

Mix-use Multi-Generational Housing In China

and retrofit subsidized housing area with neighbourhood amenities and open space
by Ling Liu





The density is a fact. Embrace it.

Mix-use **Multi-Generational** Housing In China

and retrofit subsidized housing area with neighbourhood amenities and open space



According to a 2009 census in China, 12.5% of its population which is 167,140,000 was age 60 or older (age 60 is the mandatory retire age in China). The population of age 80 or older reached 18,990,000. China's elderly population is the highest in the world, taking up one fifth of the world total aged beyond 60 population. Moreover, the number is still increasing rapidly. It only took 27 years for the population of age 65 or older increasing from 7% to 14%, while most developed countries, like America, took more than 45 years.

Our current society, however, is not planned for the elderly who requires more emotional and physical caring. Housing for the elderly, among all the problems, is the most pressing issue we need to pay much attention to. The guiding principle here is to provide the decent, health and happy living environment for the senior citizens in China.

There are some factors that need to take into consideration during the design process. First of all, culturally, for thousands of years, the Confucian philosophy adapted by the Chinese society value the virtue of filial piety. Respecting and supporting the elderly has been the cornerstone of Chinese social structure. The **multigenerational family pattern** has last for a long time. Although in today's society, some elderly don't want to live together with their children; most of them still prefer strongly to live close to their children and grandchildren.

Second, economically, the social security for the elderly in China is barely developed because the country is still undergoing industrialization and all kinds of system are still immature. Presently China's social security system primarily covers those working for the government or for state owned enterprises. As such, in 2002 the nation's pension system covered only 45% of the urban workforce. Therefore, the most common way to take care of the frailest elderly in developed countries is too costly for China.

Third, the mandatory retirement makes people leave their work although they are still vigor. This project is also trying to create an environment for younger elderly to keep contributing to the community and society.

Mix-use Multi-Generational Housing In China

and retrofit subsidized housing area with neighbourhood amenities and open space

China has the **largest** elderly population aged over 60 in the world and it will be continue fast growing in the next **50** years

Mandatory retire age for all the government owned facility and company:
Men is **60**; Women is **50**.

One-child policy causes many family in **4-2-1** pattern.

A common scenario:

Wang's Family:

- Wang worked for a shoe factory; his wife was a nurse. They both retired.



Wang: 69



Wang's wife: 58

Li's Family:

- Li was a chef in a small restaurant; his wife was a retail seller. They both retired.
- Li's wife is in wheelchair because a surgery years ago. However, their apartment is not accessible, so she can barely go out.



Li: 67



Li's wife: 66

Xiao Wang & Xiao Li's family:

- Xiao Wang works for government;
- Xiao Li is a elementary school teacher.

Wang's son: Xiao Wang

Li's daughter: Xiao Li



Xiao Wang: 37



Xiao Li: 29

Their daughter: Xiao Hua



Xiao Hua: 4

A Humanistic Response

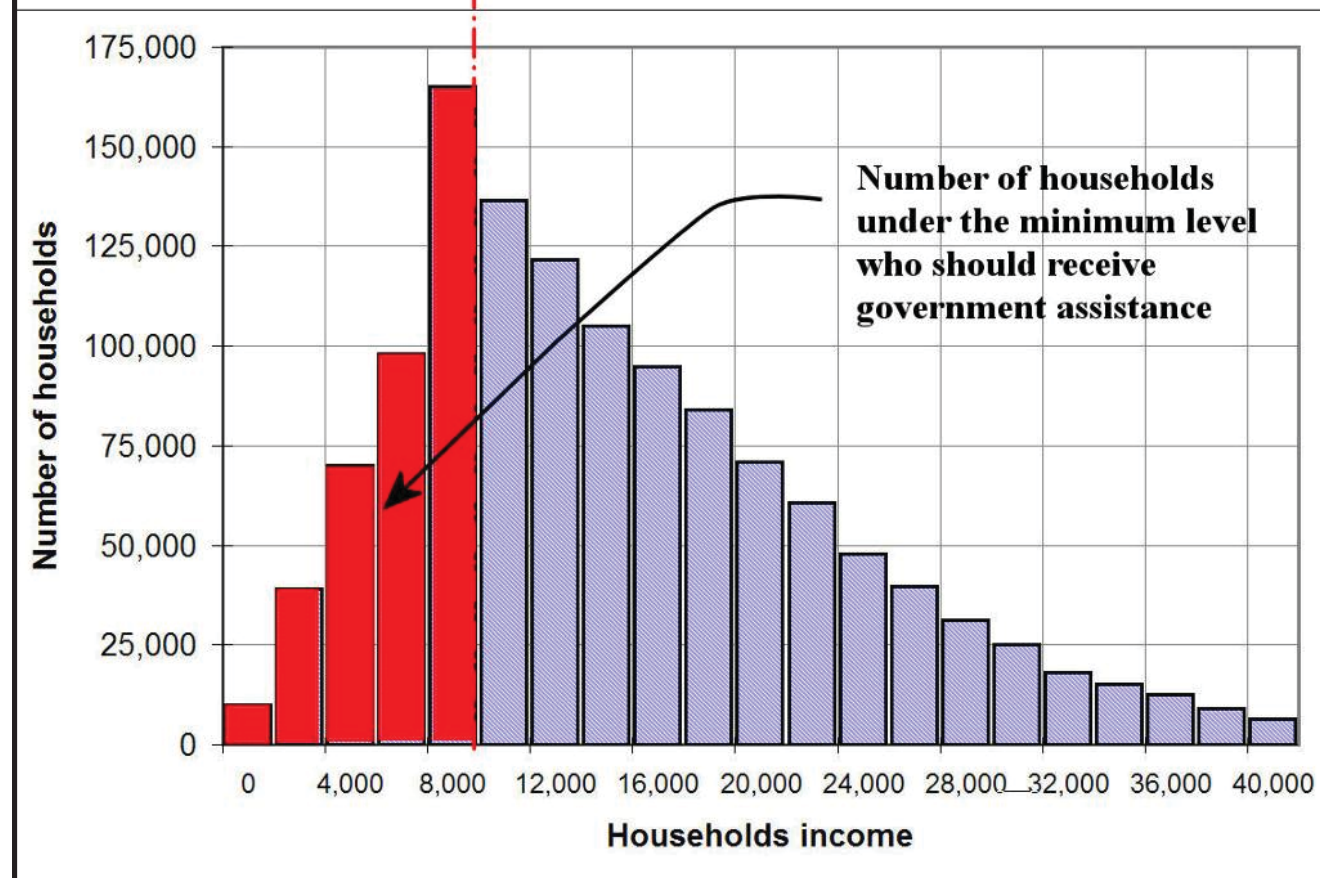
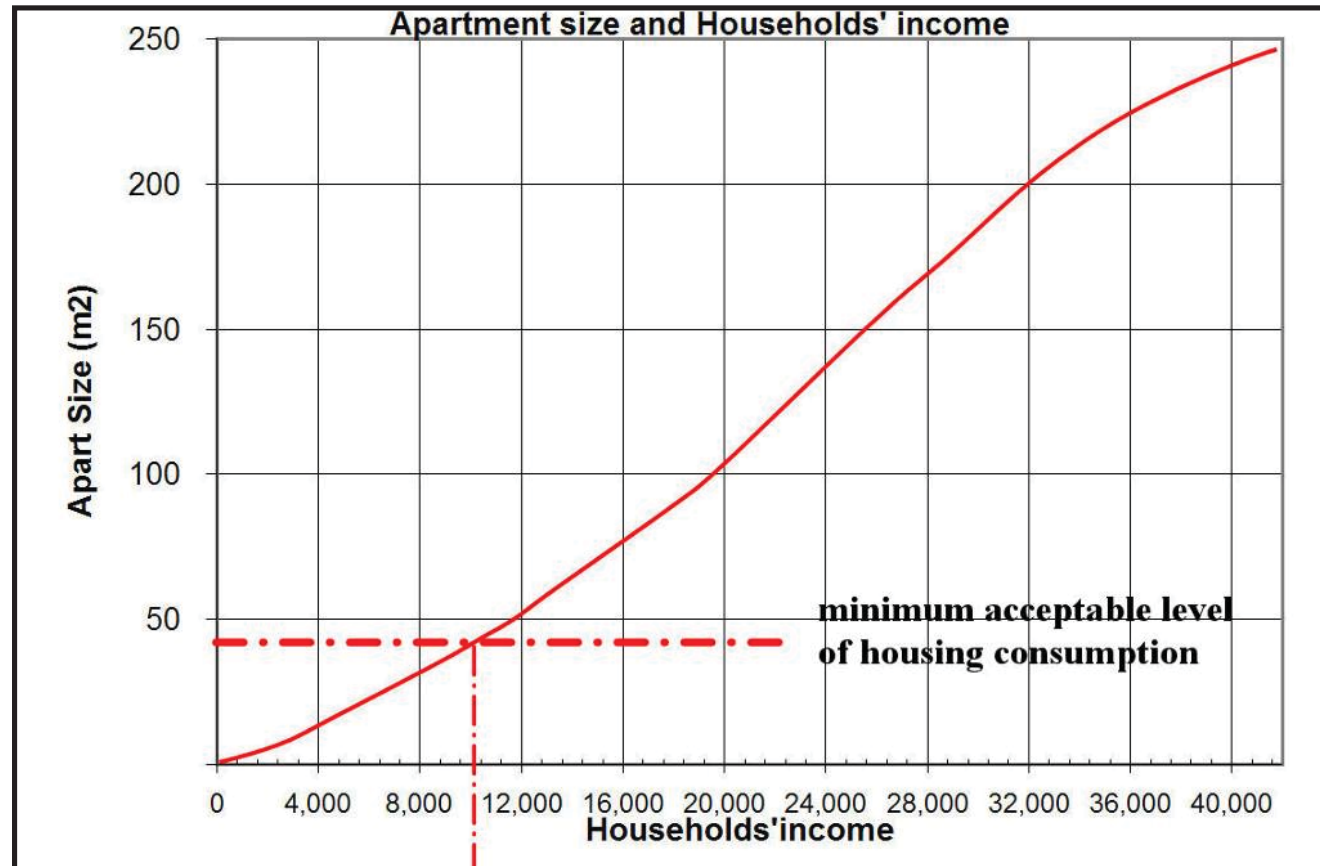
Too much population causes early retire age, one child policy, extremely high housing pressure, too little land for open space, little or no public facilities. Also, it causes the lost of many long tradition. The losing of multi-generational living is just one of them. This project is a humanistic response to the social problems.

Problems for the families:

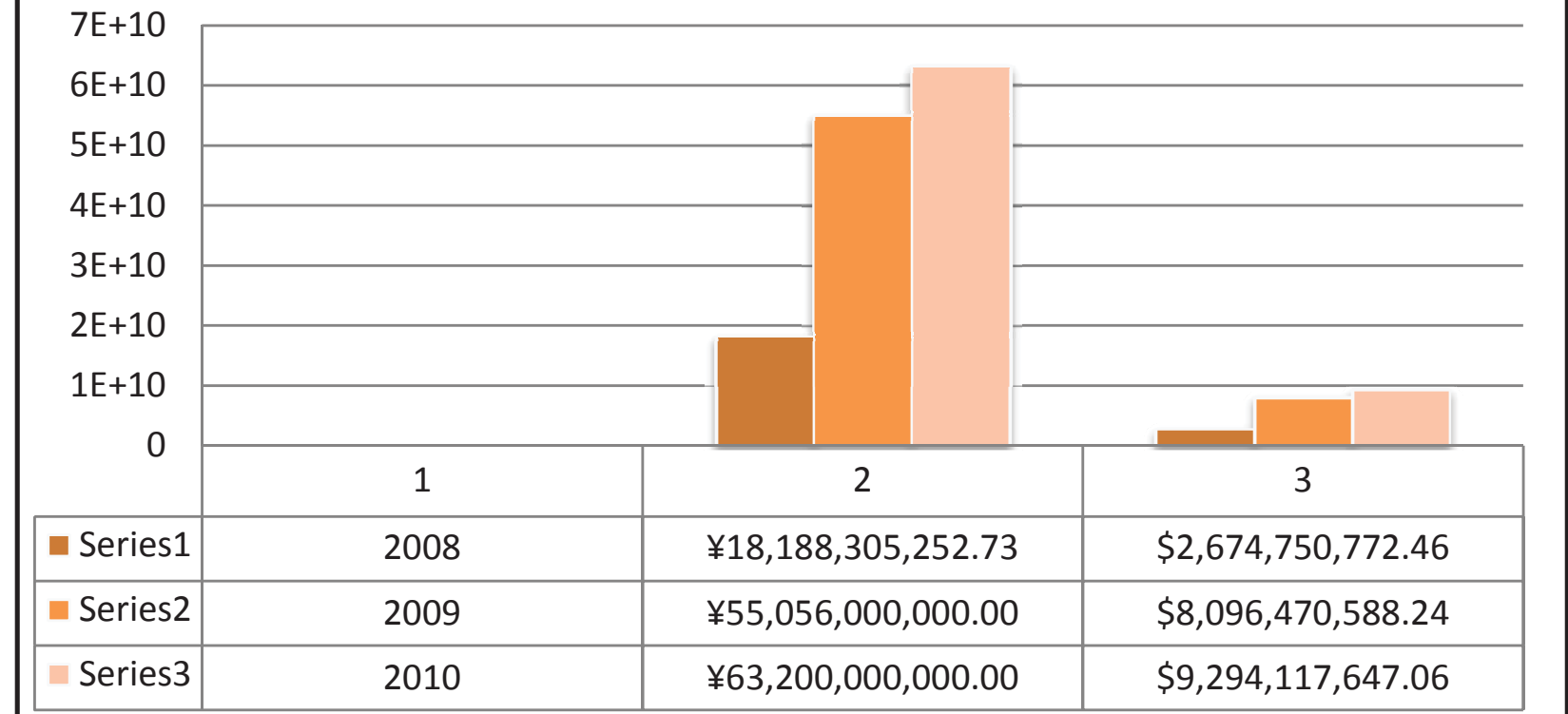
- Both parents want more time with their children and grand-daughter
- Li's apartment is not accessible, so Li's wife can barely go out.
- All elderly feel a sense of emptiness because retiring so young.
- Xiao Hua doesn't have outdoor play ground.

Mix-use Multi-Generational Housing In China

and retrofit subsidized housing area with neighbourhood amenities and open space



Government public expenditure for affordable housing



Affordable housing is divided into different categories in China.

