



SAFE LIVES

Dealing with earthquake by open space
in Tapei, Taiwan

電視劇《16個夏天》

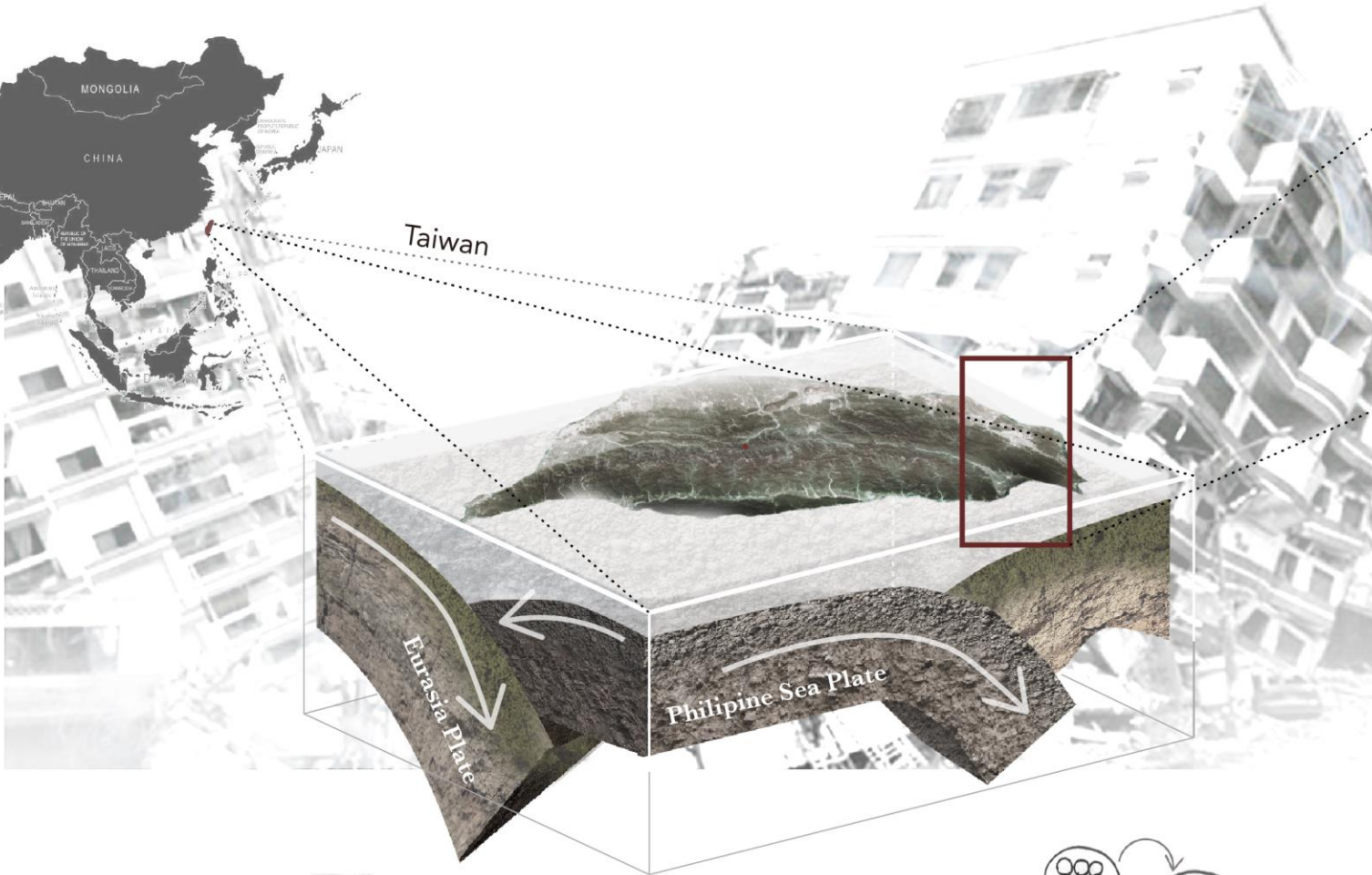


INTRODUCTION

- site



Taiwan



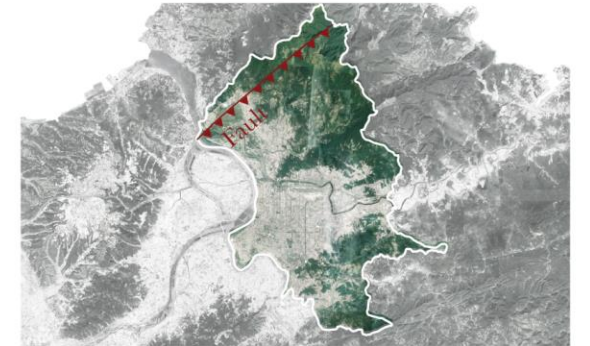
Eurasia Plate

Philippine Sea Plate



Urban Area

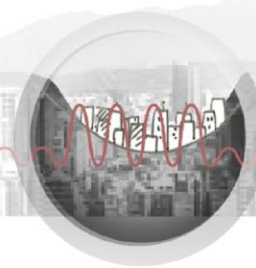
↓ Taipei City



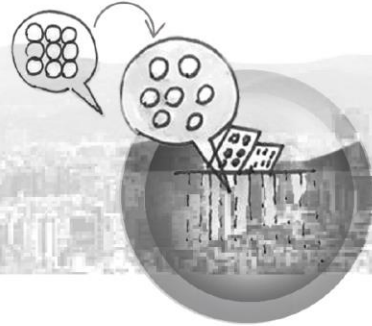
Fault



Soil Liquefaction



Basin Effect

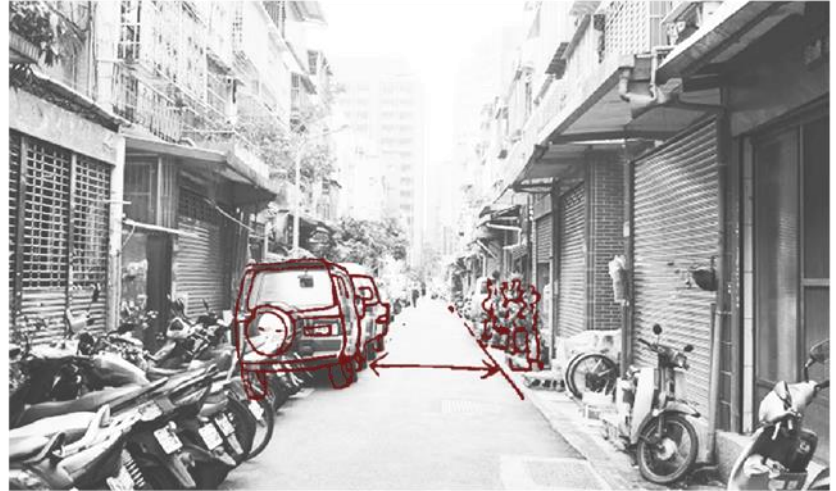


High Density



60% Old Buildings (non-quake-proof)

INTRODUCTION
- site



“What are the landscape interventions that can create a *safe and livable* city?”

1. [What is the open space system for evacuation during earthquakes?]

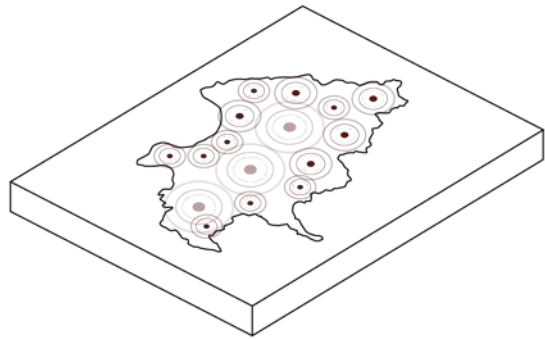
2. [What kind of open space system can improve citizens' living quality?]

3. [How to combine both approaches, emergency and living quality, to create a safe and livable city?]



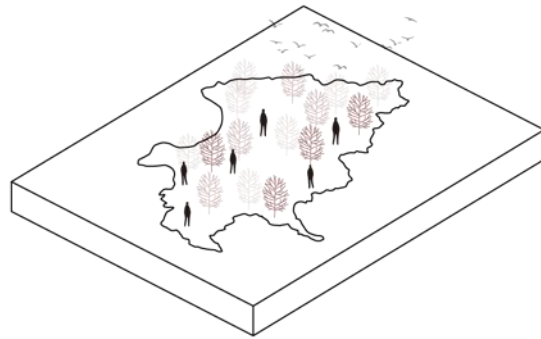
INTRODUCTION
- context

02 EMERGENCY
LAYER



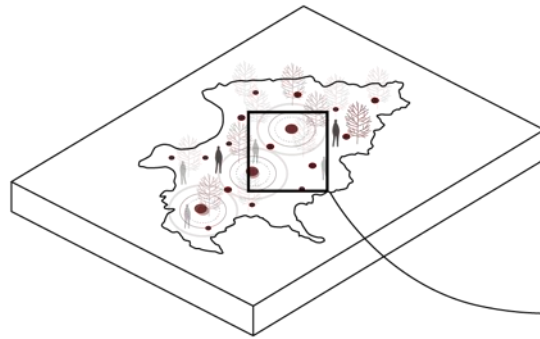
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03 LIVING QUALITY
LAYER

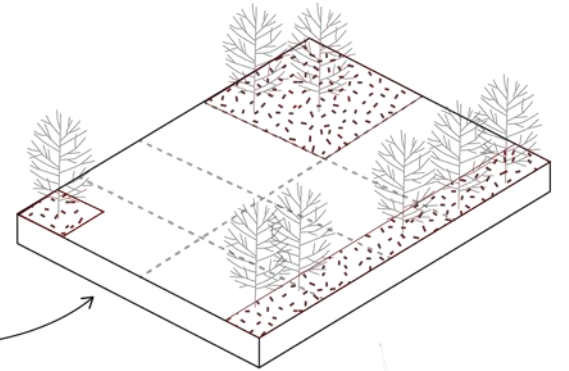


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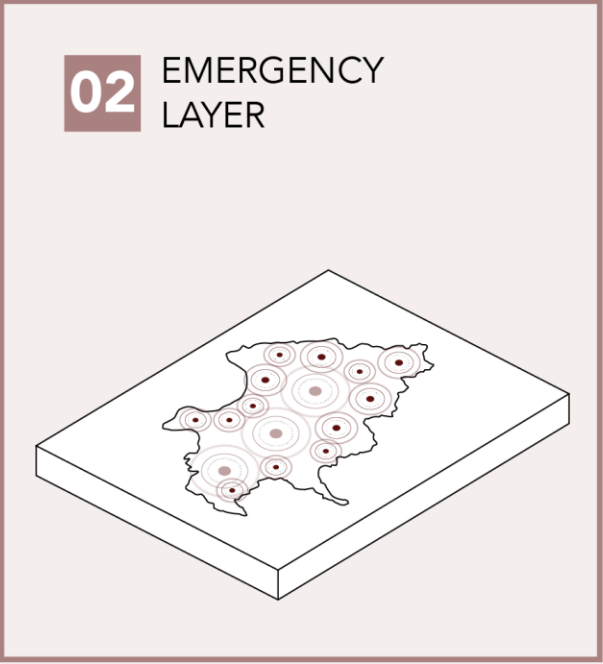
04 COMBINED
LAYER



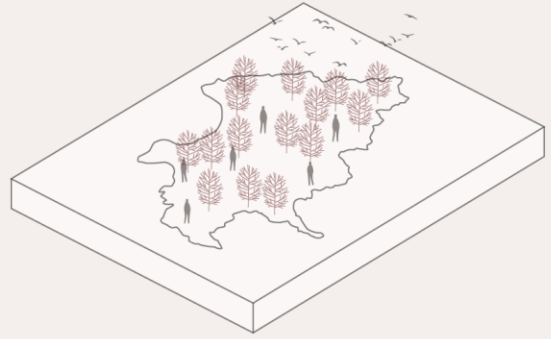
05 DESIGN
PROPOSAL



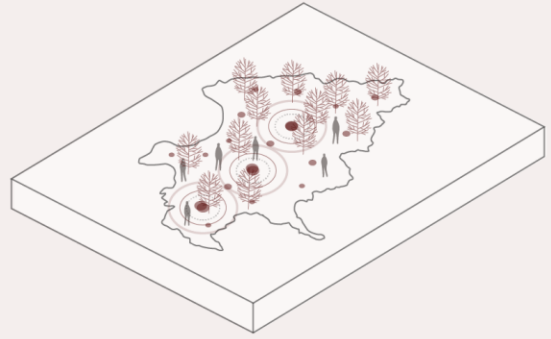
EMERGENCY LAYER



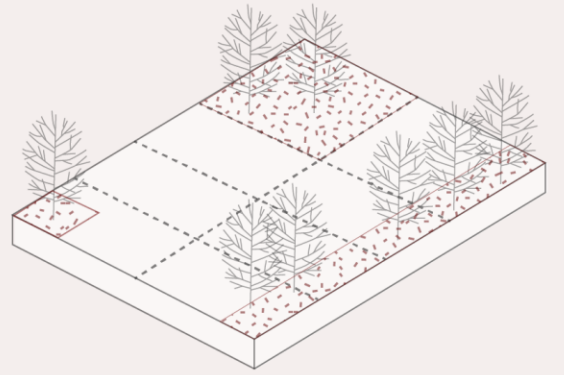
03 LIVING QUALITY LAYER



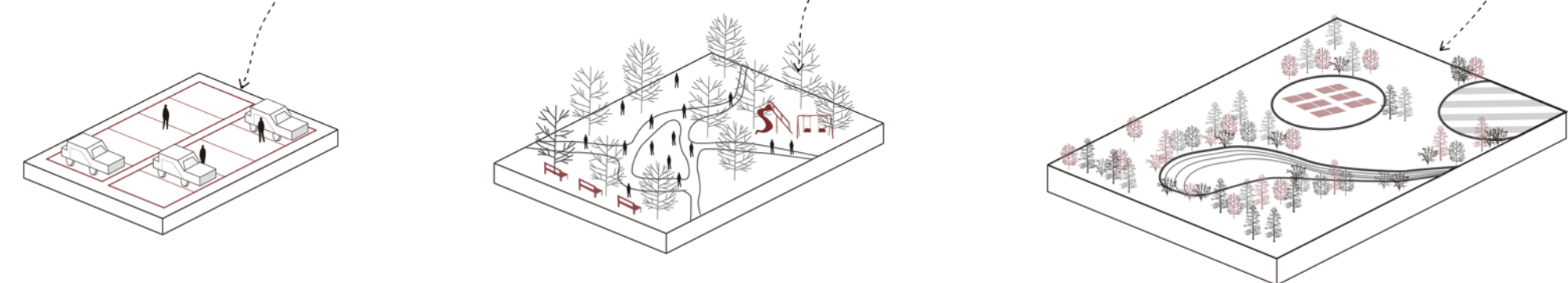
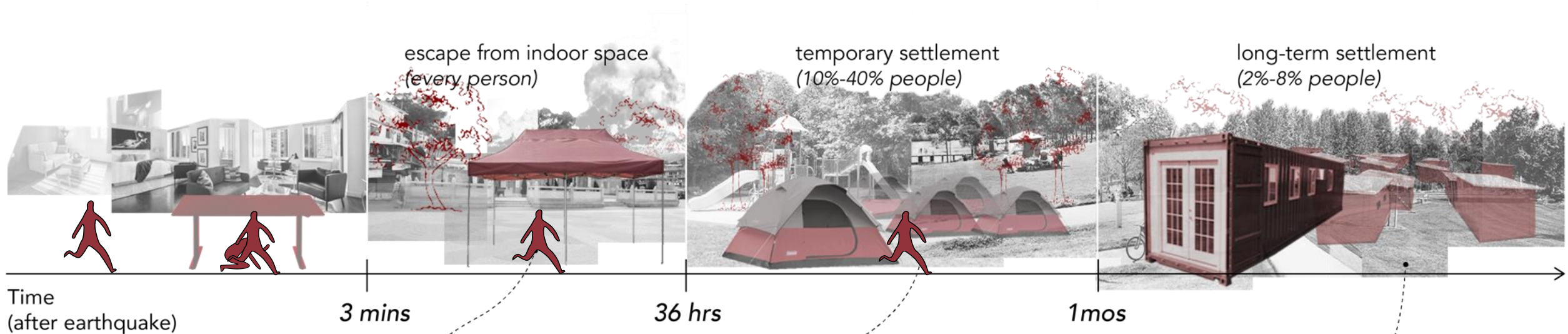
04 COMBINED LAYER



05 DESIGN PROPOSAL



EMERGENCY LAYER
- evacuation space



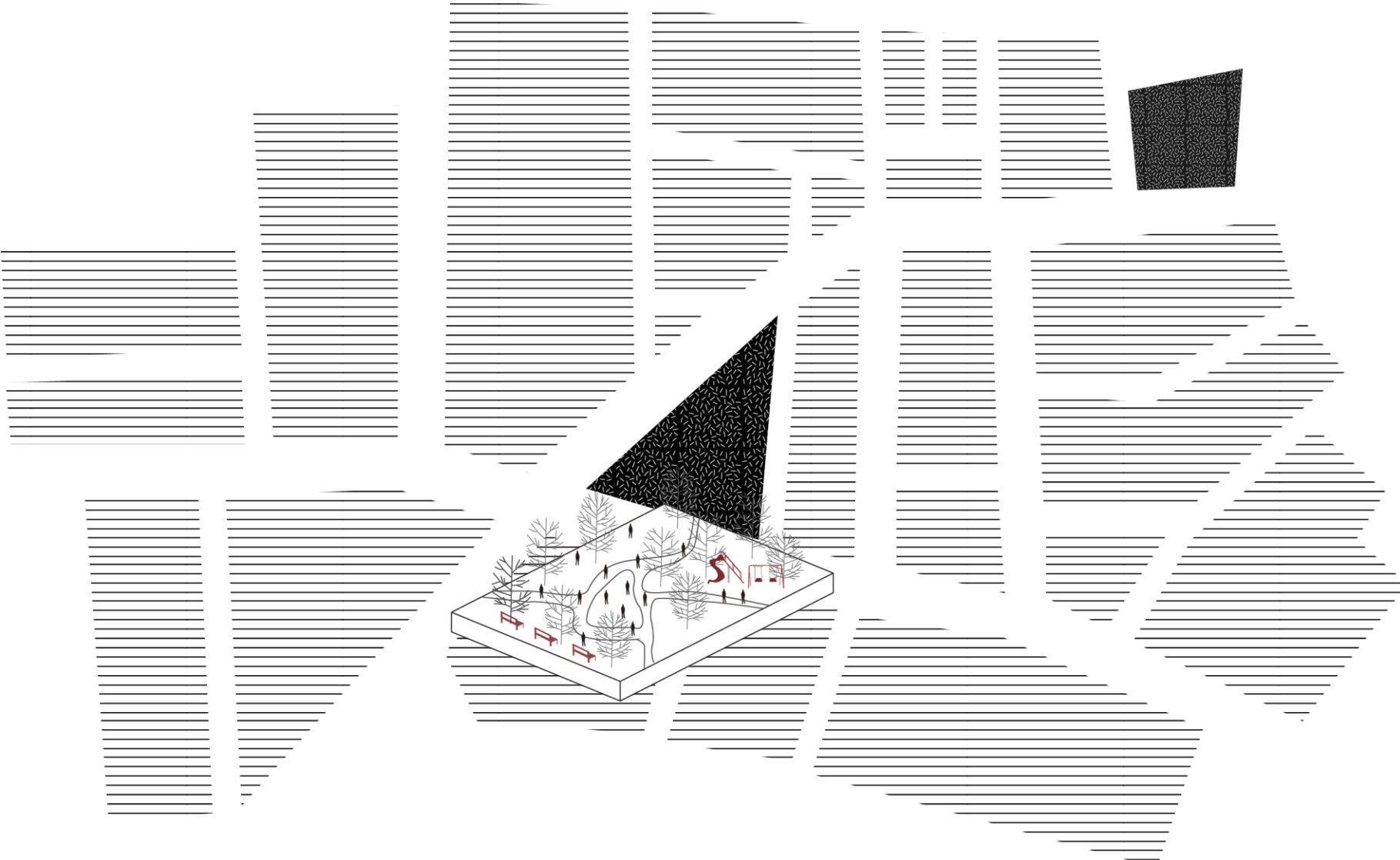
Temporary Gathering Site (0-3d)

