



# Shaping the Pulse of Our City

LTA Annual Report 2022/23



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## Shaping the Pulse of Our City

CHAN HENG LOON ALAN  
Chairman

Our land transport system is akin to Singapore's circulatory system. It facilitates the flow of our people across the island, and feeds the lifeblood of our economy. Today, our rail network serves three million passenger journeys daily, with public transport ridership returning to 90 per cent of pre-COVID levels. Point-to-point (P2P) ridership likewise rose to 80 per cent of pre-pandemic numbers by 2022.

This has been possible because of LTA's commitment to harness technology and innovation to improve land transport. We take pride in our efforts, and resolve to build a smarter, greener and efficient transport system for Singaporeans. Just as the heart pumps blood to nourish the body, our land transport network ensures there are good options for everyone to get to where they work, live, and play.

**Moving at a Steady, Sustainable Beat**  
Our MRT network, an integral and iconic part of our land transport system, continues to grow. In 2022, the highly-anticipated Thomson-East Coast Line 3 (TEL3) opened for passenger service. TEL3 extends our reach with 11 new stations, bringing 180,000 households closer to a proximate MRT station. Works on the Jurong Region Line (JRL), Cross Island Line (CRL), and the Johor Bahru – Singapore Rapid Transit System (RTS) Link are progressing steadily and on track for scheduled completion.

We also worked hard to maintain rail quality, as seen in the renewal of the six core systems of the North-South and East-West Lines (NSEWL), integrating the latest technologies. Our public transport system can expect a boost in innovative solutions with the development of the Singapore Rail Test Centre (SRTC). The SRTC will improve Singapore's train testing and maintenance capabilities, a first of its kind in Southeast Asia. Its first phase is slated to complete this year, which will boast train track testing speeds of up to 100 kilometres per hour.



## With the co-operation of our stakeholders, we ensure our transport system remains responsive, inclusive and eco-friendly, to keep the heartbeat of our nation pulsing steadily.

### A Kinder, Greener Transport Vision

We made significant strides in promoting greener modes of transport for both public and private modes. Supported by our wholly-owned subsidiary, EV-Electric Charging Pte Ltd (EV<sup>o</sup>) and other industry partners, Electric Vehicle (EV) charging points will be installed at over one-third of HDB car parks islandwide by the end of the year. More electric buses will also be

introduced to reduce emissions and promote sustainable transport.

At the same time, our active mobility networks have become more pervasive. Cycling paths have grown to 550 kilometres, with newly-minted routes found in Tampines, Bishan, and more. This is supported by our rebranded Active Mobility Community Ambassadors (AMCA) Scheme to deepen citizen participation in our efforts to foster a safer and more responsible landscape.

Equally important are the new Friendly Streets, which will foster greater inclusivity and people

friendliness in our heartlands for both pedestrians and motorists. By partnering with the community, we aim to invigorate our shared spaces and create vibrant neighbourhoods that benefit everyone.

### Harnessing the Power of Technology

Technology has played a crucial role in enhancing our operations and services. To ensure continuous improvement and innovation, we launched the Land Transport Innovation Portal (LTIP). We also developed the Land Transport Industry Transformation Map (ITM) 2025 to future-proof our workforce with relevant skills.

### Shaping the Pulse of the City Together

I wish to thank our dedicated land transport workers and my LTA colleagues for their unwavering dedication that keeps us all moving safely and smoothly.

It is through our combined efforts that LTA can continue to push boundaries, embrace innovation and actively engage our commuters and road users. Together, we ensure our transport system remains responsive, inclusive and eco-friendly, as we shape the pulse of our city.

## Board of Directors



**Mr Chan Heng Loon Alan**  
**Chairman**  
*Land Transport Authority*



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



**Mr Ng Lang**  
**Chief Executive**  
*Land Transport Authority*



**Prof Tan Thiam Soon**  
**Institute Professor**  
*Singapore Institute of Technology*



**Mr Nagaraj Sivaram**  
**Chartered Accountant**



**Mr Cheong Chee Hoo**  
**Chief Executive Officer**  
*DSO National Laboratories*



**Ms Hwang Yu-Ning**  
**Chief Executive Officer**  
*National Parks Board*



**Mr Melvin Yong Yik Chye**  
**Assistant Secretary-General**  
*National Trades Union Congress*  
**Executive Secretary**  
*National Transport Workers' Union*

Note: Accurate as of 31 August 2023.

## Board of Directors



**Mr Tan Peng Yam**  
**Chief Defence Scientist**  
*Ministry of Defence*



**Mr Mohd Sa'at Bin Abdul Rahman**  
**President**  
*Majlis Ugama Islam Singapura (MUIS)*  
**Senior Consultant**  
*Berita Harian, SPH Media Trust*



**Mr Michael Chin Yong Kok**  
**Tech DC Adviser**  
*Mandai Redevelopment Project*  
**Deputy Chairman,**  
**PRC2 Committee**  
*Singapore Island Country Club*



**Mr Murali Pillai SC**  
**Partner**  
*Rajah & Tann Singapore LLP*



**Ms Chan Su-Min, Fiona**  
**Executive Director and Regional Head of Consumer Banking Ecosystems**  
*DBS Bank Limited*



**Mr James Wong**  
**Deputy Secretary (Services)**  
*Ministry of Education*



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



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



**Mr Kenneth Er Boon Hwee**  
**Deputy Secretary (Planning)**  
*Ministry of National Development*

**Chief**  
*Public Sector Science & Technology Policy & Plans Office*

Note: Accurate as of 31 August 2023.

# Board Committees

## SENIOR TENDER BOARD (STB)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Chan Heng Loon Alan	Mr Lim Cherng Yih, Richard Mr Ng Lang Mr Nagaraj Sivaram Mr Chin Yong Kok, Michael Ms Hwang Yu-Ning Prof Tan Thiam Soon Mr Tan Peng Yam	Ms Chee Huey Mien <i>Director, Procurement</i>

## LEADERSHIP, DEVELOPMENT & REMUNERATION COMMITTEE (LDRC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Chan Heng Loon Alan	Mr Lim Cherng Yih, Richard Mr Ng Lang Mr Wong Kok Oon, James Mr Chew Chih Chiang, Frederick	Mr Ang Heng <i>Chief Human Resource Officer</i>

## AUDIT COMMITTEE (AC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Nagaraj Sivaram	Mr Murali Pillai SC Ms Chan Su-Min, Fiona	Ms Stacey Tee Hwee Teng <i>Director, Internal Audit</i>

## FINANCE, ESTABLISHMENT & INVESTMENT COMMITTEE (FEIC)

CHAIRMAN	MEMBERS	SECRETARIAT
Ms Hwang Yu-Ning	Mr Ng Lang Ms Chan Su-Min, Fiona Ms Deborah Ho	Ms Yong Yenn Leng <i>Chief Financial Officer</i>

## 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 <i>Acting Director, Transformation Officer</i>

## 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 <i>Group Director, Safety &amp; Contracts</i>
		Mr Alvin Soong <i>Director, Safety &amp; Contracts</i>

## 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 <i>Group Director, Information Technology, Cybersecurity &amp; Digital Services</i>

## COMMUNICATION & COMMUNITY ENGAGEMENT COMMITTEE (CCEC)

CHAIRMAN	MEMBERS	SECRETARIAT
Mr Yong Yik Chye, Melvin	Mr Ng Lang Mr Mohd Sa'at Bin Abdul Rahman Ms Chan Su-Min, Fiona	Ms Helen Lim <i>Group Director, Corporate Communications</i>
		Dr Chuai Chip Tiong <i>Group Director, QSMO, Community &amp; Customer Engagement</i>

## 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 <i>Group Director, Rail (E&amp;M)</i>

## 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 <i>Deputy Chief Executive, Technology</i>
		<i>Group Director, Transport Technology</i> <i>NexGen ERP Taskforce</i>

