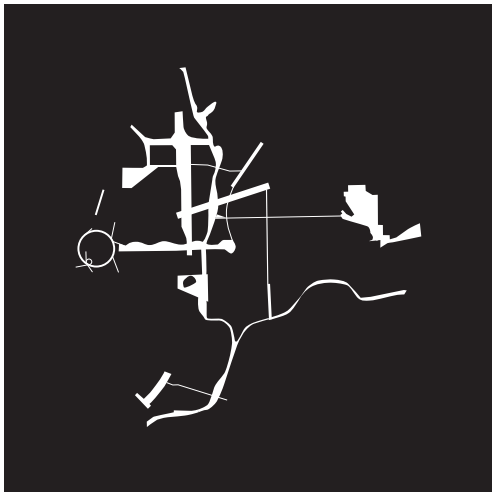

permeable morphology

shenzhen mega city plan 2030+

PERMEABLE MORPHOLOGY
SHENZHEN MEGA CITY PLAN 2030+

couteracting urban fragmentation by public space

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[graduation thesis]
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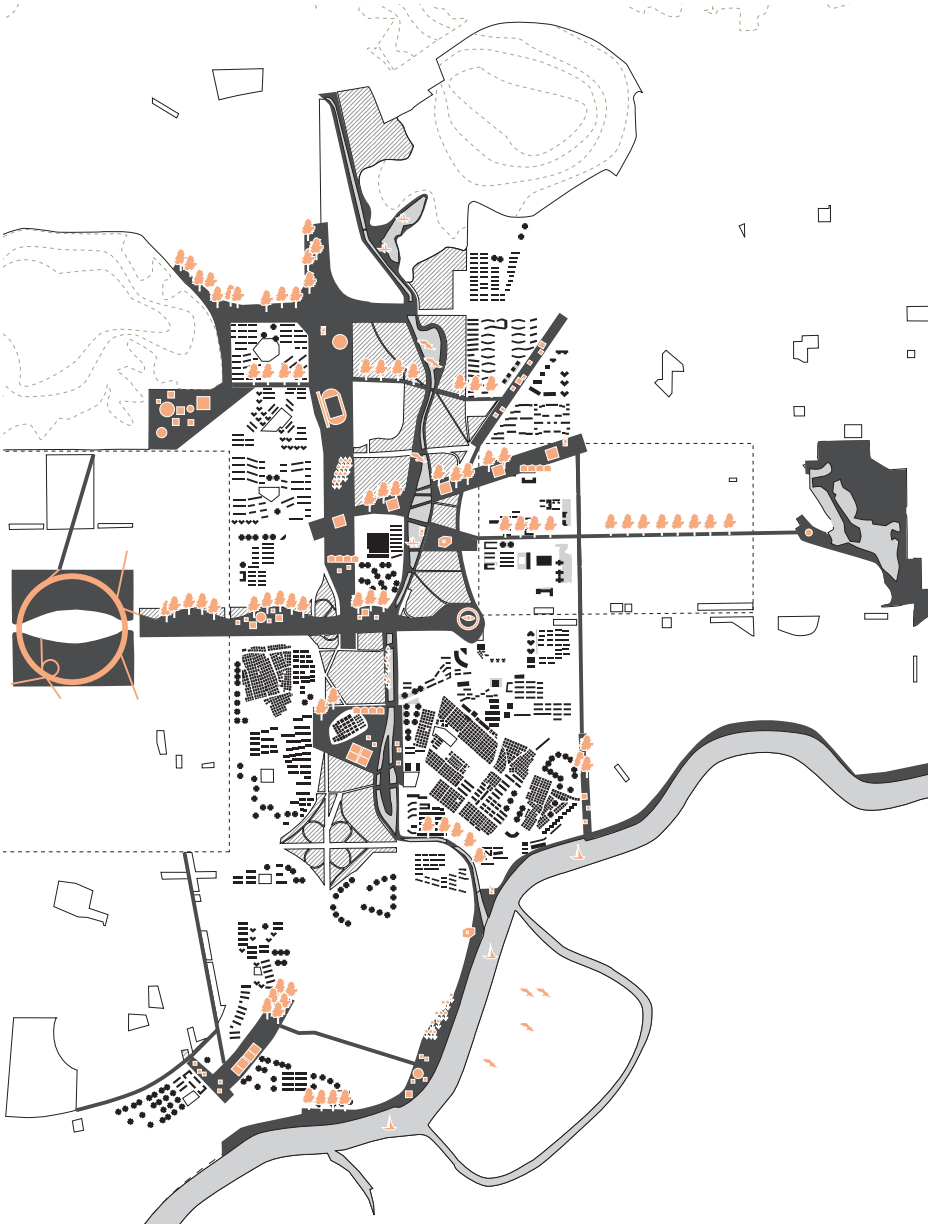
september 2009 - june 2010

KEY WORDS:

PUBLIC SPACE, URBAN FRAGMENTATION

RESEARCH QUESTION:

**HOW TO DEVELOP A NETWORK OF PUBLIC SPACE,
BY URBAN FORM AND FUNCTIONS,
TO COMPLEMENT THE GOVERNMENTAL MODEL OF
'LINEARITY AND CLUSTERS'?**



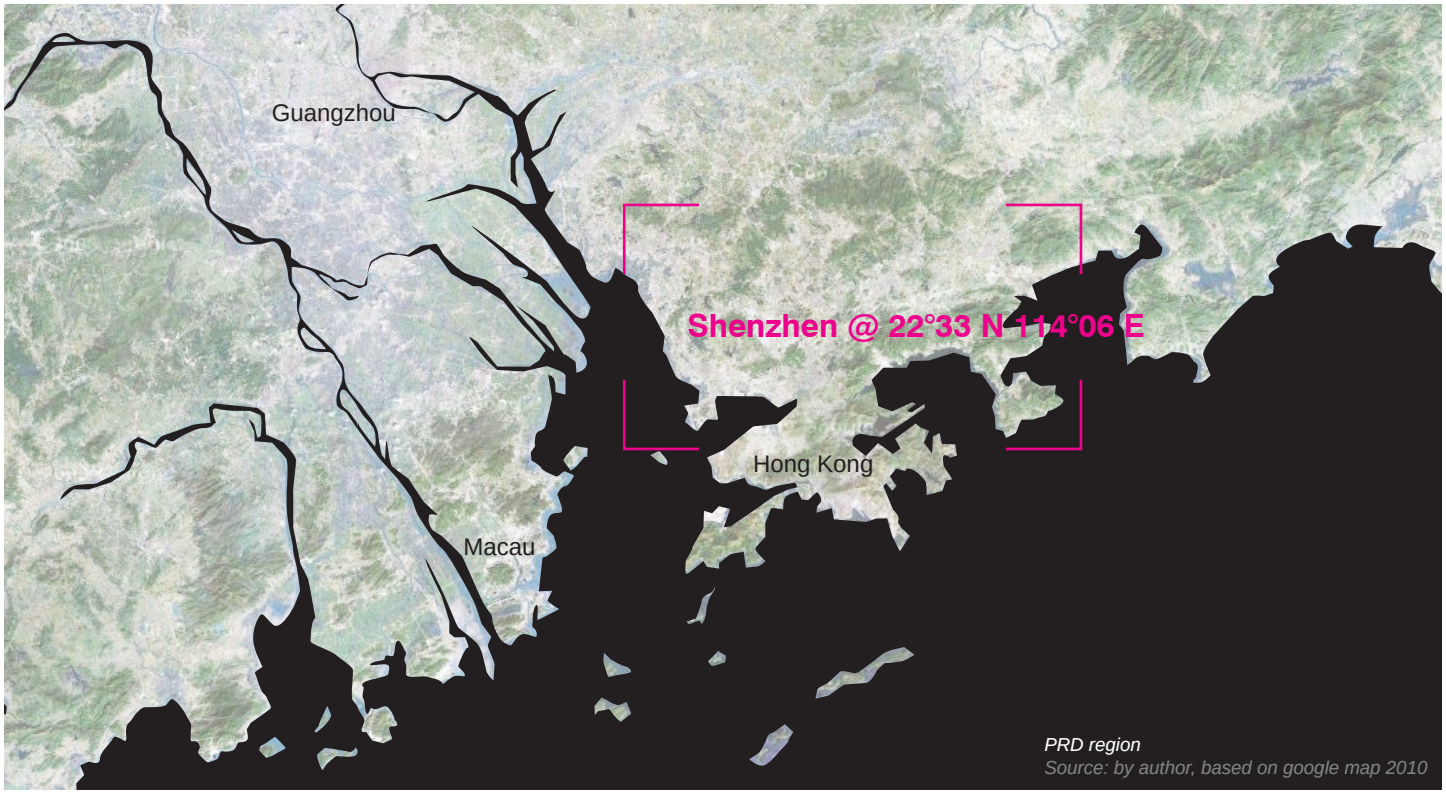
Introduction

Read the city

The void strategy

Urban design

Shenzhen, China



PRD region
Source: by author, based on google map 2010

POPULATION

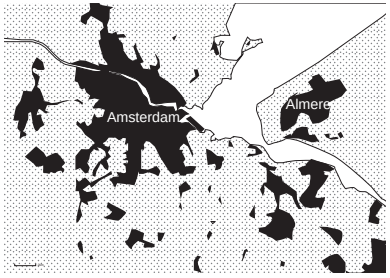
Shenzhen	12,693,000
Hong Kong	7,055,071
Amsterdam	762,057
Grand Paris	10,142,983

LAND AREA (sq km)

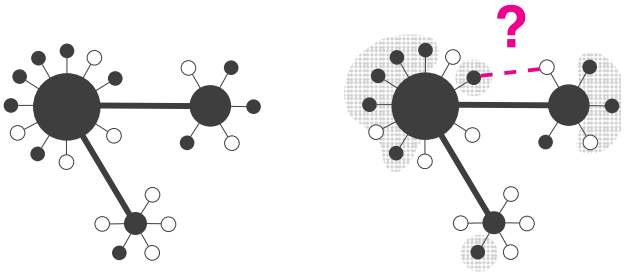
Shenzhen	2,050
Hong Kong	1,104
Amsterdam	166
Grand Paris	2,723

HISTORY (year)

Shenzhen	31, since 1978
Hong Kong	167, since 1842
Amsterdam	734, since 1275
Grand Paris	2061, since 52 BC



Subject: urban fragmentation via a morphological scope



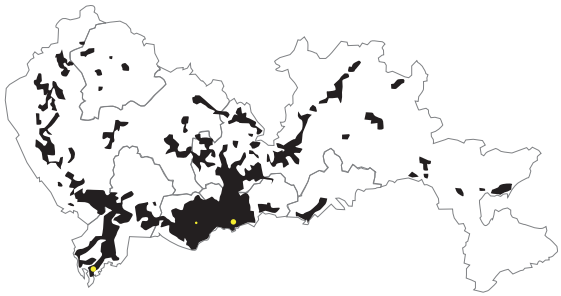
The voids

the lost value of proximity in polycentric model

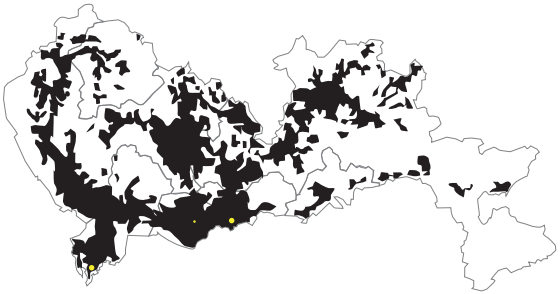
Fragmentation is a combined process of increased integration at the large scale and splintered urban form at the local scale. (Marvin, 2008).

1) a strong increase in the urban dispersion

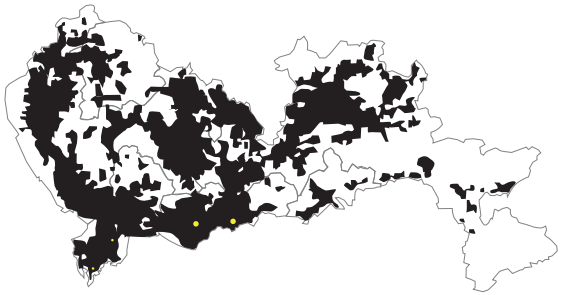
1983



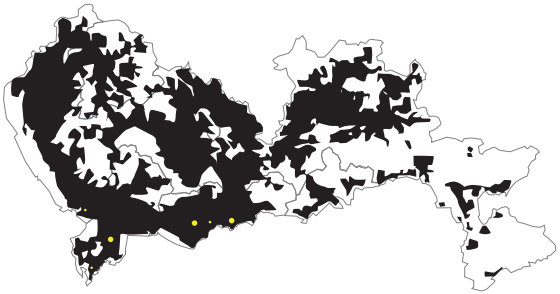
1990



1996

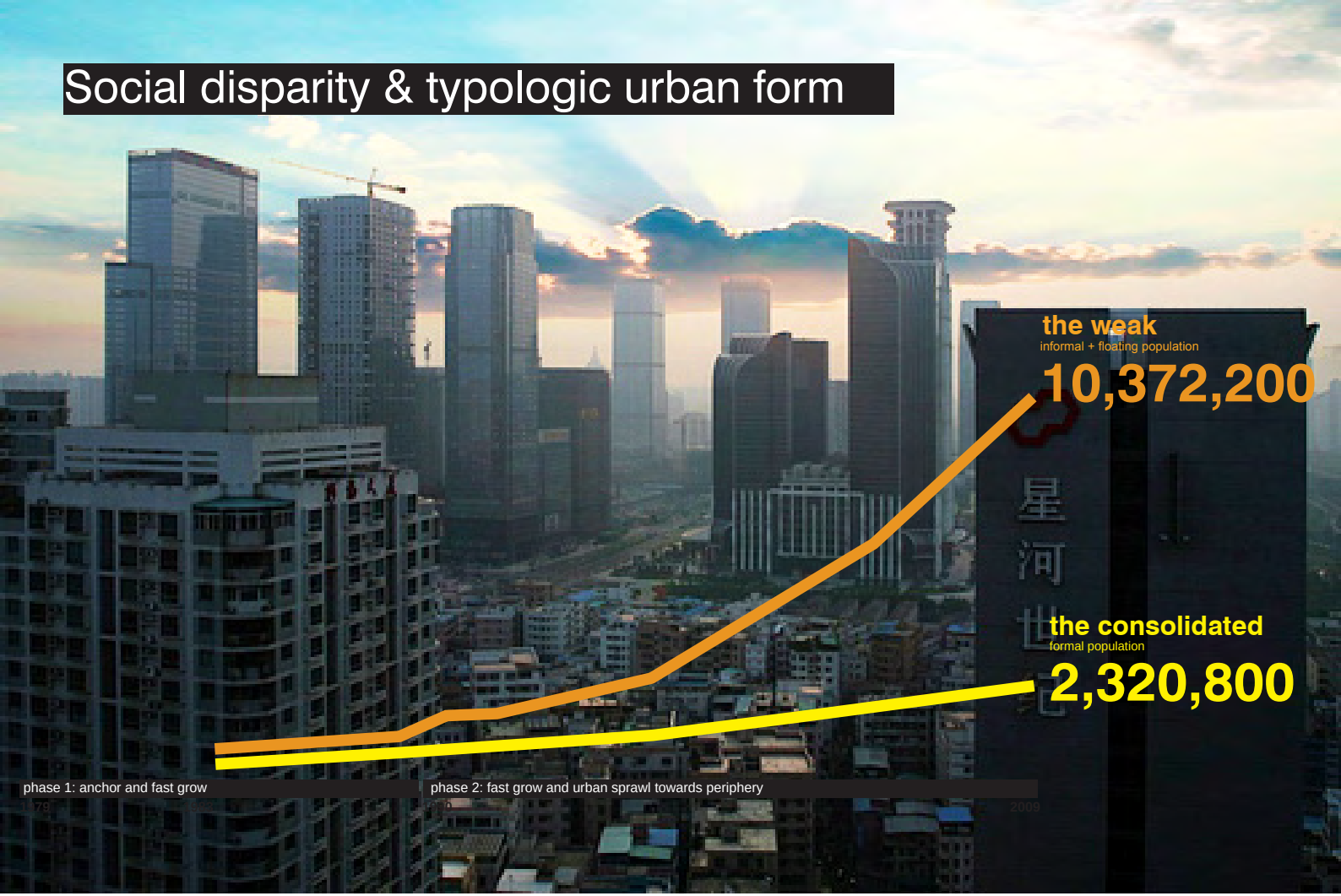


2000



2005

Social disparity & typologic urban form



POPULATION formal 18% 2.3million | informal 51% 6.4million | floating 39% 3.9 million

IMMIGRANTS local 17% | Migrants 83%

AGE <14 y 8.5% | 15-39 y 80% | 40-59 10.3% | 60+ 3.1% — The average age is **25.37** years old

GENDER male 51% | female 49%

EDUCATION primary school 14.1% | secondary school 77.6% | university 8.4% — >20% China's PHD work in Shenzhen

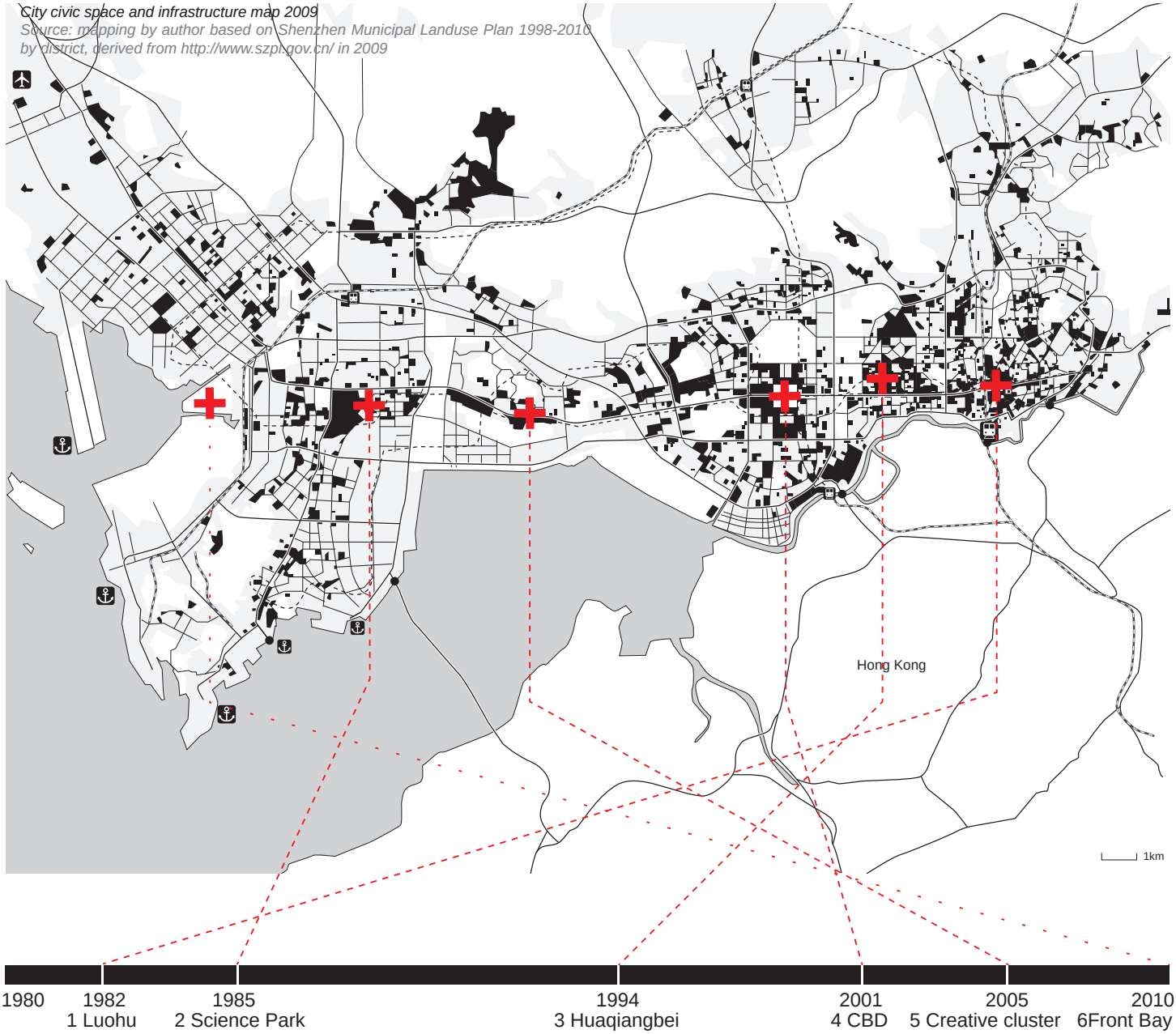
EDU IN HK no/pre 5% | primary school 18% | secondary school 51% | university 25%

