

TOWARD AN INCLUSIVE FUTURE

revise the public spaces in Taichung old city center to promote active ageing

All start from my personal story...



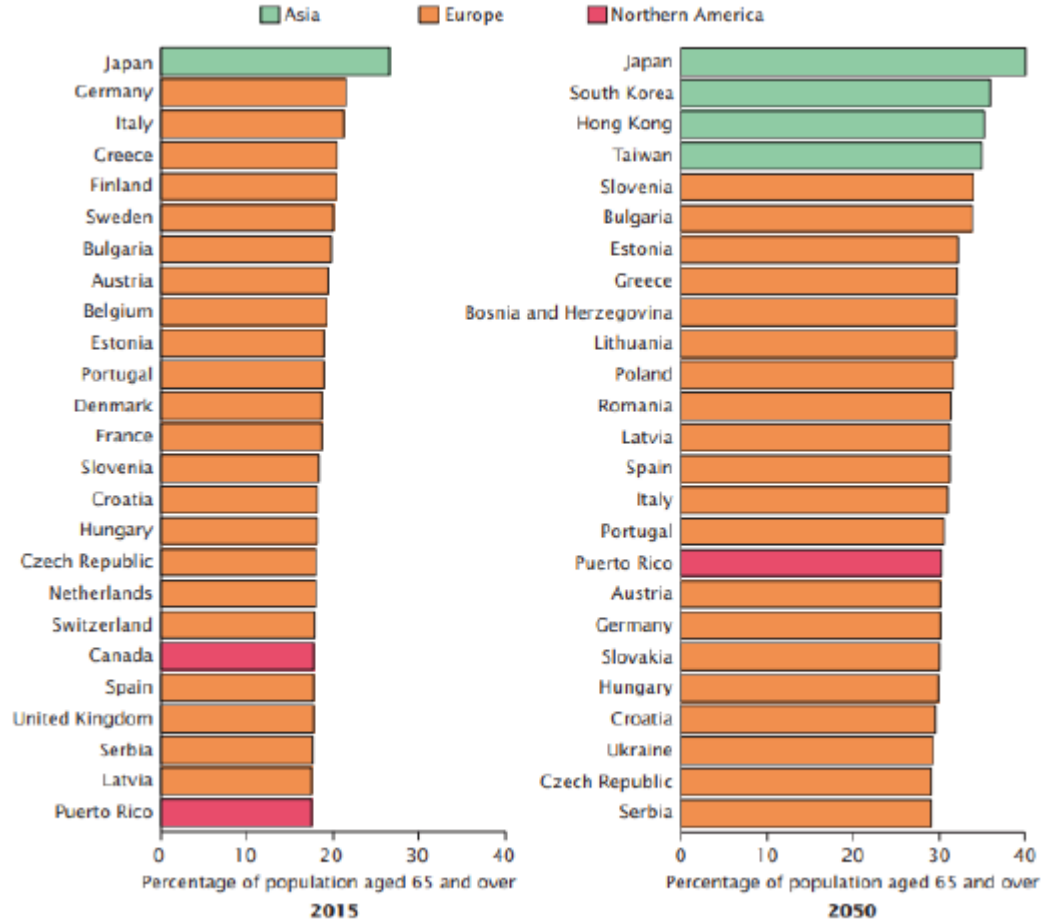
An ageing world

The world population is aging rapidly

With the rapid aging taking place in Asia, South Korea, Hong Kong, and Taiwan will join Japan at the top of the list of oldest countries and areas by 2050, when more than one-third of these Asian countries' total populations are projected to be aged 65 and over.

However, little had been done with the impact of these aging issues on the built environment. Therefore, this project will focus on rethink and revise the contemporary built environment in order to become age-friendly .

The World's 25 Oldest Countries and Areas: 2015 and 2050



Note: The list includes countries and areas with a total population of at least 1 million in 2015. Source: U.S. Census Bureau, 2013; International Data Base.

2. PROBLEM FIELD WHEN AGEING IN THE CONTEMPORARY CITY

The ageing process---becoming older age



“We all become disabled as we age and lose ability, whether we want to admit it or not.”

(Ron Mace, 1941-1998)

SOCIAL AGEING

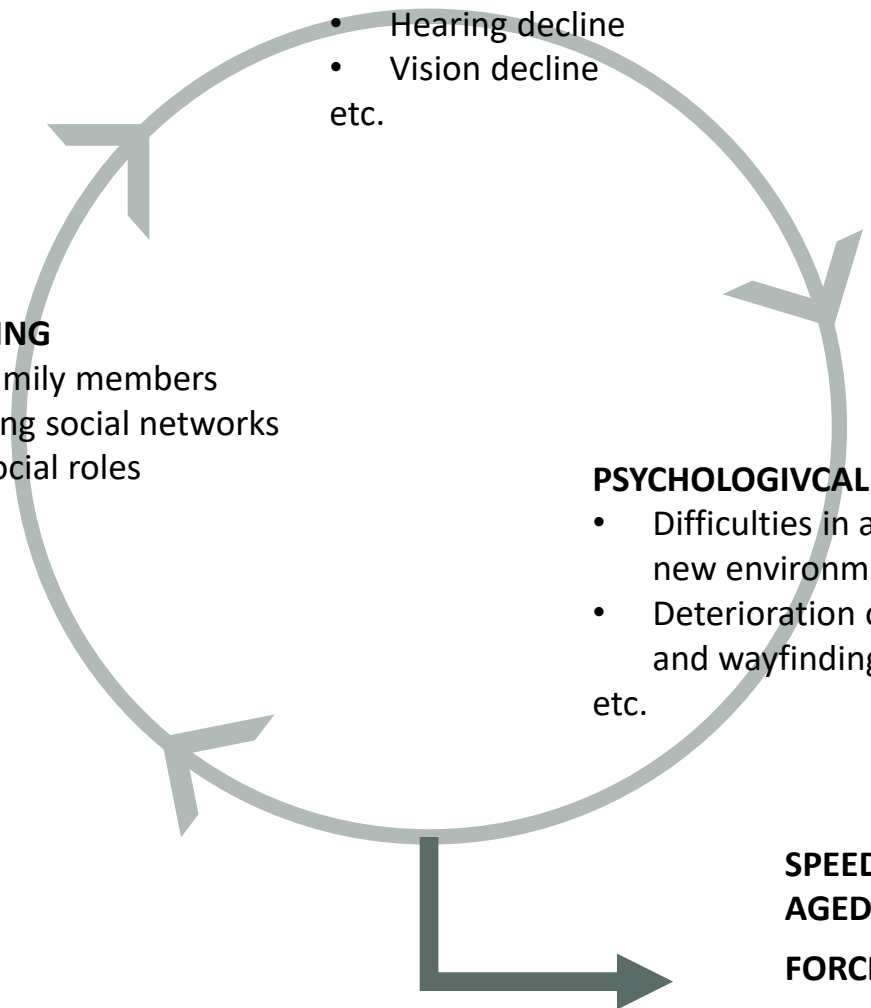
- Losing family members
 - Decreasing social networks
 - Losing social roles
- etc.

PHYSICAL AGEING

- Reduce walking performance
 - Hearing decline
 - Vision decline
- etc.

PSYCHOLOGIVCAL AGEING

- Difficulties in adapting to new environments
 - Deterioration of orientation and wayfinding skills
- etc.



**SPEED-UP DEVELOPMENT INTO FORTH AGED (FRAGILTY AND DECLINE)
FORCED INTO AN INSTITUTION
DEATH**

ACTIVE AGEING



PHYSICAL AGEING

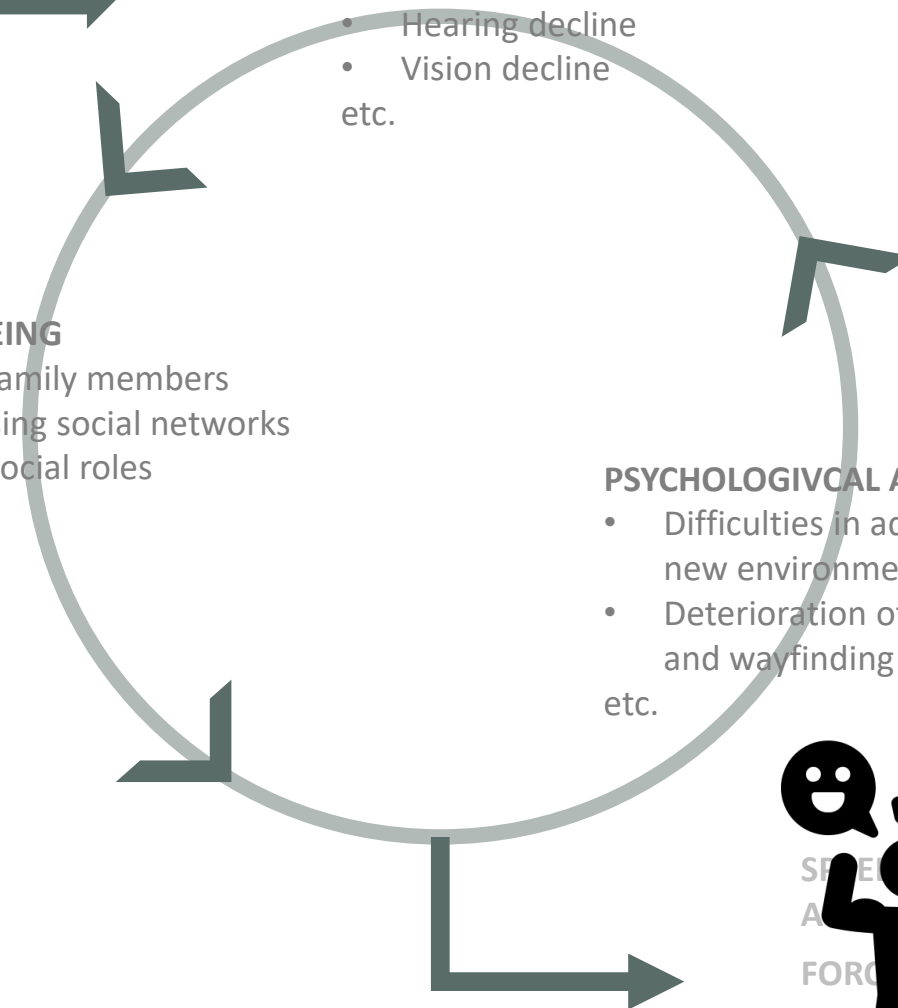
- Reduce walking performance
- Hearing decline
- Vision decline
- etc.

SOCIAL AGEING

- Losing family members
- Decreasing social networks
- Losing social roles
- etc.

PSYCHOLOGICAL AGEING

- Difficulties in adapting to new environments
- Deterioration of orientation and wayfinding skills
- etc.



STOP DEVELOPMENT INTO FORTH
A (HEALTHY AND DECLINE)
FORCED INTO AN INSTITUTION
DEATH



Society's prejudice against the elderly

As many people putting “ageing “ the same as to “degenerate” (whether physiological or social aspect), and underestimating the contribution of the elderly to the family and society. Especially, the government always takes “care” as the focus of its policy for the elderly.

“We hope to contribute our creativity, our knowledge, and our experience to the society, instead of being the person who be served...I still hope that I can go out to learn new things, to pursue and fulfill my dream, and to be energetic ”

from the interview of a elderly

Inactive ageing of current elderly

As before had said, the development of ageing process to the frailty stage can be postponed through active ageing which encompasses both physical activity and wider social and community participation. However, the majority of elderly people, higher urbanization area in particular, do not have sufficient physical activities.

“The general preference of leisure activities of the elderly is passive or static leisure activities such as watching TV and chatting. Although some elderly people also do walking as leisure activity, there are still 51.8% of elderly people lack of sufficient regular physical exercises.”

Health Promotion Administration of Taiwan

Hope to ageing in place and be independent

Only depend on new types of nursing homes and elderly residential housing is sometimes thoughts as the solution for problems caused by the physical, psychological and social ageing process. However, the society and the need of the elderly are changing and more elderly people want to age in local communities and maintain independency and autonomous.

“There are some of elderly people expressed their willingness to live in nursing homes because they were worried about the burden of caring for their children. However, as many as 72% of the elderly did not consider living in nursing homes and elderly residential housing but prefer to grow old in their local neighborhoods.”

Health Promotion Administration of Taiwan

The important of urban design

A grayscale photograph of a busy city street. Tall buildings line both sides, with many windows and signs. A person is crossing the street in the foreground, and several cars are visible on the road. The scene is captured from a low angle, looking down the street.

“As many city environments are still designed to support an able-bodied working population, older people risk being excluded from the social and economic life of the city, especially when they lose functional ability. Therefore, urban design can be a powerful tool for improving the overall health of residents.”

from UNECE



The important of public spaces in neighborhood

“Walking is the main mean of transportation and exercise for elderly. As a result, the environment of neighborhoods becomes increasingly crucial for elderly people. Meanwhile ageing caused declining of body functions which make elderly more susceptible to barriers in the built environment.”

(Herbolsheimer, F., Mahmood, A., Michael, Y. L., & Chaudhury, H., 2020 ; Dominique Hauderowicz, Kristian Ly Serena, 2020; Kerr, J., Rosenberg, D., & Frank, L. , 2012)

Problem statement

Ageing causes physical, psychological, and social aspects of changing which influence the ease of elderly people's ability to use the environment. However, the design of the current urban environment still mostly supports an able-bodied working population which results in the difficulty for elderly people to maintain being active, independent, healthy, and well-being.

3. DESIGN CONCEPT

‘ a real day of elderly inhabitant in Taichung old city center ’

