

SHAPING SINGAPORE

Role of Public Transport
Infrastructure in Shaping Cities

PETER HYLAND
REGIONAL DIRECTOR

CISTRI

1ST NOVEMBER 2019



OUTLINE

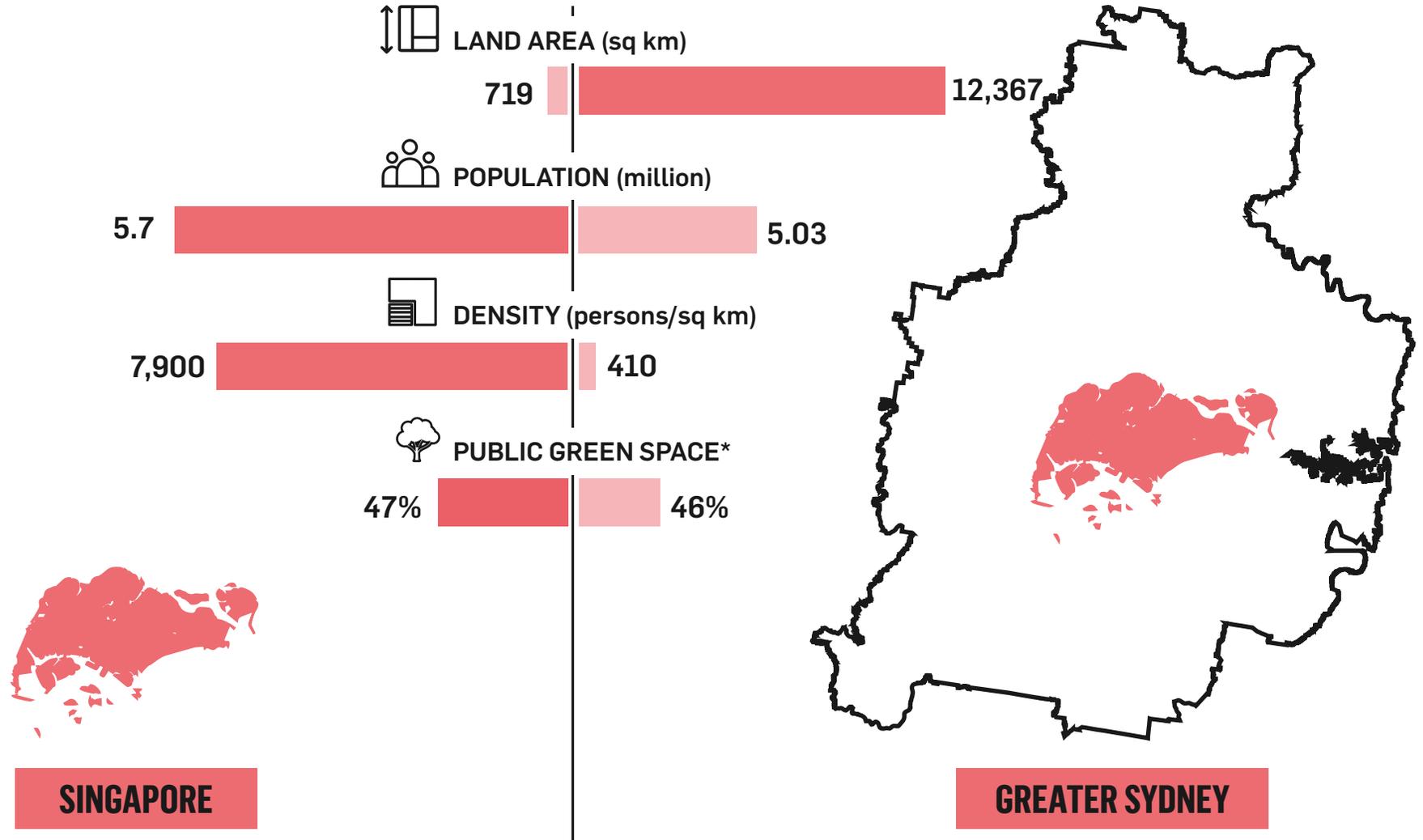
Singapore

- A Model of Integrated Planning
- New Growth Centres
- Second CBD - Jurong Lake District
- Transport Initiatives

Sydney

- A Metropolis of Three Cities
- Second CBD – Parramatta

Comparing the Two Second CBDs



SINGAPORE: MODEL FOR HIGH DENSITY+ HIGH LIVEABILITY



SINGAPORE INFRASTRUCTURE: NO. 1 & TOP ASIAN CITY IN QUALITY OF LIVING

Best City Infrastructure

Rank	
1	Singapore
2	Frankfurt
2	Munich
4	Copenhagen
5	Dusseldorf
6	Hong Kong
6	London
8	Sydney
9	Hamburg
9	Vancouver

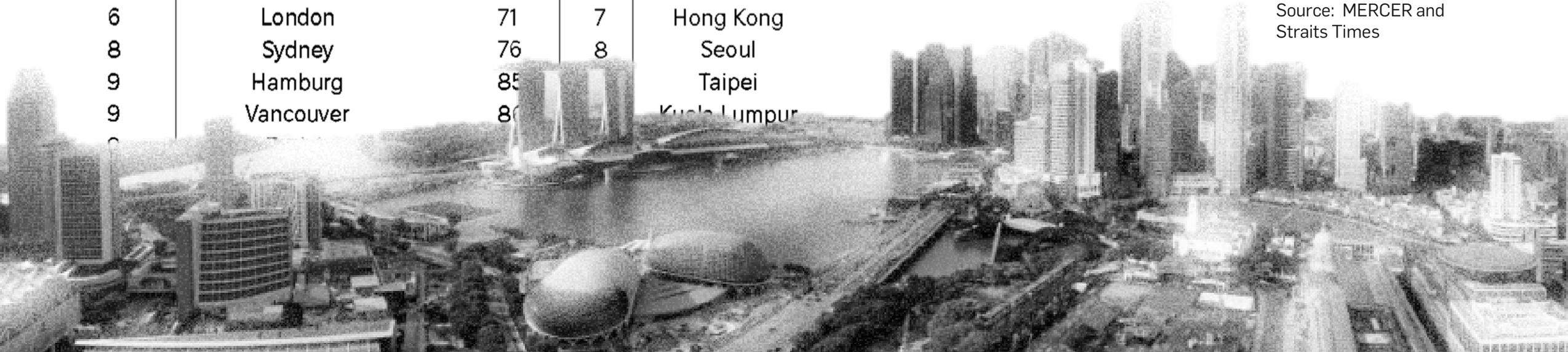
Top Cities in Asia region

Overall rank	Asia rank	
25	1	Singapore
47	2	Tokyo
50	3	Kobe
51	4	Yokohama
60	5	Osaka
66	6	Nagoya
71	7	Hong Kong
76	8	Seoul
85		Taipei
86		Kuala Lumpur

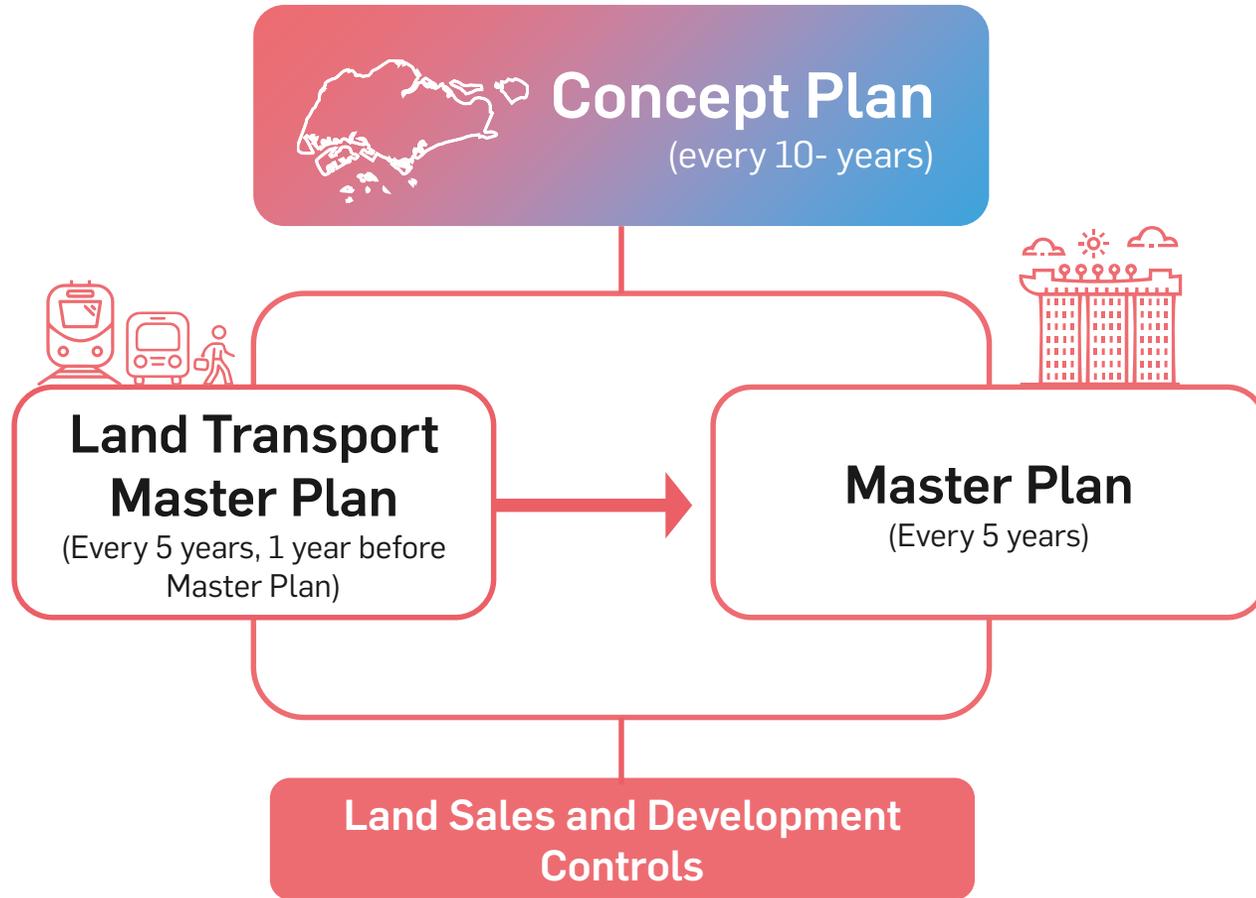


- 2018 global Survey by Mercer
- Singapore city infrastructure No. 1 & top Asian city in quality of living

Source: MERCER and Straits Times



LONG TERM PLANNING IS KEY



Multi Agency Planning Effort



Land Transport Master Plan 2019

THE STRAITS TIMES

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OPINION

The Straits Times says

Transport system key driver for S'pore

The transport system has redrawn Singapore's economic and lived landscape in the past decades, especially since the introduction of the Mass Rapid Transit system in 1987. Today, the workings of the economy are dependent vitally on the safety, speed, reliability and affordability of an extensive train network – enhanced by integrated bus services and complemented by private transport – that can move people to and from work with predictable efficiency, thus creating time valuable for familial duties and leisure.

