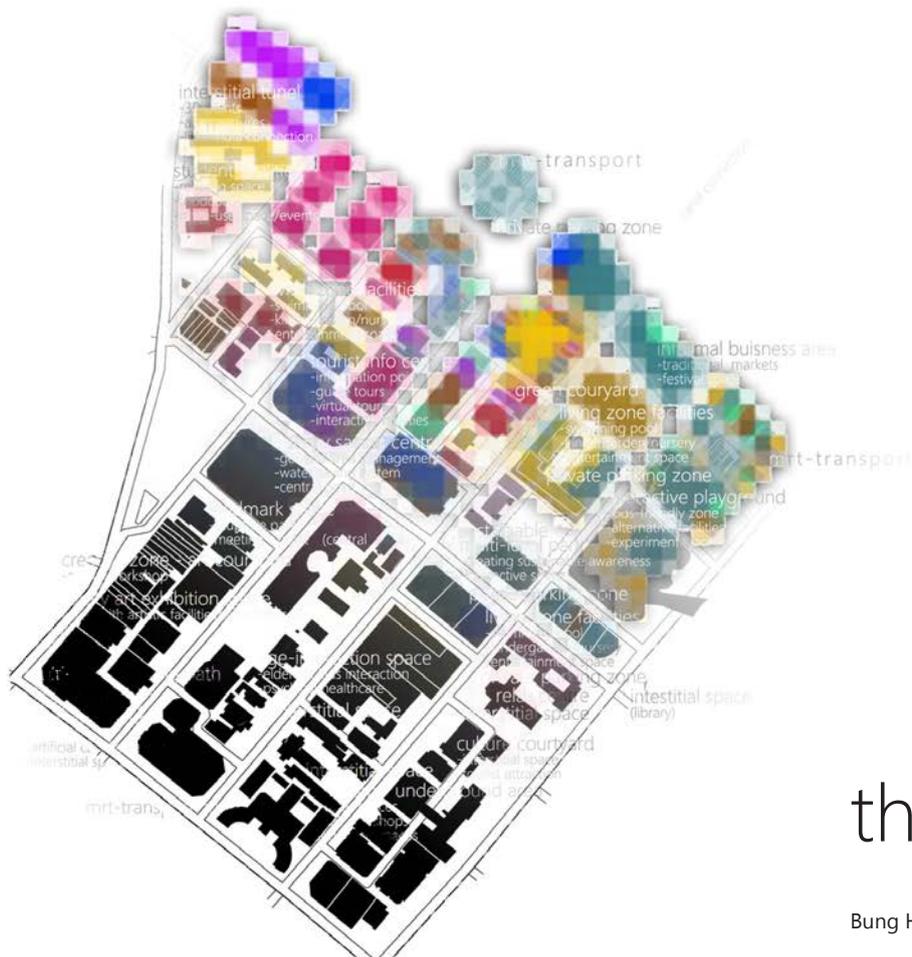




# URBANISM & MOBILITY

## the compact city

Associate Professor Tan Teck Kiam  
Bung Horungruang, Celia Wong, Desmond Sim, Eleanor Xu  
Hashini Weeratunga, Riberd, Tomek Guziak Wang Yi



# URBANISM & MOBILITY

## the compact city

Associate Professor Tan Teck Kiam  
Bung Horungruang, Celia Wong, Desmond Sim, Eleanor Xu  
Hashini Weeratunga, Riberd, Tomek Guziak Wang Yi

# content

## FOREWORD

### PHASE 1: RESEARCH | HISTORY | LOCALITY

History	Timeline
Contextualizing Bras Basah	Figure Ground
	Bras Basah within Singapore
	Bras Basah v 4 districts

### PHASE 2: MAPPING | PROGRAM | MOBILITY

Site context	Programmatic
	Plot ratio
	Mapping in Layers
People & Movement	People Density Analysis
	People Demography

### PHASE 3: ACTIVATION OF STRATEGY PLAN

Mind map	Ideals of a choice city
	Choice of Site – Waterloo Street
Intervention	Urban Strategy – Proposal
	Section along Waterloo Street

### PHASE 4: INDIVIDUAL PROJECTS



Victoria (Bugis) Street

# content

## FOREWORD

### PHASE 1: RESEARCH | HISTORY | LOCALITY

History	Timeline
Contextualizing Bras Basah	Figure Ground
	Bras Basah within Singapore
	Bras Basah v 4 districts

### PHASE 2: MAPPING | PROGRAM | MOBILITY

Site context	Programmatic
	Plot ratio
	Mapping in Layers
People & Movement	People Density Analysis
	People Demography

### PHASE 3: ACTIVATION OF STRATEGY PLAN

Mind map	Ideals of a choice city
	Choice of Site – Waterloo Street
Intervention	Urban Strategy – Proposal
	Section along Waterloo Street

### PHASE 4: INDIVIDUAL PROJECTS



Victoria (Bugis) Street

# foreword

Mobility and Urbanism Section  
Assoc Prof Tan Teck Kiam  
Year 4 Studio  
AY 2013-14 Semester 1

The program explores high density living in a smart compact city.

Studies have revealed interaction between inhabitants of a city is instrumental to the vibrancy, diversity, dynamics, heritage and appeal (social, cultural and economics) of a city. A city is a conglomeration of processes, uniquely intertwined with their own character. These processes typify the condition of living, working, learning, playing and care in a social environment. The resulting city form is to a great extent a manifestation of those processes. From time to time, human intervention in city or urban planning such as in Paris, Beijing and New York has significant impact and alter social behavior; and in turn frame the form of a city.

Many cities in Asia today are growing at phenomenal rate. Today more than half the population in Asia lives in a city. Cities are faced with the challenge to house ever increasing number of people attracted to them by job opportunity, amenities and better life, among many reasons. As a result cities grow from the old centers organically. The sprawling city with its conglomerate suburbia created unsatisfactory transportation problem in addition to uneven distribution of amenities and public services. In recent decades, high rise (building) physical planning model found favour with city planners. Yet tall buildings inefficiently planned and designed to fill the number may not be the right approach environmentally and socially.

*What then?*

Some scholars have taken an approach to examine fundamental relation between urban and rural. Other scholars pointed to the need to maintain legibility of city preserving its heritage and cultural values in the face of technological progress (or assault?). The challenge could be rethink how to optimize space usage in a city as well as how people move across buildings

within existing urban fabric.

The studio program is a rethink on how public spaces and in buildings are planned and connected; and the notion of mobility addressed in a compact city.

The studio would map half a square kilometer of a city and strategize an urban planning model that consider:

1. usability,
2. diversity,
3. connectivity and mobility,
4. sustainability (technology, social and environmental), including
5. program mix/optimization within buildings, between buildings and public open spaces.

The first part (3 weeks) of the studio is research, forum and developing a planning model at group level. The latter part which is individual effort translates the planning ambition into design narrative.

# foreword

Mobility and Urbanism Section  
Assoc Prof Tan Teck Kiam  
Year 4 Studio  
AY 2013-14 Semester 1

The program explores high density living in a smart compact city.

Studies have revealed interaction between inhabitants of a city is instrumental to the vibrancy, diversity, dynamics, heritage and appeal (social, cultural and economics) of a city. A city is a conglomeration of processes, uniquely intertwined with their own character. These processes typify the condition of living, working, learning, playing and care in a social environment. The resulting city form is to a great extent a manifestation of those processes. From time to time, human intervention in city or urban planning such as in Paris, Beijing and New York has significant impact and alter social behavior; and in turn frame the form of a city.

Many cities in Asia today are growing at phenomenal rate. Today more than half the population in Asia lives in a city. Cities are faced with the challenge to house ever increasing number of people attracted to them by job opportunity, amenities and better life, among many reasons. As a result cities grow from the old centers organically. The sprawling city with its conglomerate suburbia created unsatisfactory transportation problem in addition to uneven distribution of amenities and public services. In recent decades, high rise (building) physical planning model found favour with city planners. Yet tall buildings inefficiently planned and designed to fill the number may not be the right approach environmentally and socially.

*What then?*

Some scholars have taken an approach to examine fundamental relation between urban and rural. Other scholars pointed to the need to maintain legibility of city preserving its heritage and cultural values in the face of technological progress (or assault?). The challenge could be rethink how to optimize space usage in a city as well as how people move across buildings

within existing urban fabric.

The studio program is a rethink on how public spaces and in buildings are planned and connected; and the notion of mobility addressed in a compact city.

The studio would map half a square kilometer of a city and strategize an urban planning model that consider:

1. usability,
2. diversity,
3. connectivity and mobility,
4. sustainability (technology, social and environmental), including
5. program mix/optimization within buildings, between buildings and public open spaces.

The first part (3 weeks) of the studio is research, forum and developing a planning model at group level. The latter part which is individual effort translates the planning ambition into design narrative.

# history

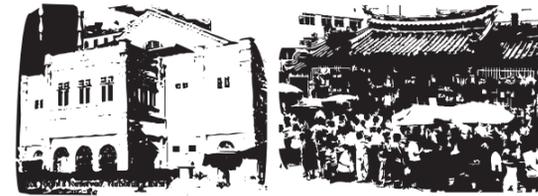
timeline of major events in the urban morphology

Jackson Plan was implemented, segregating the settlement near the mouth of Singapore River into various ethnic areas.

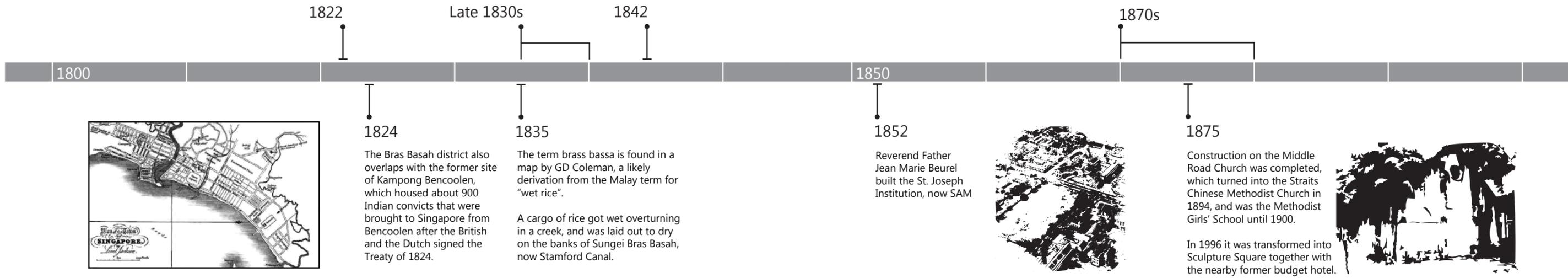
The Bras Basah district evolved from a part of the former European Town.

The construction of the main streets in Bras Basah such as Victoria St, Queen Street, Bencoolen St and Church St (now Waterloo St) were completed by this time.

Straits Chinese Church, known as Malay Church because services were for Straits Chinese, was built in Prinsep Street by Reverend Benjamin Peach Keasbury.



Various religious buildings started to line Waterloo St such as the Jewish Maghain Aboth Synagogue in 1878, the Chinese Kwan Im Thong Hood Cho temple in 1884, the Hindu Sri Krishnan temple in 1870 with a Sri Krishnan figure under a Banyan Tree, and the Catholic Church of St Peter and St Paul by Pierre Paris, built in the same year.



# history

timeline of major events in the urban morphology

Jackson Plan was implemented, segregating the settlement near the mouth of Singapore River into various ethnic areas.

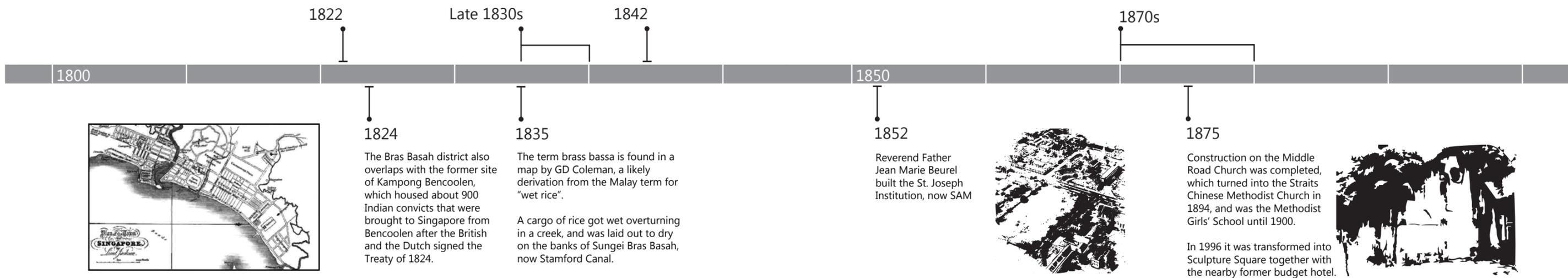
The Bras Basah district evolved from a part of the former European Town.

The construction of the main streets in Bras Basah such as Victoria St, Queen Street, Bencoolen St and Church St (now Waterloo St) were completed by this time.

Straits Chinese Church, known as Malay Church because services were for Straits Chinese, was built in Prinsep Street by Reverend Benjamin Peach Keasbury.



Various religious buildings started to line Waterloo St such as the Jewish Maghain Aboth Synagogue in 1878, the Chinese Kwan Im Thong Hood Cho temple in 1884, the Hindu Sri Krishnan temple in 1870 with a Sri Krishnan figure under a Banyan Tree, and the Catholic Church of St Peter and St Paul by Pierre Paris, built in the same year.





Straits Chinese Church was demolished and rebuilt, and became Prinsept Street Presbyterian Church by 1956. Singapore Boys' Brigade began here in 1930.

Designed by Swan and Maclaren's C. J. Stephen, it is of modern fresco style.

1931

1900

1912

Central Sikh Temple was built along Queen Street but was moved to a new location in 1980s after government acquired surrounding land for new developments.



1945

The 1945 figure-ground map reveals a dense yet relatively fine-grained texture of Bras Basah at the time. At the time, the national population was 750,000. Other than the construction of the main roads in a strict grid, developments in the area mostly took the form of small to medium-scale religious buildings and schools that sprouted up naturally, driven by community needs.



Straits Chinese Church was demolished and rebuilt, and became Prinsept Street Presbyterian Church by 1956. Singapore Boys' Brigade began here in 1930.

Designed by Swan and Maclaren's C. J. Stephen, it is of modern fresco style.

1931

1900

1912

Central Sikh Temple was built along Queen Street but was moved to a new location in 1980s after government acquired surrounding land for new developments.



1945

The 1945 figure-ground map reveals a dense yet relatively fine-grained texture of Bras Basah at the time. At the time, the national population was 750,000. Other than the construction of the main roads in a strict grid, developments in the area mostly took the form of small to medium-scale religious buildings and schools that sprouted up naturally, driven by community needs.



Selegie House was built

1960



The 2-storey shophouses open air eating location at Albert Street, renowned for serving good food until early hours, was renovated into Albert Court and Albert Complex as part of plans of turning the area into an arts and entertainment hub. A year later, Sim Lim Square opened.

1986

The 2003 Master plan envisioned the Bras Basah & Bugis area as an enclave for creativity, learning and youthful energy.

2003

The Bras Basah Station opened, increasing accessibility to the district via the Circle Line. Ongoing construction of the Bencoolen Station along the Downtown Line is also expected to finish by 2017.

2010

1950

1950

At current location of Rendezvous Hotel, restaurant "Rendezvous" was opened as a Nasi Padang eatery at the former site of Hock Loke Lee Restaurant, which served Western cuisine for the British.

1970s

Rochor Centre was built. Kwan Im Thong Hood Cho Temple was demolished and rebuilt in 1982 by Tay & Yeo Architects



1996-1998

URA transformed 700m of Albert St and Waterloo St into a pedestrian mall "Albert Mall". It was envisioned as a vibrant and activity-based area where outdoor dining, entertaining street activities and community celebrations can take place. Burlington Square was built.

2006

Singapore Management University (SMU), Nanyang Academy of Fine Arts (NAFA) and LaSalle were operational, bringing a total of more than 16,000 students and artists into the area. National Museum was also reopened.

The current figure-ground is a lot more structured and is dominated by huge complexes. Developments since the 1950s have been orchestrated by the government to meet rapid population increase. From 2003, the envisioning of Bras Basah as an arts and culture district triggered developments based on national interests.



2013



Selegie House was built

1960



The 2-storey shophouses open air eating location at Albert Street, renowned for serving good food until early hours, was renovated into Albert Court and Albert Complex as part of plans of turning the area into an arts and entertainment hub. A year later, Sim Lim Square opened.

1986

The 2003 Master plan envisioned the Bras Basah & Bugis area as an enclave for creativity, learning and youthful energy.

2003

The Bras Basah Station opened, increasing accessibility to the district via the Circle Line. Ongoing construction of the Bencoolen Station along the Downtown Line is also expected to finish by 2017.

2010

1950

1950

At current location of Rendezvous Hotel, restaurant "Rendezvous" was opened as a Nasi Padang eatery at the former site of Hock Loke Lee Restaurant, which served Western cuisine for the British.

1970s

Rochor Centre was built. Kwan Im Thong Hood Cho Temple was demolished and rebuilt in 1982 by Tay & Yeo Architects



1996-1998

URA transformed 700m of Albert St and Waterloo St into a pedestrian mall "Albert Mall". It was envisioned as a vibrant and activity-based area where outdoor dining, entertaining street activities and community celebrations can take place. Burlington Square was built.

2006

Singapore Management University (SMU), Nanyang Academy of Fine Arts (NAFA) and LaSalle were operational, bringing a total of more than 16,000 students and artists into the area. National Museum was also reopened.

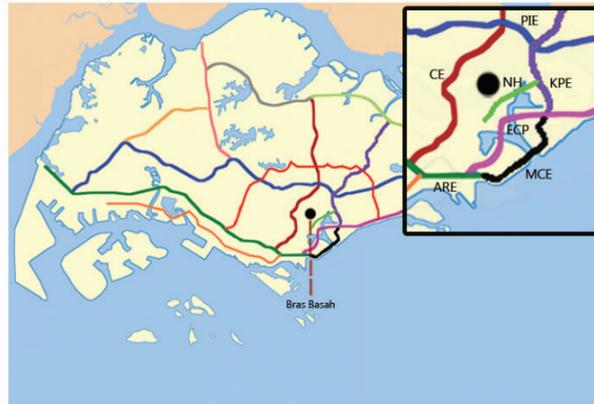
The current figure-ground is a lot more structured and is dominated by huge complexes. Developments since the 1950s have been orchestrated by the government to meet rapid population increase. From 2003, the envisioning of Bras Basah as an arts and culture district triggered developments based on national interests.



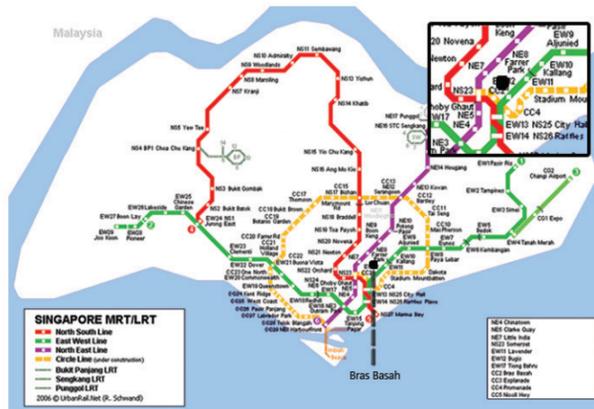
2013

# contextualizing

Bras Basah within Singapore



- Legend**
- Pan Island Expressway
  - East Coast Parkway
  - Ayer Rajah Expressway
  - Central Expressway
  - Tampines Expressway
  - Seletar Expressway
  - Kranji Expressway
  - Bukit Timah Expressway
  - Kallang-Paya Lebar Expressway
  - Marina Coastal Expressway
  - Outer Ring Road System
  - West Coast Highway
  - Nicoll Highway



- Legend**
- North South Line
  - East West Line
  - North East Line
  - Circle Line
  - Bukit Panjang LRT
  - Sengkang Lrt
  - Punggol LRT



- Legend**
- Major Arterial Roads
  - Collector Roads
  - Local Access Roads
  - Pedestrian Pathways
  - Flow of Traffic
  - North South Line (MRT)
  - Circle Line (MRT)
  - North East Line (MRT)
  - Bus Stops

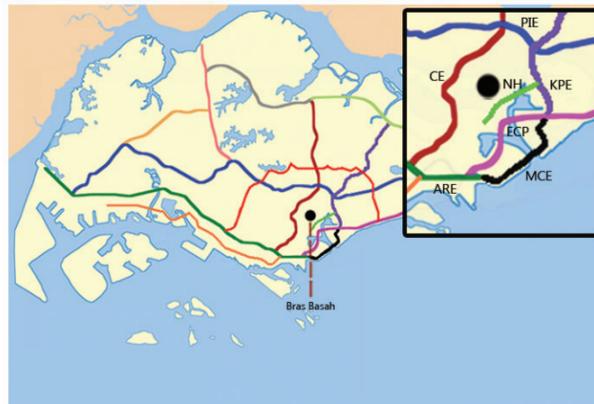
Bras Basah is bordered by 4 major arterial roads:

- Bras Basah Road, that links the Orchard area to Raffles Boulevard
- Selegie Road, that links to Little India
- Rochor Road, that links Bukit Timah to Raffles Boulevard
- Victoria Street, that links to Kallang
- Bencoolen Street, another arterial road running through the site, links to Jalan Besar area

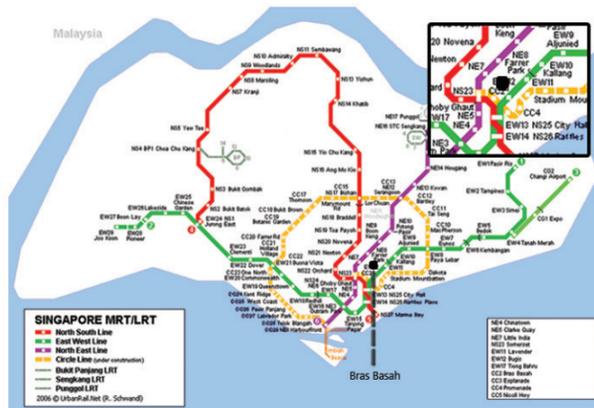
As a result of so many arterial roads concentrated in the area, road traffic is incredibly dense

# contextualizing

Bras Basah within Singapore



- Legend**
- Pan Island Expressway
  - East Coast Parkway
  - Ayer Rajah Expressway
  - Central Expressway
  - Tampines Expressway
  - Seletar Expressway
  - Kranji Expressway
  - Bukit Timah Expressway
  - Kallang-Paya Lebar Expressway
  - Marina Coastal Expressway
  - Outer Ring Road System
  - West Coast Highway
  - Nicoll Highway



- Legend**
- North South Line
  - East West Line
  - North East Line
  - Circle Line
  - Bukit Panjang LRT
  - Sengkang Lrt
  - Punggol LRT



- Legend**
- Major Arterial Roads
  - Collector Roads
  - Local Access Roads
  - Pedestrian Pathways
  - Flow of Traffic
  - North South Line (MRT)
  - Circle Line (MRT)
  - North East Line (MRT)
  - Bus Stops

Bras Basah is bordered by 4 major arterial roads:

- Bras Basah Road, that links the Orchard area to Raffles Boulevard
- Selegie Road, that links to Little India
- Rochor Road, that links Bukit Timah to Raffles Boulevard
- Victoria Street, that links to Kallang
- Bencoolen Street, another arterial road running through the site, links to Jalan Besar area

As a result of so many arterial roads concentrated in the area, road traffic is incredibly dense