Evacuation Site (3d-1mo)

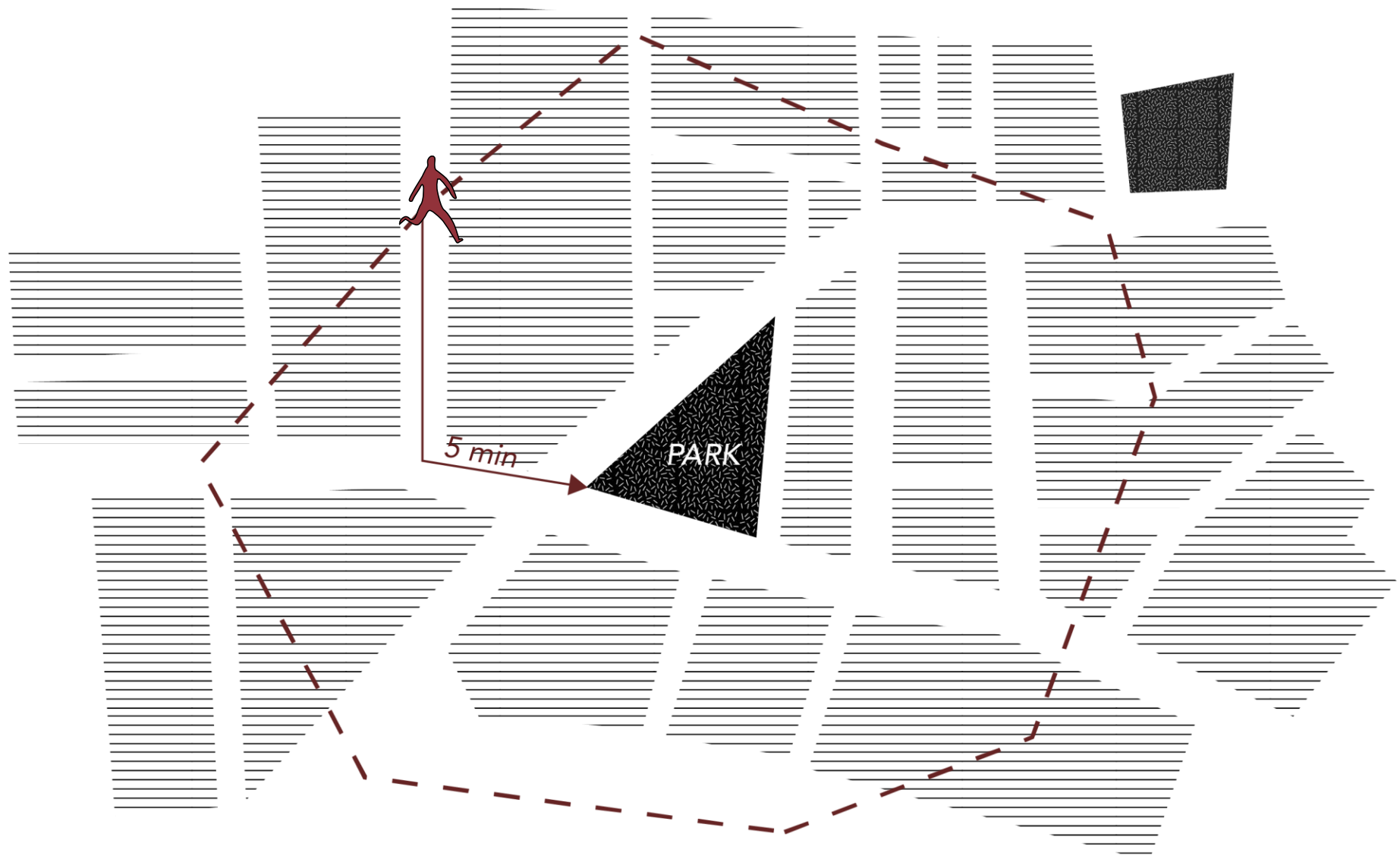
Recovery Shelter (> 1mo)

| | | | |
|----------|---------------------------|--------------------------------|-----------------------------------|
| SIZE | 0.5m ² /person | >1ha ; 2m ² /person | >10ha ; 4.5m ² /person |
| NETWORK | >8m | >15m | >15m |
| FACILITY | water; fire station | water; police office | water/ police office |

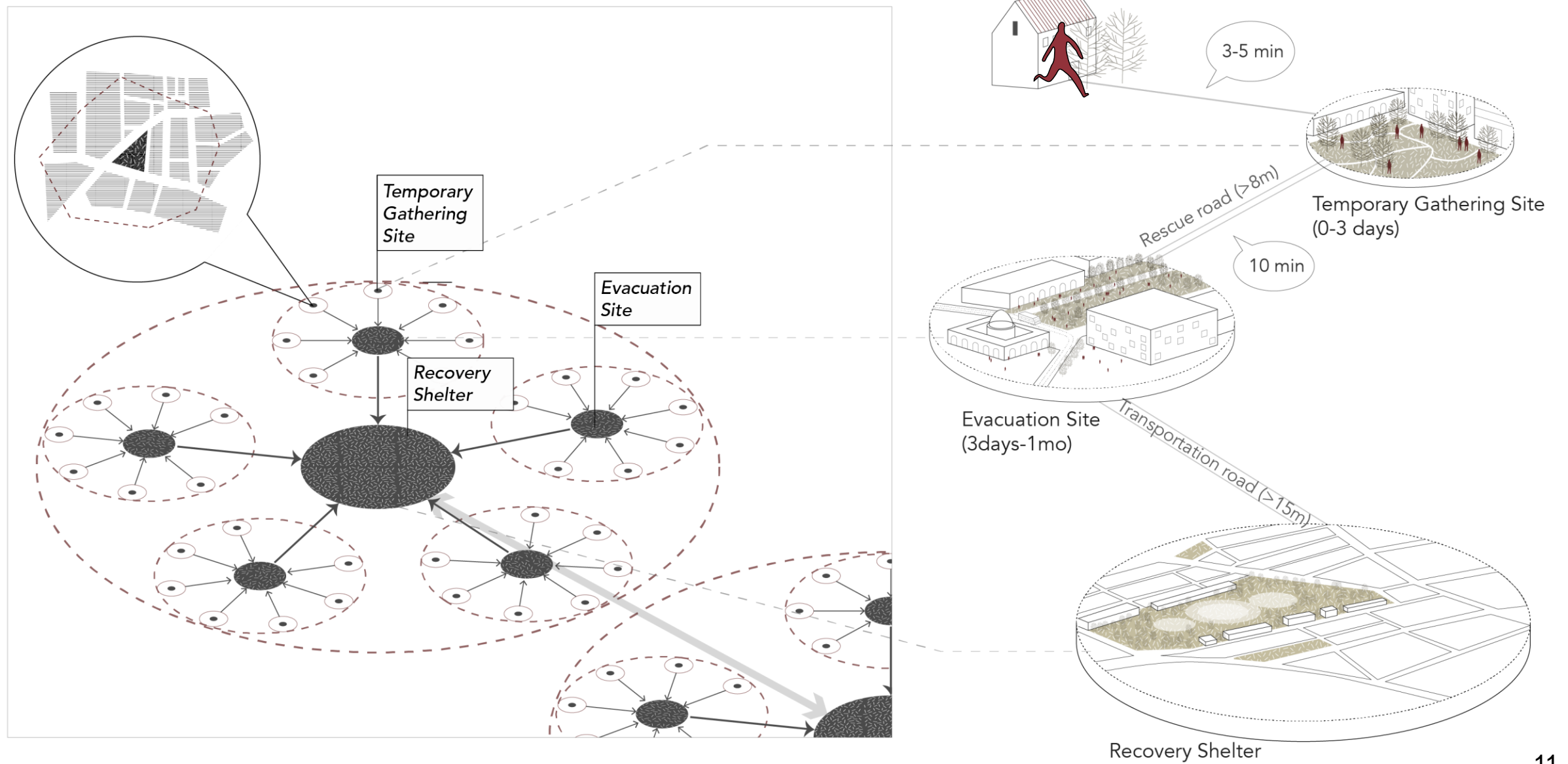
EMERGENCY LAYER
- *catchment area*



EMERGENCY LAYER
- catchment area



EMERGENCY LAYER
- evacuation model



EMERGENCY LAYER
- analyses

Open Space



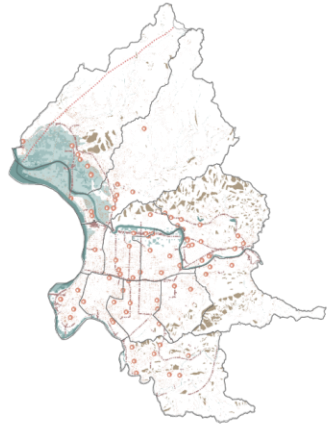
- park
- school
- plaza
- parking lot
- industrial park
- military camp

Roads



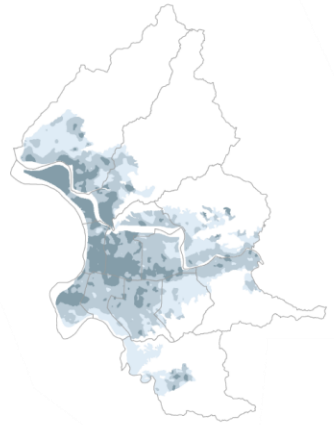
- road width (m)
- >15 m
 - 8-15 m
 - 4-7 m
 - <4 m

Restriction Factors



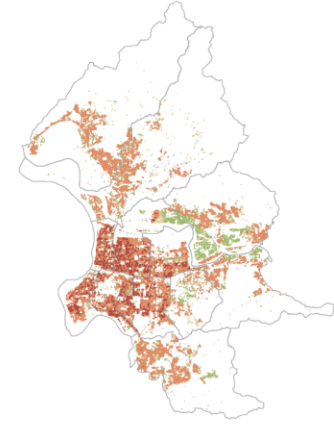
- landslide
- flooding
- river
- fault
- bridge/highway
- roads<4m
- gas station

Risk Potential Area
Soil liquefaction



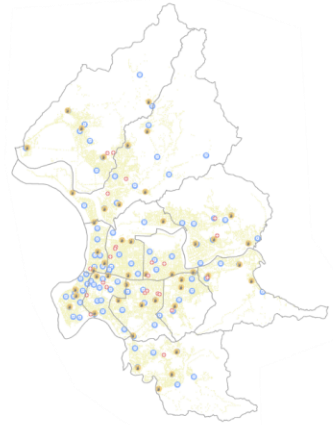
- potential
- high
 - medium
 - low

Building age



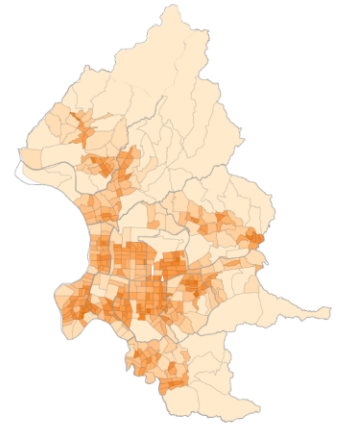
- age
- <19
 - 20 - 29
 - 30 - 49
 - >50
- quake-proof
- non-quake-proof

Others
Facility



- hospital
- fire station
- police office
- hydrant

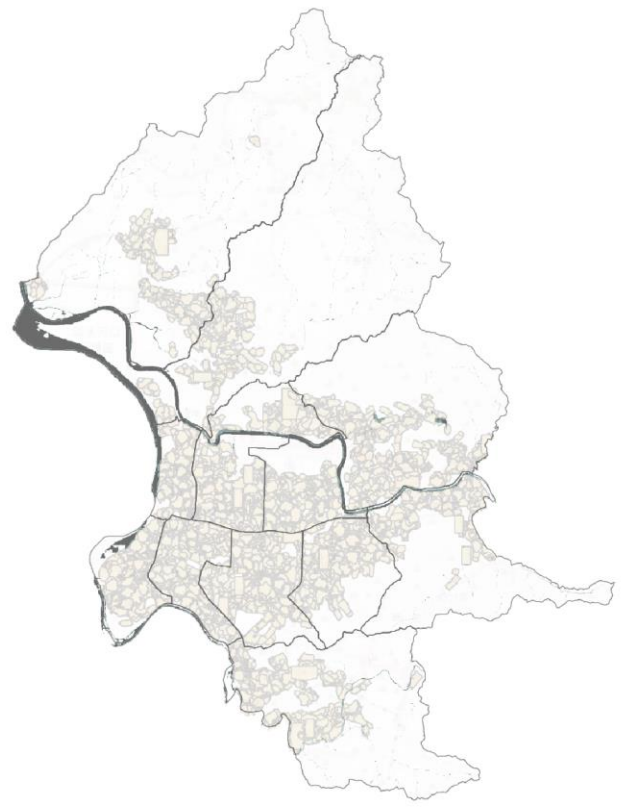
Population



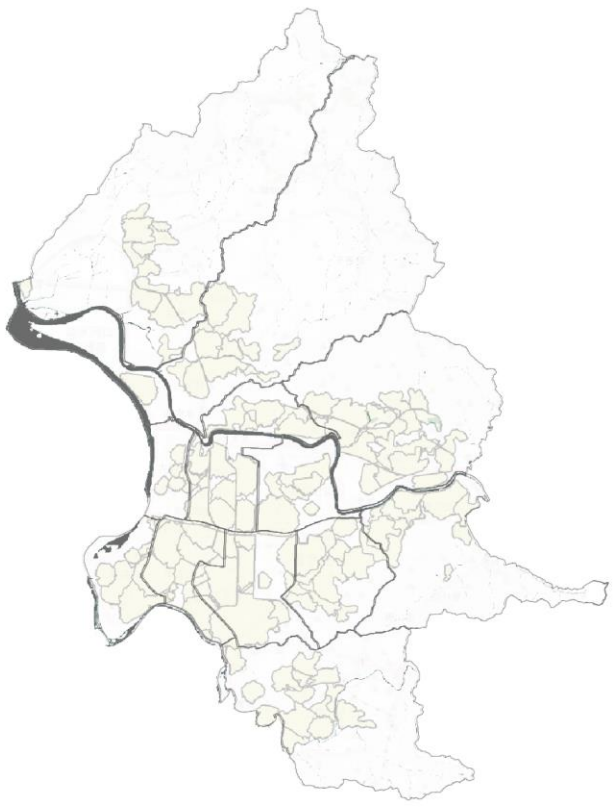
- density (person/km²)
- 61 - 11701
 - 11702 - 24147
 - 24148 - 38340
 - 38341 - 59652
 - 59653 - 22504

EMERGENCY LAYER
- result

Temporary Gathering Site



Evacuation Site

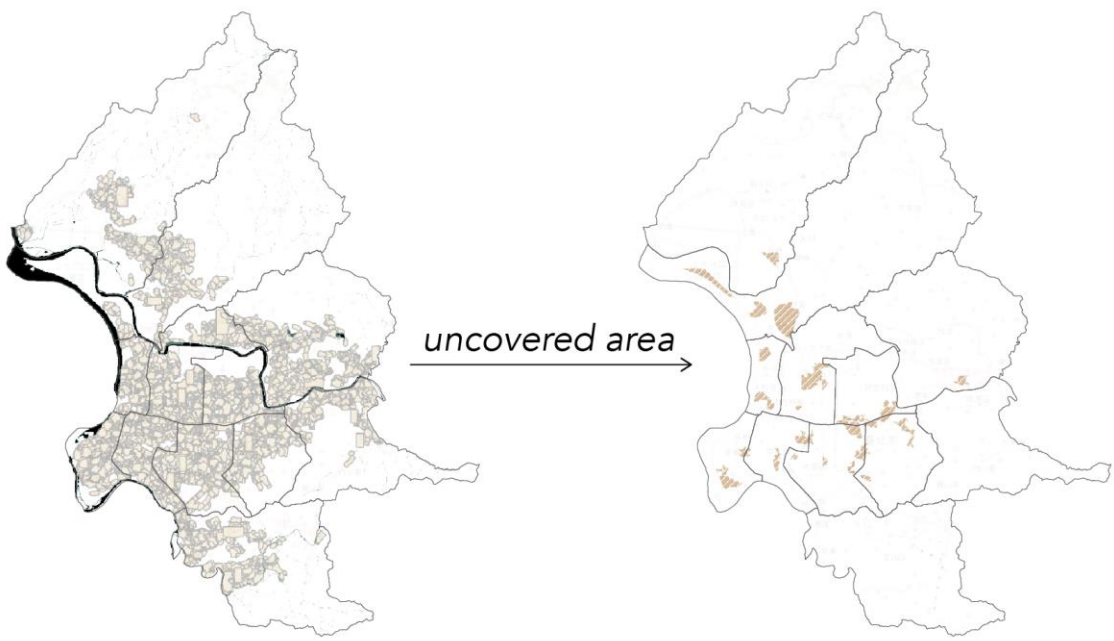


Recovery Shelter

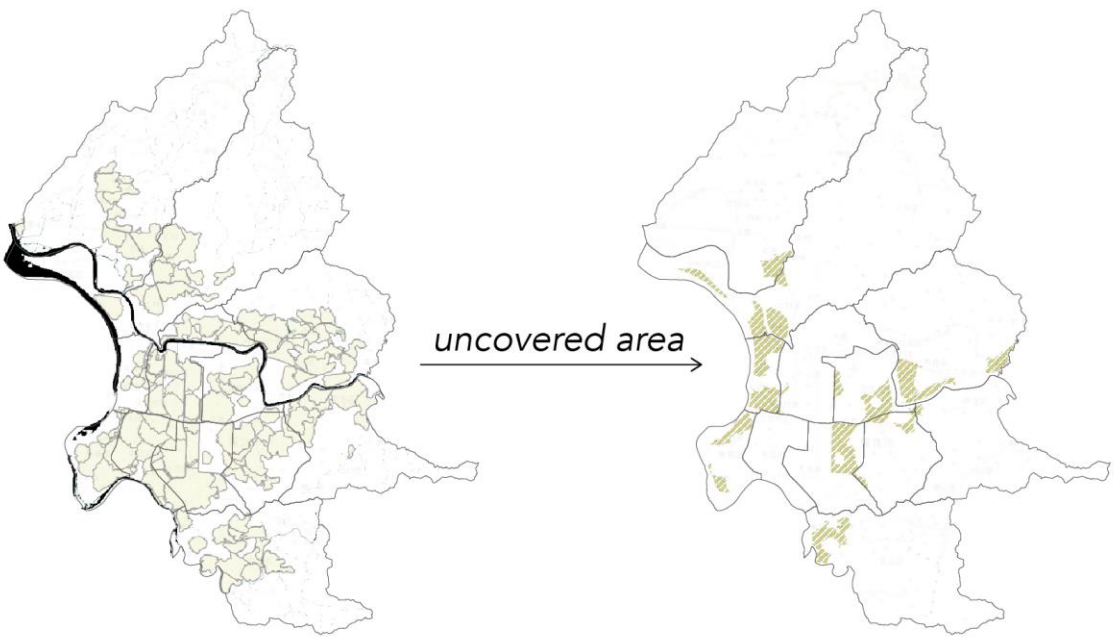


EMERGENCY LAYER
- result

Temporary Gathering Site: *Uncovered Area*



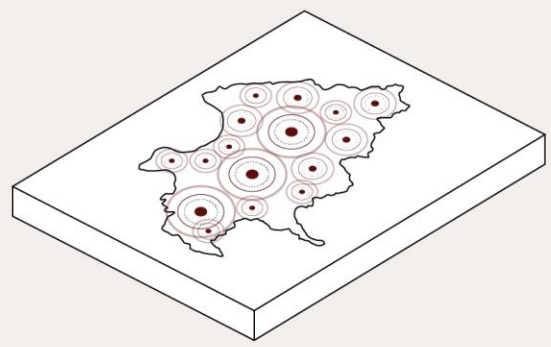
Evacuation Site: *Uncovered Area*



(Recovery Shelters *are enough* in the city)

