

FLXCITY

**NUS-Tsinghua Sharing Cities Joint
Studio 2020: NUS Studio**

**Fong Shi Yuan, Feranda Chua,
Han Yi, Yu Lin**



A historical overview

Masterplan 1966-1988

The old chinatown used to be a place where trade and social life intermingled. This culture of bottom up, community centricity was gradually lost to a series of inevitable urban redevelopment to improve living conditions due to unsanitary conditions and overcrowding. The subdivision of Chinatown was gradually re-defined by touristique themes and motorized roads.



1966



1988

Site Analysis

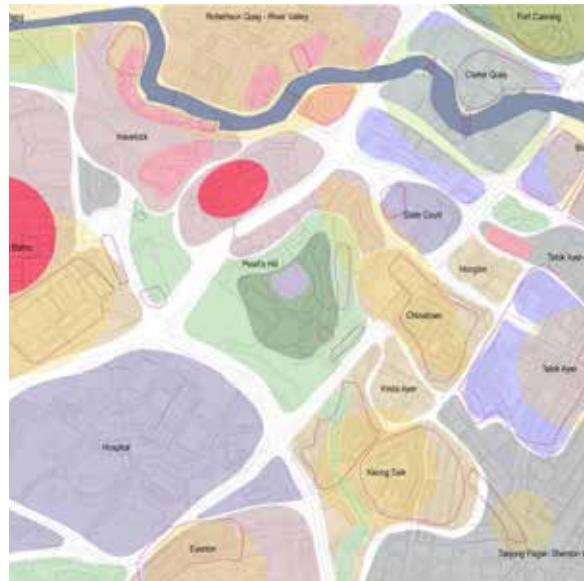
Chinatown & Pearl's Hill City Park

Chinatown and Pearl's Hill City Park is a unique combination of programs in the region.

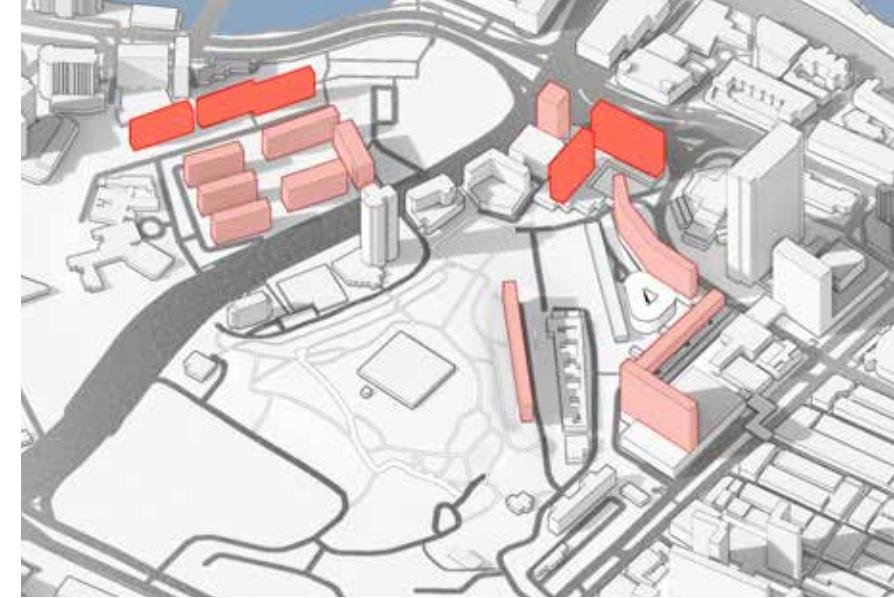
With a rich history of urban redevelopment, it is an intersection of tourist-centric business of fabric, ceramicwares and hawkers, with insular residential estates.

These are the leftovers of what once defined the vibrant streets of social life and fluid trade framed by shophouses.

Out extensive analysis approaches with the culturally rich site in mind, combining the future and current masterplan strategies for the site.



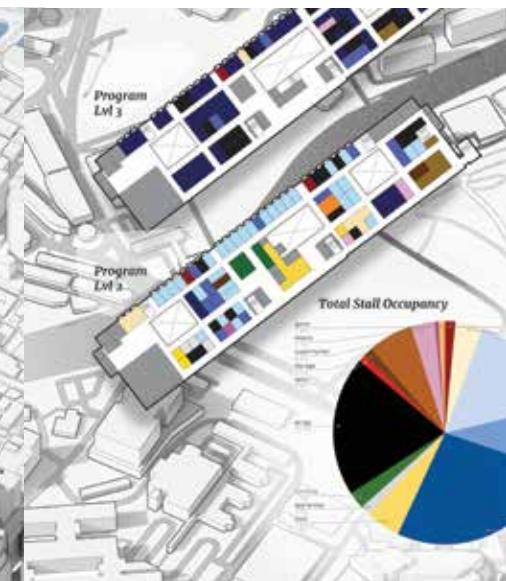
Programmatic Diversity



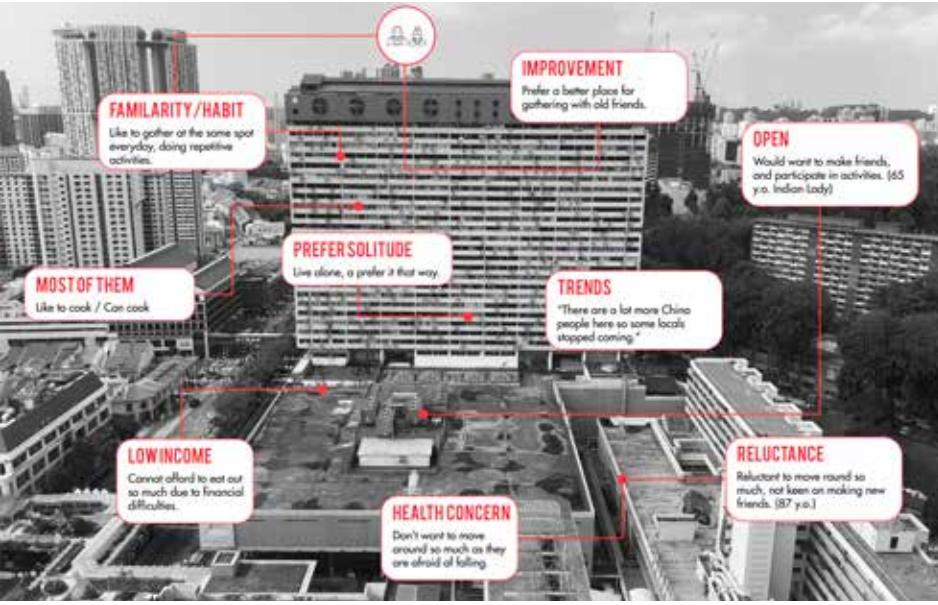
Residential Blocks & Rental Apartments



Future and Current Mobility Strategies



Productio

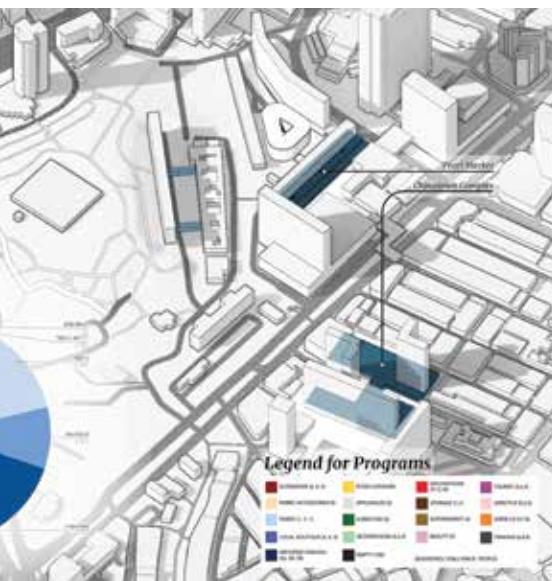
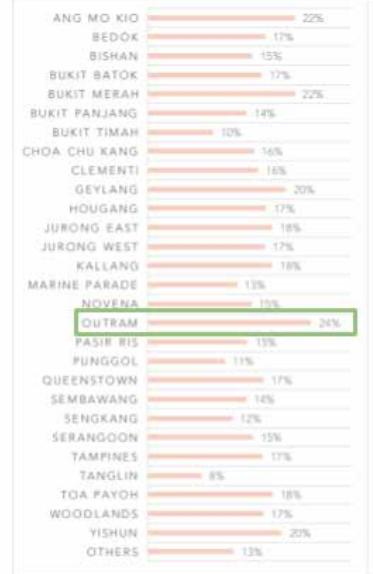


Major Demographic (Elderly)

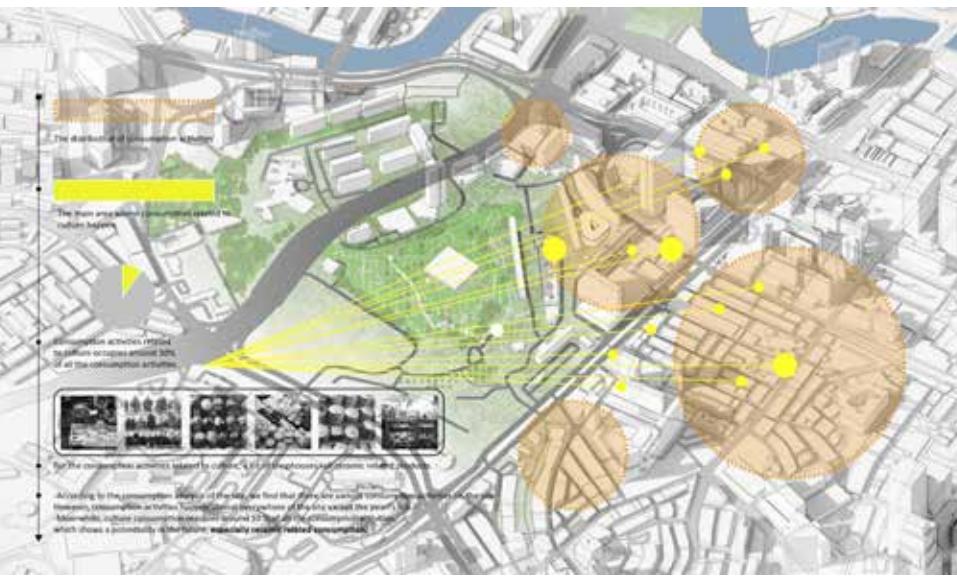
Gross Month Income (total)



Gross Monthly Income (Residents)

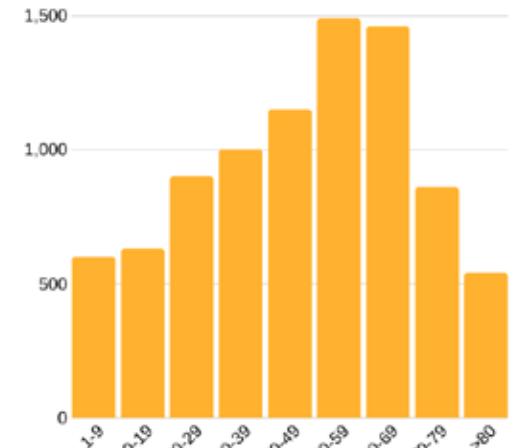


Diversity



Consumption Diversity

Age distribution



Demographics (Residents)

Typological Analysis

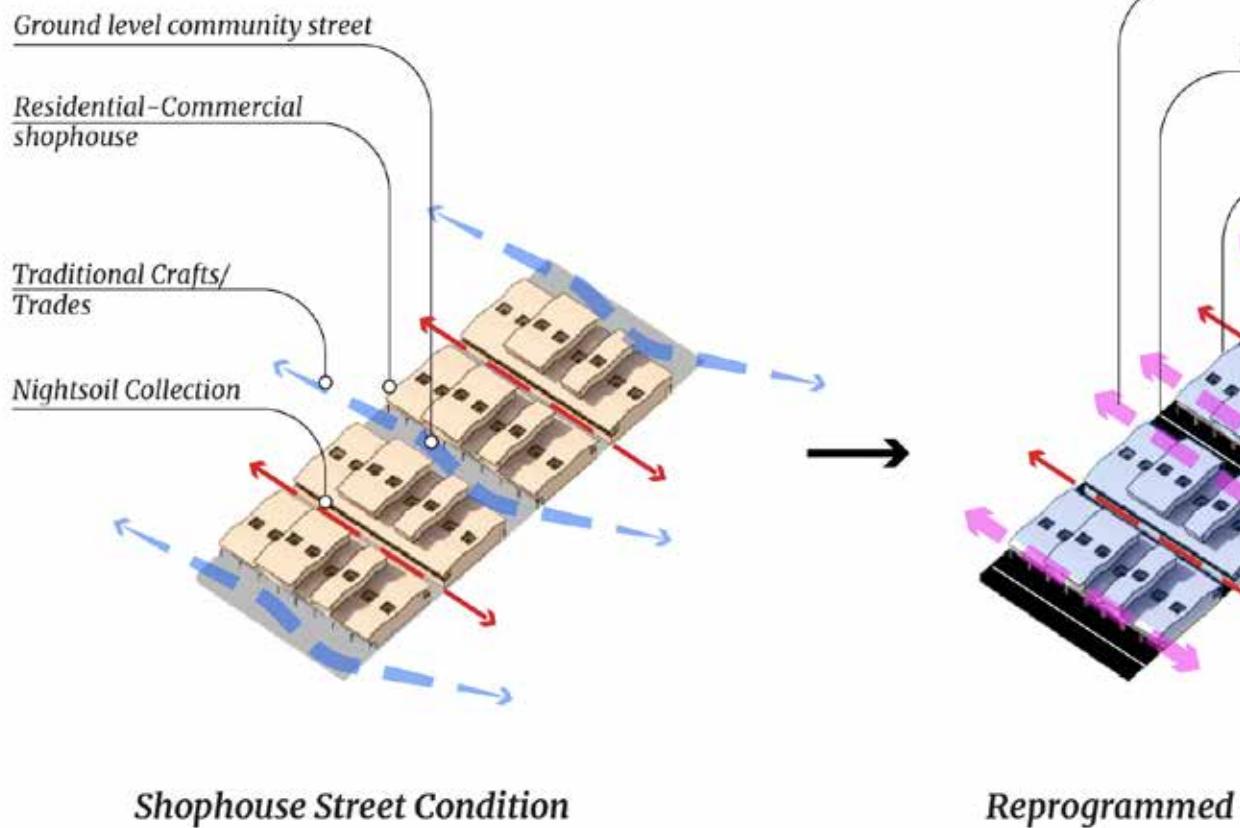
Urban Redevelopment from the 1960s

The shophouse street condition was the key to an intimate street life, defining by the intersection of social and trading activities.

However, the growing population size required a new typological strategy to house more people.

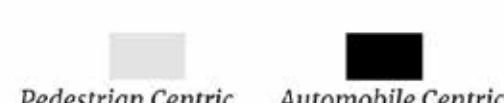
While occupants were relocated, their trade moved with them and the street life was re-designed as a historical re-interpretation of Chinatown of marketable value.

Now pedestrians are confined to the five-foot walkways and streets were converted to roads for cars. The podium blocks attempts to bring back the vibrancy of intermingling between social and business activities, but faces a high-rise disconnection from the podium levels.



