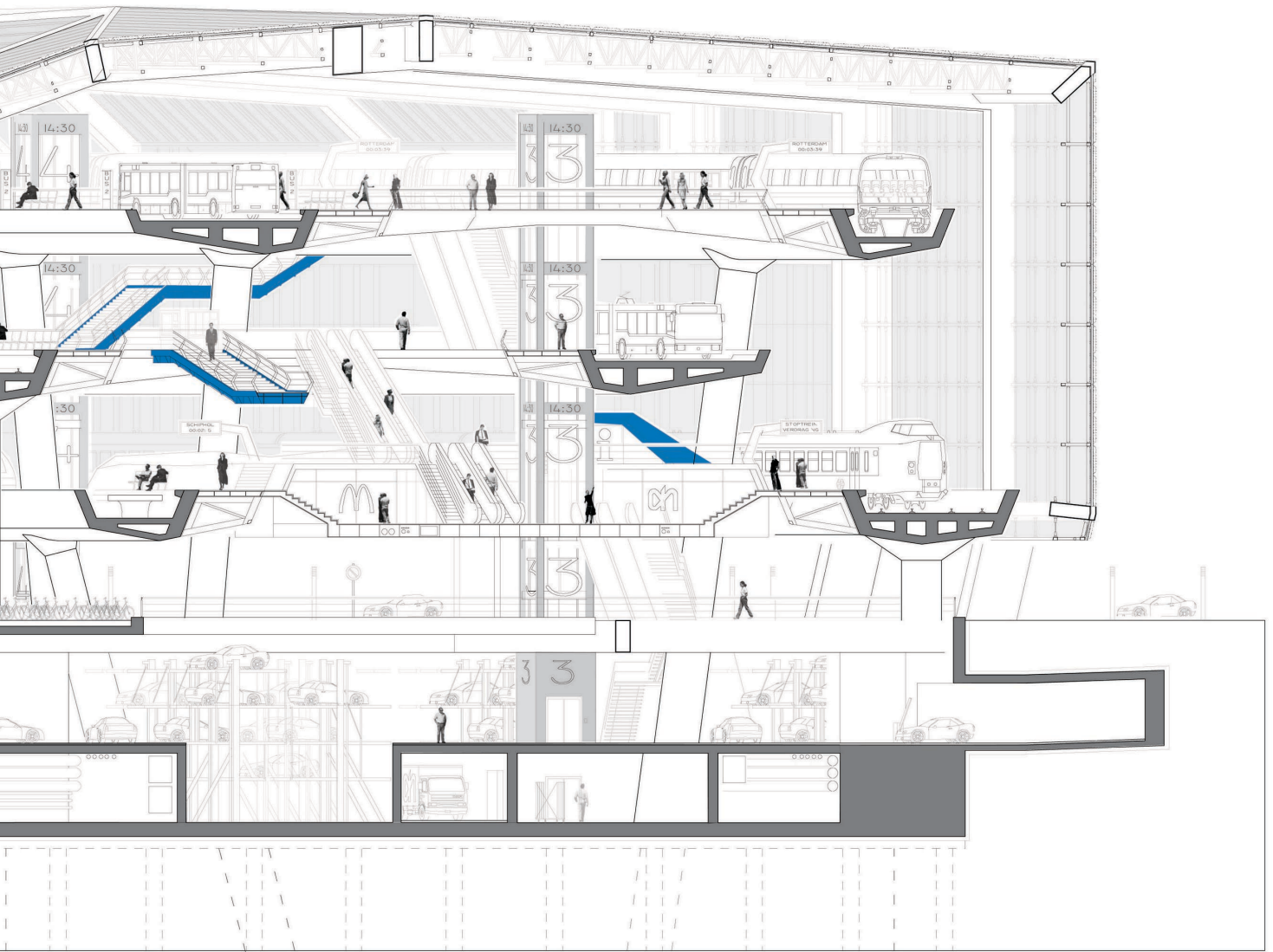


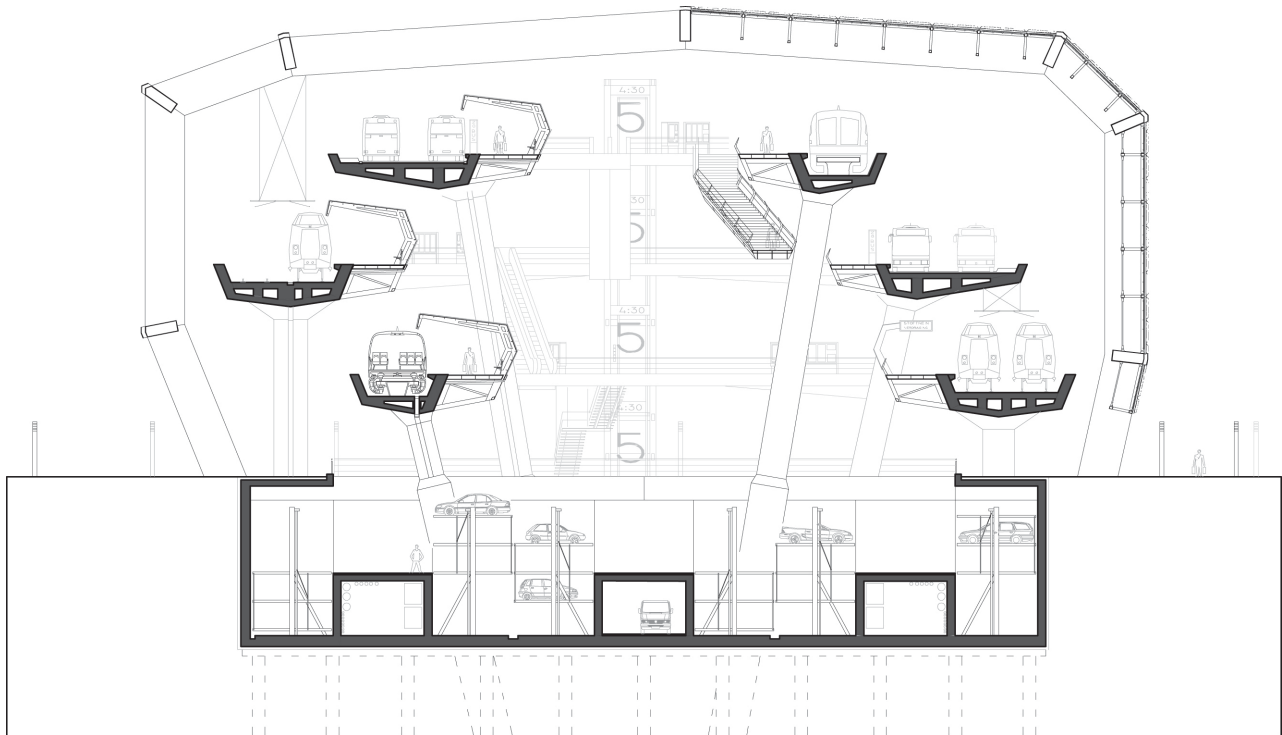
steel portals
sharp and precise joints and
edges
playing with scale, light and
the effects of filtering











every traffic mode has it's own span and
rhythm of columns
they are calibrated along the longitudinal axis
to avoid conflicts.

than the columns are turned to fit
into the grid of the parking pit.