LIVING QUALITY LAYER

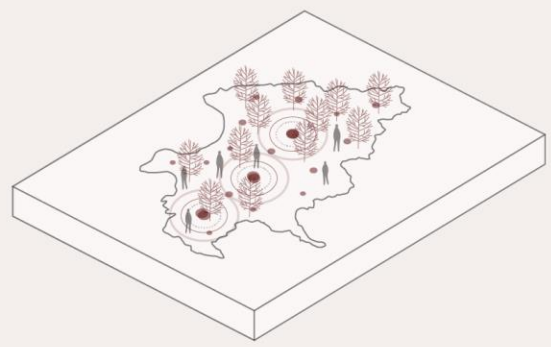
02 EMERGENCY LAYER



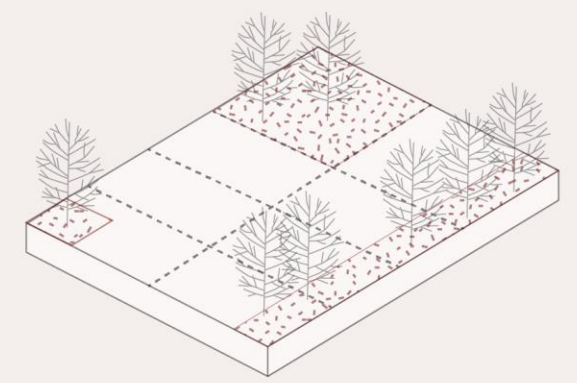
03 LIVING QUALITY LAYER



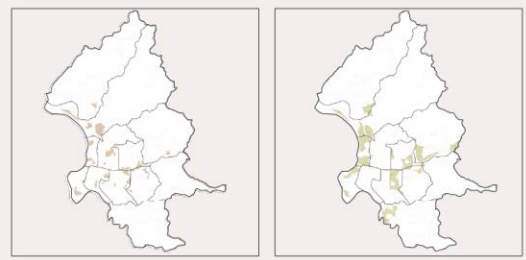
04 COMBINED LAYER



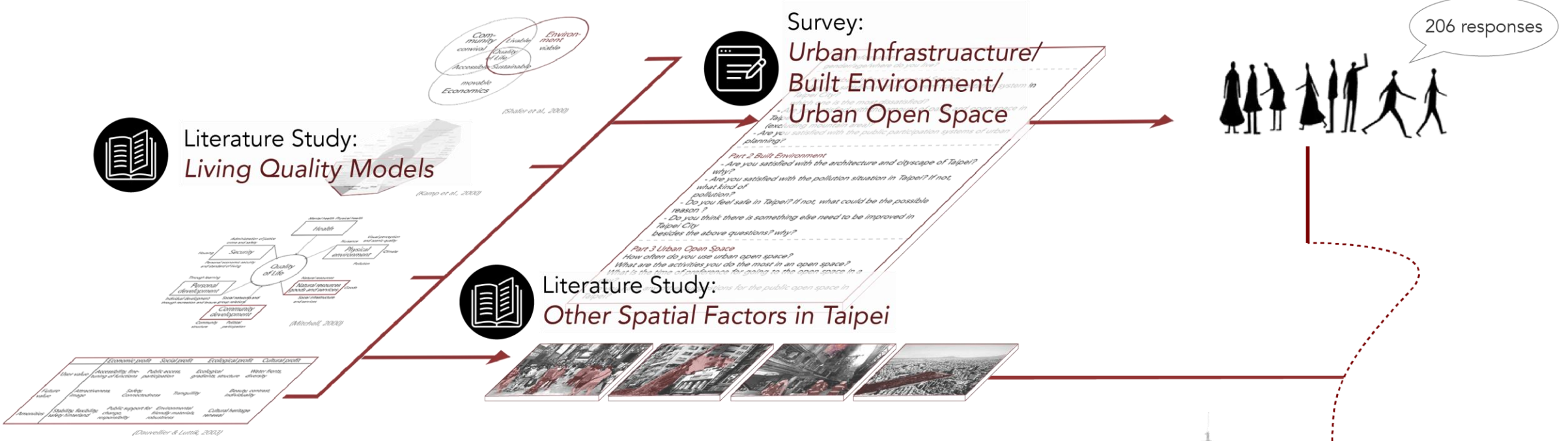
05 DESIGN PROPOSAL



Uncovered Area

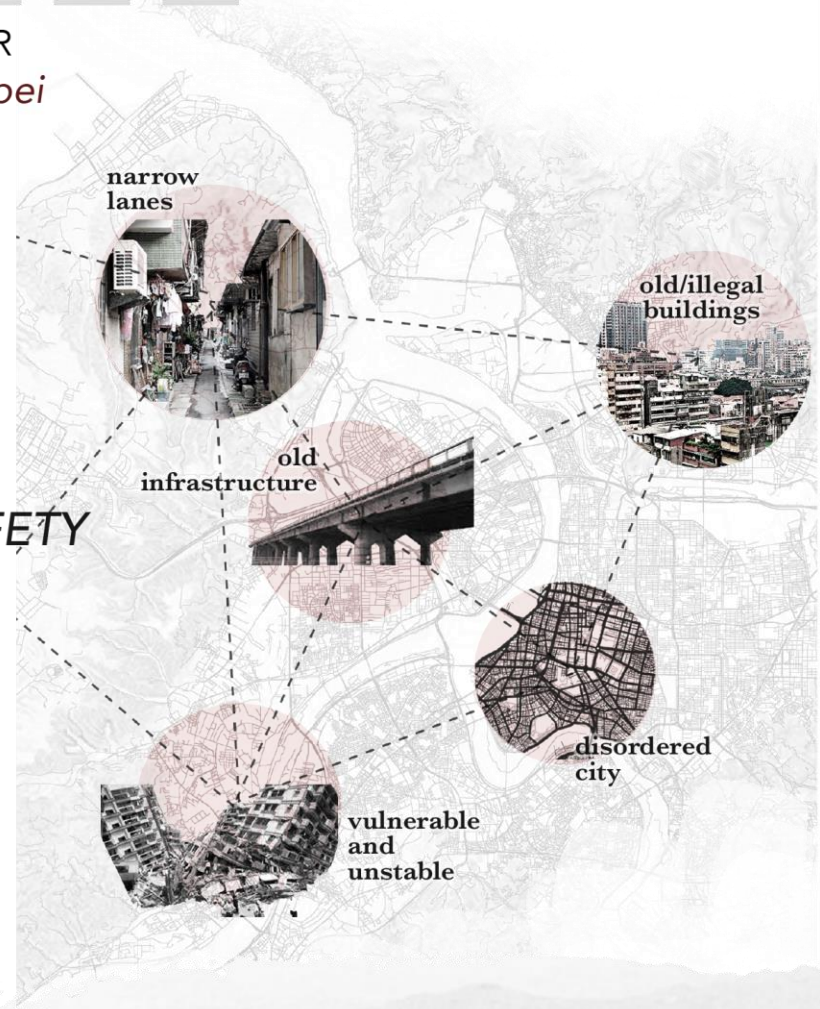


LIVING QUALITY LAYER
- spatial quality in Taipei

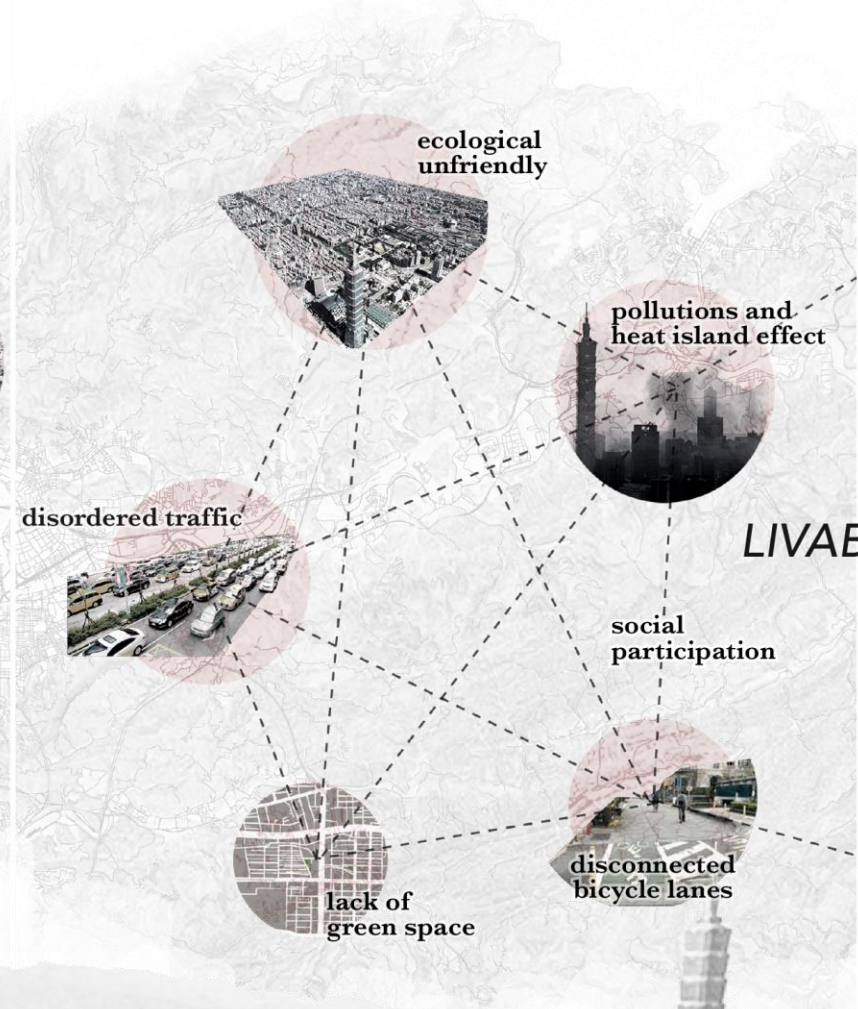


LIVING QUALITY LAYER
- spatial quality in Taipei

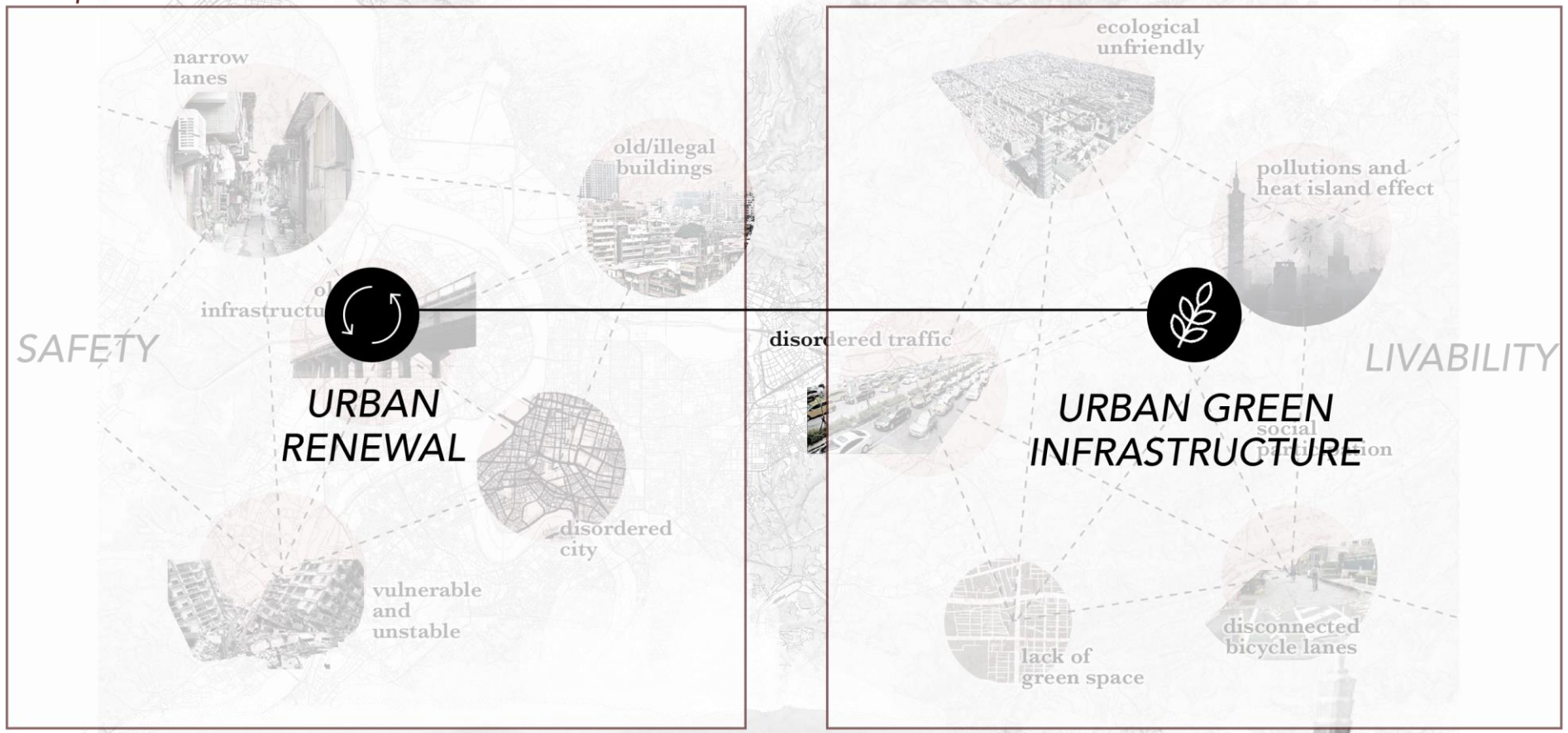
SAFETY



LIVABILITY



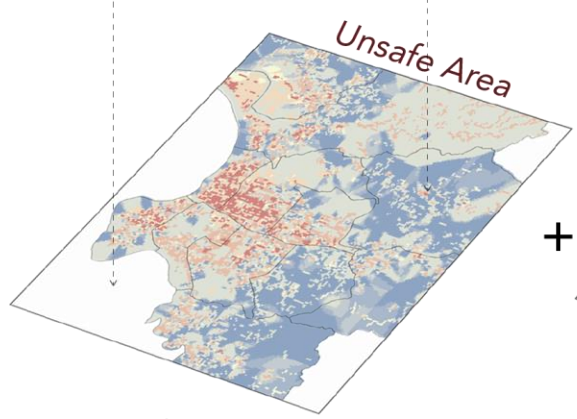
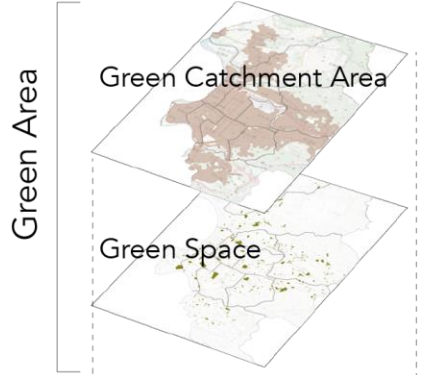
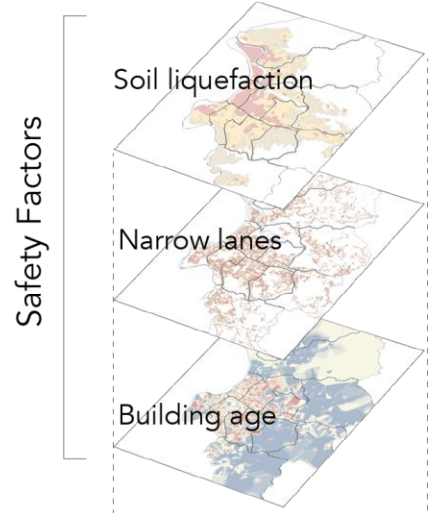
LIVING QUALITY LAYER
- spatial quality in Taipei



