

# Greener Commutes, Sustainable Lifestyles



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Disclaimer: Please note that selected photos shown in this Annual Report 2020/21 were taken before COVID-19.

## Chairman's Message

# Greener Commutes, Sustainable Lifestyles

The last year has been exceptionally challenging for everyone, but particularly so for our frontline workers. Public transport workers are among those at the forefront of our pandemic response. They continued to work tirelessly to ensure people are connected and essential activities maintained even as the rest of Singapore worked from home. They have done an outstanding job in keeping Singapore moving in the most challenging of times. I must salute their resilience, commitment and personal sacrifices, and thank all of them for their contribution.

Looking back at the Land Transport Authority (LTA)'s 2020 Silver Jubilee celebrations, we are proud of the remarkable accomplishments Singapore's land transport system has achieved.

Nevertheless, we must not rest on our laurels. Whilst ensuring Singapore moves safely and efficiently amidst the pandemic, we are already planning to improve the land transport system. Our urban transportation network will get us to where we need

to go conveniently and in a more environmentally-sustainable way.

Our commitment is encapsulated in the Singapore Green Plan 2030, the nation's most ambitious whole-of-government sustainability strategy. Together with other government agencies, LTA is committed to a greener future and to play our part in tackling climate change issues.

## SEEDING GREENER CONNECTIVITY IN SINGAPORE

Our bus fleets are going green in tandem with the expansion of our rail networks. By 2040, we will have a 100% cleaner energy bus fleet.

Equally important is the need to shift towards a sustainable private transport ecosystem. On this front, we are committed to phasing out cars with internal combustion engines by 2040 and move Singapore towards a cleaner energy future.

We are helping Singaporeans make the switch to electric vehicles (EVs) by making all Housing & Development Board towns EV-ready by the 2030s. Going electric will become more

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We have big plans for a land transport system that balances efficiency, liveability and inclusivity for our commuters and nation.



Chan Heng Loon Alan  
CHAIRMAN

viable with EV adoption incentives and the expansion of our charging infrastructure with 60,000 new EV charging points to be rolled out over the next decade. LTA, together with the National Environment Agency, also introduced the enhanced Vehicular Emissions Scheme (VES) to encourage purchase of cleaner vehicles. A new National Electric Vehicle Centre has been formed within LTA to spearhead EV infrastructure and regulations development.

As we make EVs a compelling choice for car buyers, public transport is still the most efficient and environmentally-friendly way to move people. In this regard, rail remains the backbone of our public transport system. We are modernising our rail system, upgrading the fleet, renewing infrastructure and expanding the network. The opening of the Thomson-East Coast Line Stage 2 on 28 August 2021, comprising six new stations, was a major milestone. The upcoming Jurong Region Line, Cross Island Line and the Johor Bahru – Singapore Rapid Transit System Link will connect Singaporeans to more locations and across the border. By 2030, eight in 10 households will enjoy the convenience of being within 10 minutes from a train station, bringing connectivity to their doorsteps.

## NURTURING ENVIRONMENTALLY- SUSTAINABLE LIFESTYLES

Sustainability goes beyond just cleaner buses, trains and cars. On the green mobility front, our growing walk-cycle-ride network will allow





more people to embrace healthier and active lifestyles.

We are transforming our urban landscape through greener travel, greater connectivity and more liveable spaces. This was the vision painted in our “Connecting People, Places and Possibilities” exhibition, launched in April 2021 which showcased the growth of our land transport system over time.

Part of our plan for a liveable city is through intra-town connectivity. Motorists, cyclists and pedestrians can soon enjoy smoother regional journeys with the North-South Corridor, Singapore’s longest Transit Priority Corridor. This multi-layered transportation corridor which will have underground tunnels and elevated viaducts, will redistribute and alleviate traffic along surface roads. With that, we can have dedicated bus lanes, paths for pedestrians and cyclists, and a dedicated cycling trunk route right into the city. Our pedestrianised streets and active mobility integration are also building vibrant communities.

To encourage active mobility, we will add another 28km of cycling paths by the end of this year for the enjoyment of our community of pedestrians and cyclists.





We are also envisioning alternative possibilities for our road spaces. Our streetscapes are being remodelled through road repurposing projects such as the ones at Kampung Admiralty and Havelock Road. These projects repurpose road spaces to footpaths, cycling paths and bus-only lanes. Some 60 such possible projects are in the pipeline, creating more room for walk-cycle-ride journeys.

#### CARING FOR OUR TRANSPORTATION COMMUNITY

It is important that our land transport system remains people-centric, inclusive and safe. This is why we are rolling out robust programmes that offer greater inclusivity and security across our network.

In April 2021, in partnership with the Caring SG Commuters Committee, we introduced a card and lanyard for commuters with long-term medical conditions who require a seat on public transport. We launched the 20th Silver Zone this year as part of plans

to roll out 50 such zones by 2023 – ensuring the pedestrian safety of our seniors in their daily commutes.

We are also safeguarding the livelihoods and well-being of our transportation workers affected by the COVID-19 pandemic. Taxi and private hire car drivers received financial support through our S\$170 million Special Relief Fund and S\$285 million COVID-19 Driver Relief Fund respectively. Our land transport workers were also among the first to receive protection against the virus as we offered vaccinations to about 80,000 of them at the start of this year.

#### STRIDING AHEAD WITH GREATER LIVEABILITY

We have big plans for a land transport system that prioritises efficiency, sustainability, liveability and inclusivity for our commuters and nation. As with the challenges that came before, I am confident that LTA, our engineers, public transport operators and workers will rise to the occasion.

# Board of Directors



- |   |                                 |  |   |                                      |   |
|---|---------------------------------|--|---|--------------------------------------|---|
| 1 | <b>Mr Chan Heng Loon Alan</b>   | Chairman, Land Transport Authority<br>Member, Public Service Commission                                  | 6 | <b>Mr Frederick Chew Chih Chiang</b> | Chief Executive Officer, A*STAR<br>Chief, Public Sector Science & Technology Policy & Plans<br>Office, Prime Minister's Office  |
| 2 | <b>Mr Richard Lim Cheng Yih</b> | Deputy Chairman, Land Transport Authority<br>Chairman, ST Logistics<br>Chairman, Energy Market Authority | 7 | <b>Mr Michael Chin Yong Kok</b>      | Advisor, SP PowerGrid, SP Group   |
| 3 | <b>Mr Ng Lang</b>               | Chief Executive, Land Transport Authority  | 8 | <b>Mr Kenneth Er Boon Hwee</b>       | Chief Executive Officer, NParks   |
| 4 | <b>Ms Fiona Chan Su-Min</b>     | Senior Vice President, Regional Intelligent Banking, DBS Bank<br>Board Member, Sing Lit Station          | 9 | <b>Ms Deborah Ho</b>                 | Country Head of Singapore and Regional Head of Southeast Asia, BlackRock (Singapore)<br>Investment Committee Member, LKY Investment Fund<br>Sim Kee Boon Institute for Financial Economics Advisory Board |
| 5 | <b>Mr Cheong Chee Hoo</b>       | Chief Executive Officer, DSO National Laboratories   |   |                                      |   |



# Board of Directors



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## 10 Ms Hwang Yu-Ning

Deputy Chief Executive Officer and Chief Planner, Urban Redevelopment Authority  
Member, Science Centre Board  
Member, IJ Board of Management

## 11 Mr Murali Pillai SC

Partner, Rajah & Tann Singapore LLP

## 12 Mr Nagaraj Sivaram

Chartered Accountant  
Board Member and Audit Committee Chairman, Singapore Institute of Technology, Assisi Hospice and G. K. Goh Holdings Limited  
Management Committee and Audit Committee Member, Singapore Turf Club

## 13 Mr Mohd Sa'at Bin Abdul Rahman

Editor, Berita Harian, Singapore Press Holdings Ltd  
Board Member, Housing & Development Board  
Board Member, KidSTART Singapore Limited  
Member, Street and Building Names Board  
President, Islamic Religious Council of Singapore (Muis)

## 14 Mr Tan Peng Yam

Chief Defence Scientist, Ministry of Defence

## 15 Professor Tan Thiam Soon

President, Singapore Institute of Technology

## 16 Mr James Wong

Deputy Secretary (Land and Corporate), Ministry of Transport  
Board Member, Workforce Singapore

## 17 Mr Melvin Yong Yik Chye

Assistant Secretary-General, NTUC  
Executive Secretary, National Transport Workers' Union  
Director, U Associate, NTUC  
President, Consumer Association of Singapore

# Board Committees

## SENIOR TENDER BOARD (STB)

### CHAIRMAN

Mr Chan Heng Loon Alan

### MEMBERS

Mr Richard Lim Cherng Yih  
Mr Nagaraj Sivaram  
Mr Michael Chin Yong Kok  
Ms Hwang Yu-Ning  
Prof. Tan Thiam Soon  
Mr Ng Lang  
Mr Tan Peng Yam

### SECRETARIAT

Ms Chee Huey Mien  
Director,  
Procurement

## LEADERSHIP, DEVELOPMENT & REMUNERATION COMMITTEE (LDRC)

### CHAIRMAN

Mr Chan Heng Loon Alan

### MEMBERS

Mr Richard Lim Cherng Yih  
Mr James Wong  
Mr Ng Lang  
Mr Frederick Chew

### SECRETARIAT

Ms Goh Hui Boon  
Director,  
Human Resource

## AUDIT COMMITTEE (AC)

### CHAIRMAN

Mr Nagaraj Sivaram

### MEMBERS

Mr Murali Pillai SC  
Ms Fiona Chan Su-Min

### SECRETARIAT

Ms Tang Lai Wan  
Director,  
Internal Audit

## FINANCE, ESTABLISHMENT & INVESTMENT COMMITTEE (FEIC)

### CHAIRMAN

Ms Hwang Yu-Ning

### MEMBERS

Ms Deborah Ho  
Ms Chan Su-Min Fiona  
Mr Ng Lang

### SECRETARIAT

Ms Esther Wee  
Chief Financial Officer

## RISK MANAGEMENT COMMITTEE (RMC)

### CHAIRMAN

Mr Michael Chin Yong Kok

### MEMBERS

Mr Mohd Sa'at Bin Abdul Rahman  
Mr Melvin Yong Yik Chye  
Mr Ng Lang  
Mr Kenneth Er

### SECRETARIAT

Ms Tan Shin Gee  
Deputy Group Director,  
Transformation Office

## SAFETY GOVERNANCE ADVISORY COMMITTEE (SGAC)

### CHAIRMAN

Prof. Tan Thiam Soon

### MEMBERS

Mr Cheong Chee Hoo  
Mr Kenneth Er  
Mr Ng Lang

### SECRETARIAT

Mr Lew Yii Der  
Group Director,  
Safety & Contracts  
  
Mr Alvin Soong  
Director,  
Safety & Contracts

## CYBERSECURITY AND SYSTEM RESILIENCE ADVISORY COMMITTEE (CSRAC)

### CHAIRMAN

Mr Cheong Chee Hoo

### MEMBERS

Mr Frederick Chew  
Mr Tan Peng Yam  
Mr Ng Lang

### SECRETARIAT

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

## PUBLIC RELATIONS COMMITTEE (PRC)

### CHAIRMAN

Mr Melvin Yong Yik Chye

### MEMBERS

Mr Mohd Sa'at Bin Abdul Rahman  
Ms Fiona Chan Su-Min  
Mr Ng Lang

### SECRETARIAT

Ms Helen Lim  
Group Director,  
Corporate Communications  
  
Dr Chuai Chip Tiong  
Group Director, Quality Service  
Manager Office,  
Community & Customer  
Engagement

## ASSET MANAGEMENT COMMITTEE (AMC)

### CHAIRMAN

Mr Richard Lim Cherng Yih

### MEMBERS

Mr Tan Peng Yam  
Ms Deborah Ho  
Mr Ng Lang

### SECRETARIAT

Mr Wong Wai Keong  
Senior Advisor,  
Rail Asset, Operations &  
Maintenance  
  
Mr Yee Boon Cheow  
Group Director,  
Rail Asset, Operations &  
Maintenance  
  
Mr Leow Meng Fai  
2 Deputy Group Director,  
Rail Asset, Operations &  
Maintenance

