

GOVERNED BY OPPORTUNITY

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How can the vanishing trades of Singapore be conserved through the integration of architecture and social inclusion?

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It has been a challenging but yet rewarding five years. I can not wait to see what the future holds!

L8s.

Abstract

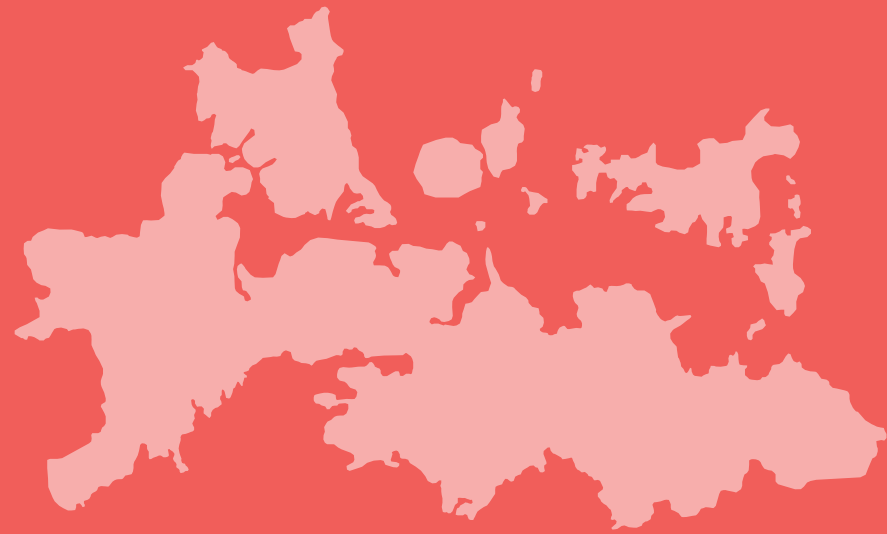
Singapore is known as an advanced industrialising city-state with the aspiration to be a global city in the international economy (Yuen, 2005). With the rapid economic growth; the country’s population has been increasing alongside the high demand of: housing, commercial areas, industries, transport and infrastructure (Yuen, 2005). Having an area of only 720km², the country is forced to optimise their land by building vertically and closely together. Consequently, older buildings, activities and traditions are more prone to vanishing despite their cultural and historical significance. The loss of tangible and intangible heritage results in a highly modern country that is becoming more international in scale and style but evermore faceless and lacking in cultural identity (Yuen, 2005).

The aim of this research investigation is to explore how the traditional trades can be conserved and integrated with the present and future development of Singapore. Through interviews and observations conducted in field research, it will provide a better understanding of the community and government’s point of interest. This will develop social cohesion to promote a sense of belonging and identity in this metropolitan city. The design outcome of this research investigation will be an integration of the Sungei Road Market and the future development of the Singapore Johore-Express Bus Terminal.

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Auckland City, New Zealand

290km²

Population: 405,000

Population Density: 1396 people per km²



Singapore

720km²

Population: 5,610,000

Population Density: 7802 people per km²

Fig. 02: Comparison of New Zealand and Singapore



Wellington City, New Zealand

1086km²

Population: 1,495,000

Population Density: 1376 people per km²

CHAPTER ONE: INTRODUCTION



1.1 Problem Statement

What use to be a small fishing village of less than 150 people, Singapore grew into a modern city-state of one million people by the 1950s. This country has consciously reinvigorated its economy to its present status of an advanced industrialising nation with the aspiration to be a global city in the international economy (Yuen, 2005). As a result, this caused a rapid influx of residents, housing, commercial areas, industries, transport and infrastructure (Yuen, 2005). With a land area of only 720km², Singapore is forced to optimise their use of land by building vertically and closely together. Creating a dense concrete jungle that accommodates 5.61 million people today.

From the fast pace and economic growth, the older buildings, activities and traditions are gradually forgotten despite their cultural and historical significance. Consequently, the loss of tangible and intangible heritage results in a highly modern country that is becoming more international in scale and style but also evermore faceless and lacking in cultural identity (Yuen, 2005).

Fig. 03 (Above): Singapore's CBD

Fig. 04 (Opposite): Environmental Ministry workers demolishing market stalls on Sungei Road

“ The loss of many tangible and intangible heritage results in a highly modern country that is becoming more international in scale and style but also evermore faceless and lacking in cultural identity.”

Belinda Yuen
(Yuen, 2005, pg 199)





Fig. 05 (Above): Local ethnicities found in Singapore

Fig. 06 (Opposite): Sungei Road in the 1970s



1.2 Cultural identity of Singapore

The cultural identity of Singapore is defined by the diversity and integration of various ethnicities (Chinese, Indian, Malay, European, Peranakan and Eurasian). Over time, each ethnicity has retained and evolved its own culture and heritage – but has also allowed itself to be influenced by the customs and traditions of other ethnicities (The Straits Times, 2017). According to Yuen, the heritage expressed in these local ethnic-based activities, spaces and traditions summaries the locality and place identity of Singapore (Yuen, 2005).

“ Things worth saving need not necessarily be beautiful or historic as long as they are familiar or well loved.”

David Lowenthal
(Lowenthal, 1979, pg 555)

1.3 Different Types of local Singaporean Trades

During the colonial period, it was a common sight to see ethnic-based trading activities occur in Singapore. Immigrants from various countries would gather on streets and ‘shophouses’ to earn a living. Over time, these trades started to appear in concentrated areas to form markets and bazaars. This includes the Sungei Road Market which was an informal street market that provided a range of second-hand goods and services.

Fig. 07: Illustration of local Singaporean trades



Lion Dance Costume Maker

Costumes that are made for traditional Chinese lion dance performances.



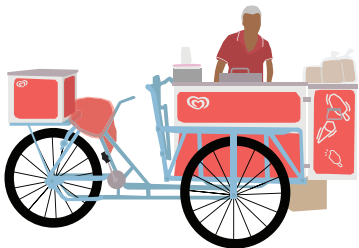
Chinese Puppet Theatre

Puppet performances of traditional Chinese tales.



Sungei Road Market Vendor

A street vendor that sells a variety of second-hand goods and vintage items.



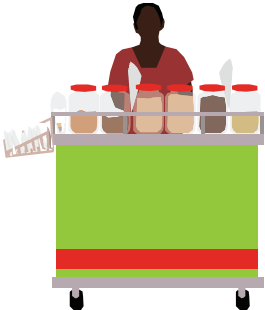
Ice Cream Uncle

A street vendor that sells ice cream on hot and sunny days (everyday).



Roadside Barber

Barbers that are found along Singapore’s streets and back lanes.



Kuchang Puteh Seller

A vendor that sells a variety of bean and peanut snacks in paper cones.



Shoe Cobbler

A vendor that repairs worn-out shoes.



Songkok Maker

Custom-made caps that are made for males attending formal Islamic events.



Biscuit Shop

A shop that sells a variety of snacks and biscuits.



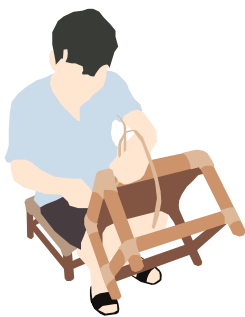
Lantern Maker

Paper lanterns that are made for traditional festivals and events.



Second-hand Book Seller

A vendor that sells a variety of second-hand books.



Rattan Weaver

Objects and furniture that are made by weaving bamboo and rattan.



Ice-Ball Seller

A vendor that sells palm sugar and syrup laden ice-balls.



Provision/Mama Shop

A ‘mini-mart’ that sells a range of groceries, snacks and items.

Key:



Sungei Road Market



Rochor Canal

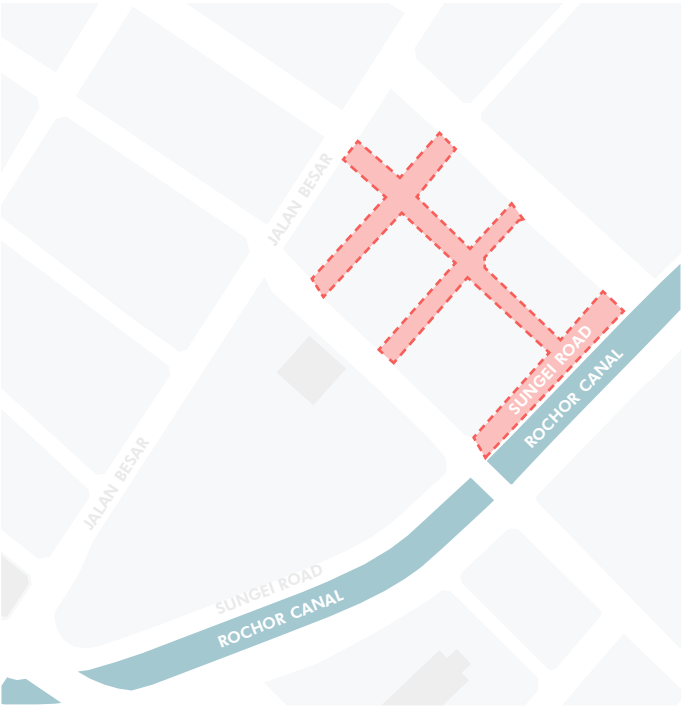


New Development Occurring



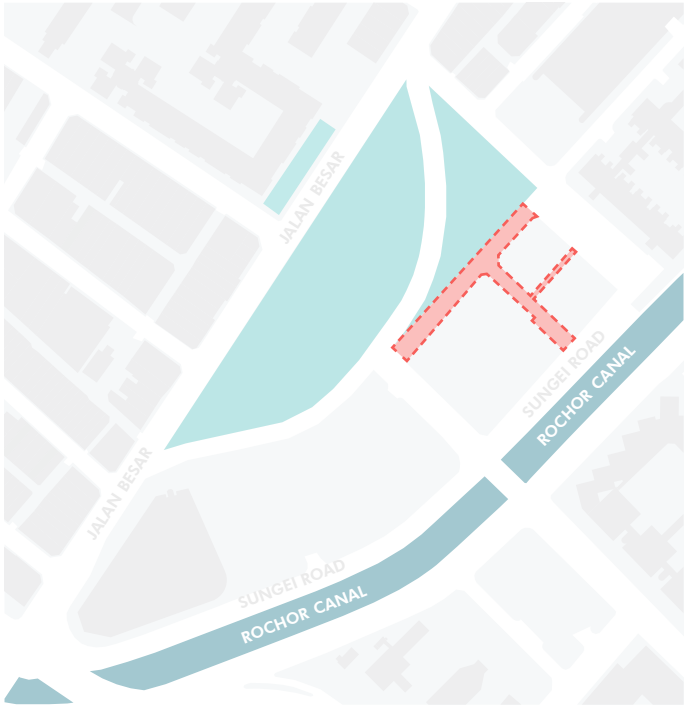
Jalan Besar MRT Station

1954



The Sungei Road Market was originally located on Sungei Road, Larut Road, Pasar Lane and Pitt Street.

2011



On the 25th of July 2011, Pasar Lane and half of Pitt Street were removed for the construction of the new Jalan Besar MRT station. This caused the size of the market to be heavily reduced.

DEC 2017 onwards



The Sungei Road Market was ceased on the 11th of July 2017 for the completion of the new MRT station. Larut Road and the remaining of Pitt Street will be removed for future housing developments.

1.4 Conservation and Integrated Land Use Planning (ILUP)

Over time, local residents have been more aware and involved in conserving the cultural heritage of Singapore. According to the feedback received, 64% were for conserving the historic aspects of buildings while allowing for modern rear extensions to be built (fig. 10). Another 87% thought these buildings should be conserved to retain trades and businesses that characterise the historic areas (fig. 10) (Yuen, 2005) .

“We need to build vibrant quality places. Singaporeans today want a more attractive and liveable city that meets more than just the functional needs of the business community” (Yuen, 2005, pg 203).

For conservation plans to succeed alongside the development of this country, there needs to be an enforcement of integrated land use planning (ILUP), where there is a balance between the social, economic and environmental growth (fig. 11) (Sum, 2013).

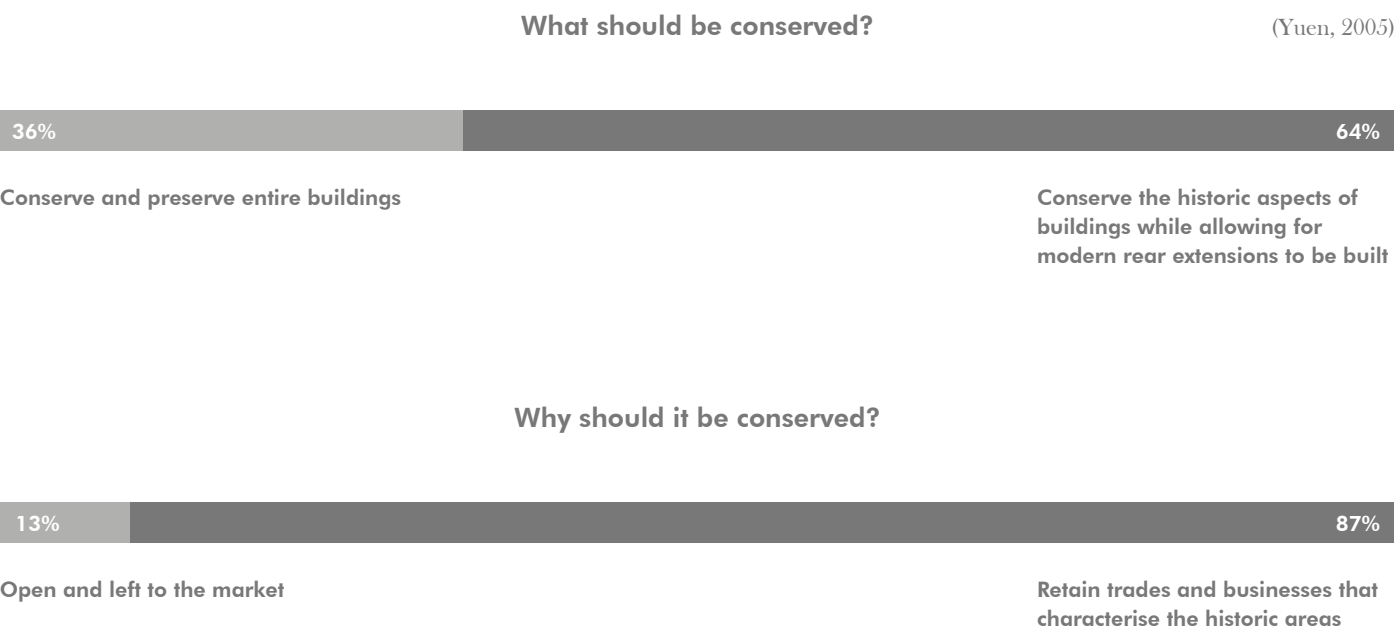
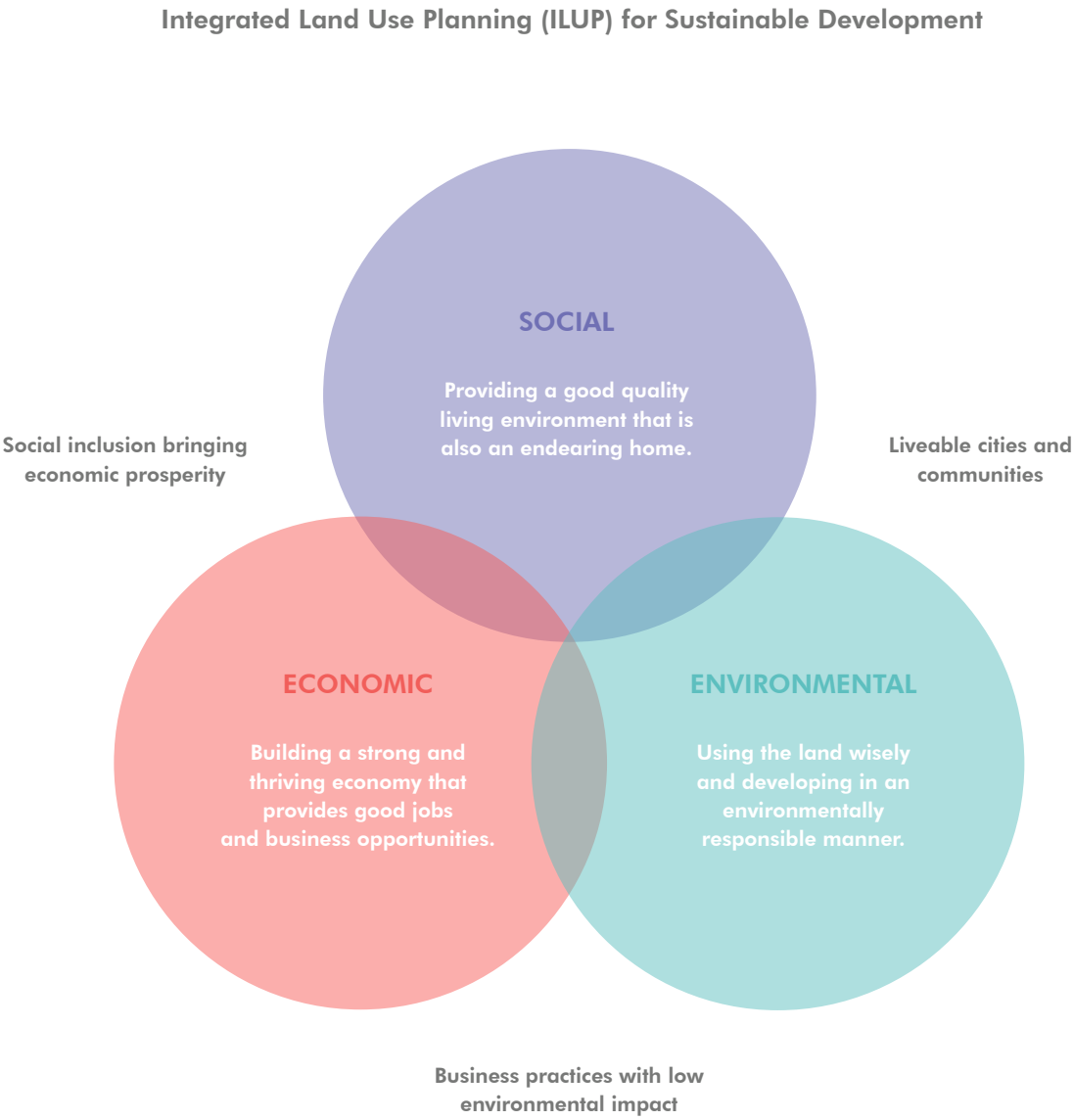


Fig. 10 (Below): Public Consultation in May 2001
Fig. 11 (Bottom Right): ILUP Diagram



1.5 Question, Aims and Objectives

How can the vanishing trades of Singapore be conserved through the integration of architecture and social inclusion?

The aim of this research investigation is explore how architecture can:

- Integrate the old and new development occurring in Rochor
- Protect the users from Singapore's climatic conditions
- Conserve and enhance the vanishing trades for future generations

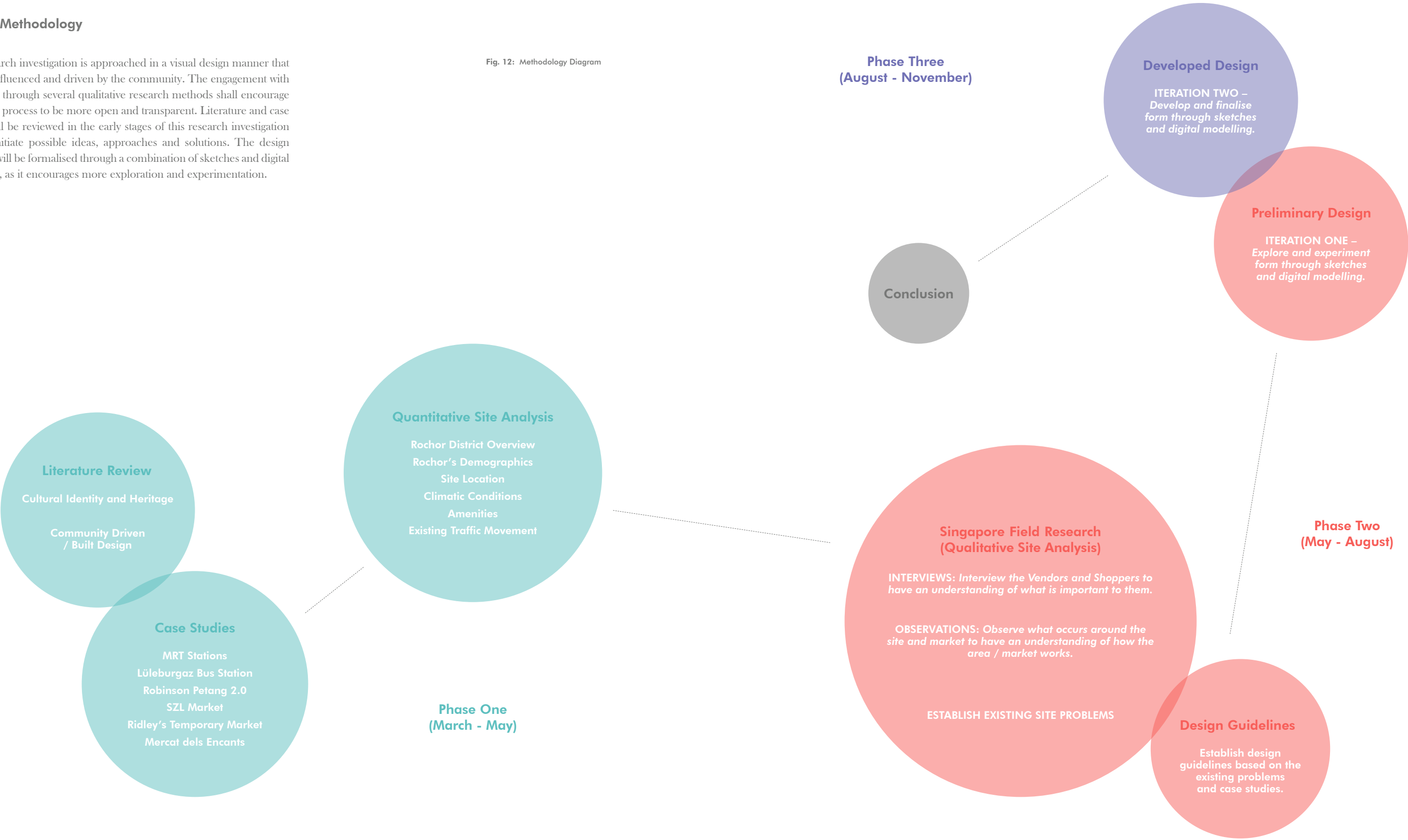
The objective of this research investigation is to implement the concept of social inclusion to:

- Reduce alienation and enhance local ownership
- Raise awareness of the historical and cultural significance

1.6 Methodology

This research investigation is approached in a visual design manner that shall be influenced and driven by the community. The engagement with the public through several qualitative research methods shall encourage the design process to be more open and transparent. Literature and case studies will be reviewed in the early stages of this research investigation to help initiate possible ideas, approaches and solutions. The design outcome will be formalised through a combination of sketches and digital modelling, as it encourages more exploration and experimentation.

Fig. 12: Methodology Diagram



1.7 Scope

This research investigation specifically focuses on understanding the community of the Rochor District and how it is influenced by the Sungei Road Market. From observing and analysing both the people and the market, it shall provide a better understanding on how the market works and the community engagement that occurs within it. This will set up conditions that are required to develop a sense of cultural identity and belonging in Singapore.

The scope of this research investigation is to propose ways we can use architecture to conserve heritage that are intangible in Singapore. This involves exploring various case studies, the location, formation and integration with the context. The bus station will be explored in the design process as the secondary and supporting programme. This will help assist and justify the marketplace which is critical for this research investigation.

To achieve the aims and objectives, the scale of the design has been limited. This research investigation is not about intensification and maximising housing development, but instead, going through an exploration that is personal and intimate. This will help the design process to be more open and transparent, which will build and encourage a stronger relationship between the community and the designer.

1.8 Structure

Chapter One: Introduction

This chapter introduces the topic, background and problem statement which influences the research question, aims and objectives. It also provides an explanation of the structure for this research investigation.

Chapter Two: Literature Review & Case Studies

This chapter is a collation of theoretical research of cultural identity and heritage, as well as community driven and built design. The literature review will provide guidance on how this research investigation could be approached. Multiple existing case studies will also be reviewed to have an understanding of the different approaches, detailing and outcomes. These case studies shall be reflected upon its context to determine the successful and unsuccessful factors.

Chapter Three: Site Analysis

This chapter is dedicated to understanding the context of this research investigation through several quantitative site analysis methods. This includes; site location, demographics, climatic conditions, existing amenities and traffic movement. Multiple qualitative site analysis methods such as observations and questionnaires will also be performed to gain a better understanding of the people and the community. The results of the site analysis will help establish the existing site problems and design guidelines.

Chapter Four: Preliminary Design

This chapter focuses on establishing a conceptual design that are influenced by the aims, objectives and site analysis. Several techniques such as sketching and digital modelling will be used to experiment and articulate an architectural form. The outcome of this conceptual design will be presented and reflected upon during the August 2017 design review.

Chapter Five: Developed Design

This chapter will expand from the reflection of the preliminary design in chapter four. It will focus on developing the initial concept to articulate a final design outcome. This will be achieved through several techniques such as sketching and digital modelling. The developed design will be presented and reflected upon during the November 2017 design review.

Chapter Six: Conclusion

This chapter will review the overall research investigation and how it was approached. Highlighting both positives and negatives to determine the next steps of the research investigation if it were to be expanded.

CHAPTER TWO:
LITERATURE REVIEW & CASE STUDIES

Fig. 13: World Map of Existing Case Study Locations



2.1 Literature Review
CULTURAL IDENTITY / HERITAGE

What is heritage? According to the English Oxford Dictionary, heritage is defined as “property that is or may be inherited; an inheritance” (Oxford, 2018). This may include objects and qualities that can be passed from one generation to the next – something that has historic and cultural value (Harrison, 2010). Saying that, “things worth saving need not necessarily be beautiful or historic as long as they are familiar or well loved” (Lowenthal, 1979, pg 555).

The Singapore Heritage Society discussed how our heritage is more than just the property we receive from previous generations - it is the ties and connections that are associated with it. “If we value these objects today, it is not so much because they could be auctioned off for several thousands of dollars. We value these objects more for the memories they evoke” (Kwok, et al., 1999, pg 7). People use objects of heritage alongside their intangible memories to shape the ideas of their past, present and future (Harrison, 2010). It is our intangible memories which define the context of what tangible heritage is (Kwok, et al., 1999).

Despite the historic and cultural value, the general approach is that the past should serve the present (Yuen, 2005). The Chief Executive Officer of the Urban Redevelopment Authority (URA) stated “we cannot freeze everything in time” (The Straits Times, 2002). Our properties, objects and buildings must cater to the changes and new needs (The Straits Times, 2002). The conservation that takes place will transform these objects into a beneficial tool for the environment – one that will not incapacitate the city into an undesirable frozen situation (Yuen, 2005).

But what do we choose to conserve? The Singapore Heritage Society emphasised that we must be selective in what we pass down. More importantly, we cannot dictate what our children choose to conserve – as a different time, place and memory will determine what heritage is (Kwok, et al., 1999). “Changing times and spaces will decide what traditions we conserve and how our ways of life will change. Our children and grandchildren will review and reinterpret the values underlying our traditions and way of life” (Kwok, et al., 1999, pg 8).

COMMUNITY DRIVEN / BUILT DESIGN

Community-built projects often arise out of a specific need – whether it is caused by a natural disaster, economic downturn, or lack of government support (Stiefel, Faurest, & Melcher, 2017). According to Turner and Fichter, “Governments have neither the will nor often the resources to provide sufficient shelter and/or amenities” (Turner & Fichter, 1972, pg 3). Numerous buildings are being demolished to make way for new developments - creating highly modern cities that are evermore faceless and lacking in cultural identity (Yuen, 2005).

Schneider discussed when a city appears somewhat unfinished and less-than-perfect, it is far more attractive to young and creative people – as they feel they can leave their own individual mark (Schneider, 2014). This encourages more community-built projects to make better use of vacant lots, neglected public spaces and demolished buildings (Stiefel, Faurest, & Melcher, 2017). The community’s participation allows the images and meanings of places to develop from the bottom up – enhancing local ownership and tolerance to urbanity. (Rapoport, 1969).

According to Yuen, “inadequacies in the setting are far more tolerable and easily adjusted when one is not alienated from the design process” (Yuen, 2005, pg 202).

Community-built design can be driven through several quantitative and qualitative methods – this includes observations and questionnaires. In 2008, Diego Ramirez-Lovering conducted a field research in Guadalajara, Mexico. During this time, he observed and documented the informal settlements through photographs and diagrams. “We strove to understand a lot about a little. Rather than attempting to understand the city in any complete form, a focused enquiry into specific urban elements and environments were made” (Ramirez-Lovering, 2008, pg 11). Questionnaires and interviews can also be used to encourage community participation, as it provides a better understanding of people’s needs and interests (Participate in Design, 2018). “When this is based on real findings rather than assumptions, we have a higher chance of ensuring a successful design outcome for the community” (Participate in Design, 2018).

2.2 Transportation Case Studies

MRT Station(s), Singapore
Land Transport Authority (LTA)

The MRT (Mass Rapid Transit) system is one of the most popular modes of public transport in Singapore - taking over three million passengers a day (Land Transport Authority, 2017). With 119 operating stations, it allows eight of ten households to live within ten minutes of an MRT station (Land Transport Authority, 2017).

- The amenities around the area are easily accessible and link up to the MRT station(s).
- The pedestrian routes are direct, simple, quick and easy to follow.
- Pedestrians are protected from Singapore’s climatic conditions.
- Majority of the MRT stations lack in interior architectural features. It discourages pedestrians to meander and socialise. But this brings up the question of whether MRT stations are a place for intereaction and socialisation?

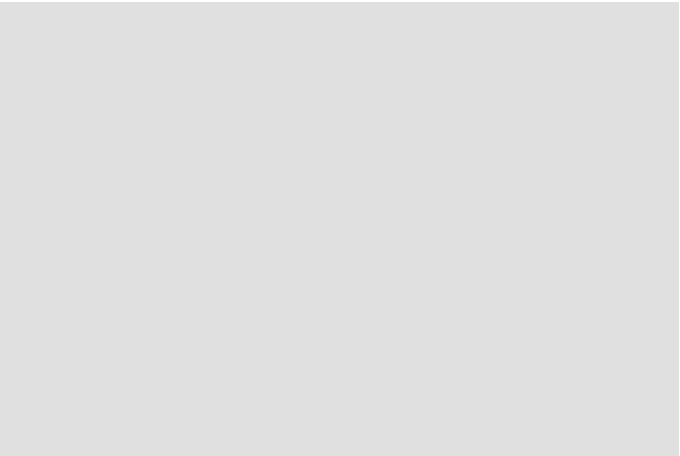
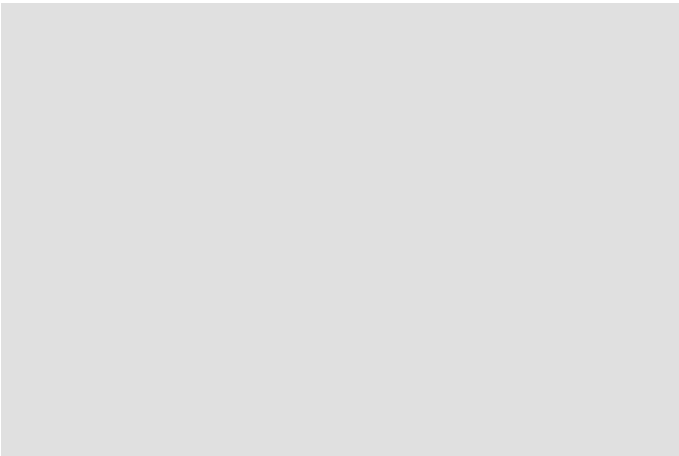


Fig. 14 (Far Left): Entrance to Tampines MRT Station from Tampines Mall

Fig. 15 (Below): Tampines Bus Interchange



Lüleburgaz Bus Station, Kırklareli, Turkey
Collective Architects & Rasa Studio (2016)

“Transportation building is the entrance point of the city. Thus, it should have not only symbolic value but also be memorable and unique. Our purpose is to design a functional and social transportation complex in Lüleburgaz - by using the potential of land and transforming it into a landmark” (Collective Architects & Rasa Studio, 2016).