# contextualizing

districts in five cities

## Bras Basah

Arts, Culture, Learning & Entertainment district

City data

Singapore, Singapore

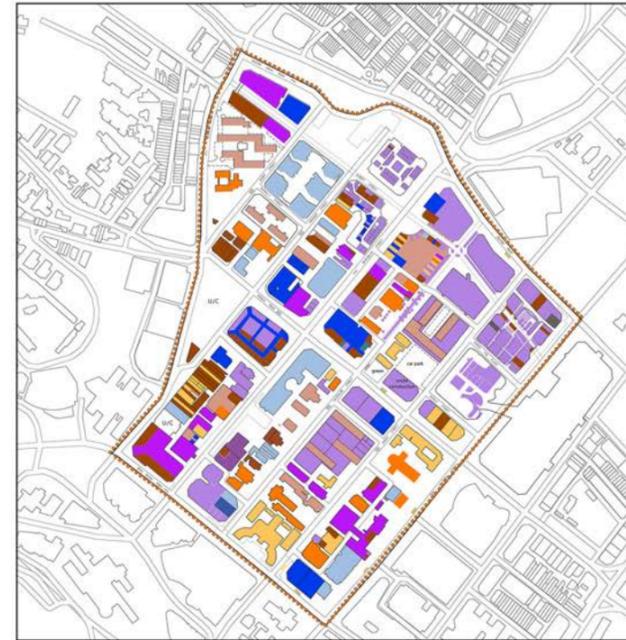
Land area : 710 km<sup>2</sup>

Population : 5,300,000

Density : 7,350 people/km<sup>2</sup>



Coarse-grain, densely packed  
Several arterial roads in perpendicular grid  
2 primary public transportation modes (Bus, Train)  
>10 transportation nodes



Variety of ground-floor programs  
Presence of mixed-use within single large buildings



Mix of high, mid and low-rise buildings of different characters

# contextualizing

districts in five cities

## Bras Basah

Arts, Culture, Learning & Entertainment district

City data

Singapore, Singapore

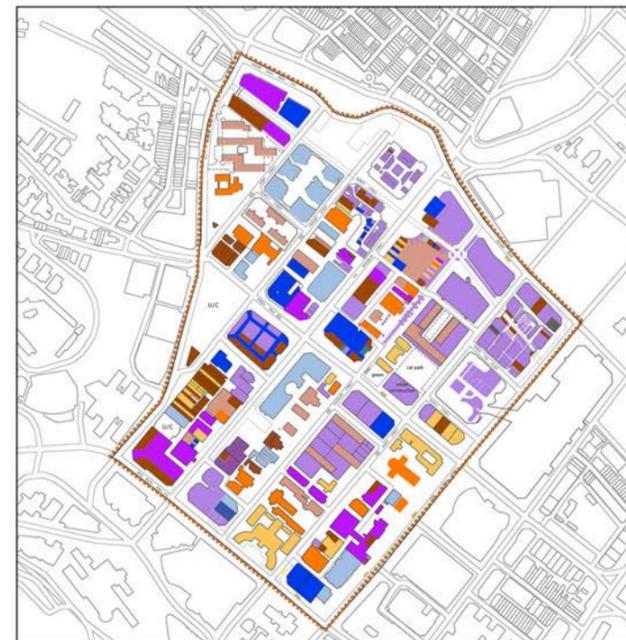
Land area : 710 km<sup>2</sup>

Population : 5,300,000

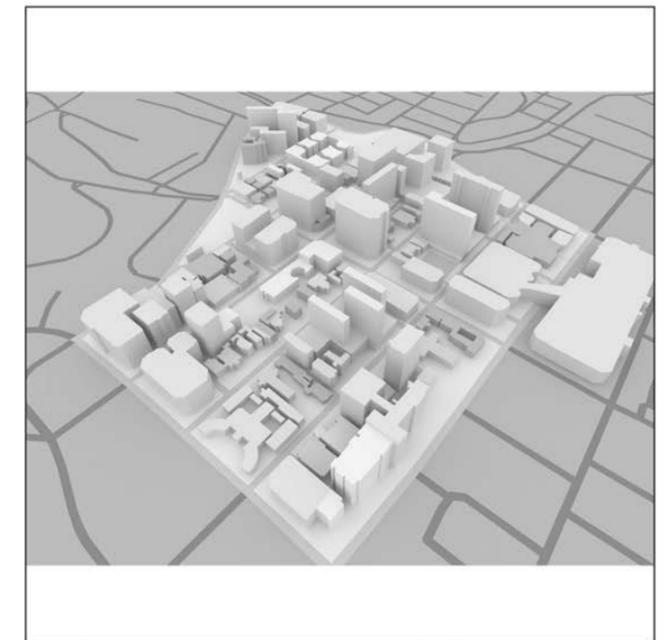
Density : 7,350 people/km<sup>2</sup>



Coarse-grain, densely packed  
Several arterial roads in perpendicular grid  
2 primary public transportation modes (Bus, Train)  
>10 transportation nodes



Variety of ground-floor programs  
Presence of mixed-use within single large buildings



Mix of high, mid and low-rise buildings of different characters

# contextualizing

districts in five cities

## Tha-Dindaeng

City of angels/Economic and cultural heritage

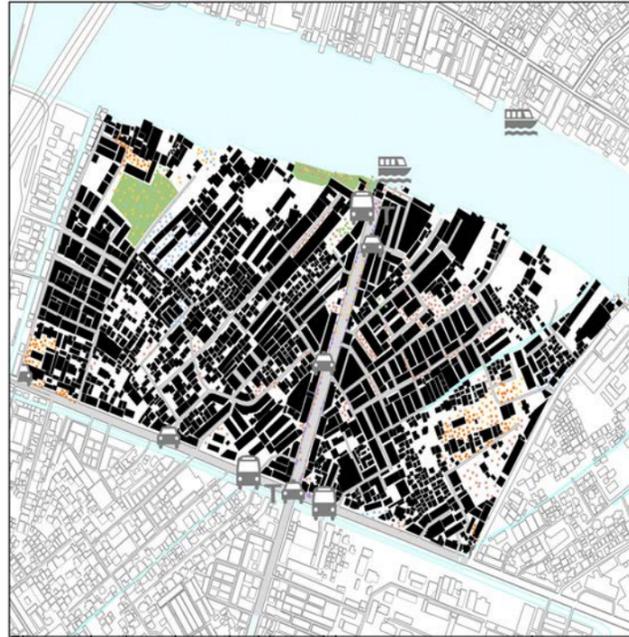
City data

**Bangkok, Thailand**

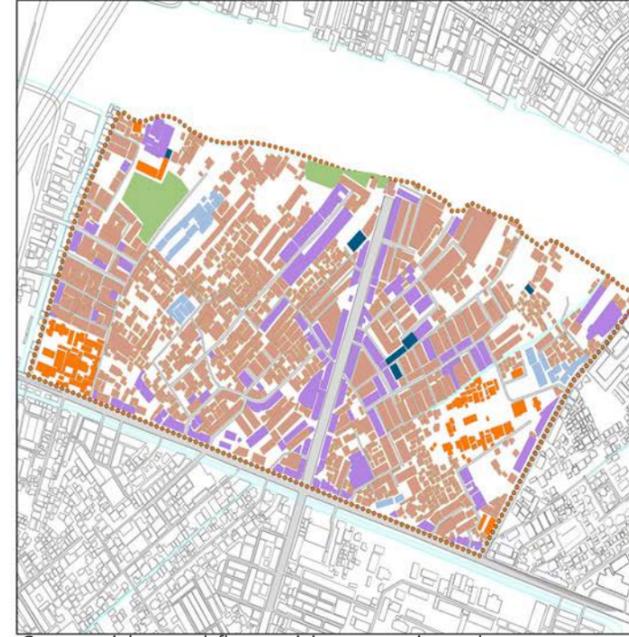
Land area : 1569 km<sup>2</sup>

Population : 8,300,000

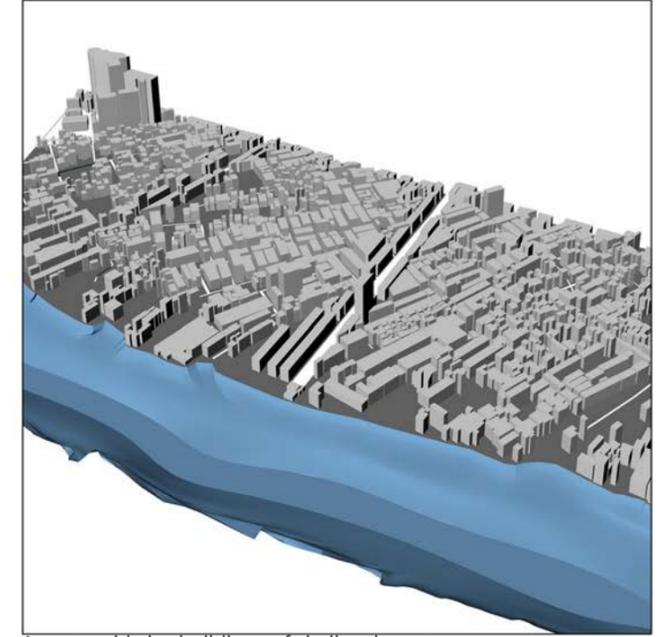
Density : 5,300 people/km<sup>2</sup>



Fine-grain, densely packed but with open spaces near river  
Single arterial road imposed onto diagonal grid  
5 primary public transportation modes (Bus, Rail, Taxi, Boat, Tuk-tuk.)  
~10 transportation nodes



Commercial ground-floor activity near main road  
Main program: residential and commercial  
Buildings mostly mono-use



Low to mid-rise buildings of similar character

# contextualizing

districts in five cities

## Tha-Dindaeng

City of angels/Economic and cultural heritage

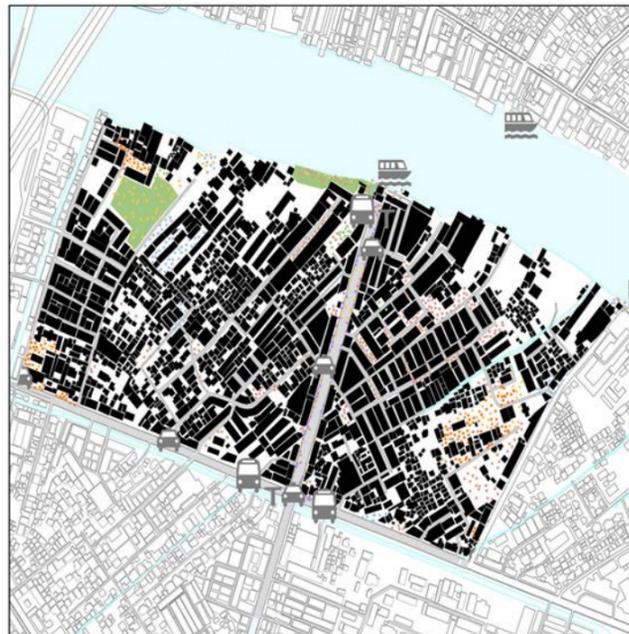
City data

**Bangkok, Thailand**

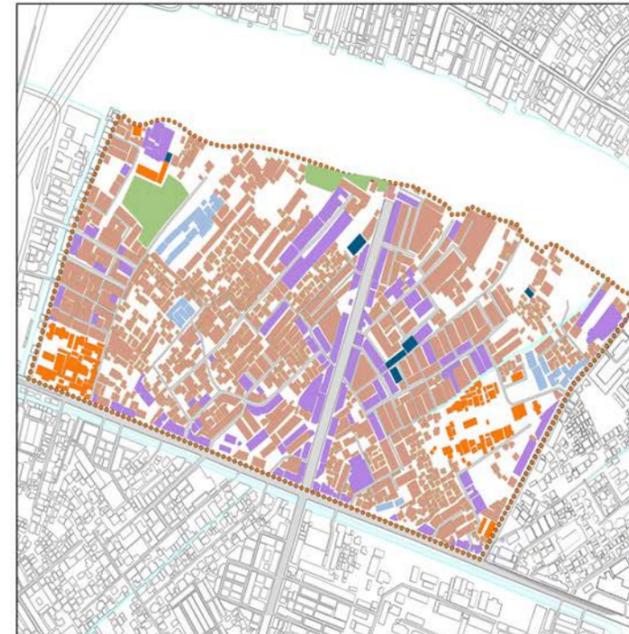
Land area : 1569 km<sup>2</sup>

Population : 8,300,000

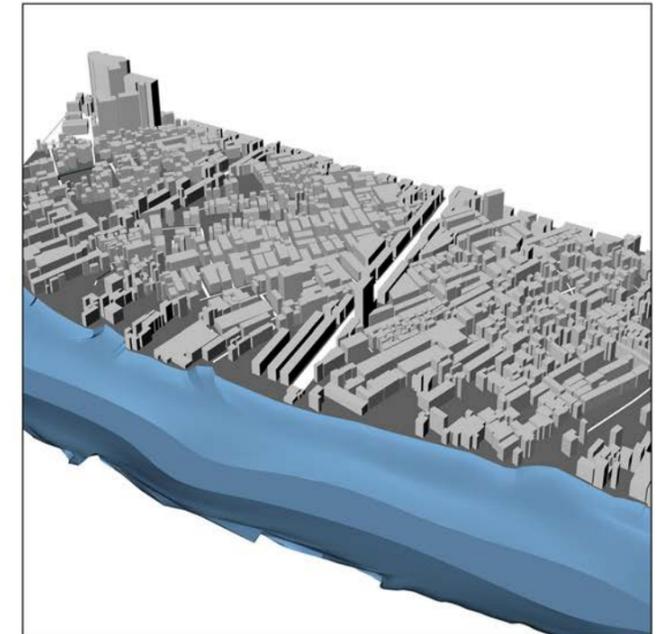
Density : 5,300 people/km<sup>2</sup>



Fine-grain, densely packed but with open spaces near river  
Single arterial road imposed onto diagonal grid  
5 primary public transportation modes (Bus, Rail, Taxi, Boat, Tuk-tuk.)  
~10 transportation nodes



Commercial ground-floor activity near main road  
Main program: residential and commercial  
Buildings mostly mono-use



Low to mid-rise buildings of similar character

# contextualizing

districts in five cities

**National Arts Museum district**  
Political, cultural and education heart

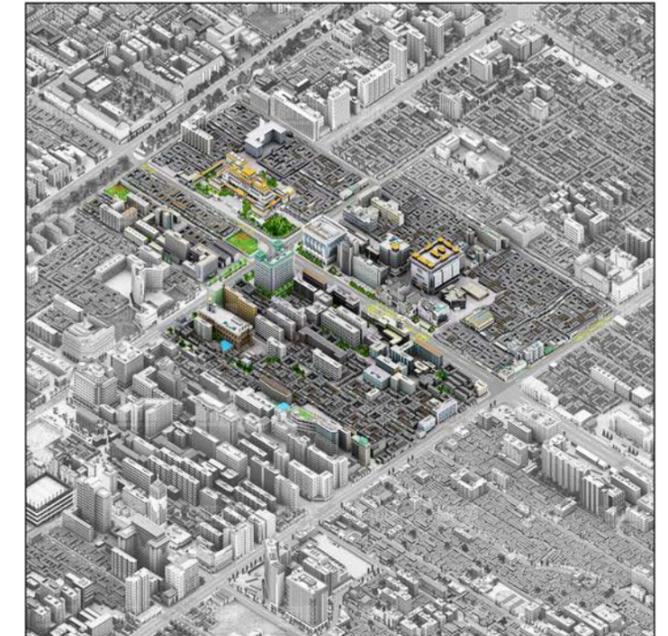
City data  
**Beijing, China**  
Land area : 16,411 km<sup>2</sup>  
Population : 20,700,000  
Density : 1,300 people/km<sup>2</sup>



Mix of fine and coarse-grain, densely packed  
2 arterial roads with smaller roads and perpendicular "hutongs"  
2 primary public transportation modes (Bus, Rail)  
3 transportation nodes



Variety of ground floor programs  
Commercial ground-floor activity near main road  
Buildings mostly mono-use



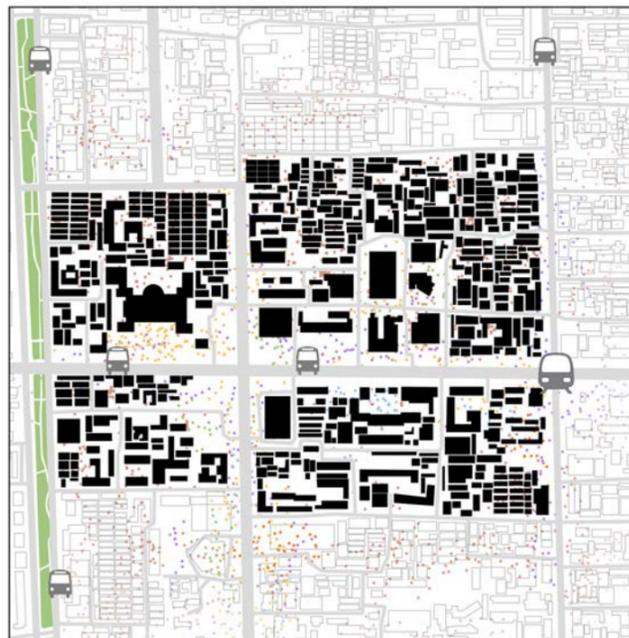
Mix of low and high-rise buildings  
Buildings of similar characters/functions are grouped together

# contextualizing

districts in five cities

**National Arts Museum district**  
Political, cultural and education heart

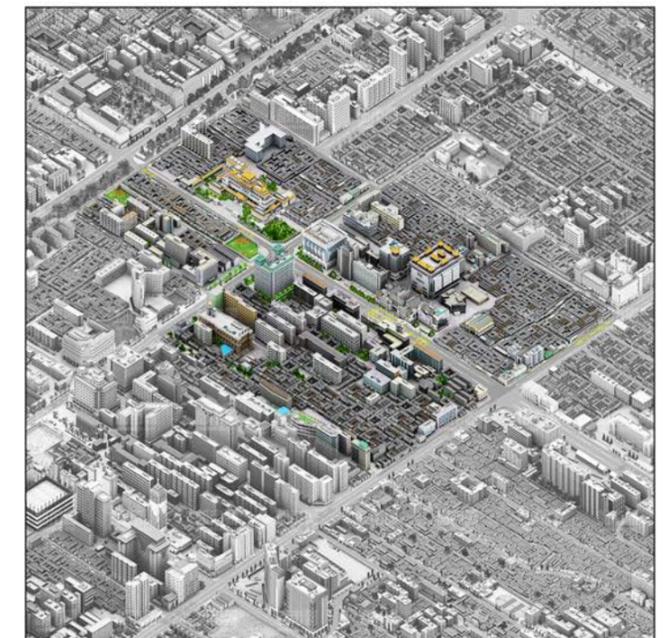
City data  
**Beijing, China**  
Land area : 16,411 km<sup>2</sup>  
Population : 20,700,000  
Density : 1,300 people/km<sup>2</sup>



Mix of fine and coarse-grain, densely packed  
2 arterial roads with smaller roads and perpendicular "hutongs"  
2 primary public transportation modes (Bus, Rail)  
3 transportation nodes



Variety of ground floor programs  
Commercial ground-floor activity near main road  
Buildings mostly mono-use



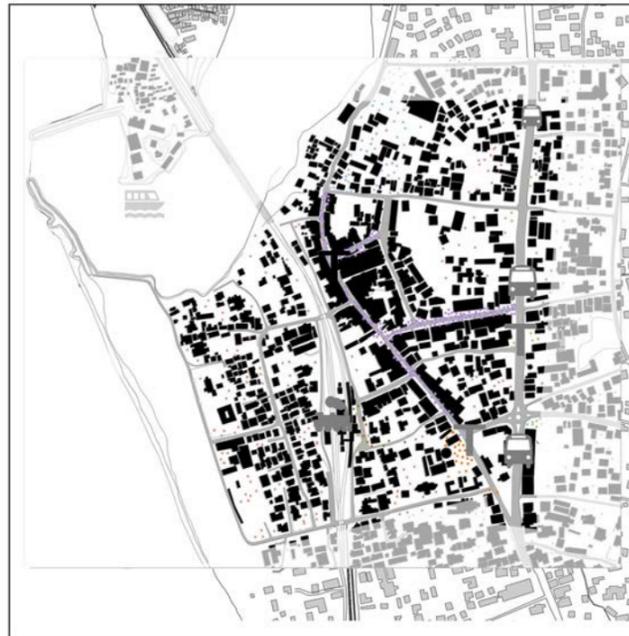
Mix of low and high-rise buildings  
Buildings of similar characters/functions are grouped together

# contextualizing

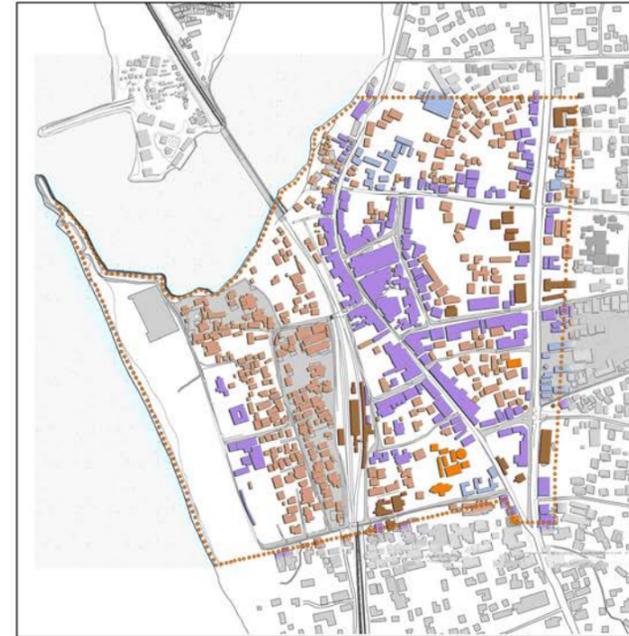
districts in five cities

**Panadura**  
Domestic city of Colombo/Transition hub

City data  
**Colombo, Sri Lanka**  
Land area : 37.3 km<sup>2</sup>  
Population : 760,000  
Density : 20,000 people/km<sup>2</sup>



Fine-grain, densely packed along arterial roads  
Several arterial roads within organic network of roads  
3 primary public transportation modes (Bus, Train, Bicycle)  
4 transportation nodes



Commercial ground-floor activity near main road  
Main program: residential and commercial  
Buildings mostly mono-use



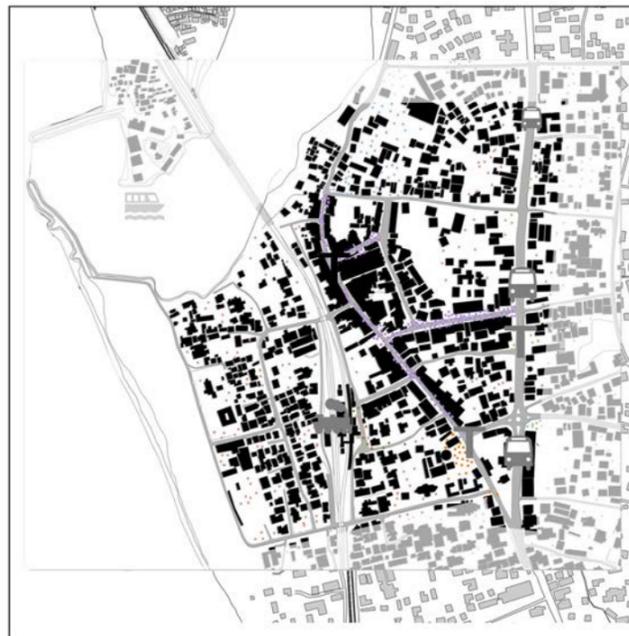
Low-rise buildings of similar character

# contextualizing

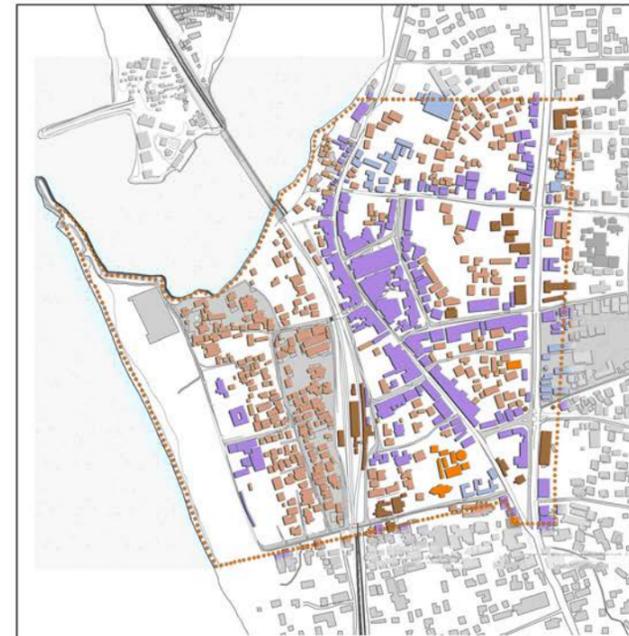
districts in five cities

**Panadura**  
Domestic city of Colombo/Transition hub

City data  
**Colombo, Sri Lanka**  
Land area : 37.3 km<sup>2</sup>  
Population : 760,000  
Density : 20,000 people/km<sup>2</sup>



Fine-grain, densely packed along arterial roads  
Several arterial roads within organic network of roads  
3 primary public transportation modes (Bus, Train, Bicycle)  
4 transportation nodes



Commercial ground-floor activity near main road  
Main program: residential and commercial  
Buildings mostly mono-use



Low-rise buildings of similar character

# contextualizing

districts in five cities

**Grzegorzki**  
Historical heart of Poland/City with soul

City data  
**Krakow, Poland**  
Land area : 327 km<sup>2</sup>  
Population : 780,000  
Density : 2,322 people/km<sup>2</sup>



Buildings enclose huge open spaces  
Ring roads linked by organic network of smaller roads  
3 primary public transportation modes (Bus, Rail, Taxi)  
5 transportation nodes



Main program: residential and commercial  
Buildings mostly mono-use



Low to mid-rise buildings  
Residential buildings of similar character

# contextualizing

districts in five cities

**Grzegorzki**  
Historical heart of Poland/City with soul

City data  
**Krakow, Poland**  
Land area : 327 km<sup>2</sup>  
Population : 780,000  
Density : 2,322 people/km<sup>2</sup>



Buildings enclose huge open spaces  
Ring roads linked by organic network of smaller roads  
3 primary public transportation modes (Bus, Rail, Taxi)  
5 transportation nodes



Main program: residential and commercial  
Buildings mostly mono-use



Low to mid-rise buildings  
Residential buildings of similar character

## on pixellation

Mr Tan Eng Kiat

Architecture is too often an exercise in isolation – inward-looking spaces enclosed in a stylized skin that insulates the building from the surrounding landscape. The interior is divorced from the exterior, even in public institutions. Contemporary architectural discourse and stylistic direction places too much emphasis on the objectification of architecture as an icon to be admired from afar, and the public realm becomes simply a context to respond to, or to hide from.