LIVING QUALITY LAYER
- proposed area mapping

URBAN RENEWAL

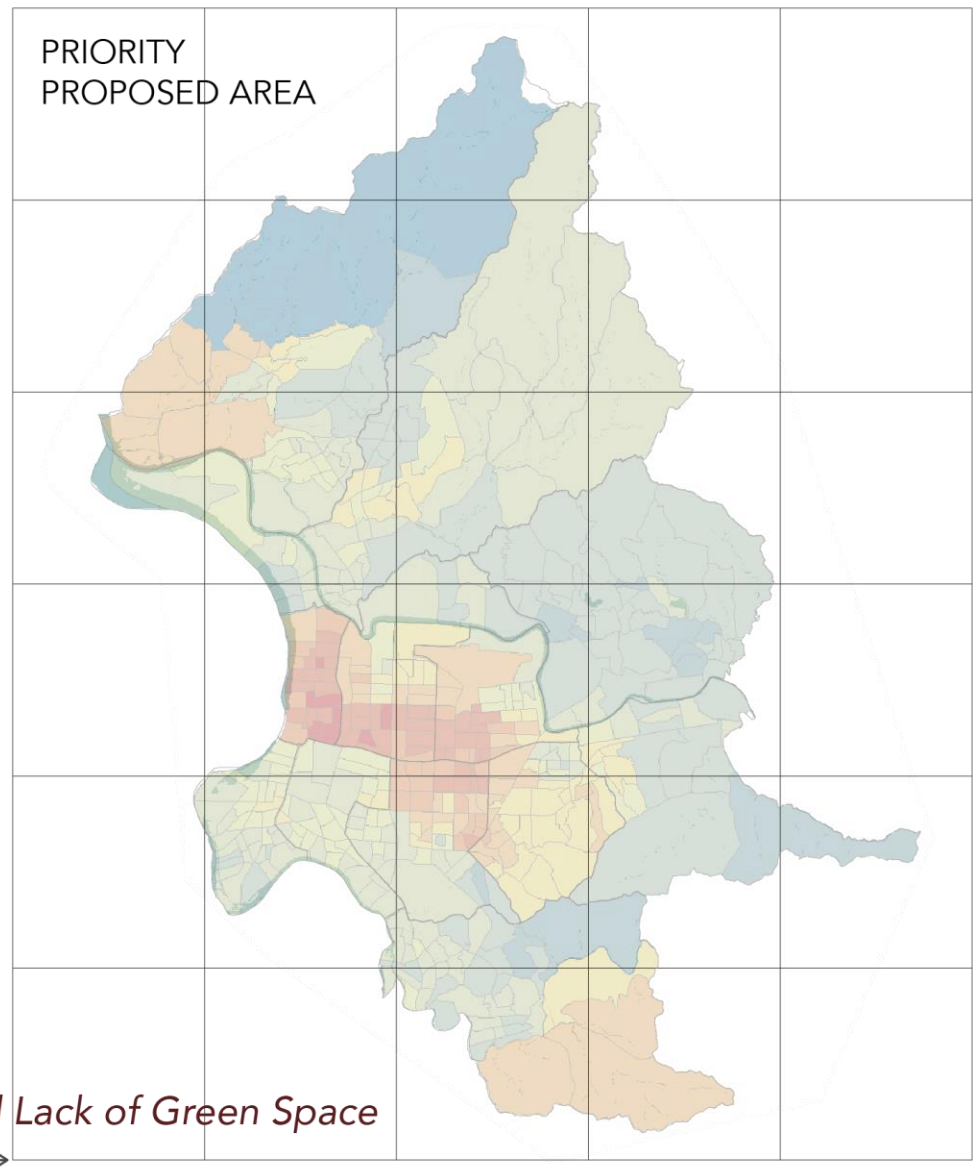
URBAN GREEN INFRASTRUCTURE



+

Unsafe and Lack of Green Space

PRIORITY PROPOSED AREA



LIVING QUALITY LAYER
- vision

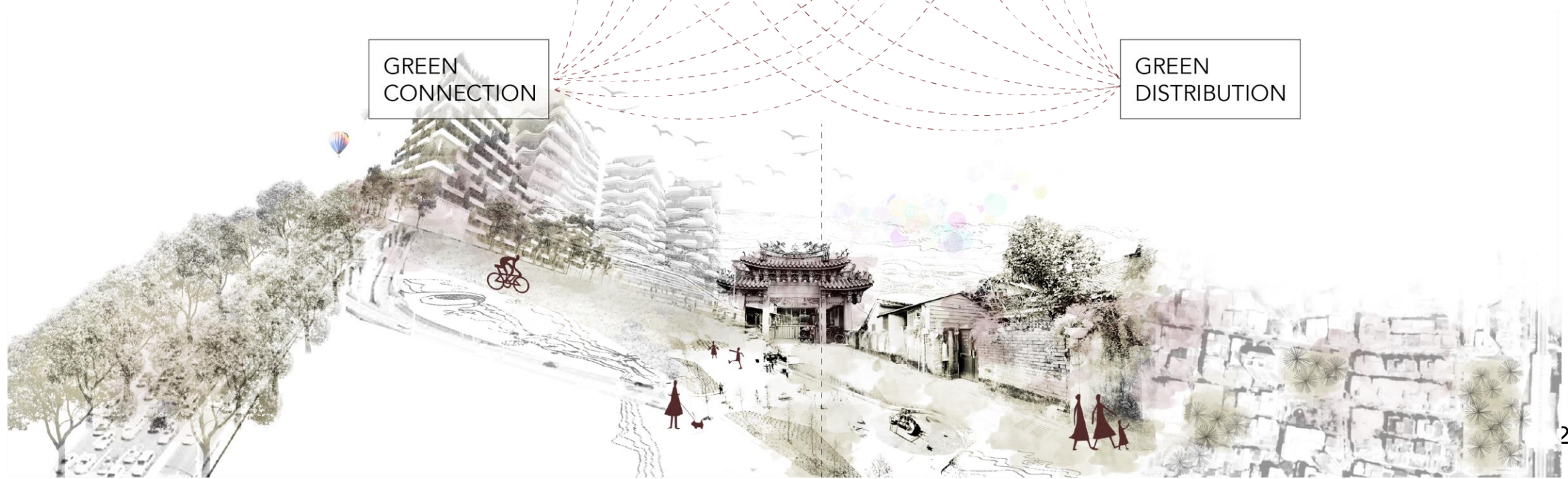
SAFETY
narrow lanes
old buildings
old structures
disordered city pattern
vulnerable and unstable

LIVABILITY
ecological unfriendly
pollutions and heat island effects
car priority
lack of green space
disconnected bike lanes
social participation



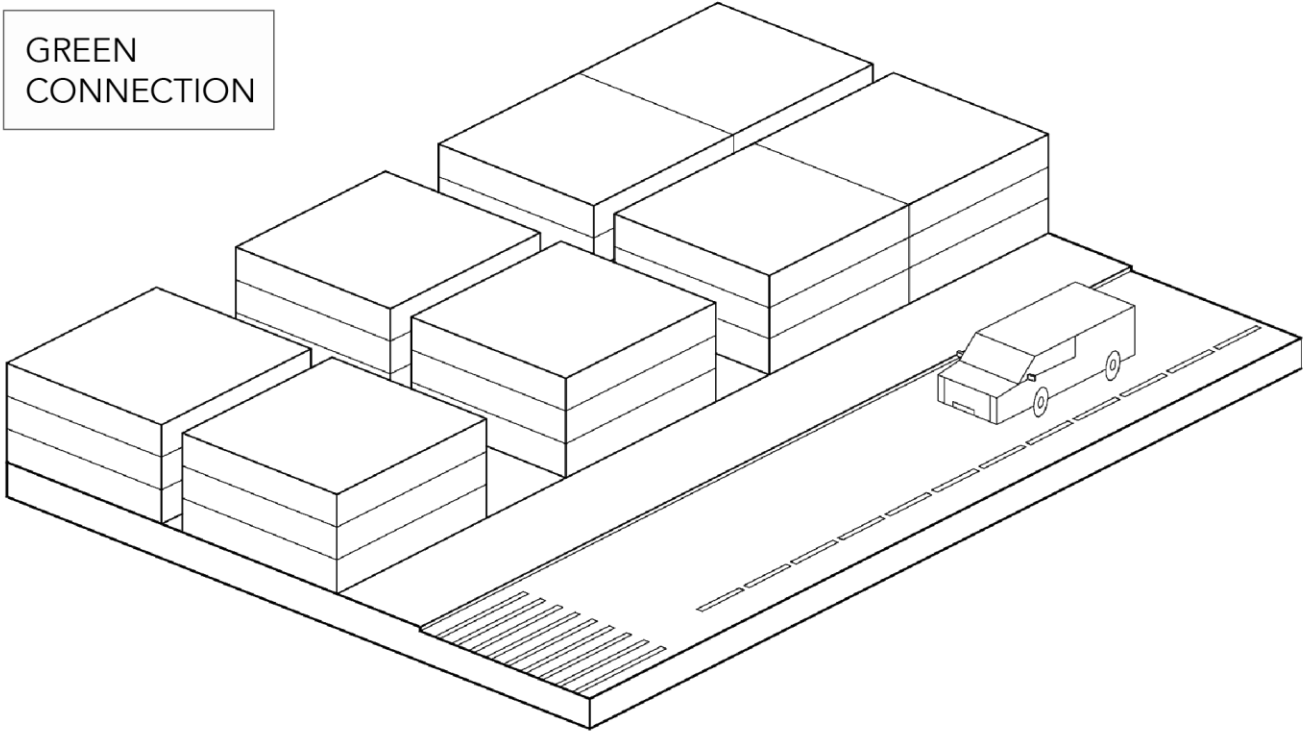
GREEN CONNECTION

GREEN DISTRIBUTION



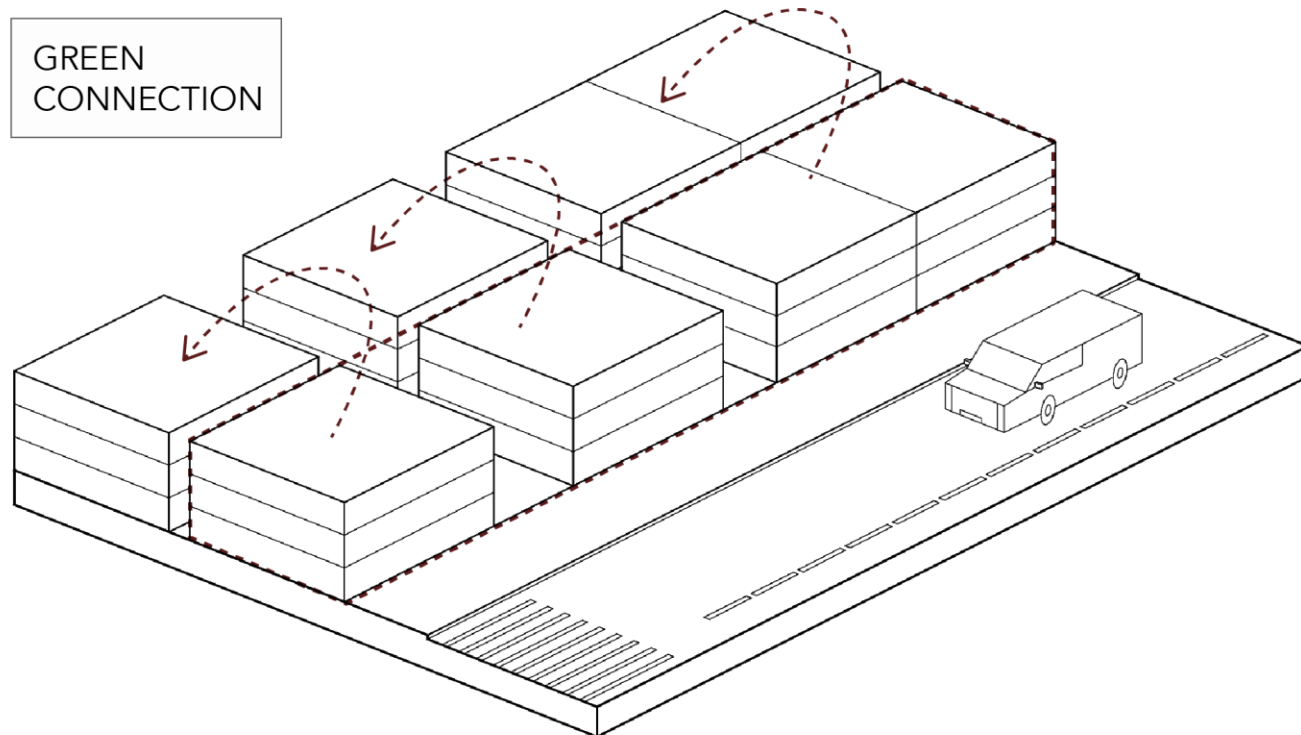
LIVING QUALITY LAYER
- result: green connection

GREEN
CONNECTION

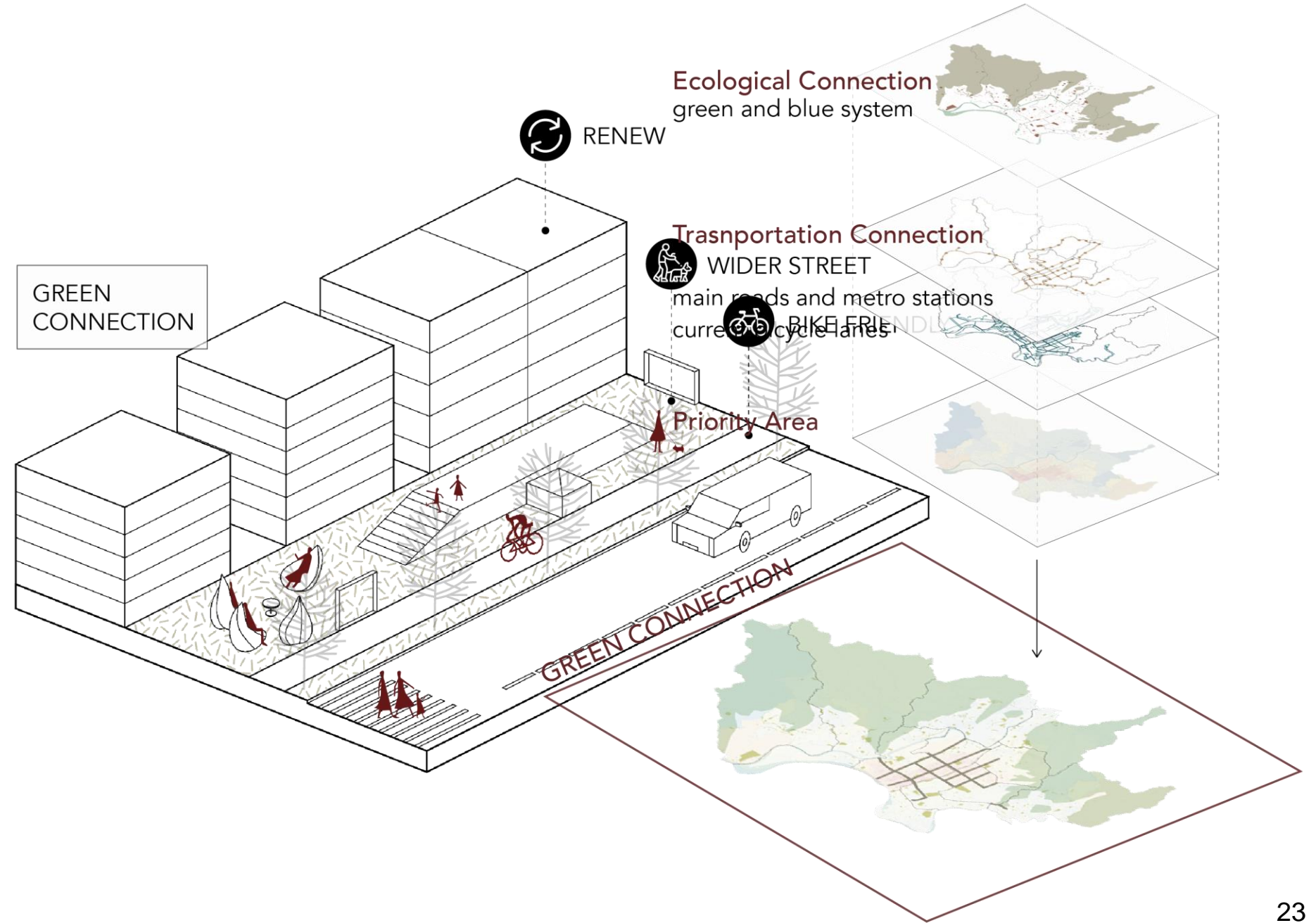


LIVING QUALITY LAYER

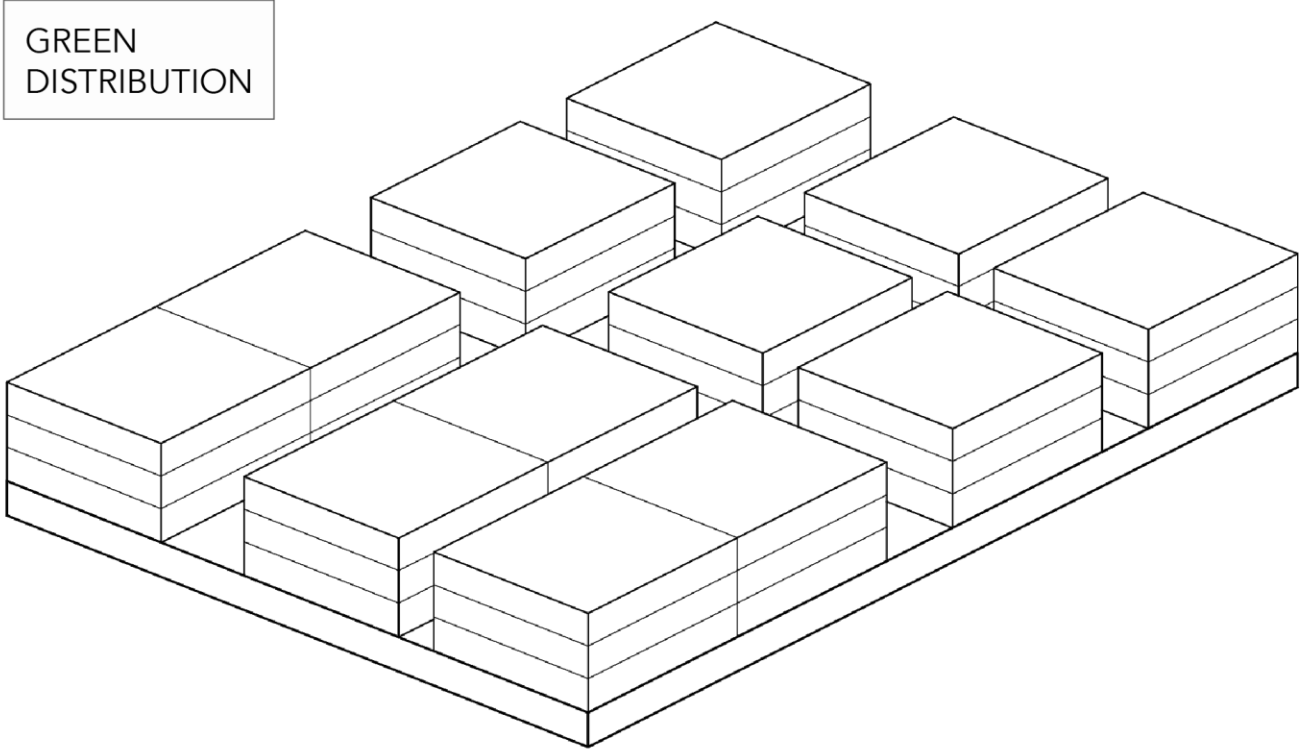
- result: green connection



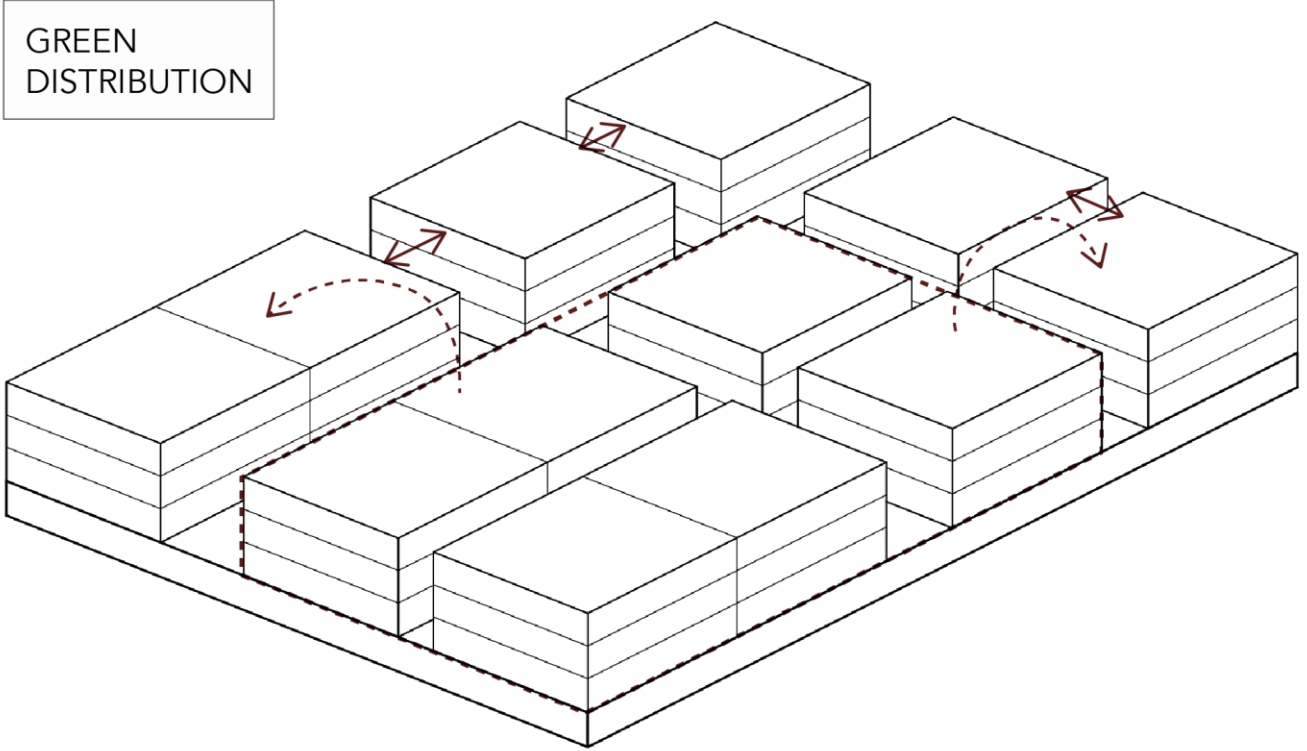
LIVING QUALITY LAYER
- result: green connection