HOUSEHOLD **2.55** persons/household

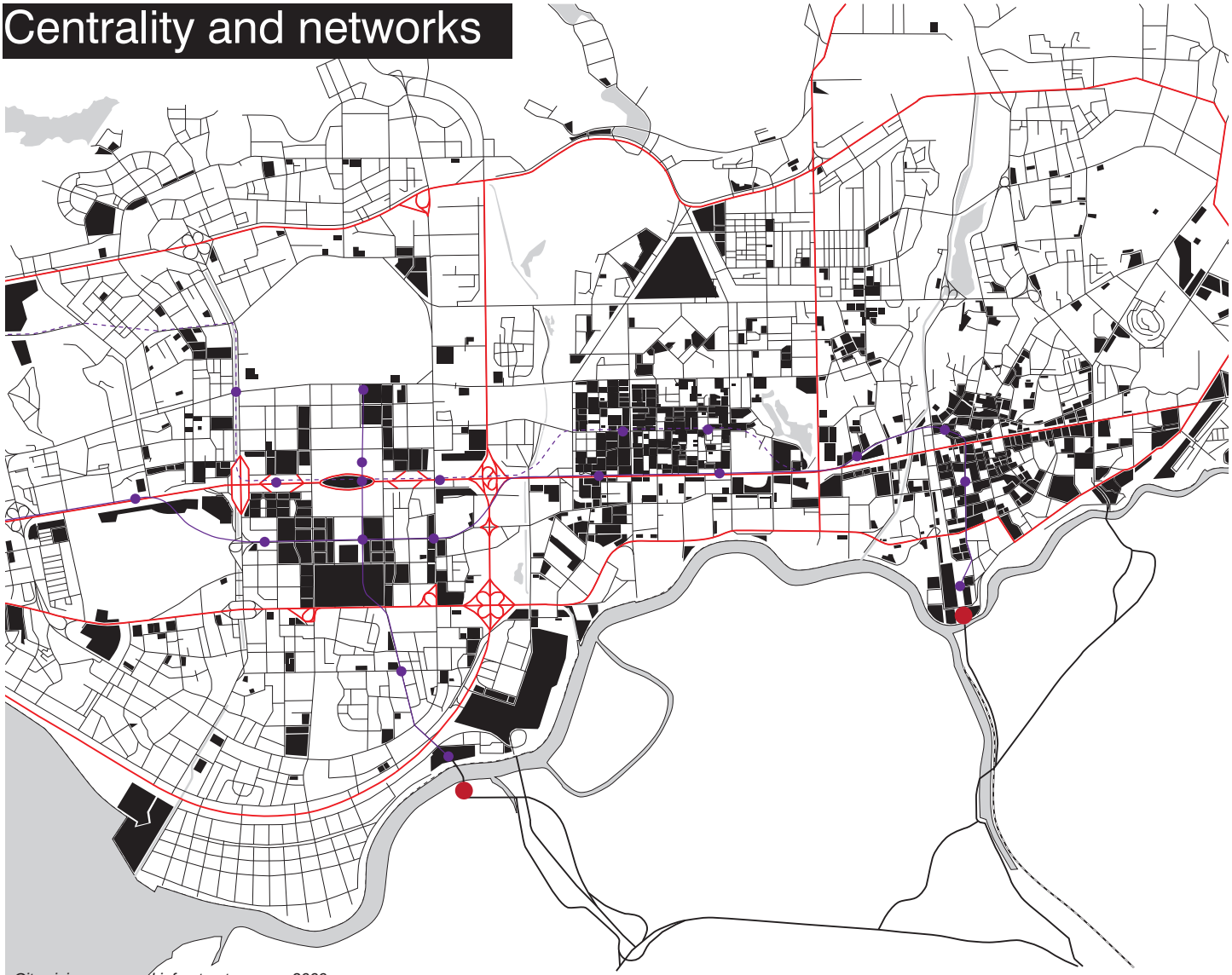
INCOME PER PERSON citizen income (capitar per income) = 3 x non-citizen income

2) Governmental model: linearity and clusters

City civic space and infrastructure map 2009
Source: mapping by author based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009



Centrality and networks



City civic space and infrastructure map 2009
Source: mapping by author based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

Fragmented plots

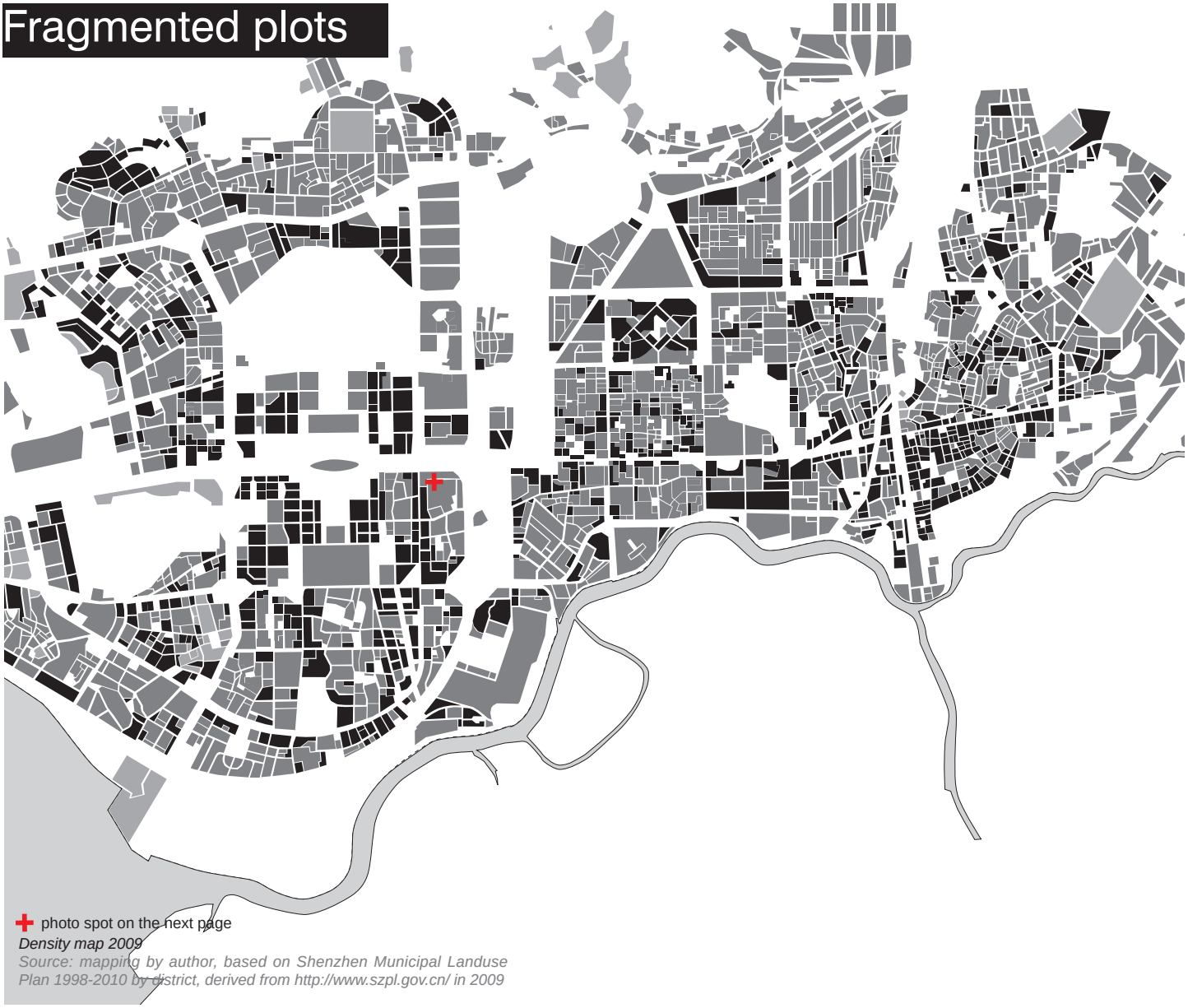


photo spot on the next page

Density map 2009

Source: mapping by author, based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

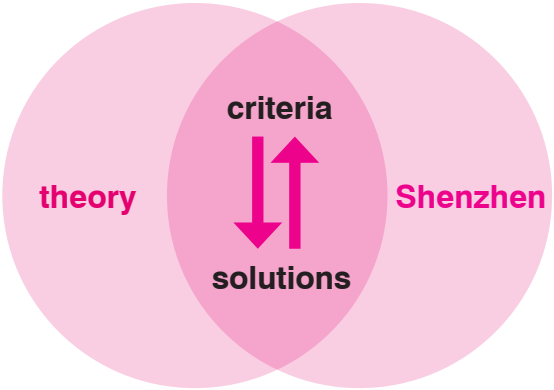
500m

high density (>10stories)
middle density (3-10stories)
low density

Splintered urban form & the void

Shennan corridor, green buffer and Gangsha Urban villiage
Source: http://www.garlap.com/blog/article.asp?id=624, derived in 2010

Methodology



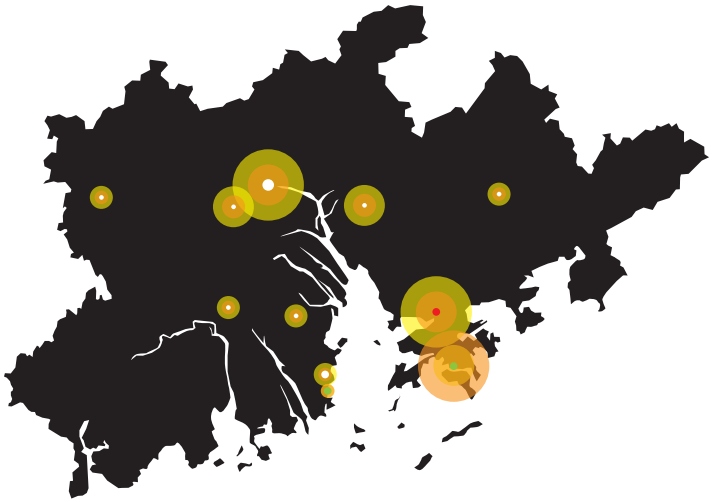
Principle of permeability

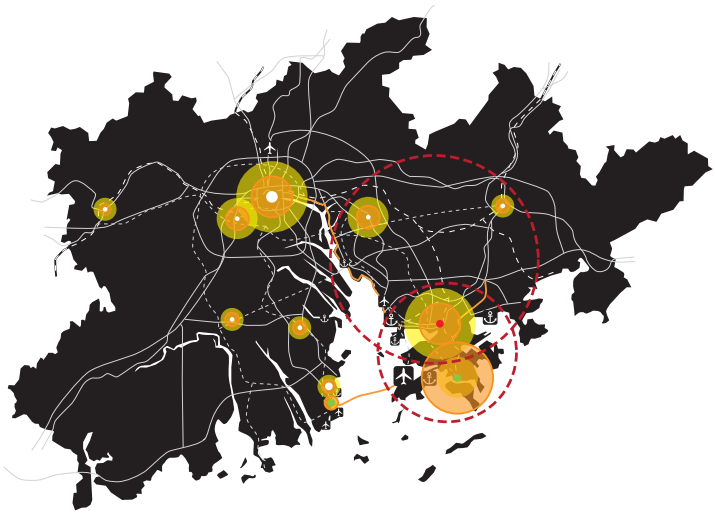
Urban-eco landscape
regarding to the nature of the territory, and humanity experience

Slow local street
complementing the large fast network, and as condition of diversity and complexity

Semi public space
merge the private and public space

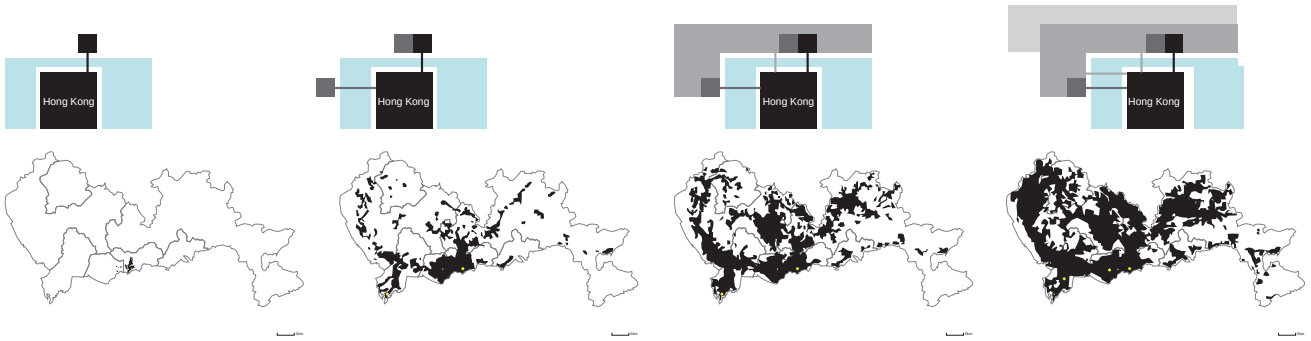
A delta region under globalization



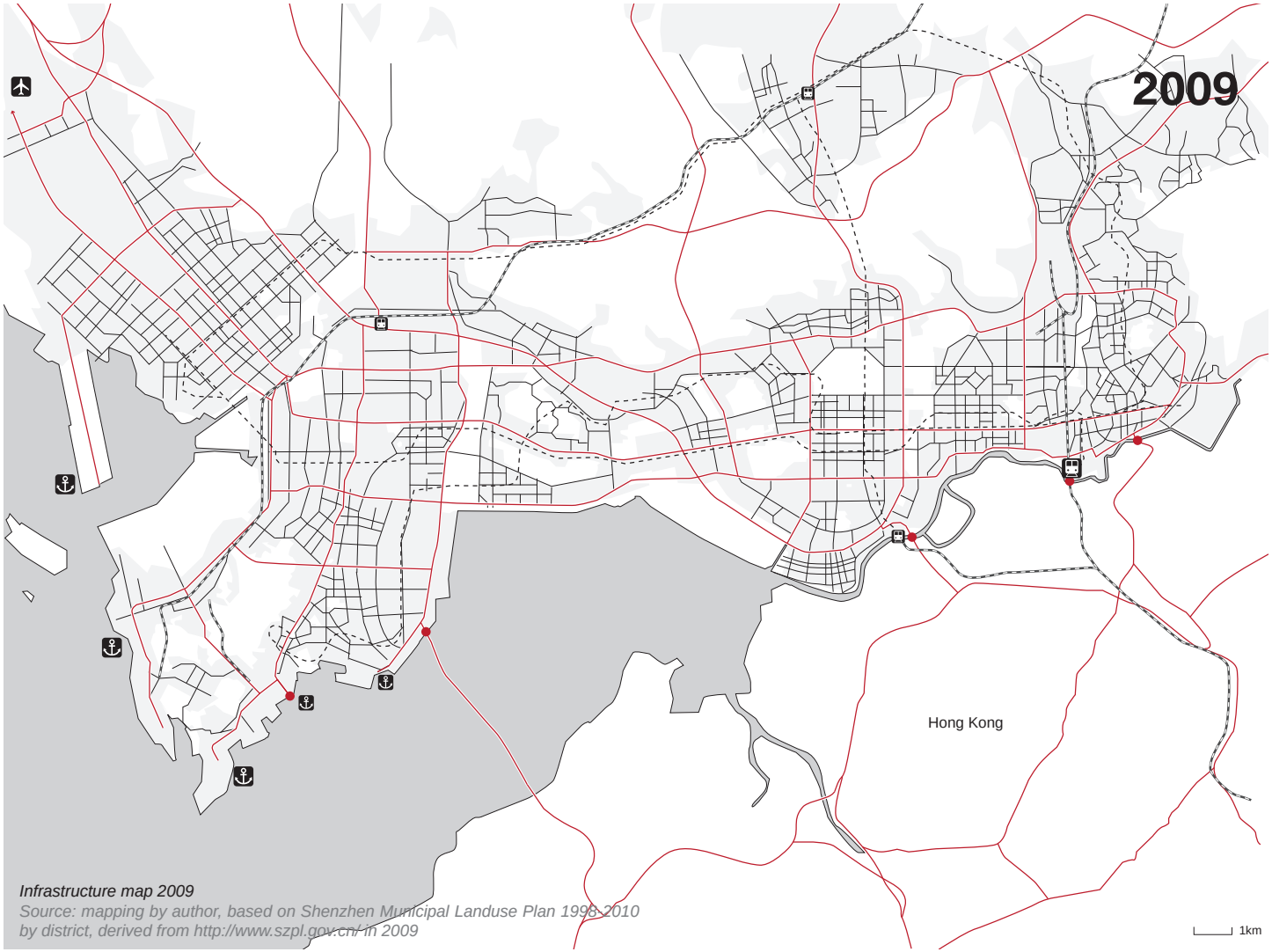


First nature: linking to HK

Shenzhen topography and infrastructure map 1985
Source: by author, based on H. Tian, 2004



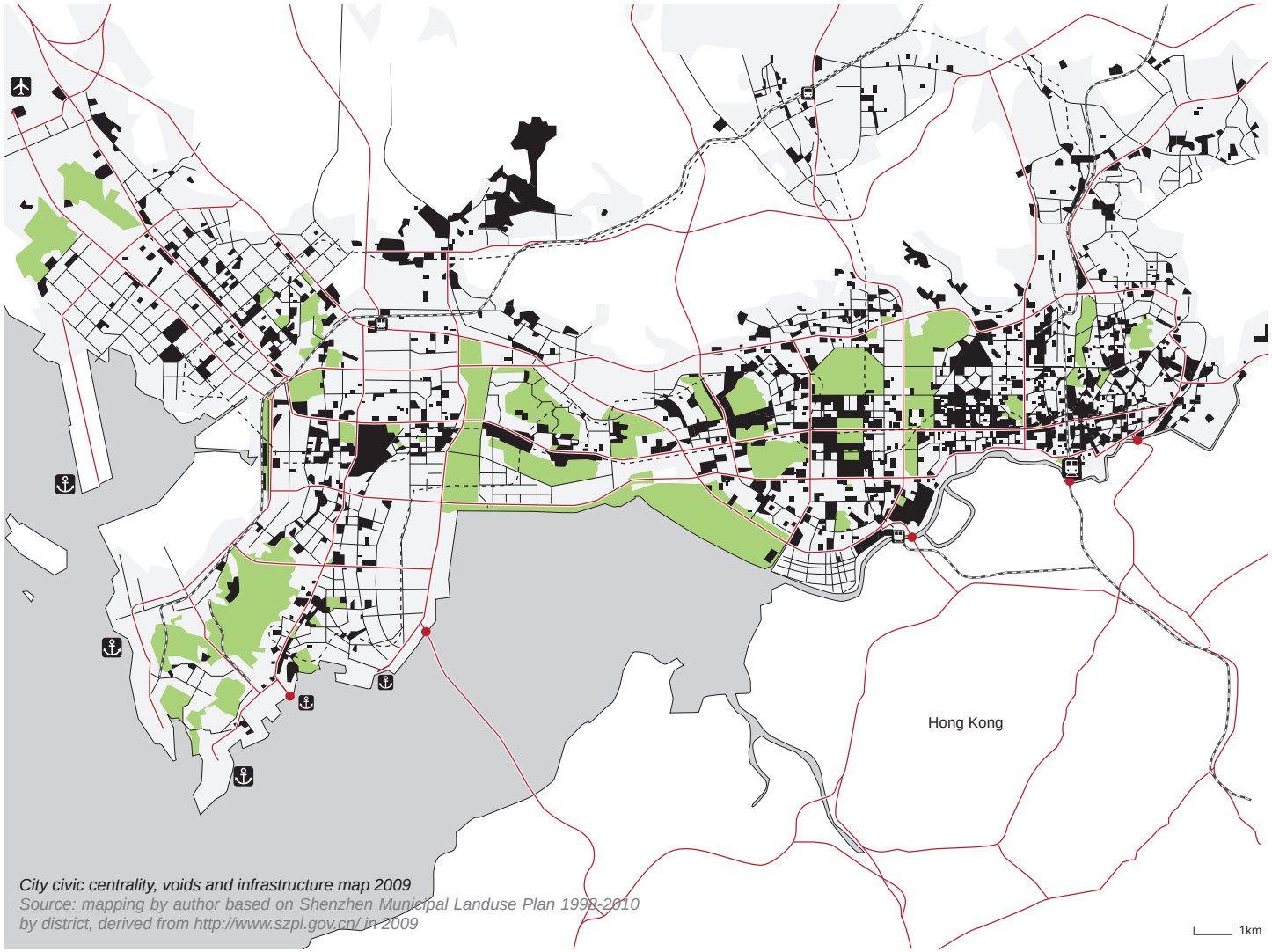
Today: a field structure



Infrastructure map 2009
Source: mapping by author, based on Shenzhen Municipal Landuse Plan 1996-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