There are trade-offs involved in reconciling the competing demands made by differing stakeholders on any urban transport system. A study conducted by global management consulting firm

McKinsey last year asked which of these competing imperatives is more important: to keep private transport affordable or make it more efficient; how to make public transport available and convenient but affordable; and whether issues such as electronic services and shared transport are more important than traditional spheres of official attention such as road infrastructure. Clearly, Singapore is called upon to balance such legitimate but divergent imperatives.

The decision to go car-lite is an important indicator that public transport must take precedence in a small and densely populated city state, unlike sprawling nations like Australia, Canada, New Zealand and the United States, where public trans-

port cannot replicate the necessity of affordable private transport as an everyday fact of life.

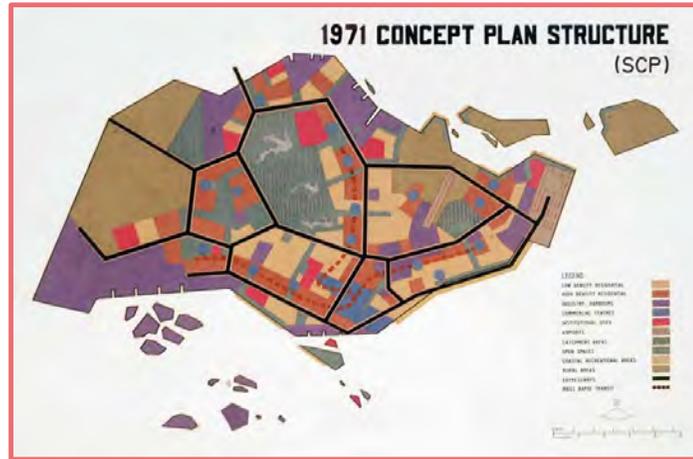
Moving ahead, Singapore will have to make its public transport extend to newer destinations as redevelopment and new towns come up. It also needs to ensure, for example, that rail operators, who had not invested enough in maintenance in the past, do not go to the other extreme of overspending in the future. The Land Transport Authority also needs to preserve a critical distance from the transport industry to prevent regulatory capture that neglects commuter welfare. Technology is also a necessary pathway to success. Singapore must not seek to join the wave of newfangled technology simply because it is fashionable else-

where, but must adopt only what will advance the interests of commuters here.

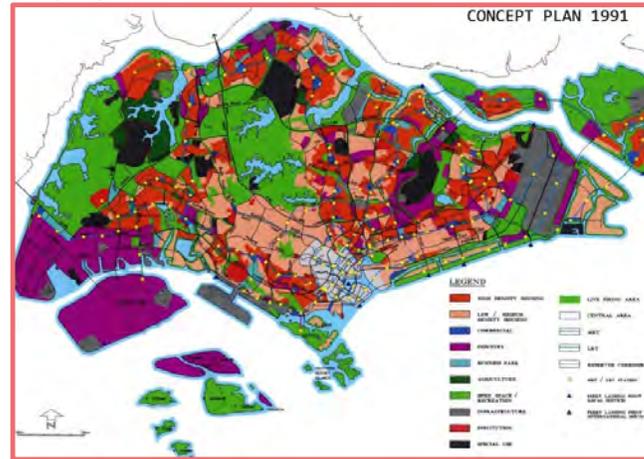
That local demand must always triumph is a key consideration. Thus, servicing trains here instead of sending their faulty electronic cards overseas for repairs will make for faster turnaround time, to the benefit of passengers. Given that space for road expansion, whether for buses or for private transport, is constrained by land scarcity, trains must constitute the backbone of an evolving public transport system. Singaporeans will measure the quality of their national life, in part, by their expectations and experience of commuting daily by public transport. This is why services must continue to be dependable, fast and affordable.

FROM DEVELOPING TO DEVELOPED IN JUST 35 YEARS

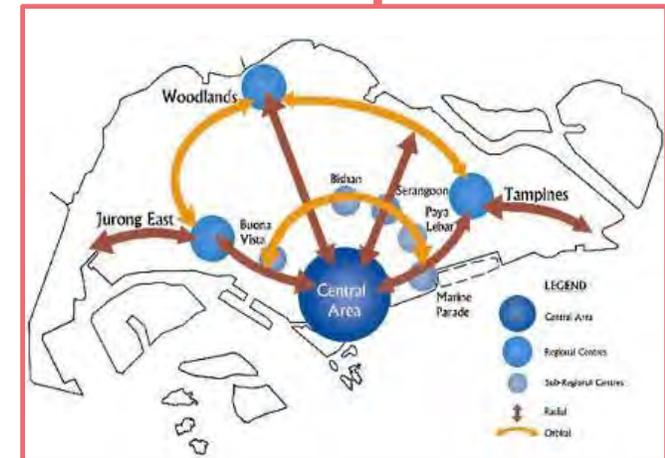
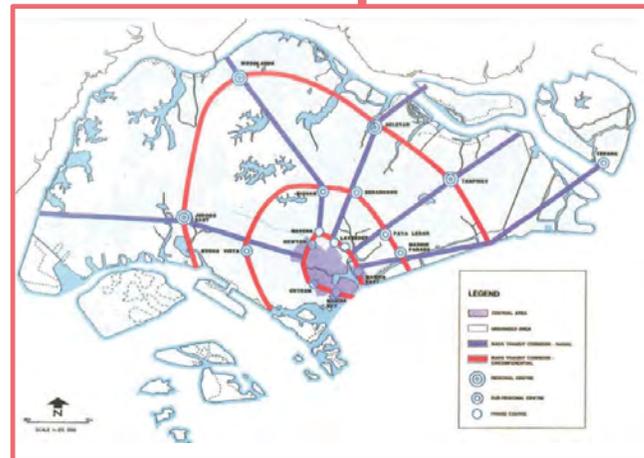
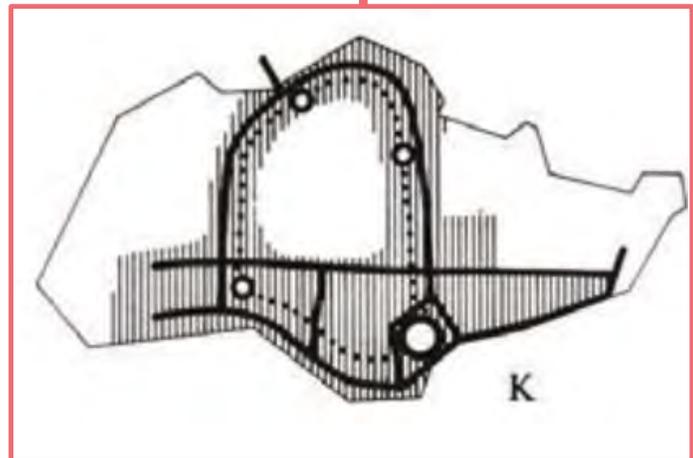
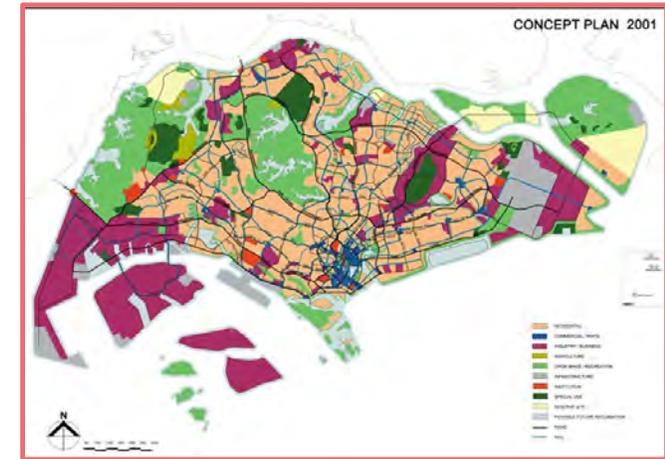
1971 Concept Plan- Ring of Highways



1991 Concept Plan- Network of Mass Transit



2001 Concept Plan- Decentralisation



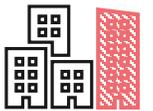
COMPREHENSIVE STRATEGIES TO ACCOMMODATE GROWTH