## TECHNOLOGY ADVISORY COMMITTEE (TechAC)

### CHAIRMAN

Mr Richard Lim Cherng Yih

### MEMBERS

Mr Cheong Chee Hoo  
Mr Tan Peng Yam  
Mr Frederick Chew  
Prof. Tan Thiam Soon  
Mr Ng Lang

### SECRETARIAT

Mr Lam Wee Shann  
Senior Group Director  
Technology & Industry,  
Development



# Senior Management



- 1 **Ng Lang**  
Chief Executive
- 2 **Chua Chong Kheng**  
Deputy Chief Executive,  
Infrastructure & Development
- 3 **Jeremy Yap**  
Deputy Chief Executive,  
Public Transport, Policy &  
Planning
- 4 **Goh Teck Seng**  
Deputy Chief Executive,  
Corporate & Development
- 5 **Sim Wee Meng**  
Senior Group Director, Rail  
Group Director,  
Rail Infrastructure & Expansion
- 6 **Yeo Teck Guan**  
Senior Group Director,  
Public Transport
- 7 **Lam Wee Shann**  
Senior Group Director,  
Technology & Industry  
Development
- 8 **Chan Boon Fui**  
Group Director,  
Active Mobility
- 9 **Paul Fok**  
Chief Engineer  
(Civil)
- 10 **Helen Lim**  
Group Director,  
Corporate Communications

# Senior Management



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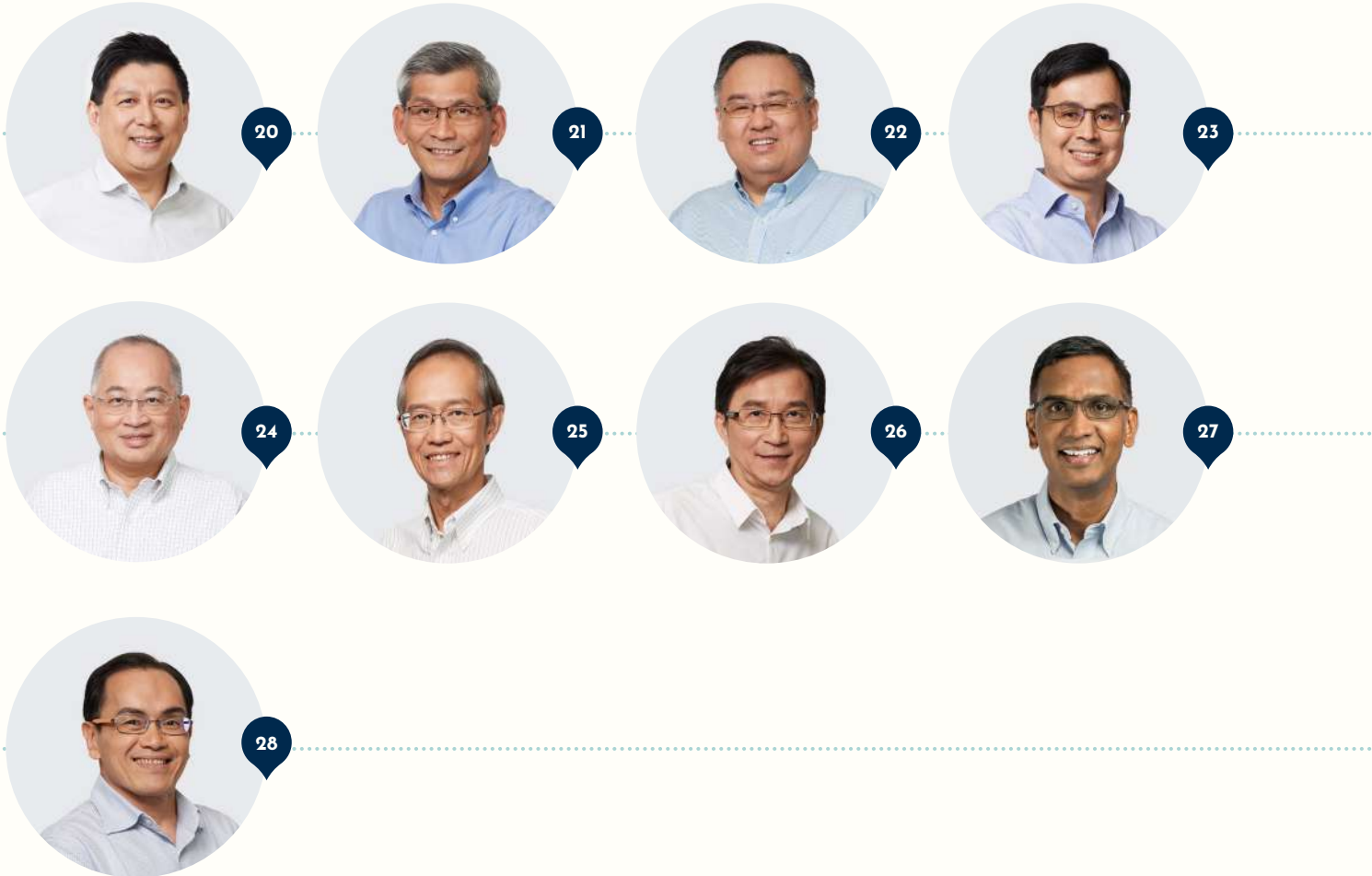


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- 11 **Esther Wee**  
Chief Financial Officer
- 12 **Ang Heng**  
Chief Human Resource Officer
- 13 **Winston Cheng**  
General Counsel
- 14 **Peter Quek**  
Group Director,  
Information Technology,  
Cybersecurity & Digital Services
- 15 **Choo Chai Foong**  
Group Director,  
Infrastructure Design &  
Engineering
- 16 **Venktaramana s/o  
V Vijayaragavan**  
Group Director,  
North-South Corridor
- 17 **Lina Lim**  
Group Director,  
Policy & Planning
- 18 **Dr Chuai Chip Tiong**  
Group Director,  
Quality Service Manager Office,  
Community & Customer  
Engagement
- 19 **Yee Boon Cheow**  
Group Director,  
Rail Asset, Operations &  
Maintenance



# Senior Management



- 20 Dr Samuel Chan**  
Group Director,  
Rail / Road Systems  
Engineering
- 21 Wong Wai Keong**  
Senior Advisor,  
Rail Systems Asset
- 22 Yap Boon Leong**  
Group Director,  
Road & Commuter  
Infrastructure Development
- 23 Dr Chin Kian Keong**  
Chief Engineer,  
Road & Traffic
- 24 Lew Yii Der**  
Group Director,  
Safety & Contracts
- 25 Leong Kwok Weng**  
Chief Engineer,  
Systems
- 26 Ng Kee Nam**  
Group Director,  
Thomson-East Coast &  
Cross Island Lines
- 27 Chandrasekar s/o Palanisamy**  
Group Director,  
Traffic & Road Operations
- 28 Alvin Chia**  
Group Director,  
Vehicle Services

# Organisation Structure



Note :

@ Includes Customer Experience Office and Transformation Office.

\* Deputy Group Director, IDE(ISP), Neo Bian Hong will cover the Chief Engineer, Civil position.



Chapter 01:

# Keeping Singapore Moving Safely in a Pandemic



The prolonged battle against COVID-19 is one of the toughest crises of our generation.

Since the start of the pandemic, LTA staff, public transport operators, industry players, other public agencies and transport workers have adapted quickly to fluid circumstances to jointly navigate these challenging times. Whether it was for rail, bus, road or active mobility, our foremost focus has been on commuters' safety and interests. We have put in place robust safeguards for commuters, motorists and public transport workers. We are also providing sustained financial support to tide our drivers through the pandemic, and vaccinating our workers so they can remain safe as they go about their work. Through this, we are creating a more crisis-resilient transportation community to ensure that Singaporeans can move around no matter the circumstances.

As we get closer to becoming a COVID-resilient nation, more people will resume regular commutes on public transport. Fostering greater personal responsibility and good personal hygiene, coupled with more graciousness and inclusivity, will make everyone's daily travels safer and more pleasant.

We are also ensuring the safety of our commuters by managing potential threats, improving overall security and making sure we are prepared in the face of danger.

## Chapter 01

# Keeping Singapore Moving Safely in a Pandemic

## SAFEGUARDING OUR LAND TRANSPORT SYSTEM DURING COVID-19

From the start of the pandemic, we ensured that our public transport workers were taken care of, and that public transport could carry on uninterrupted. Working with our Public Transport Operators (PTOs), we secured accommodation in double quick time for our Malaysian public transport workers when a nationwide movement control order prevented them from returning home. When the virus spread in workers' dormitories, we worked with our contractors to arrange temporary on-site housing for essential workers, to ensure the security and safety of our sites, even when restrictions on foreign worker dormitories were put in place to limit the spread of the virus.

We also took into account the needs of both local and foreign motorists and made adjustments to foreign vehicle policies and ERP rates quickly, and continued to review these regularly as the situation evolved. We continued to monitor traffic conditions closely to manage congestion as more people travelled to and from their workplaces.

LTA has also been working closely with our PTOs, and taxi and private hire car (PHC) operators, to build sector-resilience against COVID-19 by providing a safe environment for our land transport workers and commuters.

In January and February 2021, we successfully organised the land transport vaccination exercise for workers from all land transport sectors including bus, rail and taxi/PHC. We worked closely with the Ministry of Health, Union, associations and PTOs to strongly encourage their staff and driver partners to be inoculated against the virus. As of August 2021, more than 90% of public transport workers and active taxi and PHC drivers have been vaccinated with at least one dose of the vaccine. These numbers will continue to increase as more workers go for their vaccinations.

LTA and PTOs are committed to providing safe public transport services by ensuring cleanliness and reliability of our buses and trains, and improving air quality at public transport premises. A joint study



in November 2020 with the Agency for Science, Technology and Research (A\*STAR) on airflow, spread of droplets and aerosols in buses and trains, concluded that transmission risks are low as long as passengers (a) wear masks; (b) refrain from talking; and (c) upkeep good personal hygiene.

As Singapore transits from a state of pandemic into an endemic one, we remain committed to working closely together with PTOs and commuters to collectively strengthen our resilience against COVID-19.

### SUPPORTING OUR DRIVERS

We worked with the Ministry of Finance to provide road tax rebates and additional petrol duty rebates when petrol duties were raised in February 2021. These support measures helped to ease the transition towards higher petrol duties, especially for those who rely on their vehicles for their livelihoods.

S\$113 million was set aside to provide road tax rebates to all vehicles for a one-year period, from 1 August 2021 to 31 July 2022. Owners of petrol and petrol-hybrid motorcycles of up to 400cc, as well as taxi and PHC drivers also received additional petrol duty rebates from May 2021.

LTA has also been supporting our taxi and PHC drivers amidst the depressed ridership due to the COVID-19 pandemic.

Between February and December 2020, eligible taxi and PHC drivers received \$300 per vehicle per month through the Special Relief Fund (SRF). Eligible taxi and PHC drivers also received additional relief through the Self-Employed Persons Income Relief Scheme (SIRS), administered by the Ministry of Manpower, between March and December 2020.

As the SIRS ceased from 1 January 2021, a more generous COVID-19 Driver Relief Fund (CDRF) was set up to replace the SRF and moderate the impact of SIRS cessation on taxi and PHC drivers. The CDRF provided drivers with the following payouts:

- \$600 per vehicle per month for the first quarter of 2021
- \$450 per vehicle per month for the second quarter of 2021
- \$300 per vehicle per month for the first two months of the third quarter of 2021
- \$150 per vehicle per month for the last month of the third quarter of 2021

LTA also enhanced the CDRF payouts during the Phase 2 (Heightened Alert) periods in May/June 2021 and July/August 2021:

- An additional \$10 per vehicle per day from 16 May to end June 2021, and from 22 July to 31 August 2021
- An additional \$5 per vehicle per day in September 2021

More than 50,000 drivers have benefitted from the SRF and the CDRF.

LTA is committed to ensuring the welfare of taxi and PHC drivers, and will continue to work closely with drivers, operators, the National Taxi Association and the National Private Hire Vehicles Association to support them.