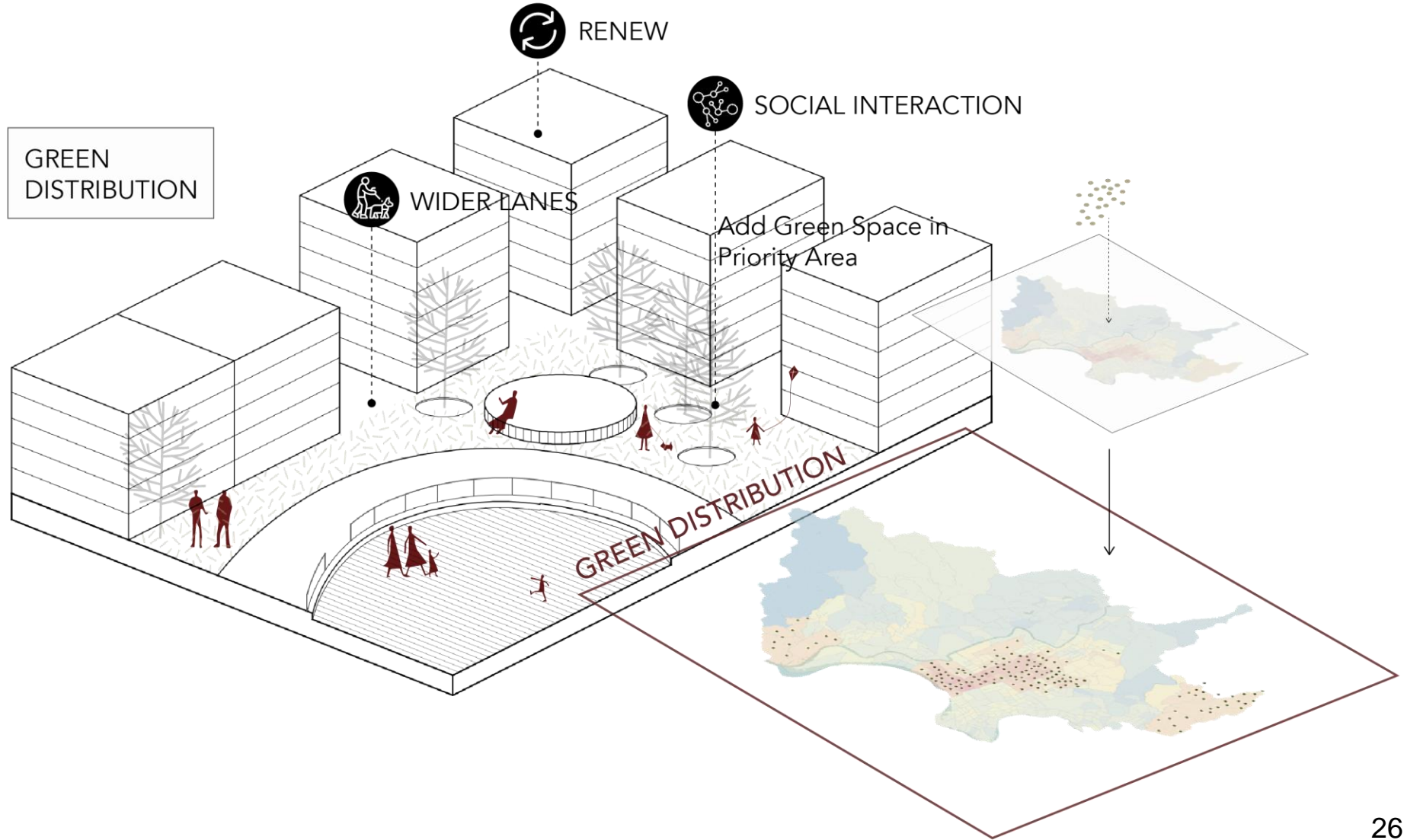
LIVING QUALITY LAYER
- result: green distribution