Planned for upto **6.9 Million** people by 2030



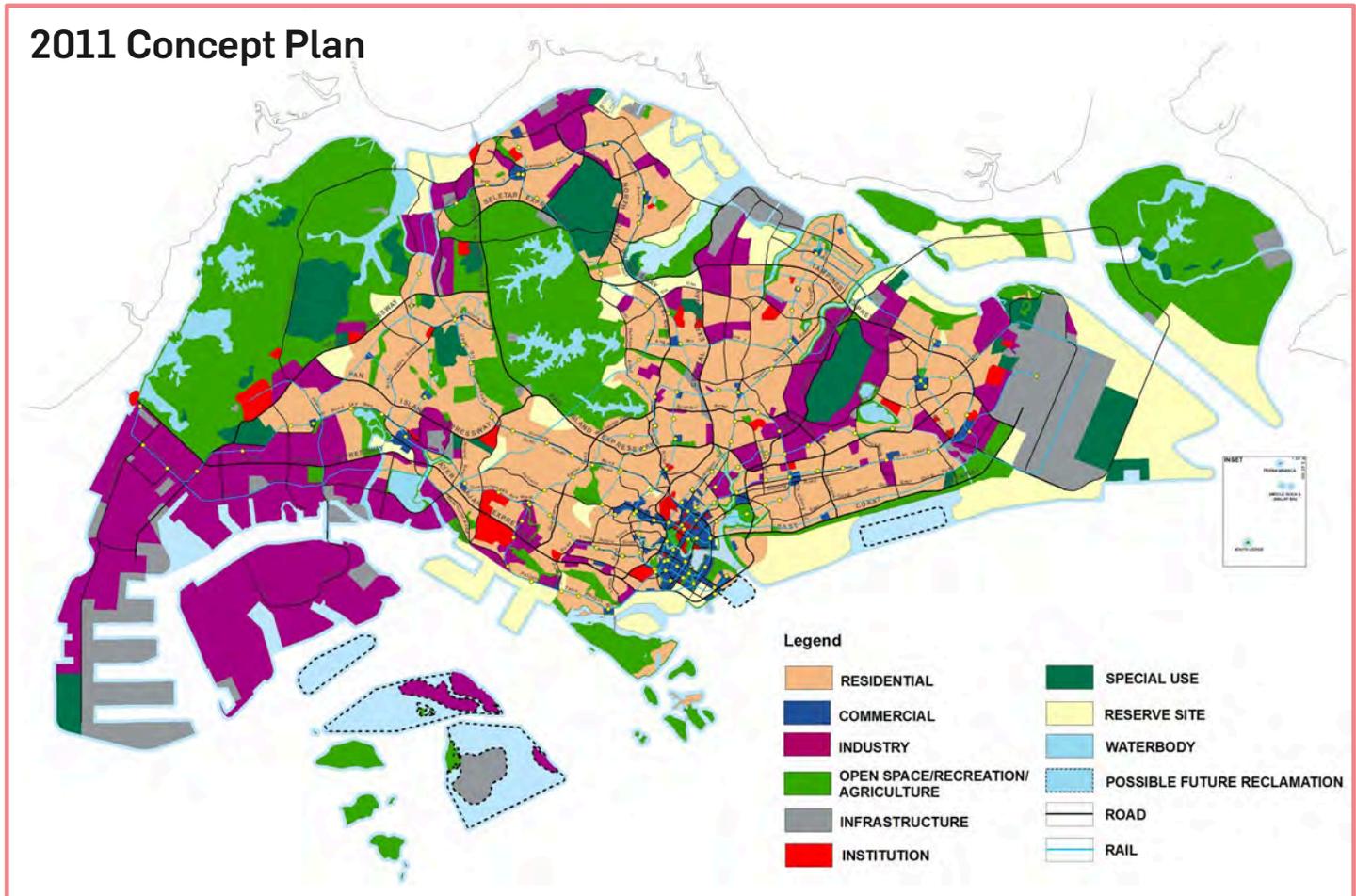
Increase land supply by **~7.8%** to sustain growth by 2030



700 K additional homes by 2030



1400 Ha of additional land reserved for Land Transport Infrastructure



NEW GROWTH CENTRES TO BRING JOBS CLOSER TO HOME



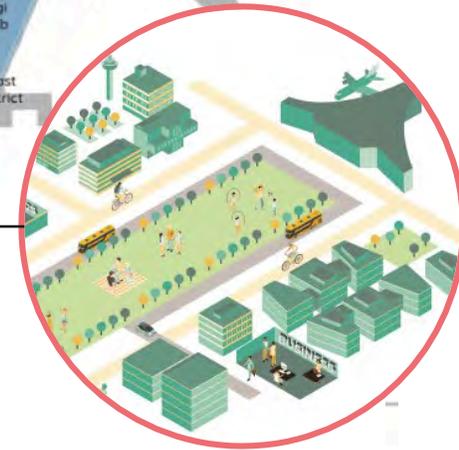
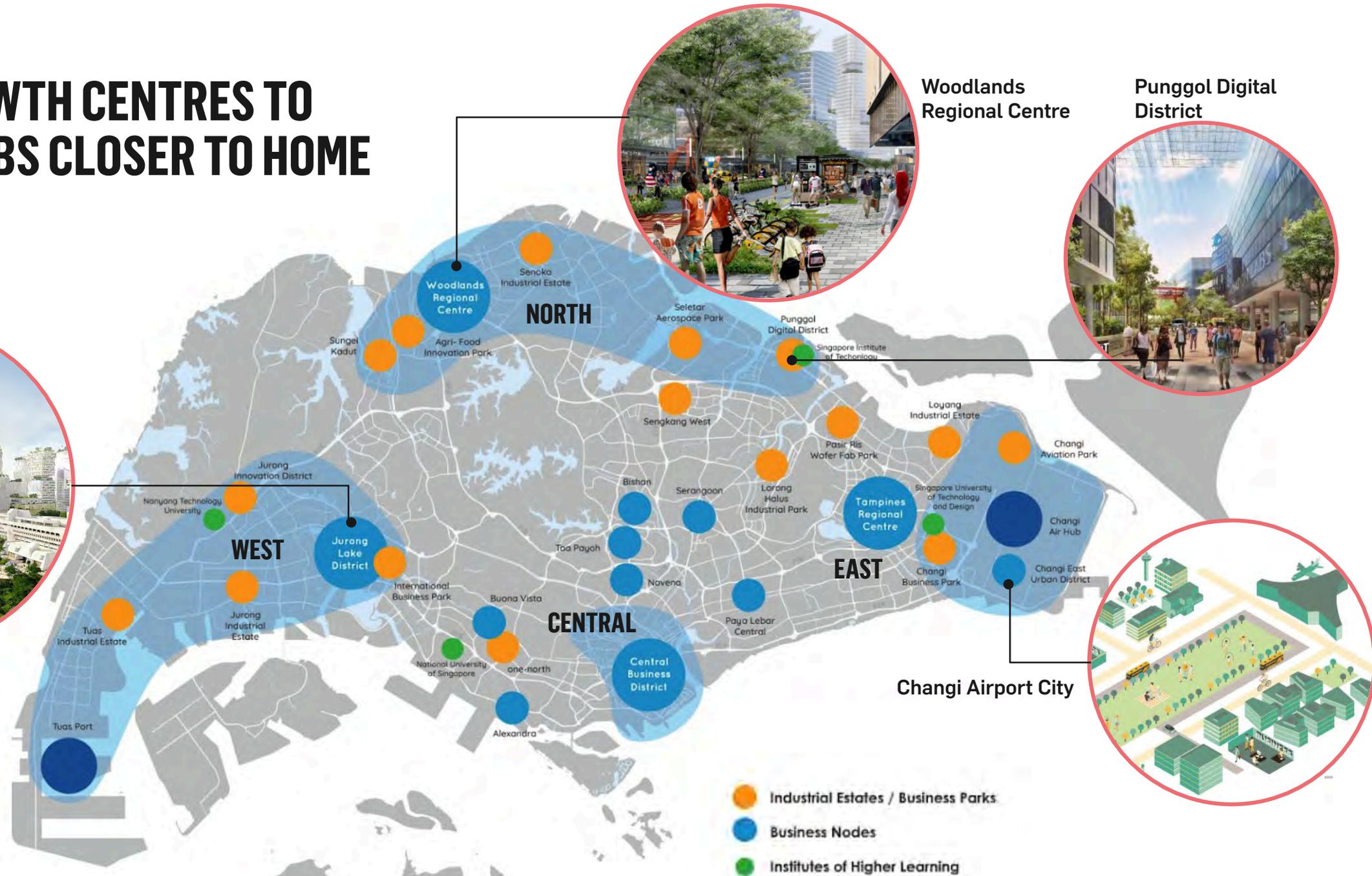
Second CBD