Shophouse Street Condition

Reprogrammed



Historical transformation of shophouses

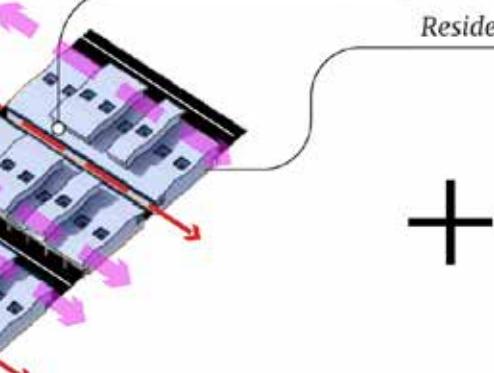
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Urbanized Chinatown

Pedestrians confined to 5 foot way
Tourist Centric Footfall

Heavily Motorized Shophouse Roads

Single-use commerical shophouse
Logistics

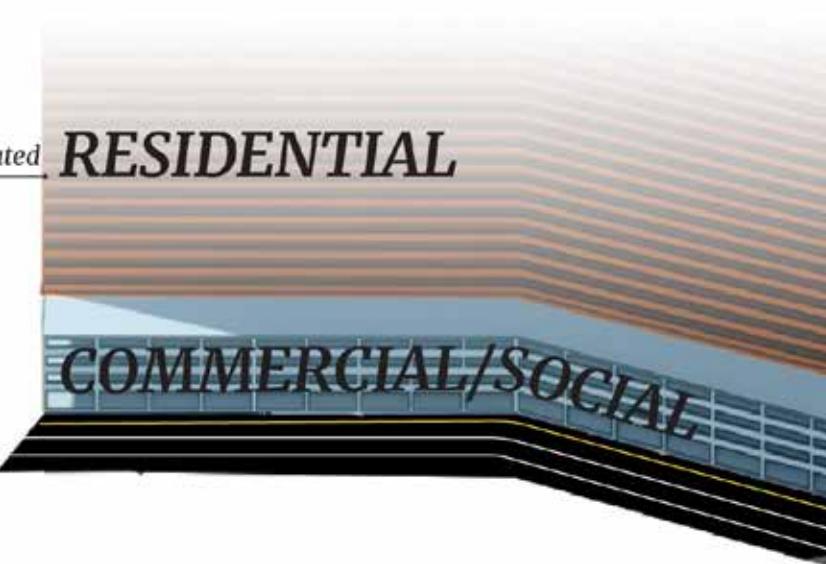


Shophouse Street Condition



Tourist Centric

Podium Block Mixed Use Residential



**High Rise High Density
Living Conditions**

Typical underused corridors



"An ecosystem of on-demand spaces to empower community through participation"

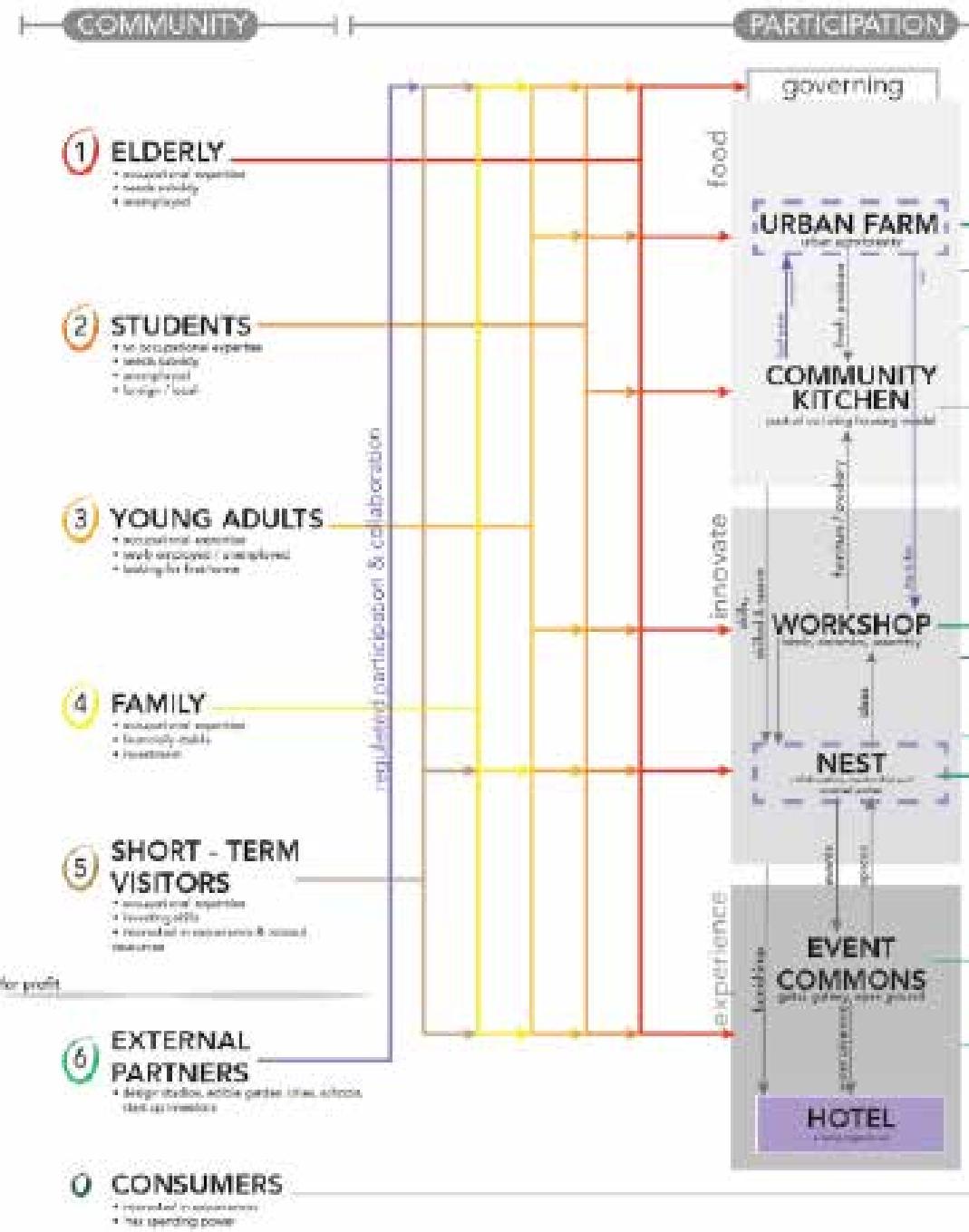
Ecosystem

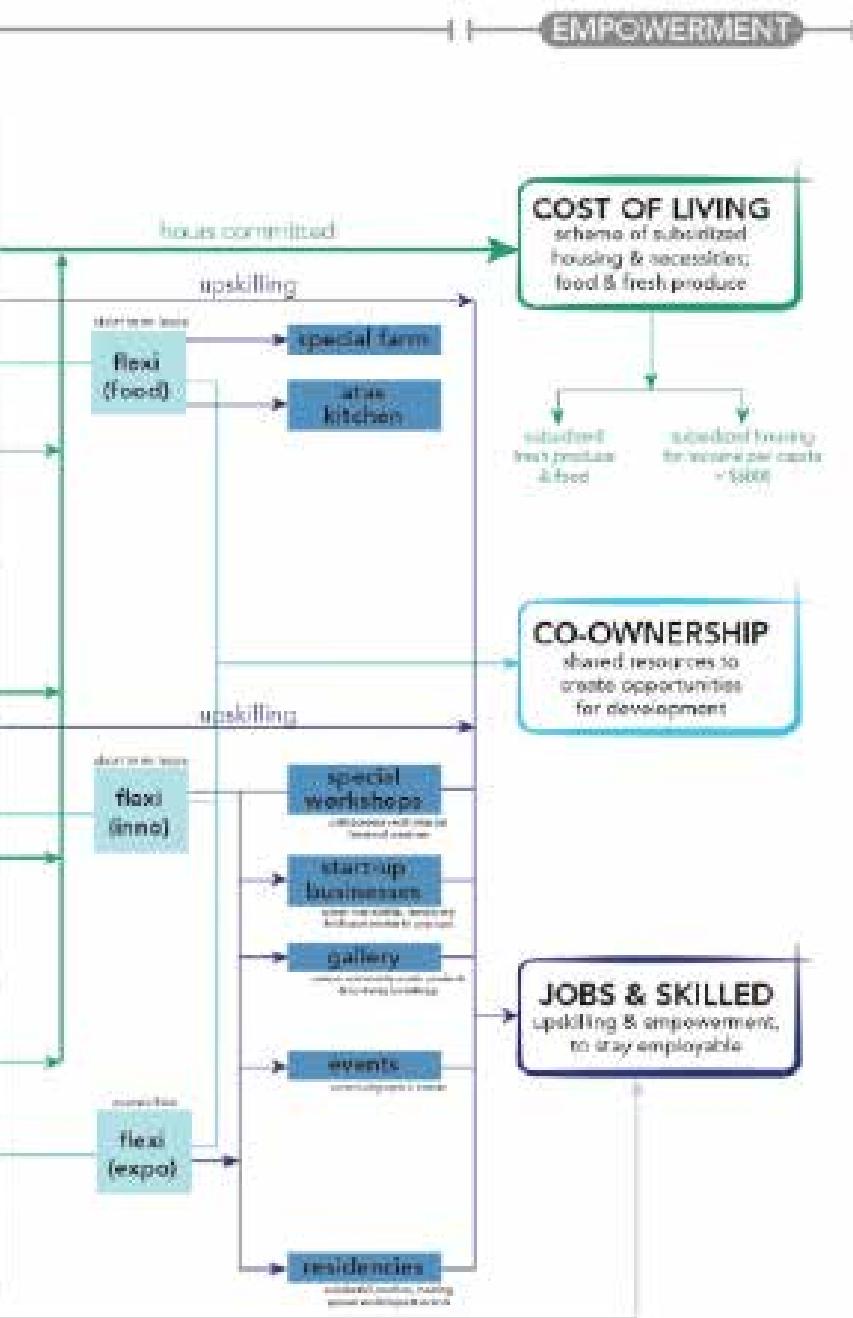
The ecosystem focuses on "Community", "Participation" and "Empowerment".

"Community" examines the demographic distribution, and internal/ external participants of the system.

"Participation" examines the platforms of activities, based on the diversity of programs offered on site and by the community.

"Empowerment" examines key outcomes of "Cost of Living", "Co-ownership" and "Jobs and Skills" that benefits the community.





On-Demand Empowerment

A lifestyle of the new age that resonates with the identity of Chinatown, where trade was once fluid and intermingled with social life.

We offer shared platforms in the form of automated vehicles and integrated docking infrastructure which spontaneously shapes spaces; a community centric approach.

Primary programs are established for the community to expand on, creating secondary and even more complexed programs; combinations that innovates and changes with time.

"An ecosystem of on-demand spaces to empower community through participation"

Spatial System

The concept plan is a response of the existing site opportunities, employing strategies that aims to revitalize the trade and social life of what was Chinatown; the intimate street life.

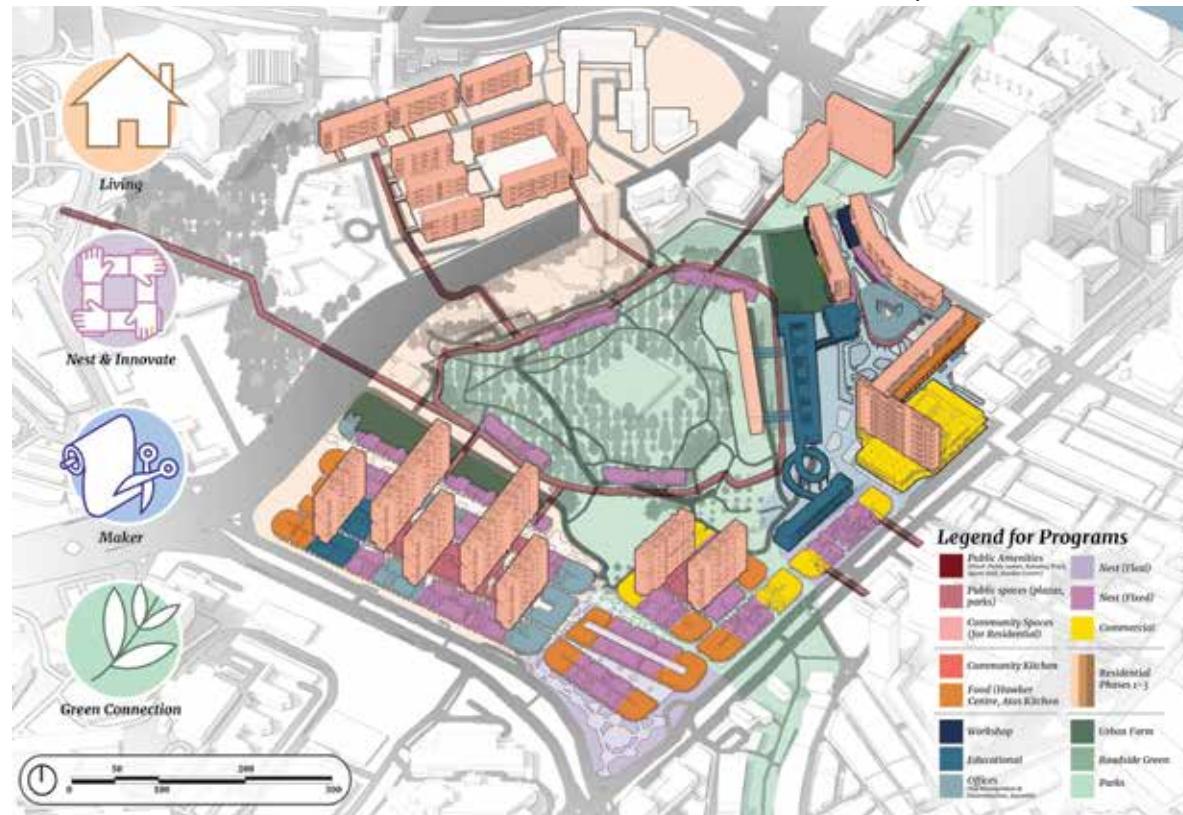
The diversity of programs are anchored by the infrastructural ring that eases movement of people and goods around and through the citypark; both on foot and via automated vehicles.



Potato Plan

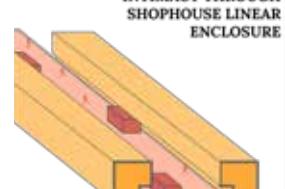
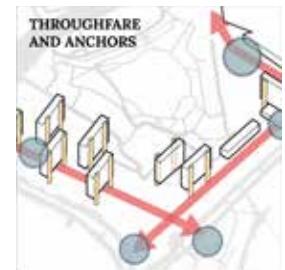
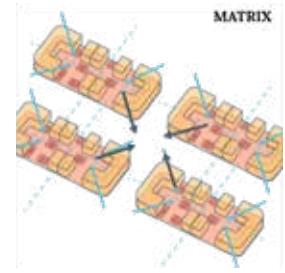
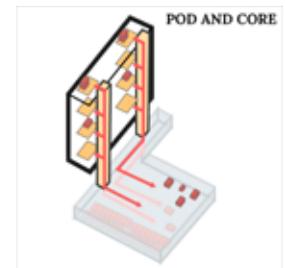


Concept Plan



Detailed Concept Plan

NUS-Tsinghua Sharing Cities Joint Design Studio 2020: NUS Studio



Strategies



Urban Design of Pearl's Hill and People's Park District, Singapore

FLXCITY

Masterplan

FLXCITY will not be a re-creation of the old chinatown, but a town of the new age that embraces the unique culture of trade and social life; through a combination of technology, nature, trade, and community.

Systems



Green Network

The Pearl's Hill City park is part of the larger urban greening plan "Greening Orchard". The green network combines the movement of automated vehicles and pedestrian, generating meaningful movement through the park.

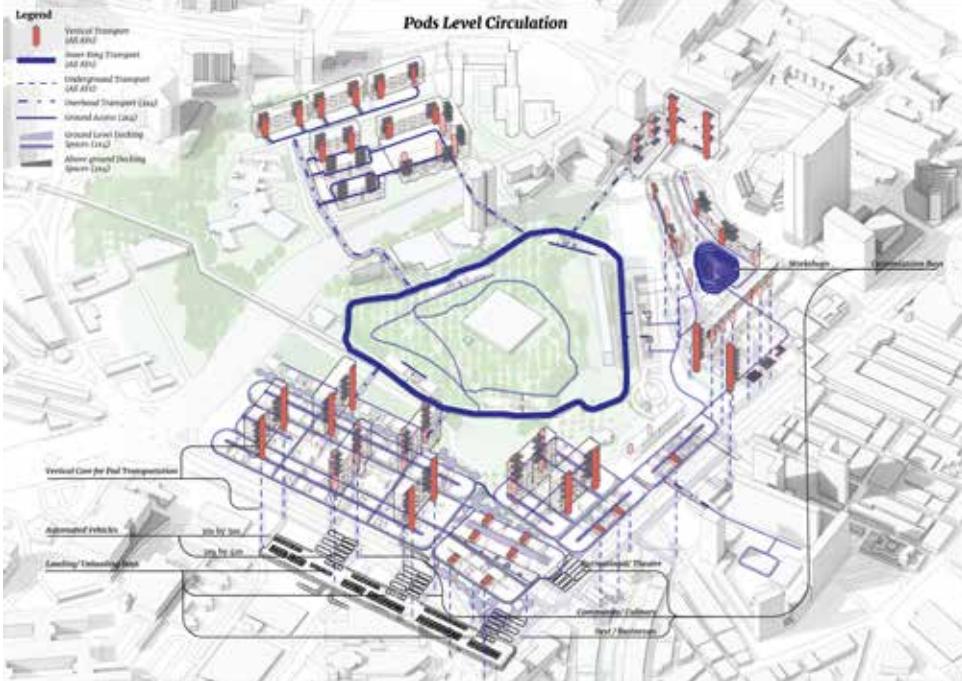
"Conventionally, neighbourhood parks or parklike open spaces are considered boons conferred on the deprived populations of cities. Let us (...) consider city parks deprived places that need the boon of life and appreciation conferred upon them. (...) for people do confer use on parks and make them successes (...)."
- Jane Jacobs *The Death and Life of Great American Cities*



Automobile Level Circulation

The carpark becomes a key transition point between automated vehicles and typical automobile; accessibility by residents to their apartments and a loading/unloading zone for goods.