A real day of male elderly inhabitant



6AM
At home



7AM
At home

boring

*no public spaces can
enjoy with friends*

*hard to walk at
outdoor spaces*



11AM
At traditional wet market



1PM
At park



2PM
At home



9PM
at home

A real day of female elderly inhabitant



6AM
At home



7AM
At home



9AM
At traditional wet market



1PM
At home



*no public spaces can
enjoy with friends*

boring



9PM
At home

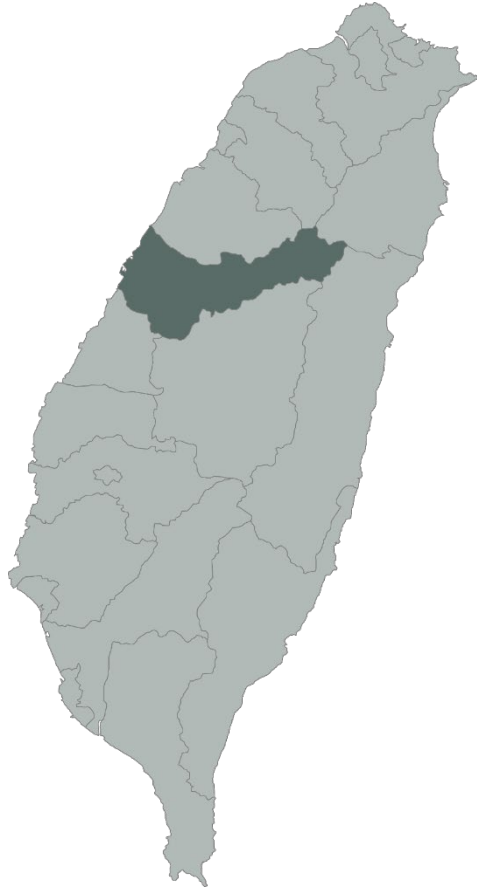


7AM
At home

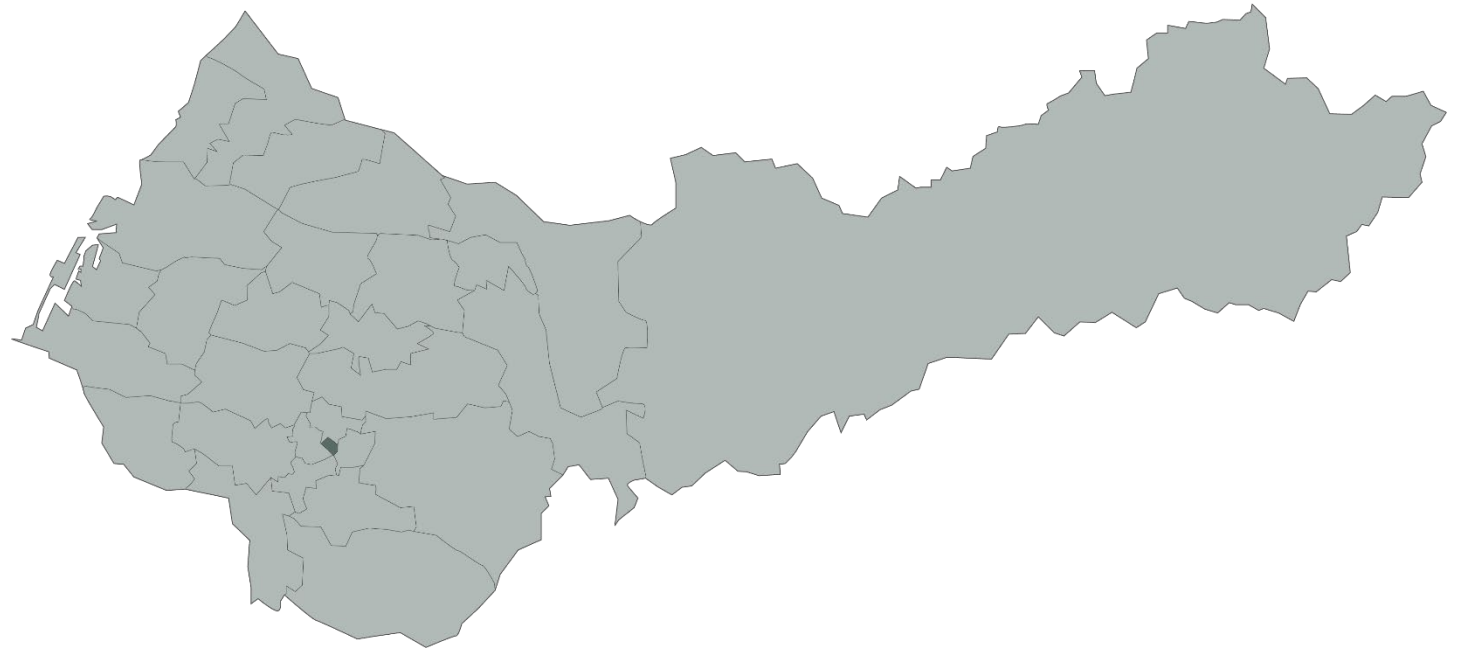


11AM
At traditional wet market

4. TAICHUNG CENTRAL DISTRICT, TAIWAN
project location



Taichung

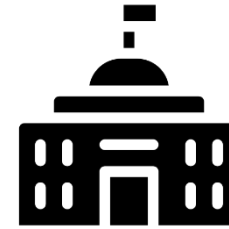
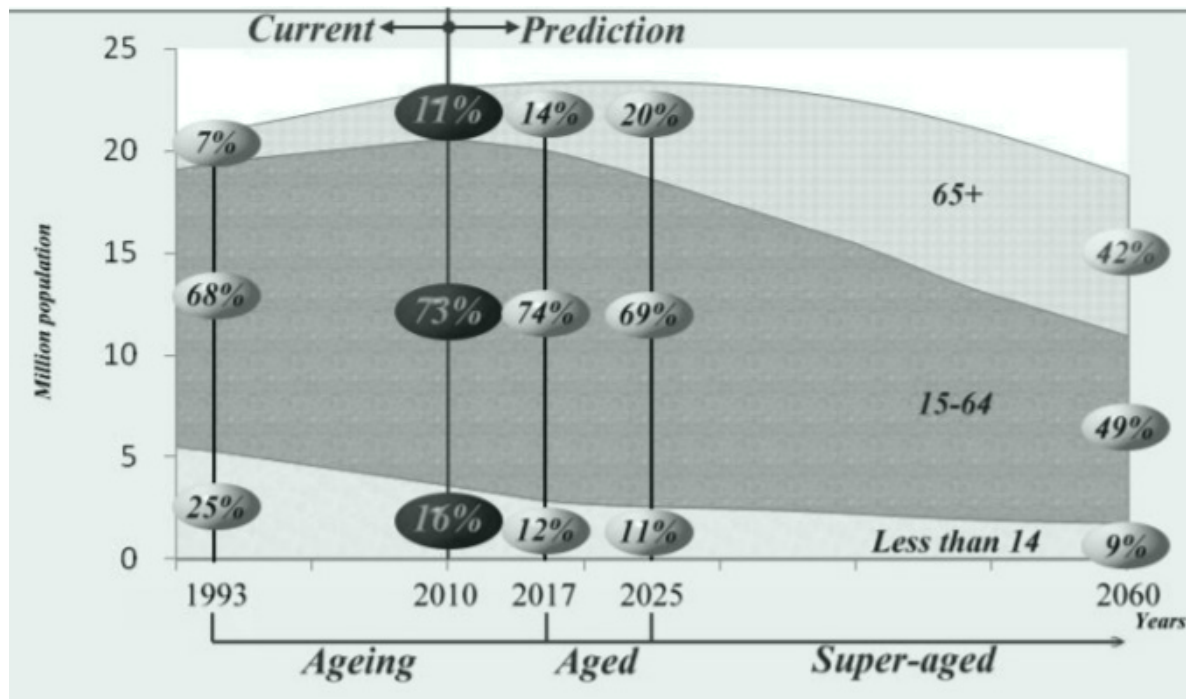


Central district (old city center)

Ageing in Taiwan

In 2017, Taiwan turn into an “aged society” which means there are 14% of total population are elderly people.

It is estimated that the elderly population will exceed 20% in 2025.



The government aware and make ‘Ageing friendly policy’



Activities for elders



Medical services



Subsidies

???

SPATIAL (PHYSICAL)
ENVIRONMENT



NO ACTION PLAN

Developed timeline of Taichung city



old city center

Now -

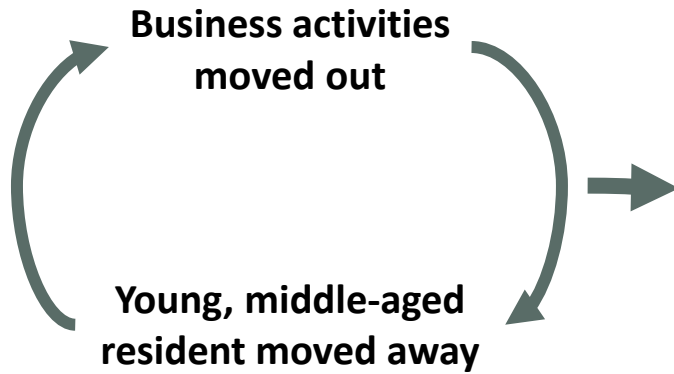
- Cheaper price of lands, cheaper rents
- Lots of multi-scale green spaces
- Wide roads
- Mix land use
- More green spaces

Japanese colonization period

- Narrow roads
- Small blocks
- Lots of commercial and government land use
- Only one green space

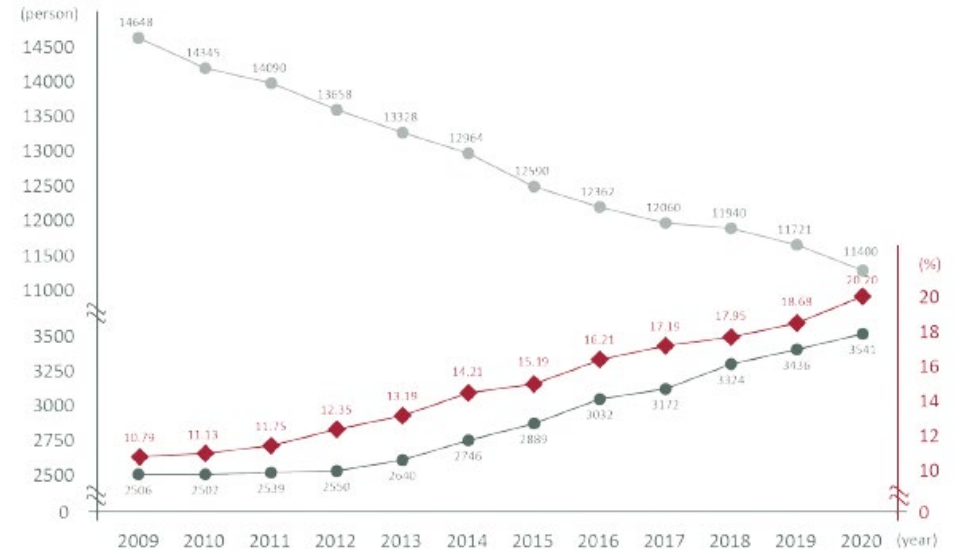
Business activities moved out, young and middle age residents moving away

Out-of-date physical environment and increased proportion of elderly population



Out-of-date physical environment

Increase of porosity



Increased proportion of elderly population

Changed of social and culture context

BEFORE

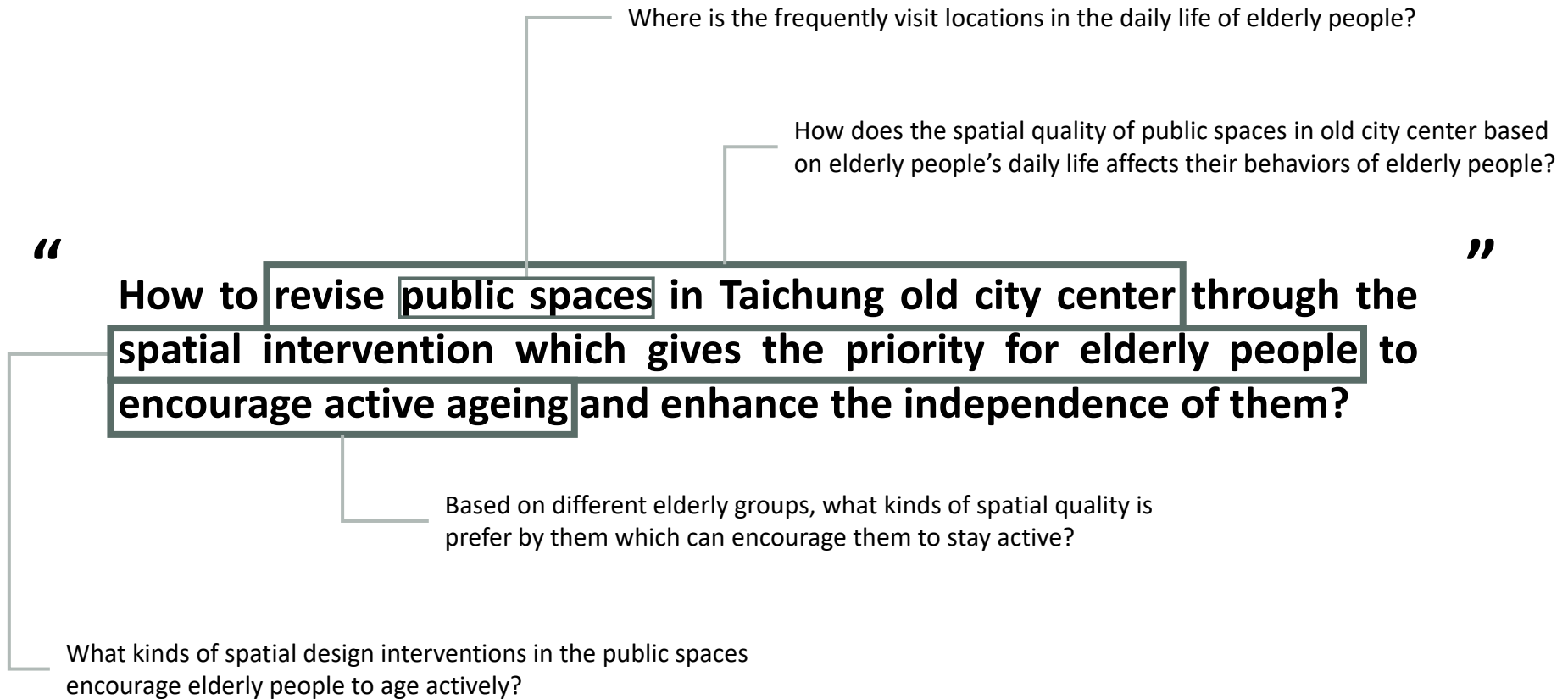


BABY
BOOMER
GENERATION



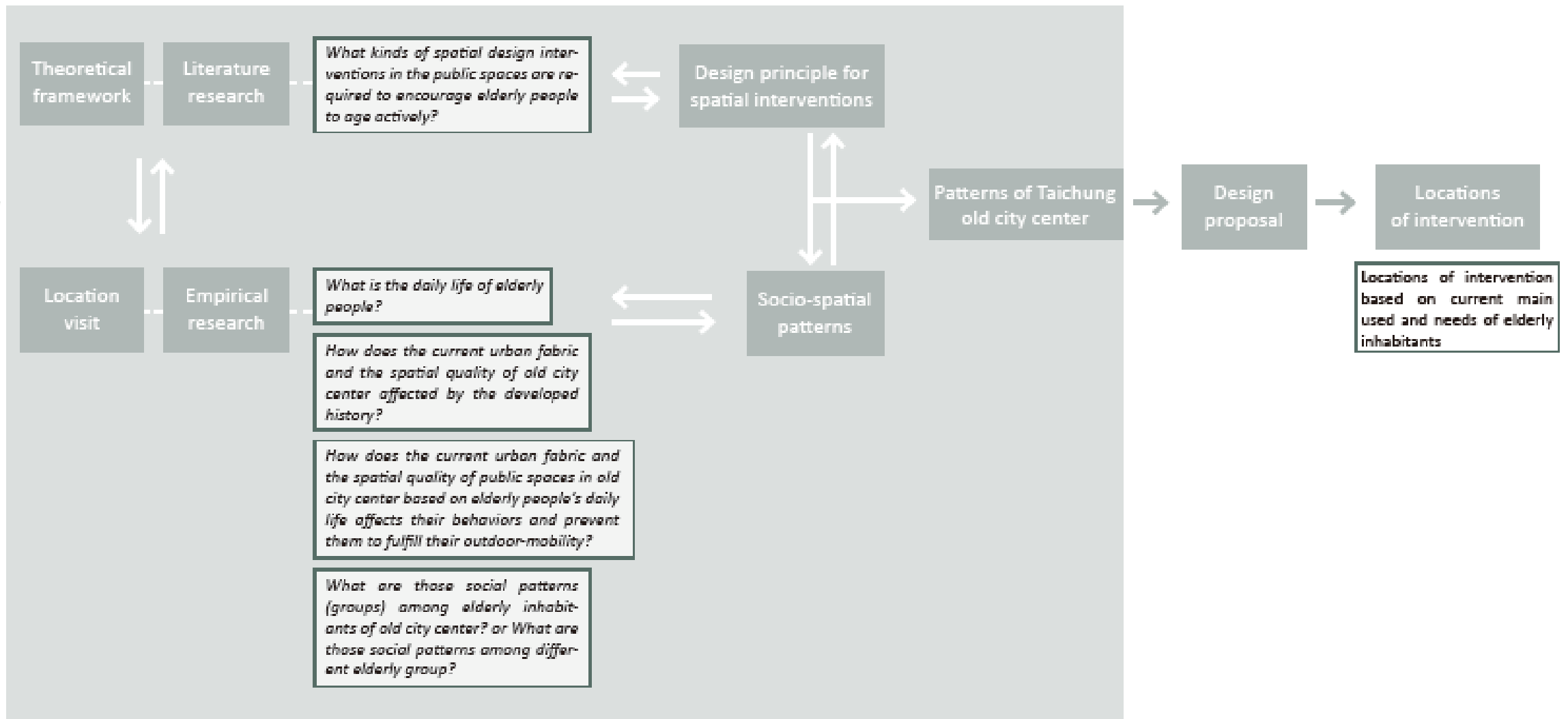
5. RESEARCH QUESTIONS

Research question



6. METHODOLOGY & PROJECT APPROACH

Methodology



Theory and analysis part

Scenario part

Approach

Theoretical research

What kinds of spatial design interventions in the public spaces are required to encourage elderly people to stay actively?

L

Empirical research

Where is the frequently visit locations in the daily life of elderly people?

D O I M S

How does the spatial quality of public spaces in old city center based on elderly people's daily life affects their behaviors of elderly people?

C O I S M

Based on different elderly groups, what kinds of spatial quality is prefer by them which can encourage them to stay active?

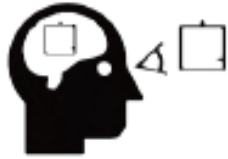
O I S

- L Literature review
- C Cartographic analysis
- O Observation
- M Mapping GIS
- D Documentary and analysis
- I Interview
- S Socio-spatial study and analysis

7. THEORETIC FRAMEWORK

urban design encourage active ageing

Six themes---from literature



Familiarity



Legibility



Distinctiveness



Comfort

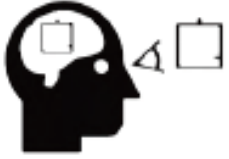


Accessibility



Safety

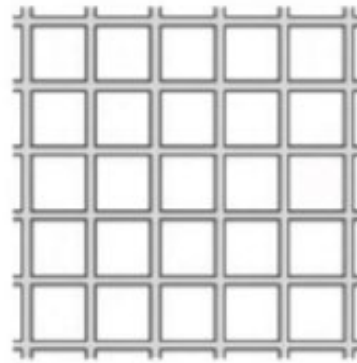
Familiarity



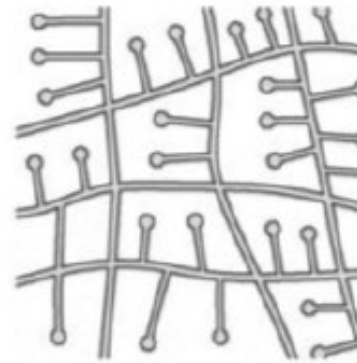
*“Any change in the neighborhood design should be small scale and incremental, and should **incorporate local forms, styles, colors and materials.**”*

(Burton and Mitchell, 2006)

Legibility



Uniform grid pattern



'Lollipop' pattern



Irregular grid pattern

*“Small blocks laid out on an **irregular grid with minimal crossroads** reinforce the legibility of the neighborhood. Short, narrow and gently winding streets were major consideration with a variety of building styles, shapes, colors and sizes ”*

(Burton and Mitchell, 2006)

Distinctiveness



*“On street scale, **distinctive** reflect the local character of a place which with a variety of uses, **historic, civic and distinctive buildings** and practical features. On object scale, will be feature buildings and objects are represented as the landmark or wayfinding points which play a key role in assisting orientation ”*

(Burton and Mitchell, 2006)

Comfort



*“Design for comfort neighborhood should provide wide pedestrian paths with buffer to separate from roads, **comfortable green spaces,** and **sufficient benches for rest and public toilets** along the way .*

(Burton and Mitchell, 2006)

Accessibility



*“Intervention that help to create accessible neighborhood should have a safe, gentle, and clear walking environment, **a walkable distance of local services, facilities, and public transportation, and able to participate social activities.**”*

(Burton and Mitchell, 2006; Wilkinson, R. G., Marmot, M. G., World Health Organization., 2003)

