



Connecting PEOPLE, PLACES and POSSIBILITIES

LTA ANNUAL REPORT 2021/22

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Chairman's Message

CONNECTING PEOPLE, PLACES AND POSSIBILITIES

After more than two years of COVID-19, we are eager to connect even more with our loved ones and friends. As Singapore emerges from the COVID-19 pandemic, the Land Transport Authority (LTA) is pushing ahead to facilitate human contacts with its land transport system. Innovations and new designs in land transport will make it easier to achieve your desires, and help you walk, cycle and ride public transport. We'll bring you convenience without inconveniencing the earth.

Our land transport emissions peaked in 2016, well ahead of the 2030 national timeline. We have thus set ourselves a more ambitious target - to reduce emissions from the 2016 peak by 80% by mid-century. This is our commitment to a more sustainable transport system.

We believe this is achievable as more Singaporeans turn to Walk-Cycle-Ride (WCR). At the same time, we must reduce emissions through vehicular electrification.

Walking, Cycling and Riding Our Way to A Greener Future

We are reworking the road infrastructure to better support our public transport networks, along with creating more community spaces. Our goal is for more pleasant and safer streets, supported by greener transport options.

Another aspect of WCR is road repurposing. By converting parking spaces or traffic lanes into wider footpaths and cycling paths, we reclaim space and turn streets into communities for more activities to take root.

In newly-designed roads, or repurposed ones, we are introducing Transit Priority Corridors (TPCs) which comprise bus lanes, cycling paths and footpaths to enhance our overall WCR experience. The most extensive TPC, the North-South Corridor, is currently under construction. TPCs will boost intra- and inter-town connectivity by making it easier for everyone to WCR and move in tandem towards greener and more sustainable land transport.


Rolling Ahead with Our Reliable Rail Network

Rail continues to be the backbone of Singapore's public transport system. I am proud that our rail lines maintained high levels of reliability in 2021.

Rail is an integral part of WCR. Our trains will serve even more commuters with the Thomson-East Coast Line (TEL) (nine stations opened in 2020-2021, and 11 more added to the network by end 2022), bringing 180,000 households within a 10-minute walk from a TEL station. The Cross Island Line and Jurong Region Line are also in the works.

CHAN HENG LOON ALAN
Chairman





Our iconic MRT trains are contributing to our green efforts too. Decommissioned first-generation trains from the North-South and East-West Lines (NSEWL) are repurposed for education, training and heritage purposes. Train parts, such as the familiar seats, are placed around neighbourhoods, getting a renewed lease of life while providing resting spots for residents, especially seniors. LTA is engaging interested organisations to upcycle more train parts to serve the community.

“Heartware” in Our Hardware

It is important that we cater to our more vulnerable commuters. Thought has been put into the design of our infrastructure to cater to those with mobility needs, including the hearing-impaired, seniors and families with young children. Our public transport system will remain accessible and inclusive to all Singaporeans.

Electrification: A Game Changer

Vehicle electrification is going to be another game-changer in our transition to a more sustainable land transport future.

By 2030, half of our bus and taxi fleets will be electric. We plan to phase out Internal Combustion Engine (ICE) vehicles entirely by ceasing registrations of diesel cars and taxis from 2025, and requiring all new car and taxi registrations to be of cleaner-energy models from 2030.

We are also ramping up our Electric Vehicle (EV) charging infrastructure. Every HDB town will be EV-ready

by 2025. With more charging points near us, along with incentives and rebates to lower the upfront cost of owning an EV, I am certain that more of us will make the switch to EVs.

The People Behind Land Transport

The world continues to shift around us. Globally, every country is grappling with rising costs, manpower shortages, supply chain disruption, climate change, food and energy security. These have an impact on Singapore, and also on LTA's work.

One example was the impact of reduced ridership on taxi and private hire car drivers during the COVID-19 pandemic. To alleviate the impact on their incomes arising from reduced ridership due to safe management measures, we extended the COVID-19 Driver Relief Fund from October 2021 to January 2022, providing an additional \$32 million of support. In total, taxi and private hire car drivers have benefitted from more than \$400 million of COVID-19 support since February 2020.

Through tough times, our land transport workers have risen to the occasion and identified new opportunities for improving land transport. This spirit has, and always will be, behind LTA's commitment to building a land transport ecosystem that is people-centric, accessible, safe and sustainable for all.

I am immensely proud of what my LTA colleagues, our Public Transport Operators and all our land transport workers and partners have achieved in the last year. Thank you all for playing your part in connecting people, places and possibilities.

Board of Directors



Mr Chan Heng Loon Alan
Chairman
Land Transport Authority



Mr Lim Cherng Yih, Richard
Deputy Chairman
Land Transport Authority
Chairman
ST Logistics Pte Ltd



Mr Ng Lang
Chief Executive
Land Transport Authority



Prof Tan Thiam Soon
President
Singapore Institute of Technology



Mr Nagaraj Sivaram
Chartered Accountant



Mr Cheong Chee Hoo
Chief Executive Officer
DSO National Laboratories



Ms Hwang Yu-Ning
Deputy Chief Executive
Officer & Chief Planner
Urban Redevelopment Authority



Mr Yong Yik Chye, Melvin
Assistant Secretary-General
and Director, U Associate
NTUC
Executive Secretary
National Transport Workers' Union
Executive Secretary
*United Workers of Electronics &
Electrical Industries*

Board of Directors



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Chief Defence Scientist
Ministry of Defence



**Mr Mohd Sa'at Bin
Abdul Rahman**
Editor
*Berita Harian/Berita Minggu,
Singapore Press Holdings Ltd*



Mr Chin Yong Kok, Michael
Tech DC Adviser
Mandai Redevelopment Project
Deputy Chairman, PRC2 committee
SICC Bukit Club Development Project



Mr Murali Pillai SC
Partner
Rajah & Tann Singapore LLP



Ms Chan Su-Min, Fiona
Senior Vice President
*Regional Intelligent Banking,
DBS Bank Limited*



Mr Wong Kok Onn, James
Deputy Secretary
(Land and Corporate)
Ministry of Transport



Ms Deborah Ho
Country Head of Singapore
and Regional Head of
Southeast Asia
Blackrock (Singapore) Limited



**Mr Chew Chih Chiang,
Frederick**
Chief Executive Officer
*Agency for Science, Technology
and Research*



Mr Er Boon Hwee, Kenneth
Chief Executive Officer
National Parks Board

Board Committees

SENIOR TENDER BOARD (STB)

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FINANCE, ESTABLISHMENT & INVESTMENT COMMITTEE (FEIC)

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RISK MANAGEMENT COMMITTEE (RMC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Chin Yong Kok, Michael	Mr Ng Lang Mr Mohd Sa'at Bin Abdul Rahman Mr Yong Yik Chye, Melvin Mr Er Boon Hwee, Kenneth	Ms Sim Phei Sunn Acting Director, Transformation Office

SAFETY GOVERNANCE ADVISORY COMMITTEE (SGAC)

CHAIRMAN	MEMBERS	SECRETARIAT
Prof Tan Thiam Soon	Mr Ng Lang Mr Cheong Chee Hoo Mr Er Boon Hwee, Kenneth	Mr Lew Yii Der Group Director, Safety & Contracts Mr Alvin Soong Director, Safety & Contracts

CYBERSECURITY AND SYSTEM RESILIENCE ADVISORY COMMITTEE (CSRAC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Cheong Chee Hoo	Mr Ng Lang Mr Chew Chih Chiang, Frederick Mr Tan Peng Yam	Mr Peter Quek Group Director, Information Technology, Cybersecurity & Digital Services

COMMUNICATION & COMMUNITY ENGAGEMENT COMMITTEE (CCEC)

CHAIRMAN	MEMBERS	SECRETARIAT
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ASSET MANAGEMENT COMMITTEE (AMC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Lim Cherng Yih, Richard	Mr Ng Lang Mr Tan Peng Yam Ms Deborah Ho	Mr Yee Boon Cheow Group Director, Rail (E&M)

TECHNOLOGY ADVISORY COMMITTEE (TechAC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Lim Cherng Yih, Richard	Mr Ng Lang Mr Cheong Chee Hoo Mr Tan Peng Yam Mr Chew Chih Chiang, Frederick Prof. Tan Thiam Soon	Mr Lam Wee Shann Deputy Chief Executive, Technology Group Director, Transport Technology NexGen ERP Taskforce

Senior Management



Ng Lang
Chief Executive



Chua Chong Kheng
Deputy Chief Executive
*Infrastructure &
Development*



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



Goh Teck Seng
Deputy Chief Executive
Corporate Development



Lam Wee Shann
Deputy Chief Executive
Technology
Group Director
*Transport Technology &
NexGen ERP Taskforce*



Yeo Teck Guan
Senior Group Director
Public Transport



Ng Kee Nam
Senior Group Director
Rail
Group Director
*Thomson-East Coast &
Cross Island Lines*



Chan Boon Fui
Group Director
Active Mobility



Helen Lim
Group Director
Corporate Communications



Yong Yenn Leng
Chief Financial Officer



Ang Heng
Chief Human Resource Officer

Senior Management



Winston Cheng
General Counsel



Peter Quek
Group Director
*Information Technology,
Cybersecurity & Digital Services*



Choo Chai Foong
Group Director
*Infrastructure Design &
Engineering*



**Venktaramana s/o V
Vijayaragavan**
Group Director
North-South Corridor



Lina Lim
Group Director
Policy & Planning



Dr Chuai Chip Tiong
Group Director
*Quality Services Manager
Office, Community &
Customer Engagement*