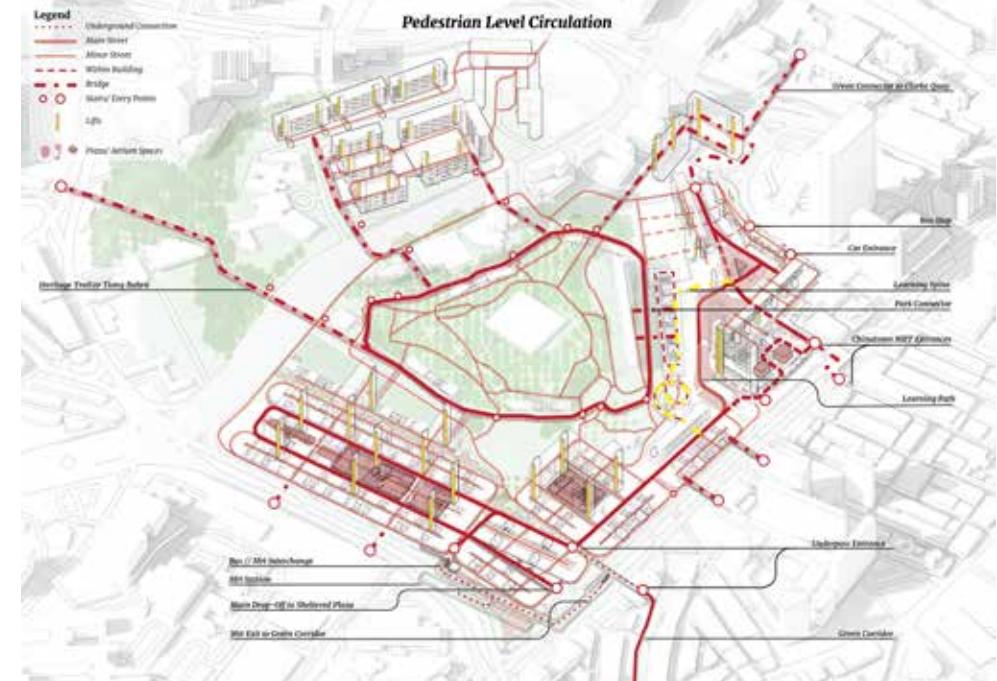
The carpark is positioned along the arterial road that leads to the port, capitalizing on the movement of imported goods.



Pod Level Circulation

There are five main modes of circulation, underground, vertical, semi-subterranean, ground level and above ground movement.

The automated vehicle infrastructure is integrated extensively throughout the entire site. The larger pods can only move underground, within the ring and up the vertical cores, while the smaller pods moves and docks flexibly; maintaining the walkability and vibrancy of pedestrian street.



Pedestrian Level Circulation

Imagined as a car-lite zone, pedestrian level circulation takes precedence over other modes of circulation.

Two well-defined pedestrian spines are proposed in response to future planning strategies. With an underlying programmatic distribution, it becomes a sequential experience of FLXCITY in varying degrees of community-centricity.

Phased Development

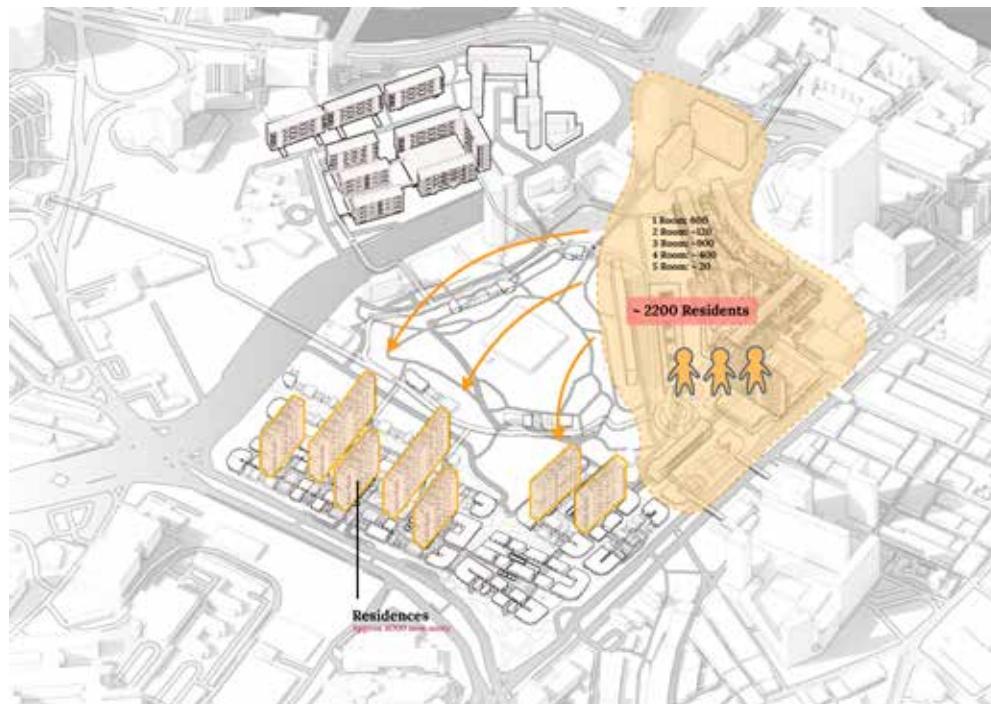
Movement of Residents

Residents are gradually introduced to a system of co-living in the integrated ecosystem of FLXCITY.

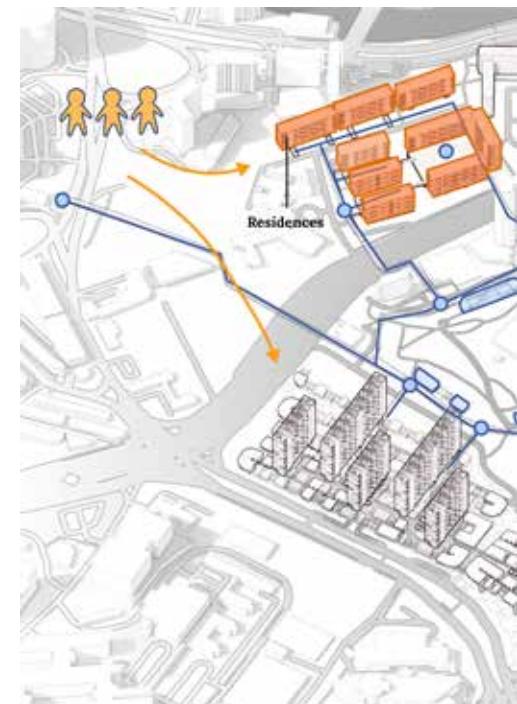
The new estate provides more residential units that relieves the high rise high density blocks in the older estate.

Renovation capitalizes on the ease of movement through the automated vehicle system.

The shop units on the ground level can be spontaneously programmed and re-programmed to provide interior furnishing services, food, and showrooms in the transition period of different phases.

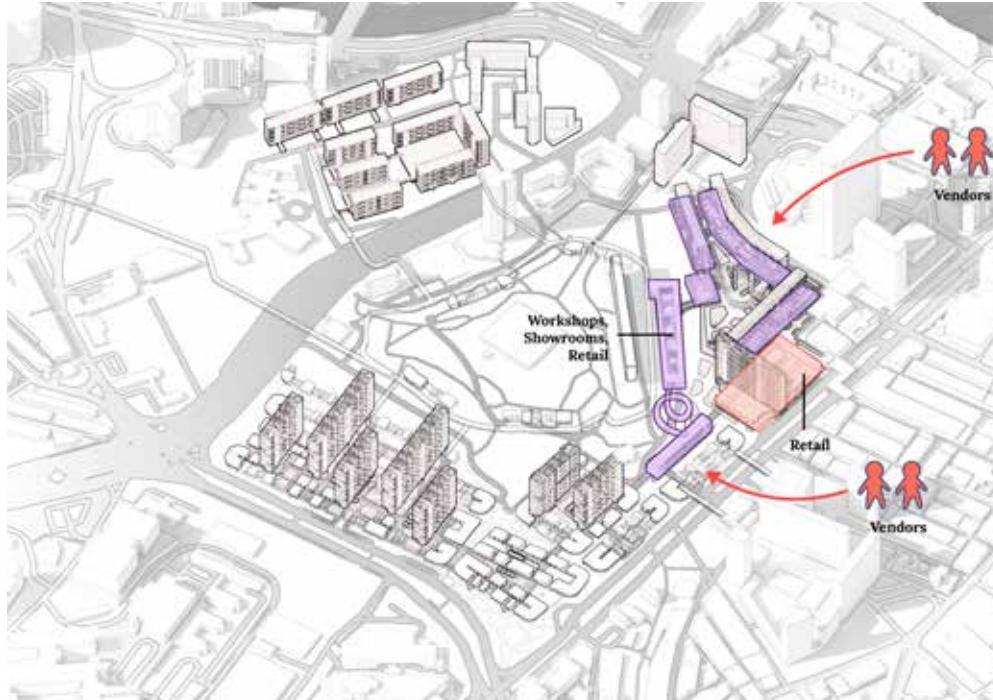
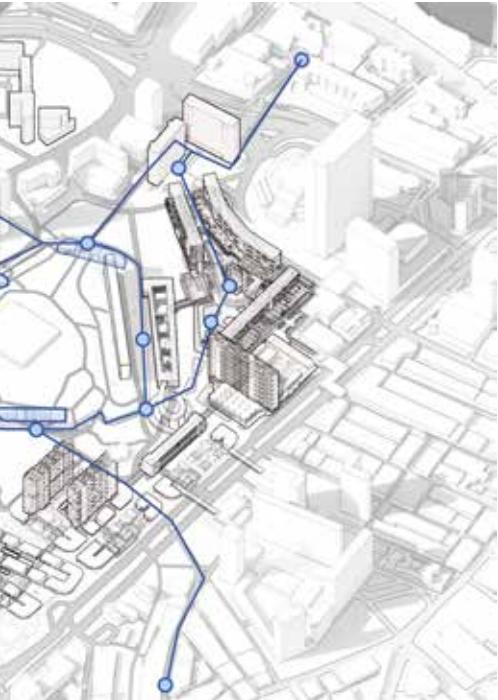


Phase 01: Outram Estate



Phase 02: York Hill Estate

The new estate receives residents from People's Park Estate such that the buildings there can undergo reconstruction.



Phase 03: People's Park Estate

Vendors that moved out in Phase 01 return, and new residents can take occupancy in the new residential estate.

Movement of Businesses

Vendors are shifted about during the entire construction and alteration. The additional capacity of pods and shop units in the new estate accommodates up to an extra 6000sqm of shophouses (People's Park Centre equivalent). On top of that, an extra 6000sqm of aggregated flexible spaces through automated vehicles are introduced into the system, leveraging on the agency of community.