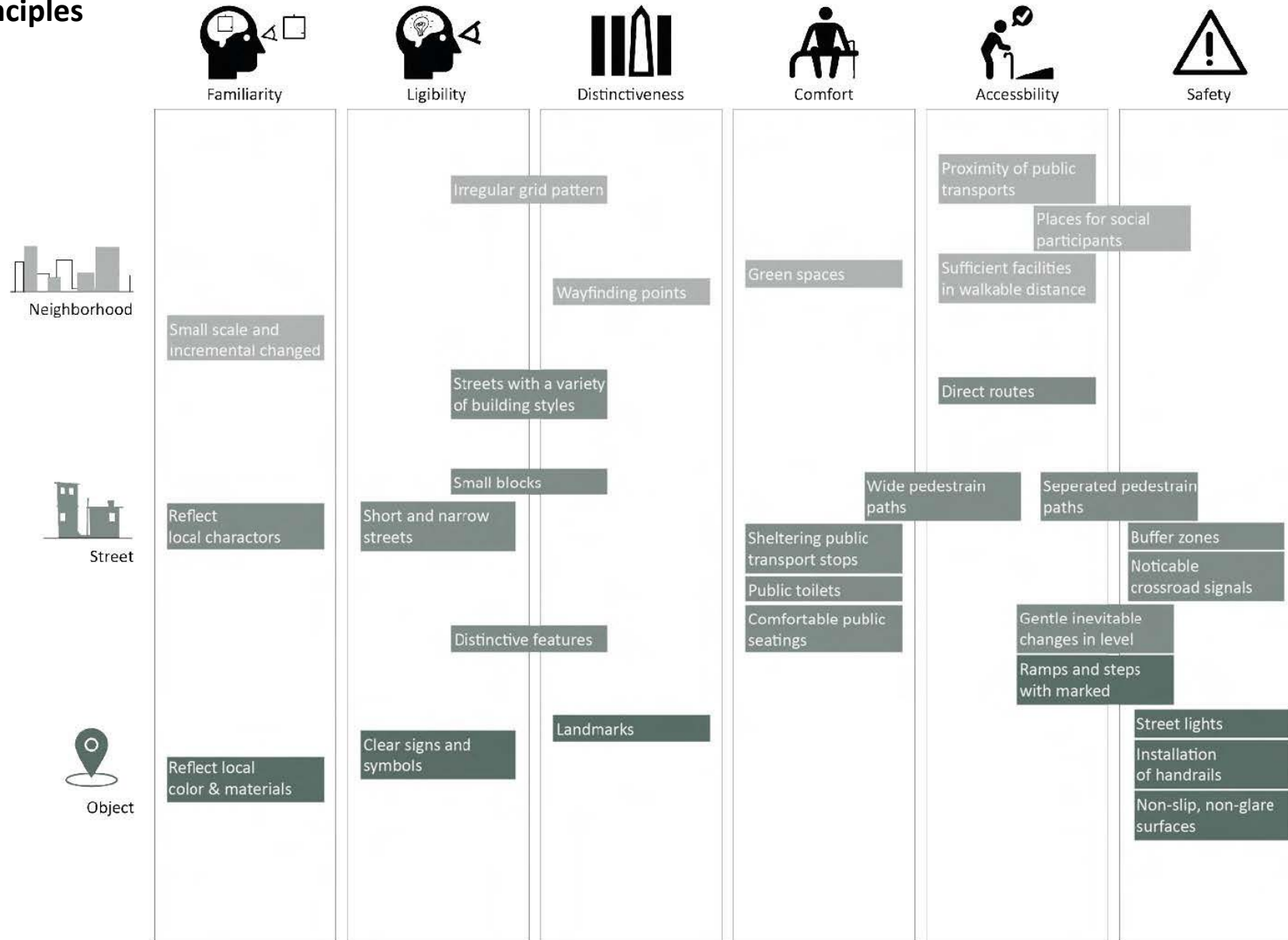
Safety



*“Design for the safety neighborhood, there are two major concerns. First, the safe crossing. Each pedestrian **crossroad with audible and visual signals** are necessary. Second, better and sufficient lighting in the public spaces. ”*

(Burton and Mitchell, 2006)

Generic design principles



Different stages of elderly people

The first stage: self-sufficient



50~65

Accessible facilities and services, and enjoyable outdoor public spaces are important for elderly people at this stage

The second stage: interdependence



66~80

Wayfinding points, walkable distance of community centers, safe and comfortable public spaces, and medical services are important for elderly people at this stage

The second stage: full dependence



over 80

Community-based services such as food delivery or shuttle bus to community center or medical facilities is important for elderly people at this stage

8. LOCATION VISIT & ANALYSIS

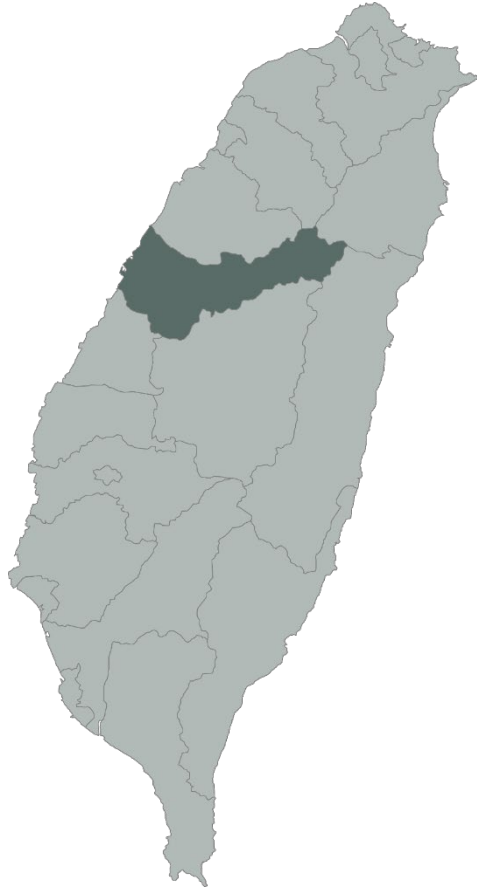
interviews, documentaries, and observations

Interpret the core of research questions

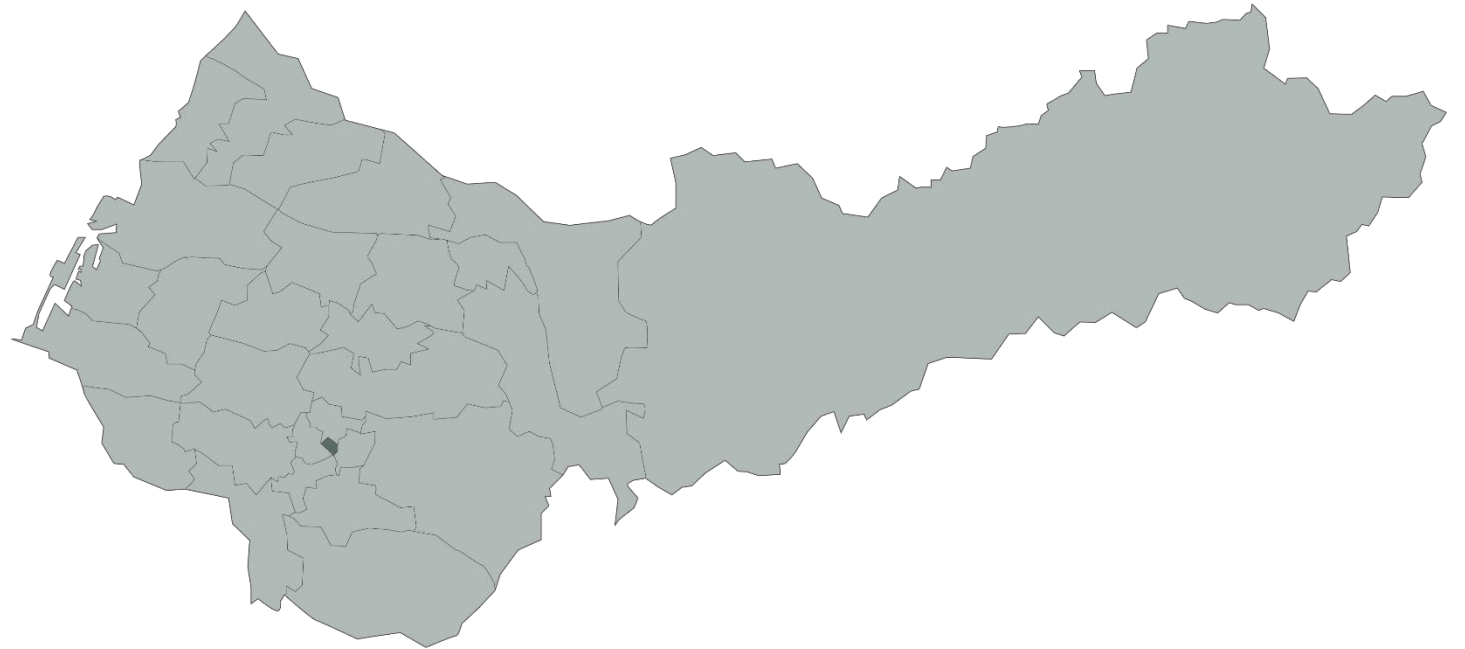
- *Where is the frequently visit locations in the daily life of elderly people?*
- *How does the spatial quality of public spaces in old city center based on elderly people's daily life affects their behaviors?*
- *Based on different elderly groups, what kinds of spatial quality is prefer by them which can encourage them to stay active?*



- *FOR WHOM?*
- *AT WHERE?*
- *BY HOW?*

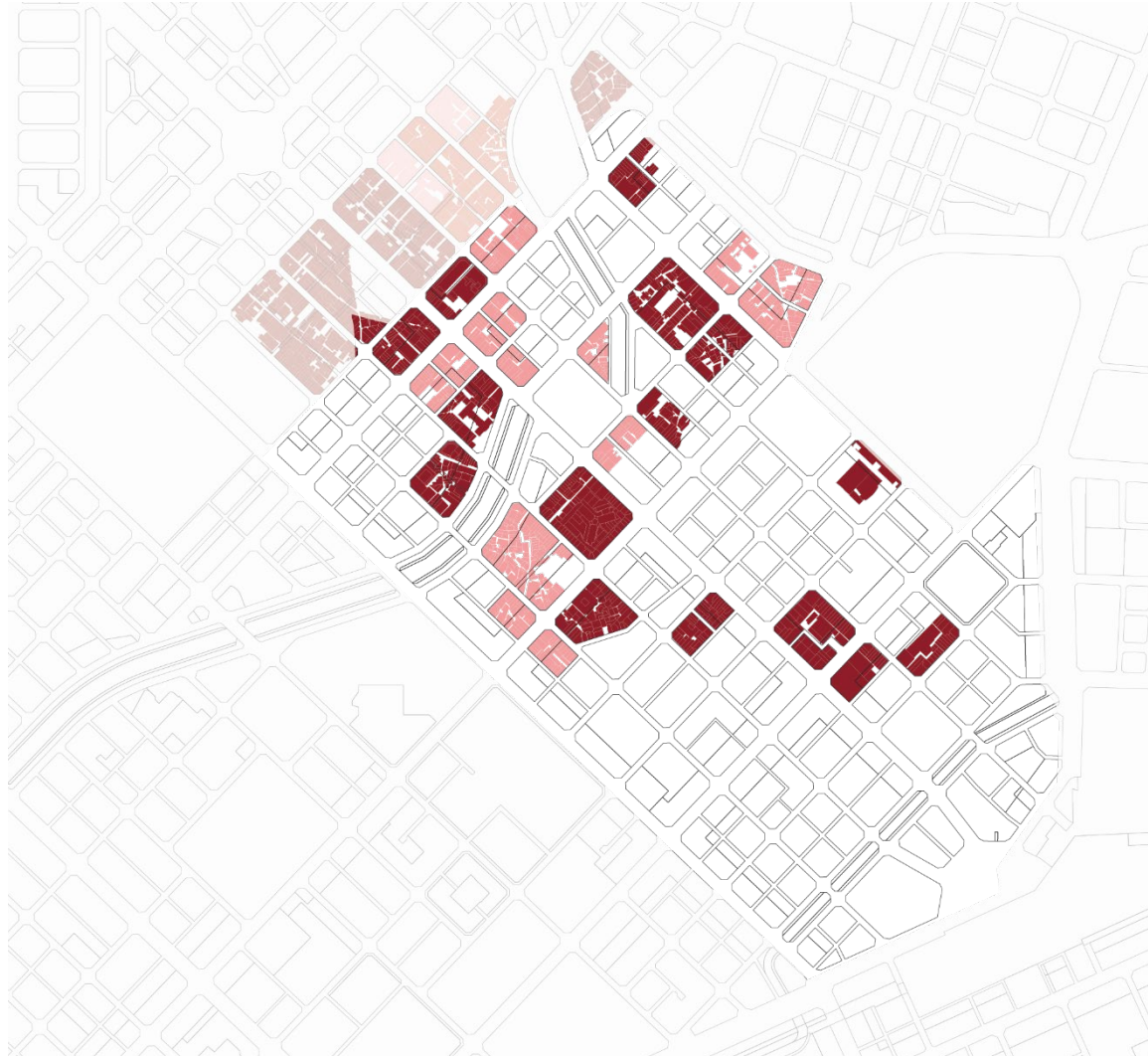


Taichung

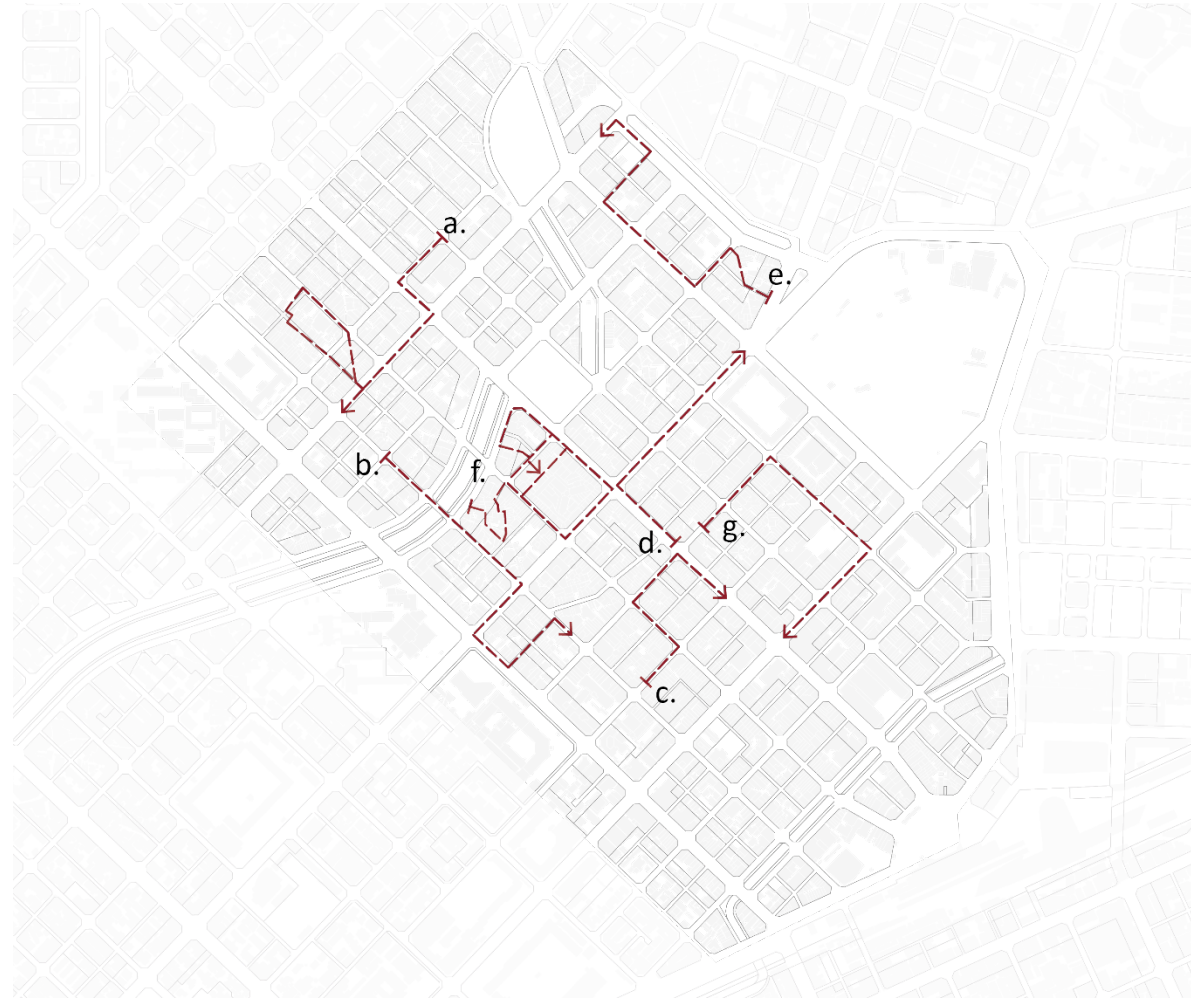


Central district (old city center)

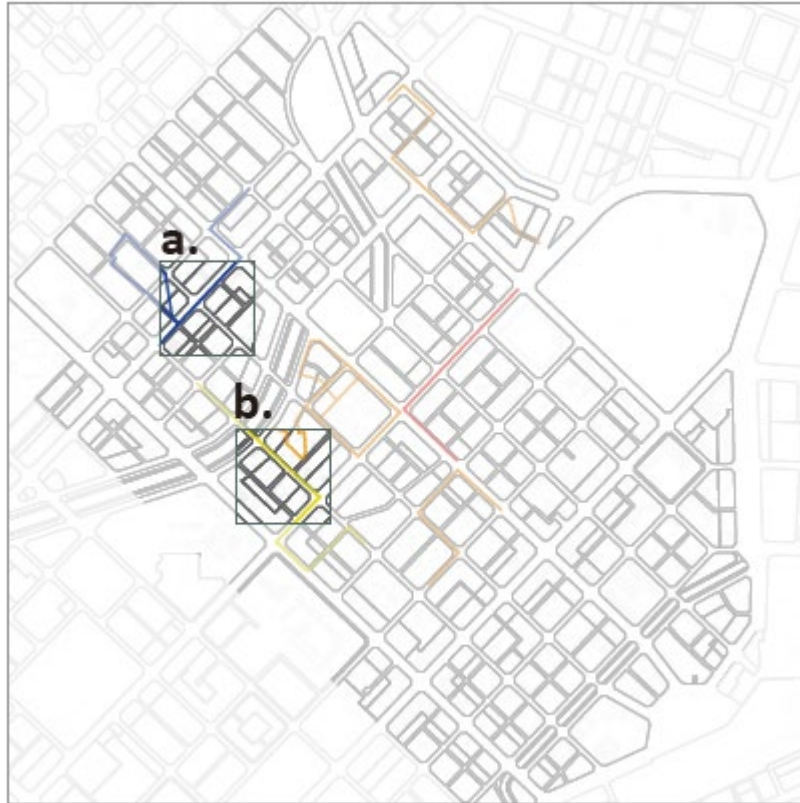
Density map of elderly inhabitants



Random street lives



Movement analysis—reality vs space syntax





a.