-- Economic housing: about 60 square meters; sold well below market prices

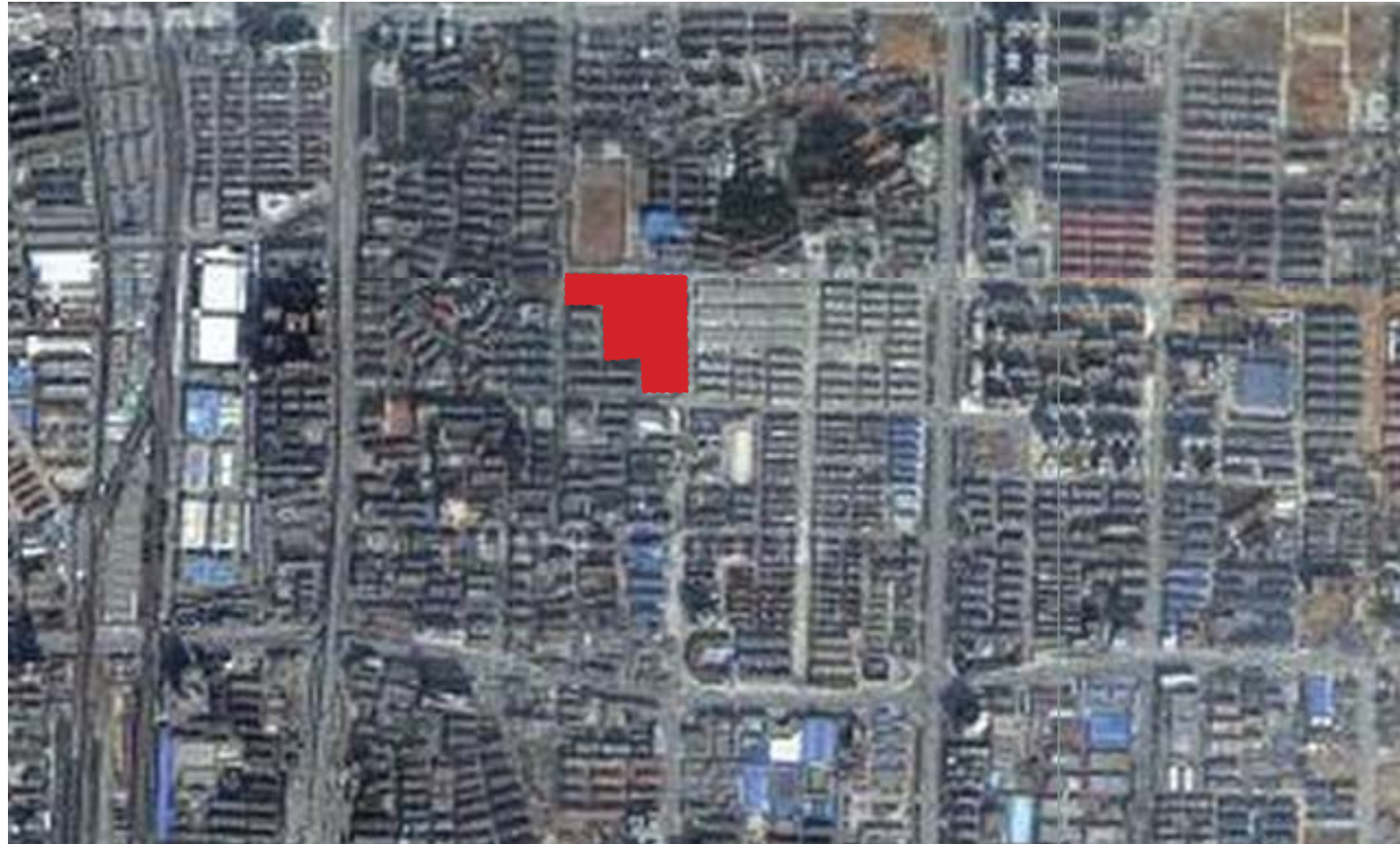
-- Price-capped housing: less than 90 square meters; prices capped by local governments when developers buy land lots

-- Low-rent housing: less than 50 square meters; owned by the government and rented to the extremely poor residents

-- Public-rent housing: less than 60 square meters; owned by the government, rented to a wider range of people than "low rent housing," including migrant workers and new graduates

Mix-use Multi-Generational Housing In China

and retrofit **subsidized housing area** with neighbourhood amenities and open space



What is **subsidized housing**?

In the past decades, China has undergone a high-speed urbanization all over the country. In order to fulfill the rapid growing needs of residential buildings, a great amount of low-rise (6-8 stories) subsidized multi-family housing projects were built in 1970s and 1980s.

What's **wrong** with it?

The problem I will address in the project is how to develop a new large housing complex in the existing subsidized residential area. The new type of housing will be designed for the aging society, also improve the living environment for the existing area with public amenities and open space.

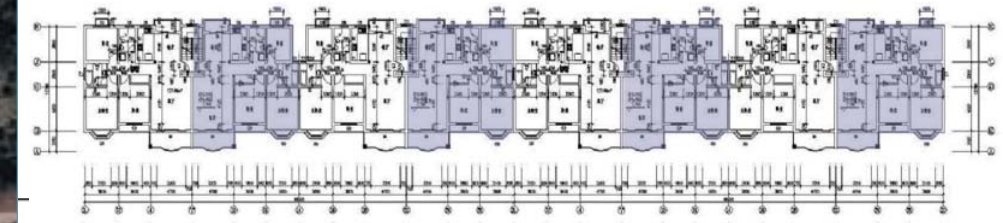
Although I will create a particular design for Huoxing, the concept generated here may be useful in many other new developments in the subsidized housing area.

What is the **project**?

Since the projects were erected quickly and on a limited budget, the public spaces and facilities were poorly planned, designed and constructed. Consequently, children have no playground near their homes, sport fields and facilities are few and always crowded, and no spaces for outdoor activities and very few public libraries exist.

Mix-use Multi-Generational Housing In China

and retrofit **subsidized housing area** with neighbourhood amenities and open space



Parameters about the subsidized housing units

- Structure: Clay-base brick and concrete
- 6-8 stories
- Single loaded
- No elevators
- Typical unit size: 800 sq ft for three bedrooms

How to modify within these parameters in this project

- Remain the density, keep the cost down
- Single loaded
- Add elevators
- Typical unit size: 700 sq ft for two bedrooms

Variables

- Approximately 10% of the units in the project will be 850 sq ft for two beds, 10% of the units are loft, about 1400 sq ft for three bedrooms.

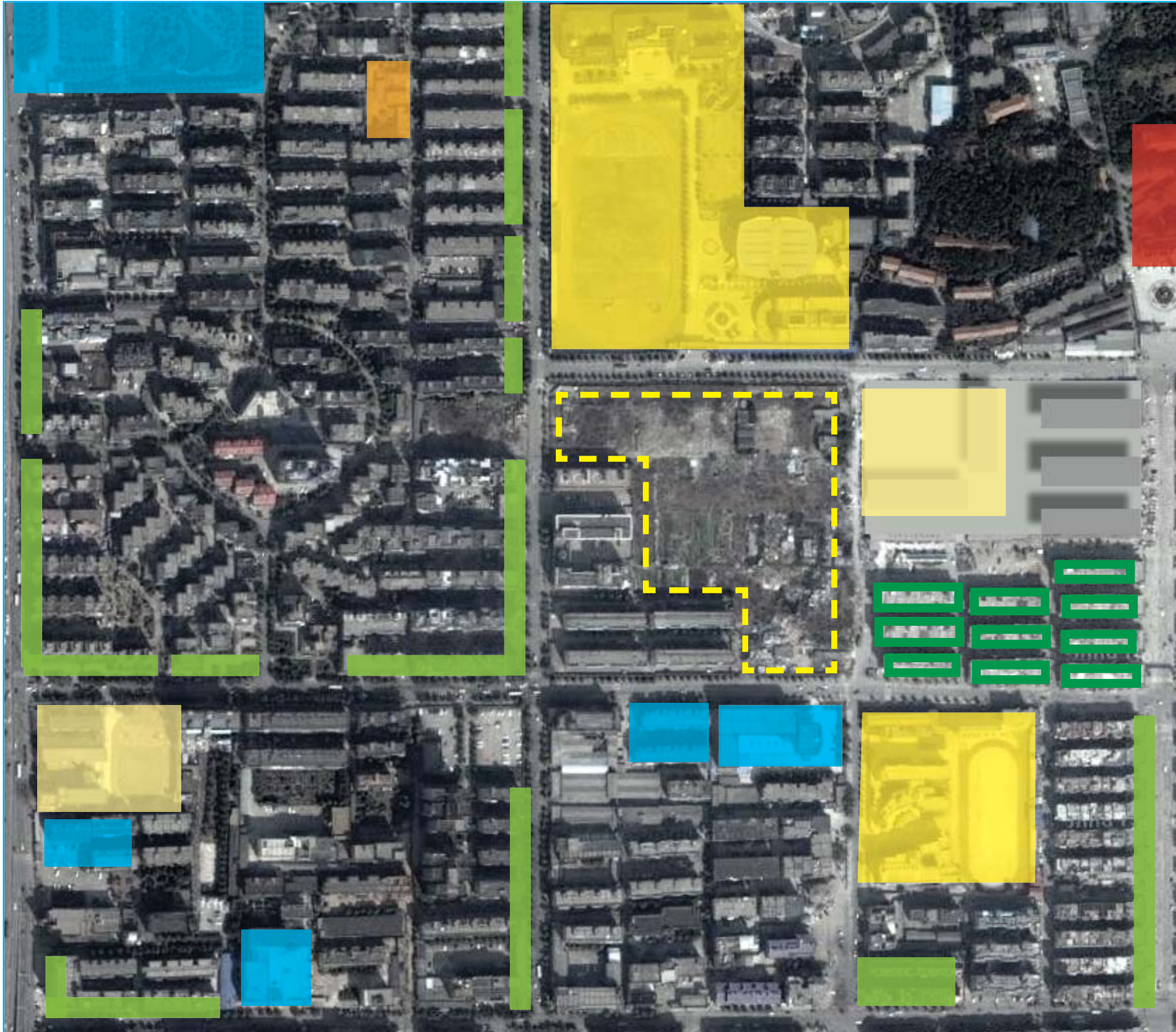
Site Analysis









Changsha:
Capital of Hunan Province

Area: 556 sq km
Population: 2,187,500
Population/ sq km: 3932
Climate: humid subtropical climate, four distinct seasons
Temperature: a mean of 4.6 °C (40.3 °F) in January and
29.0 °C (84.2 °F) in July
Humidity: 81.8%

Site Analysis



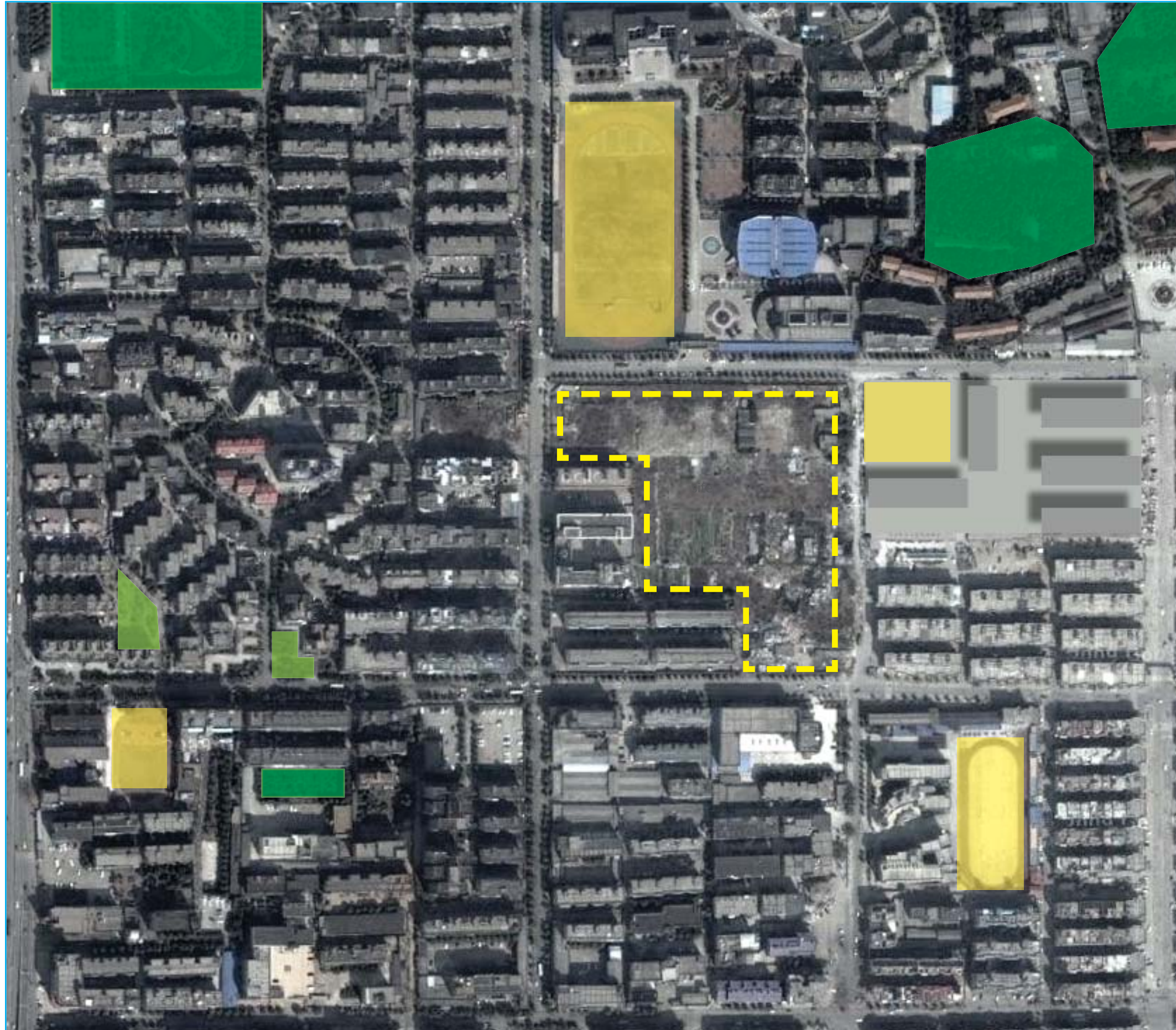
-  middle/ high school
-  elementary school
-  kindergarten
-  institution
-  commercial(restaurant, retail...)
-  commercial(home depot...)
-  hospital