- A strong architectural statement was made through the canopy design. This makes the station more monumental - drawing pedestrians in.
- The programme layout of the station was well executed. Restaurants, cafés and commercial spaces face towards the main road which work with the existing traffic movement. This widens the target audience as it is accessible for both passengers and the wider community.
- The different zones of the station are linked by the canopy and finishes of the interior space. The exposed structure allows the space to feel more open and inviting.

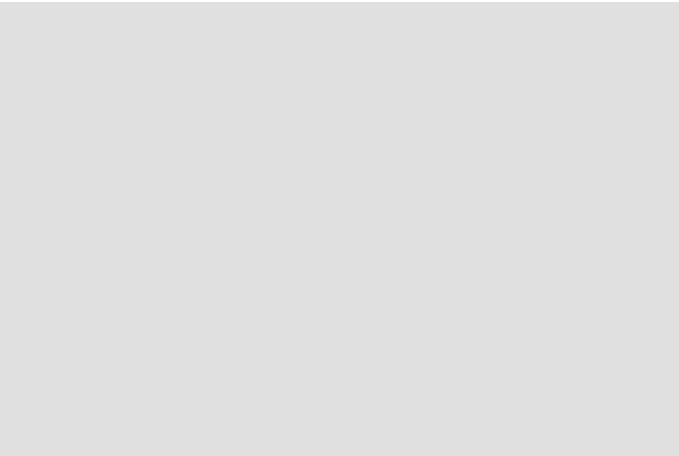
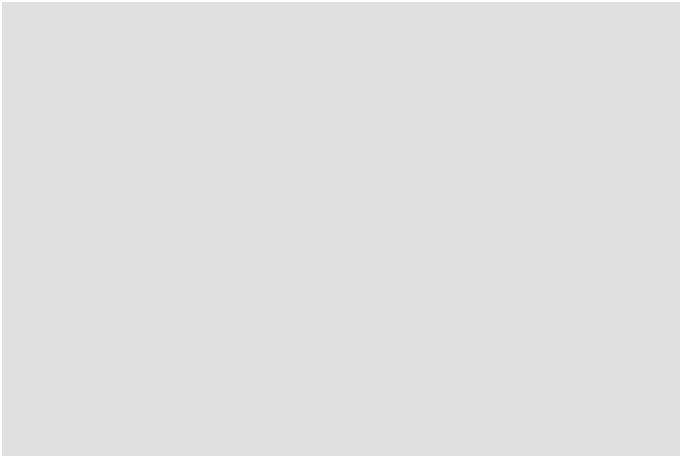


Fig. 16 (Far Left): Exterior of Lüleburgaz Bus Station

Fig. 17 (Below): Departure Area of Lüleburgaz Bus Station



2.3 Market Case Studies

Robinson Petang 2.0, Singapore
Save Sungei Road Campaign (2017)

During the ‘Sungei Road Market: A Future for Street Culture Heritage’ panel discussion, Faiz bin Zohri proposed a conceptual plan for ‘Robinson Petang 2.0’. It involves relocating and revitalising the existing Sungei Road Market so it is “both a thriving marketplace of used goods - and a public space for community activities during the weekend” (Save Sungei Road Campaign, 2017, pg 3).

- The proposed relocation areas will have good pedestrian traffic from nearby MRT Stations.
- The proposed bold colours on stalls and umbrellas will make the market place more vibrant - drawing pedestrians in.
- More storage space and rubbish bins will be provided to reduce the dis-amenuities caused by the market.
- The proposed relocation areas will be optimising underutilised space. However, without the ownership of the land, vendors are at risk of being evicted again.

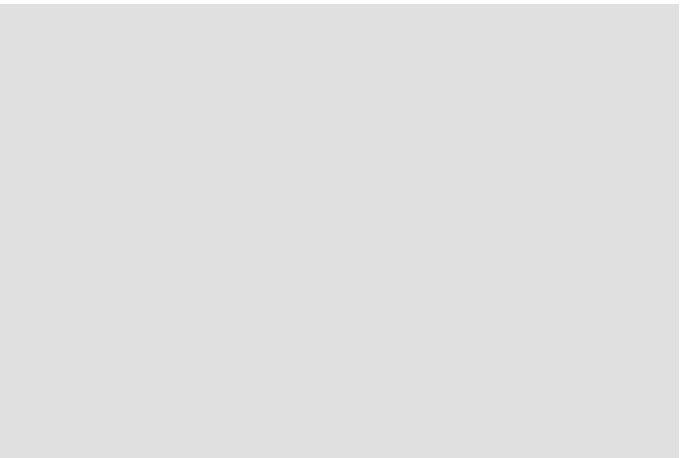
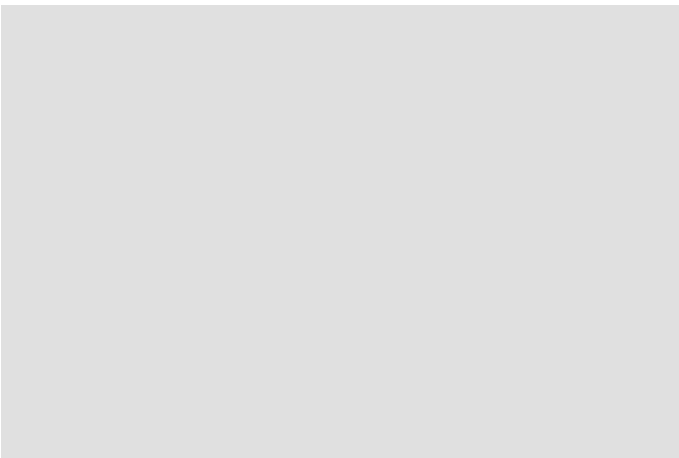


Fig. 18 (Far Left): Proposal inspiration, local market tent typology

Fig. 19 (Below): Proposal inspiration, Deck Art Gallery, Singapore



SZL Market, Bangkok, Thailand
all(zone) (2012)

“Open-air markets are the most common and simplest form of street business in Thailand. With the expansion of Bangkok city - following the relocation of Bangkok Airport 6 years ago, the market transformed the physicality of the temporary market into a proper open-air market. Serving the new middle-class city” (all(zone), 2012).

- The market accommodates a mixture of Bangkok’s economy by integrating street vendors, food and goods stalls, food court and a franchise ‘mini-mart’. This reflects the diversity of the city by avoiding alienation and isolation.
- A strong architectural statement was made through the canopy design. It was inspired by the local tent typology which makes it more relatable. The canopy also protects the pedestrians from Thailand’s climatic conditions - drawing more people in.
- The market uses a concrete structural system. Even though this is permanent, it is still able to accommodate for the fluctuation of the market without heavily influencing it.

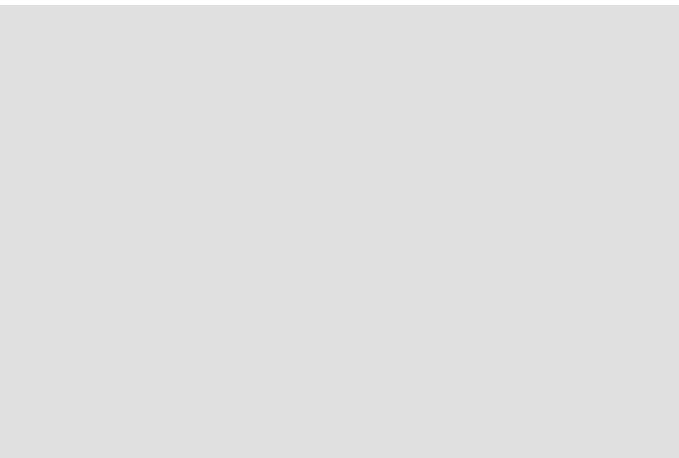
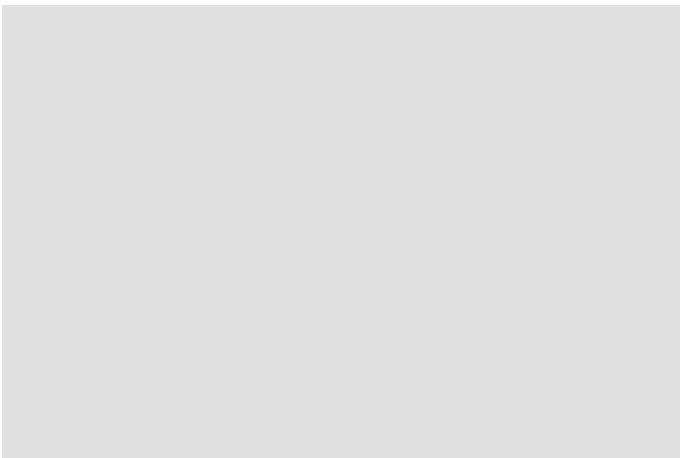


Fig. 20 (Far Left): Street Vendors set up outside the SZL Market

Fig. 21 (Far Bottom): Canopy Design of the SZL Market



Ridley’s Temporary Restaurant, London, England
The Decorators (2011)

“Ridley’s was a public realm intervention that combined food and architecture by featuring a food-for-food exchange organism. Ideally located alongside a street market, Ridley’s worked within the market’s existing infrastructure to negotiate its social and economic contingencies” (The Decorators, 2011).

- The scaffolding used for the restaurant created a sense of openness and exposure to the rest of the market. This made the restaurant more inviting and welcoming.
- The temporary restaurant served as a device to stimulate local trades within Ridley’s Market (The Decorators, 2011). By setting up a ‘food-for-food’ exchange system, the restaurant encouraged the pedestrians to engage with other stalls in the market.
- This restaurant design was temporary even though it was socially influential to the rest of the community. This raises the question of whether a proposal like this could be designed in a way to become more permanent?

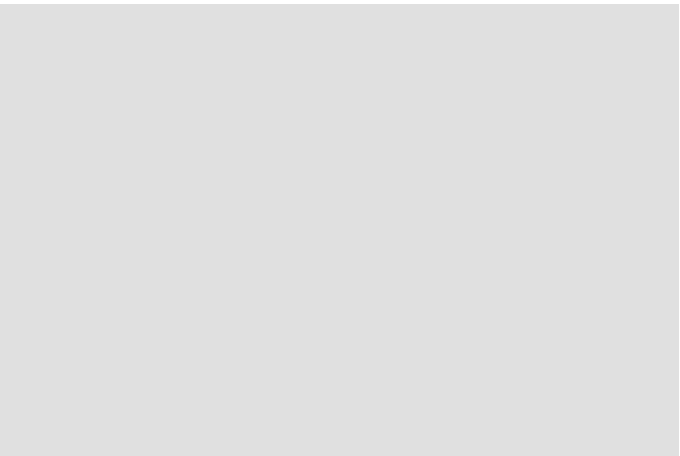
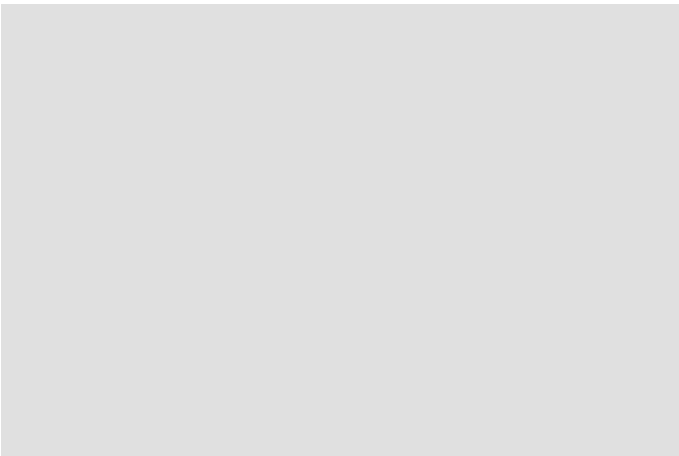


Fig. 22 (Far Left): Ridley’s Temporary Restaurant in the Ridley’s Market

Fig. 23 (Far Bottom): Ridley’s Temporary Restaurant’s food-for-food exchange



Mercat dels Encants, Barcelona, Spain
b720 Fermín Vázquez Arquitectos (2013)

“Els Encants in Barcelona is a centenarian marketplace, which has traditionally been set outdoors in an informal way. Its original location was not far from the market’s new grounds and is occupying the junction of Merdiana Avenue with Las Glorias Square” (b720 Fermín Vázquez Arquitectos, 2013).

- A strong architectural statement was made through the canopy design. The 25m canopy height was inspired by the exterior nature of an open-air market - making it more monumental and relatable. The canopy also protects the pedestrians from Spain’s climatic conditions - drawing more pedestrians in. Even though the canopy design makes a strong architectural statement, does this form reflect the original characteristics of an open-air market?
- The programme layout of the market was designed in a way to create a loop between the different floors and stalls - mimicking how pedestrians would meander through a market. This also blurs the different levels to avoid a rigid structure that usually found within a mall.

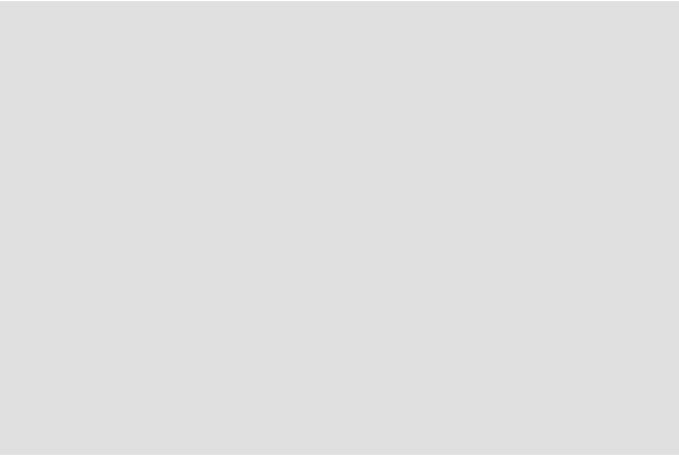
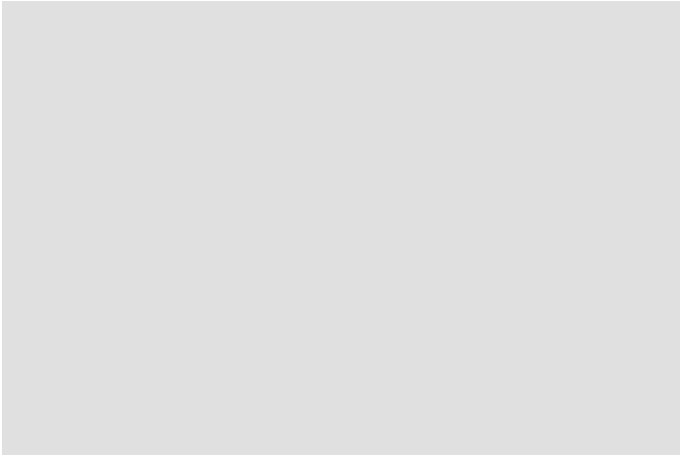


Fig. 24 (Far Left): Exterior of the Mercat dels Encants

Fig. 25 (Below): Canopy Design of the Mercat dels Encants



CHAPTER THREE:
SITE ANALYSIS

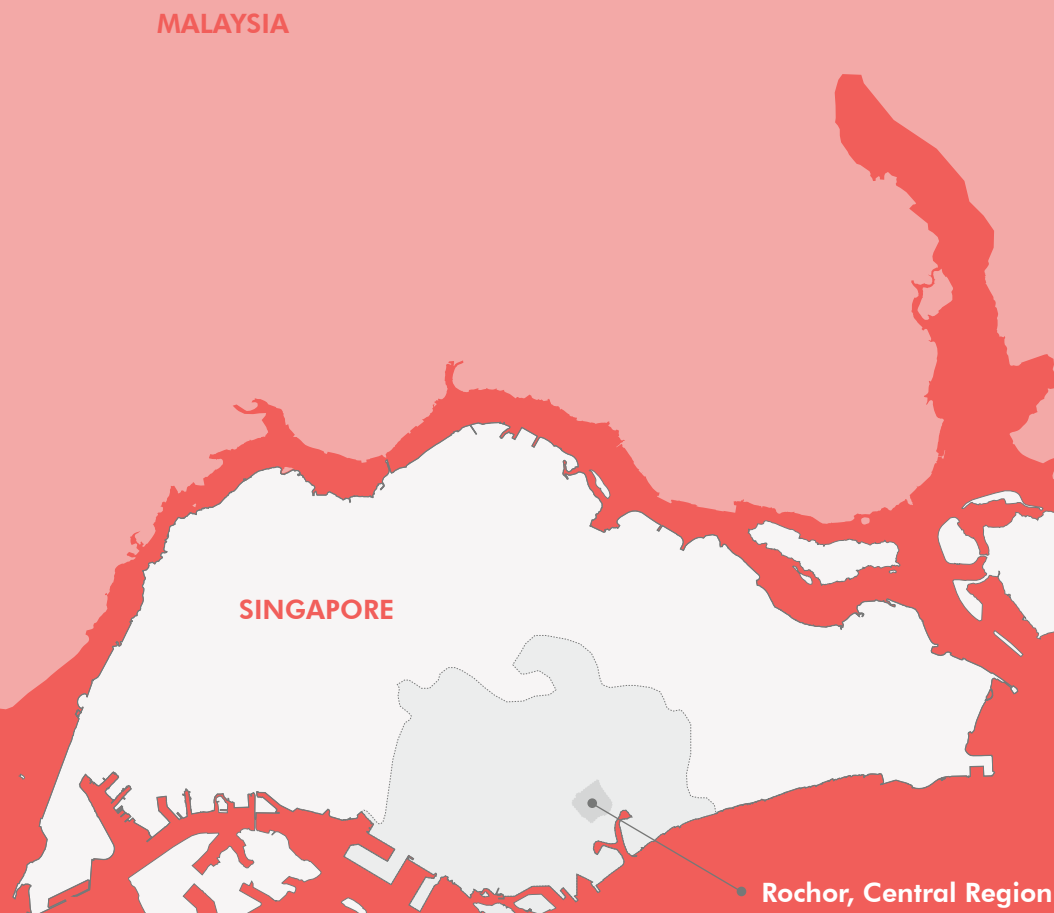
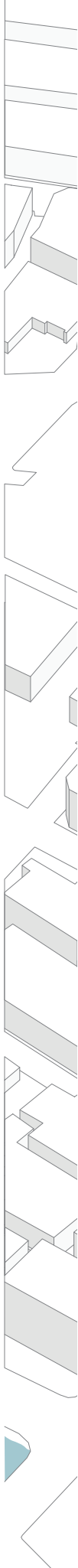


Fig. 26: Map of Singapore

3.1 Quantitative Site Analysis

Rochor District Overview

- 1 Residential with Commercial on 1st Storey
- 2 Commercial and Residential
- 3 Residential
- 4 Conserved Shophouses for Commercial use
- 5 Transport Facility
- 6 Open Green Space / Park



Rochor is located in the central region of Singapore which has a rich history and cultural background. Situated in between Bugis and Little India, this area attracts both residents and tourists for the consumption of food, culture, goods and services.

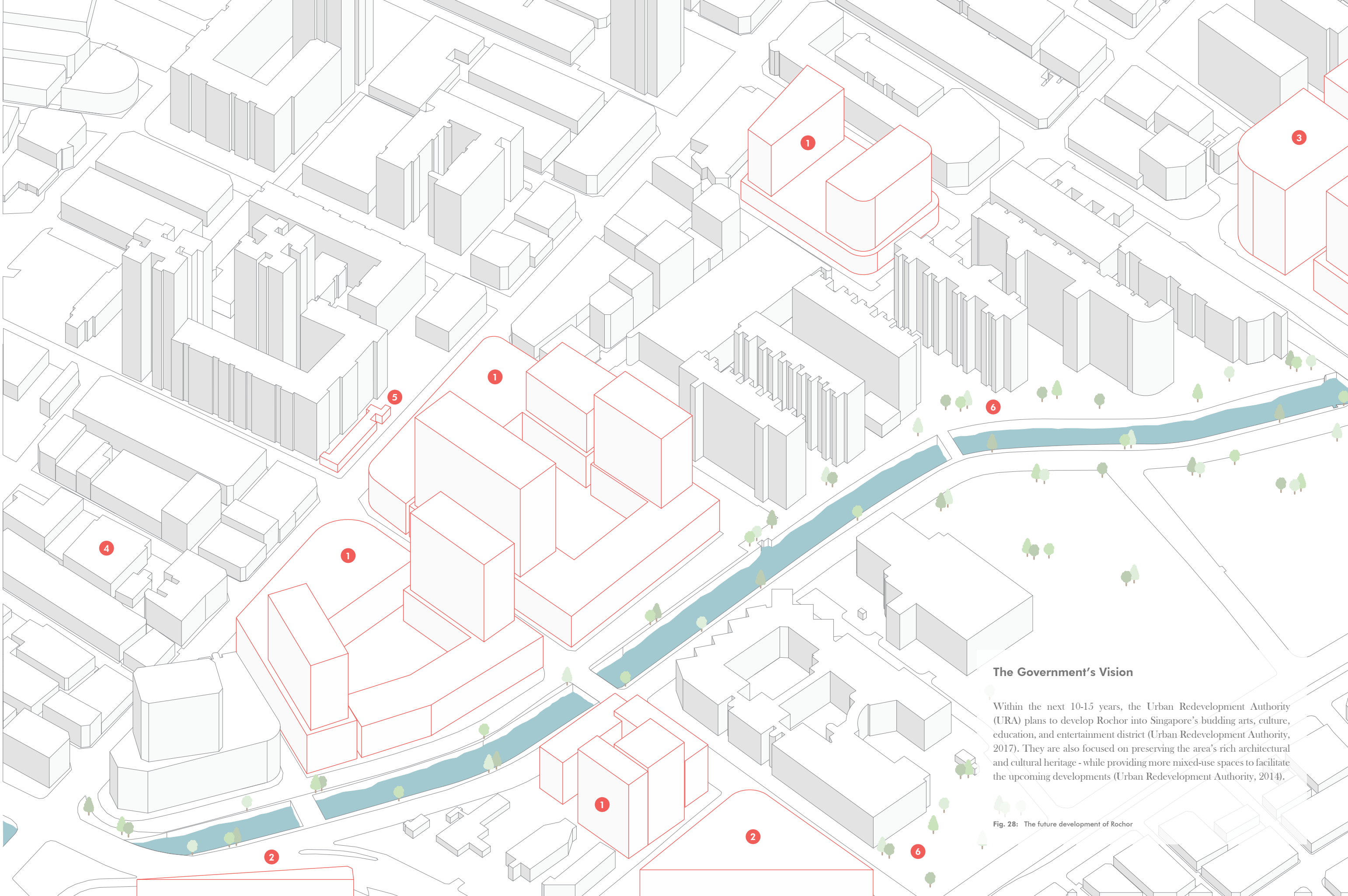
Back in the colonial era, the Rochor Canal that runs along these districts played a major role for trades. It transported goods to and from Bugis - and supported the cattle trade in Little India (Chen, 2015). This fuelled other industries in the area and as a result, it turned into a busy economic centre (Chen, 2015). The canal is now used for rest and recreational purposes as it was transformed into an open green space in 2015 (Chen, 2015).

Fig. 27: Rochor Canal

3.1 Quantitative Site Analysis

Rochor District Overview

- 1 Residential with Commercial on 1st Storey
- 2 Commercial and Residential
- 3 Residential
- 4 Conserved Shophouses for Commercial use
- 5 Transport Facility
- 6 Open Green Space / Park



The Government's Vision

Within the next 10-15 years, the Urban Redevelopment Authority (URA) plans to develop Rochor into Singapore's budding arts, culture, education, and entertainment district (Urban Redevelopment Authority, 2017). They are also focused on preserving the area's rich architectural and cultural heritage - while providing more mixed-use spaces to facilitate the upcoming developments (Urban Redevelopment Authority, 2014).

Fig. 28: The future development of Rochor

Rochor’s Demographics

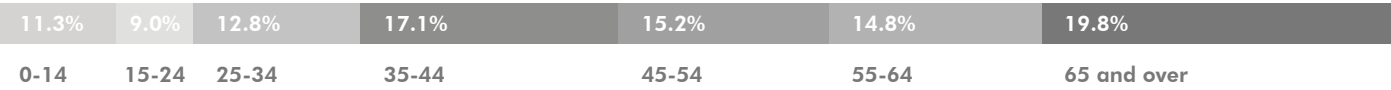
Due to the trading in the colonial era, Rochor represents a range of ethnicities today. Majority of these ethnicities are made up of Chinese and Indian locals (Singapore Land Authority, 2017) (fig. 31).

According to the Singapore Land Authority, Rochor supports an older age group that ranges from 35 years old and over (Singapore Land Authority, 2017) (fig. 29).

The majority of these residents earn between \$1000 to \$3000 per month (Singapore Land Authority, 2017) (fig. 30). With an extremely high business operating expenditure (fig. 30), it is anticipated that vendors can not economically support their own trading businesses.

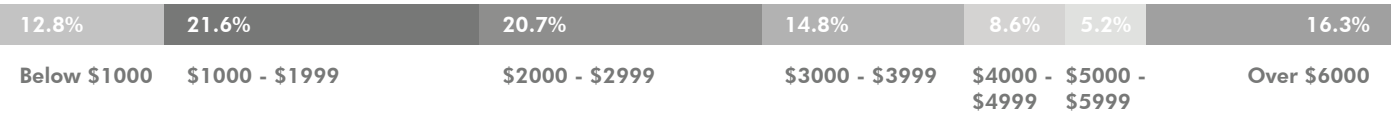
Age Groups (2016)

(Singapore Land Authority, 2017)



Average Monthly Income per person SGD (2010)

(Singapore Land Authority, 2017)



The average household size in Singapore is **three**.

(Singapore Department of Statistics, 2016)

The average monthly household expenditure* in Singapore is

\$4724.00 (SGD).

*Rent not included

(Singapore Department of Statistics, 2012)

The average monthly business operating expenditure* in Singapore is

\$8750.60 (SGD).

*Rent not included

(New Zealand Trade and Enterprise, 2005)

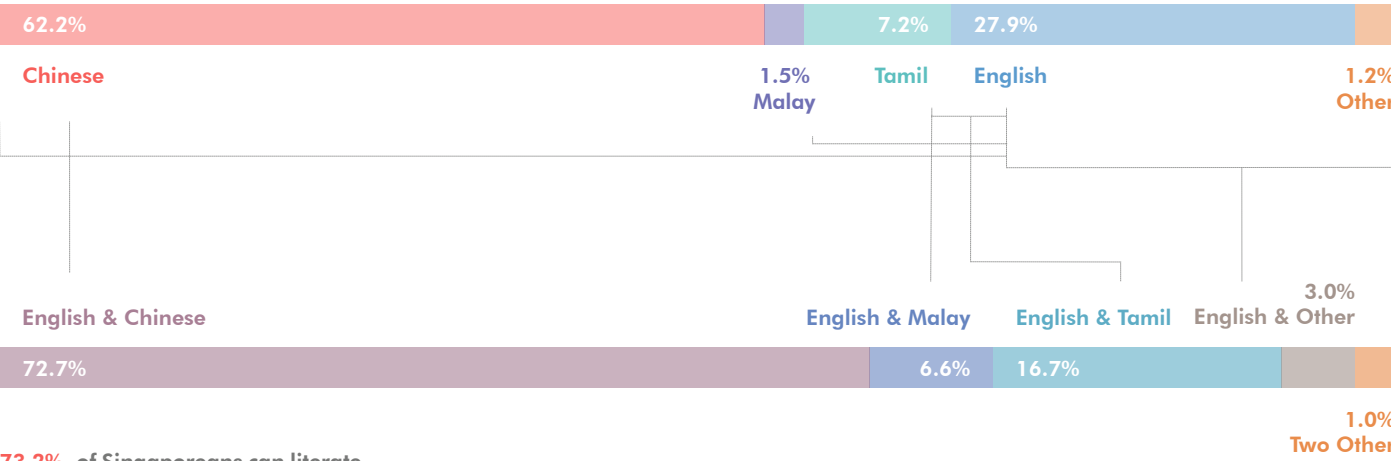
Ethnic Groups (2015)

(Singapore Land Authority, 2017)



One Language (2010)

(Singapore Land Authority, 2017)



73.2% of Singaporeans can literate in at least **two languages**.

(Lee, 2016)

Fig. 29 (Far Left): Rochor’s Age Group

Fig. 30 (Far Bottom Left): Rochor’s Average Income per person (SGD)

Fig. 31 (Below): Rochor’s Ethnic Groups

Fig. 32 (Far Bottom): Rochor’s Literacy



Site Location

For this research investigation, the Sungei Road Market will be relocated to the Singapore - Johore Express Terminal.