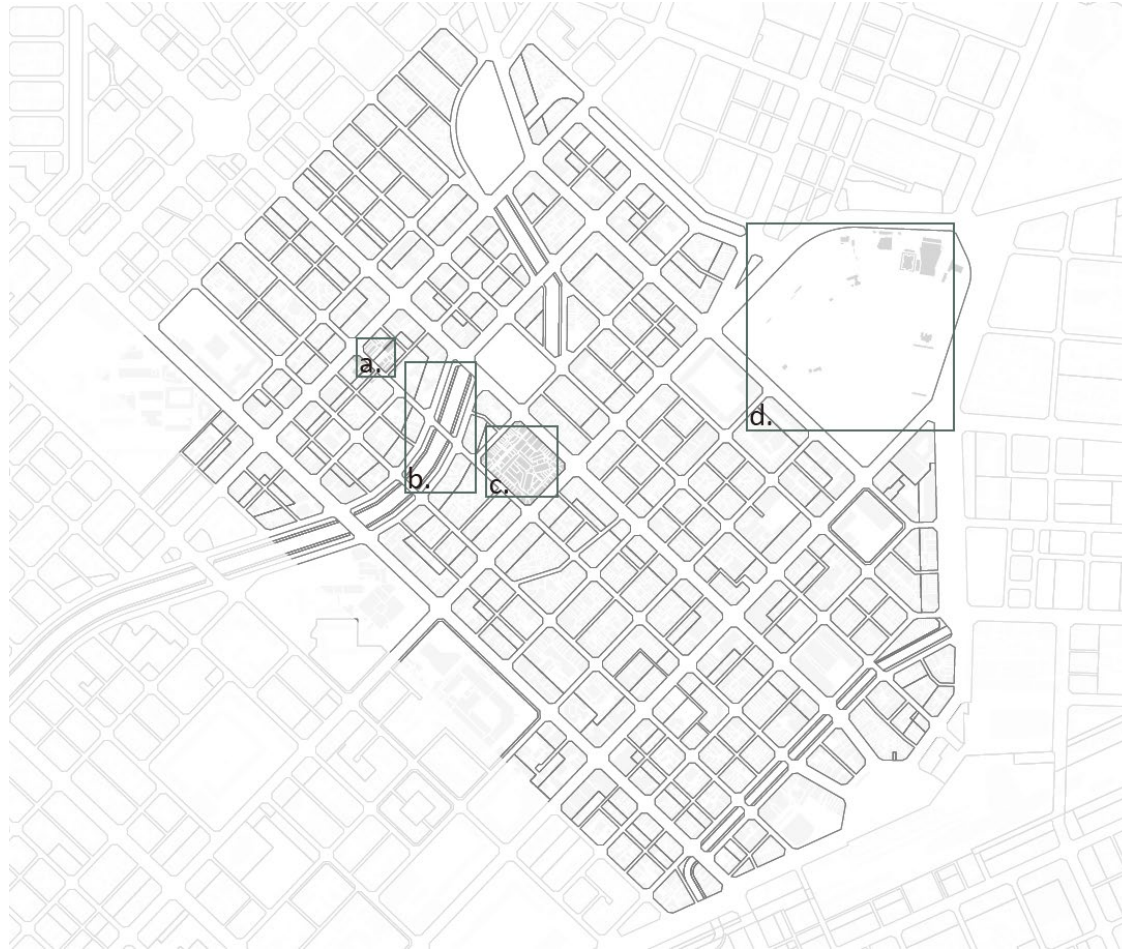
b.



Conclusion:

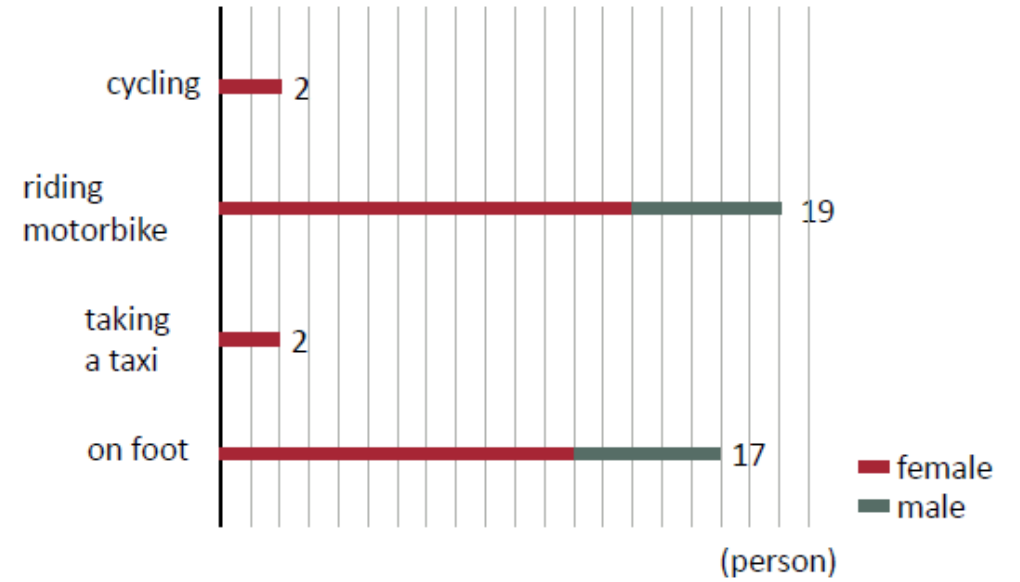
The hypothesis is, not only the physical quality of the environment but also the function of the space on the ground floor of the pedestrian arcade both affect the frequency of a street used by elderly people.

Street lives on specific action spaces



- a. Community center**
- b. The trail of Midorikawa**
- c. Second market**
- d. Taichung park**

Elderly transportation means



Important action spaces



Different groups of elderly people



Conclusion: FOR WHOM? AT WHERE? BY HOW?

FOR WHOM

- Groups who enjoy public spaces with grandchild
- Groups who enjoy gathering to have informal social participant
- Groups who prefer attending formal activities and courses
- Groups who like to do physical exercises
- Groups who like to enjoy spaces with dogs

AT WHERE

- Places of organizations where provided social activities
- Walking trails
- Traditional wet markets
- Green spaces (currently lack of)
- Informal social spaces (currently lack of)
- Street spaces

BY HOW

- Green decorated public spaces
- Comfortable public seats
- Walkable pedestrian arcades
- Self- made social spaces
- Sufficient public toilet

Taichung old city center's patterns

Growing potted plants - Using plants to decorate the environment



Sitting in a place within shades - Seats with covers to prevent heat and rain



Socializing with others on the street - Self-made, small and informal social spaces



Second market tells me where I am - A special building as a wayfinding point



Walking next to a driving car - Unfriendly pedestrian arcade



Standing on the street - Lack of waiting spaces and reminding system for coming buses



Street without lives - street missing desirable functions



Sitting at nowhere - Lack of public seats



'Female only' activities (Almost no male elders attend social participants)



Standing and chatting - Lack of informal social spaces to stay



Can I borrow the toilet? - Lake of public toilets

Walk their bikes - street without a bike lane



Familiarity



Legibility



Distinctiveness



Comfort



Accessibility



Safety



Neighborhood



Street



Object

A special building as a wayfinding point

'Female only' activities

Unfriendly pedestrian arcades

Lack of informal social spaces to stay

streets without bike lanes

Lack of public seats

street missing desirable functions

Lack of waiting spaces for crossroads

Lack of public toilets

Plants to decorate the environment

Enjoy walking around in the alley

Enjoy public spaces around their house

Self-made, small and informal social spaces

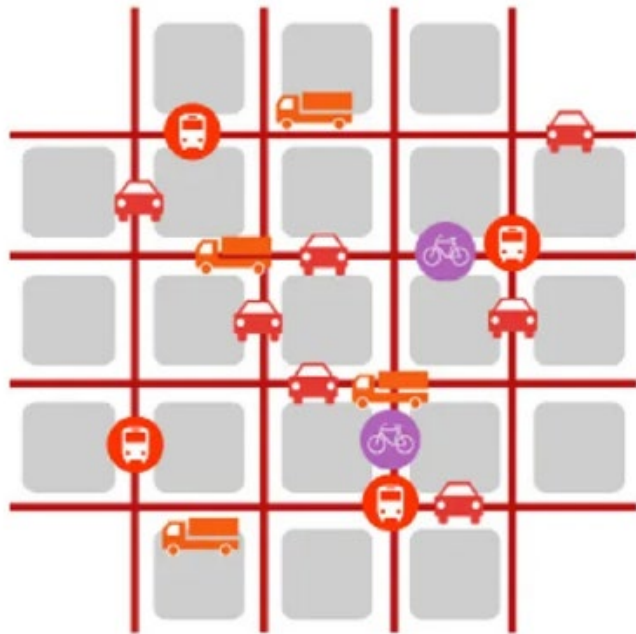
Spaces with covers to prevent heat and rain

Lack of waiting spaces for bus stops

Lack of reminding system for coming buses

9. DESIGN PROPOSAL

A test of 'super blocks' model concept



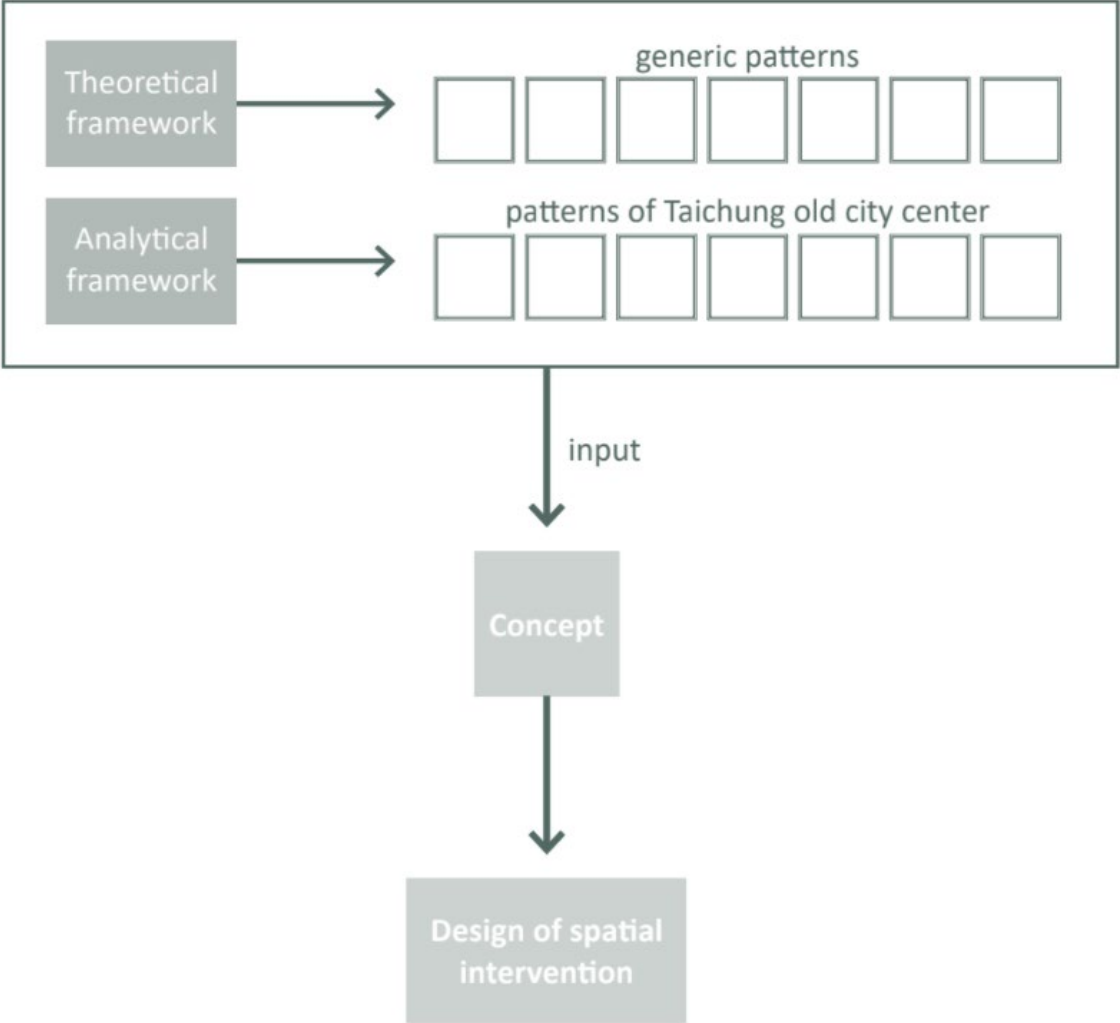
Current Model



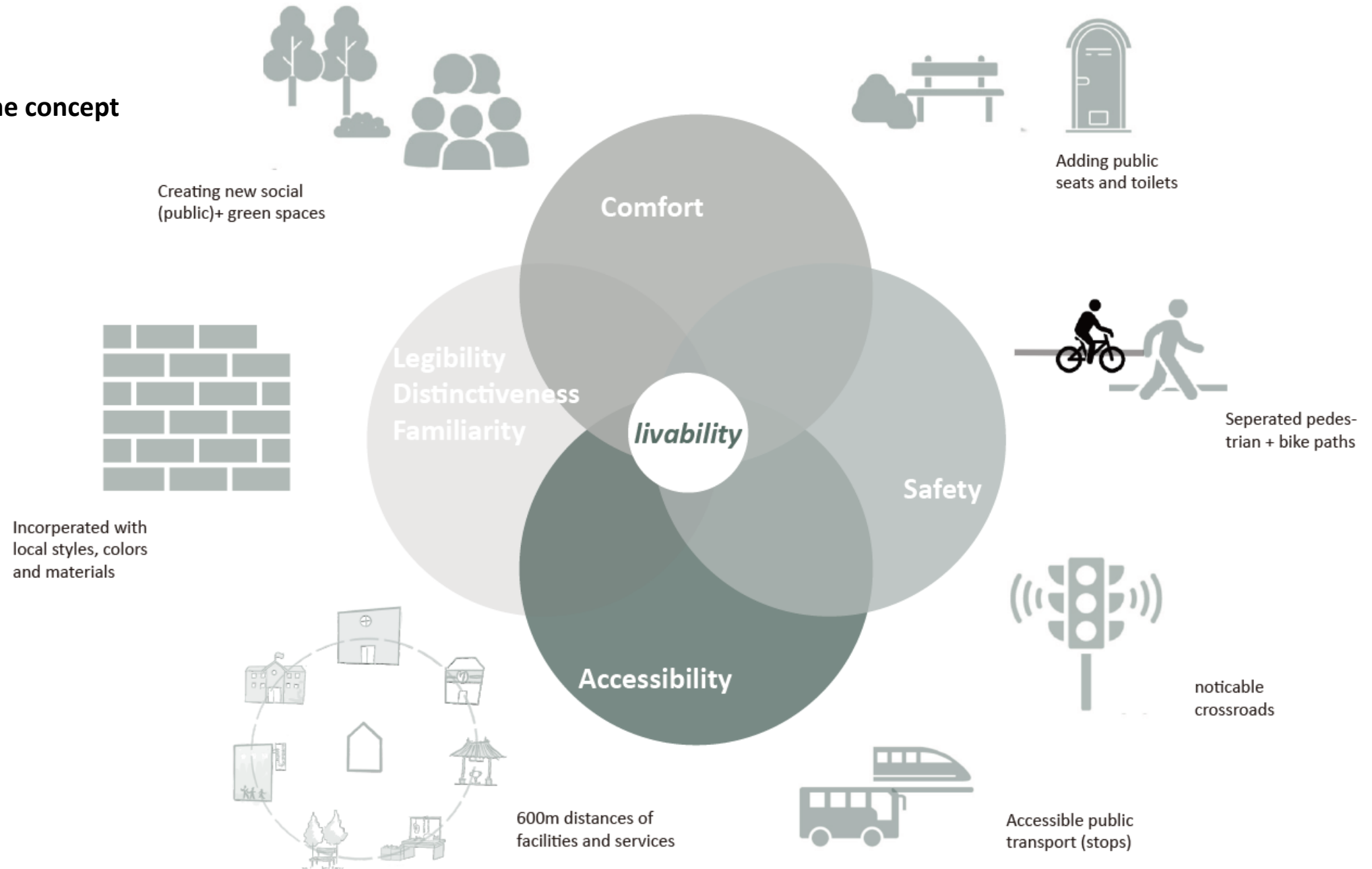
Superblocks Model

- Improving public transport system and facilities
- Changing infrastructure and system of the road
- Concentrated car park or parking on the edge of block





Topics of design interventions in the concept



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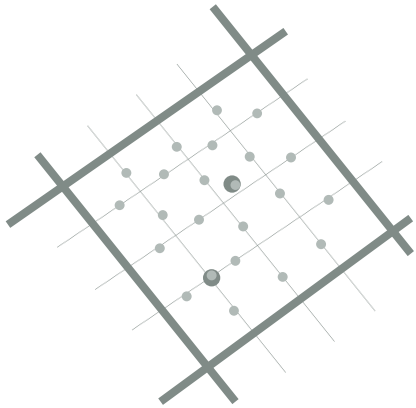
over 80

Community-based services such as food delivery or shuttle bus to community center or medical facilities is important for elderly people at this stage

