

SMRT TRAINS LTD. OPERATIONS REVIEW 2019



Our Vision

Moving People, Enhancing Lives

Mission

To deliver a public transport service that is safe, reliable and commuter-centred

Core Values

Integrity Service & Safety Excellence

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Milestones

1987

Singapore Mass Rapid Transit (MRT) is incorporated.



Singapore's first MRT system begins operations with inaugural service between Yio Chu Kang and Toa Payoh on the North-South Line (NSL)

1988

Fifteen more stations open and the MRT system is officially launched by Singapore's first Prime Minister, the late Mr Lee Kuan Yew.

1990

Boon Lay MRT station on the East-West Line (EWL) opens, marking the completion of the system.

1996



The NSL is extended to Woodlands, completing the loop.

1999



Singapore's first light rail system, the Bukit Panjang Light Rail Transit (LRT), opens for passenger service.

2000

SMRT Corporation Ltd (SMRT Corp) is listed on Singapore Exchange (SGX).

2001



SMRT Corp launches its Learning Journey Programme in collaboration with the Ministry of Education.

2002



Changi Airport MRT Station opens.

2005

Raffles Xchange, the first MRT station to be redeveloped for transit retail, is launched.

2008



'SMRT is Green' is launched organisationwide as a commitment to environmental sustainability.

Choa Chu Kang Xchange, SMRT's first transit retail development in the heartlands, opens.

2009



SMRT Corp achieves ISO 14001 certification for its Environmental Management System.

Singapore's fourth rail line, Circle Line (CCL), commences service from Bartley to Marymount.

2011

Train Service from Caldecott to HarbourFront CCL stations commences, marking the completion of the line.

2012



Train service from Bayfront to Marina Bay CCL stations commences.

2013

- SMRT Trains embarks on a multi-year Sleeper Replacement Project to improve journey times and provide commuters with a smoother ride.
- Woodlands MRT station is the first MRT station in Singapore to be awarded the Building and Construction Authority's Green Mark (Gold).
- SMRT Trains embarks on a holistic networkwide predictive maintenance regime on the North-South and East-West Lines (NSEWL), with introduction of new technologies.

2014

10 Billion **Passenger Journeys**

- SMRT Trains crosses the landmark of 10 billion passenger journeys carried.
- SMRT Trains introduces Adopt-A-Station, a community outreach programme with local schools.

2015

- SMRT celebrates SG50 with free travel on SMRT trains and buses.
- The SMRT Trains Engineering Programme is launched to develop a sustainable pipeline of engineering professionals.

2016

- The JurongHealth Mobility Park, sponsored by SMRT, is the first of its kind in Singapore where life-size public transportation models help with patients' rehabilitation.
- Seven SMRT Trains engineers are accredited as Singapore's first Chartered Engineers in Railway and Transportation Engineering.
- SMRT Trains transitions to the New Rail Financing Framework on 1 October, following shareholders' vote at the Extraordinary General Meeting on 29 September.
- SMRT Corp is delisted from SGX on 31 October.
- Sleeper replacement works on the NSL and EWL are completed.

2017



- on the NSL begins.
- - train network.

- MRT operations.
- and maintenance works.

2018

the NSEWL.

H Ć151

- Bishan Depot.
- 2019
- Kim Chuan Depot.

Trial of the new signalling system

The Tuas West Extension opens, adding four new stations on the EWL.

SMRT Trains is awarded the Thomson-East Coast Line (TEL) contract to operate and maintain the line in stages from 2019 for an initial nine-year period. TEL will add 43km and 31 new stations to the existing

The power rail replacement works on the NSEWL are completed.

SMRT Trains celebrates 30 years of

Stations along the NSL and EWL experience early closure, late opening and full day closure to facilitate renewal

SMRT and LTA commence works to renew and enhance the power supply system on

SMRT launches first C151 trains from

Renewal works for the Bukit Panjang LRT system commence.

SMRT, with the support of LTA, relocates the NSEWL OCC at Victoria Street to



SMRT Trains Ltd. (SMRT Trains) is the pioneer Mass Rapid Transit operator in Singapore. Since 1987, we have provided safe and convenient transport services to millions of commuters, and have contributed to the vibrancy of our urban landscape.

Today, we operate and maintain the North-South and East-West Lines, the Circle Line and the Bukit Panjang Light Rail Transit system. Our lines cover over 148km of rail tracks across 106 stations. In early 2020, our rail network will expand to include the Thomson-East Coast Line.

We are committed to enhancing our rail capability and deepening our engineering expertise to deliver a best-in-class transport service that is safe, reliable and customer-centric.