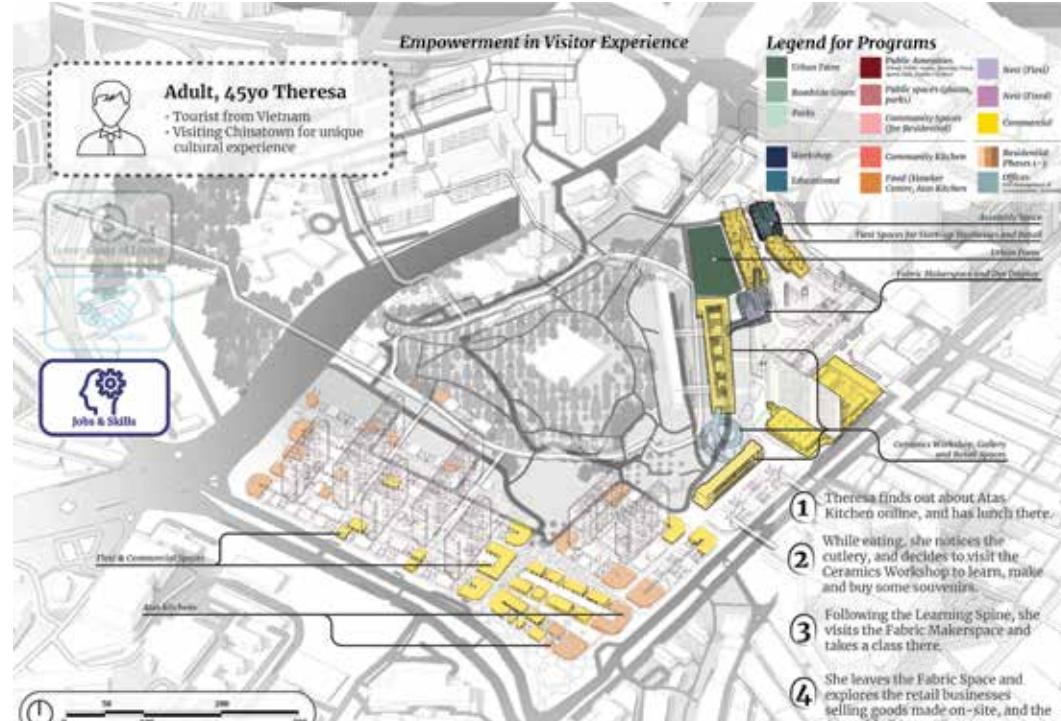
1 Small shop unit = 120 sqm

1 Large shop unit = 240 sqm

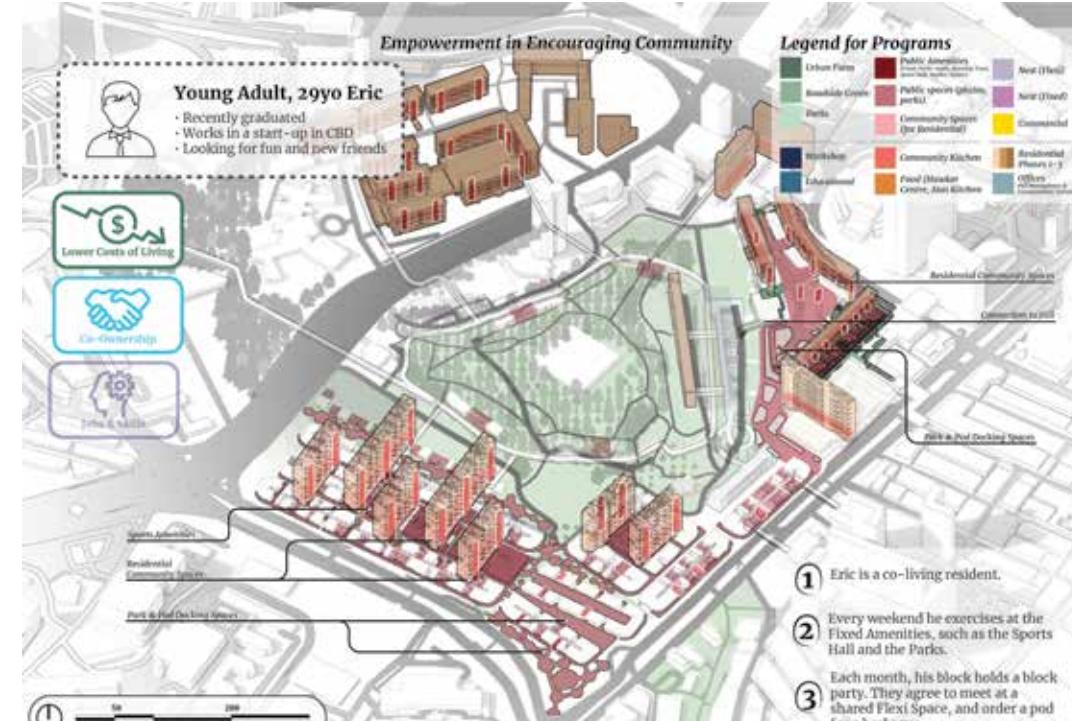
1 Small Pod = 8 sqm

1 Large Pod = 15 sqm

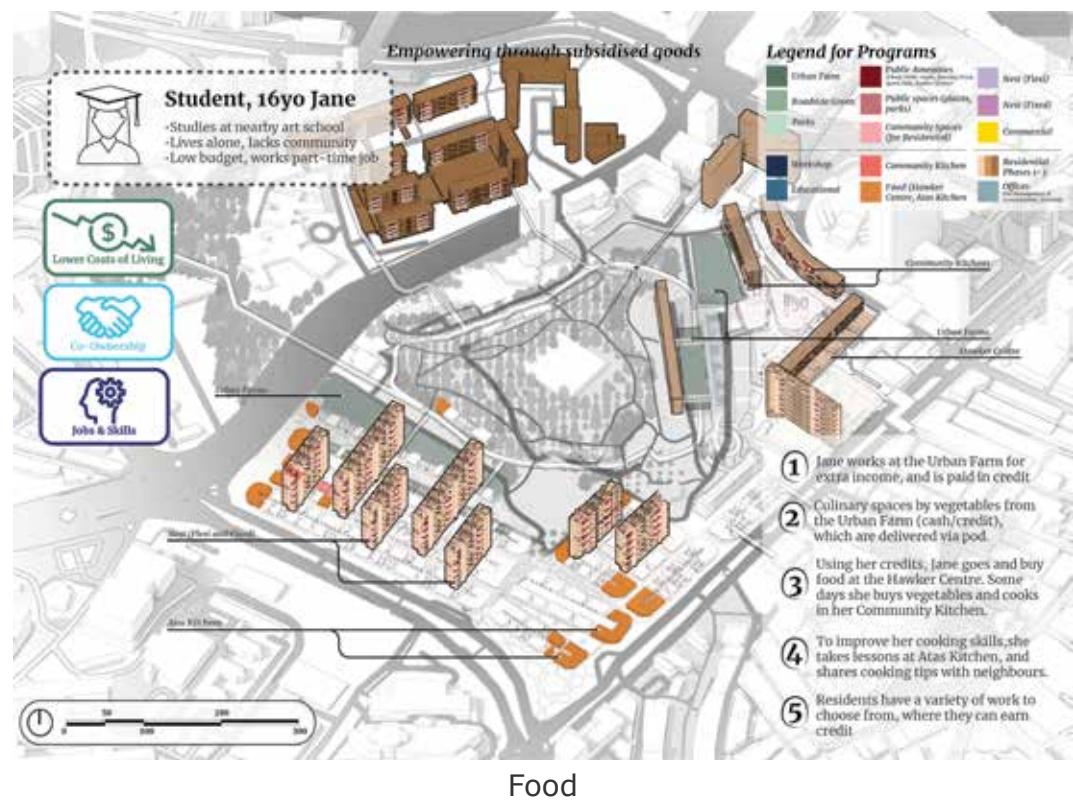
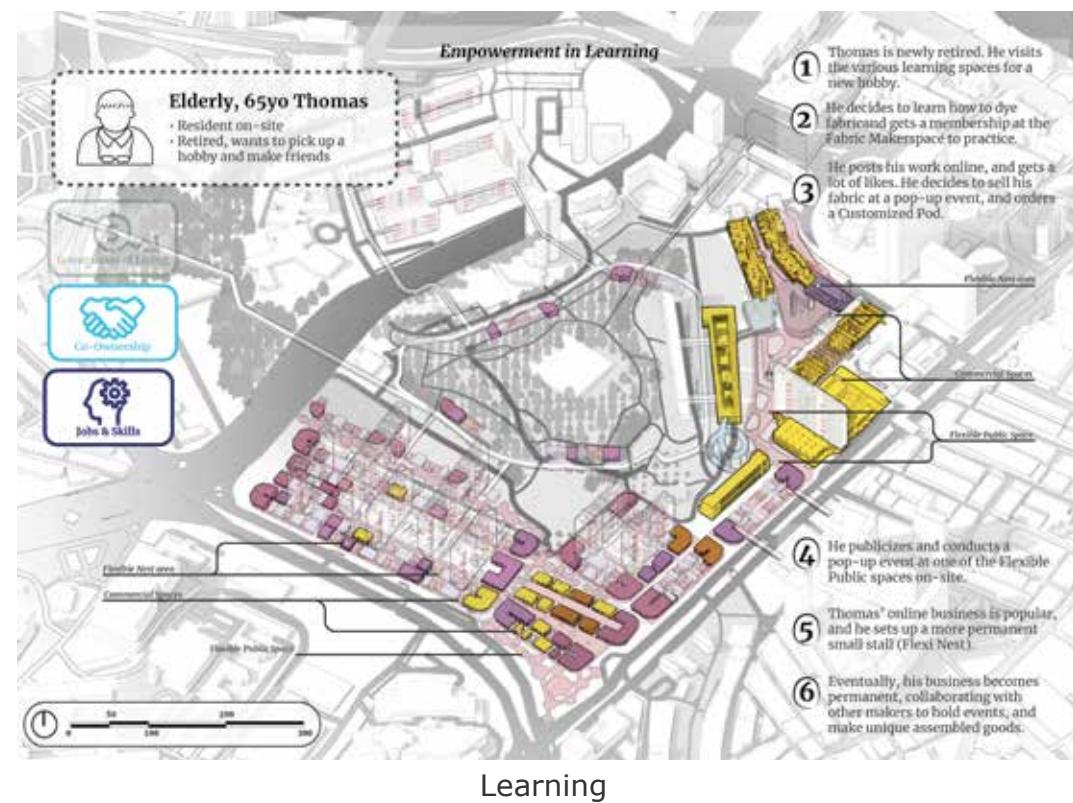
User Journeys



Visitor Recreational Activities



Community Recreational Activities

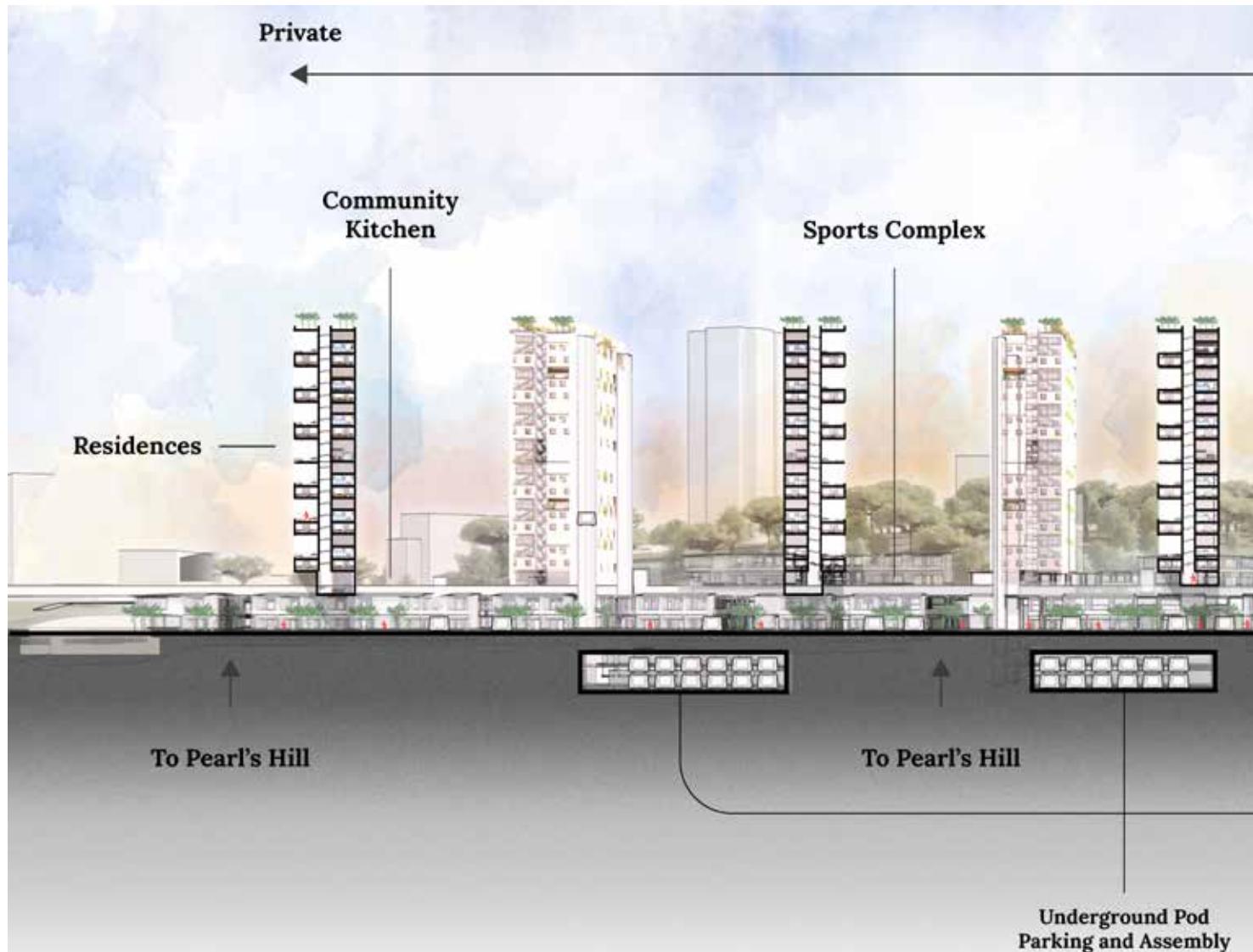


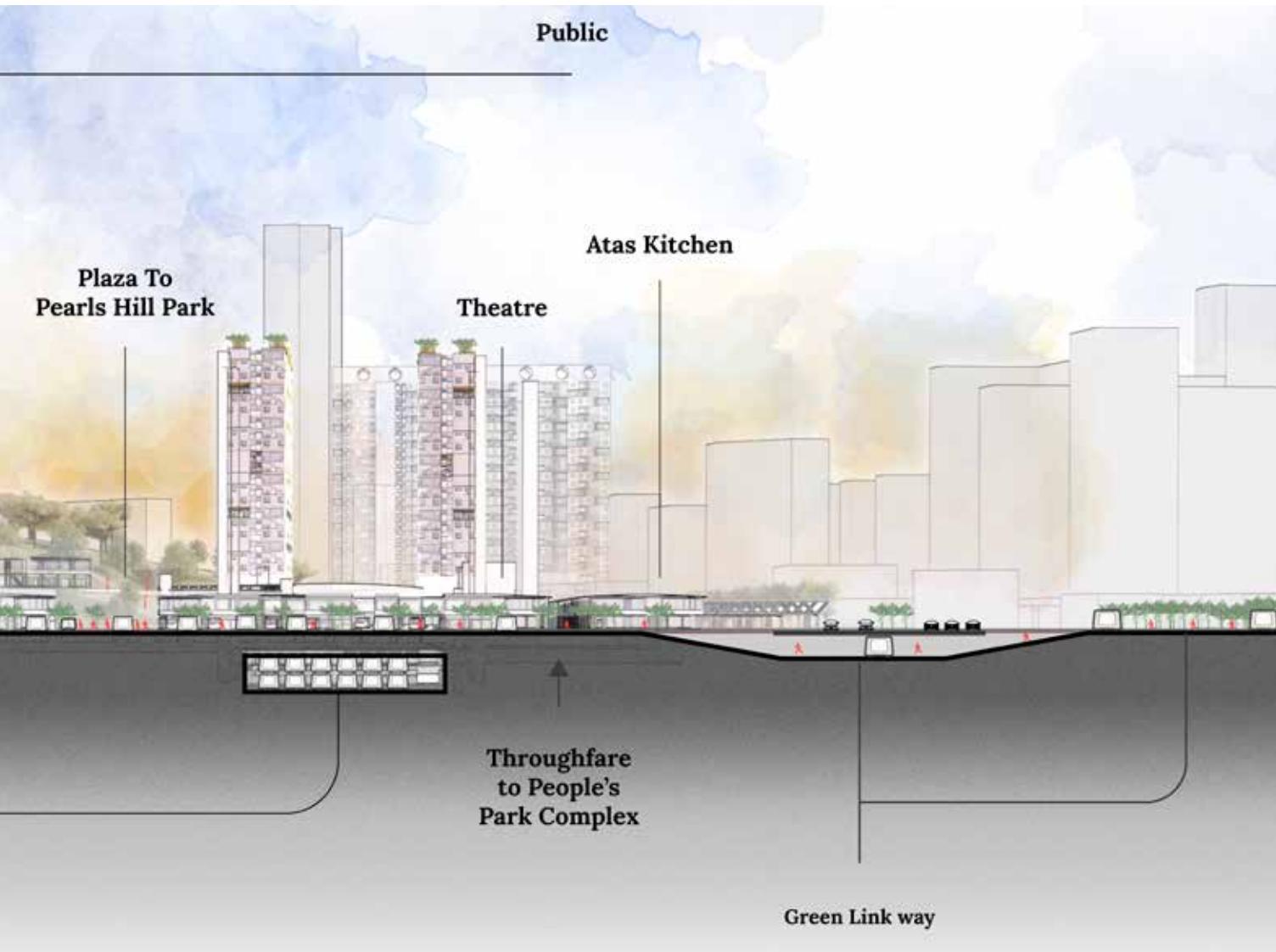
Undisrupted Urban Section 01

Green Corridor Urban Thoroughfare

The street life in the outram estate extends continuously into the green corridor network through the underpass.

The continuous thoroughfare is imagined as an extensive stretch vibrant street life shaped by amenities, shopfronts and automated vehicles while maintaining connectivity to pearl's hill through its porosity.