1km
corridor
street
metro
border-crossing point

Centralities and voids

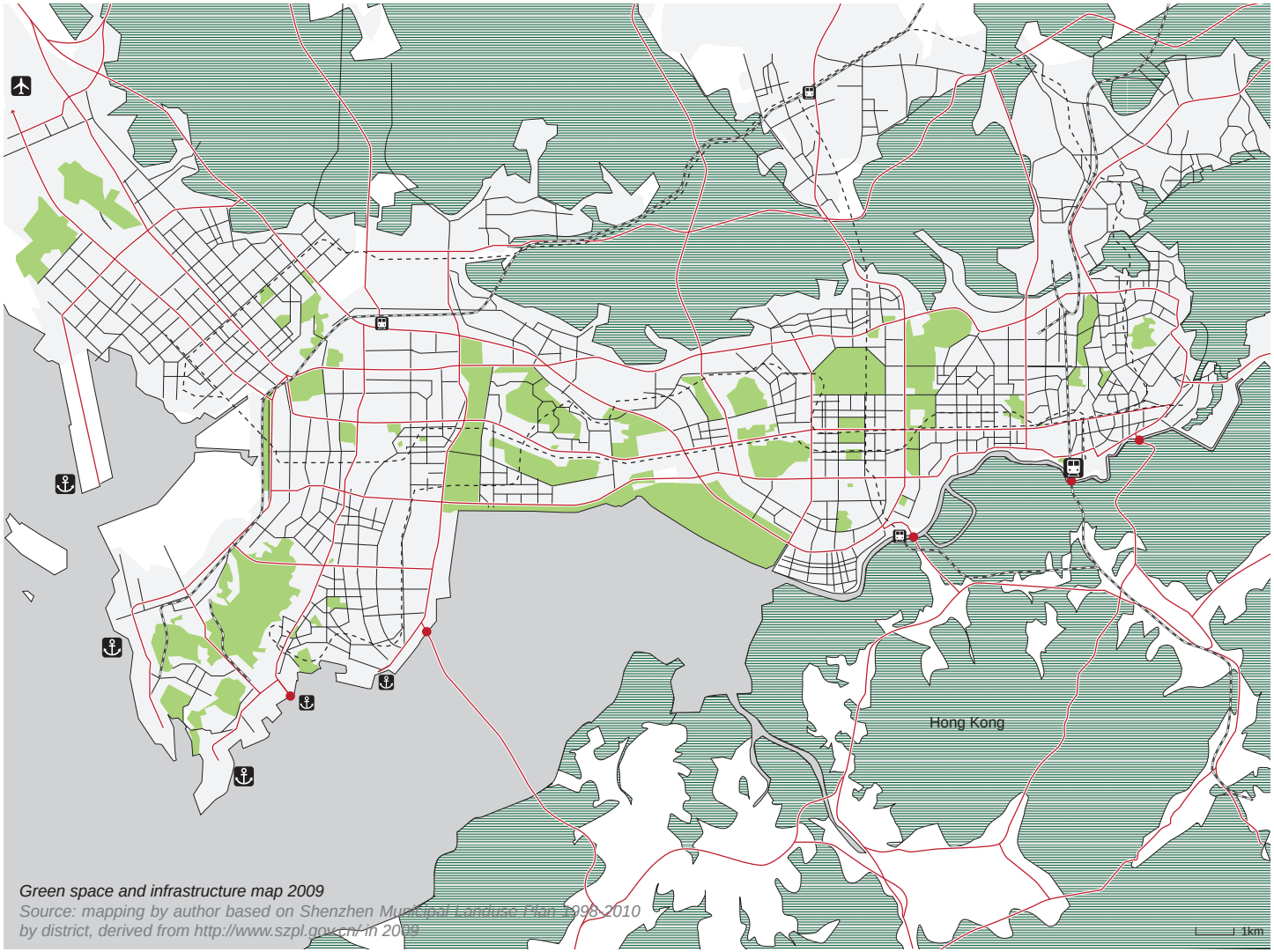


City civic centrality, voids and infrastructure map 2009
Source: mapping by author based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

1km

commercial, office, civic faciltiy
corridor
street
metro
border-crossing point
urban green open space

Voids and ecologic landscape



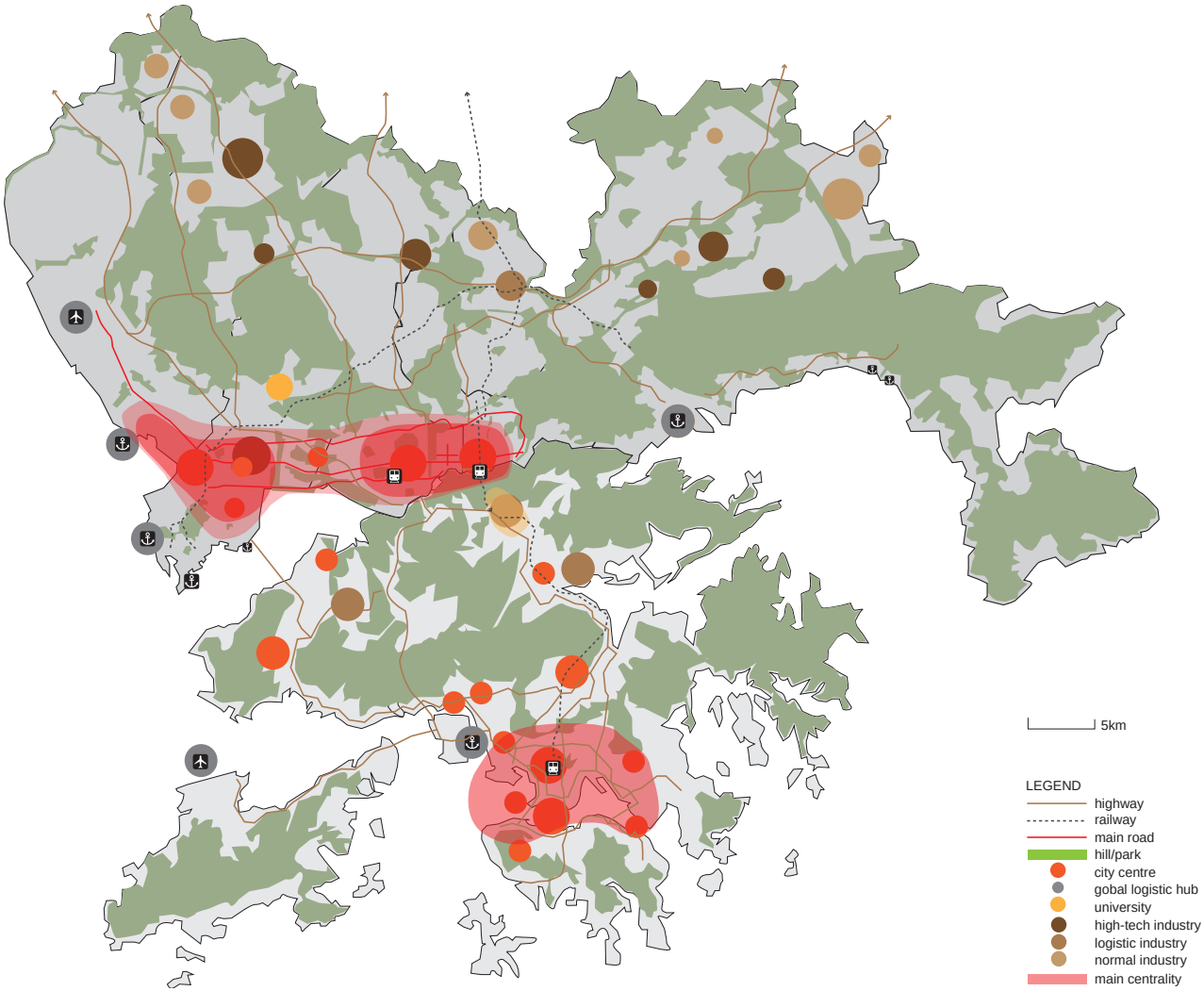
Green space and infrastructure map 2009
Source: mapping by author based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

1km

urban green open space
corridor
street
metro
border-crossing point
rural green open space

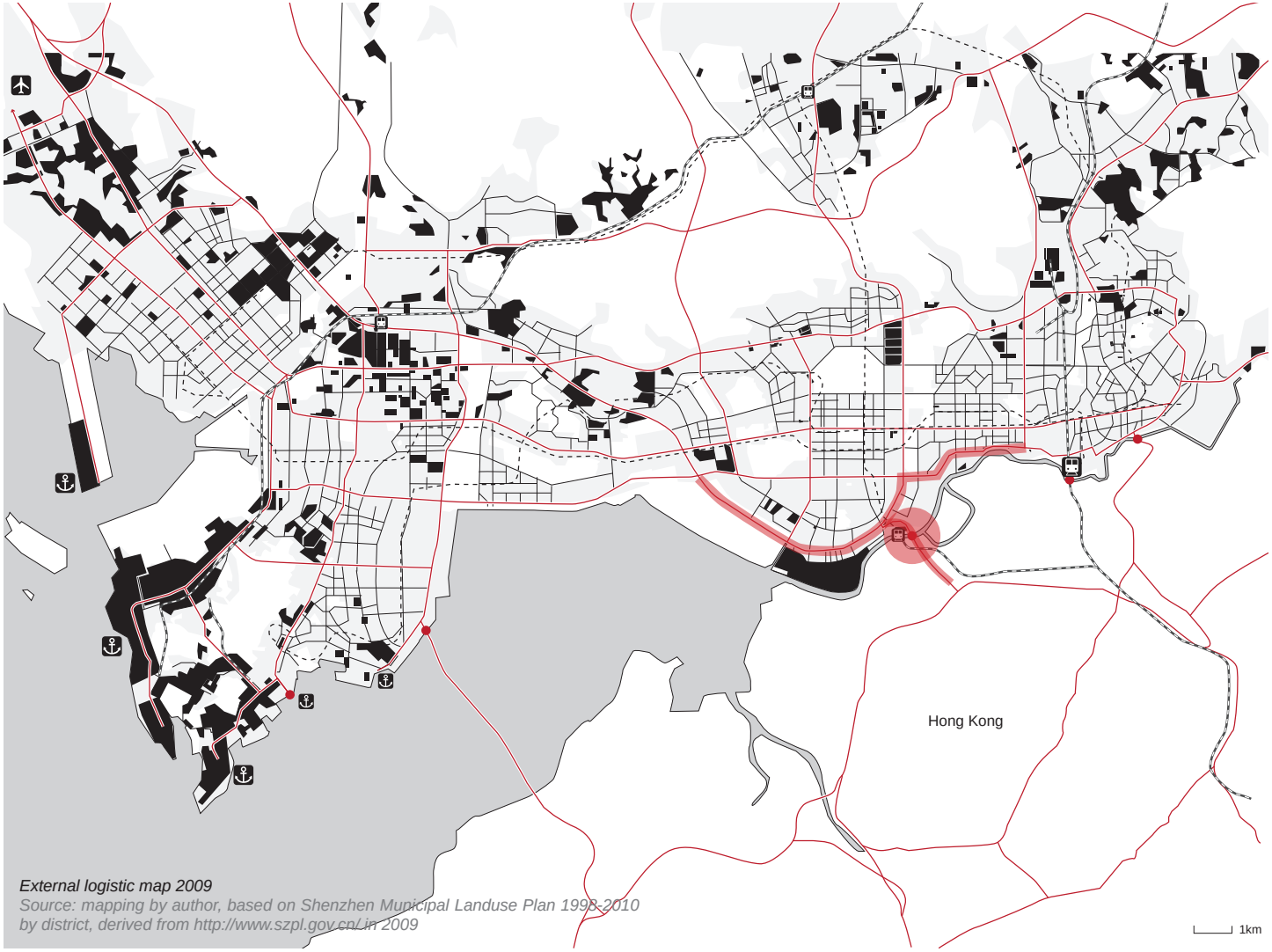
THE FUTURE

megalopolis in 2047



Centralities and networks in Hong Kong-Shenzhen megalopolis
Source: by author based on google map 2009

cross-border point

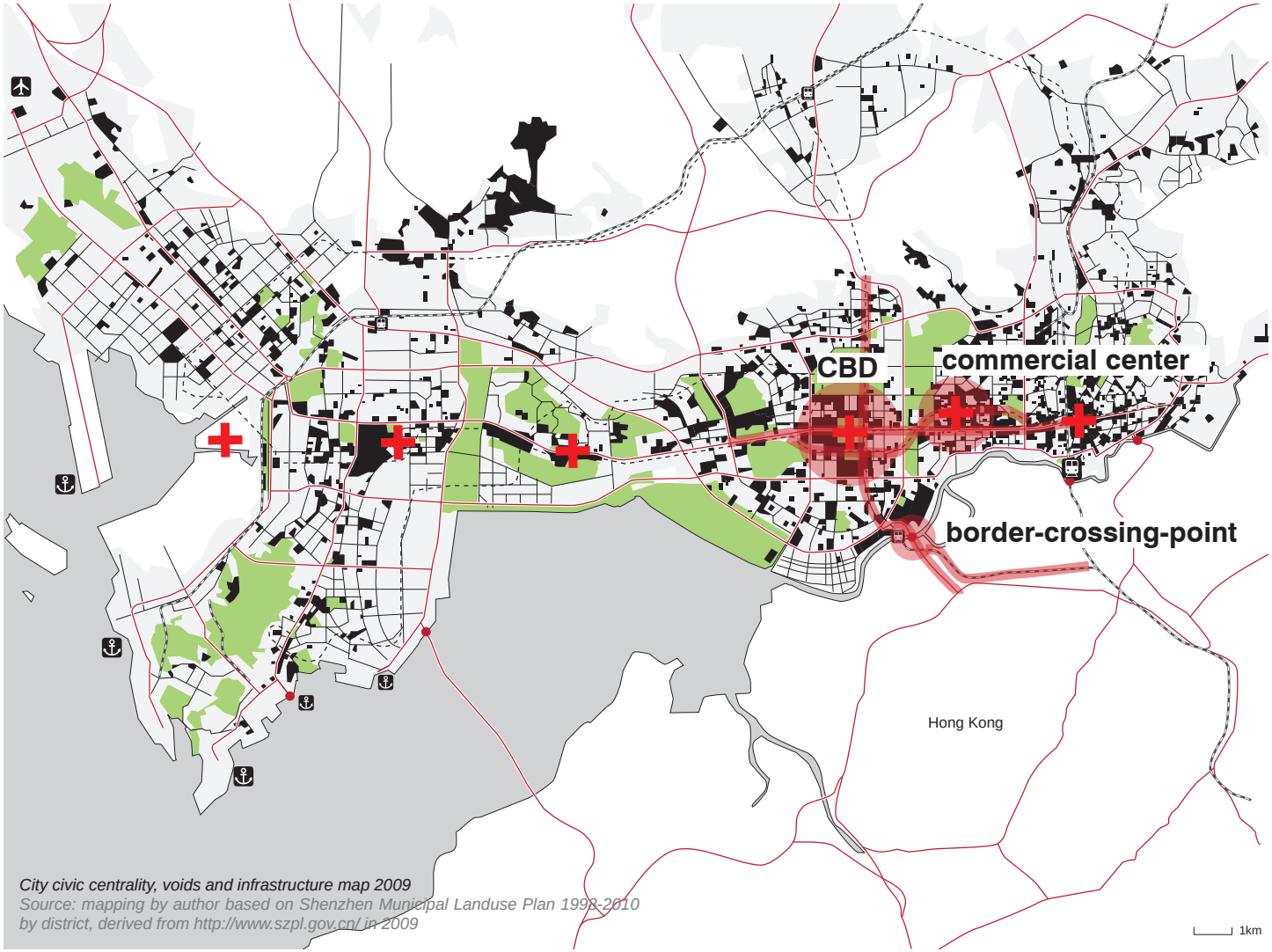


External logistic map 2009
Source: mapping by author, based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

1km

logistics, industry
corridor
street
metro
border-crossing point

Trend: a new polycentric structure to the south

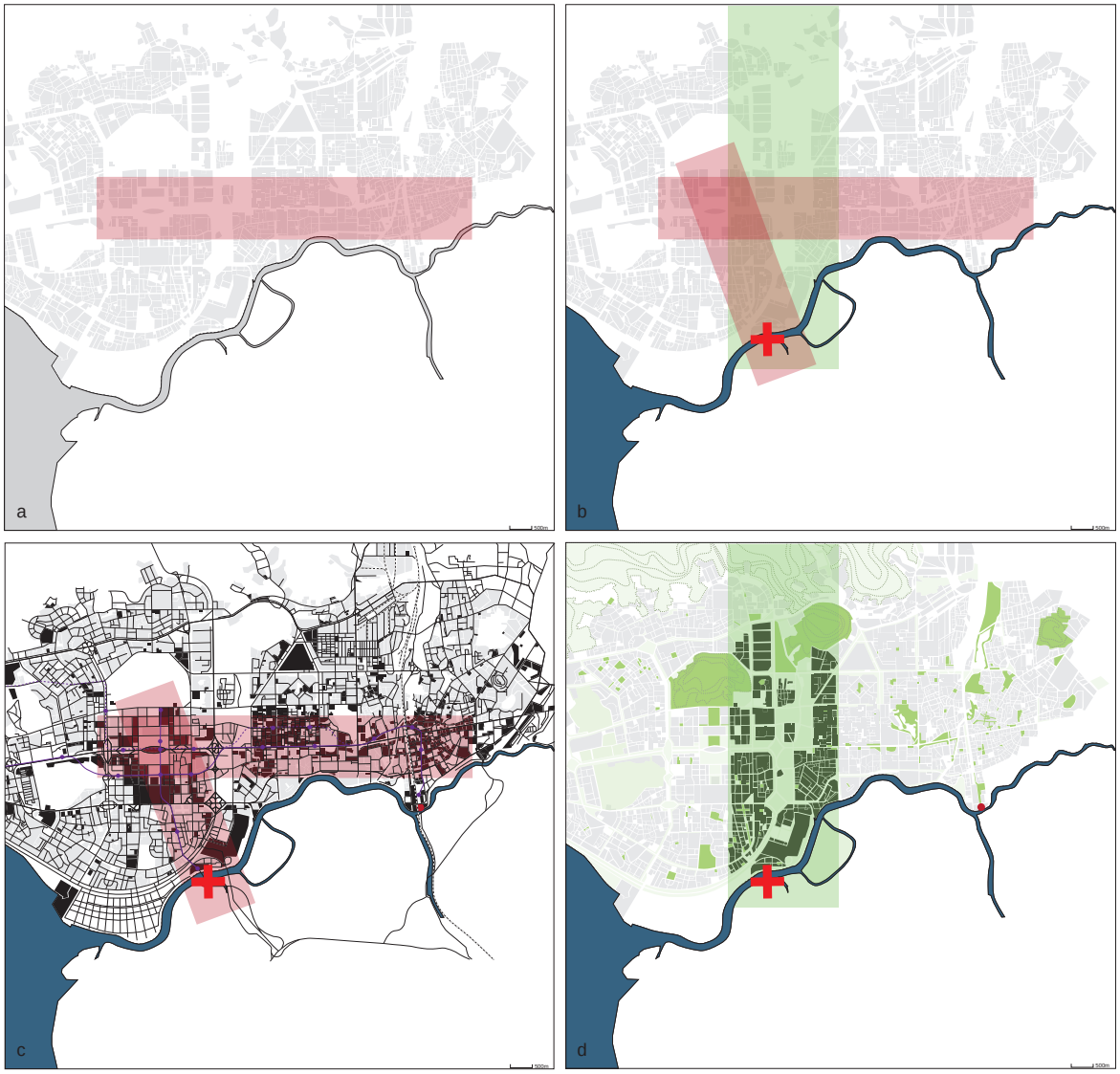


City civic centrality, voids and infrastructure map 2009
Source: mapping by author based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

1km

commercial, office, civic faciltiy
corridor
street
metro
border-crossing point
urban green open space

Vision: the duality



Material: the unactivated void as transformation zone

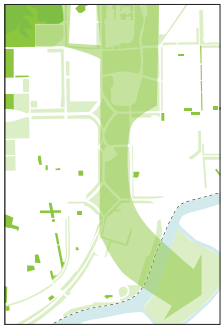
1986 **800-meter-wide buffer belt**

1999 **reserved space for Shenzhen central park**

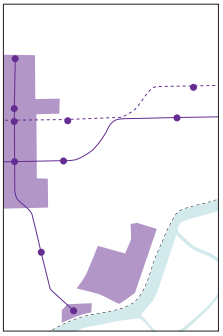
2010 **107.1 ha unactivated green field**

3 challenges

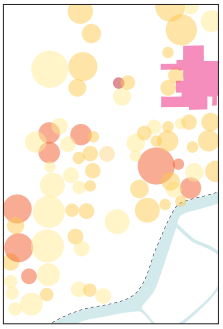
MORE THAN A PARK!



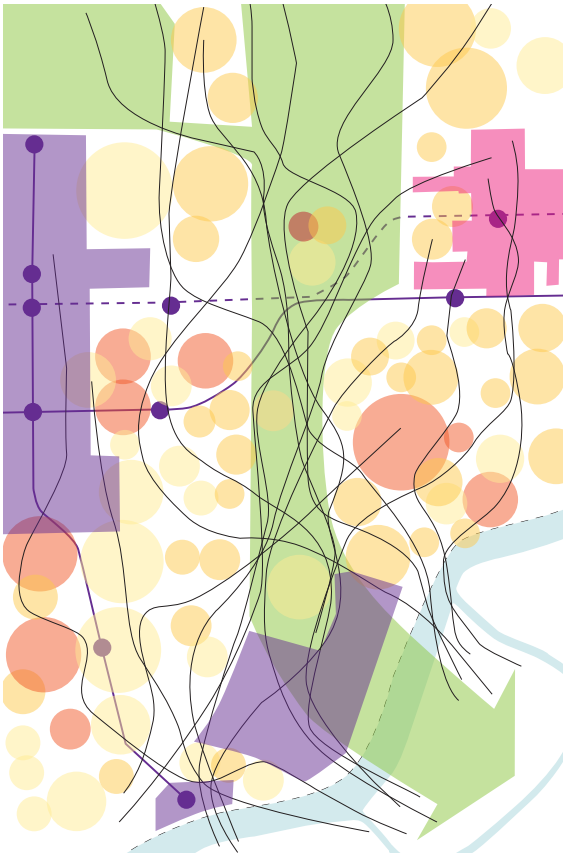
1 How to develop the void into a multi-scalar landscape network?