2580

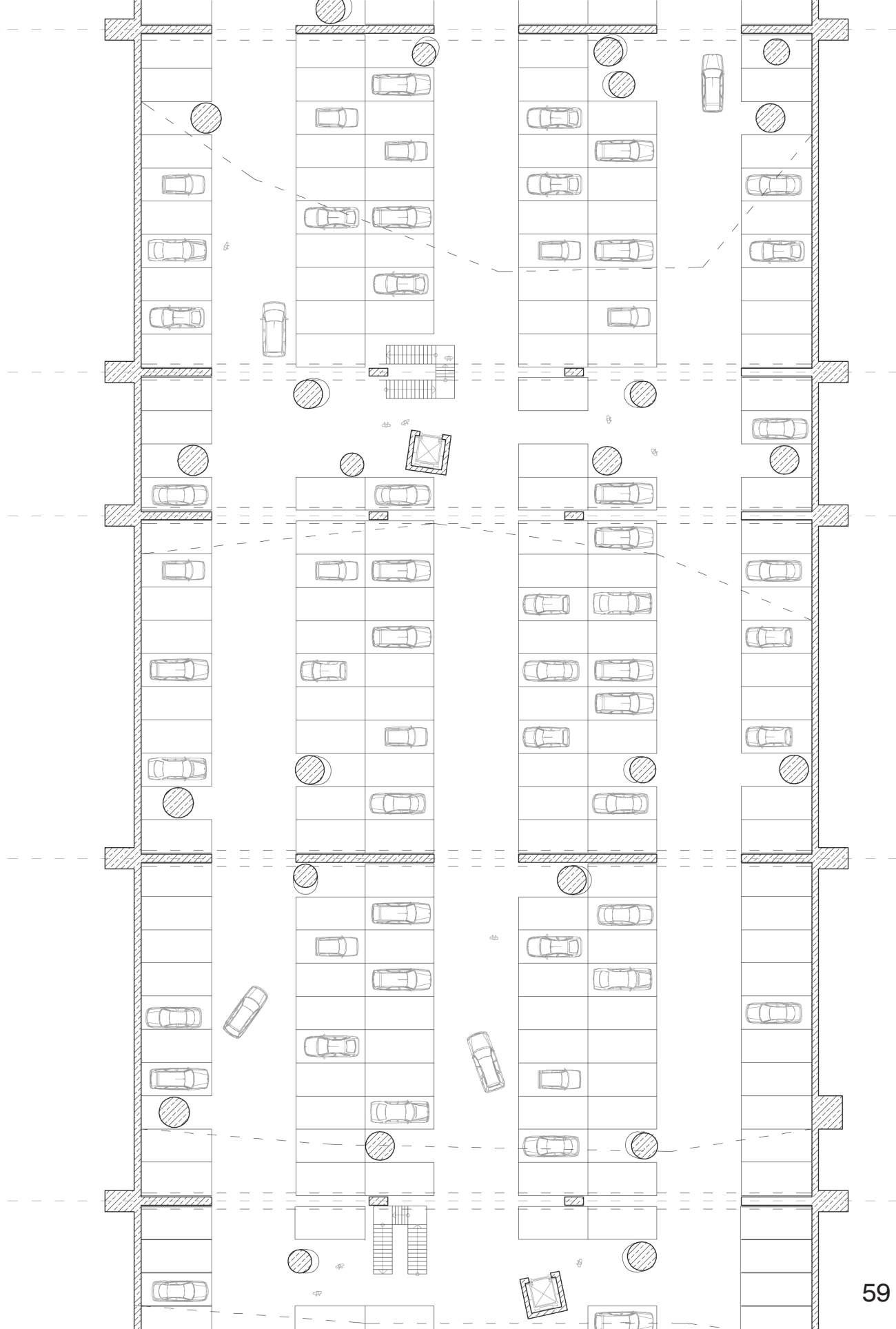
1080

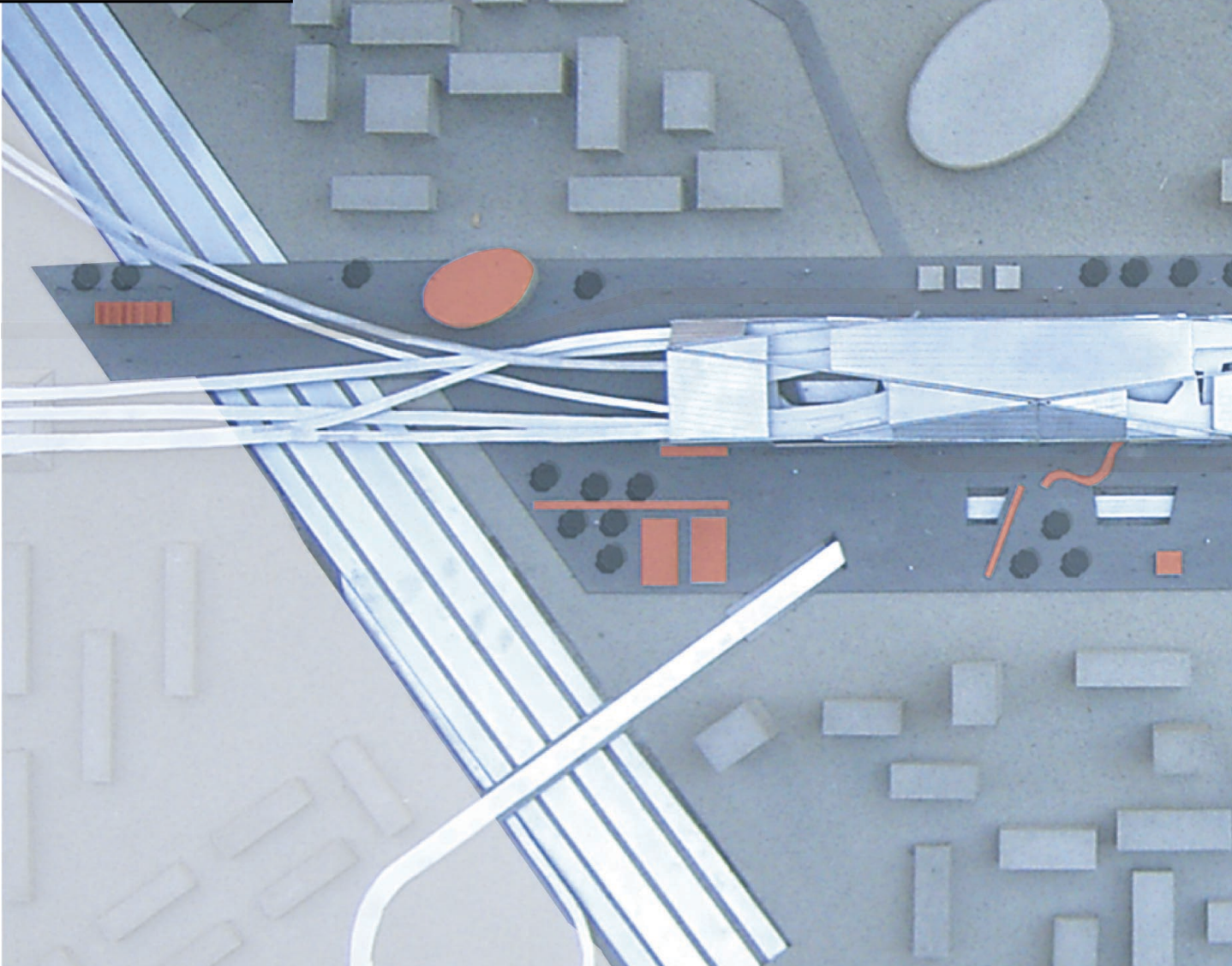