### FOSTERING A CARING AND INCLUSIVE COMMUTING CULTURE

Delivering better commuter experiences entails fostering kindness and graciousness amongst all commuters, from being socially responsible in light of the pandemic, to assisting commuters to the best of our abilities.

The Caring SG Commuters Committee was set up in January 2020 to foster a more caring and inclusive commuter culture in Singapore's public transport system. The committee is chaired by Public Transport Council (PTC) Chairman Mr Richard Magnus and comprises key industry players and relevant public agencies. It has taken a three-pronged approach — informing, involving and inspiring — to better understand commuters' needs, bring stakeholders together to contribute and inspire more to assist those in need.



The committee conducted a webinar on 15 December 2020 to raise awareness and understanding of the different commuter needs on public transport, and how to initiate and offer assistance. It involved an open discussion on stories of caring commuters on public transport and engaged the audience to inspire acts of care from commuters. As a call for action, a new volunteer programme, “Caring Commuter Champions”, was introduced. These Champions will undergo training jointly curated with SG Enable to assist persons-in-need on their daily commutes. LTA also continues to encourage gracious commuting on all public transport networks through our Thoughtful Bunch.



To improve commuter awareness and empathy, LTA piloted an initiative to distribute stickers to commuters with invisible medical conditions or disabilities that prevent them from standing for prolonged periods. This helps other commuters identify those who need assistance and encourage them to extend support or offer their seats.

Following positive feedback from the pilot, as well as Go-Ahead Singapore's trial of the Helping Hand initiative, a more sustainable card and lanyard design was introduced in April 2021 to support commuters with long-term medical conditions or disabilities. We involved commuters with disabilities, medical conditions and special needs in this initiative, by organising an art competition where they were empowered to share and express their travel experiences through their artwork; while contributing to a cause that helps fellow commuters in need.

These lanyards and cards are available at all MRT stations, bus interchanges and selected TransitLink Ticket Offices, and will encourage a more inclusive and caring commuter culture in Singapore. We also approached Social Service Agencies (SSAs) for direct distribution to their members and clients who might require the lanyards and cards.

### TOWARDS A MORE SECURE PUBLIC TRANSPORT CREATING SAFER RAIL JOURNEYS FOR ALL

Our public transport system is a key infrastructure serving millions of commuters every day. A safe and secure journey for our commuters is of utmost importance to us. We are constantly seeking to improve the security of our public transport system against evolving threats while being mindful of commuters' experience. Since April 2021, we have rolled out enhanced security screenings at MRT stations, following a successful six-month trial that ended in 2019. These checks are conducted randomly at different MRT stations, with the use of an X-ray machine and metal detectors to detect and prevent threat items from being brought into the station. With the cooperation of commuters, these checks did not cause much delay to their journeys. The enhanced security screening also served as a form of deterrence against potential perpetrators and a reminder to commuters to remain vigilant.

The enhanced security screening is complemented with the implementation of the Threat-Oriented Person Screening Integrated System (TOPSIS) in public transport. TOPSIS is a security programme under which more than 30,000 personnel who work in our transport system, are trained to keep a lookout for and handle suspicious items, people and activities.

Given our fast-growing public transport network, it is not possible for transport staff and security resources to be everywhere all the time. Commuters are encouraged to be our eyes and ears to recognise and report anything suspicious to our staff or the Police. Together, we can all play our part to keep our public transport system safe.



New card and lanyard design for commuters with long-term medical conditions or disabilities



Enhanced security screening at an MRT station

Chapter 02:

# Seeding Greener Connectivity in Singapore





## Chapter 02

# Seeding Greener Connectivity in Singapore

## A GREENER AND SUSTAINABLE LAND TRANSPORT FUTURE



As we prepare for Singapore to become COVID-resilient, LTA continues to sow the seeds of possibilities for greener and more inclusive island-wide connectivity throughout our public transport network of rail, bus and point-to-point transport.

In the past year, we have focused more attention and resources to encourage motorists to consider switching to electric vehicles (EVs) by incentivising adoption, accelerating the availability of charging infrastructure and putting in place regulations and safety standards. LTA has also led the way by deploying EVs in public transportation.

At the same time, our rail network, which remains the backbone of our public transport system, continues to expand while we work with operators to ensure continued reliability through a robust maintenance and renewal regime.

By building an EV ecosystem and incentivising EV adoption, LTA is preparing Singapore for a more sustainable private transport system that will bring us closer to our Green Plan goals for tackling climate change.

The government is also taking the lead to implement cleaner energy vehicles within the government sector, such as through the deployment of electric buses, government vehicles and port vehicles.

### INCENTIVISING EV ADOPTION

We have introduced new initiatives to make the cost of EV ownership more comparable to that for an internal combustion engine (ICE) car. These new measures have been rolled out to encourage those who still need a car to switch to less polluting vehicles like EVs, towards a progressively cleaner future. This supports our national goal to gradually phase out ICE vehicles in Singapore by 2040.

In January 2021, we introduced the EV Early Adoption Incentive (EEAI) for new

purchases of electric cars and taxis. At the same time, we worked with the National Environmental Agency to jointly introduce the enhanced Vehicular Emissions Scheme (VES). The floor for the Additional Registration Fee (ARF) for EVs was also removed, and we revised the road tax framework for mass-market electric cars. These combined incentives reduce the upfront cost of an electric car by up to \$45,000. These are all part of our efforts to encourage vehicle owners to make the switch to EVs.

### ACCELERATING THE AVAILABILITY OF EV INFRASTRUCTURE

Looking ahead, LTA is accelerating the nationwide provision of EV charging infrastructure for Singapore's growing community of EV users.

In March 2021, we announced our target to deploy a total of 60,000 EV charging points across Singapore by 2030, with 40,000 charging points in public carparks and 20,000 in private premises. These steps support our nation's pivot towards

greener private transportation, moving us closer to Singapore's goal of having all newly-registered cars to be of cleaner energy models by 2030.

In addition, by 2025, there will be eight EV-ready towns — Ang Mo Kio, Bedok, Choa Chu Kang, Jurong West, Punggol, Queenstown, Sembawang and Tengah — with charging points installed at all Housing & Development Board (HDB) carparks. LTA will work towards making all HDB towns EV-ready by the 2030s.

### BUILDING A ROBUST EV ECOSYSTEM

The LTA-based National Electric Vehicle Centre (NEVC) was formed in March 2021 to promote nationwide EV adoption and the planning of Singapore's EV charging infrastructure network. NEVC's mandate includes the development and enhancement of EV regulations and standards to ensure they remain robust and current.

To capture new EV-related opportunities, NEVC will partner government agencies and industry stakeholders to prepare our workforce for an EV future through upskilling programmes. NEVC is also working closely with research institutes on the research and test bedding of new charging technologies.

### DEVELOPING GREENER PUBLIC BUS FLEETS

LTA is leading the EV adoption by kickstarting a switch to cleaner public buses that reduce our carbon footprint.

In line with our commitment to have a 100% cleaner bus fleet by 2040, LTA has deployed 50 diesel hybrid buses (DHB) and will progressively deploy 60 electric buses. The experiences gained from the deployment of these cleaner energy buses will prepare Singapore's transportation system to tackle the challenges that come with large scale EV deployment in the future.

An electric bus is expected to reduce carbon emissions by 60%, relative to a diesel bus (after accounting for grid emissions).

### EXPANDING SINGAPORE'S RAIL NETWORK FOR SUSTAINABLE CONNECTIVITY

Our Mass Rapid Transit (MRT) network's low-carbon footprint is essential to realising this future, enabling Singaporeans to pursue sustainable lifestyles through greener mobility. Our rail network continues to be the mode of choice for a sustainable way of commuting and living.



## HALVING CO<sub>2</sub> EMISSIONS

If all our light vehicles run on electricity, we would reduce carbon emissions by 1.5 to 2 million tonnes annually, or about 4% of total annual emissions\*.

\*This figure is based on the national emissions for 2017.



## JURONG REGION LINE (JRL)

From July 2020 to April 2021, we awarded six JRL contracts at a combined value of approximately S\$682.5 million. These were awarded to Daewoo Engineering & Construction Co. Ltd.- Yongnam Engineering & Construction Pte. Ltd. Joint Venture (Contract J109), Siemens Mobility Pte. Ltd.-Siemens Rail Automation, S.A.U. Consortium (Contract J152), ST Engineering Electronics Ltd. (Contracts J155 and J160).

Stage 2 of the JRL will commence operations in 2028. The JRL stations will offer new half-height platform screen doors, integrated supervisory control systems and signalling, as well as communications systems to improve the commuter experience of our rail systems. Commuters in the west of Singapore can soon enjoy access to 10 JRL stations that connect them to upcoming residential, commercial and industrial districts in Jurong as part of Stage 1 of the JRL from 2027.

To foster greater inclusivity and community involvement, we conducted a public engagement survey in July 2021 to gather feedback on five interior features of the JRL trains. These features include the Dynamic Route Map Display (DRMD) located above each door, door pillar paint, draught screen designs, and floor and seat colour palettes.

## THOMSON-EAST COAST LINE (TEL)

The TEL will bring residents in the east, and along the North-South Corridor, closer to a train station, giving them faster access to the city.

The TEL's construction has been making steady progress, with Stage 1 of TEL – Woodlands North, Woodlands and Woodlands South MRT stations – officially welcoming commuters since 31 January 2020. On 28 August 2021, Stage 2 of TEL commenced passenger service. There are six stations for Stage 2, namely: Springleaf, Lentor, Mayflower, Bright Hill, Upper Thomson and Caldecott.

Residents can expect time savings of up to 50 per cent when travelling via TEL1 and TEL2. For example, a Sin Ming resident travelling to Republic Polytechnic by the TEL will have his journey time halved, from 50 minutes currently to 25 minutes. When fully operational, the TEL is expected to serve approximately 500,000 commuters daily in the initial years, and this will increase to about one million commuters in the longer term.



# 360 KM

Total length of integrated rail lines by early 2030s







### CROSS ISLAND LINE (CRL) (PHASE 1 AND HOUGANG INTERCHANGE STATION)

The CRL1 lays the foundation for future cross-island connectivity, with passenger service slated for 2030.

In March 2021, we awarded the civil contract to design and construct the bored tunnel between Aviation Park station and Loyang station to Taisei Corporation-China State Construction Engineering Corporation Ltd. (Singapore Branch) Joint Venture at a total contract value of S\$356 million.

Construction work for the 3.2-kilometre bored tunnel between Aviation Park station and Loyang station is ongoing. For the first time, LTA will use a large-diameter tunnel boring machine (TBM) to construct a single tunnel with two tracks in it. The large diameter TBM is expected to increase work productivity and reduce manpower requirements.

The design and construction of the CRL Hougang Interchange station and tunnels are also underway, incorporating addition and alteration works to the existing Hougang Interchange station along the North East Line (NEL). This was awarded to Samsung C&T Corporation at a total contract value of S\$604 million.



### DOWNTOWN LINE (DTL)

In January 2021, we awarded the contract to complete the civil work for Hume station to JSM Construction Group Pte. Ltd. at a contract value of S\$34.34 million.

Operations on the DTL are being expanded, with Hume station slated to open in 2025. Civil work for the construction of station entrance ventilation shafts and outfitting has begun.

In addition to serving existing residential developments in and around Hume Avenue, the station will also provide the public with more convenient access to the Rail Corridor (Central) and Former Ford Factory.



### SENGKANG-PUNGGOL LRT (SPLRT)

The SPLRT's capacity will soon be boosted to better serve residents and meet long-term public transport demand in Sengkang and Punggol.

The procurement of 17 new two-car trains will double the number of two-car trains in the SPLRT fleet, which currently comprises 16 two-car trains and 25 one-car trains.

The new train cars are expected to be deployed progressively from 2024 to 2027, while depot expansion works are slated to commence by end 2021 and be completed by 2027.





### JOHOR BAHRU – SINGAPORE RAPID TRANSIT SYSTEM (RTS) LINK

Slated to open for service at the end of 2026, the RTS Link will be a game changer that will significantly improve connectivity between Singapore and Johor Bahru, thereby easing congestion along the Causeway.