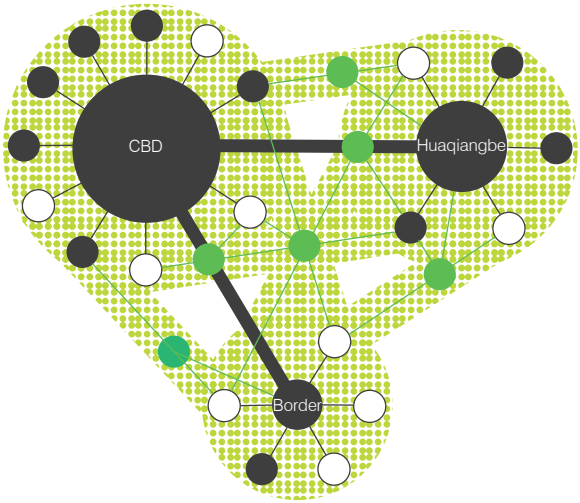
2 How to activate the void into a qualtiy generator to enhance new polycentralities?

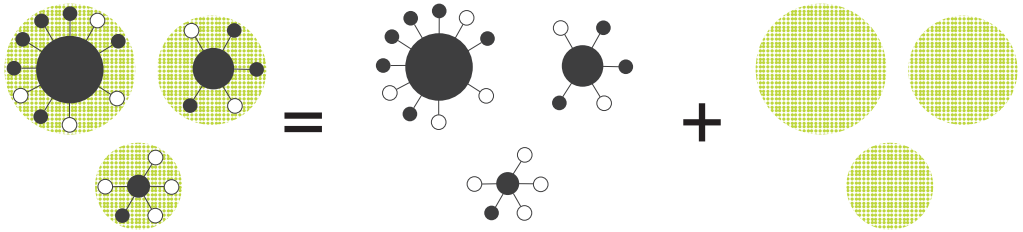


3 How to benefit the local neighborhoods in this opportunity?

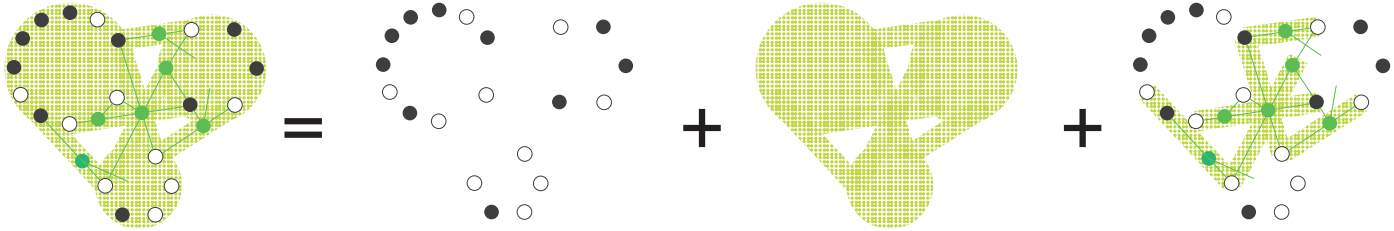


Concept:
developing the proximity by re-distrubution of public space





polycentric model = polycentric nodes + autonomous public space



void strategy = surrounding blocks + multi-scalar network of public space + activators [landscape/mobility/ functional programs]

How to re-link the fragments by the potentials in the void?

1 Transform the non-developed urban void into an integrative place re-linking the fragments.
2 a multi-scalar public space system, considering landscape, slow local street and semi public space, for integrating the urban form and functions.

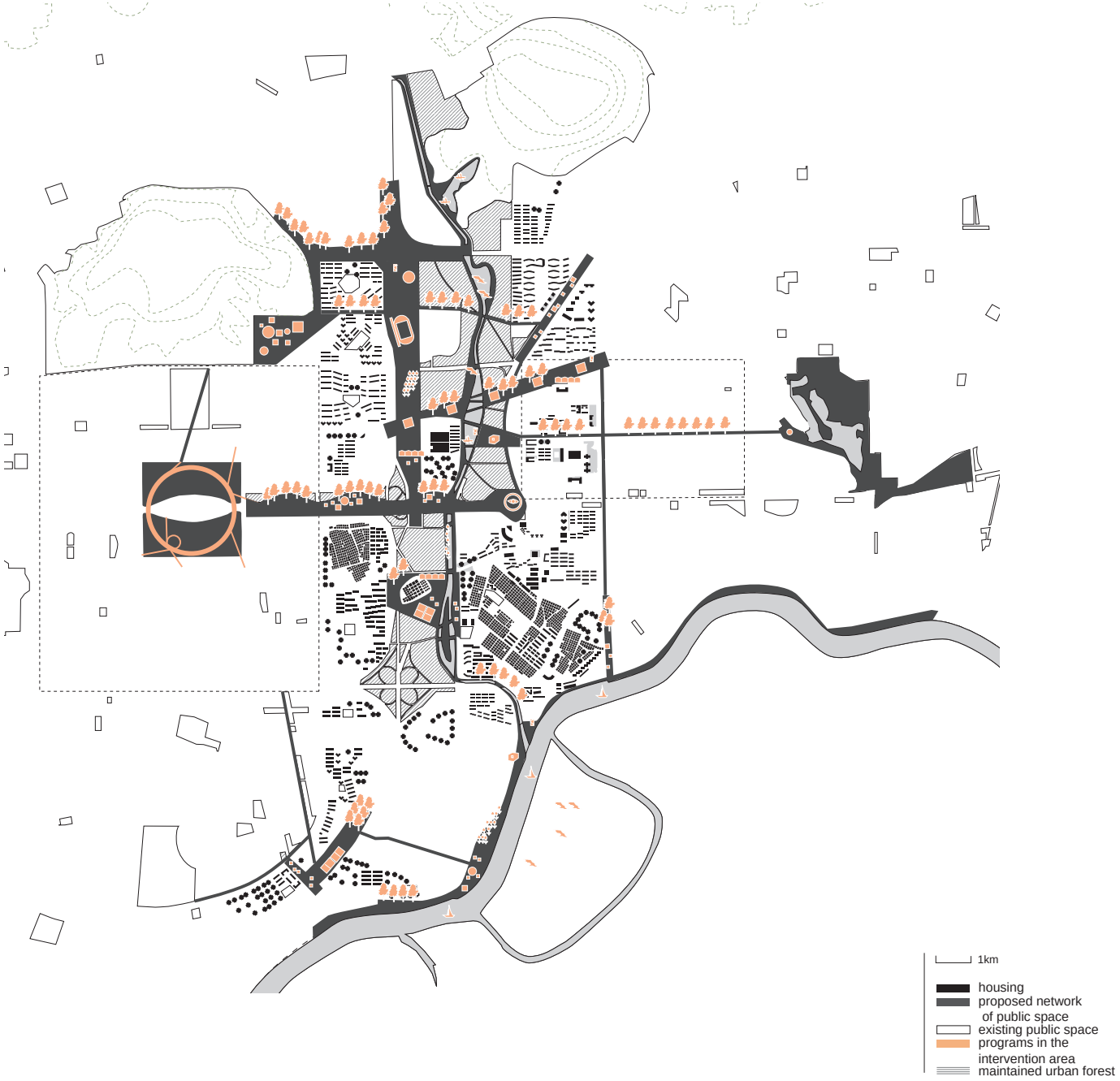
500m
built area

The built area map 2009 (corridors, metro line, city civic centralities)

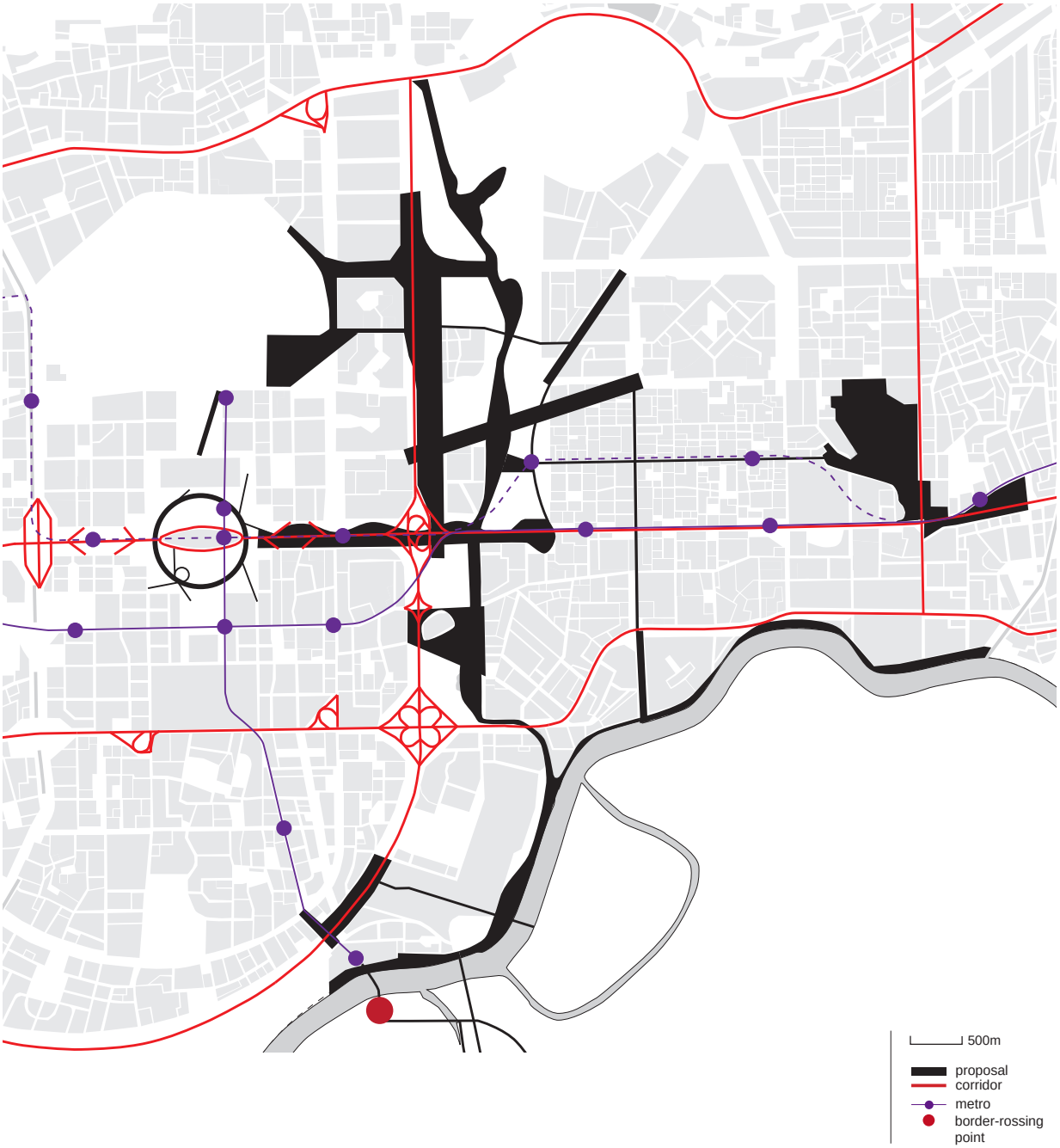
Source: mapping by author based on Shenzhen Municipal Landuse Plan 1998-2010 by district, derived from http://www.szpl.gov.cn/ in 2009

Strategy: activate the void as urban structure

Strategy: activate the void as urban structure



Complement to the existing structure



3 prototypes of public space in Shenzhen

L

M

S

Landscape

1000BC

1980s

2009

Slow local street

public

private

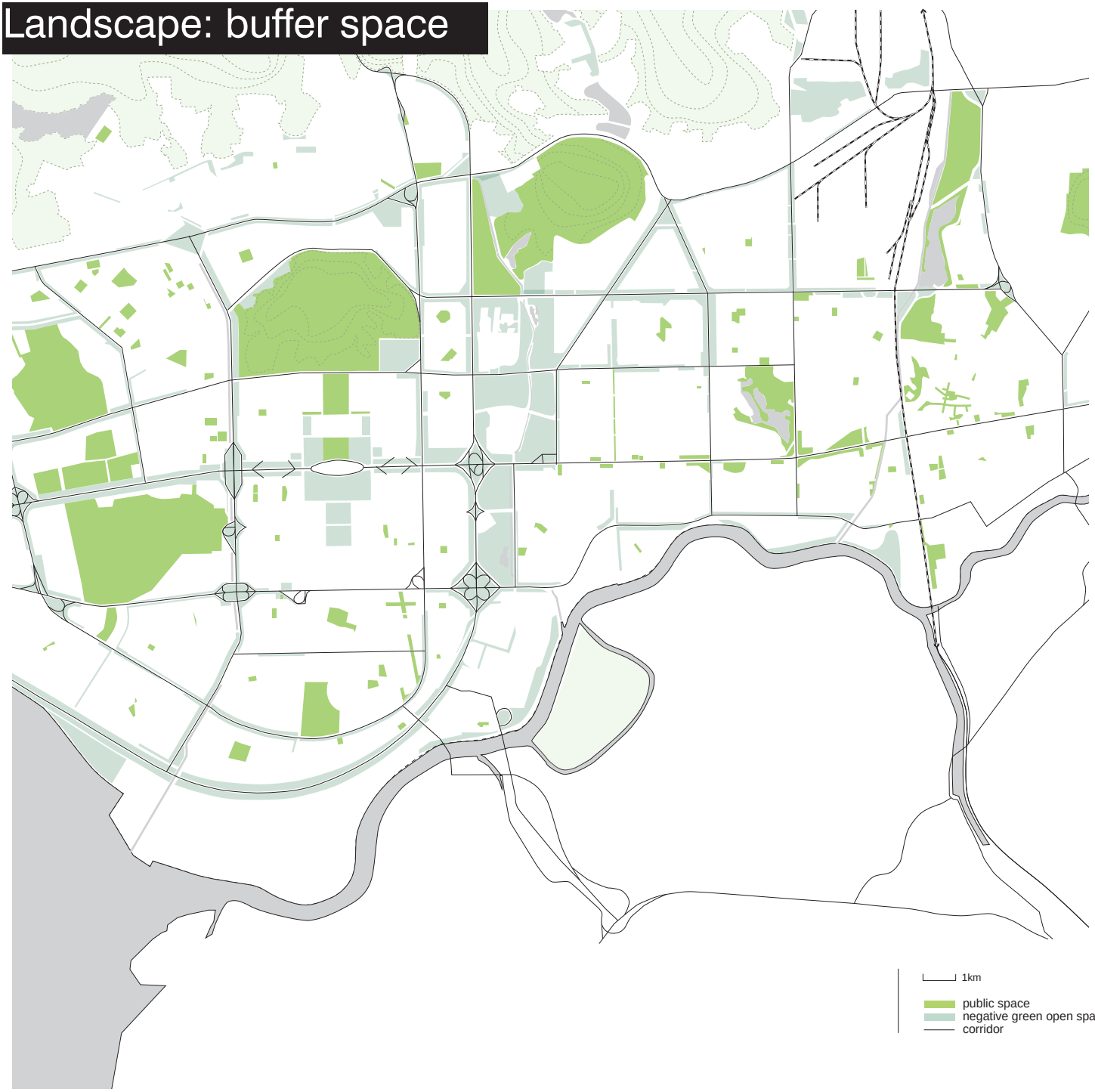
informal

Semi public space

Landscape: isolated parks

Public space in Shenzhen, a landscape space
Source: http://club.baby.sina.com.cn/redirect.php?fid=40&tid=2201278&goto=nextoldset
http://cache.atlas.sina.com.cn/nd/citylifehouse/citylife/a7/4c/20090714_53815_1.jpg
bbs.21manager.com/dispbbs-19534-0.html