# Senior Management



**Mr Ng Lang**  
**Chief Executive**  
*Land Transport Authority*



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



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



**Goh Teck Seng**  
**Deputy Chief Executive**  
*Corporate & Development*



**Lam Wee Shann**  
**Deputy Chief Executive**  
*Technology*



**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 Kwee Kee**  
**Group Director**  
*Corporate Communications*



**Yong Yenn Leng**  
**Chief Financial Officer**



**Ang Heng**  
**Chief Human Resource Officer**

# Senior Management



**Winston Cheng  
Howe Ming**  
**General Counsel**



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



**Choo Chai Foong**  
**Group Director**  
*Infrastructure Design &  
Engineering*



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



**Dr Chuai Chip Tiong**  
**Group Director**  
*QSMO, Community &  
Customer Engagement*



**Chia Choong 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**  
*North-South Corridor*



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

# Senior Management



**Lew Yee Der**  
**Group Director**  
*Safety & Contracts*



**Derek Tan Kai Juay**  
**Group Director**  
*Special Duties*



**Mark Tan Kiak Yang**  
**Group Director**  
*Technology & Industry Development*



**Chandrasekar s/o Palanisamy**  
**Group Director**  
*Road & Commuter Infrastructure Development*



**Alvin Chia Beng Teck**  
**Group Director**  
*Traffic & Road Operations*



**Neo Bian Hong**  
**Chief Engineer**  
*Civil*



**Alison Tan Sor Luan**  
**Chief Learning Officer**



**Leong Kwok Weng**  
**Chief Engineer**  
*Systems*  
**Dean**  
*Singapore Rail Academy*

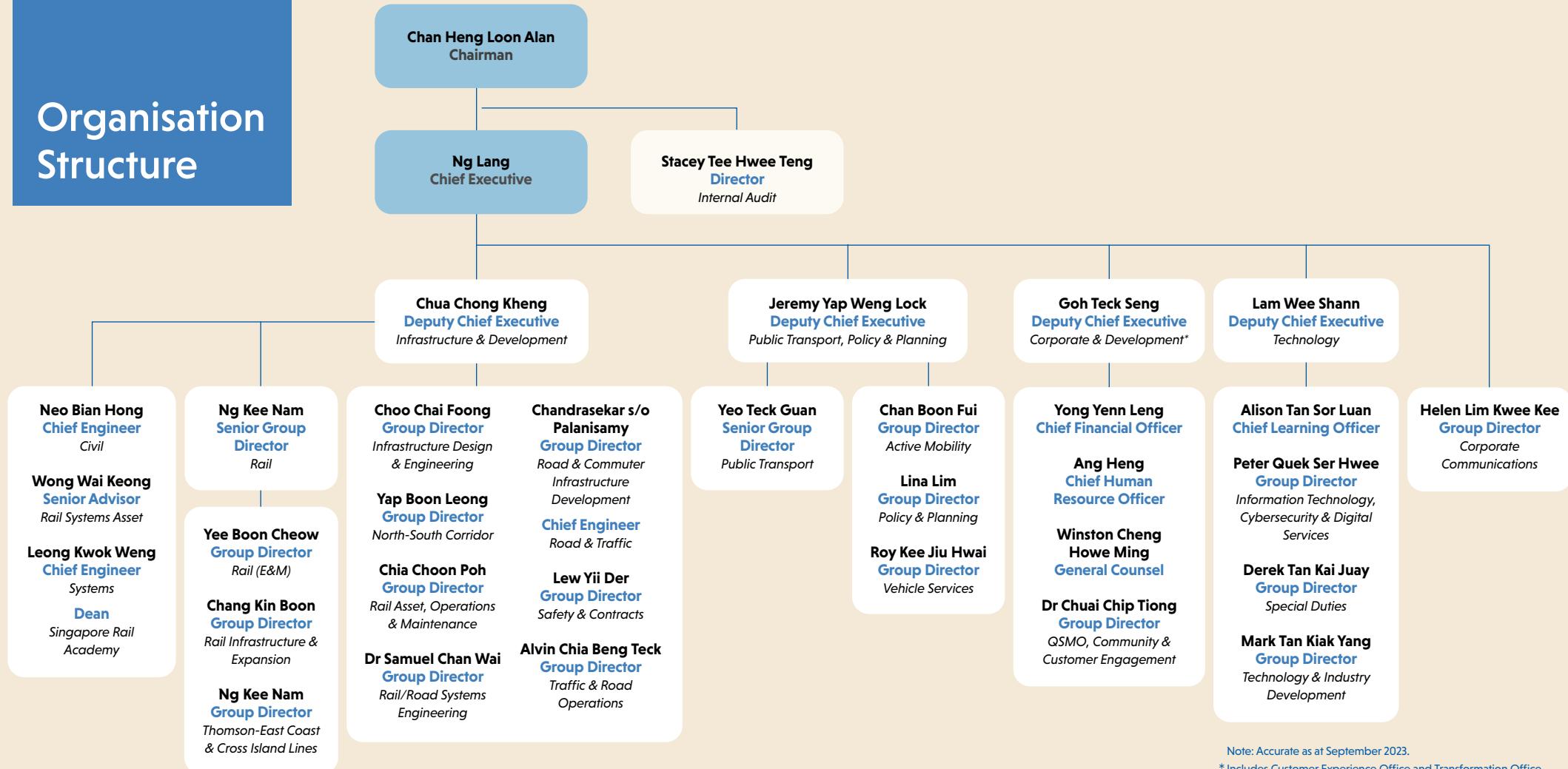


**Wong Wai Keong**  
**Senior Advisor**  
*Rail Systems & Asset*



**Roy Kee Jiu Hwai**  
**Group Director**  
*Vehicle Services*

# Organisation Structure



## CHAPTER 1

### Moving Commuters at a Steady Beat

Public transport fuels the rhythm of our lives. As we move from home to work, play, and spend time with those we love, our network of trains, buses and point-to-point transport options are like the healthy veins and arteries that get us to our destinations.

Singapore's public transport is connected, safe, affordable and reliable. By expanding the connectivity of our trains and buses, and improving maintenance capabilities, LTA keeps public transport moving at a steady beat, so you can trust that your journeys will be on track.





## Strengthening Our Rail System

**Rail forms the backbone of our public transport system and strengthens our nation's vitality and quality of life.**

Over the last year, LTA continued to expand the reach of our rail connections to keep them flowing smoothly, reliably, and to more destinations across the island and beyond.

### Thomson-East Coast Line

Singapore's sixth MRT line, the Thomson-East Coast Line (TEL), provides residents in the east and along the North-South Corridor (NSC) with faster access to the city.

In November 2022, the highly-anticipated Thomson-East Coast Line Stage 3 (TEL3) opened for passenger service. Spanning 13.2 kilometres, TEL3 added 11 new stations to our rail network, reaching residential and business areas that were not directly served by the rail network before, such as Great World, Shenton Way and Gardens by the Bay. With the opening of TEL3, more than 180,000 households are now within a 10-minute walk from an existing TEL station. With four interchange stations at Stevens (Downtown Line), Orchard (North-South Line), Outram

Park (East-West Line and North East Line) and Marina Bay (North-South Line and Circle Line), commuters now have more connections across our MRT lines through TEL. This brings greater convenience and quicker journeys, with potential time savings of up to 40 per cent! For example, a Bright Hill resident travelling to Gardens by the Bay will take 40 minutes via TEL as compared to about 65 minutes currently.

TEL Stage 4 (TEL4) is on track to open in 2024, further extending the TEL network to 43 kilometres with 32



### FASTER BOARDING

**91** fully automated four-car trains with five doors on the sides of each car, instead of the usual four.



### GREATER ENERGY SAVINGS

In-built solar panels and skylights.



### BETTER WAYFINDING

Brighter, clearer and larger signage.



### IMPROVED INFORMATION

**The Dynamic Route Map Display (DRMD)** shows key information such as the rail line's route map, station arrivals and which side of the train the doors will be opened.



### GREATER INCLUSIVITY

**Direct link** from stations to family washrooms, baby care rooms and Heart Zones.

stations, and bringing over 240,000 additional households within a 10-minute walk from a TEL station.

When fully operational, TEL is estimated to serve 500,000 commuters daily in its initial years. This figure is projected to increase to about one million commuters in the longer term. TEL will not only improve connectivity for these commuters, it will also reduce the load on existing rail lines and enhance overall rail resilience.



## A Rail Day Out

To celebrate the opening of TEL3, we organised the TEL3 Opening Event on 11 November 2022. The Opening Event, known as "A Rail Day Out", attracted a record 60,000 visitors in a day and was the first mass public event organised by LTA since the lifting of Safe Management Measures.



Visitors enjoyed free travel along TEL3 to explore the 11 new stations and their nearby amenities. As part of the immersive experience, booths and activities were also set up at all TEL3 stations to educate the public on land transport features. These included a TEL train simulator activity hosted by the Friends of Land Transport (FOLT), Thoughtful Bunch meet-and-greet sessions, the

launch of the TEL Building Blocks merchandise set by Knackstop and more.

The public could also take part in other activities by scanning QR codes to enjoy a digital, gamified experience with "TEL3 Go!" and "TEL3 Thrills and Trails".



### Jurong Region Line

In January 2023, we marked the start of construction for Singapore's seventh MRT line, the Jurong Region Line (JRL), with a ceremony at the site of the future Tengah Town to commemorate the groundbreaking and the launch of the viaduct for the new line.

Slated to open in three stages from 2027 to 2029, the 24-kilometre-long rail line will significantly improve connectivity in the western part of Singapore. It will establish links to key activity nodes like Jurong Lake District, Jurong Innovation District, Jurong Industrial Estate and Nanyang Technological University (NTU). This comes after more than three years of preparation, involving

detail design, excavation, piling, utility diversions, and more.

When completed, the JRL will comprise an integrated rail and bus depot, as well as 24 stations above ground, with three interchange stations at Boon Lay, Choa Chu Kang and Jurong East. The depot and all stations will be fitted with photovoltaic solar panels to generate renewable energy for their operations, reducing the line's greenhouse gas emissions.

LTA will leverage innovative technology such as virtual reality, 3D scanners, and drones to plan, monitor and mitigate disruptions to residents when building over busy roads and close to residential estates.

### Cross Island Line

The Cross Island Line (CRL) will be Singapore's eighth MRT line, and our longest fully underground rail line. It will connect the eastern, western and north-eastern areas. With almost half its stations linked to existing rail lines, it offers more travel routes for commuters.

CRL will be constructed in three phases – CRL Phase 1 (CRL1), CRL Phase 2 (CRL2) and CRL Phase 3 (CRL3).

### CRL Phase 1

Innovative construction methods will increase safety and productivity, while minimising disruptions. Highlights include:

- **LTA's largest tunnel boring machine:** The 12.6-metre diameter machine allows us to construct two twin tracks within one tunnel and eliminates the need to construct cross passages.
- **Trenchless tunnel boring:** Used at Teck Ghee station for the construction of underground linkways, this method will minimise the risk of the ground sinking.



**29 KM**



**12 stations** from Aviation Park to Bright Hill.



**2030** completion year



Serves residential and industrial areas such as Loyang, Tampines, Pasir Ris, Hougang, Serangoon North and Ang Mo Kio. It will shorten journey times and provide more travel options for commuters travelling to and from the eastern part of Singapore.

**CRL Phase 2**

In December 2022, we awarded a \$758 million contract for bored tunnel design and construction between Fairways Drive and Sin Ming Walk to Obayashi Corporation and Shanghai Tunnel Engineering Co (Singapore) Pte Ltd Joint Venture.



**15 KM** approximately



**6 stations** from Turf City to Jurong Lake District.



Construction started this year and will complete in 2032.



Improves connectivity in the west, especially in areas not served by an MRT line, like Sunset Way and West Coast.

**CRL – Punggol Extension**

In September 2022, we awarded a \$1.1 billion contract to the Taisei Corporation – China State Construction Engineering Corporation Limited Singapore Branch Joint Venture for the design and construction of Riviera interchange station and tunnels. A single 4.3-kilometre tunnel with two tracks will be constructed using a 12.6-metre large diameter tunnel boring machine.

A \$496 million contract was awarded to Woh Hup (Private) Limited for the design and construction of the Punggol interchange station and



**7.3 KM**



**4 stations** from Punggol to Pasir Ris.

**BENEFITS**



tunnels in December 2022. The contract includes additions and alteration works within the North East Line (NEL) Punggol station, to allow seamless connections between the NEL, Light Rail Transit (LRT) and the new CRL Punggol station.

In January 2023, the final contract for the design and construction of the Elias station and tunnels under the CRL – Punggol Extension was awarded to CES\_SDC Pte. Ltd. - Chip Eng Seng Contractors (1988) Pte Ltd Joint Venture at a contract value of around \$562 million.



**TIMELINE**

Construction started this year and will complete in 2032.



Improves rail connectivity and accessibility for over 40,000 households in Pasir Ris, Punggol and Sengkang.

→ CLICK TO WATCH VIDEO

See how the CRL2 Journey Continues at [go.gov.sg/watch-vidcrl2](http://go.gov.sg/watch-vidcrl2)

**Johor Bahru – Singapore Rapid Transit System Link**

Works for the Johor Bahru – Singapore Rapid Transit System (RTS) Link project are on track. The progress of civil construction works in Singapore stands at around 50 per cent.

Piling works have been substantially completed, while excavation and building works for the basement and tunnels are underway.

In March 2023, LTA commemorated the completion of the pile cap that sits in the middle of the Straits of Johor on the Singapore side of the RTS Link viaduct. This, together with the installation of rail viaduct structures, marks the completion of another milestone in the project. The cross-border rail line is slated to open for service by end-2026.



## Elevating the Ride Experience



**Beyond the greater connectivity that new MRT lines bring, commuters can enjoy an improved experience when riding public transport. LTA engages the public to address commuters' and residents' needs, while ensuring the safety of our public transport staff and commuters.**

### Railway Noise Barriers

Since 2013, LTA has been working to reduce the noise from passing trains for residents living along the North-South and East-West Lines (NSEWL). Last year, the second phase of this project was completed, spanning 10 kilometres and benefitting residents in Ang Mo Kio and Buona Vista. The third and final phase is scheduled for completion in 2024, which will bring us to 27 kilometres of noise barriers at 60 locations.

### Exercise Station Guard

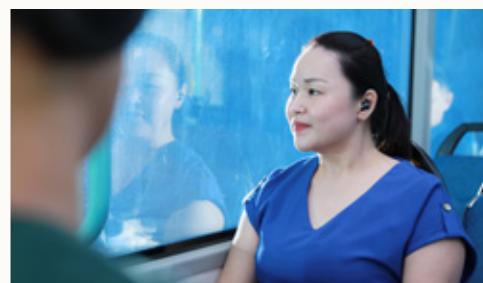
As part of our continued efforts to stay vigilant, the Station Guard exercise aims to strengthen security in public places. This is part of the national SGSecure movement to build resilience in the community against security threats, particularly from terror attacks.

In 2022, LTA, together with SBS Transit and SMRT Corporation, conducted Station Guard exercises

at Bugis and Chinatown stations to raise public awareness and familiarise commuters with how they should respond in the event of an emergency on the public transport network.



## Charging Up the Bus Network



PRESENT

**60** electric buses

END 2024

**400**  
more targeted  
from end of  
2024 onwards.

Buses provide convenient connectivity to and from land transport nodes, like capillaries that deliver oxygen and nutrients directly to our cells. LTA continues to enhance this network of vessels as needs evolve.

In support of Singapore's net-zero emissions target, LTA has been expanding our fleet of electric buses. Sixty electric buses are already in service, and in March 2023, a tender was issued for around 400 electric buses. From December 2024, these buses will progressively

replace diesel-powered buses that have reached the end of their 17 years of statutory service life.