With a capacity of up to 10,000 commuters per hour in each direction, commuters on the RTS Link will enjoy a fast and seamless experience travelling between Singapore and Johor Bahru, with a transit time of about five minutes between the two stations.

A major project milestone was achieved with the award of two major RTS Link civil contracts. The first contract is for the construction of the RTS Link Woodlands North station and the Customs, Immigration and Quarantine (CIQ) building in Singapore, and was awarded in November 2020 to Penta-Ocean Construction Co Ltd. at a contract value of S\$932.8 million. The second contract covers the construction of the viaduct and tunnels in Singapore, and was awarded to China Communications Construction Company Ltd. (Singapore Branch) at a contract value of around S\$180 million.



Artist impression of Woodlands North station



Artist impression of the RTS Link viaduct





Integrated Train Testing Centre



Alstom SA trains

## INTEGRATING OUR TESTING CAPABILITIES

Our Integrated Train Testing Centre (ITTC) will be a big boost to existing rail reliability efforts. The first of its kind in Southeast Asia, this dedicated facility will allow for testing and commissioning of both new and existing trains to be carried out away from the mainlines, with robust 24-hour testing of systems before live deployment. The ITTC will house three types of tracks, offering a common platform where a comprehensive range of integrated train tests can be carried out right on home soil in real-life conditions. This will free up time and effort for engineers to carry out other maintenance activities while minimising the inconvenience to commuters.

In May 2021, we made progress by beginning the civil construction of the ITTC. To receive the new Circle Line 6 trains in early 2023, we aim for Phase 1 of the ITTC's construction to be completed in the fourth

quarter of 2022. The high-speed test track will be ready then for these trains to be tested. The fully operational ITTC is slated for completion in end 2024, complete with test tracks, an Administration building, Operations Control Centre building and workshops.

In addition to integrated train testing services, the ITTC will also feature equipment and designs that ensure its operations are energy-efficient and sustainable. LED lighting, solar panels and a centralised chiller system were incorporated with the goal of achieving the Building and Construction Authority (BCA)'s Green Mark Platinum certification.

## INTRODUCING COMMUTER-FRIENDLY NSEWL TRAINS

Commuters can look forward to more comfortable journeys as our train fleet undergoes an upgrade. In June 2020, our first-generation North-South and East-

West Lines (NSEWL) train fleet began its decommissioning exercise after having been in service for more than three decades. Replacing them are 66 new trains from Alstom SA (previously known as Bombardier Transportation), which will progressively enter service in batches from 2022.

As part of long-term fleet renewal plans, we purchased 40 additional trains from Alstom SA in September 2020. Using the same design as the 66 new trains, these additional trains will replace the current second generation (Siemens) and third generation (Kawasaki-Nippon Sharyo) trains. Managing a single fleet in lieu of three separate fleets will allow our rail engineers to focus their design, build, operations and maintenance expertise, and introduce greater efficiency into the supply chain management. In addition, the rigorous testing and commissioning before operation will ensure better performance from these new trains.

All commuters will be catered for when the new trains enter service; with the train cabins designed to include more open spaces for families with strollers and wheelchair users. Train-borne gap fillers will be implemented to reduce the platform gaps at stations, improving commuters' safety and ease when they are alighting or boarding the train. Commuters can also look forward to refreshed LCD screens that offer route information with increased readability, to improve the journey wayfinding experience.

The new trains will also be equipped with condition monitoring features to facilitate early fault detection. This will further support the rail operator in addressing potential faults before they affect commuter service, thereby improving rail reliability and providing smoother journeys.



Chapter 03:

# Nurturing Environmentally Sustainable Lifestyles



## Chapter 03

# Nurturing Environmentally Sustainable Lifestyles

## BOOSTING WALK-CYCLE-RIDE (WCR) CONNECTIVITY

As we plant the seeds of connectivity islandwide, we nurture the growth of Singapore's land transport network with dedication and commitment.

With working from home becoming the new normal, movement has taken on new significance for people in Singapore. From pounding the streets on a run, cycling down a path or even strolling hand-in-hand with a special someone, people are rediscovering the joys and value of movement – to relieve stress, regain a sense of control or celebrate freedom – for a better quality of life. In this respect, we are enabling active mobility lifestyles through the development of our walk-cycle-ride (WCR) connectivity infrastructure and repurposed streets.

We also continue to improve our public transportation network for all-round sustainability. By enhancing access to public transportation while encouraging contactless modes of payment, we ensure that more people can lower their carbon footprints and embrace sustainability in their commutes.

We are nurturing healthier lifestyles across Singapore and designing new environmentally-sustainable ways to celebrate movement every day.

LTA is ramping up efforts to make active mobility a more compelling way to commute, particularly for those who aspire towards a healthier and greener lifestyle. Singaporeans will have access to more travel options on foot, by active mobility devices, or through public transport. By providing commuters with car-lite travel options, LTA is paving the way for greater connectivity through eco-friendly means.

The vibrancy of our sustainable city will include more options to explore Singapore through our Islandwide Cycling Network (ICN) programme. As announced at this

year's Committee of Supply 2021, we will continue to promote active mobility as a clean, convenient and cost-effective way of commuting.

To build a safer and more harmonious landscape, we are pushing forward on two fronts for active mobility:

### 1. Tripling our cycling paths from 460km to around 1,300km by 2030:

- By the end of 2021, we will have another 28km of cycling paths in Ang Mo Kio, Bishan, Bukit Panjang, Sembawang, Taman Jurong, Tampines, Toa Payoh and Yishun.

2020:

**460** KM  
of cycling paths across the island

2030:

**AROUND 1,300** KM  
of cycling paths across the island\*

\*The evolving COVID-19 situation may have further impact on the cycling path network





Civic District



Road Reclamation at Ang Mo Kio Street 41

## 2. Enhancing regulatory and educational efforts to build a safer and more gracious path-sharing culture:

- To improve path and fire safety arising from the use of power-assisted bicycles (PABs) and motorised personal mobility devices (PMDs), we supplemented our regular e-scooter inspections with import controls in June 2021 – where a permit had to be granted before any motorised active mobility device would be allowed into Singapore. We also introduced a mandatory theory test in June 2021 for PAB and e-scooter users to familiarise themselves with the active mobility rules and regulations, and to encourage safe riding practices.

## BUILDING VIBRANT COMMUNITIES THROUGH WCR PROJECTS

By integrating active mobility connections with our transport infrastructure, LTA is creating well-connected and sustainable car-lite towns.

Spaces previously used for roads will also be freed up and transformed into walkable streets where recreational activities can be organised to bring the community together. Pedestrians can easily navigate their neighbourhood and have ample opportunities to bond with neighbours, friends and family.

In March 2021, LTA announced the introduction of about 60 possible road repurposing projects to convert suitable road space into footpaths, cycling paths and bus lanes.



## POSSIBLE ROAD REPURPOSING PROJECTS IDENTIFIED

Roads that could be pedestrianised or converted to create wider footpaths or cycling paths to make walking, cycling and taking public transport more convenient for communities





Artist impression of Civic District. Photo credit: National Parks Board



Artist impression of Kampung Admiralty

Artist Impression

In February 2021, we pedestrianised a stretch of Woodlands Ring Road by temporarily modifying the road layout. Nearby residents and students from neighbouring schools — MINDS Woodlands Gardens School, Woodlands Ring Primary and Secondary Schools as well as Spectra Secondary School — now enjoy a more pleasant and comfortable walking and cycling experience on this pedestrianised street that stretches towards their neighbourhood centre. Amenities in the vicinity are also more accessible. With the community's support, we are implementing permanent infrastructural changes to partially pedestrianise Woodlands Ring Road by 2022. We will also introduce other features such as covered linkways, cycling paths and a new bus stop to further enhance connectivity.

In March 2021, a second trial was implemented at Havelock Road. The roadside parking in front of shophouses (between 715 Havelock Road and 745 Havelock Road) was removed to create more space for a wider footpath. This provides a more comfortable walking experience for residents and visitors as they walk past, browse or wait in front of the shophouses. It also improves connectivity between the various residential and commercial sections along Havelock Road.

By re-imagining our roads and facilitating greater pedestrianisation, LTA is nurturing communities where commuters enjoy increased connectivity and embrace car-lite journeys by bus, active mobility devices or on foot.



## ENHANCING ACCESS TO INCLUSIVE PUBLIC TRANSPORTATION

On the public transport front, convenience is more than just about extending our network as a sustainable choice of travel. To provide greater travel experiences for everyone, LTA continues to expand our carrying capacity to accommodate even more commuters, while using innovative ways to make journeys accessible, inclusive and hassle-free for everyone in the long run.

### IMPROVING COMMUTER EXPERIENCES

From this year, come aboard our newest double-deck diesel buses, fitted with three doors to make boarding and disembarking smoother for commuters. Commuters can look forward to travelling on one of these buses, with 100 of them being introduced over the course of 2021 from two suppliers — ST Engineering Mobility Services (STEMOS) Pte. Ltd. (previously known as ST Engineering Land Systems Ltd.) and Alexander Dennis (Singapore) Services (ADS) Pte. Ltd.

Designed with an additional staircase to create a uni-directional flow of traffic, these buses encourage boarding commuters to access the upper deck through the first staircase, while alighting commuters descend via the second staircase at the rear. The added exit door also allows commuters at the rear of the bus to alight easily without having to make their way to the middle of the bus.

Commuters can enjoy access to route-specific information through the

passenger information display system, with on-board audio announcements of upcoming bus stops as an alternative for commuters who are visually impaired. The centre poles at the front doors have been removed in the refreshed design, creating more space to make boarding easier for people with mobility devices and families with children in strollers. These 100 buses are the final batch of diesel public buses to be deployed on our roads.



## LAUNCH OF ACCOUNT-BASED EZ-LINK CARD AS PART OF SIMPLYGO

Launched on 28 January 2021, the new account-based EZ-Link cards come with backend accounts that allow commuters to top up their travel cards through a mobile application, anytime and anywhere. This saves them the hassle of queuing to top up at ticketing machines, and eliminates the problem of having insufficient value on their travel cards with no ticketing machines nearby. In addition, commuters will receive notifications via the mobile application when the balance in their card account is low. If they misplace their cards, cardholders can use the mobile application to block their cards remotely, preventing further transactions.

The move towards Account-Based Ticketing System (also known as SimplyGo) is part of LTA's efforts to make commuting more convenient by offering more payment options. LTA is committed to exploring ways in which such innovative technology can be utilised to offer our commuters more seamless and convenient travel experiences.



**100** THREE-DOOR  
DOUBLE-DECK BUSES

Number of new buses that ease access and enhance safe distancing

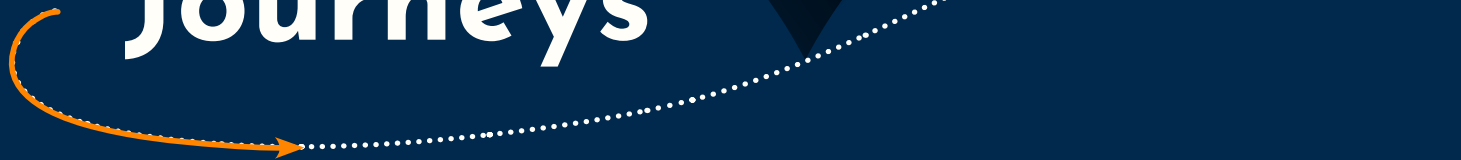
**26** MILLION  
TRANSACTIONS

from 100,000 SimplyGo users reported by card issuer Mastercard during the two-year trial



Chapter 04:

# Sustaining Smoother Journeys





## Chapter 04

# Sustaining Smoother Journeys

As we build a more inter-connected land transport landscape, LTA will continue to boost the health and sustainability of our extensive transportation networks that are integrated within our bus systems, transportation nodes and road infrastructure across the island.

To achieve this, we have been expanding and improving the facilities at our transportation nodes, helping chartered bus services transform digitally, exploring the use of Autonomous Vehicles (AVs) for transport and more, as well as enhancing our robust road infrastructure through the expansion of road interchanges. As we deepen and improve our networks, all commuters can look forward to smoother and more reliable journeys.