Site Analysis



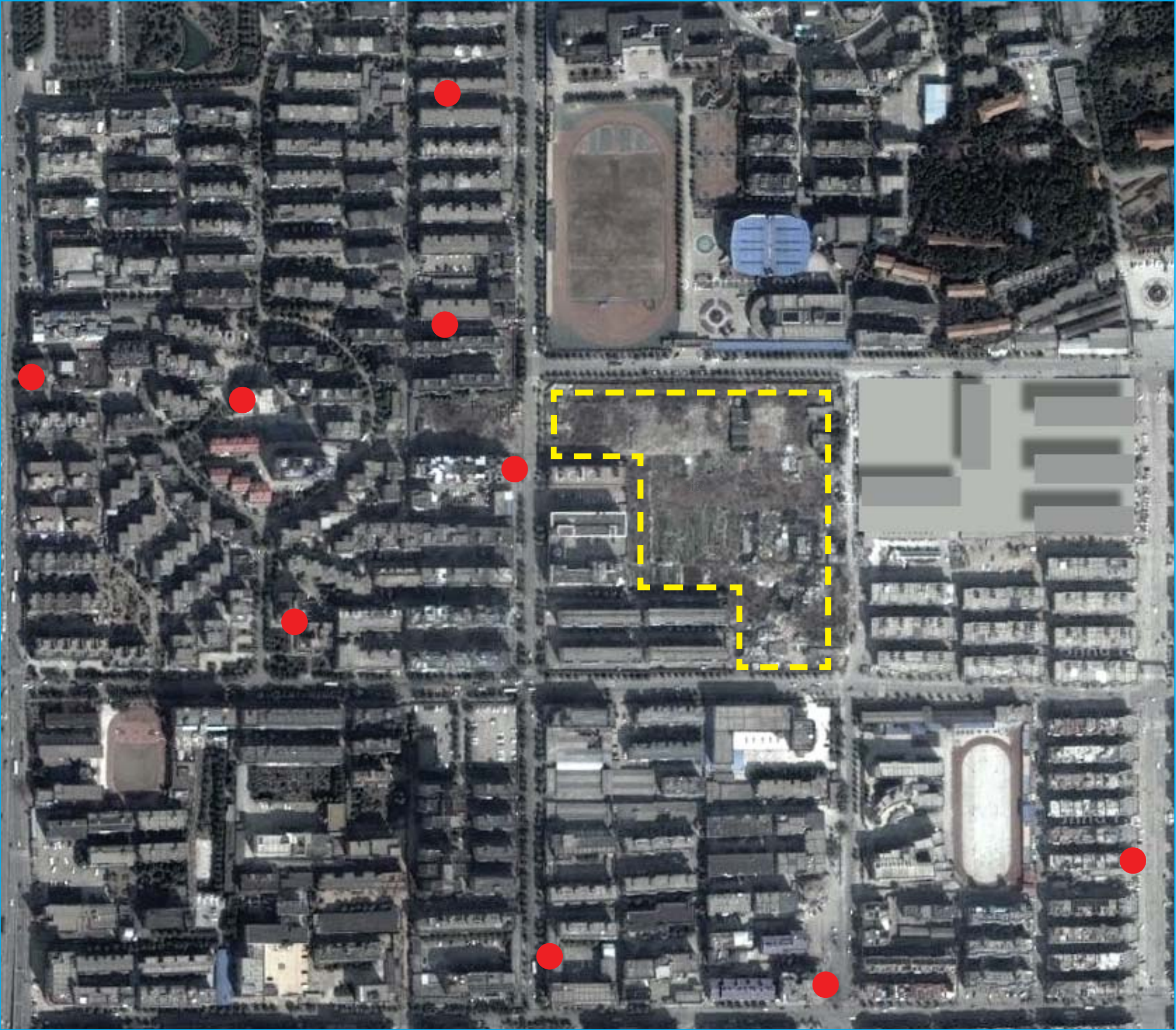
road

Site Analysis

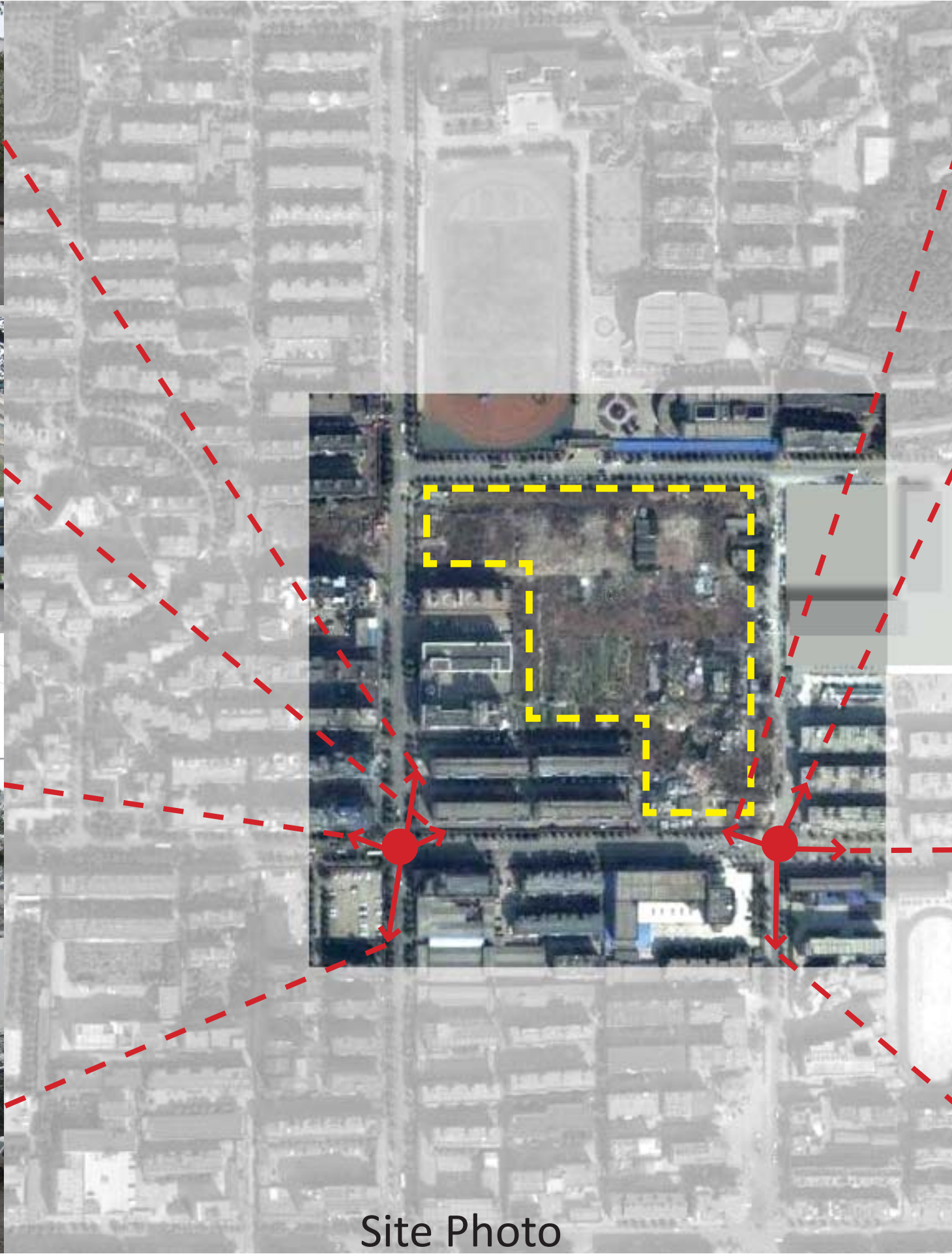


-  public green space
-  private green space
-  school sport field

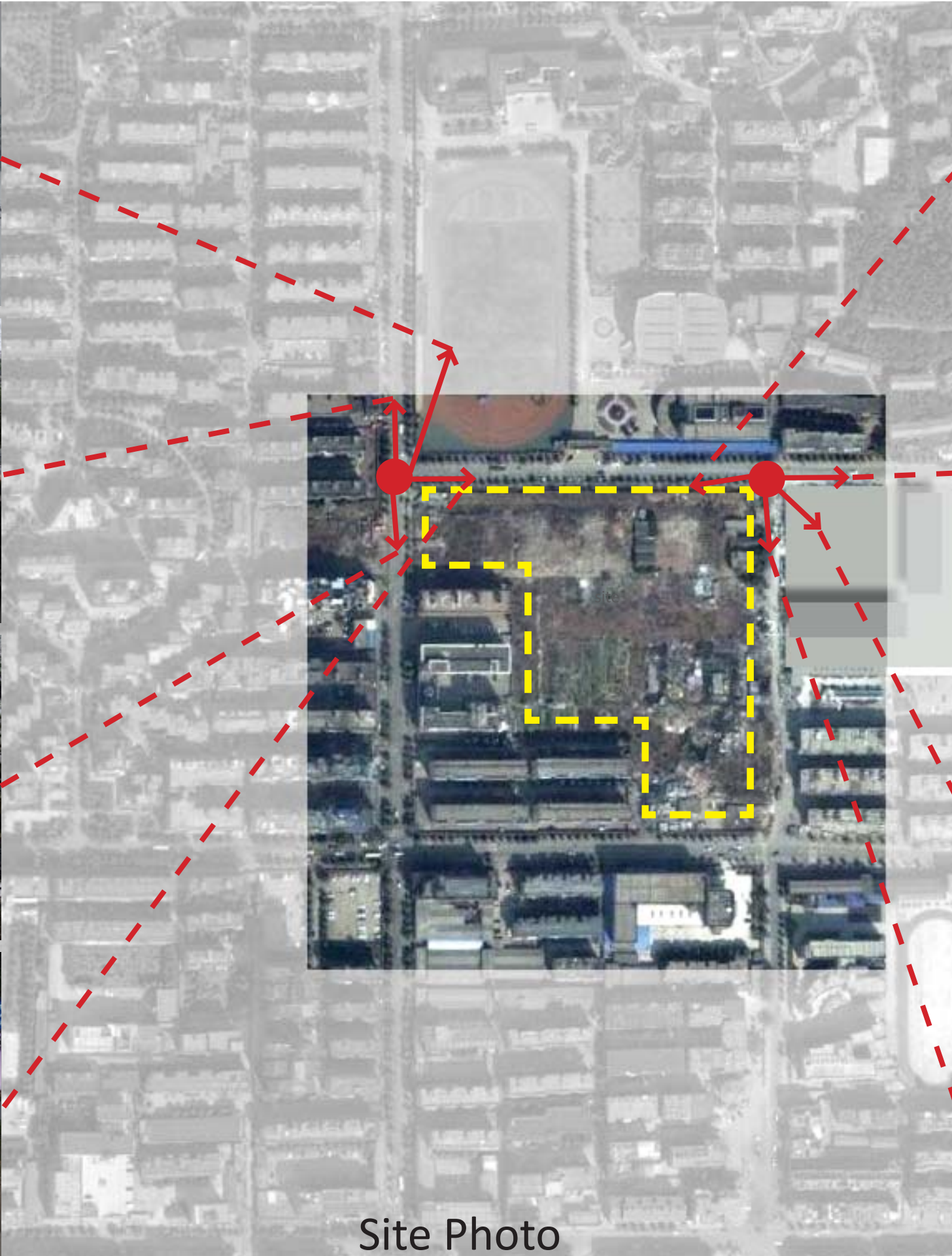
Site Analysis



clinic



Site Photo



Site Photo

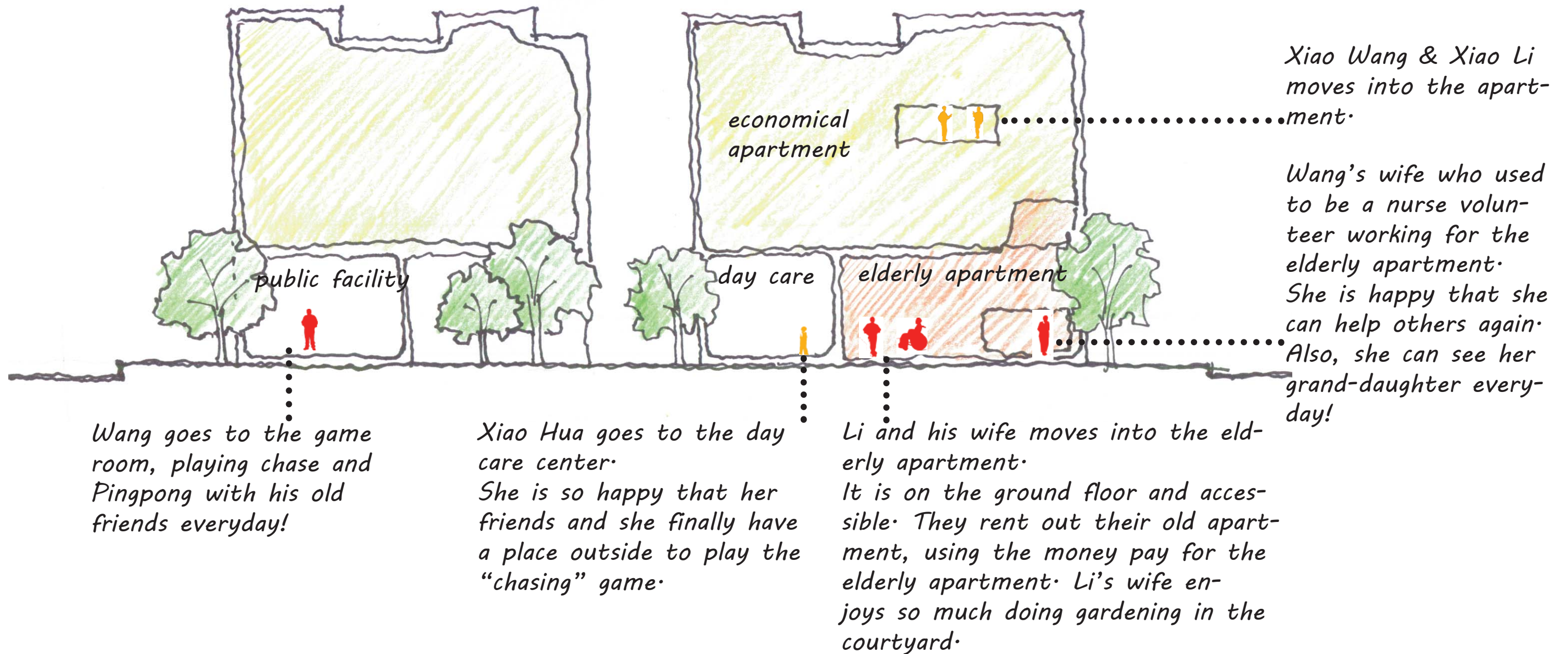
Site



Concept

-- Solution for previous problem

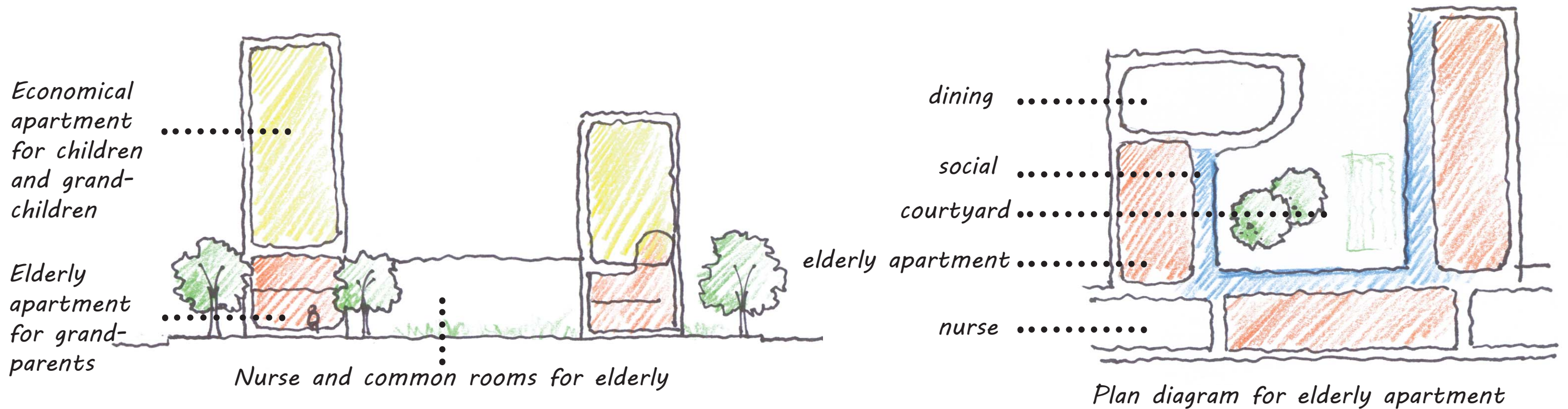
A multi- generational housing has been recently developed in Wang's neighbourhood.