Woodlands Regional Centre



Punggol Digital District

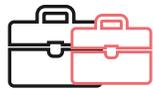
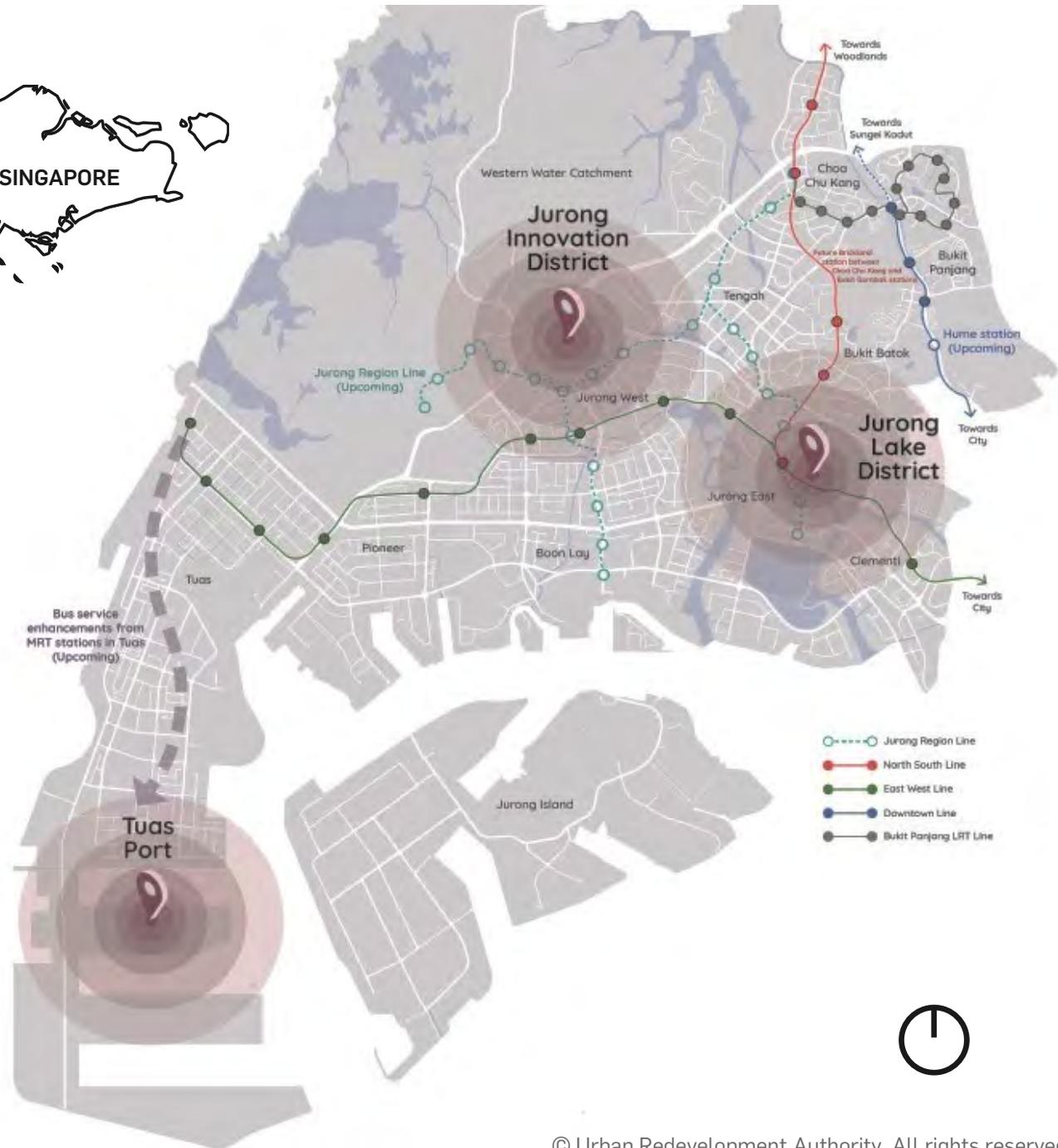


Changi Airport City



REINFORCING INDUSTRIAL AND INNOVATION IN THE WEST

A beacon of Singapore's industrial development since independence, the West will continue to be the country's largest manufacturing and innovation hub.



200 K additional jobs when fully built



24 new Jurong Region Line stations will serve the West by 2028



30-40 minutes time saving when commuting in between West and East



SINGAPORE'S SECOND CBD

Jurong Lake District (JLD) will be the largest mixed-use business district outside the city centre. It will be served by 4 MRT lines by 2035.

 **360 Ha** total development Area

 **45 Ha** car-free zone

The development of JLD will revolve around 4 key themes:



Hub for Future Economy



New Paradigm of Mobility



Smart and Sustainable District



District of Gardens and Waters



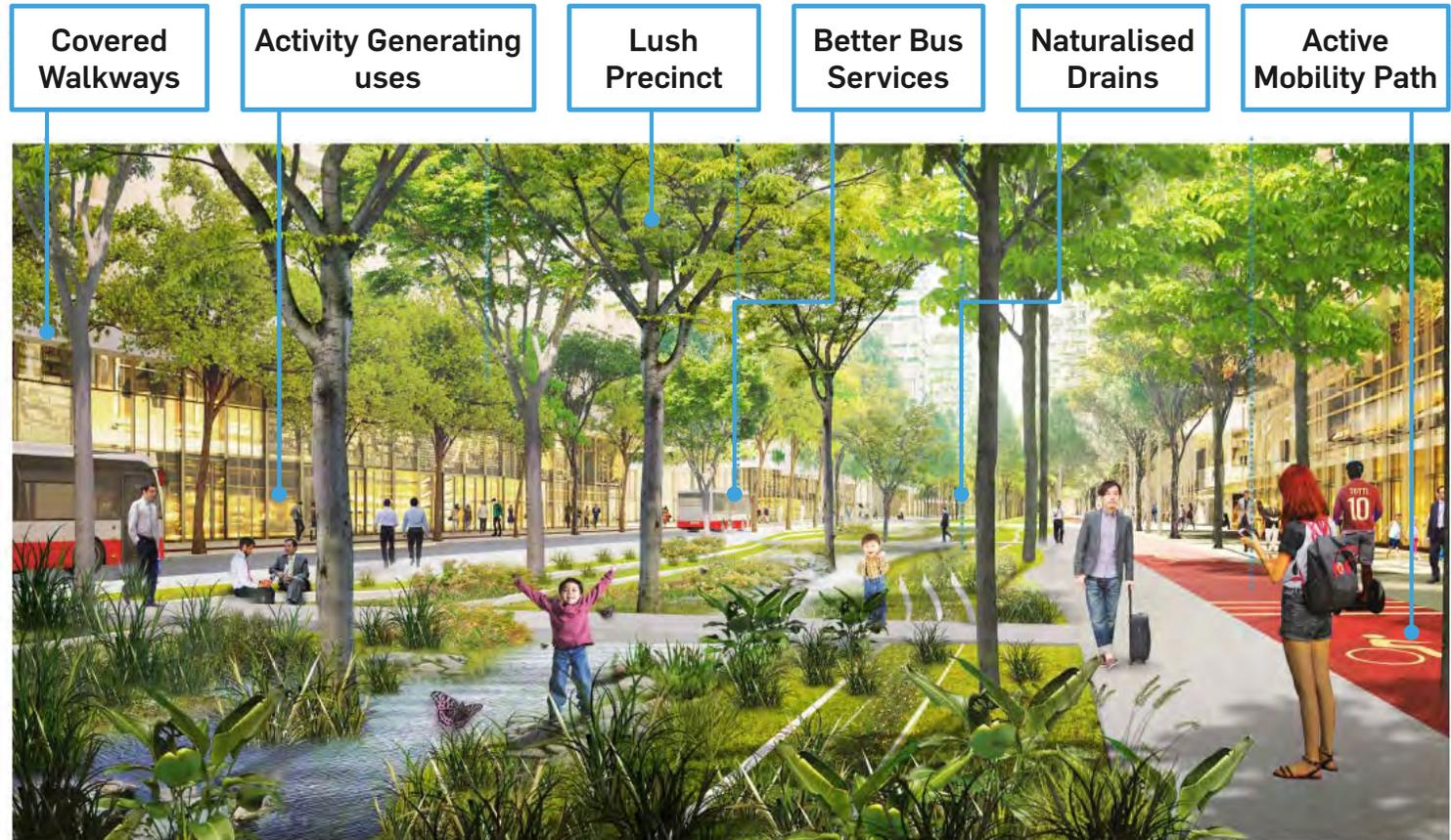
A NEW PARADIGM FOR MOBILITY

JLD has ambitious car-lite plans, with more space dedicated to pedestrians, cyclists and public transport.

85 per cent of all trips will be made by public transport as per the Land Transport Master Plan 2040.



Autonomous Vehicle testing in Singapore



LEVERAGING AUTONOMOUS TECHNOLOGY TO IMPROVE PUBLIC TRANSPORT

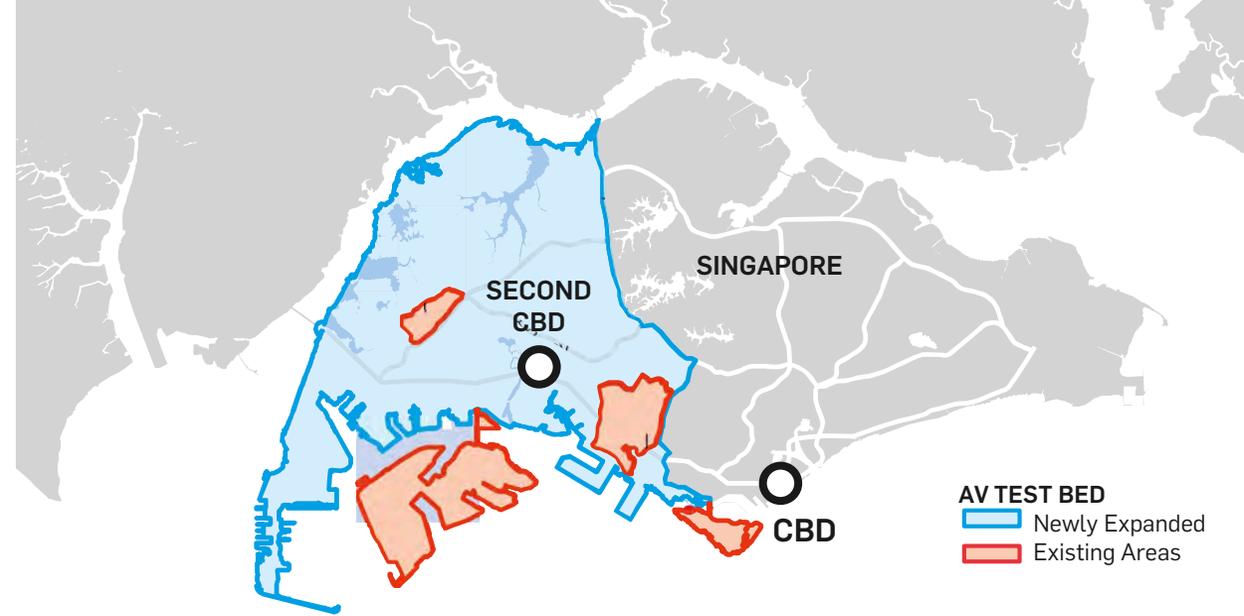
Singapore is focusing on deploying autonomous vehicles to improve efficiency of public transport buses. Driverless and dynamically routed buses key to realising vision of having a 45-minute city and 20-minute town.