We are upgrading our bus infrastructure in tandem to support the introduction of electric buses. So far, electric vehicle charging stations have been installed to support electric buses at the Bulim, Seletar and Loyang bus depots, as well as at the Bedok and Bukit Panjang Integrated Transport Hubs. By 2030, more bus depots will be able to support our expanded fleet of electric buses, including

upcoming depots in Sengkang West, Gali Batu, East Coast, Kim Chuan and Tengah.

Finally, cost savings await those who switch from travelling by train to taking the bus from Punggol, Sengkang, Buangkok and Hougang to eastern or central Singapore on weekday mornings. Travel Smart Journeys (TSJ) was expanded to cover more bus services in those areas. Commuters who use TSJ regularly can potentially reduce their bus fares by more than half, by using the points they earn on the SimplyGo.



## Revitalising Our Public Transport Systems

**A well-maintained public transport system enhances the liveability and productivity of Singapore.**

### East Coast Integrated Depot

To keep buses and trains in good health, Singapore will inaugurate the East Coast Integrated Depot (ECID) in 2025. As the world's first four-in-one depot, the ECID will integrate three train depots and one bus depot within a single site. The train depot complex will house trains from three MRT Lines – the DTL depot underground, the TEL depot at-grade, and the EWL depot elevated on the level above. This saves 44 hectares, or

approximately 60 football fields of land space. The total stabling capacity of the integrated depot is around 220 trains, while the bus depot will provide parking for about 760 buses. Construction for the ECID commenced in 2016 and is progressing well.

### Singapore Rail Test Centre

The development of the first Singapore Rail Test Centre (SRTC) (previously known as the Integrated Train Testing Centre), the first

of its kind in Southeast Asia, will further improve our train testing and maintenance capabilities. In 2022, LTA signed a Memorandum of Understanding (MOU) with the Global Centre of Rail Excellence (GCRC) to collaborate and build the capabilities of SRTC. The first phase of the project, which boasts a track capable of testing train speeds of up to 100 kilometres per hour, will be completed this year. The centre is slated to be in full operations by 2025.

### NSEWL's Six Core Systems

Finally, LTA has been working to rejuvenate the NSEWL's six core systems. Replacements of sleepers and the third rail were introduced in 2016 and 2017 respectively, and the trains switched to a new signalling system in 2018.

From mid-2023 onwards, 106 new trains will progressively be launched to replace the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> generation models of the

NSEWL trains. These new trains boast more commuter-centric features such as open spaces for strollers and wheelchairs, and will include technology like condition monitoring systems to preemptively identify emerging faults for early rectification.

Work is in progress to renew the power supply system and replace the track circuits.

## CHAPTER 2

### Sustaining a Green Transport Vision

Everyone can play a part in caring for our planet. The green footprints we leave behind will help our island to breathe a little easier in the future. We must turn the tide on climate change to mitigate global warming and adapt to rising sea levels in our low-lying city-state.

To achieve this, LTA is committed to greening our land transport system and reducing emissions in support of Singapore's net-zero goal. This is done by encouraging the switch to electric vehicles, the greening of our public transport infrastructure, and promoting sustainable commuting lifestyles.





## Accelerating Our Electric Vehicles Vision

**Electric Vehicles (EVs) will play a vital role in greening the future pathways of our urban landscape. In 2022, electric car registrations formed 11.8 per cent of all new car registrations. Close to 10,000 EVs course through the veins of the city today, and over 6,500 of them are electric cars.**

**By 2030, half of the country's public bus fleet will be electrified, and 60,000 EV charging points will be deployed islandwide. The vision is for all vehicles to run on cleaner energy by 2040.**



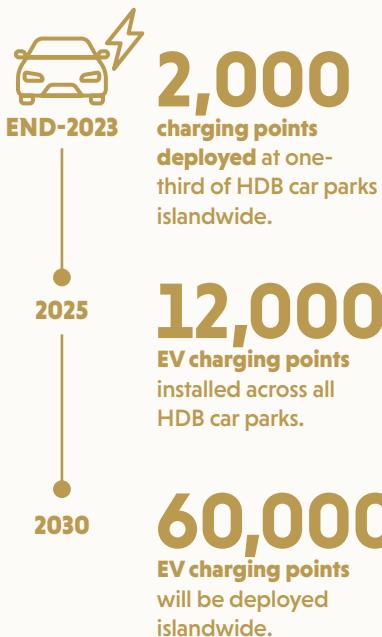
### Growing a Ready Network of Charging Options

As part of this vision, it is vital to expand the network of safe, reliable and accessible charging infrastructure in Singapore. LTA has been strengthening the regulatory framework for EV charging infrastructure under the Electric Vehicles Charging Act 2022 (EVCA), which was passed in Parliament in November 2022. The EVCA will establish rules and regulations governing the charging of EVs, including the safety and performance standards that EV chargers must meet.

A large-scale tender for EV charging points was launched in 2022. Five EV Charger Operators (EVCO) were awarded to deploy EV charging points in nearly 2,000 Housing and Development Board (HDB) car parks across the island.

In February 2023, the first batch of these charging points became operational. By 2025, 12,000 EV charging points will be installed across all HDB car parks, making every HDB town EV-ready.

To encourage charger deployment in non-landed private residences, the EV Common Charger Grant (ECCG) has been extended by another two years.



The ECCG will co-fund 50 per cent of the cost components of smart chargers until December 2025, or until 2,000 chargers have been approved for co-funding, whichever is earlier, subject to an overall cap of \$4,000 per charger.

LTA has also set up a wholly-owned subsidiary, EV-Electric Charging Pte Ltd (EV<sup>e</sup>), to oversee the deployment of EV charging points across public car parks. EV<sup>e</sup> will work with appointed EVCOS and government agencies to plan and manage the deployment of charging points, as well as coordinate the upgrading of any supporting electrical infrastructure.

### Keeping Pace with Future EV Needs

Various measures have been introduced to ensure the current EV infrastructure and charging network have the flexibility to grow with advancements in the future.

In March 2022, the national EV charging standard, Technical Reference TR25, was revised to include standards for battery swapping of electric motorcycles. In tandem with this, LTA approved two electric motorcycle and battery swapping regulatory sandbox applications, Gogoro and MO Batteries, to trial the new technologies.

To raise awareness of new skills related to EVs, partnerships have also been established with 21 organisations to train and certify automotive technicians in the safety-related areas of EV maintenance and servicing. Together with new training programmes like the National EV Specialist Safety (NESS) certification, civil defence, and industries such as automotive servicing and insurance, have initiated their own training efforts. This will prepare a pipeline of EV talents to support the adoption of such vehicles in the future.





## Spearheading Our Sustainability Efforts

**LTA is consciously going green at all stages of our projects. New sustainable methods and materials are paving the way to cleaner transportation. These will improve our air quality, ensure efficient use of resources, and reduce carbon emissions.**

### Enhancing Streets with Eco-friendly Features

Singapore's streets are becoming more eco-friendly with the use of waste plastic pavement mixes. Tapping on the Land Transport Innovation Fund (LTIF), we worked with NEA, PUB and other industry partners to test the use of waste plastic to strengthen asphalt pavements.



A study was conducted on the stretch along Jalan Buroh towards West Coast Road to assess the performance under heavy traffic loading and local weather conditions. Upon its completion in February 2023, results found potential cost savings of around 15 per cent.

Funded by the National Research Foundation, LTA also worked with NUS to develop asphalt-plastic composite materials for roads using common waste plastics. A 10-month trial commenced in February 2023 to monitor performance of the new mixes at two stretches along West Coast Highway and the eastbound Pan Island Expressway (PIE) outside NTU Yunnan Garden. These newly-developed mixes could be potentially as good or even better than existing ones, and can be used

for selected roads and expressways in future.

You might also have noticed Singapore's streets glowing brighter at night. This is part of a five-year programme to replace existing street lamps with energy-efficient light-emitting diodes (LED). Over 110,000 street lights under LTA's purview are now fitted with this lighting technology, saving more than 25 per cent of energy consumption!

### Pumping Green Initiatives into Construction

A more sustainable future starts by keeping a close watch on the carbon footprint of our projects. LTA works closely with contractors to reduce resource consumption and promote the use of greener materials or methods to lower



carbon emissions. These practices and innovative efforts have been consolidated into the "Guidebook of Sustainable Practices at LTA Sites", which was launched at the 24<sup>th</sup> Annual Safety, Health and Environmental Award Convention (ASAC) in September 2022.

Contractors are encouraged to proactively do their part for the environment. In September 2022, LTA held its inaugural Environmental Sustainability Week to raise awareness and encourage contractors to implement green initiatives and take collective action against climate change. Noteworthy initiatives from the event were also shared across projects to inspire others to do the same.

## CHAPTER 3

# Building Muscle in Our Mobility

A journey is more than getting from one place to another. Factors such as the graciousness of commuters you meet, the safety you are assured of, and the ease of movement you enjoy, all form the lifeblood of the journey experience.

Just as a muscle stretches and contracts to function smoothly, our public transport network must grow in strength and flexibility to boost the mobility experience. To keep our transport network functioning healthily, LTA is strengthening Singapore's active mobility infrastructure, introducing more inclusive public transport features, as well as actively promoting a gracious commuting culture.





## Making Move Lite an Attractive Lifestyle Choice

As part of the ForwardSG Build pillar in 2022, LTA engaged the public through a series of six focus group discussions to better understand their views on improving our land transport needs.

Overall, participants were satisfied with our public transport system and supportive of going car-lite. There was broad support for prioritising Walk Cycle Ride (WCR) modes of transport, such as through the repurposing of road spaces. With their feedback, LTA will continue to refine our transport system to enhance connectivity, walkability and inclusivity.

### Embracing an Active Lifestyle

Strengthening active mobility is central to the Move Lite experience by walking, cycling and riding. Our efforts are focused on making these modes of transport the preferred choice. Cycling paths in towns are progressively being enhanced through the Islandwide Cycling Network (ICN) and by 2030, the cycling path network will expand to around 1,300 kilometres. This will allow active mobility users to travel safely and seamlessly to their destinations.

LTA is making good progress with cycling networks in 13 HDB towns

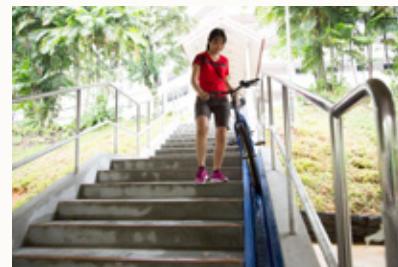


**PRES**

**550 KM**  
Cycling path networks in 13 HDB towns and estates.

2030

**1,300 KM**  
Cycling path networks in more HDB towns and estates as well as the Central Business District.



### Building Flexibility of Choice

Our bicycle-sharing landscape is growing in a sustainable manner to cater to first- and last-mile connectivity. HelloRide was granted a full bicycle-sharing licence to provide up to 10,000 bicycles from July 2023. Together with bicycle-sharing operators Anywheel and SG Bike, these operators now provide up to 41,500 bicycles across the island.

In addition, multiple measures have been taken to increase the convenience and comfort of active mobility users. Twelve roadside car parking spaces have been

repurposed into 120 additional bicycle parking spaces in the Central Business District (CBD) area. To facilitate the ease of bringing bicycles across pedestrian overhead bridges (POBs), bicycle wheeling ramps have been implemented at 12 more POBs in the past year, bringing the total number of ramps to 57 as of May 2023.

Between May 2022 and June 2023, developers of retail developments within 400 metres of any MRT station were also eligible for the Active Commute Grant (ACG). This was in addition to offices, business parks and light/general industrial

developments. Successful grant applicants would receive up to \$80,000 per project to install End-of-Trip (EOT) facilities such as showers, lockers, and drying stations to allow active mobility users to freshen up at their destinations.

Finally, a 4.6-kilometre Sunday Cycling Lane along West Camp Road was made permanent in April 2023 after a six-month trial. The lane operates every Sunday morning from 5am to 11am. During these operating hours, only buses and cyclists are allowed to use the lane, and cyclists are not subject to group size restrictions.