LIVING QUALITY LAYER
- result: green distribution

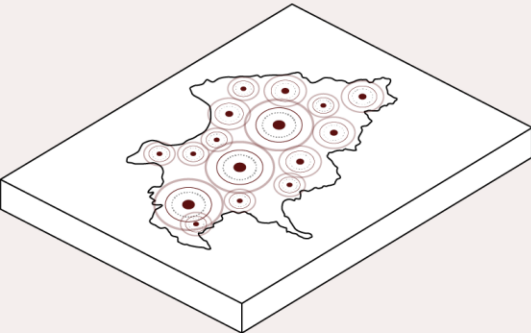


LIVING QUALITY LAYER
- result: green distribution

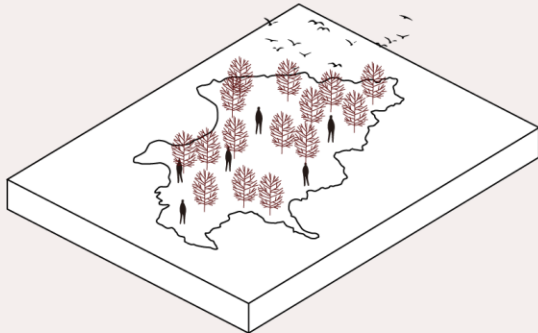


COMBINED LAYER

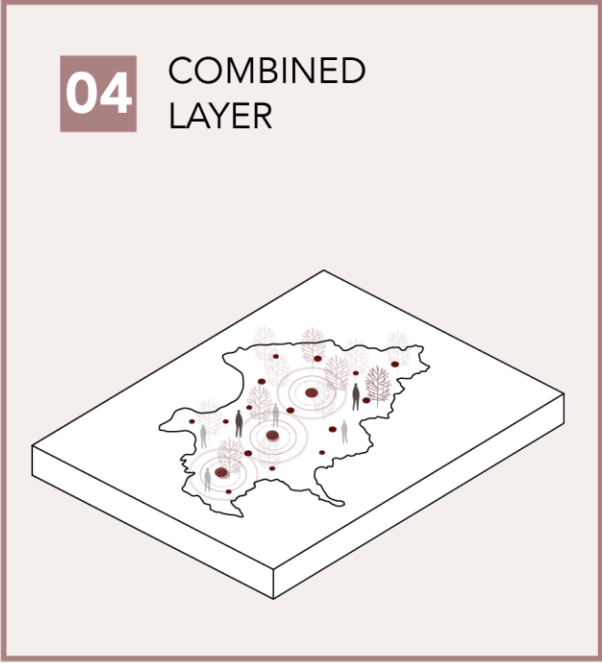
02 EMERGENCY LAYER



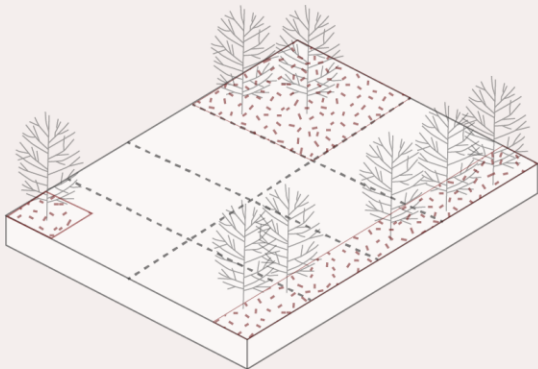
03 LIVING QUALITY LAYER



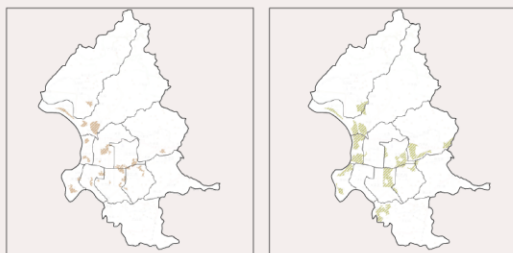
04 COMBINED LAYER



05 DESIGN PROPOSAL



Uncovered Area



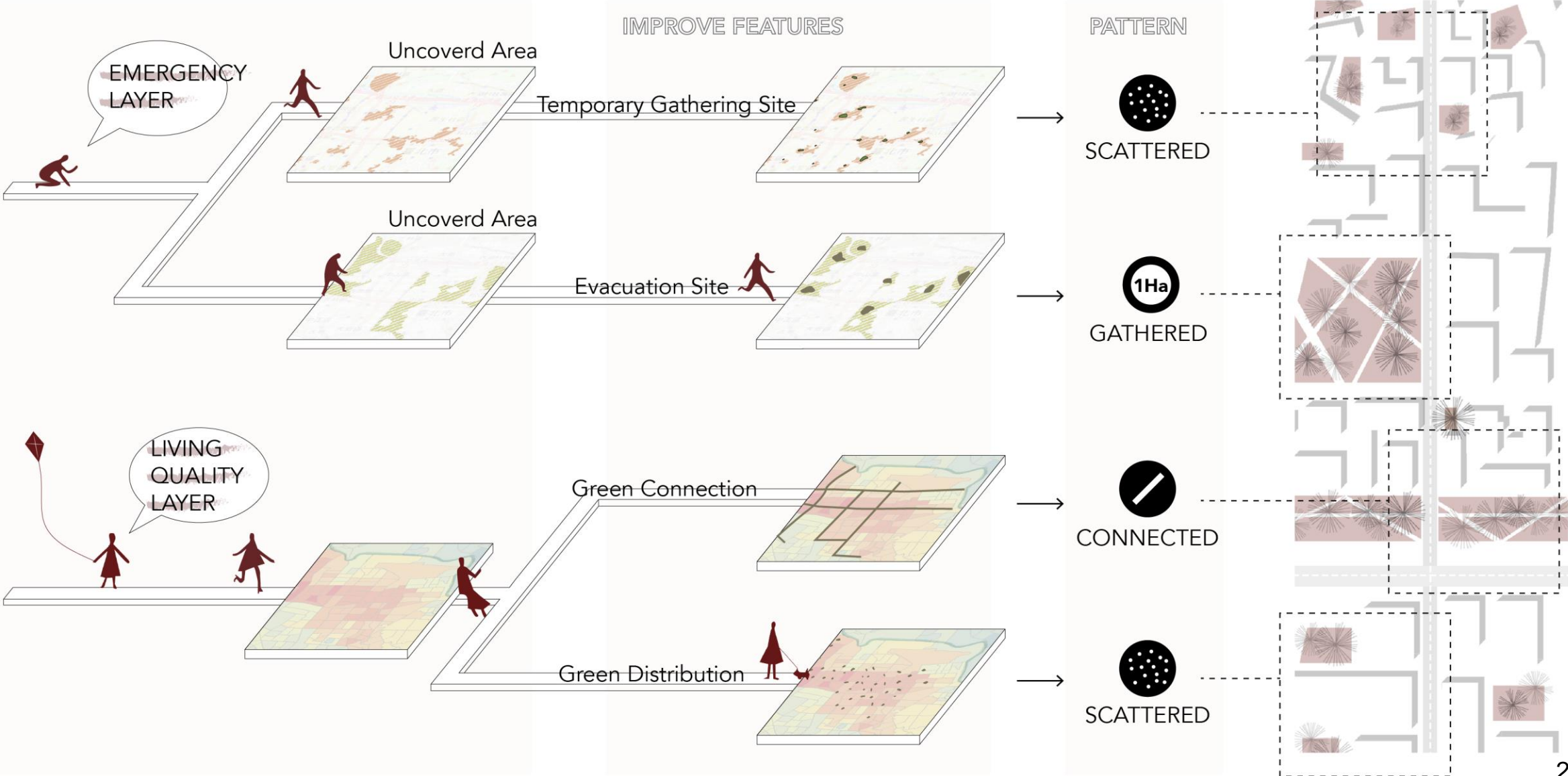
Connection



Distribution

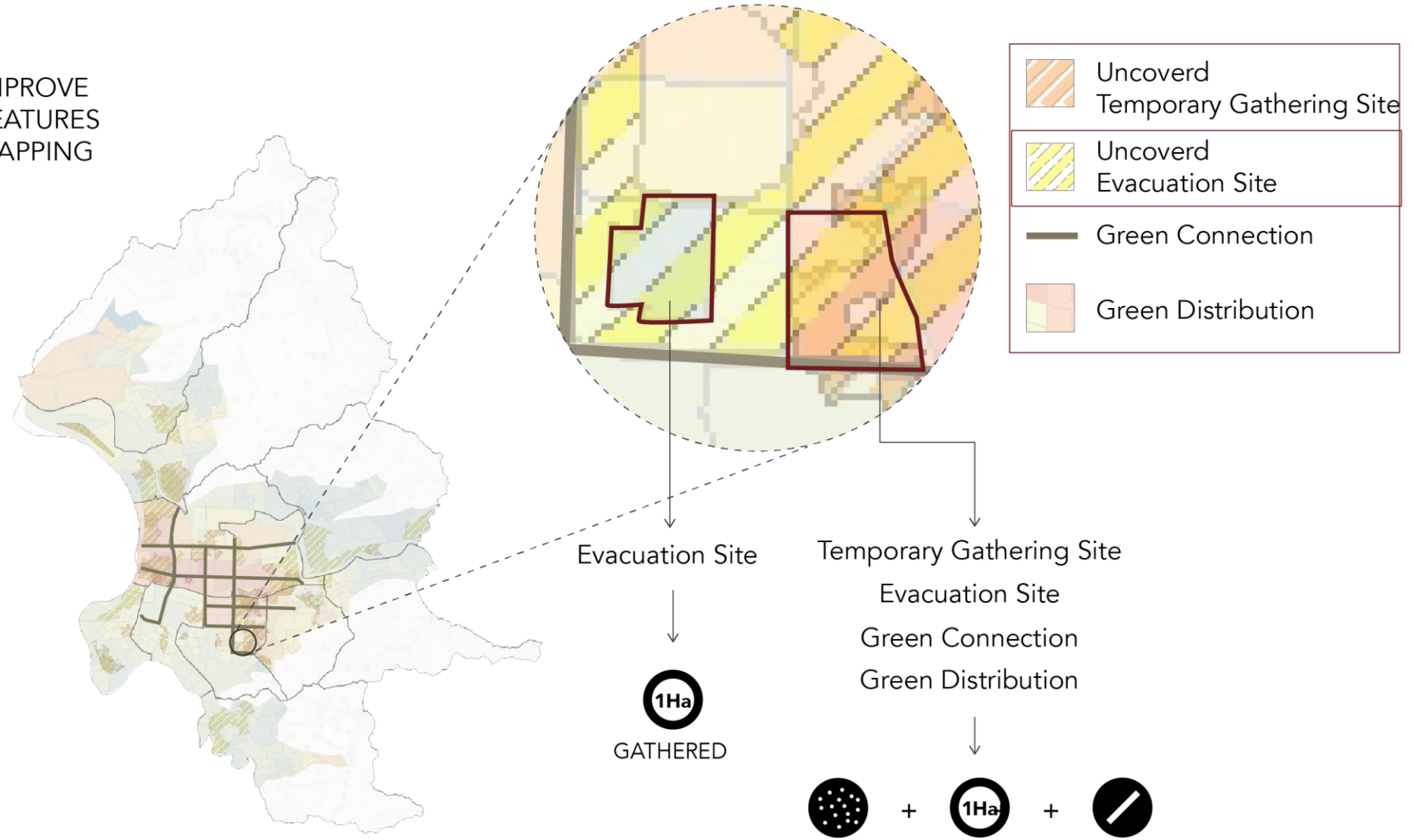


COMBINED LAYER
- concept

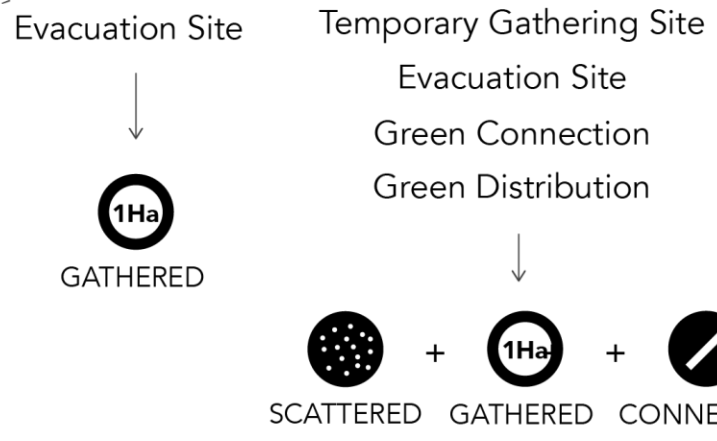


COMBINED LAYER
- *typology*

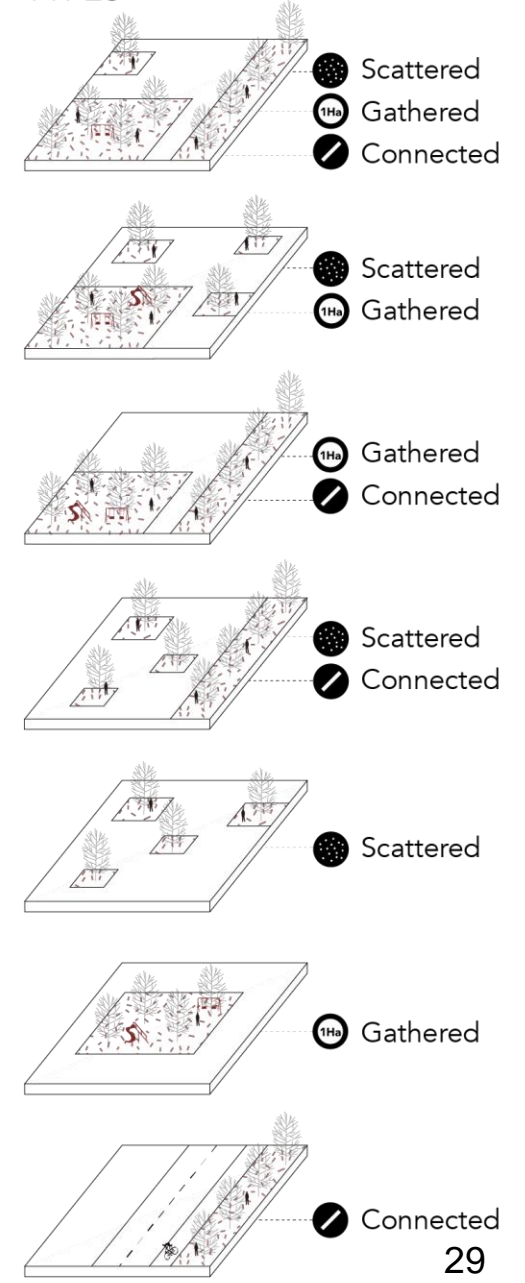
IMPROVE
FEATURES
MAPPING



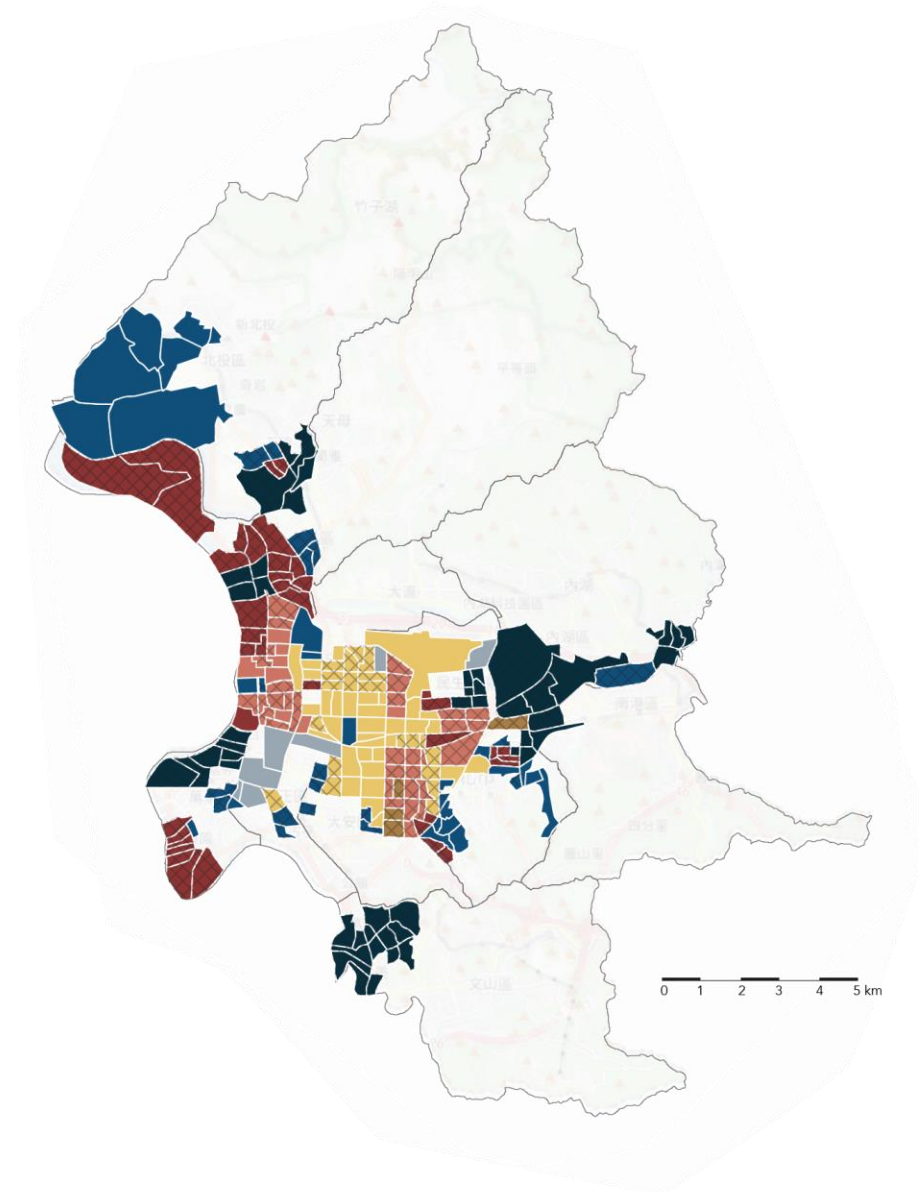
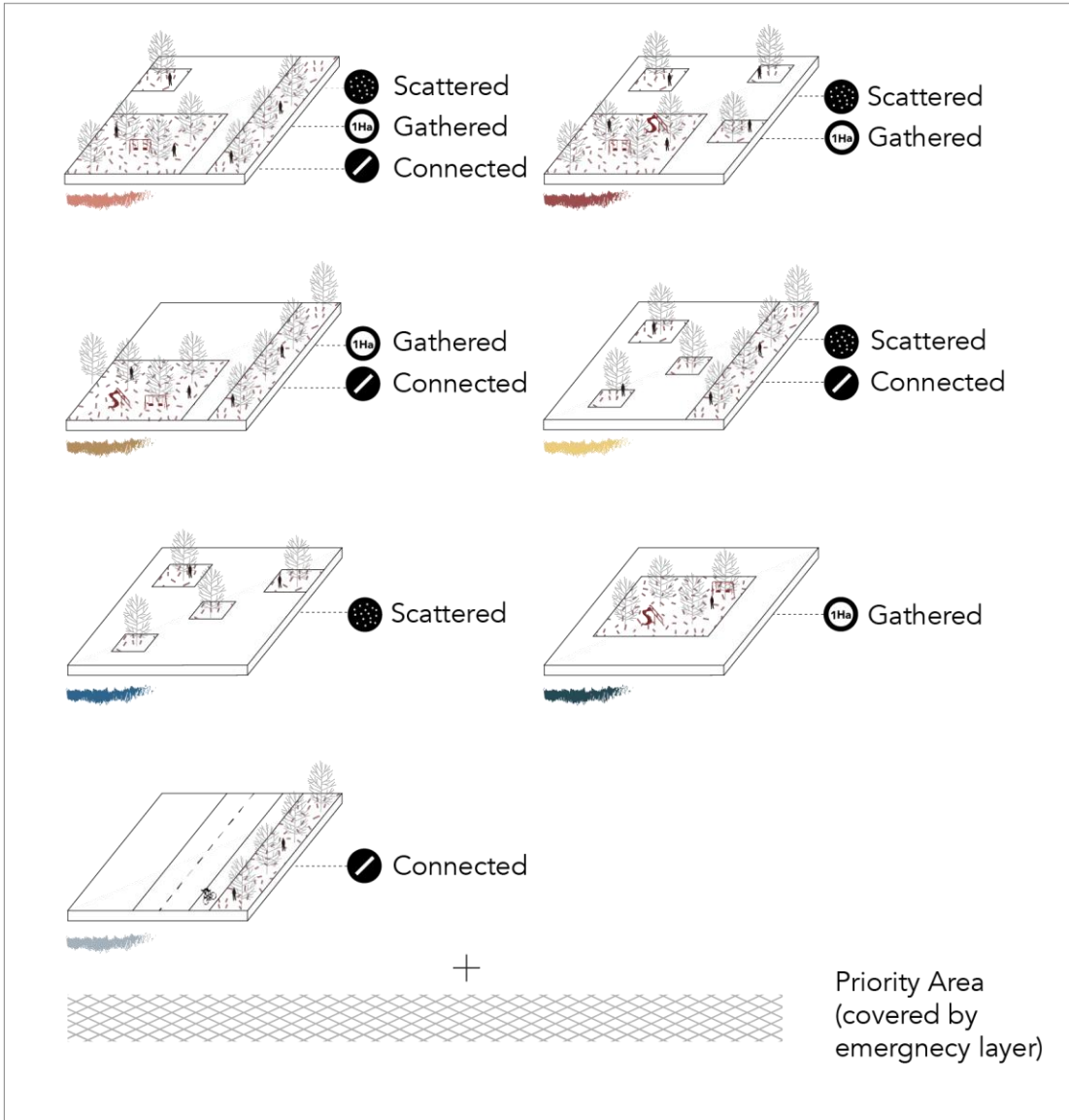
| | |
|--|--------------------------------------|
| | Uncoverd Temporary Gathering Site |
| | Uncoverd Evacuation Site |
| | Green Connection |
| | Green Distribution |