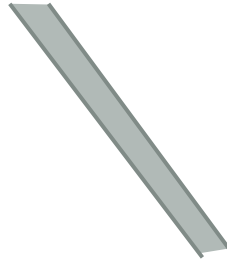


New car park plan in old city center

Design proposal



The patch



The line



The spot



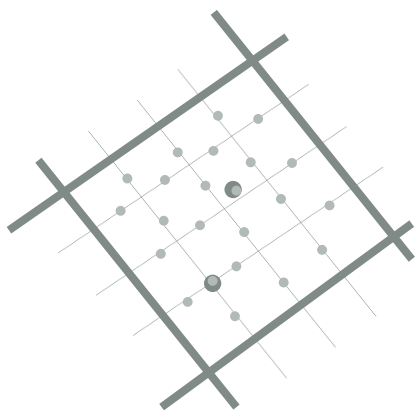
The dot

scale

large

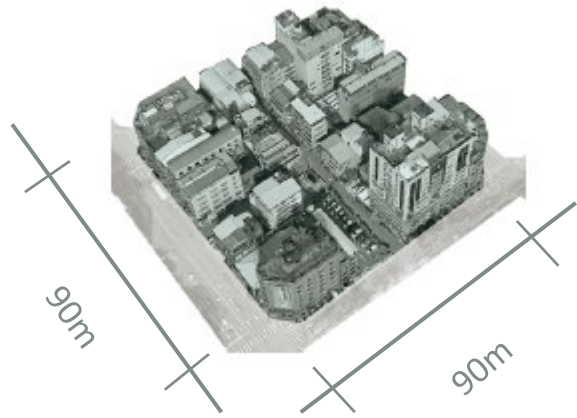


small



The patch

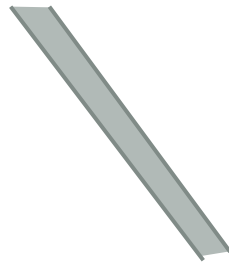
The patch



Current model



Future model



The line

The line



Current model



Future model



The spot

The spot



Current model



Future model



The dot



AN IDEAL day of elderly inhabitant



6AM
At home



7AM
At green public space



8AM
At traditional wet market



9AM – 2PM
At social public space



5PM
At social public space

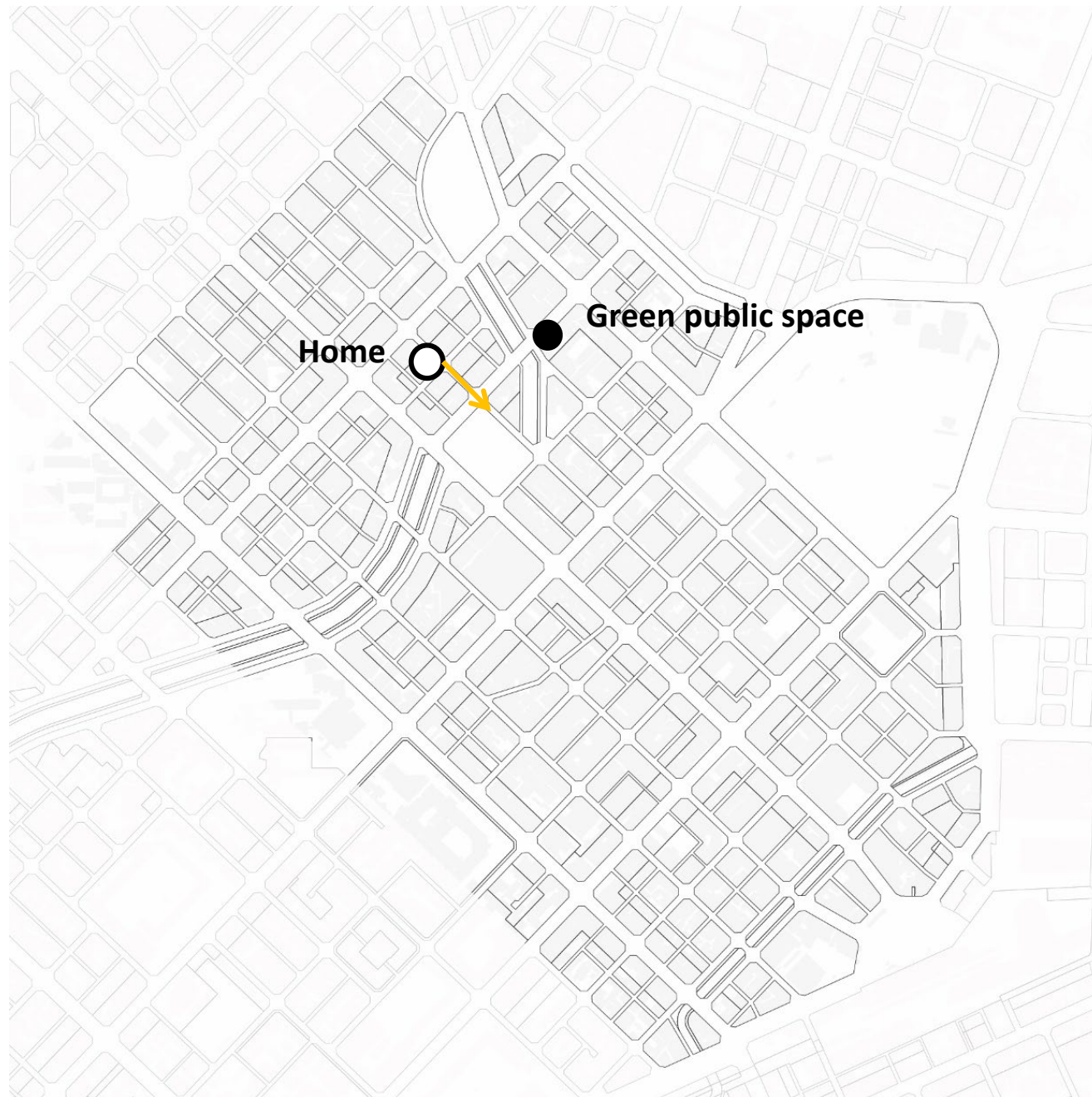


9PM
At home



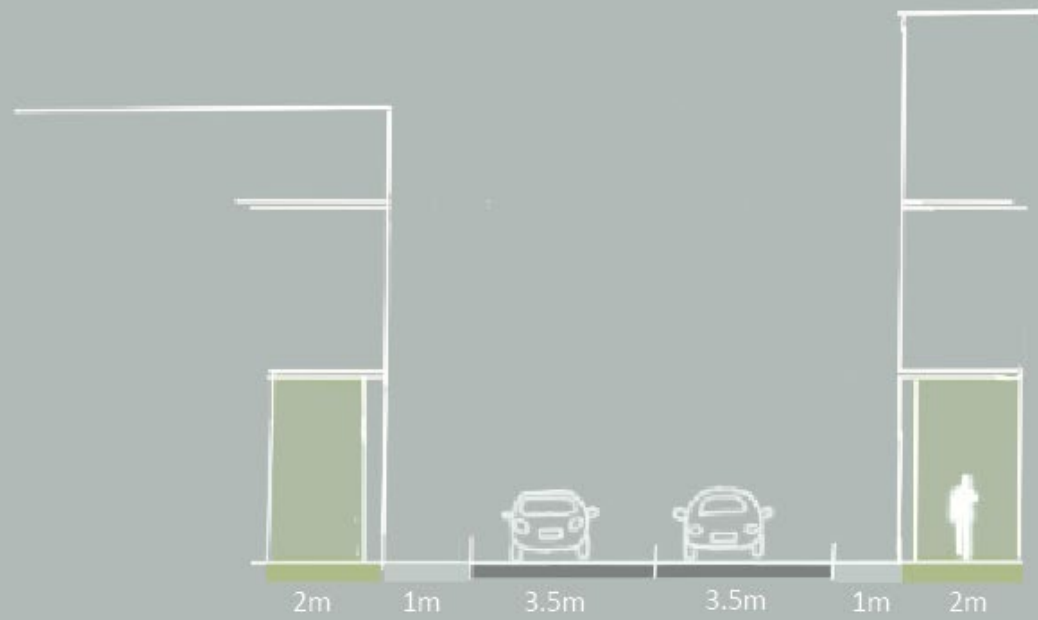
6AM---→7AM

Home--→green public space