**SHARE**  
  
**UP TO  
41,500**  
 bicycles for shared use.

**PARKING**  
  
**120** parking spaces

**RAMPS**  
  
**57** wheeling ramps  
 to facilitate cyclists using POBs.



### Safety at the Heart of It All

Rules and codes of conduct serve as valves to regulate the responsible use of active mobility devices and path-sharing practices. This enhances the safety of those walking, cycling and riding.

The Active Mobility Advisory Panel (AMAP) conducts regular reviews of active mobility regulations, ensuring our regulations keep active mobility users safe and relevant. In March 2023, the government accepted AMAP's recommendations for the review of regulations for cargo

bicycles, cargo tricycles, rider-only tricycles and recumbents on paths and roads.

The Active Mobility Patrol (AMP) scheme was also rebranded as the Active Mobility Community Ambassadors (AMCA) programme to better reflect the broader role that volunteers play. The refreshed programme invites citizens to volunteer and educate others in their communities for greater acceptance of active mobility, and move Singapore to a gracious and safer path-sharing culture.



### Make the Switch and Move Lite Together

Just as small acts can have the biggest impact, adopting lighter modes of transport can transform our city. We can adopt WCR as a lifestyle choice – one with fewer burdens, lower carbon footprints, while experiencing more joy and positivity. This was behind the Move Lite campaign, launched in May 2022 to encourage more to embrace a "lite" lifestyle.

From May 2022 to August 2023, the "Make the Switch: The Quest for



Greener Land Transport" exhibition was held at LTA's SG Mobility Gallery. Aimed at upper primary and lower secondary school students, the exhibition featured five quests with engaging visual and tactile elements for them to learn more about greener modes of transport.

Since its launch, "Make the Switch" has hosted more than 22,000 visitors and travelled to primary schools islandwide. Together with the curated "Sustainability: I Have the Ability" school assembly

programme, LTA has reached more than 23,000 students across 21 primary schools to raise awareness of the importance of going car-lite and adopting greener commutes.



## Designing a Gracious and Inclusive Public Transport Journey

**A little effort from everyone can ensure Singapore's public transport system moves to the beat of graciousness and inclusivity.**

LTA is working with community partners, social service agencies and Public Transport Operators (PTOs), to cater for commuters with different needs. These new initiatives will improve access to our public transport network and foster a more caring commuting culture.

### Empowering Commuters with More Inclusive Features

To make bus rides more inclusive and accessible, LTA has made further improvements in consultation with social service agencies. Commuters already enjoy barrier-free access at all bus interchanges, and can now look

forward to priority queue zones at selected bus interchanges, including the Tampines North Bus Interchange (TNBI). Opened in November 2022, TNBI also offers a baby care room for families and a commuter care room for those with sensory needs.

All bus interchanges launched since 2022 have the following features, which will be progressively rolled out to other interchanges slated for upgrading, as space permits:

- Queue rails fitted with Braille signs at boarding berths to

facilitate navigation for commuters with visual impairment.

- Changing rooms and family toilets for seniors and families with children are built with automatic sliding doors, and offer audio for commuters with visual impairment to easily lock the door with a wave of their hand.

The new Passenger Information Display System (PIDS) is currently being rolled out at bus stops (known as PIDS@Stop). These provide information on incoming buses, the quickest route to

one's destination, bus arrival timings and landmarks along the route, and key travel advisories, such as changes to bus or rail services and planned maintenance works. Once completed, there will be 310 PIDS@Stop panels across the island.

All new public buses are also fitted with PIDS. These display and announce the name of the upcoming bus stop, with references to nearby landmarks or roads.

### Assisting Those with Special Commuting Needs

A new communication card has been created after consultation with various social service agencies and PTOs, to improve communication between non-verbal commuters and PTOs' frontline service staff. Launched in June 2023 for a six-month trial, PTOs will collect feedback from users of these cards. PTOs will collate feedback from users of these cards during this trial, and further refinement may be incorporated for the next print edition.

Since the end of 2022, major public transport nodes, including MRT stations, bus interchanges and Integrated Transport Hubs (ITHs), have been designated as Dementia Go-To Points. Members of the public can guide people living with dementia who appear to be lost to these safe zones, where trained public transport staff will help reunite them with their caregivers.

The Helping Hand initiative supports those who require assistance, by enabling them to



communicate their needs through cards to fellow commuters and public transport staff. In May 2023, we expanded this initiative to include two new cards: "This is a wheelchair" for paediatric wheelchair users, which may be mistaken for strollers, and "Please alert me when I am approaching my stop" for commuters such as those with visual impairments or living with dementia.

By 2025, 325 pedestrian crossings will be installed with 24/7 on-demand audible traffic signals, to help persons with visual impairment navigate roads and expand their travel options. In collaboration with the Ministry of Social and Family Development (MSF), these traffic signals will be deployed in areas with more visually-impaired persons. The initiative started with Tampines and Bedok in June 2023, and will progressively be rolled out in Ang Mo Kio, Bukit Merah, Choa Chu

Kang, Jurong West, Sengkang, Toa Payoh, Woodlands and Yishun.

### Making Way for Easy Mobility

Since 2013, LTA has been retrofitting pedestrian overhead bridges (POBs) with lifts, prioritising those near major transport nodes and healthcare institutions to support seniors and commuters with mobility challenges. As of March 2023, 77 POBs have been retrofitted, and 30 more will be completed by 2025. As our population ages,





### Supporting Seniors with Silver Zones

The safety of our seniors is a top priority. Silver Zones – areas with traffic-calming measures and senior-friendly road safety features – have proven to reduce the number of accidents involving senior pedestrians by 80 per cent. Thus far, more than 30 of our 50 Silver Zones have been implemented, and we are on track for all 50 Silver Zones to be



**MORE THAN 30**  
implemented.  
**SILVER ZONES**

completed by 2025. Measures such as staggered pedestrian crossings will be introduced where feasible, so that pedestrians intuitively face oncoming traffic before crossing the road.

### Inspiring Thoughtfulness on Public Transport

This year's Graciousness on Public Transport campaign inspired commuters to be thoughtful during their daily commutes. The campaign aimed to inspire good feelings across all five senses with a selection of audio, visual and delectable treats.



LTA collaborated with Media Arts & Design School students from Singapore Polytechnic to add a whimsical and youthful spin to the graciousness-themed train. A partnership with Burger King on a time-limited "thoughtful sundae", as well as a specially-curated "thoughtful music" playlist allowed commuters to relate to the positive feelings that result from behaving graciously towards other commuters.



### Encouraging a Caring Commuting Culture

In recognition of those who went the extra mile to care for others in need, eight individuals received the Caring Commuter Award during the Caring Commuter Week held in November 2022.

The event also raised awareness of those with different mobility needs, and how members of the public can step forward to help. As of June 2023, over 8,500 volunteers have signed up as Caring Commuter Champions to support those in need during their daily commutes.

### Greater Convenience on Travel Journeys

SimplyGo provides a range of e-payment options for fare payments on trains and buses, eliminating the need to carry a separate travel card or make any top-ups before travelling. Commuters can conveniently use their contactless bank cards (Mastercard, NETS and VISA) or add these cards to their mobile wallets for fare payments. The SimplyGo EZ-Link or Concession card allows users to enjoy a variety of ticketing services on the go via the SimplyGo mobile application, including topping up their travel card and tracking their card balance or travel expenditure. More than one in two adults today use SimplyGo for fare payments. In October 2022, SimplyGo was extended to most concession cardholders, and will be available to student concession cardholders in 2024.

In March 2023, EZ-Link and TransitLink made further improvements to commuters' ticketing journey by



integrating all ticketing and card-related services in a one-stop platform through the enhanced SimplyGo mobile application. In addition, TransitLink and EZ-link customer service staff were cross-trained to address both ticketing and card-related queries.



## CHAPTER 4

### Putting the Heart Into Our Hardware

Urban living is often associated with the hustle and bustle of traffic. Yet it is possible for our streets to become vibrant places where people from all ages and walks of life can live, work, play and flourish, just steps away from their homes.

As we move towards a car-lite future, LTA is pushing ahead to develop more inclusive, safer and inviting streets that pulse with life and support Walk Cycle Ride (WCR), both as a form of transport and way of living. From repurposed roads, Transit Priority Corridors (TPCs) to Friendly Streets, the vision is to transform spaces into vibrant and liveable places where hearts connect, communities thrive, and gracious behaviour is fostered in our communities.





## Putting People First for Friendly Streets

**Harmony between walking, cycling and riding public transport is key for a smooth flow of movement within our city. To inspire excitement for active mobility, roads are repurposed for wider footpaths or dedicated cycling paths so users may move comfortably at their own pace, whether on foot or on a bicycle.**

Road spaces are also being prioritised for buses to make commuting by public transport more convenient. With these measures in place and increasing pedestrian-friendly spaces, more activities can be organised in both neighbourhoods and the city centre. This in turn will liven our streets and revitalise the spirit of Singapore.

### Reimagining Spaces for a Thriving Community

Over the last year, our road repurposing efforts picked up the pace to enhance connections in the neighbourhoods and

foster a thriving community spirit. Even as existing projects have been completed, new ones have begun to improve the safety and comfort of those moving on foot.

Announced at the Ministry of Transport's Committee of Supply 2023, Friendly Streets builds on existing efforts such as School Zones, Silver Zones, TPCs and road repurposing to create more inclusive, people-friendly commutes. These streets include key features such as widened footpaths and raised pedestrian crossings to allow seamless walking routes for seniors, persons with disabilities and pram users. There will also be street markings to calm traffic and create a safer environment for all road users. Together, these features will enrich the WCR experience, make our neighbourhoods more accessible and foster more gracious behaviours within communities.

Friendly Streets will be piloted in five neighbourhoods by 2025 to make daily journeys to key amenities in the neighbourhoods by walking and cycling safer, more convenient and comfortable. They will be co-created with the community to cater to the differing needs in each town.

\*Completion of civil works. NParks plans to commence placemaking works from end of 2023.

## ROAD REPURPOSING COMPLETED PROJECTS

- Havelock Road (Dec 2021)
- Civic District (Dec 2021\*)
- Woodlands Ring Road (Mar 2023)
- Tiong Bahru (Aug 2023)

## UPCOMING PROJECTS

- **Friendly streets** to be piloted at Ang Mo Kio, Bukit Batok West, Tampines, Toa Payoh and West Coast.
- **Yung Sheng Road**  
An 18-metre stretch in the middle of Yung Sheng Road will be pedestrianised to enhance safety and convenience between Taman Jurong Shopping Centre and Taman Jurong Market & Food Centre. Changes include a covered linkway and improved barrier-free accessibility.

- **Choa Chu Kang Terrace**

Pedestrianising an 80-metre-long stretch along Choa Chu Kang Terrace will provide greater safety and convenience for those travelling to Sunshine Place and the future Jurong Region Line (JRL) station along Choa Chu Kang Avenue 3.





Christmas-themed trains featuring the four Caring Norms – Give Time, Give Care, Give a Hand and Give Thanks.



Rangoli-making at the Little India station led by SingaRangoli during Deepavali 2022.



Lunar New Year 2023 pillar wraps at Clarke Quay station.



Performance by Admiralty Primary School at Paya Lebar station for Hari Raya 2023.

## Enlivening Spaces by Engaging the Community

Collaborating with different parties for our repurposed roads can invigorate the city's vibrancy. LTA is working closely with partners such as the National Parks Board (NParks), Urban Redevelopment Authority (URA), Housing and Development Board (HDB), the Singapore Institute of Architects, People's Association, Singapore Kindness Movement, as well as members of the public, to breathe life into transport nodes and connect with the community.

## Events to Energise the Community Spirit

One such initiative is a car-free day organised in collaboration with West Coast Constituency

in 2022. This event transformed Clementi West Street 2 into a large community space where residents could roam freely and enjoy a mix of activities and performances. A similar street party will be held in the area again this year.