2580

2580

1080

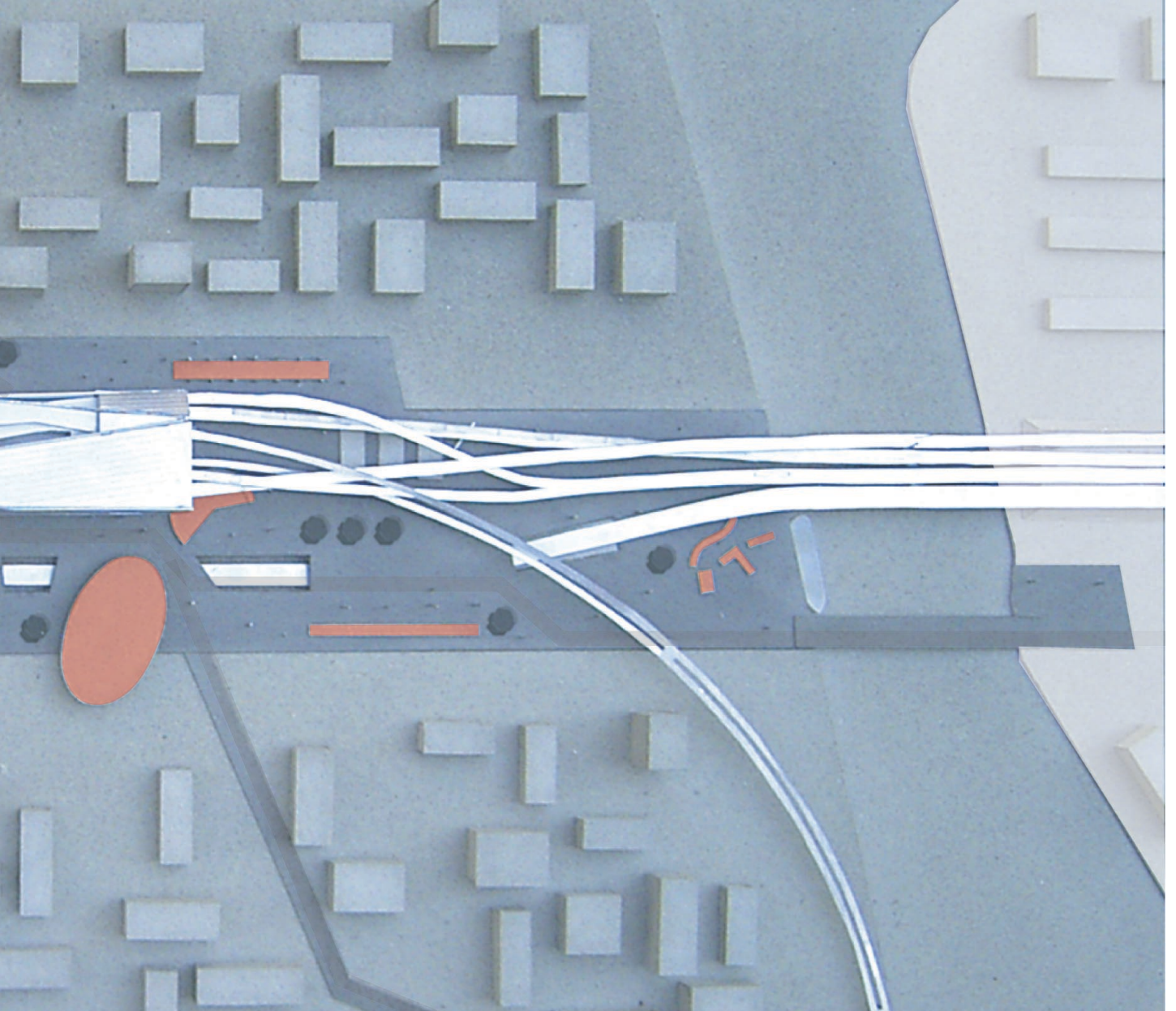
Fire Compartment