Slow traffic street – the yellow line

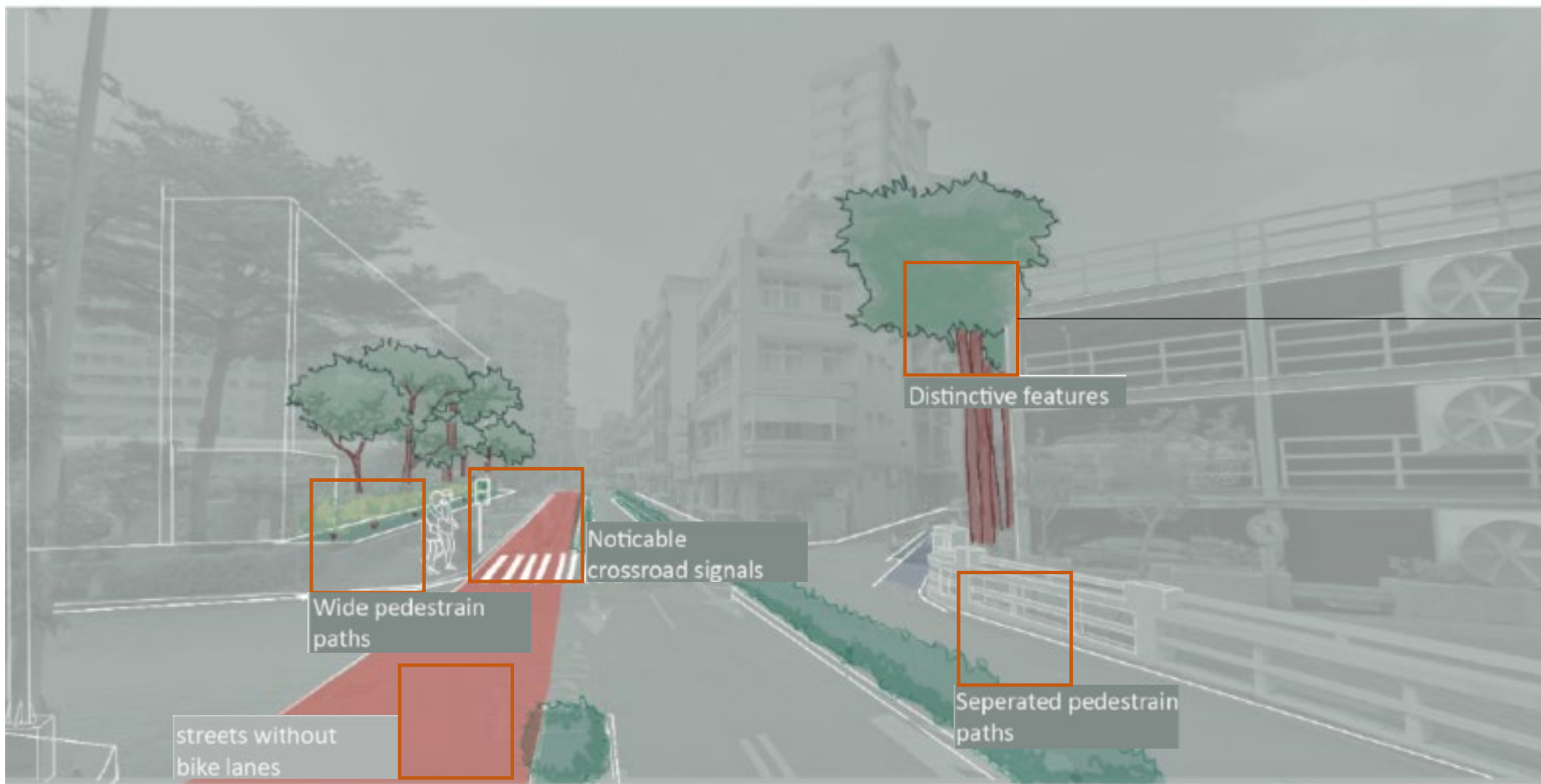




current road layout

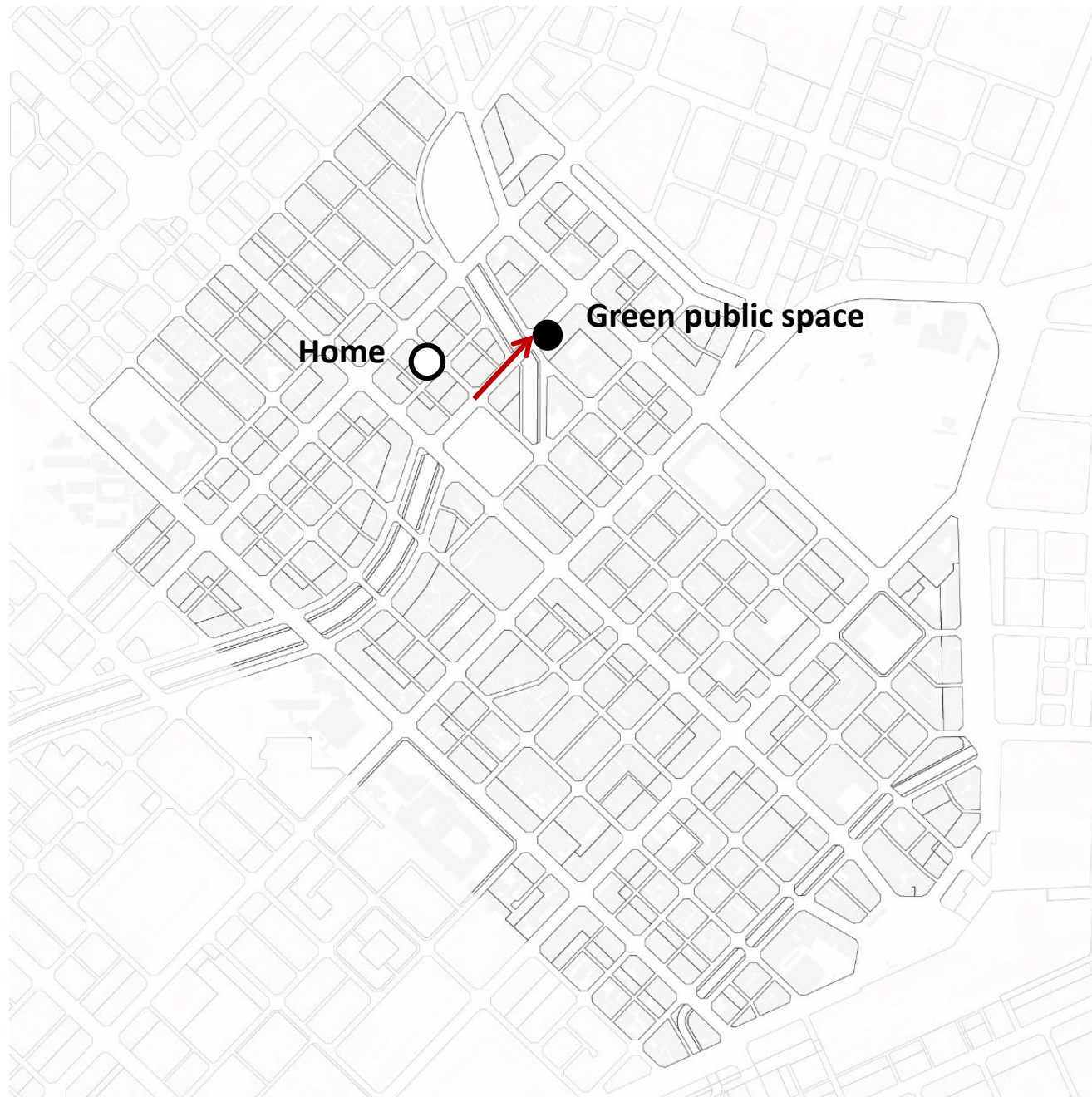


vision road layout



6AM---→7AM

Home--→green public space

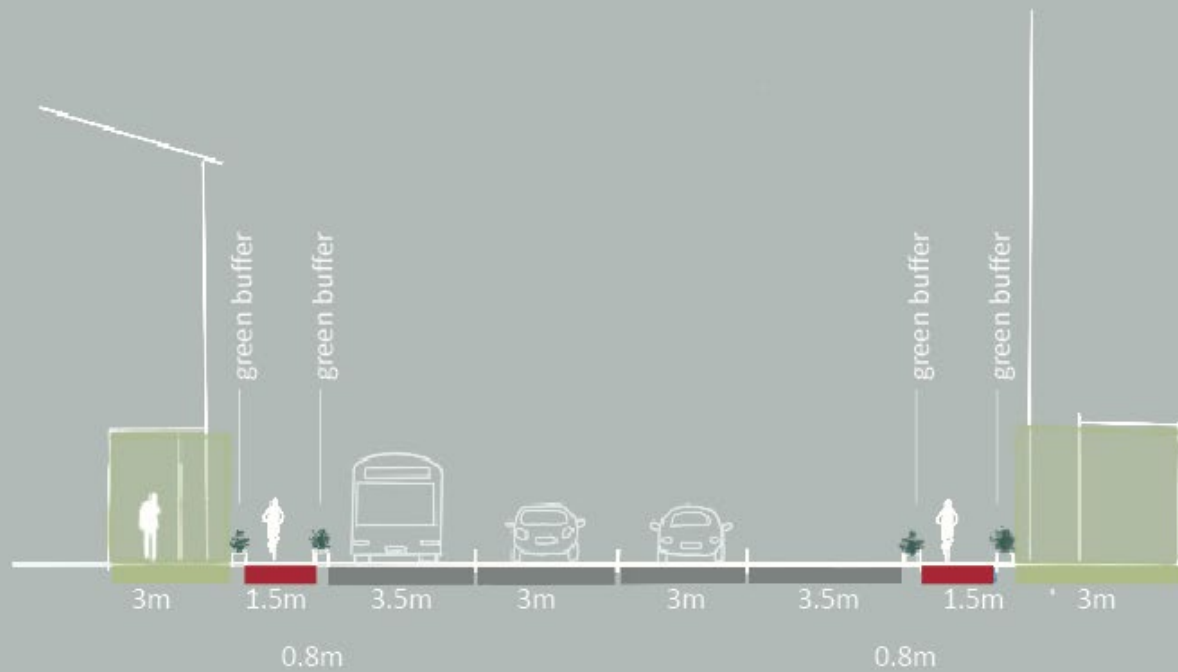


Major road – the red line

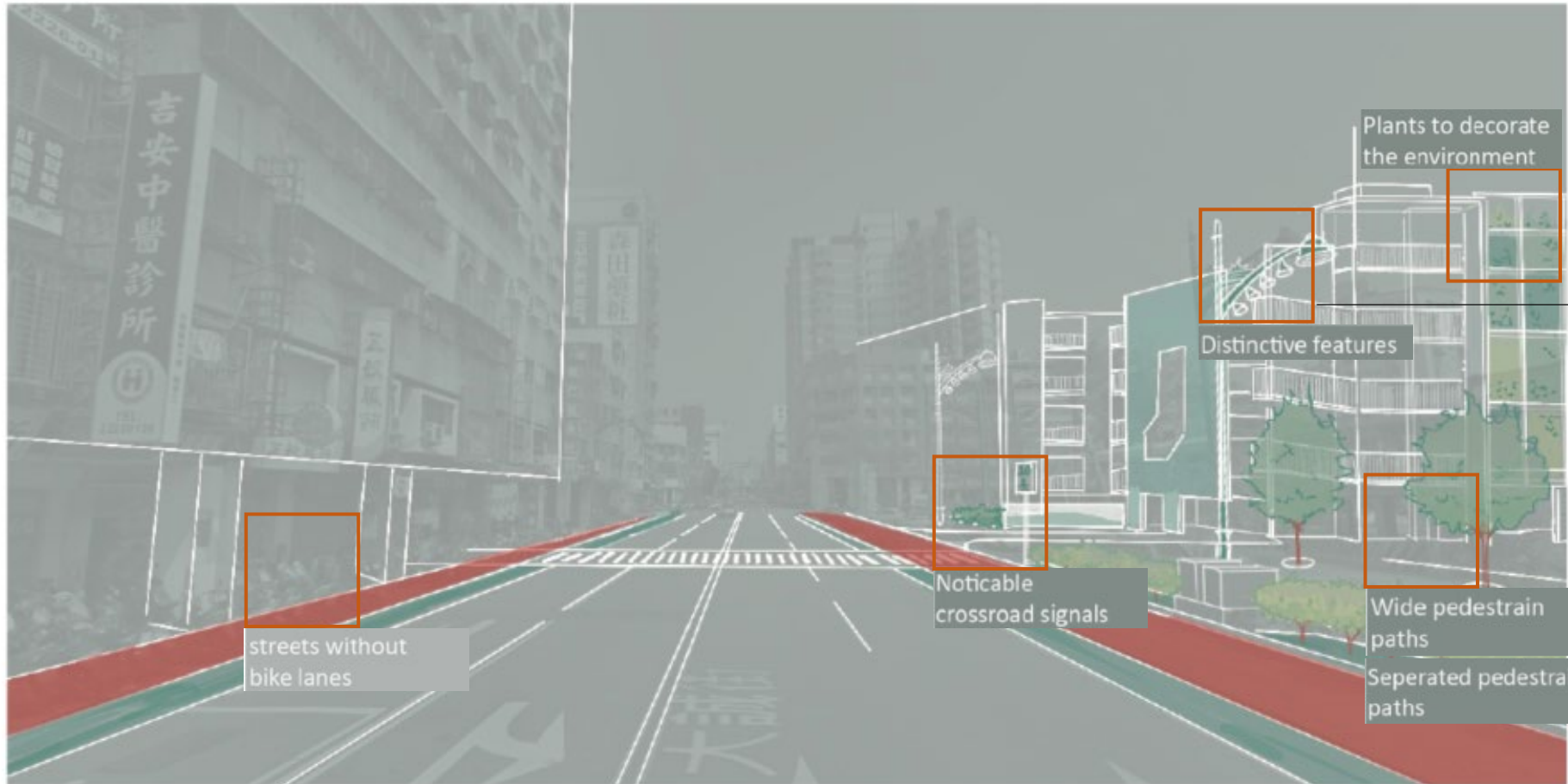




current road layout



vision road layout



streets without
bike lanes

Noticeable
crossroad signals

Plants to decorate
the environment

Distinctive features

Wide pedestrian
paths

Separated pedestrian
paths





Social public space----Community plaza



Plants to decorate the environment

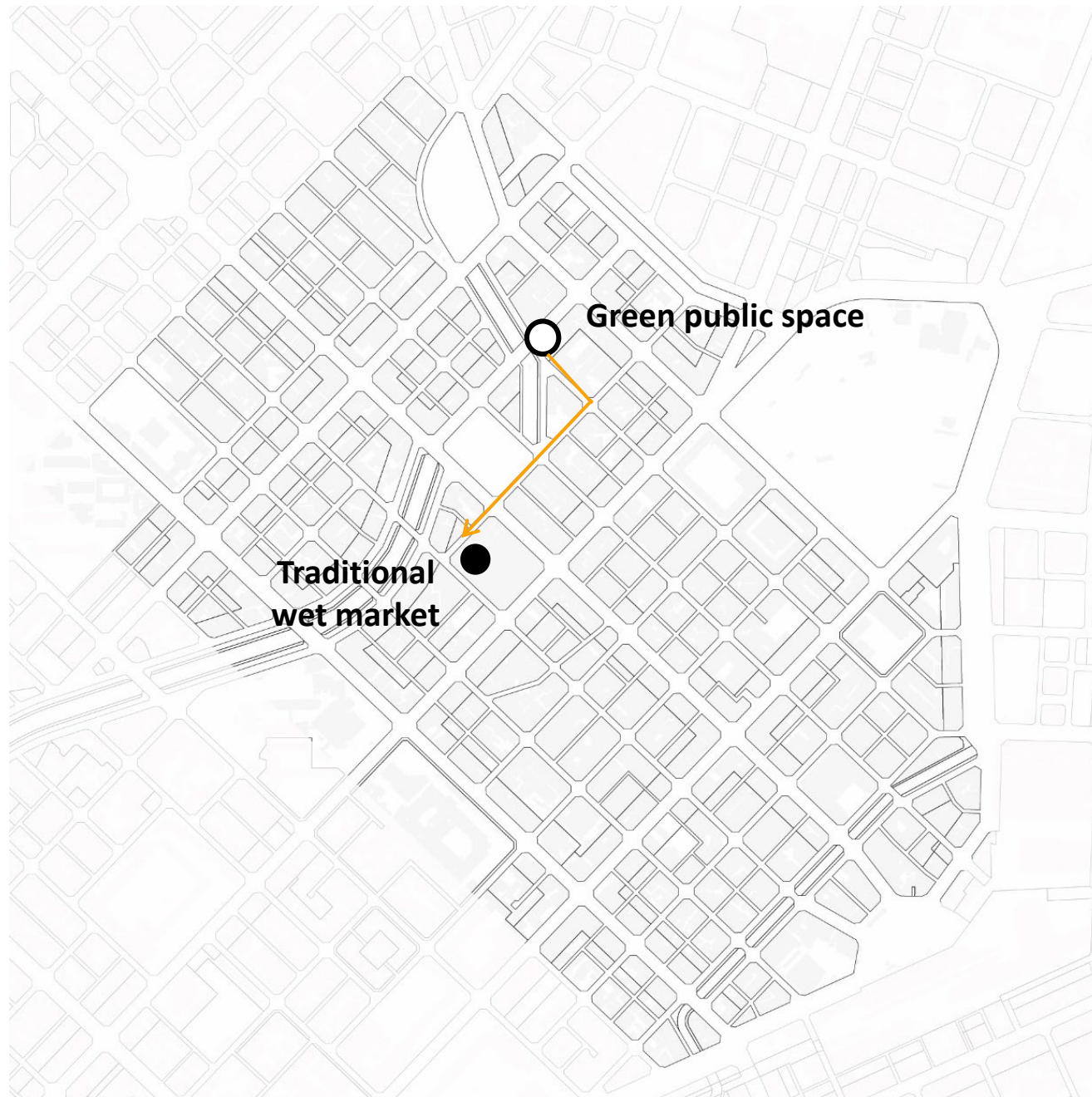
Self-made, small and informal social spaces

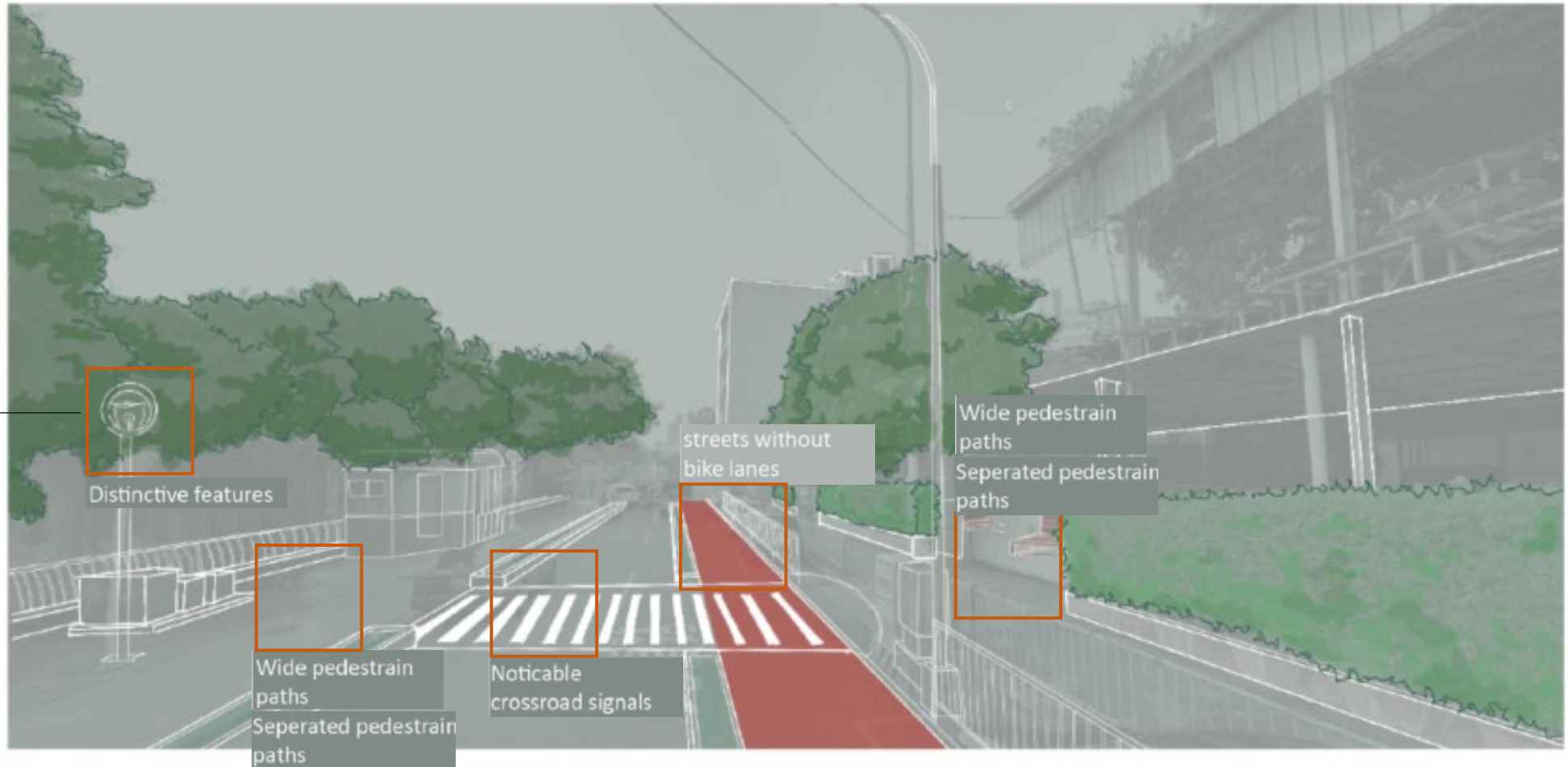
Incorporated with local styles, colors and materials