## MAINTAINING AND ENHANCING BUS NETWORKS

Our public buses continue to be one of the sustainable modes of land transport for Singaporeans, with an average daily ridership of four million trips. Through improvements in the public bus network, including supporting infrastructure such as new Integrated Transport Hubs (ITHs), LTA is enhancing commuters' convenience and comfort, keeping commuters well-connected to the public transport network.

### JURONG EAST BUS INTERCHANGE

To facilitate the construction of the Jurong Region Line and the Jurong East ITH, the existing Jurong East Bus Interchange was relocated from 6 December 2020. The new interchange is located opposite the current interchange, along Jurong Gateway Road between the junctions of Jurong Gateway Road and Jurong East Street 12, and Jurong Gateway Road and Jurong East Central 1. The relocated interchange will be in operation until the completion of the Jurong East ITH around 2027.

The relocated bus interchange will feature several improvements for commuters and public transport workers, such as more spacious barrier-free boarding points, barrier-free alighting areas for passengers in wheelchairs to board and disembark comfortably, barrier-free toilets, priority queue zones with seats for those who need to rest and a nursing room for families with young children. Cyclists who ride to and from the bus interchange also have no shortage of parking, with 64 lots available for their bicycles.

Public transport workers can take quick breaks and relax at the new facilities, with an air-conditioned staff canteen, staff lounge and dedicated staff toilets for their use and comfort.

### JURONG EAST INTEGRATED TRANSPORT HUB (JE ITH)

In February 2021, we awarded the tender to design and build the JE ITH to China Communications Construction Company Limited (Singapore Branch) at a contract value of S\$477.4 million.





Commuter facilities at JE Bus Interchange



Khatib MRT. Photo credit: @CalvinSeah

Commuters living in Jurong will enjoy greater convenience with community and civic institutions, offices, retail spaces and a bus interchange all co-located within the JE ITH. They will also have seamless connectivity when transiting between the existing North-South and East-West Lines (NSEWL) and future Jurong Region Line (JRL) at Jurong East station.

To create a more caring and inclusive public transport system, facilities such as barrier-free boarding and alighting areas, toilets, priority queue zones with seats and nursing rooms will be provided for greater comfort.

### BULIM AND SEMBAWANG-YISHUN BUS PACKAGES

In September 2020, we awarded the contracts for the Bulim and Sembawang-Yishun bus packages to Tower Transit Singapore Pte. Ltd. (TTS). The contracts are estimated to be at a total value of S\$1.03 billion over the five-year contract period, and will commence progressively from the second quarter of 2021.

Residents in Sembawang and Yishun join those in Bukit Batok and Jurong East in being served by TTS, with its strong commitment to delivering inclusive and quality experiences to its commuters. TTS continues to manage the Bukit Batok and Jurong East Bus Interchanges as part of the Bulim package, which consists

of 30 bus services from the Bulim Bus Depot. In addition, TTS will take over the operation of 27 bus services from the Sembawang-Yishun package from September 2021. It will operate from the new Mandai Depot and manage Yishun and Sembawang Bus Interchanges after the transition.

### TRANSFORMING THE CHARTERED BUS SERVICES INDUSTRY

LTA is driving digitalisation in the private transport industry for chartered bus services, to improve business operations and enhance productivity. This will strengthen the resilience of our land transport network and help to supplement Singapore's public transport systems.

LTA and Enterprise Singapore (ESG), in partnership with the Infocomm Media Development Authority (IMDA), SkillsFuture Singapore (SSG) and industry stakeholders, collaborated to launch the Land Transport Industry Digital Plan-Chartered Bus Services (LTIDP-CBS) in November 2020.

The LTIDP-CBS provides chartered bus service providers with a step-by-step guide on the digital solutions that the SMEs in this sector can adopt and recommends suitable training for employees, at each stage of their business growth.



## ADVANCING NEW OPTIONS WITH AUTONOMOUS VEHICLES (AVS)

On the technological front, our vision for the use of AVs is to see how they can enhance and complement public transport, and to position Singapore as a compelling testbed for AV innovation. To prepare ourselves for this, we have been embarking on research and trials to identify how AVs can be optimised in Singapore.

The Alliance for Action (AfA) on Robotics was convened under the Emerging Stronger Taskforce in January 2021 to promote and accelerate sustainable deployment of robotics in Singapore. The AfA, supported by CapitaLand and JTC, deployed on-demand autonomous bus services at Singapore Science Park 2 and Jurong Island for three months, marking the first time autonomous buses operated a revenue service in Singapore – bringing local AV services and solutions one step closer to commercialisation, domestically and abroad.

The pilot, facilitated by the Singapore Economic Development Board (EDB) and LTA, will enable partners to further develop and refine their capabilities and expertise to strengthen the local AV ecosystem.

The use of AVs is also being trialled (1) by NEA-MOT for the Proof of Concept (POC) of two Autonomous Environmental Service Vehicles (AESVs) for road cleaning; and (2) through the use of autonomous robots for a one-year trial on-demand deliveries in Punggol, led by IMDA, in partnership with HDB, LTA, URA, logistics service provider CM Logistics, supermarket chain NTUC Fairprice and technology provider OTSAW.



Autonomous Vehicle at Jurong Lake Gardens



Autonomous Vehicle public road trial



## ENHANCING TRANSPORT NETWORKS

Along with advancing innovations are the evolving needs of Singaporeans that come with our changing urban landscape. Together with new possibilities to transform our road spaces, LTA continues to maintain and enhance our road networks to improve driving experiences for motorists.

### A VISION TURNED INTO REALITY FOR OUR FUTURE TRANSPORT NETWORKS

Built around the needs of motorists and non-motorists, the North-South Corridor (NSC), which is currently under construction, will be our longest Transit Priority Corridor (TPC) at 21.5km. When completed, traffic will be channelled mostly onto NSC's elevated viaduct and underground tunnel, alleviating congestion along surface roads and facilitating smoother journeys for motorists and bus commuters. Through co-creation efforts with the community, surface roads will then be remade to give more priority for walking, cycling and public transport, creating safer and more vibrant streets.

### BUILDING NEW ROADS TO MEET TRAFFIC DEMAND FROM NEW DEVELOPMENTS

Come 2027, residents in Tengah town as well as Jurong East and West towns can look forward to direct access to the Pan Island Expressway (PIE) in both the eastbound (towards the city) and westbound (towards Tuas) directions. With the completion of a new road interchange at the PIE and Jurong Canal Drive (JCD), the PIE will be well-connected to the upcoming Tengah Town.

LTA will be constructing a new 0.5km dual four-lane flyover along PIE near the exit to JCD, and widening the PIE between Hong Kah Flyover and Bukit Batok Flyover to facilitate the anticipated increase in traffic flow brought about by the new Tengah Town.

A new at-grade road junction intersecting the highway at the same elevation will also be built below the new flyover, which will connect PIE, JCD and Tengah Boulevard, along with associated junction improvement work in the Jurong area to facilitate smooth traffic movement between these areas.

### ENHANCING ROAD CONNECTIVITY TO SUPPORT EVOLVING POPULATION NEEDS

In November 2020, we completed the expansion of the Kallang-Paya Lebar Expressway and the Tampines Expressway (KPE/TPE) Interchange. To facilitate continued connectivity for residents during the undertaking of this massive construction, work was carried out in phases over two years and roads were progressively opened. The expanded interchange can now serve existing and new developments in Punggol town by improving the connectivity between KPE and TPE with Punggol Central, Pasir Ris Industrial Drive 1 and Lorong Halus. Since the progressive opening of the roads from 2018, traffic conditions have improved at TPE between Punggol Way and KPE, and the existing access points of Punggol town through Punggol Road and Punggol East.

Such road interchange expansions by LTA have helped reduce chokepoints, allowing for smoother road connectivity while supporting the growth in traffic demand brought about by new residential and commercial developments.



# Awards

LTA remains committed to developing environmentally-sustainable infrastructure, cost-effective innovations as well as business- and commuter-friendly solutions.

## SUSTAINABLE INFRASTRUCTURE

### BUILDING AND CONSTRUCTION AUTHORITY (BCA) GREEN MARK AWARD – GOLDPLUS 2020

The upgraded **Woodlands Bus Interchange** won the **GoldPLUS rating** in 2020 in recognition of its environmentally-sustainable features that offer annual energy savings projected at 788,290 kWh and a lighting system with 52.8% energy efficiency improvements. Its yearly water savings are also projected at 10,512 m<sup>3</sup>, thanks to “Excellent” WELS rating water fittings.

With UVGI and MERV 14 rating filter implementation at air distribution systems, commuters and staff can enjoy good indoor air quality and healthier, greener lifestyles.

### BCA GREEN MARK AWARD (PLATINUM)

Our extensive use of eco-friendly materials, fixtures and technologies made the **Upper Thomson station on the Thomson-East Coast Line (TEL)** the first underground station to be awarded the **BCA Green Mark Platinum certification**.

The station’s green features boast sustainable construction materials such as low carbon concrete, green labelled products and water fixtures. Its energy-saving designs include fittings such as energy efficient air-conditioning, lift, escalator, lighting systems as well as low loss transformers.

Greener in design and also in spirit, our infrastructure innovations create effortlessly sustainable journeys.

## COST-EFFECTIVE INNOVATIONS

### MINISTER’S VALUE FOR MONEY (VFM) ACHIEVEMENT AWARD 2020 – DISTINGUISHED AWARD

This award recognises LTA’s innovative modifications to the ventilation design for **JRL Jurong Pier station** that created substantial savings of S\$30 million as well as space for future developments in the Jurong Pier area.

To tackle space constraints for the diversion of major utilities at the station, we modified the conventional design of an underground subway by relocating ventilation systems from ceiling spaces to maintenance corridors. This value-for-money solution allows the subway to be constructed without the need for massive utilities diversion. By minimising major disruptions to adjacent land plots and buildings around the station, we ensure smoother commutes and free up spaces for new possibilities.

### MINISTER’S VFM ACHIEVEMENT AWARD 2020 – DISTINGUISHED AWARD

Our optimised plantroom planning solution for the **Mechanical and Electrical (M&E) Design for the North-South Corridor (NSC)** highlights LTA’s commitment to exploring cost-effective solutions in a holistic manner.

In a first for road tunnels in Singapore, we pioneered an M&E project for NSC that relocated an existing plantroom and provided an additional one at the road centre median, near tunnel fans and pumps. With no additional land take required, this solution provides greater cost savings for installation, testing and commissioning, as well as future operation and maintenance work. In all, we created total capital cost savings of S\$20.3 million and operating cost savings of S\$17.1 million over 30 years.



# Awards

## COST-EFFECTIVE INNOVATIONS

### MINISTER'S VFM ACHIEVEMENT AWARD 2020 – MERIT AWARD

This award recognises our innovative operations design for the **Electrification of Bus Depot for Electric-bus (E-bus)**. To support the large-scale electrification of buses, we analysed the data on buses returning to the depot and designed a civil and electrical infrastructure for bus depots to enable and optimise the installation of e-bus charging stations.

With this solution implemented, the operational procedure of redesign and resubmission for additional land take, and the use of 66kV intake substations, will no longer be needed for authorities such as URA, BCA and SPPG. This benefits projects by eliminating delays and abortive cost implications.

This solution will also create cost and land savings, while supporting electrification and smooth operations of our bus depots.

### MINISTER'S VFM ACHIEVEMENT AWARD 2020 – SPECIAL MENTION AWARD

This award for the **Alternative Fire-fighting Strategy at East Coast Integrated Depot (ECID)** recognises our efforts to develop a safer, better and more cost-effective fire safety operation, taking into consideration the Design and Build for Operation and Maintenance without compromising fire and life safety.

ECID's alternative fire-fighting strategy is achieved by enhancing the existing road for SCDF access, including the use of motorised track trolleys and signages for horizontal mobility and wayfinding. This removes the need for the 26 fire lifts required under the prevailing Fire Code.

This solution creates capital cost savings of S\$3.18 million and projected maintenance cost savings of S\$2.30 million over 20 years.