with max. 450 cars



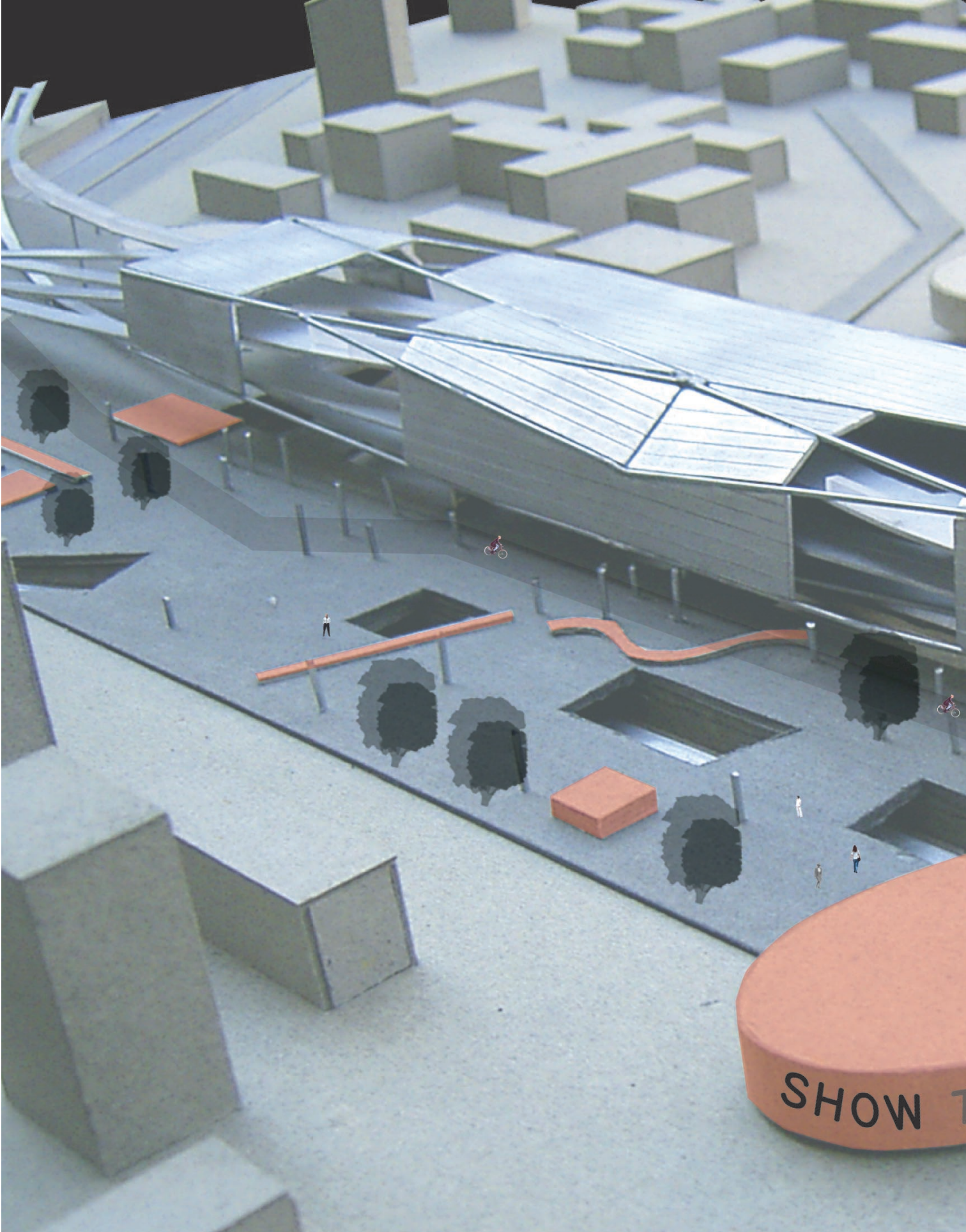


the vector park spans the actual crack between old and new city: highway, office quarter and the river