7AM---→8AM

Green public space--→
traditional wet market



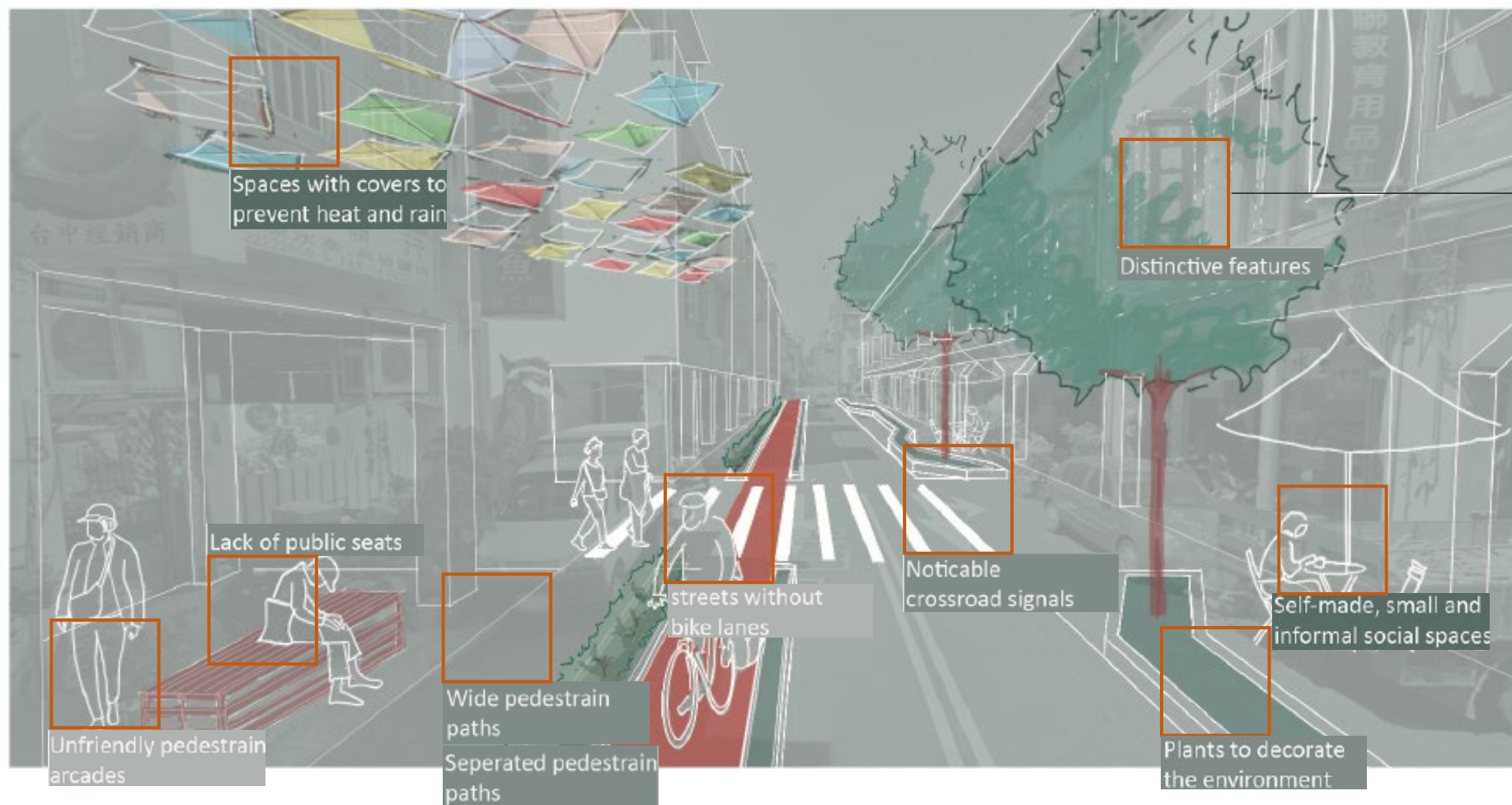


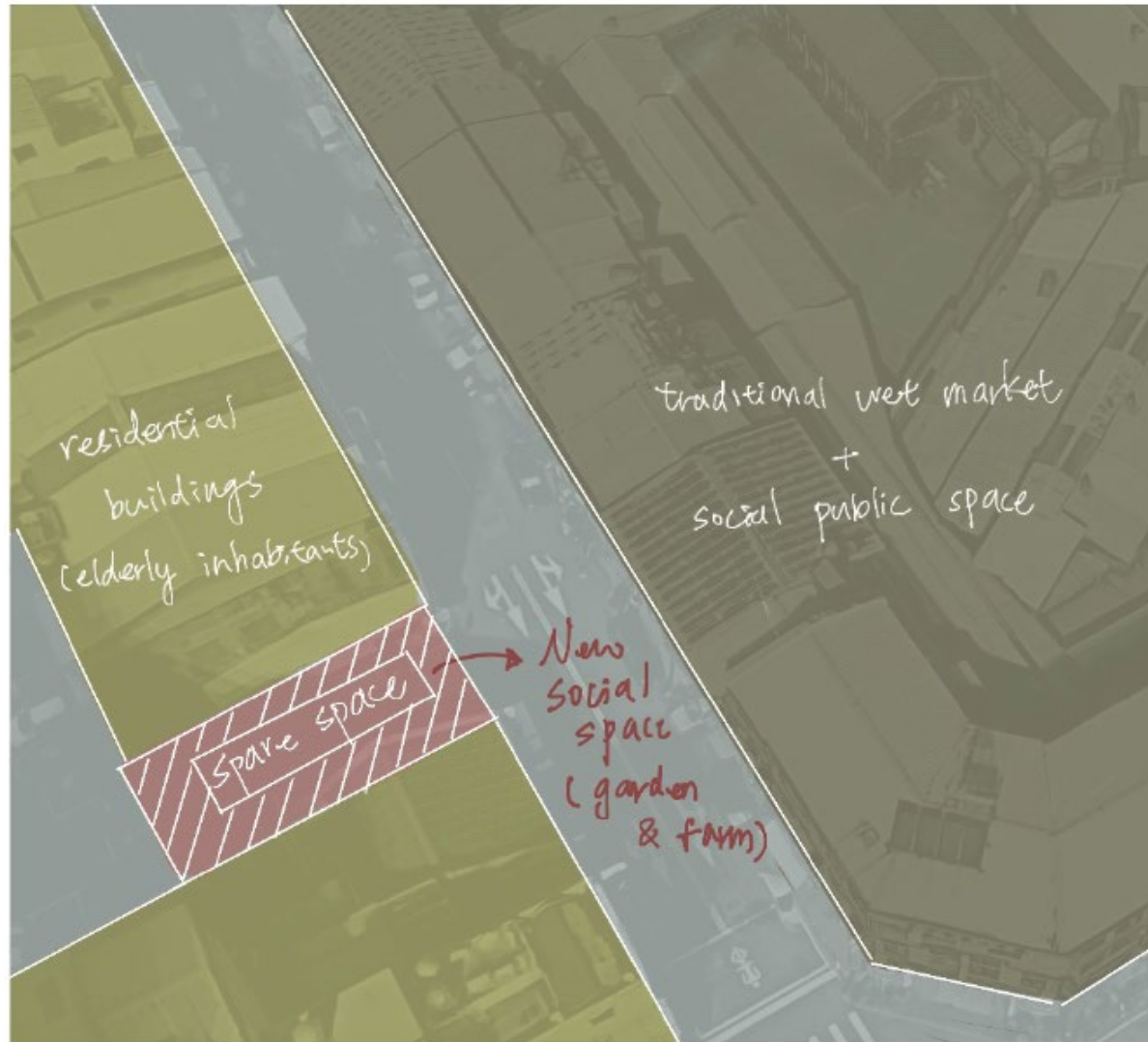


9AM---→2PM

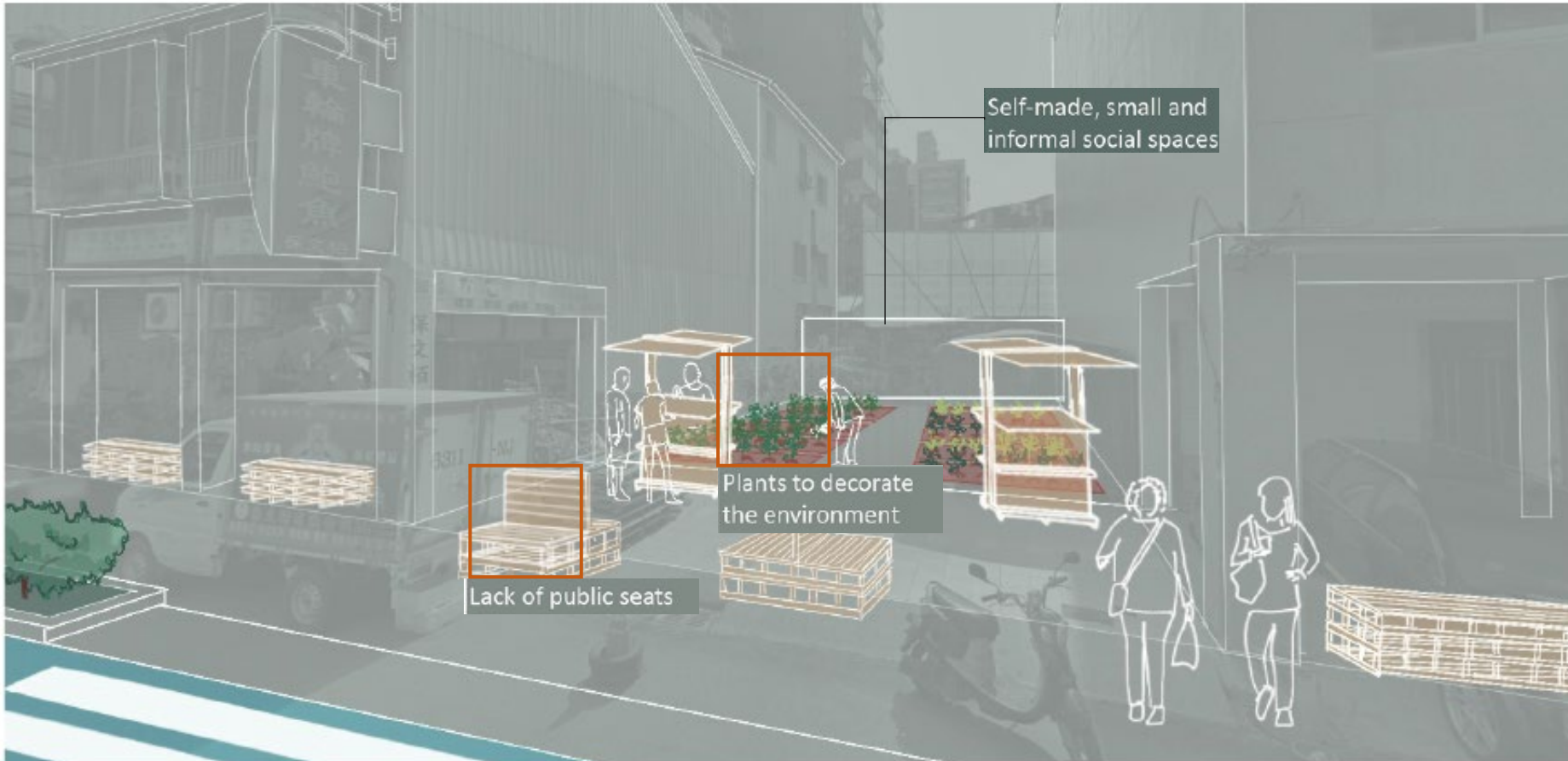
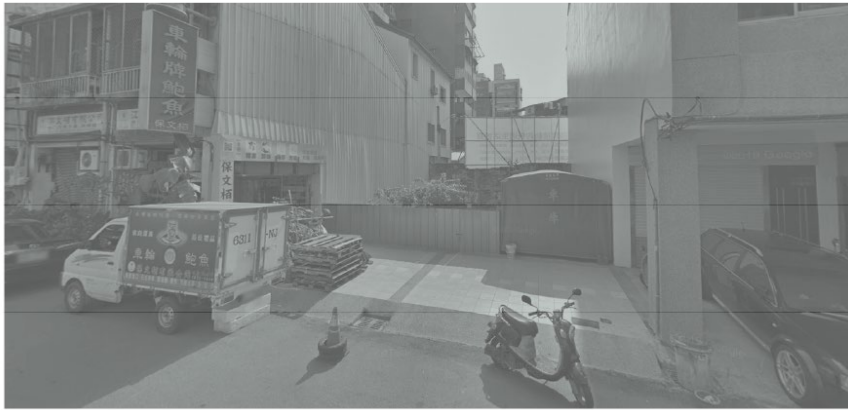
Traditional wet market ->
social public spaces





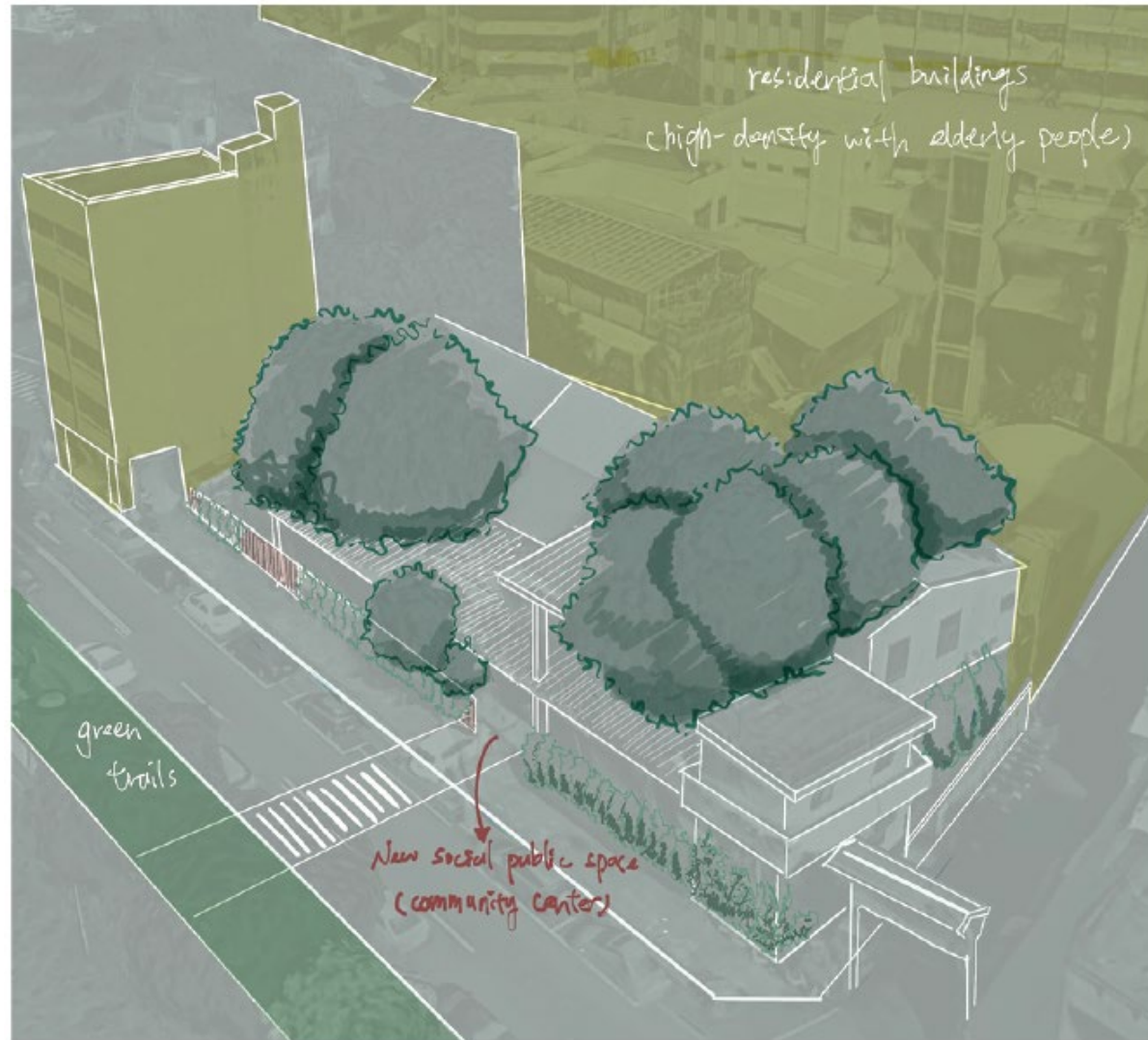


Social public space----Community garden

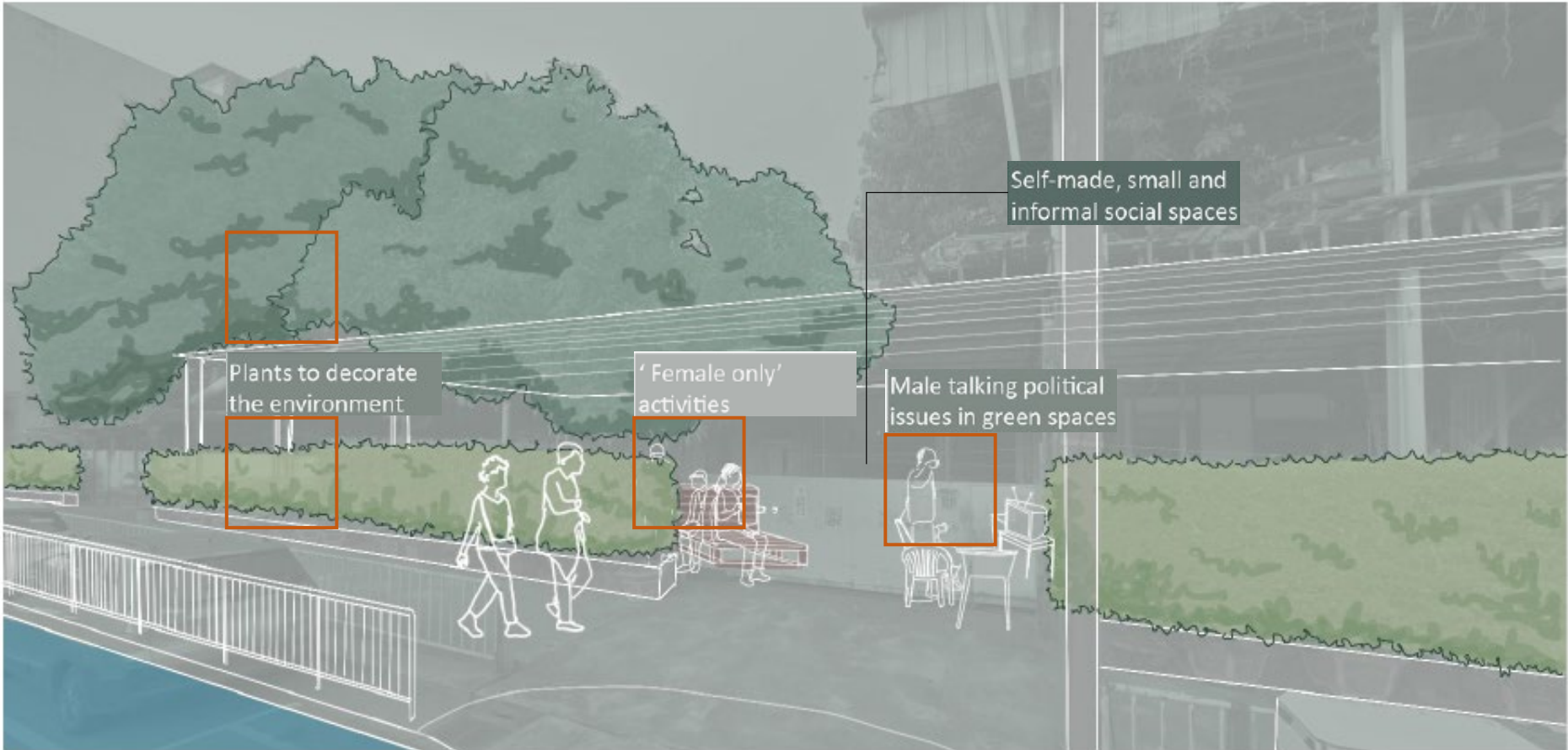


Incorporated with local styles, colors and materials



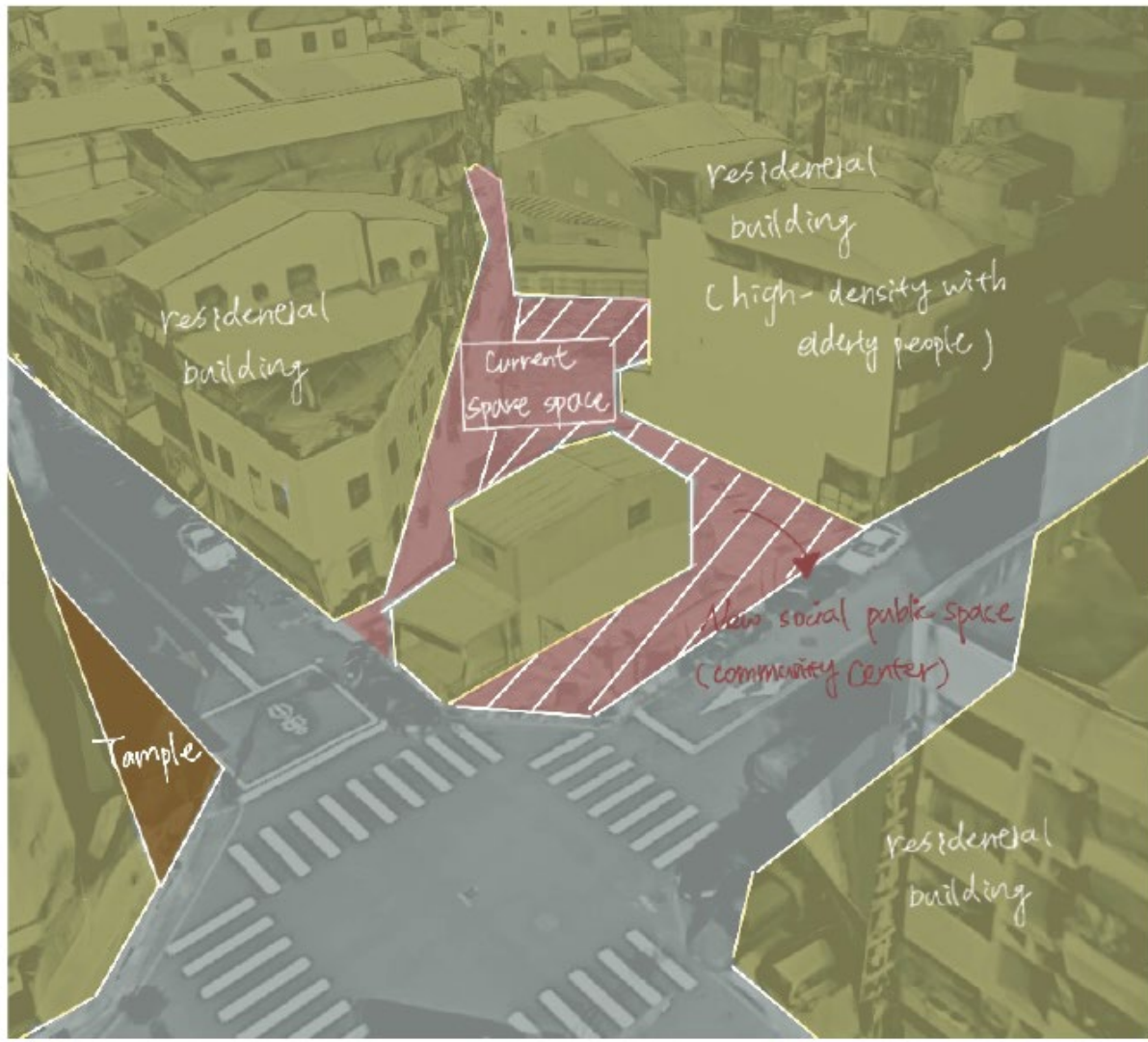


Social public space----Community center



Incorporated with local styles, colors and materials





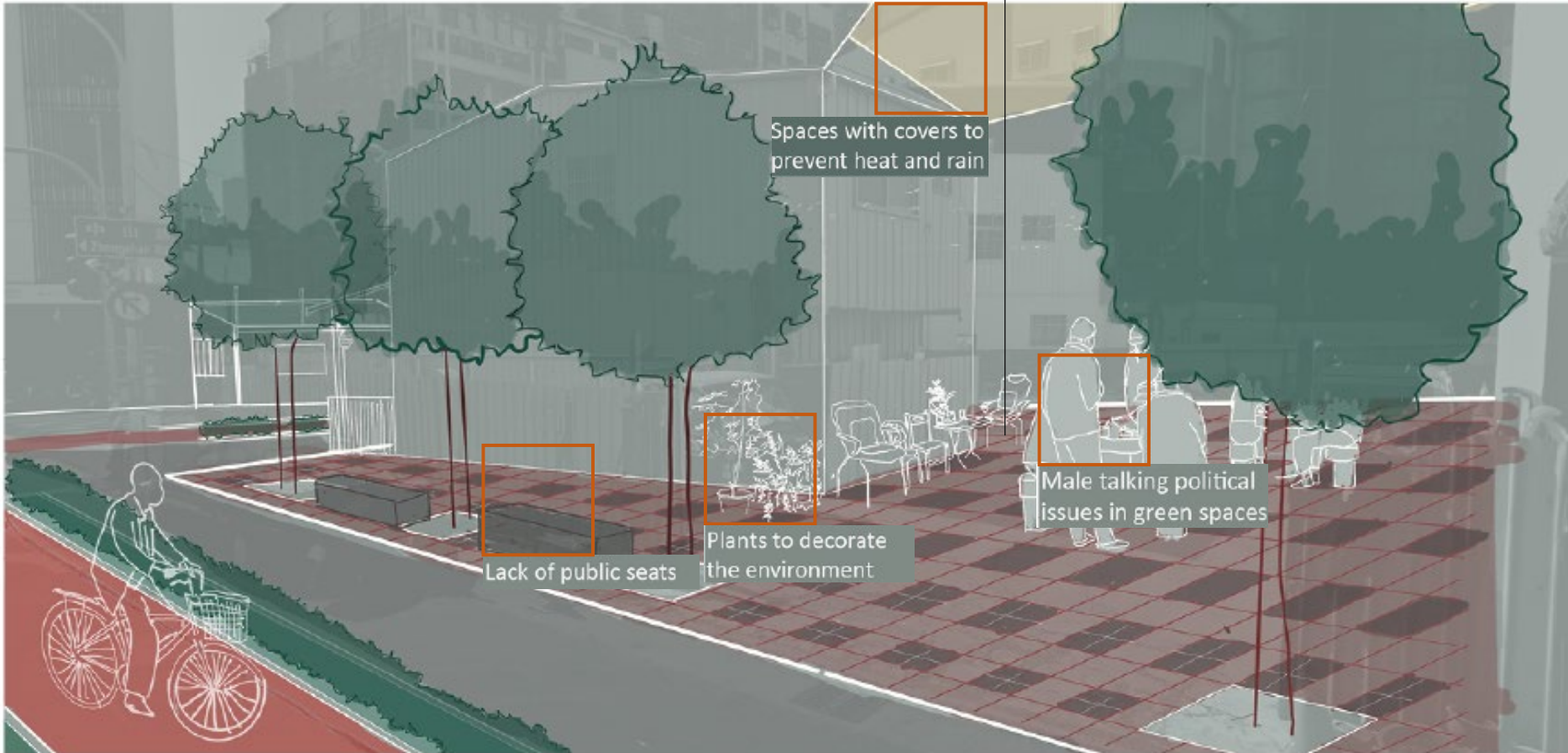
Social public space----Community plaza



Self-made, small and informal social spaces

Enjoy public spaces around their house

Lack of informal social spaces to stay



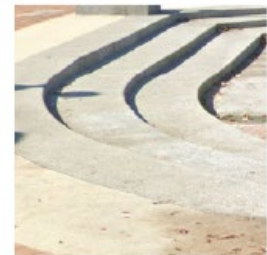
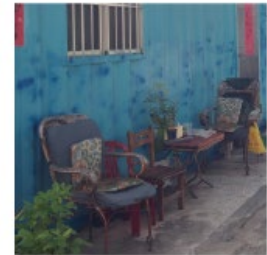
Spaces with covers to prevent heat and rain