## Transforming Transport Spaces

Working with Public Transport Operators (PTOs) under the Move in Groove programme, we brought together the community, and private and public sector partners to celebrate ethnic festivals through our community programmes and public awareness messages. These collaborations increase the vibrancy of public transport spaces and encourage community participation in station activations with visual arts and dance.

The Art in Transit (AIT) programme is now Singapore's largest public art programme. To date, more than 100 local artists have been commissioned to create original artworks for our MRT stations. These artworks aim to further rejuvenate and delight commuters on their journeys.

Complementing AIT is the Gift of Art (GoA) programme, which was launched in November 2022 for organisations and individuals to donate or sponsor artworks for display in our MRT stations. You can visit Shenton Way (TEL) and Pasir Panjang (CCL) stations to see the inaugural "Bo-Men" sculptures donated by PSA International.



### Painting the Town with Kindness and Community

Community efforts have supported the redesign of train stations, bus stops, footpaths and pedestrian overhead bridges (POBs).

For two weeks in November 2022, commuters in Boon Lay were able to charge their mobile phones by performing simple exercises at a bus stop. This bus stop "gym", called Project Recharge, was a collaboration with the Ministry of Health Office for Healthcare Transformation (MOHT) and researchers from the Singapore University of Technology and Design (SUTD).

You might also have noticed a 50-metre mural on the footpath in front of Le Quest Mall at Bukit Batok. The longest of its kind in Singapore, this mural was painted by members of the public in March 2023.

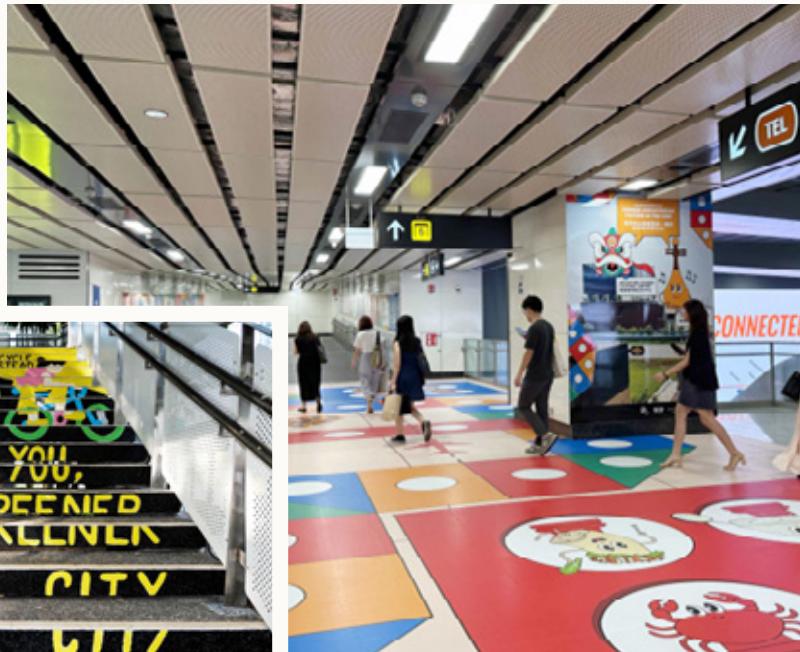


The Singapore Kindness Movement (SKM) provided the design theme "Walk, Cycle and Ride with Kindness", while People's Association (PA) rallied the community to participate and, in turn, make a stand for active mobility and a caring commuter culture.

In the same vein, Project HeARTlands was held in April 2023 with support from SKM. The project brought together Toa Payoh residents, students from First Toa



Payoh Primary School and Beatty Secondary School, as well as youth volunteers from HUG Community Services, to paint a mural on a POB across Lorong 6 Toa Payoh. This was the first time members of the public have painted a POB, and the community can look forward to more community-centred activities that will inspire residents to do their part for a greener and kinder future.





## Connections that Flow Freely with Transit Priority Corridors

**Transit Priority Corridors (TPCs) have the potential to reshape and redefine the rhythm of the way we travel. By 2030, TPCs will expand to approximately 60 kilometres, creating a strong network that branches further through the city with bus lanes, wider footpaths, and dedicated or shared cycling paths. This seamless access provides enhanced connectivity for pedestrians, cyclists, and bus commuters.**

The most exciting development in the pipeline is the North-South Corridor (NSC). At 21.5 kilometres, the NSC will be the longest TPC. It will enhance connectivity from the northern region to the city, serving areas such as Sembawang, Yishun, Ang Mo Kio, Toa Payoh, Novena and Rochor. Expect greater convenience and more WCR opportunities as traffic flows smoothly on the viaduct and in the tunnel, while surface streets are transformed for better walking, cycling, bus commutes and community spaces.



**Smoother rides and shorter travel times:** Traffic will be channelled onto NSC's elevated viaduct and underground tunnel, relieving congestion along the CTE and major roads such as Thomson and Marymount Roads.

**Greener and faster commutes:** With traffic diverted to the viaduct and underground, our surface streets can be freed up to prioritise walking, cycling and buses. Measures include bus lanes, through which bus commuters can save up to 15 minutes of travelling time from the north to the city, a new cycling trunk route to the city, and more pedestrian routes and barrier-free crossings.

**Pleasant, welcoming and safer streets in neighbourhoods:** In addition to providing more priority for walking, cycling and the use of public transport, LTA will co-create community spaces with stakeholders along the NSC.



### Changi Northern Corridor

Works are underway to smoothen traffic flow, reduce public transport commuting time and improve inter-town and intra-town connectivity at the Changi Northern Corridor (CNC). When works are completed, a 2.6-kilometre-long vehicular viaduct along Loyang Avenue will increase road capacity by bringing traffic travelling

between TPE and Changi Village onto the viaduct, bypassing traffic junctions along Loyang Avenue with Pasir Ris Drive 1 and 3.

Loyang Avenue, which is located after Loyang Way, Telok Paku Road, Nicoll Drive and Changi Coast Road, will also be widened from the current dual two-lane carriageway to a dual four-lane carriageway.



→ **CLICK TO WATCH VIDEO**  
See how we are redefining journeys with the CNC at [go.gov.sg/watch-vidcnc](http://go.gov.sg/watch-vidcnc)



## Revitalising the Connectivity of Roads



**A modern city relies on going car-lite and keeping our roads well-connected and maintained.**

### KJE/Senja Road Interchange

In December 2022, LTA opened the Kranji Expressway (KJE)/ Senja Road Interchange, providing motorists with seamless connections between Senja Road, KJE and Bukit Timah Expressway (BKE). Residents in Senja, Jelapang and Segar now enjoy a shorter, more convenient route between the two expressways.



### Tampines Viaduct

The opening of the 1.8-kilometre-long Tampines Viaduct in February 2023 offers motorists an additional and direct route to travel from the Tampines Expressway-Pan Island Expressway (TPE-PIE) to either PIE (Tuas) or Upper Changi Road East.

This is done by bypassing the TPE (PIE) stretch between Loyang Flyover and Upper Changi Flyover, and the existing signalised junction at Upper Changi Road North/East.

### Relocation of PIE Exit 26A

In May 2023, Exit 26A on the Pan Island Expressway (PIE) was relocated to the left side of the expressway, providing motorists travelling along PIE (Tuas) with a smoother and safer exit as they continue towards Dunearn Road, Clementi Road and Upper Bukit Timah Road.

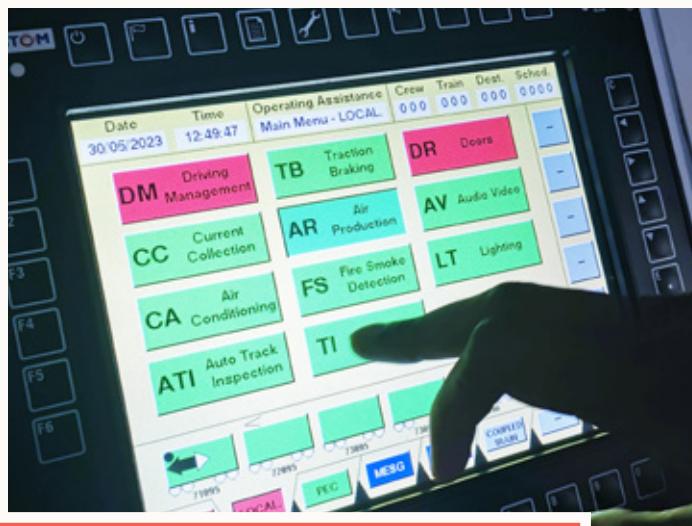
## CHAPTER 5

### Keeping a Pulse on Possibilities

As the world constantly evolves, industries must embrace technology, innovate and continuously upskill to keep in step with new advancements. The land transport ecosystem is no exception.

By adopting new digital technologies, encouraging innovation, and strengthening our workforce capabilities, LTA keeps the pulse on all possibilities to ensure our land transport industry beats in sync with the pace of innovation.





## Speeding Up Our Digital Adoption

**Embracing technology allows our land transport ecosystem to enrich our city's vitality and quality of life.**

### Bringing Greater Efficiency and Convenience

Leveraging technology for the construction of roads, rail stations and trains, has increased the convenience and efficiency of processes. Utilising digital solutions has also reduced the need for manual and frequent maintenance of public transport systems, allowing for a smoother, seamless flow of commuters.

The Digital LTA Vocational Licence offers greater convenience to vocational licence holders. Available on the Singpass mobile application since April 2023, vocational licence holders need not worry about replacing a lost or damaged physical card. Instead, they can use this legally-recognised vocational licence, which also serves as identification for those seeking entry at perimeter control points at Jurong Island and restricted airport areas.

### Fostering the Spirit of Open Innovations

Active collaboration with agencies and other partners is essential for innovation to take root within Singapore's land transport industry.

Last year, a Memorandum of Understanding (MOU) was signed with AB Storstockholms Lokaltrafik of Sweden to cultivate best practices in the development, operation and maintenance of public transport systems. This knowledge sharing has the potential to rejuvenate rail asset management and renewal, digitalisation of public transport, as well as the manner in which operations and maintenance contracts are conducted.

The Land Transport Innovation Portal (LTIP) fosters the spirit of open innovation and revitalises our land transport ecosystem for better performance by encouraging interested innovators from the larger land transport ecosystem to work with LTA and co-develop solutions to realise our Land Transport Master Plan 2040 goals. Launched in September 2022, the one-stop platform keeps academia and industry partners up to date with LTA's innovation challenges and calls for solutions, and allows them to engage LTA on their ideas and proposals.

Through the LTIP, we received more than 100 ideas and proposals from the land transport industry.

Some are being trialled with careful consideration of their feasibility and effectiveness in addressing Singapore's challenges.

For example, since September 2022, LTA has been working on a robotic inspection process of road tunnel ventilation fans to improve safety and efficiency. A separate trial is also ongoing to explore the use of geographic information system (GIS) based data analytics to improve the efficiency and time needed to process applications for oversized vehicle movement permit.

The LTIP also enables LTA to support ground-up innovations and trials for innovative technology which may not be covered under the scope of current standards and regulations, such as for Electric Vehicle (EV) battery swapping and charging systems for electric Heavy Goods Vehicles (e-HGVs). With regulatory sandboxes established, trials can now take place in a controlled environment, allowing us to better understand the use cases from the industry and impact of technology in our local context.



## Deepening Our Workforce Capabilities

**Dedicated individuals are the muscles of our land transport sector. They work in united strength to maintain and boost our city's land transport system, while the support of industry partners keeps us growing and innovating.**

The public transport sector workforce stands at around 22,000 strong today. About 1,000 of these jobs have been created since 2018 from the rail sector, and over 800 more positions are expected to open in tandem with the development of the Jurong Region Line (JRL) and Cross Island Line (CRL).

To meet the transport needs of the future and reach the goal of at least four per cent growth in

the public transport workforce by 2025, our workforce capabilities must be cultivated, trained and strengthened in tandem.

### Building Workforce Endurance for the Future

In June 2022, LTA Academy also rolled out a three-day Road Geometric Design course to help Qualified Persons (QP), traffic consultants, and government agency officers understand road design requirements and how to prepare hands-on road geometric designs and plans. The inaugural

course was attended by 20 external participants. The response was positive, and plans are underway to organise future sessions.

In July 2022, LTA and the Singapore Institute of Architects (SIA) signed a Memorandum of Understanding (MOU) to help architects deepen their capabilities in planning and designing transport infrastructure. Through the joint offering of courses, seminars, webinars (with the opportunity to speak at each other's events) and opportunities for design competitions and pilot projects, the collaboration also hopes to increase Singapore architects' appreciation of transport planning and design, and encourage cross-learning.

### Developing Our Strength in Numbers

Equally important is to continually engage workers in the transport sector.

On this front, one major initiative is the Singapore International Transport Congress and Exhibition (SITCE). Held in November 2022 and themed "Heartbeat of Mobility", the three-day congress and exhibition brought in more than 120 exhibiting companies and sponsors, over 1,100 delegates, as well as 125 speakers and moderators to discuss strategies, initiatives, technologies and latest rail transport solutions for a more sustainable, resilient and seamless public transport. The SITCE also focused on improvements that will build a safer, more inclusive and convenient commuter experience.

The BusTech Grand Challenge was also held in November 2022 to recognise the talents of bus technicians in the areas of mechanical, electrical and diagnostic skills. The second run of the challenge added a new category for students from Institutes of Higher Learning (IHL). It allowed the students to showcase their interest in automotive engineering and inspire them to consider a technical career in land transport.



### Ensuring Safety and Sustainability in Every Beat

Just like how regular exercise gives long-term benefits to the body, equipping our workforce with safe and sustainable practices ensures a reliable and future-ready land transport system.

LTA recognised 60 organisations for their outstanding efforts in Workplace Safety, Health and Environmental excellence at the 24<sup>th</sup> Annual Safety, Health and Environmental Convention (ASAC) in September 2022.

We also celebrated the contributions of our approximately 23,000 public transport workers workers to safe, smooth and reliable rides daily at the annual Public Transport Workers' Appreciation Day (PTWA) in November 2022 at the Toa Payoh HDB Hub. Themed "Safe Journeys with our PT Workers", PTWA 2022 showcased different public transport vocations of both frontline and backend workers, through a series of activity booths and exhibition panels.

Students from St Margaret's Primary School also joined in the celebrations

by preparing and distributing 200 hand-written appreciation messages on postcards to the public transport workers at the event.

To amplify our community outreach efforts, LTA launched a slogan contest for primary and secondary school students. The initiative garnered around 1,700 entries and shortlisted ones were posted on the Singapore Kindness Movement website for online voting. The nine winners of the contest were also presented with prizes at the event. These are just some of the many

initiatives LTA has embarked on over the last year to enhance Singapore's land transport systems. The future holds exciting changes that will improve the lives of our commuters, while continuing our sustainability, digitalisation and innovation efforts.

We stay committed to shaping the pulse of the city so Singapore's vibrancy, economic growth and liveability can endure.

# Awards

## Minister's VFM Achievement Award 2022

### Distinguished

LTA reduced utility diversions by installing protective walls underground. These L-shaped protection walls allowed us to free up space to divert and lay utilities closer to future station structures. Besides earning this award for the time and cost savings gained on the CRL – Punggol Extension MRT project, this innovative method also reduces the risk of utility damage during future station construction work.

## Minister's VFM Achievement Award 2022

### Distinguished

This award recognises LTA's innovation in optimising the design of the Jurong Region Line (JRL) viaduct bearing for operations and maintenance work.

JRL is the third MRT line in Singapore to be constructed with elevated tracks. Although viaducts that run parallel to roads are beneficial from a land planning perspective, the operation and maintenance of viaducts can pose a challenge. Besides needing to be monitored when it is due for bearing replacement work (around 20 to 30 years after completion of the structure), maintenance must have minimal impact on road operations and safety.

The JRL bearing arrangement was designed to resolve these concerns, bringing a total savings of up to \$143 Million from both CAPEX and OPEX.

## Minister's Innovation Award (Social Media) 2022

### Distinguished

The arrival of new trains is always an exciting milestone for the public. Beyond a typical social media post to announce their arrival, we offered our followers an exclusive sneak peek of these new trains via Facebook Livestreams. This approach was not only highly interactive, as netizens could engage with us in real-time, it was also a refreshing tactic that helped reach new audiences.

We garnered and earned over 140,000 impressions, 60,000 views and 35,000 engagements organically. The award was given in recognition of our novel digital undertaking.

## Minister's Innovation Award 2022

### Merit

The Caring Commuter Champion initiative promotes a caring culture among commuters, by encouraging and providing volunteers with resources to identify and offer appropriate help to commuters with differing mobility needs.

Curated with SG Enable and various social service agencies, the programme included practical activities such as learning journeys with beneficiaries to take public transport and inclusive training workshops organised in collaboration with Social Service Agencies and Public Transport Operators. These efforts provided meaningful hands-on experiences for volunteers to share and care for others on their daily commute. The programme has been well-received and obtained this award in recognition of its effectiveness to help the public address concerns of being uncertain of how to offer assistance to others.

# Awards

## Minister's Innovation Award 2022

### Merit

To overcome challenges caused by COVID-19 and the resulting workforce crunch, LTA, with our contractor and consultants, brainstormed ways to enhance productivity at the Kim Chuan Depot Extension. A movable table formwork allowed us to eliminate the repetitive cycle of assembling and dismantling formwork for internal passageway construction. This innovative solution reduced the time taken to construct the four kilometre-long passageway from 27 workdays to complete a 30-metre segment to around 24 days.

Besides saving time and human resources, this method also reduces safety hazards arising from assembly and dismantling, earning it this award.

## Minister's Innovation Award (Social Media) 2022

### Merit

We were awarded for creatively executing LTA's Graciousness on Public Transport campaign in spite of the unprecedented challenges brought about by COVID-19's safe management measures.

With physical events being curtailed, we switched to a digital-first engagement strategy to ensure our messages about being gracious on public transport continued to resonate with the public. Underpinning this key strategy was our first-ever Thoughtful Bunch e-storybook that was co-created with PCF Sparkletots' pre-schoolers, with McDonald's and the National Library Board as our distribution partners. Our campaign posts received an average reach of 74,000, which surpassed our average reach for Instagram by 180%.

## Minister's VFM Achievement Award

### Merit

This award was given to us for the savings of over \$400 million from optimising the CRL fleet size.

As part of a multi-prong approach to optimise the CRL fleet size, the team reviewed the best way to optimise the headways by reassessing the operations and optimising the parameters, such as increasing the maximum operational train speed. Instead of operating an end-to-end service, the team designed an inner loop for stations with higher demands for trains to run at shorter intervals. In addition, we also re-evaluated the conventional approach of calculating spares, and catered a fixed quantum for specific routine maintenance.

## MARkies 2023 (Most Creative – Influencers/Key Opinion Leaders)

### Gold

We received the Gold Award in MARkies 2023 for our innovative approach to working with Key Opinion Leaders.

In celebration of the Thomson-East Coast Line 3 (TEL3) Opening Event, LTA hosted interactive streams on Facebook Live to engage the public and curated an original #TEL3PortAway audio to creatively feature our iconic MRT train door closing chime on TikTok.

LTA was the first government agency to partner Klook (a popular travel, lifestyle content publisher) to incorporate gamification into our digital campaign. We recorded a physical turnout of 600,000 visitors at TEL3 Opening Event, where a series of online content also reached about seven million people.

# Contracts Awarded in FY2022/23

Contract	Contractor / Consultant	Description
<b>CROSS ISLAND LINE-PUNGOL EXTENSION</b>		
P102	CES_SDC Pte. Ltd. - Chip Eng Seng Contractors (1988) Pte Ltd Joint Venture	Design and Construction of Riviera Interchange Station and Tunnels for CRL – Punggol Extension
P103	Taisei Corporation - China State Construction Engineering Corporation Limited Singapore Branch Joint Venture	Design and Construction of Elias Station and Tunnels for CRL – Punggol Extension
P105	Woh Hup (Private) Limited	Design and Construction of Punggol Interchange Station and Tunnels for CRL – Punggol Extension
P1023	WSP Consultancy Pte. Ltd.	Accredited Checker Services for Cross Island Line Civil Contracts P102, P103, P105, CR202
P1031	RCY Pte. Ltd.	Supply, Installation and Monitoring of Instruments for CRL – Punggol Extension Contract P103
P1032	GeoApplication Engineers Pte Ltd	Appointment of Qualified Person (Supervision) Including Qualified Site Supervisors for the Supervision of CRL – Punggol Extension Contract P103
P1051	RCY Pte. Ltd.	Appointment of Qualified Person (Supervision) Including Qualified Site Supervisors for the Supervision of CRL – Punggol Extension Contract P105
P1052	Ryobi Geotechnique International Pte Ltd	Supply, Installation and Monitoring of Instruments for CRL – Punggol Extension Contract P105
Contract	Contractor / Consultant	Description
<b>JURONG REGION LINE</b>		
J115A	Hwa Seng Builder Pte Ltd	Design and Construction of JW5 Station and Viaduct for Jurong Region Line
J115A1	TERS Consulting Pte. Ltd.	Qualified Person (Supervision) Services for Contract J115A Jurong Region Line (Phase 2)
J171	Schindler Lifts (Singapore) Pte Ltd	Design, Supply and Installation of Lifts and Escalators for Integrated Transport Hub at Jurong East
J173A	Shinryo Corporation	Supply and Installation of Mechanical Services for Tengah Depot
J173B	Kandenko Co Ltd	Supply and Installation of Mechanical Services for Jurong Region Line Stage 1
J175A	Puretech Engineering Pte Ltd	Supply and Installation of Electrical Services for Tengah Depot
J175B	Guthrie Engineering (S) Pte Ltd	Supply and Installation of Electrical Services for Jurong Region Line Stage 1

# Contracts Awarded in FY2022/23

Contract	Contractor / Consultant	Description
<b>CROSS ISLAND LINE</b>		
CR150	China Railway First Group Co., Ltd. Singapore Branch	Trackwork for Cross Island Line Phase 1
CR159	Siemens Mobility Pte. Ltd. / Siemens Mobility GmbH / Concord Corporation Pte. Ltd. Consortium	Overhead Conductor Rail System for Cross Island Line
CR161	ST Engineering Urban Solutions Ltd.	Facility for Commercial Info-Communication Services for Cross Island Line (CRL)
CR202	Obayashi Corporation - Shanghai Tunnel Engineering Co (Singapore) Pte Ltd Joint Venture	Design and Construction of Bored Tunnel between Fairways Drive and Sin Ming Walk and Associated Works
CR1011	Alliance Consulting Engineers Pte Ltd	Provision of Qualified Person Supervision for Contract CR101
CR1091	GeoAlliance Consultants Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 3 (Package A - Contracts CR109 & CR111)
CR1092	Fosta Pte. Ltd.	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 3 - (Package A - Contracts CR109 & CR111)
CR1093	T. Y. Lin International Pte Ltd	Accredited Checking Services (Package 3) for Cross Island Line Phase 1
CR1171	GeoAlliance Consultants Pte Ltd	Instrumentation and Monitoring for Cross Island Line Phase 1 Civil Contracts Package 3 - (Package B - Contract CR117)
CR1172	Fosta Pte Ltd	Provision of Qualified Person Supervision for Cross Island Line Phase 1 Package 3 - (Package B - Contract CR117)
CR1206	KB Associates Pte Ltd	Independent Compressed Air Works Consultancy and On-site Audit Services for Cross Island Line Phase 1 (CRL1) and Cross Island Line – Punggol Extension
CR2016	Jin Choon Civil Engineering Pte Ltd	Utilities Diversion and Associated Works
CR2021	TERS Consulting Pte. Ltd.	Appointment of Qualified Person (Supervision) Including Qualified Site Supervisors for Contract CR202
CR2022	Ryobi Geotechnique International Pte Ltd	Supply, Installation and Monitoring of Instruments for Contract CR202
CR3005	DP Architects Pte. Ltd. / T.Y. Lin International Pte Ltd	Advance Engineering Study for the Cross Island Line Phase 3 (CRL3) - Depot
CR3006	Aedas Pte. Ltd. / AECOM Singapore Pte Ltd	Advance Engineering Study for the Cross Island Line Phase 3 (CRL3) - Mainline
CR3008	WSP Consultancy Pte. Ltd.	Mechanical and Electrical Engineering Services for the Cross Island Line Phase 3 (CRL3) - Depot
CR3009	WSP Consultancy Pte. Ltd.	Mechanical and Electrical Engineering Services for the Cross Island Line Phase 3 (CRL 3) - Mainline

# Contracts Awarded in FY2022/23

Contract	Contractor / Consultant	Description
<b>SENGKANG PUNGGOL LIGHT RAPID TRANSIT/ RAPID TRANSIT SYSTEM / CIRCLE LINE 6 / NORTH-EAST LINE EXTENSION</b>		
810G	Puretech Engineering Pte Ltd	Mechanical and Electrical Services for Sengkang Punggol Light Rapid Transit (SPLRT) Depot Expansion
810H	China Railway Electrification Engineering Group Co., Ltd. (Singapore Branch) / Concord Corporation Pte. Ltd. / China Railway International Group Co., Ltd. Consortium	Power Supply System Enhancement for Sengkang Punggol Light Rapid Transit (SPLRT) Depot Expansion
8506	Guthrie Engineering (S) Pte Ltd	Supply, Delivery, Installation, Testing and Commissioning of UPS & EPS System for Kim Chuan Depot, Circle Line Stage 6 Mainline and North East Line Extension
RS146	ST Engineering Urban Solutions Ltd.	AFC Power and Network Infrastructure for DT04 CCL6 and Network Infrastructure Upgrading for CCL
T273R	Koyo Engineering (S.E. Asia) Pte. Ltd.	Supply and Installation of Mechanical Services for Rapid Transit System (RTS) Link Station, Tunnels and CIQ Building
T275R	Sing Moh Electrical Engineering Pte Ltd - China Jingye Engineering Corporation Limited (Singapore Branch) Joint Venture	Supply and Installation of High Voltage, Low Voltage, Communications and Security Systems for Rapid Transit System (RTS) Link Station, Tunnels & CIQ Building

**TOTAL SUM AWARDED for RAIL PROJECTS**

**\$5 BILLION**

Contract	Contractor / Consultant	Description
<b>ROADS / COMMUTER FACILITIES</b>		
AM110	CPC Construction Pte Ltd	Design and Construction of Cycling Path Network
AM116	AECOM Singapore Pte Ltd	Engineering Consultancy Services for Cycling Path Network
DE160	Hwa Seng Builder Pte Ltd	Enhancement to Loyang Avenue between Tampines Expressway and Pasir Ris Drive 3
DE177	Or Kim Peow Contractors (Private) Limited	Commuter Infrastructure Enhancement
DE183	CCECC Singapore Pte Ltd	Proposed Bus Facility Works
DE190	Surbana Jurong Consultants Pte. Ltd.	Architectural / Engineering Services and Site Investigation Works at Pedestrian Overhead Bridges (Package 3)
DE191	Surbana Jurong Consultants Pte. Ltd.	Architectural / Engineering Services and Site Investigation Works at Pedestrian Overhead Bridges (Package 4)
DE196	K.G.M. Brothers Contractors Pte Ltd	Utilities Detection and Study for Commuter Infrastructures
DE197	Kim Tiong Huat Contractor Pte Ltd	Utilities Detection and Study for Commuter Infrastructures
DE1601	HS Engineering Consultants	Appointment of Qualified Person (Supervision) for Contract DE160
DE1701	BRK Pte Ltd	Appointment of Qualified Person (Supervision) for Contract DE170
RC133	Samwoh Corporation Pte. Ltd.	Road Infrastructure Works

## Contracts Awarded in FY2022/23

Contract	Contractor / Consultant	Description
<b>ROAD MAINTENANCE</b>		
TR317	Swee Builders Pte Ltd	Upgrading of Selected Vehicular Underpasses
TR370	CHC Construction Pte Ltd	Road Structures & Facilities Maintenance Contract
TR371	Chan & Chan Engineering Pte Ltd	Regular Inspection and Maintenance for Road Tunnels and Vehicular Underpasses
TR372	Ley Choon Constructions and Engineering Pte Ltd / Gim Tian Civil Engineering Pte Ltd Joint Venture	Road Maintenance Contract for Expressways
TR376	Ley Choon Constructions and Engineering Pte Ltd / Gim Tian Civil Engineering Pte Ltd Joint Venture	Functional Maintenance for Road Structures and Facilities
TR386	Double-Trans Pte Ltd	Road Maintenance Contract for North East Sector
TR387	Eng Lam Contractors Co (Pte) Ltd	Road Maintenance Contract for South East Sector
TR388	CHC Construction Pte Ltd	Road Maintenance Contract for North West Sector
TT253	ST Engineering Urban Solutions Ltd.	Maintenance of Unified Maintenance HUB 2.0 (UMH 2.0)
TT255	ATS Traffic Pte Ltd	Comprehensive Maintenance of GLIDE System

# Contracts Awarded in FY2022/23

Contract	Contractor / Consultant	Description
<b>ROADS / COMMUTER FACILITIES</b>		
TD116A	Shell Eastern Petroleum (Pte) Ltd / Zeco Systems Pte. Ltd. Consortium	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the North Zone N1
TD116B	ComfortDelGro Engineering Pte. Ltd./ ComfortDelGro ENGIE Pte. Ltd. / ENGIE South East Asia Pte. Ltd. Consortium	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the North Zone N2
TD116C	SP Mobility Pte. Ltd.	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the North-East Zone NE1
TD116D	Shell Eastern Petroleum (Pte) Ltd / Zeco Systems Pte. Ltd. Consortium	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the North-East Zone NE2
TD116E	SP Mobility Pte. Ltd.	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the East Zone E1
TD116F	Strides Automotive Services Pte Ltd / YTL PowerSeraya Pte. Limited / YES Energy Service Co., Ltd / Airetec Pte. Ltd. Consortium	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the East Zone E2
TD116G	ComfortDelGro Engineering Pte. Ltd. / ComfortDelGro ENGIE Pte. Ltd. / ENGIE South East Asia Pte. Ltd. Consortium	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located In West Zone W1
TD116H	Charge+ Pte. Ltd.	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the West Zone W2
TD116I	Charge+ Pte. Ltd.	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the Central Zone C1
TD116J	Strides Automotive Services Pte Ltd / YTL PowerSeraya Pte. Limited / YES Energy Service Co., Ltd / Airetec Pte. Ltd. Consortium	Deployment of Electric Vehicle Charging Points in HDB Car Parks Located in the Central Zone C2
TD117A	HY M&E Consultancy Services Pte. Ltd. - Regional Engineering Pte. Ltd. Joint Venture	Advance Engineering Study for the Upgrading of Substations and Consumer Switch-Rooms in Residential Carparks (Mechanical & Electrical Discipline)
TD117B	3P Ecotecture Pte. Ltd.	Advance Engineering Study for the Upgrading of Substations and Consumer Switch-Rooms in Residential Carparks (Architectural Discipline)
TD117C	ECAS Consultants Pte. Ltd.	Advance Engineering Study for the Upgrading of Substations and Consumer Switch-Rooms in Residential Carparks (Civil & Structural Discipline)
<b>TOTAL SUM AWARDED FOR ROADS &amp; OTHER PROJECTS</b>		<b>\$1.6 BILLION</b>

# FY2022/23 Financial Highlights

1

## STATEMENT OF COMPREHENSIVE INCOME

The Authority recorded a net surplus of \$12M in FY2022. Operating income was \$1,987M, an increase of \$240M (14%) from FY2021. Operating expenditure was \$4,951M, an increase of \$296M (6%) from FY2021. Government Grants was \$2,923M, a decrease of \$3M (0.1%) from FY2021.

FY2022	General fund \$'M	Railway Sinking Fund \$'M	Bus & Rail Contracting \$'M	Total \$'M	FY2021	General fund \$'M	Railway Sinking Fund \$'M	Bus & Rail Contracting \$'M	Total \$'M
Management Fee from Government	849	-	-	849	Management Fee from Government	797	-	-	797
Fare Revenue	-	-	841	841	Fare Revenue	-	-	648	648
Rapid Transit System Licence Charge	-	1	-	1	Rapid Transit System Licence Charge	-	20	-	20
Other Operating Income	183	-	113	296	Other Operating Income	172	1	109	282
<b>Operating Income</b>	<b>1,032</b>	<b>1</b>	<b>954</b>	<b>1,987</b>	<b>Operating Income</b>	<b>969</b>	<b>21</b>	<b>757</b>	<b>1,747</b>
<b>Operating Expenditure</b>	<b>(2,490)</b>	<b>(114)</b>	<b>(2,347)</b>	<b>(4,951)</b>	<b>Operating Expenditure</b>	<b>(2,376)</b>	<b>(92)</b>	<b>(2,187)</b>	<b>(4,655)</b>
<b>Other Gains - Net</b>	<b>18</b>	<b>26</b>	<b>9</b>	<b>53</b>	<b>Other Gains - Net</b>	<b>6</b>	<b>13</b>	<b>1</b>	<b>20</b>
<b>Deficit before Government Grants</b>	<b>(1,440)</b>	<b>(87)</b>	<b>(1,384)</b>	<b>(2,911)</b>	<b>Deficit before Government Grants</b>	<b>(1,401)</b>	<b>(58)</b>	<b>(1,429)</b>	<b>(2,888)</b>
<b>Government Grants</b>	<b>1,489</b>	<b>25</b>	<b>1,409</b>	<b>2,923</b>	<b>Government Grants</b>	<b>1,475</b>	<b>5</b>	<b>1,446</b>	<b>2,926</b>
<b>Net Surplus/(Deficit)</b>	<b>49</b>	<b>(62)</b>	<b>25</b>	<b>12</b>	<b>Net Surplus/(Deficit)</b>	<b>74</b>	<b>(53)</b>	<b>17</b>	<b>38</b>

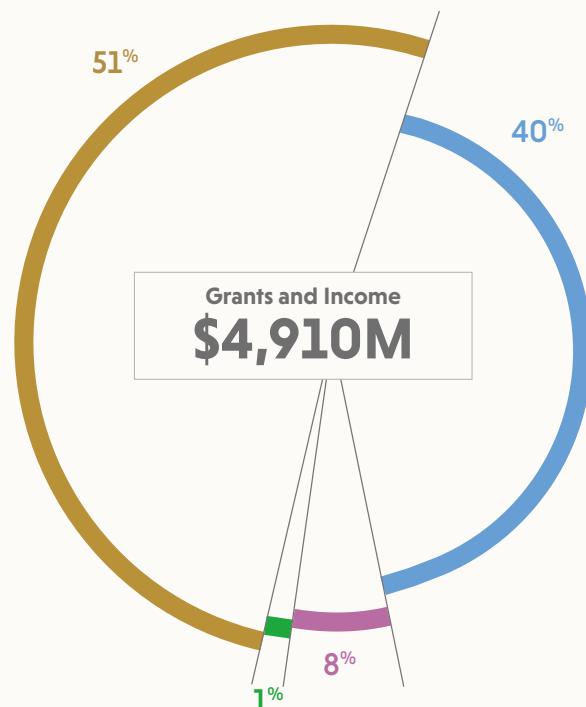
\* The full Financial Statements are available at [https://www.lta.gov.sg/content/ltagov/en/who\\_we\\_are/statistics\\_and\\_publications/reports.html](https://www.lta.gov.sg/content/ltagov/en/who_we_are/statistics_and_publications/reports.html)