Chia Choon Poh
Group Director
*Rail Assets, Operations &
Maintenance*



Yee Boon Cheow
Group Director
Rail, Electrical & Mechanical



Chang Kin Boon
Group Director
*Rail Infrastructure &
Expansion*



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



Dr Samuel Chan
Group Director
*Rail/Road Systems
Engineering*

Senior Management



Lew Yii Der
Group Director
Safety & Contracts



Derek Tan
Group Director
Special Duties



Mark Tan
Group Director
*Technology & Industry
Development*



**Chandrasekar s/o
Palanisamy**
Group Director
Traffic & Road Operations



Alvin Chia
Group Director
Vehicle Services



Neo Bian Hong
Chief Engineer
Civil



Dr Chin Kian Keong
Chief Engineer
Road & Traffic



Leong Kwok Weng
Chief Engineer
Systems
Dean
Singapore Rail Academy



Paul Fok
Senior Advisor
Engineering

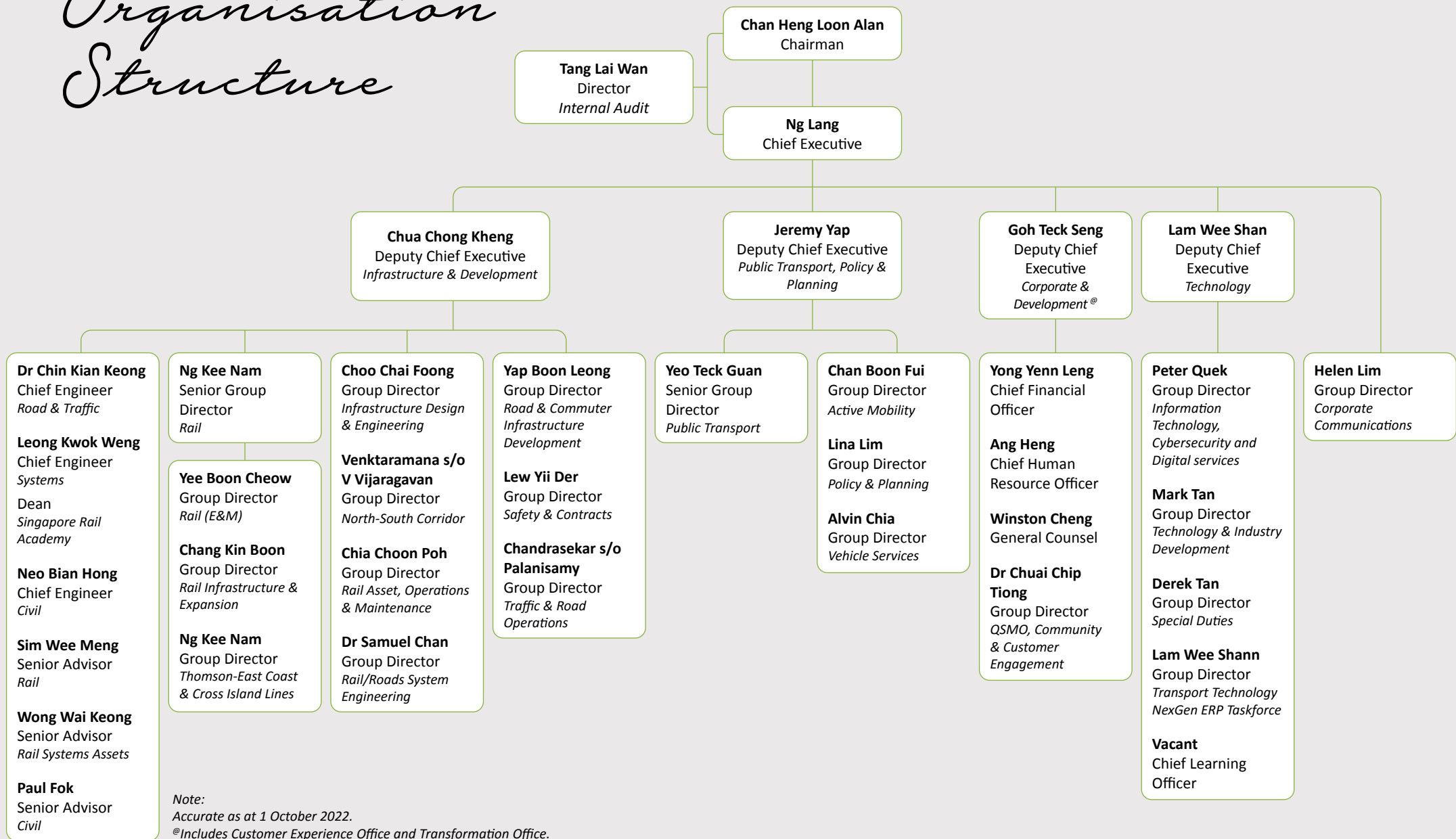


Sim Wee Meng
Senior Advisor
Rail



Wong Wai Keong
Senior Advisor
Rail Systems Asset

Organisation Structure



CHAPTER 1:

WALK,
CYCLE and **RIDE** to a

Greener
FUTURE



Imagine a future where sustainable transport transforms how we live, work and play. An all-inclusive commuting experience that ensures no one is left out, along with a robust rail network that brings us closer to more people, places and possibilities.

We have set an ambitious target to reduce emissions from the 2016 peak by 80% by mid-century.

One of the keys to this vision is Walk-Cycle-Ride (WCR), which will reinvigorate and revitalise the everyday lives of Singaporeans, while advancing our green agenda. With an increasing network of cycling paths (including pedestrianisation and car-lite towns in the works), cycling and walking safely and more conveniently is no longer a distant dream but a reality.

WCR envisions an inclusive and lively transport system that everyone can be a part of. Whichever your preferred WCR mode of commute, travelling in Singapore is convenient and efficient thanks to an extensive and integrated network of trains, buses, cycling paths, taxis, private hire cars and roads. Choosing any WCR mode means we will effectively lower our personal carbon footprint, and collectively, reduce emissions. This is the inspiration behind our “Move Lite” campaign, launched in June 2022, where we rope in young Singaporeans to help us create a green movement towards a WCR lifestyle.

We are also forging ahead with vehicle electrification.

For those who absolutely need to drive, you can play your part in reducing your carbon footprint by switching to Electric Vehicles (EVs). It will also give you peace of mind, knowing you are doing your bit for the environment.

So come on, join us on this exciting journey to go green!



LTA'S GREENING STRATEGIES

We have put together a roadmap of six greening strategies to help us reach our green goals and accelerate our decarbonisation efforts.

1 GREEN COMMUTES

We are actively nudging commuters towards adopting greener commutes by expanding our supporting infrastructure.

We are committed to the following Singapore Green Plan 2030 and Land Transport Master Plan (LTMP) 2040 targets:



75%

mass public transport
peak period modal share



9 in 10

peak journeys via
WCR by 2040



8 in 10

households within a 10-minute walking
distance from a train station



20 mins

for all journeys to the
neighbourhood centre



45 mins

travel for >90% of peak period
journeys via WCR by 2040s

To encourage greener commutes, we are adopting a two-pronged approach:

1. By encouraging Singaporeans to switch from driving Internal Combustion Engine (ICE) vehicles to greener modes:

Based on LTA's estimates, you can reduce your carbon footprint (compared to driving an ICE vehicle) by switching to these modes.

Electric Car

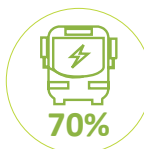
Halves
your carbon
footprint.



50%

Electric Bus

Reduces your
carbon footprint
by **70%**.



70%

MRT

Cuts your
carbon footprint
by close to **90%**.



90%

Walk or Cycle

Your carbon
footprint is
practically **zero!**



100%

2. By expanding our infrastructure for WCR:



Expand our
rail network
to about
360km
by 2030



Increase covered
linkways by about
an additional
150km
by 2040



Grow our
cycling network
to around
1,300km
by 2030

2 GREEN VEHICLES

ICE vehicles are main contributors to land transport emissions. Under the Singapore Green Plan 2030, all new car and taxi registrations will be of cleaner-energy models from 2030.

The National Electric Vehicle Centre (NEVC) was set up to spearhead the drive towards wider adoption of EVs. NEVC promotes this by accelerating the deployment of nationwide EV charging infrastructure and developing new EV regulations and standards.

Through the “Power EVery Move” campaign, we are raising awareness about EVs, their benefits to owners and the environment, and how we can all contribute towards responsible use and gracious sharing of charging infrastructure.



Electrification of Public Buses and Taxis

LTA has committed to a 100% cleaner energy bus fleet of electric and hybrid models by 2040. We are starting with 60 electric buses to help us understand the operational and technical considerations for a larger-scale rollout. Bus buys from now until 2030 will be primarily electric, with the target for half of our public bus fleet to be electric by 2030. 400 diesel buses will be replaced with electric buses by 2025.

Taxi operators have committed that at least half of our taxis will be electric by 2030. LTA is supporting them by extending the statutory lifespan of electric taxis from eight years to 10 years so they have more time to optimise their electric taxi investments. For private hire cars, 50% of GrabRentals' fleet will go electric by 2030.

Transitioning Motorists to EVs

01

In early 2022, we also launched a large-scale tender covering nearly 2,000 carparks, where each carpark will have charging points by 2025, mainly for low-powered overnight charging. A pilot tender awarded last year will add around 600 chargers at over 200 public carparks at housing estates, community centres, public parks and the Central Business District. We continue to build up a comprehensive network of public chargers to help meet the charging needs of most motorists while minimising the load on the electrical grid.

02

The EV Early Adoption Incentive (EEAI), Vehicular Emissions Scheme (VES), and EV Common Charger Grant (ECCG) were introduced to incentivise and encourage motorists to switch to EVs. The EEA and VES provide combined rebates of up to \$45,000 for new purchases of an electric car. The ECCG co-funds the deployment of charging points in non-landed private residences.

03

The Category 'A' Maximum Power Output (MPO) threshold for electric cars was increased from 97kW to 110kW in May 2022. This will allow more mass market electric cars to come under Category A and make EVs more affordable.

04

Electrical infrastructure will be upgraded in residential estates to support EV charging. An advanced engineering study was called in April 2022 and upgrading work will commence progressively.

05

We adopted Type 2 AC and Combo-2 DC charging systems as our national public charging standard. EV users can drive up to any public charger and expect it to be compatible with their vehicle. In March 2022, a joint public-private working group led by LTA reviewed Technical Reference 25, our national charging standard, to include new charging technologies and updated charging infrastructure required to support the safe installation, maintenance and operation of chargers. New legislation to ensure safe and reliable EV charging will also be introduced soon, following public consultations.





3 GREEN INFRASTRUCTURE

Buildings and assets contain both embodied and operational carbon. To ensure long-term positive impact, LTA is incorporating sustainable measures across their lifecycle — design, construction, maintenance and disposal.

To complement the Green Mark scheme under the GreenGov.SG movement, we are exploring innovative spatial designs to promote natural ventilation and hybrid cooling to reduce energy consumption of the air-conditioning system. We are piloting a carbon accounting study to monitor and minimise emissions in construction. We are also working with other agencies to standardise the calculation of Scope 3 emissions.

4 GREEN OPERATIONS

In line with GreenGov.SG, we are actively reducing utilities consumption by optimising operational energy and water usage, and increasing the deployment of renewable energy. We aim to improve both the Energy Use Index (EUI) and the Water Efficiency Index (WEI) by 10% each from the baseline¹ by 2030, and the Waste Disposal Index by 30% from the 2022 level.

We are working closely with public transport operators to make fittings and systems for air-conditioning, electrical services, lifts and escalators more energy-efficient. Inverter regenerative energy in our trains is also being used to 'reclaim' energy when they brake.

In addition, we have set solar energy targets of 16 megawatt-peak (MWp) by 2025 and 25 MWp by 2030. Solar panels will be installed on the roofs of new or recently upgraded infrastructure such as rail and bus depots, offices, and facility buildings. We called an open tender in March 2022 to deploy solar panels on other land transport infrastructure, including the upcoming Integrated Train Testing Centre, pedestrian overhead bridges and covered linkways. This will contribute up to 20MWp of additional solar capacity. Singapore gets year-round sunshine from being near the Equator, so tapping on solar energy is a natural step in our quest to go green.

¹ Baseline is average of 2018-2020 figures

5 GREEN OPPORTUNITIES

LTA is adopting greener procurement practices, financing and innovation.

We encourage tenderers to support LTA in our sustainability commitment, and sustainability initiatives are given bonus points in tender evaluations. We want to build a greener supply chain for our procurement and a sustainable eco-system for our partners.

We are bringing together the private and academic sectors for open innovation. The EV charger regulatory sandbox supported the testing of novel charging technologies which could be included in the national EV charging standards. We also conducted various Proofs of Concepts to test the feasibility of renewable energy, as well as research and trial of green materials.

LTA will play a vital role in Whole-of-Government green financing efforts. We supported the Ministry of Finance in developing the SG Green Bond Framework, which lays the foundation for the issuance of Green Singapore Government Securities (SGS) (Infrastructure). These will be used to finance major, long-term infrastructure that qualifies as green under the Singapore Green Bond Framework, such as the Cross Island and Jurong Region Lines.

Taking reference from this Framework, LTA will develop our own Green Bond Framework. These bonds will finance sustainable land transport infrastructure and projects such as the nationwide EV charging infrastructure upgrades.

6 GREEN COMMUNITIES

We engage the community through outreach programmes that help in developing and promoting greener land transport. The Singapore Green Plan Conversations are a series of dialogues with the public focusing on encouraging greener commutes, and more gracious commuting and EV charging behaviour.

We also work with schools to inculcate a sustainable WCR lifestyle in children.

The needs and concerns of residents and stakeholders are considered in our publicly published Environmental Impact Assessments (EIA) to identify potential environmental impact and mitigation measures.