Concept

-- *What is the project*

Key word: aging society; multi- generational living tradition



*Economical
apartment
for children
and grand-
children*

*Elderly
apartment
for grand-
parents*

Nurse and common rooms for elderly

dining

social

courtyard

elderly apartment

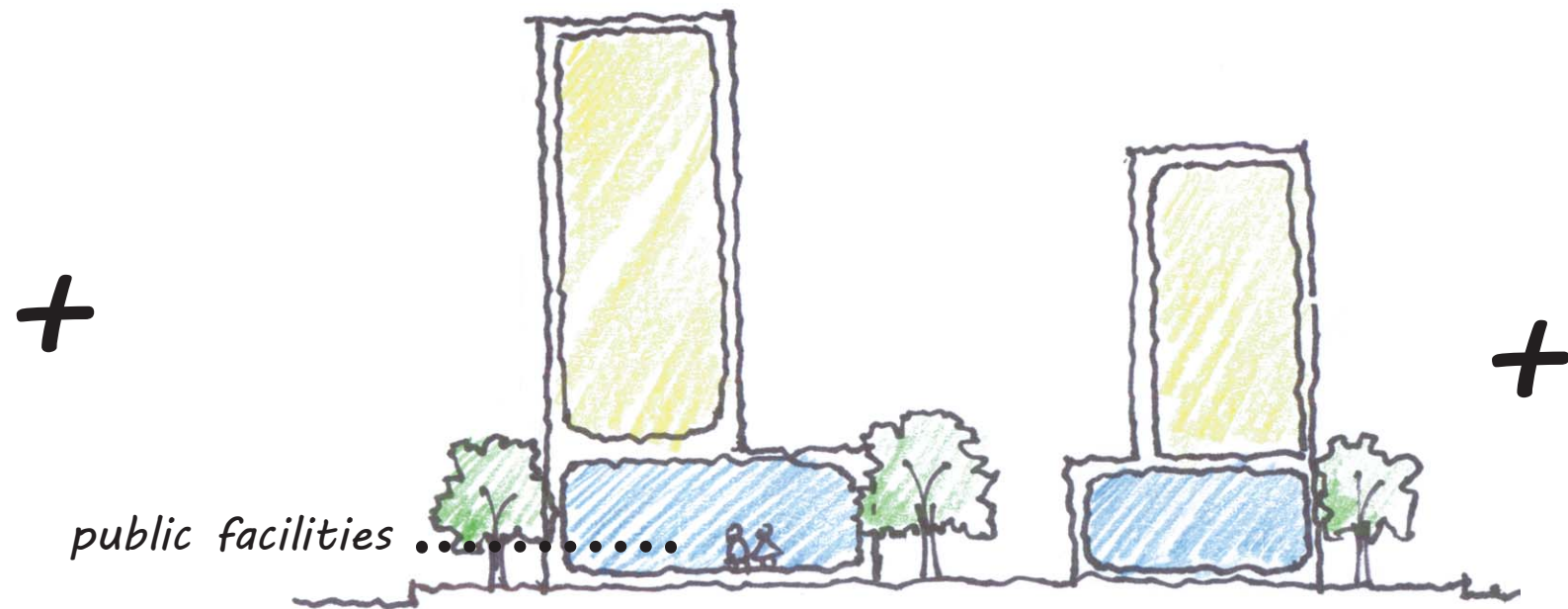
nurse

Plan diagram for elderly apartment

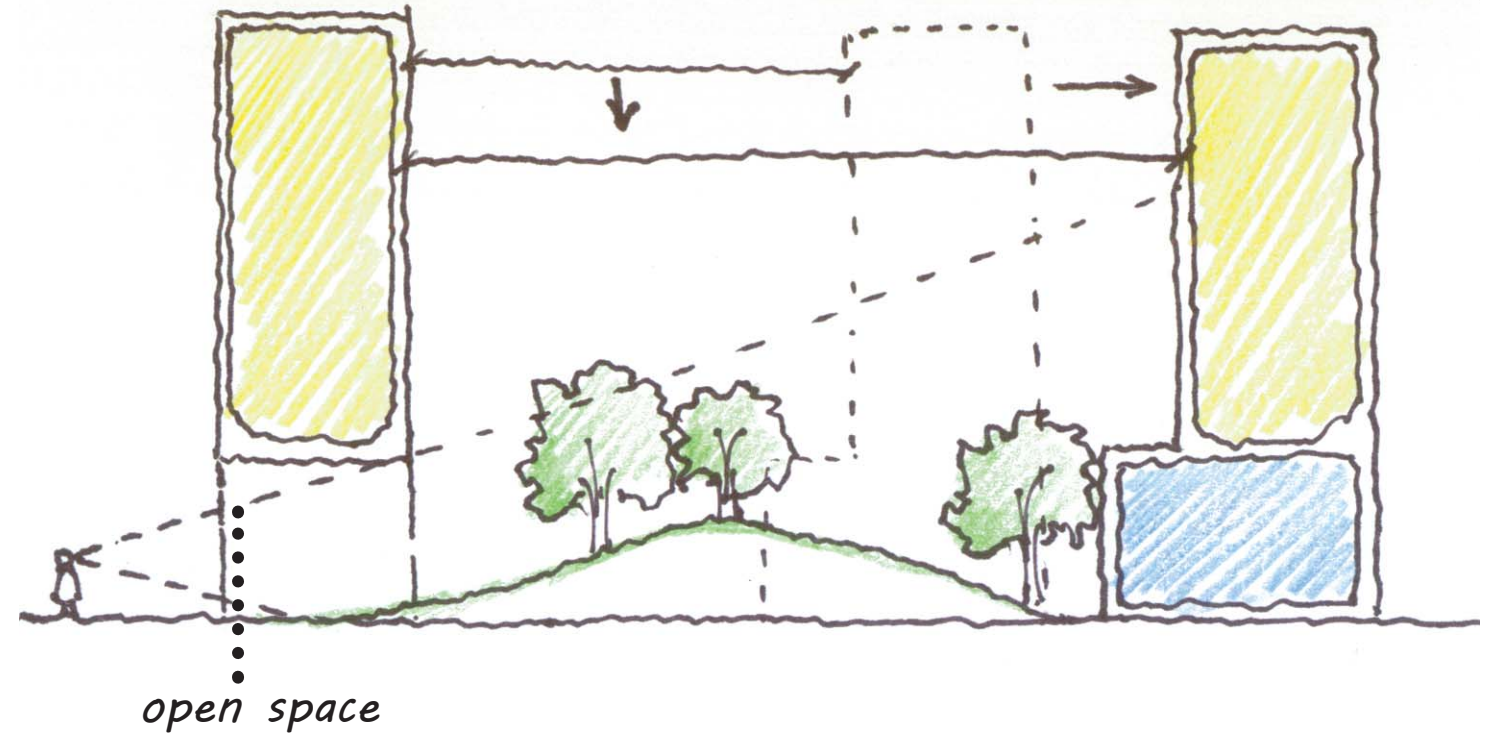
Concept

-- *What is the project*

Key word: public facilities



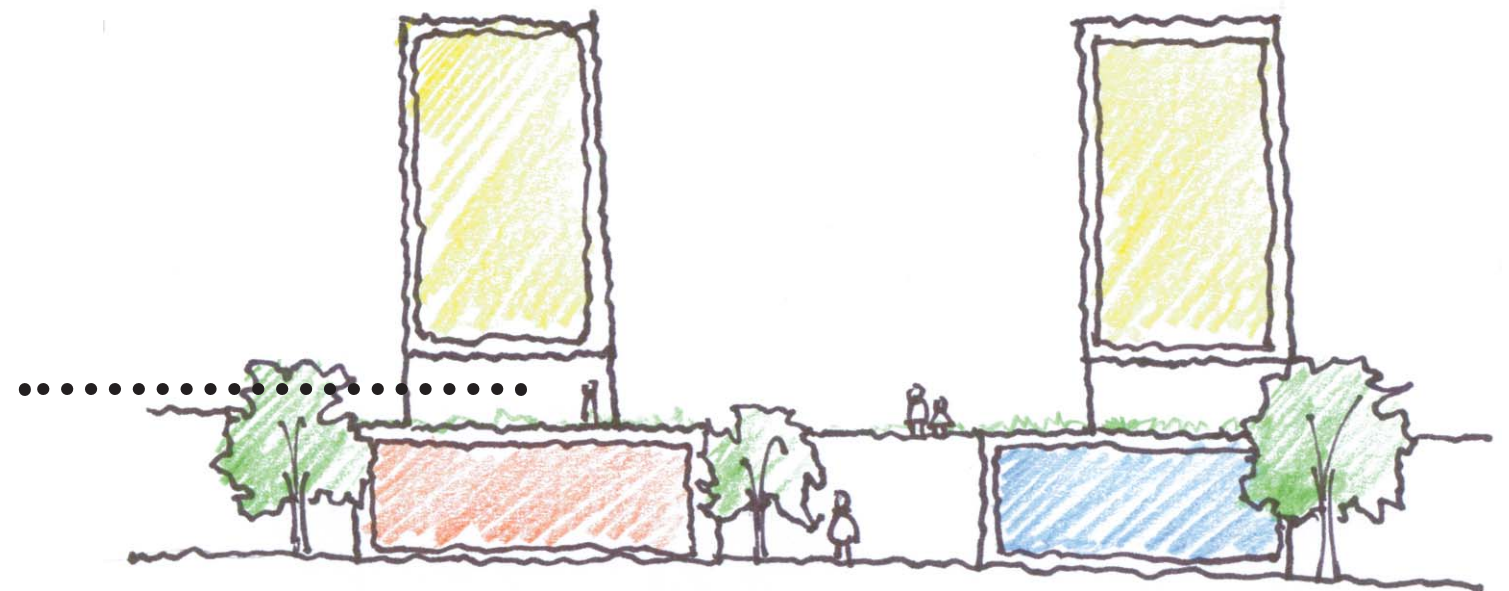
Key word: open space



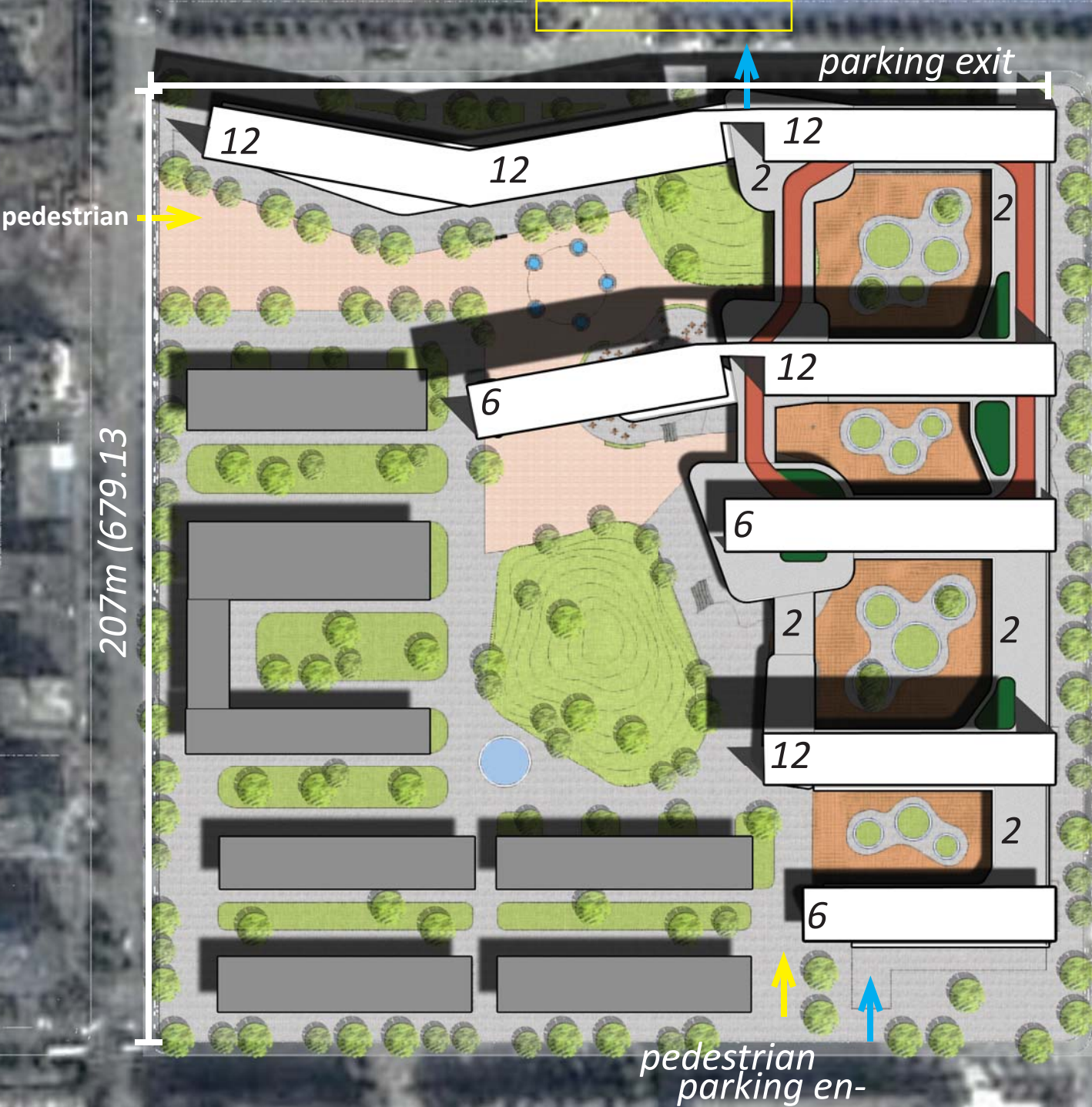
Key word: more open space

+

using the roof of the base floor to create more open space.

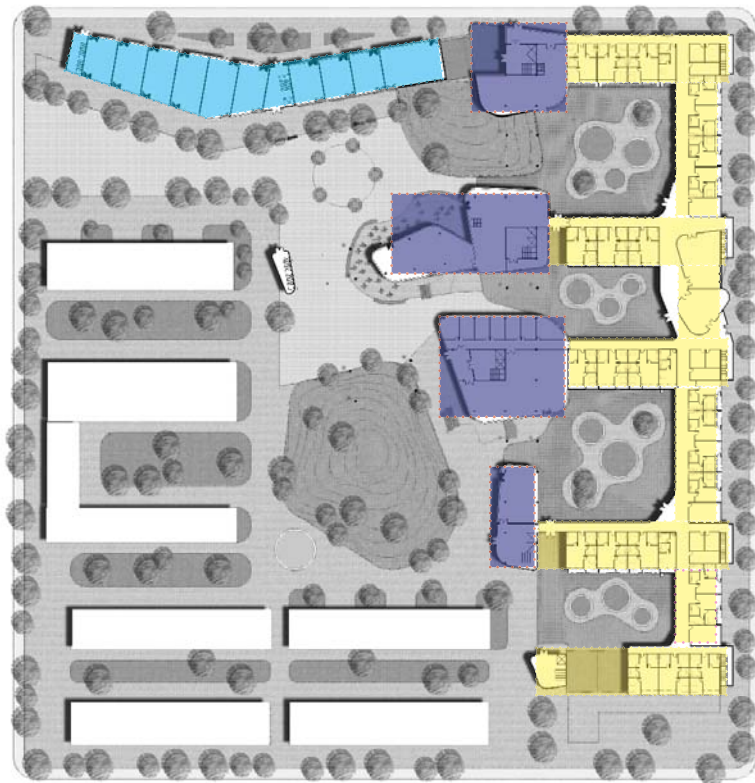


Site Plan

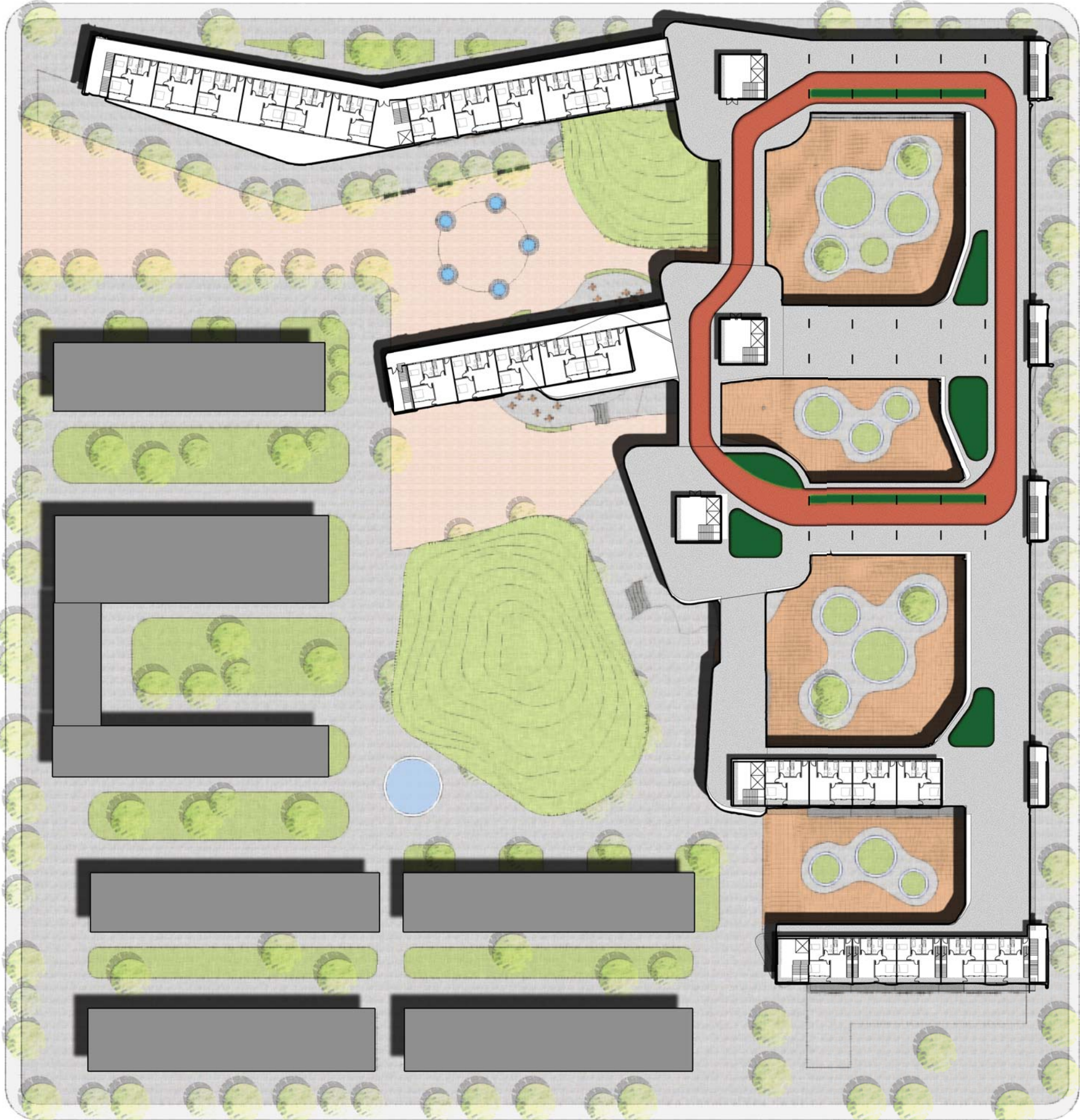


First and Second Floor Plan

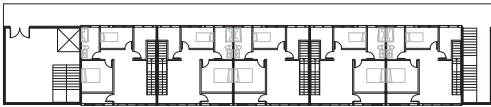
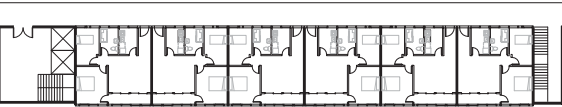
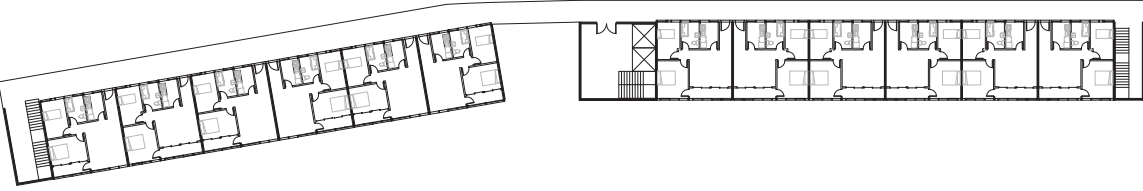
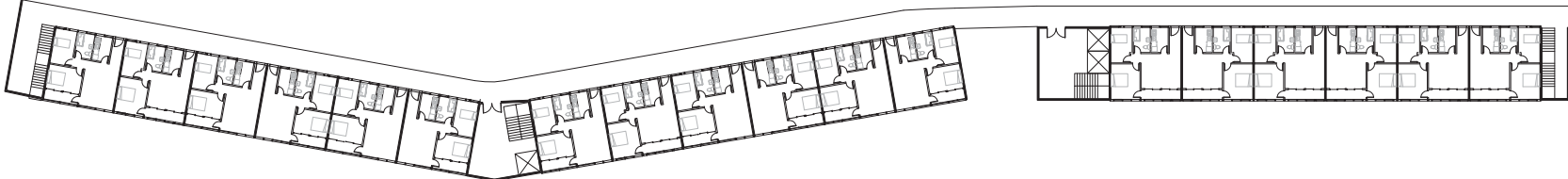
- elderly apartment
- retails
- public facilities