## BUSINESS- AND COMMUTER-FRIENDLY SOLUTIONS

### BEST PRO-ENTERPRISE SUGGESTION (SUPPORTING AGENCY) AWARD

Our contributions toward the **Private Car Rental Scheme (PCRS) trial with Drive Lah** won this award at the Singapore Business Federation Awards 2020.

In October 2019, LTA started a one-year expanded PCRS trial with Drive Lah. This public-private sector collaboration allows up to 500 private cars to be registered for rent on Drive Lah's platform on weekdays. Drive Lah was awarded the Best Pro-Enterprise Suggestion Award for its contributions toward a pro-enterprise regulatory environment in Singapore.

In 2020, the trial was further extended to April 2022, with an increased cap of registered private cars from 500 to 800 in the latest extension, meeting growing demand and enabling more sustainable journeys.

### MINISTER INNOVATION AWARD 2020 – MERIT AWARD

Our **integrated e-scooter inspection equipment** won this award in recognition for its innovative solution that will benefit the active mobility landscape in Singapore.

Our first-ever integrated e-scooter inspection equipment supports active mobility regulations by helping inspectors safely, accurately and efficiently measure the weight, width and speed of e-scooters of various designs. The equipment has been deployed at nine existing e-scooter inspection centres. This improves the safety of both path users and riders, taking us one step closer towards safer journeys for all.

### BUSINESS TRANSFORMATION AWARD 2020 FOR LTA (BY PUBLIC SECTOR TRANSFORMATION AWARDS 2020)

This award recognises our commuter payment innovation with the Account-Based Ticketing Bank Card System (also known as SimplyGo).

The Account-Based Ticketing system improves the commuting experience by enabling hassle-free public transportation fare payments. Users can breeze through gantries and payment points through contactless VISA, Mastercard and NETS card payments, as well as mobile devices equipped with Apple Pay, Android Pay, Samsung Pay and Fitbit Pay. This integration benefits commuters through time savings and improved user experiences.



# Contracts Awarded in FY2020/21

## JURONG REGION LINE

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
J108	John Holland Pty Ltd - McConnell Dowell South East Asia Pte Ltd Joint Venture	Design and Construction of Tengah Plantation Station, Tengah Park Station, Bukit Batok West Station and Viaduct for Jurong Region Line
J109	Daewoo Engineering & Construction Co., Ltd. - Yongnam Engineering & Construction Pte Ltd Joint Venture	Design and Construction of Toh Guan Station, Jurong Town Hall Station, Pandan Reservoir Station and Viaduct for Jurong Region Line
J1093	Bureau Veritas Buildings & Infrastructure Pte. Ltd. - COWI Singapore Pte. Ltd. Consortium	Accredited Checking Services with Enhanced Requirements (Package 3) for Jurong Region Line
J120	China Communications Construction Company Limited (Singapore Branch)	Design and Construction of Integrated Transport Hub at Jurong East
J152	Siemens Mobility Pte. Ltd / Siemens Rail Automation, S.A.U. Consortium	Signalling System and Half-Height Platform Screen Doors for Jurong Region Line
J155	ST Engineering Electronics Ltd.	Integrated Supervisory Control System for Jurong Region Line
J156	ST Engineering Electronics Ltd.	Maintenance Management System for Jurong Region Line
J160	ST Engineering Electronics Ltd.	Communications System for Jurong Region Line
J168	ST Engineering Electronics Ltd.	Access Management System for Jurong Region Line
J177	CRRC Zhuzhou Locomotive Co., Ltd	Locomotives for Jurong Region Line
J1011A	Alliance Consulting Engineers Pte Ltd	Qualified Person (Supervision) Services for Jurong Region Line (Phase 1) [Package A - Contract J101]
J1011B	Tritech Consultants Pte Ltd	Qualified Person (Supervision) Services for Jurong Region Line (Phase 1) [Package B - Contracts J103, J105 and J106]
J1011C	Bureau Veritas Buildings & Infrastructure Pte. Ltd	Qualified Person (Supervision) Services for Jurong Region Line (Phase 1) [Package C - Contracts J107 and J113]
J1011D	R.J. Crocker Consultants Pte Ltd	Qualified Person (Supervision) Services for Jurong Region Line (Phase 1) [Package D - Contract J102]
J1011E	Fong Consult Pte. Ltd.	Qualified Person (Supervision) Services for Jurong Region Line (Phase 1) [Package E - Contracts J108 and J109]
J1011F	Alliance Consulting Engineers Pte. Ltd.	Qualified Person (Supervision) Services for Jurong Region Line (Phase 1) [Package F - Contract J110]
J1012A	Ryobi Geotechnique International Pte Ltd	Instrumentation and Monitoring for Jurong Region Line (Phase 1) - Package A

# Contracts Awarded in FY2020/21

## JURONG REGION LINE

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
J1012B	Ryobi Geotechnique International Pte Ltd	Instrumentation and Monitoring for Jurong Region Line (Phase 1) - Package B
J1040	Echol Tech Pte Ltd	Supply and Installation of Biometric Authentication System
J1053A	KK Lim & Associates Pte. Ltd.	Accredited Checking Services with Enhanced Requirements (Package 2) for Jurong Region Line Civil Contracts J105 and J106
J1053B	WSP Consultancy Pte. Ltd.	Accredited Checking Services with Enhanced Requirements (Package 2) for Jurong Region Line Civil Contracts J107 and J108
J1520	Certifer SA	Independent Safety Assessor for Jurong Region Line Signalling System
J1805	Bintai Kindenko Pte Ltd	Mechanical and Electrical Works for Mass Rapid Transit Stations

## CROSS ISLAND LINE / RAIL TRANSIT LINK

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
CR105	Taisei Corporation - China State Construction Engineering Corporation Limited Singapore Branch Joint Venture	Design and Construction of Bored Tunnel between Aviation Park Station and Loyang Station
CR112	Samsung C&T Corporation	Design and Construction of Hougang Interchange Station and Tunnels
CR2010	Kwang Sing Engineering Pte Ltd	Foundation Investigation Works for LTA Projects
T232	Penta-Ocean Construction Co., Ltd	Construction of Station, Tunnels and CIQ Building for Rapid Transit System (RTS) Link
T2321A	BRK Pte Ltd	Appointment of Qualified Person (Supervision) for Contracts T232 and T235
T2321B	JIB Specialist Consultants Pte Ltd	Appointment of Qualified Person (Supervision) Services for Contract T235
T2322	FOSTA Pte. Ltd.	Supply, Installation and Monitoring of Instruments for Contract T232 and T235
T235	China Communications Construction Company Limited (Singapore Branch)	Construction of Viaduct and Tunnels for Rapid Transit System (RTS) Link

# Contracts Awarded in FY2020/21

## RAIL ENHANCEMENT

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
190	G S Engineering & Construction Corp.	Design and Construction of Integrated Train Testing Centre
1378	C K T Thomas Private Limited	Design and Build of Enhancement Works to Existing MRT/LRT Stations and Associated Commuter Facilities
1508	T.Y. Lin International Pte. Ltd. and Architects 61 Pte. Ltd.	Advanced Engineering Consultancy Services for the Proposed New Station on Existing North-South Line
1901	JIB Specialist Consultants Pte Ltd	Appointment of Qualified Person (Supervision) for Contract 190
7088	Sunray Woodcraft Construction Pte Ltd	Design and Build for North East Line Depot CBTC Simulation Facility
8398	C K T Thomas Private Limited	Retrofitting Works at Brash Basah Station
8399	Chee Yam Contractor Pte Ltd	Condition Assessment and A&A Works for Sealed Spaces in MRT Stations and Tunnels
9175	AECOM Singapore Pte Ltd	Advance Engineering Study for the Proposed Downtown Line 2 Extension and a New Station on Existing North-South Line
9511	Bombardier (Singapore) Pte Ltd	Downtown Line 3 Extension and Hume Station Work for DTL Trains
915A	JSM Construction Group Pte Ltd	Additions and Alterations Including Construction of Entrance, Ventilation Shaft and Fitting-out Works for Hume Station
915A1	GWC Consulting Pte. Ltd.	Appointment of Consultant for Supervision of Contracts 915A, 8398 and 7178
R179A	Mer Mec S.p.A.	Multi-Function Vehicle for NSEWL
T3060	WSP Consultancy Pte. Ltd.	Design of Mechanical and Electrical Engineering Services for Transport Infrastructure
T3066	Arup Singapore Private Limited and SAA Architects Pte Ltd	Advanced Engineering Study for the Proposed Thomson-East Coast Line Extension
R801	Colas Rail SAS - Colas Rail Singapore Pte Ltd Joint Venture	Power Supply Replacement and Upgrading for Bukit Panjang Light Rapid Transit
<b>TOTAL SUM AWARDED FOR RAIL PROJECTS</b>		<b>S\$4.6 BILLION</b>



# Contracts Awarded in FY2020/21

## ROAD & COMMUTER FACILITIES / PUBLIC TRANSPORT

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
AM103	TKB C-E Contractor Pte. Ltd.	Construction of Choa Chu Kang and Woodlands Cycling Path Network
DE117	Pal-Link Construction Pte.Ltd.	Proposed Lift Shafts to Existing Pedestrian Overhead Bridges and Associated Commuter Infrastructure
DE1171	Vland Consultants Pte. Ltd.	Appointment of Qualified Person (Supervision) for Contract DE117
DE1331	R.J. Crocker Consultants Pte Ltd	Appointment of Qualified Person (Supervision) for Contract DE133 and DE142
DE1431	Cutech Quality Solutions Pte. Ltd	Provision of Qualified Person (Supervision) Services for Contract DE143
DE156	Accenture Pte Ltd	Information Management System for Design, Construction and O&M
DE159	Samwoh Corporation Pte Ltd	Roadworks at Lim Chu Kang Area
DE162	T.Y. Lin International Pte Ltd	Engineering Services for Utility Diversion at Changi Northern Road Corridor
DE167	Ryobi Geotechnique International Pte Ltd	Provision of Site Investigation Works for LTA Projects
N1050	AECOM Cost Consulting and Project Management (Singapore) Pte Ltd	Provision of Contract Administration Services for North-South Corridor
N1056A & B	Arcadis Pte. Ltd.	Project Management Services for North-South Corridor (Package A and B)
N1056C	R.J. Crocker Consultants Pte Ltd	Project Management Services for North-South Corridor (Package C)
PD178	DP Architects / DP Design Pte Ltd	Consultancy Services (Architectural, Civil and Structural Engineering, Mechanical and Electrical Engineering and Specialist Consultants) for LTA Project
PL218	AECOM Singapore Pte Ltd	Integrated Wayfinding System Consultancy Study for Active Mobility
PT217	Tower Transit Singapore Pte. Ltd.	Bus Contracting - Bulim Bus Package and Sembawang - Yishun Bus Package
PT368	Guthrie Engineering (S) Pte Ltd	Provision of Passenger Information Display Systems at Bus Stops
PT375	Tat Hin Builders Pte Ltd	Proposed Design and Construction of Bus Interchange and Associated Works at Venture Drive

# Contracts Awarded in FY2020/21

## ROAD & COMMUTER FACILITIES / PUBLIC TRANSPORT

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
PT396	Tat Hin Builders Pte Ltd	Proposed Design and Construction of Bus Interchange and Associated Works at Tengah Boulevard
PT402	TNT Surveillance Pte. Ltd.	Replacement of Closed Circuit Television (CCTV) Systems on Buses
RS135	Tangshan Baichuan Intelligent Machine Co., Ltd	Provision of Bus Depot Equipment