Lack of public seats

Plants to decorate the environment

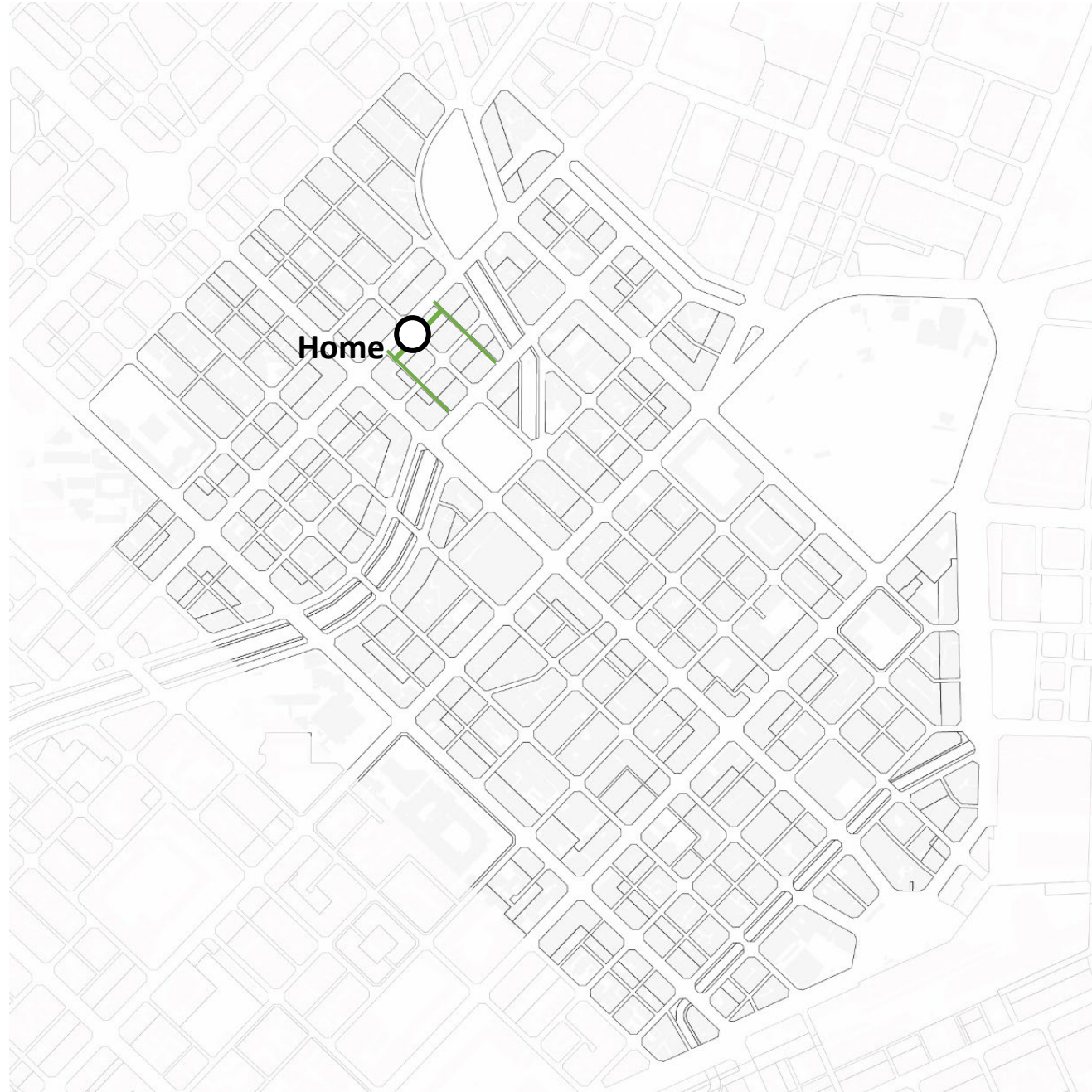
Male talking political issues in green spaces

Incorporated with local styles, colors and materials

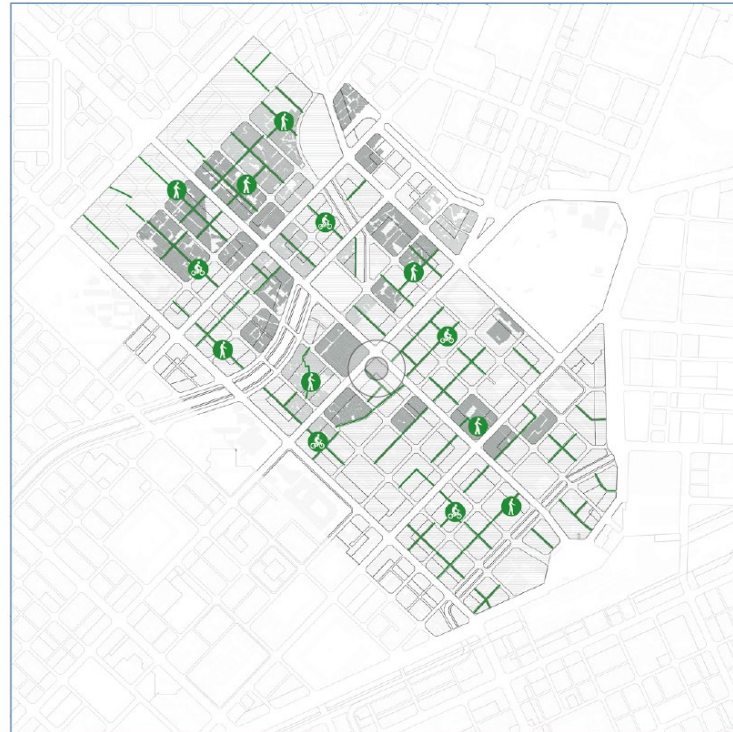


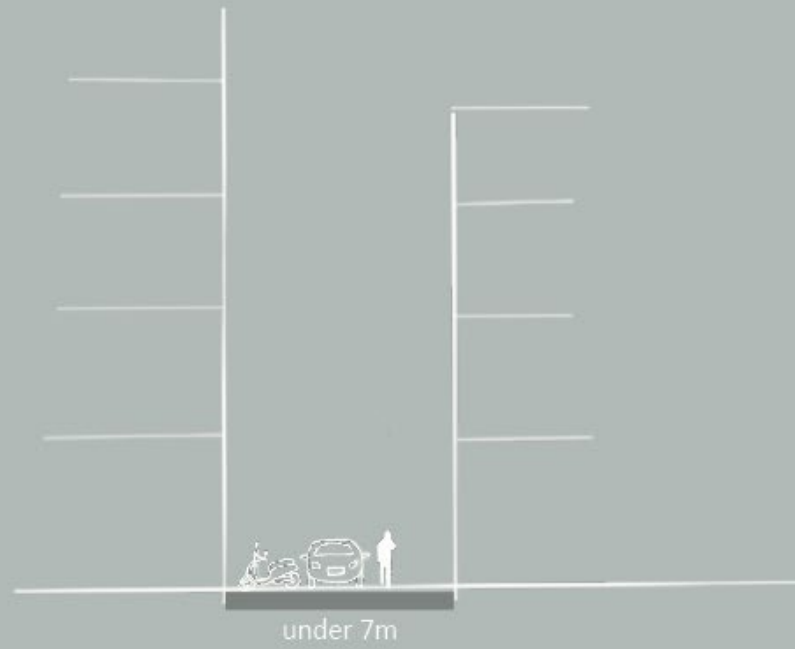
5PM

Public spaces

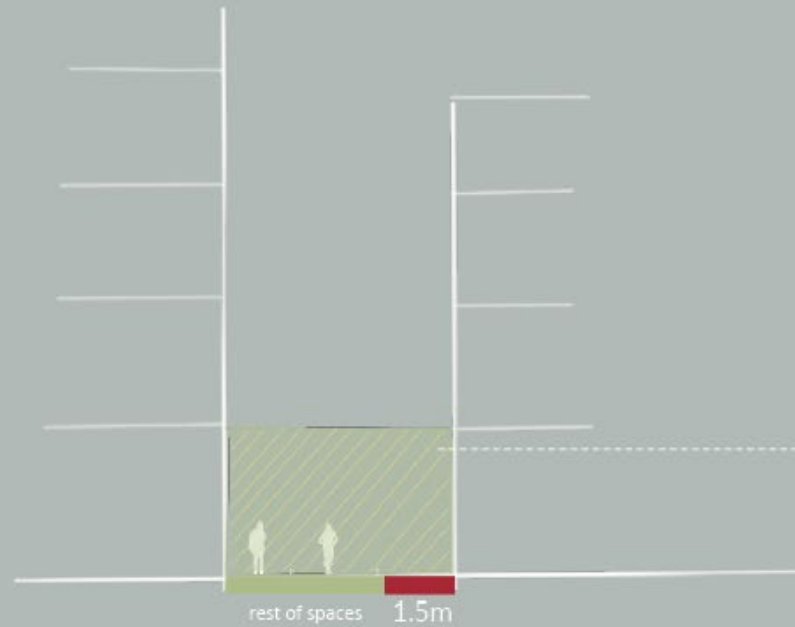


Non-car alley – the green line





current road layout

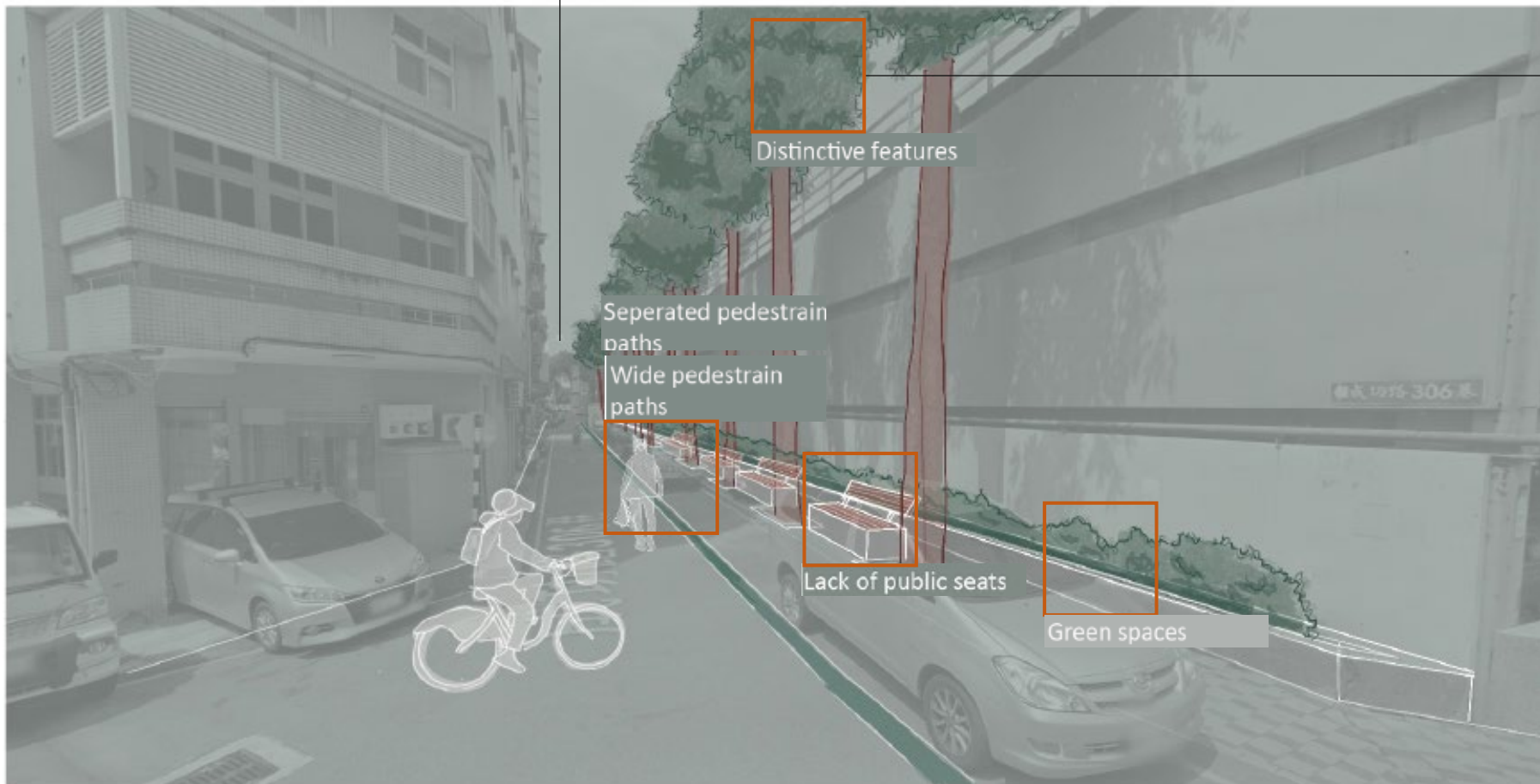


cars are only allowed to use in emergency circumstance

vision road layout



Enjoy public spaces
around their house



Distinctive features

Seperated pedestrain
paths

Wide pedestrain
paths

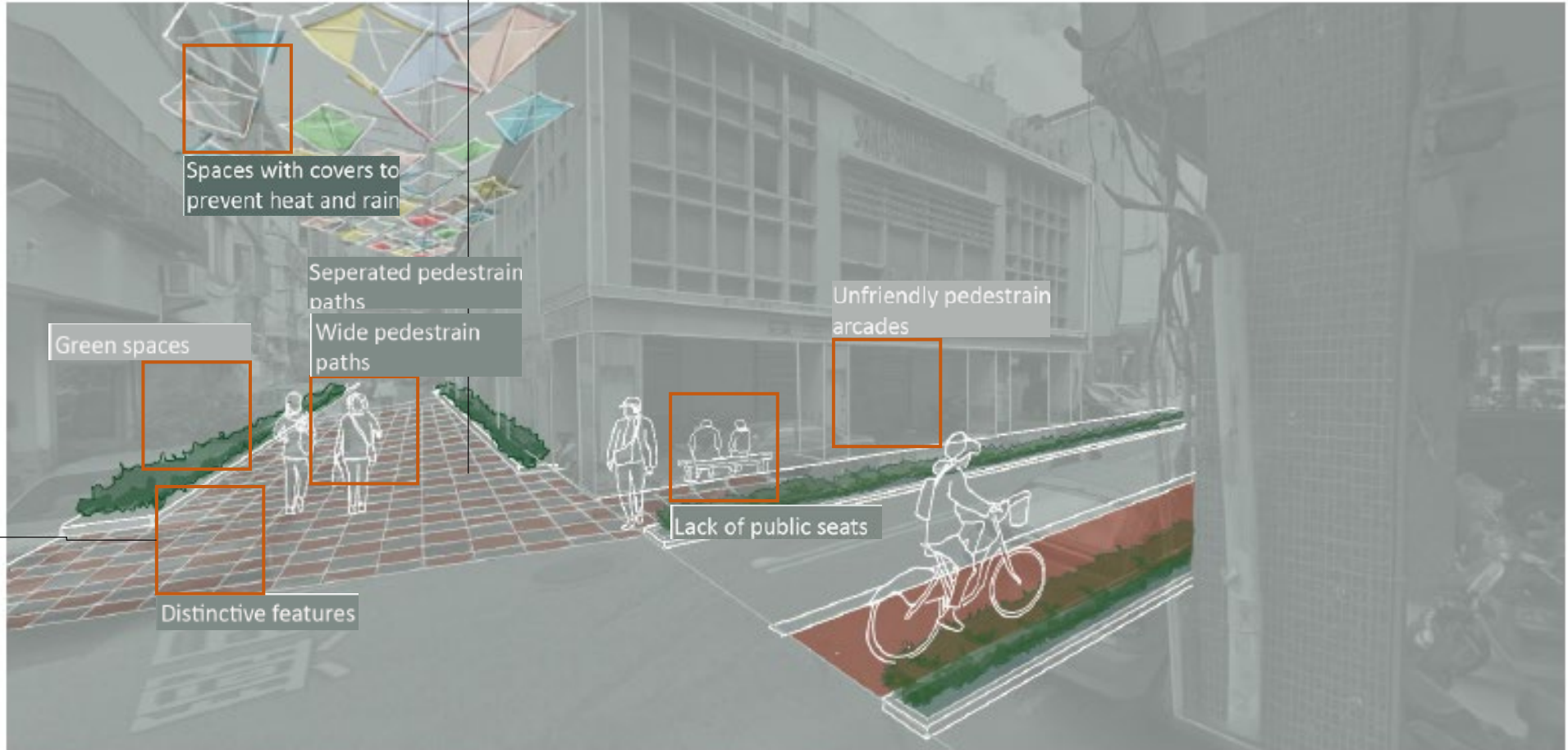
Lack of public seats

Green spaces





Enjoy public spaces
around their house



Spaces with covers to
prevent heat and rain

Separated pedestrian
paths
Wide pedestrian
paths

Unfriendly pedestrian
arcades

Green spaces

Lack of public seats

Distinctive features



“

How to revise public spaces in Taichung old city center through the spatial intervention which gives the priority for elderly people to encourage active ageing and enhance the independence of them?

”



Create nice and enjoyable social-public spaces which encourage ageing actively



Guarantee the accessibility to all kinds of facilities and services



Add places to rest (public seats and public toilets)



Safe and comfortable environment for pedestrians and cyclists



Green and covered of public spaces to prevent heats and rain



Preserve and incorporate with local feature to make sure the legibility of public spaces for elderly people