In any city, the movement of pedestrians and the incessant flow of vehicles define the character of the urban space. This is the lifeblood of the city. The points of interactions, whether it is a street peddler selling the day's papers or a gaggle of traffic at a street corner, bring life and vibrancy to any city. This urban flotsam and laissez-faire movement of people through the urban space becomes the context to be engaged, orchestrated and celebrated.

Any building situated in an urban environment needs to react to this context of movement and mobility. Urban design and architecture is no longer Cartesian and two-dimensional: spaces and interfaces need to engage the human context at various levels – the street, the underground, the above-ground. The architect needs to look beyond the context of his site and see himself as a facilitator (or even as an agent provocateur) of interaction between human activity and the urban space.

In order to create more inclusive spaces, the way land use is currently regulated and defined needs to change as well. A building can be an organic structure, with ancillary uses changing and adapting to economic and social needs. Traditional land use planning defines use as a primary programme ascribed to a parcel of land. This creates a 2-dimensional reading of activities in a city and the result is poor interaction between buildings or spaces. Yet, with the prevalent use of Geographic Information

Systems (GIS) in managing land use allocation, it is technologically possible to create a 3-dimensional map of the city where spaces and uses can intersect and be intertwined.

Taking this one step further, use of a space will change in time. The current planning mechanism and structure, whilst acknowledging this change, attempts to institutionalise it via land use reviews. While this site-level control affords the authorities control over the various developments, it lacks the flexibility in adapting to change. Land use at a zoning level allows for greater flexibility, with development intensity ascribed to a cluster of parcels and the distribution of uses market- and user-driven. This creates a situation where a building can take on multiple uses. Like how a LCD pixel is essentially comprised of 3 individual diodes and the combination of these 3 diodes give the various colours of the spectrum, this 'land use pixellation' more closely approximates how spaces are used and developed.

In incorporating this forth-dimension of time, the mapping of an urban space needs to take into account the changing use and dynamics of how these spaces are used at different times of the day, and different times of the week. A 'pixel' approach allows for dynamic adaptation of use, and as a result a more responsive space that reacts to the needs and demands of the urban context.

## on pixellation

Mr Tan Eng Kiat

Architecture is too often an exercise in isolation – inward-looking spaces enclosed in a stylized skin that insulates the building from the surrounding landscape. The interior is divorced from the exterior, even in public institutions. Contemporary architectural discourse and stylistic direction places too much emphasis on the objectification of architecture as an icon to be admired from afar, and the public realm becomes simply a context to respond to, or to hide from.

In any city, the movement of pedestrians and the incessant flow of vehicles define the character of the urban space. This is the lifeblood of the city. The points of interactions, whether it is a street peddler selling the day's papers or a gaggle of traffic at a street corner, bring life and vibrancy to any city. This urban flotsam and laissez-faire movement of people through the urban space becomes the context to be engaged, orchestrated and celebrated.

Any building situated in an urban environment needs to react to this context of movement and mobility. Urban design and architecture is no longer Cartesian and two-dimensional: spaces and interfaces need to engage the human context at various levels – the street, the underground, the above-ground. The architect needs to look beyond the context of his site and see himself as a facilitator (or even as an agent provocateur) of interaction between human activity and the urban space.

In order to create more inclusive spaces, the way land use is currently regulated and defined needs to change as well. A building can be an organic structure, with ancillary uses changing and adapting to economic and social needs. Traditional land use planning defines use as a primary programme ascribed to a parcel of land. This creates a 2-dimensional reading of activities in a city and the result is poor interaction between buildings or spaces. Yet, with the prevalent use of Geographic Information

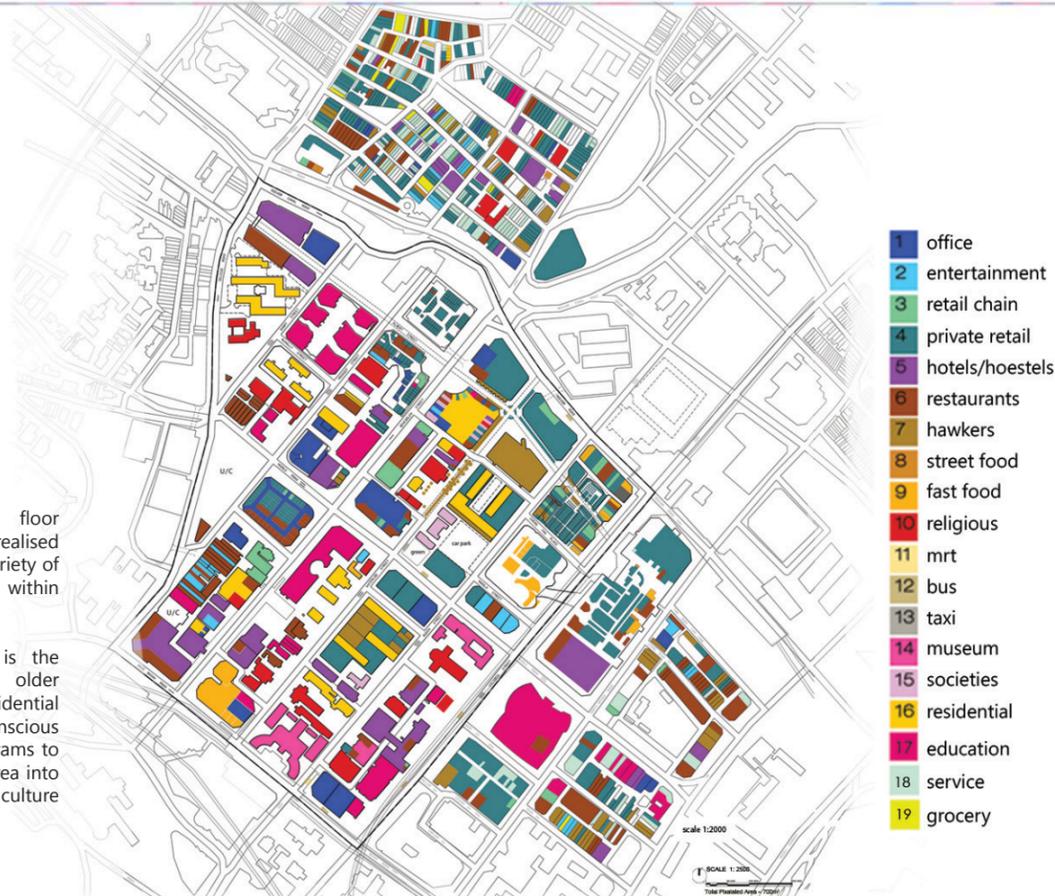
Systems (GIS) in managing land use allocation, it is technologically possible to create a 3-dimensional map of the city where spaces and uses can intersect and be intertwined.

Taking this one step further, use of a space will change in time. The current planning mechanism and structure, whilst acknowledging this change, attempts to institutionalise it via land use reviews. While this site-level control affords the authorities control over the various developments, it lacks the flexibility in adapting to change. Land use at a zoning level allows for greater flexibility, with development intensity ascribed to a cluster of parcels and the distribution of uses market- and user-driven. This creates a situation where a building can take on multiple uses. Like how a LCD pixel is essentially comprised of 3 individual diodes and the combination of these 3 diodes give the various colours of the spectrum, this 'land use pixellation' more closely approximates how spaces are used and developed.

In incorporating this forth-dimension of time, the mapping of an urban space needs to take into account the changing use and dynamics of how these spaces are used at different times of the day, and different times of the week. A 'pixel' approach allows for dynamic adaptation of use, and as a result a more responsive space that reacts to the needs and demands of the urban context.

# mapping

program  
(ground floor)



Through our ground floor activity mapping, we realised that there is a huge variety of activities that coexist within Bras Basah.

Part of the reason is the conservation of older religious and residential buildings alongside conscious injection of new programs to further cultivate the area into an vibrant arts and culture district.

# pixellation analysis

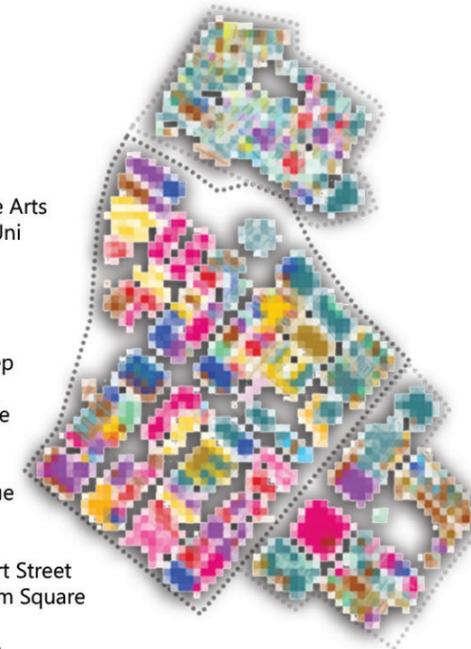
## BRAS BASAH DISTRICT

Main Programmes:  
 ■ -- e.g Laselle Sch of the Arts  
 Nanyang Academy of Fine Arts  
 Singapore Management Uni

■ --e.g. Waterloo Center  
 Cheng Yan Court  
 Selegie House  
 SMU Residences @ Princep

■ --e.g Kwan Im Tong Hood Temple  
 Sri Krishnan Temple  
 St Joseph's Church  
 Maghain Aboth Synanogue

■ --e.g Bugis Street shops  
 Informal stalls along Albert Street  
 Electronics retail at Sim Lim Square  
 Clothing, accessory retail  
 at OG Departmental Store



## LITTLE INDIA DISTRICT

Main Programmes:  
 ■ -- e.g Wholesale/ distributor items  
 Electronics spare parts  
 Handphone-related retail  
 Indian clothing and jewellery

■ --e.g. Internet Cafes  
 Cargo and shipping services  
 Electronics repair services  
 Spa and Beauty

## BUGIS DISTRICT

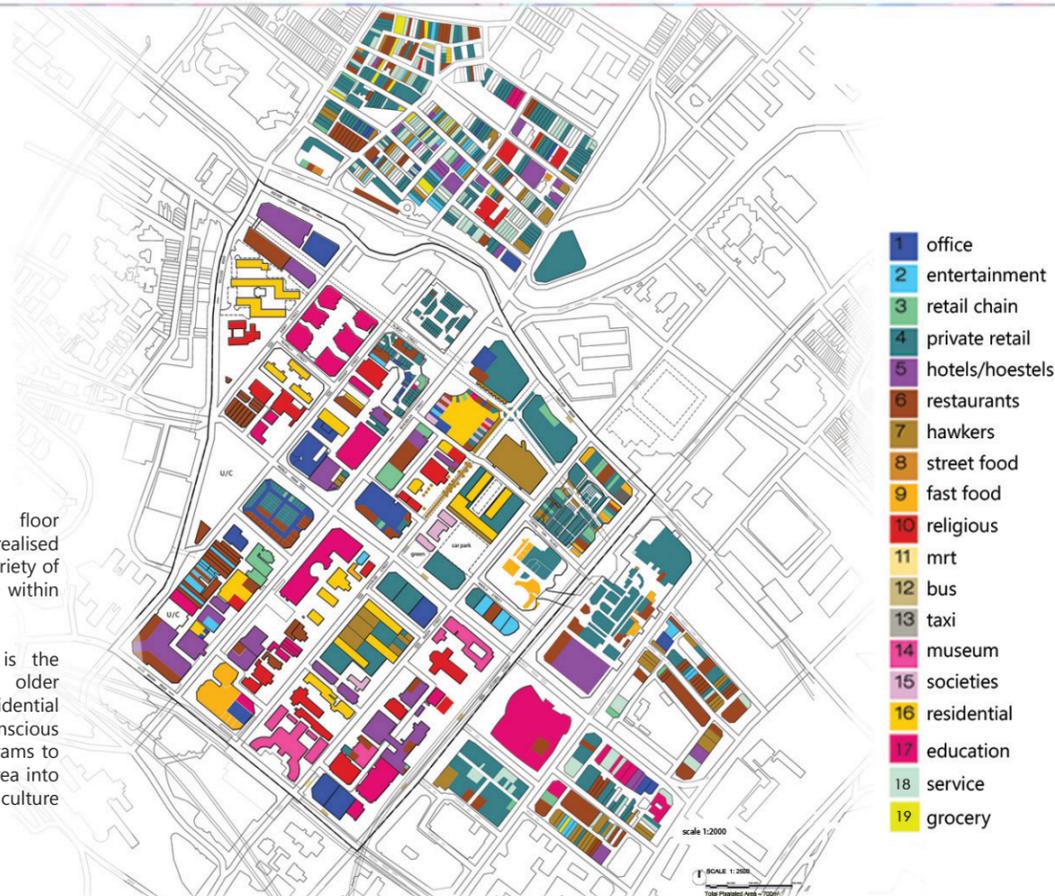
Main Programmes:  
 ■ -- e.g Mall retail at Bugis Junction  
 Second-hand bookstores and  
 art supplies at Bras Basah Complex

■ --e.g. Restaurants, eateries and hawkers  
 along Liang Seah Street  
 and Purvis Street

■ --e.g National Library

# mapping

program  
(ground floor)



Through our ground floor activity mapping, we realised that there is a huge variety of activities that coexist within Bras Basah.

Part of the reason is the conservation of older religious and residential buildings alongside conscious injection of new programs to further cultivate the area into an vibrant arts and culture district.

# pixellation analysis

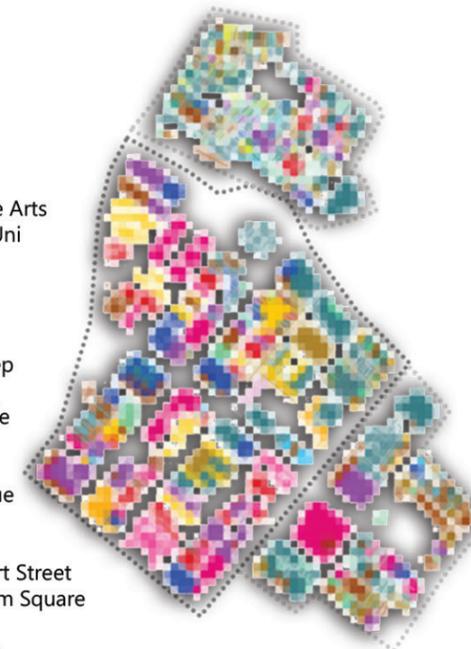
## BRAS BASAH DISTRICT

Main Programmes:  
 ■ -- e.g Laselle Sch of the Arts  
 Nanyang Academy of Fine Arts  
 Singapore Management Uni

■ --e.g. Waterloo Center  
 Cheng Yan Court  
 Selegie House  
 SMU Residences @ Princep

■ --e.g Kwan Im Tong Hood Temple  
 Sri Krishnan Temple  
 St Joseph's Church  
 Maghain Aboth Synanogue

■ --e.g Bugis Street shops  
 Informal stalls along Albert Street  
 Electronics retail at Sim Lim Square  
 Clothing, accessory retail  
 at OG Departmental Store



## LITTLE INDIA DISTRICT

Main Programmes:  
 ■ -- e.g Wholesale/ distributor items  
 Electronics spare parts  
 Handphone-related retail  
 Indian clothing and jewellery

■ --e.g. Internet Cafes  
 Cargo and shipping services  
 Electronics repair services  
 Spa and Beauty

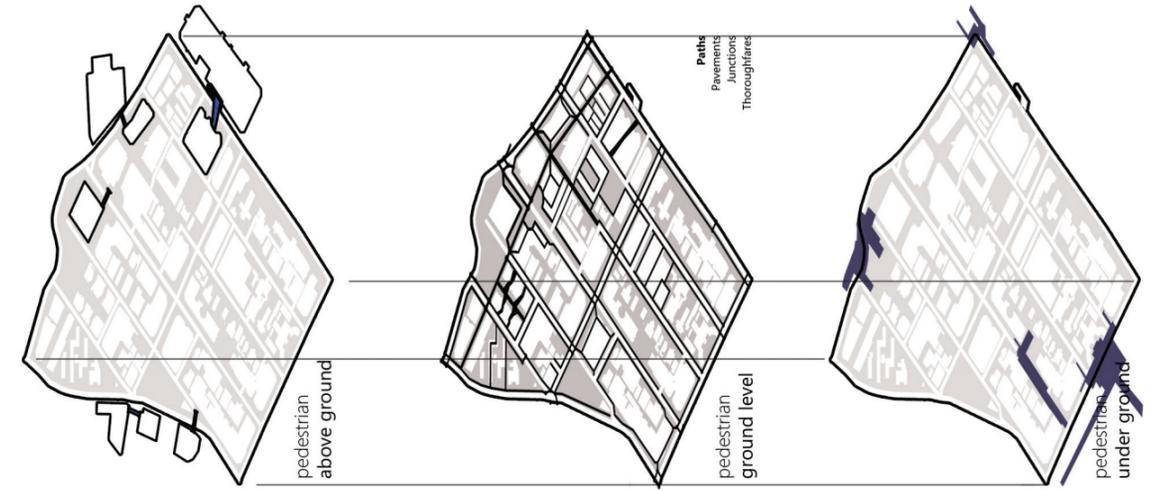
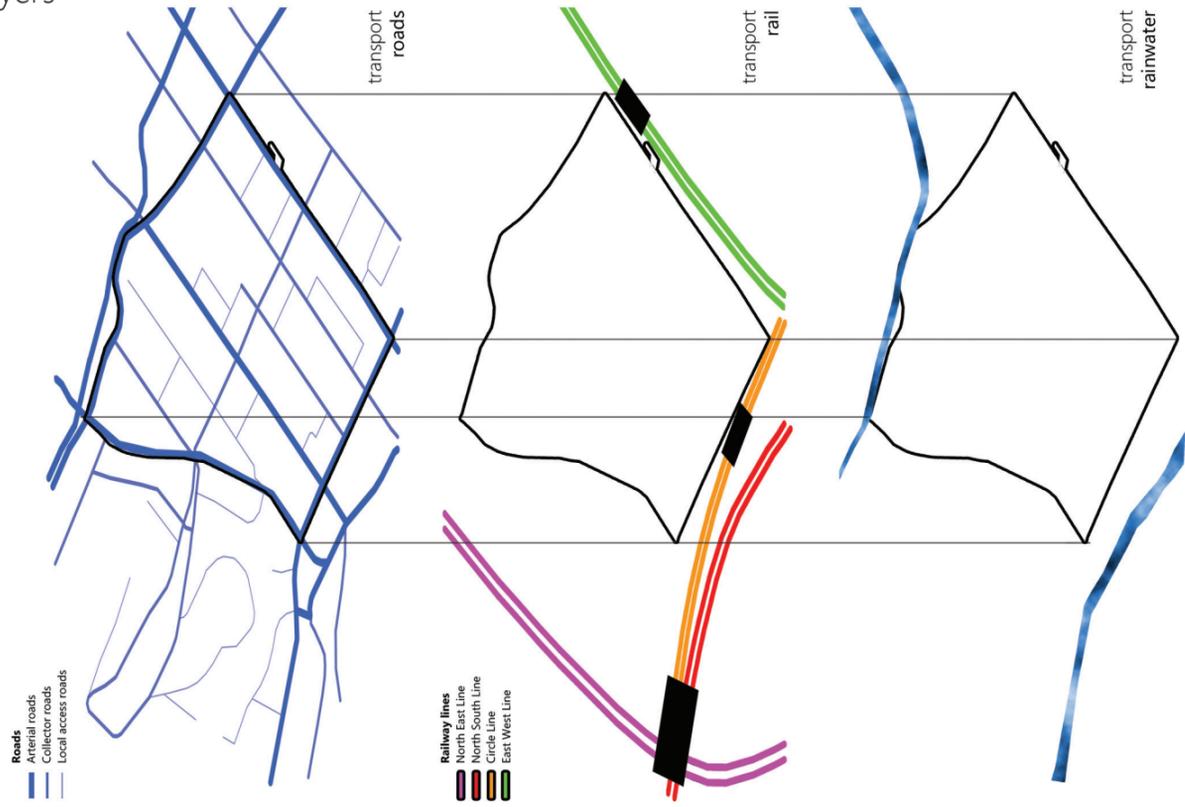
## BUGIS DISTRICT

Main Programmes:  
 ■ -- e.g Mall retail at Bugis Junction  
 Second-hand bookstores and  
 art supplies at Bras Basah Complex