Key:

-  Original Sungei Road Market Location
-  Proposed Market Relocation (Singapore - Johore Express Terminal)
-  Jalan Besar MRT Station
-  Rochor Canal

Fig. 33: Site Location Plan

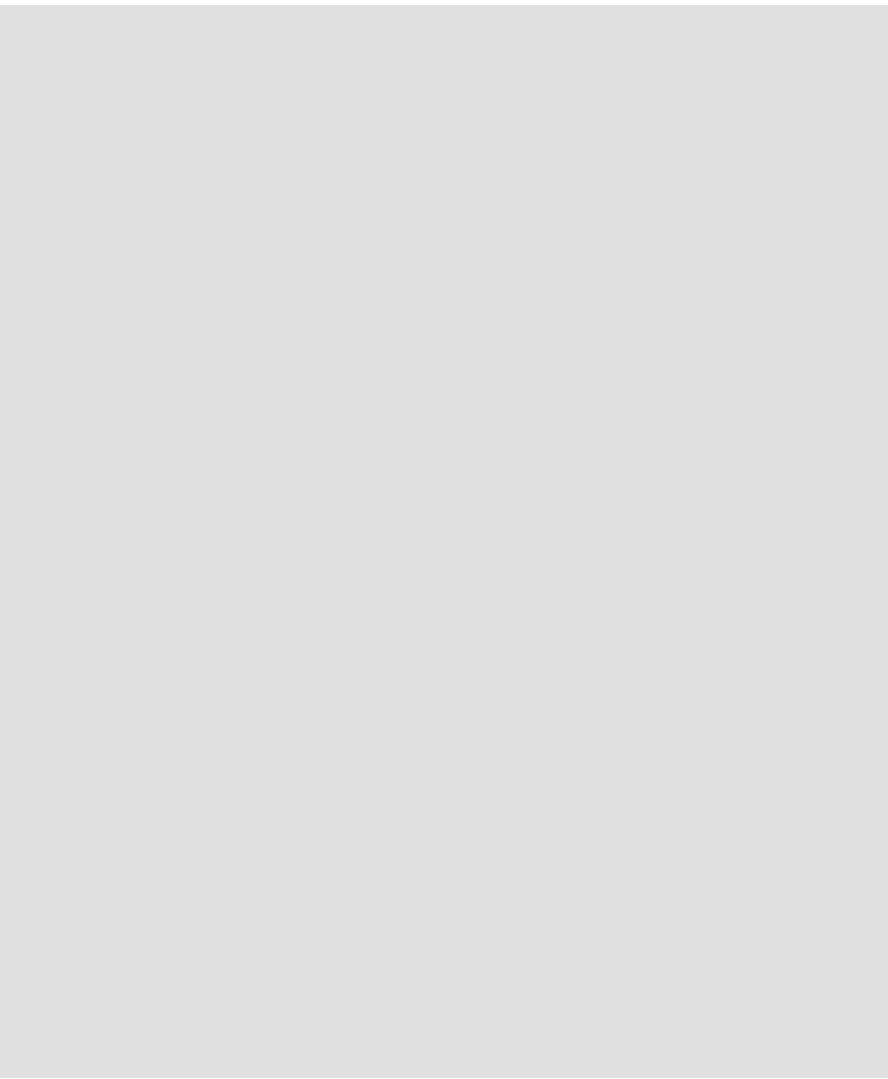
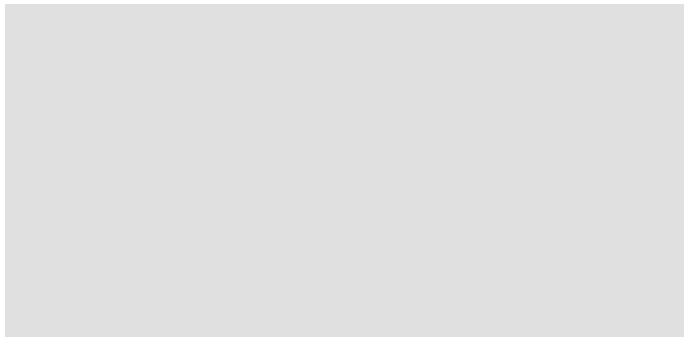
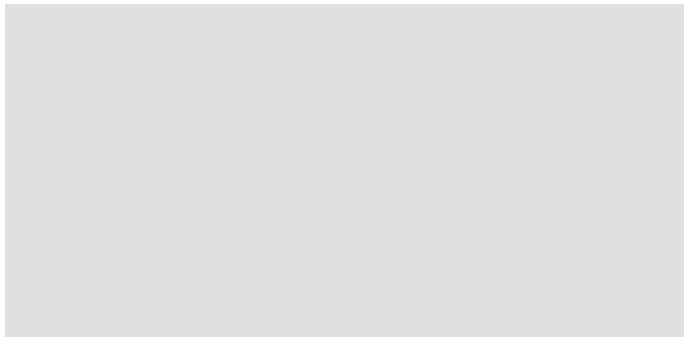


Fig. 35 (Far Top Left): Bus Shelter
Fig. 36 (Far Middle Left): Bus Stops
Fig. 37 (Far Middle Left): Taxi Car Park
Fig. 38 (Far Bottom Left): Taxi Shelter
Fig. 39 (Opposite): Bus Ticket Centre

Climatic Conditions

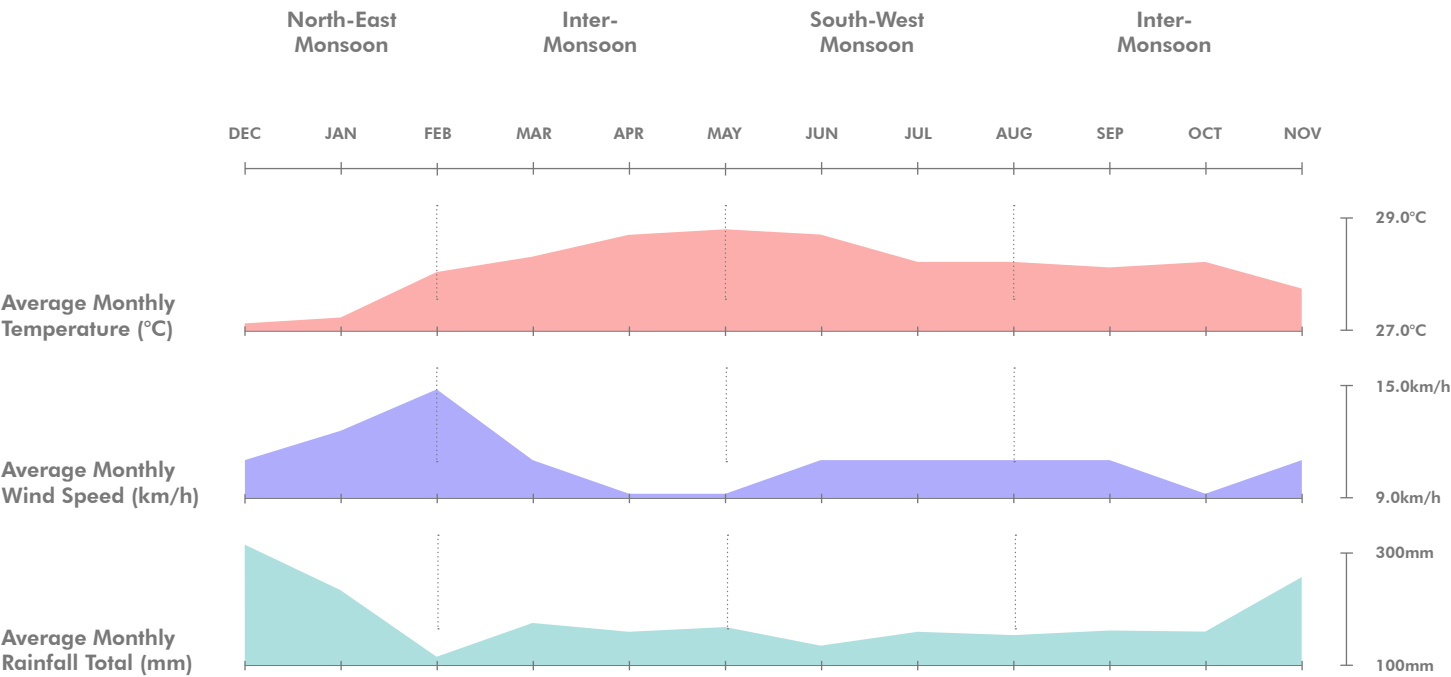
Like other tropical countries, Singapore has a hot climate - and four monsoon seasons per year. This includes: North-East Monsoon, Inter-Monsoon, South-West Monsoon and Inter-Monsoon. During the South-West Monsoon (May – July), the country has an average temperature of 28.4°C (fig. 41) (Meteorological Service Singapore, n.d.). Nonetheless, the country becomes cooler during the North-East Monsoon (December – February) as it gets a higher volume of rain and wind (fig. 40)(Meteorological Service Singapore, n.d.).

Fig. 40: Monsoon Seasons Graph

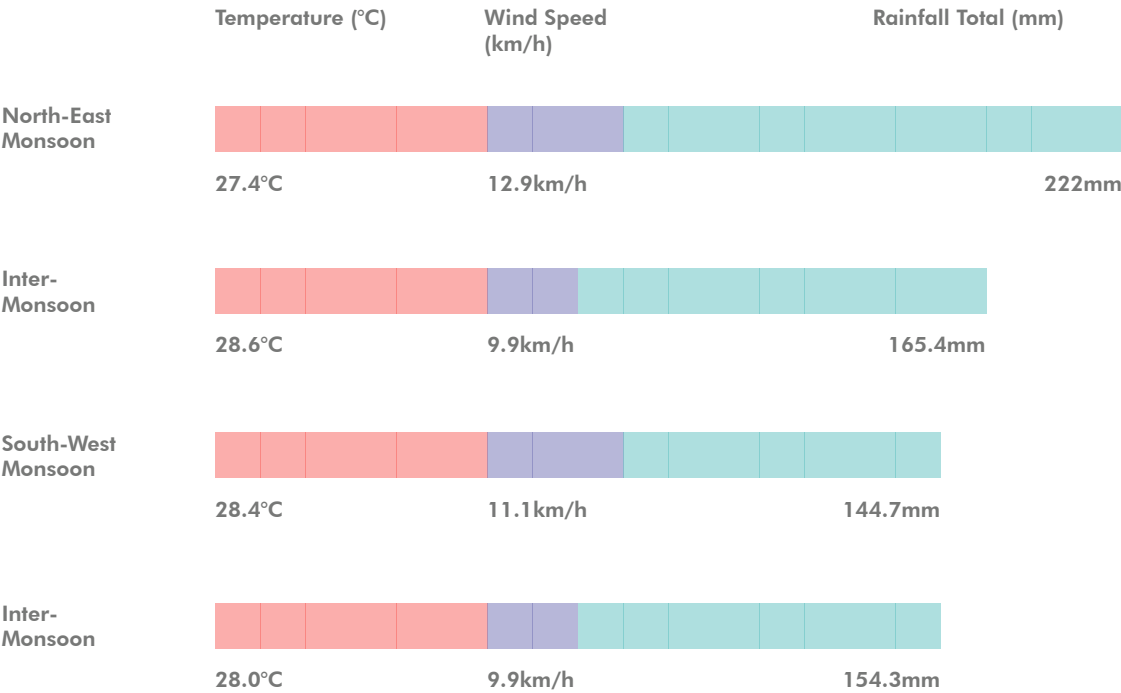
Fig. 41: Season Averages Graph

Monsoon Seasons

(Meteorological Service Singapore, n.d), (National Environment Agency, 2017), (Wind Finder, 2017)

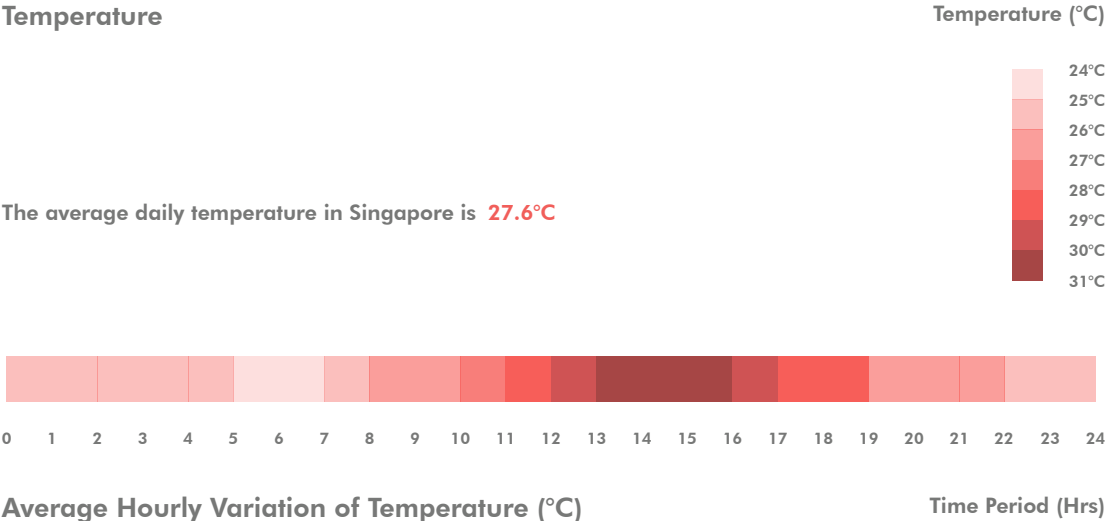


Seasonal Averages



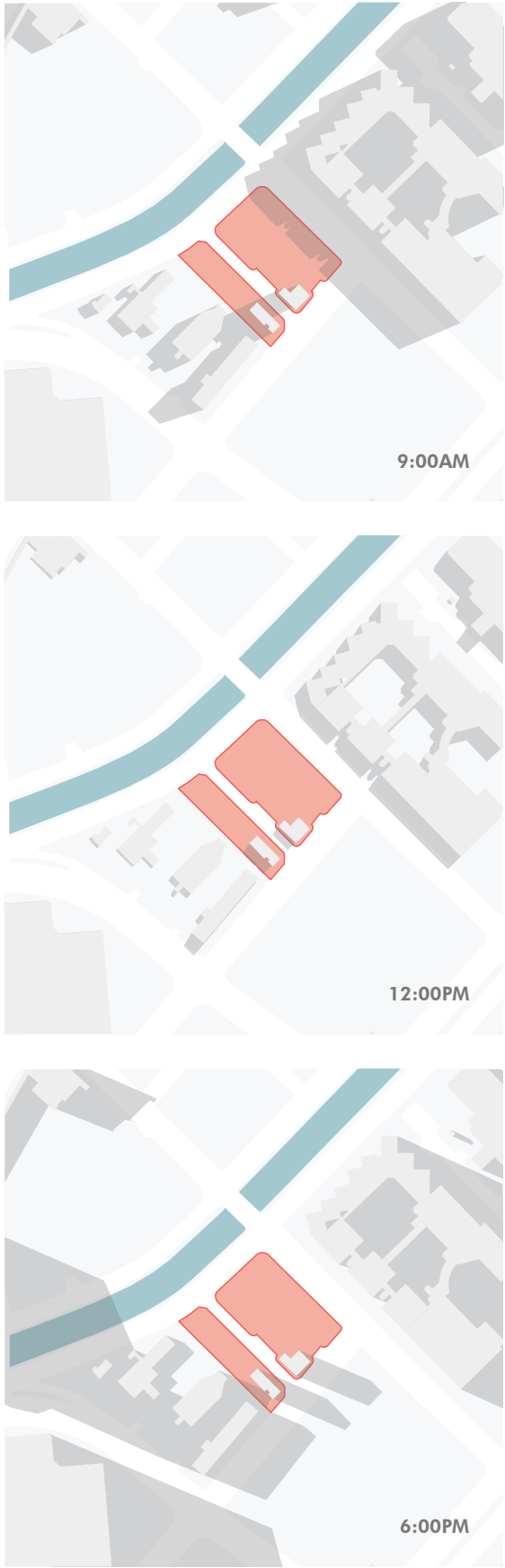
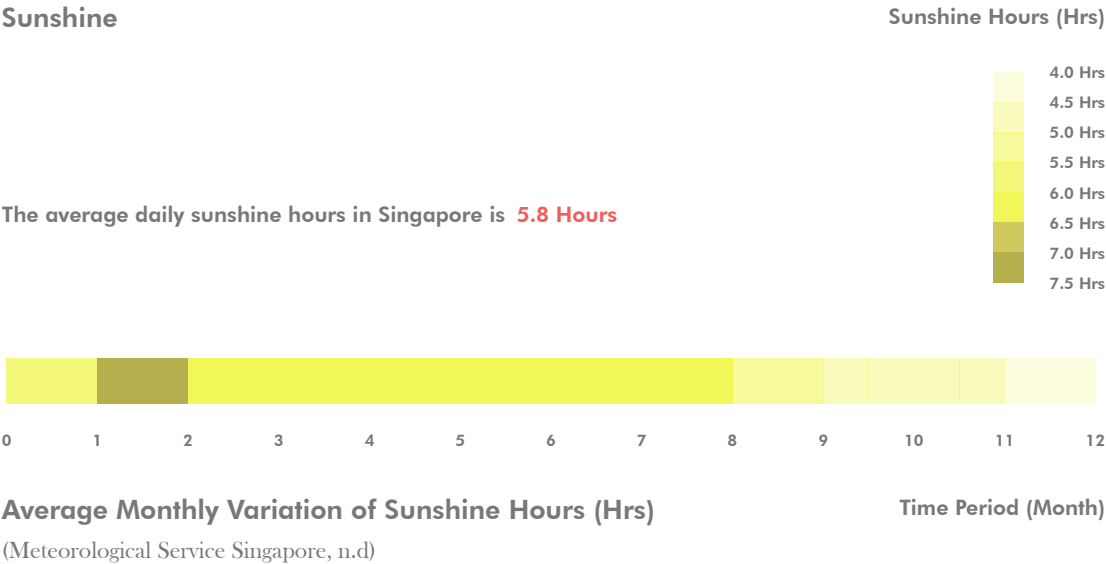
Temperature

The average daily temperature in Singapore is 27.6°C



Sunshine

The average daily sunshine hours in Singapore is 5.8 Hours



Sun Path

Majority of the site is exposed to the sun throughout the day (fig. 44). However, the site may be shaded in the afternoon when future developments are established (fig. 28).

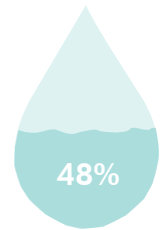


Fig. 42 (Far Top Left): Singapore's Average Temperature

Fig. 43 (Far Bottom Left): Singapore's Average Sunshine Hours

Fig. 44 (Opposite): Site's Sun Path Analysis

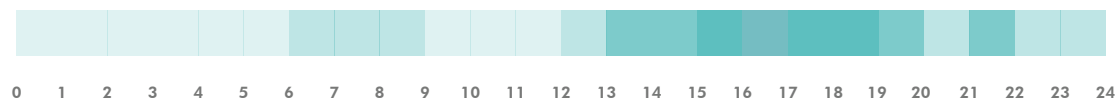
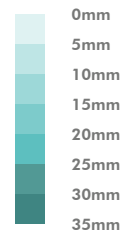
Rainfall



In Singapore, it rains an average of
178 out of 365 days

Therefore, Singapore is raining 48% of the
time within a year.

Rainfall (mm)

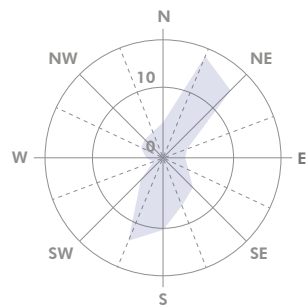


Average Hourly Variation of Rainfall (mm)

(Meteorological Service Singapore, n.d)

Time Period (Hrs)

Wind

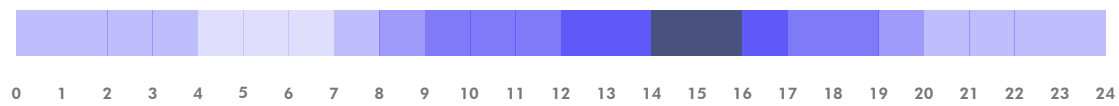
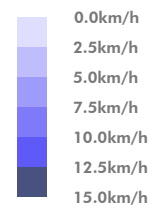


Annual Wind Direction Frequency (%)

(Wind Finder, 2017)

Northeast Wind
is the most prominent wind in Singapore.

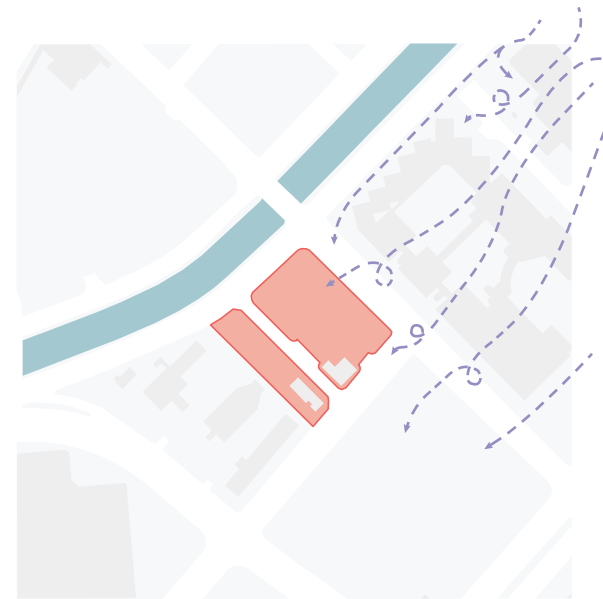
Wind Speed (km/h)



Average Hourly Variation of Wind Speed (km/h)

(Meteorological Service Singapore, n.d)

Time Period (Hrs)



Wind Path

The neighbouring buildings are relatively low and narrow (fig. 47). This causes the row effect “where the wind tends to trip or fall over the row of buildings” (Bennett, 2007, pg 14). Saying that, it is more ideal for the pedestrians to experience the North-east wind in this hot climate.



Fig. 45 (Far Top Left): Singapore's Average Rainfall

Fig. 46 (Far Bottom Left): Singapore's Average Wind Speed

Fig. 47 (Opposite): Site's Wind Path Analysis

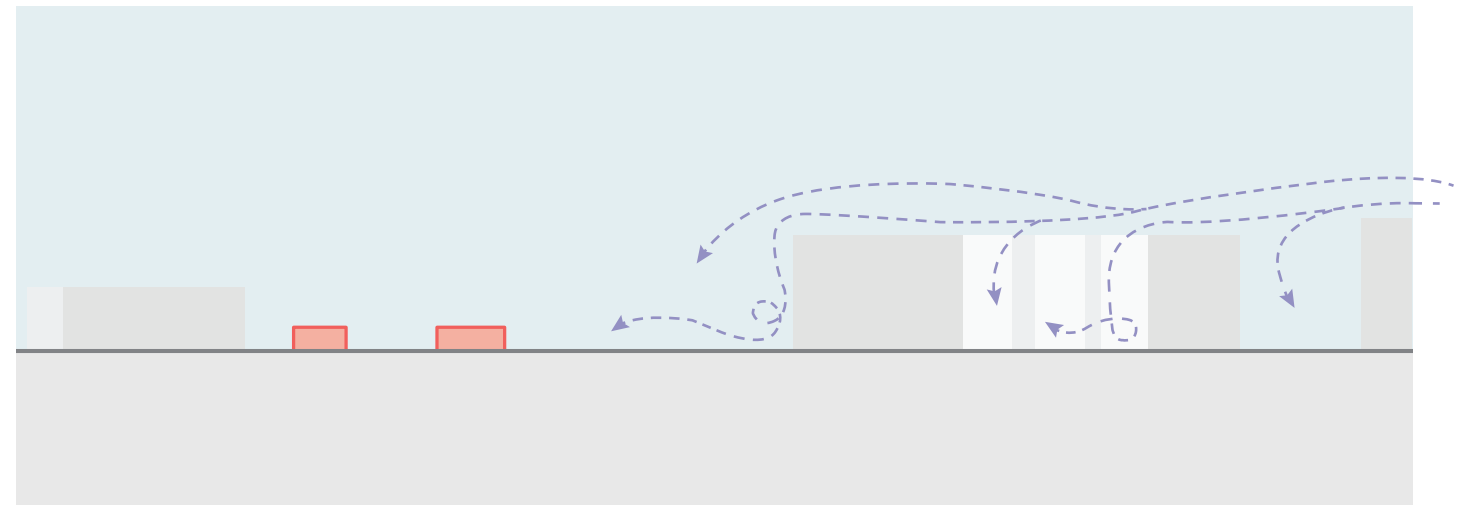
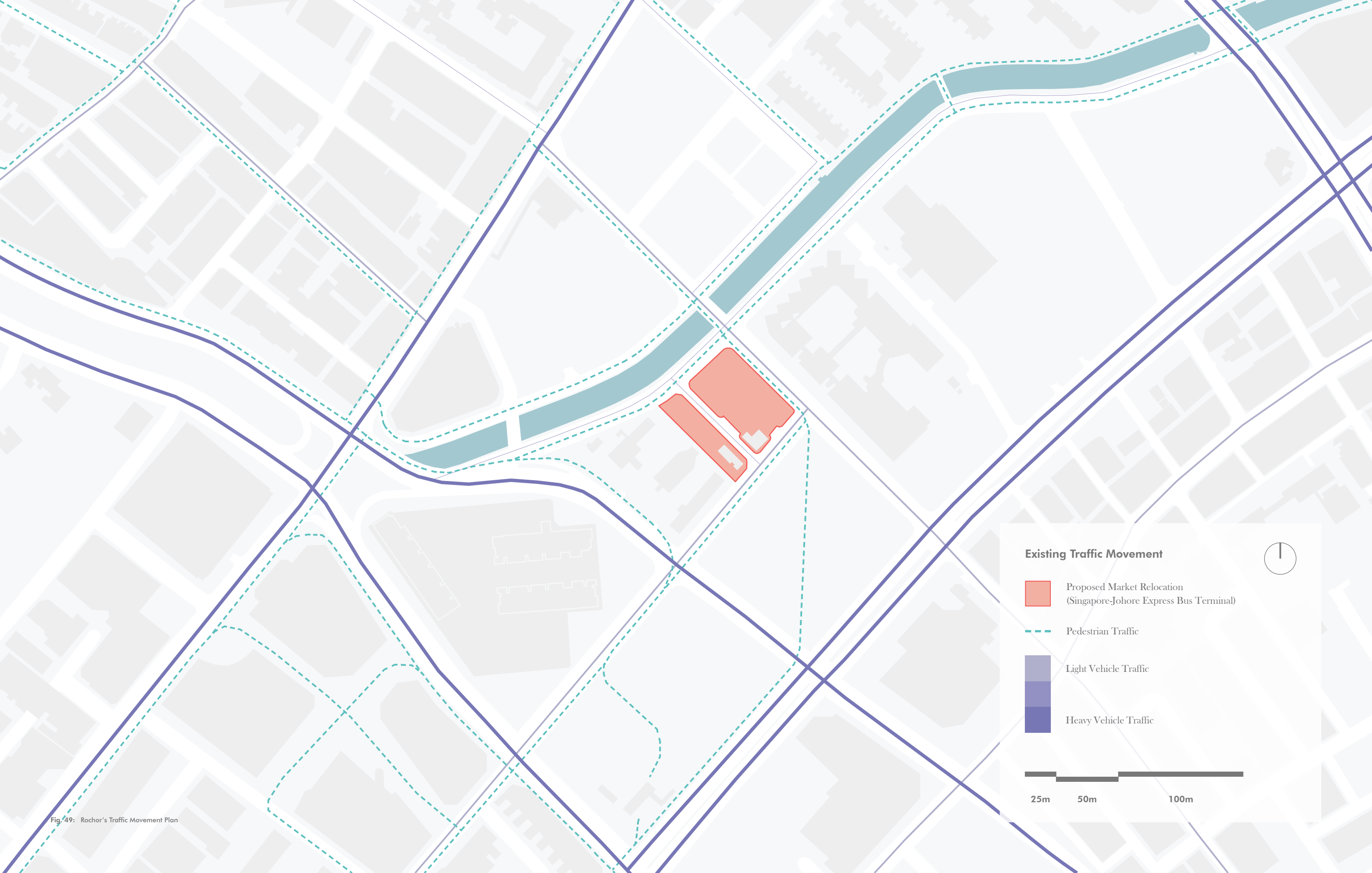







Fig. 48: Rochor's Amenities Plan



Existing Traffic Movement

-  Proposed Market Relocation
(Singapore-Johore Express Bus Terminal)
-  Pedestrian Traffic
-  Light Vehicle Traffic
-  Heavy Vehicle Traffic

25m 50m 100m

Fig. 49: Rochor's Traffic Movement Plan

3.2 Qualitative Site Analysis

Singapore Field Research

22nd of May - 19th of June 2017
(Ethics Approval: 24468)

On the 22nd of May 2017, I conducted field research in Singapore for a month. The main goal for this field research was to have a better understanding of the site and the community that is associated with it. In the duration of this experience, I had some questions that I wanted to be answered, whether it's through observations, questionnaires or drawing exercises. These questions include:

- How does the construction affect the existing Sungei Road Market and traffic?
- What other activities and events occur around site?
- How does the vendors set up and take down their stalls?
- What are the other existing markets and hawker centres like?
- How does the community engage and interact?
- What are people's thoughts of the Sungei Road Market?
- What does the Rochor Community need?

Fig. 50: 'Sungei Road Market: A Future for Street Culture Heritage' Panel Discussion, The Substation, Singapore

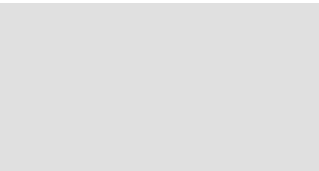
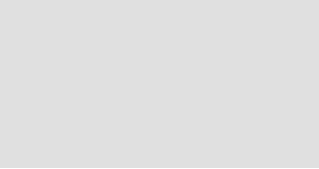
Observations

Throughout this field research, observations were made to gain more knowledge of Rochor and the Sungei Road Market. It provided information on how an open-air market can influence locals to engage and interact with each other.

The observations were recorded through photographs to present a greater visual understanding of the community’s lifestyle, actions and norms (Brown, 2014).

Within Site

- Fig. 51: People waiting for the Coach Bus
- Fig. 52: People walking pass the Site
- Fig. 53: People walking through the Site
- Fig. 54: People waiting by the Station
- Fig. 55: People sitting and waiting for a taxi
- Fig. 56: Ticket Counter for the Coach Buses



Around Rochor Canal

- Fig. 61: Fishing and Waiting
- Fig. 62: Eating, Cycling and Walking
- Fig. 63: Sitting and Relaxing
- Fig. 64: Gazing and Sleeping



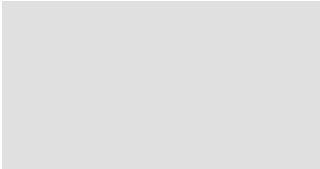
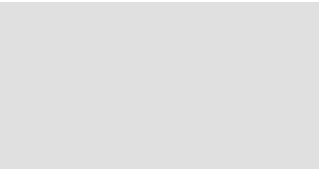
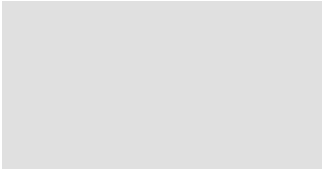
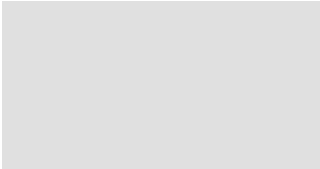
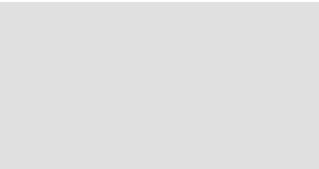
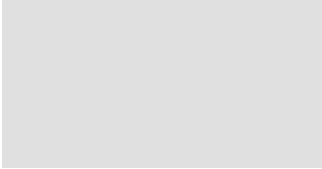
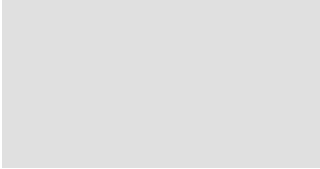
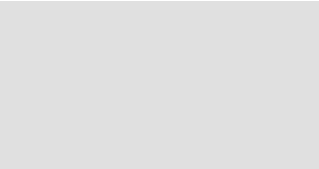
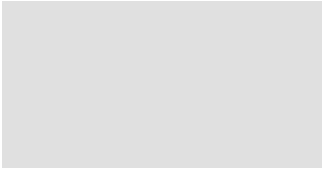
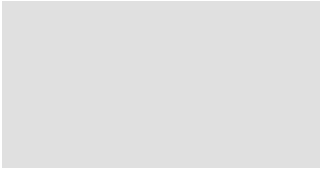
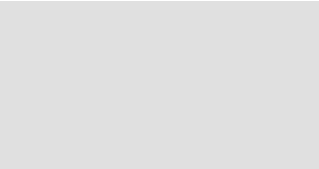
Around Site

- Fig. 57: Construction of the Jalan Besar Station, Sungei Road
- Fig. 58: Eating in the Hawker Centre, Jalan Berseh
- Fig. 59: Shopping in Bugis Street Mall, Bugis Street
- Fig. 60: Walking through the Bugis Street Mall, Victoria Street



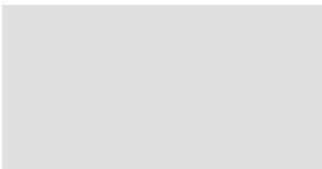
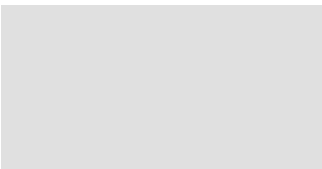
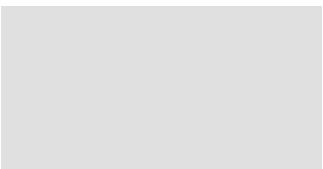
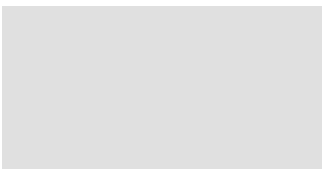
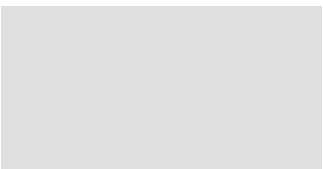
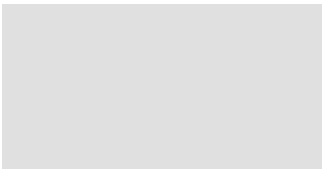
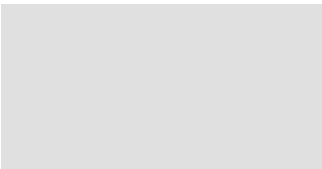
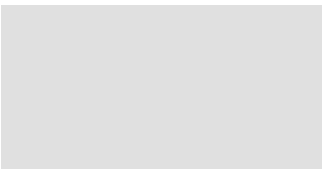
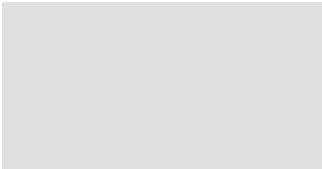
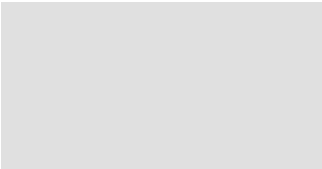
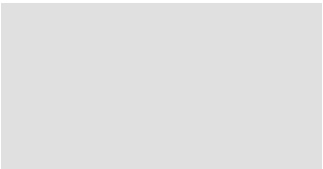
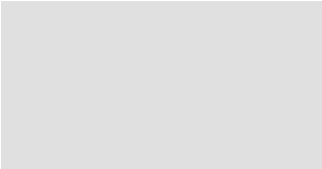
Within the Sungei Road Market

- Fig. 65: Market Tour Group 1.
- Fig. 66: Market Tour Group 2.
- Fig. 67: Market Tour Group 3.
- Fig. 68: Market Tour Group 4.
- Fig. 69: Lion Dance Performance
- Fig. 70: Vendors Socialising
- Fig. 71: Bargaining
- Fig. 72: Vendors’ Selfie
- Fig. 73: Shopper Squatting and Bargaining
- Fig. 74: Squatting
- Fig. 75: Vendor and Shopper Socialising



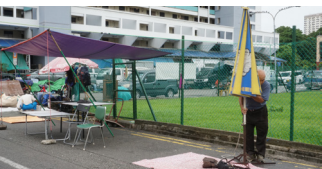
Market Stalls

- Fig. 76: Tiger Umbrella, Bicycle and Chair
- Fig. 77: Red Umbrellas and Fold up Tables
- Fig. 78: Blue Plastic Tarps and Mats
- Fig. 79: Stools and Mats
- Fig. 80: Umbrella, Stools and Mats
- Fig. 81: Umbrella, Table and Chair
- Fig. 82: Bench and Boxes
- Fig. 83: Truck and Chair
- Fig. 84: Carts and Luggages
- Fig. 85: Umbrella and Hangers
- Fig. 86: Blue Plastic Tarps, Boxes and Carts
- Fig. 87: Cart, Plastic Baskets and Mat
- Fig. 88: Stool and Table
- Fig. 89: Umbrellas and Canopy Tent
- Fig. 90: Umbrella, Carts, Newspaper and Stool



Setting up Stalls

- Fig. 97: Hanging System that relies on the Existing Corrugated Fence
- Fig. 98: Cement Block acting as the Umbrella's Weight
- Fig. 99: Ties and Knots on to the Existing Corrugated Fence
- Fig. 100: Stuffed Bag acting as the Canopy's Weight
- Fig. 101: Umbrella on Existing Wire Fence
- Fig. 102: Canopy Tent
- Fig. 103: Vendor setting up his Stall 1.
- Fig. 104: Vendor setting up his Stall 2.
- Fig. 105: Vendor setting up his Stall 3.