Within LTA, our staff actively take part in internal Green Campaigns that promote WCR, and community gardening. Staff are also regularly updated on LTA's energy, water and paper utilisation for greater awareness of our green efforts.

UPSKILLING AUTOMOTIVE TECHNICIANS

We have brought together automotive manufacturers, authorised dealers, the Singapore Motor Workshop Association, fleet owners, Institutes of Higher Learning, training providers and government manpower agencies to agree on a Memorandum of Understanding (MOU) to develop training opportunities for new and existing automotive technicians, prioritising high voltage safety awareness and handling. This will pave the way for technicians to take further specialised training in EV maintenance.



CHAPTER 2:
CONNECTING

People



People are the heart and soul of what we do.

We are transforming our street spaces from roads and pavements to pedestrian-friendly spaces that allow more activities and opportunities where people can connect. Our vision is for streets that teem with activity and community spirit. Picture outdoor taichi classes, street performances and mid-afternoon kopi circles as you take leisurely strolls around your neighbourhood. Imagine being surrounded by your family and friends as you enjoy these streetscapes together.

Our goal is to have more pleasant, welcoming and safer streets that support commuters' use of greener WCR modes. Look forward to new road designs, repurposed streets, and Transit Priority Corridors (TPCs) with pedestrianised streets, wider footpaths and cycling paths.

Public transport will be even more accessible and inclusive for families and commuters with mobility needs. We will also continue to encourage a culture of gracious behaviour.

Imagine how these will come together and improve our commutes, and our lives.



REPURPOSING OUR ROAD SPACES

Discover what our streets can look like as we transform our city centre and neighbourhoods to have more inclusive and welcoming streets — places where we can truly connect with one another, through journeys that elevate our lives.

Since the 1990s, we have converted a number of roads across the city into pedestrianised streets — infusing character and attracting more community activities into these spaces. This is being expanded to the Civic District and heartlands such as Tiong Bahru and Kampung Admiralty which will improve walkability, facilitate safer crossings and enhance community spaces.

THE CIVIC DISTRICT

Since December 2021, pedestrians in the Civic District have been walking freely through pedestrian-friendly Connaught Drive and Fullerton Road/Anderson Bridge when visiting landmarks such as Esplanade Park, Empress Place and the Padang. By closing off these roads to vehicular traffic, historical, arts and cultural institutes in the area are now more easily accessible on foot. Together with stakeholders, more arts and cultural activities can be held outdoors for a lively ambience.





HAVELOCK ROAD

Roadside parking spaces along Havelock Road were repurposed to make space for a wider footpath, giving residents a safer and more pleasant walking experience around the Beo Crescent neighbourhood centre, especially for seniors and children.

TIONG BAHRU

We launched a trial in March 2022 to enhance community spaces and walkability in Tiong Bahru, in consultation with local stakeholders. Some roadside hourly parking lots were removed, and the space along Seng Poh Road and Lim Liak Street repurposed to create wider footpaths and more green spaces. Part of Eng Hoon Street was closed off to create a pedestrianised street. These have resulted in a safer and more pleasant environment for pedestrians, particularly near Tiong Bahru Market.

KAMPUNG ADMIRALTY

People of all ages will benefit from our efforts to enhance walkability and connectivity in Kampung Admiralty.

A stretch along Woodlands Ring Road was pedestrianised, and long stretches of covered linkways will be added to create more space for enjoyable walking and cycling. With one bound closed off to vehicles, this street is a safe and seamless connector between Kampung Admiralty, the rest of the neighbourhood, and Admiralty town centre. It makes for a comfortable stroll or an easy bicycle ride.

Throughout this process, we sought feedback from Admiralty's residents who are at the heart of the project and made adjustments to serve them even better.



FACILITATING CONNECTIVITY WITH TRANSIT PRIORITY CORRIDORS

TPCs will reshape the way we look at road infrastructure. We aim to grow the TPC network by around 60 kilometres by 2030. Bus lanes, wider footpaths, and dedicated or shared cycling paths will prioritise more space for pedestrians, cyclists and public transport users.



Fun on the Ground, Function Underground: The North-South Corridor

The North-South Corridor (NSC) will be a unique feature of Singapore's more liveable future. It will be Singapore's longest TPC at 21.5 kilometres. What makes it such a game-changer?

- 1 **It will redefine journeys within your town, and to nearby towns or the city.** Its viaduct and tunnel can ease congestion along major roads such as the Central Expressway (CTE), Thomson Road and Marymount Road, making commutes smoother for motorists and commuters.
- 2 **It will offer smoother journeys for bus commuters, saving around 10 to 15 minutes of travel time** with dedicated and continuous bus lanes.
- 3 **Cyclists will have a more direct cycling trunk route to the city, and more opportunities for longer cycling explorations.** NSC cycling paths will connect to the existing cycling path network in towns and park connectors, improving inter- and intra-town connectivity, and elsewhere along our Active Mobility Corridors.

4 **Pedestrians will have walkways connecting them to pedestrian networks in towns and lush greenery.** Going for walks, even to surrounding towns, will be a breeze. Indulge in nature sights and points of interest along the way, with safer streets and open spaces.

When completed, the NSC will enhance connectivity all the way from Admiralty to the city for motorists and non-motorists alike. Everyone in the North will have direct access to the city centre.

New TPCs for Sin Ming and Tampines

Residents who use the recently-completed 1.7 kilometre

TPC along Tampines Avenue 1 are experiencing smoother bus journeys and enhanced cycling connectivity to Tampines West MRT station, Temasek Polytechnic and nearby amenities.

In the second half of 2022, the construction of a new TPC will begin at Sin Ming Avenue which will connect to the NSC at Marymount Road, and Bright Hill MRT station. This 2-kilometre stretch includes a dedicated bus lane, new cycling paths and wider footpaths. When fully completed, residents in the area will have easier access to Bright Hill station, Bishan-Ang Mo Kio Park and nearby amenities. In addition, Bright Hill MRT station will offer residents further connectivity as an interchange station between the TEL and the CRL.



A MORE INCLUSIVE COMMUTING EXPERIENCE

A little thoughtfulness goes a long way in creating more inclusive and accessible public transport. We are working with partners in the community, social service agencies and the PTOs, to enhance navigational and infrastructural aids that serve all commuters. At the same time, we are actively encouraging a culture where fellow commuters look out for one another.

For Commuters Who Are Hard of Hearing or Visually Impaired

A visual communication tool at all MRT stations and bus interchanges will help some commuters communicate more conveniently with our public transport staff. The tool's pictograms and text common keywords will quickly get people where they want to go.



Passenger Service Centres at all new MRT stations, starting with TEL, will have Hearing Enhancement Systems (HES) that reduce background noise for people wearing hearing aids, improving communication between them and staff.

Starting from TEL, Braille text on handrails, toilet signs and lifts, along with brighter and more legible signage, will make it easier for commuters with visual impairment to navigate through the stations.

For Families With Little Ones

Baby Care Rooms at every MRT station across the Cross Island and Jurong Region Lines, and new bus interchanges, will make it convenient for parents to change or feed their children during a commute. At present, all TEL interchanges, and six out of every 10 bus interchanges island-wide are equipped with such rooms. Watch out for more to be added in the future.

For Commuters With Dementia

All our public transport nodes, including MRT and LRT stations, bus interchanges and Integrated Transport Hubs will be designated as Dementia Go-To-Points (GTPs) by end-2022. Members of the public can lead people living with dementia who are unable to find their way home to these highly-accessible "safe return points". Public transport staff have undergone training to assist those with dementia, and will help reunite them with their caregivers.



These GTPs are joint projects between LTA, the Ministry of Health (MOH), community partners and PTOs. In partnership with the Agency for Integrated Care (AIC), GTPs are listed in AIC's Dementia Friends mobile application for greater reliability.

Creating a Culture of Care

The “Our Caring Commuter Journey” report identified Four Caring Norms: “Give Time”, “Give Care”, “Give a Hand” and “Give Thanks”, which commuters can adopt in their daily journeys. These came about as commuters shared the need for knowledge about how to help others and show empathy and appreciation.

Co-Creating Gracious Commuting

Into its 12th year, the 2021 Graciousness on Public Transport campaign aimed to inculcate a caring commuter culture and foster gracious behaviour from an early age. Working with the bright young minds at PCF Sparkletots, we co-created the storybook ‘Max & Robbie’s Magical Train Ride’ highlighting gracious commuting on public transport. This was LTA’s first time working with young children to conceptualise and develop a storybook. We also partnered with McDonald’s to distribute the storybooks for a limited time. An electronic version of the storybook is available on the LTA website.



Silver Zones for Senior Residents

Seniors’ safety on the roads is always at the top of our minds. Under the Silver Zone project, we have put in place various traffic-calming measures and senior-friendly road safety features in areas where there is a high proportion of senior residents and past road accidents involving seniors. Thus far, we have completed 24 Silver Zones, with another 26 slated for completion by 2025.

Seamless Journeys with SimplyGo

Since its launch in April 2019, SimplyGo has been steadily making inroads as a mainstream payment mode on buses and trains. SimplyGo empowers commuters to choose their payment modes — contactless credit/debit/ATM cards, mobile wallets, smartphones and “Account-based” EZ-link cards. Later this year, commuters holding concession cards will also get to enjoy the benefits of SimplyGo by upgrading their cards at ticketing machines or ticket offices.

With more commuters using account-based ticketing or stored value cards, the sale of standard tickets was progressively phased out.



CHAPTER 3:

CONNECTING

Places

Accessibility and convenience influence our decisions and routines. We want a home within walking distance of an MRT station, a mall or a school; we choose a gym near our workplace; we catch up with friends at a centrally located café. We aim for smoother, more enjoyable journeys that go beyond connecting us to our destinations.

This is also LTA's aim, to ramp up public transport and active mobility connections to create a cohesive learn-play-work-live environment.

New MRT lines in the works will reach more places and serve even more people. Cross-border connections will be a delight with the Johor Bahru – Singapore Rapid Transit System Link.

Within Singapore, our Active Mobility Corridors will interface with the rail and bus networks, facilitating more active lifestyles and sensory street experiences. Along the way, there will be bicycle-wheeling ramps and more bicycle parking spaces to enhance your trips. More end-of-trip facilities such as showers and lockers will also allow you to freshen up at your destination. Cycling will no longer be solely a leisure activity. It can become a viable choice for everyday commutes which is healthy and good for the environment.



REACHING OUT WITH A RELIABLE RAIL NETWORK

Our rail system remains the backbone of our public transport system and an enabler for the economy. Travelling by MRT is one of the greenest modes of commuting and a pillar of our WCR vision. We are on track to expand the rail network to 360 kilometres by the early 2030s, bringing the whole of Singapore closer in a sustainable way.

Thomson-East Coast Line (TEL)

TEL brings faster access to the city for residents in the north and the east. When the TEL3's 11 stations open by end-2022, residents in the north will have boosted connectivity directly to many destinations in the city, including areas previously not covered by our rail network such as Kim Seng, Gardens by the Bay, and many city hotspots. Commuters can look forward to significantly shorter travel times, and greater convenience!

With TEL3's opening, there will be 20 operational stations on the TEL. More than 180,000 households will be within a 10-minute walk from a TEL station. TEL3 will connect to all other lines and help ease the load on the North-South Line.

Jurong Region Line (JRL)

Singapore's seventh MRT line — the JRL — will open from 2027 onwards, in three stages. Western Singapore will become easier to reach via the JRL's 24 stations and three interchange stations. When fully completed in 2029, 60,000 more households across Jurong will be within a 10-minute walk from a train station.

In May 2022, we awarded a civil contract for the design and construction of JRL's JW5 station and about 0.7 kilometres of associated elevated viaducts along Nanyang Drive to Hwa Seng Builder Pte. Ltd at a value of \$148 million. With this award, all civil work contracts for the JRL have been awarded.