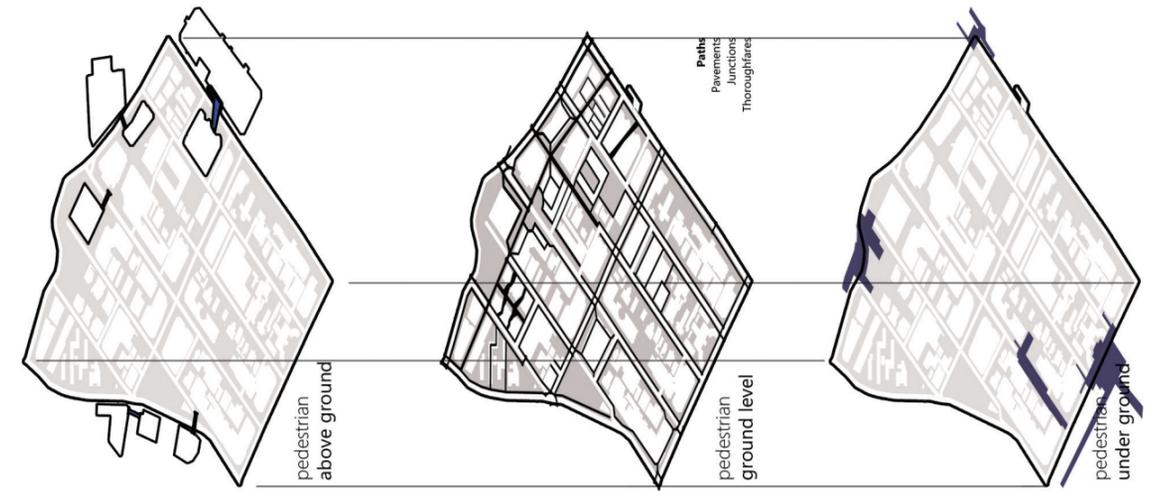
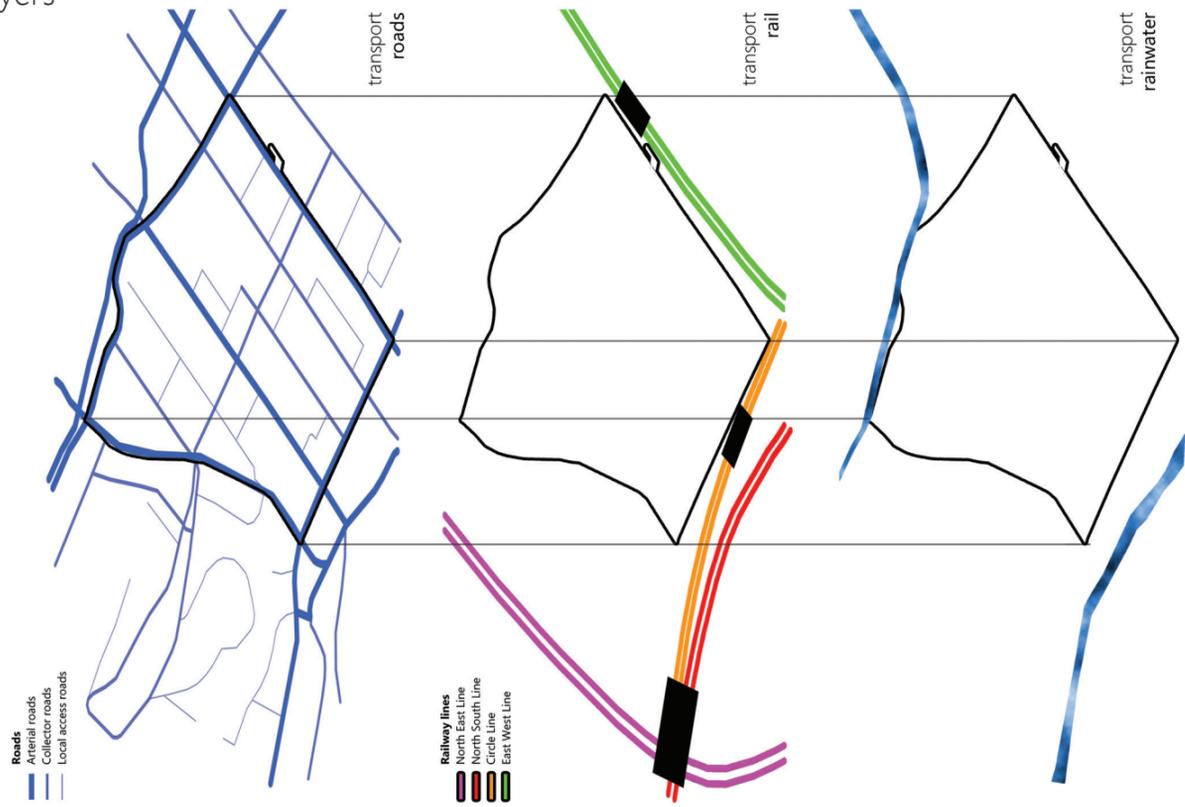
■ --e.g. Restaurants, eateries and hawkers  
 along Liang Seah Street  
 and Purvis Street

■ --e.g National Library

# mapping in layers



# mapping in layers



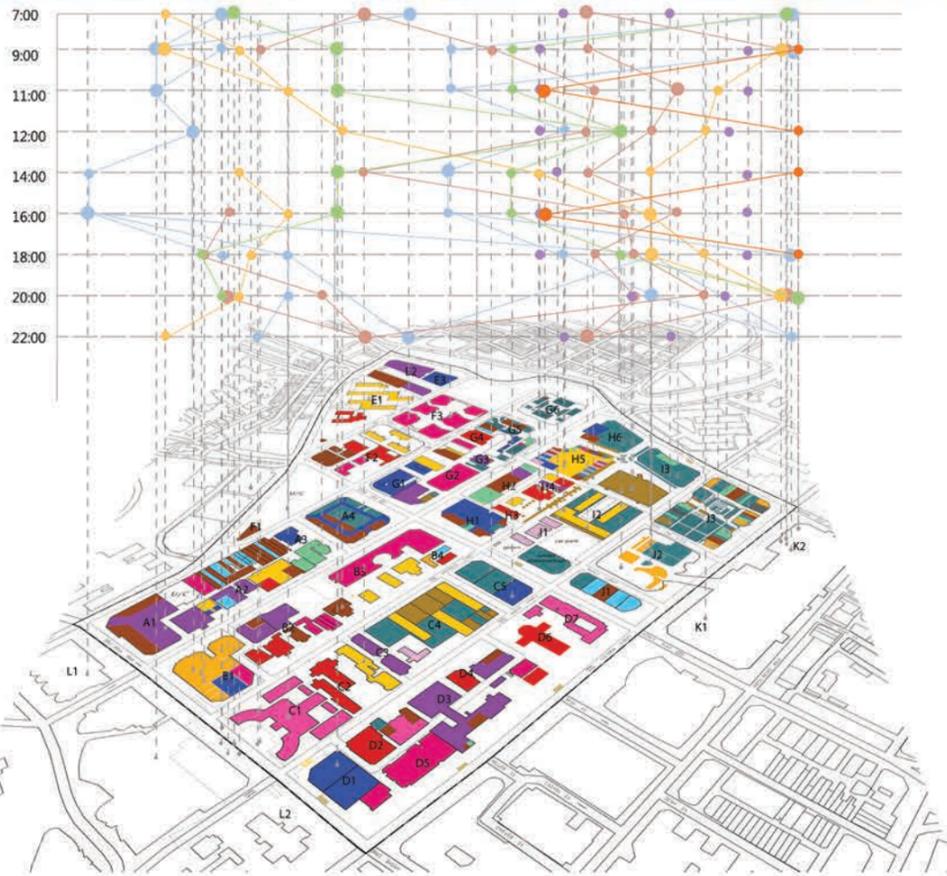
# mapping

## people demography

The mapping of people demography was done by systematically observing the types of people who pass through key nodes of the area at different times of the week.

Subsequently, by linking up the positions of these people throughout the day, we get an impression of the typical movement of various users across the site based on their daily routine.

This mapping thus aids our understanding of how the site is being used by various users.



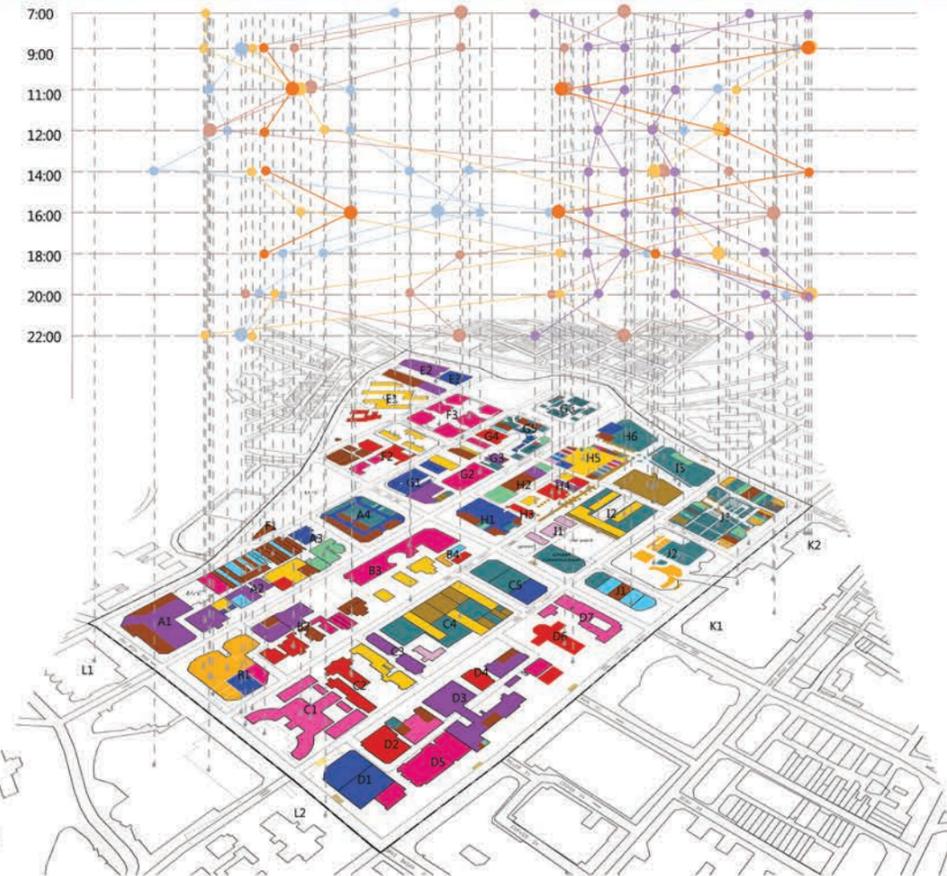
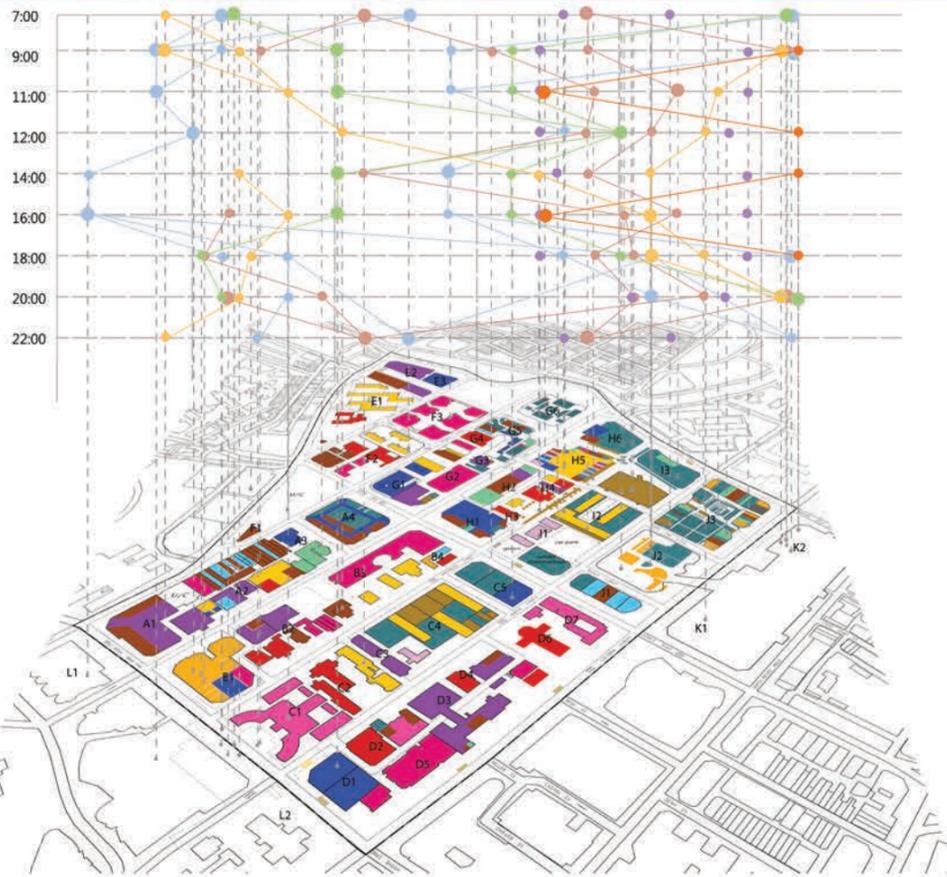
# mapping

## people demography

The mapping of people demography was done by systematically observing the types of people who pass through key nodes of the area at different times of the week.

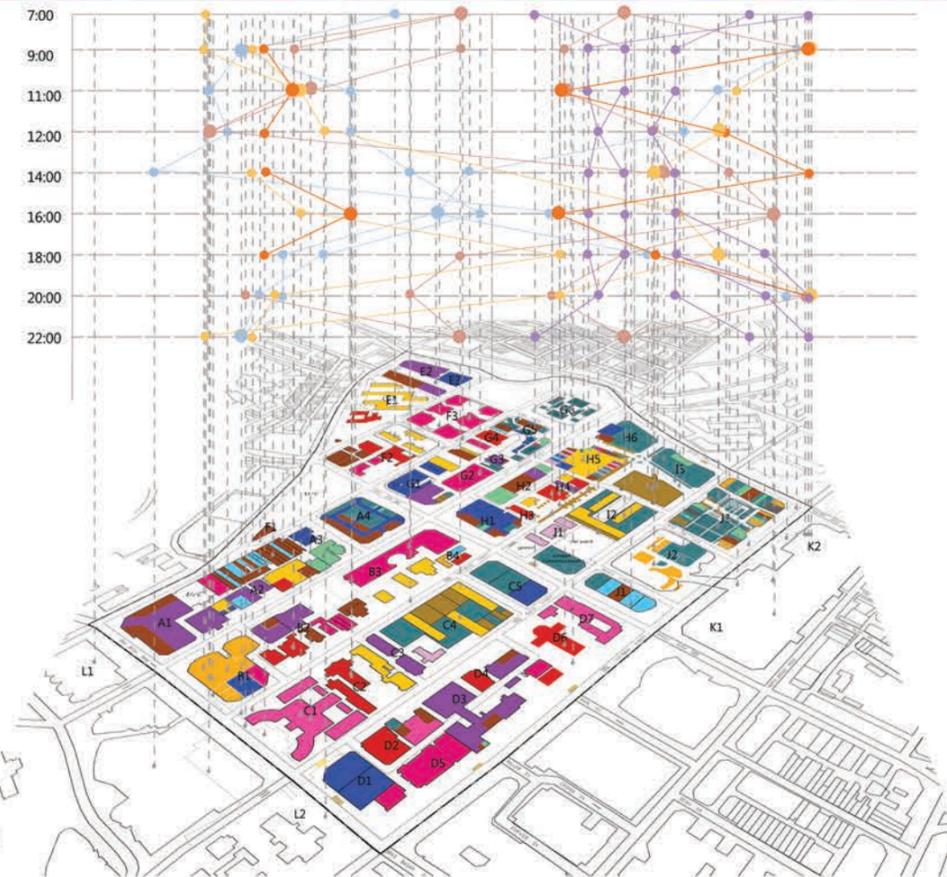
Subsequently, by linking up the positions of these people throughout the day, we get an impression of the typical movement of various users across the site based on their daily routine.

This mapping thus aids our understanding of how the site is being used by various users.



- LEGEND**
- residents
  - tourists
  - students
  - office workers
  - hawkers
  - worshippers
- > 10 people / 10 m<sup>2</sup>
  - > 5 people / 10 m<sup>2</sup>

- PROGRAM**
- 1 office
  - 2 entertainment
  - 3 chain
  - 4 private retail
  - 5 hotels
  - 6 restaurants
  - 7 hawker
  - 8 street
  - 9 fast food
  - 10 religious
  - 11 mrt
  - 12 bus
  - 13 taxi
  - 14 museum
  - 15 societies
  - 16 residential
  - 17 education



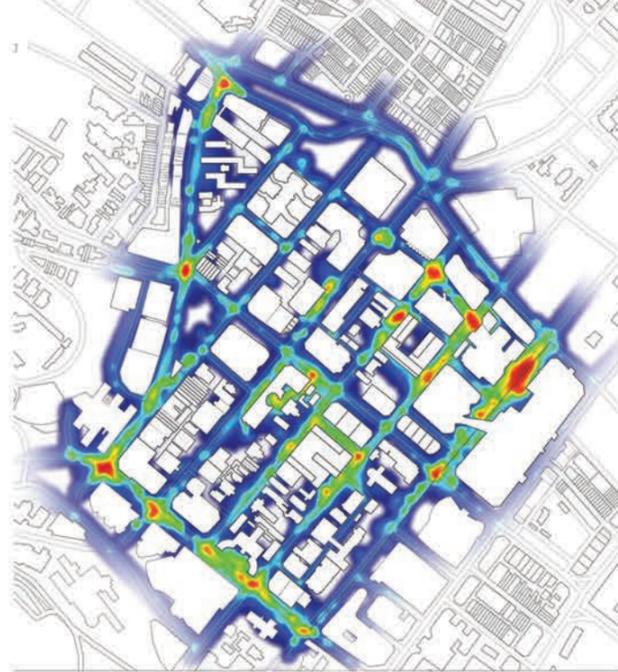
- LEGEND**
- residents
  - tourists
  - students
  - office workers
  - hawkers
  - worshippers
- > 10 people / 10 m<sup>2</sup>
  - > 5 people / 10 m<sup>2</sup>

- PROGRAM**
- 1 office
  - 2 entertainment
  - 3 chain
  - 4 private retail
  - 5 hotels
  - 6 restaurants
  - 7 hawker
  - 8 street
  - 9 fast food
  - 10 religious
  - 11 mrt
  - 12 bus
  - 13 taxi
  - 14 museum
  - 15 societies
  - 16 residential
  - 17 education

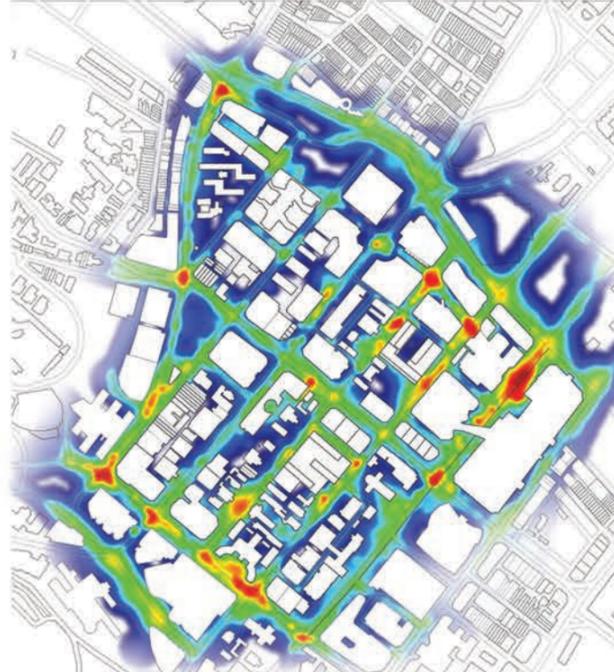
# mapping

people density

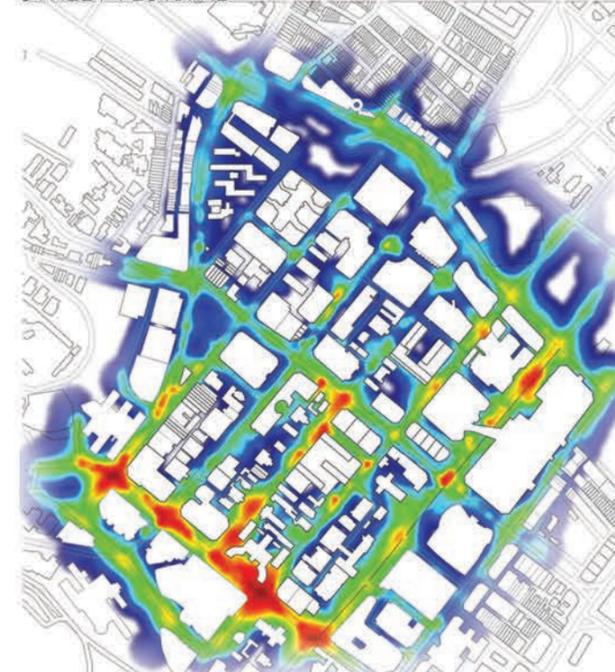
NORMAL WEEKDAYS



NORMAL WEEKENDS



STREET FESTIVAL



more dense



less dense

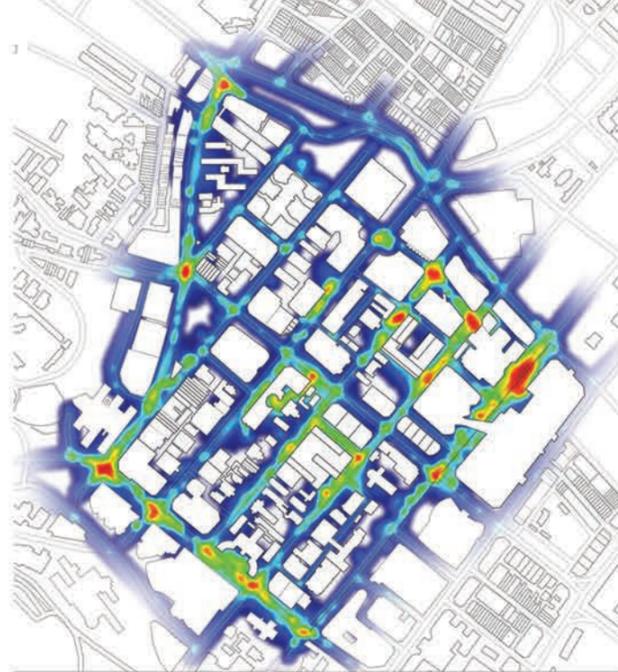
The mapping of human density was done for weekday, weekend and on special occasions like during the Singapore Night Festival. This allowed us to compare the activation of the site at different time of the week as well as identify "hotspots" within the site.

Eventually, this mapping aids in identifying potential routes and junctions in which our urban intervention can situate or tap on.