Transporting Goods

- Fig. 91: Motorised Bicycle
- Fig. 92: Small Truck
- Fig. 93: Bicycle and Cart
- Fig. 94: Shopping Trolley and Carts
- Fig. 95: Pushing and Carrying Goods
- Fig. 96: Left on Site



Dis-amenities

- Fig. 106: Carts left on the side of the Road
- Fig. 107: Goods left on the side of the Pavement
- Fig. 108: Goods left on the side of the Road 2.
- Fig. 109: Rubbish
- Fig. 110: Stalls left behind. Government Cleaners cleaning up and a local passing through the market
- Fig. 111: Chairs and Government Cleaners cleaning up the rubbish that was left behind

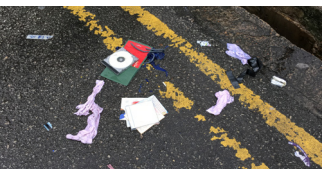


Fig. 112: Red Speech Bubble Questionnaires

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
Squatting down to look at stuff.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
when everyday was different in the past. Business was better back then. For example, customers then would purchase items readily. Nowadays, many people just window shop. They would browse through items and not buy them.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
When they called it "Robinson Felling", I was a young man at the time. I used to get a lot of good spare parts, a lot of radio parts, very useful for my hobbies and get good bargains.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
When I went there for a school trip, we were suppose to do some research for a project and went to the Market for supplies.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
when this place used to be old shophouses and here used to be an ice factory. I've been coming here since 1960.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
- THE STEP BACK IN HISTORY
- THE OLD ANTIQUES
- TALKING TO THE OLDER GENERATION
- INTERACTION WITH OTHERS.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
liking it as an eighty year old lady, which is getting weather and weather but definitely, she is not old. She has a few hundred years more to live. As long as Singapore exists, I think this heritage will exist, if we allow it to exist.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
being here for the passed 20 years. I only have experience as a small vendor, selling second hand goods.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
My mentor, he was very nice. Back in the 80s, I would learn from him. He taught me how to set up a business here. He was very good we shared the same surname, "Huang". He taught me how to buy and sell antiques. I'm very grateful for him.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
Keeping a record of the market by posting pictures on Facebook. and seeing the history of what this place use to be like.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
going there as it is one of the few places where I can go get a lot of parts for a low price. I dinker with a lot of electronics as well as hardware. Thieves market is just between Sim Lim Square and my house so I walk past it very often. It is also where I can experience what Singapore truly is: A melting pot where different races and religions can live together.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
Filming the documentary "Saving Sungei" as my team and I were able to gain an intimate perspective of the lives of the street-vendor there. In interviewing Mr Koh, who is also the chairman of the Association of the Recycling of Unworned Pleasure to look for the preservation of the market. It was a wide-eyed experience that gave us an elusive imprint of the unique, yet often overlooked community culture of the market.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
Educating foreign shoppers about the antiques sold by vendors (history and authenticity)
(He works at Bon Pau St as a bus usherer)
*He notices that some people are drunk and harass other people.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
when locals and tourists know to go to Sungei Road for thrift shopping and sightseeing. Some things you cannot find in stores.
And to be able to say that Singapore has an established flea market.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
when I earned the most during the 1970s. In the past the market used to be very big and it was easy to do business. It is very difficult these days. The place is much smaller now.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
when we joke around and chat with each other. Some of them call me a young lady. I tell them I'm so old already. No longer a young lady.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
the good times of chatting. Time passes by easily as everyone here knows each other.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
the friends that we have developed here. So many of us have been here for more than 20 years.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
the friends and the people that come here everyday. We chit-chat and talk as most of us know each other. Some are nasty but it's like that.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
Seeing other shoppers fiercely bargaining with the vendors.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场最难忘的经验是 ...
seeing everyone come here for leisure. It is a pity when this place is gone, because it is a tourist attraction.

Questionnaires

My most memorable experience in the Sungei Road Market was...

Hi! I am a: Vendor ☐ Shopper ☒

你好! 我是: 买家 ☐ 购物者 ☒

and my most memorable experience in the Sungei Road Thieves Market was ...

我对结霜桥跳蚤市场最难忘的经验是... going there as it is one of the few places where I can go get parts for a low price. I tinker with a lot of electronics as well as hardware. Thieves market is just between Sim Lim Square and my house so I walk past it very often. It is also where I can experience what Singapore truly is: A melting pot where different races and religions can live together.

Hi! I am a: Vendor ☒ Shopper ☐

你好! 我是: 买家 ☒ 购物者 ☐

and my most memorable experience in the Sungei Road Thieves Market was ...

我对结霜桥跳蚤市场最难忘的经验是... the fellowship with one another, laugh together, eat together.

Hi! I am a: Vendor ☒ Shopper ☐

你好! 我是: 买家 ☒ 购物者 ☐

and my most memorable experience in the Sungei Road Thieves Market was ...

我对结霜桥跳蚤市场最难忘的经验是... the friends and the people that come here everyday. We chit-chat and talk as most of us know each other. some are nasty but it's like that.

“Things worth saving need not necessarily be beautiful or historic as long as they are familiar or well loved” (Lowenthal, 1979, pg 555). This inspired the question of what are the vendors and shopper’s most memorable experience in the Sungei Road Market. From asking this question, it provides an insight of the connections and memories associated with the market. According to Yuen, these experiences can obtain a sense of belonging for the individual and the community (Yuen, 2005).

Sungei Road Market is a place “where I can experience what Singapore truly is: A melting pot where different races and religions can live together” (fig. 113).

The most common answer for this question were associated with social engagement and cultural ties. Through observations, it was evident that the Rochor community used the Sungei Road Market as a social platform for various religions and ethnicities. Vendors gathered and appreciated “the fellowship with one another”, while shoppers admired the intangible heritage that the market reflects. This encouraged more opportunities for the community to “laugh and eat together” (fig. 113).

I wish the Sungei Road Market was...

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

to meet with the government to discuss our plan on how to spruce up the place which people can really say "This is Singapore's flea market" an icon for Singapore's flea market.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

relocated definitely somewhere nearby that would be great. I am willing to continue operating.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

relocated as stores around this area. There are many spaces and you see, everyday there are thousands of people coming here. Not one or two. You can go any other places, no one goes a crowd like here.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

Government would give us a place near this area to let us continue selling. It would be a shame if they didn't give us a place to sell, because Singei Road is a historic place. It would be the very last second hand goods market.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

given a new site. [However] at my old age, it is very difficult to continue working. I will be retiring soon, I don't have the spirit to continue doing this anymore. I don't have any more hope for the market.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

a place where people sell antiques, items with history. Basically a museum/market.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

more well established. And maybe actually, I kind of like the way it is... just raw, natural and a bit old school.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

I actually like it the way it is.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

- NO CHANGE.
- THE LAYOUT AND INTERACTIONS WITH DIFFERENT PEOPLE.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

will give us a place so we can sell.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

moved to a space nearby to continue operating. We understand this place needs to be used for development. We are upset but there is nothing we can do.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

Preserved. There is a lot of space ~~about~~ a few metres away along the ~~the~~ Rocher Canal, an open canal. The footpath is quite large, so if you just give them 100m or so to continue their business.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

would help the vendors. For myself I can do something else but what about the people that are aged 70+, 80+? I don't think so that they could go to work.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

relevant government authorities can continue allowing us, the older generation to find a place and allow us to continue selling. If this market closes, I'm not sure how long I will stay unemployed for.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

Don't give up on us.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

relocated to continue our business and livelihood. We don't want to be dependent on government handouts. Why do we need to depend on the government? We have the ability physically and mentally, we can survive as long as they relocate the market.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

was have more legitimate vendors easier for foreigners to buy stuff and communicate

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

considered as culture to the government. It's very sad, the government is focussing too much on development.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

relocated as a group. When we are separated there is not much value. When everyone is together so long, we are like good friends.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

don't have any thoughts on the closure and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

I'm just going with the times, everything has to go. All good things must come to an end. Am I right? Even people have to go, so things have to go too. It's the same. This is natural.

Hi! I am a: Vendor ☐ Shopper ☒
你好! 我是: 买家 ☐ 购物者 ☒

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

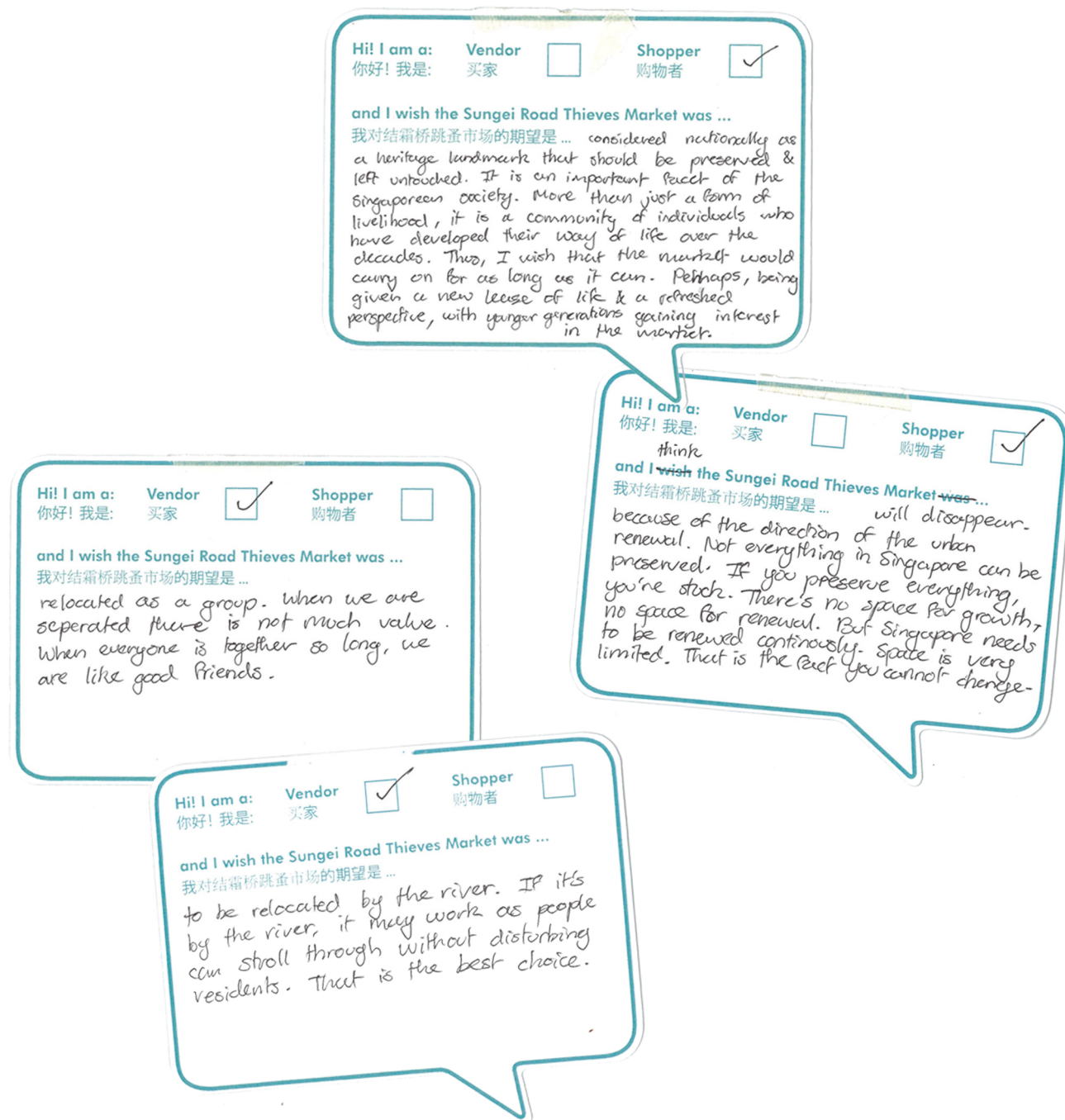
think and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

will disappear because of the direction of the urban renewal. Not everything in Singapore can be preserved. If you preserve everything, you're stuck. There's no space for growth, no space for renewal. But Singapore needs to be renewed continually. Space is very limited. That is the fact. You cannot change.

Hi! I am a: Vendor ☒ Shopper ☐
你好! 我是: 买家 ☒ 购物者 ☐

and I wish the Sungei Road Thieves Market was ...
我对结霜桥跳蚤市场的期望是 ...

will move to another place like a flea market. It's the same. I will have to pay rental. There is no choice, this place belongs to the government. So they want to take it back, ok lah, if it's time to go, we have to go. If it's every good thing will come to an end one day.



“Participation allows the images and meanings of places to develop from the bottom up. Inadequacies in the setting are far more tolerable and easily adjusted when one is not alienated from the place making process” (Rapoport, 1969). In the duration of these questionnaires and drawing exercise, social engagement was encouraged. This allowed the design process to be driven by the local community’s assets, identity, character and needs (Melcher, Stiefel, & Faurest, 2017).

“I wish the Sungei Road Market was relocated as a group. When we are separated there is not much value” (fig. 115)

The thoughts of what should happen to the Sungei Road Market varied between individuals. Some participants stated the market should be preserved as a “historic landmark”, while others thought it was natural for the market to disappear over time (fig. 115). Nonetheless, the most common answer for this question involved relocating the market - to allow the vendors to carry on with their livelihoods. This emphasises the intangible heritage of the Sungei Road Market is more significant than the site itself, as the community reiterated the trades are “an important fact of the Singaporean society” (fig. 115).

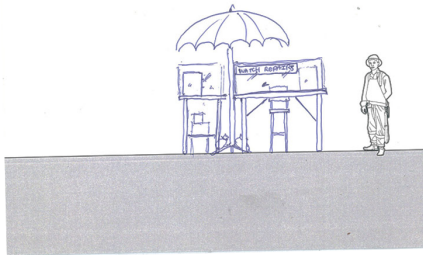
Hi! 你好!

My name is Mr. Seetoh and I have been selling
我的名字是 _____, 我在 _____

and repairing watches at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- Compartments for the small tools and parts.
- Shelter to protect the tools and parts.
- More space.



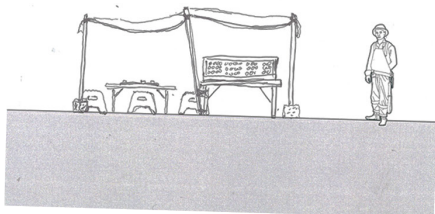
Hi! 你好!

My name is Mr. Tang and I have been selling
我的名字是 _____, 我在 _____

jewellery and precious stones at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- Areas to play games and joke with.
- More space to display our goods.



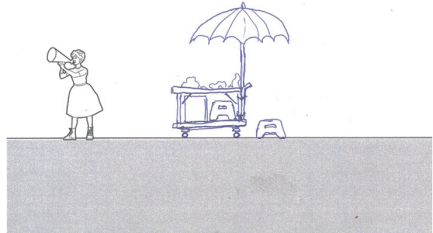
Hi! 你好!

My name is Madam Tang and I have been selling
我的名字是 _____, 我在 _____

Knick - Knacks at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- A place to joke around and chat.
- Easy access for my heavy things!
- Affordable.



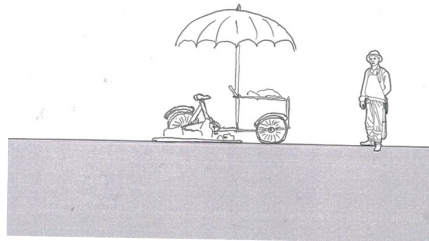
Hi! 你好!

My name is Mr. Huang and I have been selling
我的名字是 _____, 我在 _____

antiques at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- A system that runs shifts, so there will always be a change in vendors throughout the day.
- Shelter to cover the antiques.



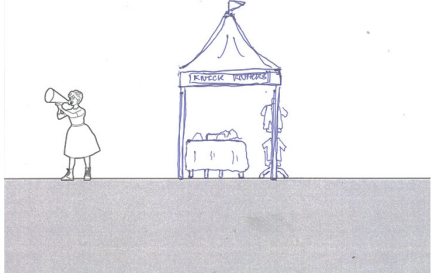
Hi! 你好!

My name is Su Lian and I have been selling
我的名字是 _____, 我在 _____

Knick - Knacks at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- Stability.
- Affordable.



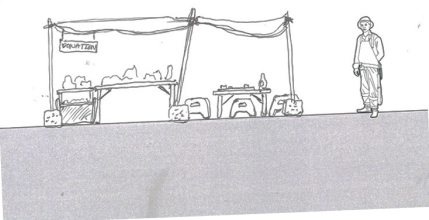
Hi! 你好!

My name is Mr. Koh and I have been selling
我的名字是 _____, 我在 _____

assorted goods at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- The Market's character/charm.
- Shelter from the rain and sun.
- A place to eat and laugh together.
- A place to encourage recycling.



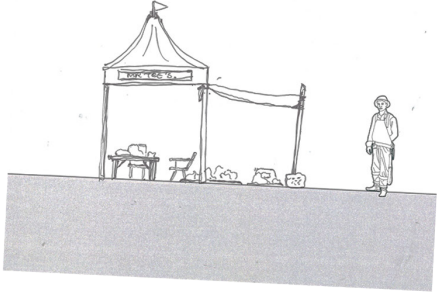
Hi! 你好!

My name is Yew Tee and I have been selling
我的名字是 _____, 我在 _____

antiques, coins and unwanted CDs at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- security (something more permanent)
- A place for leisure
- A place that includes all vendors.



Hi! 你好!

My name is Annie Hou and I have been selling
我的名字是 _____, 我在 _____

Knicks - Knacks at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- A place to gather and socialise.
- Good human traffic without causing disturbance.



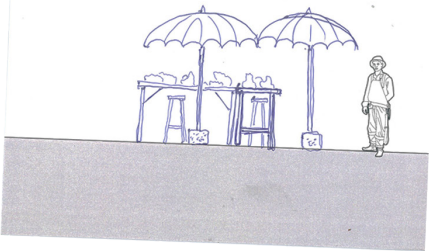
Hi! 你好!

My name is Josh Tang and I have been selling
我的名字是 _____, 我在 _____

old things at the Sungei Road Thieves Market for
_____ 年 _____ 月!
_____ 年 _____ 月!

This is what my ideal stall would look like! It includes important factors such as ...
这是我想象中的摊位, 它包括这些重要的项目...

- A place to talk to each other and to get to know each other.
- A place where money can be made.
- Good human traffic.
- Affordable.



Interpretations

As a designer, it is important to interpret and convey what the Rochor community is trying to express. Through this drawing exercise, the vendor's ideal stalls were visualised and established. Majority are seeking an affordable and mobile shelter for their goods. This would be complemented by an area for vendors to relax and chit-chat (fig. 116).

"By being involved in the design process, participants can develop a sense of pride and an attachment to the place" (Melcher, Stiefel, & Faurest, 2017, pg 15).

3.3 Existing Site Problems

- Vendors can not afford to lease retail space
- Insufficient protection/shelter is provided for the public
- Insufficient street amenities are provided for the public
- The site is not a destination for the public (excluding passengers)
- The local trades of Singapore are vanishing

3.4 Design Guidelines

The outcome of this research investigation must:

Connect:

- Encourage more pedestrian movement through site
- Integrate with its local and neighbouring context

Activate:

- Reflect the characteristics of an open-air market
- Protect the public from Singapore’s climatic conditions

Collectivise:

- Be adaptable to the fluctuation of the market and the community’s daily patterns
- Embrace the community found within the market and its local context
- Promote the local trades by educating and engaging with the public

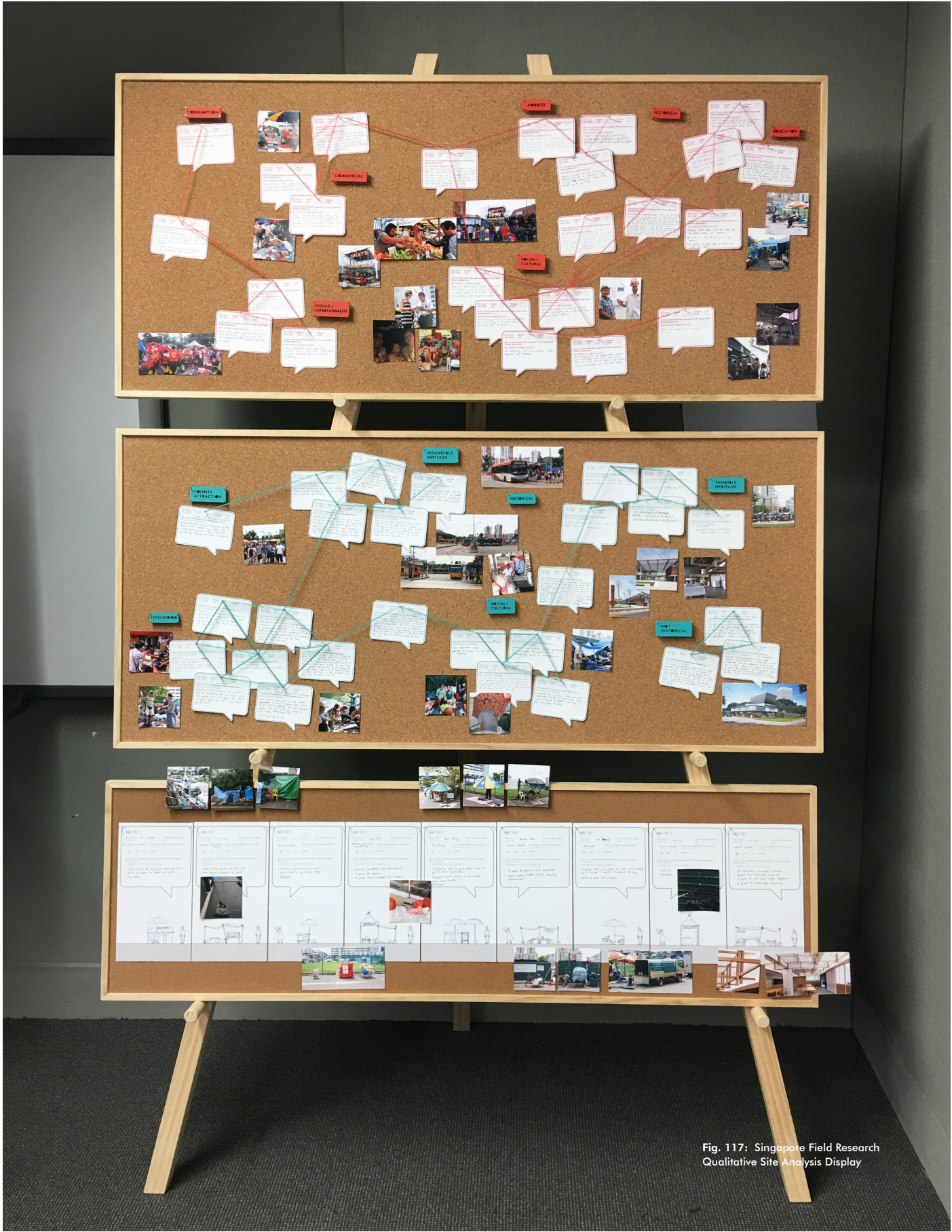


Fig. 117: Singapore Field Research Qualitative Site Analysis Display

CHAPTER FOUR: PRELIMINARY DESIGN

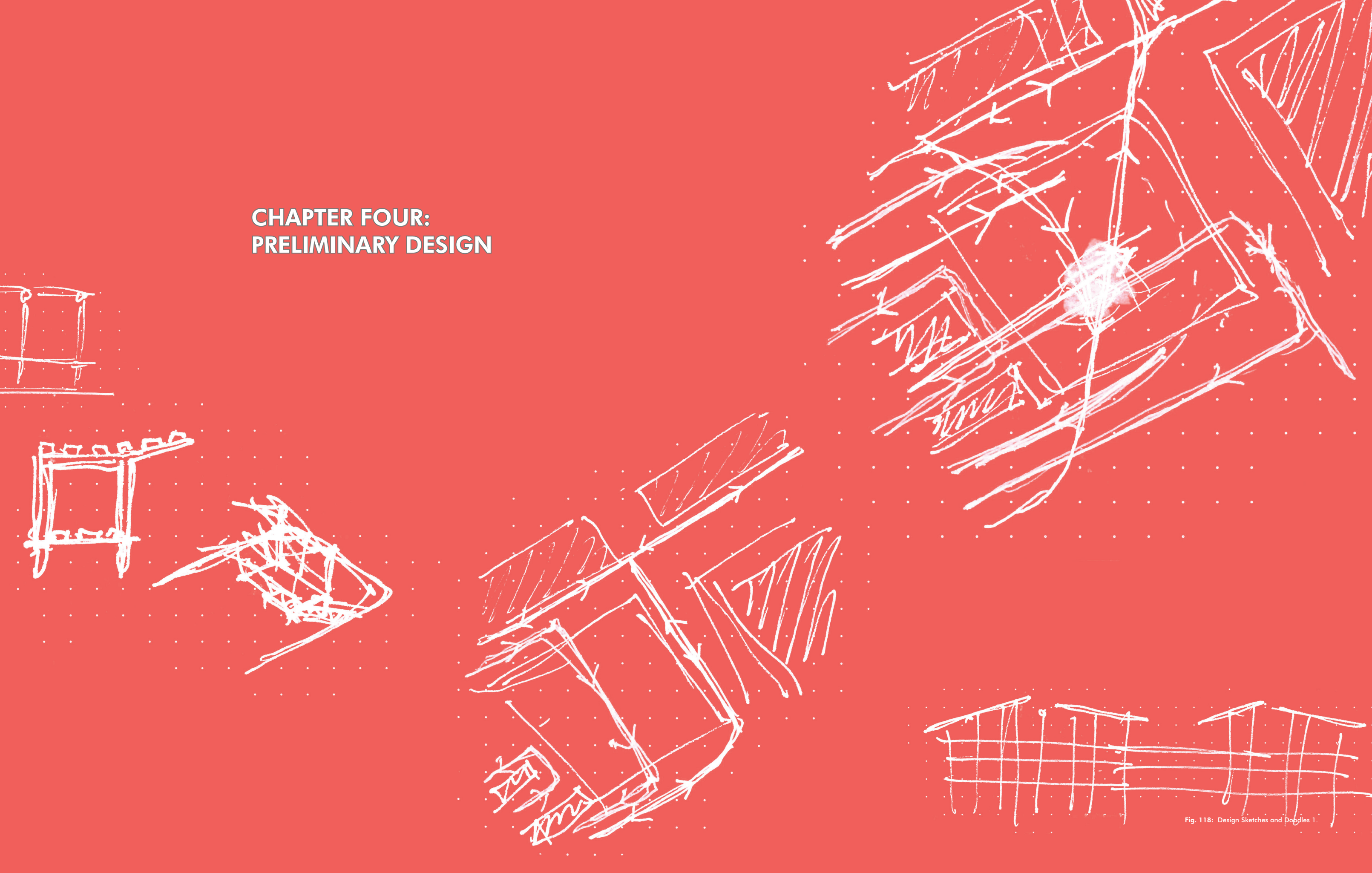


Fig. 118: Design Sketches and Doodles 1.

4.1 Design Intentions and Process

The intentions of the preliminary design are to:

- Investigate how the traffic movement can be revised to connect and benefit the proposed site
- Experiment with various architectural forms to identify and activate the space
- Propose architectural gestures that encourages social engagement and inclusion

The experimentation of the preliminary design will begin through sketches to avoid constraints and limitations. Once an idea has taken place, a transition to the digital realm will be made. This will solidify the preliminary design for the August 2017 design review.

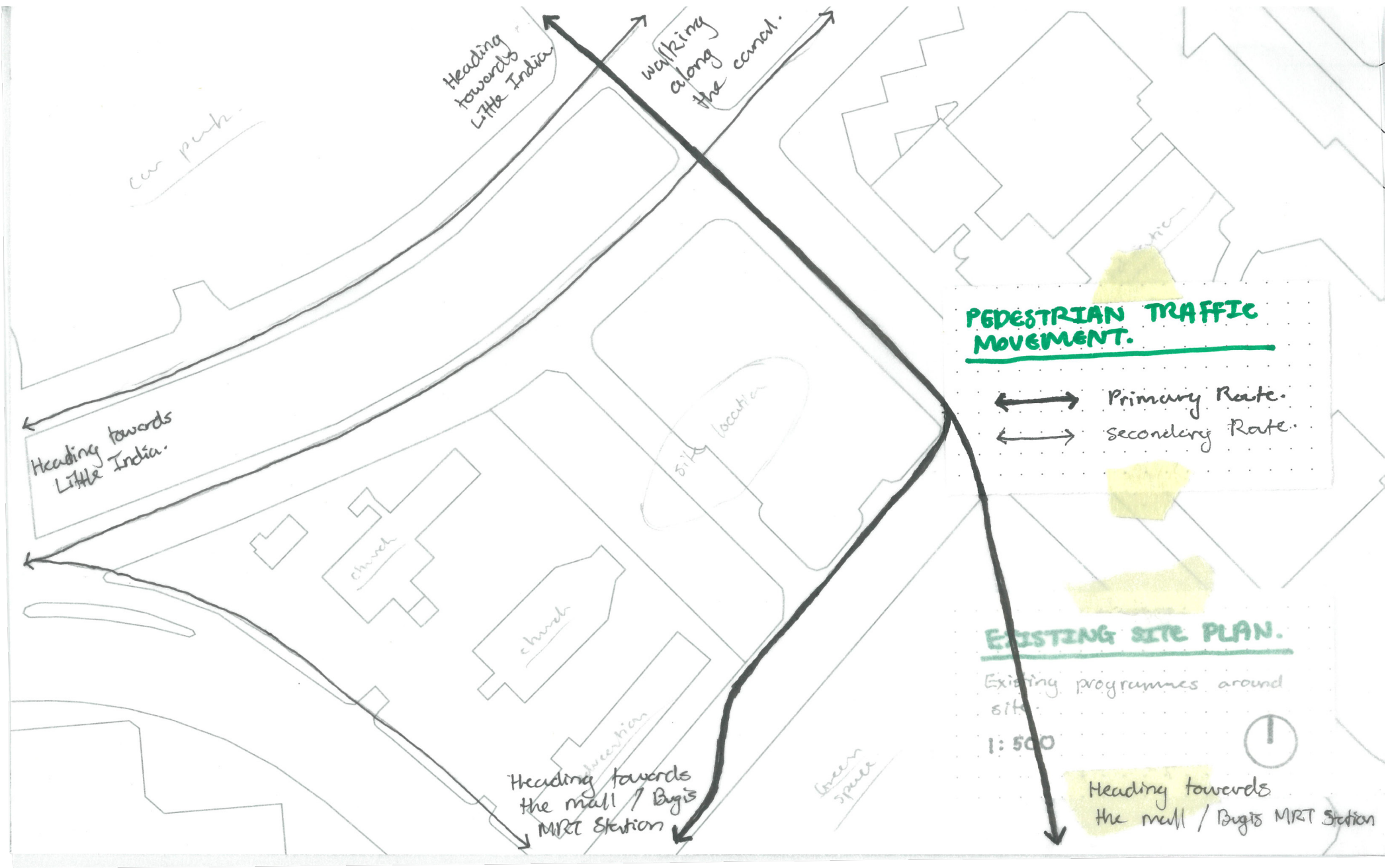
An existing site plan was established to identify the immediate existing programmes and roads (fig. 119).