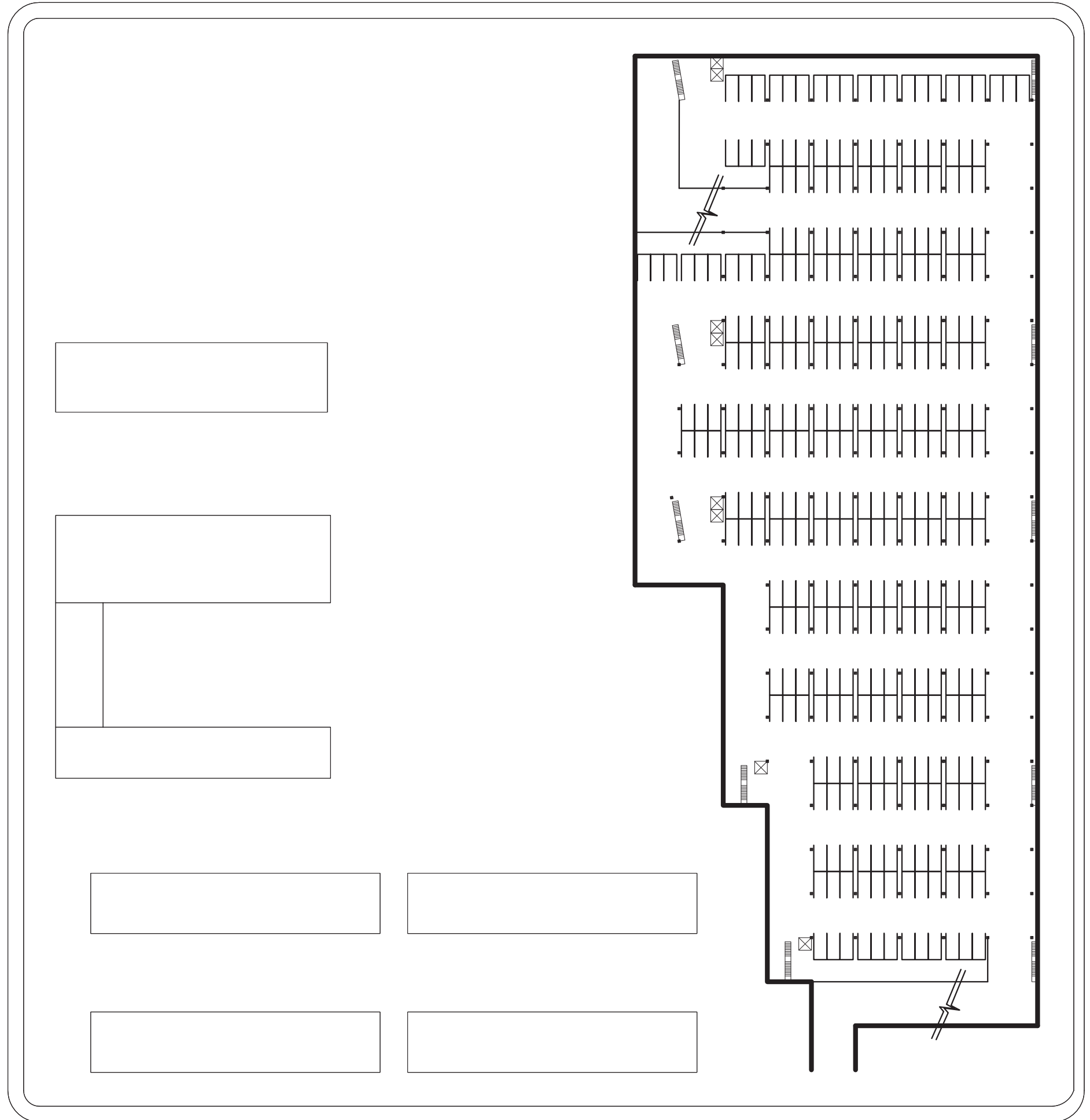
Third Floor Plan



Typical Floor Plan

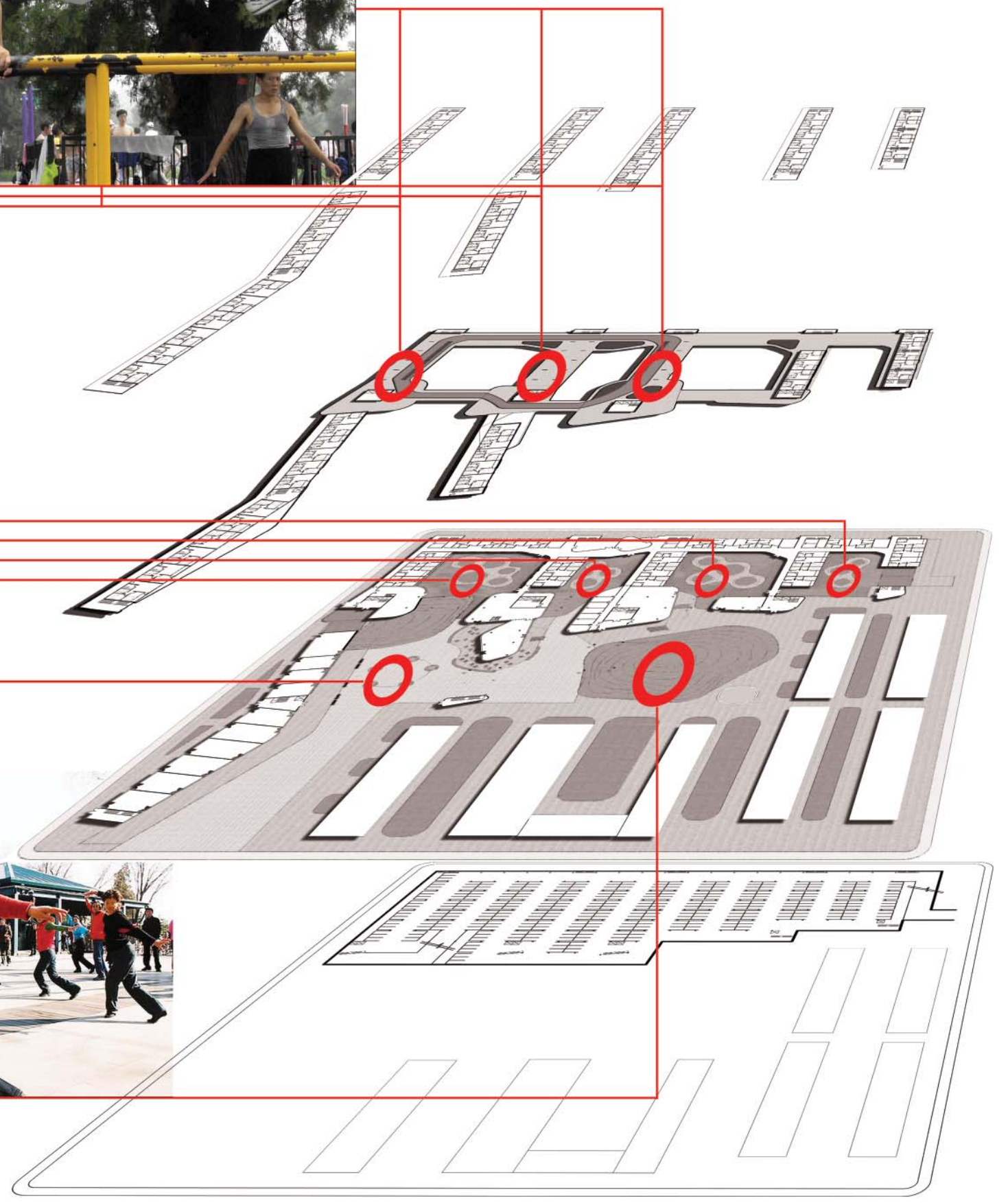


Parking Floor Plan



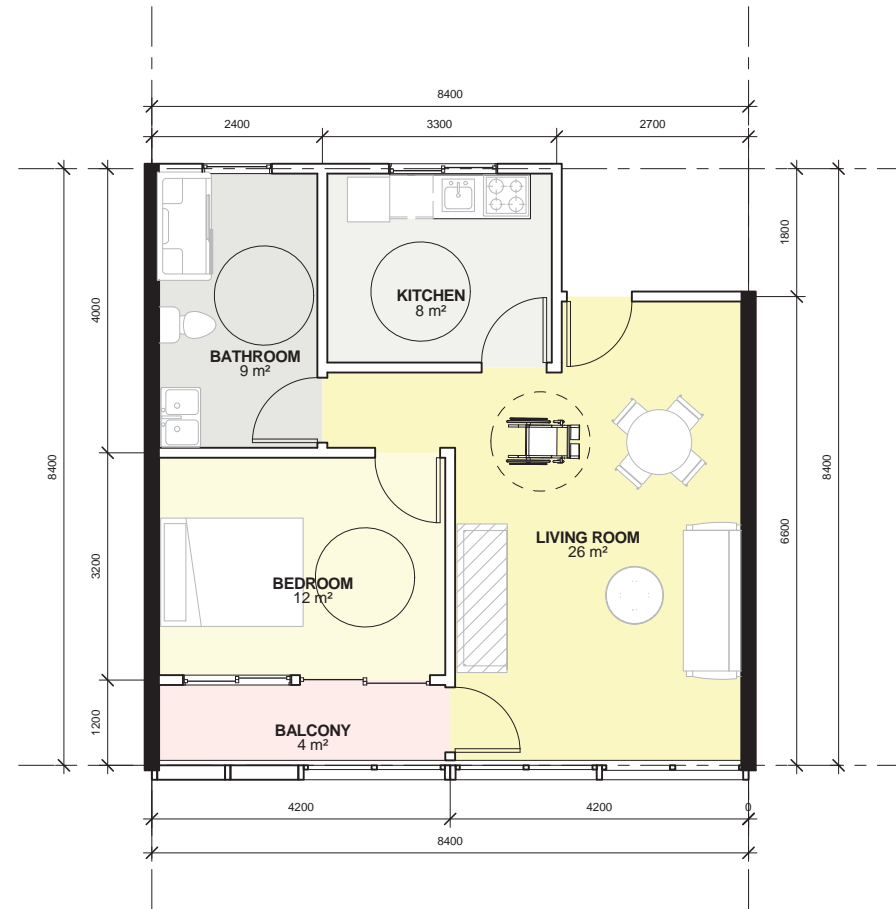
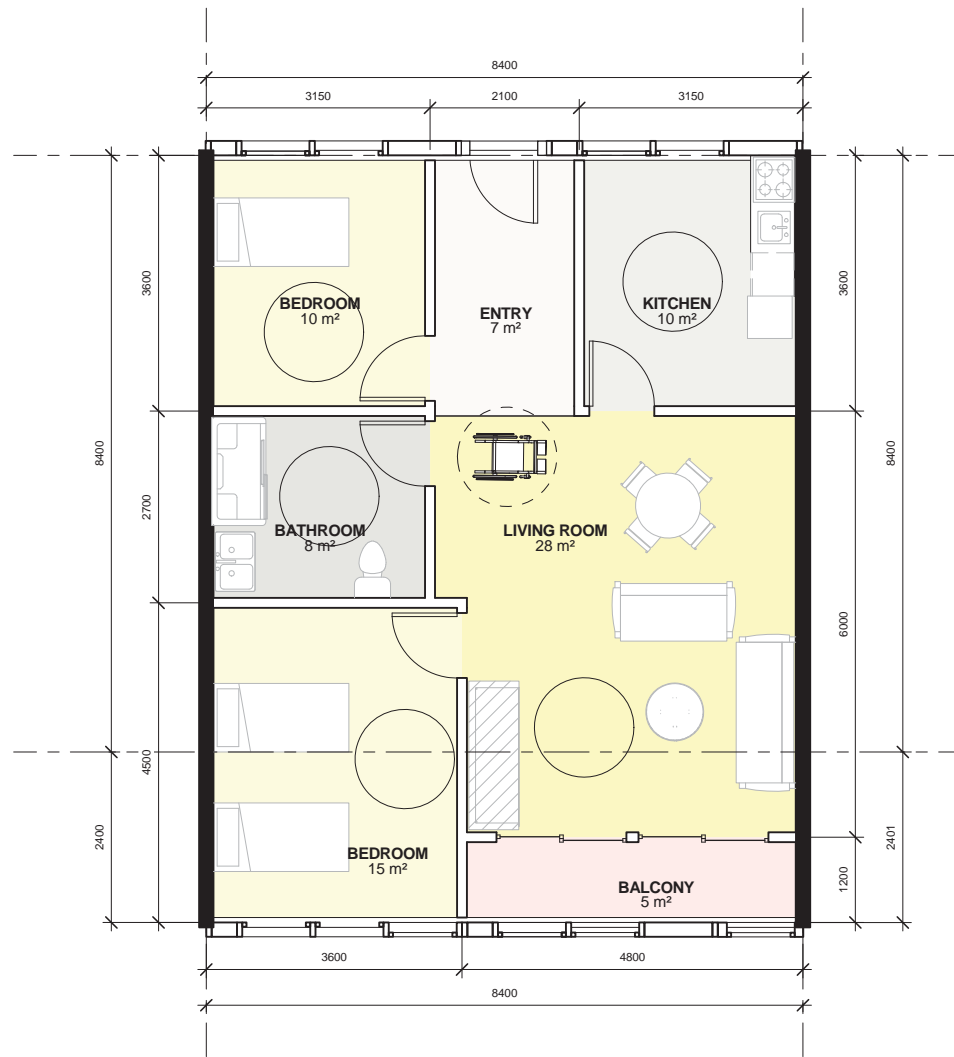


Activities

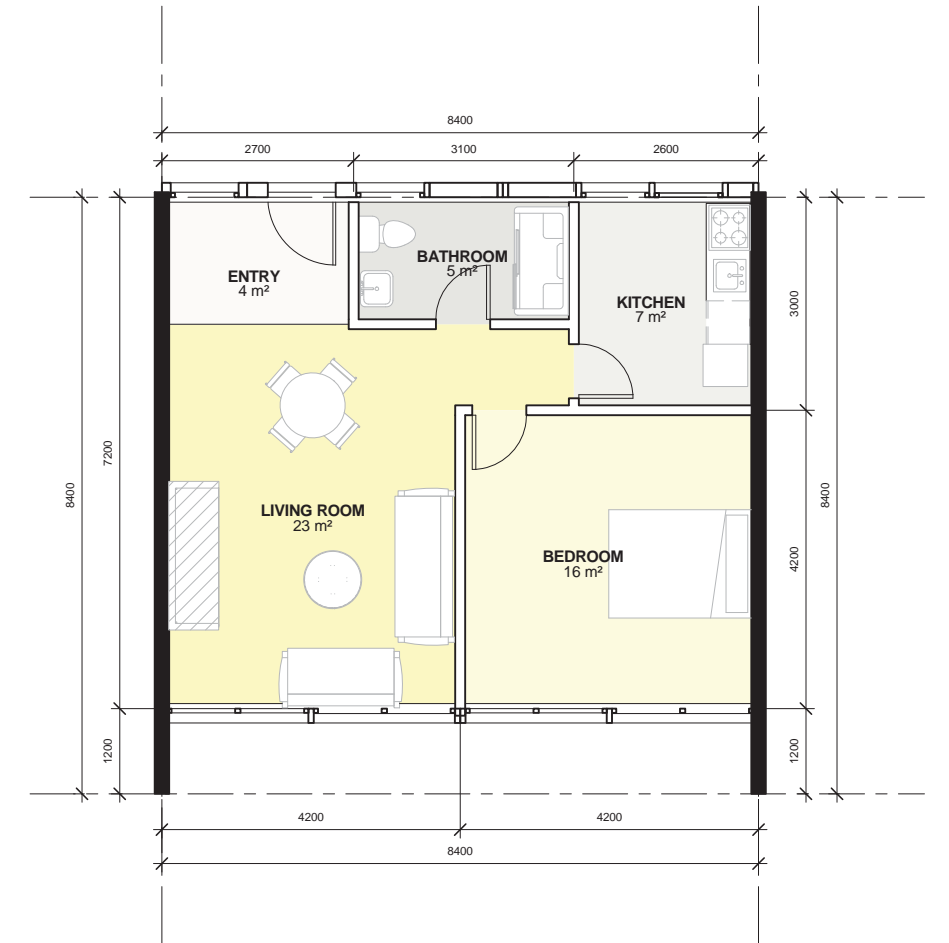
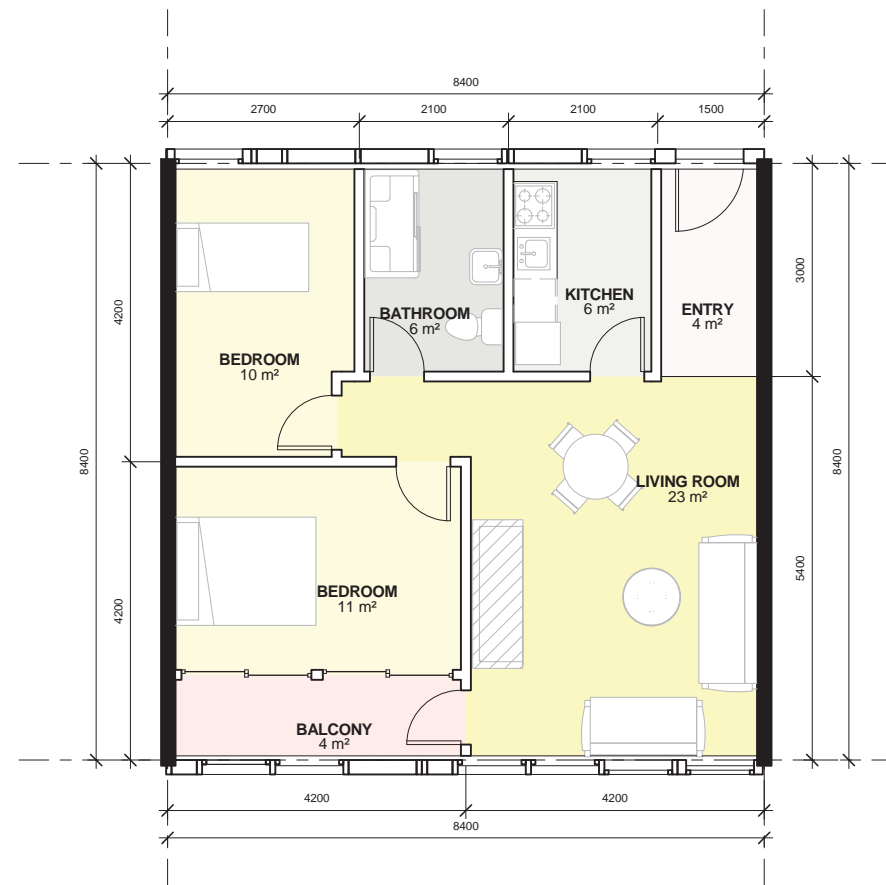
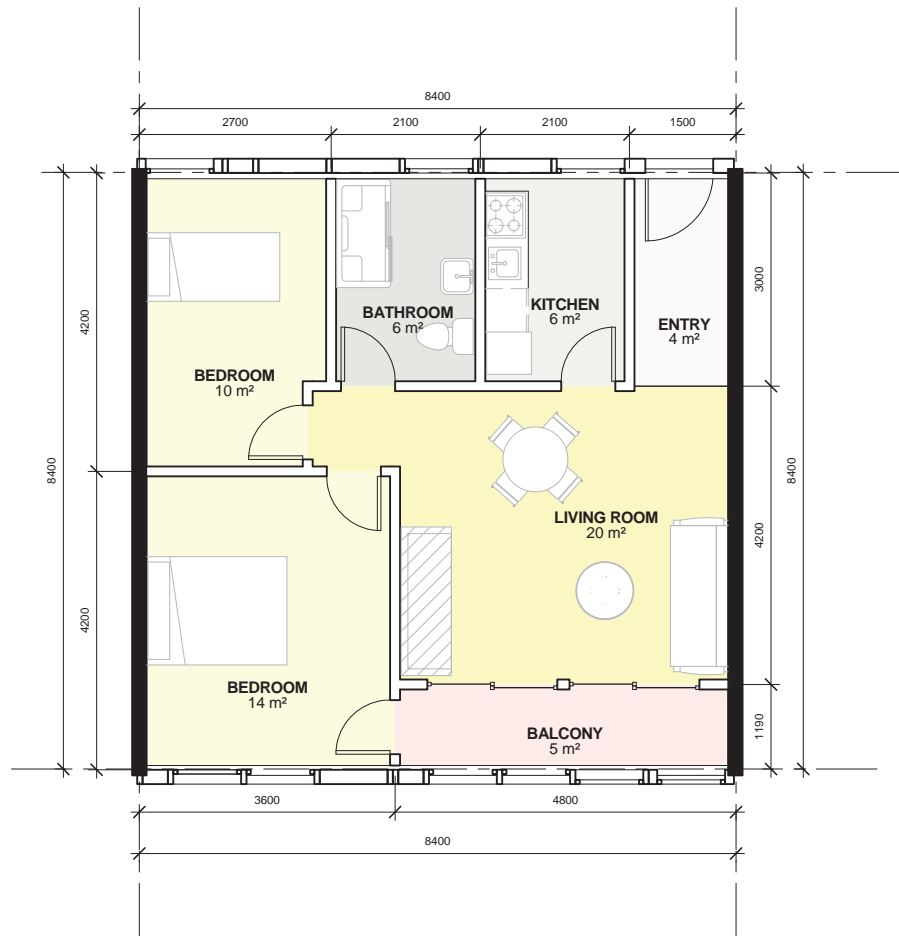




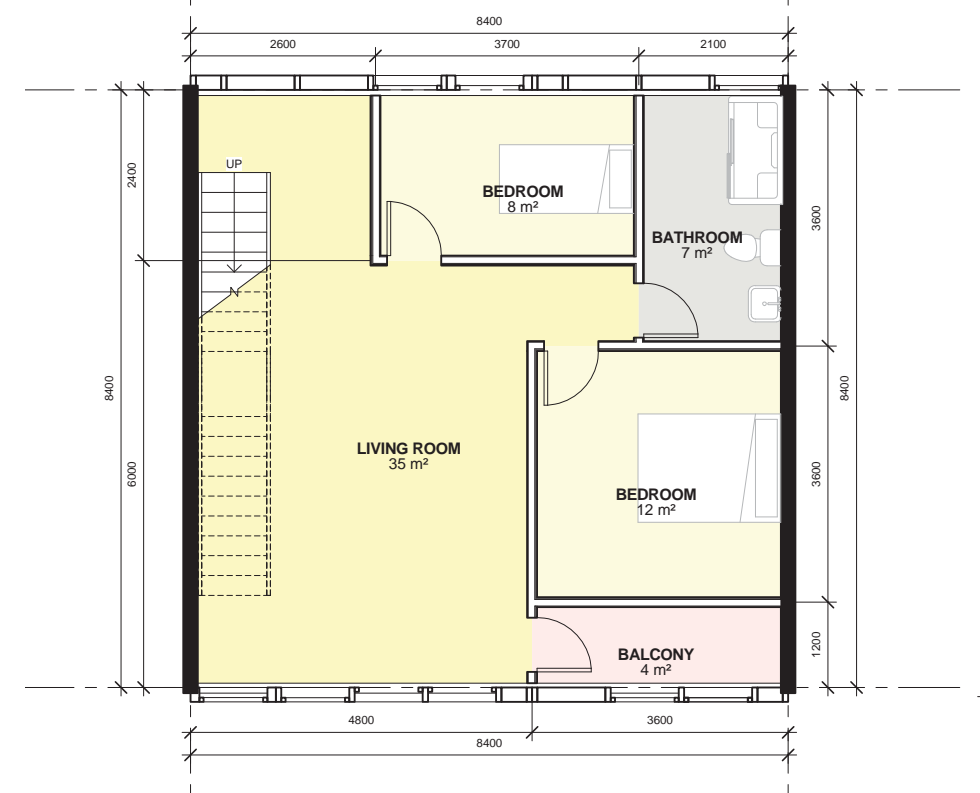
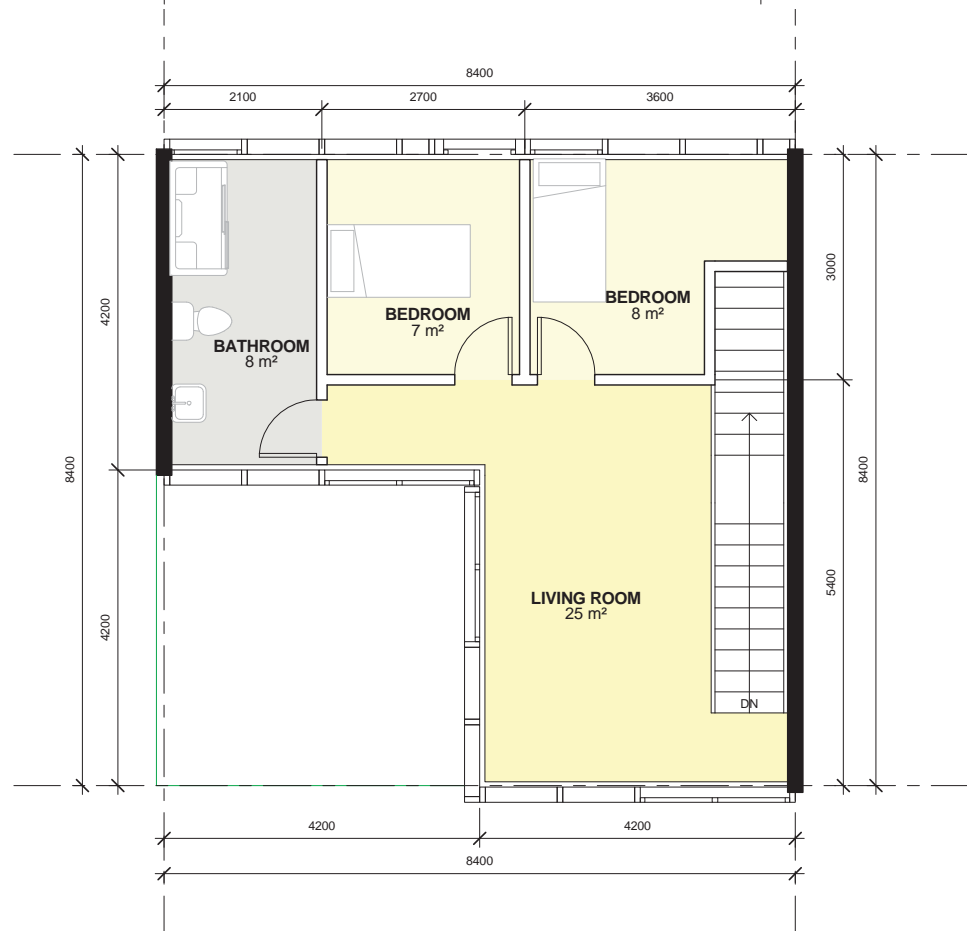
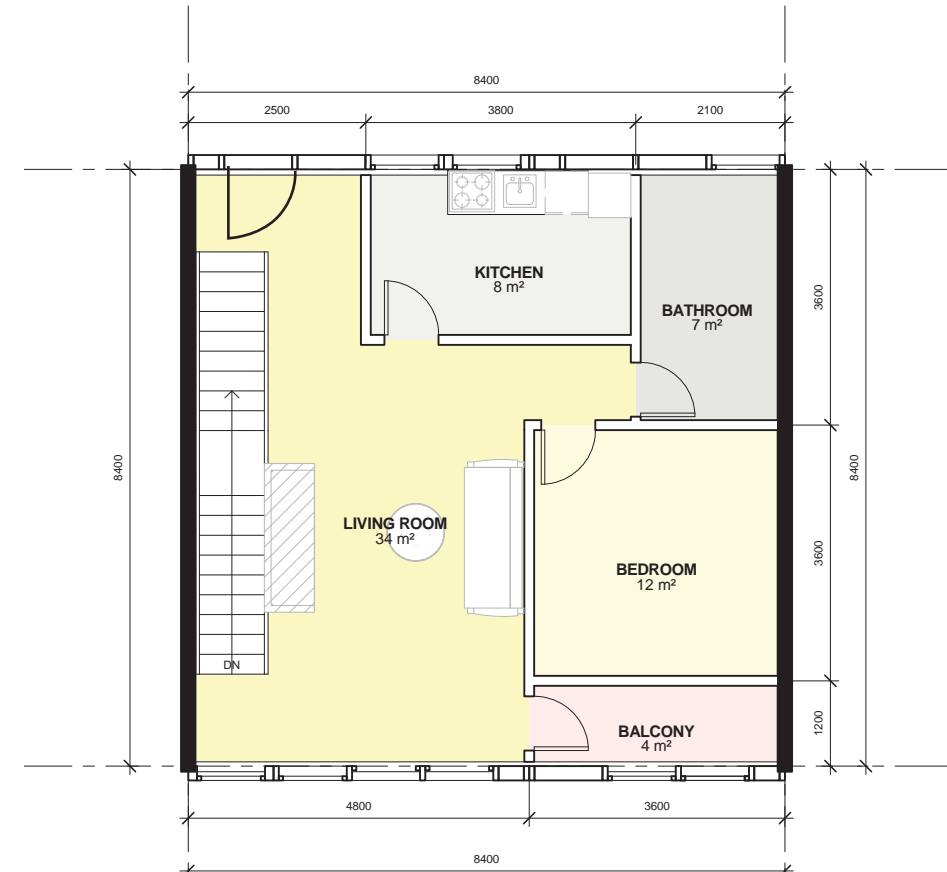
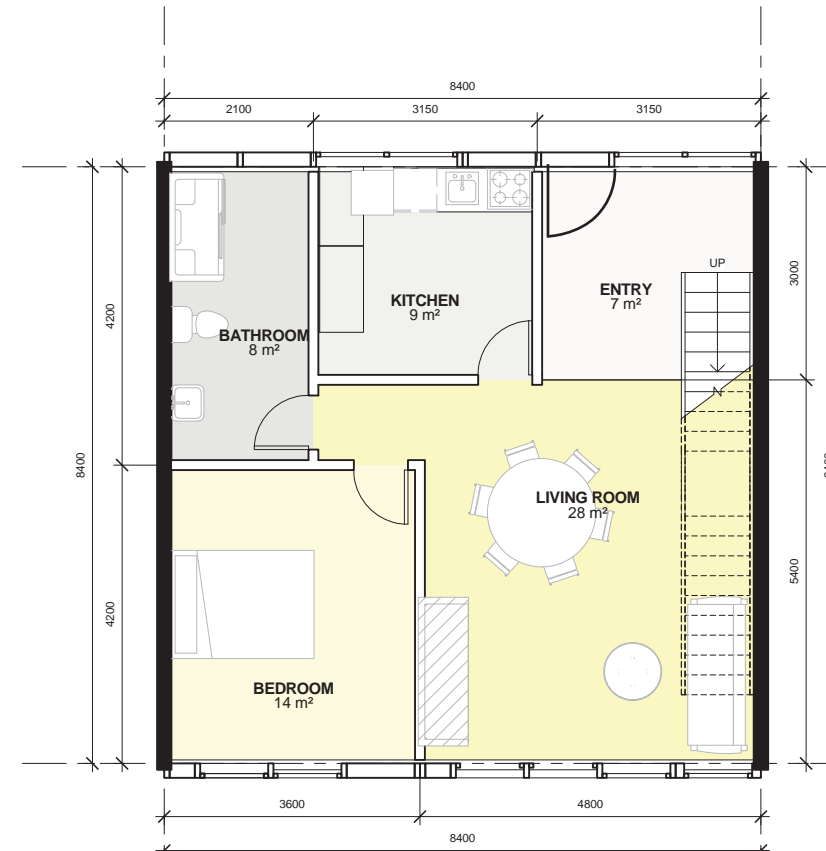
Elderly Apartment Units Plan



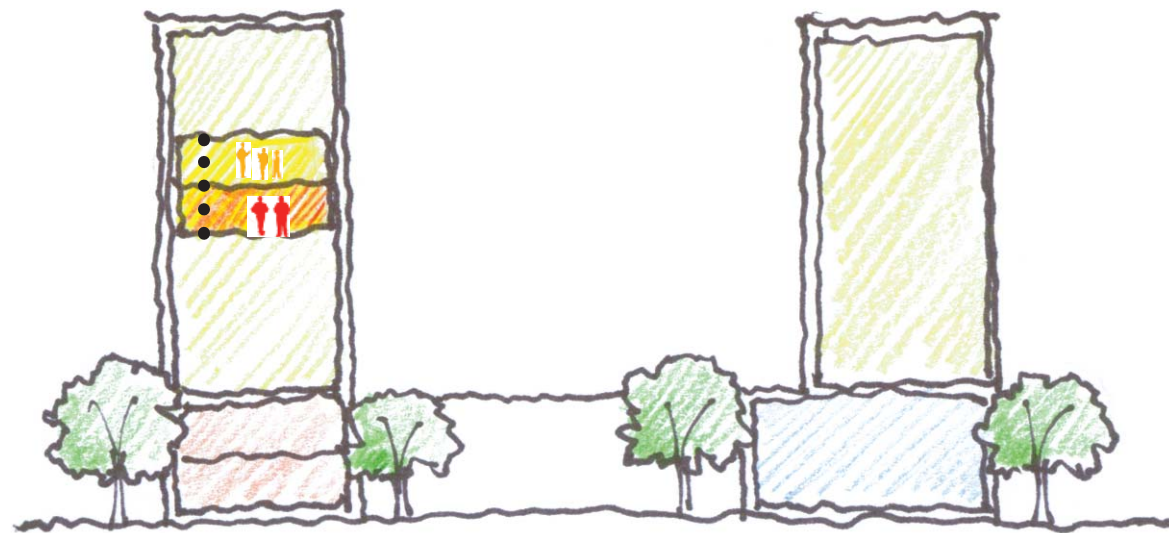
Economical Apartment Units Plan



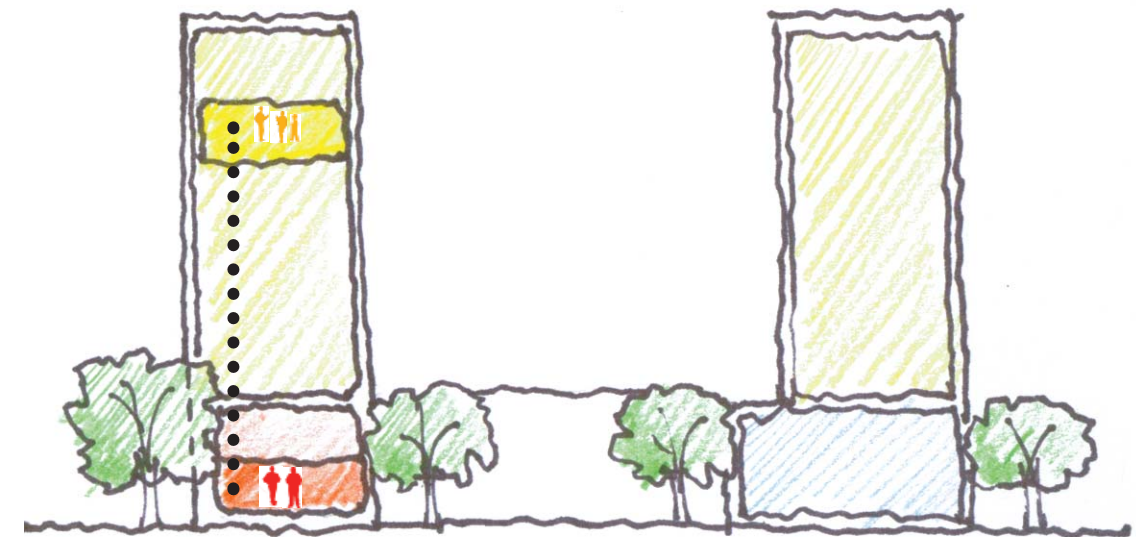
Economical Apartment Units Plan



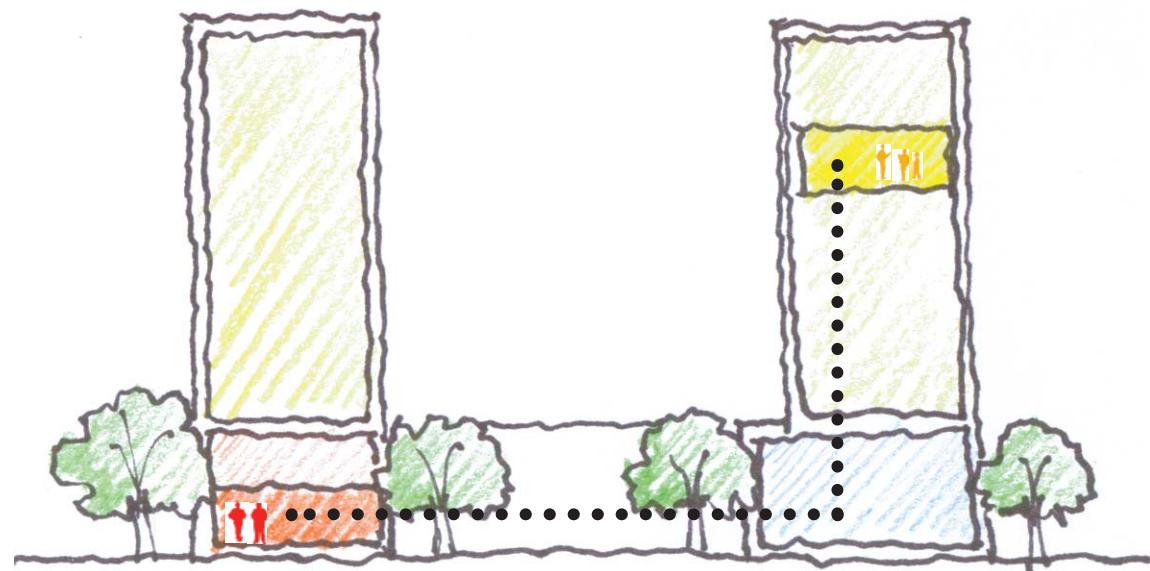
Multi-Generational Living Diagrams



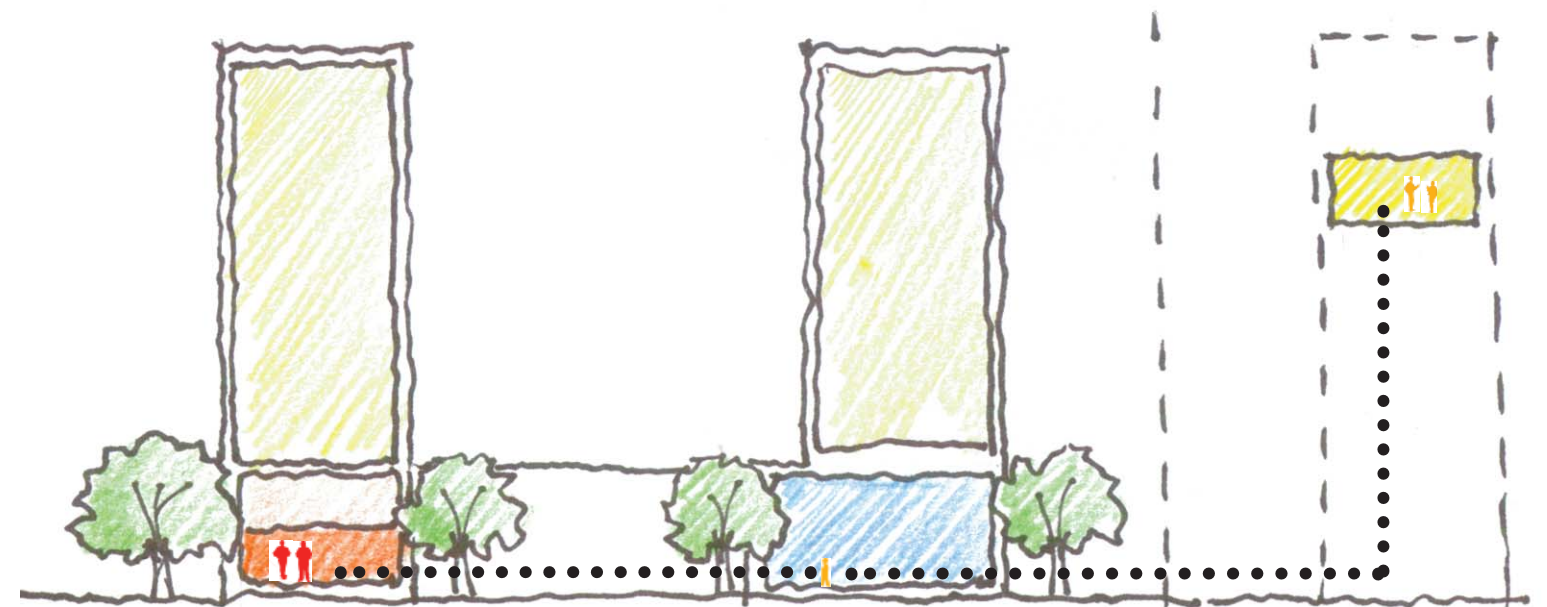
Living together in the loft



Living upstairs and downstairs



Living close, but not too close

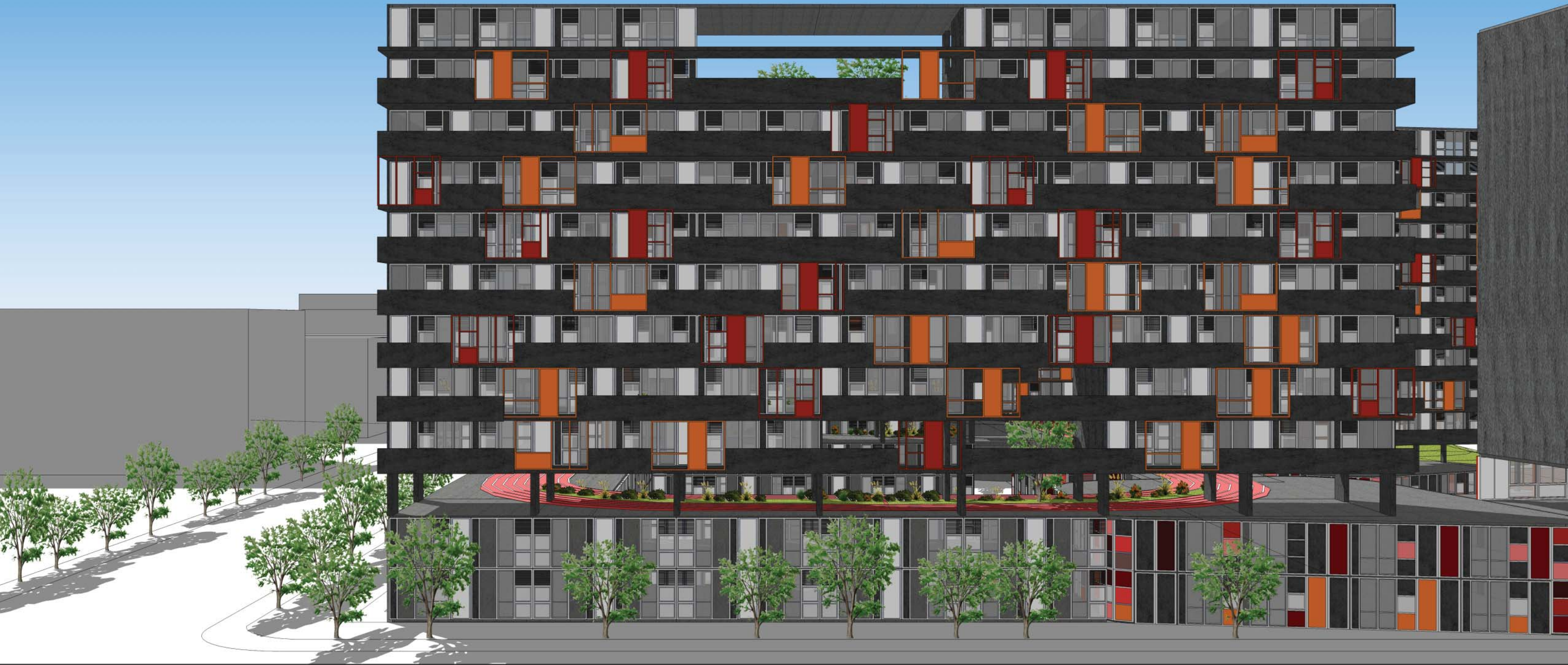


Living in the area, still can visit their parents often when they drop off their kid to the day care.

South Elevation



North Elevation



Facade diagrams

module

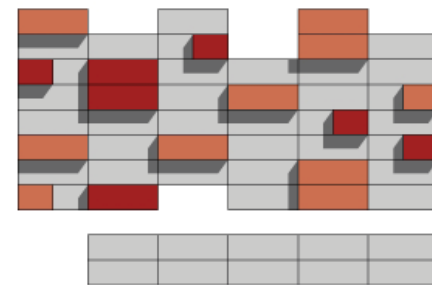
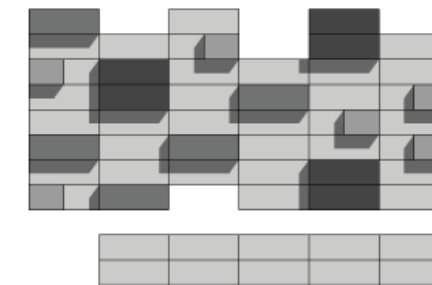
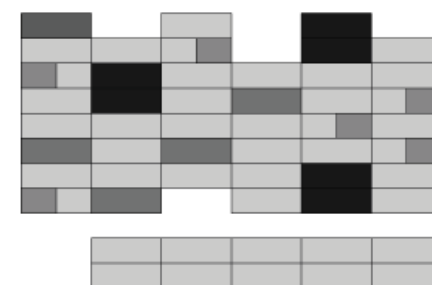
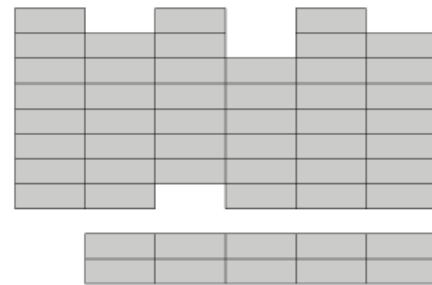
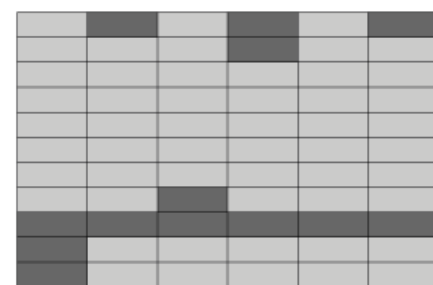
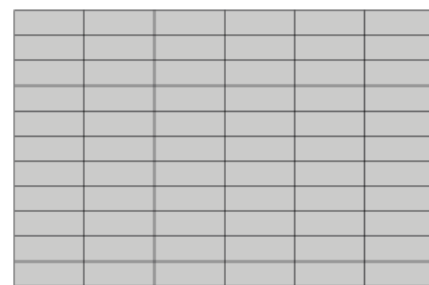
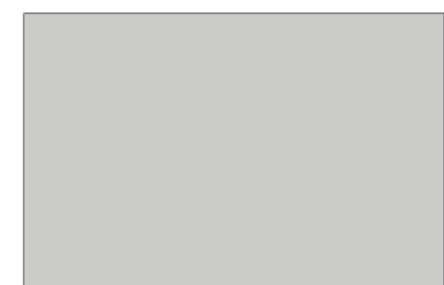
minus

open


vary

move out

colorful

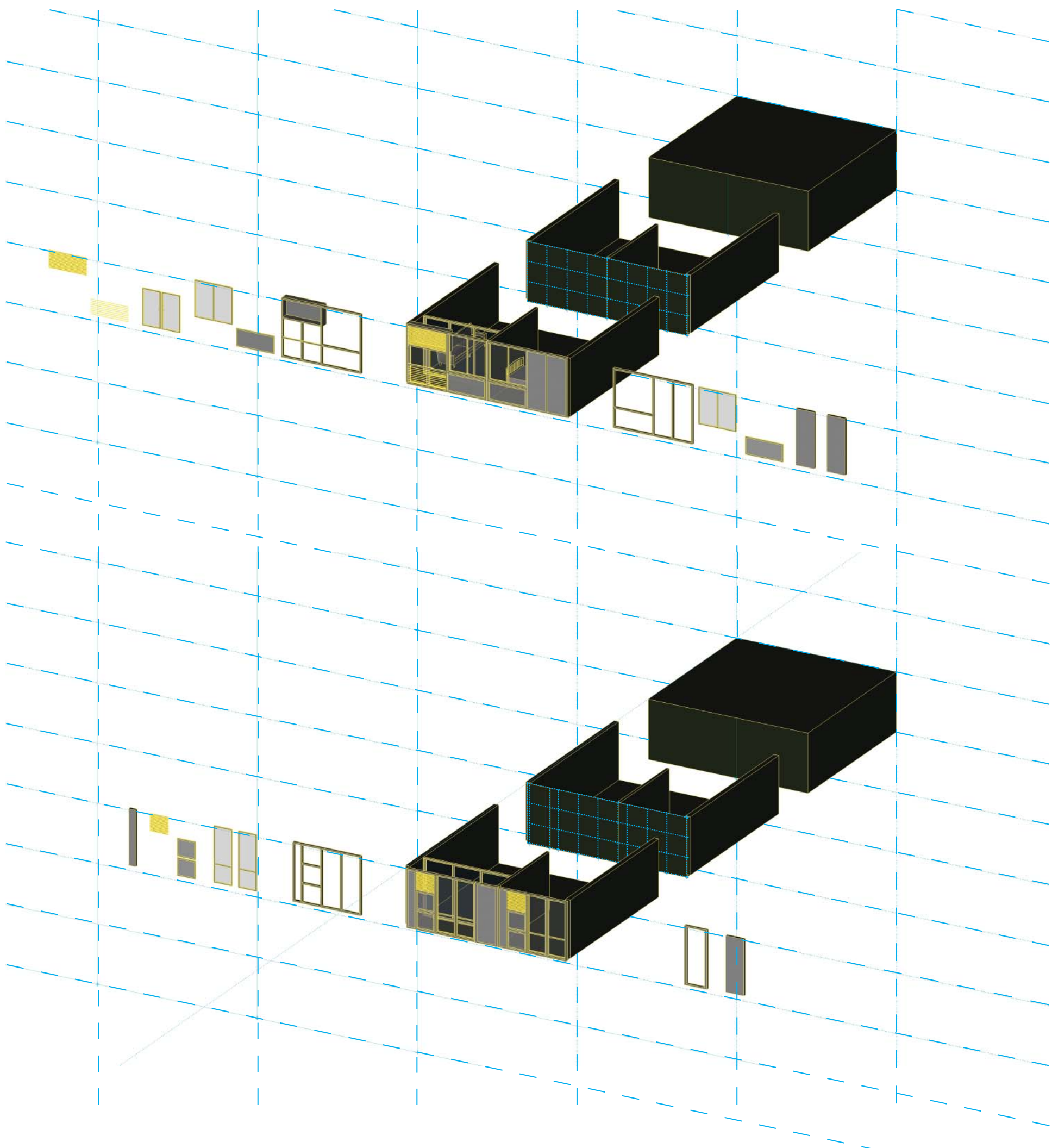


■ *Loft for three generation* 

■ *unit for a family* 

■ *room for one family member* 

Units Module



Facade diagrams

-- two sets of module

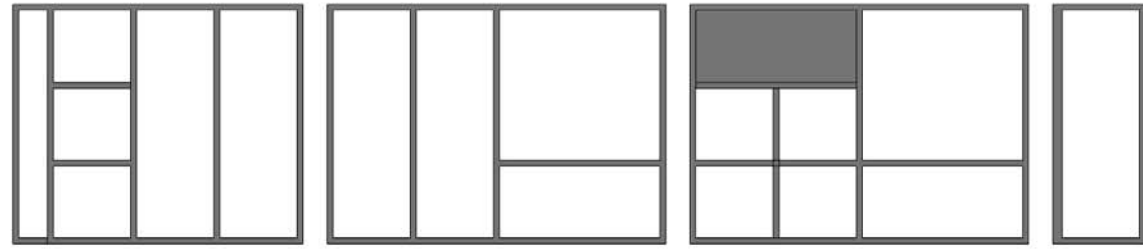
A



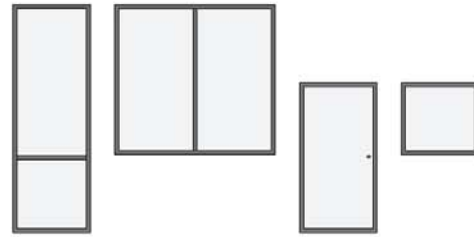
B



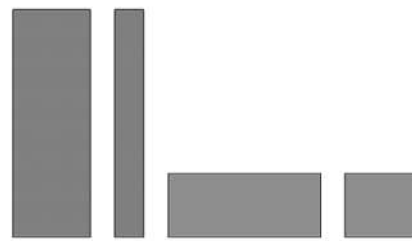
Materials



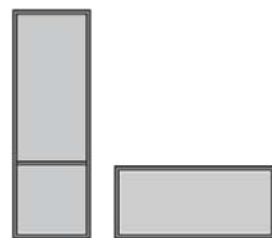
Aluminium



Clear glass



Glazed tile

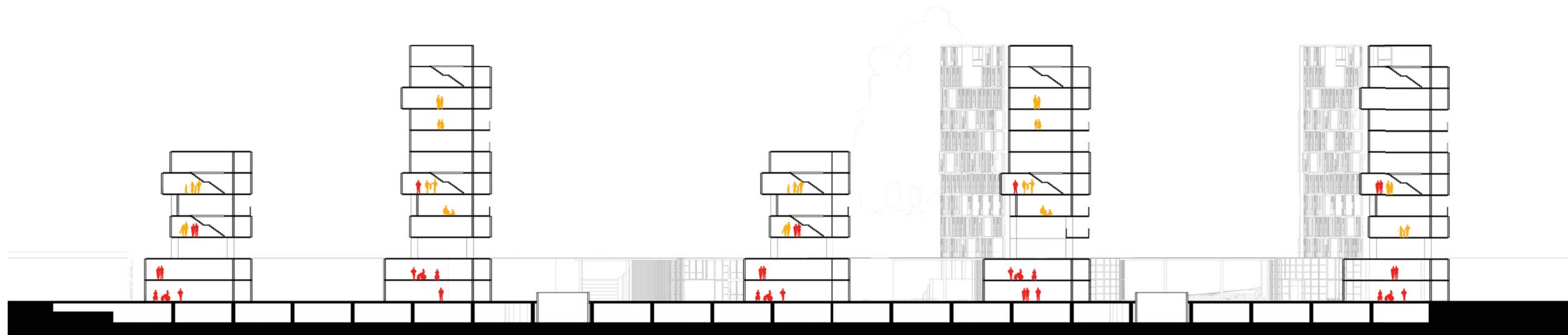


Translucent glass



Aluminium

Section



Rendering



Rendering



Rendering



Future development

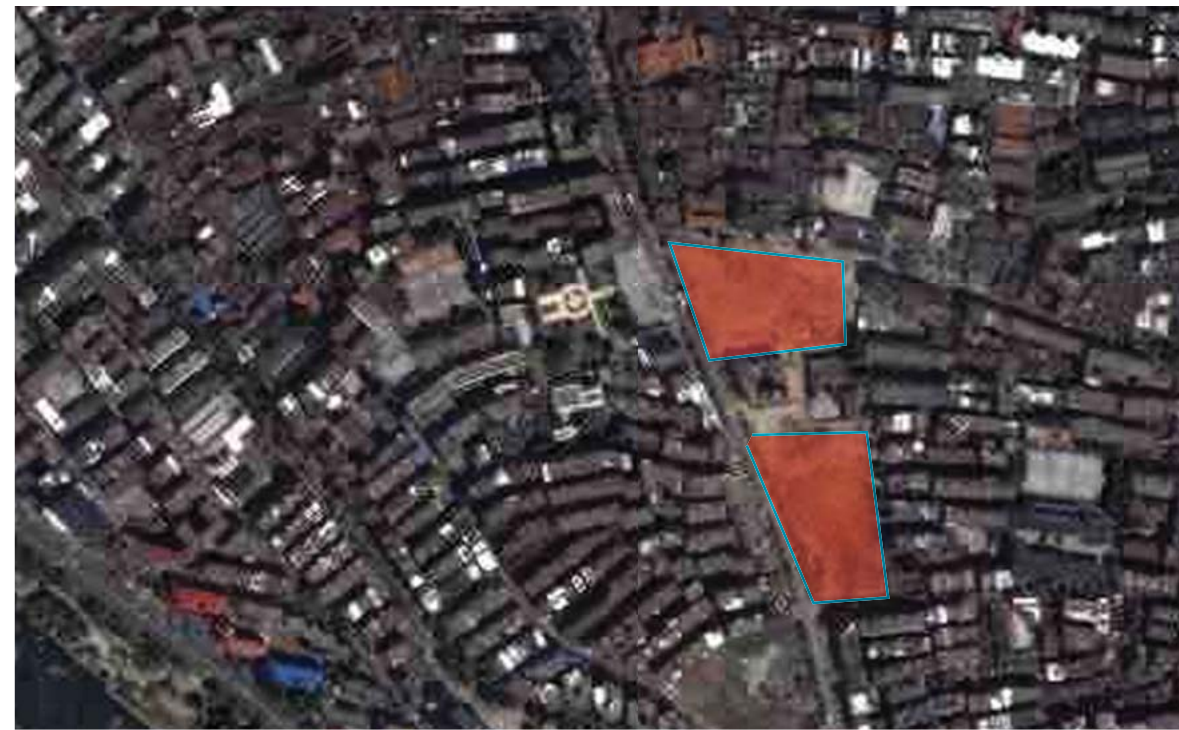
Because most of the subsidized area are still under developing, there are some fairly large empty lot similar to the site chosen in this project in the area.



Changsha, Hunan



Zhengzhou, Henan

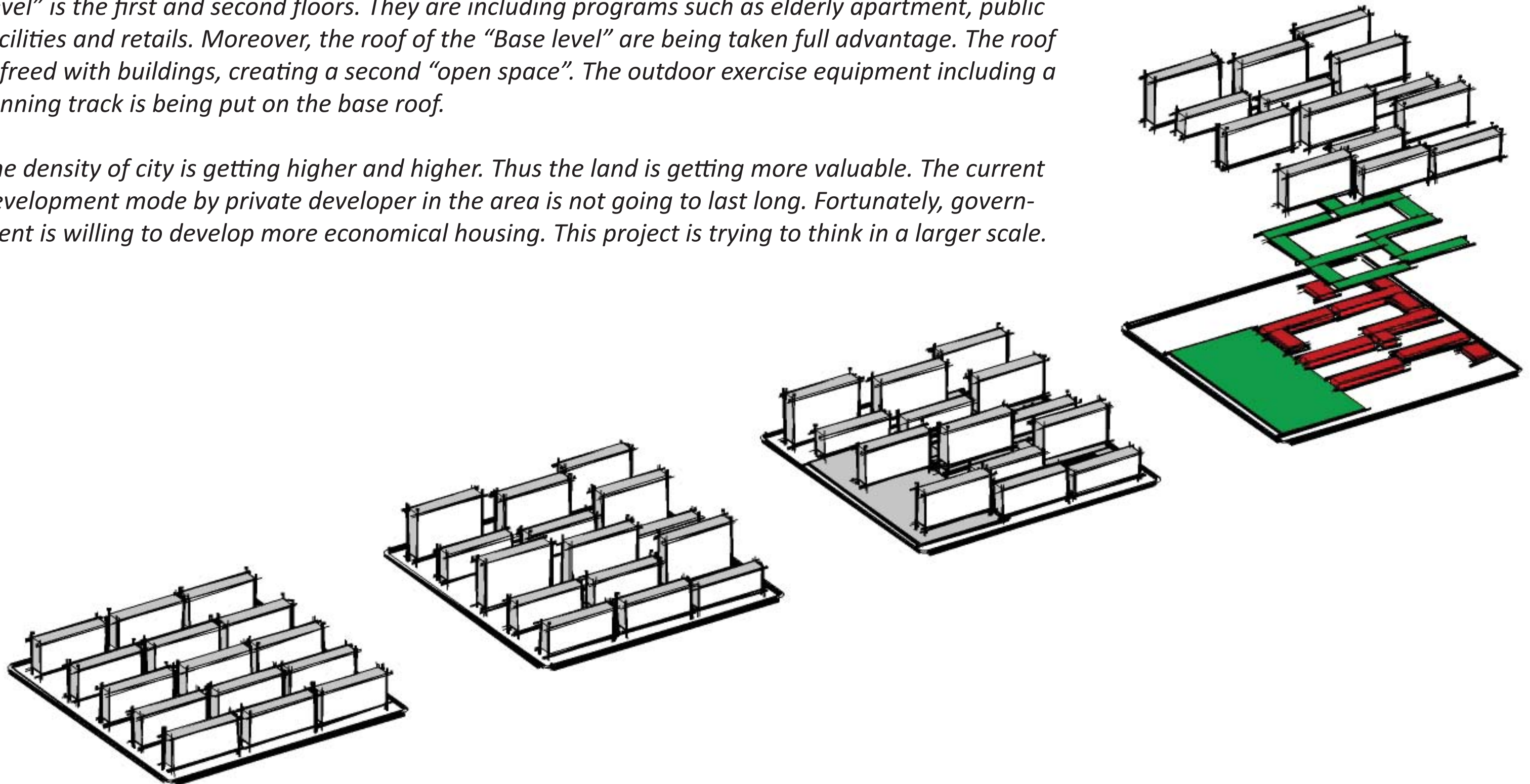


Chengdu, Sichuan

Future development

The strategy developed in this project is a practical, while innovative way to use the ground most efficiently. First, It is providing open space not only for the residents in the project, but also to a larger area. Second, other than ground level, the project also develops a “Base Level”. The “Base Level” is the first and second floors. They are including programs such as elderly apartment, public facilities and retails. Moreover, the roof of the “Base level” are being taken full advantage. The roof is freed with buildings, creating a second “open space”. The outdoor exercise equipment including a running track is being put on the base roof.

The density of city is getting higher and higher. Thus the land is getting more valuable. The current development mode by private developer in the area is not going to last long. Fortunately, government is willing to develop more economical housing. This project is trying to think in a larger scale.



Future development



Park within Block

For even larger development, each "block" can have a "theme". Some can have theatre, some can have a large library, some can have dancing floor. Park is within each "block"