Also in May 2022, Siemens Mobility Pte Ltd / Concord Corporation Pte. Ltd. Consortium was awarded a \$238 million contract for the design, supply, installation, testing and commissioning for the JRL power supply system.



Connect to future living

Experience Singapore's first Forested, car-free town, where pedestrians and motor traffic are separated by ground levels.



Craving for your hawker must-haves? Simply take a ride down and satisfy your palate.

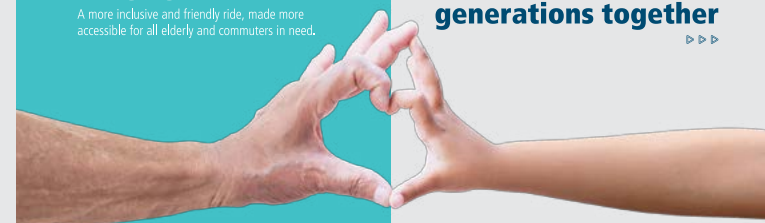
Savour your local favourites



right round the corner

Bringing families closer to bond generations together

A more inclusive and friendly ride, made more accessible for all elderly and commuters in need.



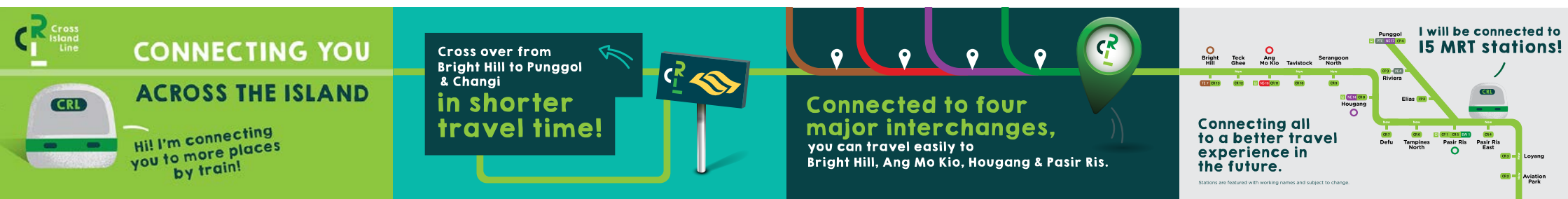
Cross Island Line (CRL)

The CRL, Singapore's eighth MRT line, will serve existing and future developments in the eastern, north-eastern and western corridors, linking major hubs such as Jurong Lake District, Punggol Digital District and the Changi region.

The 29-kilometre long CRL Phase 1 (CRL1) will comprise 12 stations from Aviation Park to Bright Hill. Four of these stations will be interchanges with other rail lines, saving significant commuting time between stations on different lines. Bright Hill MRT station will also connect to the upcoming TPC along Sin Ming Avenue, giving residents easier access to Bright Hill MRT station and recreational spaces such as Bishan-Ang Mo Kio Park via bus and active mobility modes.

16 tenders have been awarded for the stations and tunnels along CRL1 at a total contract value of more than \$9 billion. When completed in 2030, the CRL1 will benefit more than 100,000 households. Studies on subsequent CRL phases are ongoing.

To support CRL operations, Changi East Depot, near Aviation Park, is also being built. The 57-hectare depot will house the CRL Operations Control Centre and provide stabling and maintenance facilities for 70 CRL trains when completed around 2030. The depot is being built by China Jingye Engineering Corporation Limited (Singapore Branch) which was awarded the contract in May 2021 at a value of \$1.05 billion.



The Circle Line (CCL)

Tunnelling works for Circle Line 6 (CCL6) were completed in January 2022 with a final tunnel breakthrough from Prince Edward Road station into Cantonment station. The CCL6 is on track to open in 2026, closing the CCL loop by connecting HarbourFront to Marina Bay stations.

Large-scale tunnelling work was planned and undertaken carefully as they were carried out under heritage buildings, foundations of commercial buildings and road infrastructure in the densely built-up CBD. Care also had to be taken not to affect daily train operations at sections which interfaced with HarbourFront and Marina Bay stations.

CCL6 will give commuters in the west a more direct route to the CBD, and those in the east a faster track to Marina Bay, cutting travel time by up to 10 minutes.

The Sengkang-Punggol LRT (SPLRT)

17 new 2-car trains for the SPLRT will replace the current fleet and are expected to be progressively delivered from 2024 to 2027. They will increase passenger capacity, which is expected to meet long-term demand and better serve residents in the area.

The new trains will be procured through Mitsubishi Corporation, Mitsubishi Heavy Industries Engineering, Ltd. and Mitsubishi Heavy Industries Asia Pacific Pte. Ltd, Consortium. The \$439 million contract includes a signalling system, guideway system and depot equipment for an expanded SPLRT depot.

Sato Kogyo has been appointed to expand the SPLRT depot from 3.5 hectares to 11.1 hectares to increase stabling capacity and create space for maintenance facilities. The new depot will include two new reception tracks to shorten train launching time and three new traction power substations to support the operations of the two-car trains. This expansion, with a contract value of \$157 million, is expected to be completed by 2027.

The Johor Bahru – Singapore Rapid Transit System (RTS) Link

The Johor Bahru – Singapore Rapid Transit System (RTS) Link is set to be a game changer. When it opens for service in end-2026, passengers will be able to commute between the Woodlands North station in Singapore and the Bukit Chagar station in Johor Bahru in just about five minutes! Furthermore, it supports a peak capacity of 10,000 passengers per hour in each direction, and travellers will only need to clear immigration once, at the point of departure. This 4-kilometre rail shuttle will significantly improve connectivity between the two nations and ease congestion along the Causeway.



New Trains Join the Ranks

It has been an exciting year as we welcomed new trains for various rail lines.

The first two of the 106 new North-South and East-West Line (NSEWL) trains arrived in February 2022. They will replace those currently running on the NSEWL. We also welcomed the first two of the 19 Bukit Panjang Light Rapid Transit (BPLRT) vehicles that will take over from first-generation vehicles that have been ferrying commuters since 1999. The CCL6's first new train reached our shores on 9 March 2022, one of the 23 that will service an increased passenger volume when CCL6 opens in 2026.

Train Makeovers

Our North East Line (NEL) trains are getting a mid-life makeover. Refurbished trains will have new air-conditioning, seats, panels and flooring. An improved condition monitoring system will facilitate better maintenance planning too. The first upgraded train re-entered passenger service in February 2022. 24 more trains will be progressively upgraded.

Old Trains, New Lease of Life

As part of our Go Green efforts and to reduce our carbon footprint, we are working with town councils, schools, nursing homes and other organisations to upcycle and repurpose used parts from our decommissioned NSEWL trains and NEL mid-life trains. Old train seats installed in some void decks invoke a sense of nostalgia while serving as a unique rest stop for residents. Panels and covers are also being used as plant holders. The Singapore Police Force is converting an old train, and ITE College West will be using train parts for training purposes. More projects are in the works as we reach out to promote train heritage and culture to the heartlands.



INFRASTRUCTURE GOES GREEN

All our new buildings, including MRT stations and depots, will be designed with the highest Green Mark rating in mind. We are installing more solar panels to offset our energy needs through renewable energy. This will contribute to our goal of achieving Platinum or Super Low Energy (SLE) ratings under the Green Mark Scheme, which is Singapore's rating system designed to evaluate a building's environmental impact and performance. Moving forward, the air-conditioning systems of our new stations and depots will be more energy efficient, and we are deploying new CRL trains with a target recyclability rate of at least 92%.

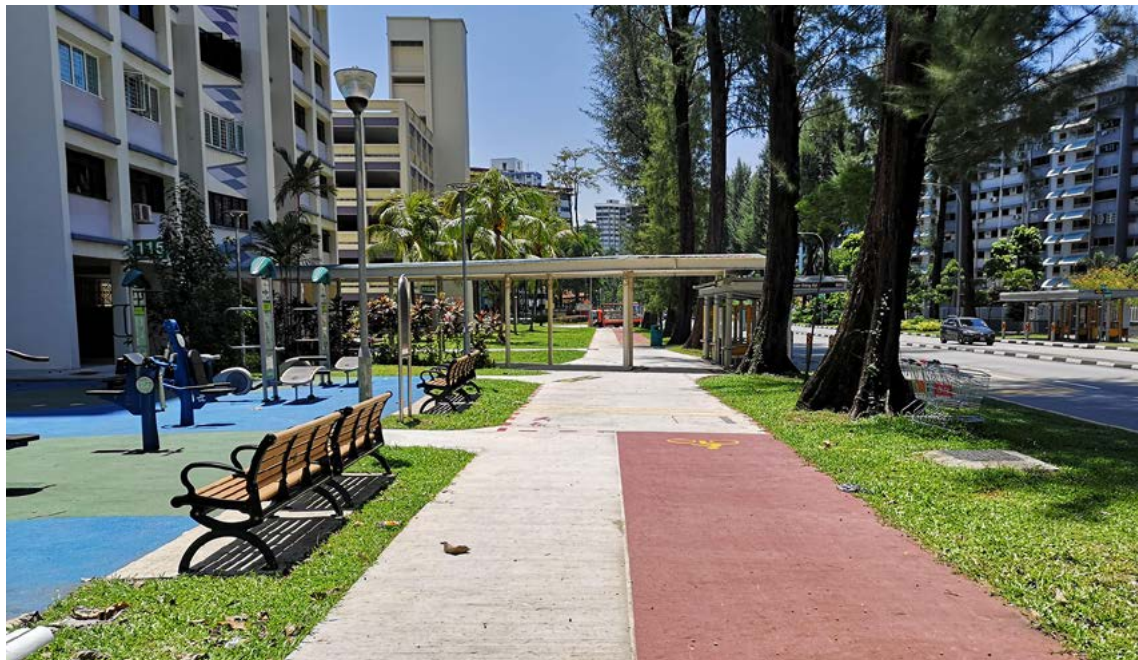
ENHANCING BUS SERVICES

Buses remain key to our WCR vision. They provide essential first-and-last mile connectivity to and from land transport nodes. We will enhance our bus infrastructure to ensure that our bus network remains sustainable, accessible and relevant.

Under the Bus Stop Infrastructure Enhancement Programme, we are progressively enhancing existing bus stops for barrier-free access, providing more seats with armrests, and implementing weather-protection measures. Our target is to complete the enhancement for all 360 bus stops by mid-2025.

Look out for improved Passenger Information Display System (PIDS) panels that are being progressively installed at 310 bus stops. These upgraded bus arrival panels provide useful information such as the destination and MRT stations visited by each service, as well as travel advisories, helping commuters to better plan their journeys. Simple pictograms, bigger fonts and high-contrast colours make it easier for commuters, especially seniors and the visually impaired, to read the screens. This is part of LTA's ongoing efforts to improve urban mobility, by giving commuters more accessible and useful information to optimise their journeys. The installation of PIDS started in September 2021 and is expected to be completed in 2024.





A LIFESTYLE OF WALKING AND CYCLING

We are working closely with our partners such as the National Parks Board and the Urban Redevelopment Authority to add more Active Mobility Corridors across Singapore to support WCR lifestyles.

Today, the Island-wide Cycling Network Programme has a reach of about 500 kilometres across Singapore. Come 2030, our cycling network will expand to around 1,300 kilometres, including 500 kilometres of park connectors, and you will only be minutes away from the nearest cycling path. Whether it is for work, errands, catching up with friends or simply to enjoy scenic views, you will practically be able to walk or cycle anywhere with enhanced connectivity within and between towns.

Cyclists and other active mobility users living in Tampines and Taman Jurong are enjoying new cycling paths which help them get around more conveniently and safely. Other cycling paths at the Central Area, Ang Mo Kio, Bishan, Toa Payoh and Bukit Panjang are also on the horizon. Cyclists can plan their routes easily with the MyTransport.SG mobile application that provides information on all the fully laid out cycling paths around Singapore.