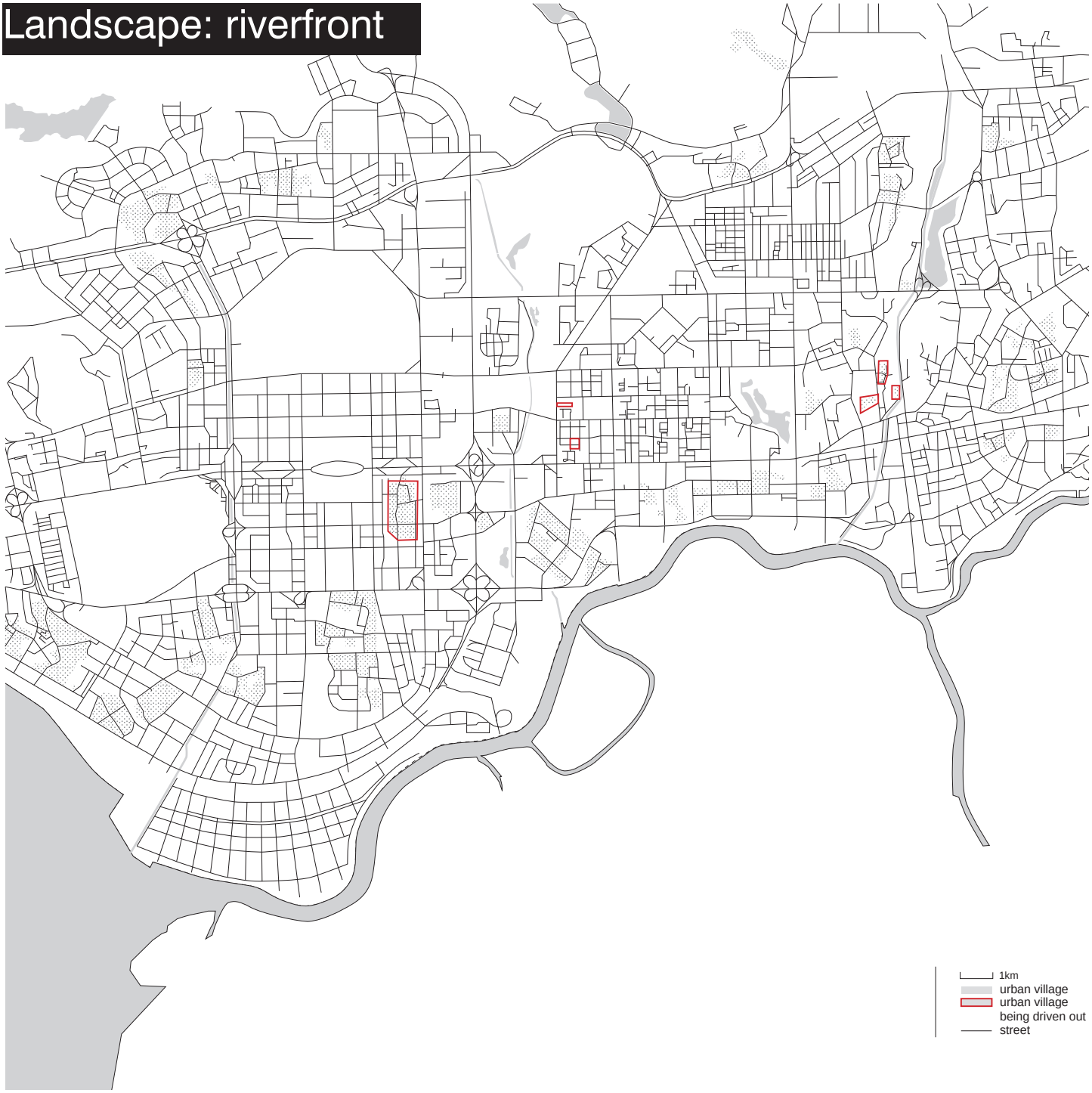
Landscape: buffer space



Landscape: buffer space

Green open space : buffer
Source: http://www.nipic.com/

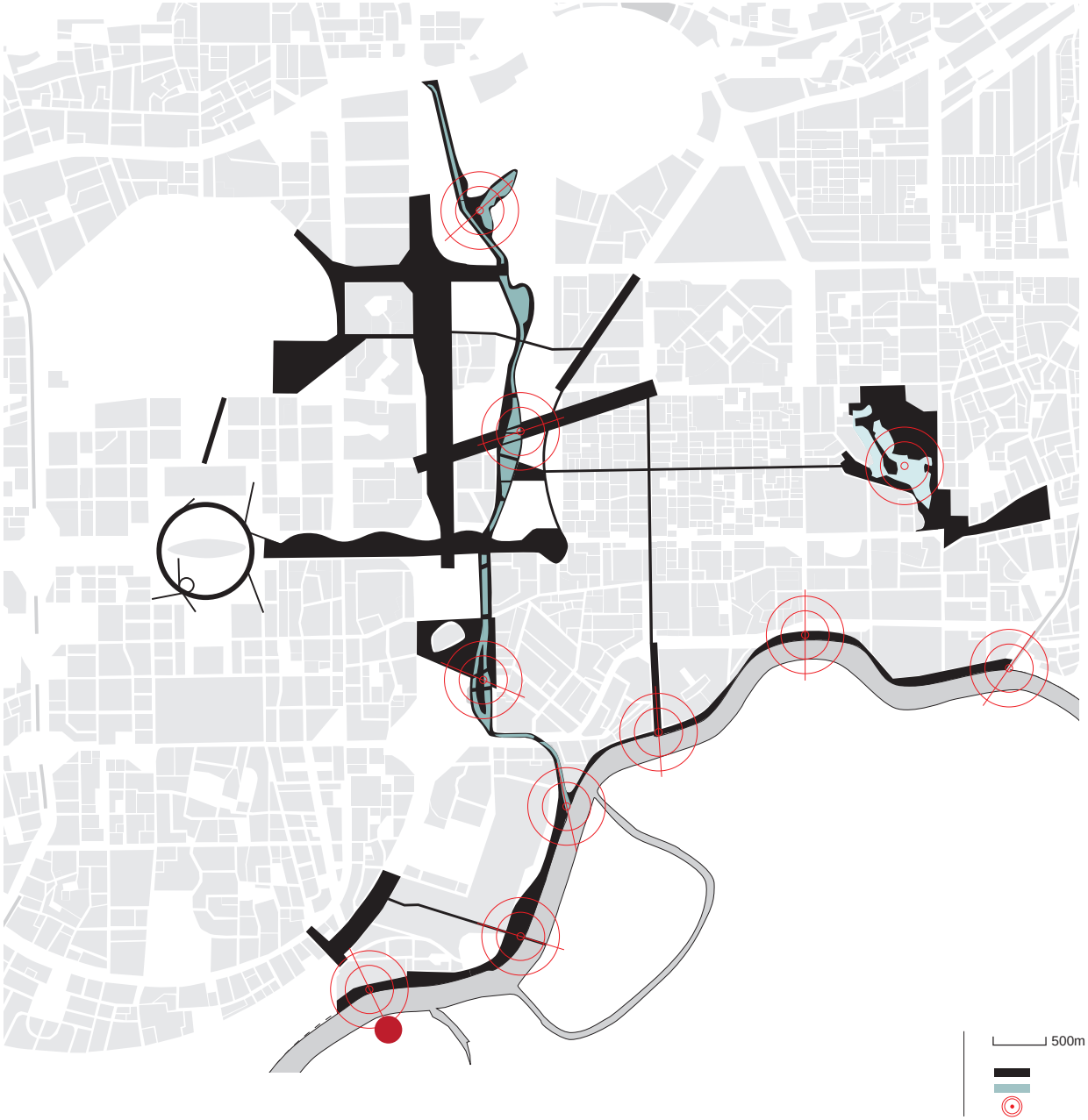
Landscape: riverfront



Landscape: riverfront

Strategy: green belts

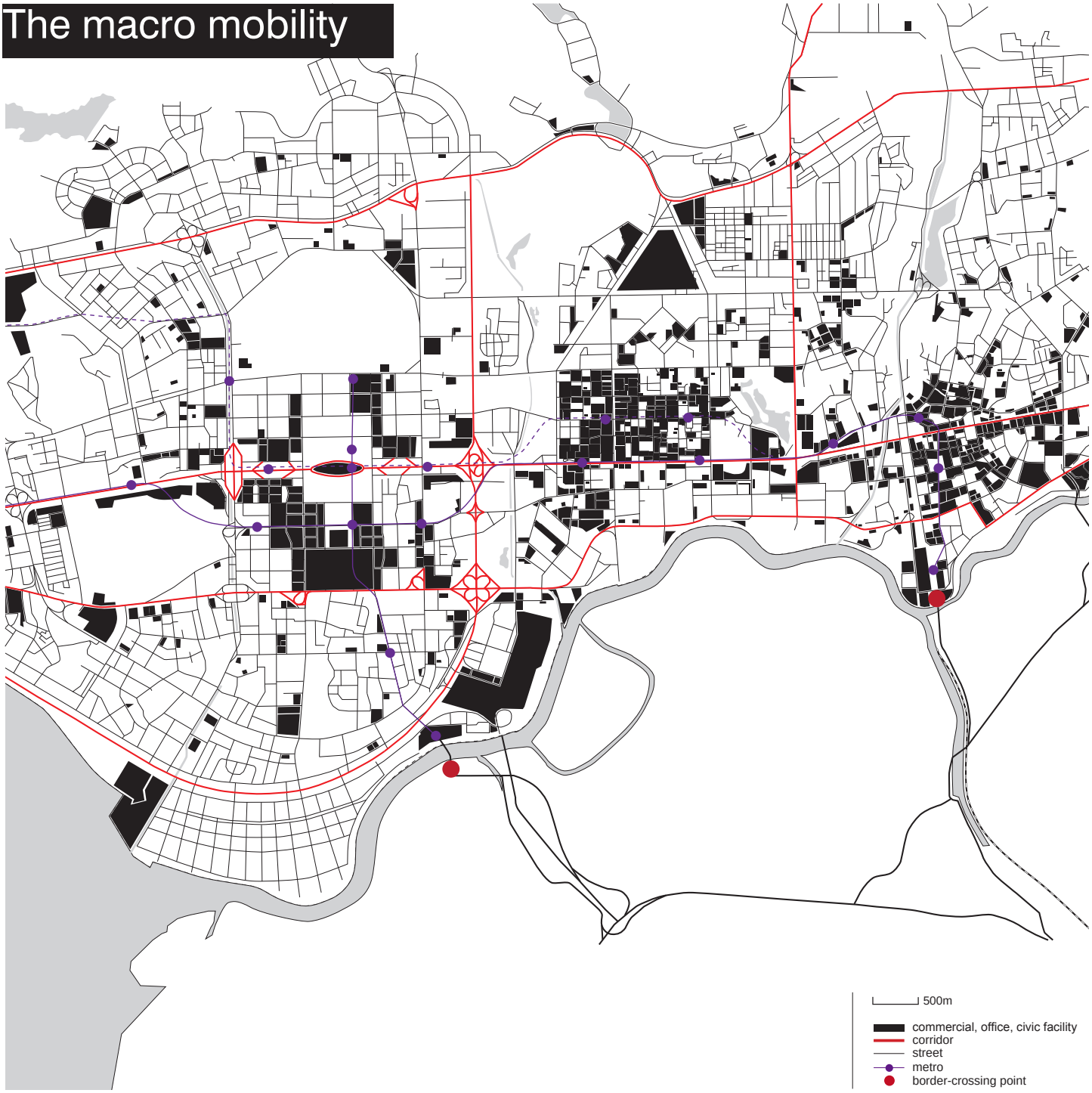
Strategy: water network



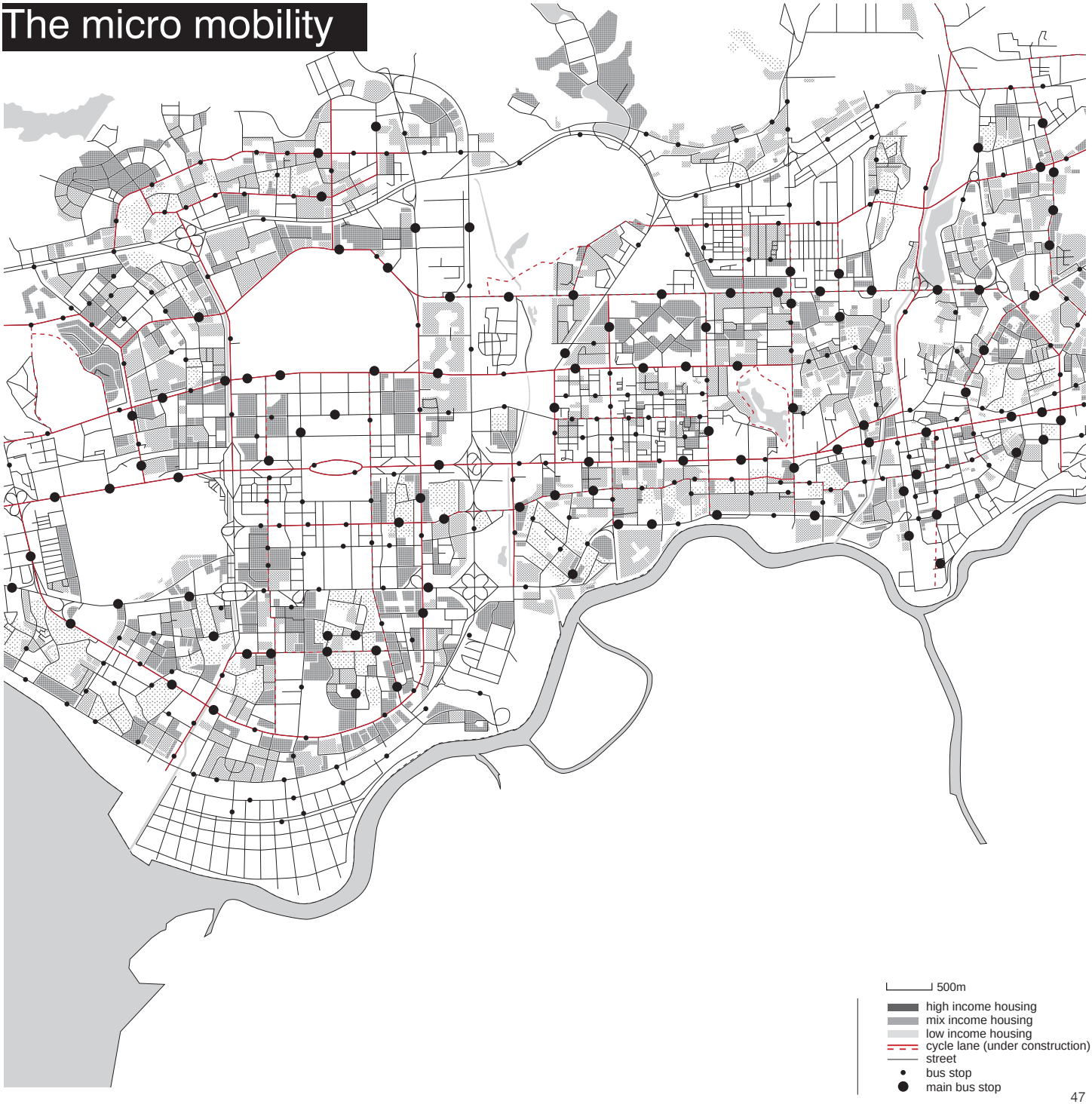
Strategy: fringe

Strategy: programs

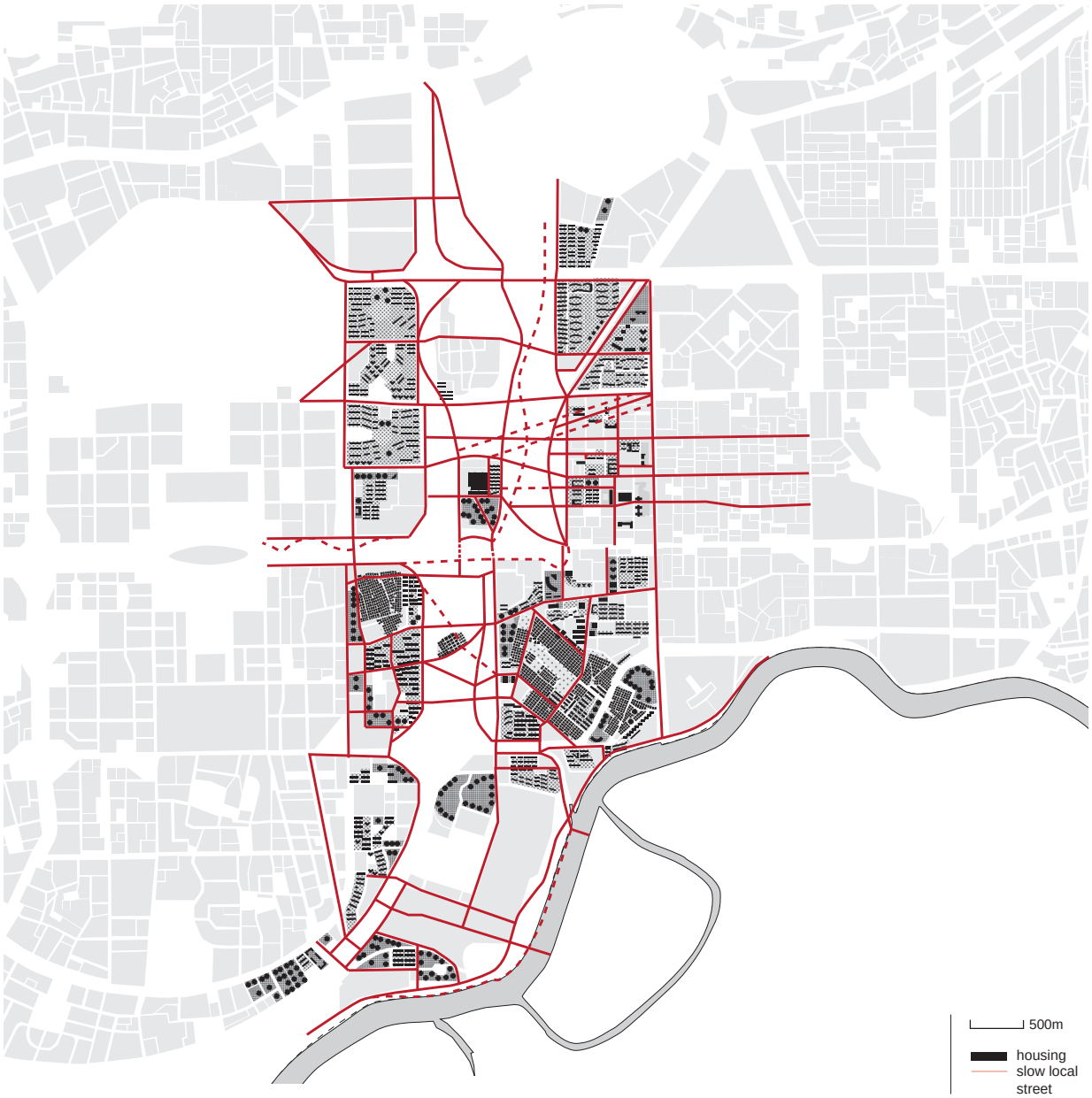
The macro mobility



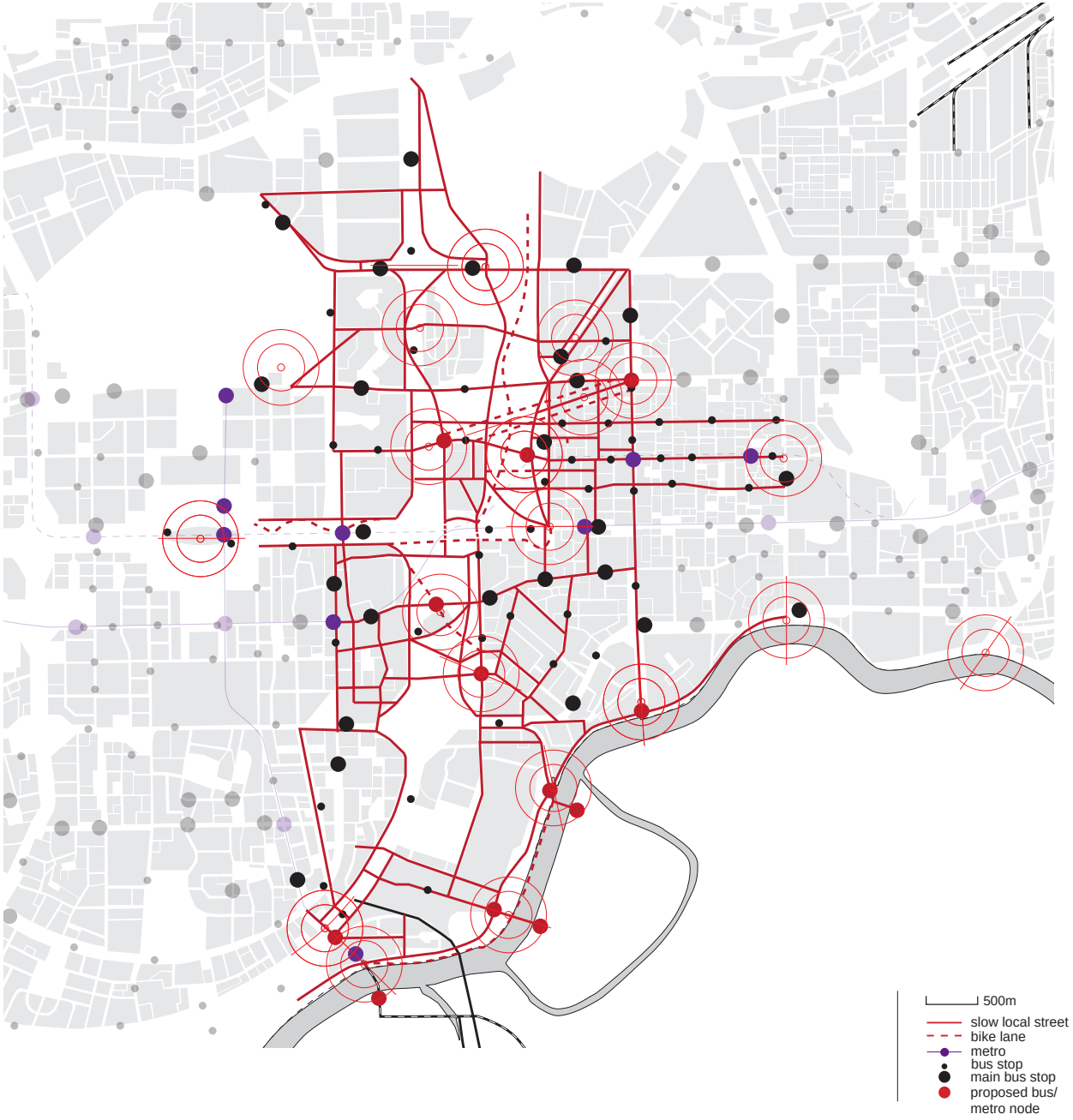
The micro mobility



Strategy: slow local street



Strategy: public transportation



Strategy: tunnel

Strategy: semi public space

Merge the big and small by:
street design
building typology
governance policy to encourage the network of private owned public space

The big

+

The small

Effects at the city scale

Effects at the local level

500m

existing public space

proposed city public space

building programs

activator

Design site as a test case


Introduction
Read the city
The void strategy
Urban design

An integral void-urban project

by giving form and flexible landuse

Evaluate the current layout

mobility and pedestrian mpa

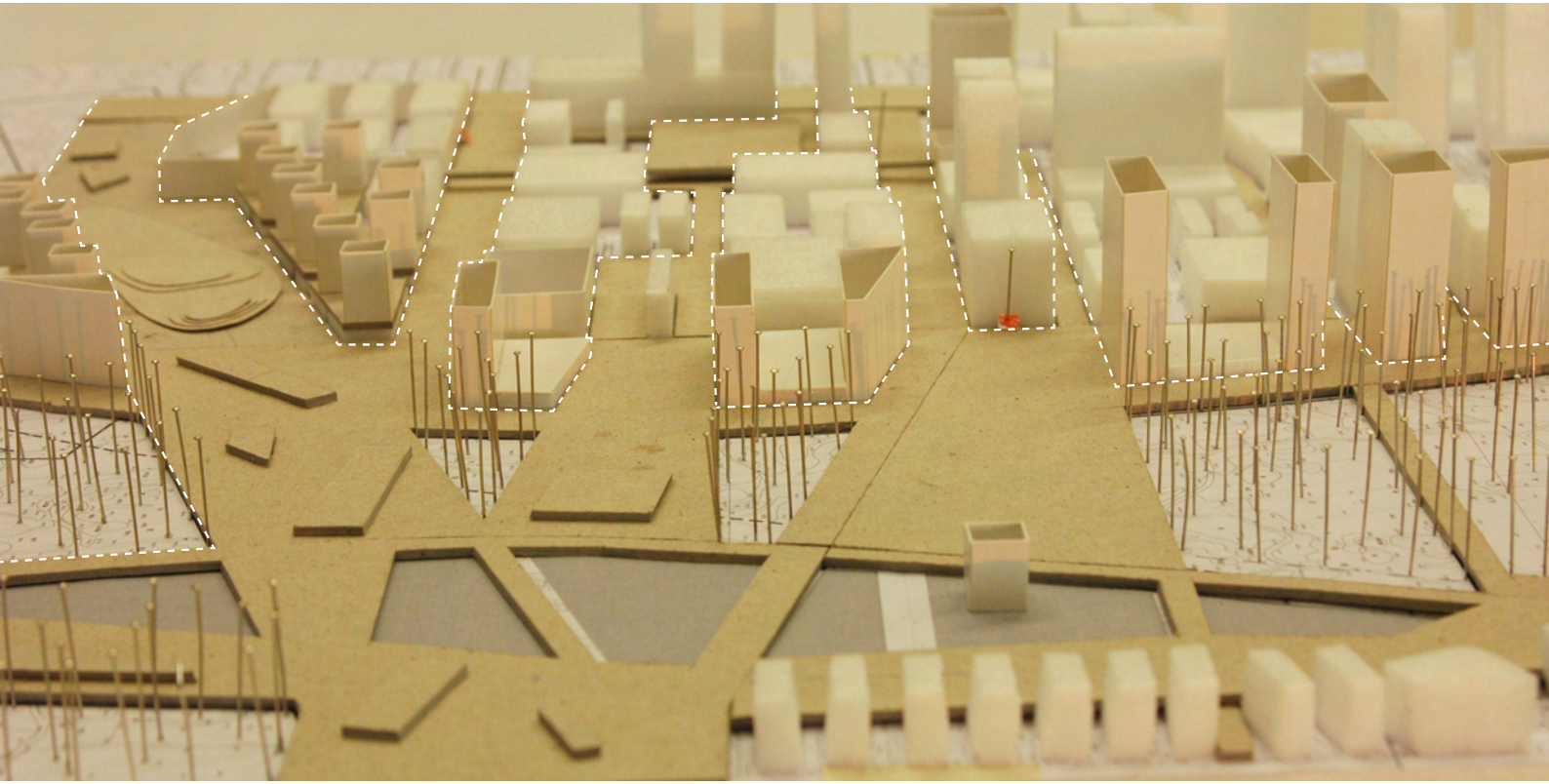
landuse map (commercial, office, housing)