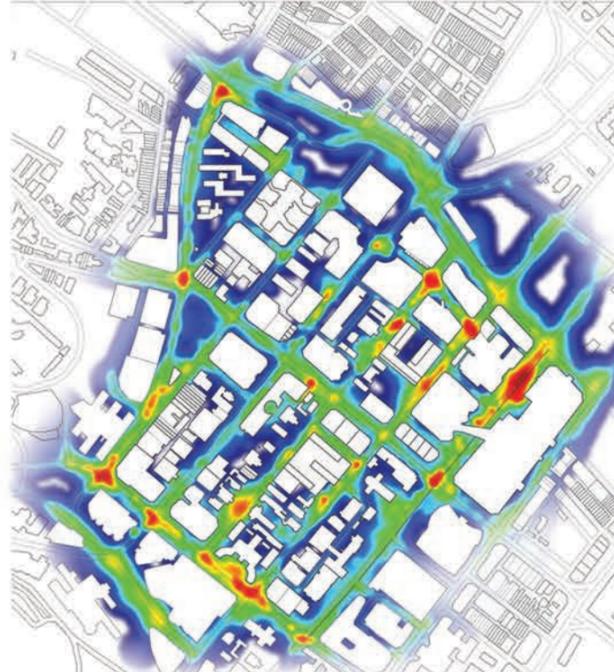
# mapping

people density

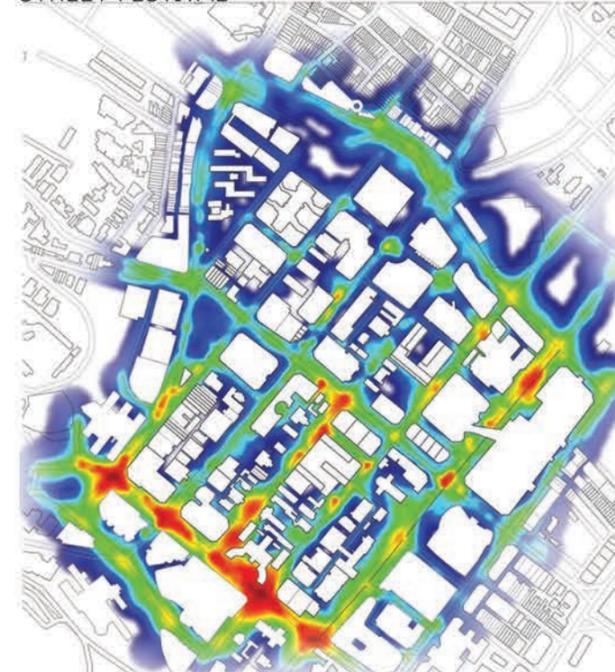
NORMAL WEEKDAYS



NORMAL WEEKENDS



STREET FESTIVAL



more dense

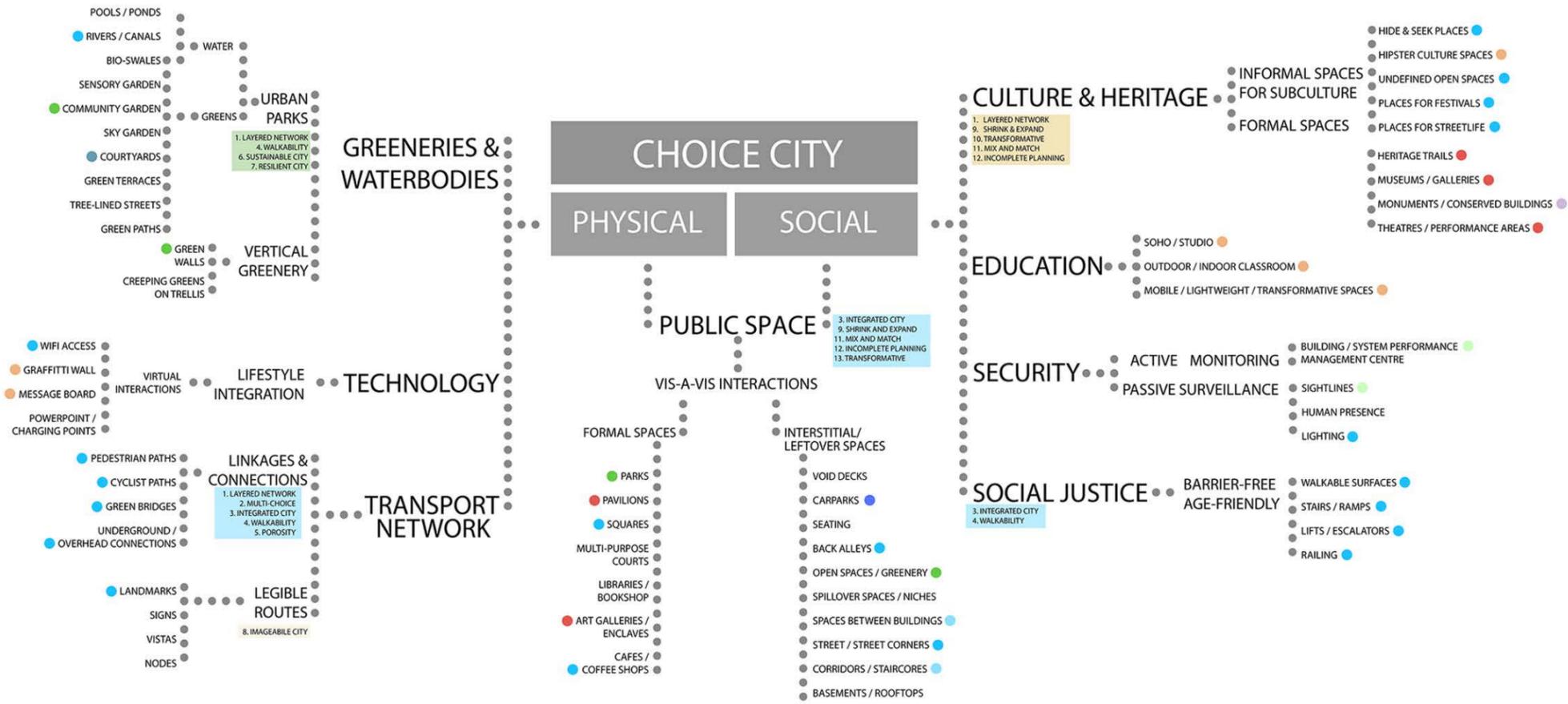


less dense

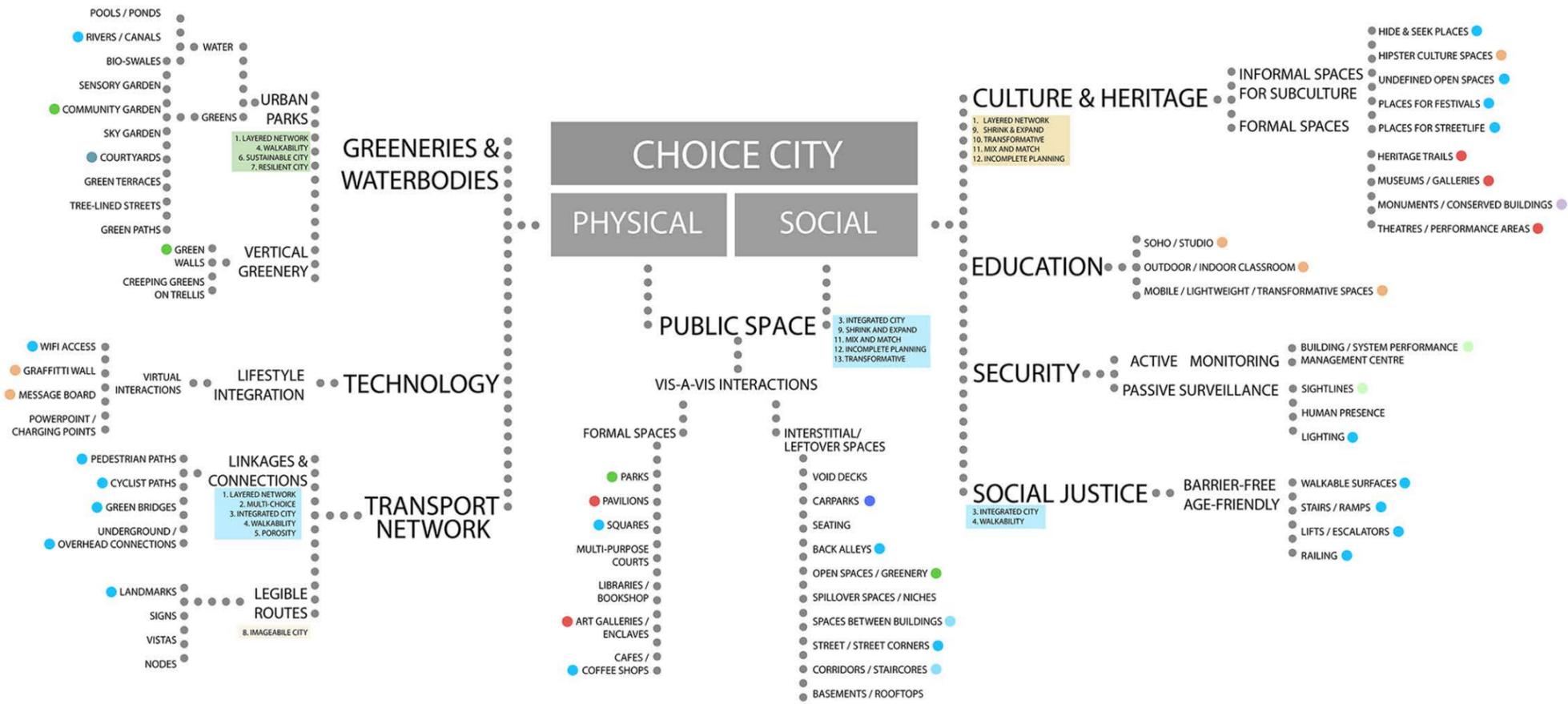
The mapping of human density was done for weekday, weekend and on special occasions like during the Singapore Night Festival. This allowed us to compare the activation of the site at different time of the week as well as identify "hotspots" within the site.

Eventually, this mapping aids in identifying potential routes and junctions in which our urban intervention can situate or tap on.

mind map  
"Choice City"

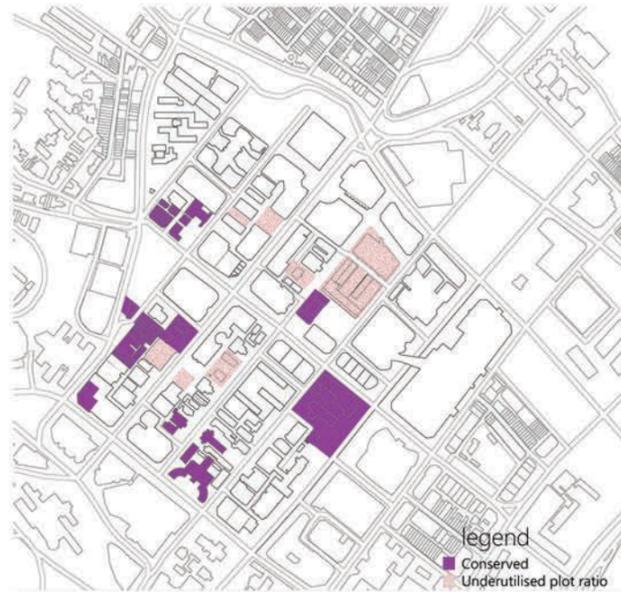


mind map  
"Choice City"



# activation of strategy plan

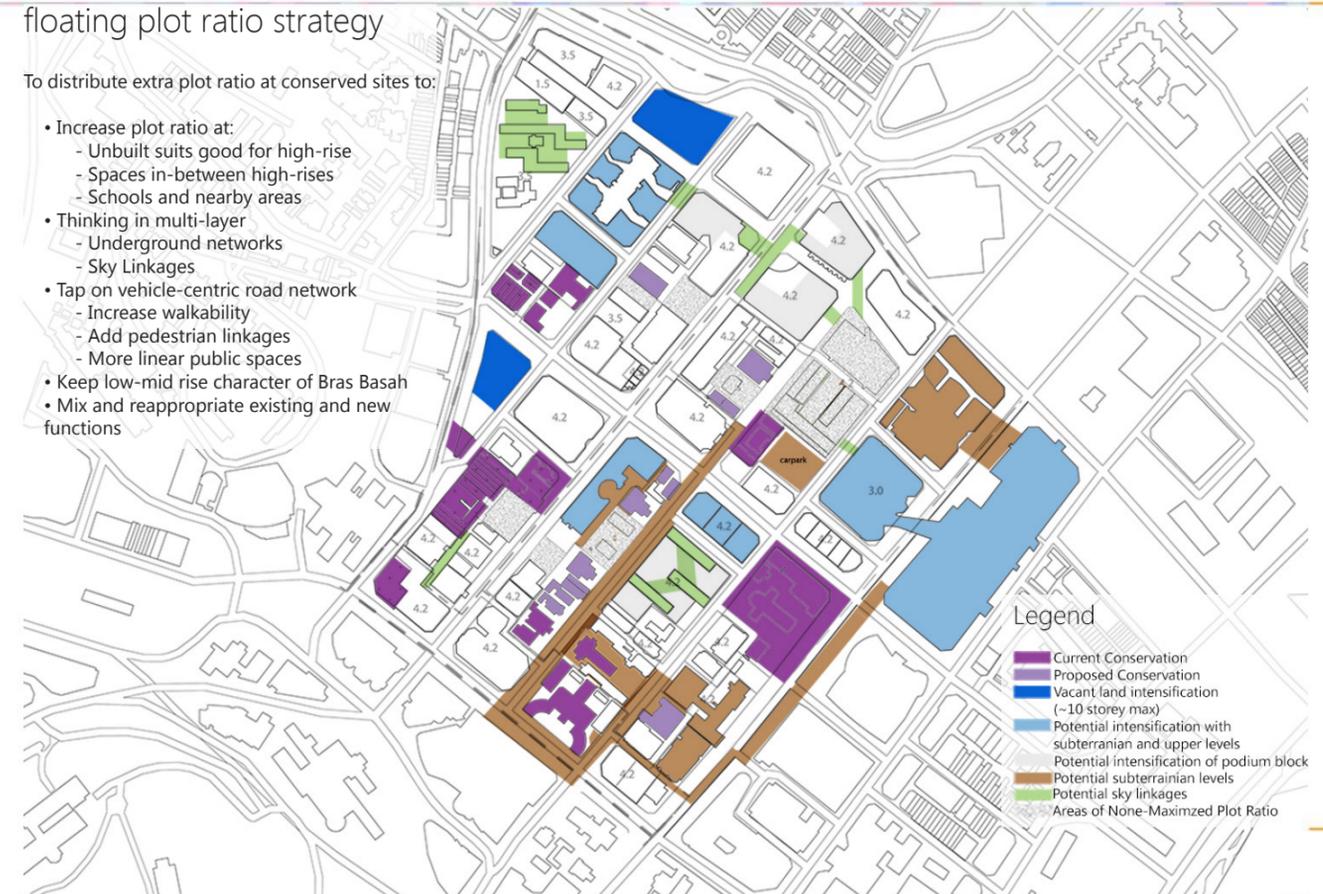
utilization of space



# floating plot ratio strategy

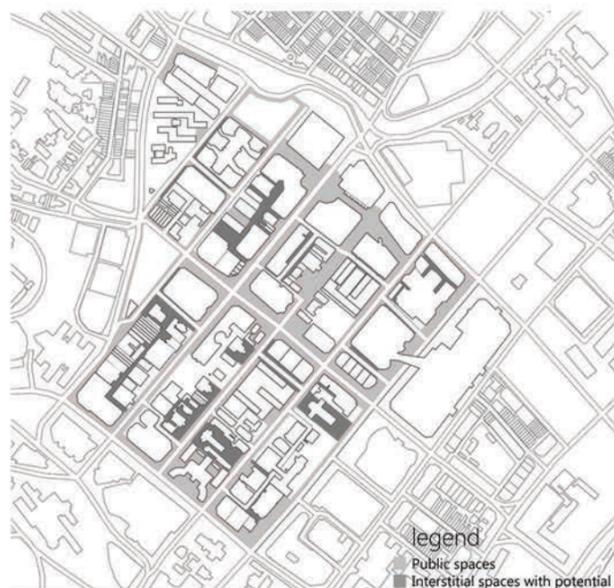
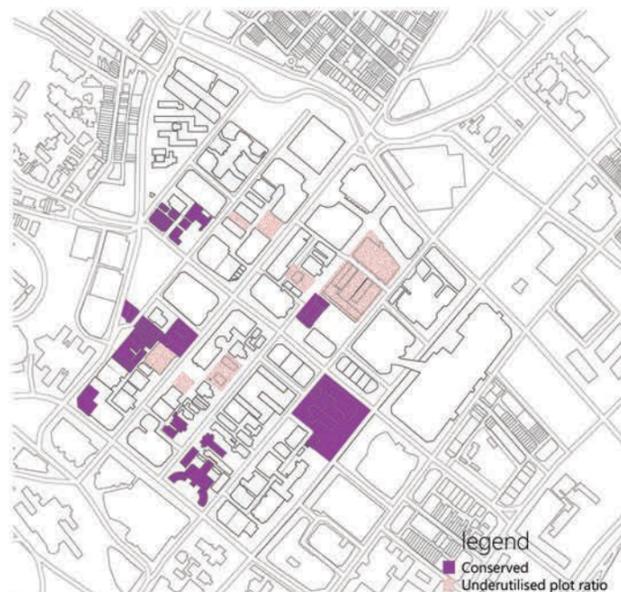
To distribute extra plot ratio at conserved sites to:

- Increase plot ratio at:
  - Unbuilt suits good for high-rise
  - Spaces in-between high-rises
  - Schools and nearby areas
- Thinking in multi-layer
  - Underground networks
  - Sky Linkages
- Tap on vehicle-centric road network
  - Increase walkability
  - Add pedestrian linkages
  - More linear public spaces
- Keep low-mid rise character of Bras Basah
- Mix and reappropriate existing and new functions



# activation of strategy plan

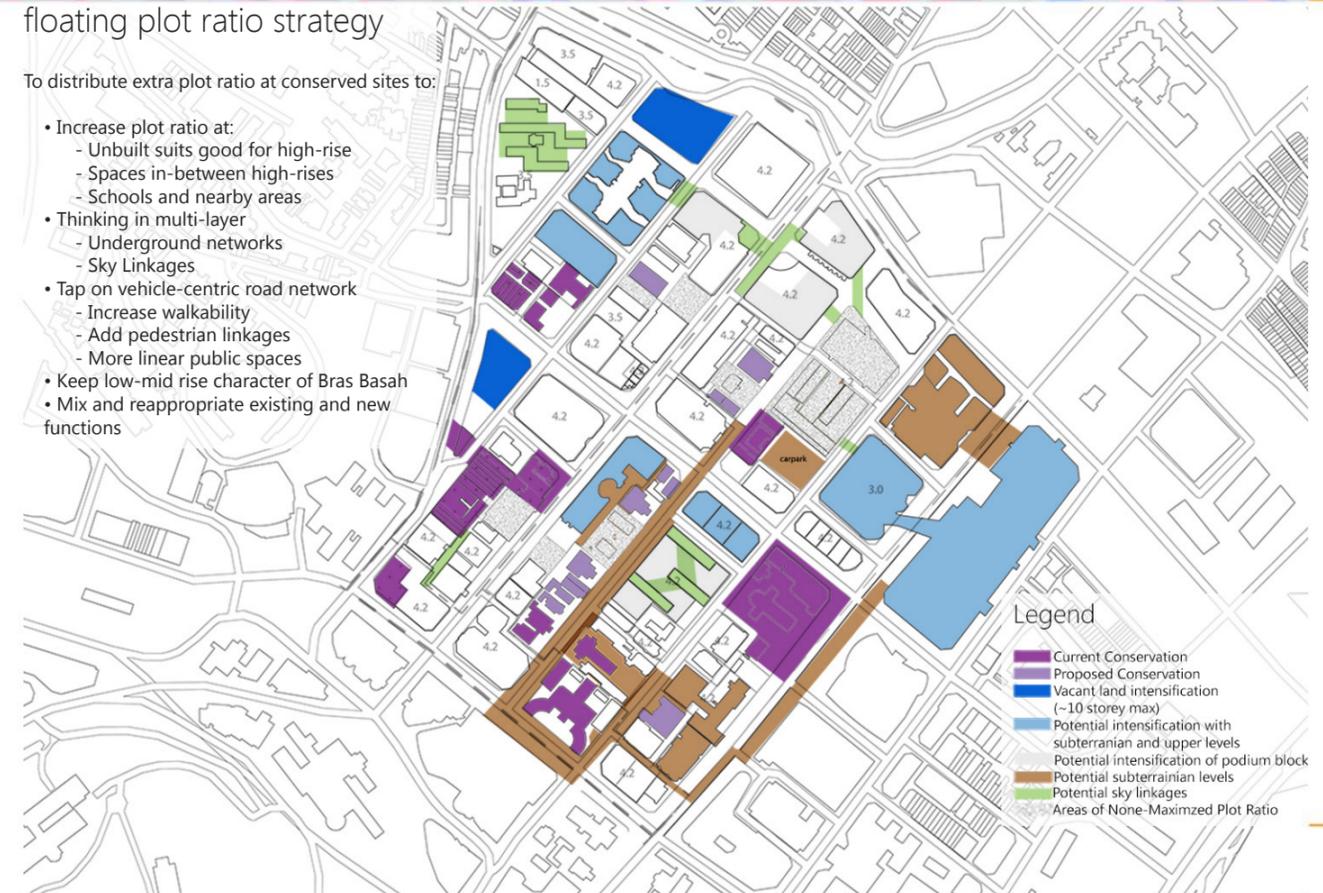
utilization of space



# floating plot ratio strategy

To distribute extra plot ratio at conserved sites to:

- Increase plot ratio at:
  - Unbuilt suits good for high-rise
  - Spaces in-between high-rises
  - Schools and nearby areas
- Thinking in multi-layer
  - Underground networks
  - Sky Linkages
- Tap on vehicle-centric road network
  - Increase walkability
  - Add pedestrian linkages
  - More linear public spaces
- Keep low-mid rise character of Bras Basah
- Mix and reappropriate existing and new functions



city comparison  
conclusion

bangkok:

- commercial area along main street
- enclosed residential areas
- small roads in residential area enough as only residents use them
- schools near religious places
- green spaces along riverside

beijing:

- important to keep context and form of historical buildings
- context is a coordinated style and height of surrounding buildings
- vibrant public spaces encourage development around
- people like to stay in more human-scaled pedestrian streets
- more interactions on small streets

krakow:

- place pedestrian movement between important spaces along one main path to generate public space
- car movement affects walkability
- pedestrian links above/underground for walkability
- lack of connection between districts prevents accessibility beyond central area

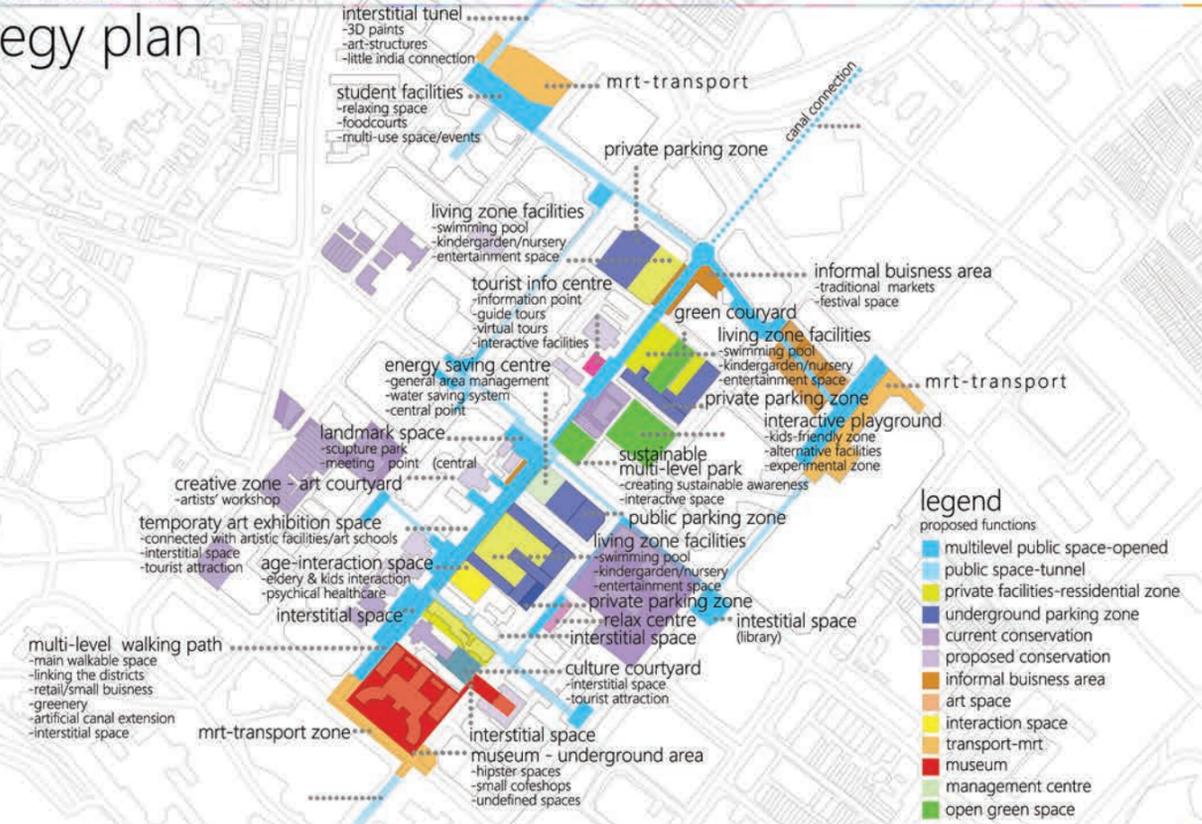
panadura:

- pedestrians have identified main routes about city to fit their needs
- more commercial areas are easily identifiable from more residential areas through buildings and patterns of pedestrian movement
- pedestrians accumulate along main road to generate biggest densities

kuehlapiscity  
activation ideas

- waterloo street - main pedestrian path**  
roughly equidistance to most places arounds  
high pedestrian movement along main street  
mixed-use character
- improving lifestyle level**  
restore existing residential buildings  
add facilities to improve the standard  
create more public spaces
- culture & art as big values**  
museum expansion - temporary exhibitions  
cooperating with art schools  
'cre-art' space

proposed urban intervention  
strategy plan



city comparison  
conclusion

bangkok:

- commercial area along main street
- enclosed residential areas
- small roads in residential area enough as only residents use them
- schools near religious places
- green spaces along riverside

beijing:

- important to keep context and form of historical buildings
- context is a coordinated style and height of surrounding buildings
- vibrant public spaces encourage development around
- people like to stay in more human-scaled pedestrian streets
- more interactions on small streets

krakow:

- place pedestrian movement between important spaces along one main path to generate public space
- car movement affects walkability
- pedestrian links above/underground for walkability
- lack of connection between districts prevents accessibility beyond central area