This influences the bus and car movement around site (fig. 120). From having a bus station, the site is heavily orientated around vehicles - with cars and buses coming and going frequently. This makes the pedestrians' experience along this area more inconvenient and unappealing.

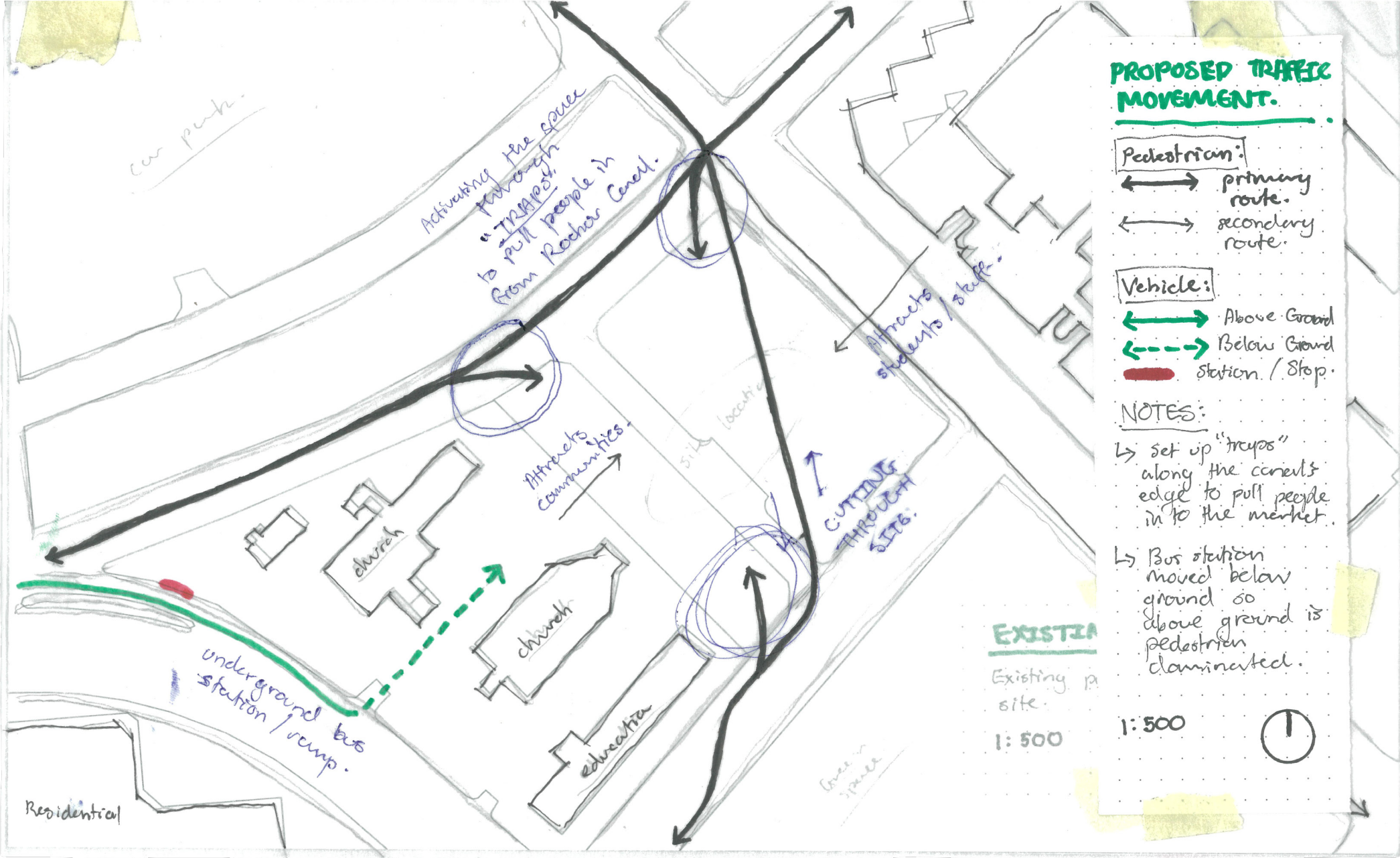


When pedestrians are passing the bus terminal, they walk along Queen and Arab Street to avoid the heavy traffic (fig. 121). Pedestrians also gravitate towards the covered walkways that runs around the site. This protects them from Singapore's climatic conditions which the bus terminal fails to do so. Therefore, the bus terminal lacks in establishment, as well as pulling pedestrians into site.



For the preliminary design, it will focus on connecting the space to its surrounding environment and programmes (fig. 122). The existing traffic movement was modified to allow the site to be more open and pedestrian orientated. This was achieved by redirecting the bus terminal and vehicle movement below ground.

The pedestrian movement was then modified to encourage people to cut through site. This is supported by 'traps' set around the main entrances to pull pedestrians in. 'Traps' consist of programmes and architectural gestures that entices pedestrians to stop and deviate into the space. Therefore, turning the site into a destination for the community, as well as improving the relationship between the site and its context.

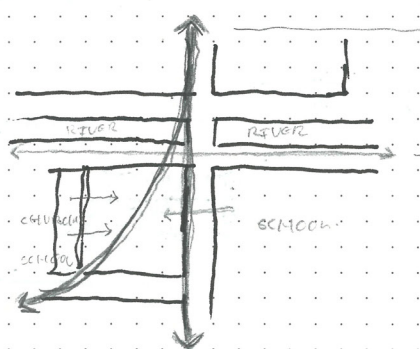


The beginning of the architectural form was explored through the experimentation of various levels (fig. 123) - by sketching bridges and ramps that casts over the site. This creates a sense of verticality where pedestrian and vehicle movements are separated. Pedestrians have an opportunity to look down on to the market stalls while using the walkway. This creates a subconscious sense of exposure to the trading taking place.

CONNECT.

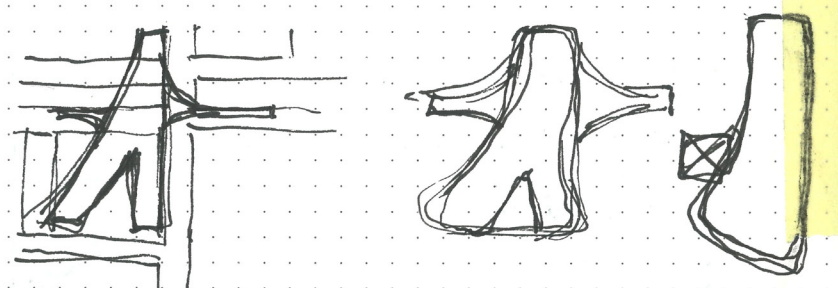
↳ connect the space with its context.

- Provides more accessibility
- More movement within site.

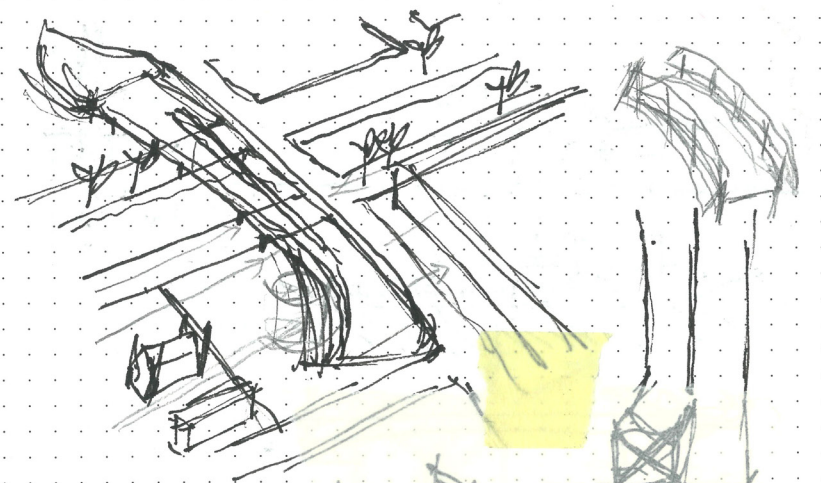
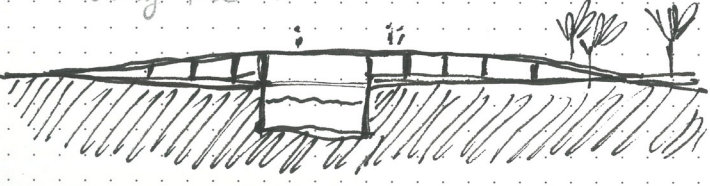


main connection/routes between the two stations / areas

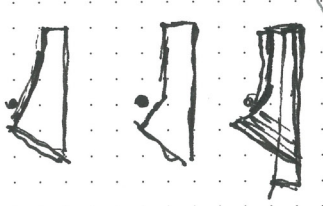
secondary connections/routes between / from the different elements



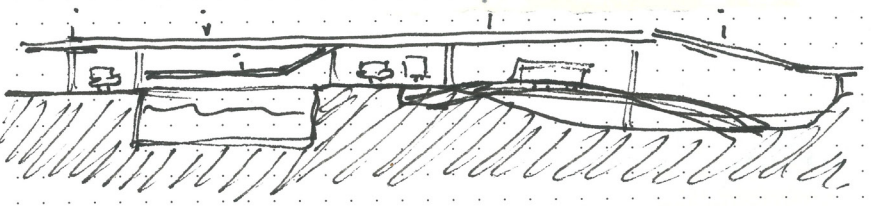
continuity from the existing park along the river



concrete railings too modern?



this structural system create physical barriers that may segregate spaces



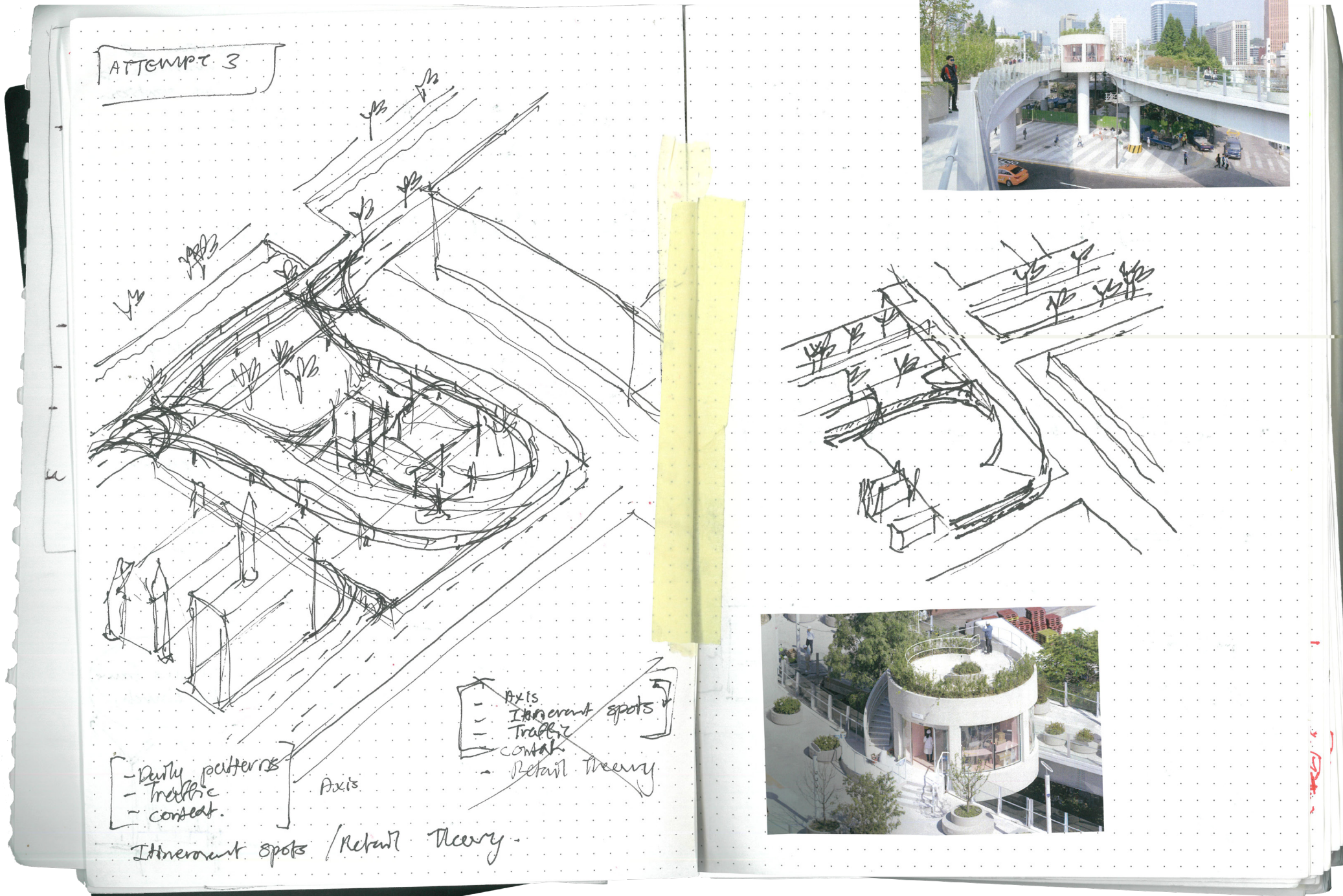
Precedent (right):

Seoullo 7017 Skygarden, Seoul, South Korea
MVRDV (2017)

The pedestrian walkway was inspired by the Seoullo 7017 Skygarden in South Korea (fig. 124). What use to be an overpass for a highway, MVRDV transformed it into a newly pedestrianised viaduct next to Seoul's main station (MVRDV, 2017). It was considered as the next step towards making Seoul a greener, friendlier and more attractive city, as it introduced nature to the city dwellers (MVRDV, 2017).

Saying that, when the architectural form and concept was implemented in the preliminary design, it was more difficult than anticipated. According to NZTA, "bridges should be accessible to all pedestrians and cyclists - including mobility impaired people who may require ramps" (NZTA, n.d.). These ramps should be incorporated into the approach of the bridge to minimise the slope (NZTA, n.d.). However, due to the limited size of the site, it made the walkway inaccessible for pedestrians. To try and work with the size limitations, staircases were considered in this design process. This caused the walkway to appear longer and more difficult, thus making it less desirable for the pedestrians (fig. 123 - 124).

From having a pedestrian walkway, undesirable spots are created on the ground - directly under the bridge and staircases. With size limitations, this concept does not fully maximise the given space - and is not suitable for this site.

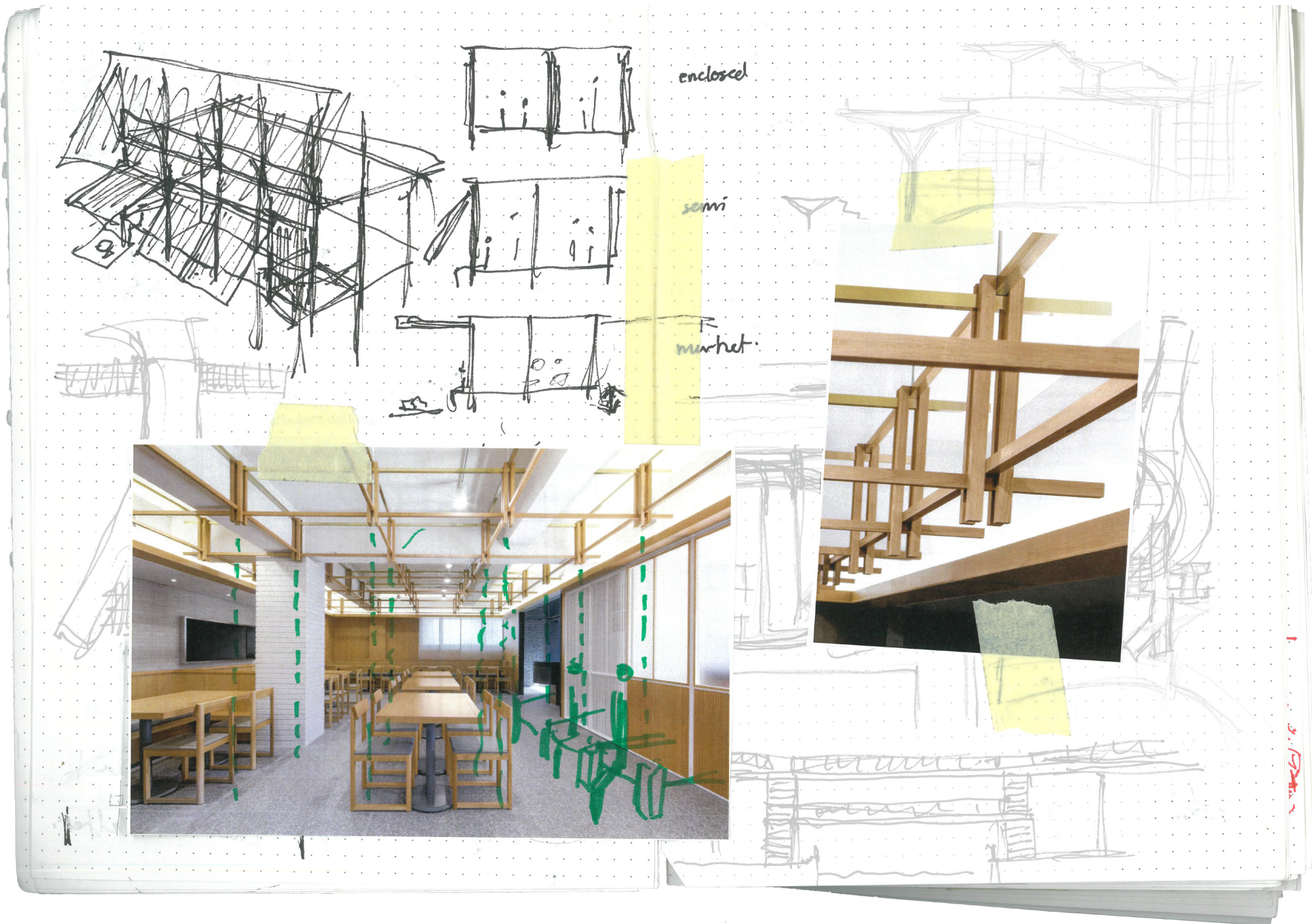


Precedent (right):

Chosunoak The Oak, Seoul, South Korea
Seog Be Seog and MMOA (2017)

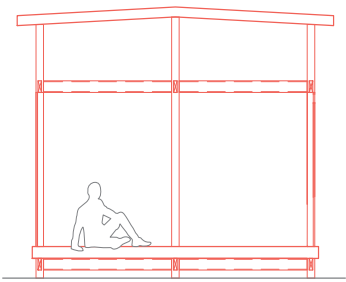
The second concept was inspired by the Chosunoak the Oak in South Korea (fig. 125), where the architects wanted to contain time, people and oak trees in a restaurant (Seog Be Seog and MMOA, 2017). “We ultimately wanted to contain the thought that this is a space where people meet and enjoy culture” (Seog Be Seog and MMOA, 2017).

The ceiling detail of the restaurant stood out as a precedent for this research investigation, as it provided a grid for the furniture to follow. It subconsciously determined and defined spaces through the suspended grid - while still preserving the restaurant’s history and characteristics. This concept could be implemented in the preliminary design, as the framework appears to be flexible and open to change (fig. 125).



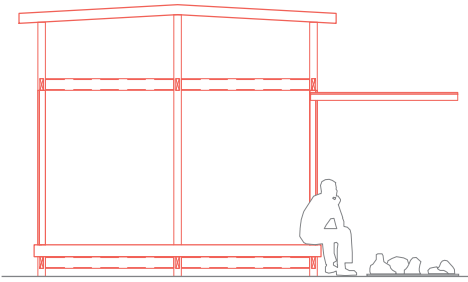
A framework was initiated in the preliminary design to accommodate for the market's fluctuation and Rochor community's daily patterns. Like the Chosunoak the Oak (fig. 125), it follows a 5m grid system to subconsciously define spaces. The framework on site can host between 29 to 288 individual market stalls. This is made up of various sized stalls to allow for the diversity of the trades and its size requirements (fig. 128).

The basic construction of the framework was inspired by the observations made in the field research (fig. 76 - 90). Majority of the vendors used similar equipment for their stalls - including umbrellas to protect them from the climatic conditions, and stools for them to sit on. This has become a local aesthetic that can interpreted and manipulated into different forms. The finished floor level of the proposed framework was raised 400mm to replicate the height of the stool. Whereas the screens can be used as an internal wall for semi-private spaces (fig. 126), or as an umbrella for the vendors (fig. 127).



Enclosed Space

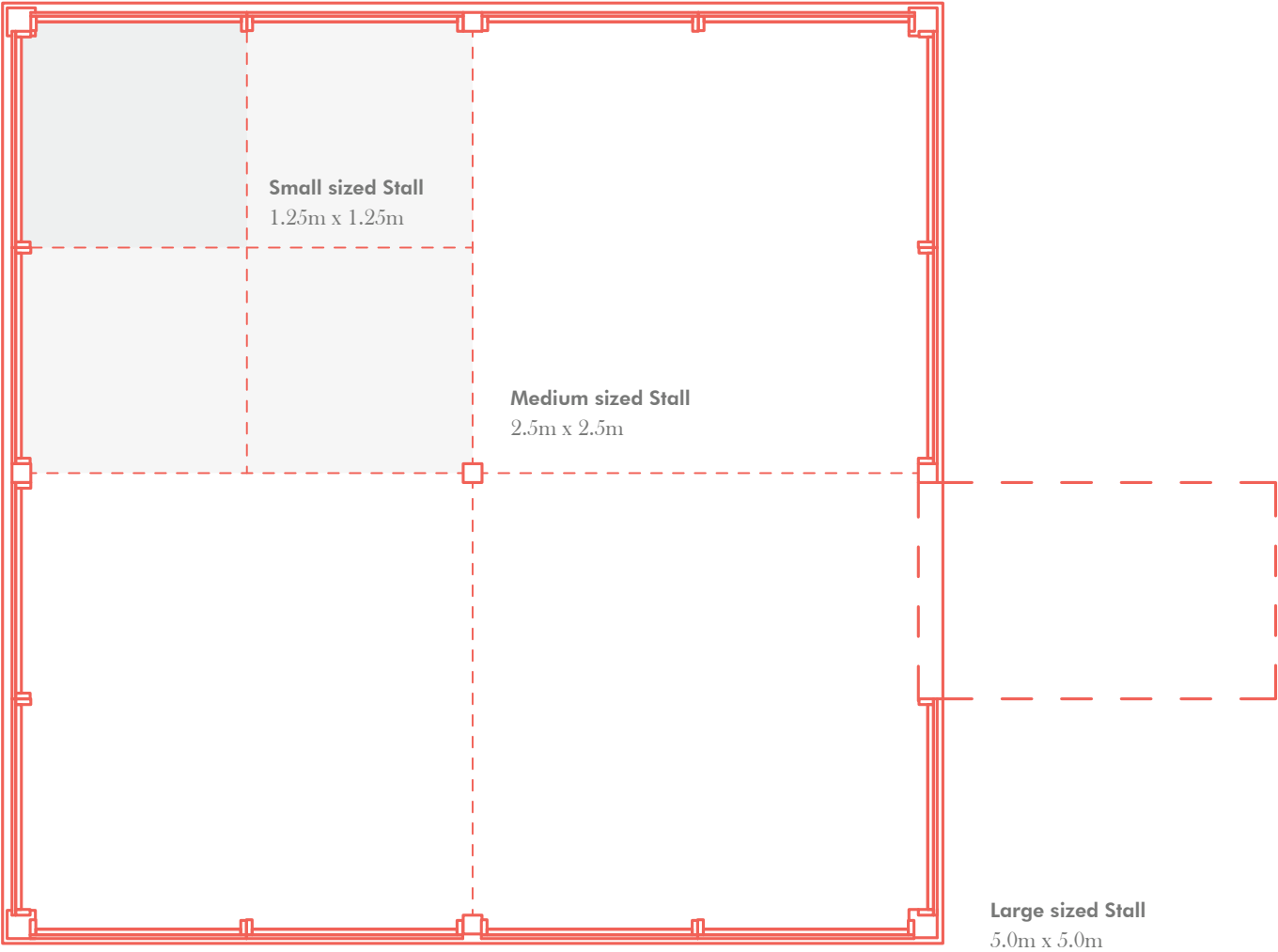
Generating semi-private rooms that can be used by the wider community



Open Space

Generating shelter that can be divided into individual market stalls

Fig. 126 (Top Right): Enclosed Framework Sectional View
Fig. 127 (Bottom Right): Open Framework Sectional View
Fig. 128 (Far Right): Framework's Dimensions



4.2 Design Outcome

Fig. 129: Overview Perspective from Rochor Canal

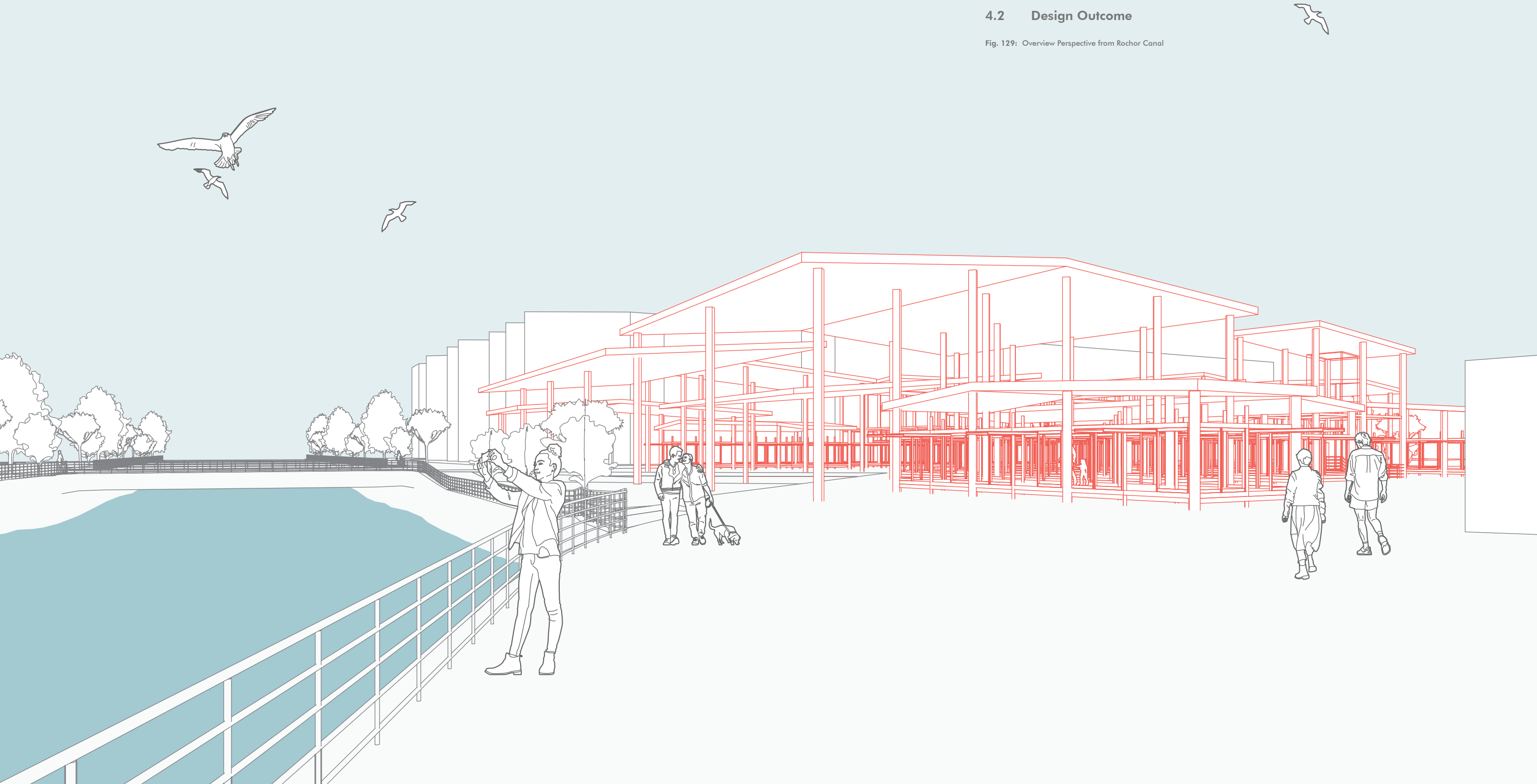
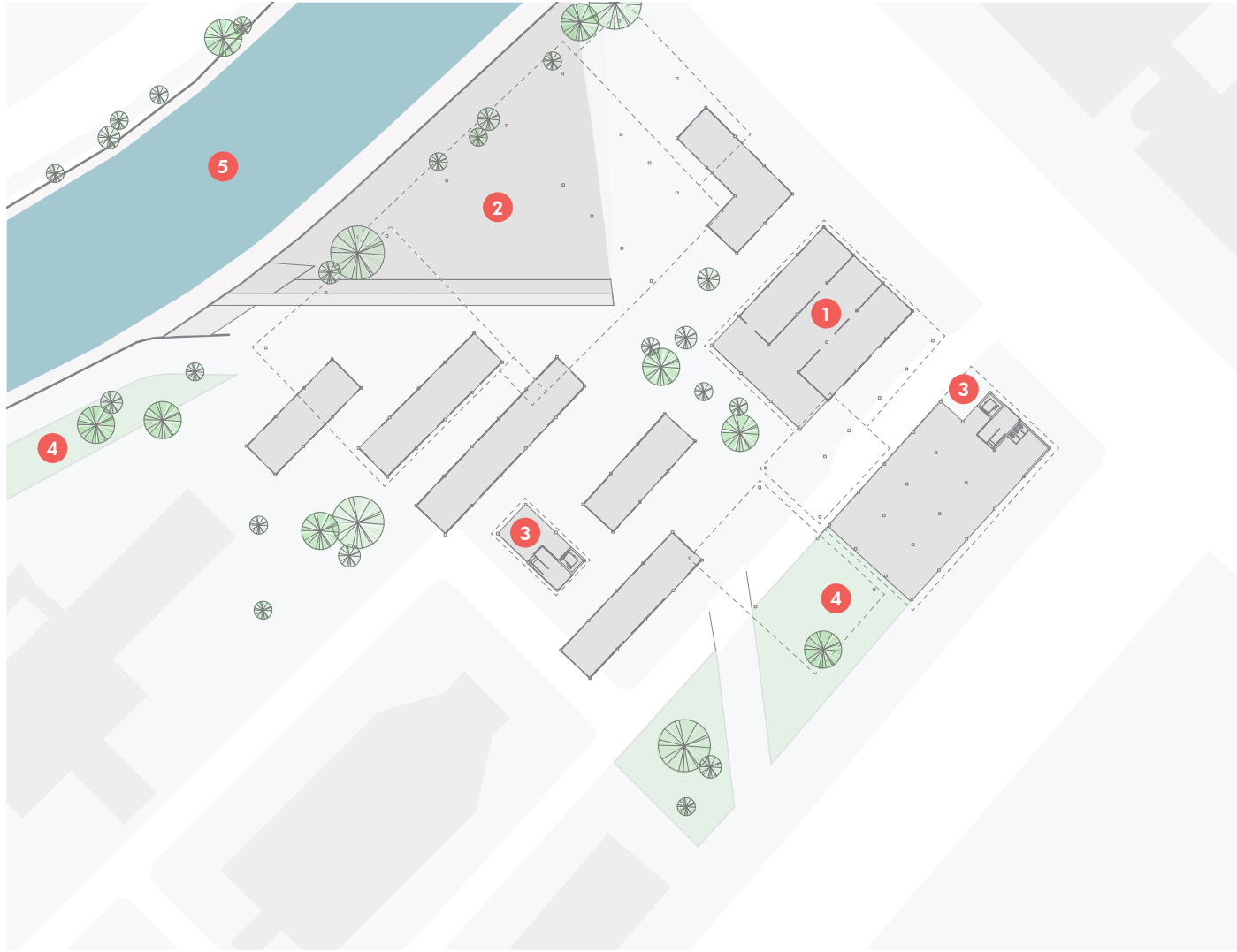