street shops at the ground floor

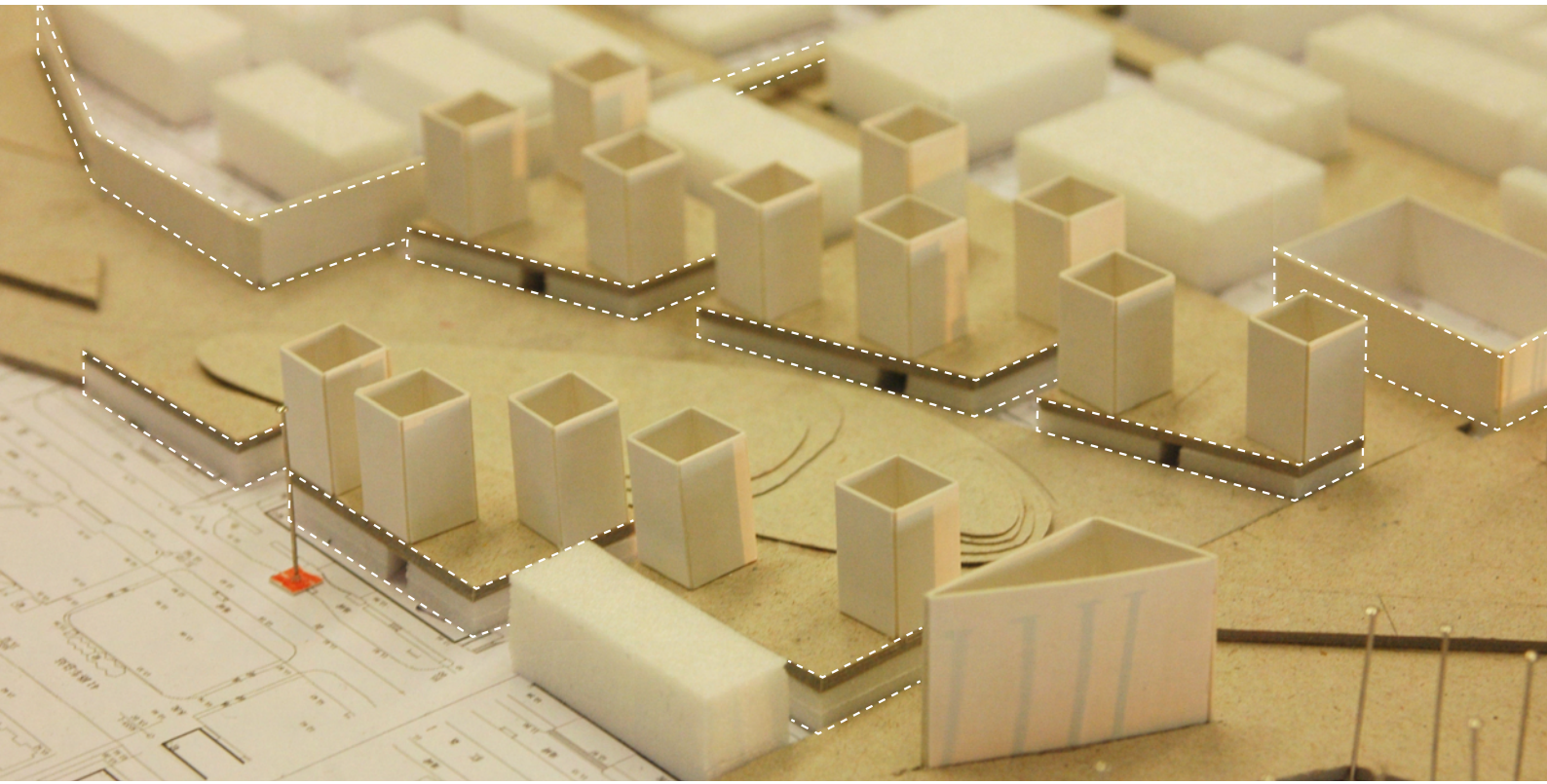
plot to renewal map

street with dense shop frontier

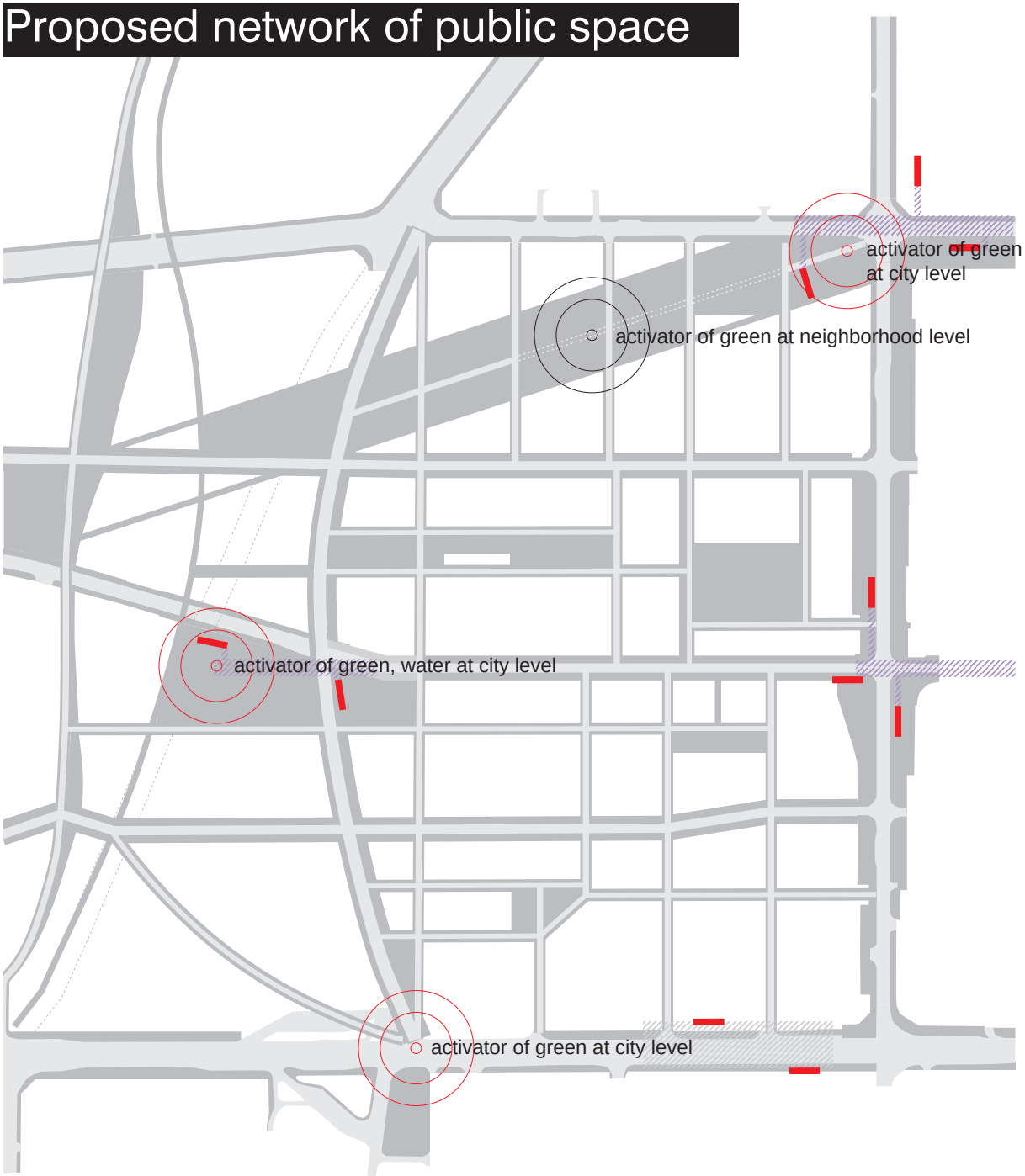
Permeable landscape



Permeate into the building fringe

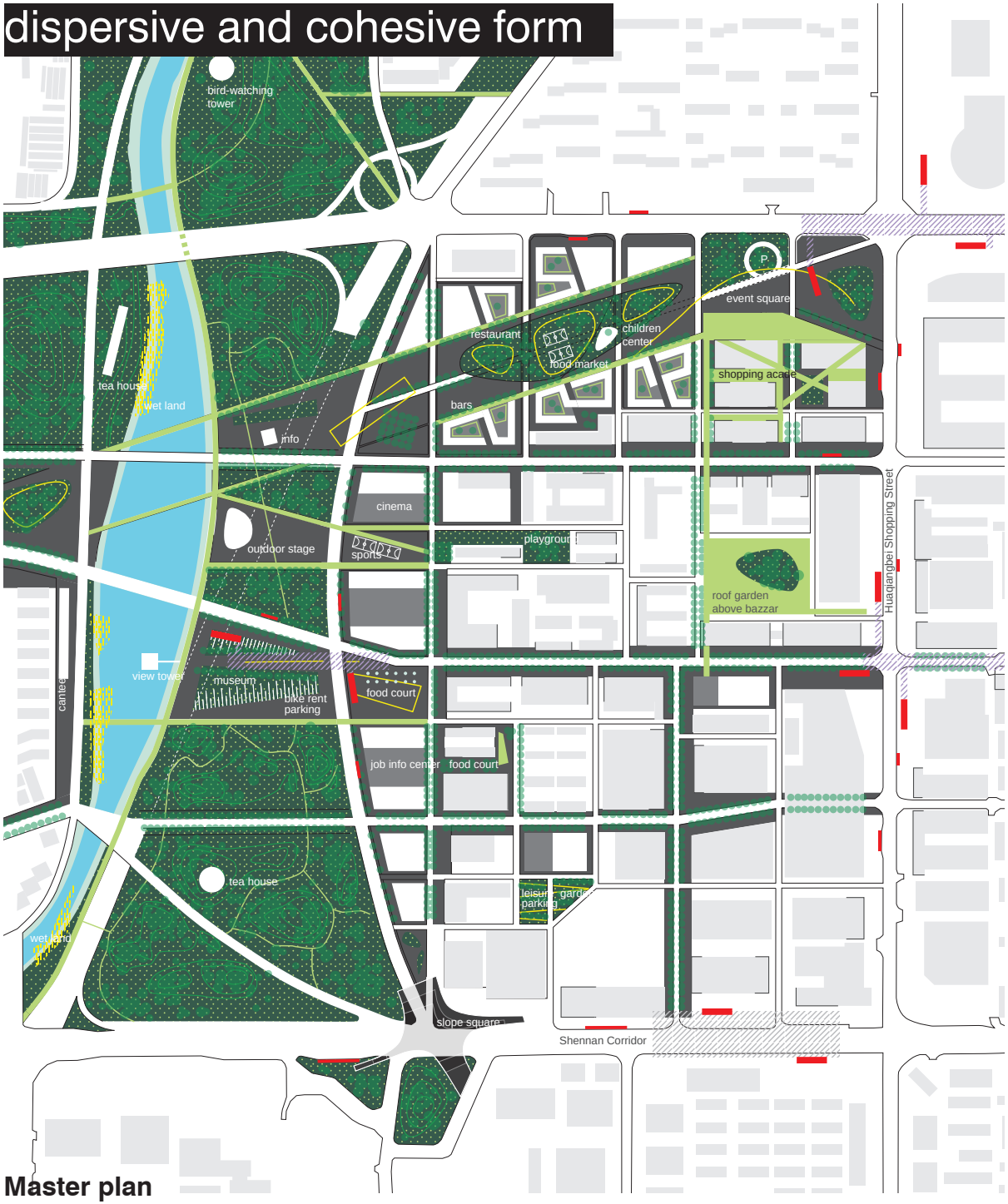


Proposed network of public space



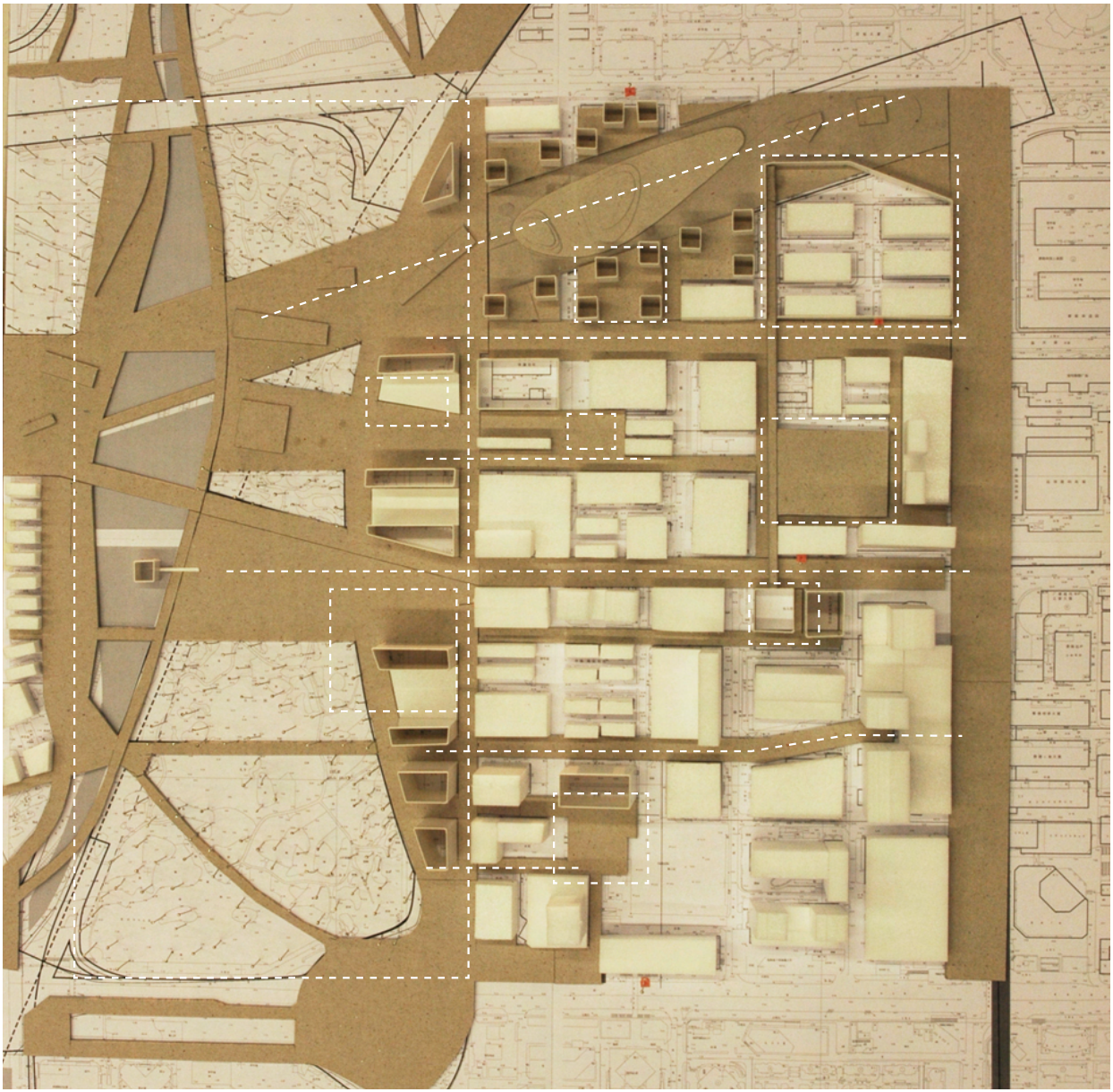
proposed network of public space and activators

dispersive and cohesive form



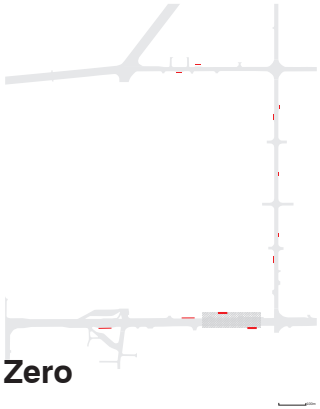
Master plan

void and mass

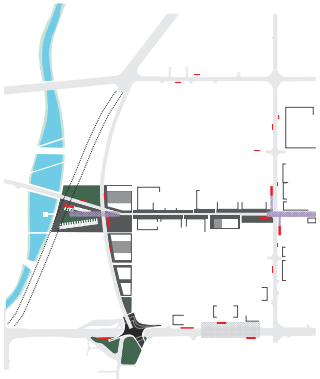


Permeable morphology

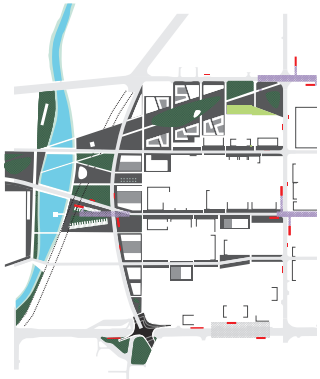
Design strategy: 3-step-linkage



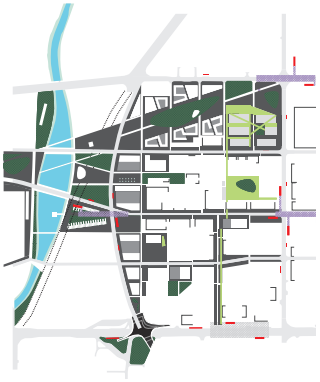
Zero



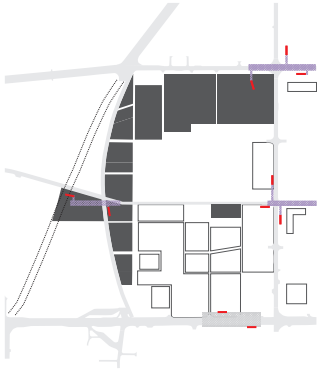
1st linkage_anchor at the mega city



2nd linkage_flexibility from city to neighborhoods

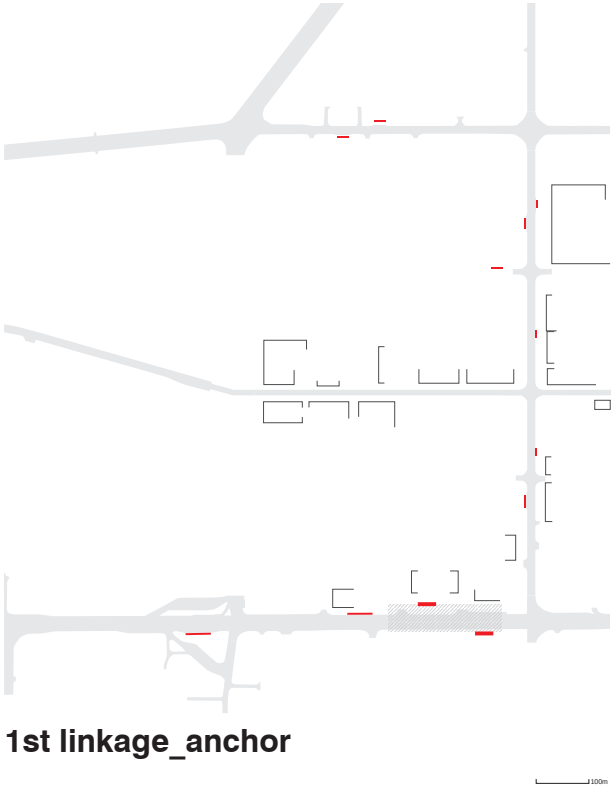


3rd linkage_semi public space at certain blocks



4th_underground underpin

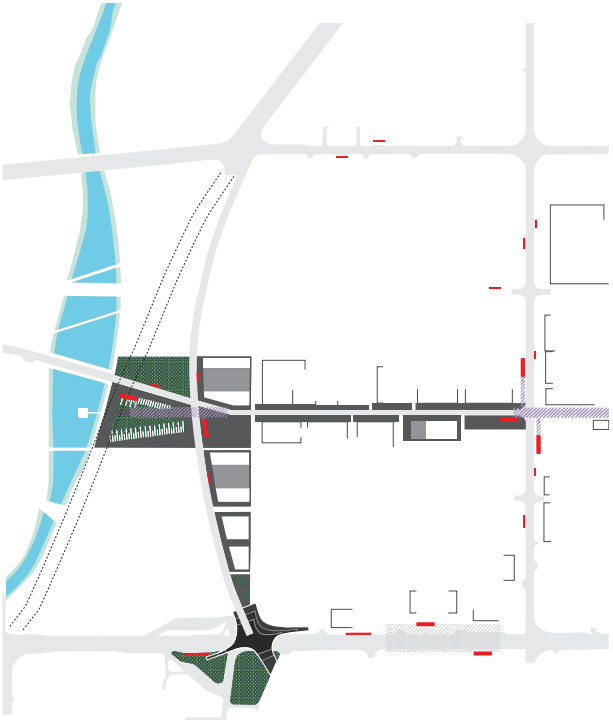
1st linkage_anchor



1st linkage_anchor

potentials:

corridor+shopping street
metro station
street shops



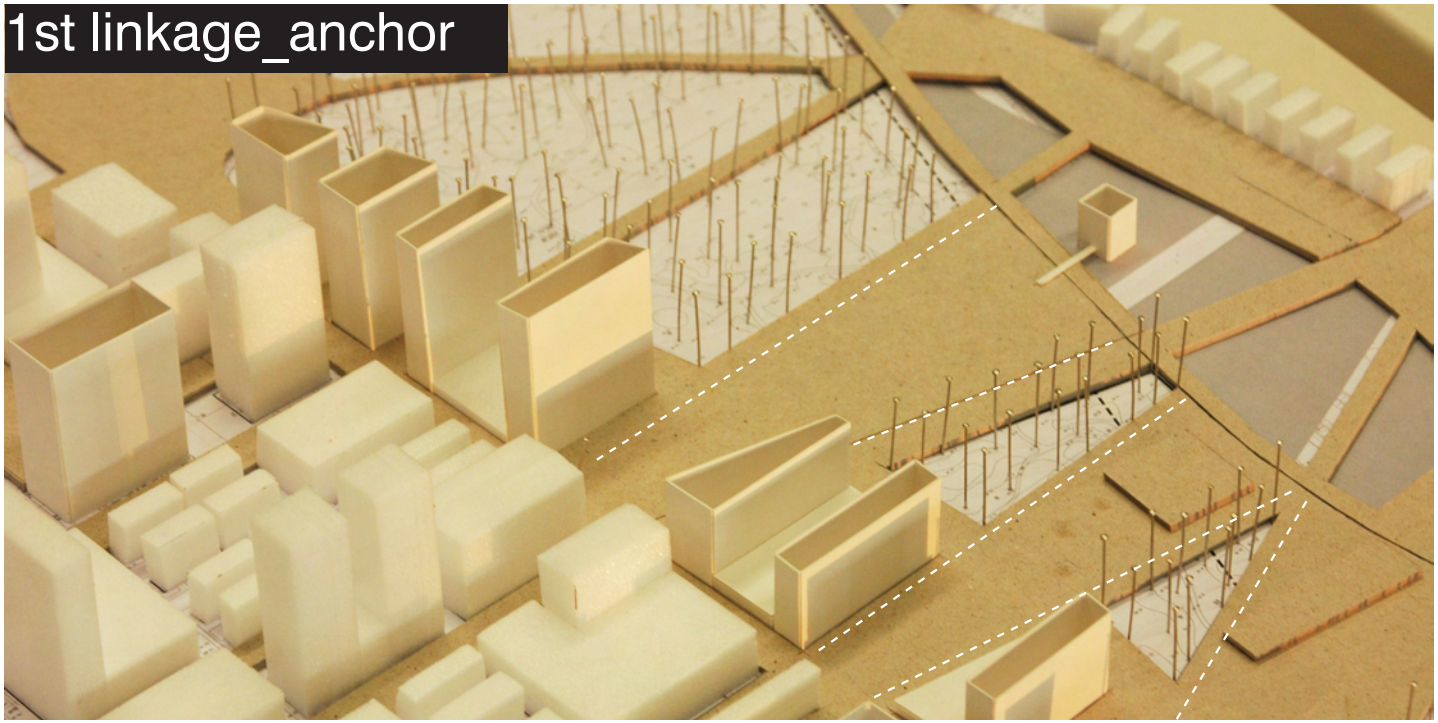
1st linkage_anchor

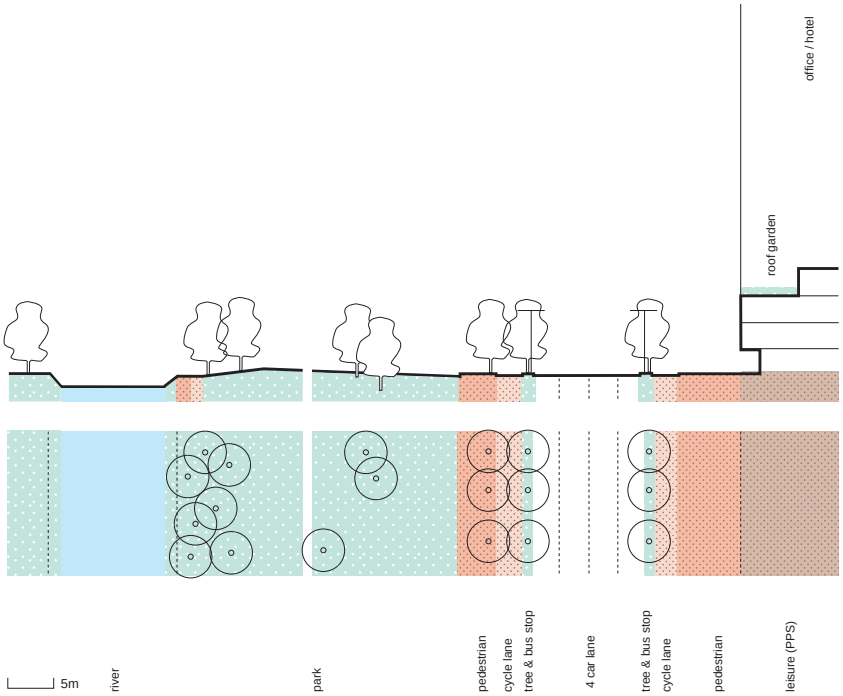
activators:

central park program+riverfront
metro stations
green crossing
boulevards

high-middle level commercial/offices/hotel
hybrid city square/ roof graden/
restaurant/ cafe/ bar
civic facility (ex. job info center)

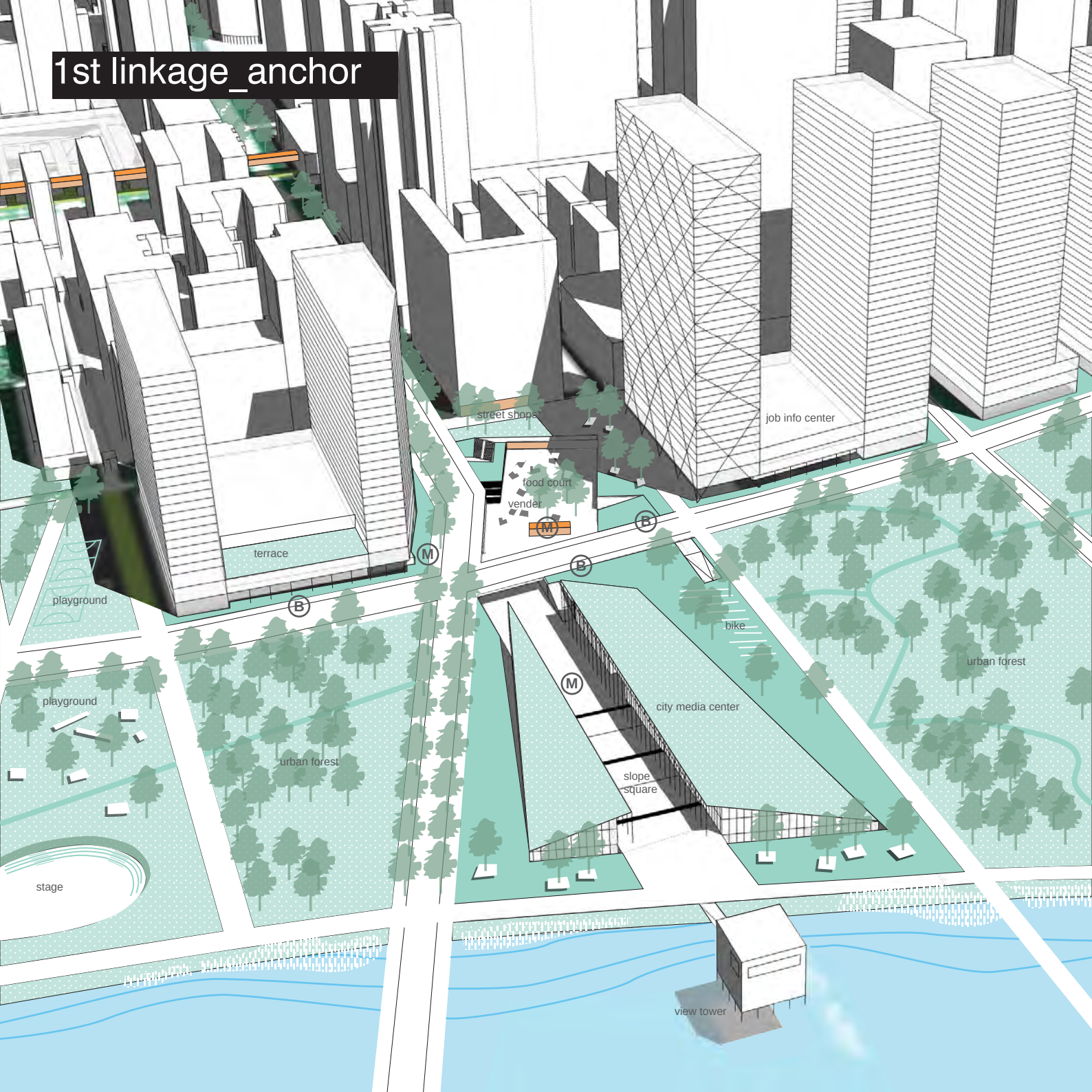
1st linkage_anchor



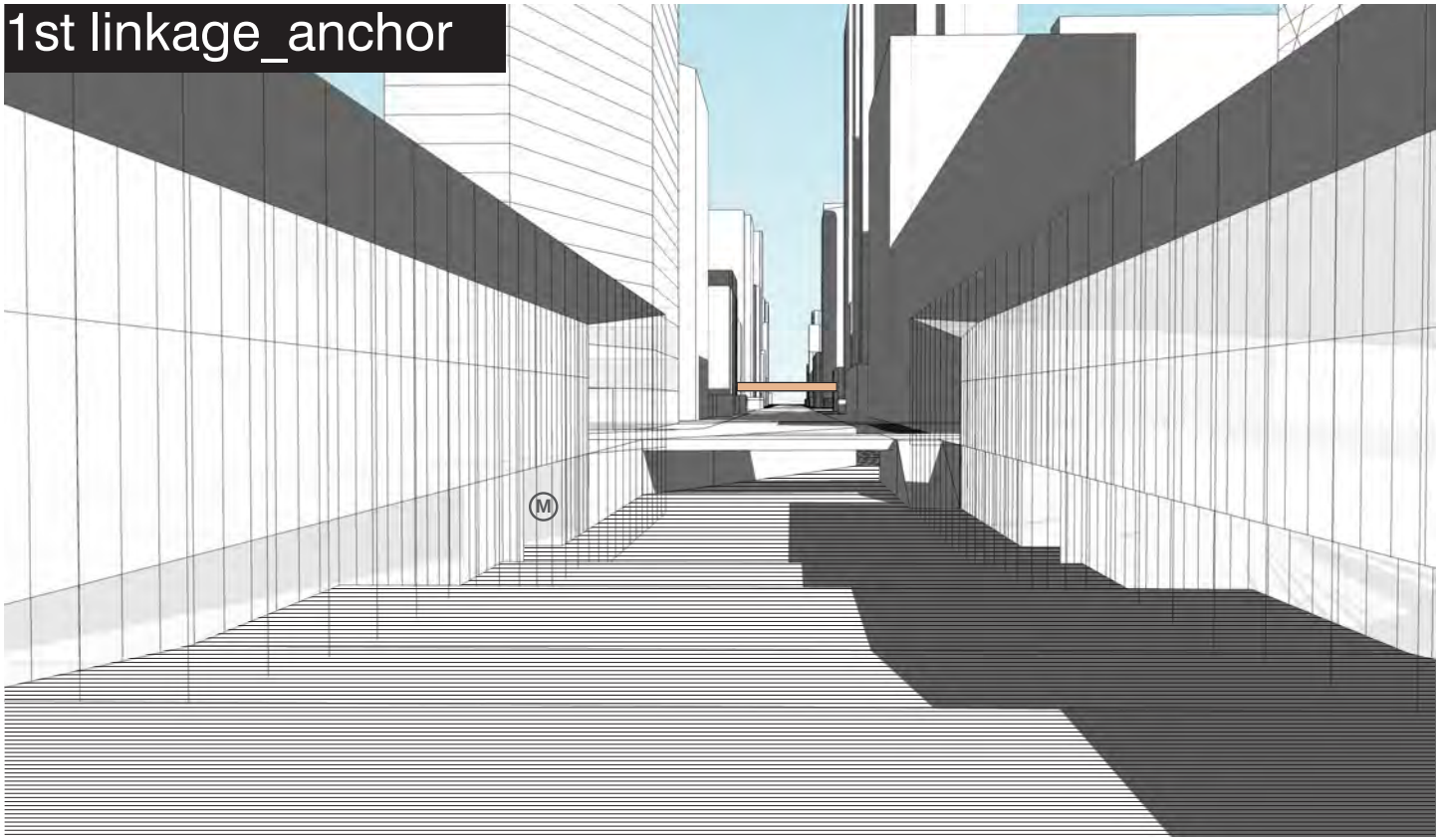


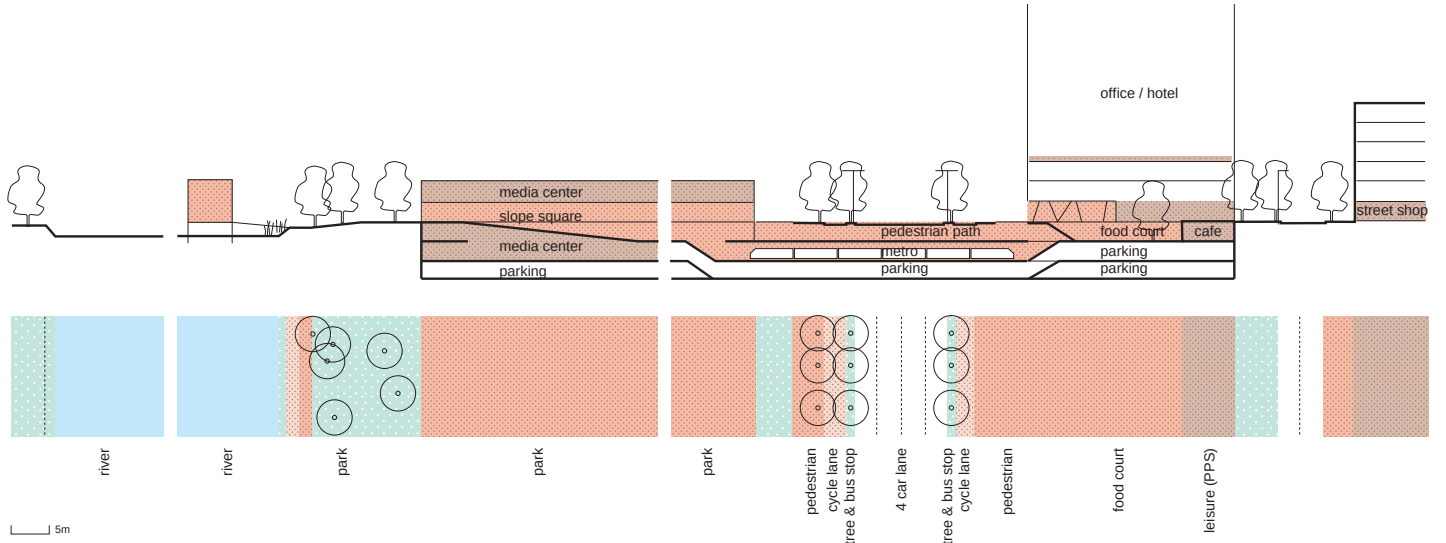
PPS: private owned public space

Source: ibm building, new york, http://www.flickr.com/photos/vitorrodrigues/286568680/in/set-72157594355702750/

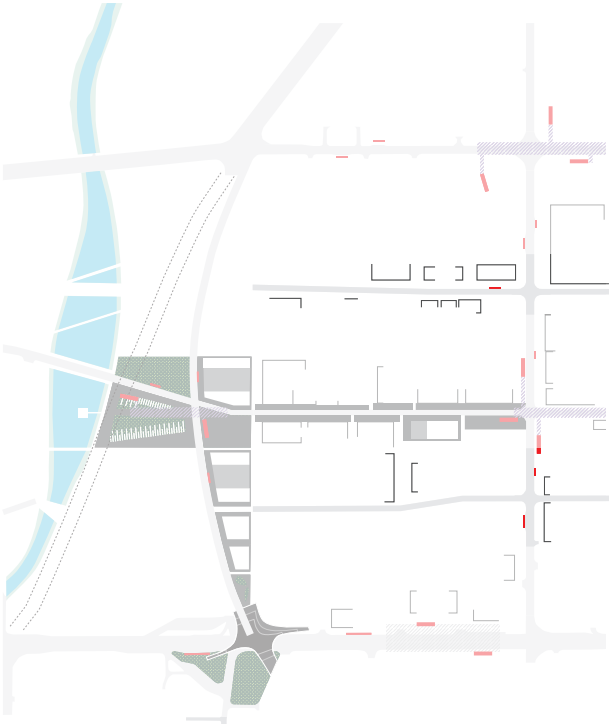

1st linkage_anchor
street shops
job info center
food court
vender
terrace
playground
bike
urban forest
playground
city media center
urban forest
slope
square
stage
view tower

1st linkage_anchor





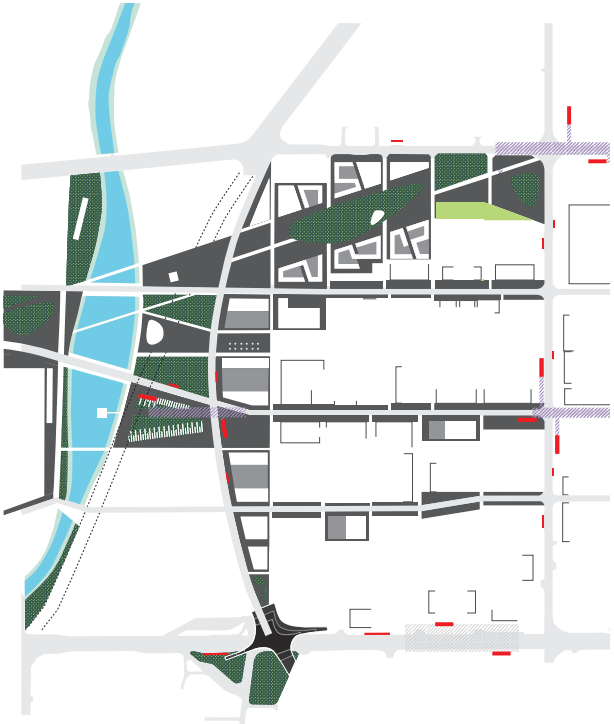
2nd linkage_flexibility



2nd linkage_flexibility

potentials:

street shops
mixed use area
metro/ bus stops



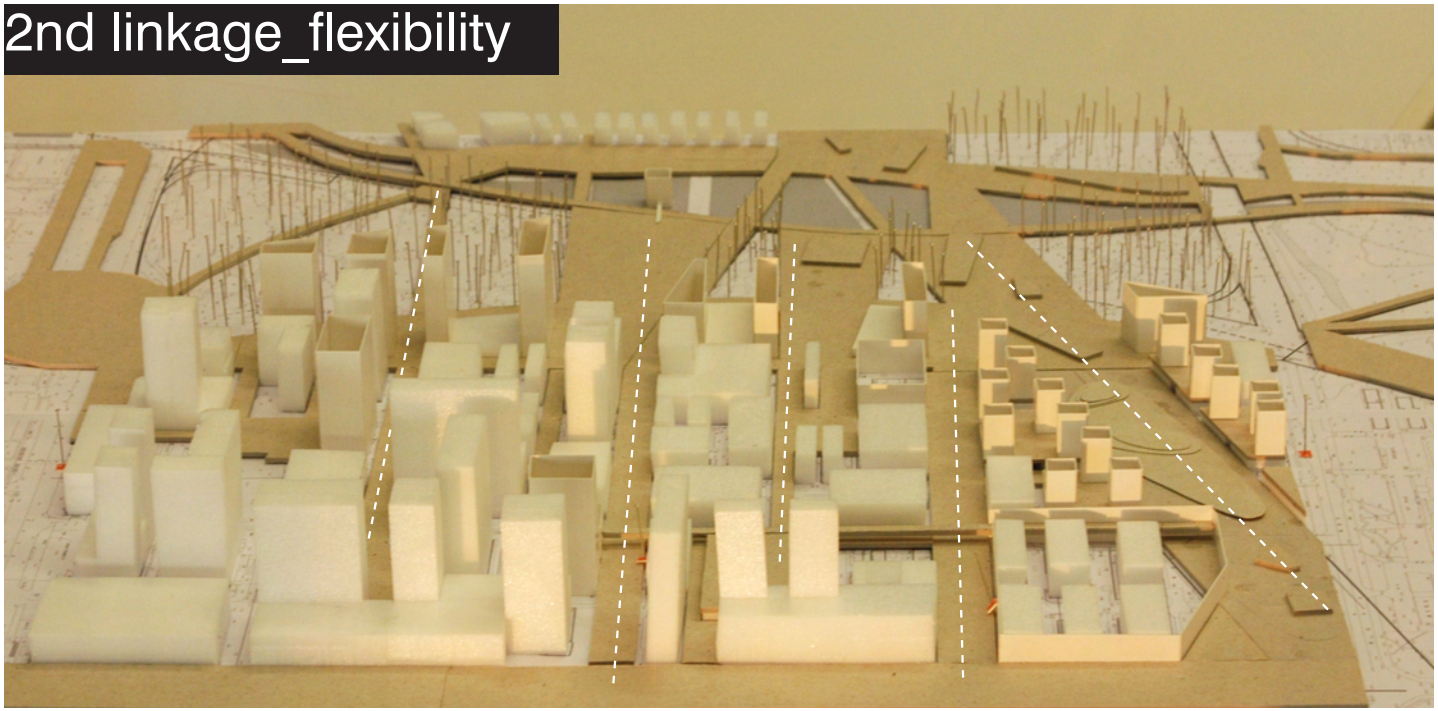
2nd linkage_flexibility

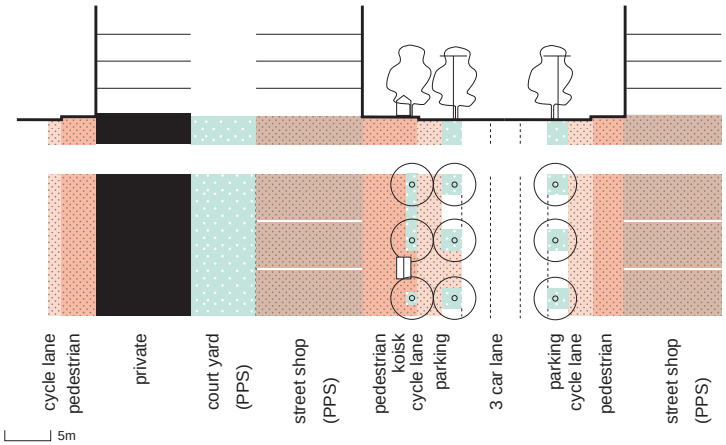
activators:

leisure circuit through the park+restaurant/ cafe/ bar
boulevards
metro/ bus stations

middle-low level commercial/ services
social housing
food market
shop frontier at ground floor