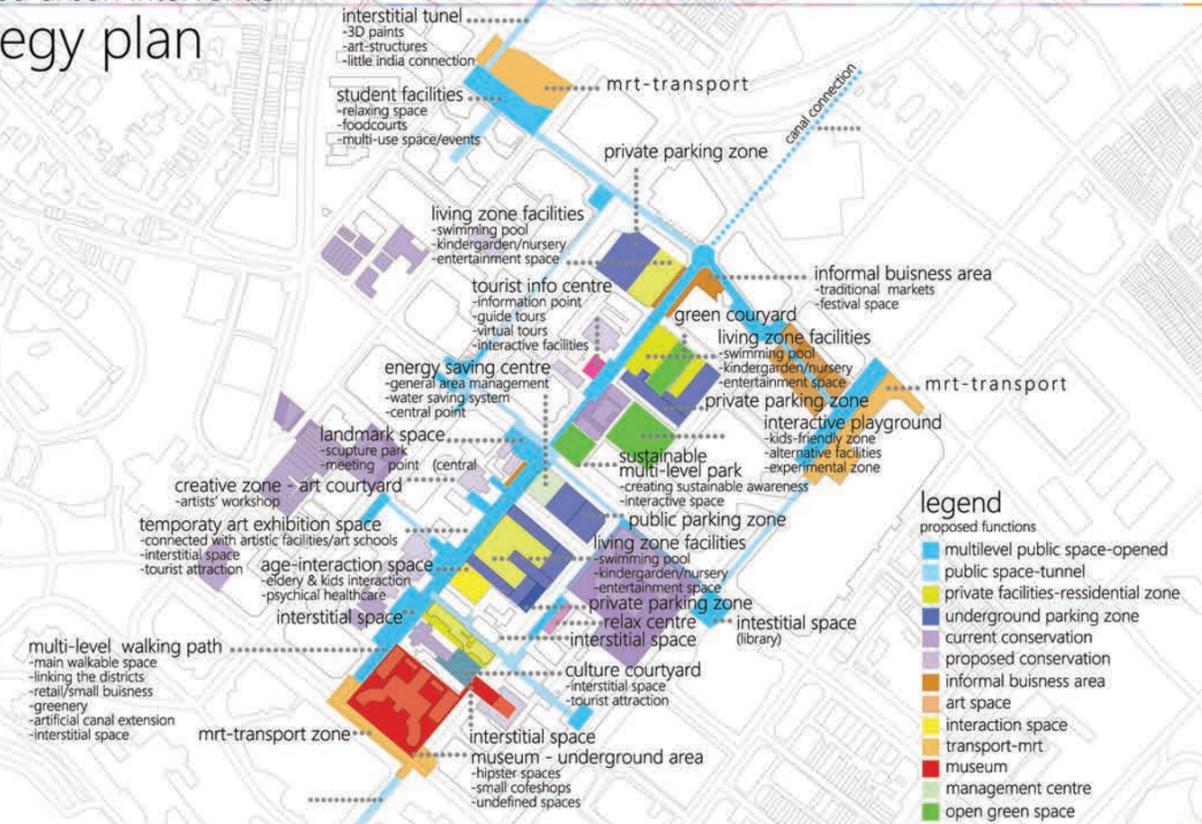
panadura:

- pedestrians have identified main routes about city to fit their needs
- more commercial areas are easily identifiable from more residential areas through buildings and patterns of pedestrian movement
- pedestrians accumulate along main road to generate biggest densities

kuehlapiscity  
activation ideas

- waterloo street - main pedestrian path**  
roughly equidistance to most places arounds  
high pedestrian movement along main street  
mixed-use character
- improving lifestyle level**  
restore existing residential buildings  
add facilities to improve the standard  
create more public spaces
- culture & art as big values**  
museum expansion - temporary exhibitions  
cooperating with art schools  
'cre-art' space

proposed urban intervention  
strategy plan



# activation of strategy plan

section along Waterloo St

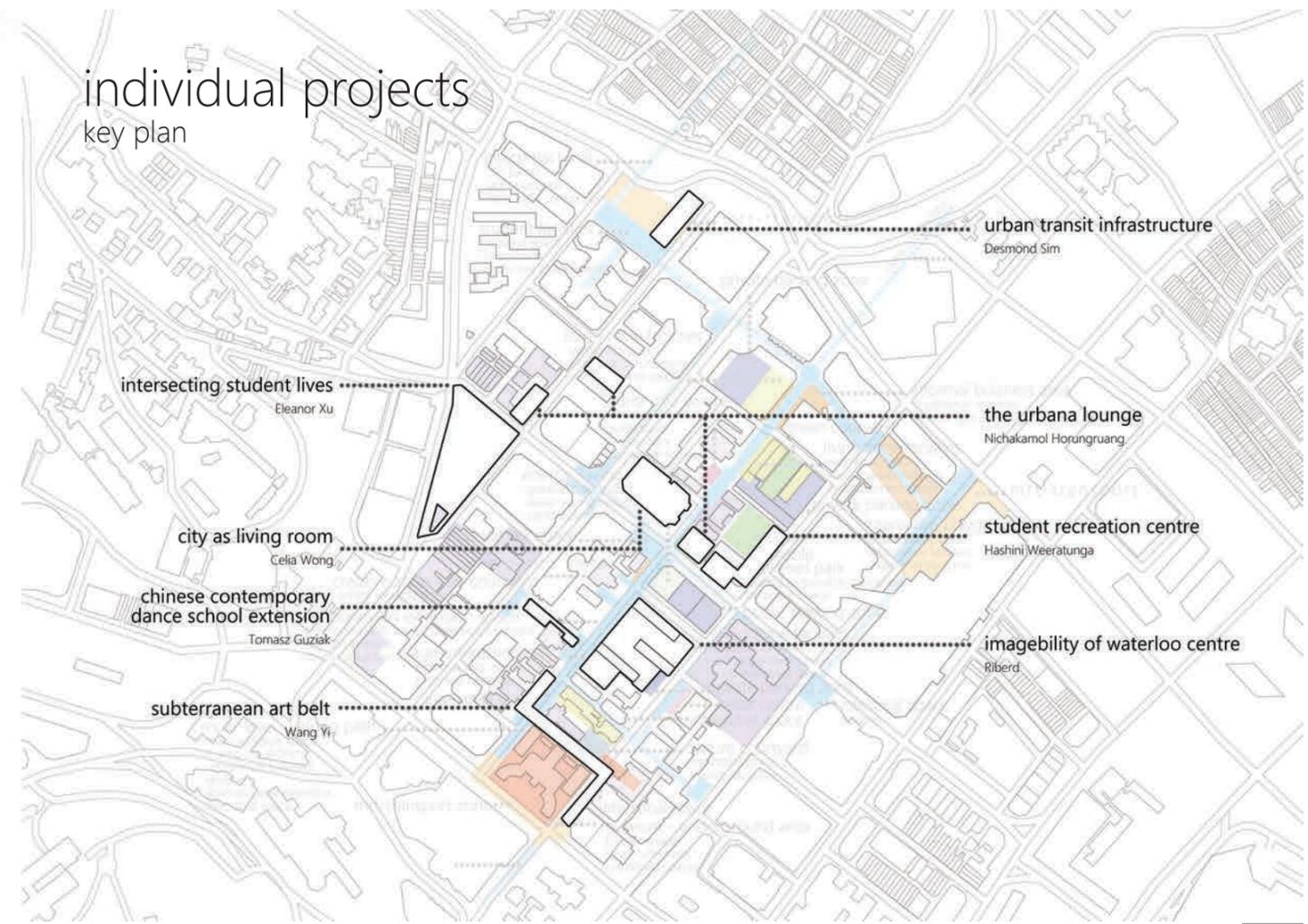


# activation of strategy plan

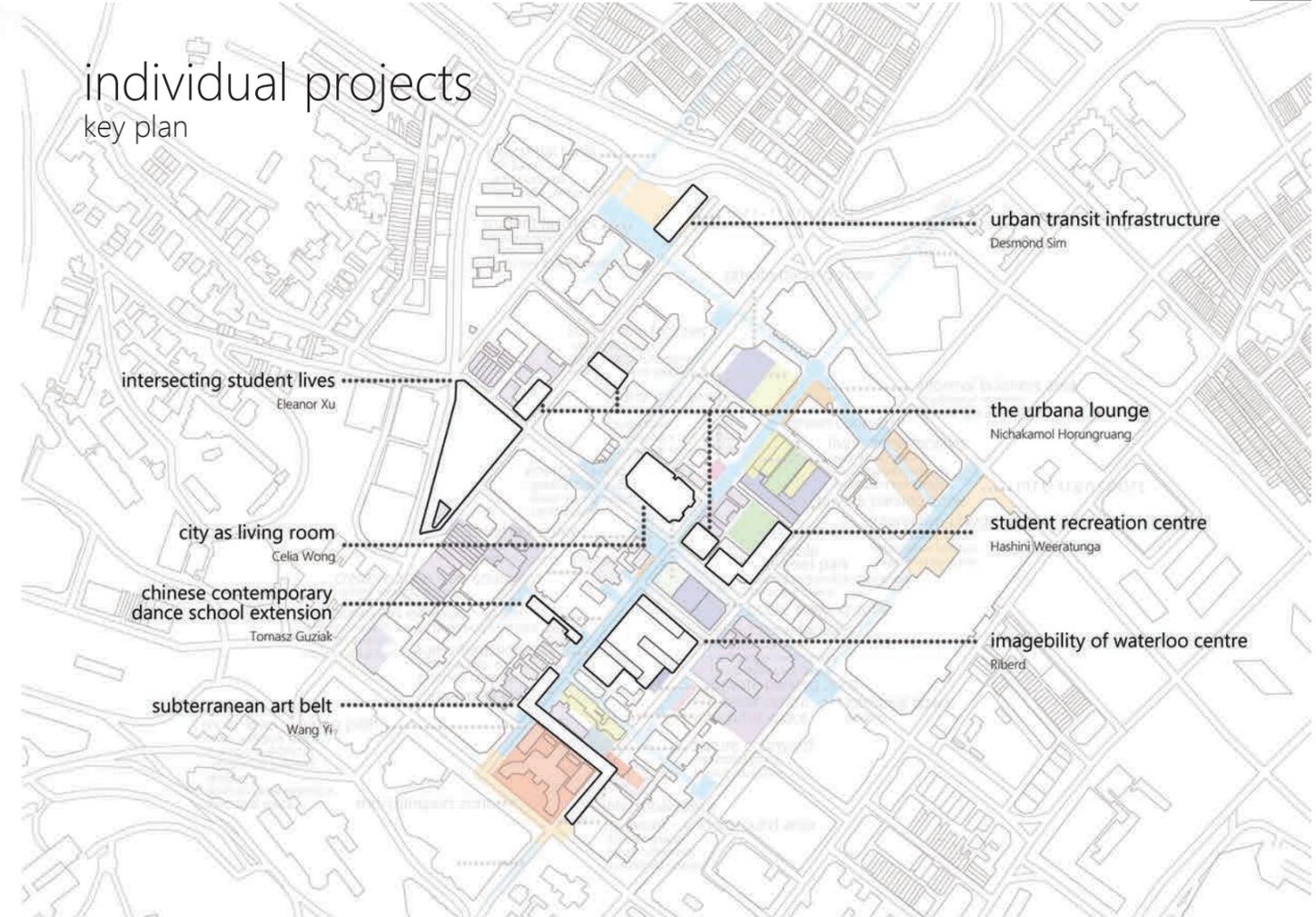
section along Waterloo St



individual projects  
key plan

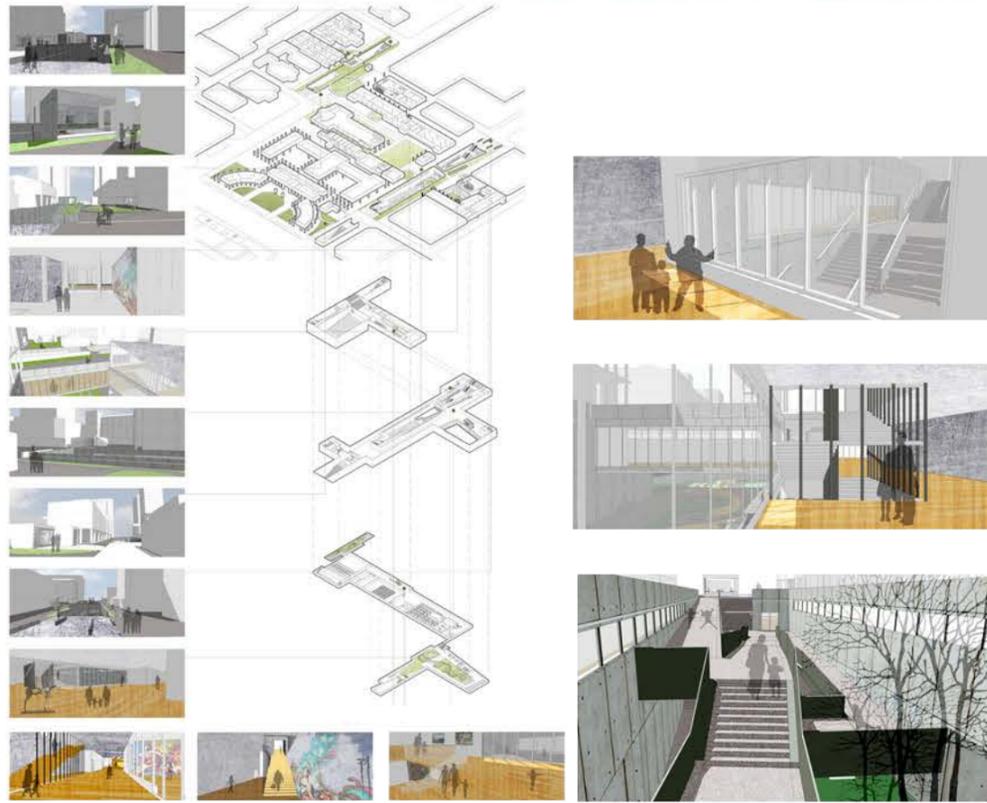


individual projects  
key plan

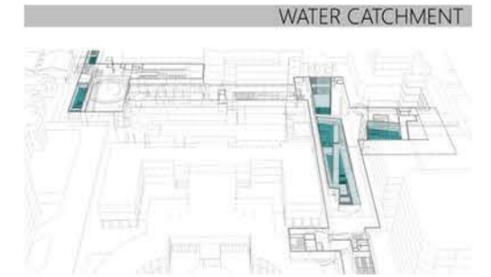


# subterranean art belt

Wang Yi



The project aims to tie those separated art galleries and institutions up as a complex which can reinforce them as a whole. It will also deal with the flood issue by serving as a temporary water reservoir.

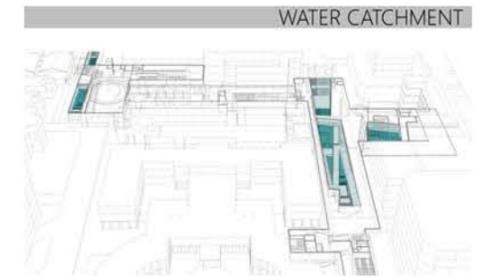


# subterranean art belt

Wang Yi



The project aims to tie those separated art galleries and institutions up as a complex which can reinforce them as a whole. It will also deal with the flood issue by serving as a temporary water reservoir.



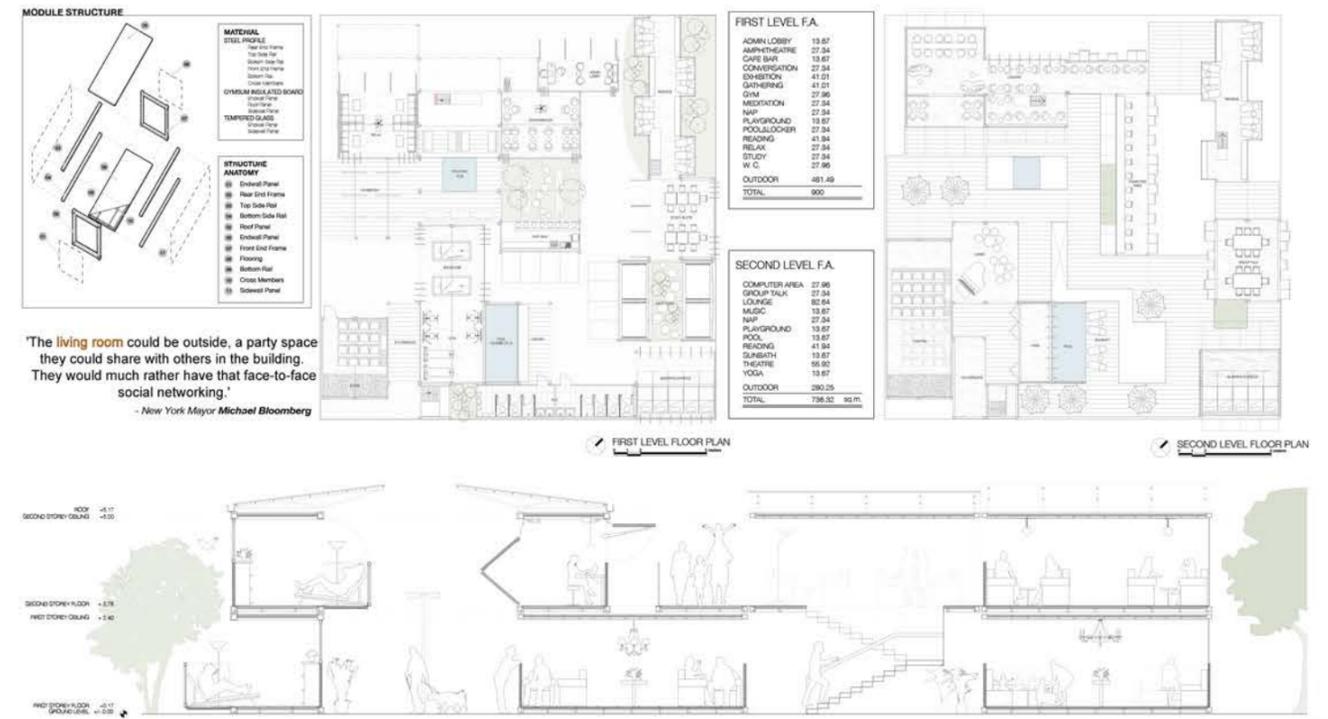
# the urbana lounge

Nichakamol Horungruang



The Urbana Lounge is a mobility-based project that mainly includes living room, recreational gym, and public event spaces made from standard container size.

With the idea of a catalyst for fulfilled Bugis community building, the project aims to provide a friendly space for all local and traveling users.



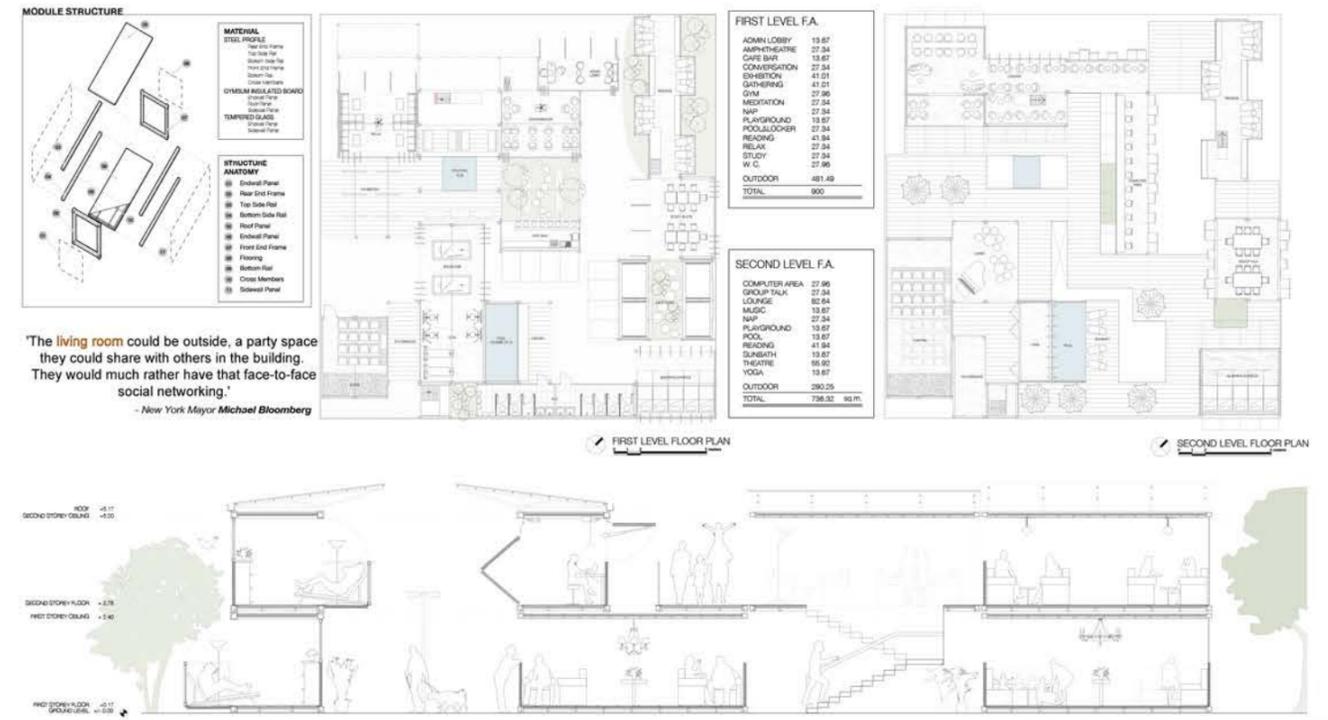
# the urbana lounge

Nichakamol Horungruang



The Urbana Lounge is a mobility-based project that mainly includes living room, recreational gym, and public event spaces made from standard container size.

With the idea of a catalyst for fulfilled Bugis community building, the project aims to provide a friendly space for all local and traveling users.



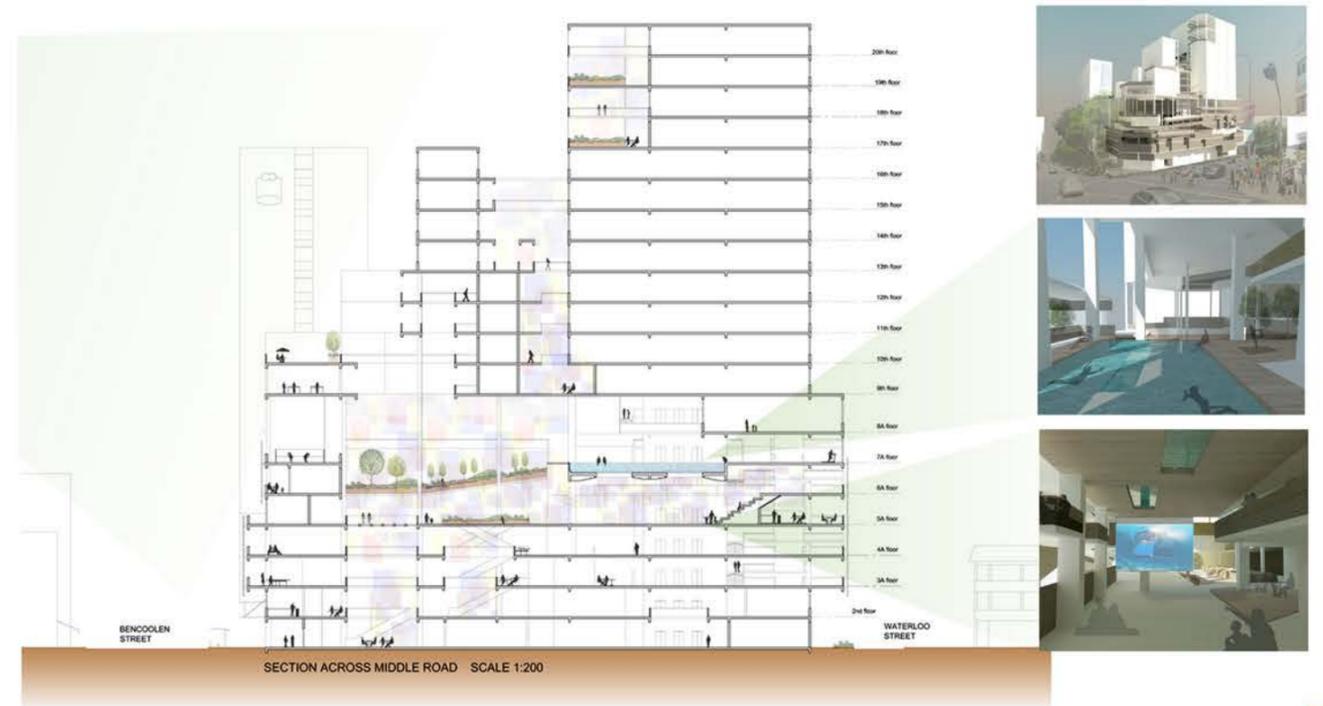
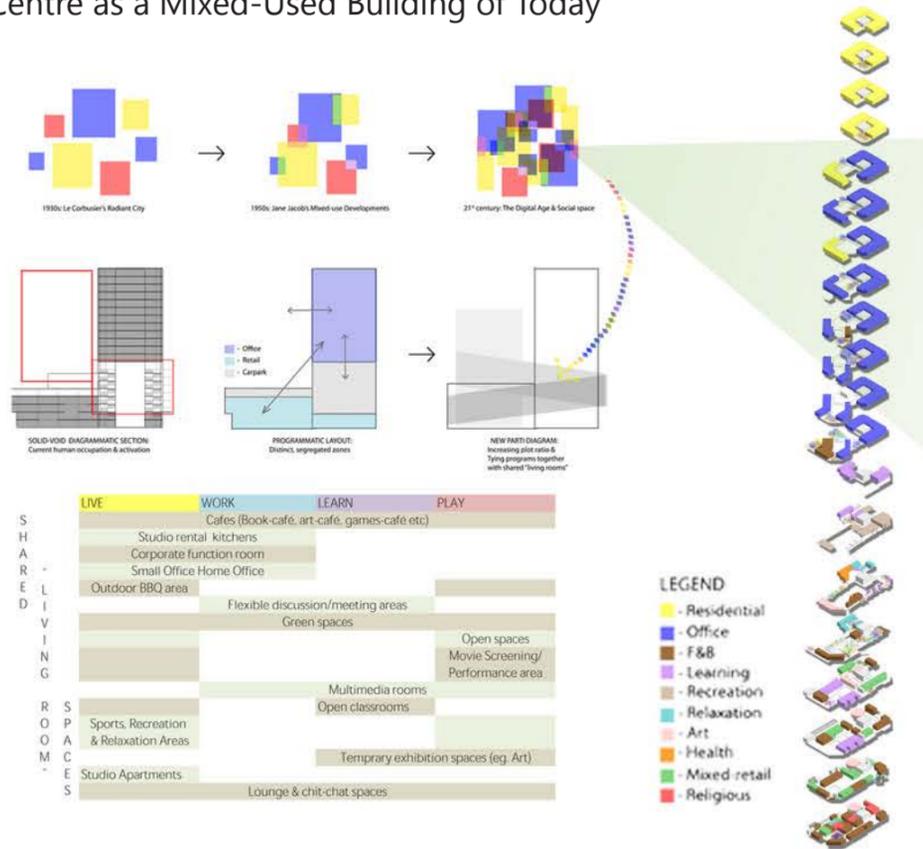
# city as living room

## Re-envisioning Fortune Centre as a Mixed-Used Building of Today

Celia Wong Min Yi

Traditional mixed-use developments in Singapore, as in the case of the existing Fortune Centre, have strictly zoned functions within the building with little space for the different users to come together and intermingle. Ironically, in today's context of the Digital Age, the need for face-to-face interactions and shared social space becomes ever more crucial.