TYPES

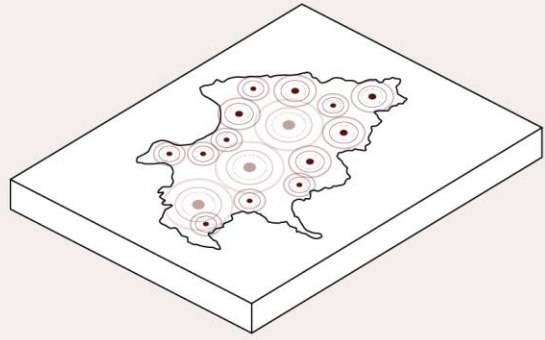


COMBINED LAYER
- typology

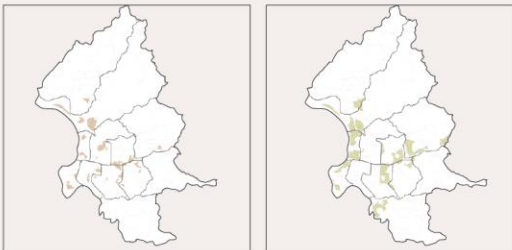


DESIGN PROPOSAL

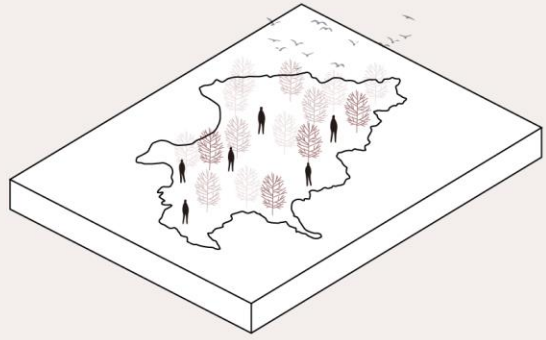
02 EMERGENCY LAYER



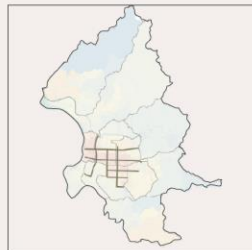
Uncovered Area



03 LIVING QUALITY LAYER



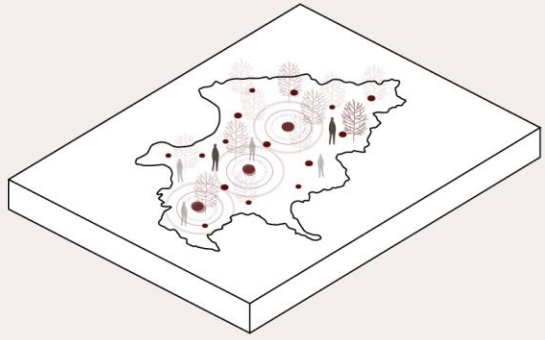
Connection



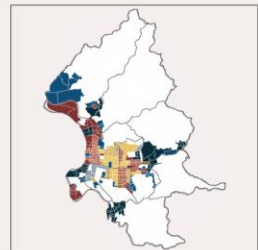
Distribution



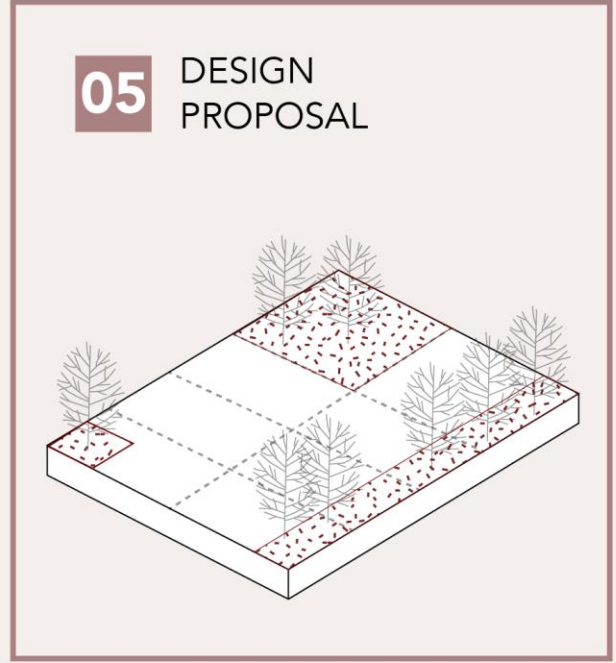
04 COMBINED LAYER



Typology

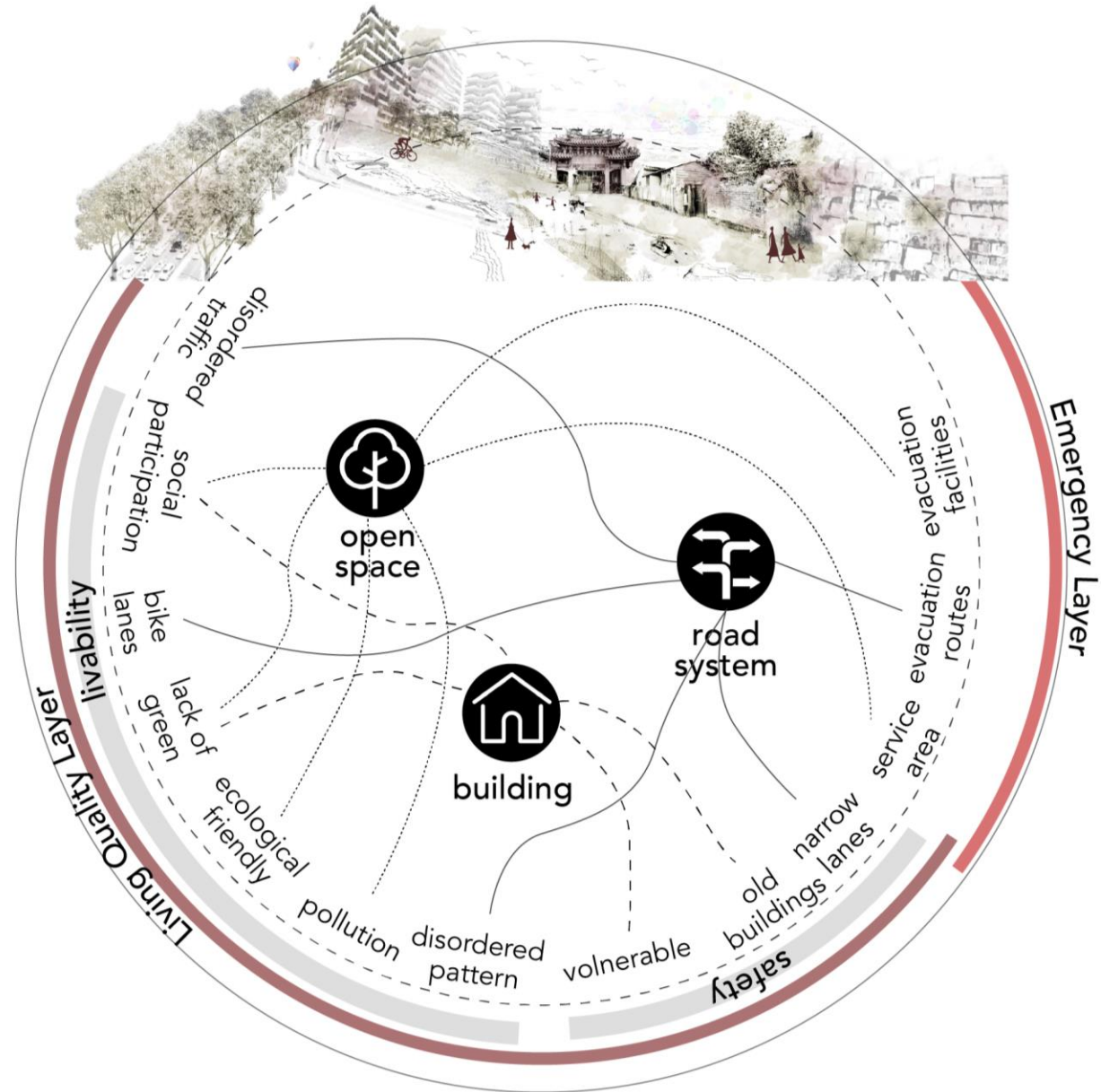


05 DESIGN PROPOSAL

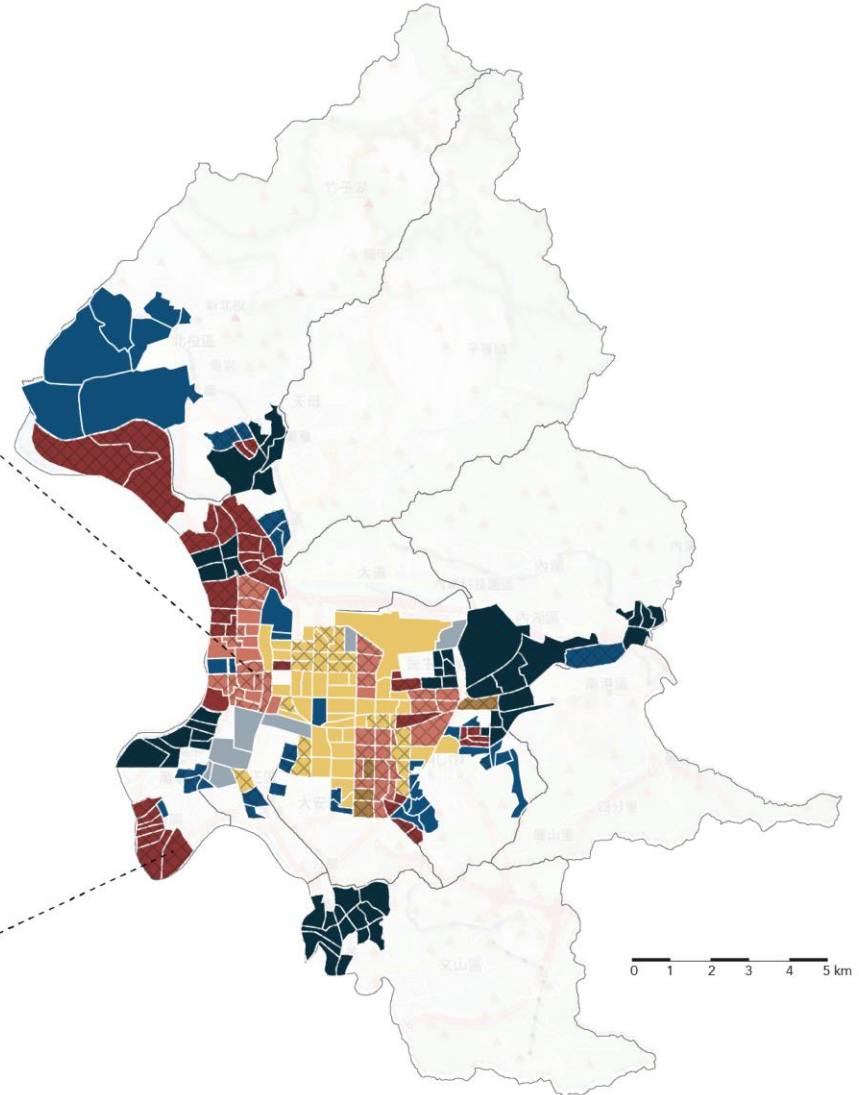
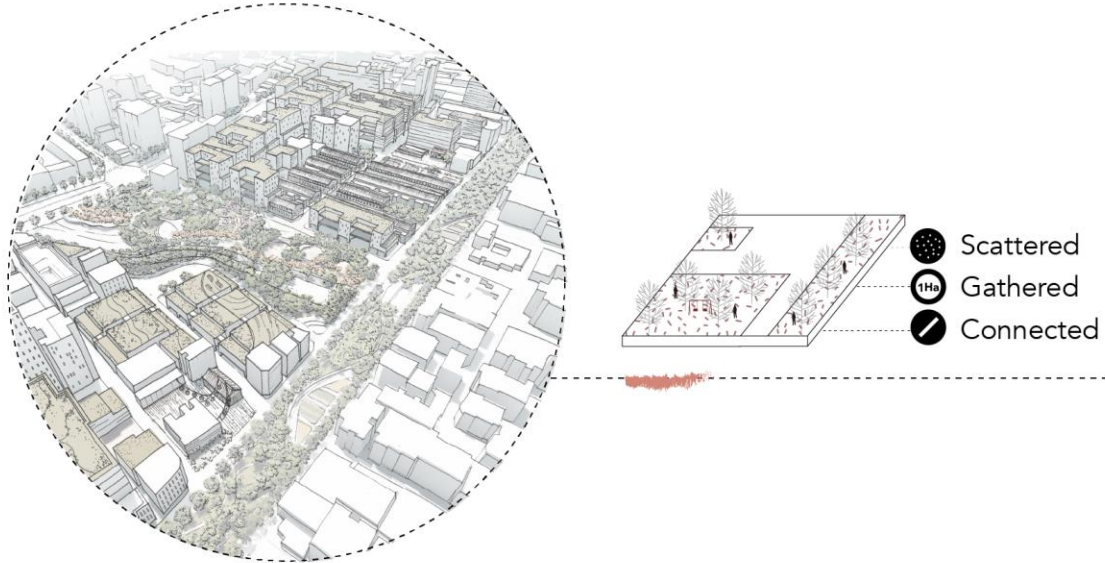
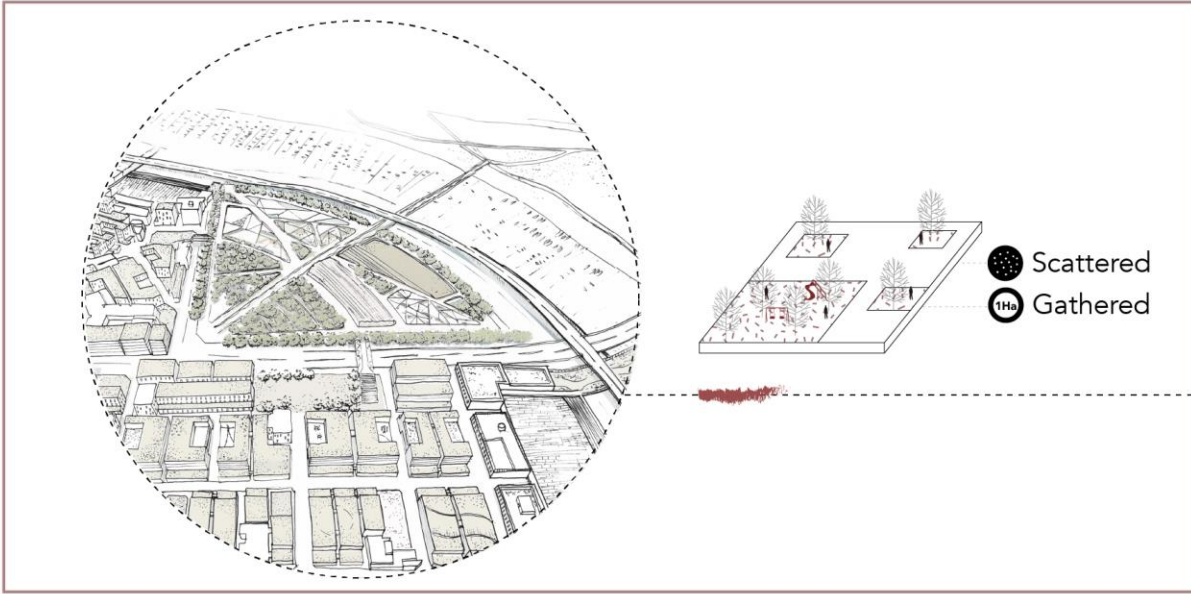


- Neighborhood Scale
- Spatial Detail

DESIGN PROPOSAL
- concept



DESIGN PROPOSAL
- sites



DESIGN PROPOSAL
- site 1



DESIGN PROPOSAL
- site 1

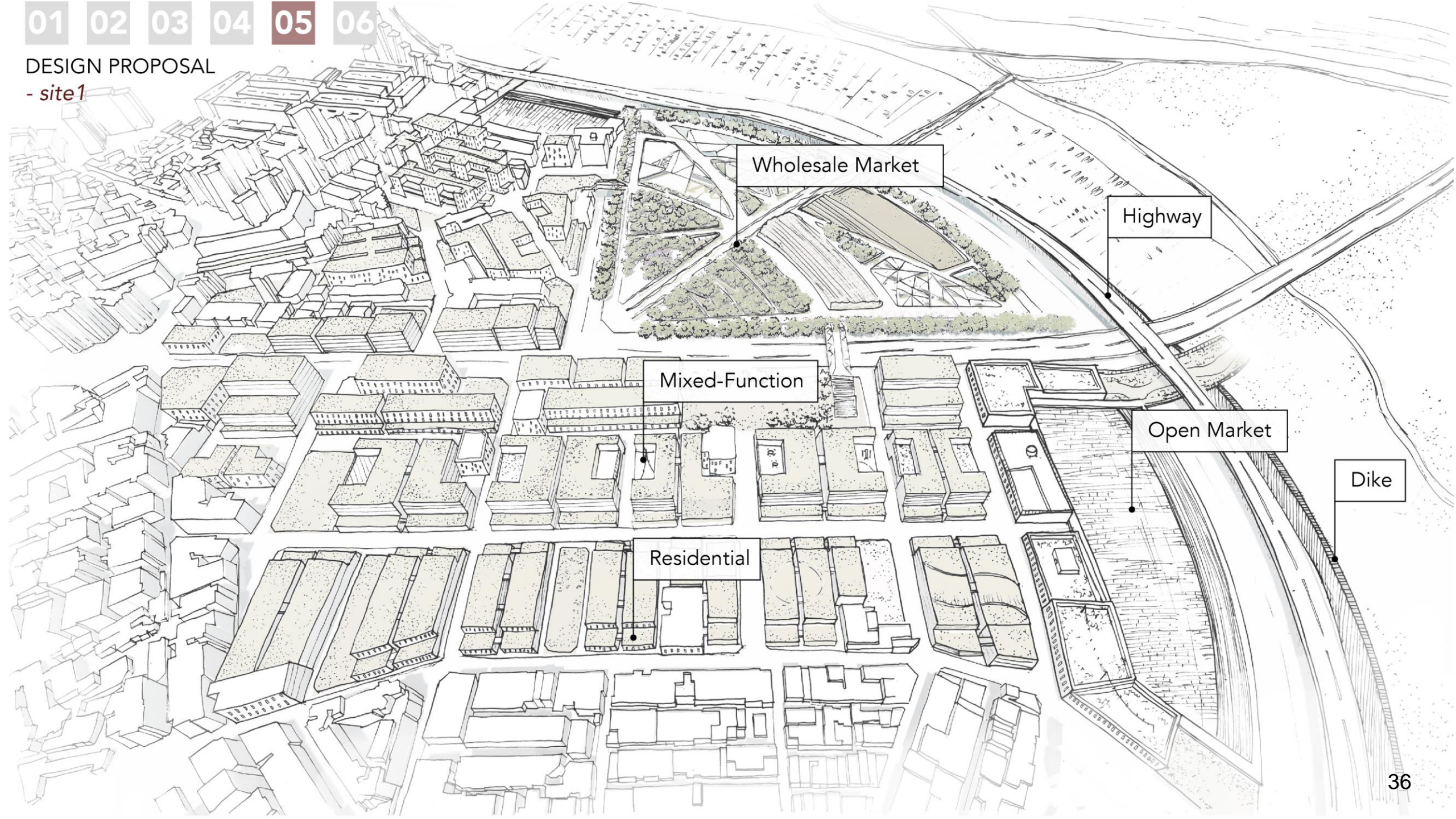


- Open space
- Street Accessibility
- Circulation
- Building Quality
- segregation
- Buildings Function

- Current Buildings
- Renewed Buildings
- Open Space
- Square
- Cars
- - Scooters
- Bikes/Pedestrians
- 📍 Bike Parking Lot
- 📍 Parking Tower



DESIGN PROPOSAL
- site 1



Wholesale Market

Highway

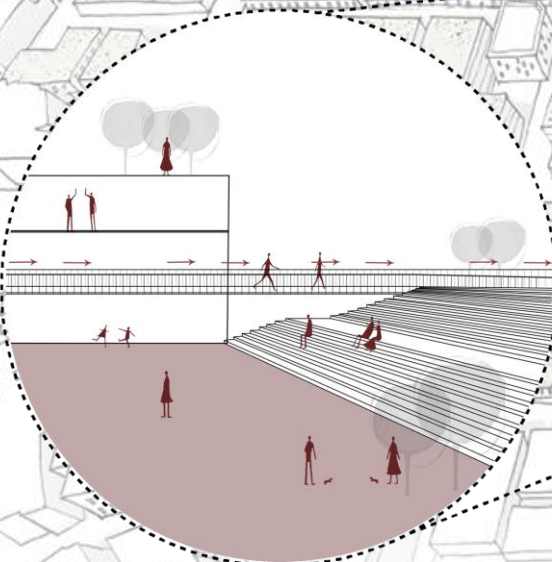
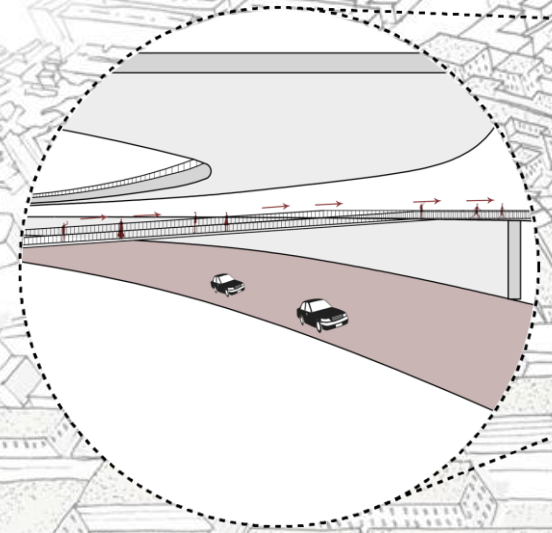
Mixed-Function

Open Market

Residential

Dike

DESIGN PROPOSAL
- site 1



Wholesale Market

Highway

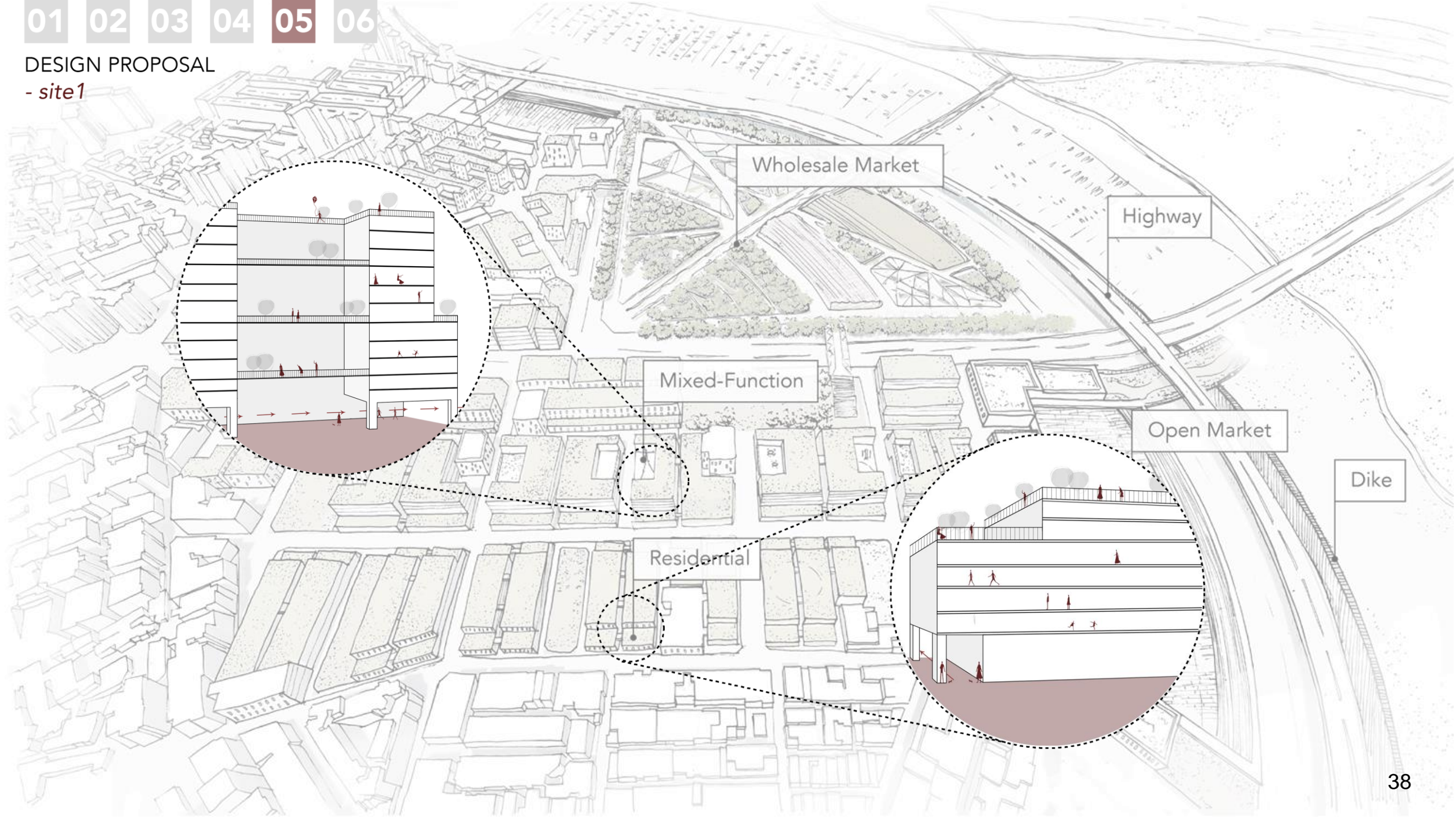
Mixed-Function

Open Market

Dike

Residential

DESIGN PROPOSAL
- site 1



Wholesale Market

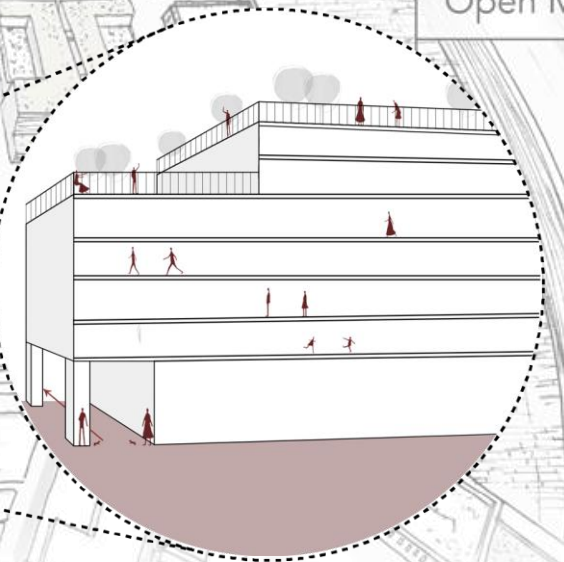
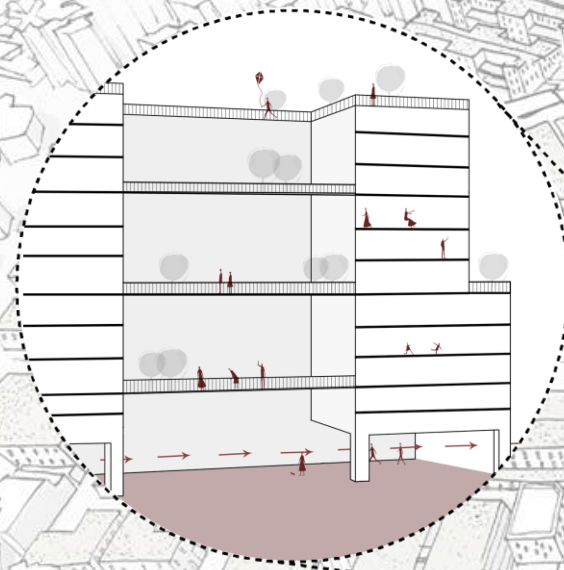
Highway