1000 Km public roads opened up in western Singapore to test AVs



100 Drivers to be trained to handle autonomous buses



HIGHLIGHTS OF 2040 SINGAPORE LAND TRANSPORT MASTER PLAN (2019)

80%

of households would be within a 10-minute walk from a train station by 2030

↑ **64% in 2017**
57% in 2012

85%

Of public transport journeys under 20 km would be completed within 60 minutes by 2030

↑ **79% in 2017**
76% in 2012

75%

of all peak-period journeys would be undertaken on public transport by 2030

↑ **67% in 2017**
63% in 2012

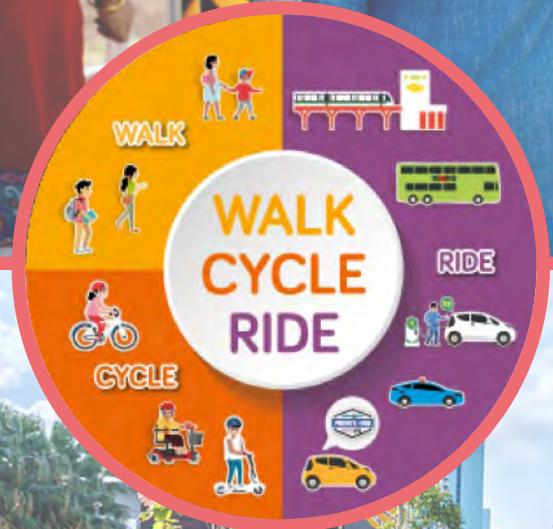
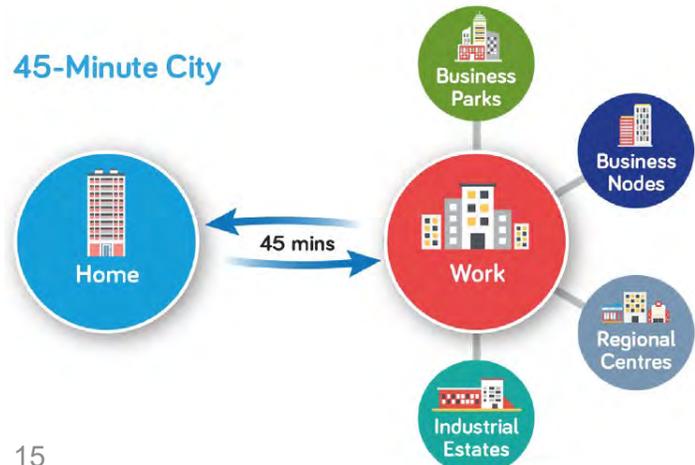


ENABLING SHORTER AND MORE EFFICIENT JOURNEYS

20-Minute Towns



45-Minute City



INFRASTRUCTURE INVESTMENT: A CATALYST FOR GROWTH

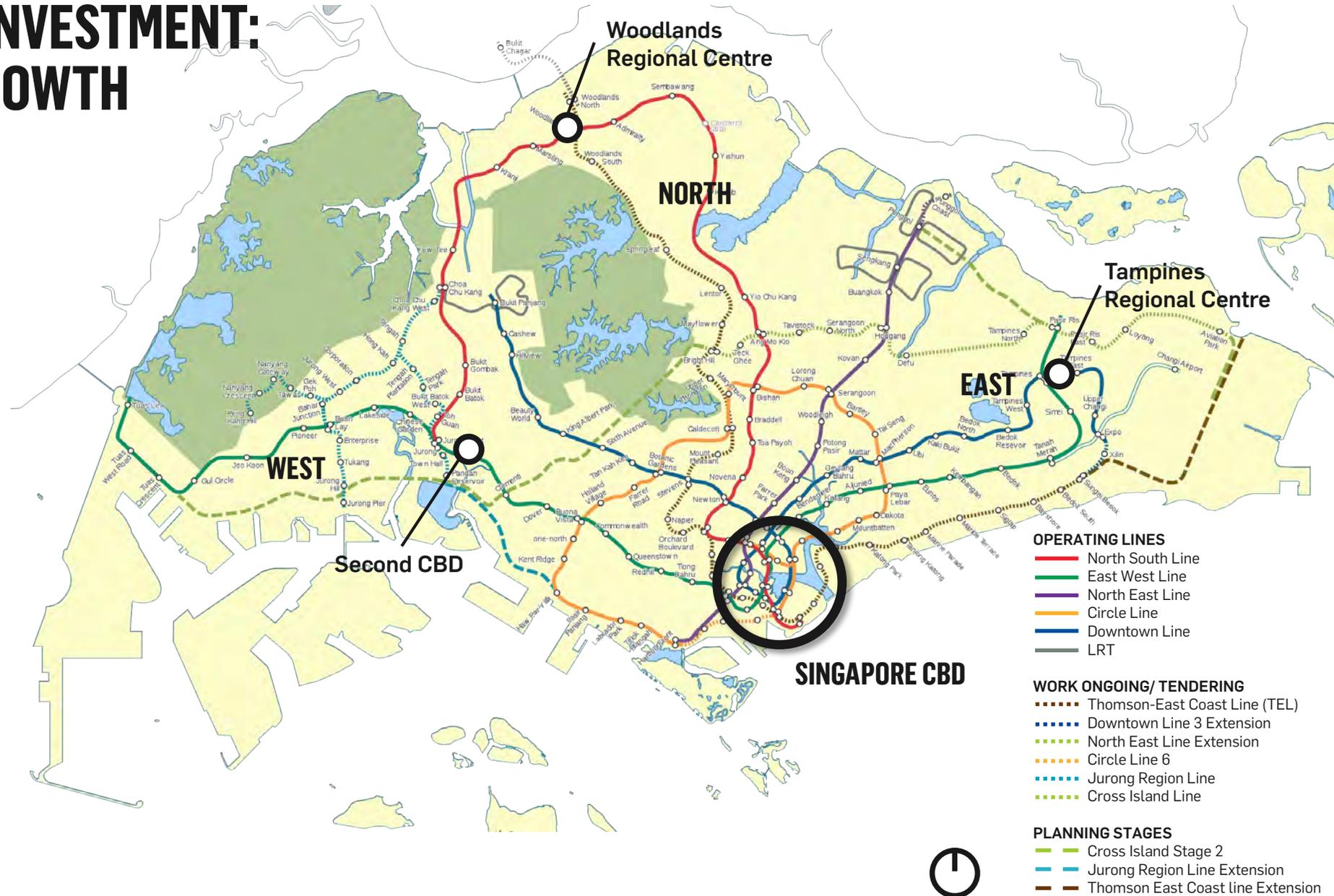
 **180 Km** MRT/LRT network in 2014

 **230 Km** MRT/LRT network in 2019

 **360 Km** MRT /LRT network by 2030

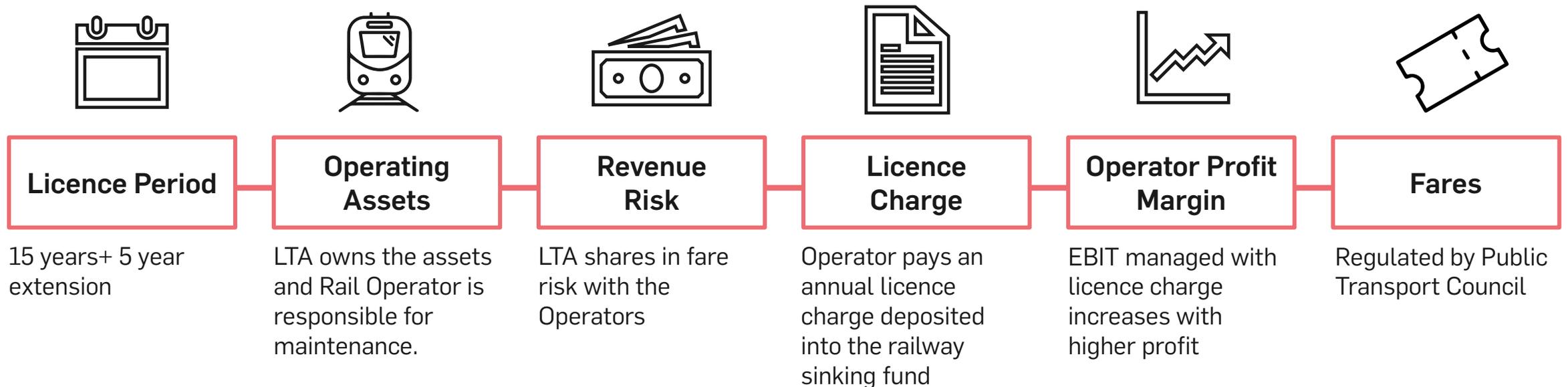
 **160** MRT /LRT stations in 2019

 **262+** MRT /LRT stations by 2030



NEW RAIL FINANCING FRAMEWORK, SINGAPORE

Under the New framework the **Land Transport Authority (LTA) will now own the rail operating assets** and lead investments in capacity expansion, replacement and upgrading of assets. While **the Operators (SBS, SMRT) focus on providing reliable rail services** for commuters.