This project thus explores the re-envisioning and modification of Fortune Centre as a modern mixed-used building that integrates different functional zones together through a variety of meaningful shared spaces termed as "Living Rooms." These flexible "Living Rooms" become alternative spaces for living, working, learning and playing all at once. Ultimately, they echo the whole City as our home in today's ever-more connected urbscape.



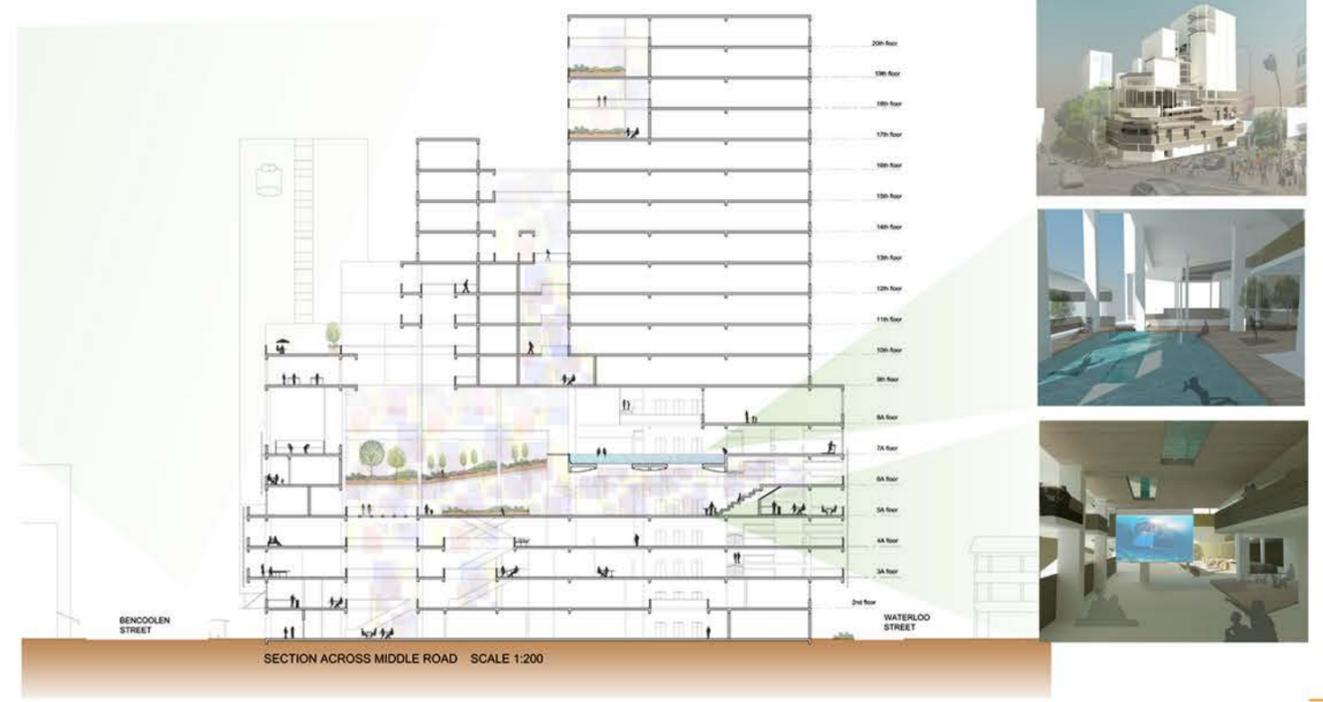
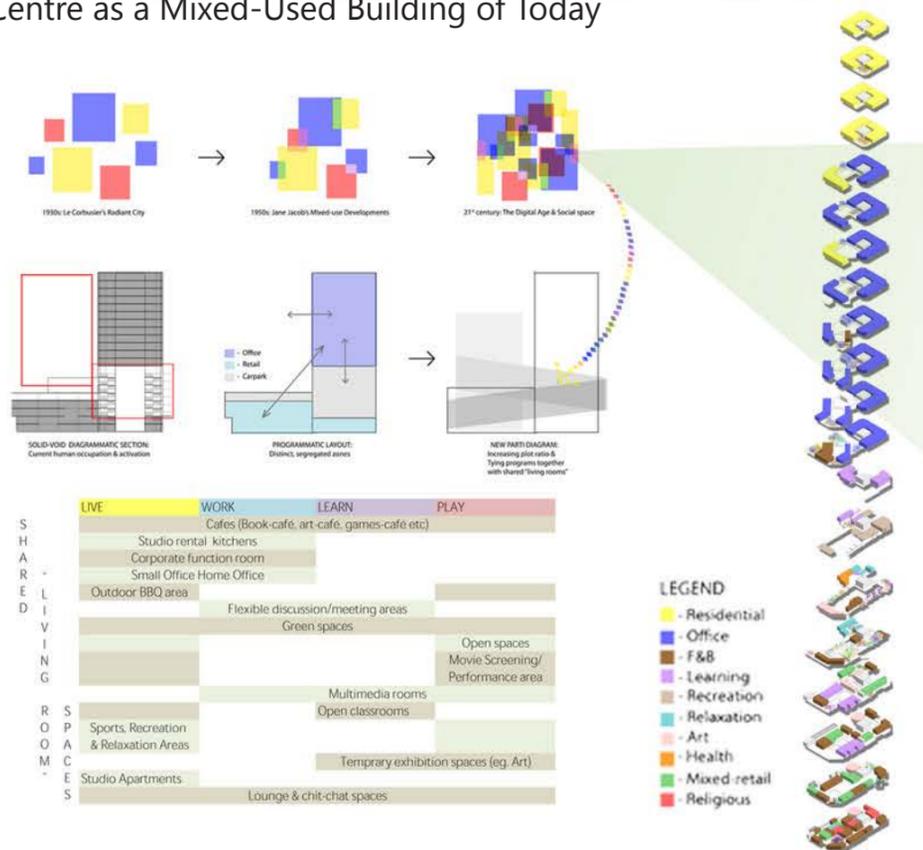
# city as living room

## Re-envisioning Fortune Centre as a Mixed-Used Building of Today

Celia Wong Min Yi

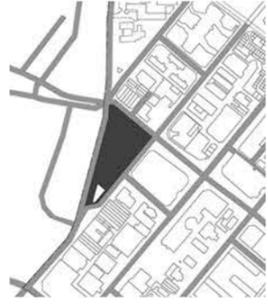
Traditional mixed-use developments in Singapore, as in the case of the existing Fortune Centre, have strictly zoned functions within the building with little space for the different users to come together and intermingle. Ironically, in today's context of the Digital Age, the need for face-to-face interactions and shared social space becomes ever more crucial.

This project thus explores the re-envisioning and modification of Fortune Centre as a modern mixed-used building that integrates different functional zones together through a variety of meaningful shared spaces termed as "Living Rooms." These flexible "Living Rooms" become alternative spaces for living, working, learning and playing all at once. Ultimately, they echo the whole City as our home in today's ever-more connected urbscape.

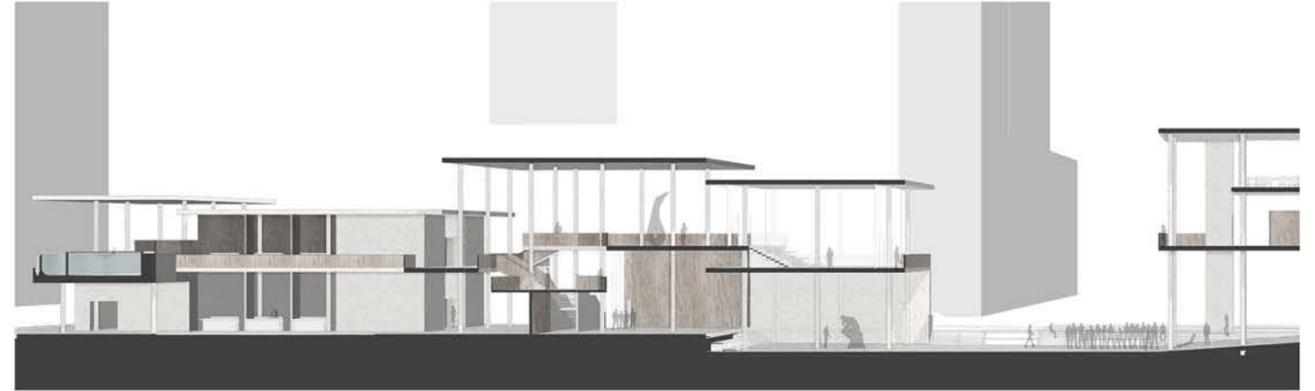


# intersecting student lives

Eleanor Xu

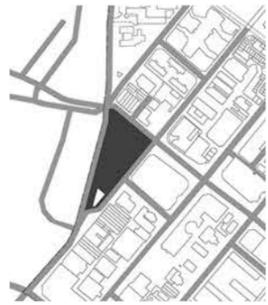


The student centre situated at the cross of Prinsep St, Middle Rd and Selegie Rd draws upon rich student activities in the area and intersects their interactions by providing a range of functions currently lacking in the area with circulatory paths that encourages interaction of different student groups. Extra focus is given to a quality of openness to public areas, something which is lacking in the insular nature of many current educational buildings.

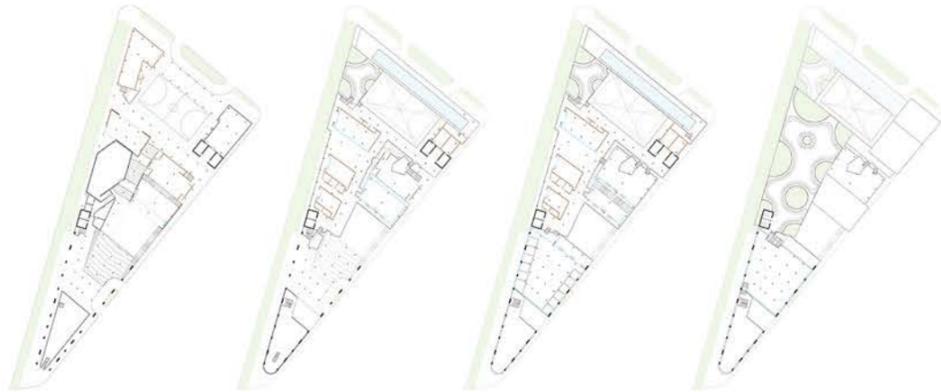


# intersecting student lives

Eleanor Xu



The student centre situated at the cross of Prinsep St, Middle Rd and Selegie Rd draws upon rich student activities in the area and intersects their interactions by providing a range of functions currently lacking in the area with circulatory paths that encourages interaction of different student groups. Extra focus is given to a quality of openness to public areas, something which is lacking in the insular nature of many current educational buildings.



# chinese contemporary dance school extension

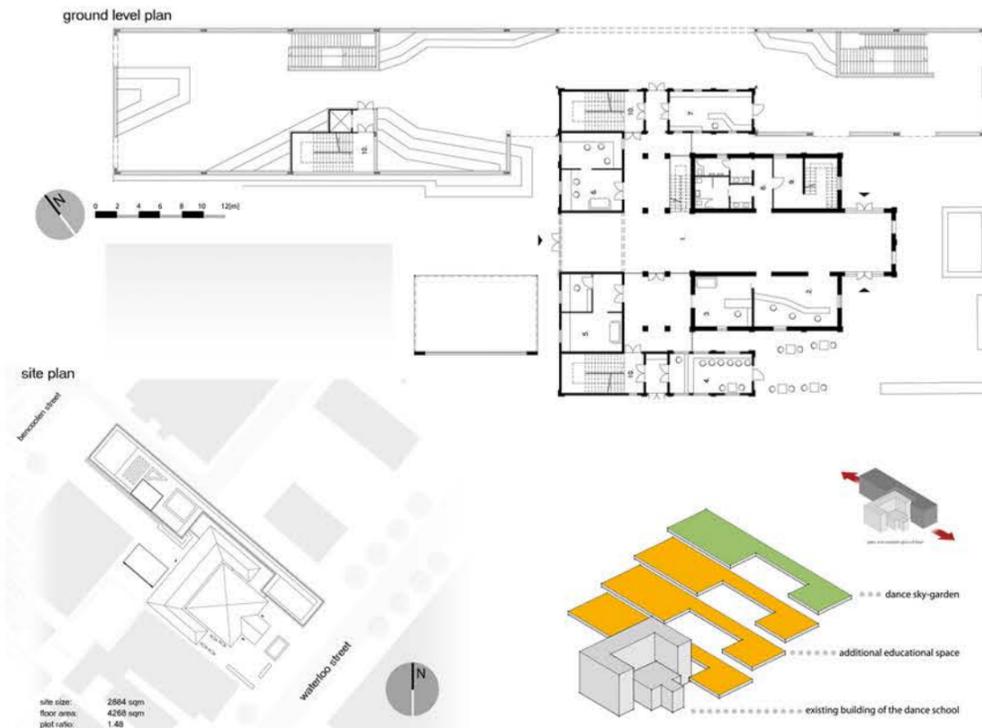
Tomasz Guziak

The projects' objective was to respect the existing building, extending the dance school, but also making the area walkable, that would improve the access to the mrt station constructed beside the plot.

This extension keeps the most valuable design features of the old dance school; the cornices and columns are marked by the partly movable panel facade system.

There are 5 additional dance halls, facilities necessary to dance development, and the main stage with 120 seats.

The important aspect of the extended school is definitely a way of public participation, generated by outdoor stage, and also underground part containing an interactive exhibition space, which shows the history of the chinese dance to the public.



# chinese contemporary dance school extension

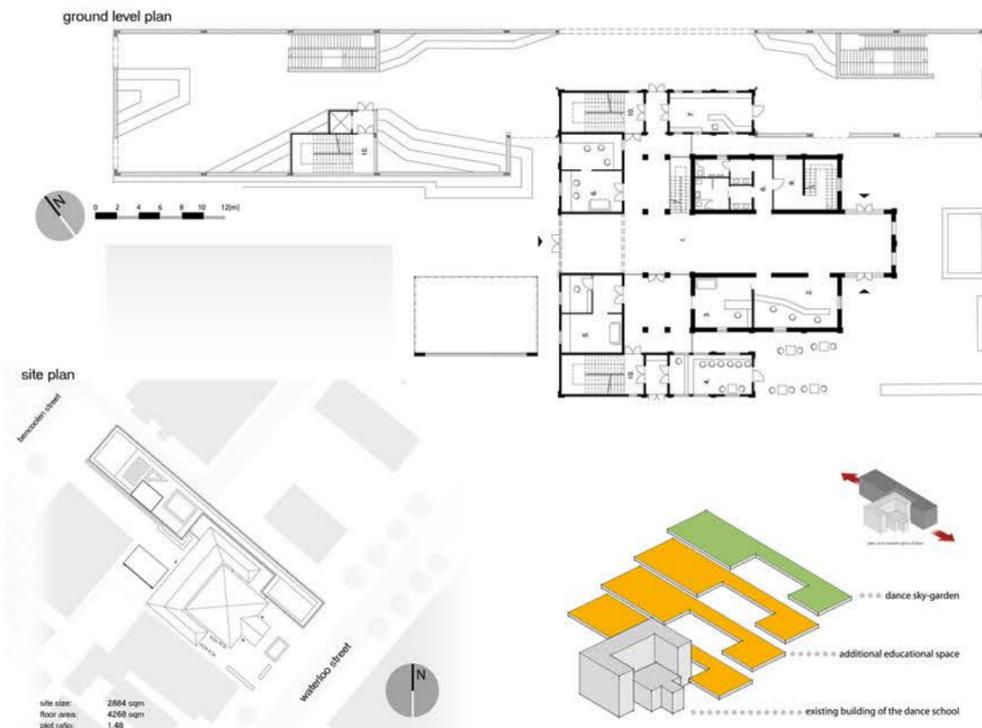
Tomasz Guziak

The projects' objective was to respect the existing building, extending the dance school, but also making the area walkable, that would improve the access to the mrt station constructed beside the plot.

This extension keeps the most valuable design features of the old dance school; the cornices and columns are marked by the partly movable panel facade system.

There are 5 additional dance halls, facilities necessary to dance development, and the main stage with 120 seats.

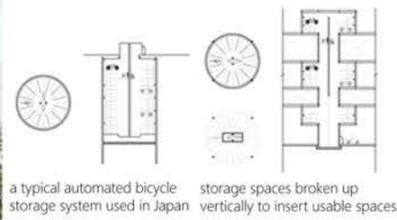
The important aspect of the extended school is definitely a way of public participation, generated by outdoor stage, and also underground part containing an interactive exhibition space, which shows the history of the chinese dance to the public.



# urban transit infrastructure

Desmond Sim

Urban Transit Infrastructure imagines a city where cycling is a major form of transportation with all the supporting amenities and facilities. In such a scenario, urban space is used up to provide parking spaces and facilities for cyclists. This project looks to intensify the usage of the space by inserting other programs and engage the site through its public spaces

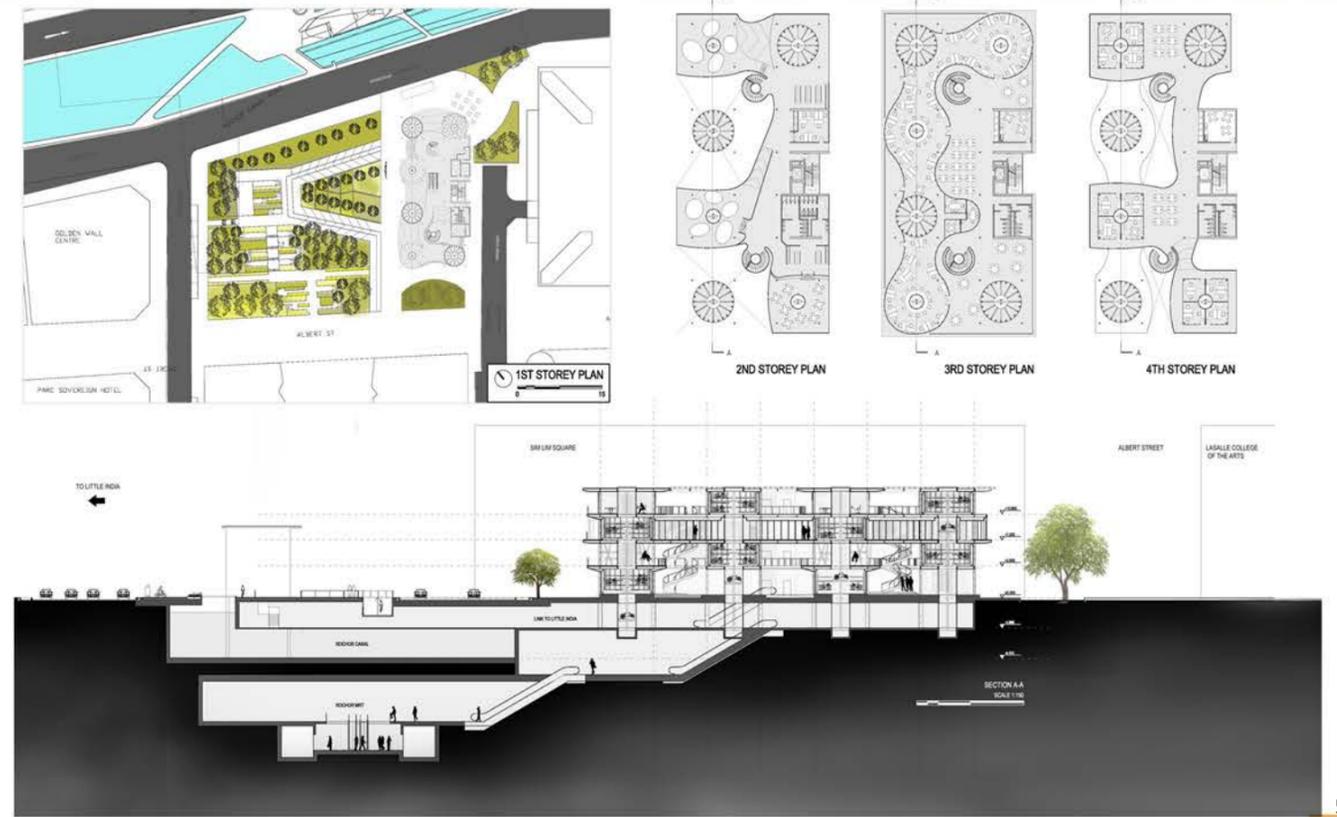


Transit . Transient

The bicycle park fulfils the needs of cyclists commuting to the Downtown and is a transitory space. Taking the idea of the transitory nature of the bicycle park, and extending the transient nature of the spaces, a diverse set of programs such as urban camping and coworking spaces are generated.



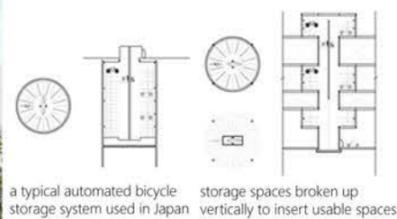
The spaces are generated through the circular plan of the automated bicycle storage system and freeform curves, placing the utilitarian storage spaces in sharp contrast with the playful spaces.