Mixed-Function

Open Market

Dike

Residential



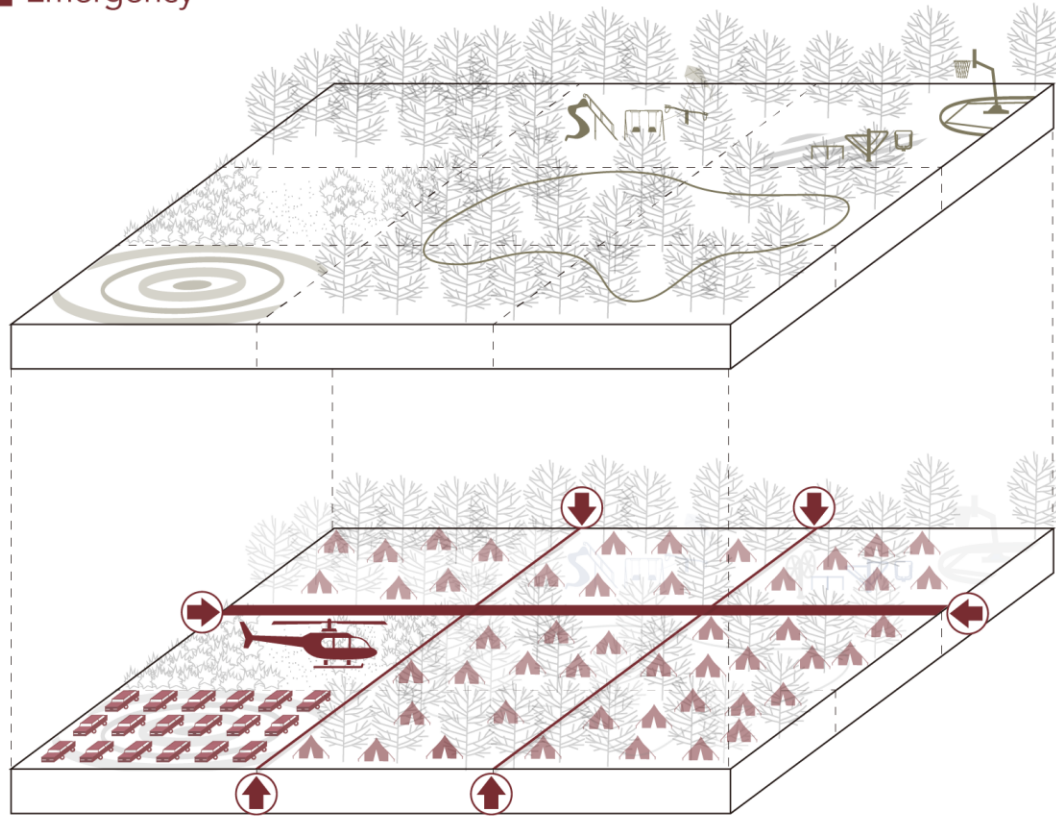
DESIGN PROPOSAL
- site1



DESIGN PROPOSAL
- site1

Space & Circulation

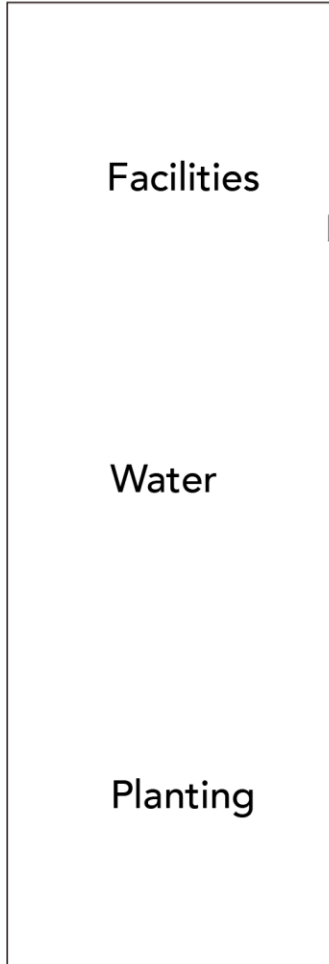
- Daily Life
- Emergency



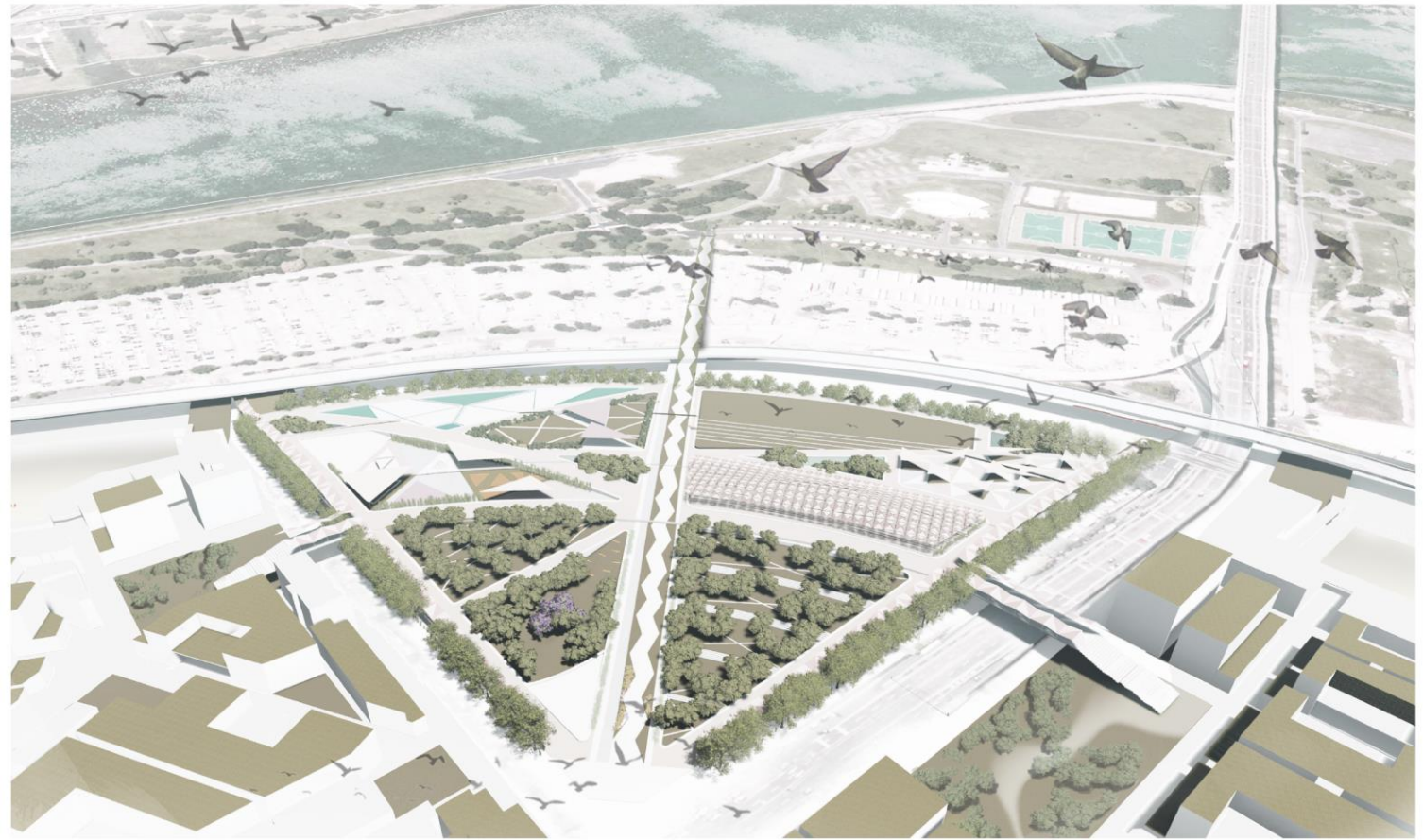
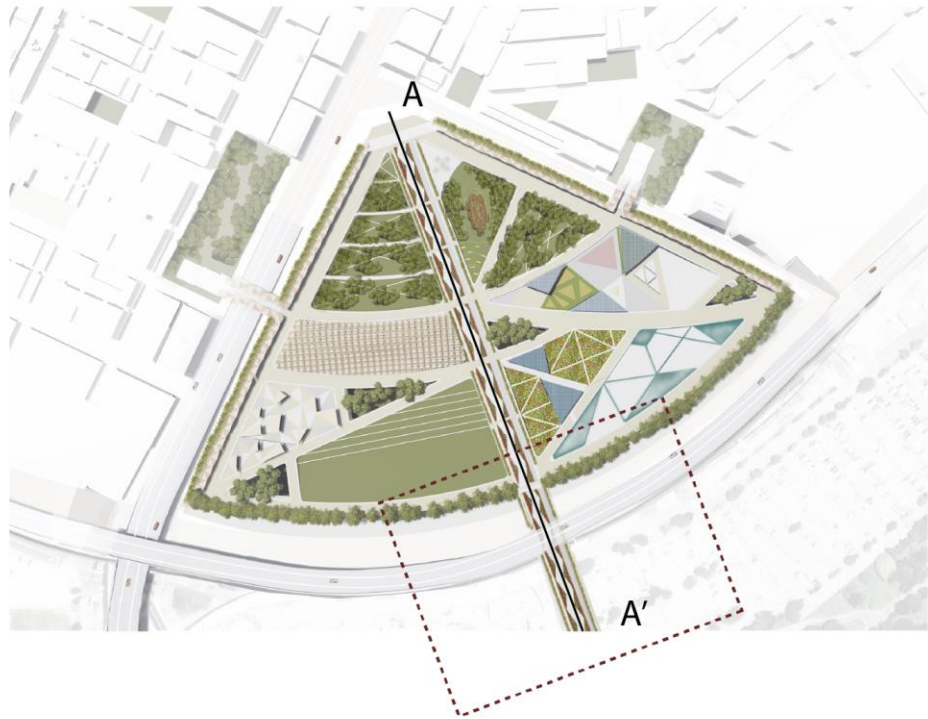
- Different experience and multi-functions for leisure activities
- More shaded area

- Clear main routes for vehicles

- Enough space for camp sites (shaded area)
- Enough space for parking (open area)
- Open area for helicopters (open area)



DESIGN PROPOSAL
- site 1



Slope

Market

Bridge

Riverfront

A

A'

road

highway

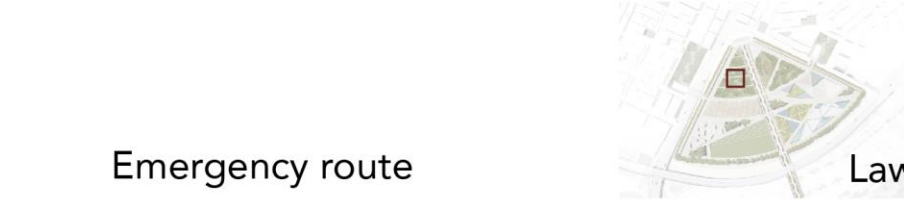
dike

0 50m

DESIGN PROPOSAL
- site1



Axis



Emergency route



Lawn



Campsite



DESIGN PROPOSAL
- site 1



Flowerbed

Food storage and cooking area



Square

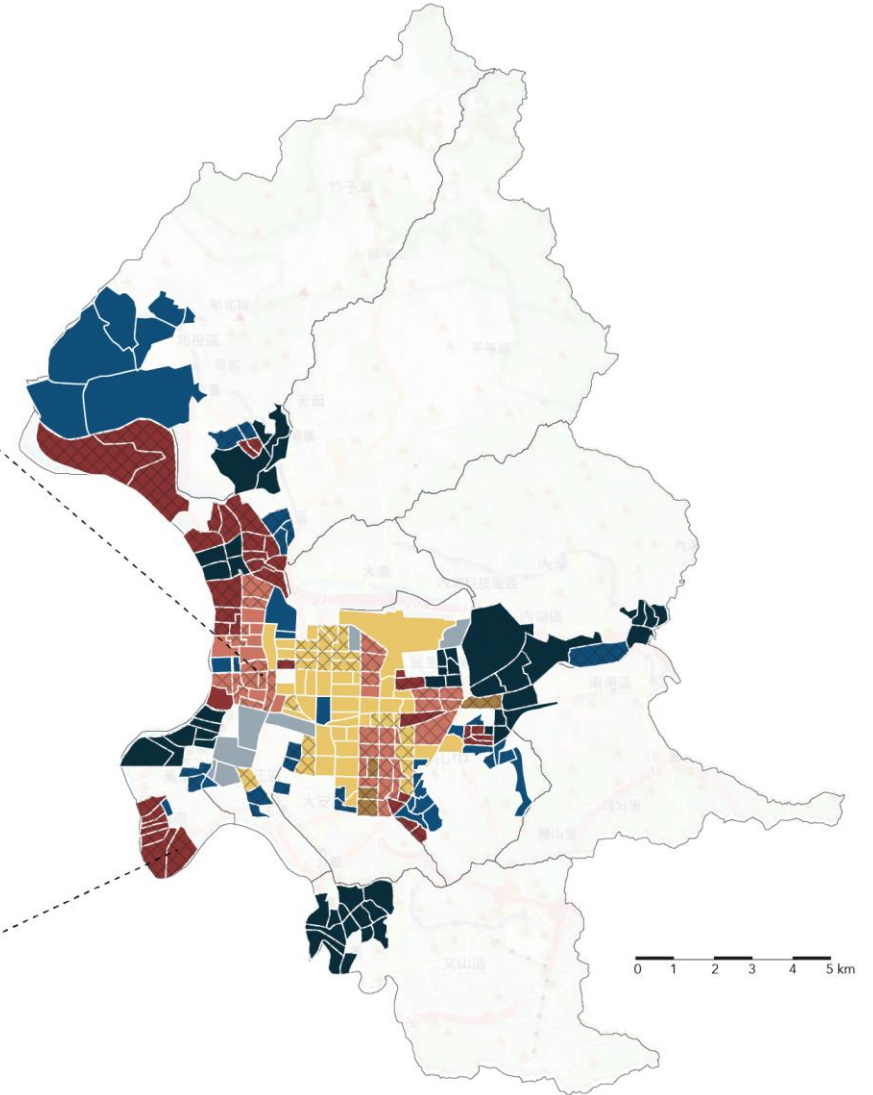
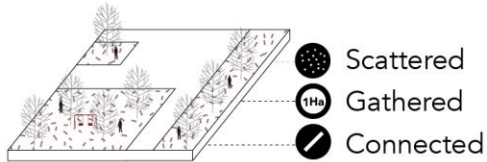
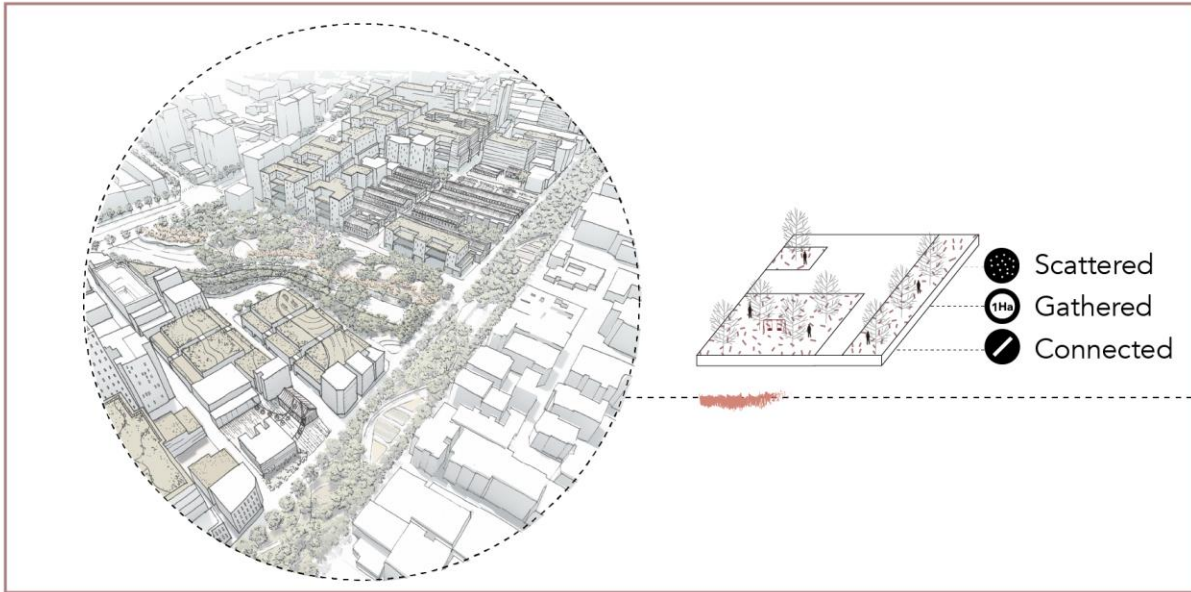
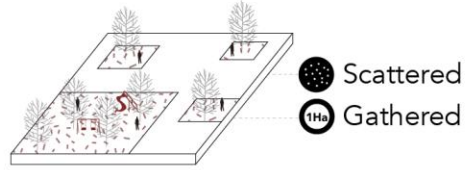
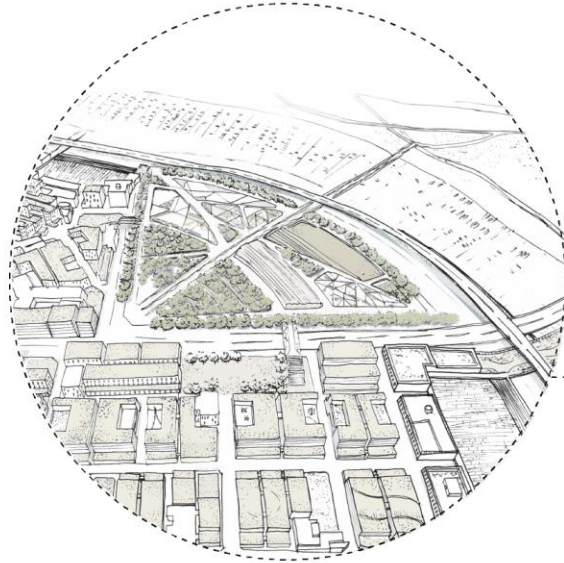
Parking lot



DESIGN PROPOSAL
- site 1



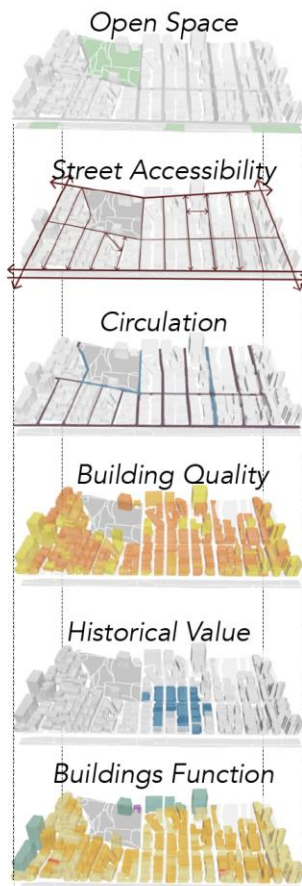
DESIGN PROPOSAL
- sites



DESIGN PROPOSAL
- site2



DESIGN PROPOSAL
- site2



- Current Buildings
- Renewed Buildings
- Historical Buildings
- Open Space
- Temple Plaza
- Cars
- - Scooters
- ... Bikes/Pedestrians
- Bike Parking Lot
- Ⓛ Parking Tower



DESIGN PROPOSAL
- site2