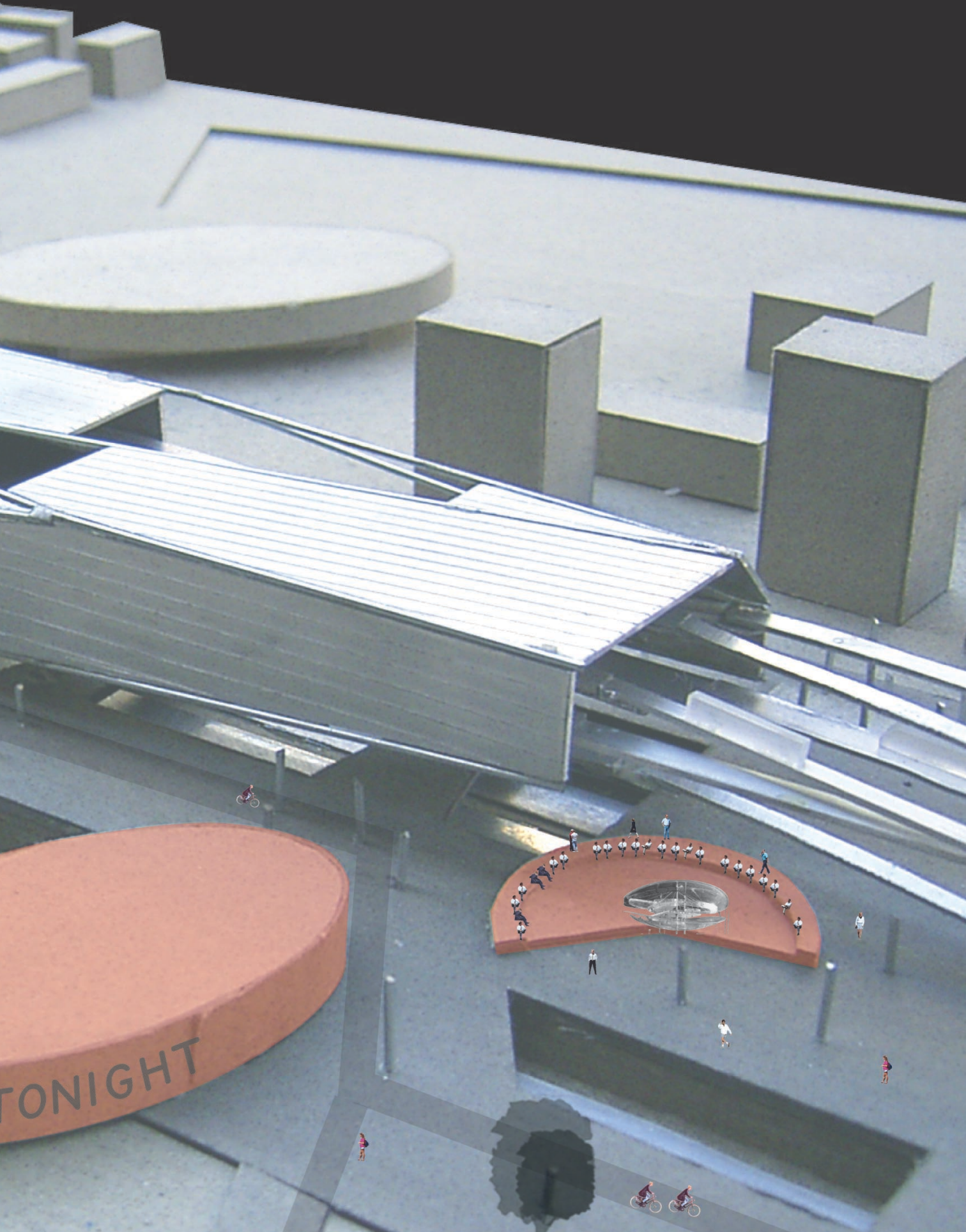
this urban park will develop it's very special meaning for Utrecht and the Randstad and it will help to urbanize suburbia



infrastructure becomes architecture
architecture becomes an urban generator
which encourages unpredictable programmatic
factors and new urban events that will appear the
coming decades



SHOW T



TONIGHT