# FY2022/23 Financial Highlights

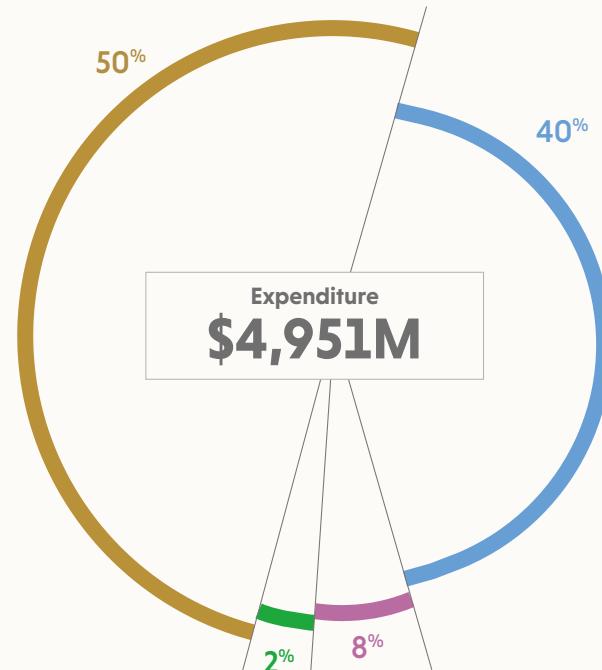
2

## GOVERNMENT GRANTS, OPERATING INCOME AND EXPENDITURE

The Authority recognised total grants and income amounting to \$4,910M and incurred expenditure amounting to \$4,951M.



● General fund	\$2,521M
● Restricted fund - Railway Sinking Fund	\$26M
● Restricted fund - Bus Contracting	\$1,982M
● Restricted fund - Rail Contracting	\$381M



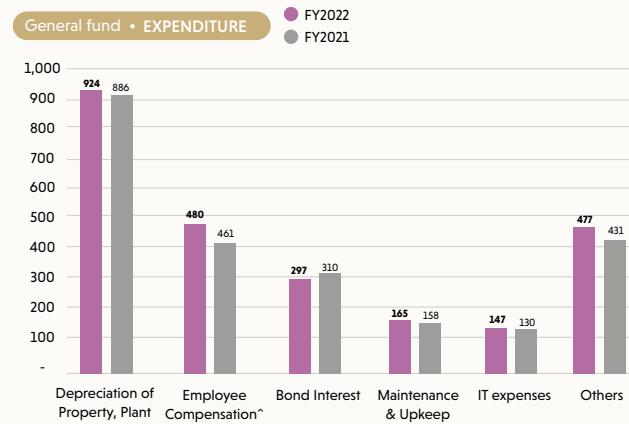
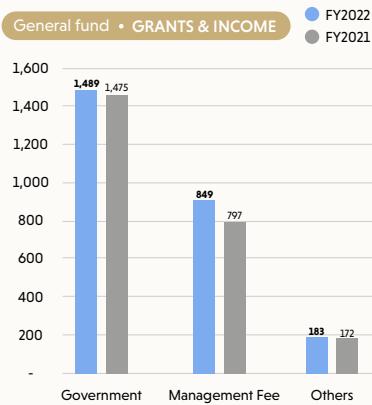
● General fund	\$2,4901M
● Restricted fund - Railway Sinking Fund	\$114M
● Restricted fund - Bus Contracting	\$1,966M
● Restricted fund - Rail Contracting	\$381M

# FY2022/23 Financial Highlights

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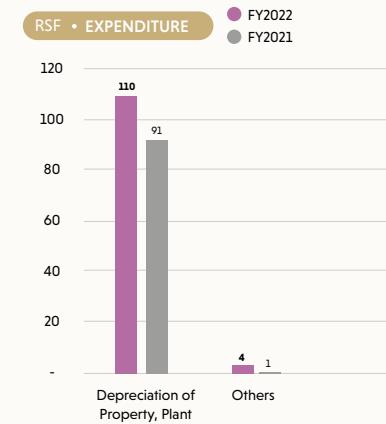
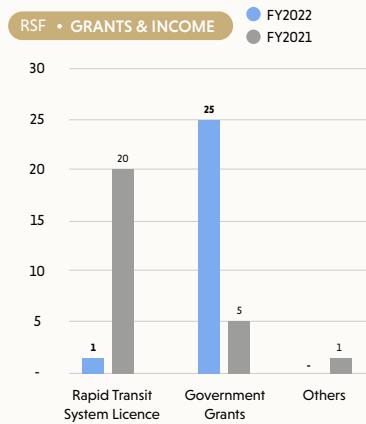
## GOVERNMENT GRANTS, OPERATING INCOME AND EXPENDITURE

### GENERAL FUND

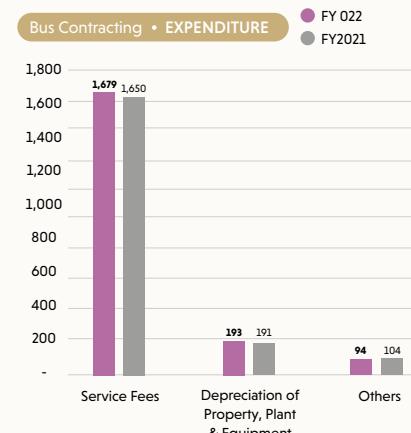
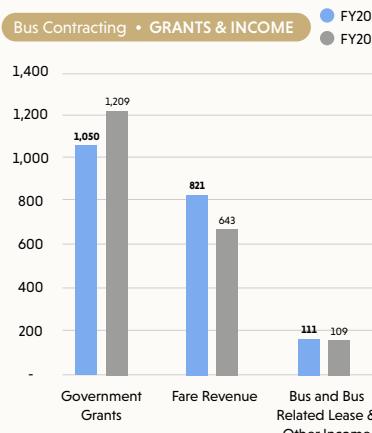


\*Employee Compensation is net of amounts capitalised in property, plant and equipment.

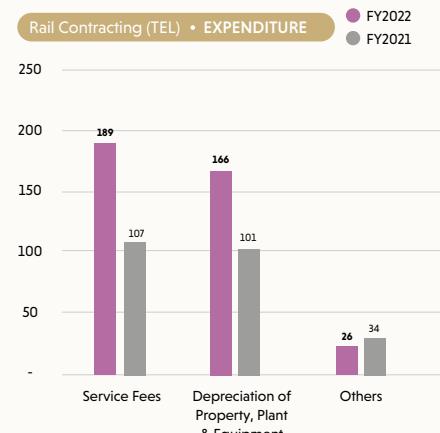
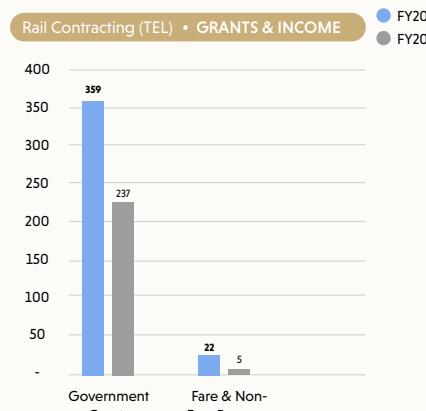
### RESTRICTED FUND – RAILWAY SINKING FUND



### RESTRICTED FUND - BUS CONTRACTING



### RESTRICTED FUND - RAIL CONTRACTING

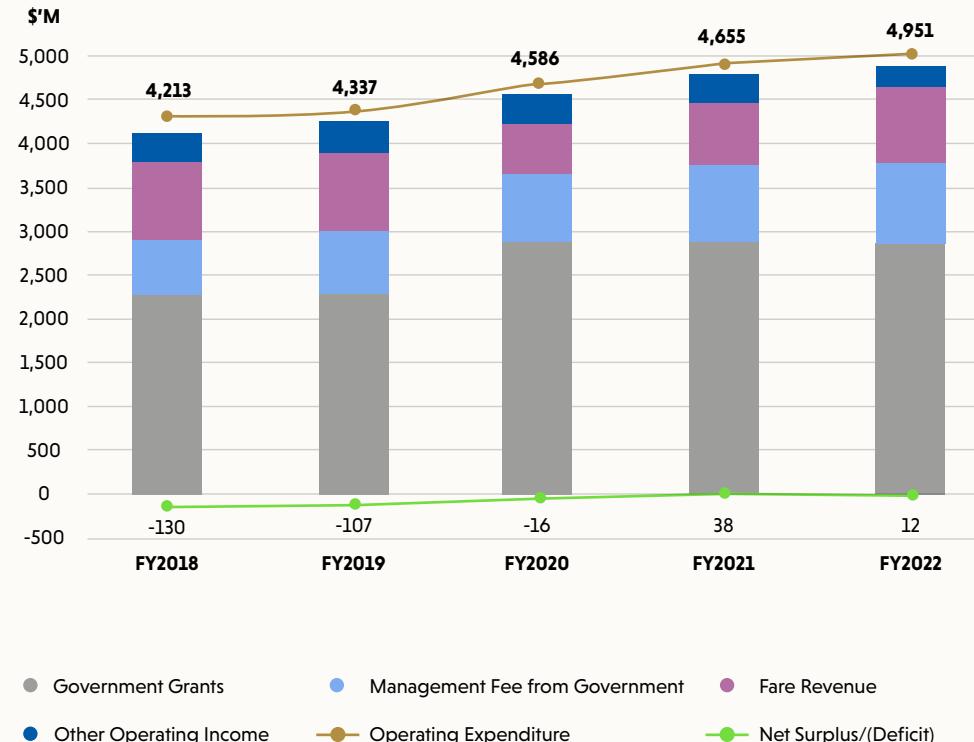


## FY2022/23 Financial Highlights

### 3 BALANCE SHEET

	FY2022 \$'M	FY2021 \$'M	Variance \$'M
<b>Property, Plant &amp; Equipment</b>	<b>61,809</b>	<b>61,330</b>	<b>479</b>
- Rail Viaducts and Tunnels	13,560	12,026	1,534
- Stations, Buildings and Structures	18,773	15,180	3,593
- Rail Rolling Stock	2,978	2,915	63
- Buses & Bus Related Assets	1,046	1,222	(176)
- Construction-In-Progress	16,469	21,585	(5,116)
- Others	8,983	8,402	581
<b>Non-Current Assets</b>	<b>6,362</b>	<b>6,754</b>	<b>(392)</b>
<b>Current Assets</b>	<b>12,935</b>	<b>10,812</b>	<b>2,123</b>
<b>Assets</b>	<b>81,106</b>	<b>78,896</b>	<b>2,210</b>
<b>Equity</b>	<b>5,511</b>	<b>5,523</b>	<b>(12)</b>
<b>Deferred Government Capital Grants</b>	<b>59,461</b>	<b>58,544</b>	<b>917</b>
<b>Long-Term Borrowings</b>	<b>8,650</b>	<b>8,850</b>	<b>(200)</b>
<b>Non-Current Liabilities</b>	<b>529</b>	<b>581</b>	<b>(52)</b>
<b>Current Liabilities</b>	<b>6,955</b>	<b>5,398</b>	<b>1,557</b>
<b>Equity &amp; Liabilities</b>	<b>81,106</b>	<b>78,896</b>	<b>2,210</b>

### 4 5-YEAR FINANCIAL SUMMARY



\* The full Financial Statements are available at [https://www.lta.gov.sg/content/ltagov/en/who\\_we\\_are/statistics\\_and\\_publications/reports.html](https://www.lta.gov.sg/content/ltagov/en/who_we_are/statistics_and_publications/reports.html)



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