Transiting throughout Tampines

Pedestrians and riders using the new 4-kilometre stretch of cycling paths at Tampines Avenue 1, 4 and 5 are enjoying a more seamless ride around their neighbourhood. They can WCR to key amenities like Tampines West MRT station, Our Tampines Hub and Tampines Forest Park directly from their homes and schools. Safety markings, speed regulating strips, detailed mapboards and a distinctive red coat will also enhance safety. There are now around 17 kilometres of cycling paths in Tampines, and we are working with other agencies to further expand this network.

Journeying across Taman Jurong

The new 5.6 kilometres of cycling paths along Taman Jurong's main roads greatly improve connectivity and convenience for residents and visitors. Lakeside and Chinese Garden MRT stations, as well as the rest of the Jurong Lake District's attractions and amenities, are now less than a 30-minute cycling ride away. We worked with the Public Utilities Board to reconstruct open roadside drains beside footpaths into covered box drains that create the cycling path, all while ensuring safety with clear markings, bypass paths behind bus stops, and detailed mapboards.

KEEPING SAFE AND FRESH AFTER A GOOD CYCLE

To encourage more Singaporeans to embrace WCR, we are supporting the provision of more end-of-trip amenities at various destinations, such as shower facilities and a safe place to store your valuables. That way, you can cycle to work or a party and still be able to freshen up and get ready for your next appointment.

Our expanded Active Commute Grant (ACG) supports shop and mall developers within 400 metres of any MRT station to build lockers, drying stations, bicycle docks and other end-of-trip facilities for commuters. Successful applicants would receive up to \$80,000 per development till 30 June 2023.

CONFIDENCE ON WHEELS GETS A BOOST

“Ride safer, go further.” Confidence on Wheels (CW) is one of our hands-on initiatives to foster gracious path sharing. The programme provides participants with both theory and practical skills to ride Power Assisted Bicycles (PABs) and Personal Mobility Devices (PMDs) safely.

Some 84,000 participants have taken part in the initiative, which was previously called the Safe Riding Programme. Besides having a new name, additional topics and areas of teaching were incorporated into CW which was officially launched in December 2021. With the enhancements, CW is now a more focused and customised learning journey for different participants.



CHAPTER 4:
CONNECTING

Possibilities



The future is one of great possibilities. Innovative technological solutions will help us to deliver a transport system that is more efficient, safe, reliable, comfortable and sustainable for all Singaporeans.

What can we look forward to?



LEVERAGING TECHNOLOGY FOR THE FUTURE

Video analytics and artificial intelligence are helping us to maintain our more than 9,500 kilometres of roads more efficiently. They have potentially saved us up to 30% of man-hours needed for detecting road defects. Since 2020, we have trialled the use of high-speed cameras mounted onto a van to automatically detect and report road defects into a backend software. This enables targeted and predictive maintenance which is more accurate and productive.

Lighting Our Streets

Managing more than 110,000 street lights is no mean feat. We created a new Remote Control and Monitoring System (RCMS) which was rolled out to the central part of Singapore, for a start, which helps our team of maintenance personnel. When the RCMS detects a street lighting fault, it instantly sends notifications to maintenance contractors. This has reduced public feedback by more than 60% per month, and reduced reliance on night patrols of faulty street lights! The RCMS also saves costs and energy by remotely switching lights on and off to fit precise daily sunset and sunrise timings.

New LED lights are also replacing traditional ones to help us see more clearly. They require less maintenance, and last much longer, resulting in less frequent replacement

and lower costs. In addition, the LED lights consume 25% less energy, helping LTA to reduce both our energy costs and land transport emissions. Talk about a bright idea!

Partnering with Industry

Collaborating with the industry has always been in our DNA. We have worked with partners to streamline processes, build capabilities and co-create pro-enterprise solutions.

A key focus of the Transport Infrastructure Collaboration Panel (TICP), which comprises representatives from LTA and the industry, is to simplify the application and approval processes for building and construction of transport infrastructure, while ensuring that LTA's technical and regulatory needs are met, and users' connectivity and convenience are maximised. The joint LTA and Enterprise Singapore innovation call develops public-private partnerships and transport solutions with start-ups and small and medium enterprises. After all, the best way forward is to get better at what we do.





GREEN SOLUTIONS FOR THE FUTURE

Carbon-Free Construction

Construction is highly resource-intensive and generates large quantities of waste. To keep our carbon footprint in check, we are piloting a carbon accounting study to establish the baseline of emissions generated, resources utilised, and waste generated. This optimises construction processes. We will also be collaborating with other agencies to create an embodied carbon calculator to standardise the calculation methodology of Scope 3 emissions. This provides a comprehensive measurement of the greenhouse gases generated across the supply chain and presents an opportunity to specify sustainable materials and improve construction processes for future projects.

Sustainable Operations

We are reducing our carbon footprint through system upgrades, introducing more efficient fittings and shifting towards renewable energy use within the land transport sector. This is in concert with GreenGov.SG, the public sector's key sustainability movement.

Environment-Friendly Procurement

Our green processes are built-in even before they build up. Green procurement processes are being established for new projects. These incentivise project bidders to demonstrate environmental sustainability principles and raise capital through green financing. We support them too, to push boundaries through open innovation such as recycling and green materials during construction.

UNITED WE STAND

These past two-and-a-half years of the pandemic were long and challenging. Through it all, our land transport workers kept their chins up and kept moving Singapore forward. We salute and value their personal and professional sacrifices.

As the world, and the land transport ecosystem evolves, we will face changes and challenges, but also new opportunities. Here at LTA, our promise is that we must, and we will, continue to take care of our land transport workers through training and upskilling, so they are future-ready. Together, we will keep Singapore moving!

BCA GREEN MARK AWARD PLATINUM

Our extensive use of eco-friendly materials, fixtures and technologies made Xilin and Sungei Bedok stations on the Downtown Line Extension (DTLe) the second and third underground stations to be awarded the BCA Green Mark Platinum Certification. The first underground station to win this accolade was Upper Thomson station on the TEL.

The stations' green features boast sustainable construction materials such as low carbon concrete, green labelled products and water fixtures. The energy-saving design includes energy-efficient air-conditioning systems, lifts, escalators, lighting systems, as well as low loss transformers.

**BEST SMART TICKETING PROGRAMME (MORE THAN
1 MILLION DAILY JOURNEYS) HIGH COMMENDATION**

SimplyGo was launched in 2019 to accept new payment modes such as contactless bank cards (e.g. credit, debit cards) and mobile wallets in transit. It has expanded to include existing stored value transport cards which are equipped with a backend account. These payment modes allow commuters to enjoy the benefits of being able to view their fare balance and travel history anytime, anywhere.

Commuters also get to enjoy multiple payment options. Tourists and travellers now have the added convenience of using the EMV2.0 credit cards issued in their home country directly on Singapore's public transport.

**THE MARKIES-AWARDS 2022 MOST CREATIVE –
EVENT (PHYSICAL/VIRTUAL) BRONZE**

In light of the COVID-19 restrictions on physical events in August 2021, the TEL2 opening pivoted to a fully-digital Open House.

The team creatively turned the usual Open House activities such as sneak previews of the stations and our work behind-the-scenes into virtual ones. These tactics were able to excite our target audiences about the TEL2 opening and captivate their attention as we achieved more than 4.8 million in reach and over 100,000 interactions for the Open House campaign.

For their innovative efforts, the team also clinched the Most Creative – Event (Physical/Virtual) (Bronze), which recognises the most creative and innovatively planned event.

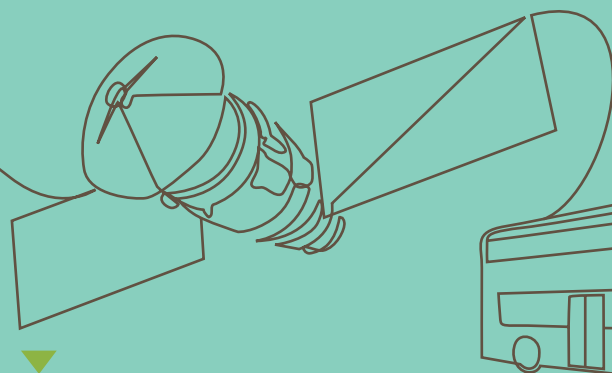
MINISTER'S INNOVATION AWARD 2021 **MERIT**

LTA's largest commuter survey, the Household Travel Survey, which covers 60,000 respondents, was very expensive to conduct due to the use of manual surveyors to reach out to all demographics and towns in Singapore. Using a combination of digital technologies, we successfully created a digital outreach system that was preferred by commuters and will save LTA \$4 million.

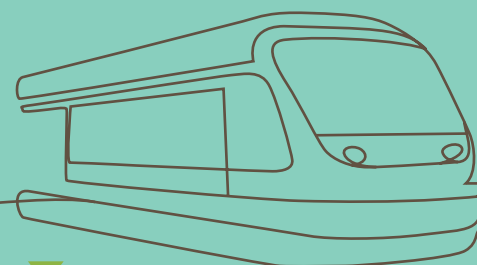
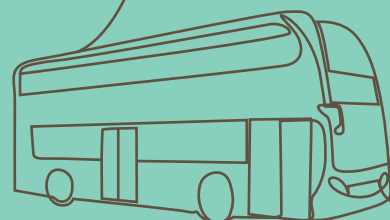
**MINISTER'S INNOVATION AWARD 2021** **MERIT****INSAR SATELLITE-BASED MONITORING TO
OBTAIN BUILDINGS' HISTORICAL MOVEMENTS**

As LTA continues to develop public infrastructure in increasingly urbanised settings, it is crucial to identify buildings that are showing signs of movement prior to construction. This will facilitate the safer delivery of projects and minimise disputes with stakeholders. By using past satellite imagery of buildings' historical movements along the NSC, LTA is able to carry out refined impact assessment studies and review appropriate mitigation measures.

This information was obtained through a technologically-advanced remote sensing technique known as Interferometric Synthetic Aperture Radar (InSAR). InSAR analysis is precise and cost-effective, and also reduces reliance on manpower. Carrying out manual surveys on this scale would not have been possible.

**MINISTER'S INNOVATION AWARD
(SOCIAL MEDIA) 2021** **MERIT**

Bus rationalisation is an inevitable process as we grow our land transport system, hence there is a need to obtain the public's buy-in and understanding of our bus planning efforts. The team faced multiple challenges while carrying out the engagement amid the pandemic. Nonetheless, we remained agile and focused in achieving our objectives, and through a slew of creative and engaging online tactics such as videos and live streaming to explain our policy, we were able to soften the ground and build rapport with the public. This innovative online engagement effort garnered close to 3 million reach/impressions for the entire campaign, eventually clinching the Minister's Innovation Award (Social Media) – Merit.

**MINISTER'S VALUE-FOR-MONEY ACHIEVEMENT
AWARD 2021** **MERIT**

In 2018, LTA awarded a contract to replace the 66 first-generation trains operating on the NSEWL.

Recognising that the 19 second-generation and 21 third-generation trains will soon reach their end-of-life, and the replacement costs are unlikely to be competitive due to the smaller fleet size and consequent small volume purchase, we decided to aggregate the purchases.

This additional 40-train purchase leverages the existing 66-train buy contract for a total of 106 trains. Not only do we save on upfront design and engineering costs for these 40 trains, we also save on future spares and maintenance costs as a result of a more homogeneous fleet.