Urban Design of Pearl's Hill and People's Park District, Singapore

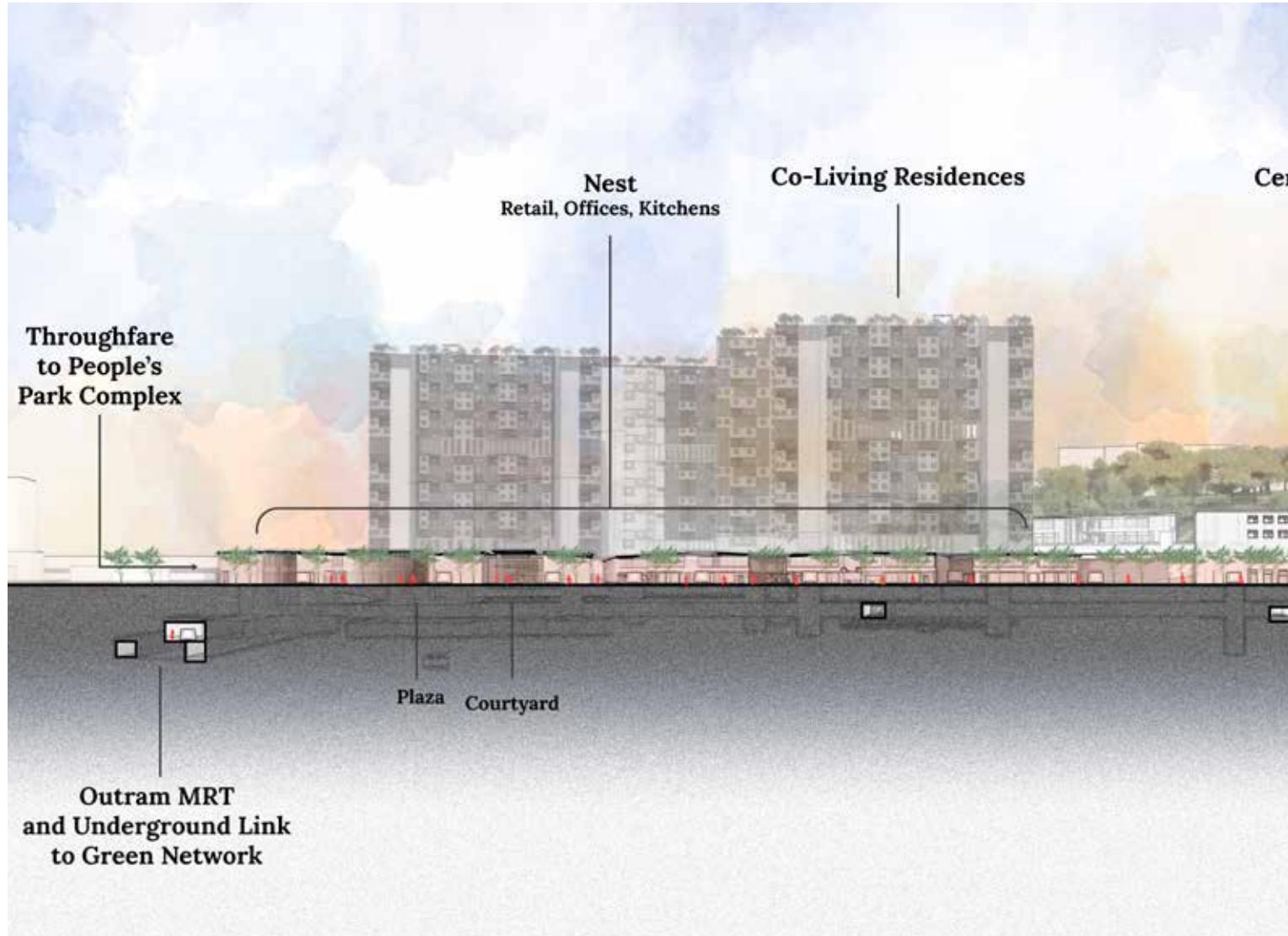


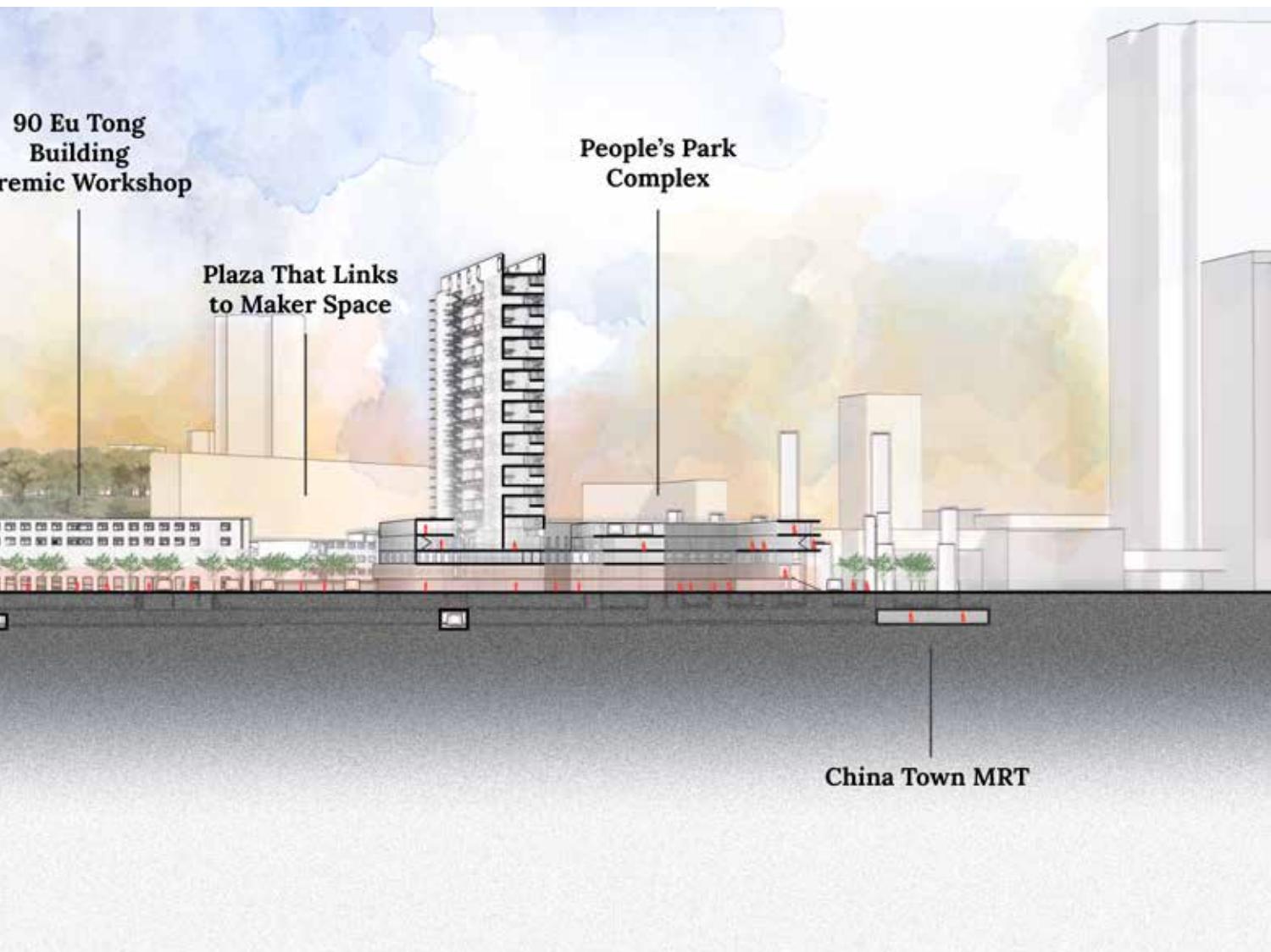
Undisrupted Urban Section 02

People's Park Centre Urban Thoroughfare

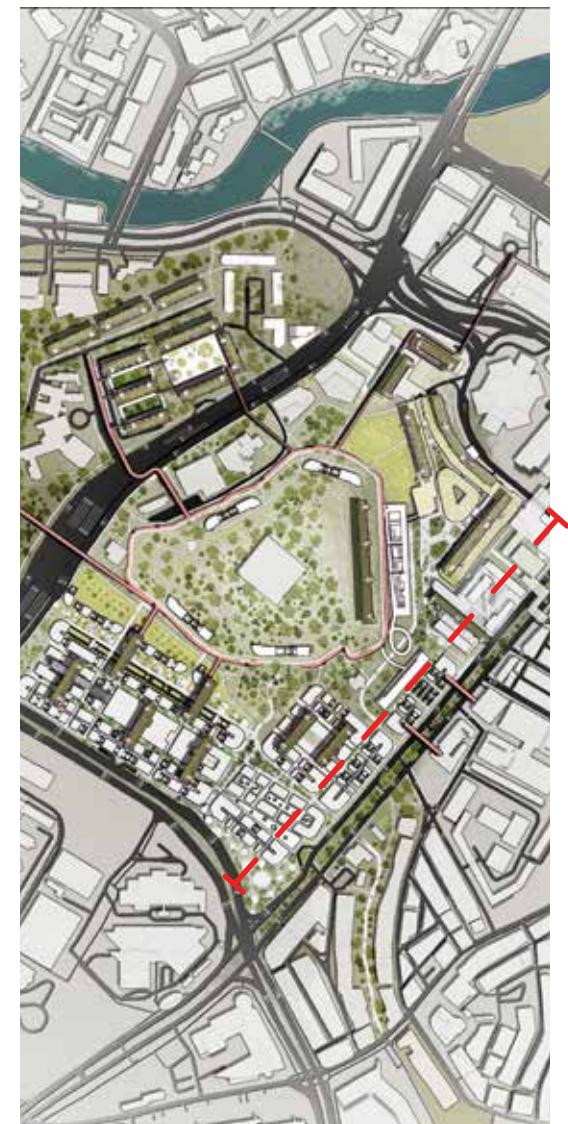
The street extends continuously from the MRT station and drop off plaza at the Outram State to People's Park Complex.

This is an emphasis of the City Living Room narrative that People's Park Complex adopts, and here the key focus is on the design of an undisrupted pedestrian street that takes precedence over the built masses.





Urban Design of Pearl's Hill and People's Park District, Singapore

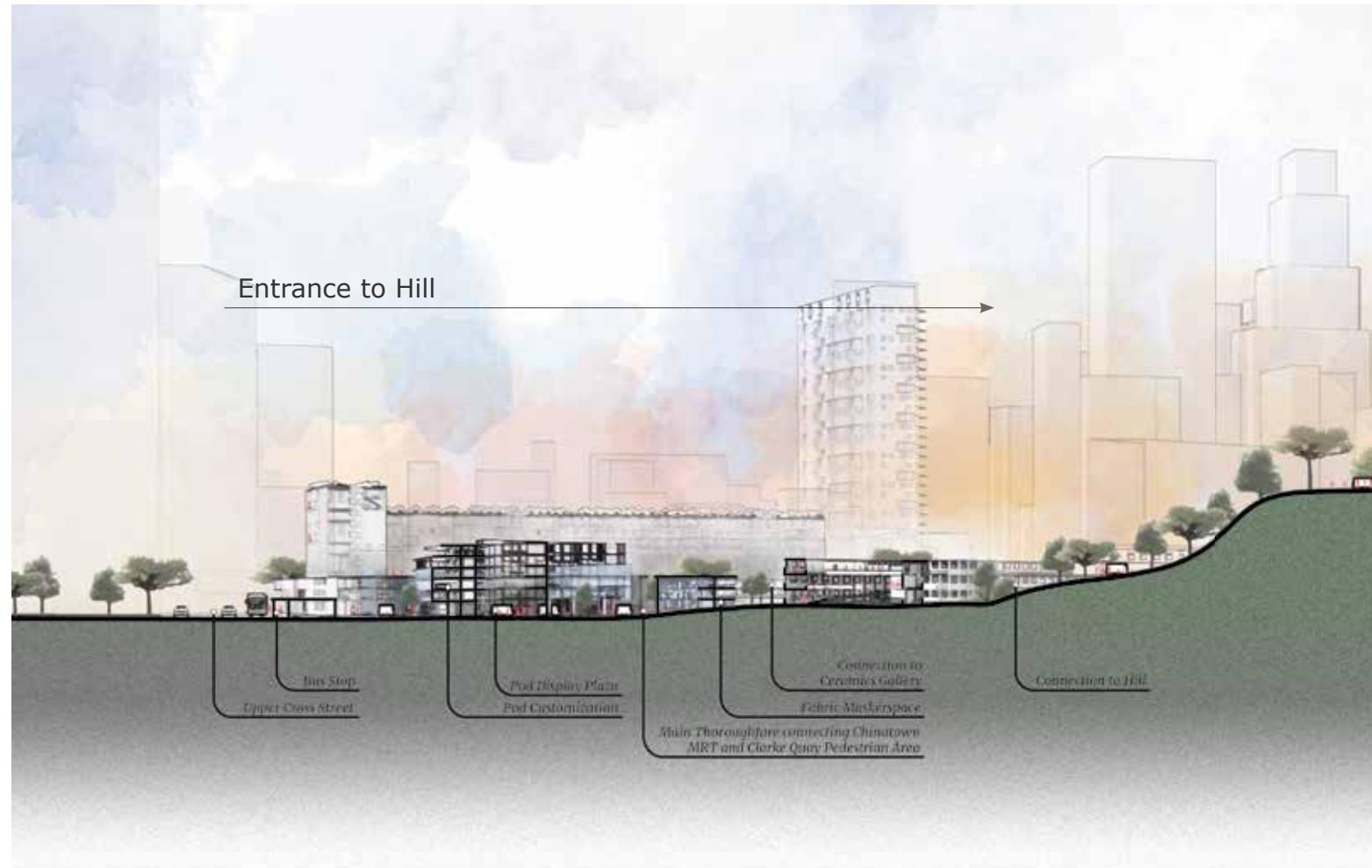


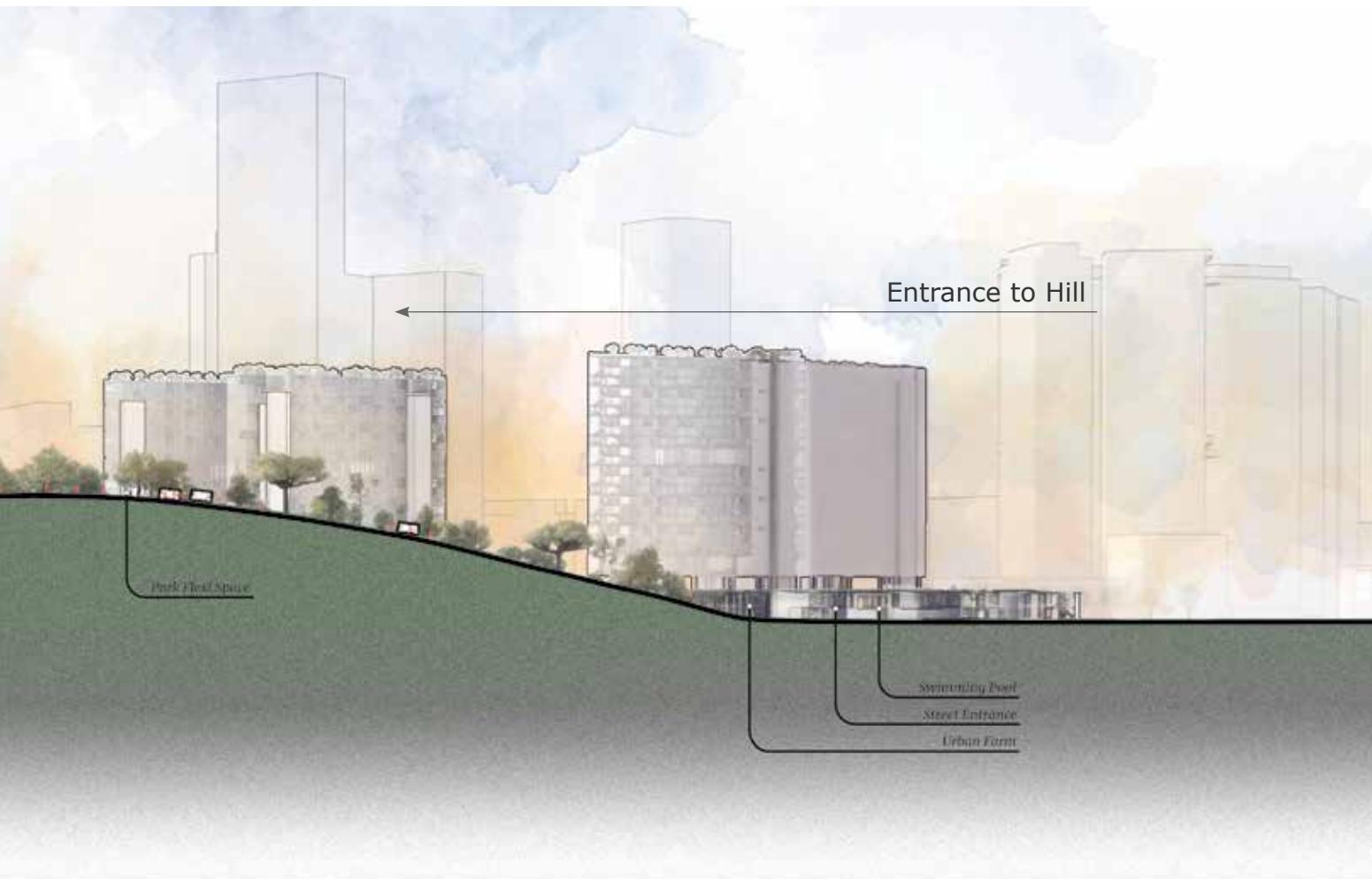
Pearl's Hill Section

Integrating with Nature

Infrastructure is provided as an inner ring that allows the automated vehicles to cross and move around the park.

The mobility allows the automated vehicle to dock anywhere in the park, activating it to users' desires.





Urban Design of Pearl's Hill and People's Park District, Singapore

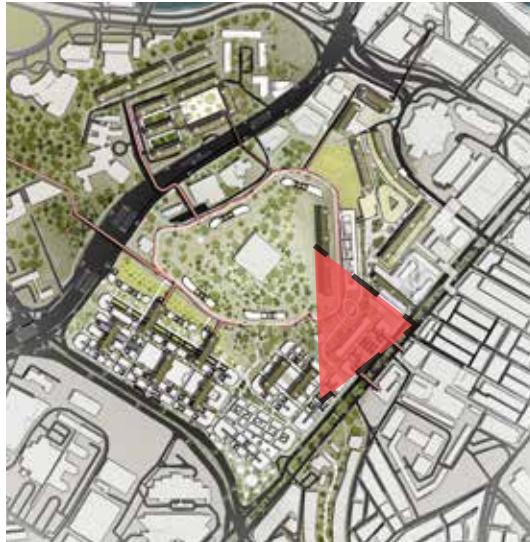






Urban Design of Pearl's Hill and People's Park District, Singapore

Urban-Nature Fabric

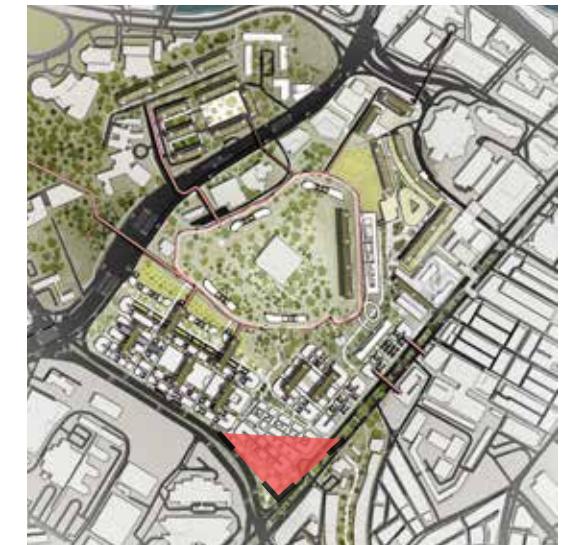


Extending Pearl's Hill

Connectivity across the road and to the hill is always maintained. The street is shaped not only by the shop units on the ground, but by the existing historical buildings such as the lower barracks as well.

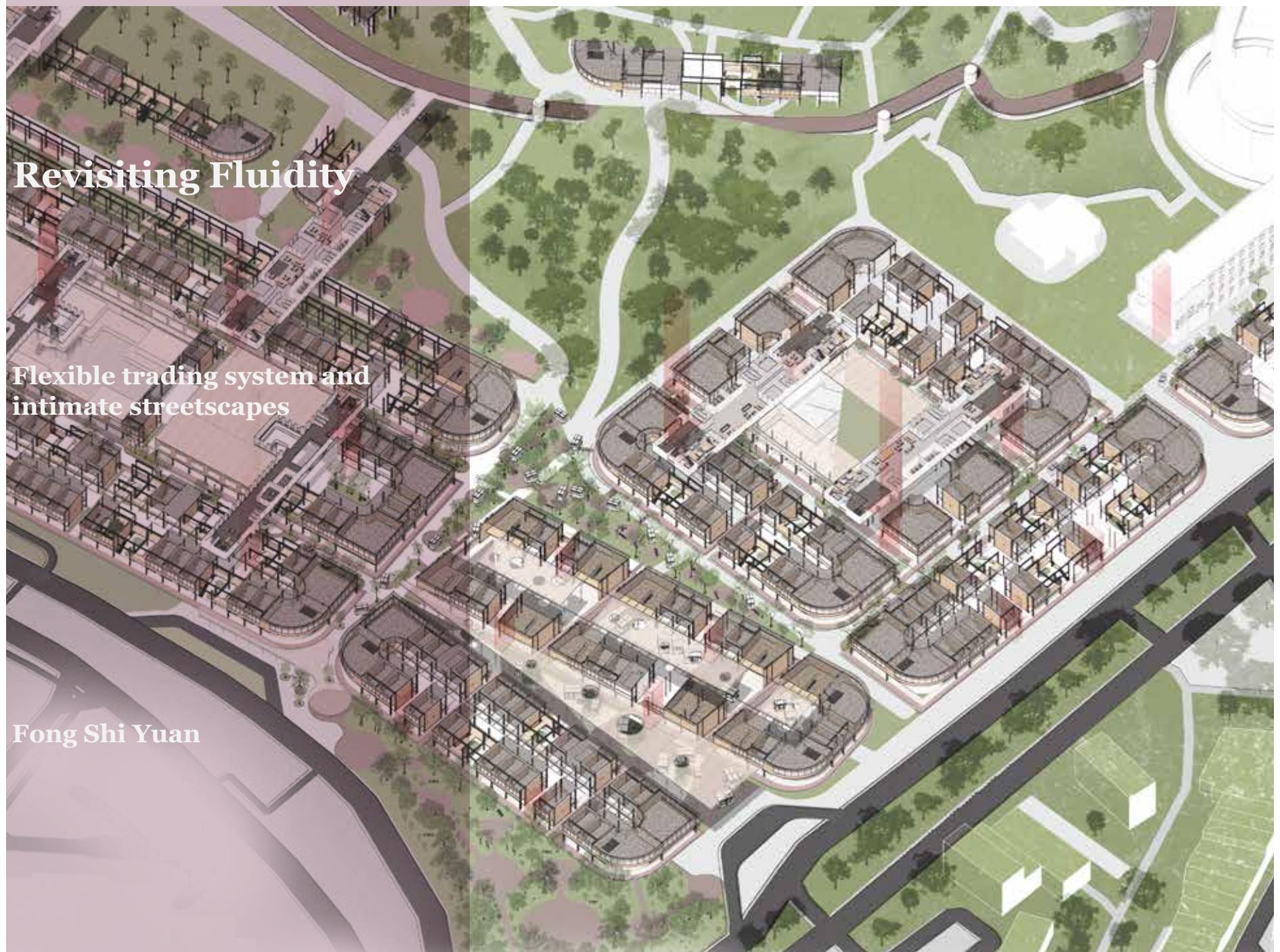


Urban-Nature Fabric



Low-rise street life fabric

Pearl's hill is imagined to flow outwards into the street life, extending its presence towards the main roads and creating green plaza at key intersections.