## TRAFFIC OPERATIONS / MAINTENANCE

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
TR243	Kah Engineering (1986) Pte. Ltd.	Construction of Facility Building
TR311	Highway International Private Limited	Planned Maintenance and Ad-Hoc Works for Roads and Road Related Facilities
TR332A	Eng Lam Contractor Co (Pte) Ltd	Term Contract for Roads and Road-Related Facilities, Road Structures and Road Safety Schemes for East Sector
TR332B	CHC Construction Pte Ltd	Term Contract for Roads and Road-Related Facilities, Road Structures and Road Safety Schemes for West Sector
TR340	Vertex Asia-Pacific Pte. Ltd.	Consultancy Services for Study and Design of Traffic Junctions
TR343C & N	ATS Traffic Pte Ltd	Maintenance and Installation of Traffic Lights System for Central and North Division
TR343E & W	Eng Hup Engineering Pte Ltd	Maintenance and Installation of Traffic Lights System for East and West Division
TR347A	Certis CISCO Auxiliary Police Force Pte. Ltd.	Provision of EMAS Vehicle Recovery Services and LTA Traffic Marshal Services
TR347B	Island Recovery Services - Huatong Inland Transport Services Pte. Ltd. Consortium	Provision of EMAS Vehicle Recovery Services
TR347C	AETOS Security Management Pte Ltd	Provision of LTA Traffic Marshal Services

# Contracts Awarded in FY2020/21

## TRAFFIC OPERATIONS / MAINTENANCE

CONTRACT NO.	CONTRACTOR / CONSULTANT	DESCRIPTION
TR350	Indeco Engineers (Pte) Ltd	Tunnel Washing Services for Road Tunnels
TR351	Certis CISCO Auxiliary Police Force Pte. Ltd.	Provision of Auxiliary Police Officer Services for Enforcement
TR353A	Tyco Fire, Security & Services Pte Ltd	Maintenance of KPE / MCE Tunnel Systems (Package A - Integrated Traffic and Plant Management System Frontend)
TR353B	ATT Systems (S'pore) Pte Ltd	Maintenance of KPE / MCE Tunnel Systems (Package B - Communications System)
TR358	Chuan Lim Construction Pte Ltd - United E & P Pte. Ltd. Joint Venture	Road Maintenance Contract for South West Sector
TT242	ST Engineering Electronics Ltd.	Maintenance of Traffic Monitoring Camera System
VS165	People Advantage Pte. Ltd.	Provision of Manpower Services for VEP/Toll Operations
<b>TOTAL SUM AWARDED FOR ROADS AND OTHER PROJECTS</b>		<b>S\$2.0 BILLION</b>



# Contracts to be Awarded in FY2021/22

## RAIL

CONTRACT NO.	DESCRIPTION
8505	Supply and Installation of Automatic Clean Gas System
8508	Supply and Installation of Water Handling Equipment for Circle Line 6 and North East Line Extension
9176	Mechanical and Electrical Engineering Services for Rail Project
9358	Mechanical and Electrical Services for Hume Station
810C	Design, Construction and Completion of Sengkang Punggol Light Rapid Transit (LRT) Depot Expansion with Associated Facilities
CR102	Design and Construction of Tunnels between Aviation Park Station and Depot
CR103	Design and Construction of Aviation Park Station and Tunnels
CR107	Design and Construction of Pasir Ris East Station
CR108	Design and Construction of Pasir Ris Interchange Station and Tunnels
CR109	Design and Construction of Tampines North Station and Tunnels
CR110	Design and Construction of Bored Tunnel between Tampines North Station and Defu Station
CR111	Design and Construction of Defu Station and Tunnels
CR113	Design and Construction of Serangoon North Station and Tunnels
CR115	Design and Construction of Tavistock Station and Tunnels
CR117	Design and Construction of Bright Hill Interchange Station and Tunnels

## RAIL

CONTRACT NO.	DESCRIPTION
CR1011	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 1
CR1012	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 1
CR1013	Accredited Checking Services (Package 1) for Cross Island Line Phase 1
CR1021	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 2
CR1205	Supply and Installation of Biometric Authentication System for Cross Island Line Phase 1
J111	Design and Construction of Enterprise Station, Tukang Station and Viaduct for Jurong Region Line
J112	Design and Construction of Jurong Hill Station, Jurong Pier Station and Viaduct for Jurong Region Line
J113	Design and Construction of Nanyang Gateway Station, Nanyang Crescent Station and Viaduct for Jurong Region Line
J115	Design and Construction of Peng Kang Hill Station, Remote Stabling Facility and Viaduct for Jurong Region Line
J181	Depot Equipment for Jurong Region Line
J1072	Instrumentation and Monitoring for Jurong Region Line (Phase 2)
J1111	Qualified Person (Supervision) Services for Jurong Region Line (Phase 2)
J1112	Instrumentation and Monitoring for Jurong Region Line (Phase 3)
J1113	Accredited Checking Services with Enhanced Requirements (Package 4) for Jurong Region Line
J1201	Qualified Person (Supervision) Services for Integrated Transport Hub (ITH) at Jurong East

# Contracts to be Awarded in FY2021/22

## RAIL

CONTRACT NO.	DESCRIPTION
J1202	Instrumentation and Monitoring for Integrated Transport Hub (ITH) at Jurong East
J121	Design and Building of Mechanical and Electrical Services for Integrated Transport Hub at Jurong East
J153	Power Supply System for Jurong Region Line
J176	Maintenance Wagons for Jurong Region Line
J1806	Mechanical and Electrical Works at Mass Rapid Transit Stations
P1090A	Advance Works for Utility Diversion (Package A)
P1090B	Advance Works for Utility Diversion (Package B)
P1091	Appointment Of Qualified Person (Supervision) (QP(S)) Including Qualified Site Supervisors (QSS) for The Supervision for Contracts P1090A and P1090B
P1092	Supply, Installation and Monitoring of Instruments for Contracts P1090A and P1090B
R173A	Replacement Works for Tunnel Ventilation and Environmental Control Systems
R178A	Fire Protection System Replacement Works
R179C	Track Tamping Vehicle for NSEWL
R181A	Depot Equipment for Bishan Depot
T273R	Supply and Installation of Mechanical Services for RTS Link Station, Tunnels and CIQ Building
T275R	Supply and Installation of High Voltage, Low Voltage, Communications & Security Systems for Rapid Transit System (RTS) Link Station, Tunnels and CIQ Building
T3506	Provision of Services for Works Train Operation

## ROADS & OTHERS

CONTRACT NO.	DESCRIPTION
AM1031	Appointment of Qualified Person (Supervision) for Cycling Infrastructure
AM107	Training Provider(s) for Safe Riding Programme
AM109	Engineering Consultancy Services for Cycling Path Network
AM113	Engineering Consultancy Services for Cycling Path Network
DE1132	Supply, Installation and Monitoring of Instruments for Commuter and Road Infrastructure Works at Hillview and Dairy Farm
DE1591	Appointment of Qualified Person (Supervision) for Contract DE159
DE160	Enhancement to Loyang Avenue between Tampines Expressway and Pasir Ris Drive 3
DE170	Construction of Tengah Vehicular Interchange at KJE
DE176	Commuter and Road Infrastructure Works in Serangoon and Tampines Areas
DE177	Commuter Infrastructure Enhancement
DE178	Proposed New Road Interchange at PIE / Jurong Canal Drive and Road Enhancement Works
N178A	Fixed Water-Based Fire-Fighting System for North South Corridor
PL216	Design Consultancy for Walking and Cycling Enhancements
TR307	Provision of Mechanical Services for Road Tunnels
TR308	Provision of Electrical Services for Road Tunnels
TR317	Upgrading of Selected Vehicular Underpasses

# Contracts to be Awarded in FY2021/22

## ROADS & OTHERS

CONTRACT NO.	DESCRIPTION
TR331	Painting of Road Markings
TR356	Provision of Communications System for Road Tunnels
TR357	Provision of Traffic and Plant Management System for Road Tunnels
TR359	Construction of Silver Zones
TR361	Provision of Parking Wardens Services
TR366	Road Works Inspection Service
TR367	E&M System Maintenance for Road Tunnels
TT245	Development, Operation & Maintenance Services of the Electronic Parking Central Computer System
TT247	Maintenance of Traffic Management Systems on Arterial Roads
VS166	Supply and Management of Vehicle Pound



# Financial Highlights FY2020/21

## STATEMENT OF COMPREHENSIVE INCOME

The Authority's operating income decreased by \$222m (-12%) to \$1,642m in FY20/21. Operating expenditure increased by \$249m (6%) to \$4,586m. Government Grants increased by \$581m (25%) to \$2,888m. Overall, net deficit decreased \$91m to \$16m.

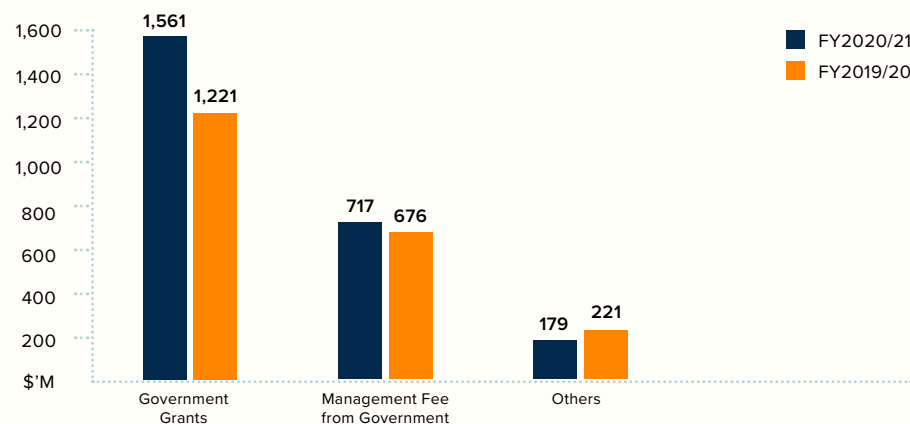
FY2020/21	GENERAL FUND \$'M	RAILWAY SINKING FUND \$'M	BUS & RAIL CONTRACTING \$'M	TOTAL \$'M	FY2019/20	GENERAL FUND \$'M	RAILWAY SINKING FUND \$'M	BUS & RAIL CONTRACTING \$'M	TOTAL \$'M
Management Fee from Government	717	–	–	717	Management Fee from Government	676	–	–	676
Fare Revenue	–	–	607	607	Fare Revenue	–	–	862	862
Rail Transit System Licence Charge	–	43	–	43	Rail Transit System Licence Charge	–	20	–	20
Other Operating Income	179	1	95	275	Other Operating Income	221	–	85	306
<b>Operating Income</b>	<b>896</b>	<b>44</b>	<b>702</b>	<b>1,642</b>	<b>Operating Income</b>	<b>897</b>	<b>20</b>	<b>947</b>	<b>1,864</b>
Operating Expenditure	(2,439)	(125)	(2,022)	(4,586)	Operating Expenditure	(2,142)	(170)	(2,025)	(4,337)
<b>Operating Deficit</b>	<b>(1,543)</b>	<b>(81)</b>	<b>(1,320)</b>	<b>(2,944)</b>	<b>Operating Deficit</b>	<b>(1,245)</b>	<b>(150)</b>	<b>(1,078)</b>	<b>(2,473)</b>
Other Gains - Net	12	23	5	40	Other Gains - Net	8	43	8	59
<b>Deficits before Government Grants</b>	<b>(1,531)</b>	<b>(58)</b>	<b>(1,315)</b>	<b>(2,904)</b>	<b>Deficits before Government Grants</b>	<b>(1,237)</b>	<b>(107)</b>	<b>(1,070)</b>	<b>(2,414)</b>
Government Grants	1,561	2	1,325	2,888	Government Grants	1,221	–	1,086	2,307
<b>Net (Deficits)/Surplus</b>	<b>30</b>	<b>(56)</b>	<b>10</b>	<b>(16)</b>	<b>Net (Deficits)/Surplus</b>	<b>(16)</b>	<b>(107)</b>	<b>16</b>	<b>(107)</b>

# Financial Highlights FY2020/21

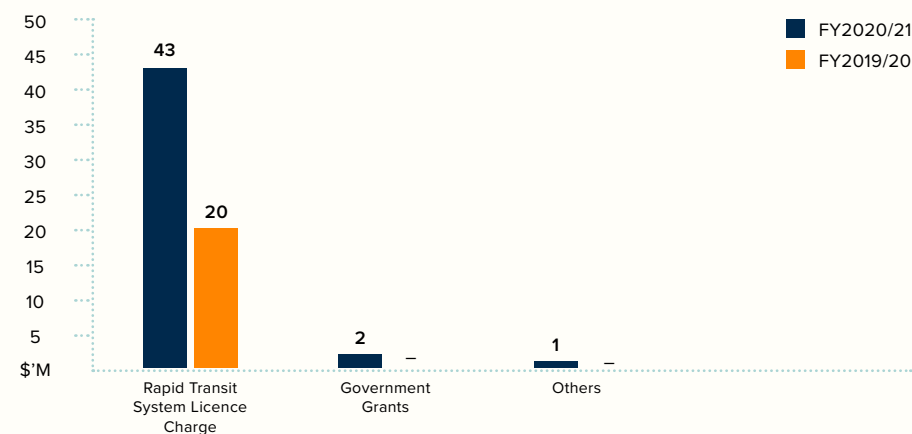
## GOVERNMENT GRANTS, OPERATING INCOME AND EXPENDITURE

The Authority recognised income amounting to \$3,605m from the Government, comprising Government grants of \$2,888m and Management fee of \$717m. Of the Government grants recognised, \$1,561m were recognised under General fund, \$2m were recognised under Restricted fund – Railway Sinking Fund, and \$1,325m were recognised under Restricted fund – Bus and Rail Contracting.

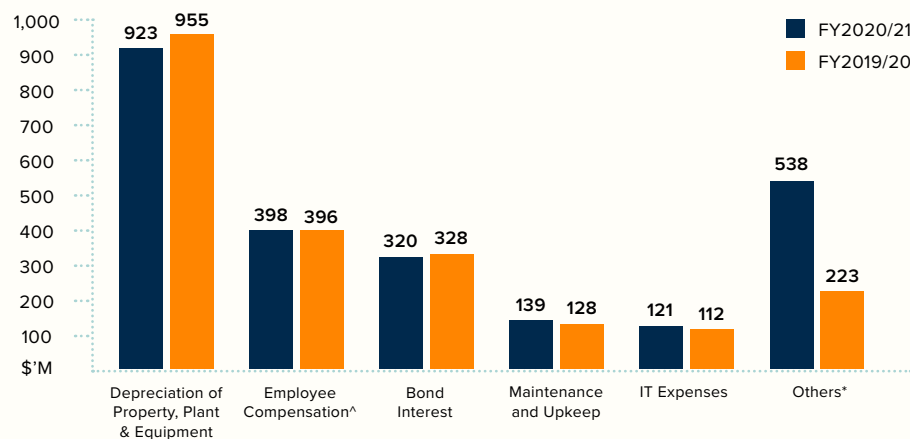
### GENERAL FUND - GRANTS & INCOME



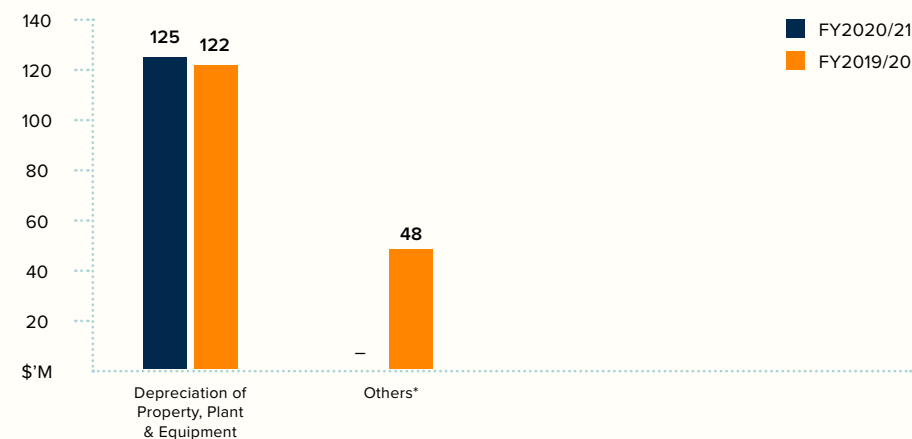
### RAILWAY SINKING FUND - GRANTS & INCOME



### GENERAL FUND - EXPENDITURE



### RAILWAY SINKING FUND - EXPENDITURE



<sup>^</sup>Employee Compensation is net of amounts capitalised in property, plant and equipment.

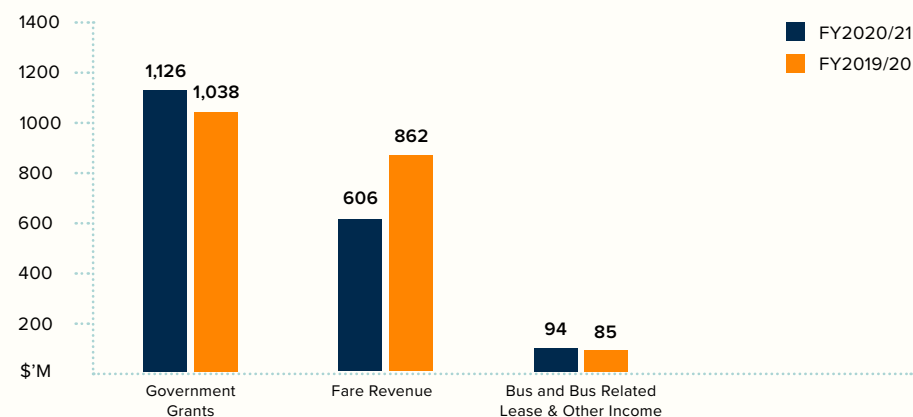
\*The increase in other expenditure was largely due to grants provided under the Rail Reliability Incentive scheme to rail operators.

\*Other expenditure was mainly contributed by write-off of Property, Plant & Equipment in FY19/20.

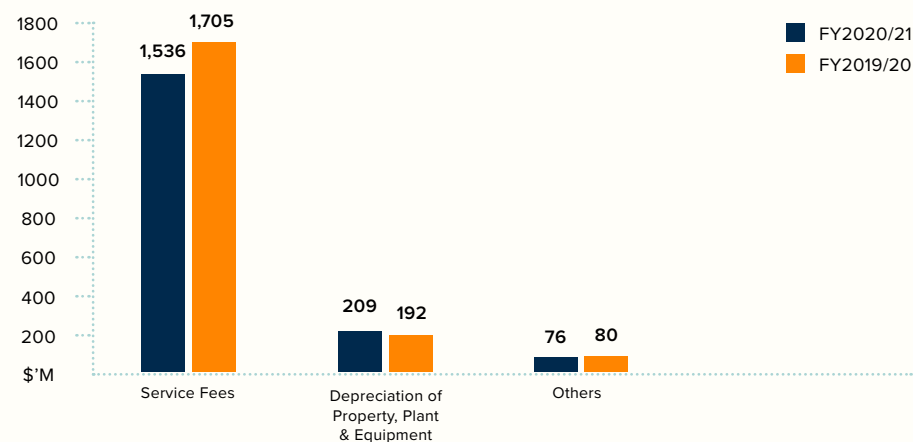
# Financial Highlights FY2020/21

## GOVERNMENT GRANTS, OPERATING INCOME AND EXPENDITURE

### BUS CONTRACTING - GRANTS & INCOME



### BUS CONTRACTING - EXPENDITURE



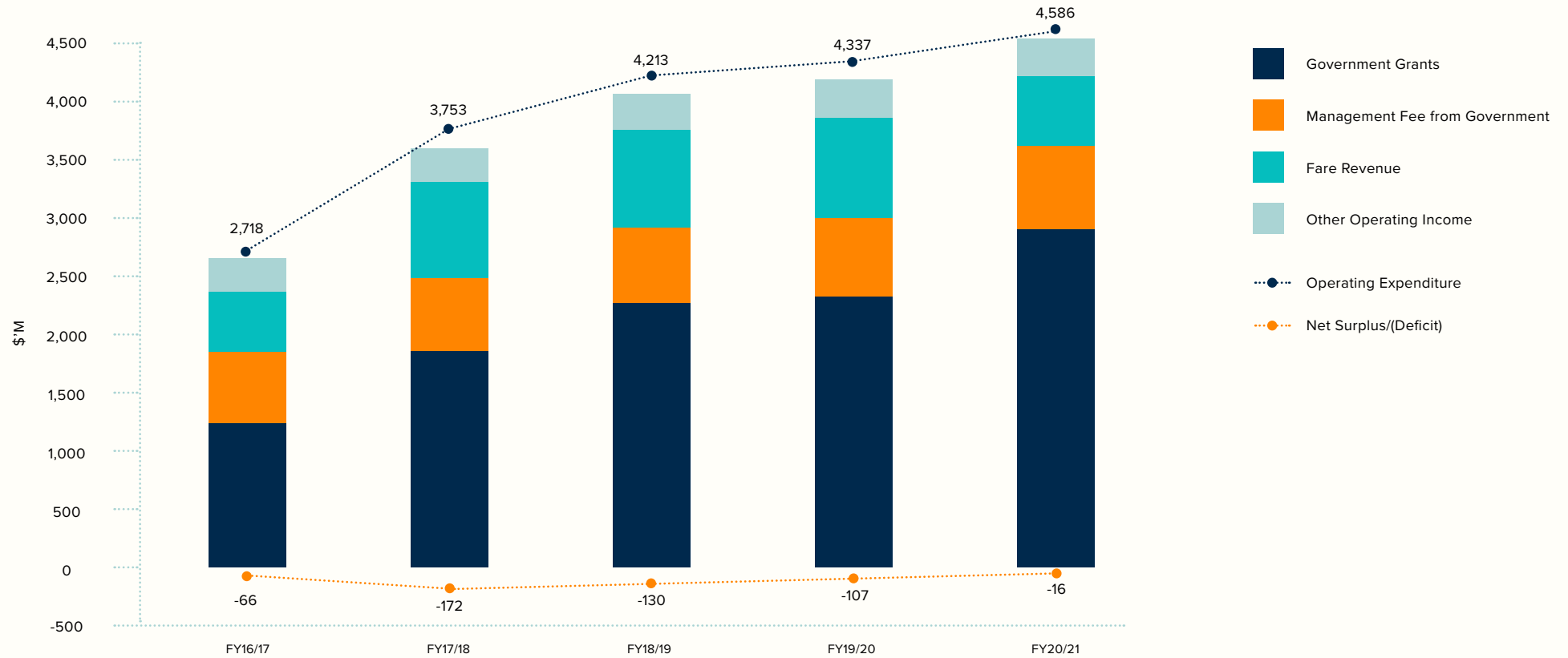
## BALANCE SHEET

	FY2020/21 \$'M	FY2020/19 \$'M	VARIANCE \$'M
<b>Property, Plant &amp; Equipment</b>	<b>58,232</b>	<b>56,413</b>	<b>1,819</b>
Viaducts and Tunnels	10,795	10,923	(128)
Stations, Buildings and Structures	14,081	14,259	(178)
Rail Rolling Stock	2,881	3,065	(184)
Buses & Bus Related Assets	1,327	1,447	(120)
Construction-In-Progress	20,871	18,185	2,686
Others	8,277	8,534	(257)
<b>Non-Current Assets</b>	<b>5,437</b>	<b>39</b>	<b>5,398</b>
<b>Current Assets</b>	<b>11,659</b>	<b>17,650</b>	<b>(5,991)</b>
<b>Assets</b>	<b>75,328</b>	<b>74,102</b>	<b>1,226</b>
<b>Equity</b>	<b>5,423</b>	<b>5,372</b>	<b>51</b>
<b>Deferred Government Capital Grants</b>	<b>54,075</b>	<b>51,955</b>	<b>2,120</b>
<b>Long-Term Borrowings</b>	<b>9,450</b>	<b>10,375</b>	<b>(925)</b>
<b>Non-Current Liabilities</b>	<b>2,558</b>	<b>2,337</b>	<b>221</b>
<b>Current Liabilities</b>	<b>3,822</b>	<b>4,063</b>	<b>(241)</b>
<b>Equity &amp; Liabilities</b>	<b>75,328</b>	<b>74,102</b>	<b>1,226</b>



# 5-Year Financial Summary

## OPERATING INCOME, GOVERNMENT GRANTS AND EXPENDITURE





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