Fig. 130: Proposed Master Plan

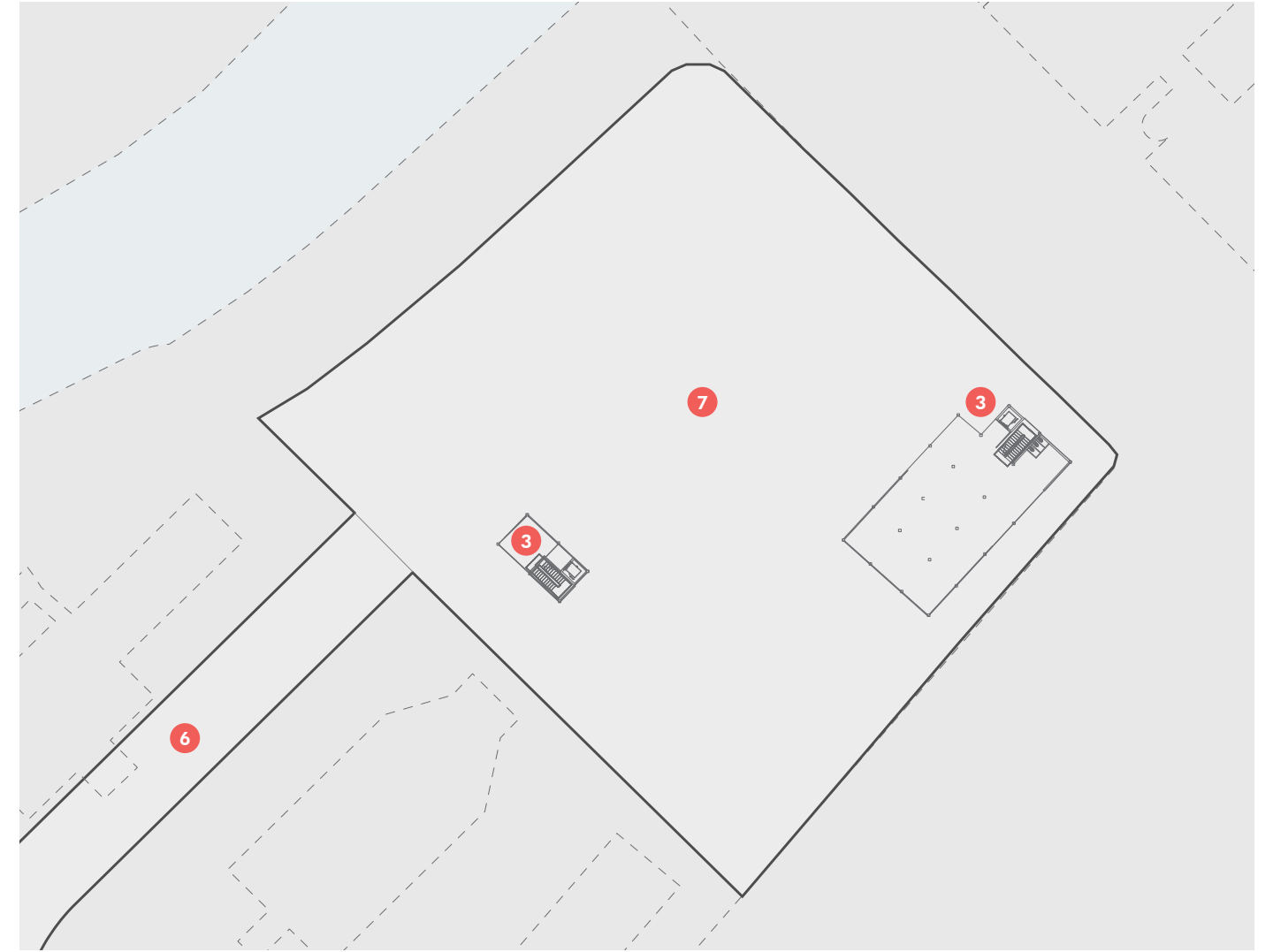


Proposed Above Ground Plan

- 1 Framework Market Stalls
- 2 Courtyard
- 3 Bus Station Core
- 4 Green Space
- 5 Rochor Canal



Fig. 131: Proposed Above Ground Plan



Proposed Below Ground Plan

- 3 Bus Station Core
- 6 Vehicle Ramp
- 7 Bus and Taxi Park

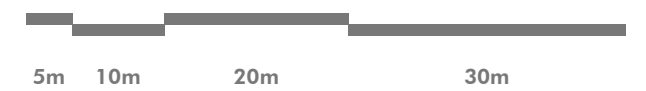


Fig. 132: Proposed Below Ground Plan

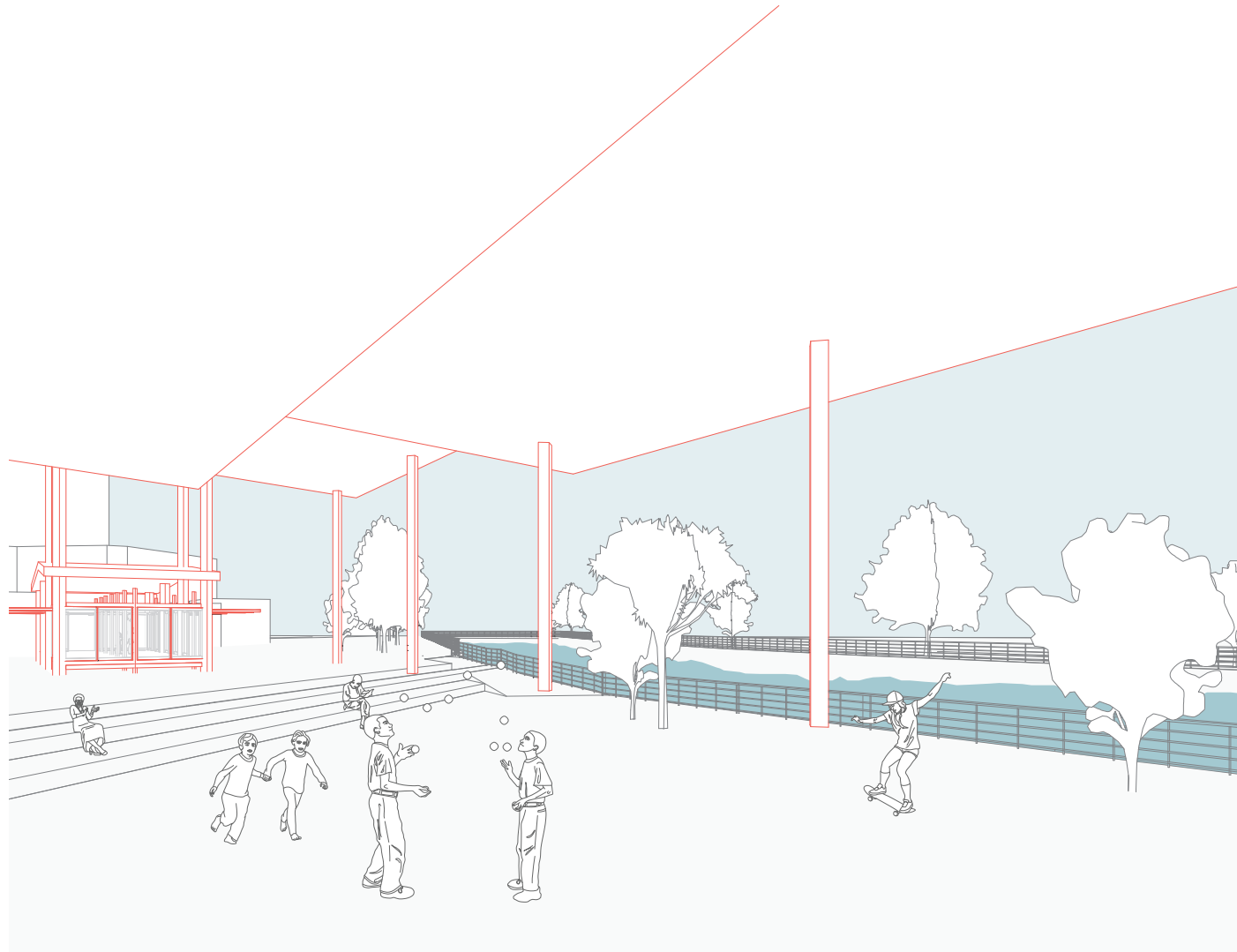


Fig. 133 (Above): Courtyard Perspective

The Courtyard

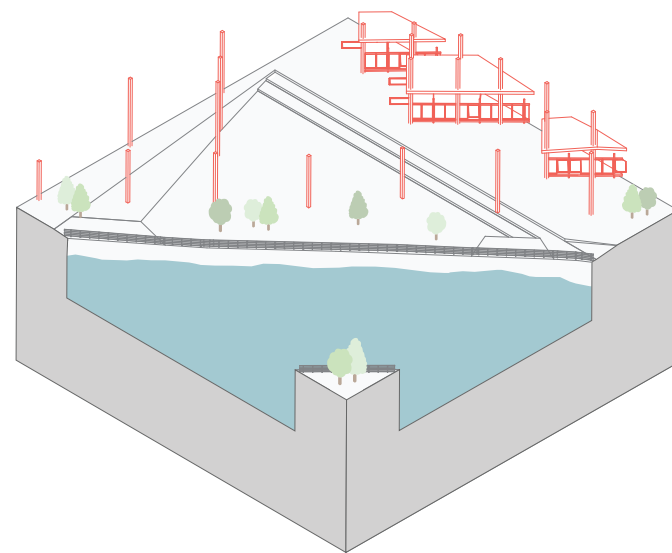
The courtyard is considered as the main ‘trap’ for the preliminary design. Located by the Canal’s edge, it pulls pedestrians in that are passing by the canal and market. It can function as a resting, play and performance area - as well as an extension of the market. To protect the pedestrians from Singapore’s climatic conditions, a canopy was designed to cover the courtyard. This allows multiple programmes to take place regardless of the weather.



Fig. 134 (Above): Framework Proposal

The Framework

The framework was established in the preliminary design to accommodate for both the vendors and shoppers. It can function as semi-private meeting and educational spaces - as well as individual market stalls. This targets Rochor community as a whole to avoid alienation and isolation. The transparency of the framework encourages people to divert into different areas of the market. This provides an opportunity to be exposed to the various trades that take place.



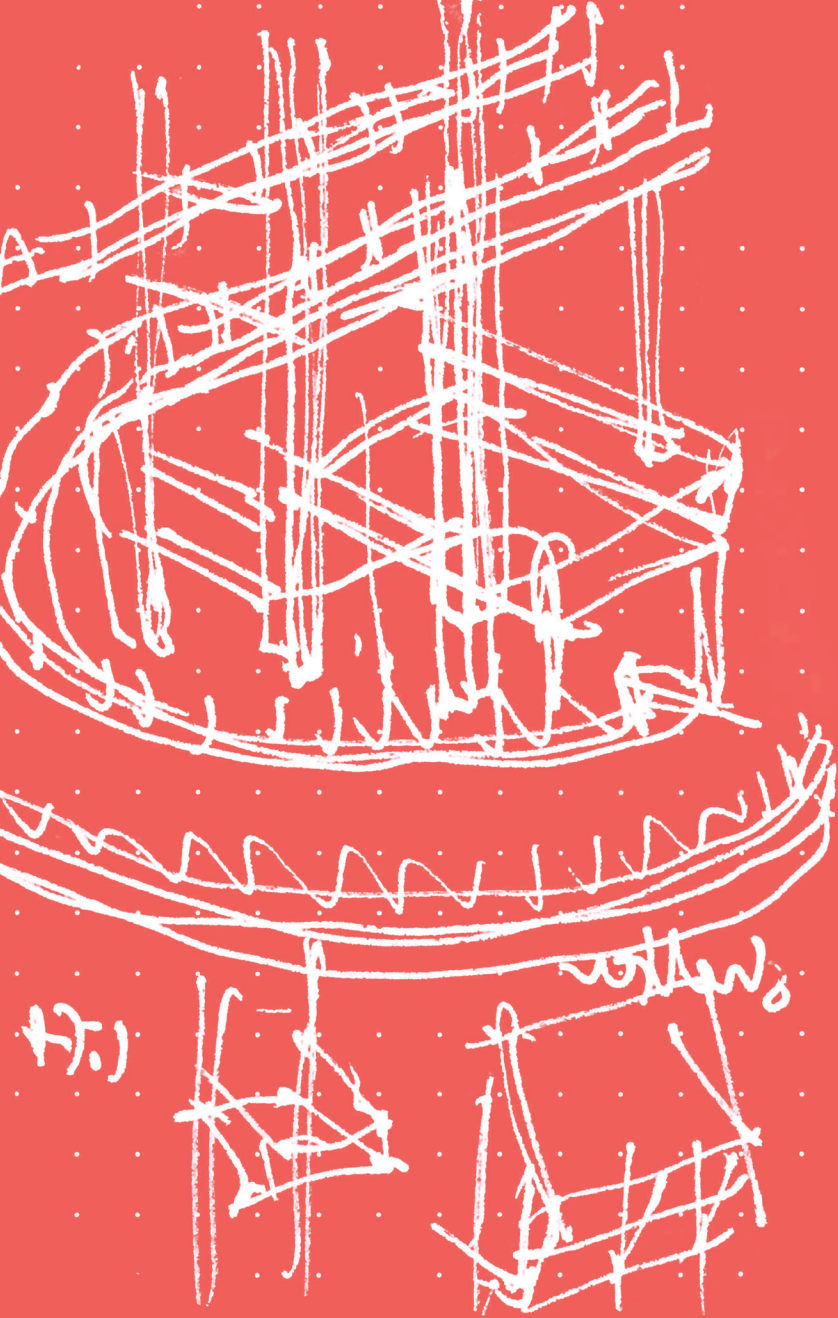
4.3 Design Reflection

The preliminary design began to investigate how architecture can accommodate for the Rochor community. Different aspects were explored to experiment what was and was not successful. Based on the feedback received in the August 2017 design review, as well as a critical self-reflection, aspects of the design need to be developed further.

The canopy is underdeveloped in the preliminary design. It lacks in form exploration and fails to protect majority of the site from Singapore's climatic conditions. The bus station below ground was also underdeveloped in this phase, as architectural components to define spaces were absent.

The scale of the urban context throughout the preliminary design was minimal. This made it difficult for the reviewers to understand how and why the vehicles and pedestrians are moving the way that they do. The proposed pedestrian movement was peculiar and it was questioned whether it was well integrated with the rest of the urban scheme.

Due to the 5m grid system, the above ground floor plan for the preliminary design was linear and monotonous. Further development of the programme layout is needed to break up the repetition.



CHAPTER FIVE: DEVELOPED DESIGN

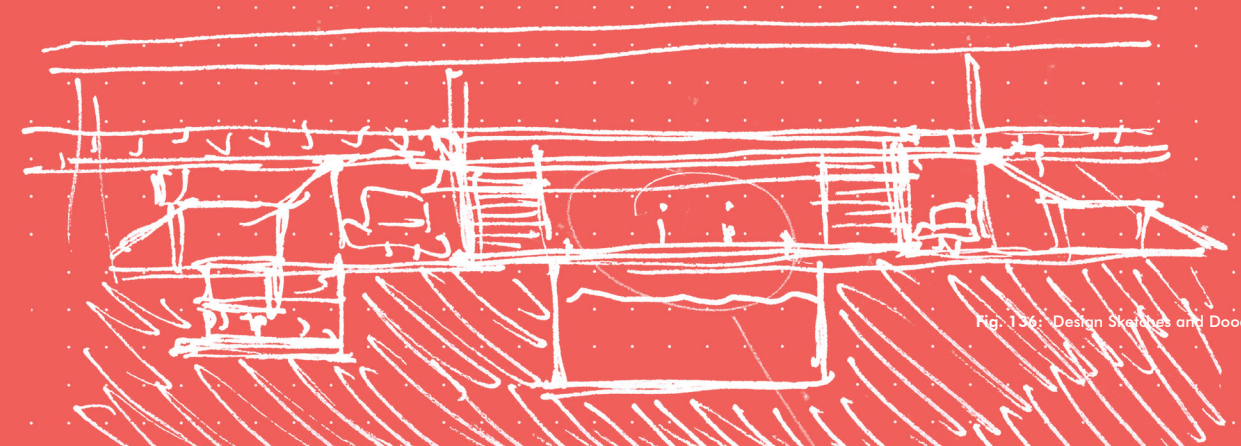
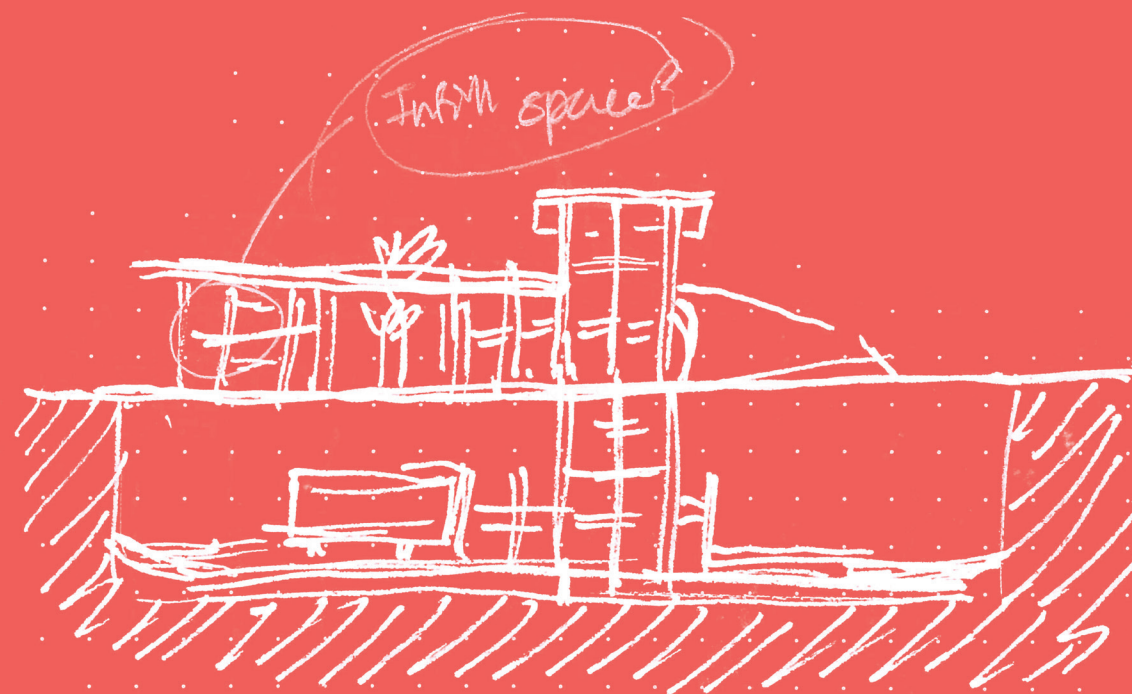


Fig. 136: Design Sketches and Doodles 2.

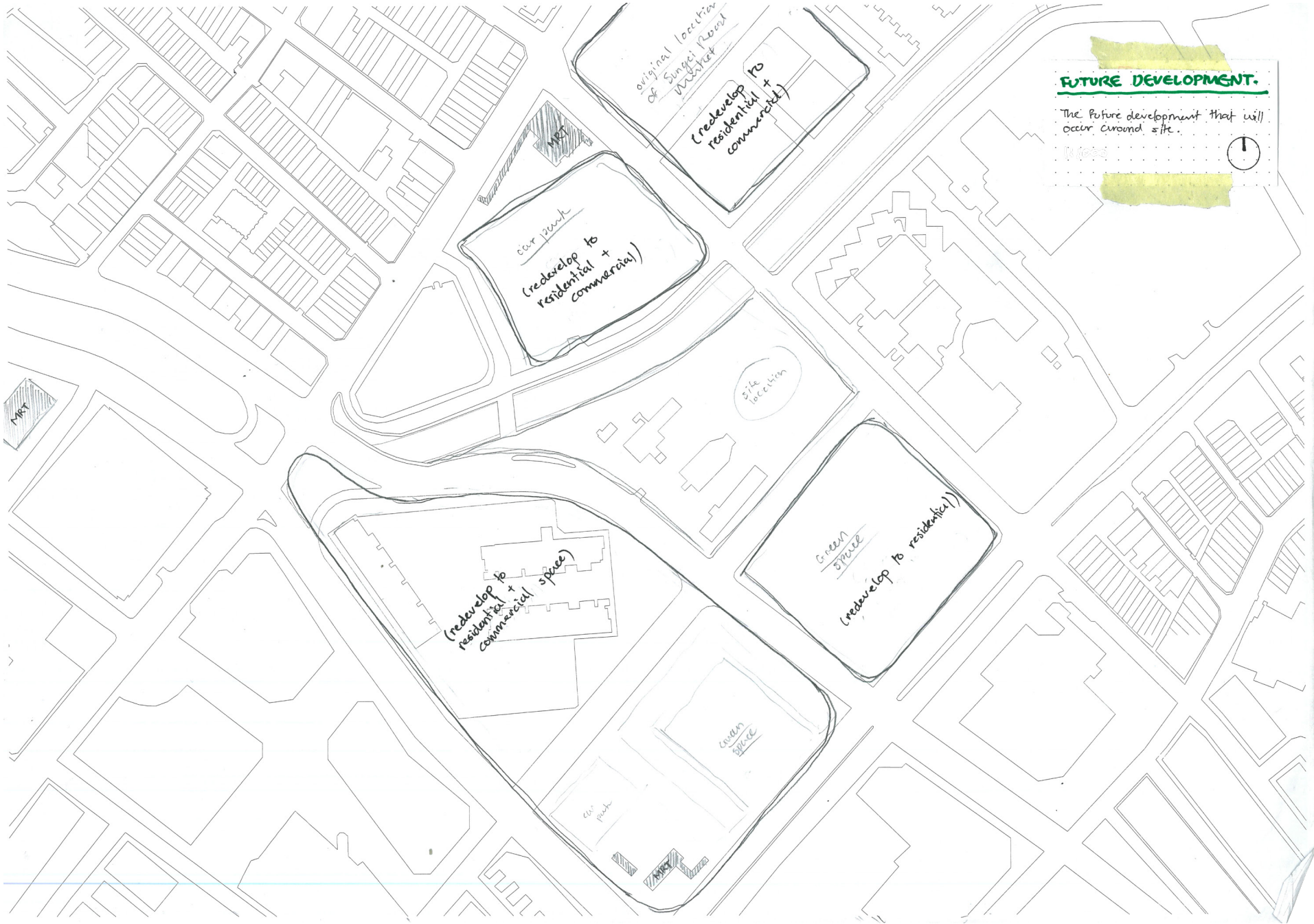
5.1 Design Intentions and Process

The intentions of the developed design are to:

- Revisit the proposed traffic movement so it is integrated with the urban context and planning
- Develop the initial canopy and bus terminal design so it is apparent in the overall scheme
- Refine the proposed framework and programme layout to reduce repetition

Like the preliminary design, this design process will begin through sketches to avoid constraints and limitations. The digital realm will be used to develop and finalise the architectural form for the November 2017 design review.

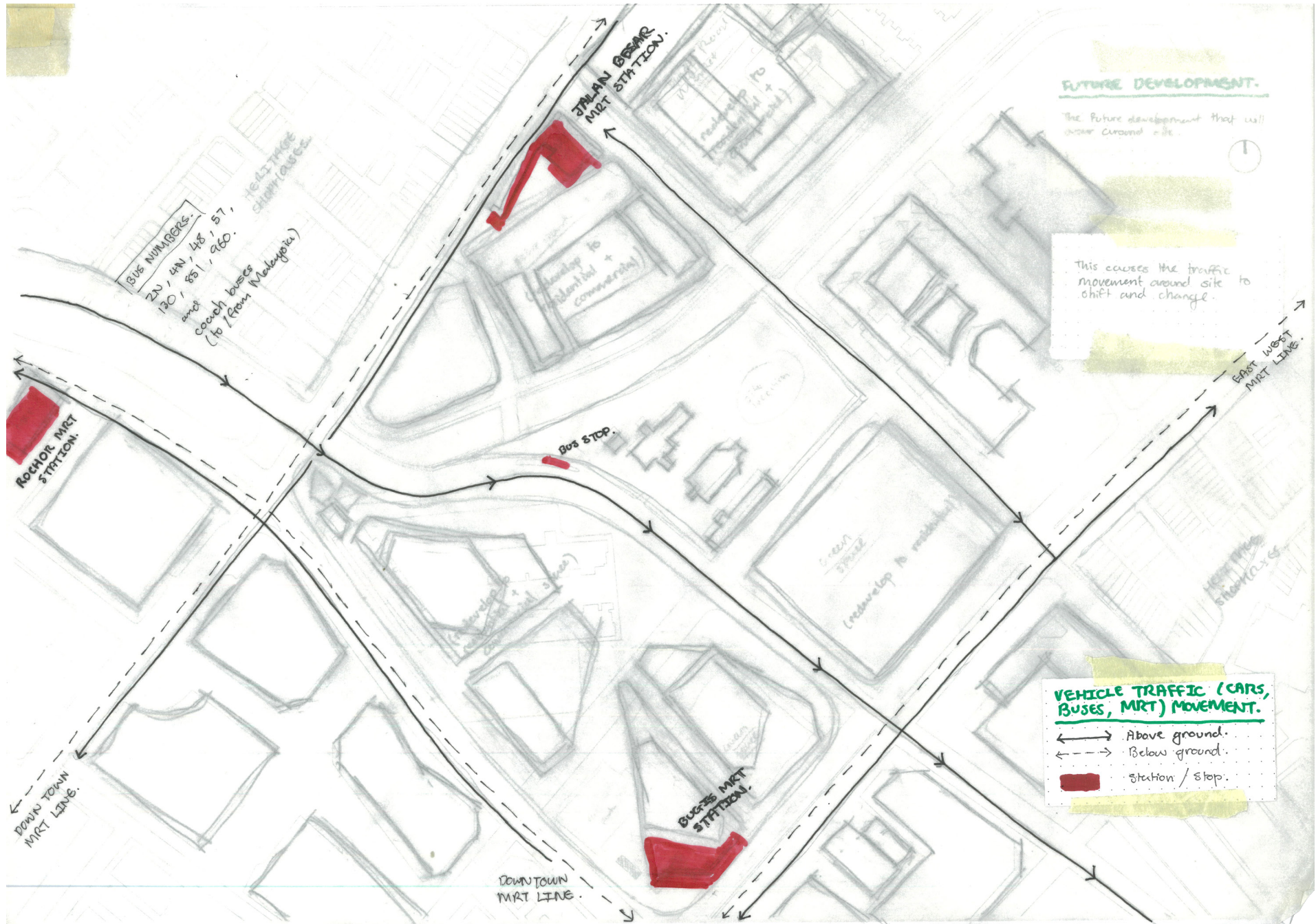
The existing site plan was revisited at larger scale to understand the wider context around site. Notes were made to indicate areas that will be redeveloped in the future (fig. 137).



From looking at Singapore's future master plan and the development occurring around Rochor, it is evident that the existing traffic movement will be affected (fig. 138). Queen Street will be halved to accommodate more residential and commercial spaces, whereas the remaining streets of the Sungei Road Market will be removed. This makes the initial proposed traffic movement unusable for this research investigation, as it is required to integrate the developed design with the future development of Rochor.



The new vehicle traffic movement will be less affected by future developments, as no major roads will be removed (fig. 139).



However, the pedestrian traffic movement will be heavily affected by future developments, as Queen Street will be halved to accommodate more residential and commercial spaces. This change will encourage new pedestrian traffic movement from the South-West of Rochor (fig. 140).

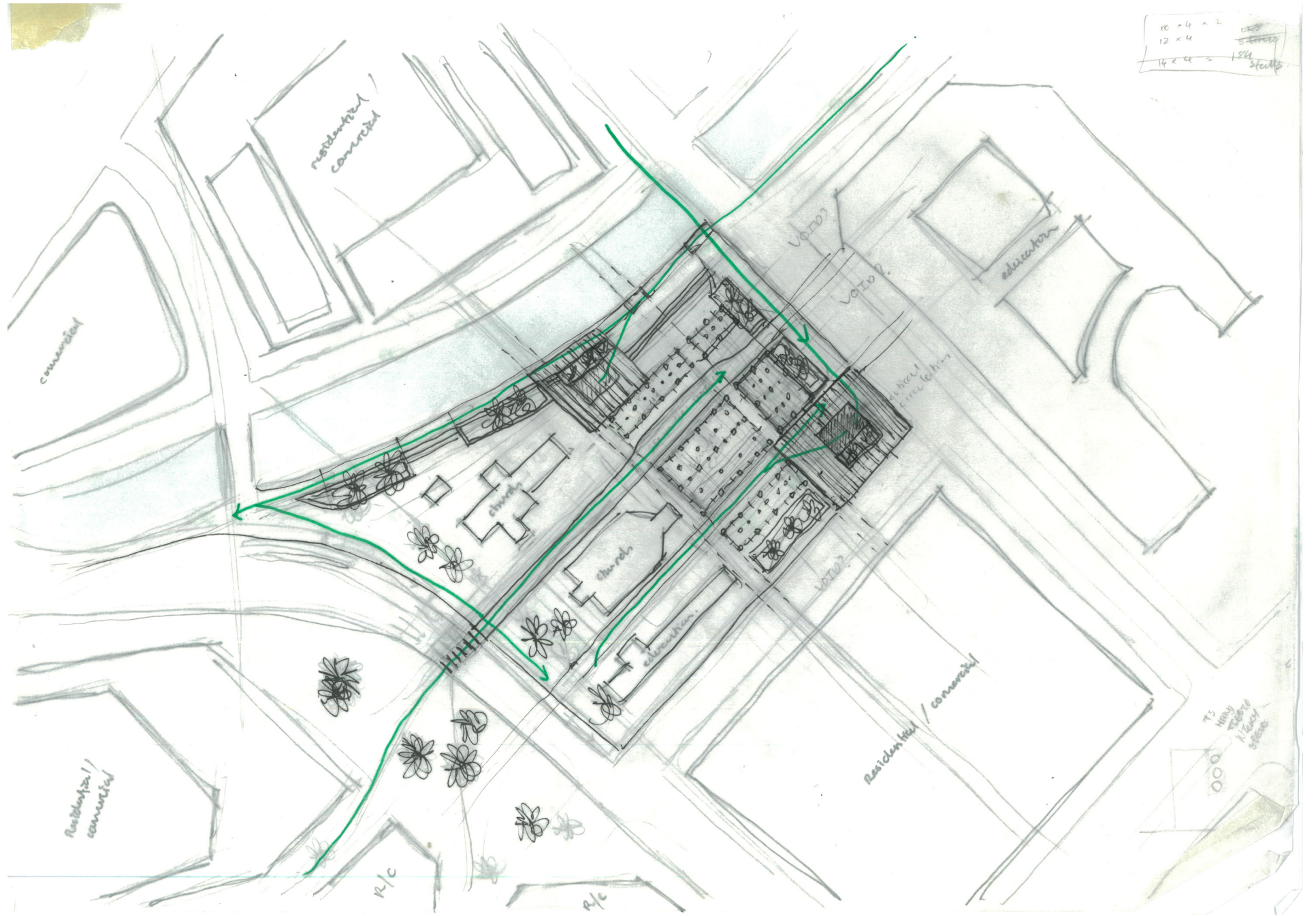


For the developed design, it is still focused on connecting the space to its surrounding environment and programmes. However, from the future development occurring, new opportunities and situations are apparent (fig. 141). The traffic movement and bus terminal will still be redirected below ground, as it will allow the above ground to be more open and pedestrian orientated.