PUBLIC TRANSPORT IS THE BACKBONE FOR MOBILITY

SINGAPORE

3.5 Million

Average daily ridership (MRT & LRT)

4 Million

Average daily ridership (Bus)

G. SYDNEY

1.1 Million

Average daily train ridership (2017)

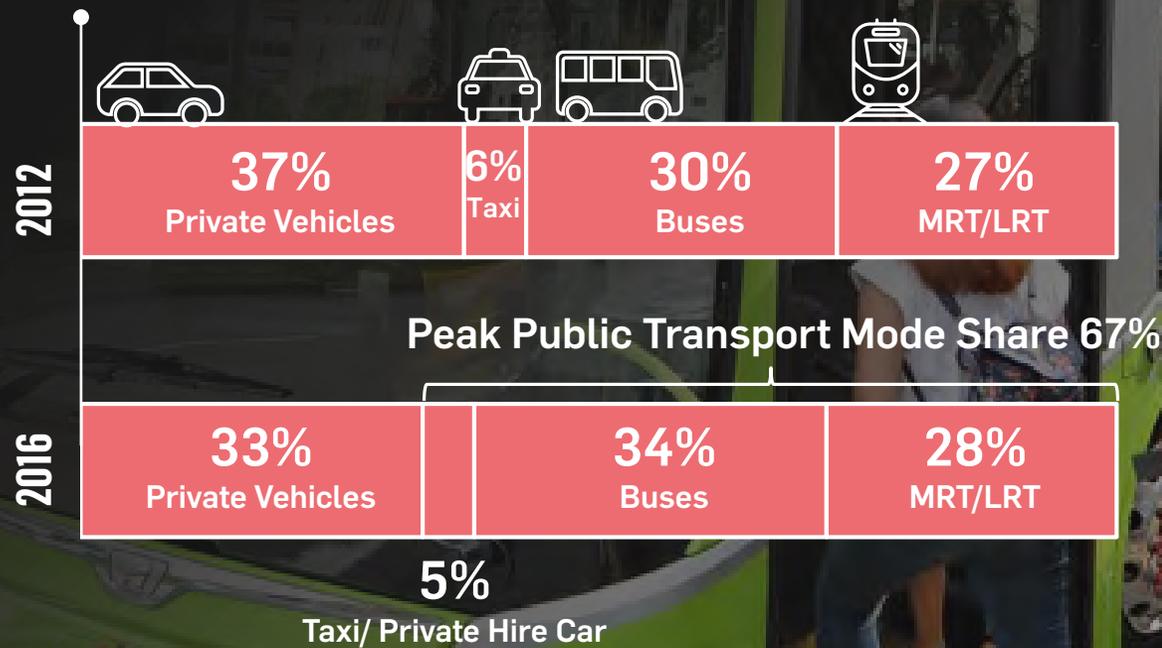
0.86 Million

Average daily bus ridership (2017)

PUBLIC TRANSPORT MODE SHARE IS INCREASING

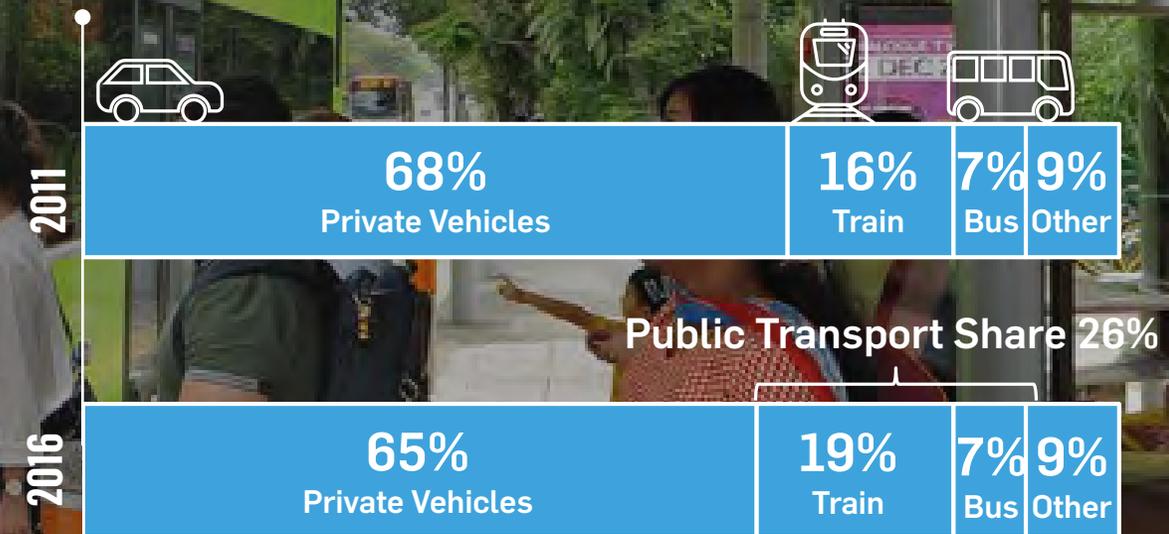
SINGAPORE

Transport Mode Share (Peak Period)



GREATER SYDNEY

Method of Travel to Work



ENABLING THE SHIFT TO PUBLIC TRANSPORT

\$1.50 6:00P-7:55P \$1.00

ERP
6:23 PM

SINGAPORE

39 %

households owned a car in 2016 (46% 2012)

\$242 K AUD

Cost of a BMW 3 Series

\$44 K AUD

Open Category COE



Distance Based Congestion Pricing by 2020

G. SYDNEY

81.4 %

households owned at least one car in (2016)

\$79 K AUD

Cost of a BMW 3 Series

Motor Vehicle Population in Singapore (2018)

	2013	2017	2018
	NUMBER		
Motor Vehicle Population	974,170	961,842	957,006 ↓
Cars	607,292	546,706	551,575 ↓
Rental Cars (Private Car Hire)	16,396	68,083	66,480 ↑
Taxis	27,695	23,140	20,581 ↓
Buses	17,509	19,285	19,379 ↑
Motorcycles & Scooters	144,934	141,916	137,480 ↓
Goods & Other Vehicles	160,344	162,712	161,511 ↑

SINGAPORE LEADS THE WAY IN TRANSIT ORIENTED DEVELOPMENTS



**Clementi Mall and
Towers**



**Bedok Mall and
Residences**



**Kampung
Admiralty**

CLEMENTI MALL AND TOWERS



	KEY INFORMATION
Location	Junction of Commonwealth Avenue West and Clementi Avenue 3
Plot ratio	5.3
GFA	88,000 sqm
Program	Modern shopping mall, two blocks of residential, Town Council office, community library and air – conditioned bus interchange
Transportation	Link to Clementi MRT and bus interchange
Developer	SPH Reit (Private) Housing and Development Board (Public)
Residential units	388 HDB units (2 Blocks)

Image Source: <https://www.propertyhunt.sg/>
<http://www.sphreit.com.sg/our-portfolio/the-clementi-mall/>

BEDOK MALL AND RESIDENCES



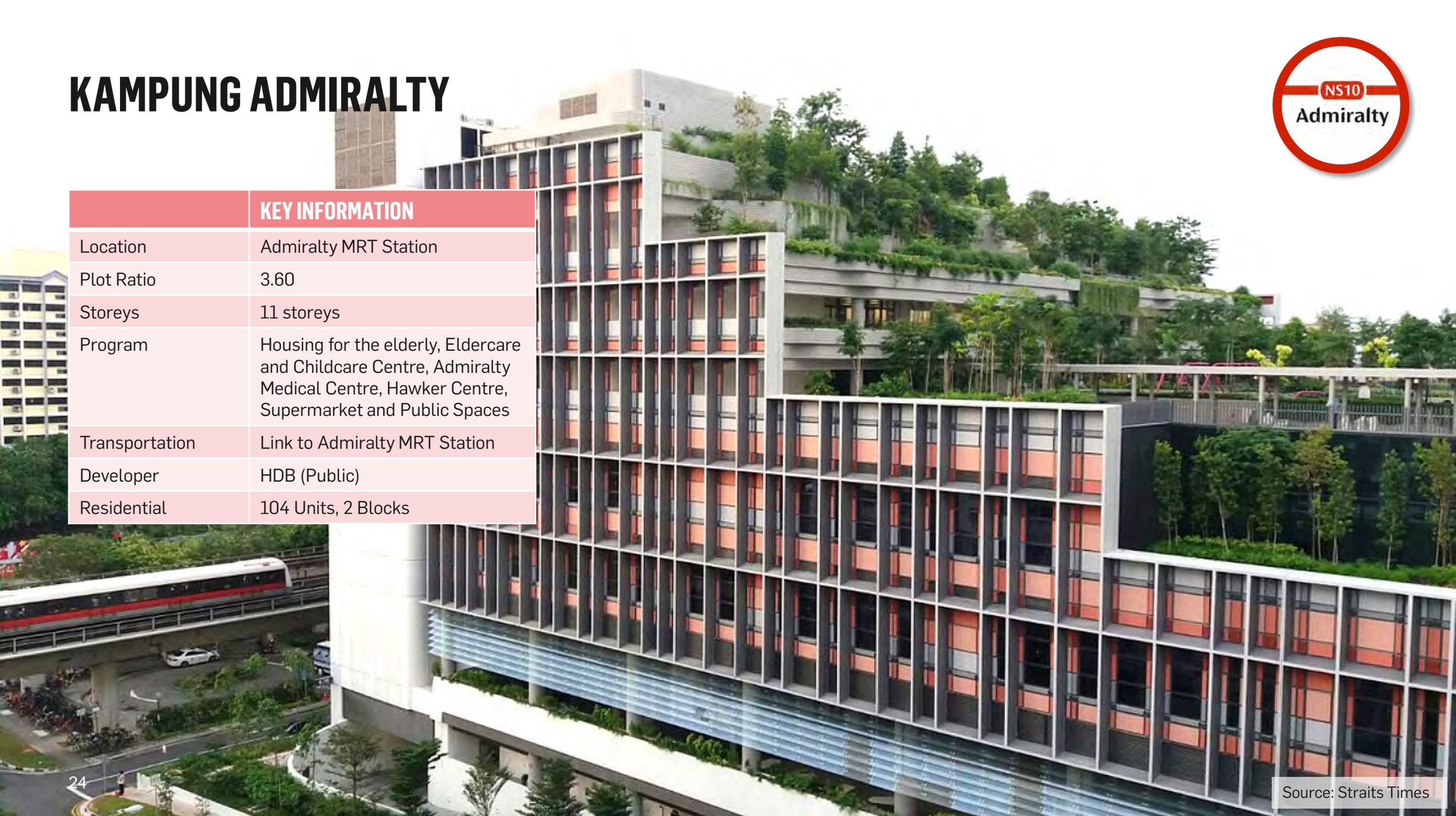
	KEY INFORMATION
Location	Heart of Bedok Town Centre
Plot ratio	3.5
GFA	87,000 sqm
Program	Bedok Shopping Mall, eight blocks of private housing and carpark over bus interchange
Transportation	Link to Bedok MRT and bus interchange
Developer	Capitaland (Private)
Residential	583 Condo Units



KAMPUNG ADMIRALTY



	KEY INFORMATION
Location	Admiralty MRT Station
Plot Ratio	3.60
Storeys	11 storeys
Program	Housing for the elderly, Eldercare and Childcare Centre, Admiralty Medical Centre, Hawker Centre, Supermarket and Public Spaces
Transportation	Link to Admiralty MRT Station
Developer	HDB (Public)
Residential	104 Units, 2 Blocks



SYDNEY IS MAKING STRIDES TOWARDS INCREASING PUBLIC TRANSPORT SHARE



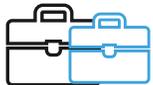
SYDNEY A METROPOLIS OF THREE CITIES

The Greater Sydney Region Plan: A Metropolis of Three Cities is built on a vision of three distinct cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places.