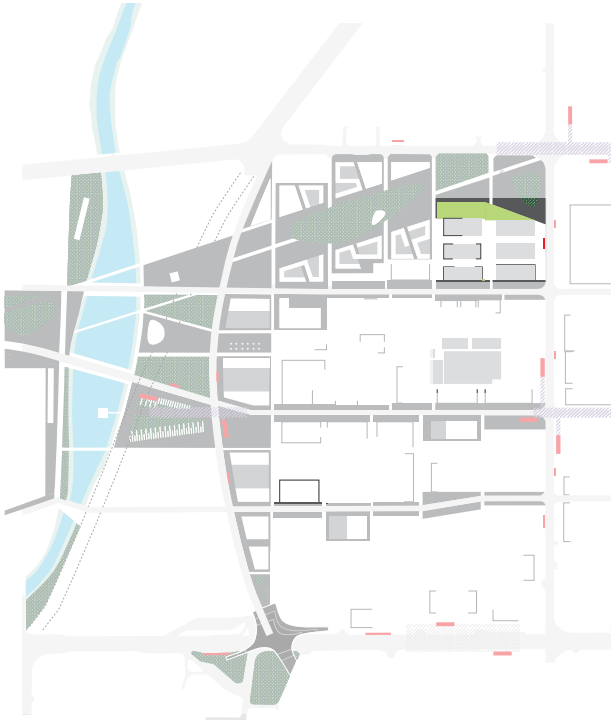
2nd linkage_flexibility





Source: http://www.flickr.com/photos/horizon616/3052841146/

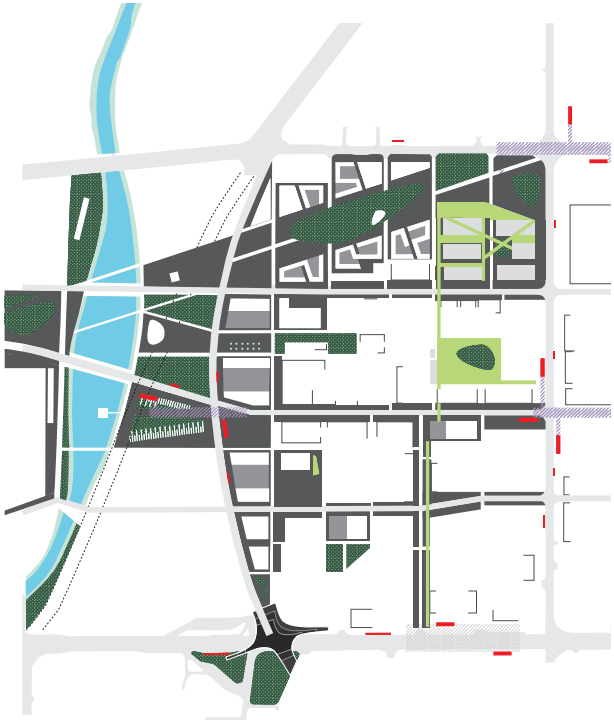
3rd linkage_daily use



3rd linkage_daily use

potentials:

bazzar
food court
old commercial building

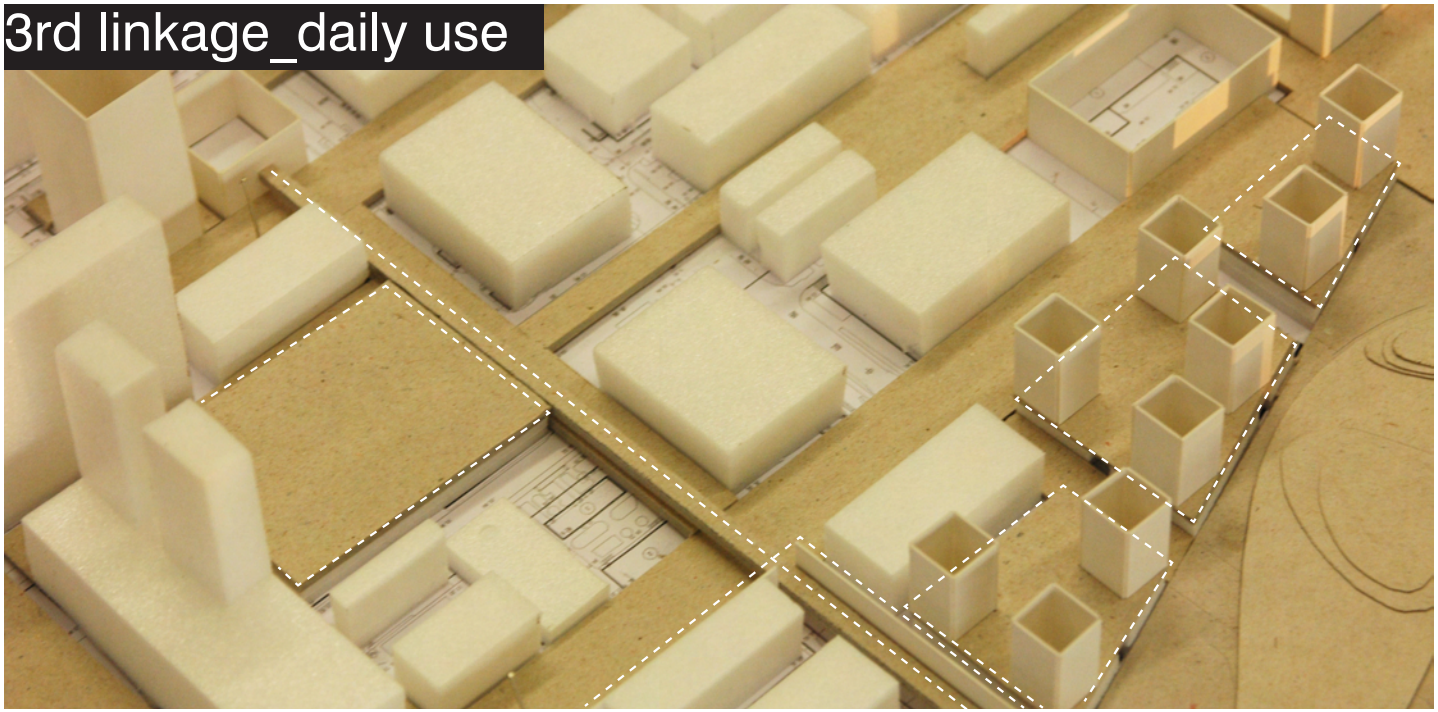


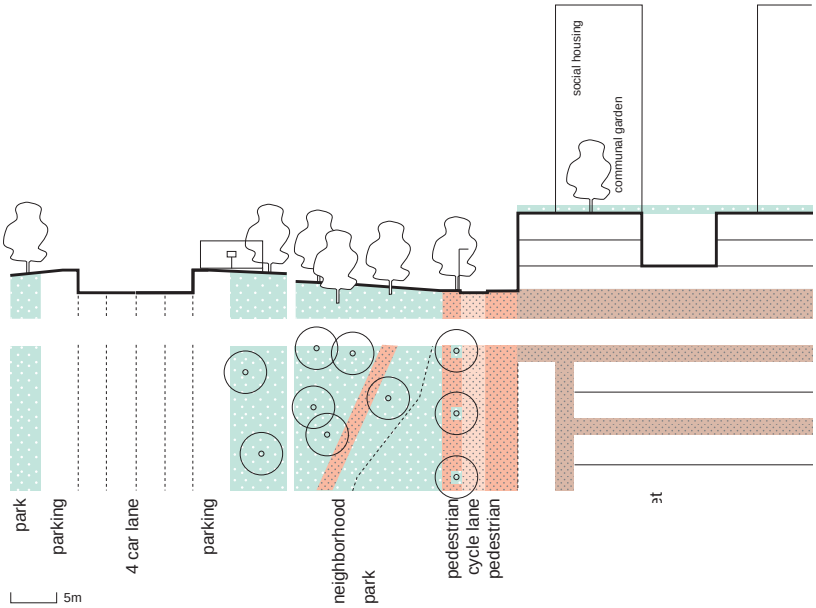
3rd linkage_daily use

activators:

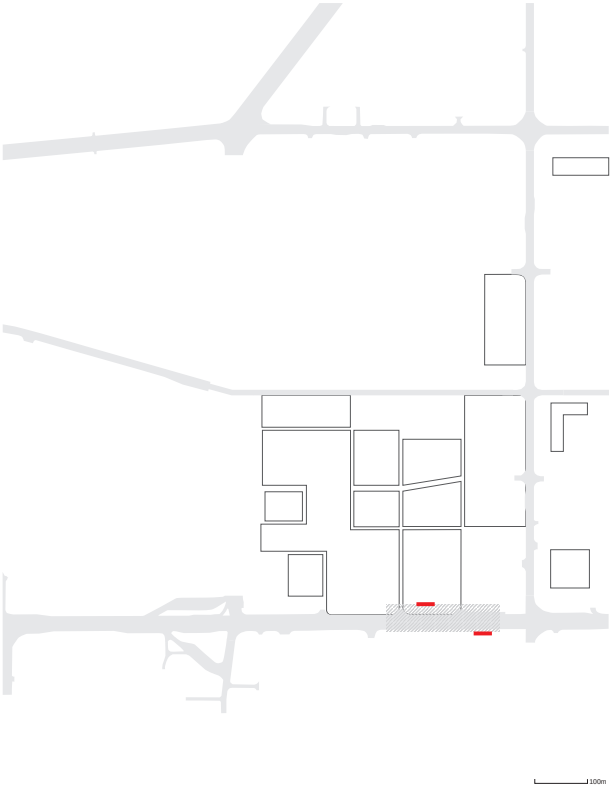
roof garden above the bazzar
existing and new food court
skywalkers + interior public space
street market
playground
communal garden in the social housing
middle-low level commercial/ services

3rd linkage_daily use





underground underpin



4th_underground underpin

potentials:

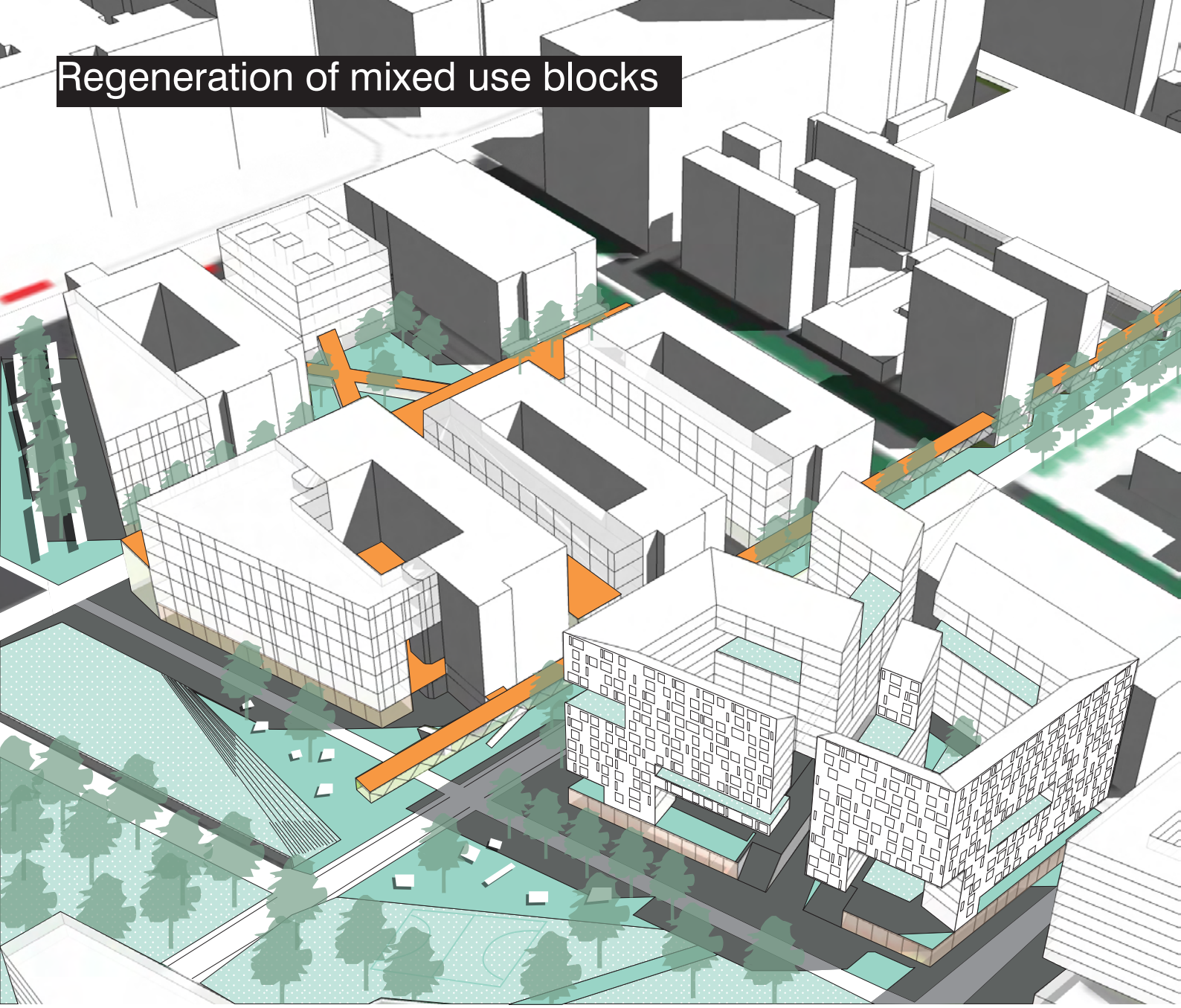
metro station
-1 level commercial/ parking
-2 & -3 level parking

4th_underground underpin

activators:

metro station
tunnel
-1 level commercial/ parking
-2 & -3 level parking/ logistics

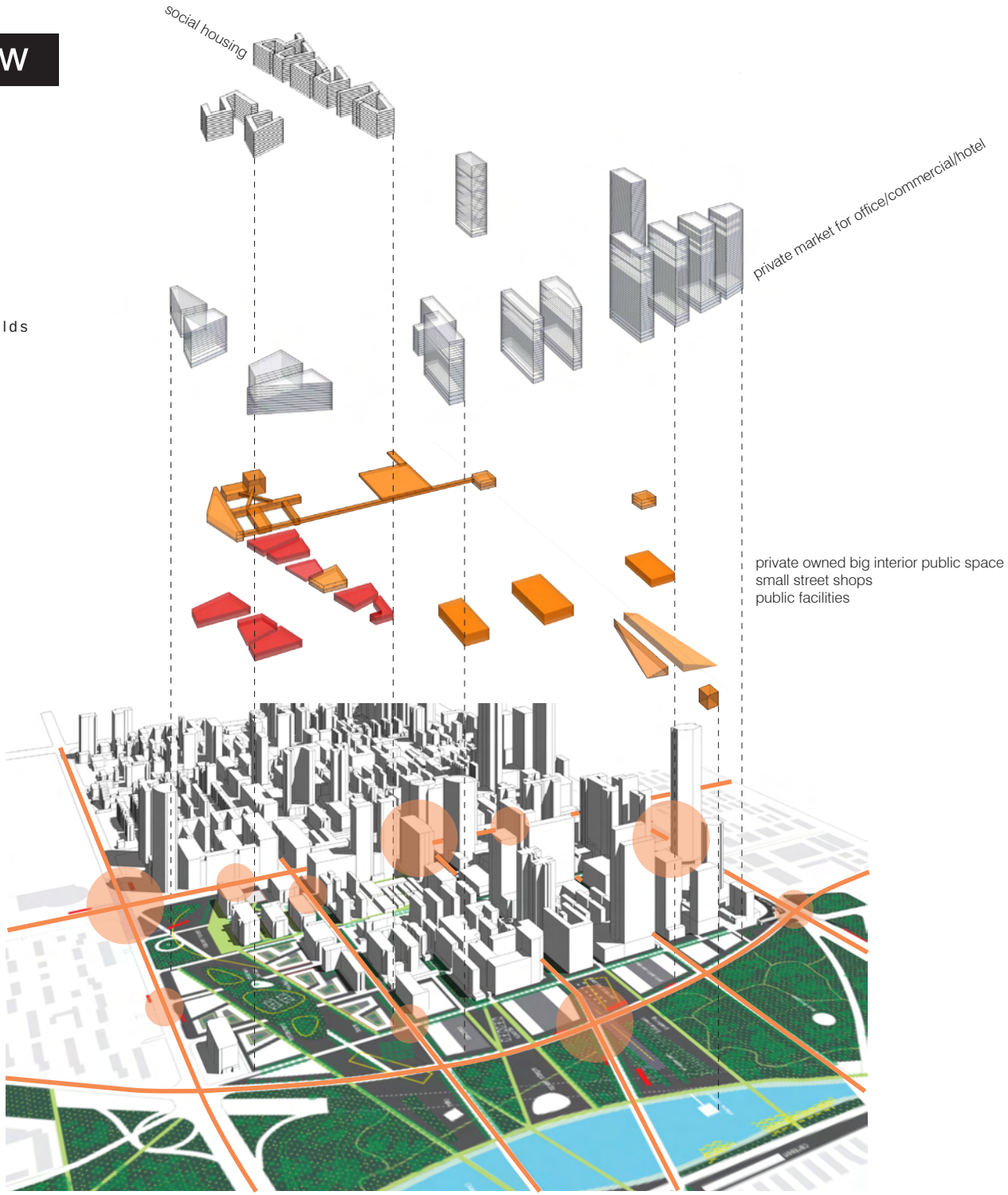
Regeneration of mixed use blocks



Overview

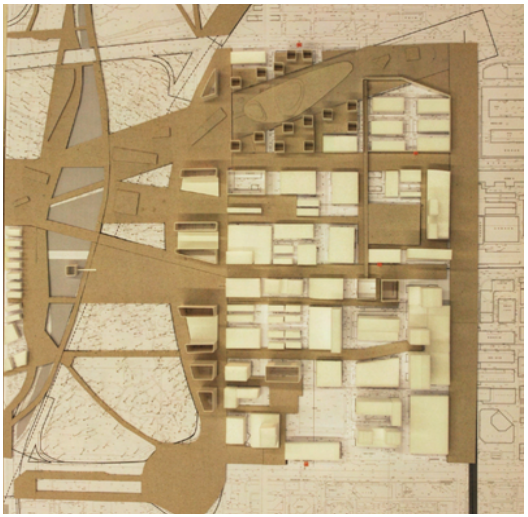
Demolish
347,000 sqm
New in all
679,400 sqm

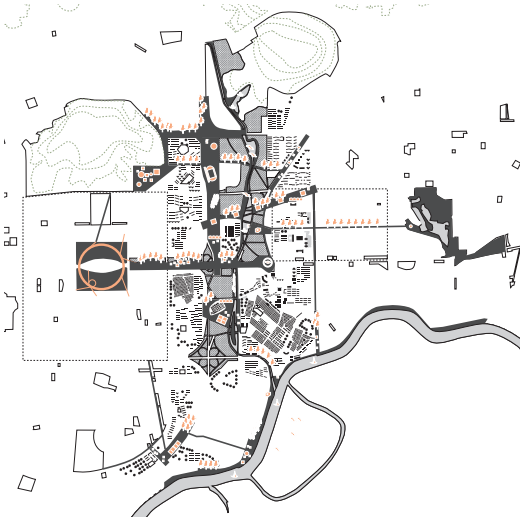
includes
[public facility]
47,000 sqm_6.9%
[social housing]
105,000 sqm_15.6%
=1,760 households
*60sqm/unit =
/ 4,400 dwellers
[private market]
526,800 sqm_77.5%



6.5 Birdview

Conclusions





design >>>>>>>>>>>>>>>> strategy >>>>>>>>>>>>>>>> vision>>>>>>>>>

social contexts

1 Transform the non-developed urban void into an integrative place re-linking the fragments.

2 a multi-scalar public space system, considering landscape, slow local street and semi public space, for integrating the urban form and functions.

THANK YOU

QUESTIONS?