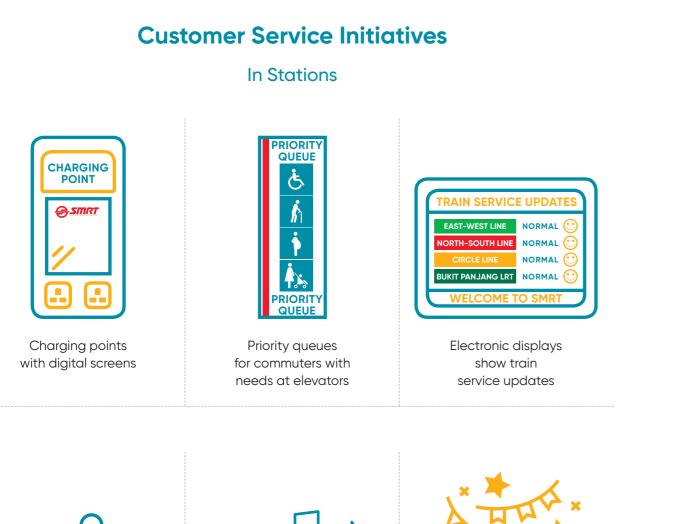
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Improving Commuter Experience

We provide greater convenience and comfort to commuters throughout their journeys.





Diaper changing stations in most handicapped toilets along the Circle Line



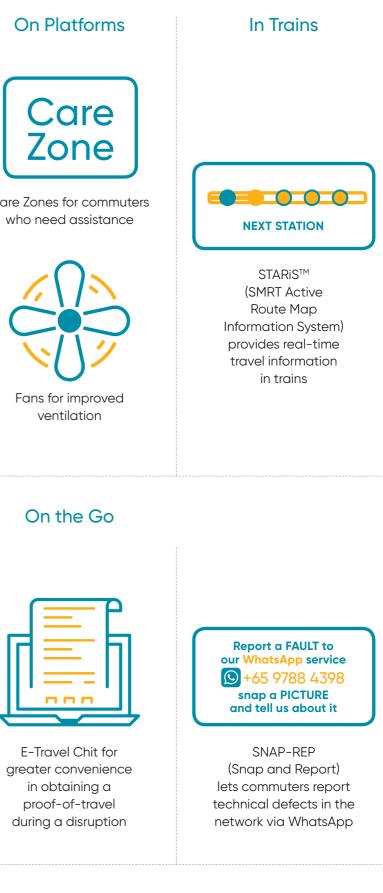
Music in stations for better ambience and to delight commuters



Festive events to celebrate occasions with the community



SMRTConnect is a multi-modal journey planner app that provides real-time train and bus arrival timings, as well as detailed station information within the SMRT network

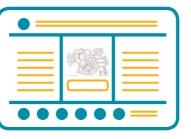


Care stickers for commuters who require special care

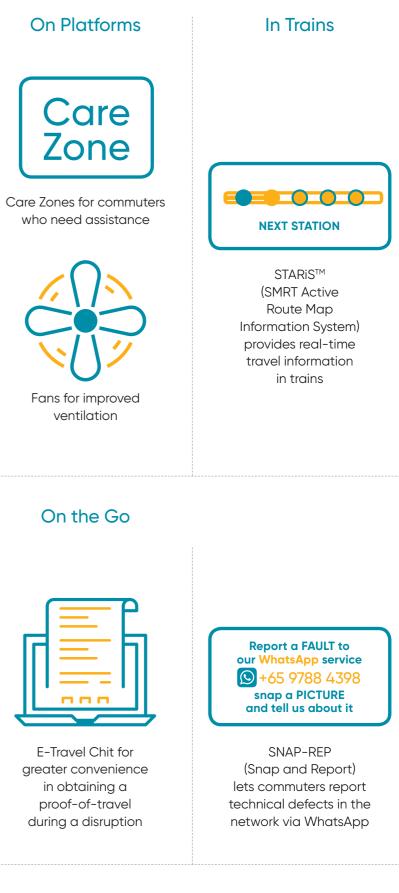
At Passenger

Service Centres

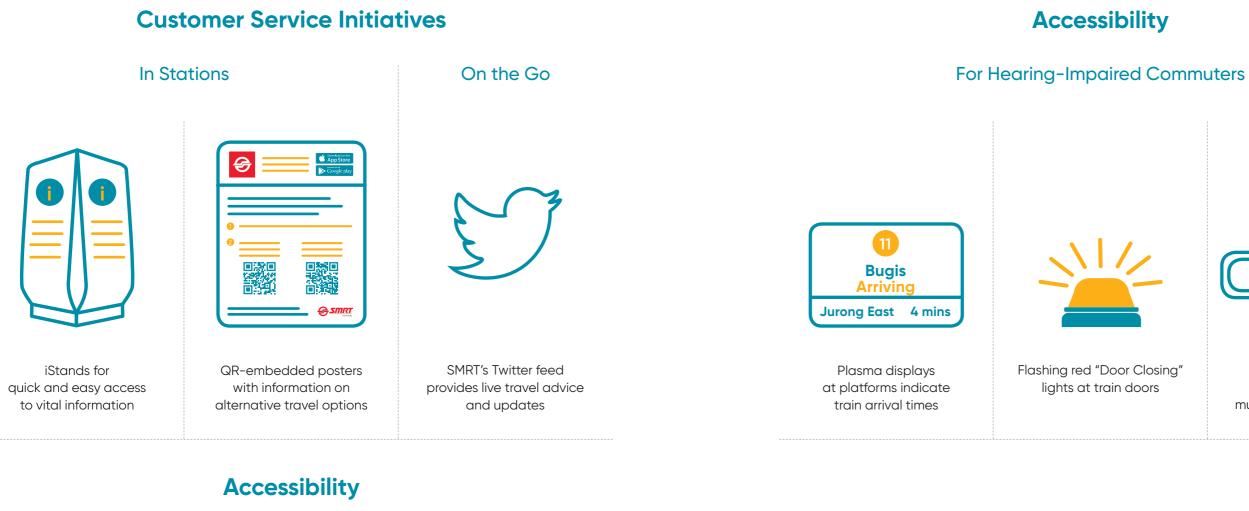
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Digital displays to update commuters on train services and provide answers to common queries