Revisiting Fluidity

Flexible trading system and
intimate streetscapes

Fong Shi Yuan

Automated Vehicles and Modular Fabrication

Automated Vehicle

There are two types of AVs, 3x5m and 2x4m.

The larger AV focuses on the movement of goods, while the smaller one focuses on transport of people.

Both AVs are capable of hosting activities, and shaping the activities it aggregates in.

Shop Unit

Each shop unit is a double storey shared space that can host up to 2 tenants.

It starts with a basic steel frame scaffold structure that can be modified according to user specifications.

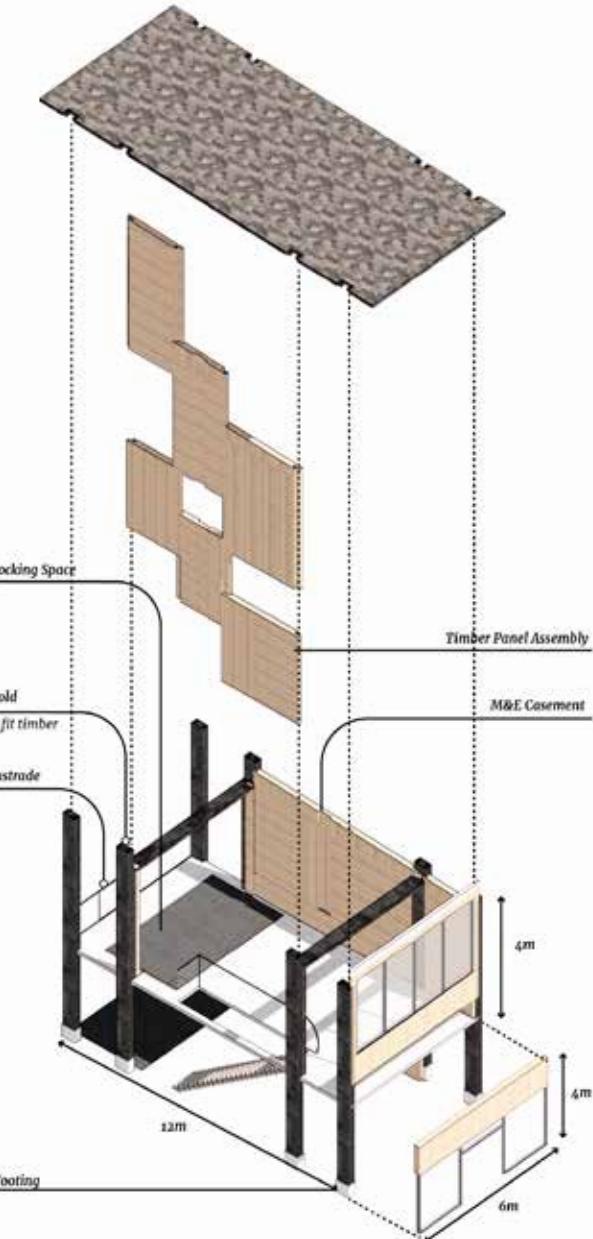
The combination of AVs capable of transporting the pre-fabricated MET panels allows for spontaneity of construction and alteration.



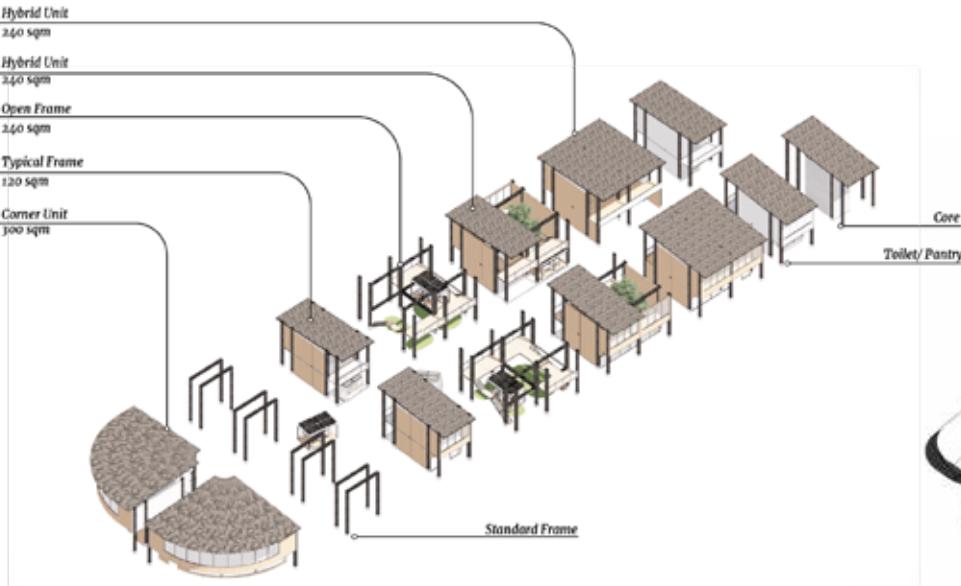
Small AV



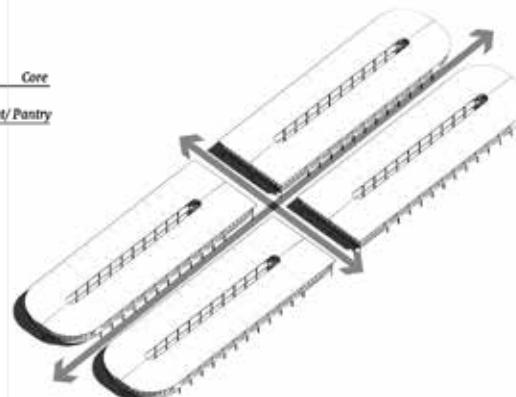
Large AV



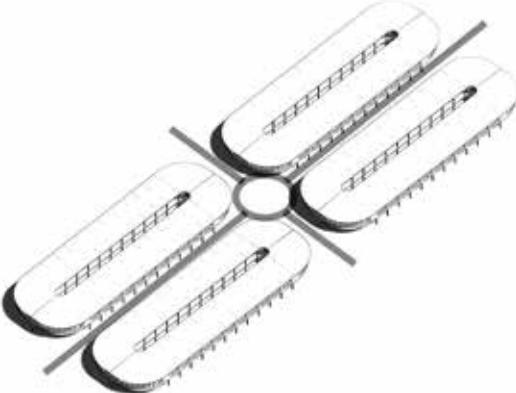
Typical Shop Unit



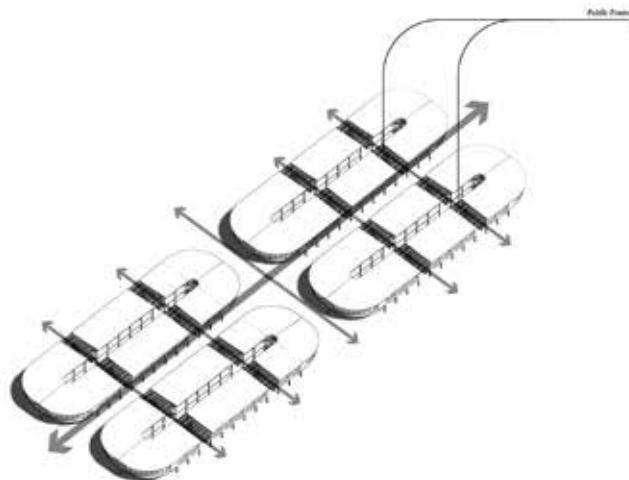
Unit Variations



The block length determines the sense of enclosure at junctions, creating straight thoroughfares and strong movement. Building blocks are 9m tall and streets are 10m wide, the square street section and long block lengths of 50m creates a strong sense of enclosure.



Rounded edge tend to create a larger plaza, functions like this can be used to break the monotony of enclosure.



Open frames can be introduced to the blocks to further loosen up the sense of enclosure, while maintaining the sense of intimacy in the street enclosure.

Street Blocks

Urban Design of Pearl's Hill and People's Park District, Singapore

Unit Variations and Street Blocks

Unit Variations

The modularity of each unit can vary from an open frame structure to a closed frame and to a hybrid unit.

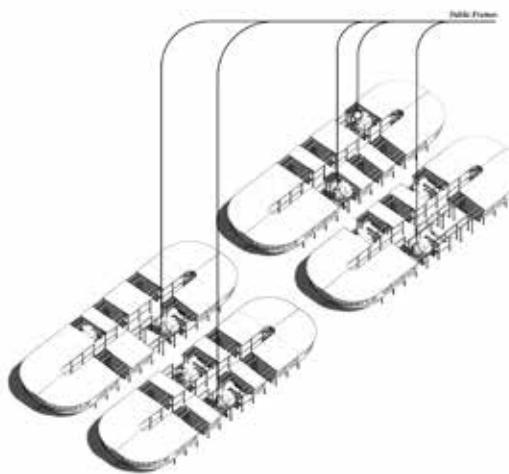
They can be differentiated into functions of amenities, public open space, or a normal shopunit integrated with pod docking functions.

These make up the fundamental units of the block; controlling the porosity and programmatic functions.

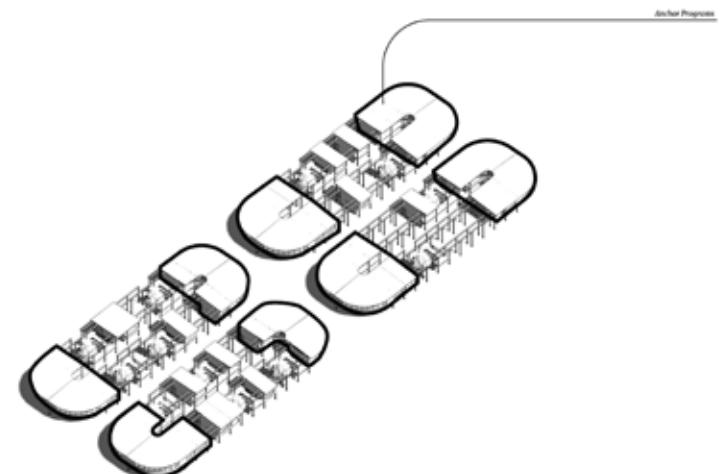
Street Blocks

The street block shapes a 10m wide by 10m tall street section, echoing the intimacy of shophouse streets.

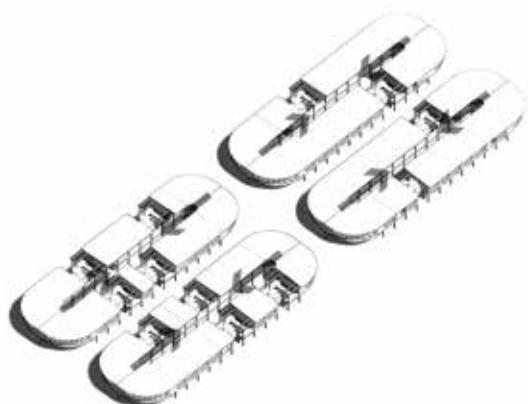
By controlling the length and porosity of each block, it confers the degree of publicness.



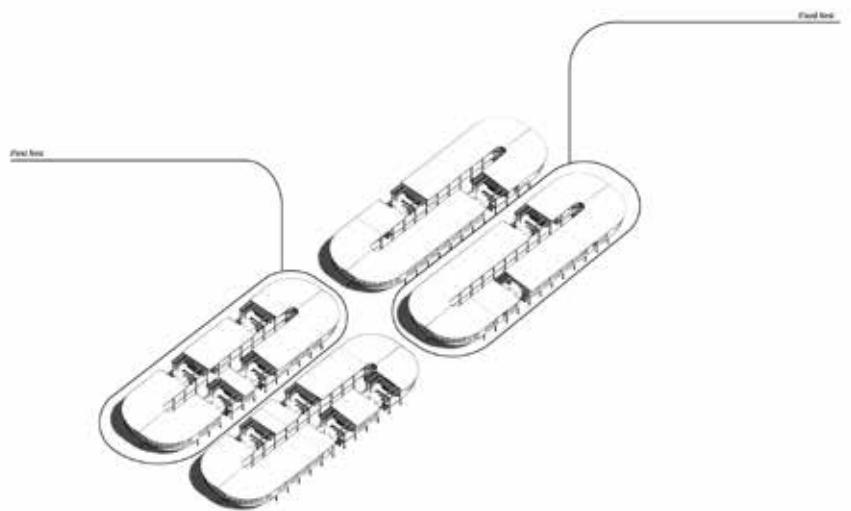
The open frames can be further introduced as public/ common platforms where pods can dock. These empowers and allows residents/ dedicated users to activate the spaces spontaneously.



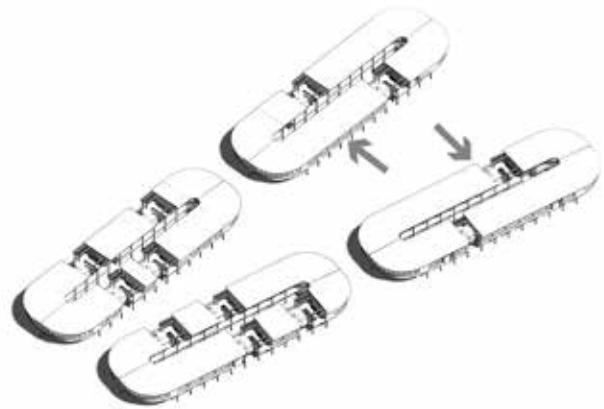
These public frames can then be used to define permanent public spaces, while the open frames can be used to determine spaces where the shophouses can grow, introducing an ever changing street facade. By creating anchors (fixed programs), each block can be influenced in its growth.



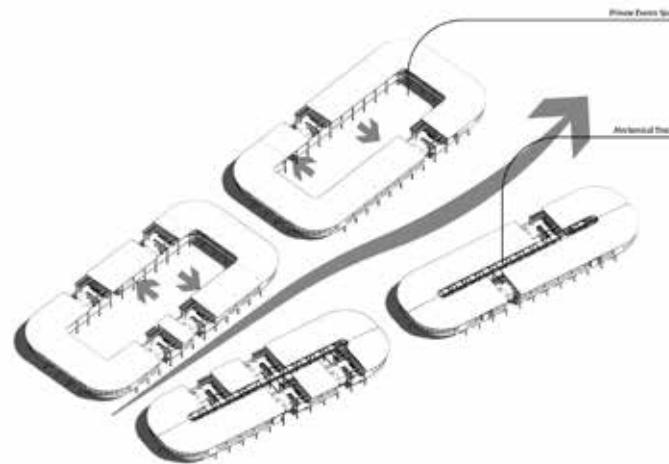
This defines the extent of shophouse growth, and the amount of public space frames will determine the porosity of each block and the resulting "publicness" and "community-centricity".



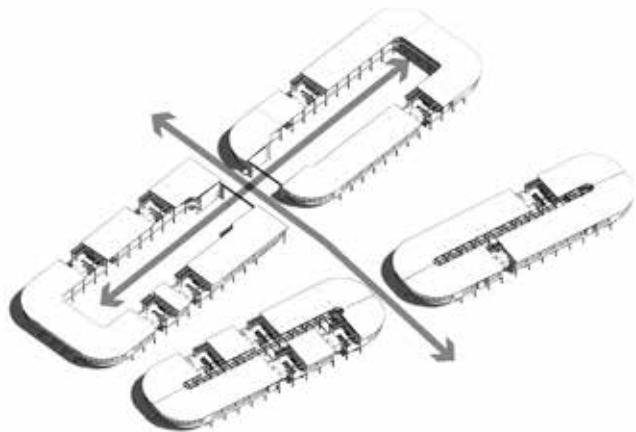
The definite porosity of each block thus defines the characteristic of a Fixed Nest and Flexi Nest; the flexi nest can be more spontaneously activated and community based, while the fixed nest is less spontaneous, more enclosed and public.



The streets can be further expanded into plazas, breaking the linearity of shophouse streets while maintaining the architectural tectonics.