Contracts Awarded in FY2021/22

CROSS ISLAND LINE PHASE 1

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
CR101	China Jingye Engineering Corporation Limited (Singapore Branch)	Design and Construction of Changi East Depot
CR1011	Alliance Consulting Engineers Pte Ltd	Provision of Qualified Person Supervision for Contract CR101
CR1012	Geosmart International Pte. Ltd.	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 1 - (Package A - Contracts CR101 & CR103)
CR1013A	AECOM Singapore Pte Ltd	Accredited Checker Services (Package 1) for Cross Island Line Phase 1 Civil Contracts CR101, CR105, CR108, CR112 and CR116
CR102	Shanghai Tunnel Engineering Co (Singapore) Pte Ltd - LT Sambo Co; Ltd (Singapore Branch) Joint Venture	Design and Construction of Tunnels between Aviation Park Station and Depot
CR1021	RCY Pte. Ltd.	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package A - Contract CR102)
CR1022	Geomotion (Singapore) Pte. Ltd.	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 1 (Package B - Contracts CR102 & CR105)
CR1023	T.Y.Lin International Pte. Ltd.	Accredited Checker Services (Package 2) for Cross Island Line Phase 1 Civil Contracts CR102, CR103 and CR110
CR103	Hock Lian Seng Infrastructure Pte Ltd	Design and Construction of Aviation Park Station and Tunnels
CR1031	GeoAlliance Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package C1 - Contract CR103)
CR1051	Surbana Jurong Consultants Pte. Ltd.	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 1 (Package B - Contract CR105)
CR106	Woh Hup (Private) Limited - Dongah Geological Engineering Co., Ltd Singapore Branch Joint Venture	Design and Construction of Loyang Station, Tunnels and Elevated Infrastructure
CR1061	LYL Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package B - Contract CR106)
CR1062	Ryobi Geotechnique International Pte Ltd	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 1 (Package C - Contracts CR106 & CR107)
CR1063	T.Y.Lin International Pte. Ltd.	Accredited Checker Services (Package 1) for Cross Island Line Phase 1 Civil Contracts CR106 and DE160
CR107	Singapore Engineering & Construction Pte. Ltd.- Sinohydro Corporation Limited (Singapore Branch) Joint Venture	Design and Construction of Pasir Ris East Station
CR1071	LYL Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package C2 - Contract CR107)

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
CR1073	KTP Consultants Pte Ltd	Accredited Checker Services (Package 2) for Cross Island Line Phase 1 Civil Contracts CR107,CR113 And CR115
CR108	Daewoo Engineering & Construction Co; Ltd.- Dongah Geological Engineering Co; Ltd, Singapore Branch Joint Venture	Design and Construction of Pasir Ris Interchange Station and Tunnels
CR1081	LYL Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 1 (Package C - Contract CR108)
CR1082	Ryobi Geotechnique International Pte Ltd	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 1 (Package D - Contracts CR108 & CR112)
CR109	China Communications Construction Company Limited (Singapore Branch)	Design and Construction of Tampines North Station and Tunnels
CR110	Nishimatsu Construction Co., Ltd.	Design and Construction of Bored Tunnel between Tampines North Station and Defu Station
CR1101	R.J. Crocker Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package D - Contract CR110)
CR1102	Geomotion (Singapore) Pte. Ltd.	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 2 (Package A - Contract CR110)
CR111	Gamuda Berhad Singapore Branch - Wai Fong Construction Pte Ltd Joint Venture.	Design and Construction of Defu Station and Tunnels
CR1121	Bureau Veritas Buildings & Infrastructure Pte. Ltd.	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 1 (Package D - Contract CR112)
CR113	Hock Lian Seng Infrastructure Pte Ltd	Design and Construction of Serangoon North Station and Tunnels
CR1131	GeoAlliance Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package E1 - Contract CR113)
CR1132	Fosta Pte Ltd	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 2 (Package B - Contracts CR113 & CR115)
CR115	Sato Kogyo (S) Pte Ltd	Design and Construction of Tavistock Station and Tunnels
CR1151	CKMbt International Pte. Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2 (Package E2 - Contract CR115)
CR116	Gammon Construction and Engineering Pte. Ltd.- Bachy Soletanche Singapore Pte. Ltd. Joint Venture	Design and Construction of Ang Mo Kio Interchange Station and Tunnels
CR1161	CKMbt International Pte. Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 1 (Package E - Contract CR116)
CR1162	Geomotion (Singapore) Pte. Ltd.	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 1 (Package E - Contract CR116)
CR117	Penta-Ocean Construction Co., Ltd	Design and Construction of Bright Hill Interchange Station and Tunnels
CR1205	InterCorp Solutions Pte Ltd	Supply and Installation of Biometric Authentication System for Cross Island Line Phase 1 (CRL1)

JURONG REGION LINE

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
J1072A	Geomotion (Singapore) Pte. Ltd.	Instrumentation and Monitoring for Jurong Region Line (Phase 2) - Package A - Contract J107
J1072B	Ryobi Geotechnique International Pte Ltd	Instrumentation and Monitoring for Jurong Region Line (Phase 2) - Package B - Contract J108 and J109
J111	China Harbour (Singapore) Engineering Company Pte. Ltd.	Design and Construction of Enterprise Station, Tukang Station and Viaduct for Jurong Region Line
J1111	Sterling C&S Consulting Engineer Pte. Ltd. - Brown Consulting Pte. Ltd. - GeoAlliance Consultants Pte. Ltd. Consortium	Qualified Person (Supervision) Services for Jurong Region Line (Phase 2) [Package A - Contracts J111 and J112]
J1112A	Geomotion (Singapore) Pte. Ltd.	Instrumentation and Monitoring for Jurong Region Line (Phase 3) - Package A - Contract J111 and J112
J1112B	Ryobi Geotechnique International Pte Ltd	Instrumentation and Monitoring for Jurong Region Line (Phase 3) - Package B - Contract J113 and J115A
J1113A	T.Y. Lin International Pte Ltd	Accredited Checking Services with Enhanced Requirements (Package 4) for Jurong Region Line Civil Contracts J111 and J115A
J1113B	Bureau Veritas Buildings & Infrastructure Pte Ltd. - COWI Singapore Pte. Ltd. Consortium	Accredited Checking Services with Enhanced Requirements (Package 4) for Jurong Region Line Civil Contracts J112 and J120
J112	China Civil Engineering Construction Corporation Branch Office Singapore - SCB Building Construction Pte. Ltd. Joint Venture	Design and Construction of Jurong Hill Station, Jurong Pier Station and Viaduct for Jurong Region Line
J113	Hwa Seng Builder Pte Ltd	Design and Construction of Nanyang Gateway Station, Nanyang Crescent Station and Viaduct for Jurong Region Line
J1201	ECAS Consultants Pte. Ltd.	Qualified Person (Supervision) Services for Integrated Transport Hub (ITH) at Jurong East
J1202	Cast Laboratories Pte Ltd	Instrumentation and Monitoring for Integrated Transport Hub (ITH) at Jurong East
J121	Bintai Kindenko Private Limited - Lotte Engineering & Construction Co., Ltd. Joint Venture	Design and Build of Mechanical and Electrical Services for Integrated Transport Hub at Jurong East
J153	Siemens Mobility Pte. Ltd. / Concord Corporation Pte. Ltd. Consortium	Power Supply System for Jurong Region Line
J176	GEMAC Engineering Machinery Co., Ltd.	Maintenance Wagons for Jurong Region Line
J1806	Koyo Engineering (S.E.Asia) Pte. Ltd.	Mechanical and Electrical Works at Mass Rapid Transit Stations
J181	Siemens Mobility Pte Ltd.	Depot Equipment for Jurong Region Line

CIRCLE LINE 6 / NORTH-EAST LINE EXTENSION / CROSS ISLAND PUNGGOL EXTENSION / DOWNTOWN LINE / RAIL TRANSIT LINK

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
8508	NKH Building Services Pte Ltd	Supply and Installation of Water Handling Equipment for Circle Line 6 and North-East Line Extension
9358	Puretech Engineering Pte Ltd	Mechanical and Electrical Services for Hume Station
8505A&B	Deluge Fire Protection (S.E.A) Pte Ltd	Supply and Installation of Automatic Clean Gas System for Kim Chuan Depot Extension and Circle Line 6 Mainline and North-East Line Extension
8507A&B	Strongly Lighting Pte Ltd	Supply and Delivery of Luminaires and Lighting Control System for Kim Chuan Depot Extension, Circle Line 6 and North-East Line Extension
P1090A	CCECC Singapore Pte Ltd	Advance Works for Utility Diversion (Package A)
P1090B	Sam Lain Equipment Services Pte Ltd.	Advance Works for Utility Diversion (Package B)
T2326	Systra SA / Minconsult Sdn. Bhd. / Bureau Veritas Singapore Pte Ltd. Consortium.	Independent Verification and Validation (IV&V) Agent for Rapid Transit System (RTS) Link Project

RAIL ENHANCEMENT / SENGKANG-PUNGGOL LRT

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
810C	Sato Kogyo (S) Pte Ltd	Design, Construction and Completion of Sengkang-Punggol Light Rapid Transit (LRT) Depot Expansion with Associated Facilities
810C1	RCY Pte. Ltd.	Appointment of Qualified Person (Supervision) (QP(S)) including Qualified Site Supervisors (QSS) for the Supervision for Contract 810C
810C2	Geomotion (Singapore) Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contract 810C
810D	Mitsubishi Heavy Industries Engineering, Ltd / Mitsubishi Heavy Industries Asia Pacific Pte. Ltd. / Mitsubishi Corporation Consortium	Trains, Signalling System, Guideway System and Depot Equipment For Sengkang-Punggol Light Rapid Transit Depot Expansion
R1017	Tai Yong Construction Pte.Ltd.	Refurbishment of Toilets (Phase 1)
R1027	Sten-Crete (H.K.) Limited	Electronics Upgrade for Four (4) Locomotives For North-South East-West Line and North-East Line
R160	ST Engineering Electronics Ltd.- Siemens Mobility Pte. Ltd. Consortium	Renewal and A&A Works for Communications System for North-South and East-West Lines
R173A	Shinryo Corporation	Replacement Works for Tunnel Ventilation and Environmental Control Systems
R178A	Chemcrete Enterprises Pte Ltd - GIB Automation Pte Ltd Consortium	Fire Protection System Replacement Works
R179C	Jebsen & Jessen Technology (S) Pte Ltd	Track Tamping Vehicle for North-South and East-West Lines
R181A	Tangshan Baichuan Intelligent Machine Co; Ltd	Depot Equipment for Bishan Depot
R7511A	ALSTOM Transport (S) Pte Ltd	Brake, Auxiliary Power System, Tims, Propulsion and Fire Detection System Components for North-East Line Trains
RS128	Thales Solutions Asia Pte Ltd & Elis Infotech Systems Company Limited Consortium	Provision of Automatic Fare Collection (AFC) Gates
T3506	HT Ports Services Pte. Ltd.	Provision of Services for Works Train Operation

TOTAL SUM AWARDED FOR RAIL PROJECTS: \$10.4 BILLION

ROADS / COMMUTER FACILITIES

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
AM109	Surbana Jurong Consultants Pte. Ltd.	Engineering Consultancy Services for Cycling Path Network
AM113	Arup Singapore Private Limited	Engineering Consultancy Services for Cycling Path Network
DE170	Chye Joo Construction Pte Ltd	Construction of Tengah Vehicular Interchange at KJE
DE176	Megastone Holdings Pte Ltd	Commuter and Road Infrastructure Works in Serangoon and Tampines Areas
N1057	Weng Guan Technology Pte Ltd	Civil Works for Utility Diversion for North-South Corridor
N1058	Sam Lain Equipment Services Pte Ltd.	Civil Works for Utility Diversion for North-South Corridor Contract N106
N178A	Deluge Fire Protection (S.E.A) Pte Ltd - Quickstart Technology Pte Ltd - Shinsung E&G Co.Ltd (Singapore Branch) Consortium	Fixed Water-Based Fire-Fighting System for North-South Corridor
PL208	Jupiter Builder Pte Ltd	Construction of Ang Mo Kio Cycling Path Network
RC129	Megastone Holdings Pte Ltd	Improvement and Reinstatement Works at Various Locations