On the South-West of Rochor, there is an existing commercial shared street. This pulls pedestrians down as they head towards the Bugis Mall and MRT Station. With the new residential and commercial development taking place, it will provide an opportunity to extend the commercial shared street. This will encourage pedestrians to gravitate towards the East, which will create more pedestrian movement on site.



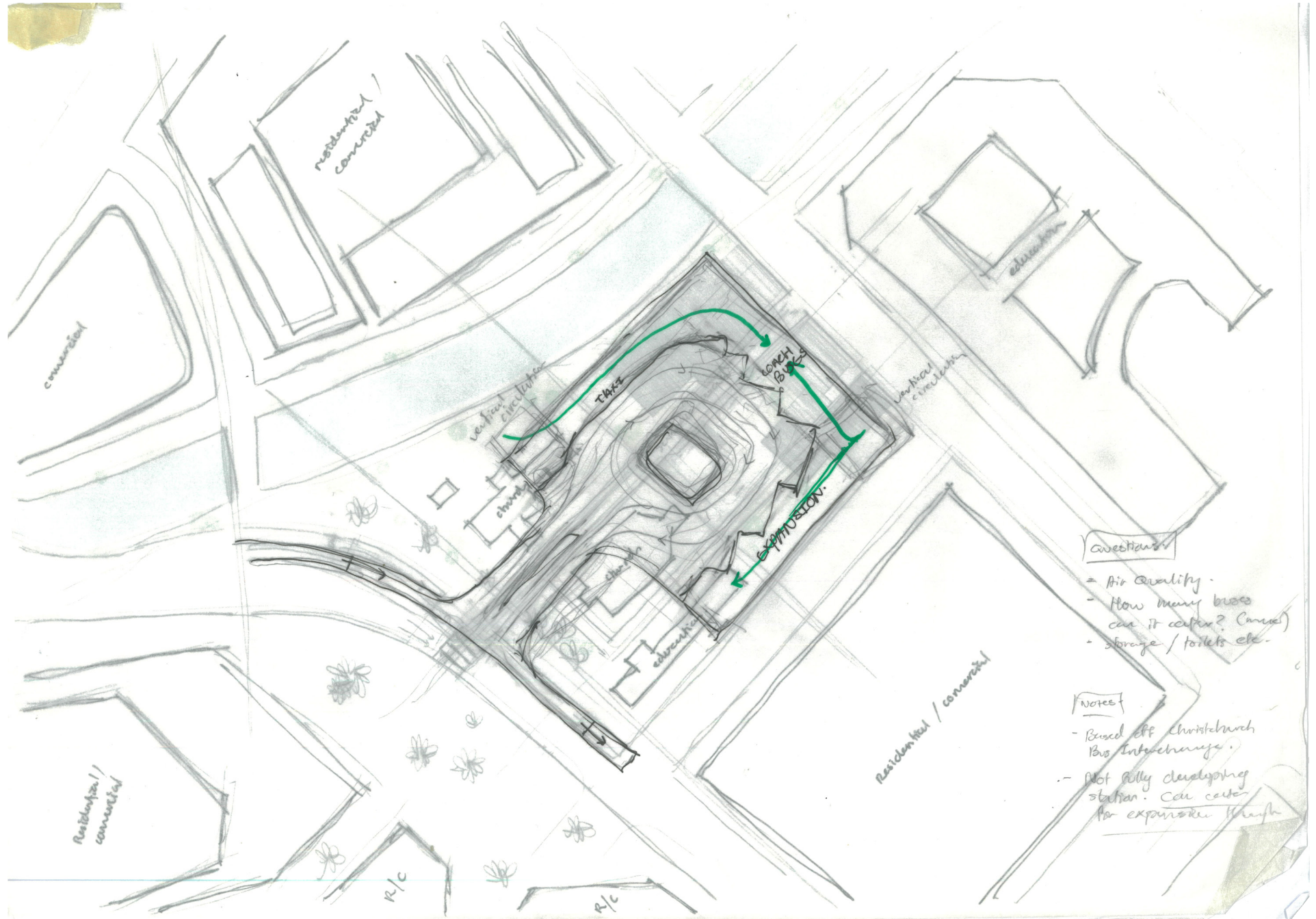
A revised programme layout was attempted to accommodate the dominant horizontal movement occurring on site (fig. 142). Secondary routes were also included to cater the vertical movement of pedestrians walking to and from the Canal. The framework was rearranged to work with the primary and secondary routes. However, this created a linear and monotonous layout which could be developed further.



According to the existing bus timetable, there are 8 buses coming and going every hour. To cater for this, the bus terminal design will require a minimum of 3 bus stops.

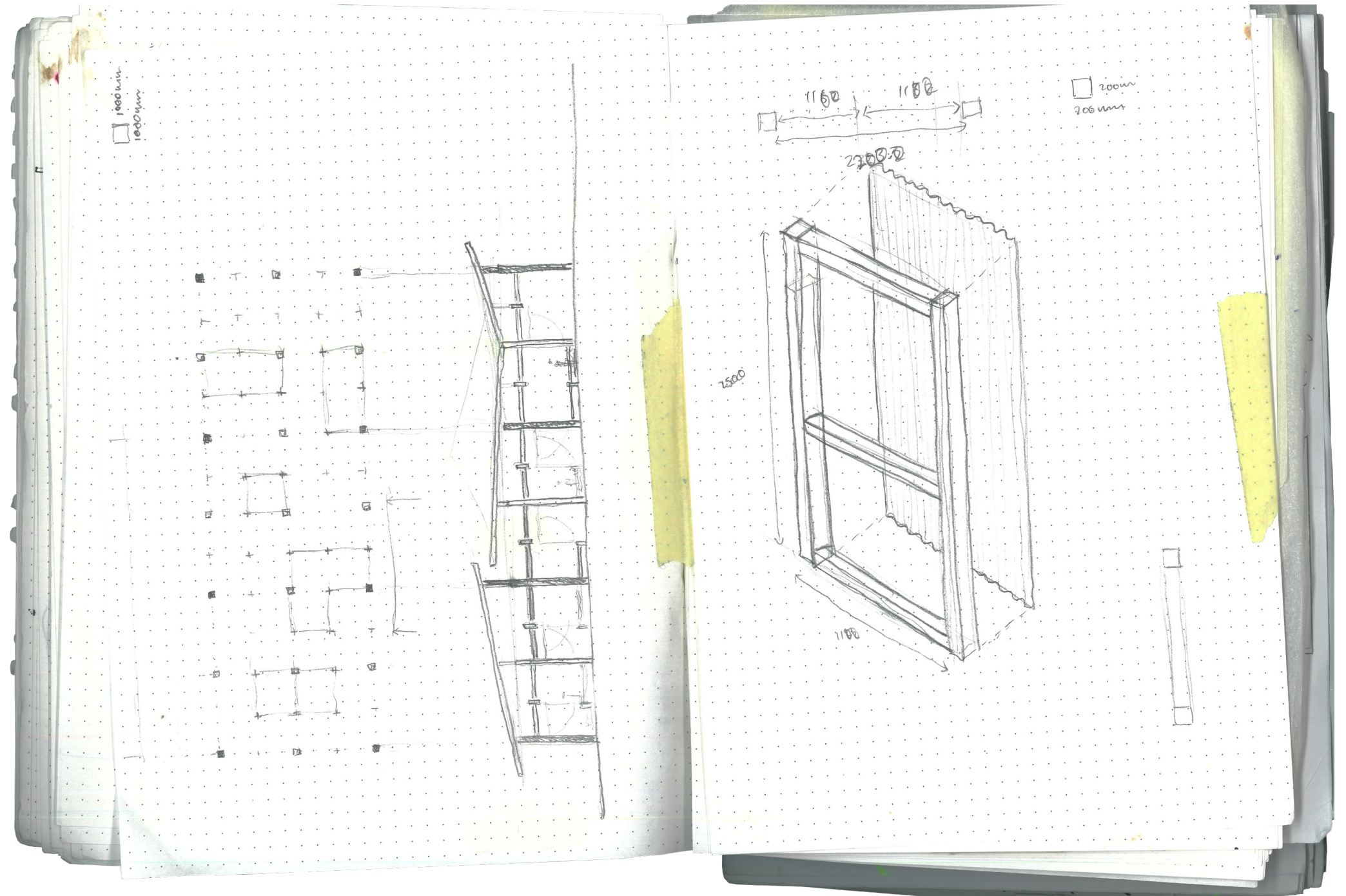
An attempt was made to conceptualise the programme layout below ground, where buses can loop around to pick up and drop off passengers (fig. 143). However, for large vehicles to turn, they demand a minimum turning radius of 6.0m (Land Transport Authority, 2011). With size constraints, this bus route would not maximise the use of space. This also limits the bus terminal for future development and expansions.

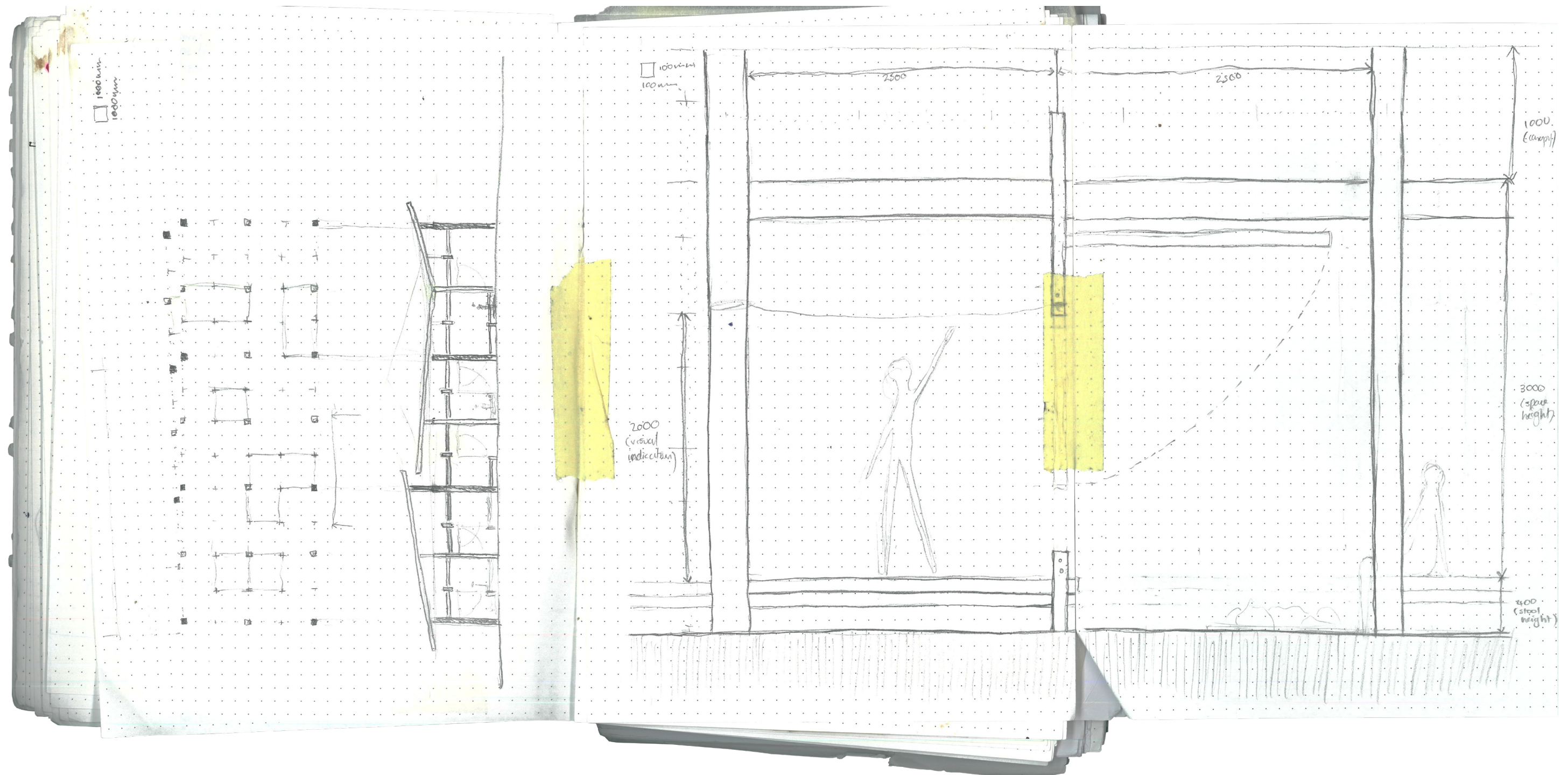
From comparing the initial programme layout (fig. 131 - 132), it is evident that both floor plans lack in a cohesive architectural language. The above ground plan is rigid and linear, whereas the below ground plan appears to be more fluid.



To develop a cohesive architectural language in both above and below ground, the framework was revisited. Initially, the framework followed a 5m grid which created a monotonous repetition (fig. 131). To reduce this, a 2.5m grid was explored in the design process, where the spaces of the framework can be offset - breaking up the repetition while staying true to a grid structure (fig. 144).

The developed framework will be implemented in both above and below ground to represent the same architectural language. This will create consistency and cohesiveness throughout the site.





Based on the developed framework, the programme layout for above and below ground were revised (fig. 146 - 147). The commercial shared street was extended to allow more pedestrian movement from the South-West of Rochor. This shared street caters for the primary horizontal movement occurring in the middle of the site.

The horizontal movement is supported by secondary routes that accommodate for the vertical flow. The framework was placed in specific areas to avoid obstructing these pathways. From doing this, the secondary routes perform as view shafts to the canal - pulling pedestrians into the market.

One of the pedestrian access to the bus terminal was relocated, as it was initially placed in the middle of site (fig. 131). With the newly proposed pedestrian movement, it is more ideal to have the entrances in areas that have easy access and large horizontal movement. The pedestrian access now lies opposite each other on the edges of the site, where both horizontal and vertical movements intersect (fig. 146); thus accommodating a larger pedestrian surface area.



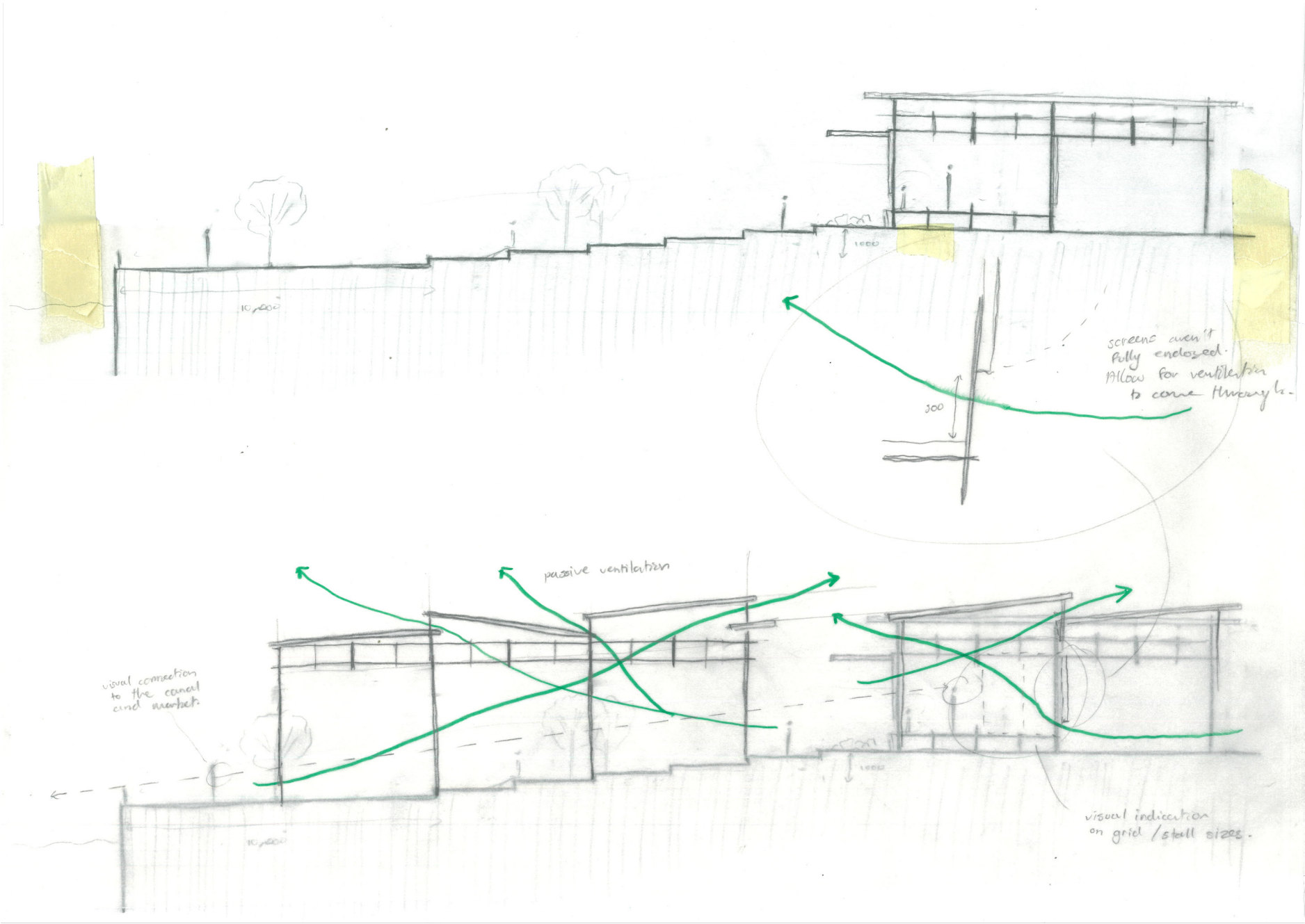
When pedestrians enter the bus terminal, they are guided towards the middle, where the information desk and ticket centre are located. This is supported by the developed framework which is also implemented above ground (fig. 146) - creating opportunities to have kiosks and gathering spots for vendors and the wider community (fig. 147).

Initially, there was a limited quantity of bus stops in the conceptual design, which would constrain the terminal from future development and expansions. When the below ground layout was revised, this was increased to a total of six bus stops. This provides an opportunity for the bus terminal to host public transport buses in the future.



In the conceptual design, the courtyard was originally triangular to work with the diagonal pathway of pedestrian movements (fig. 131). This caused the area to break with the grid - creating a peculiar space that does not flow with its surroundings. To develop a stronger relationship with Rochor Canal, the courtyard was revisited. Gradual steps were added to allow pedestrians to look down to the canal, as well as up to the market - creating a visual connection between the two (fig. 148). The steps could also be used as a seating and resting area, which encourages the community to gather.

The original screens of the framework finished at floor level, which raised the issue of pedestrians overheating. To mitigate this, the screens and roofs of the framework were raised and angled - facilitating cross ventilation throughout the site.

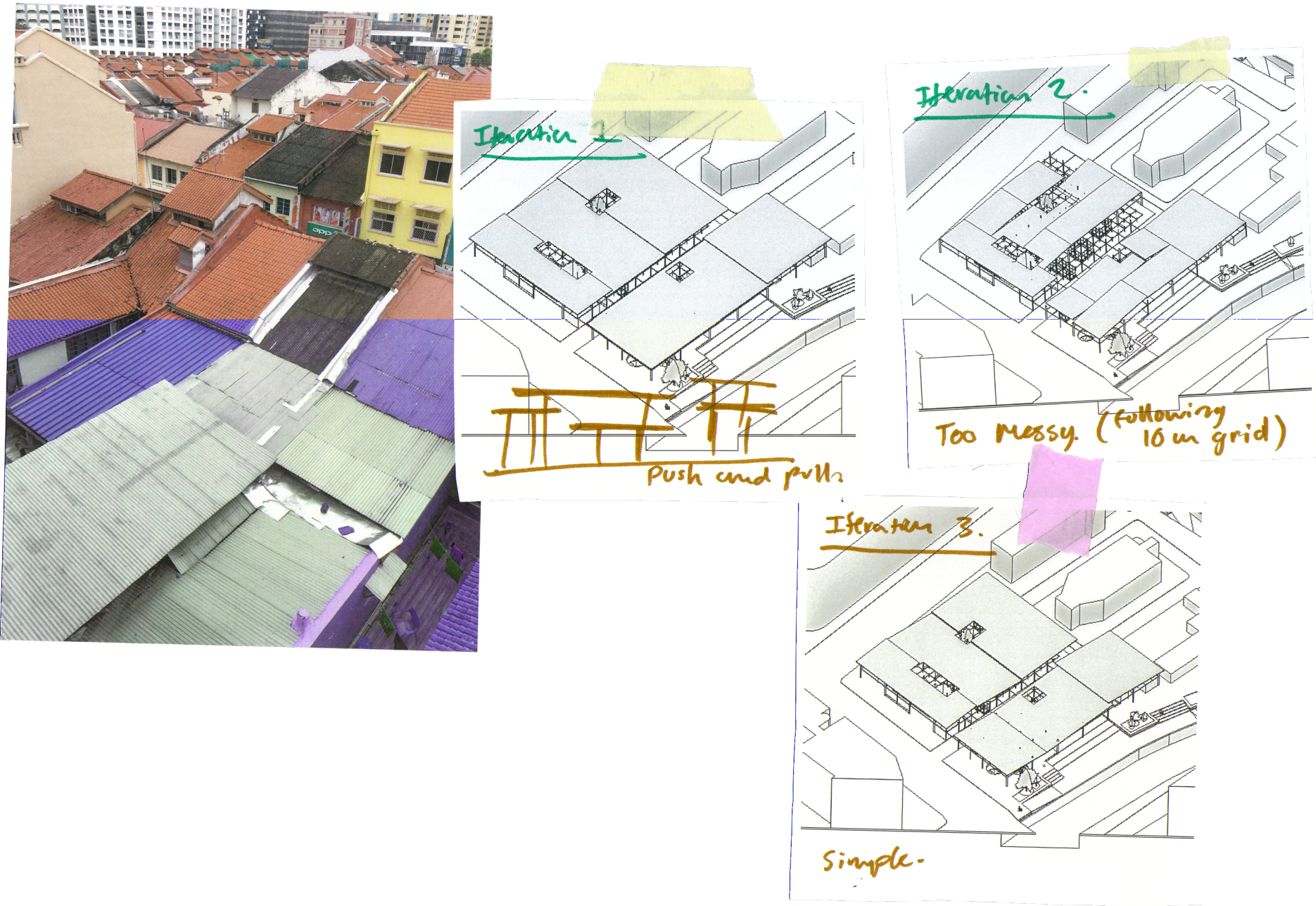


Rochor is surrounded by various historic shophouses that once hosted the majority of Singapore's local trades. Due to the rapid economic growth, this was slowly phased out. For this research investigation, the canopy design is inspired by the shophouses in the area. It explores how the roof pitch can be manipulated, to reflect the trading history in a contemporary manner (fig. 149). This experimentation began in the preliminary design phase - where it failed to protect majority of the site from Singapore's climatic conditions (fig. 40 - 47). For this phase, the form will be further developed and explored to improve these conditions.

Iteration One:
Large roof panels were pushed and pulled to create various levels. Voids were added to let more natural light in.

Iteration Two:
The roof panels were sliced to imitate the size of the shophouses. The canopies above the bus terminal were kept the same to reflect the different programmes underneath. More voids were added to let natural light in. This canopy appears to be overwhelming and disordered.

Iteration Three:
The canopy was simplified back to iteration one (fig. 149). Various roof falls were added to reflect the differences between the shophouses.



Iteration Four:

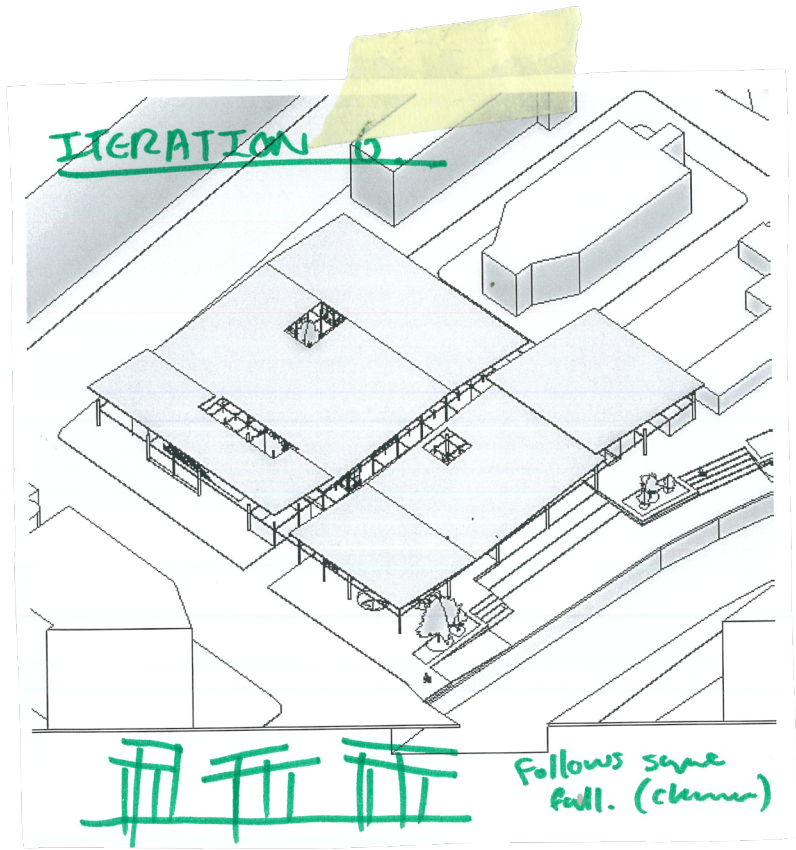
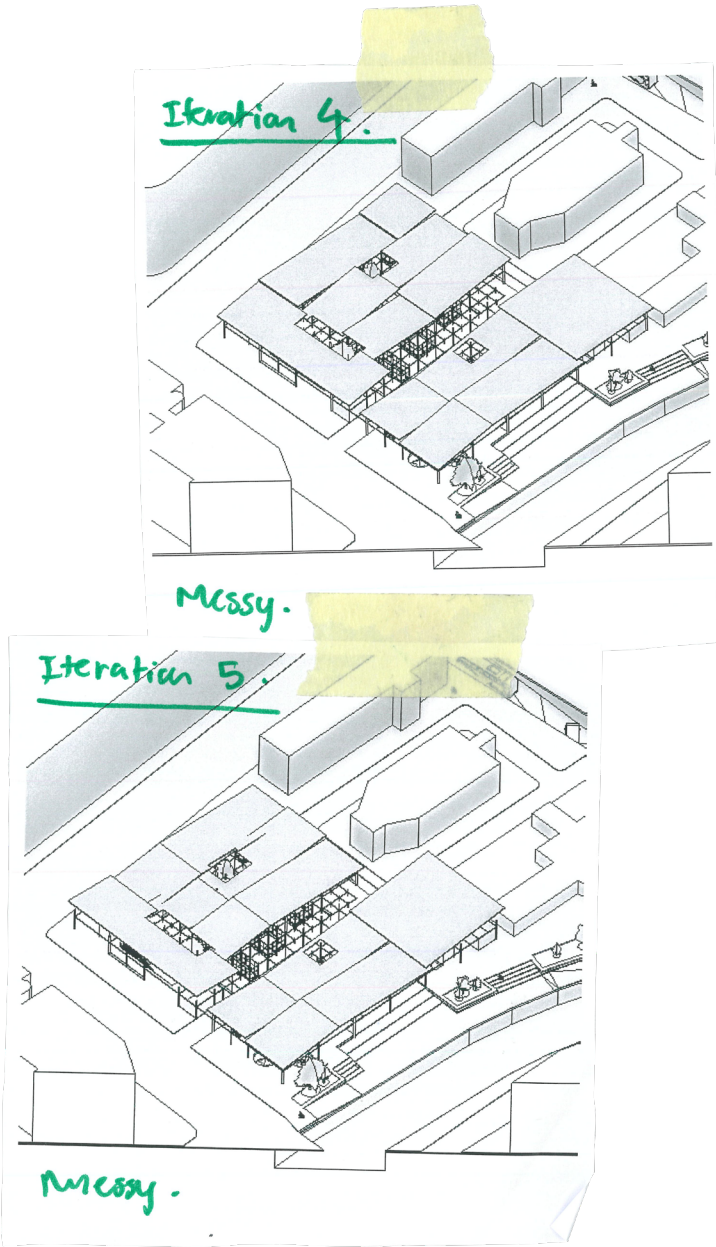
The slices were introduced back to the canopy in a simplified manner (fig. 150).

Iteration Five:

Several iterations were made to experiment with the different roof falls and placements. However, the canopy still appeared disorganised and out of place - clashing with the framework underneath.

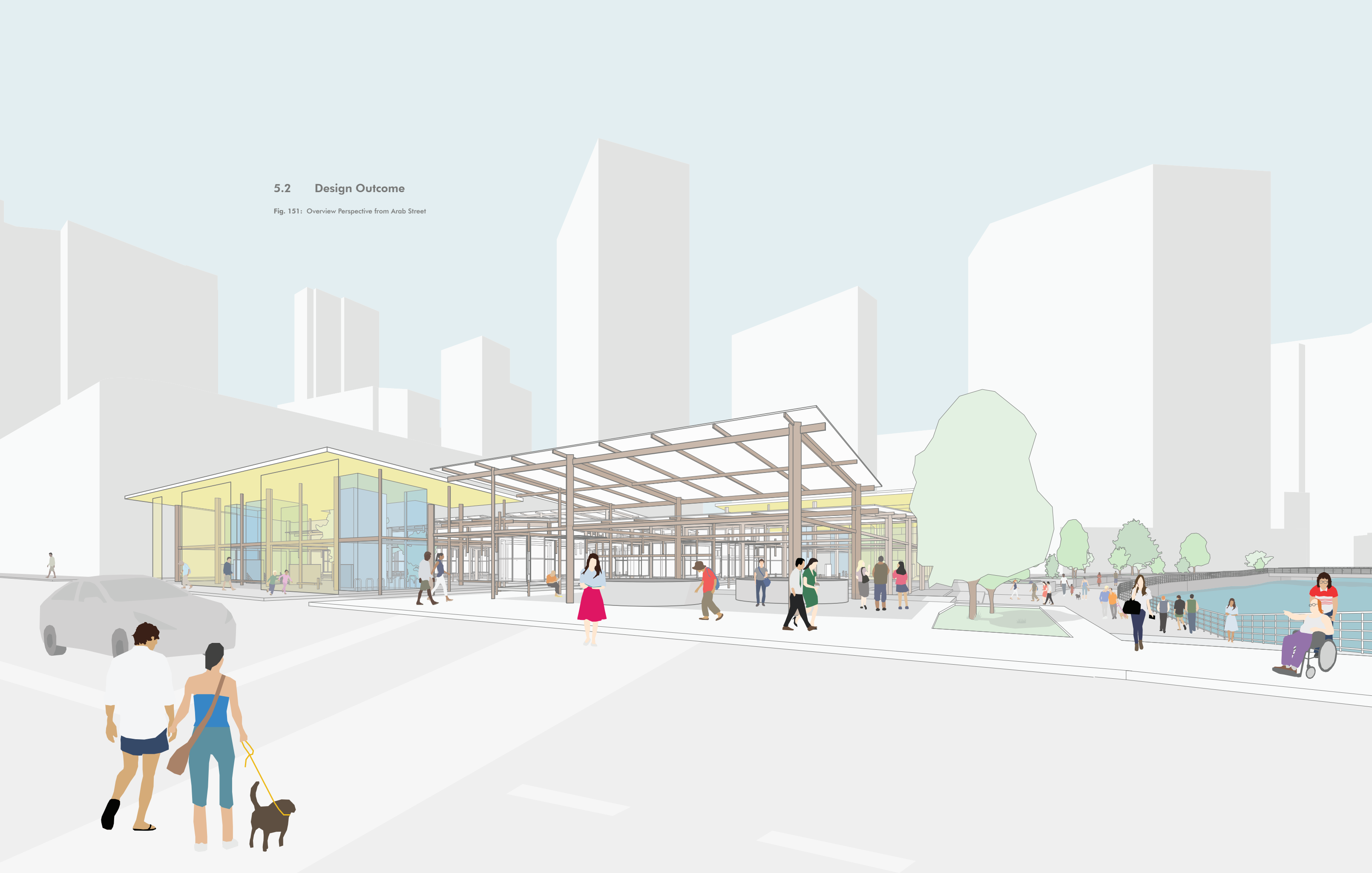
Iteration Six:

The canopy returned to iteration three (fig. 149) - where the roof falls were altered to allow each roof panel to be the same as the one adjacent. This creates a more cohesive canopy design that does not clash with the framework and its surroundings.