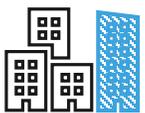
It is expected that almost half of the projected population will live west of Parramatta.



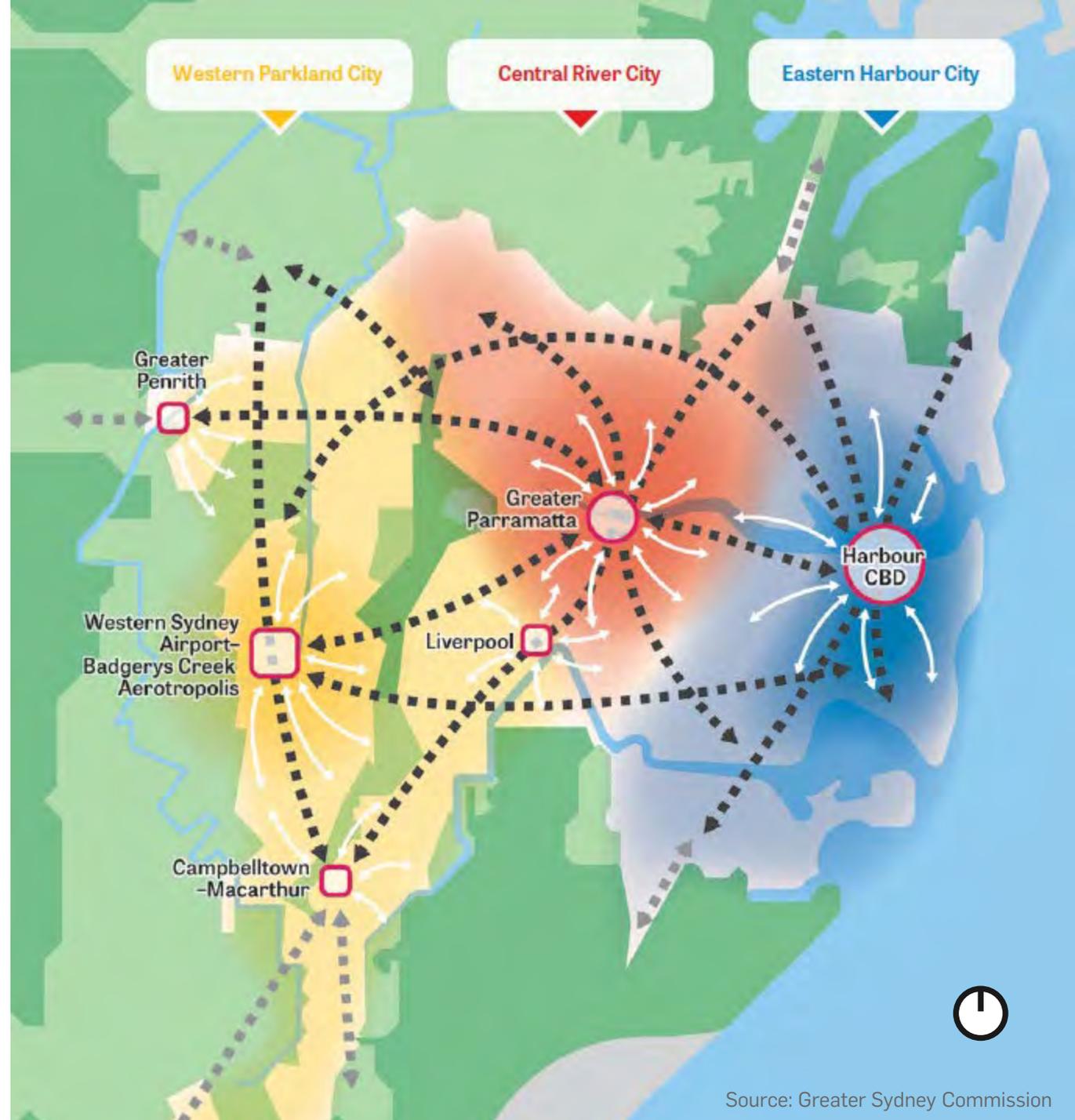
Planned for upto
6.0 Million people by 2036



817 K additional jobs by 2036

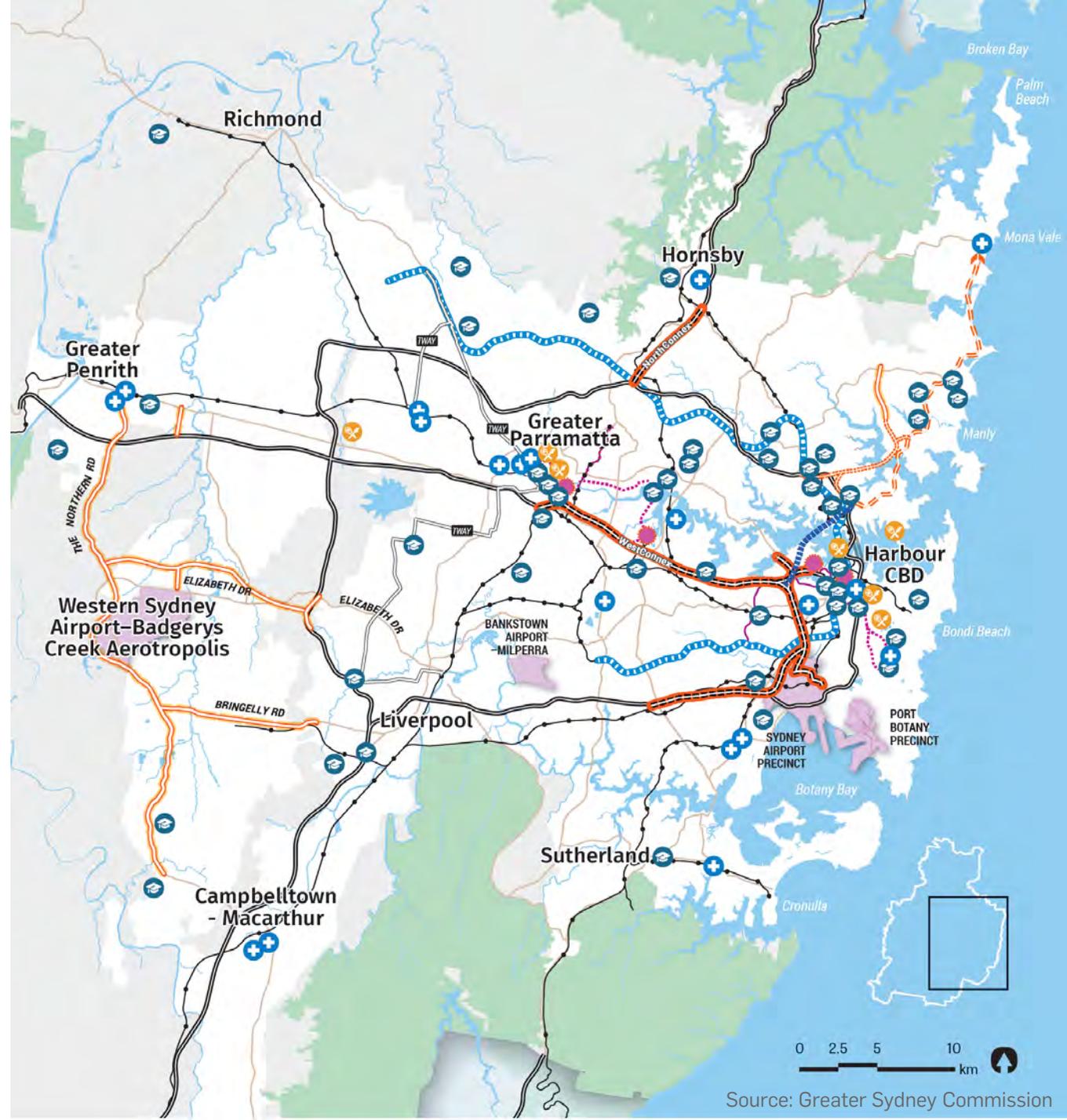
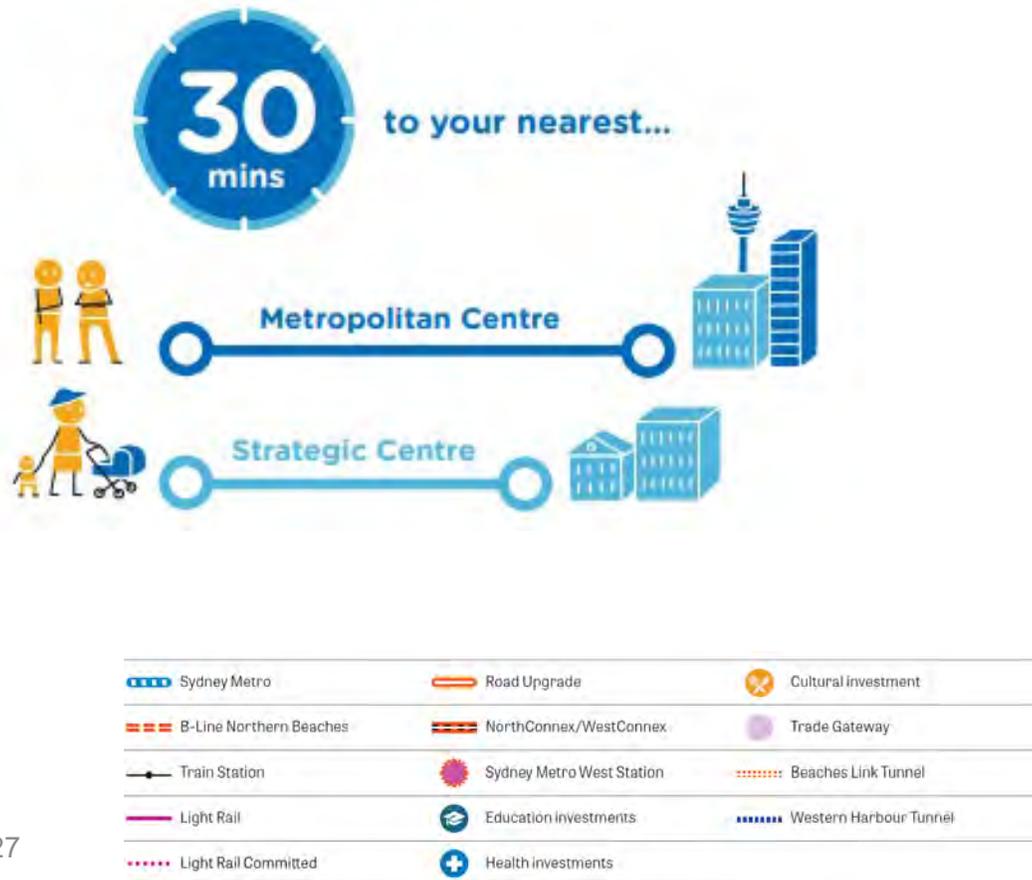


725 K additional homes by 2036



A FULLY CONNECTED SYDNEY

A 30-minute city that connects people to jobs, businesses, schools and services and supports the economic efficiency of trade gateways.



Source: Greater Sydney Commission

CONNECTING SYDNEY'S SECOND CBD

Central River City will grow substantially capitalising on its location close to the geographic centre of Greater Sydney. Greater Parramatta – the metropolitan centre – is the core of the Central River City.

Greater Parramatta encompasses Parramatta CBD, North Parramatta and Westmead and Parramatta Park.

SYDNEY WEST METRO RAIL



24 Km underground rail between Westmead to Sydney CBD



20 Billion cost of the rail line



7 Stations planned



20 Mins target travel time between the two CBDs

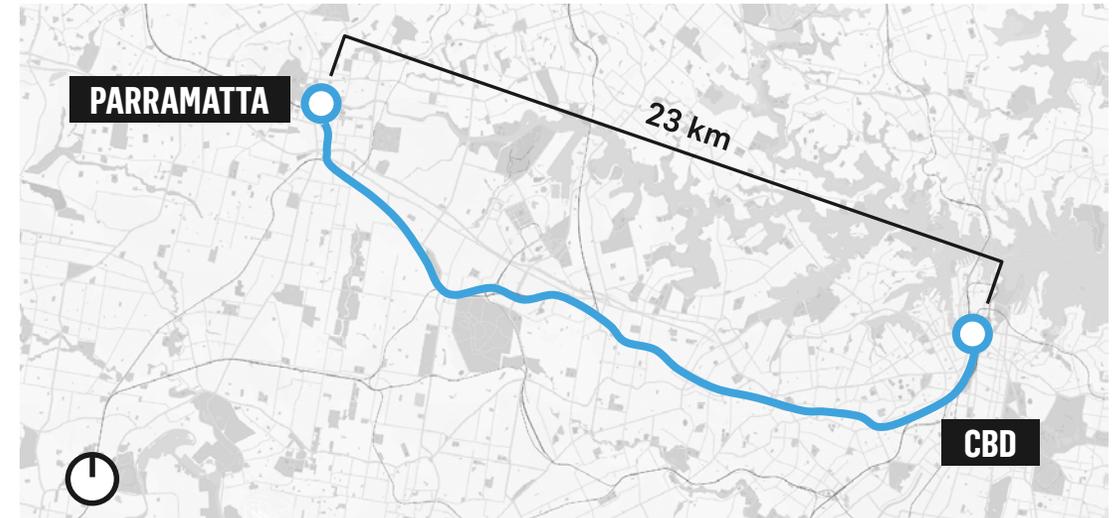
A TALE OF TWO SECOND CBDS

JURONG LAKE DISTRICT - SINGAPORE CBD



- JLD will be the **main hub for industrial 4.0 and port related businesses**.
- It will also be the **Singapore terminus of the Kuala Lumpur-Singapore High-Speed Rail (HSR)**.
- **4 MRT lines** will service it by 2035 and allow it to develop into a car-lite district.

PARRAMATTA CBD - SYDNEY CBD



- Greater Parramatta will be centred on **world-class health, education and research institutions** as well as **finance, business services and administration**.
- The **Sydney Metro West** rail line will connect Parramatta CBD to the Harbour CBD.
- **Parramatta Light Rail** will improve connectivity within Greater Parramatta.

BOTH SECOND CBDS WILL GROW SIGNIFICANTLY BY 2040

JURONG LAKE DISTRICT - SINGAPORE



Total Area

360 Ha **253 Ha**

Projected Jobs

100 K **83 K**
by 2040 by 2041

Target Homes

20 K **11 K**
by 2040 by 2041

PARRAMATTA CBD - SYDNEY



PUBLIC TRANSPORT AFFORDABILITY IS MUCH GREATER IN SINGAPORE

JURONG LAKE DISTRICT - SINGAPORE CBD



2019 Statistics

Time Taken by Train*

29 Min **41 Min**

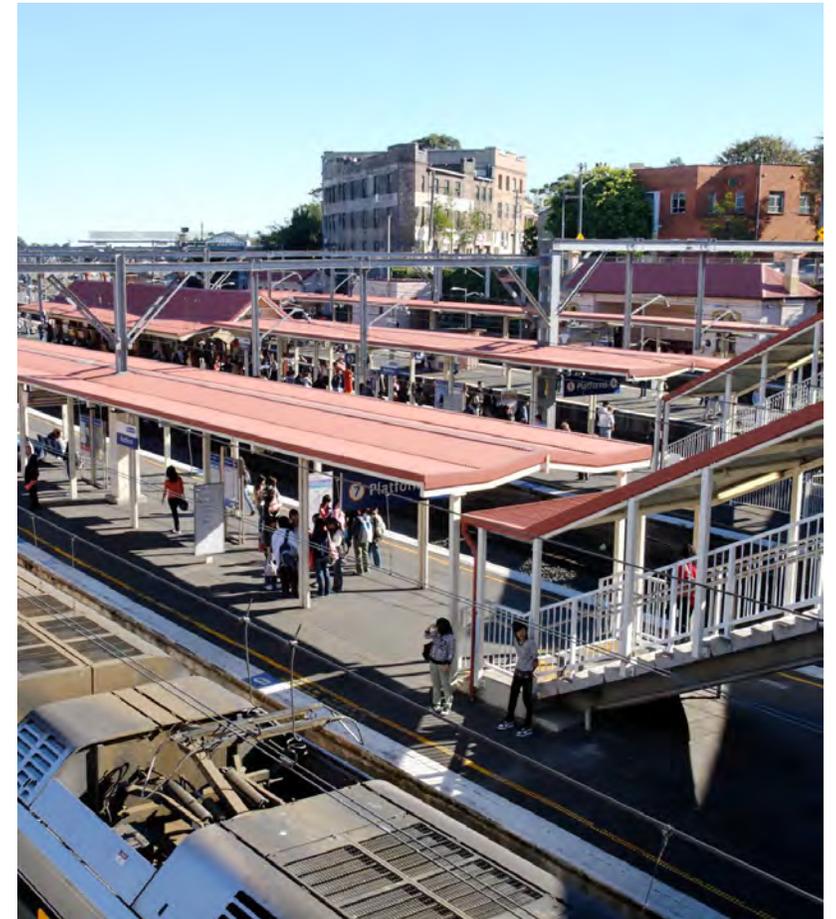
MRT / Metro Fare

\$1.72 **\$5.15**

Bus Fare

\$1.80 **\$4.80**

PARRAMATTA CBD - SYDNEY CBD



*Thursday 8:00 AM

AFFORDABILITY DRIVING PUBLIC TRANSPORT PATRONAGE IN SINGAPORE

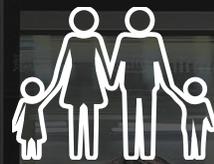
SINGAPORE



\$2950 per annum public transport expenditure of a typical family

4.8 % of disposable income of typical family

GREATER SYDNEY



\$5750 per annum public transport expenditure of a typical family

9.4 % of disposable income of typical family

Source: Nanyang Technology University, International benchmarking study of public transport fares (2018).

Typical family Includes two working adults and two school going students, using an average distance of 10KM assuming each made 2 trips a day for 30 days per month.

KEY LEARNINGS

Integrated and long term approach to land use and transport planning is crucial.

Efficient, affordable, and well connected public transport is key to shifting away from auto centric cities.

Successful TODs are created by an integrated mix of uses which can be varied according to location and demographic & economic needs.

High density and high liveability can co-exist if supported by reliable public transport.



THANK YOU

Peter Hyland
Regional Director, Cistri
phyland@cistri.com