TRAFFIC OPERATION & MAINTENANCE

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
TR307	Gammon Pte. Limited	Provision of Mechanical Services for Road Tunnels
TR308	Bintai Kindenko Private Limited - Leighton Contractors (Asia) Limited (Singapore Branch) Joint Venture	Provision of Electrical Services for Road Tunnels
TR331	Lam Chuan Construction Pte Ltd	Painting of Road Markings For East and West Sectors
TR356	ATT Systems (S'pore) Pte Ltd	Provision of Communications System for Road Tunnels
TR357	Johnson Controls (S) Pte Ltd	Provision of Traffic and Plant Management System for Road Tunnels
TR359	Jupiter Builder Pte Ltd	Construction of Silver Zones
TR361A	Certis CISCO Auxiliary Police Force Pte. Ltd.	Provision of Parking Wardens Services
TR367	Smitech Engineering Pte Ltd	E&M System Maintenance for Road Tunnels
TR368	NCS Pte Ltd	Monitoring and Communication System
TR369	PH Consulting Pte Ltd / CMP Consultants Pte Ltd Consortium	Regular Inspection of Minor Road Structures and Commuter Facilities
TR379	O'Connor's Singapore Pte Ltd	Operation and Maintenance of Closed-Circuit Television (CCTV) Camera System
TT245	Accenture Pte Ltd	Development, Operation & Maintenance Services of the Electronic Parking Central Computer System
TT247	ATT Systems (S'pore) Pte Ltd	Maintenance of Traffic Management Systems on Arterial Roads
VS172	CSE Global Limited	Upgrade and Maintenance of Vehicle Entry Permit Front-End System

TOTAL SUM AWARDED FOR ROADS AND OTHER PROJECTS: \$818 MILLION

Contracts to be Awarded — in FY22/23

RAILS

CONTRACT NO.	DESCRIPTION
T273R	Supply and Installation of Mechanical Services for Rapid Transit System (RTS) Link Station, Tunnels and CIQ Building
T275R	Supply and Installation of High Voltage, Low Voltage, Communications and Security Systems for Rapid Transit System (RTS) Link Station, Tunnels & CIQ Building
CR1011	Provision of Qualified Person Supervision for Contract CR101
810G	Mechanical and Electrical Services for Sengkang-Punggol Light Rapid Transit (SPLRT) Depot Expansion
810H	Power Supply System Enhancement for Sengkang-Punggol Light Rapid Transit (SPLRT) Depot Expansion
CR1091	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 3
CR1092	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 3
CR1093	Accredited Checking Services (Package 3) for Cross Island Line Phase 1
CR150	Trackwork for Cross Island Line Phase 1
CR151	Trains for Cross Island Line
CR159	Overhead Conductor Rail System for Cross Island Line
CR161	Facility for Commercial Info-Communications Services for Cross Island Line (CRL)
CR181	Depot Equipment for Changi East Depot
CR2016	Advance works for Utilities Diversion (Package A)
CR202	Design and Construction of Bored Tunnel between Fairways Drive and Sin Ming Walk and Associated works

RAILS

CONTRACT NO.	DESCRIPTION
CR2021	Appointment of Qualified Person (Supervision) Including Qualified Site Supervisors for Contract CR202
CR3005	Advance Engineering Study for the Cross Island Line Phase 3 (CRL3) - Depot
CR3006	Advance Engineering Study for the Cross Island Line Phase 3 (CRL3) - Mainline
CR3008	Mechanical and Electrical Engineering Services for Cross Island Line Phase 3 (CRL3) Depot
CR3009	Mechanical & Electrical Engineering Services for Cross Island Line Phase 3 (CRL3) Mainline
CR3016	Provision of Site Investigation Works for LTA Projects
J1050	Design and Construction of Noise Barriers for Jurong Region Line
J171	Design, Supply and Installation of Lifts and Escalators for Integrated Transport Hub at Jurong East
J171A	Design, Supply and Installation of Lifts for Jurong Region Line and Commuter Facilities
J171B	Design, Supply and Installation of Escalators for Jurong Region Line and Commuter Facilities
J173A	Supply and Installation of Mechanical Services for Tengah Depot
J173B	Supply and Installation of Mechanical Services for Jurong Region Line Stage 1
J173C	Supply and Installation of Mechanical Services for Jurong Region Line Stage 2
J173D	Supply and Installation of Mechanical Services for Jurong Region Line Stage 3
J175A	Supply and Installation of Electrical Services for Tengah Depot

RAILS

CONTRACT NO.	DESCRIPTION
J175B	Supply and Installation of Electrical Services for Jurong Region Line Stage 1
J175C	Supply and Installation of Electrical Services for Jurong Region Line Stage 2
P102	Design and Construction of Elias Station and Tunnels for CRL-Punggol Extension
P1021	Appointment of Qualified Person (Supervision) including Qualified Site Supervisors for the Supervision of CRL-Punggol Extension Contract P103
P103	Design and Construction of Riviera Interchange Station and Tunnels for CRL-Punggol Extension
P1031	Appointment of Qualified Person (Supervision) including Qualified Site Supervisors for the Supervision of CRL-Punggol Extension Contract P103
P1032	Supply, Installation and Monitoring of Instruments for CRL-Punggol Extension Contract P103
P105	Design and Construction of Punggol Interchange Station and Tunnels for CRL-Punggol Extension
P1051	Appointment of Qualified Person (Supervision) including Qualified Site Supervisors for the Supervision of CRL-Punggol Extension Contract P105
P1095	Supply, Installation and Operation of Biometric Authentication System for CRL-Punggol Extension
R1018	Ceiling Replacement Works in Existing MRT Stations
R8218	Viaduct Guideway Lifeline Replacement Works for BPLRT

ROADS & OTHERS

CONTRACT NO.	DESCRIPTION
AM116	Engineering Consultancy Services for Cycling Path Network
DE160	Enhancement to Loyang Avenue between Tampines Expressway and Pasir Ris Drive 3
DE1701	Appointment of Qualified Person (Supervision) for Contract DE170 - Construction of Tengah Vehicular Interchange at KJE
DE177	Commuter Infrastructure Enhancement
DE178	Proposed New Road Interchange at PIE / Jurong Canal Drive and Road Enhancement Works
DE183	Proposed Bus Facility Works
DE187	Architecture and Engineering Design Services for Commuter Infrastructure
DE188	Commuter and Road Infrastructure Works in Yishun
DE189	Enhancement Works to Existing Bus Infrastructure
DE190	Architectural / Engineering Services for Existing Pedestrian Overhead Bridges (Package 3)
DE191	Architectural / Engineering Services for Existing Pedestrian Overhead Bridges (Package 4)
PT419	Period Contract for Security Officers
TD116	Deployment of Electric Vehicle Charging Points in HDB Car Parks
TR370	Road Structures & Facilities Maintenance Contract
TR371	Regular Inspection and Maintenance for Road Tunnels and Vehicular Underpasses
TR372	Road Maintenance Contract for Expressways
TR376	Functional Maintenance for Road Structures and Facilities
TR383	Replacement of Roofs of Covered Linkways and Sheltered Pedestrian Overhead Bridges
TR386	Road Maintenance Contract for North East Sector
TR387	Road Maintenance Contract for South East Sector
TR388	Road Maintenance Contract for North West Sector
TR391	Replacement of Bridge Lighting Systems
TT253	Maintenance of Unified Maintenance Hub 2.0 (UMH2.0)
TT255	Comprehensive Maintenance of GLIDE System

Financial Highlights in FY2021

1 STATEMENT OF COMPREHENSIVE INCOME

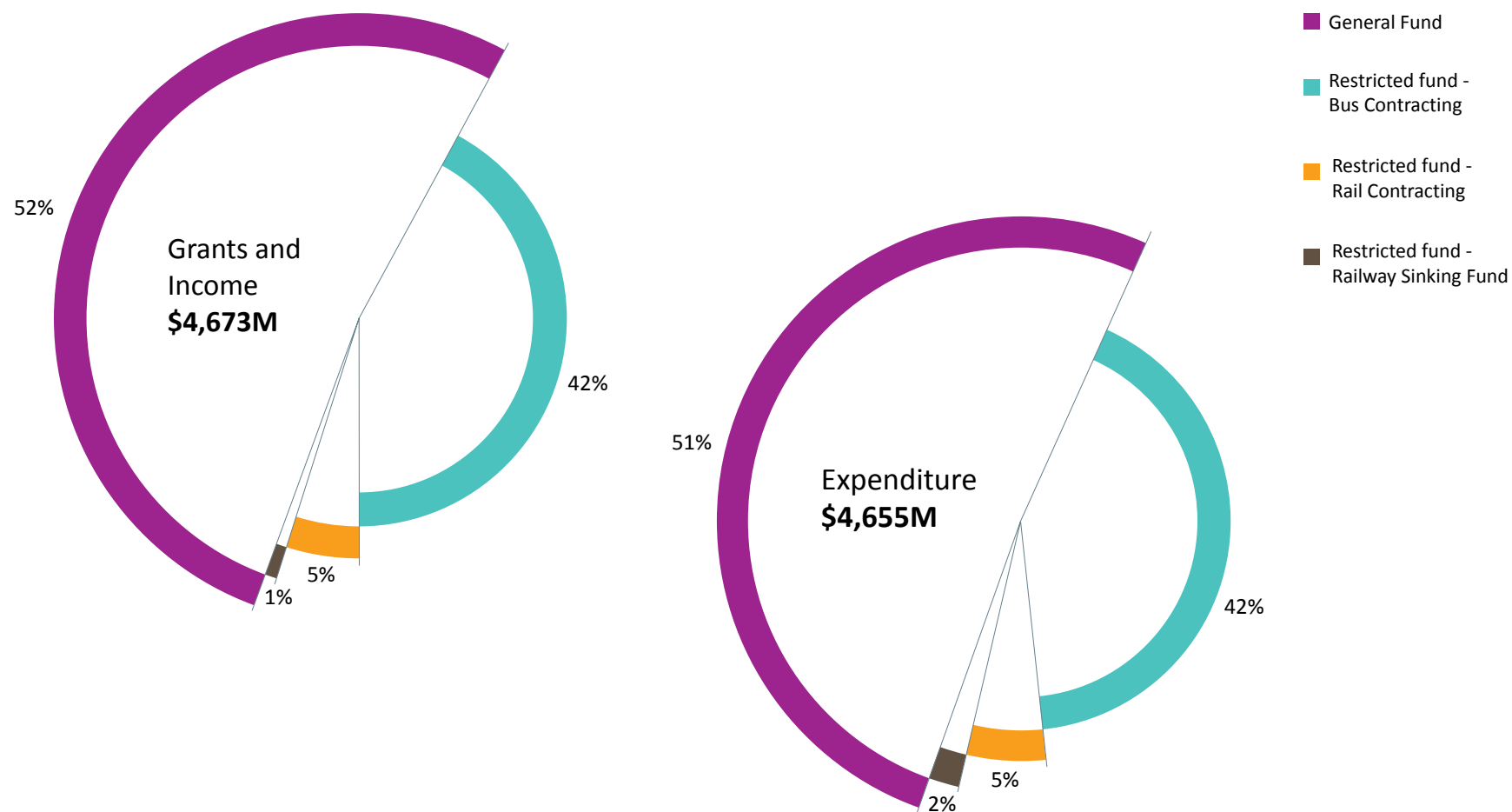
The Authority recorded a net surplus of \$38M in FY2021. Operating income was \$1,747M, an increase of \$105M (6%) from FY2020. Operating expenditure was \$4,655M, an increase of \$69M (1%) from FY2020. Government Grants was \$2,926M, an increase of \$38M (1%).