5.2 Design Outcome

Fig. 151: Overview Perspective from Arab Street



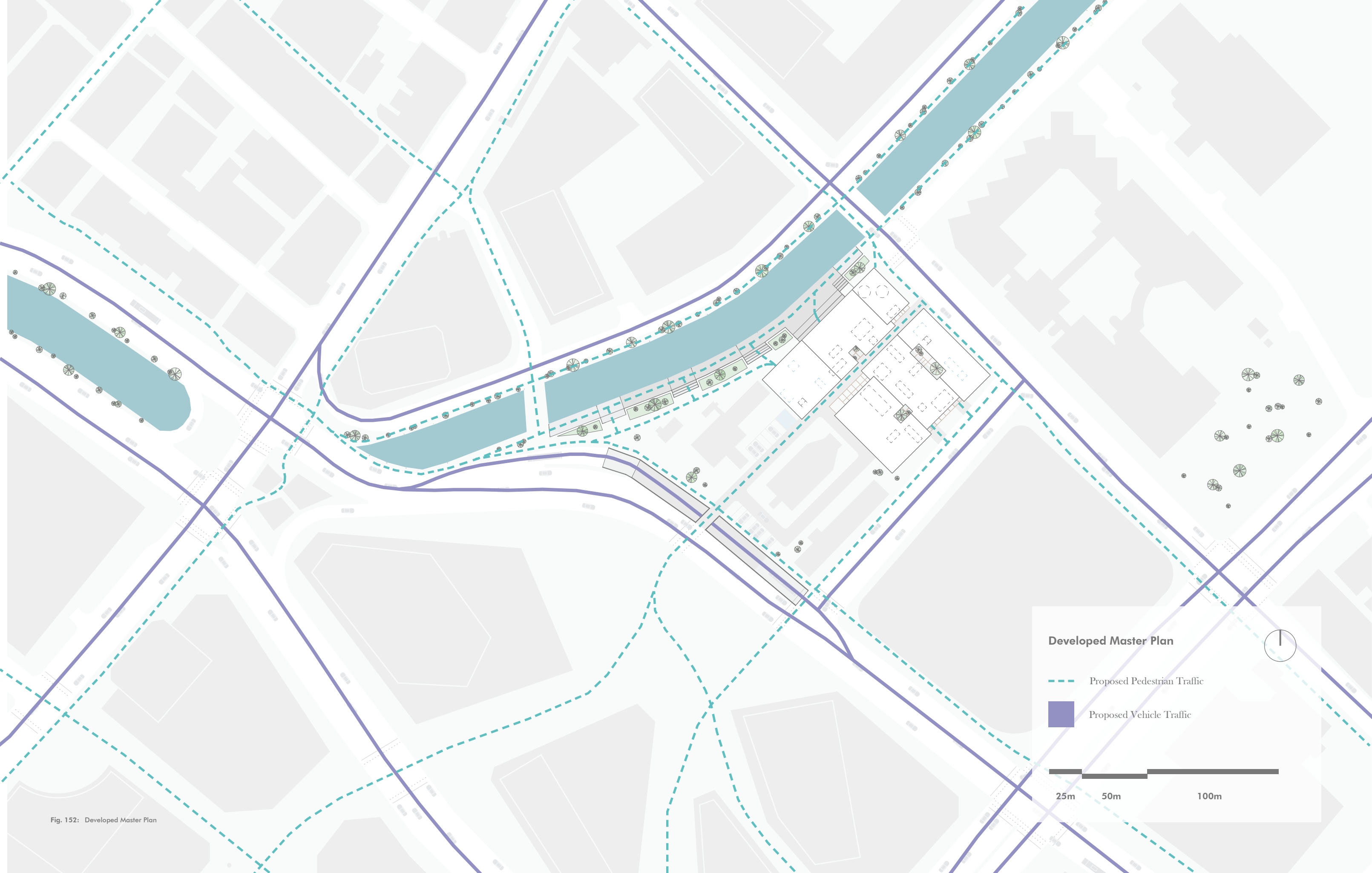


Fig. 152: Developed Master Plan



Developed Above Ground Plan

- 1 Flexible Framework
- 2 Courtyard
- 3 Hawker Centre
- 4 East Bus Station Entrance
- 5 West Bus Station Entrance
- 6 Taxi Parking Area
- 7 Vehicle Ramp
- 8 Our Lady of Lourdes Church
- 9 Auston Institute of Management
- 10 Green Space
- 11 Rochor Canal



Fig. 153: Developed Above Ground Plan 135

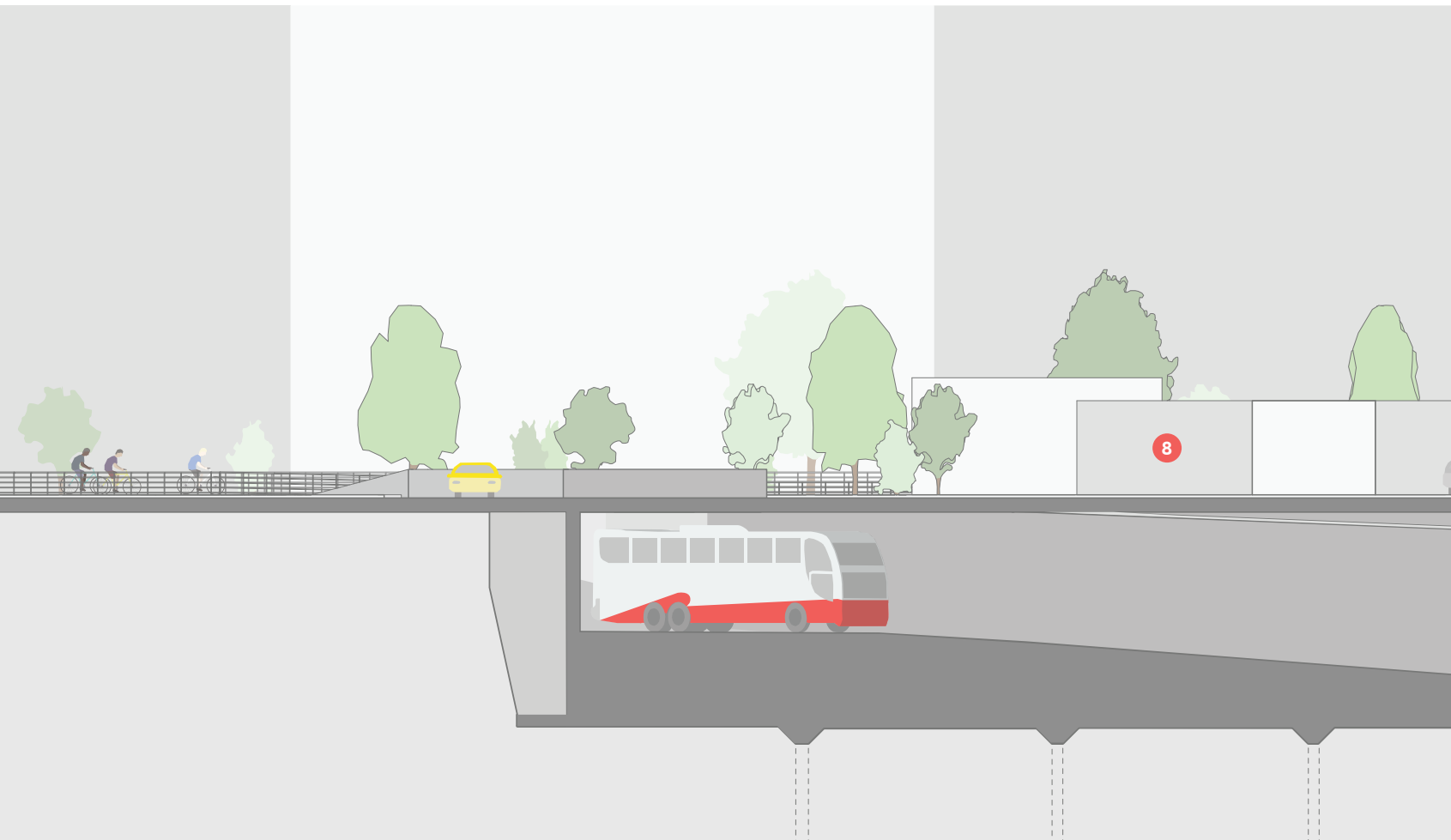


Developed Below Ground Plan

- 4 East Bus Station Entrance
- 5 West Bus Station Entrance
- 7 Vehicle Ramp
- 12 Bus Stops
- 13 Information Desk & Ticket Centre
- 14 Kiosk
- 15 Management Office & Staff Room
- 16 Prayer Room & First Aid Room
- 17 Toilets
- 18 Lockers / Storage Area



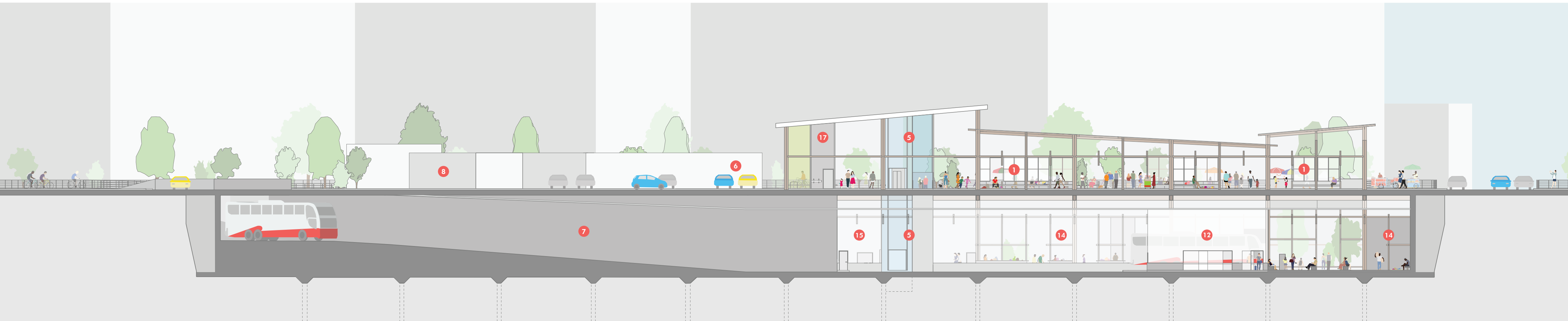
Fig. 154: Developed Below Ground Plan

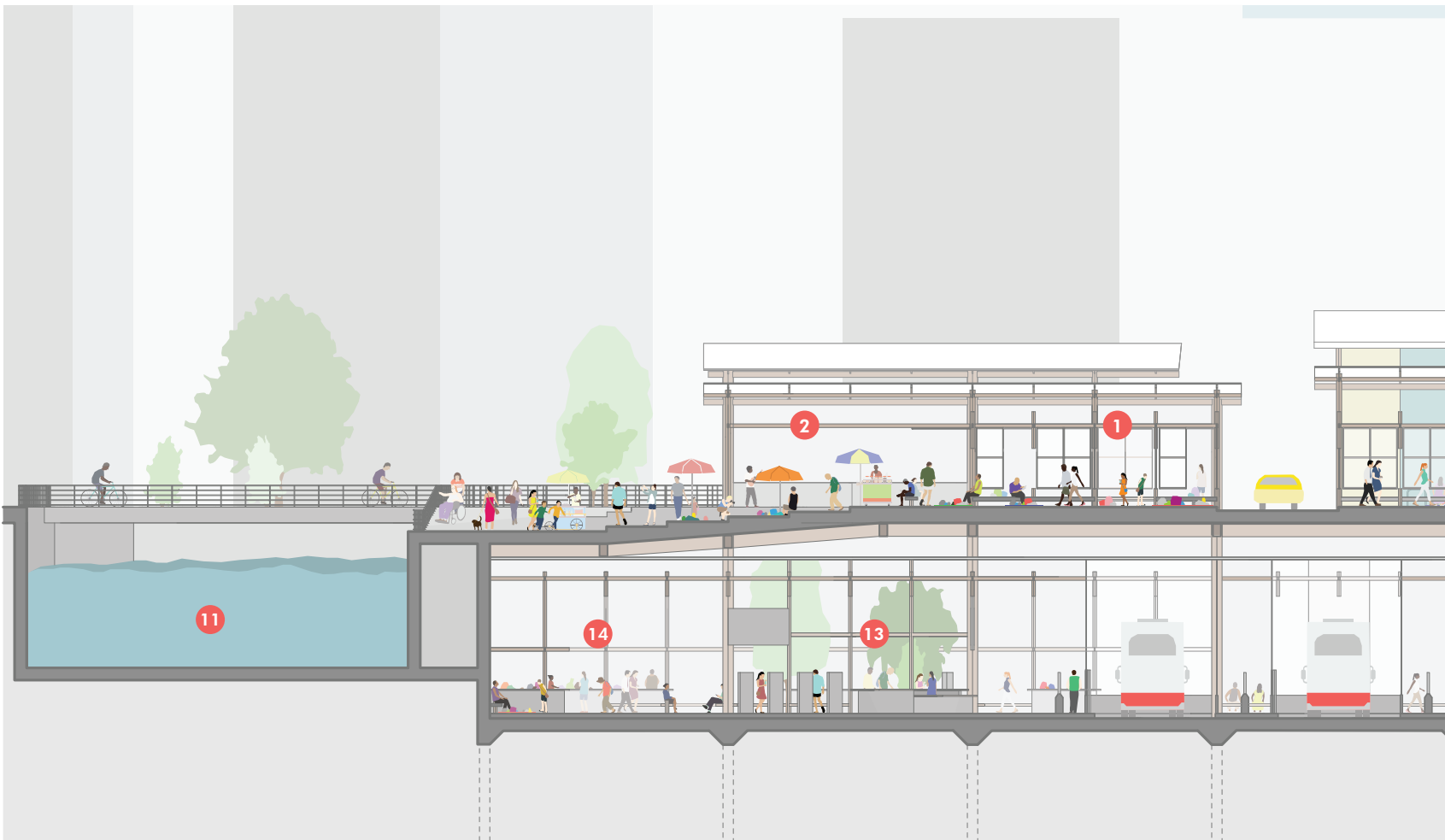


Long Sectional View

- 1 Flexible Framework
- 5 West Bus Station Entrance
- 6 Taxi Parking Area
- 7 Vehicle Ramp
- 8 Our Lady of Lourdes Church
- 12 Bus Stops
- 14 Kiosk
- 15 Management Office & Staff Room
- 17 Toilets



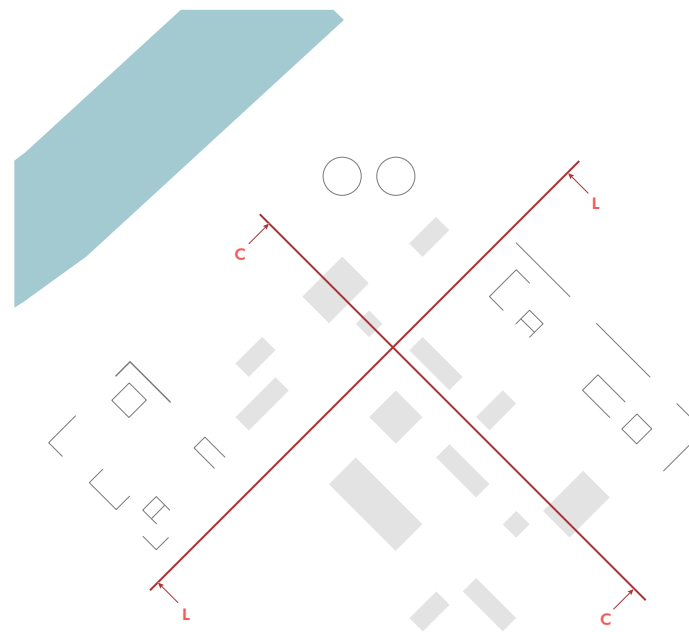
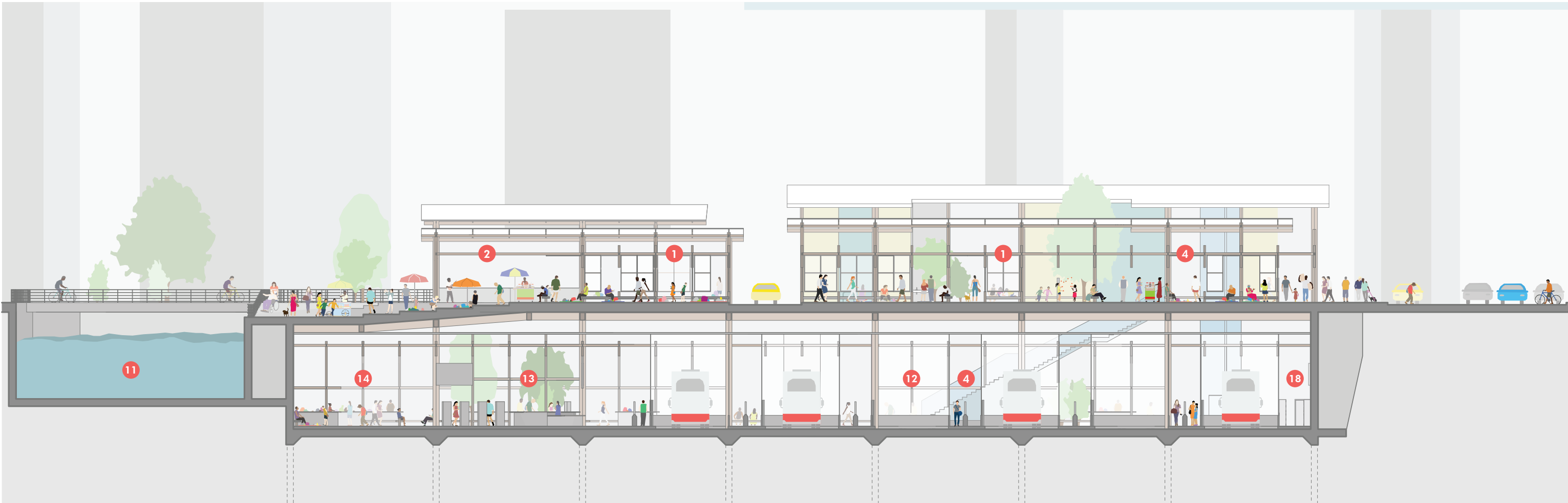




Cross Sectional View

- 1 Flexible Framework
- 2 Courtyard
- 4 East Bus Station Entrance
- 11 Rochor Canal
- 12 Bus Stops
- 13 Information Desk & Ticket Centre
- 14 Kiosk
- 18 Lockers / Storage Area





Cutting Plane Lines

- L Long Sectional View (fig. 155)
- C Cross Sectional View (fig. 156)



The Courtyard

Like the preliminary design, the courtyard is considered as the main 'trap' for this marketplace. It was developed to allow pedestrians to look into the market from the canal – pulling in passers-by. Gradual steps were used to develop a visual connection between the marketplace and canal, encouraging pedestrians to use the space as a pit-stop and resting area.

The courtyard was further developed to make it more accessible for stall carts - allowing vendors to utilise natural pedestrian flows as a means to extend the marketplace beyond the architectural framework.

Fig. 157 (Top): The Canal's Edge

Fig. 158 (Above): Canopy Steps down to the Canal



The Framework

The framework can be used for multiple public and semi-private programmes to accommodate both the vendors and the wider community. These programmes includes educational spaces as well as individual market stalls (fig. 159 - 160). It was developed to address the issue of pedestrians overheating - by shortening the screens and adding roof falls to the canopy. From doing this, it encourages more cross ventilation to take place above ground (fig. 148).

The framework is made up of steel beams and columns that are concealed with timber slabs. This supports the corrugated metal roof structure, lightweight timber framed screens and translucent polycarbonate panels. This creates a lighter and more open atmosphere for pedestrians to walk through and use.



The Bus Station

Two access-ways on the East and West side of site allows pedestrians to enter the bus terminal below ground. As they enter, they pass by the bus stops, seating areas and kiosks (fig. 161 - 162). The blue concrete paving guides the pedestrians towards the middle - where the information desk and ticket centre are located (fig. 163).

The framework was implemented below ground as a means to maintain the same architectural language as the above ground marketplace. This creates an opportunity to have more kiosks for the vendors to sell goods, as well as a gathering area for the wider community to sit, relax, wait and socialise (fig. 164).

Fig. 159 (Top): Framework used as Market Stalls

Fig. 160 (Above): Framework used as Educational Space

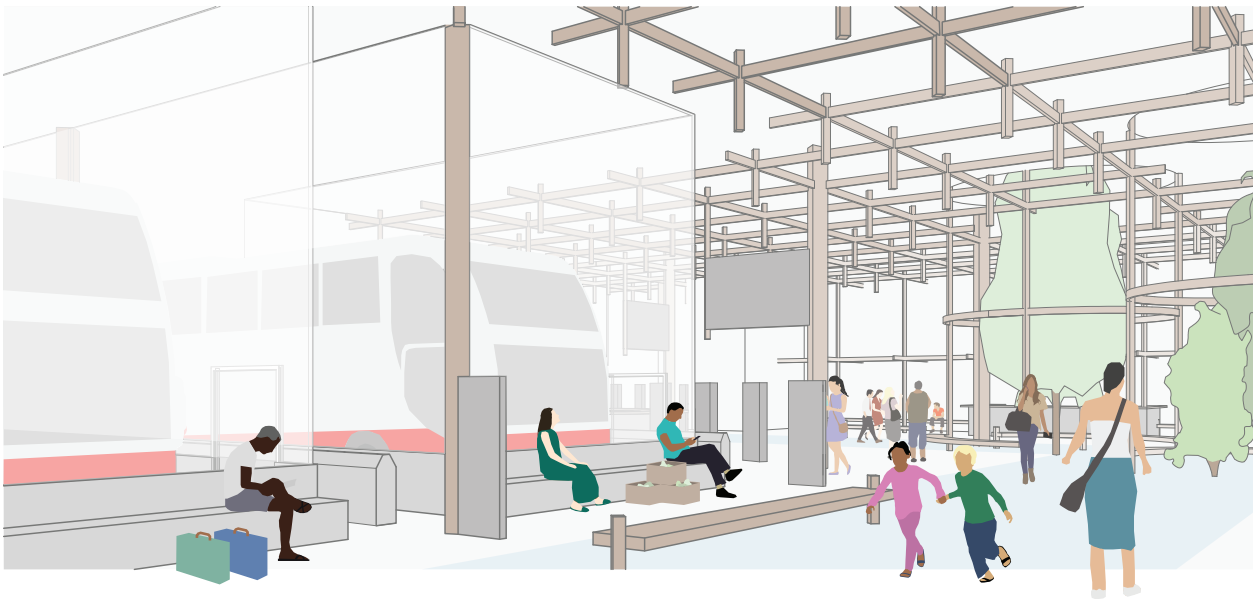


Fig. 161 (Top): East Bus Station Entrance from Queen Street

Fig. 162 (Above): Bus Stops 01 and 02

Fig. 163 (Top): Information Desk & Ticket Centre

Fig. 164 (Above): Kiosks used as Market Stalls



5.3 Design Reflection

From focusing on developing the preliminary design and addressing the issues aforementioned, a final scheme was executed. It was a response to the Rochor community's evolving surroundings as a way of allowing the local trades to be conserved and integrated with the future development.

The final design was developed to become a destination for pedestrians in Rochor. It provides amenities that encourage people to stop and stay as they are passing by. This includes shelter from Singapore's climatic conditions, a space to socialise and engage with the wider community, as well as a space to sell and buy goods.

Even though it is a public space, the final design could have investigated the financial feasibility of the project – to ensure vendors have the ability to afford to lease spaces like this. If this were to be implemented, factors such as the structural design could be further developed to minimise costs.

CHAPTER SIX: CONCLUSION



Fig. 166: Blind Sketches of Vendors

6.1 Final Summary

Over the years, Singapore has been performing as a global city in the international economy (Yuen, 2005). Its rapid economic growth continues to increase the demand of buildings and infrastructure – allowing the city-state to quickly develop and expand (Yuen, 2005). Consequently, older buildings, activities and traditions are vanishing to make way for new developments – raising the major issue of becoming a highly modern city that is evermore faceless and lacking in cultural identity (Yuen, 2005). The aim of the research investigation was to explore how the vanishing trades of Singapore can be conserved and integrated with its present and future developments. Certain strategies such as literature reviews, field research and design experimentations were used to address this issue.

The direction of this research investigation was indicated by the literature reviews. It provided a clear understanding of the different types of heritage – and how this is evoked through memories. These memories can be obtained through observation and participation, as it provides an opportunity to engage with the community.

Field research was undertaken to gain more information of the community and their trades. From undergoing this, the thoughts, interests and memories left by the participants were obtained – helping

them develop social cohesion and a sense of belonging and identity. Once the field research was complete, the information gathered was analysed and summarised. This informed the design process as the design guidelines were established. Tools such as sketching and digital modelling were used to explore the various design experimentations. This helped develop a design outcome which tested the integration of the Sungei Road Market with the future development of the Singapore Johore-Express Bus Terminal.

The outcome of this research investigation addresses how architecture and social inclusion can be used to conserve the local trades of Singapore. Ideally, the next step for this research investigation would be to go back to Singapore and discuss the design outcome with the community. This will allow the community to participate and be more involved with the total design process. If the scope were to be broadened, the research investigation could examine Singapore's housing issue as a means to strengthen the feasibility of the marketplace proposal – injecting more frequent and sustainable pedestrian volumes as a supporter of the local trades.



Fig. 167: November 2017
Design Review

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MEMORANDUM

TO	Angelina Ang
COPY TO	Fabricio Chicca
FROM	AProf Susan Corbett, Convener, Human Ethics Committee
DATE	24 April 2017
PAGES	1
SUBJECT	Ethics Approval: 24468 Governed by Opportunity

Thank you for your application for ethical approval, which has now been considered by the Standing Committee of the Human Ethics Committee.

Your application has been approved from the above date and this approval continues until 6 March 2018. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Kind regards

Susan Corbett
Convener, Victoria University Human Ethics Committee



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CONSENT TO PARTICIPATE IN RESEARCH

Researcher: **Angelina Ang** – *Masters Thesis in Architecture*
Victoria University of Wellington, New Zealand

Governed by Opportunity – *Participatory Design Research in Singapore*

I have read and understood the information sheet of this research project. I was given the opportunity to ask questions and have them answered to my satisfaction. I may withdraw myself and/or any information I provide/produce from this research project (via. Email) before the **5th of July 2017** without any given reason. If I withdraw from this research project, the information I provide/produce will be destroyed.

I understand that any information I provide/produce will be aggregated.

I understand that any information that could identify me will not be used in any reports.

I understand that the information I provide/produce will be used for a Masters thesis and a summary of the results may be used in academic reports and/or presented in conferences.

The information that I provide/produce will be destroyed 2 years after the research finished.

- ☐ **I consent to participating in this research project.**
- ☐ **I consent the researcher to photograph and/or record me participating in this research project.**
- ☐ **I consent to any information I provide/produce to be used in this Masters Thesis which will help shape and form the design of a street market.**
- ☐ **I would like receive a copy of my questionnaire and/or drawing exercise via. Email.**
- ☐ **I would like receive a summary of the results for this research project via. Email.**

Email Address:

Name of Participant:

Signature:

Date:



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INFORMATION SHEET

Thank you for your interest in this research project. Please read this information sheet before signing the consent form. If you choose to decline taking part in this research project, thank you for considering and taking the time to read this.

Who am I?

My name is Angelina Ang and I am currently a Masters Student in Architecture at Victoria University of Wellington, New Zealand. This research project that I am conducting in Singapore will be used in my Masters thesis.

What is the aim of the Thesis?

The aim of this thesis is to investigate how architecture and community participation can:

- Conserve and enhance the Sungei Road Thieves Market.
- Accommodate for both the Sungei Road Thieves Market and new development.

This research project has been approved by the Victoria University of Wellington Human Ethics Committee: 24468.

What will I be doing?

Throughout this research project, I will be:

- Taking photographs and videos* of the Sungei Road Thieves Market.
- Gathering information through questionnaires and/or drawing exercises.

The information collected will be used to provide a better understanding on how the Sungei Road Thieves Market works.

*The faces in the photographs and/or videos will be; avoided, cropped and/or blurred out to protect the people’s identity.

How can you help?

If you agree to take part in this research project, I will:

- Give you a **questionnaire** to fill out. This questionnaire asks about your thoughts and ideas of the market. **It will take roughly 5 minutes to fill out.**
- Give you a **small drawing exercise** to complete (**for vendors only**). This exercise involves you drawing a stall with the assistance of the Masters Student (if needed). **This will take roughly 10 minutes to complete.**

You may stop the questionnaire and/or exercise at any time, without giving a reason. You may withdraw from the research project by contacting me via. Email (angange@myvuw.ac.nz) any time before the **5th of July 2017**. If you withdraw, the information you provide/produce will be destroyed.

What will happen to the information you give?

This research is confidential. This means that the researchers named below will be aware of your identity but the information will be aggregated and your identity will not be disclosed in any reports. However, you should be aware that in small projects your identity might be obvious to others in your community. The questionnaires, drawings, and recordings will be kept securely and destroyed 2 years after the research ends.

What will the Research Project produce?

The results of this research project will be used in my Masters thesis to shape and form the design of a street market. A summary of the results may be used in academic reports and/or presented in conferences.

If you accept this invitation, what are your rights as a research participant?

You may choose to decline taking part in this research project. However; if you decide to participate, you have the right to:

- Choose not to answer some/any of the questions
- Choose not to complete the drawing exercise (**for vendors only**)
- Ask for no photos and/or videos to be taken
- Withdraw from this research project before the **5th of July 2017**
- Ask any questions about the research project at any time
- Receive a copy of your questionnaire and/or drawing exercise via. Email
- Receive a summary of the results for this research project via. Email
- Agree on another name for me to use rather than your real name

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact either:

Masters Student:

Angelina Ang
angange@myvuw.ac.nz

Supervisor:

Fabricio Chicca
Senior Lecturer
School of Architecture at VUW, NZ
+64 04 463 5644
fabricio.chicca@vuw.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research, you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vuw.ac.nz or telephone +64 04 4 63 5480.

Please fill out the detachable sheets below:
请填写以下的表格：

Hi! I am a: **Vendor** ☐ **Shopper** ☐
你好! 我是: 买家 购物者

and my most memorable experience in the Sungei Road Thieves Market was ...

我对 Sungei Road Thieves Market 最难忘的经验是 ...

Hi! I am a: **Vendor** ☐ **Shopper** ☐
你好! 我是: 买家 购物者

and I wish the Sungei Road Thieves Market was ...

我对 Sungei Road Thieves Market 的期望是 ...

Hi! 你好!

My name is _____ and I have been selling _____

我的名字是 _____ , 我在 _____

_____ at the Sungei Road Thieves Market

Sungei Road Thieves Market 贩卖

for _____ months / years!

_____ 月 / 年!

This is what my ideal stall would look like! It includes important factors such as ...

我想象中的摊位是如此, 它包括这些重要的项目 ...



Your ideal stall is to be drawn out with the assistance of the Masters Student (if needed).

Hi! 你好!

My name is _____ and I have been selling _____

我的名字是 _____ , 我在 _____

_____ at the Sungei Road Thieves Market

Sungei Road Thieves Market 贩卖

for _____ months / years!

_____ 月 / 年!

This is what my ideal stall would look like! It includes important factors such as ...

我想象中的摊位是如此, 它包括这些重要的项目 ...



Your ideal stall is to be drawn out with the assistance of the Masters Student (if needed).

QUESTIONNAIRE:

你好:

Why did you choose the Sungei Road Thieves Market to sell second-hand goods?

你为什么选择在 Sungei Road Thieves Market 贩卖二手商品呢?

What do you like about the Sungei Road Thieves Market?

你喜欢 Sungei Road Thieves Market 的哪些方面?

What don't you like about the Sungei Road Thieves Market?

你不喜欢 Sungei Road Thieves Market 的哪些方面?

Please fill out the detachable sheets above:

请填写以下的表格:

