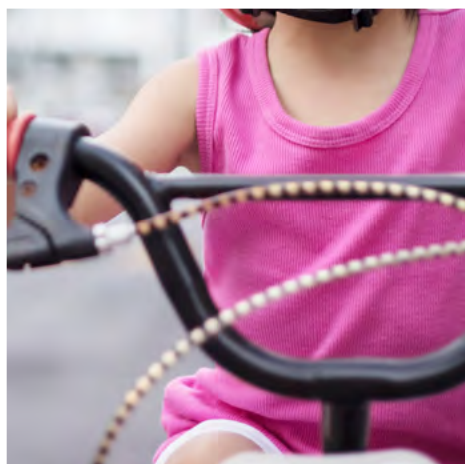




# NEW JOURNEYS





# Contents

Chairman’s Message	2
Chief Executive’s Message	4
Board of Directors	6
Board Committees	9
Senior Management	10
Organisation Structure	14

## Rail Romance

Better rail reliability	31
Smarter systems	22
Rail renewal	24
Extended network	26
LRT enhancements	31
Fast track to Malaysia	32
Engineering capabilities	34
Connecting with commuters	37

## Beyond Bus

Better bus services	40
Bigger data, smarter systems	42
New-age buses	44
Enhanced features	46
New bus terminals	48
Bus academy	50

## Personal & Portable

Scoot for joy	54
New rules	56
Connecting towns and cyclists	58
Bencoolen Street: Car-lite makeover	60
Cycling towns	62

## Taking A Smart Spin

Electric vehicles	70
Autonomous vehicles	72
A smoother ride	74
Smarter payments	76
Taxis and private hire cars	76

Awards won	88
Contracts awarded in FY2016/17	80
Contracts to be awarded in FY2017/18	85
FY2016/17 Financial highlights	88



*Tomorrow’s smart rides*  
*Connecting you smoothly to*  
*People and places*

**Vision**  
*A people-centred*  
*land transport system*

**Mission**  
*Connecting people and places,*  
*enhancing travel experience*



## Chairman's Message

# Why it's great to take the trains

Ever since the opening of the Downtown Line, my son takes the train to work daily. The train station is just a 5-minute walk from my home and halves his travelling time as compared to driving. The best part is, he doesn't need to pay for parking with high charges in the downtown area.

I share his story to illustrate how a good public transport system can trump driving a car—in terms of convenience, cost and time saving. This is a critical message in Singapore's bid to be car-lite, which I hope will encourage residents to choose public transport and encourage car owners to leave their vehicles at home.

Going forward, the key is to make public transport as good a choice as any other transportation mode. The LTA is also paying close attention to two areas—enhancing the reliability of rail and bus systems, and improving the infrastructure, including a transnational network.

### Raising reliability

The MRT, a major milestone in transforming Singapore into a modern metropolis, has kept up with developments. Today, the network carries about 3.1 million passenger trips per day. It serves the densely populated towns and brings commuters directly into their work places, town centres and the Central Business District.

As we expand and extend the network, we are also constantly looking at ways to boost its efficiency and reliability. We are on track in raising rail reliability with significant

improvements in the first quarter of 2017. Trains are now travelling longer distances before a slowdown, with the Mean Kilometre Between Failure (MKBF), measuring delays of beyond 5 minutes, more than doubling from 174,000 train-km in 2016 to 393,000 train-km in H1 2017.

I believe that the rail network will be the transportation of the 21st Century. Imagine being able to take the train from Singapore to Beijing and onto Europe. As it is, we can look forward to the landmark high speed rail from Singapore to Kuala Lumpur by 2026.

This is a notable achievement for our largely driverless rail system. In fact, our rail network is bucking the trend as a totally automated system tends to encounter more delays. For safety reasons, driverless trains have to stop when it detects a problem. In contrast, trains with drivers may not need to stop as adjustments can be made by the driver.

The improvement to train reliability could not have happened without the steady progress in renewing our MRT network, especially on the 30

year-old North-South and East-West Lines (NSEWL). We completed the replacement of the sleepers—which hold the tracks in place—in end 2016, and will complete the upgrading of the signalling system for the NSL and the EWL by 2017 and 2018 respectively.

We also tap on technology to enhance rail reliability, such as detecting faults early and addressing disruptions before they occur. We are working with operators to shift into this system of predictive maintenance. Called the Rail Enterprise Asset Management System (REAMS), it will integrate and monitor information across all rail lines in a single system—allowing us to perform trend analysis and fault prediction.

Besides rail, an integral part of the public transport system is the improved bus network. Under the Bus Service Enhancement Programme (BSEP), 1,000 buses will be added to the public bus network by 2017. With the full transition to the new Bus Contracting Model (BCM) in September 2016, LTA determines the bus services, sets the service standards, and provides bus infrastructure and assets. This means that public bus services can be more responsive to changes in ridership and commuter needs. There is greater competition in the industry to bring about better service. To date, we have awarded three of the 14 BCM bus packages to Tower Transit Singapore (Bulim Package), Go-Ahead Singapore (Loyang Package) and the SBS Transit (Seletar Package). The fourth Bukit Merah Package was put up for tender in April 2017, while



the remaining 10 packages will be tendered out progressively over the years to ensure a smooth transition for the commuters and operators.

We make sure buses arrive on schedule—not too early or too late—by using data and technology to monitor the location and performance of bus fleets in real time. With better predictability, more will rely on public transportation for their daily commute and in turn, bring us a step closer to being a car-lite society.

### Improving infrastructure

As Singapore continues to develop, it is critical that the public transport system can cater to the growing population. There are many interesting developments, from bike-sharing to Personal Mobility Devices (PMDs),

offering commuters the convenience of covering the first and last mile of their journeys. Private hire cars and taxis also play an important role as it provides an option for point-to-point travel, reducing the need to own a car.

I believe that the rail network will be the transportation of the 21st Century. Imagine being able to take the train from Singapore to Beijing and onto Europe. As it is, we can look forward to the landmark high speed rail from Singapore to Kuala Lumpur (KL) by 2026. The 350km line will have eight stations, bringing you from Jurong to KL in 90 minutes.

It is an exciting era for land transport. Amid all the progress that transport technology offers such as autonomous buses, cars and flying pods, we can

look forward to more options in Singapore's urban mobility. We hope that public transport will truly be the preferred choice for commuters.

**Chan Heng Loon Alan**  
*Chairman*



# Chief Executive's Message

## Transport of our future

**H**op on a passenger drone, hail a flying taxi, or catch an on-demand and autonomous bus on your way home. These futuristic modes of transportation are no longer science-fiction fantasy, but an exciting reality that will transform the way we travel in the future.

Disruptive technology will redefine the urban mobility landscape, changing commuting patterns as well as commuters' perception about public transport. We hope the preference of procuring reliable transport services on demand would slowly replace the current mindset of aspiring to own a car.

While the ever-expanding rail and bus network remains the core of Singapore's public transport system, there will be a myriad of other mobility modes. In the near future, you can look forward to having an autonomous pod or shuttle ferry you from your doorstep to the MRT station at your usual time every morning, or for an on-demand bus service to bring you from one point to another during off-peak period.

Private hire car services will be an essential part of the public transport landscape too, providing point-to-point travel convenience just like taxis. Personal Mobility Devices (PMDs) such as electric scooters, unicycles and hover boards will only become more popular, with commuters using them to reach their destinations—be it the MRT station as foldable PMDs are now allowed on trains, or direct to their meeting locations.

How will all this drive the change to a car-lite Singapore? Taken together,

new technology and new services strive to make public transport systems convenient, accessible and comfortable. We hope that public transport will become the transport of choice.

### **New technology and renewing our systems**

While flying transportation is still up in the air for now, what is more grounded are autonomous vehicles (AVs) such as self-driving buses. The LTA is exploring the development and doing trials on autonomous and electric buses. Using a suite of

**In the near future, you can look forward to having an autonomous pod or shuttle ferry you from your doorstep to the MRT station at your usual time every morning, or for an on-demand bus service to bring you from one point to another.**

sensors, including radar and cameras, autonomous buses could identify their own locations and drive on their own. They would move on fixed and scheduled services during peak period, and respond to demand on dynamic routes during off-peak period.

We are deploying better technology to renew our rail network too. For

instance, we are transitioning to the new signalling system for the full North-South-East-West-Line's (NSEWL) fleet of trains. With the new system, commuters can expect shorter waiting times and improved peak hour capacity by up to 20 per cent. We have also completed the replacement of the third rail system to enhance the reliability of power supply to trains, and called for two tenders to renew the power supply system serving our two oldest lines—NSL and EWL—with condition-monitoring tools for better fault detection and fault identification.

Going forward, technology will be used to improve commuters' experience with hassle-free fare payment. We look forward to creating a cashless ticketing landscape for commuters, as well as developing a system that will be convenient and fully integrated with commuters' overall lifestyle.

### **Planning ahead**

We plan to grow our rail network to 360km by 2030, longer than major cities such as Hong Kong and Tokyo, and comparable to the current length in London and New York City. The rail network is, in fact, expanding at a much faster pace, with the pace of construction similar to building one new MRT station every two months.

Our rail construction schedule is amazing. We completed the Tuas West Extension in June, and the Downtown Line 3 will open in October, which will add another 28.5km to our rail system. Meanwhile, construction of the Thomson–East Coast Line and Circle Line 6 are underway, and the North East Line extension civil works will start next year. Planning



for the Cross Island Line and Jurong Region Line have also begun.

Given our space constraints, there is greater need to plan and map out the landscape for smoother urban mobility. One example is Bencoolen Street, which got a car-lite makeover when it re-opened in May. Closed for the construction of the Downtown Line's Bencoolen Station since 2011, it has been converted into a shared space with wide footpaths lined with trees and benches, sheltered linkways from the new Bencoolen MRT station, a cycling path, more than 125 bicycle parking spaces along the street, and a dedicated bus lane for faster and smoother bus journeys.

Cycling will be more convenient and attractive when all HDB towns have a cycling network by 2030.

This means a total of 700km of cycling paths island-wide, making cycling an effortless commute.

### **Doing it together as a team**

To deliver all the work we set out to do, we continuously challenge ourselves to look for safer, better and more cost-effective ways of doing things. Safety is of paramount importance. We must keep commuters safe on their daily trips on our transport system. We must also pay attention that our colleagues, contractors, operators and technicians working on sites observe safety in every step of our work.

An emphasis on safety through teamwork is crucial in attracting more talents to join the industry too. This reflects how we go about our work—looking out for each other

and finding better ways to deliver our projects. It goes beyond safety issues to how we can better overcome difficult situations and improve commuter satisfaction in terms of reliability, comfort and waiting time. And we want to do all these in the most cost-effective ways possible.

I look forward to your support in our endeavor towards building a better land transport system for all Singaporeans.

**Ngien Hoon Ping**  
*Chief Executive*



# Board of Directors



**Chan Heng Loon Alan**  
*Chairman*

- Chairman, Singapore-China Foundation
- Member, Public Service Commission
- Board Director of Lan Ting Holdings, Pavilion Energy Ltd and Pavilion Gas Pte Ltd



**Richard Lim Cherng Yih**  
*Deputy Chairman*

- Chairman, ST Logistics
- Adjunct Professor, Department of Industrial Systems Engineering & Management, National University of Singapore



**Professor Yong Kwet Yew**

- Professor of Civil Engineering and Vice-President (Campus Infrastructure), National University of Singapore
- Chairman, Association of Geotechnical Societies (South-East Asia)
- Hon. Fellow, Institution of Engineers, Singapore
- Accredited Adjudicator, Singapore Mediation Centre



**Ellen Lee Geck Hoon**

- Advocate and Solicitor; Consultant, Belinda Ang Tang & Partners



**Arthur Lang Tao Yih**

- Chief Executive Officer, International, Singapore Telecommunications Ltd



**Alwi Bin Abdul Hafiz**

- Sustainability Advisor, Golden Veroleum Liberia
- Director & Co-Founder, Intuitif Technologies Pte Ltd



**Ngien Hoon Ping**

- Chief Executive, Land Transport Authority



**Wong Yew Meng**

- Board Member, People's Association
- Board of Director of Venture Corporation Limited, Ascendas Funds Management (S) Limited, Singapore Deposit Insurance Corporation Limited and Kidney Dialysis Foundation, Singapore
- Member, NTU Board of Trustees



**Nick Chong Keng Cheen**

- Vice President, Shell Lubricants business for Asia Pacific, Middle East & South Africa, Shell Eastern Petroleum Pte Ltd



**Patrick Tay Teck Guan**

- Assistant Secretary-General, National Trades Union Congress (NTUC)
- Director, Legal Services Department & Future Jobs, Skills & Training Department, NTUC
- Member of Parliament, West Coast GRC



**Chua Chim Kang**

- Editor, Lianhe Wanbao
- Managing Editor (Chinese Radio), Chinese Media Group, Singapore Press Holdings Ltd



**Tan Peng Yam**

- Chief Executive, Defence Science and Technology Agency





**Michael Chin Yong Kok**  
■ Managing Director (Infrastructure & Projects), SP Group



**Richard Hoo Eng Jek**  
■ Deputy Chief Executive (Policy & Development), PUB, Singapore's National Water Agency



**Tan Kiat How**  
■ Chief Executive Officer, Infocomm Media Development Authority

# Board Committees

<b>Asset Management</b>	Nick Chong Keng Cheen <i>Chairman</i> Ngien Hoon Ping <i>Member</i> Alwi Bin Abdul Hafiz <i>Member</i> Michael Chin Yong Kok <i>Member</i>	Amanda Cheu <i>Secretary</i> Pang Lay Kuan <i>Secretary</i> Tan Way Chin <i>Secretary</i>
<b>Audit</b>	Wong Yew Meng <i>Chairman</i> Patrick Tay Teck Guan <i>Member</i> Chua Chim Kang <i>Member</i>	Tang Lai Wan <i>Secretary</i>
<b>Finance &amp; Establishment</b>	Ellen Lee Geck Hoon <i>Chairman</i> Ngien Hoon Ping <i>Member</i> Arthur Lang Tao Yih <i>Member</i> Richard Hoo Eng Jek <i>Member</i>	Koe Ing Ling <i>Secretary</i>
<b>Investment</b>	Arthur Lang Tao Yih <i>Chairman</i> Ngien Hoon Ping <i>Member</i> Tan Peng Yam <i>Member</i>	Christina Thio <i>Secretary</i> Lee Wen Xiong <i>Secretary</i>
<b>Leadership, Development and Remuneration</b>	Chan Heng Loon Alan <i>Chairman</i> Richard Lim Cherng Yih <i>Member</i> Professor Yong Kwet Yew <i>Member</i> Ngien Hoon Ping <i>Member</i>	Goh Hui Boon <i>Secretary</i>
<b>Risk Management</b>	Alwi Bin Abdul Hafiz <i>Chairman</i> Ngien Hoon Ping <i>Member</i> Ellen Lee Geck Hoon <i>Member</i> Tan Kiat How <i>Member</i>	Alyssa Tan <i>Secretary</i> Liew Shuxian <i>Secretary</i>
<b>Senior Tender Board</b>	Chan Heng Loon Alan <i>Chairman</i> Richard Lim Cherng Yih <i>Member</i> Professor Yong Kwet Yew <i>Member</i> Ngien Hoon Ping <i>Member</i> Wong Yew Meng <i>Member</i> Nick Chong Keng Cheen <i>Member</i> Michael Chin Yong Kok <i>Member</i>	Elmar Koentarjo <i>Secretary</i> Zhou Liying <i>Secretary</i>



# Senior Management

- 1

**Ngien Hoon Ping**  
Chief Executive
- 2

**Chua Chong Kheng**  
Deputy Chief Executive  
*Infrastructure & Development*
- 3

**Jeremy Yap**  
Deputy Chief Executive  
*Public Transport, Policy & Planning*
- 4

**Sim Wee Meng**  
Senior Group Director  
*Rail and*  
Group Director  
*Rail Infrastructure & Expansion*
- 5

**Alice Tan**  
Chief Financial Officer
- 6

**Lew Yii Der**  
Group Director  
*Corporate Planning & Development*
- 7

**Ng Kee Nam**  
Group Director  
*Thomson–East Coast & Cross Island Lines (Civil)*
- 8

**Frederick Wong**  
Group Director  
*Safety & Contracts*
- 9

**Leong Kwok Weng**  
Group Director  
*Rail / Road Systems Engineering*
- 10

**Paul Fok**  
Group Director  
*Infrastructure Design & Engineering*
- 11

**Dr Chin Kian Keong**  
Chief Engineer  
*Road & Traffic*
- 12

**Wong Wai Keong**  
Group Director  
*Rail Asset, Operations & Maintenance*







13

**Yap Cheng Chwee**  
Group Director  
*North-South Corridor*

14

**Yeo Teck Guan**  
Group Director  
*Public Transport*

15

**Helen Lim**  
Group Director  
*Corporate Communications*

16

**Alison Tan**  
Group Director  
*Vehicle Services*

17

**Lina Lim**  
Group Director  
*Policy & Planning*

18

**Chandrasekar**  
Group Director  
*Traffic & Road Operations*

19

**Lam Wee Shann**  
Group Director  
*Technology & Industry Development*

20

**Yap Boon Leong**  
Group Director  
*Road & Commuter Infrastructure Development*

21

**Dr Chuai Chip Tiong**  
Chief  
*Quality Service Manager Office*

22

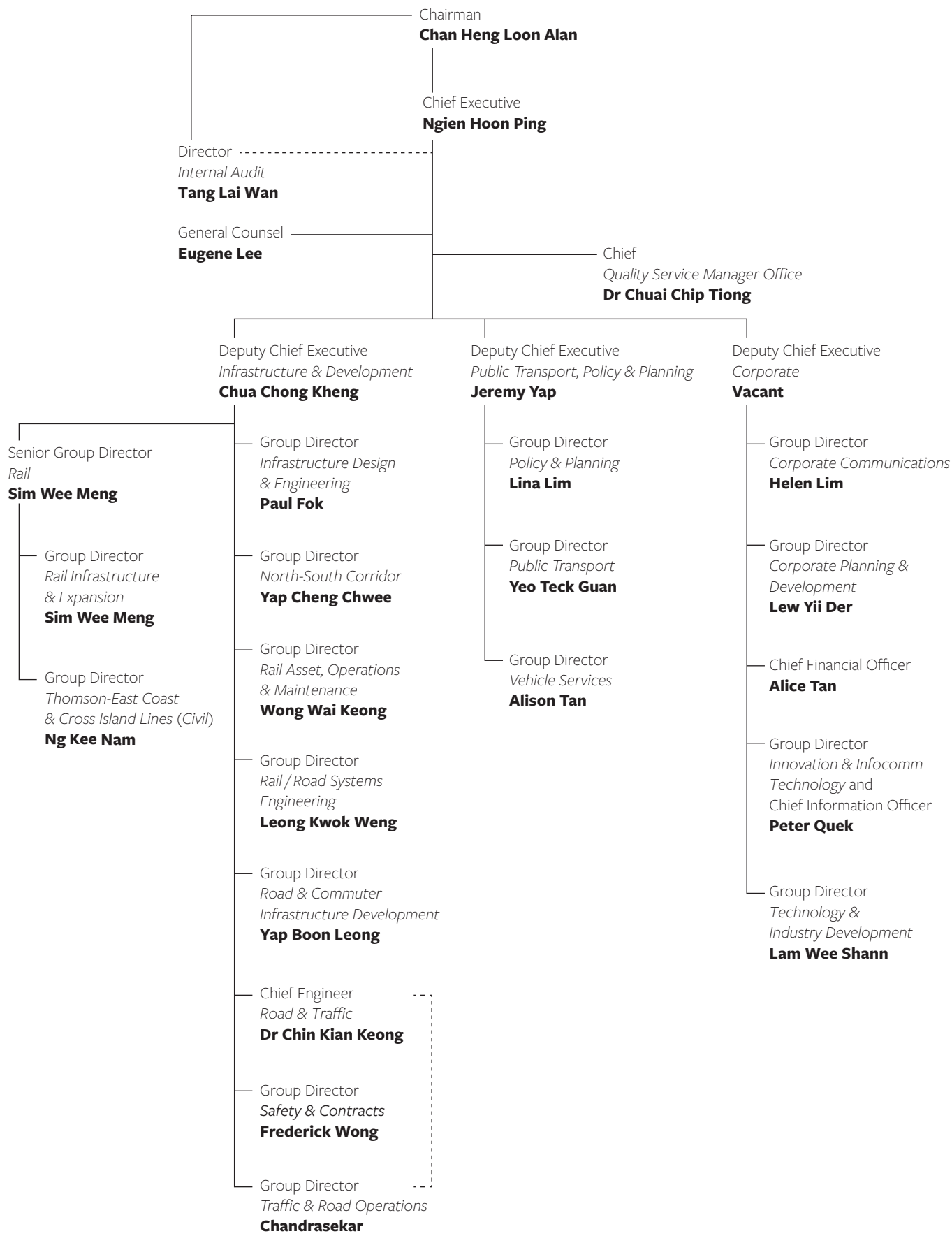
**Eugene Lee**  
General Counsel

23

**Peter Quek**  
Group Director  
*Innovation & Infocomm Technology and Chief Information Officer*



# Organisation Structure





# RAIL ROMANCE



**girlcommuting**

8am, Kent Ridge  
High-tops guy, door twenty-two  
Eye contact, a first!

People I see on a near-daily basis. There is the schoolboy with the scruffy shoes, the mother who takes her toddler with her on Fridays, and the guy who wears black-rimmed glasses and high-top Converse shoes, reading a different book each week (he seems to be a huge graphic novel fan... he's reading Watchmen today, which I completely love <3) Isn't it fascinating, how we weave in and out of each other's lives in a train carriage?

#musings #commuterlife #mrtobservations







# Better rail reliability

Commuters have enjoyed shorter waiting time and more reliable trips with initiatives implemented by LTA to ensure trains are on time and functioning well.

## Mean Kilometre Between Failure

Trains are travelling longer distances before experiencing a delay of more than five minutes. This has significantly improved rail reliability, measured by an international benchmark called Mean Kilometre Between Failure (MKBF). How it works: The higher the number, the better.

The MKBF for the overall MRT network rose from 174,000 train-km in 2016, to 393,000 train-km in the first half of 2017. This means that trains travelled a staggering 393,000 km—10 times around the Earth at the equator—before a slowdown. Imagine the distance!

The LRT systems did well too, with overall MKBF improving to 65,000 car-km in the first quarter of 2017, or six times the distance from Singapore to London. This is an improvement from 2016's 49,000 car-km. Service delays exceeding 30 minutes on the network also fell

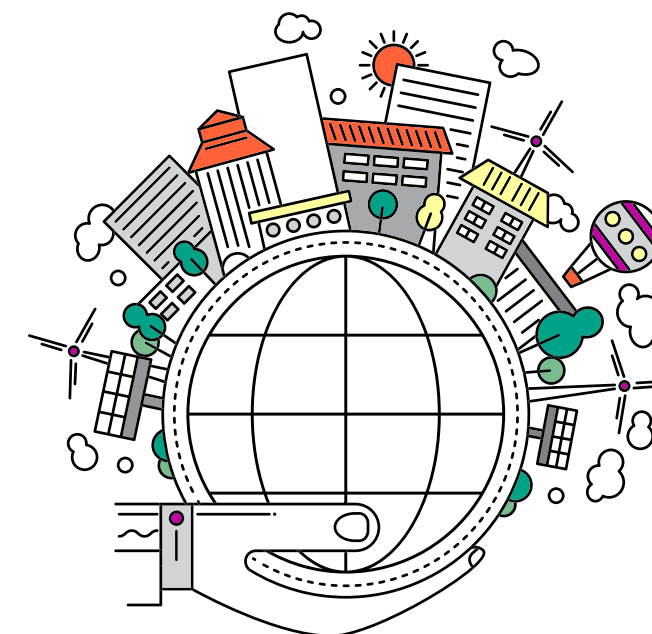
to 4 in the quarter, compared to an average of 4.5 per quarter last year.

This was achieved as LTA and operators worked hard to improve maintenance procedures and incident recovery processes. The big infrastructure renewal projects have also been progressing steadily. Next stop: To work closely with operators and raise rail reliability even more.

H1 2017 MKBF · MRT

**393,000km**

10 times around the Earth's equator\*



Q1 2017 MKBF · LRT

**65,000km**

6 times from Singapore to London\*

\* Before trains experience downtime.



New Rail Financing Framework

In October 2016, over 60,000 of rail operator SMRT's assets, such as the trains and signalling systems, were transferred to LTA under the New Rail Financing Framework (NRFF).

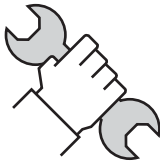
These included the North-South and East-West Lines (NSEWL), the Circle Line (CCL), and the Bukit Panjang LRT (BPLRT). The Downtown Line (DTL) was the first to go under the NRFF, earlier in 2011.

NRFF Key Benefits:

More responsive to increased ridership



Focus on providing reliable services



More competitive rail industry



Moving to the NRFF:

2011 DTL

2016 NSEWL  
CCL  
BPLRT

Next North East Line  
Sengkang-Punggol LRT



girlcommuting



Fixers, menders. They  
Make things work again but we  
Often don't see them

Took the last train home today and saw maintenance workers going about their duties. It looked like their work day had just started. It's hard to make sense of numbers in the news sometimes. A report said rail reliability improved—trains travelled for a longer distance before experiencing delays of more than 5 minutes. But these workers, toiling away to fix whatever that's broken so that we have a smoother ride, they help put the numbers in context.

#journeys #trainlife #lasttrainhome  
#mrtobservations



# Smarter systems

Can track faults be completely avoided? Yes, surely—if they can be detected before they even occur.

## Automatic Track Inspection

The Downtown Line (DTL) will get to try out a new-generation Automatic Track Inspection System. Four of the train carriages will have imaging sensors and laser scanners installed below them to monitor track conditions. Over at the North-South and East-West Lines (NSEWL), trains are fitted with sensors to monitor track conditions in real time. The data helps SMRT’s Maintenance Operation Centre to keep a close watch on the two rail lines for 24 hours a day.

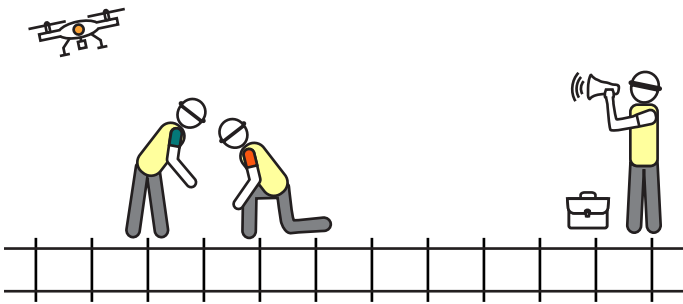
Such tools are like crystal balls—they predict and forecast events and problems, making it easier for maintenance teams to fix things quickly.

## Drones

Drones are not just good for aerial photos and videos—they may be the new assistants helping to inspect MRT tunnels. Currently, checks on tunnels are done manually by engineers, which is both time-consuming and labour-intensive. It may not be long before tunnels are served by aircrafts with 360-degree video projection that will set off alerts and send information on location when faults are detected. Truly an exciting vision for the future!

## Rail Enterprise Asset Management System

In the digital age, data is gold—but only if you unlock its true value. To analyse the information collected from smart sensors and maintenance tools, LTA is looking to develop a comprehensive and robust Rail Enterprise Asset Management System (REAMS). The system will consolidate and integrate information collected from all the train lines into one place. This way, trends can be analysed, and predictions on faults better developed.



**girlcommuting**



*Drones in train tunnels  
Three-sixty view, track faults are  
Thrown in sharp focus*

We are always looking at public transport systems from one side—commuters, milling around stations, waiting for their ride. But what about the view from the other side, of the inspection and maintenance that happens after hours? Learnt today that drones will soon do regular inspection in underground MRT tunnels, a faster and safer option compared to the old way of manual inspection by engineers. Drones! So cool!

**#dronesintunnels #perspective  
#commuterlife**



# Rail renewal

Old things can be as good as new things, and that includes the NSEWL, the two oldest rail lines in Singapore. Renewal works to upgrade and replace ageing infrastructure ensure that the two lines perform steadily.

## Sleeper replacement completion

After the last train pulled out of the station, and neighbourhoods quietened down as people retired for the night, rail workers got to work to replace sleepers on the NSEWL. In all, 188,000 wooden sleepers were replaced with concrete ones. The four-year project, which drew to a close in end 2016, was aimed at improving commuter experience on Singapore's oldest and most-used rail lines. With the project completed, speed restrictions of 40 to 60kmh were lifted, and maximum speeds on the two lines reverted to 80kmh.

## Signalling system update

The signalling system on the NSEWL is being updated from its current 30-year-old fixed block system. Once trains make the full switch to the new signalling system, they will be able to run closer together and arrive at intervals of up to 100 seconds during peak hours, instead of 120 seconds currently. Train doors will open and close automatically, instead of being controlled by the train captain. This means more trains will run during peak hours, and there will shorter wait times between services—a double plus for commuters.

## Third rail replacement

The trains have been powered up. Replacement works on the third rail system—which supplies power to the rail lines—for the NSEWL will be completed in 2017, after a two-year effort. The replacement project is timely as the upgrades increase the reliability of the electrical system and boost rail performance.

## New trains

New trains are arriving! To be precise, there are 57 new trains fitted with a new signaling system. They will be progressively added to the NSEWL fleet till 2019. Old trains will also be replaced. LTA has called a tender for 66 new trains to replace the first-generation trains on the NSEWL that are about 30 years old. The new trains will have new features such as sensors to monitor track conditions.

## Power supply works

The power supply system serving the NSEWL will also be renewed with tools to better detect and identify faults. LTA has called two tenders, which will be awarded by early 2018. It is a huge job—the renewal process will take around five years to be done. Power on!

Upgrading the NSEWL signalling system involves retrofitting...

141

trains



54

stations



95

km of track



While you were sleeping...

NSL

96,000

Sleepers replaced

EWL

92,000

Sleepers replaced



girlcommuting

Some bumps here and there  
But no biggie. As they say,  
No pain, no gain. Right?

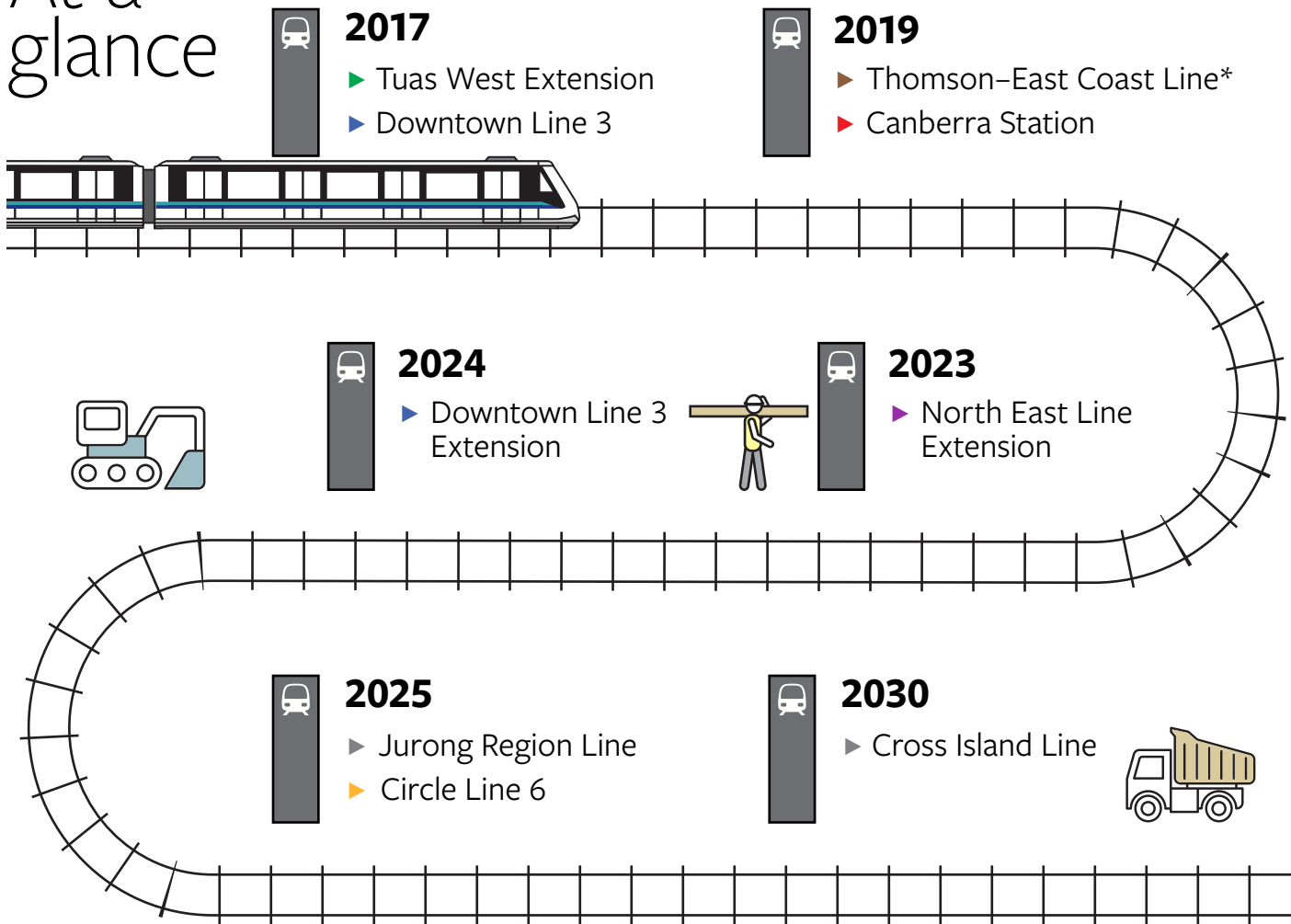
Left home earlier to take the NSL to Somerset for yoga class as I read about tests being done on the signalling system—wanted to buffer more time to travel. While waiting for my train, I struck up a conversation with a station manager helping to control the crowd. Found out that the new signalling system will lead to faster journeys during peak hours... A little bit of pain now, for bigger gains in future. Kind of similar to my yoga class—still aching from that crow pose now! [#commuterlife](#) [#namaste](#) [#nopainnogain](#)





# Extended network

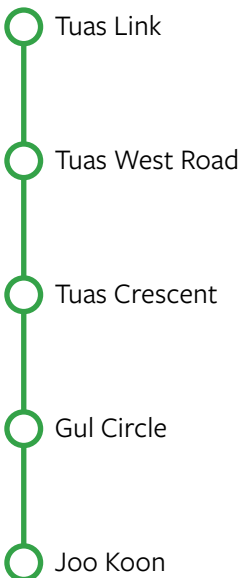
At a glance



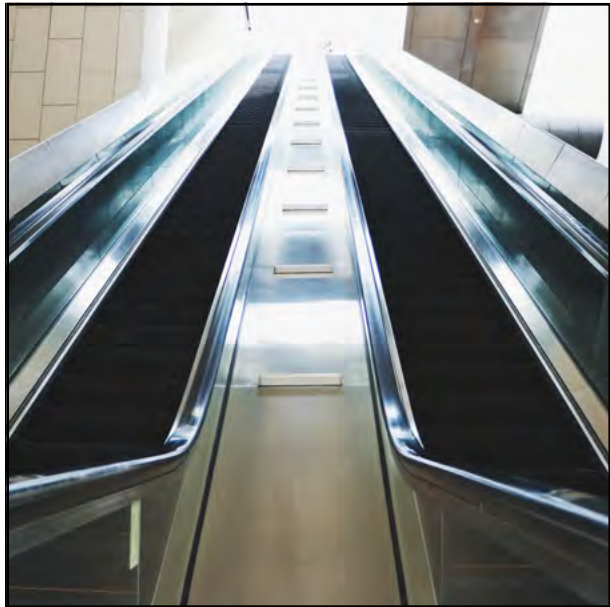
\* Note: To be completed in stages until 2024.

## 2017: Tuas West Extension

Joo Koon is no longer the last stop on the western point of the EWL, with the opening of the four new stations on the Tuas West Extension (TWE) in June 2017, namely, Gul Circle, Tuas Crescent, Tuas West Road and Tuas Link stations. For people who work in Tuas, the TWE has brought about significant time savings for their daily commute.



	Before	After
Clementi to Tuas Crescent:	60min Via EWL ▶ Bus	35min Via EWL
Ang Mo Kio to Tuas West Road:	100min Via NSL ▶ EWL ▶ Bus	65min Via NSL ▶ EWL



**girlcommuting**

Red, orange, green, blue  
No, not the rainbow but the  
Colourful train lines

Always fascinating to watch the escalators in Bras Basah station on the orange Circle Line move up and down. Like a scene from a futuristic movie, no? Fun fact: Bras Basah has one of the longest escalators at 41.3 metres! CCL has been a complete lifesaver since it opened. It's so easy to get around the central part of Singapore, and the multiple points for transfers to other rail lines make commuting a breeze. Can't wait for the CCL to make a complete loop in 2025!

#escalators #upanddown #commuterlife



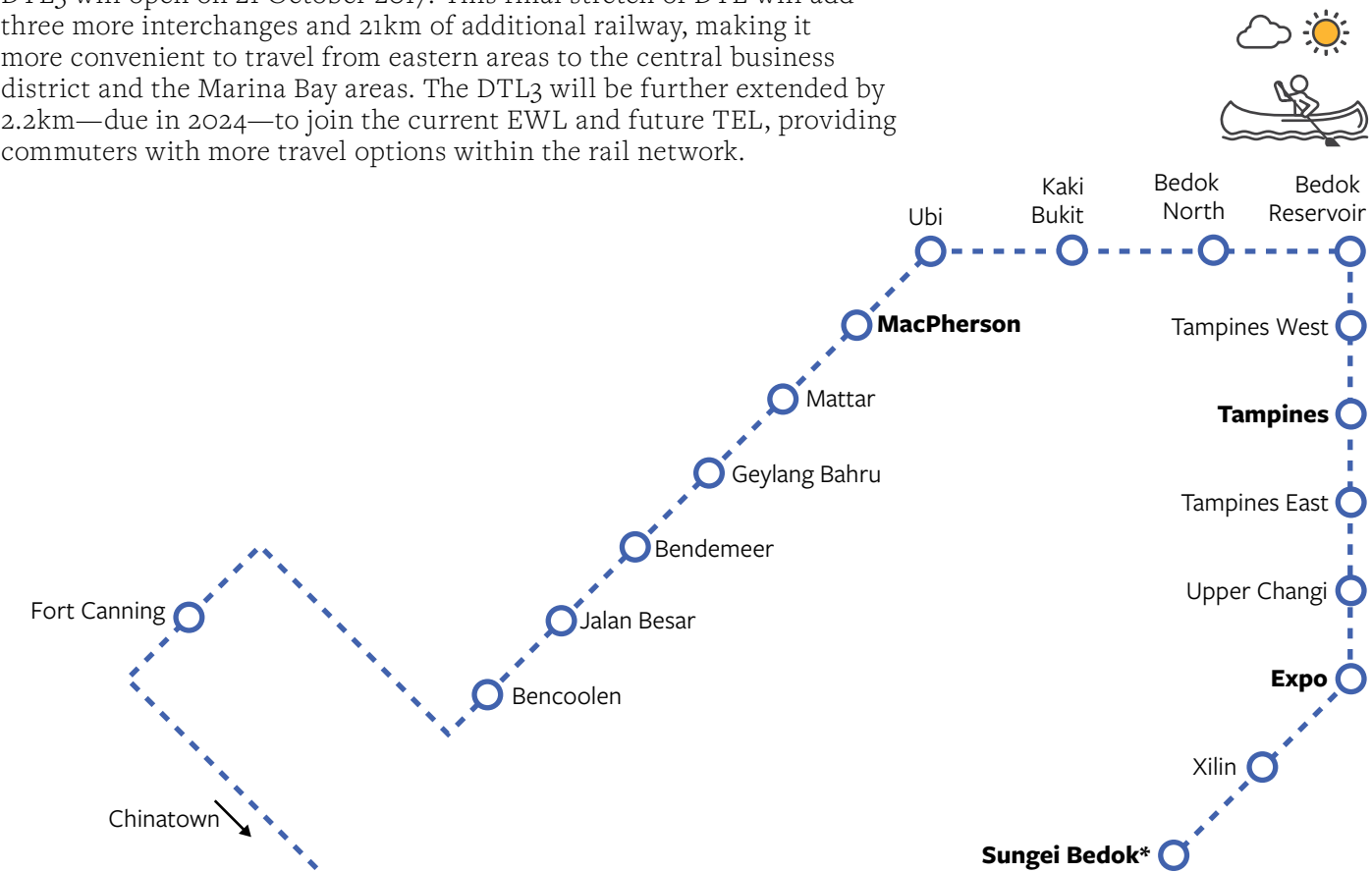
## Welcoming the Tuas Depot

Tuas Depot—Singapore's 7th—can accommodate 60 six-car trains. That is almost twice the capacity of Kim Chuan depot which can hold 70 three-car trains.

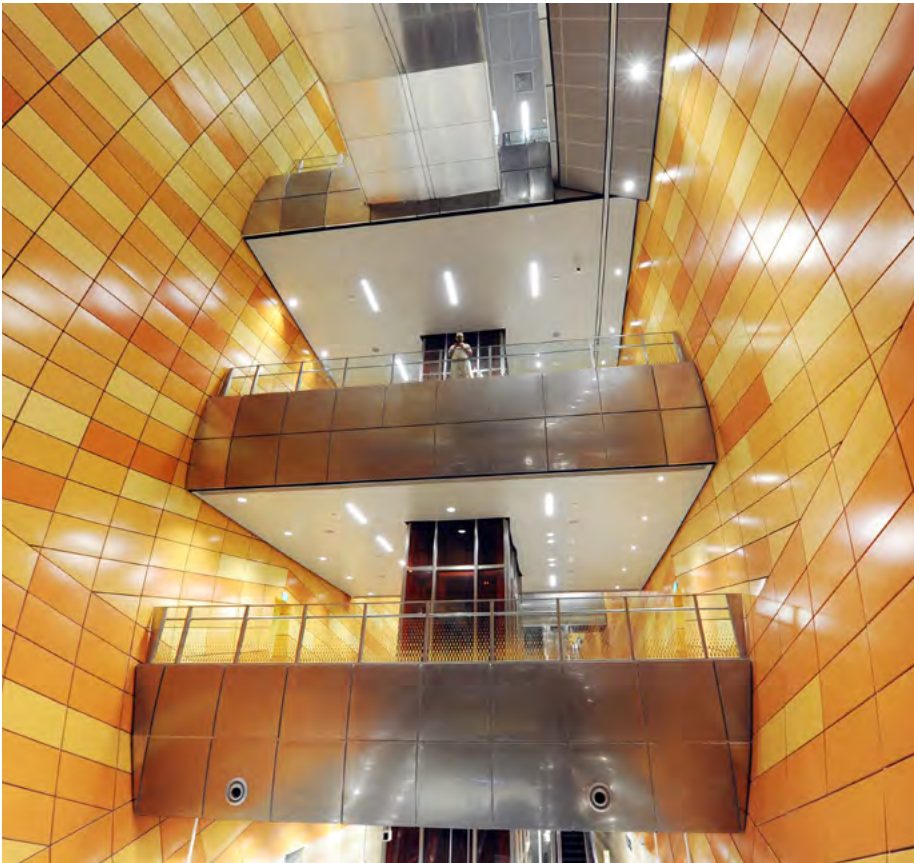


2017: Downtown Line 3

DTL3 will open on 21 October 2017! This final stretch of DTL will add three more interchanges and 21km of additional railway, making it more convenient to travel from eastern areas to the central business district and the Marina Bay areas. The DTL3 will be further extended by 2.2km—due in 2024—to join the current EWL and future TEL, providing commuters with more travel options within the rail network.

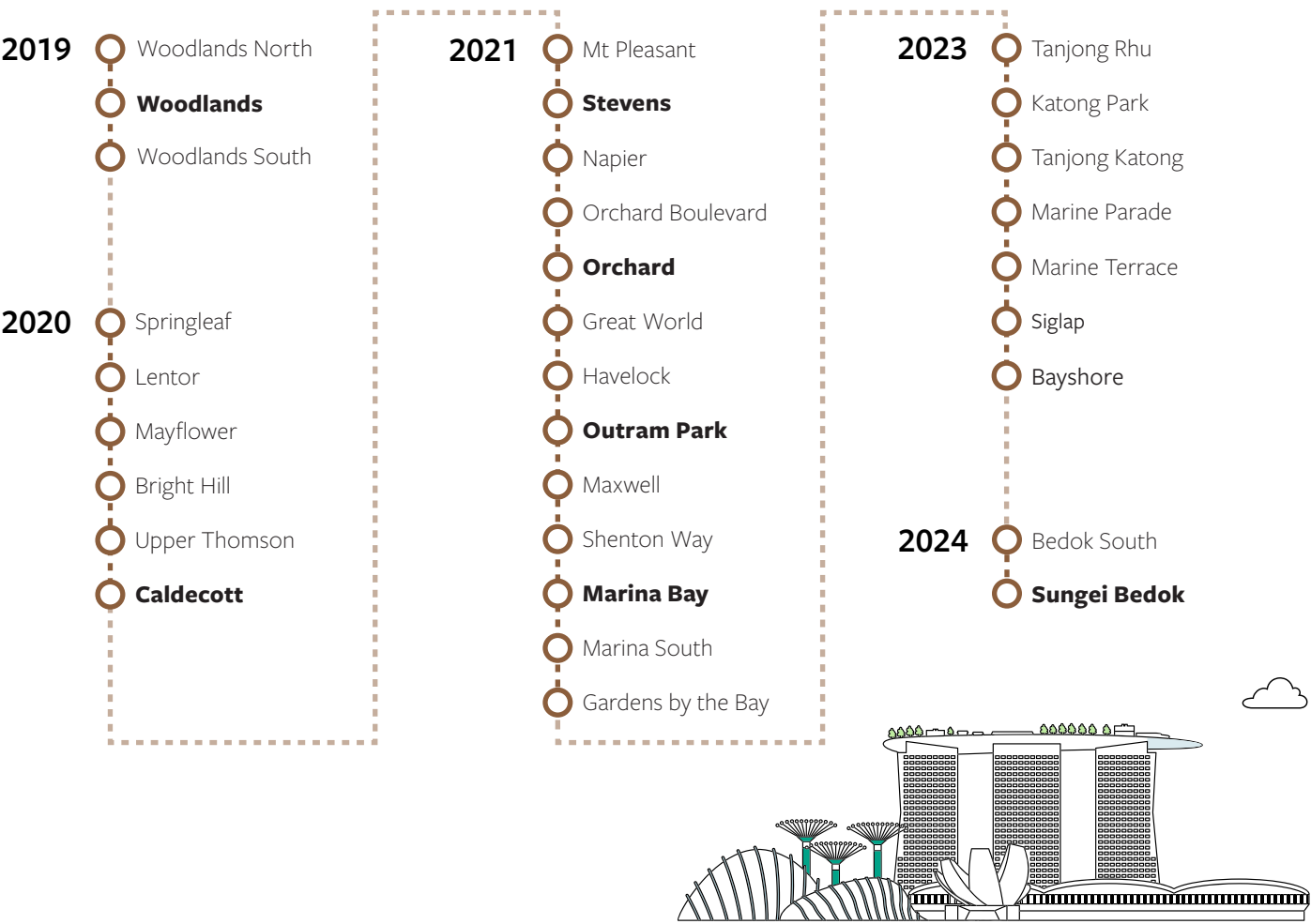


Note: Stations in bold are interchanges.  
\* Interchange station connecting the DTL3 extension with the Thomson-East Coast Line.



2019–2024: Thomson-East Coast Line

Works on the East Coast stretch have been progressing since it began in July last year. This is great news for residents in Tanjong Rhu, Marine Parade and Bedok South. These residents, who are not served directly by any rail lines now, will have a breezier time getting to the city centre once the 13km East Coast stretch with nine stations is up and running. The 43-km long TEL will also make it easier for commuters in Woodlands and Thomson to get to the financial district, Gardens by the Bay, and East Coast.



Using new technology

Works on the TEL are on track, in part thanks to the new tunnel-boring machine used for its construction. In May 2016, LTA became the first in Singapore to use a Rectangular Tunnel-Boring Machine (RTBM) to construct two pedestrian underpasses—a 150-metre underpass at Havelock station, and a 60-metre one at Stevens station.

The RTBM makes rectangular tunnels instead of circular ones, constructing the structure as it goes along. This method saves time and manpower, and causes less surface disruption than the traditional cut-and-cover construction method. The Havelock underpass took six months to complete, compared to three to four years using the old method.



2019: Canberra Station

The NSL will get an additional stop 30 years after its inception. Commuters could save about 10 minutes in travelling time, as they no longer need to take the bus to Yishun or Sembawang.



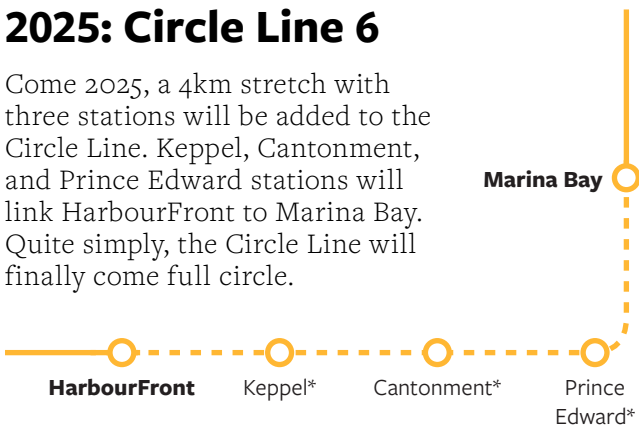
2023: North East Line Extension

The North East Line (NEL) will be extended by one station, or a 2km stretch, to the north of Punggol. The extension will be completed in 2023, seven years ahead of schedule, to keep in tandem with developments in the area.



2025: Circle Line 6

Come 2025, a 4km stretch with three stations will be added to the Circle Line. Keppel, Cantonment, and Prince Edward stations will link HarbourFront to Marina Bay. Quite simply, the Circle Line will finally come full circle.



2025: Jurong Region Line

The 20km Jurong Region Line (JRL) will link areas such as Jurong Innovation District and Jurong Lake District to the existing rail network. In March 2017, a site in Tengah was gazetted for the JRL's depot, and site preparation works are underway. Construction is expected to begin in 2019. Once the JRL is ready around 2025, commuters coming from the north will have a direct rail line into Jurong.

2030: Cross Island Line

On the map, Changi and Jurong are two opposite points. But getting to them will be easier once the Cross Island Line (CRL)—Singapore's 8th line—is up and running. Commuters are projected to take 600,000 daily rides on the 50km line when completed.



LRT enhancements

New features and improvements on the LRT allow commuters to enjoy smoother journeys from their estates to the MRT stations.

Bukit Panjang LRT

Commuters travelling on the Bukit Panjang LRT (BPLRT) welcomed faster boarding, alighting and transfers to the MRT since December last year, as the two newly constructed platforms at Choa Chu Kang LRT station had begun operations.

As the existing BPLRT is 17 years old, LTA is looking to renew the system and improve its reliability with new technology and design. Commuters in Bukit Panjang can look forward to more improvements coming their way!

Punggol LRT

Commuters on the Punggol LRT line also started enjoying better rides with the opening of Punggol Point and Samudera LRT stations, and the start of

two-car train services at Punggol East Loop during the morning and evening peak hours. The new trains effectively doubled the capacity to 204 passengers each.



\* Note: Station names are working names only.



# Fast track to Malaysia

## Rapid Transit System

Travelling to Malaysia will be a breeze with the upcoming rail connections. By December 2024, commuters can board a train from Woodlands North station on the Thomson–East Coast Line (TEL) and alight at Johor’s Bukit Chagar terminus station. The 4km Rapid Transit System (RTS), which can carry 10,000 commuters an hour in each direction, will use the same rail systems and rolling stock as the TEL.

## High Speed Rail

By 2026, it will also be easier to get from Singapore to Kuala Lumpur. In December 2016, the two countries signed a deal to develop the Kuala Lumpur-Singapore High Speed Rail (HSR). Together with MyHSR of Malaysia, LTA is responsible for the development and implementation of the project.

LTA will design and build the Singapore terminus station and tunnels, as well as the bridge

over the Straits of Johor—for the express service to KL and the shuttle service to Iskandar Puteri.



Artistic impression of the HSR terminus in Jurong East by Farells. The eventual design may differ.



**girlcommuting**



Daydreaming of a  
Road trip to KL in just  
An hour and a half

Just took a great road trip to Kuala Lumpur with my friends over the weekend. Despite the good fun over laughter and potato chips, we dreamed about how much more fun it will be to take a 90-min express train ride instead of a four-hour car ride. Can't wait for the high speed rail project to be done. It'll be so much easier to plan trips to KL, and best of all, in comfort and style.

[#allhailthenewrail](#) [#moreKLtrips](#)



# Engineering capabilities

As Singapore’s rail network continues to expand, it will also need to develop a pool of talented and capable engineers. By 2030, Singapore will need 15,000 people to work in the rail industry, up from the current 10,000.

## Singapore Rail Academy

To get everyone up to speed, the Singapore Rail Academy (SGRA) was launched in February 2017. The aim is to nurture a Singaporean talent pool with deep technical expertise and cross-functional capabilities in rail engineering.

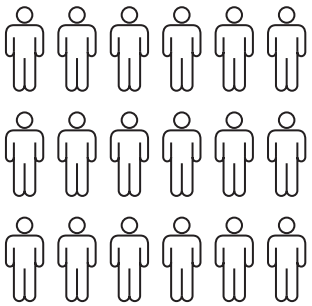
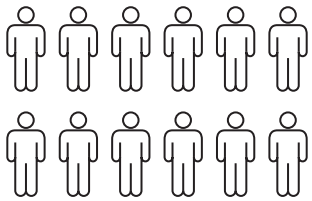
The Academy will collaborate with tripartite partners and local and overseas institutions to build up Singapore’s rail research capabilities, certify the proficiencies of railway professionals, and promote careers in the rail industry. It has signed

a Memorandum of Understanding (MOU) with the Employment and Employability Institute (e2i) to affirm commitment to attract, retain, and develop the local rail industry workforce.

## Working with partners

LTA is also partnering the Singapore Institute of Technology (SIT) and the International Council on Systems Engineering (INCOSE), a US-based not-for-profit membership organisation, to establish a partnership to develop skilled manpower in systems engineering. This will be done through pre-employment training and continuing education and training programmes. Together with SIT, LTA has opened two laboratories at SIT to conduct training programmes for engineering students, especially systems engineers.

## Our growing rail workforce







# Connecting with commuters

## Travel Smart Rewards

If people make slight shifts to their travelling patterns, the collective effort could mean commuter flow is more evenly spread out. To encourage this effort, LTA revamped its Travel Smart Rewards (TSR) programme, an incentive scheme to encourage people to travel during off-peak hours and earn cash rewards. Commuters will also receive a customised travel plan to shift or maintain an off-peak travelling schedule. Off-peak perks: more seats, more legroom, more fun!

## The Thoughtful Bunch

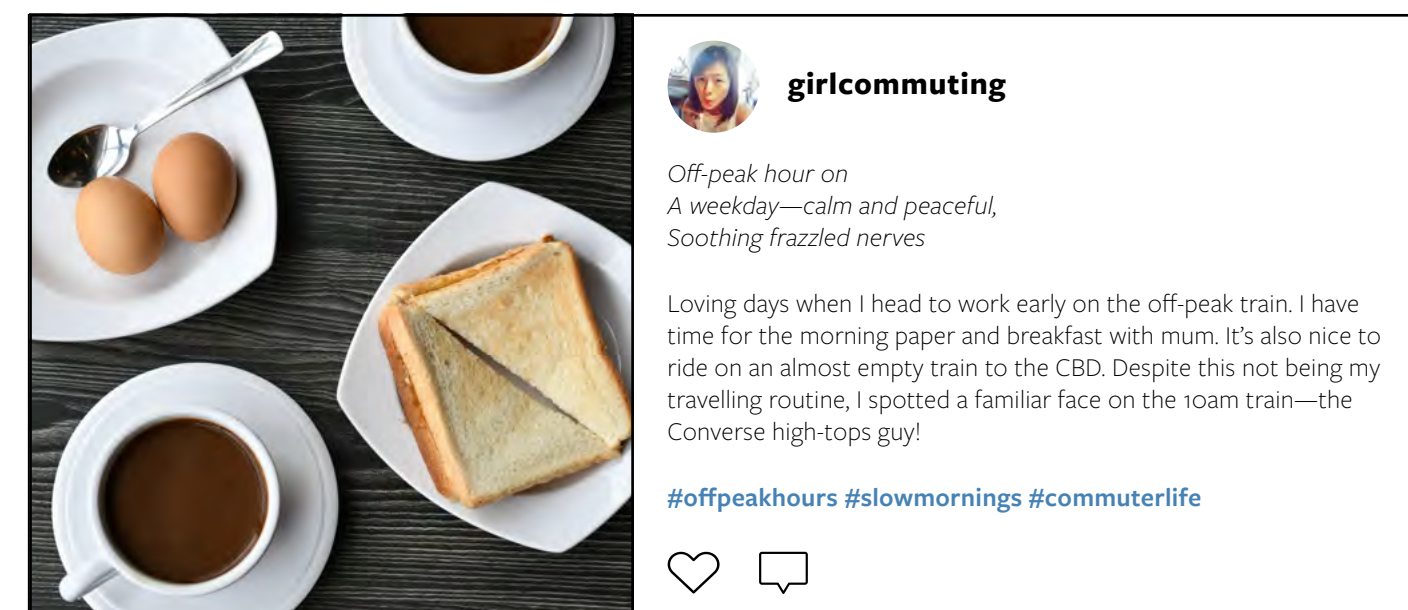
Journeys made in the peak hour can also be more pleasant if everyone makes a small effort, as shown by the Thoughtful Bunch.

The Thoughtful Bunch stepped out of the MRT stations and into Marina Square for a weekend in September 2016. They played games, sang and danced with shoppers, as well as commuters who have spent so much time with them on the different rail lines. Still, their job is not done. After the fun and games, they got down to work again, gently reminding and nudging people to move in, give way and give up their seats to those who need it more.

## Knackstop.sg

Remind someone to do their part to make commuting a breeze, by giving them knick-knacks featuring the adorable mascots.

Icons of Singapore's public transport are presented as keychains, coasters and even washi tapes, available for sale to the public on Knackstop.sg. The proceeds will go to helping disadvantaged families with their transport needs through the LTA Cares Fund.





# BEYOND BUS



**girlcommuting**

*Tap card, take a seat  
Plug into smartphone music  
Watch the world whirl by*

Listening to music while riding the bus is like having a soundtrack playing while the scenery outside changes. As the bus moves from town to town, the scenes change, and so do the characters. In the heartlands, there are people doing their morning exercise before they begin their day. And then going into the CBD, there are men and women in their crisp shirts and shift dresses, rushing to their workplaces.

[#busrides](#) [#journeys](#)





# Better bus services

A new contracting model and an enhancement package has helped to raise service standards of buses and reduce waiting time and congestion.

## Bus Contracting Model

It's been a year since the Bus Contracting Model (BCM) made its debut and what a journey it has been! This contracting model, where the Government owns bus infrastructure and LTA decides the bus services to be provided as well as sets service standards, means LTA can respond to changes in ridership and commuters' behaviours in a fast, timely manner.

The Seletar package—the third package up for competitive tendering—went to SBS Transit in April 2017. The company will operate the new Seletar Bus Depot and existing Ang Mo Kio and Yio Chu Kang Bus Interchanges, and

run 26 two-way bus services from Yishun, Yio Chu Kang and Ang Mo Kio Bus Interchanges to Bukit Batok, Bukit Merah, and Eunos Bus Interchanges, as well as Shenton Way Bus Terminal.

## Bus Service Enhancement Programme

Now in its final stretch, the Bus Service Enhancement Programme (BSEP) aims to expand the public bus fleet to reduce waiting times and congestion. The programme is on track to hit its target of adding 1,000 more buses on the road by 2017—there are already 820 of them plying our roads.

BSEP ticks all the right boxes for commuters: more space on board buses, shorter waiting times and better connectivity.

## Improving bus journeys

14

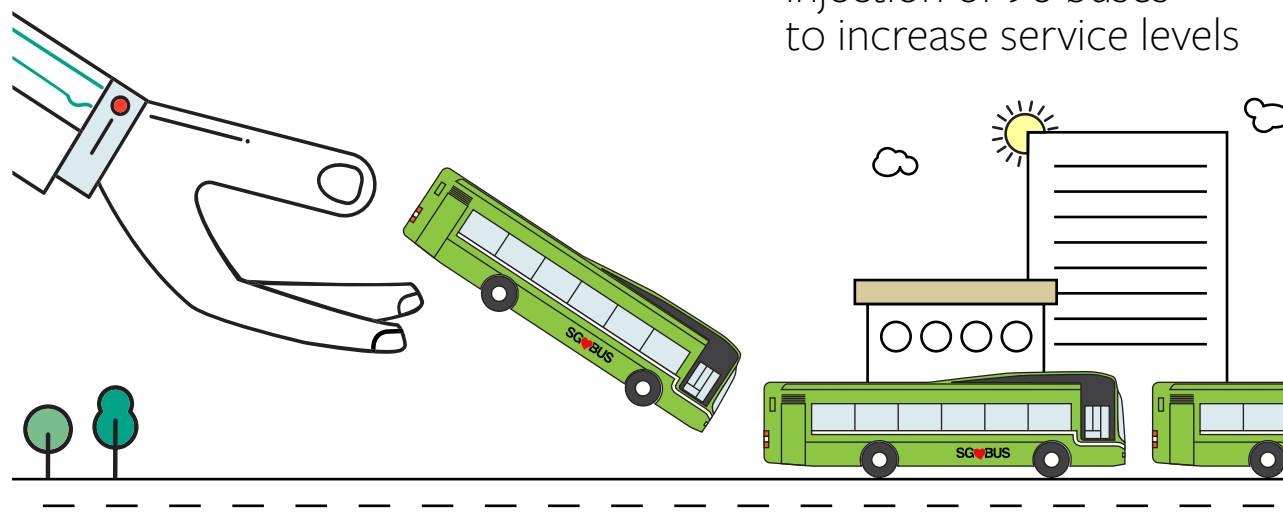
new bus services by end-2017

75%

of bus services less crowded

114

services improved with injection of 96 buses to increase service levels



All figures are updated as at September 2017.



**girlcommuting**



*Kaya toast, kopi,  
And a slow walk to the bus  
Stop. Quiet mornings.*

Really enjoy the morning walk to the bus stop. I love the smell of the air and the familiar faces of children on their way to school, bread in their hands and water-bottles slung around their necks. It is a short eight-minute walk, but it has come to be a routine I cherish... of course, on the days that I wake up on time and am not rushing like a hurricane. It's a different story once the work day begins in exactly 25 minutes, the time the bus takes to get to my office!

[#commuterlife](#) [#journeys](#) [#busrides](#)







# Bigger data, smarter systems

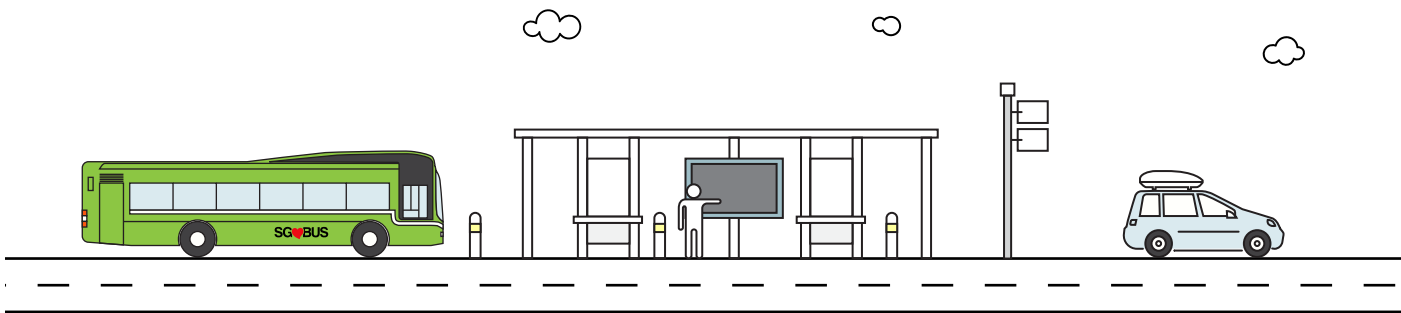
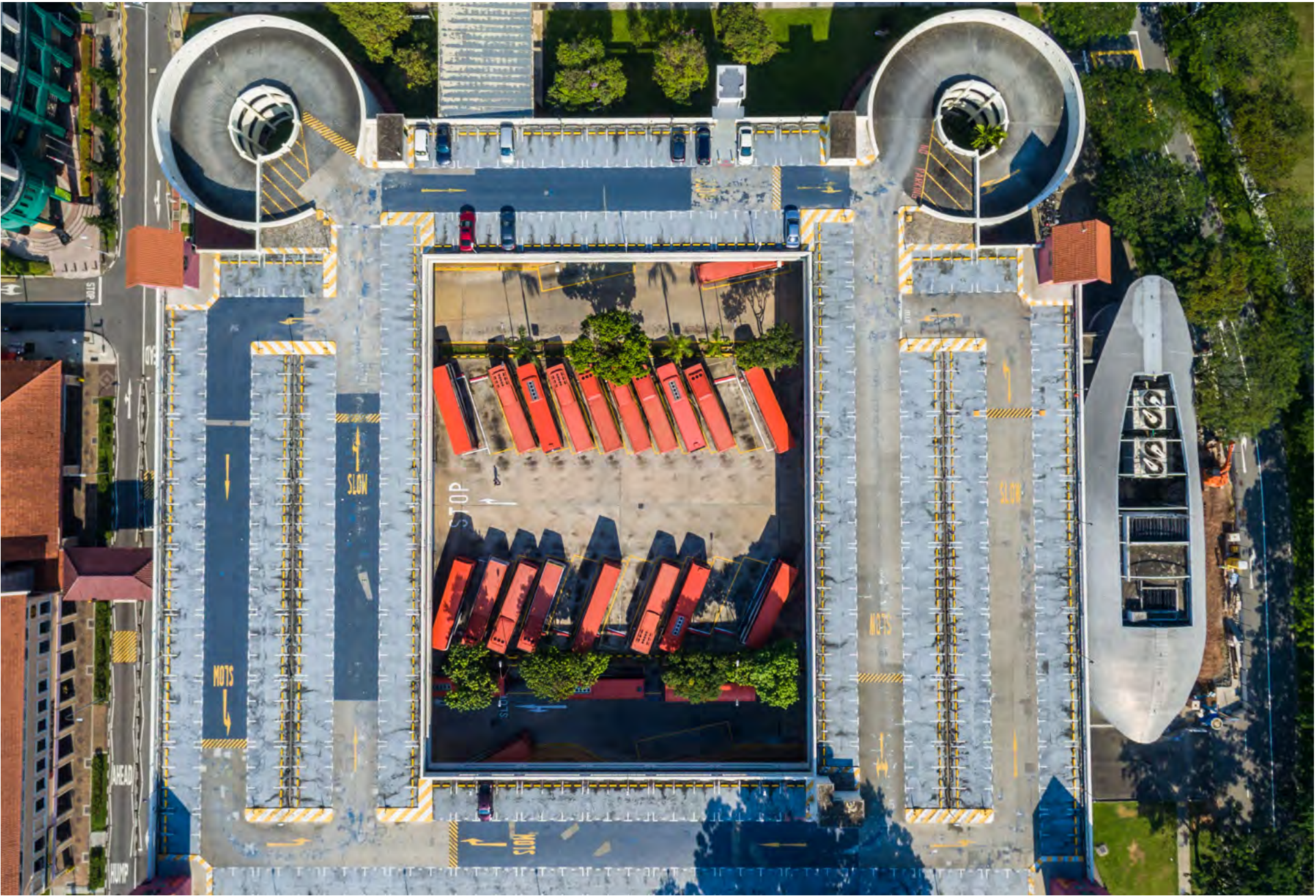
Big data can help transport operators manage incidents in real time. It can also be used to plot trends to improve transport planning.

## Common Fleet Management System

The Common Fleet Management System (CFMS) lets bus operators track bus fleets in real time. With live data on traffic accidents and bus locations and arrival times, operators can make quick adjustments to bus operations, boosting efficiency.

## Fusion AnalyticS for public Transport Emergency Response

LTA is developing the Fusion AnalyticS for public Transport Emergency Response (FASTER) system to improve transport planning. The intelligent system will combine farecard data, video footage and anonymised telco data to better manage and enhance responses to public transport incidents and special events. It will also recommend specific measures such as the injection of more trains and buses.

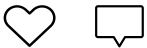


**girlcommuting**

Numbers on a board  
Show bus arrival timings  
On time, exactly

Was tardy today and nearly missed my regular bus, but I have no excuses really. The bus timings are displayed at bus stops and even on LTA's MyTransport app. In fact, the timings are so accurate as bus locations and traffic accidents are tracked to predict arrival times. Should really help with transport planning... but first I need to up my punctuality game.

#commuterlife #journeys #busrides





# New-age buses

Leaps in technology mean that buses could soon drive themselves and gas emissions may be a thing of the past.

### Autonomous buses

Autonomous buses taking commuters from one point to another within a neighbourhood may soon be a reality. LTA inked an agreement with ST Kinetics in April 2017 to develop and trial autonomous buses.

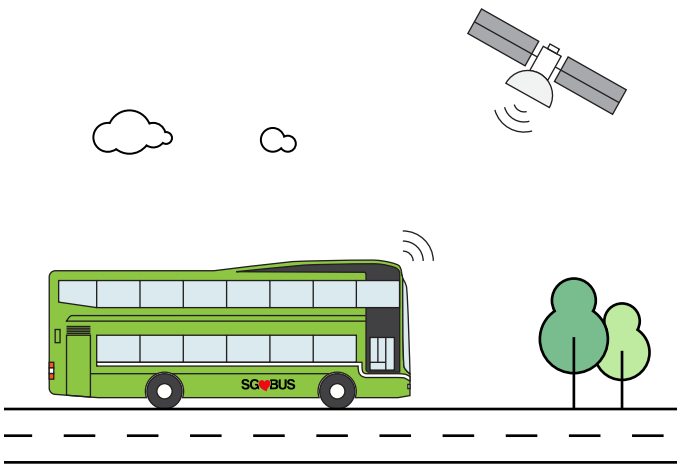
The trial starts with two 40-seater electric buses, which will use a satellite-based Global Positioning System and sensors to determine their location and immediate

surroundings. Radars and sonars help them detect if other vehicles and pedestrians are within a 200m distance ahead of them. They will also have the ability to navigate traffic in heavier rain conditions.

### Hybrid and electric buses

Buses will be going greener in Singapore—and this is not a reference to the livery colour. The LTA will call for tenders of 50 hybrid buses and 60 electric buses this year, as part of an effort to shift towards a greener and more environmentally friendly bus fleet. There will soon be three bus services fully served by electric buses.

Buses running purely on electric technology are still being tested out in tropical climates like Singapore, but the feedback so far has been encouraging and promising.



girlcommuting



The electric bus  
Is so quiet, it's perfect  
For a quick shut-eye

Rode on an electric bus today. Throughout the journey, I was marvelling at how smooth the ride was. Well... to be accurate, I was thinking about the electric technology for the 10 minutes that I was awake. The bus ride was so quiet and peaceful that I dozed off quickly enough. People often talk about how electric buses are a greener way to travel because they eliminate smog and pollution. To me, the peace and silence is an understated beauty of the electric technology. If you ever find yourself on an electric bus, please take a moment to appreciate the calmness!

#quietbusrides #electricjourneys  
#commuterlife





# Enhanced features

With these enhancements, buses are now more friendly for families, and for the smartphone-savvy commuters who are always seen with their devices.

## Faster boarding and alighting

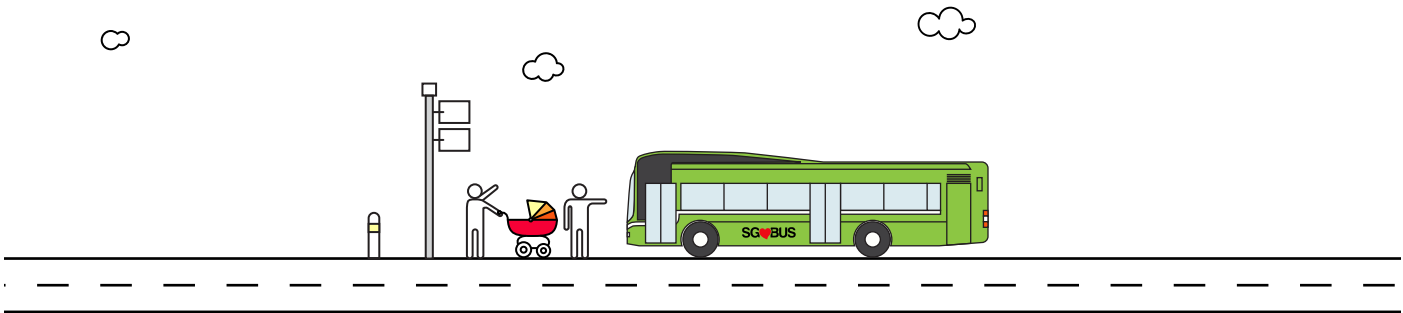
How do you get on and off a bus during rush hour in double quick time? Why, you make another door! The first three-door bus was launched in March 2017, under a six-month trial to evaluate the suitability of such a design in Singapore and how it affects commuter flow. Service 143, operated by Tower Transit, is the first to get a three-door double-decker bus, which has two stair cases. In June 2017, another six-month trial of the new single-deck three-door bus was launched on service 190, operated by SMRT.

## Buses for families

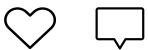
From April 2017, parents and caregivers have been able to board buses with open strollers. Previously, they had to carry their babies (and risk waking them from their naps), fold the strollers, and then carry both baby and stroller up the bus. To create a safer system, a prototype stroller restraint system to secure open strollers on buses, developed by Temasek Polytechnic, is being tested on Service 69, serving mainly families and residents in the Bedok and Tampines areas. This will provide an added layer of safety for the children in their strollers, on top of having someone hold on to the strollers throughout the bus ride. These may be baby steps, but bit by bit, we are moving towards a more accessible, convenient and user-friendly public transport system.

## For power users

Buses now come with charging ports, so commuters no longer have to worry about their phones going out of juice. In September 2016, LTA introduced 10 new double decker buses across five services installed with USB charging ports. Each bus has 41 charging ports located near the inner seats to encourage commuters to move in. On wheelchair accessible buses, charging ports can also be found at the wheelchair bays. Another 137 buses with charging ports are progressively being introduced.



girlcommuting



No juice in my phone  
No worries, the new buses  
Have got me covered

Great that the new buses have USB charging ports to allow people to charge their smart devices. Phones just seem to run out of battery at the most crucial moments... Just two days ago, I was outside the gym writing an urgent work email to my colleagues and my phone had just 2% of battery left. Fortunately, I hit the send button before it died on me. Yup, that is me, winner of the Amazing Race Against Your Phone's Battery.

#chargingonthego #nophonelife  
#commuterlife



# New bus terminals

The new bus terminals are integrated with existing MRT and LRT stations. For the commuter, this means a seamless transit from one mode of transport to another.

## Compassvale Bus Interchange

The new Compassvale Bus Interchange, which complements the Sengkang Bus Interchange, began operations in March 2017. The new bus interchange is connected to the Sengkang Integrated Transport Hub and the Compass One shopping mall via a sheltered overhead bridge and an at-grade crossing. No more worries about getting wet when it rains!

The new interchange also sports features such as priority queues and a nursing room for mothers. A new bus service 374 was also added, connecting Sengkang West residents to Sengkang MRT station.



## Bukit Panjang Integrated Transport Hub

The Integrated Transport Hub in Bukit Panjang will be fully operational in 2017. A new, fully air-conditioned bus interchange will be linked to the MRT and LRT stations, as well as the surrounding developments. Comfort and connectivity—always a winning combination!

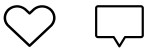


**girlcommuting**

*Love bright and sunny  
Days. But not the searing heat  
Of the afternoon*

Had to run an errand in Sengkang today. It was all cool and breezy when I stepped out of my house, but the weather turned warm and humid when I got to Sengkang. Thankfully, the bus interchange is linked all the way to the Compass One mall. I was worried I'd be roasted under the scorching July sun, but I think I managed fine today.

[#sgweather](#) [#sengkangmusings](#)





# Bus academy

The Singapore Bus Academy opened its doors only in October 2016, but more than 1,000 trainees have already graduated from it. Housed in the Devan Nair Institute, the academy has been conducting standardised, centralised training course for bus professionals to complement the current training efforts of individual operators.

This ensures a consistent service delivery standard across the bus industry. Other training and upskilling programmes for other professionals in the bus industry, including bus captains and technicians, are also in the works. It takes an entire village to keep the wheels on the bus going round and round.





# PERSONAL & PORTABLE



**girlcommuting**

*New morning routine  
To start the work week, me to  
The office, two wheels*

A change of scenery today. Borrowed a bike from the bike-share system and rode from home to office. The trail was great—I went past greenery and amazing architecture that I somehow never noticed before. Worked up a sweat and no longer need the gym today. This feels great.

[#on2wheels](#) [#cyclingtowork](#) [#workout](#)






# Scoot for joy

Personal mobility devices (PMD) and foldable bicycles are fun, convenient ways of getting around, and they do not leave carbon footprints! These new modes of getting around look like they are here to stay.

From June 2017, commuters can continue taking foldable bikes and PMDs on buses and trains all day, after a six-month trial that started in December 2016 proved it was well-received. Hurray to first-and-last-mile connectivity!







**girlcommuting**

*Ready, get set, scoot  
Up the train, even the bus  
Scooter in commute*

These days, I sometimes ride the train with my trusty pink e-scooter—it helps me get from places to places much faster! I’m not alone. I’ve been seeing many different types of scooters and foldable bikes in trains. But something strange happened yesterday—I saw a man with the same pink scooter as me exiting the train station. The same model, the same colour. I caught a glimpse of his face and I think it’s graphic-novel-Converse-shoes guy! Talk about coincidence? [#seriously?! #SOS #scootscoot](#)







# New rules

With a framework in place, cyclists and users of personal mobility devices should learn how they can play their part to keep public pathways safe for everyone.

### Active Mobility Bill

Scoot or ride right up to the doorstep of your destination! The Active Mobility Bill, passed in January 2017, puts in place rules on the types of PMDs, and where bicycles and PMDs are to be used,

so as to create a safe environment for all users of public paths.

### Active Mobility Enforcement Officers

Check out the people who keep shared footpaths safe! Active Mobility Enforcement Officers go to areas with high pedestrian and cyclist traffic, to deter reckless behaviour on bicycles and PMDs and encourage safe sharing of paths. It's easy to spot these

officers in their bright yellow shirts and black Bermuda shorts. If you see them, do say hi!

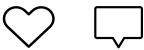
### Registration of power-assisted bicycles

To keep public pathways and roads safe, owners of power-assisted bicycles will have to register their devices and affix it with a number plate by 31 January 2018. This helps ramp up enforcement against reckless riding. The LTA

is engaging retailers and cyclists to help them understand the new requirements. Road safety is a shared responsibility—everyone has a part to play to keep roads and paths safe!



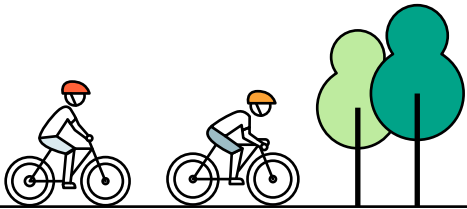
### girlcommuting



*New rules, a new field  
Ride like the wind, feeling free  
There's no holding back*

I was really enjoying scooting until I spotted an Active Mobility Enforcement Officer walking towards me yesterday. Have you ever felt that irrational guilt as if you have done something wrong? That was me. I gazed down while I scooted, trying my best to be as low profile as I could be while riding a pink scooter... and then the officer stopped next to me. I looked up and gave the friendliest smile ever, waiting for him to tell me I've broken some rule. But all he did was say hi and remind me to stay safe. Phew?!?! My enjoyment continued.

#hengah! #scootscoot #scootsafe





# Connecting towns and cyclists

Cycle to the MRT station, hop on a train to the Central Business District, and walk to the office building. Arrive at work feeling recharged and ready to tackle the day's challenges.

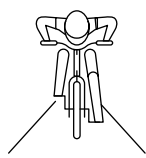
In the next few years, it will be even easier to cycle around the tropical city. More cycling paths and bicycle parking lots will be

built in the next decade. By 2030, Singapore will have a total of 700km of cycling paths and 20,500 bicycle lots, and more options for getting around the island.

### North-South Corridor

The 21.5km North-South Corridor (NSC) is Singapore's first integrated transport corridor that connects towns in the north to the

city centre. It features dedicated bus lanes and cycling trunk routes, one of the most ambitious projects yet. Cyclists can look forward to riding into the city via a cycling trunk route that links the Park Connector Networks and dedicated cycling path networks within HDB towns along the corridor to the city centre.



700  
km of dedicated  
cycling paths



20,500  
bicycle parking spaces  
around MRT stations



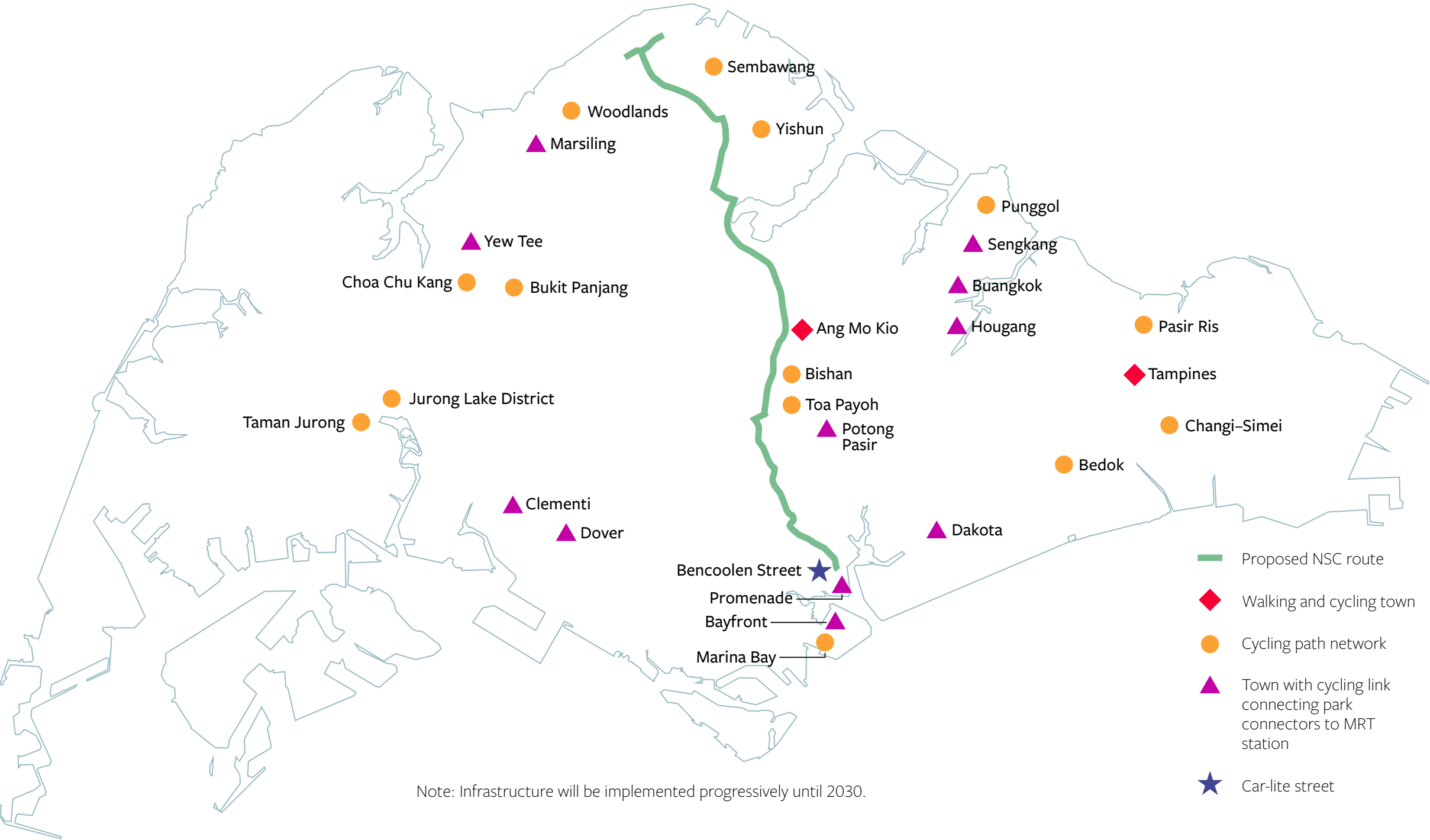
girlcommuting



One, two, three, four, five  
On our bikes, come on, let's ride  
North, south, east and west

When I cycle around these days, I imagine that this was what my grandparents, uncles, aunties, and even my parents used to do in their daily lives—ride around on two wheels. There is definitely something peaceful about cycling around and completing errands... In this busy, modernised age, it's nice to be able to travel simply. The cycling paths and park connectors make the journey even better—fresh air, greenery, and wide pathways.

#scootscoot #freshair #on2wheels



Note: Infrastructure will be implemented progressively until 2030.



# Bencoolen Street: Car-lite makeover

Bencoolen Street lies at the heart of Singapore's flourishing cultural district. In May 2017, a new Bencoolen Street was unveiled with a dedicated bus lane, a cycling path, and wider footpaths that allow pedestrians, buses, bicycles, and cars to share and use the roads safely.

As part of the revamp, two of the four road lanes on Bencoolen Street were converted to a cycling

lane and a pedestrian path. Bicycle parking facilities were added to the area as well, giving cyclists greater convenience and more options on where to park their bikes. Benches placed along the wide footpath encourage pedestrians to go slow and enjoy the place.





# Cycling towns

## Ang Mo Kio: The first Walking and Cycling Town

A 4km cycling path that loops around Ang Mo Kio Avenues 1, 3 and 8 opened in July 2016, making the estate Singapore's first Walking and Cycling town.

Residents can now ride seamlessly through the neighbourhood, from their homes to Ang Mo Kio MRT station, and the nearby swimming complex and shopping mall. The cycling path is the first phase of the Ang Mo Kio Cycling network. When fully completed in 2020, the 20km-long network will include a walking and cycling corridor that runs along the MRT viaduct between Yio Chu Kang station and Bishan-Ang Mo Kio Park.





Tampines:  
The second Walking  
and Cycling Town

Plans are underway to revamp the estate into Singapore’s second walking and cycling town, after Ang Mo Kio. Trunk cycling routes will be built to connect the estate to neighbouring towns and to major employment centres such as Changi Business Park and Singapore Expo. Footpaths will be widened and pedestrian priority zones will be demarcated at bus stops, so that cyclists and PMD users have a distinct path from bus commuters.

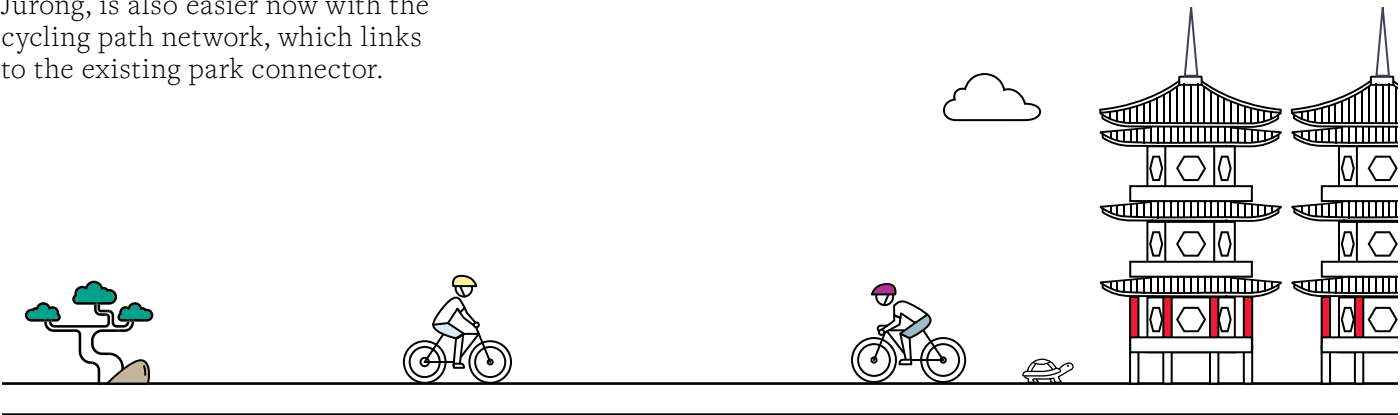


Jurong Lake District  
Cycling Network

A 15km cycling path network in the Jurong Lake District (JLD) means it is easier for commuters to go car-lite in Singapore’s second Central Business District. Officially launched in July 2017, the network will let commuters ride safely from their homes to public transport nodes, or to their offices in the vicinity.

More cycling path networks are also being planned. By 2020, the JLD cycling path network will be integrated with the Taman Jurong estate. Taman Jurong already has a 5.4km cycling network. This will be extended to 10km by 2020, and will link cyclists to Lakeside MRT station as well.

Exploring the Jurong Lake Gardens, all the way to Taman Jurong, is also easier now with the cycling path network, which links to the existing park connector.







### Punggol: Eco-cycling

An eco-town or a cycling town? Well, how about both. Punggol, Singapore’s first eco-town, completed its cycling path network in October 2016. The cycling path network allows residents to cycle safely from their homes to the MRT and LRT stations, as well as nearby amenities including malls and community clubs. Works on the 60km Coastal Adventure Corridor, the first of the three corridors along the 150km Round Island Route green corridor, has also begun. When completed, eco-lovers can cycle from Punggol to the East Coast Park and Gardens by the Bay.

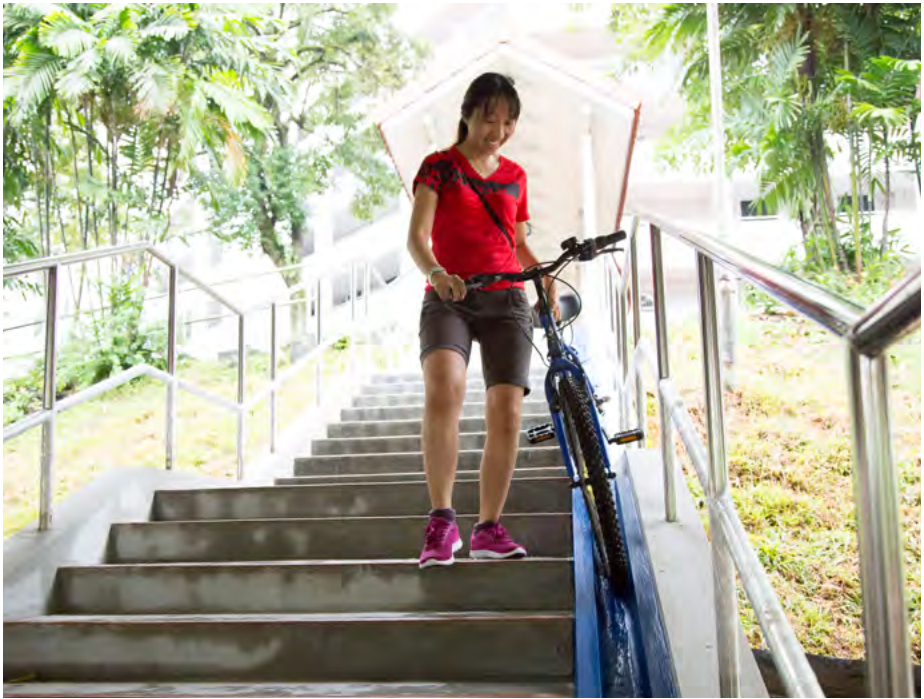


### More enhancements ahead

Cycling facilities in various towns across the island will continue to be ramped up, to encourage active mobility. Facilities such as wheeling ramps, bicycle parking stations and bicycle crossings with dedicated lanes for cyclists and pedestrians will be added to Tampines, Pasir Ris, Yishun, Sembawang and Taman Jurong. These enhancements will make it safer and easier for people to cycle in the neighbourhoods, to and from their homes.

Cycling links have also been added to 12 MRT stations to connect them to the nearby park connectors. The links have dedicated cycling and pedestrian lanes, and bridge first-and-last-mile connections to and from the MRT stations.

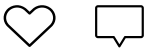
Beyond these plans, the Government will also look at providing more inter-town cycling routes to connect cyclists directly from their homes to the city to make the riding experience smoother and more seamless.



**girlcommuting**

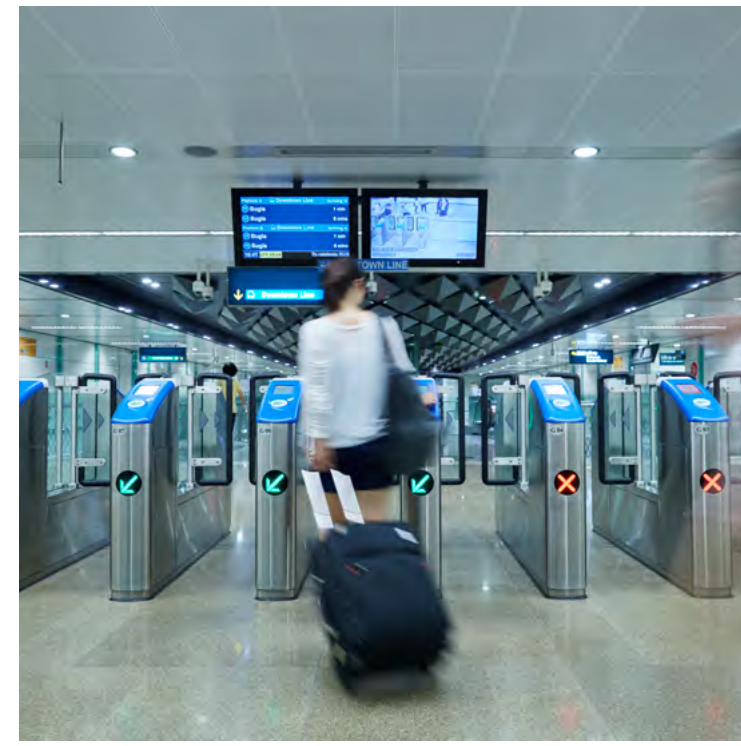
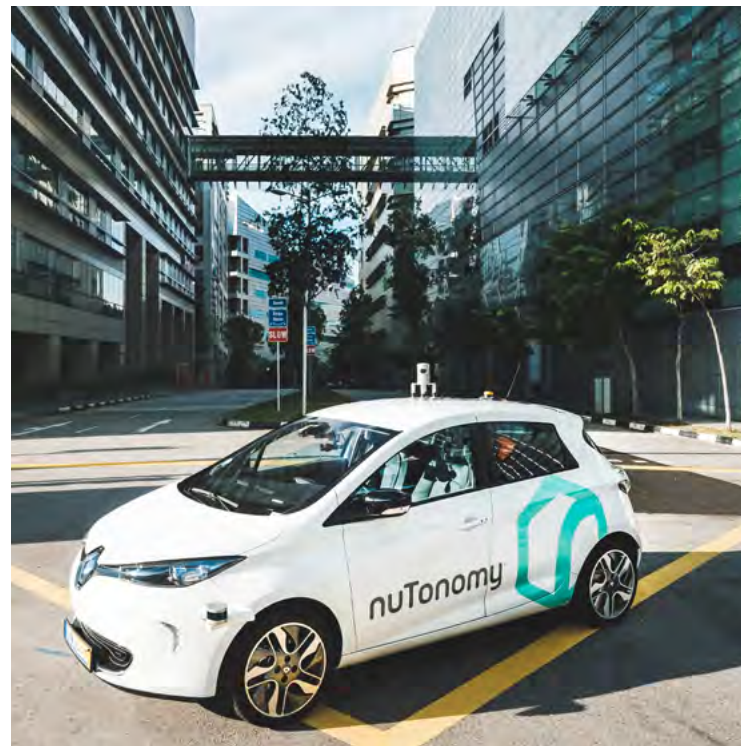
*On two wheels, I see  
Things I've never noticed from  
The passenger seat*

I'm really getting to know my neighbourhood better these days. Since cycling paths were added to my neighbourhood, I've been riding around on my old bicycle a lot more. In the past week, I've cycled to my neighbourhood library, the supermarket, and to late night suppers with my brother. Two observations here: First, cycling around my estate is so fuss-free and easy with the new cycling paths and bicycle parking facilities. Second, I never knew my neighbourhood had so many cats! [#bikingforthewin](#) [#catsforthewin](#) [#on2wheels](#)





# TAKING A SMART SPIN



**girlcommuting**

*New developments  
Refresh my daily commutes  
Every other day*

The public transport scene is getting such an upgrade these days. Every so often, new plans and developments are being announced—more options and convenience for me as a commuter. Should I still get a driving licence? Maybe not. Scoot, bike, ride-sharing, trains, buses... there are just so many ways to travel.

[#journeys](#) [#destinations](#)





# Electric vehicles

Cars, and even taxis, are becoming more environmentally-friendly as they go electric.

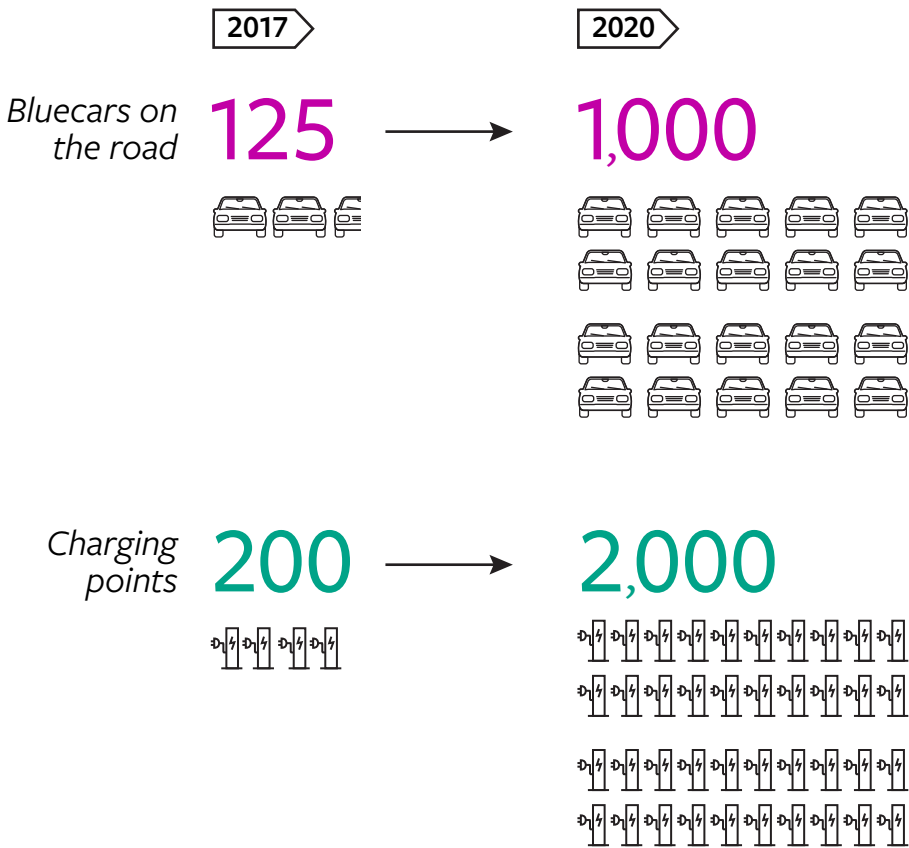
### Electric car sharing

Say hi to blue cars and even bluer skies with the introduction of Singapore’s first nation-wide electric car-sharing programme operated by BlueSG Pte. Ltd. The first phase of the car-sharing programme will be completed by end-2017. Drivers can pick up a car at the starting point and return it at their destinations. Thumbs up

for pollution-free transportation and convenient, point-to-point mobility!

### Electric taxis

An all-electric taxi fleet operated by HDT Singapore hit the roads in September 2016, with a pilot fleet of 10 e-taxis. In February 2017, it added 50 more e-taxis to the roads. The move is part of an eight-year trial to test the viability of electric transportation in Singapore.

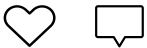


**girlcommuting**

Going electric  
The new way to get around  
Zero pollution

Dad rented a car today and took the family out. Haven't been out with my folks and siblings like this in a while. Felt like we were little again, and following our parents on adventures. We went to a café for brunch, watched a movie, and ended the day buying groceries—just like how all outings with parents end. For the next trip, we could rent a BlueSG electric car. They don't use petrol, which means no pollution!

#familyday #BlueSG #bluegreen #nopollution





# Autonomous vehicles

Since 2015, self-driving vehicles have been on trial in one-north. From June 2017, the testbed was further extended to neighbouring areas such as NUS, SG Science Park 1 and 2, Dover and Buona Vista. This adds another 55km to the existing AV trial routes of 12km. If the pilot is successful, commuters will one day be able

to book a pod through their mobile phones, have it come to their doorstep, hop on, and be driven to nearby amenities and train stations in air-conditioned comfort!



**girlcommuting**



*Autonomous pods—  
Shuttles that plug the gaps in  
First mile and last mile*

It is hard to imagine, but in a few years, I could be travelling around my neighbourhood in futuristic shuttles that, gasp, drive themselves! I could even call for a shuttle on my phone and watch it come to my doorstep to take me to my destination. Self-driving cars on-demand—such a wild and exciting thought!

[#driverless](#) [#notkidding](#) [#newagetransport](#)



# A smoother ride

As Singapore moves towards its vision of being a Smart Nation, road facilities such as street lights and the Electronic Road Pricing (ERP) system will get smarter too.

## Next-generation ERP

The ERP will get an update in 2020. The new system will replace the current gantry-based ERP system. The current in-vehicle unit used by motorists will also be replaced with a new, smartphone-sized unit. With the new system, drivers will get real-time traffic updates and parking information to help them plan their travel

routes. Parking coupons will also be a thing of the past, as the new unit will let drivers know the parking charges and facilitate payment.

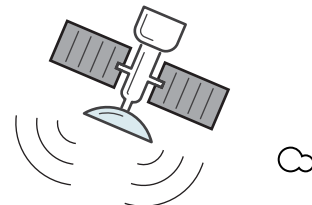
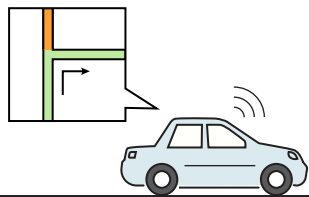
The new ERP will also provide flexibility in managing traffic congestion with the option of distance-based road pricing, where motorists are charged according to the distance travelled on congested roads. Off-peak car users can also pay based on their use of uncongested roads and duration of vehicle use, rather than full-day charges.

## Smarter street lamps

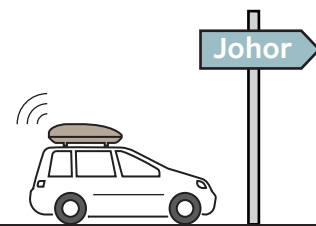
In another five years, all street lamps will be replaced with energy-efficient LED. LTA will also develop a system to detect faulty lights automatically. Currently, checks are conducted every night and it takes a month to check all the street lights. A smarter nation calls for smarter lights too.

## Services enabled by next-gen ERP:

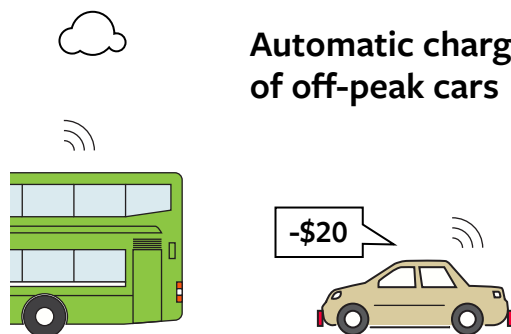
Real-time traffic info, allowing motorists to better plan routes



E-payment for checkpoint tolls



Automatic charging of off-peak cars



Paperless coupon parking





# Smarter payments

It is a feeling commuters know too well—when fare cards run low on funds and a human jam quickly forms behind at the MRT gantry or bus commuters. But this scenario will soon be a thing of the past, with a new Account-Based Ticketing (ABT) System with contactless credit and debit cards.

In March 2017, LTA and Mastercard piloted a “tap and go” payment mode, allowing commuters to use their credit and debit cards to pay for rides, instead of their ez-link cards.



# Taxis and private hire cars

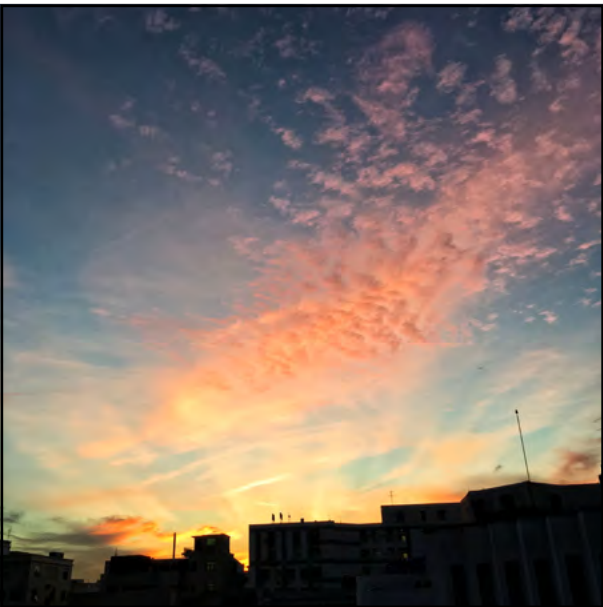
Hailing is no longer the most common way of getting a cab, as more passengers are turning to taxi booking applications. With the availability of such channels and private hire car options, LTA in consultation with the taxi industry—comprising National Taxi Association (NTA), taxi drivers and taxi companies—has simplified the Taxi Availability (TA) framework. Taxis are no longer required to clock a

minimum daily mileage of 250km and taxi operators will not need to meet availability requirements during shoulder peak periods, which are between 6am to 7am and 11pm to 12am.

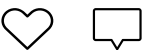
Private hire cars offer commuters more options to get to their destinations, reducing the need for people to own cars. Users can opt for a personalised, point-to-point chauffeured service, or share a ride

with other people heading towards the same direction to lower their fares.

To ensure commuters’ safety, drivers of chauffeured private-hire cars are required to display tamper-evident decals on their car windscreens. The drivers also need a Private Hire Car Driver’s Vocational Licence (PDVL) to ferry passengers around. Both requirements started in July 2017.



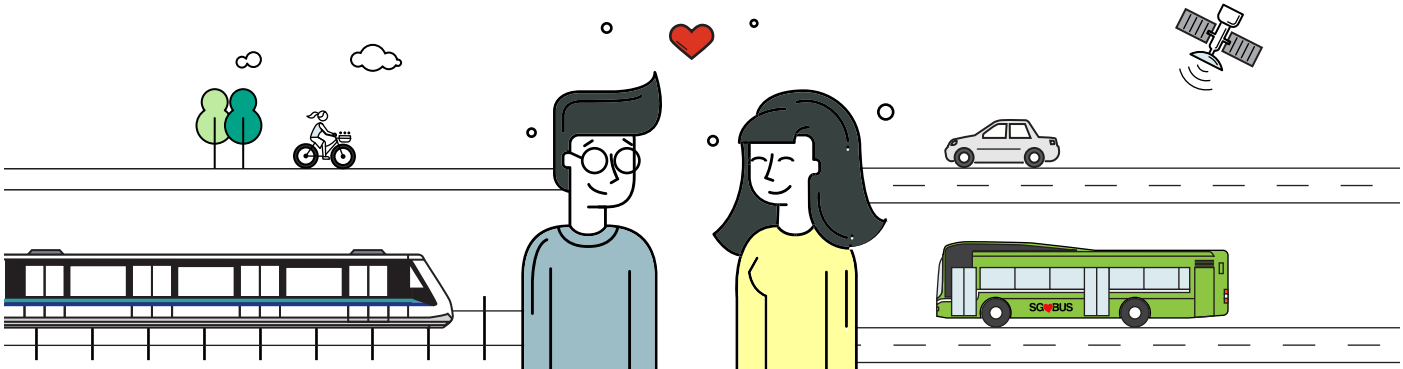
**girlcommuting**



*Not quite strangers, not  
Friends either. But life is strange  
And we keep meeting*

Life is funny. I booked a shared ride to get home after work today. Ended up being in the same car as the guy I've been seeing on my morning train rides. The graphic novel dude, the Converse high-tops dude, the pink scooter dude. Yup, the same guy. So after bumping into each other for x number of times, we got down to properly introducing ourselves today. Funny, isn't it? (Also found out that the pink scooter belongs to his sister... and yes he is a true graphic novel fan.) A lovely sunset to end a beautiful day.

**#commuterlife #strangerstofriends  
#carsharing**





# Awards won

## INTERNATIONAL

### Asia Pacific Information and Communications Technology Alliance (APICTA) Awards: Overall Winner (Government and Public Sector)

The LTA won the Gold Award in the Government and Public Sector category for Project Land Transport Real-time Info@SG (POLARis) at the 2016 regional APICTA Awards in Taipei. The project uses IoT sensors to track real-time information on public buses.

### Prince Michael International Road Safety Award

The internationally renowned award recognises the most outstanding achievements and innovations in enhancing road safety for different road users. Selected from a pool of more than 60 nominations globally, LTA received the award from His Royal Highness Prince Michael of Kent at the annual Gala Presentation held in London. The award is in recognition of LTA's Silver Zone programme, introduced in selected residential areas to enhance road safety for the elderly.

### Tunnelling Project of the Year Award

The construction of the Fort Canning Station and tunnels as part of the Downtown Line Stage 3, which involved moving the Singapore River, won top honours at the 2<sup>nd</sup> International Tunnelling and Underground Space Association (ITA) Awards. It recognises the most ground-breaking achievements in underground infrastructure worldwide.

## LOCAL

### Most Innovative Use of Infocomm Technology (Public Sector)

Singapore's highest accolade in infocomm innovation went to the LTA for its Project Land Transport Real-time Info@SG (POLARis). It uses sensors installed on every public bus to track, monitor and predict arrival times, compute crowding level and alert bus operators to inject additional buses on busy routes.

### MOT Innovation Award

This annual award by the Ministry of Transport was given to LTA for its real-time bus information. The award recognises innovative projects which contributed significantly to achieving the Ministry's mission and goal, resulting in benefits to the public and industry and were also proven to be cost and time effective.

### Minister for National Development's Research and Development Award (Merit Award)

A noise barrier that can reduce noise pollution by up to 30 per cent, developed by LTA in collaboration with the National University of Singapore, received a merit award for its innovative design. By adopting a jagged-edge design, the new noise barrier was able to block out noise more effectively than the existing straight-edge noise barrier.

### OTC Institute Workplace Partnership Award (Gold)

The LTA and the Amalgamated Union of Statutory Board Employees (AUSBE) jointly won the award by the Ong Teng Cheong Labour Leadership Institute (OTC Institute) for sustained efforts to strengthen understanding and cooperation between management and union through programmes organised by the OTC Institute.

### PS 21 ExCEL Award: Most Innovative Project/Policy (Merit Award)

The LTA's bus arrival information project won the award that showcases and celebrates innovative ideas, projects and efforts from individuals and team contributors, which create outcomes that benefit citizens.

### Human Resources Asia Recruitment Awards: Best Employer Brand Development (Bronze)

### HRM Awards: Best Talent Acquisition Strategies (Special Recognition)

The LTA is an employer of choice, winning both awards in 2017 as a result of its various branding and recruitment outreach efforts to build the brand and promote the agency among its target audience.





# Contracts awarded in FY2016/17

Thomson–East Coast Line		
Contract No.	Contractor	Description
T250A	China Railway First Group Co., Ltd.	Trackwork for Thomson–East Coast Line Stage 4 and 5, Downtown Line Stage 3 Extension and East–West Line Upgrade
T253A	Guthrie Engineering (S) Pte Ltd / LSIS Co., Ltd. Consortium	Power Supply System for Thomson–East Coast Line Stage 4 and 5
T272B	Cubic Technologies Singapore Pte. Ltd. and Cubic Transportation Systems (Australia) Pty Limited Consortium	Design, Supply, Install, Test and Commission of AFC Frontend System for Thomson–East Coast Line
T281A	Siemens Pte. Ltd.	Depot Equipment for East–West, Downtown and Thomson–East Coast Lines (Package A)
T281B	Siemens Pte. Ltd.	Depot Equipment for East–West, Downtown and Thomson–East Coast Lines (Package B)
T302	China Railway First Group Co., Ltd. Singapore Branch	Construction of Facility Building and Tunnels for Thomson–East Coast Line
T311	China Jingye Engineering Corporation Limited (Singapore Branch)	Construction of Bedok South Station and Tunnels for Thomson–East Coast Line
T312	KTC Civil Engineering & Construction Pte. Ltd.	Construction of Sungei Bedok Station and Tunnels for Thomson–East Coast Line
T315	Lum Chang Building Contractors Pte. Ltd.	Addition and Alteration Works to Existing Tanah Merah Station and Existing Viaducts
T2161	Tyco Fire, Security & Services Pte. Ltd.	Supply, Delivery, Installation, Testing and Commissioning of Automatic Clean Gas System for Thomson–East Coast Line
T2181	Ancon Anda Pte. Ltd.	Design and Construction of Passenger Service Centre, Station Master’s Room and Ticket Sales Office for Thomson–East Coast Line Stations
T3011	Ronnie & Koh Consultants Pte. Ltd.	Provision of Consultancy for Supervision of Thomson–East Coast Line Contract T301
T3021	GWC Consulting Pte. Ltd.	Provision of Consultancy for Supervision of Thomson–East Coast Line Contracts T302, T303, T305 and T306
T3026	SCB Building Construction Pte. Ltd. / Smitech Engineering Pte. Ltd. Joint Venture	Proposed Relocation of Recreational Facility
T3030	Singapore Technologies Electronics Limited	Mobile Application System for Rail Construction and Interface to Maintenance Management Systems
T3052	Fosta Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contracts T305 and T306
T3082	Geosmart International Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contracts T308 and T309
T3101	ECAS-EJ Consultants Pte. Ltd.	Provision of Consultancy for Supervision and Checking Services for Thomson–East Coast Line Contracts T310, T311 and T312
T3102	Cast Laboratories Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contracts T310 and T311

Contract No.	Contractor	Description
T3122	GeoLS Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contract T312
T3131	Tritech Consultants Pte. Ltd.	Provision of QP Services of Thomson–East Coast Line Contracts T313 and T315
T3132	Geosmart International Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contract T313
T3152	Gammon Pte. Limited	Supply, Installation and Monitoring of Instruments for Contract T315

Cross Island Line / Jurong Region Line		
Contract No.	Contractor	Description
C1005	Arup Singapore Private Limited and Aedas Pte. Ltd.	Advance Engineering Study for the Proposed Cross Island Line Eastern Leg (CRLe) from Sin Ming to Changi — Depot and Mainline Package A
C1006	Parsons Brinckerhoff Pte. Ltd.	Advance Engineering Study for the Proposed Cross Island Line Eastern Leg (CRLe) from Sin Ming to Changi — Mainline Package B
C1007	Surbana Jurong Consultants Pte. Ltd. and Atkins Design Engineering Consultants Pte. Ltd.	Advance Engineering Study for the Proposed Cross Island Line Eastern Leg (CRLe) from Sin Ming to Changi — Mainline Package C
C1040	Tritech Engineering & Testing (Singapore) Pte. Ltd.	Site Investigation Engineering Services
C1047	Tritech Engineering & Testing (Singapore) Pte. Ltd.	Provision of Horizontal Directional Coring Services
C1048	Ryobi Geotechnique International Pte. Ltd.	Provision of Geophysical Investigation Services
C1049	Tritech Engineering & Testing (Singapore) Pte. Ltd.	Provision of Horizontal Directional Coring Services
J1001	Parsons Brinckerhoff Pte. Ltd.	Advance Engineering Consultancy Services for the Proposed Jurong Region Line (JRL) Mainline (Contract 1)
J1002	T.Y.Lin International Pte. Ltd., DP Architects Pte. Ltd. and Hassell Architecture (Singapore) Pte. Ltd.	Advance Engineering Consultancy Services for the Proposed Jurong Region Line (JRL) Mainline and Depot (Contract 2)
J1003	Surbana Jurong Infrastructure Pte. Ltd., Atkins Design Engineering Consultants Pte. Ltd. and Surbana Jurong Consultants Pte. Ltd.	Advance Engineering Consultancy Services for the Proposed Jurong Region Line (JRL) Mainline (Contract 3)
J1007	Parsons Brinckerhoff Pte. Ltd.	Mechanical and Electrical Engineering Services for Jurong Region Line (JRL) Depot
J1008	Parsons Brinckerhoff Pte. Ltd.	Mechanical and Electrical Engineering Services for Jurong Region Line (JRL) Mainline



Contracts awarded in FY2016/17

High Speed Rail		
Contract No.	Contractor	Description
H1001	AECOM Singapore Pte. Ltd.	Advance Engineering Study for the Proposed High Speed Rail (HSR) within Singapore
HSR1601	WSP Engineering Malaysia Sdn. Bhd., Mott MacDonald (Malaysia) Sdn. Bhd., and Ernst & Young Advisory Services Sdn. Bhd.	Joint Development Partner for Kuala Lumpur–Singapore High Speed Rail
Rail Enhancement Works		
Contract No.	Contractor	Description
1383	Sunray Woodcraft Construction Pte. Ltd.	Station Enhancement Works at North–South and East–West Lines
1386	NEC Asia Pacific Pte. Ltd.	Conmmunications System for Station Enhancement Works at North–South / East–West Lines
152D	Siemens Pte. Ltd.	Point Machines for Tanah Merah Station Addition and Alteration Work and 4-in-1 Depot — East–West Line
919A	Shanghai Chong Kee Furniture & Construction Pte. Ltd.	Completion Contract for Outstanding and Remedial Works for Contract 919
1653A	Wah Loon Engineering Pte. Ltd.	Provision of Power Supply System for Upgrading Works at Existing P-Way and Locomotive Workshop at Tuas Depot
1685A	SCB Building Construction Pte. Ltd.	Upgrading Works at Permanent Way and Locomotive Workshop in Tuas Depot
1689A	Gates PCM Construction Ltd.	Trackwork at Permanent Way and Locomotive Workshop in Tuas Depot
1766	Hitachi Sunway Network Solutions (S) Pte. Ltd.	Provision of Services for the Replacement of AFC Network Cables and Equipment in Selected Rail Stations
1767	SMRT Services Pte. Ltd.	Automatic Fare Collection (AFC) Gates
8121	Koyo Engineering (S.E.Asia) Pte. Ltd.	Addition and Alteration Works for Ventilation to LRT Stations
8122	Eliktrical Engineering Pte. Ltd.	Provision of Lighting to Sengkang Punggol Light Rapid Transit (SPLRT) Guideway
8123	Chee Yam Contractor Pte. Ltd.	Design and Build Fixed Barriers for Light Rail Transit Stations
8813	Quek & Quek Civil Engineering Pte. Ltd.	Modifications to Existing Hougang Bus Depot
8818	Shanghai Chong Kee Furniture & Construction Pte. Ltd.	Relocation, Restoration and Reinstatement of Tanjong Pagar Railway Station Platforms
IT211A	M1 Net Ltd.	WIFI@MRT Phase 2
IT211B	Singapore Telecommunications Ltd.	WIFI@MRT Phase 2
Total Awarded Sum for Rail Projects		S\$2.3 billion

Road Construction / Development		
Contract No.	Contractor	Description
DE102A	Kimly Construction Private Limited	Proposed Design and Construction of Bus Interchange and Associated Works at Choa Chu Kang
DE102B	Meinhardt Infrastructure Pte. Ltd.	Appointment of Qualified Person (Supervision)
ER508	Megastone Holdings Pte. Ltd.	New Road Link between Senja Road and Kranji Expressway
ER519A	Hwa Seng Builder Pte. Ltd.	New Road between Lorong Halus and Pasir Ris Industrial Drive 1 including Expansion of KPE / TPE Interchange
ER519B	T. Y. Lin International Pte. Ltd.	Appointment of Qualified Person (Supervision)
ER520	Double-Trans Pte. Ltd.	Realignment of Simei Road for Connection to Somapah Road
N1008	CCECC Singapore Pte. Ltd.	Reinstatement Works
TR221	Eng Lam Contractors Co. (Pte.) Ltd.	Road Resurfacing Works along PIE, AYE and other Expressways
TR222	Eng Lam Contractors Co. (Pte.) Ltd.	Planned Road Resurfacing Works along ECP, SLE, BKE, CTE and KPE
TR252	Gim Tian Civil Engineering Pte. Ltd.	Replacement of Vehicular Bridge Bearings — Contract 1
TR253	Gim Tian Civil Engineering Pte. Ltd.	Replacement of Vehicular Bridge Bearings — Contract 2
TR265A	CMP Consultants Private Limited	Regular Inspection of Roads and Road Related Facilities along Expressways and West Sector
TR265B	Fong Consult Pte. Ltd.	Regular Inspection of Roads and Road Related Facilities in Central and East Sectors

Commuter Facilities Enhancements		
Contract No.	Contractor	Description
ER502	Vestar Iron Works Pte. Ltd.	Proposed High Covered Linkways and Covered Linkways
ER510	Surbana Jurong Consultants Pte. Ltd.	Architectural / Engineering Services for Existing Pedestrian Overhead Bridges (Package 1)
ER511	Surbana Jurong Consultants Pte. Ltd.	Architectural / Engineering Services for Existing Pedestrian Overhead Bridges (Package 2)
PL179	Surbana Jurong Consultants Pte. Ltd.	Architectural / Engineering Services for the Design of Cycling Path Network and Linear Park
PT281	Highness Electrical Engineering Pte. Ltd.	Provision of Indicator Lights at Identified Bus Stops Islandwide
TR255	Surbana Technologies Pte. Ltd.	Commuter Facility Equipment Monitoring Services



Contracts awarded in FY2016/17

Public Transport		
Contract No.	Contractor	Description
PT246	CA M&E Engineering Pte. Ltd.	Video Surveillance System and Associated Works for Bus Interchanges
PT262	Cognizant Technology Solutions Asia Pacific Pte. Ltd.	Bus Network Scheduling and Management System
PT270	Rui Feng Chartered Pte. Ltd.	City Direct Bus Services
PT288	BT&Tan Transport Pte. Ltd.	City Direct Bus Services (Route 3)
PT290	Lai Yew Seng Pte. Ltd.	Bus Interchange Enhancement
PT296	KT Business (R) Pte. Ltd.	Procurement of Taxi Service Surveys
PT298	Ren Quan Transport	City Direct Bus Service (Route 1)
Transport Operation / Technology / Enforcement		
Contract No.	Contractor	Description
IT209	Singapore Technologies Electronics Limited	IT Infrastructure Upgrade for Advanced Analytics
TR237	Jupiter Builder Pte. Ltd.	Design and Construction of Silver Zones
TR241	ATT Systems (S'pore) Pte. Ltd.	Beacon System for Autonomous Vehicle Trials
TR242	ST Electronics (Info-Comm Systems) Pte. Ltd.	Monitoring and Evaluation System for Autonomous Vehicle Trials
TR246	Cognizant Technology Solutions Asia Pacific Pte. Ltd.	Implementation, Operations and Maintenance of Mobile Application
TR247	ATS Traffic Pte. Ltd.	Implementation and Maintenance of “40 KM/H When Lights Flash” Signs at Enhanced School Zones
TR248	Wilson Parking (Singapore) Pte. Ltd.	Provision of Traffic Wardens for Enforcement Duty
TR249	Mitsubishi Heavy Industries Asia Pacific Pte. Ltd.	Modification Works to Electronic Road Pricing Gantries
TR250	Certis CISCO Auxiliary Police Force Pte. Ltd.	Provision of EMAS Vehicle Recovery Services (KPE and MCE)
TR251	Supersonic Maintenance Services Pte. Ltd. / Island Recovery Services Consortium	EMAS Vehicle Recovery Services (All Expressways except KPE / MCE)
VS130	CSE Global Limited	Upgrading and Maintenance of the VEP / TOLL Front-End System
Total Awarded Sum for Road Projects		S\$356 million

Contracts to be awarded in FY2017/18

Rails	
Contract No.	Description
152E	Half-height Platform Screen Doors for Additional Platform at Tanah Merah Station
160B	Communications System for 4-in-1 Depot — East–West Line including Addition and Alteration Works at Tanah Merah Station
715	Construction of Cut and Cover and Bored Tunnels for NEL Extension
821A	Construction of Kim Chuan Depot Extension for Circle Line
851E	Trains for Circle Line Stage 6
860E	Communications System for Circle Line Stage 6
882	Construction of Keppel Station and Tunnels for Circle Line 6
883	Construction of Cantonment Station for Circle Line 6
885	Construction of Prince Edward Station and Tunnels for Circle Line 6
886	Construction of Cut and Cover Tunnels at Marina Bay Area for Circle Line 6
1363	Implementation of Noise Barriers at Rail Viaduct Phase 2
8020	Addition and Alteration Works for Bukit Panjang Light Rail Transit Power Supply
8127	Addition and Alteration (A&A) Works to Sengkang-Punggol Light Rapid Transit Depot Workshop
H1007	Demolition, Pile Extraction and Advance Earthworks
H1008	Advance Effluent Outfall Pipe and Water Pipe Diversions
J1018	Advance Earthworks and Associated Works
J1019	Sewer Diversion at Boon Lay and Jurong West
R151	Trains for North–South / East–West Lines
R153	Power Supply Upgrading for North–South–East–West Line — High Voltage Power Supply System and Associated Equipment
R153A	Power Supply Upgrading for North–South–East–West Line — Traction Power Supply System, Power SCADA and Associated Equipment
R1002	Condition Assessment of Rail Operating Assets
R1003	Engagement of Maintenance Assessors
T200	Thomson–East Coast Line Operator
T279A	Multi-Function Vehicle for Thomson–East Coast Line
T371A	Lifts for TEL 4 & 5, DTL3e, EWL Upgrade and CCL6
T371B	Escalators for TEL 4 & 5, DTL3e, EWL Upgrade and CCL6
T373A	Supply and Installation of Environmental Control System for 4-in-1 Rail and Bus Depot
T373B	Supply and Installation of Tunnel Ventilation and Environmental Control Systems for TEL Stages 4 & 5, DTL3 Extension and East–West Line Upgrade



Contracts to be awarded in FY2017/18

Contract No.	Description
T375A	Supply and Installation of Electrical Services for 4-in-1 Rail and Bus Depot
T375B	Supply and Installation of Electrical Services for Thomson–East Coast Line Stages 4 & 5, Downtown Line 3 Extension and East–West Line Upgrade
T378A	Supply and Installation of Fire Protection System for 4-in-1 Rail and Bus Depot
T378B	Supply and Installation of Fire Protection Systems for Thomson–East Coast Line Stages 4 & 5, Downtown Line 3 Extension and East–West Line Upgrade
T2158	Supply and Delivery of Sanitary Ware and Fittings for Thomson–East Coast Line (Thomson Section)
T2162	Supply, Delivery, Installation, Testing and Commissioning of UPS and EPS Systems for Thomson–East Coast Line
T2502	Supply and Installation of Water Handling Equipment (WHE) for Thomson–East Coast Line
T2506	Automatic Vehicle Inspection (AVI) System

Roads	
Contract No.	Description
DE101	Architectural / Engineering Services for Implementation of New Bus Interchange
DE108	Design and Construction of Bus Interchange and its Associated Works at Jurong Gateway Road
DE109	Architectural / Engineering Services for Upgrading of Existing Bus Interchanges / Terminals
DE111	Specialised Works at Changi Airport near Slip Road from PIE to Airport Boulevard
DE112	Proposed Pedestrian Overhead Bridge and Associated Commuter Infrastructure
ER381	Works at Balmoral Road / Bukit Timah Road Junction and Newton Circus
ER497	Widening of Tampines Avenue 7 between Tampines Expressway and Tampines Street 34
ER507	New Road Connections to Seletar Link and Widening of TPE between Jalan Kayu and Punggol West Flyovers
ER529	Senja/Kranji Expressway (KJE) Interchange
N103	Design and Construction of North–South Corridor (Tunnel) between Kampong Java Road and Suffolk Walk
N106	Design and Construction of North–South Corridor (Tunnel) Novena Rise and Toa Payoh Rise
N107	Design and Construction of North–South Corridor (Tunnel) between Toa Payoh Rise and Marymount Lane
N160	Communications System for North–South Corridor
N165	Integrated Traffic and Plant Management System for North–South Corridor
N167	Cladding System for North–South Corridor
N1030	Consultancy Study for North–South Corridor
TR259	LED Street Lighting with Remote Control and Monitoring System (RCMS)
TR262	Term Contract for Road Related Facilities, Road Structures and Road Safety Schemes
TR267	Comprehensive Maintenance of Glide System
TR268	Maintenance of Central Expressway Tunnels, Fort Canning Tunnel and Woodsville Tunnel E&M Works
TR271	Regular Inspection of Major Road Structures
TR272	Regular Inspection of Minor Road Structures

Contract No.	Description
TR273	Regular Inspection of Road Tunnels and Vehicular Underpasses (Contract 1 and 2)
TR275	Engineering Services for Central Expressway (CTE) Tunnel
TR277	Comprehensive Maintenance of Traffic Collection System

Others	
Contract No.	Description
ER523	Architectural / Engineering Services for Enhancements of Existing Bus Stop Infrastructures
IT213	Bus Maintenance Management System
PL193	Implementation of Cycling Path Network in Bishan and Toa Payoh
PL197	Engineering Consultancy Services for the Design of Cycling Routes
PL198	Design and Construction of Cycling Path Network
PT202	Bus Contracting — Seletar Bus Package
PT203	Bus Contracting — Bukit Merah Bus Package
PT247	Upgrading of Woodlands Regional Bus Interchange
PT303	Video Surveillance Systems and Associated Works for Bus Interchanges
PT313	Procurement of Diesel Hybrid Buses (DHB)
PT316	Comprehensive Maintenance of the Bus Arrival Panels and Interfaces
PT321	City Direct Bus Services
RD320	Expansion of Yio Chu Kang Bus Interchange
RS101	Provision of Bus Depot Equipment
TR245	Implementation, Operations and Maintenance of Reports Processing and Management System
TR270	Maintenance of Parking Guidance System (PGS)
VS129	Provision of Manpower Services to Operate VEP / Toll System at Land Checkpoints



# FY2016/17 Financial highlights

## Statement of comprehensive income

The Authority’s financials for FY16/17 are presented under three funds, namely the ‘General fund’, ‘Railway Sinking Fund’ and ‘Bus Contracting’.

The ‘Railway Sinking Fund’ is established under Section 13A of the Land Transport Authority of Singapore Act (Cap.158A). It is ring-fenced for the purposes defined under the Land Transport Authority of Singapore Act, primarily to meet expenditure for the cost (or part thereof) of any capital equipment including new works, plant, equipment, trains, vessels or appliances related to the operation and maintenance of the railway network under the Rapid Transit Systems Act (Cap.263A).

The ‘Bus Contracting’ reflects the transition of the bus industry in Singapore into the Bus Contracting Model (BCM) during the year. Under BCM, the Authority will collect all fare revenue and pay the public bus operators a service fee for the provision of bus services. As at 31 March 2017, two tendered bus packages were awarded and operated by Tower Transit Singapore Pte Ltd and Go-Ahead Loyang Pte Ltd. The remaining twelve bus packages were negotiated and operated by SBST Transit Ltd and SMRT Buses Ltd.

For FY16/17, the Authority recorded a deficit before contribution to Consolidated Fund of \$66m, after netting off government grants.

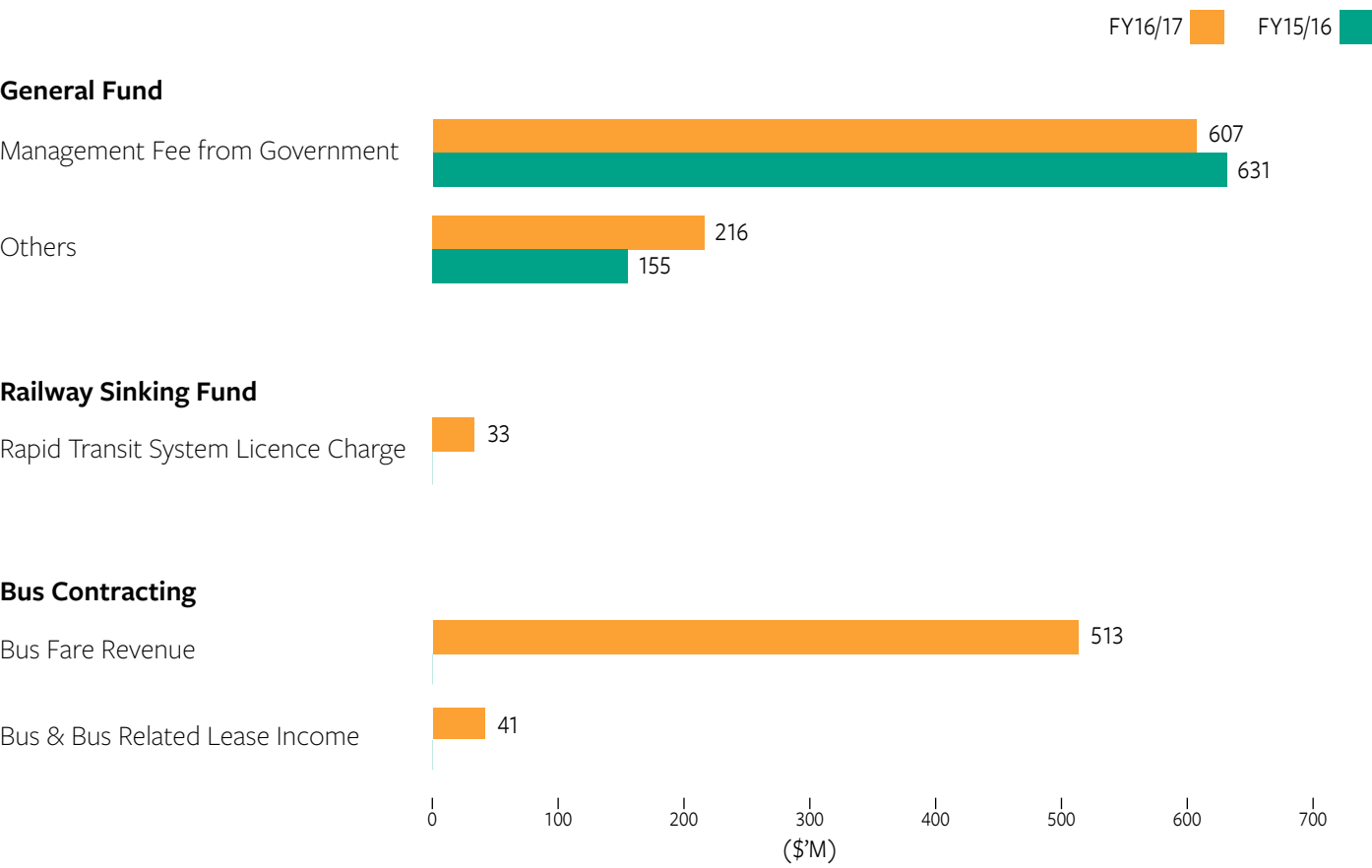
FY16/17	General Fund \$’M	Railway Sinking Fund \$’M	Bus Contracting \$’M	Total \$’M
Operating Income	823	33	554	1,410
Operating Expenditure	(1,677)	(62)	(979)	(2,718)
Operating Deficit	(854)	(29)	(425)	(1,308)
Other Gains – Net	9	1	1	11
Deficit before Government Grants	(845)	(28)	(424)	(1,297)
Government Grants	808	-	423	1,231
Deficit before Contribution to Consolidated Fund	(37)	(28)	(1)	(66)

FY15/16	General Fund \$’M	Railway Sinking Fund \$’M	Bus Contracting \$’M	Total \$’M
Operating Income	786	-	-	786
Operating Expenditure	(1,504)	-	(32)	(1,536)
Operating Deficit	(718)	-	(32)	(750)
Other Gains – Net	1	-	-	1
Deficit before Government Grants	(717)	-	(32)	(749)
Government Grants	752	-	21	773
Surplus/(Deficit) before Contribution to Consolidated Fund	35	-	(11)	24

Note: The full Financial Statement is available at: <https://www.lta.gov.sg/content/ltaweb/en/publications-and-research/reports/financial-statements.html>

## Operating income

The Authority’s total operating income of \$1,410m in FY16/17 is an increase of \$624m (79%) over FY15/16’s income of \$786m. The increase is mainly contributed by the transition to the Bus Contracting Model and New Rail Financing Framework. With the transition, the Authority received Bus Fare Revenue, Bus & Bus Related Lease Income and Rapid Transit System Licence Charge.

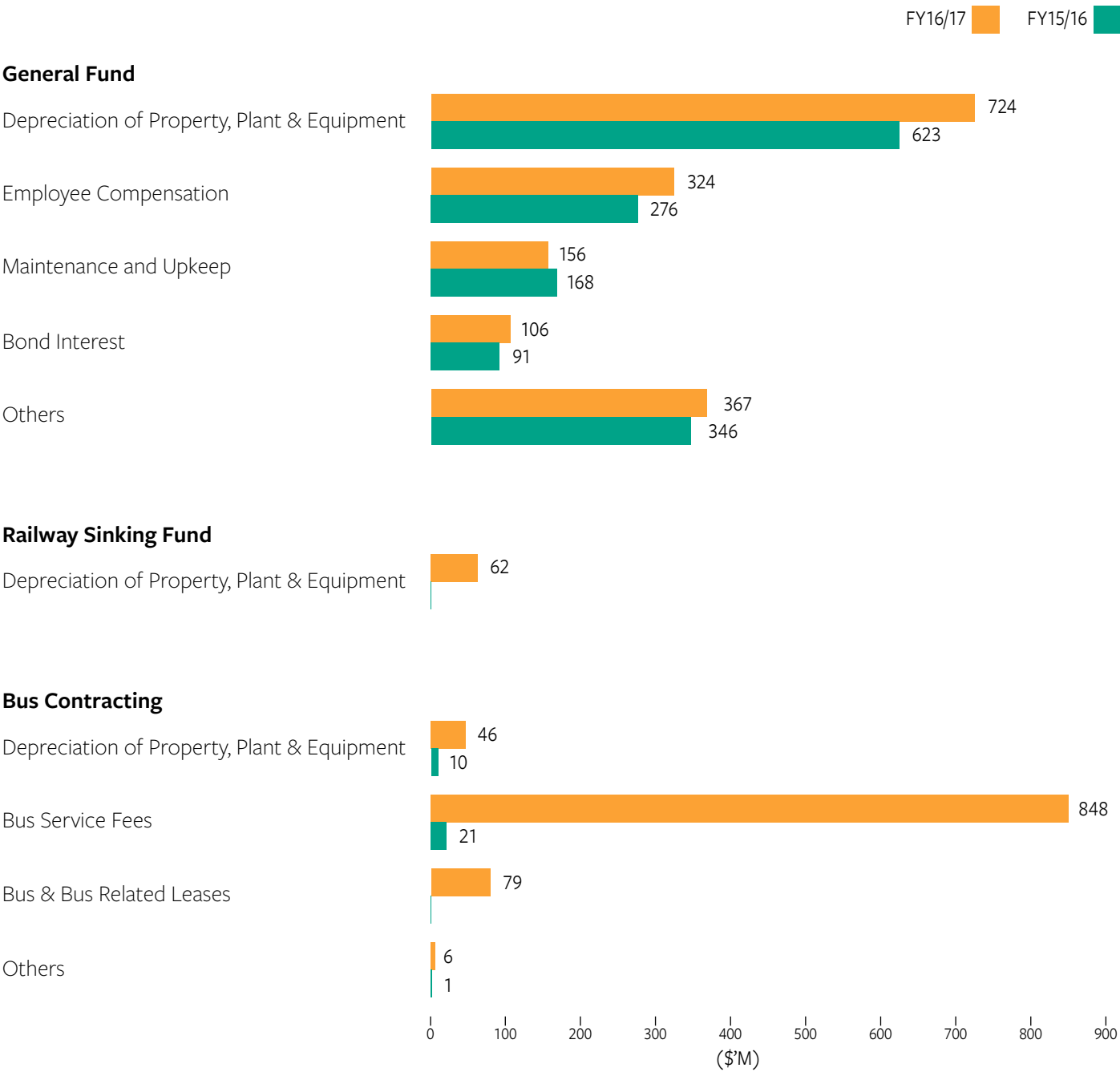




FY2016/17 Financial highlights

Operating expenditure

The Authority incurred total operating expenditure of \$2,718m in FY16/17, an increase of \$1,182m (77%) over FY15/16’s expenditure of \$1,536m. The increase of \$1,182m is mainly contributed by an increase in Bus Service Fees paid to the public bus operators for the provision of bus services.



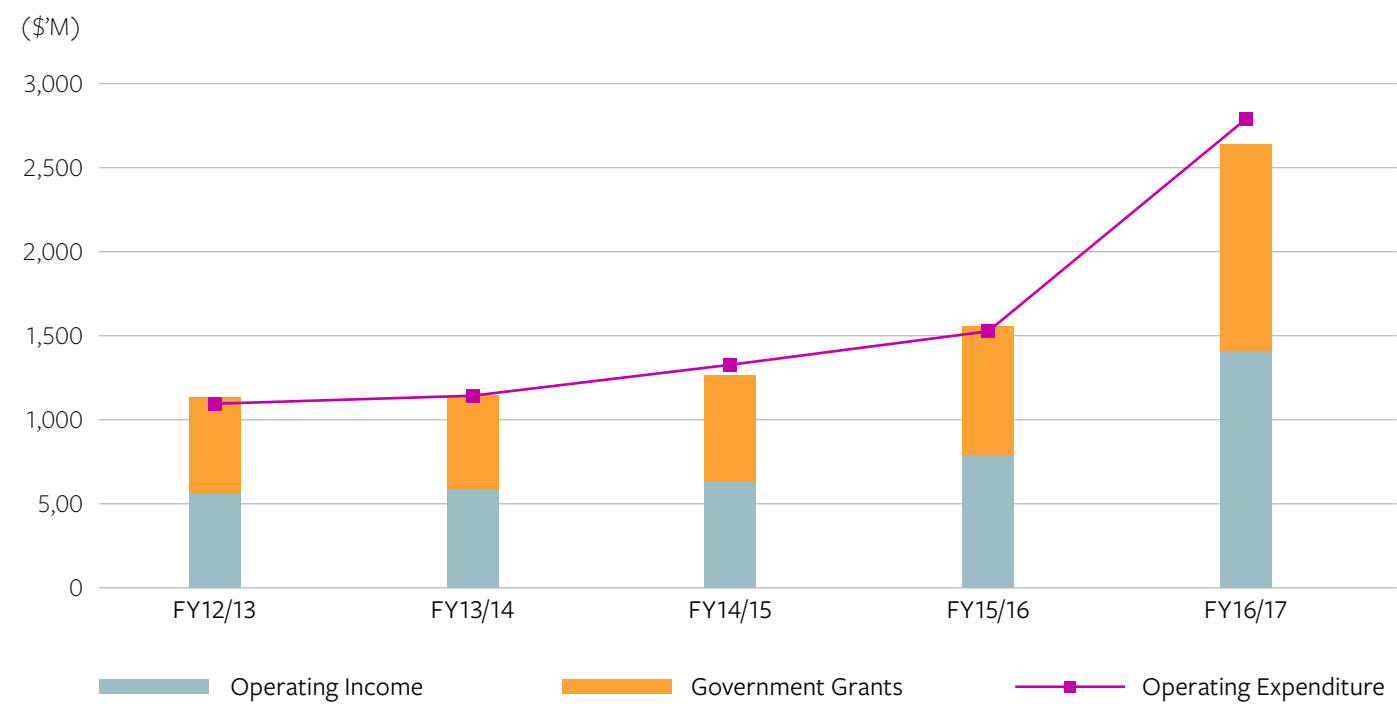
Balance Sheet

	FY16/17 \$'M	FY15/16 \$'M	Increase/ (Decrease) \$'M
Property, Plant & Equipment	43,815	37,143	6,672
Viaducts and Tunnels	8,001	8,031	(30)
Buildings and Structures	10,049	9,795	254
Rolling Stock	2,181	1,404	777
Buses & Bus Related Assets	696	134	562
Construction-In-Progress	16,435	11,910	4,525
Others	6,453	5,869	584
Other Non-Current Assets	35	35	-
Current Assets	5,798	5,892	(94)
Assets	49,648	43,070	6,578
Equity	3,022	1,072	1,950
Deferred Capital Grants	40,075	35,215	4,860
Other Non-Current Liabilities	1,374	1,228	146
Borrowings	3,475	3,975	(500)
Other Current Liabilities	1,702	1,580	122
Equity & Liabilities	49,648	43,070	6,578

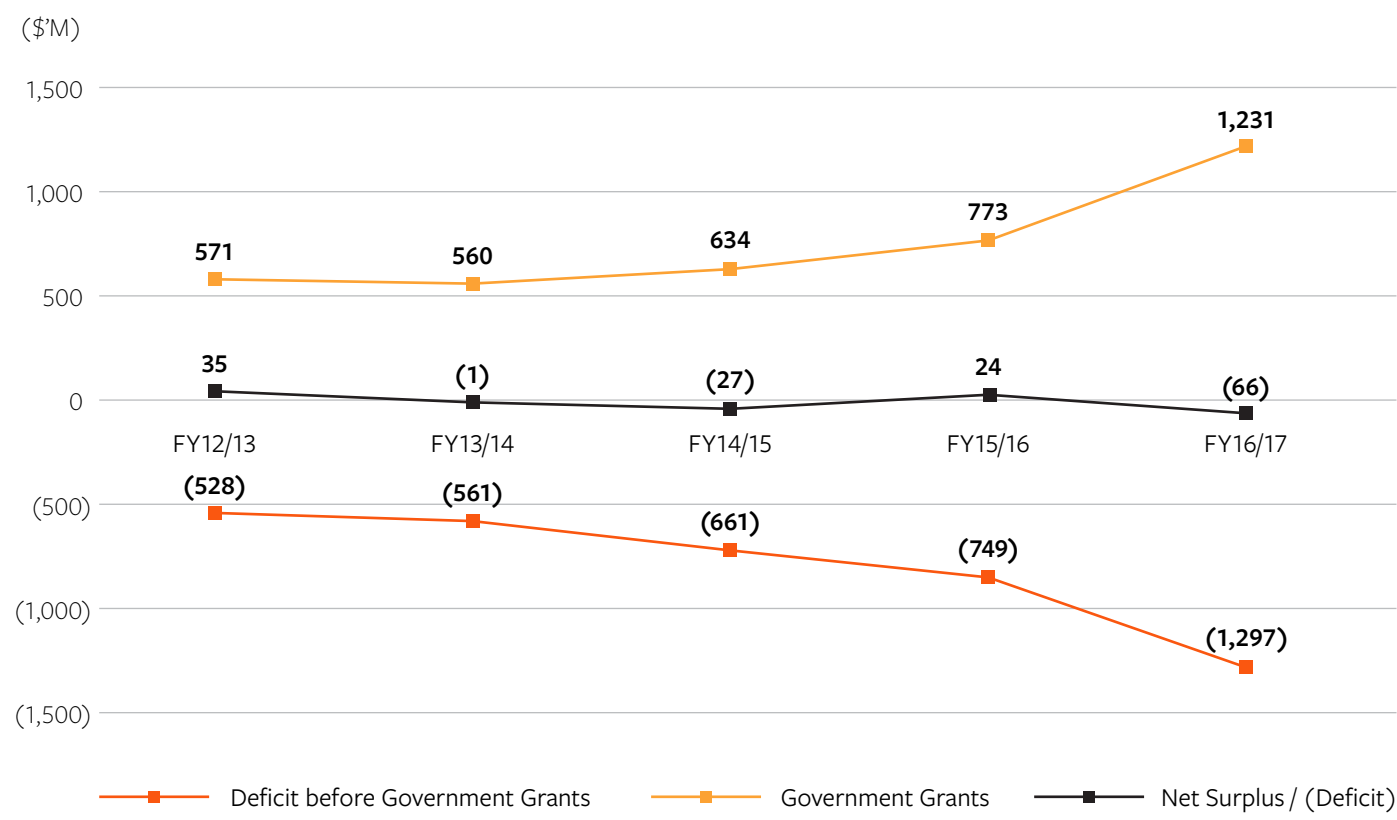


# FY2016/17 Financial highlights

## 5-Year Financial Summary Operating Income, Government Grants & Expenditure



## Net Surplus / (Deficit)







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