# urban transit infrastructure

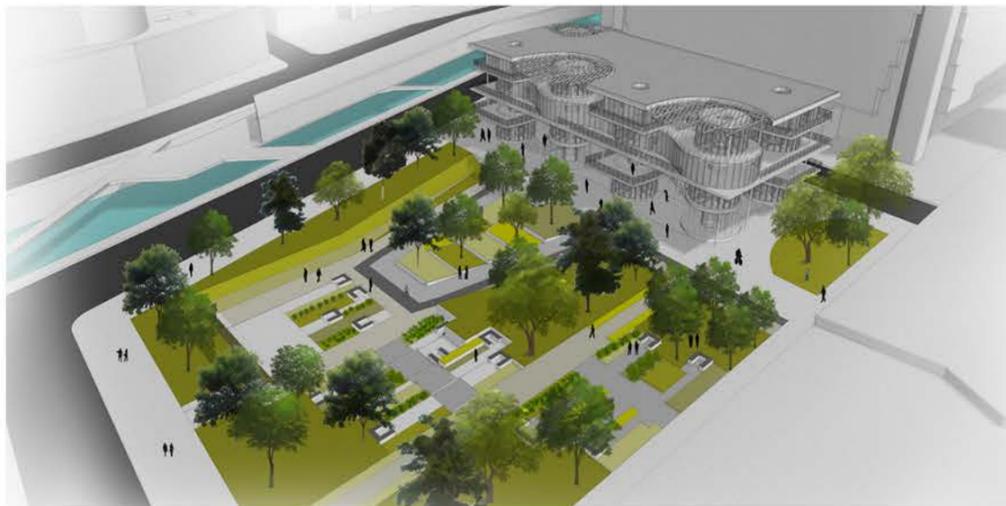
Desmond Sim

Urban Transit Infrastructure imagines a city where cycling is a major form of transportation with all the supporting amenities and facilities. In such a scenario, urban space is used up to provide parking spaces and facilities for cyclists. This project looks to intensify the usage of the space by inserting other programs and engage the site through its public spaces

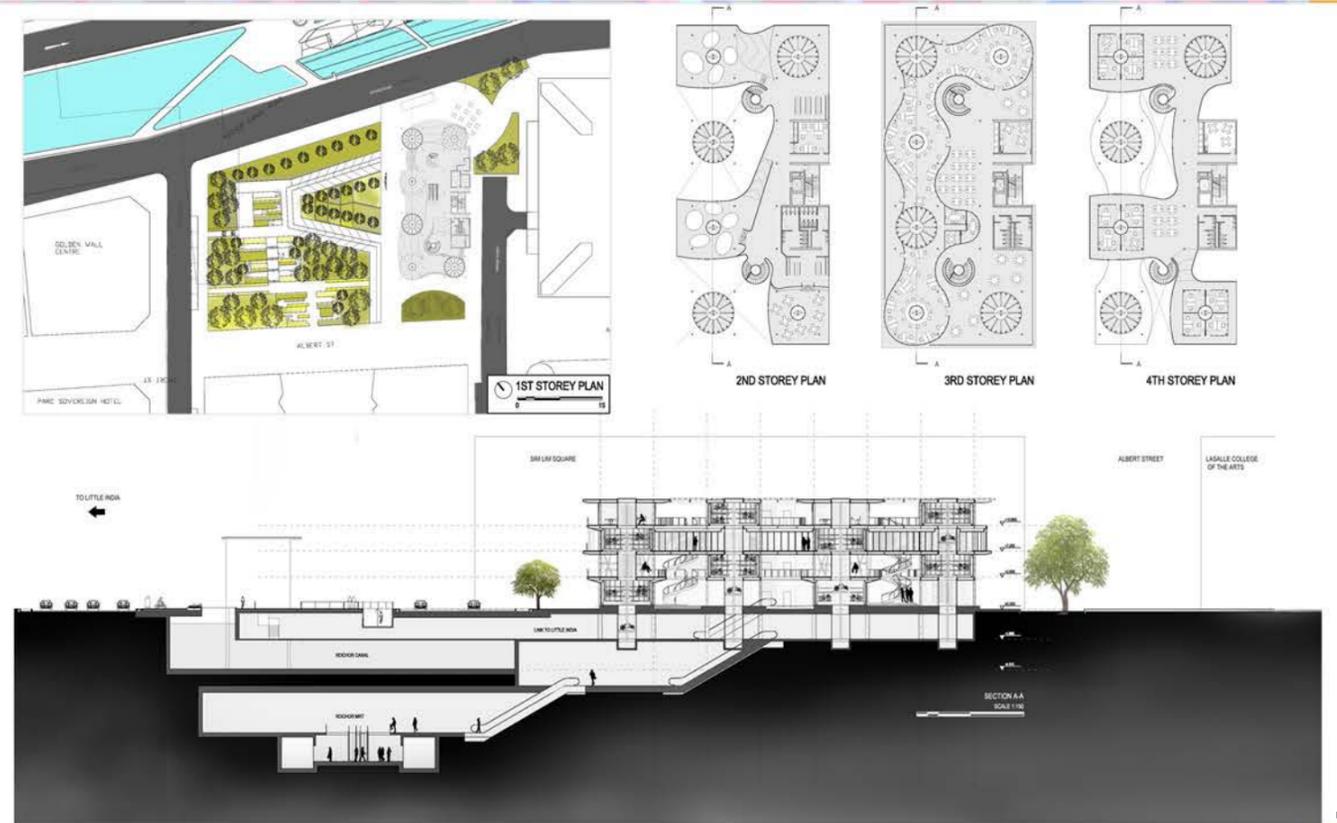


Transit . Transient

The bicycle park fulfils the needs of cyclists commuting to the Downtown and is a transitory space. Taking the idea of the transitory nature of the bicycle park, and extending the transient nature of the spaces, a diverse set of programs such as urban camping and coworking spaces are generated.

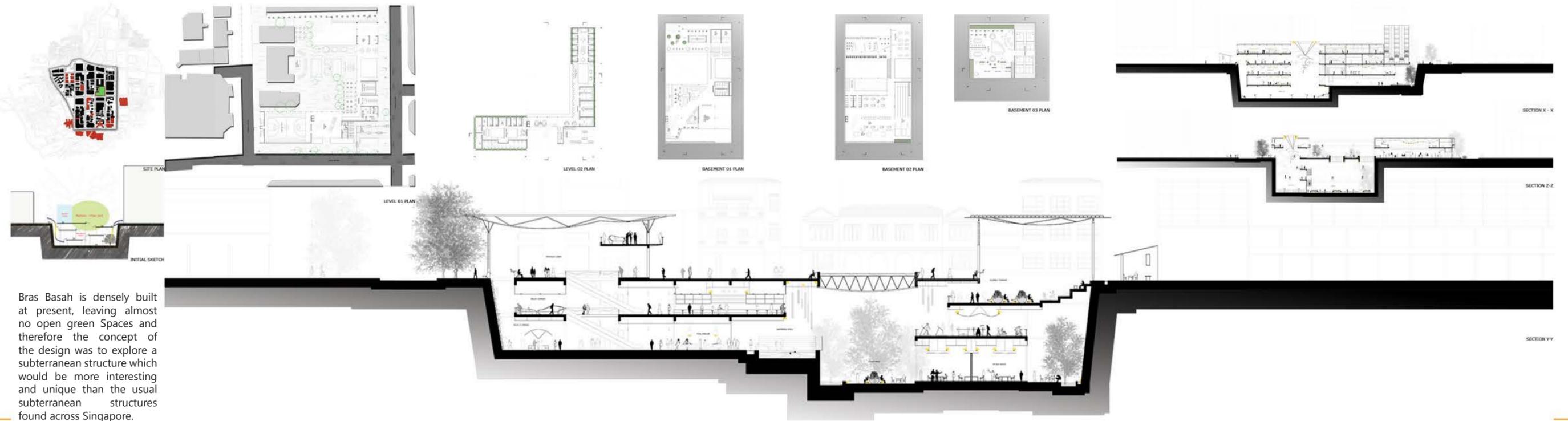


The spaces are generated through the circular plan of the automated bicycle storage system and freeform curves, placing the utilitarian storage spaces in sharp contrast with the playful spaces.



# student recreation centre - bras basah

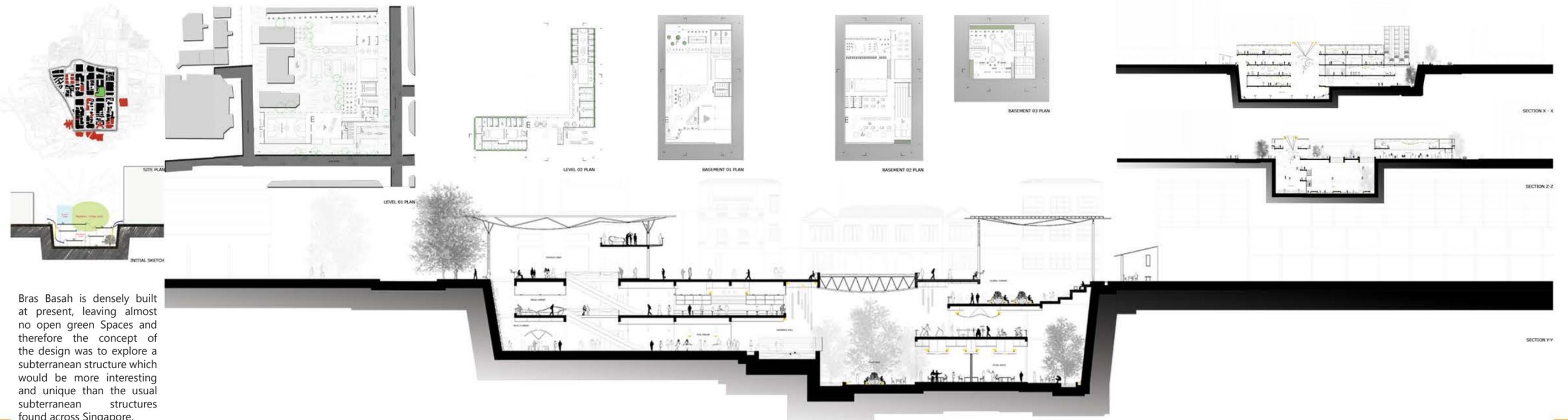
Hashini Chamindi Weeratunga



Bras Basah is densely built at present, leaving almost no open green Spaces and therefore the concept of the design was to explore a subterranean structure which would be more interesting and unique than the usual subterranean structures found across Singapore.

# student recreation centre - bras basah

Hashini Chamindi Weeratunga



Bras Basah is densely built at present, leaving almost no open green Spaces and therefore the concept of the design was to explore a subterranean structure which would be more interesting and unique than the usual subterranean structures found across Singapore.

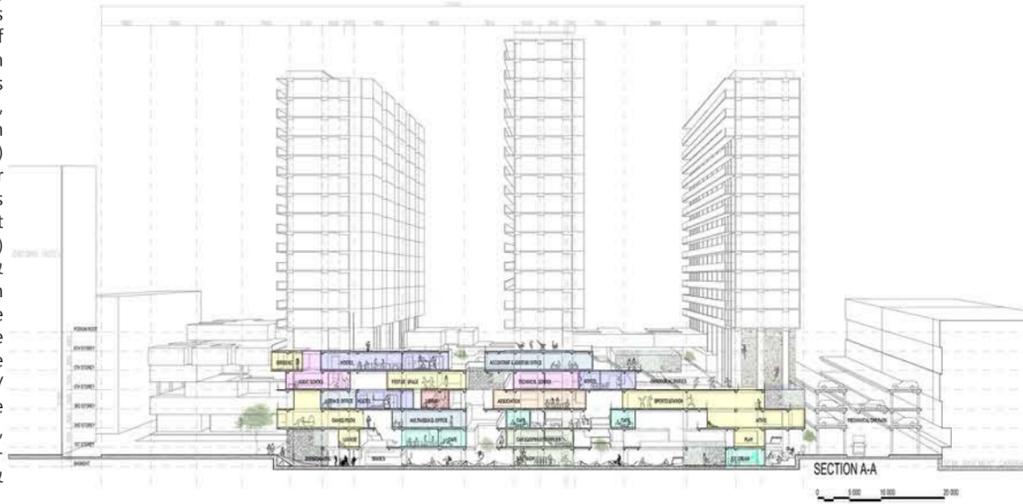
# imageability of waterloo centre

## making movement legible in a collaborated public & living space

Riberd

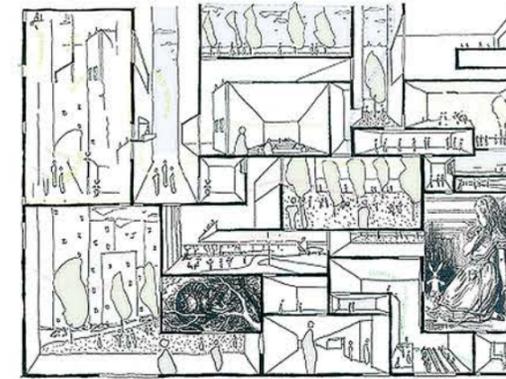


Introducing Student Hosting in the City (Waterloo Centre). Engaging the owners of the podium, residents of HDB blocks & public users, by integrating 'Live, Learn & Play' spaces along with the intensification of existing podium block. Insertion of a new demography - students take ownership as occupants, (students' role as facilitators in exchange for accomodation) gives rise for opportunities for shared facilities such as sports facilities (street soccer court), art studios (yoga or music recording) & entertainment rooms (pool & small lecture halls). Pixelation of activities & users can be seen. Reconfiguration of the existing layout to accommodate hosting & injection of shared/public paces, consisting of three layers: private (student hostel, existing offices & shops), semi-private (immediate amenities) & public (shared facilities).

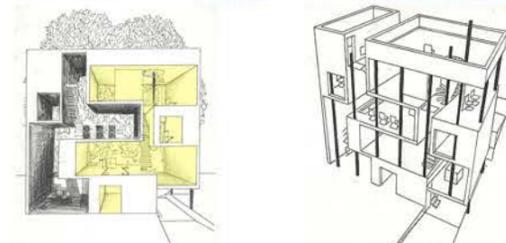


Ideas & Sketches

Mix & Match Spaces LIVE LEARN PLAY Configuration Program Allocation

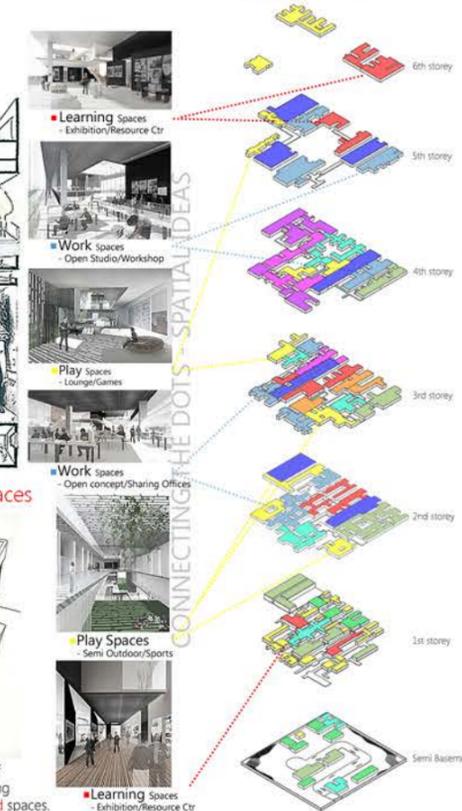


Inter-play of spatial volume: Labyrinth of interstitial spaces



Legibility of activities observed from building elevation while maintaining privacy of individual units.

Perspective shows the concept of interlocking spaces by abandoning strict vertical party wall for shared spaces.



- Existing Programs**
- Offices – 16 units = 1280sqm  
(Accountants & Auditors, IT & Software Firm, Building, Business, Courier, Engineering, Skin care, Insurance, Consulting firm, Private Investigation Co, Travel Agency)
  - Design offices – 8 units = 640sqm  
(Advertising, Architectural, Graphic, Media, Interior, Website Design)
  - Studios – 15 units = 1200sqm  
(Creative Agency, Dance, Healthcare Training, Photography & Equipment Studio, Multimedia & TV Film production, Wedding planning & Videography services, Fitness & Yoga Centre, Drama Performance Theatre Stages)
  - Schools/Education – 12 units = 1600sqm  
(Consultants: Training schools, Drama & Music schools, Education & Language schools, Private Tuition Centre, Scuba Diving Instructors Learning Classes, Technical Schools)
  - Associations & Organisations – 4 units = 320sqm  
(The Singapore Bookellers & Stationery Associations, Society for Buddhist Philosophy Studies, Singapore Mason Club Association, Union of Security Employees)
  - Food – 4 units + 2 food courts = 1200sqm
  - Logistics/Supply/Retail – 11 units = 880sqm  
(Caravan equipment supplier, Car accessories, parts, storage & services, Groceries, Pharmaceutical supplier, Power & TV Amplifiers, Office Supply, Trading Companies, Water treatment equipment supplier & services)
  - Retail – 10 units = 800sqm  
(Bedroom Equipment & Accessories, Bicycle & Repair, Camping & Winter wear, Healthcare products, Mobile phone & Repair, Toys & Collectibles)
  - Others – 4 units = 320sqm  
(IdentityKit, Laundry Services, Traditional Chinese Medicine Clinic, TV Tuning Workshop)
- Total 8240 sqm of existing programs
- Integrating Programs**
- Live – 36 units = 2880sqm  
(processing, affordable quality accommodation, basic amenities)
  - Learn – 36 units = 2880sqm  
(Resource Centre, Library, seminar rooms, lecture theatre, performing stage, Exhibition space)
  - Play – 36 units = 2880sqm  
(Batters, badminton, basketball, Bazaar, Billiard, Café, Clinic, fitness space, Judo, Karate, music recording, Netball, ping-pong, rock wall climbing, skate park, street soccer, street performance viewing deck)
- Total 8640 sqm of Integrated Programs
- Site Plan: Pixelation of Programs**
- 

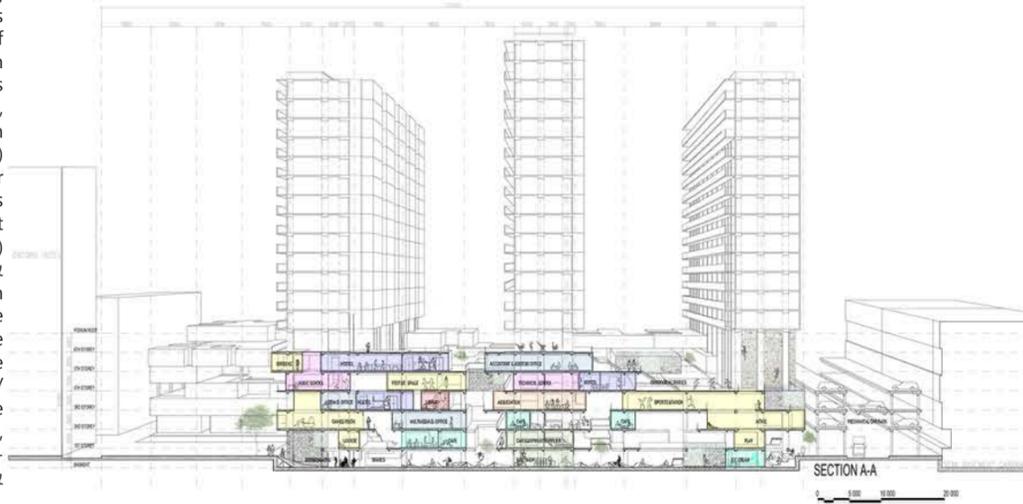
# imageability of waterloo centre

## making movement legible in a collaborated public & living space

Riberd

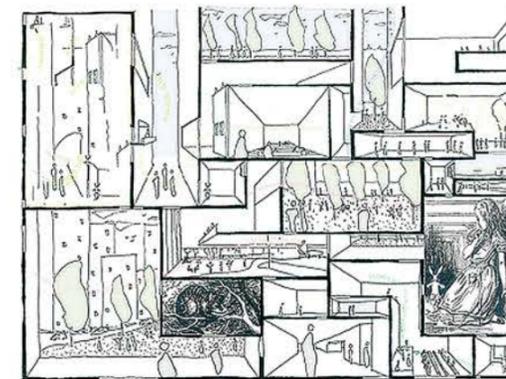


Introducing Student Hosting in the City (Waterloo Centre). Engaging the owners of the podium, residents of HDB blocks & public users, by integrating 'Live, Learn & Play' spaces along with the intensification of existing podium block. Insertion of a new demography - students take ownership as occupants, (students' role as facilitators in exchange for accomodation) gives rise for opportunities for shared facilities such as sports facilities (street soccer court), art studios (yoga or music recording) & entertainment rooms (pool & small lecture halls). Pixelation of activities & users can be seen. Reconfiguration of the existing layout to accommodate hosting & injection of shared/public paces, consisting of three layers: private (student hostel, existing offices & shops), semi-private (immediate amenities) & public (shared facilities).

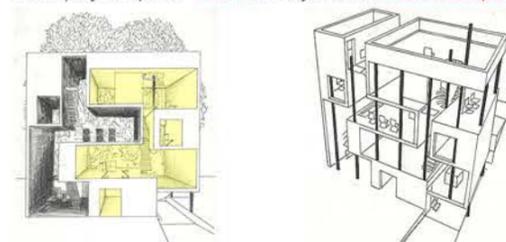


Ideas & Sketches

Mix & Match Spaces LIVE LEARN PLAY Configuration Program Allocation

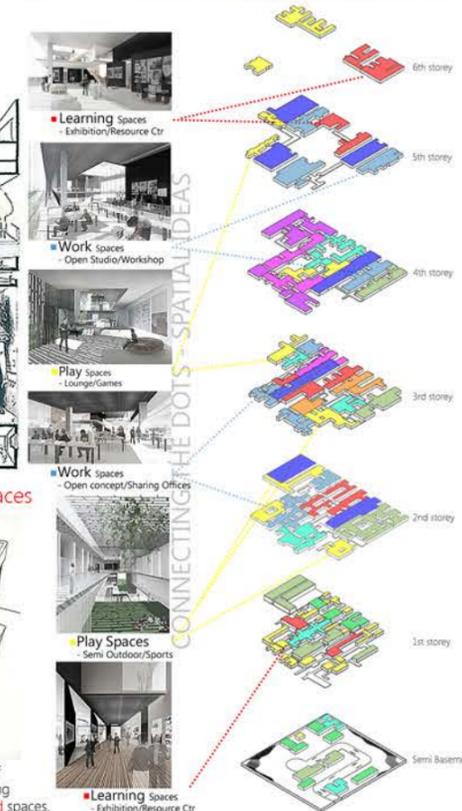


Inter-play of spatial volume: Labyrinth of interstitial spaces



Legibility of activities observed from building elevation while maintaining privacy of individual units.

Perspective shows the concept of interlocking spaces by abandoning strict vertical party wall for shared spaces.



- Existing Programs**
- Offices – 16 units = 1280sqm  
(Accountants & Auditors, IT & Software Firm, Building, Business, Courier, Engineering, Skin care, Insurance, Consulting firm, Private Investigation Co, Travel Agency)
  - Design offices – 8 units = 640sqm  
(Advertising, Architectural, Graphic, Media, Interior, Website Design)
  - Studios – 15 units = 1200sqm  
(Creative Agency, Dance, Healthcare Training, Photography & Equipment Studio, Multimedia & TV Film production, Wedding planning & Videography services, Fitness & Yoga Centre, Drama Performance Theatre Stages)
  - Schools/Education – 12 units = 1600sqm  
(Consultants: Training schools, Drama & Music schools, Education & Language schools, Private Tuition Centre, Scuba Diving Instructors Learning Classes, Technical Schools)
  - Associations & Organisations – 4 units = 320sqm  
(The Singapore Bookellers & Stationery Associations, Society for Buddhist Philosophy Studies, Singapore Mason Club Association, Union of Security Employees)
  - Food – 4 units + 2 food courts = 1200sqm
  - Logistics/Supply/Retail – 11 units = 880sqm  
(Caravan equipment supplier, Car accessories, parts, storage & services, Groceries, Pharmaceutical supplier, Power & TV Amplifiers, Office Supply, Trading Companies, Water treatment equipment supplier & services)
  - Retail – 10 units = 800sqm  
(Bedroom Equipment & Accessories, Bicycle & Repair, Camping & Winter wear, Healthcare products, Mobile phone & Repair, Toys & Collectibles)
  - Others – 4 units = 320sqm  
(IdentityKit, Laundry Services, Traditional Chinese Medicine Clinic, TV Tuning Workshop)
- Total 8240 sqm of existing programs
- Integrating Programs**
- Live – 36 units = 2880sqm  
(processing, affordable quality accommodation, basic amenities)
  - Learn – 36 units = 2880sqm  
(Resource Centre, Library, seminar rooms, lecture theatre, performing stage, Exhibition space)
  - Play – 36 units = 2880sqm  
(Batters, badminton, basketball, Bazaar, Billiard, Café, Clinic, fitness space, Judo, Karate, music recording, Netball, ping-pong, rock wall climbing, skate park, street soccer, street performance viewing deck)
- Total 8640 sqm of Integrated Programs
- Site Plan: Pixelation of Programs**
-