	▼ General fund \$'M	▼ Railway Sinking Fund \$'M	▼ Bus & Rail Contracting \$'M	▼ Total \$'M		▼ General fund \$'M	▼ Railway Sinking Fund \$'M	▼ Bus & Rail Contracting \$'M	▼ Total \$'M
FY2021					FY2020				
Management Fee from Government	797	-	-	797	Management Fee from Government	717	-	-	717
Fare Revenue	-	-	648	648	Fare Revenue	-	-	607	607
Rail Transit System Licence Charge	-	20	-	20	Rail Transit System Licence Charge	-	43	-	43
Other Operating Income	172	1	109	282	Other Operating Income	179	1	95	275
Operating Income	969	21	757	1,747	Operating Income	896	44	702	1,642
Operating Expenditure	(2,376)	(92)	(2,187)	(4,655)	Operating Expenditure	(2,439)	(125)	(2,022)	(4,586)
Operating Deficit	(1,407)	(71)	(1,430)	(2,908)	Operating Deficit	(1,543)	(81)	(1,320)	(2,944)
Other Gains - Net	6	13	1	20	Other Gains - Net	12	23	5	40
Deficit before Government Grants	(1,401)	(58)	(1,429)	(2,888)	Deficit before Government Grants	(1,531)	(58)	(1,315)	(2,904)
Government Grants	1,475	5	1,446	2,926	Government Grants	1,561	2	1,325	2,888
Net (Deficit)/Surplus	74	(53)	17	38	Net (Deficit)/Surplus	30	(56)	10	(16)

* The full Financial Statements are available at https://www.lta.gov.sg/content/ltgov/en/who_we_are/statistics_and_publications/reports.html

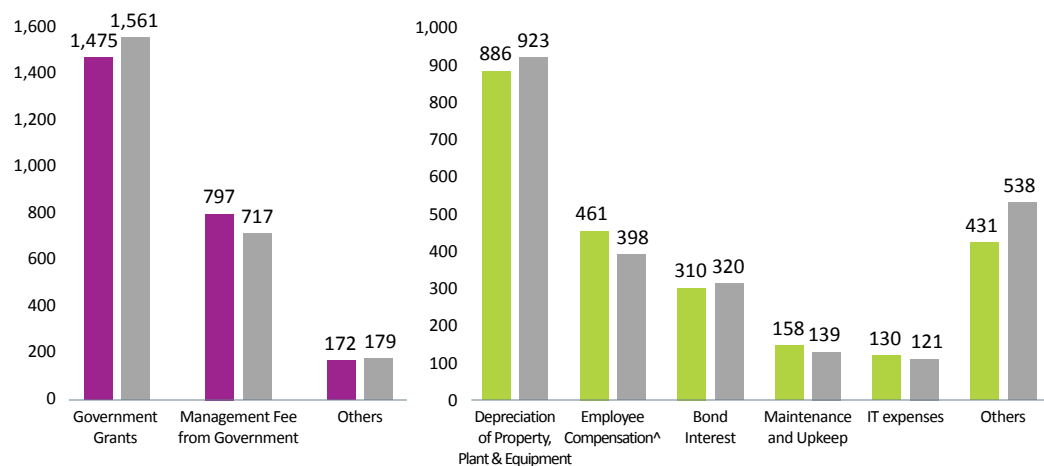
2 GOVERNMENT GRANTS, OPERATING INCOME AND EXPENDITURE

The Authority recognised total grants and income amounting to \$4,673M, comprising \$2,444M (52%) under General fund, \$2,203M (47%) under Restricted fund – Bus and Rail Contracting, and \$26M (1%) under Restricted fund – Railway Sinking Fund. Total expenditure amounted to \$4,655M, comprising \$2,376M (51%) under General fund, \$2,187M (47%) under Restricted fund – Bus and Rail Contracting, and \$92M (2%) under Restricted fund – Railway Sinking Fund.



FY2021 FY2020

General Fund

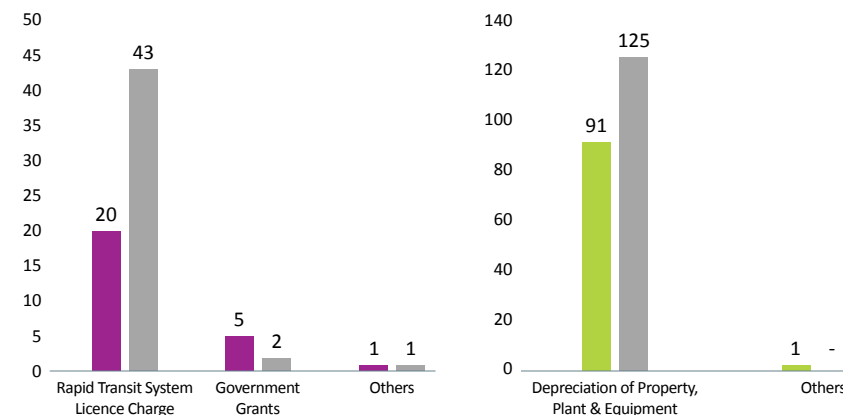


GENERAL FUND - GRANTS & INCOME

GENERAL FUND - EXPENDITURE

[^] Employee Compensation is net of amounts capitalised in property, plant and equipment.

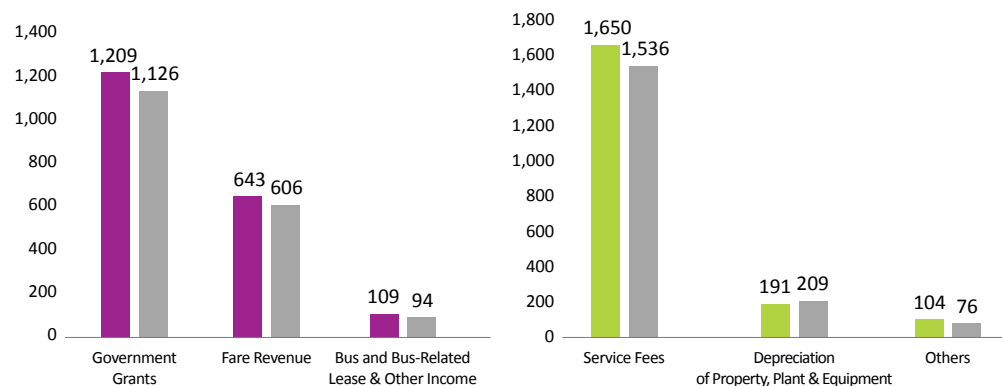
Restricted fund - Railway Sinking Fund



RSF - GRANTS & INCOME

RSF EXPENDITURE

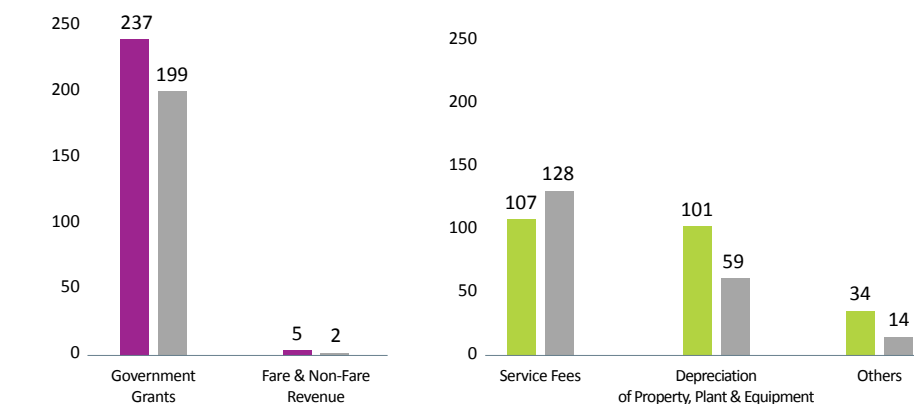
Restricted fund - Bus Contracting



BUS CONTRACTING - GRANTS & INCOME

BUS CONTRACTING - EXPENDITURE

Restricted fund - Rail Contracting

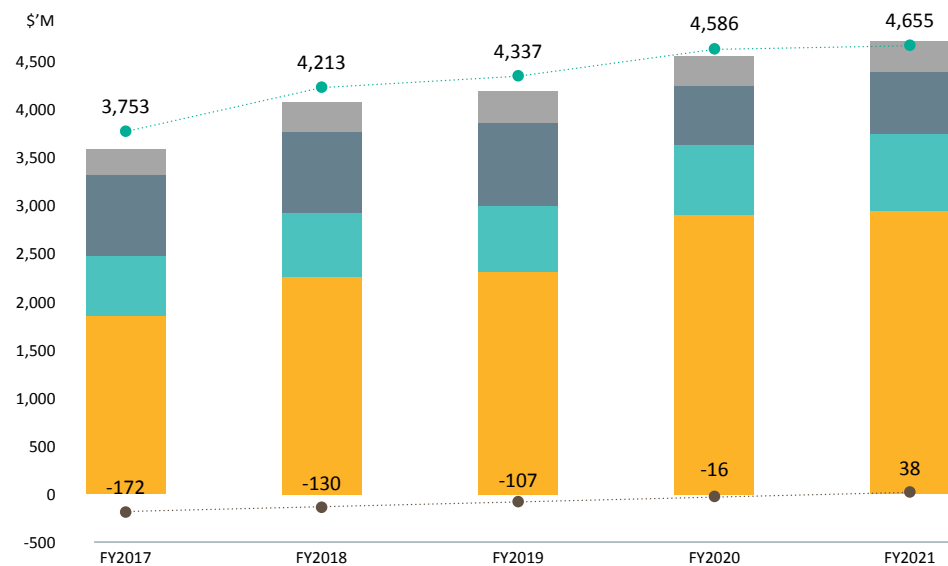
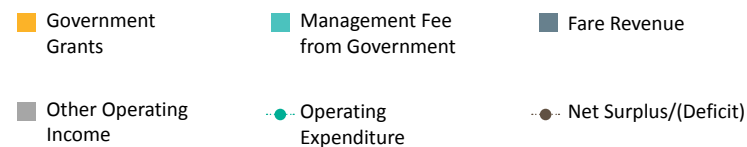


RAIL CONTRACTING (TEL) - GRANTS & INCOME

RAIL CONTRACTING (TEL) - EXPENDITURE

3 BALANCE SHEET

	FY2021 \$'M	FY2020 \$'M	Variance \$'M
Property, Plant & Equipment	61,330	58,232	3,098
Rail Viaducts and Tunnels	12,026	10,795	1,231
Stations, Buildings and Structures	15,180	14,081	1,099
Rail Rolling Stock	2,915	2,881	34
Buses & Bus-Related Assets	1,222	1,327	(105)
Construction-In-Progress	21,585	20,871	714
Others	8,402	8,277	125
Non-Current Assets	6,754	6,481	273
Current Assets	10,812	10,615	197
Assets	78,896	75,328	3,568
Equity	5,523	5,423	100
Deferred Government Capital Grants	57,303	54,075	3,228
Long-Term Borrowings	8,850	9,450	(600)
Non-Current Liabilities	2,707	2,558	149
Current Liabilities	4,513	3,822	691
Equity & Liabilities	78,896	75,328	3,568

4 5-YEAR FINANCIAL SUMMARY**5-YEAR FINANCIAL SUMMARY**



LTA CORPORATE HEADQUARTERS

1 Hampshire Road,
Singapore 219428

LTA CUSTOMER SERVICE CENTRE

10 Sin Ming Drive,
Singapore 575701

LTA BEDOK CAMPUS OFFICE

71 Chai Chee Street,
Singapore 468981



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