Within each block, overhead mechanical structures can be introduced for above ground pod movements, or the backlines could be expanded to establish a "two-way facade" of the shophouse for greater flexibility in hosting events..



The corner blocks can even be replaced as gateways to formally introduce courtyard entrances, creating yet another plaza that gives the flexibility of hosting programs that are more public.

Spatial Hierarchy

Plaza, Streets, Courtyards

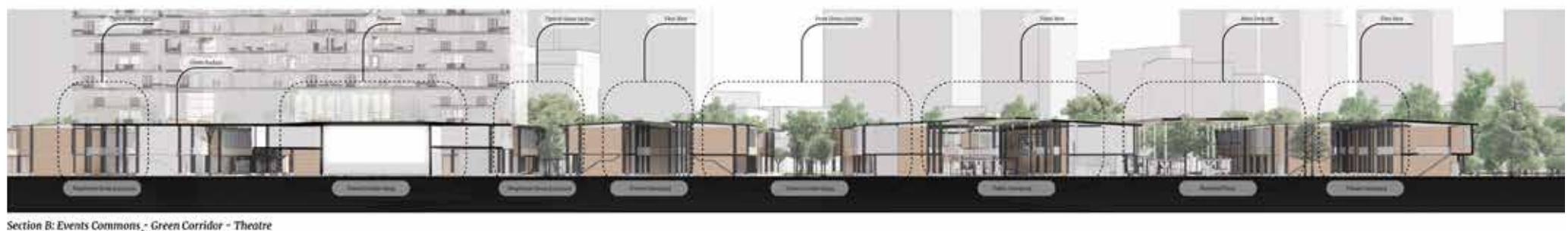
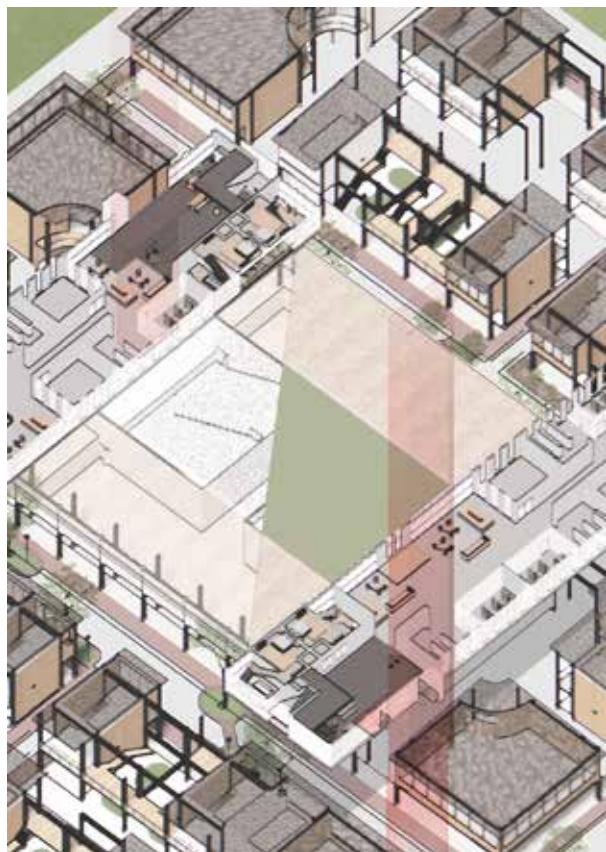
The street blocks are fundamental to carving plazas, streets and courtyards.

Each courtyard is programmed specifically in the larger context of the masterplan ecosystem.

The central courtyards of the estate houses public amenity programs such as community kitchens, sports complex and theatre, while the plazas form entrances to the site.

The private courtyards require block lengths that are longer and undisrupted, thus creating more private streetscapes, while the plazas that are wider are unaffected by block porosity, thus are more suited to form public programs.





Urban Design of Pearl's Hill and People's Park District, Singapore

Matrix Effect and Street Conditions

Spatial Adjacency

The shop units are dual facing, with active facades that faces both the street and courtyards due to the infrastructural integration of automated vehicles.

In a larger picture, a single programmatic block influences its individual courtyard, and extends its influence in to the plaza and streets in combination with other blocks across different scales.



To People's Park Centre



Typical Shophouse Enclosure



Green Corridor Plaza



Community Kitchen Plaza



Green Corridor Plaza



Nest Courtyard



Reimagine Living

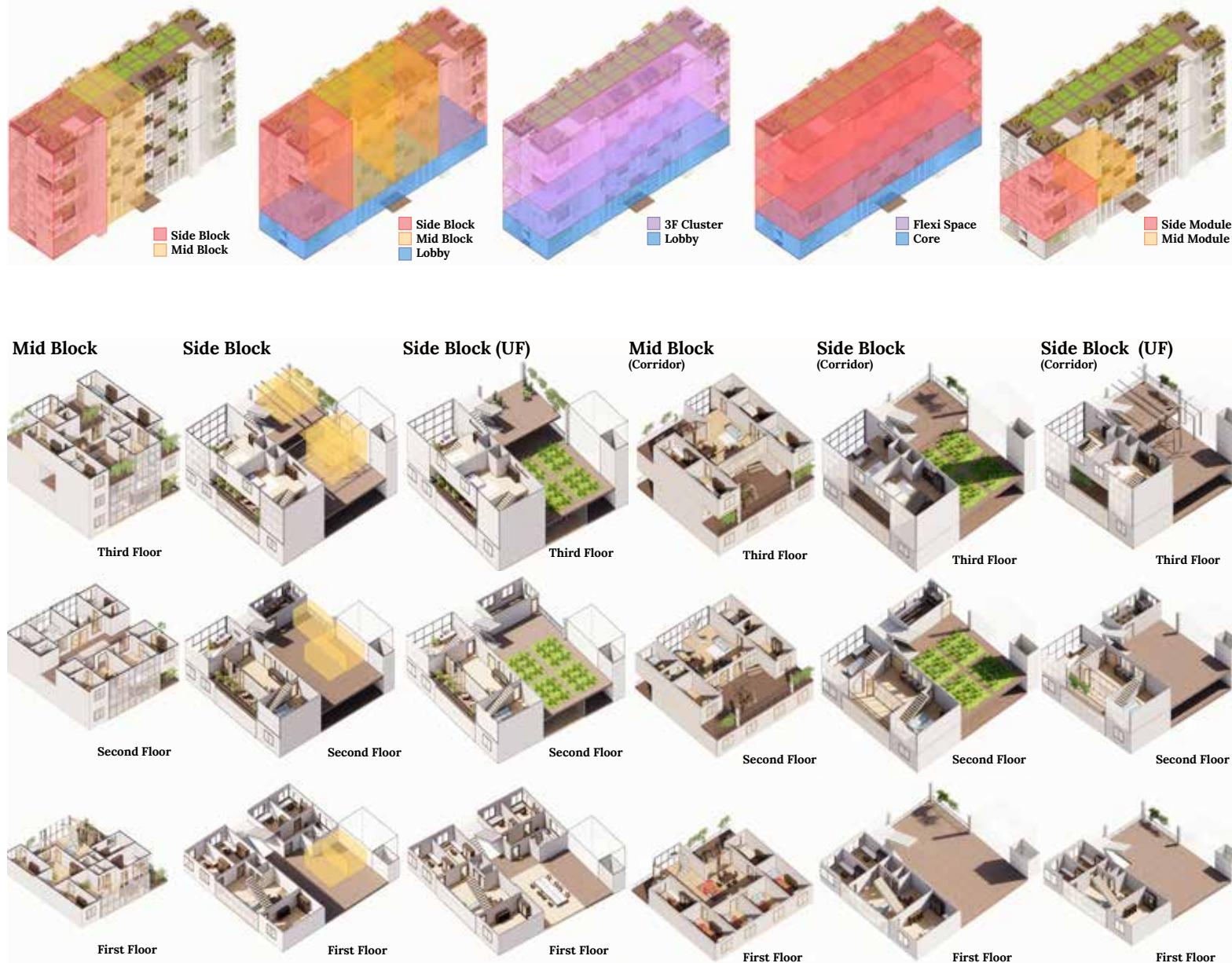
Flxcity Co-Living

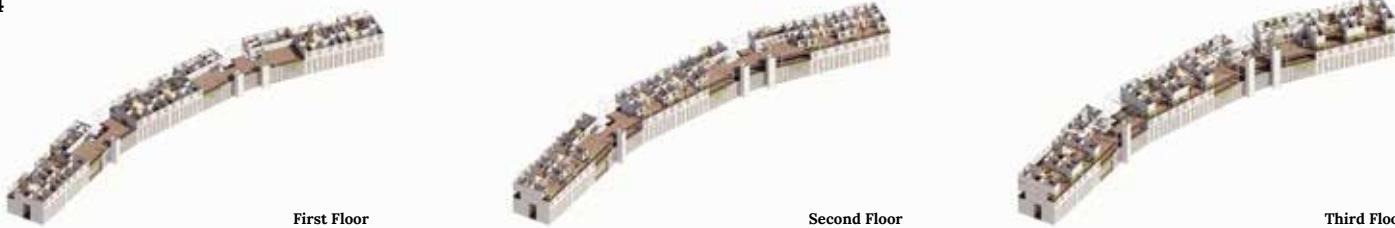
Han Yi

Coliving Modules

Combination of Modules

Each block is designed for A&A, following the original building configuration and layout, dividing into various modules and combinations suitable for each residential complex. These building modules have their access to common space via every third level using a "Skip Stop" mechanism. This creates more community space and more room for residential rooms.



Block 34

First Floor

Second Floor

Third Floor

Block 52

Third Floor

Second Floor

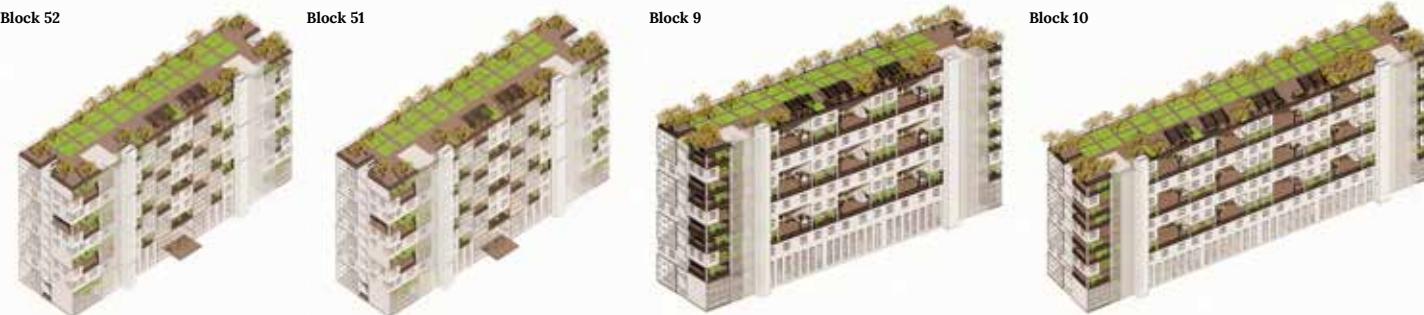
First Floor

Block 8

Third Floor

Second Floor

First Floor

Block 52

Block 51

Block 9

Block 10

Block 8

OT 1 (Community Kitchen)

OT 7 (Garden)

Block 34

Coliving Modules

Combinations of Modules

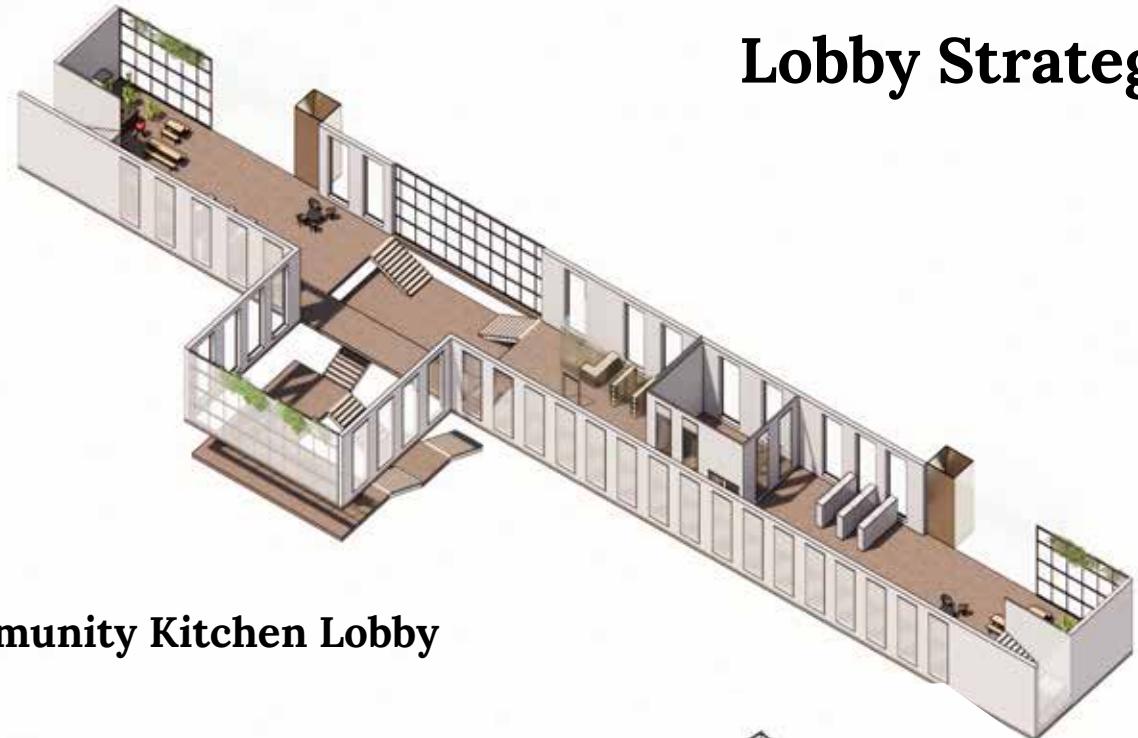
The residents are also sharing common living rooms and balcony spaces with one another. Elderly rooms are specially designed for them to not walk up and down any stairs. Some apartments are also designed for more affluent buyers needing more privacy, catering to all kinds of potential residents.

Lobby Strategy

Lobby Strategy

Connection to the Public

Connecting to various differing ground, podiums and gardens, the lobby strategy of each of these connections are different, accomodating the different type on site and also giving flexibility in terms of execution of similar block units. The lobby Volumn is a double story space, consisting of convinient shops, common lounges, waiting area, letter boxes and community kitchens.



Community Kitchen Lobby



Normal Podium



Lobby Strategy

Connection to the Public

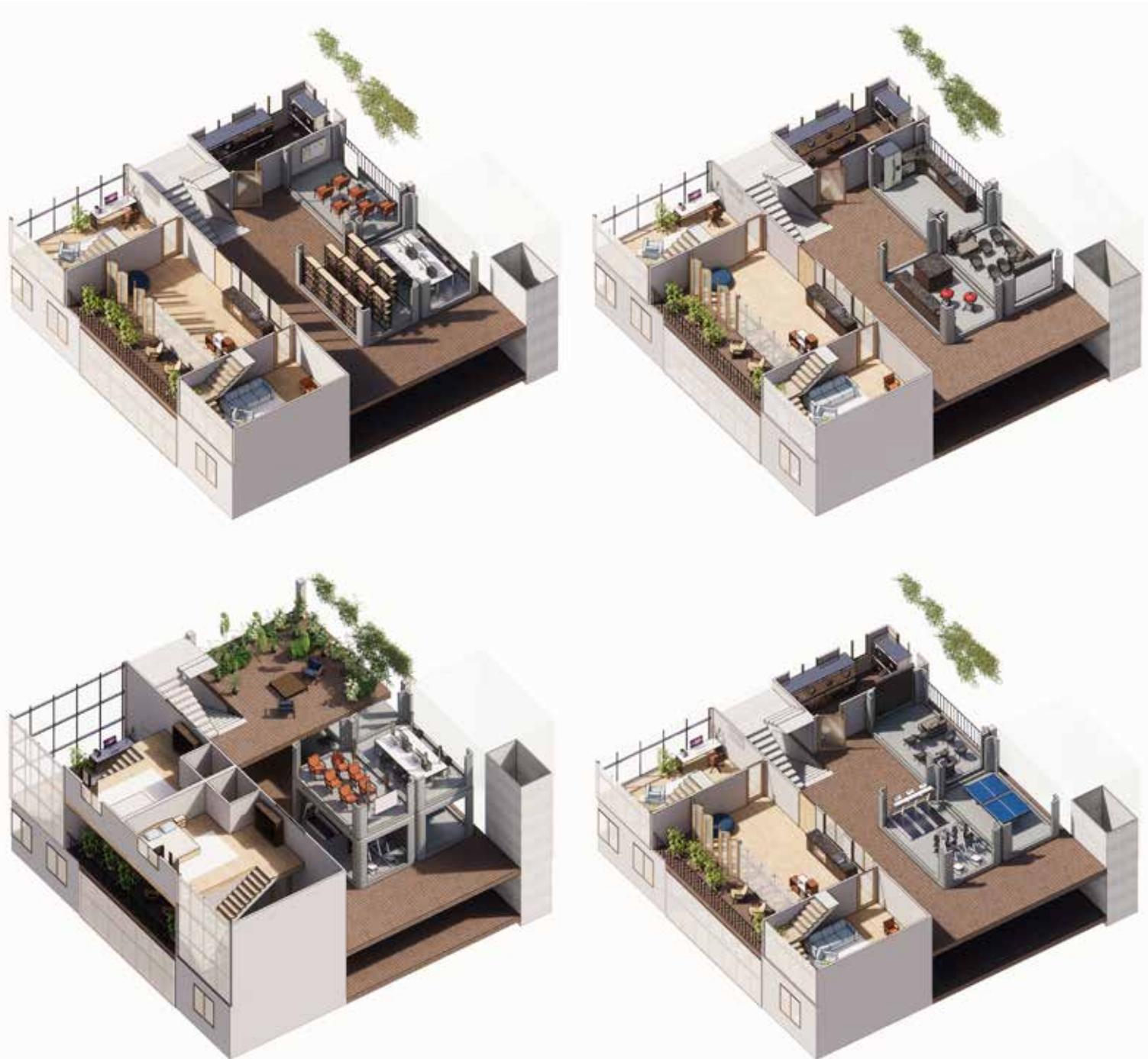


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Flexible Modules

Enabled by Pod and Core

Each level presents a customisable flexible space, empty from the start, and slowly customised by the residents collectively, forming desired configurations. Some examples are shown on the previous page. Maximum of 7 Pods can fit into this space.



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Flexible Modules

Enabled by Pod and CoreW



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PPC

Redesigning People's Park

People's park complex is also reformed, both the residential and the podium, through A&A. The podium is redesigned to remove all carpark spaces, as site is now car-free, the podium is meant to bring street life and the concept of 'Urban Living Room' Back to PPC. The atriums present in the podium is now more open to the street and the sky. A throughfare is created from Outram MRT cutting through PPC to Chinatown MRT, bring traffic and human life directly into PPC. Event and exhibitions can happen in the atriums. The shops facing the atriums are also designed in a terraced form, for people to gather and watch happening events from every level.





Redesigning People's Park

The facade of PPC facing Eu Tong Seng Street is now opened up with terraced entrance starting from Park Crescent towards Chinatown MRT, creating a visual connection upwards facing the main street.

Lastly, The podium is opened up on the forth floor, with double story shops on the forth floor, creating a street like condition on top of the podium (as seem from the perspective which is leading towards the lobby), which was previously very underutilised. The residential complex is also renovated to accomodate Co-living mechanism proposed. The middle floor for the 3 floor cluster is mainly communal, having only residences for the elderly on the sides, increasing the total number of people accomodated in this block, but at the same time increasing community spaces.

Making a Living

Rich in production spaces, the Maker area offers residents the opportunity to empower themselves through learning new skills and earning income in community-owned spaces. An exchange of goods & waste subsidises costs of living, and supports the system's environmental sustainability.

Feranda Chua



Urban Response

An Ignored Backyard

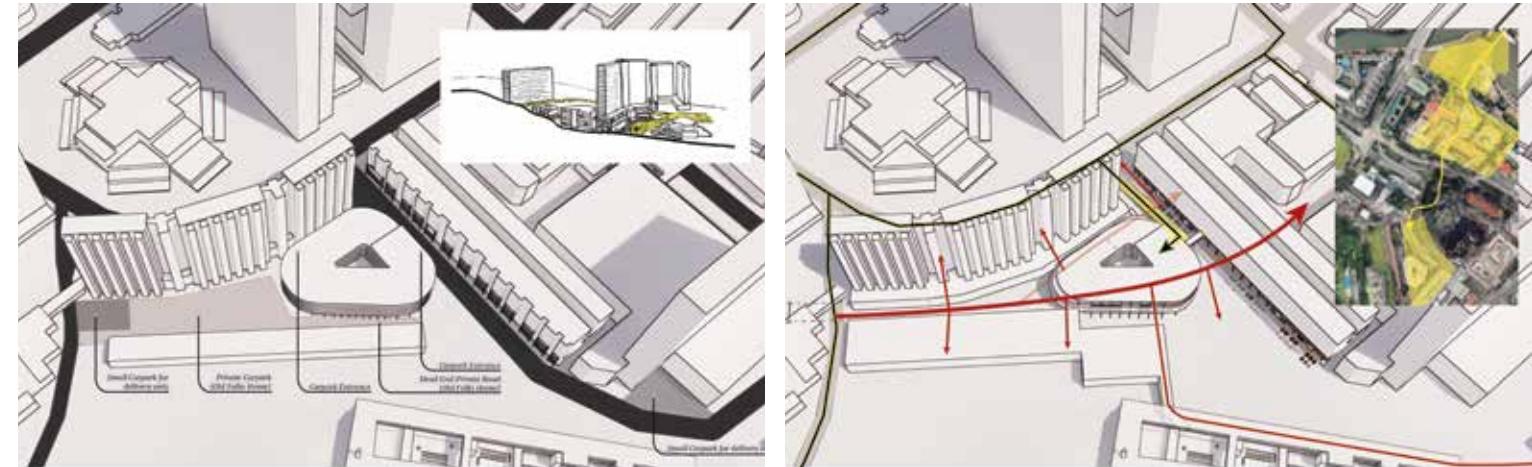
As Pearl Hill developed over time, buildings are isolated, and served by individual roads.

Taller building along the periphery of the site block the view of the hill from the outside, and fence in shorter buildings behind. Pedestrian circulation is thus pushed to the edges of the plot.

This created an pedestrian-unfriendly backyard comprised of carparks, roads and ancillary services.

Potential

The existing fabric community in Pearl Market has the potential to pass on knowledge, and increase production capacity. Existing storage units in Upper Cross Street HDB will be relocated underground, using the pod and core system.



Tall structures along the road & existing car-heavy road condition creates an unfriendly backyard space.

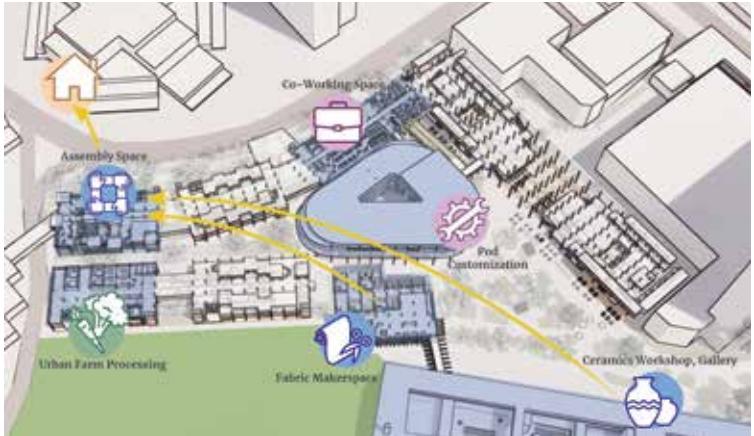
A new throughfare (red) is introduced, linking the future Clarke Quay pedestrianized area and Chinatown MRT. Carpark is accessed via ramp.



A green connection links the new pedestrianized area to a major thoroughfare along Eu Tong Sen Street.



Production spaces are introduced into the site, with Flexible Nest space to be activated and filled over time.



Sustaining the System

Exchange of Goods

(right, from top to bottom)

1. *Ceramics, Fabric & 3rd-party goods combine to create products for Co-Living in Assembly Space.*
2. *Startups use Fabric & Ceramic Workshops to create and innovate.*

3. *Ceramic tools, pots & cutlery; Fabric curtains & tablecloths are distributed around the site.*

Exchange of Waste

(right, from top to bottom)

1. *Food waste from Hawker Centre, Atas & Community Kitchens are recycled as Urban Farm compost.*

2. *Bad Urban Farm produce is made into Fabric dye.*

3. *Unfertile soil from Urban Farm is made into Ceramics Clay.*

Echoing the Chinatown Shophouse

Facade

Rhythm of the facade and vertical columns reference the excitingly choppy visual aesthetic of the original shophouses.



Courtyard

Wanting to recreate the shophouse courtyard as a space for gathering, circulation of pods and pedestrians are placed in the middle of the building. Flanked by programs on both sides, pods can dock as workshops, showcases for new products, and cafes.

Smaller spaces along the facade are shared between units, providing an opportunity for collaboration.



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Experiencing Making

Learning, Making, Innovating

Visitors and residents can enjoy a network of social spaces, such as the park, Pod Assembly Space and Hawker Centre. These flexible spaces can be activated by pods to hold flea markets, community events, etc. It offers a lively view for the elderly to enjoy.

Those interested in learning a new skill, or making, can visit the Fabric and Ceramics Workshops, and Assembly Space to learn among likeminded neighbours.

New ideas are supported through the Start-Up incubator space, Pod Customization and Workshops. Individuals can thus make their own products, and set up business in a series of flexible spaces: from the park, to flexible shopspace, and settle down in more permanent spaces.

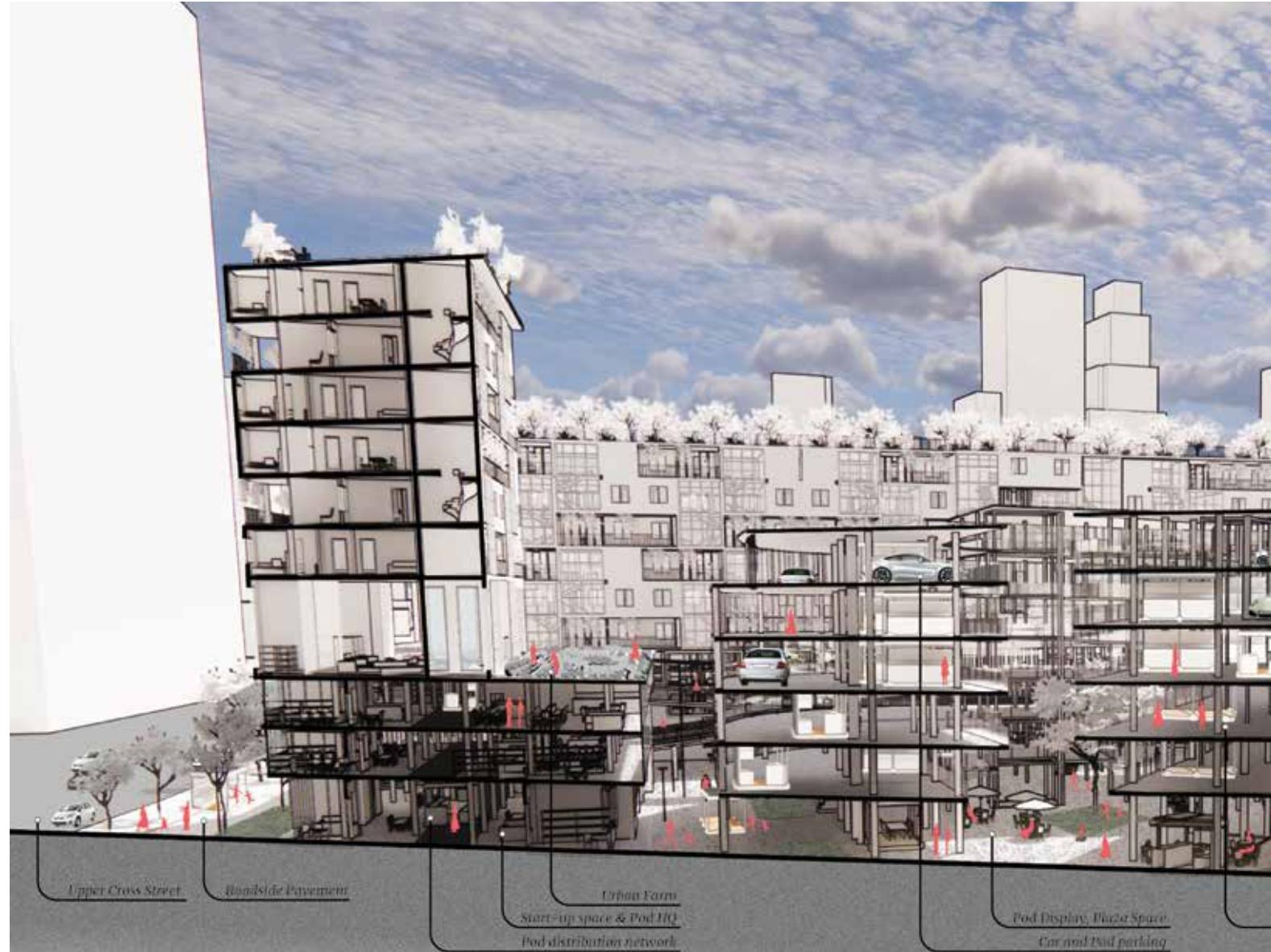
Encouraging Community

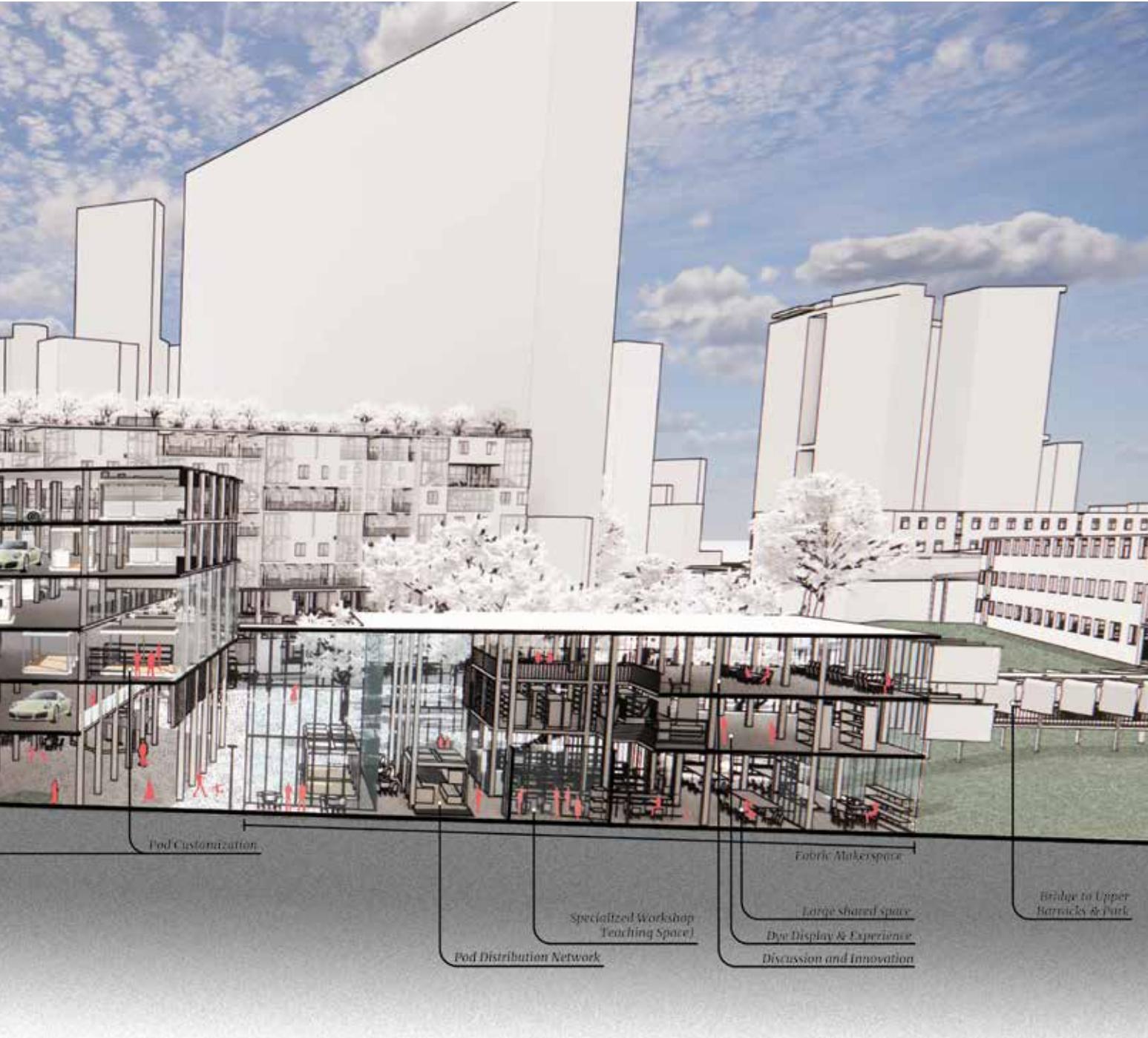
Additions & Alterations

Upper Cross Street Residential (left) is expanded to house a Start-up Space and Pod Headquarters. Residential tower height is reduced.

The carpark is redesigned as a Pod Customization space, with workshop areas and timeshared parking between pods and cars.

The new massing introduced houses the Fabric Makerspace, where members can learn and create. It also provides a link for pedestrians to the park and Ceramics Workshops up the hill.





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Experiencing Making



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Entrance from Chinatown MRT exit



Hawker Centre throughfare



Pod Display & Plaza



View from along Upper Cross Street



Fabric Makerspace, bridge to hill



View from Clarke Quay