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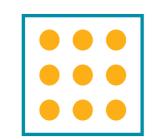


For Visually-Impaired Commuters

For Commuters in Wheelchairs



Guide dogs are allowed in stations and onboard trains



Tactile ground surface indicators throughout the station



Lift buttons with braille plates





Wheelchair-accessible elevators

Barrier-free entrances



Fluorescent displays in trains provide multi-language messages

and wider fare gates



Wheelchair-accessible train carriages allow for two wheelchairs per train

96%

66

2016

Improving Reliability

Our renewal works on the North-South and East-West Lines (NSEWL) will ensure fewer train delays, breakdowns and smoother rides.

Our Renewal Works

Re-signalling

Power Rail Replacement



Improves the reliability

of the electrical system,

leading to fewer

breakdowns

Started in

2015

Completed in

August

2017

Communications-Based Train Control signalling system allows trains to run at shorter intervals, substantially improving train capacity



65 65 63 2017 2018 2019 ••O•• Public Transport Customer Customer Satisfaction Index of Satisfaction Survey by the Singapore (Average score 0–100) Public Transport Council by the Institute of Service Excellence, Singapore Management University * Figures updated as at September 2019.

97%

Customer Satisfaction*





VIEW MORE 18-23 ON PAGES



Power Supply System Renewal



Fibre optic cables help transmit monitoring information in real-time, allowing system to better predict faults

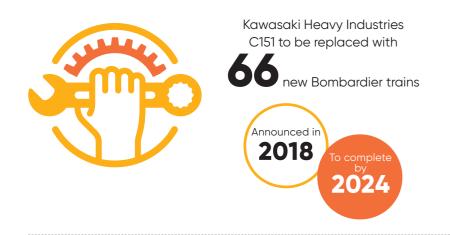


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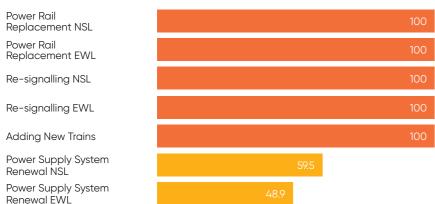
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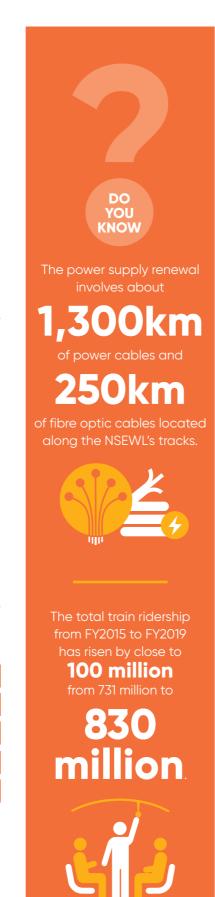
Adding New Trains new trains NEW have been delivered Started in 2015 Early 2019 Trains progressively put into service from April 2017

Replacement of First-Generation Trains



Stage of Completion (%)





Our Performance

How We Measure Reliability

We measure the number of kilometres clocked before incurring a single delay lasting more than 5 minutes. This is referred to as mean kilometres between failure or MKBF* for short. Here is the 12-month moving average up to July 2019.



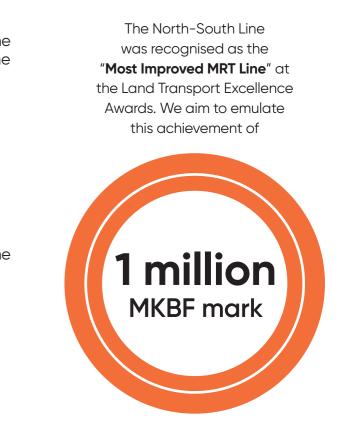


13,000 \approx times up and down the

East-West Line



21,000 \approx times up and down the Circle line



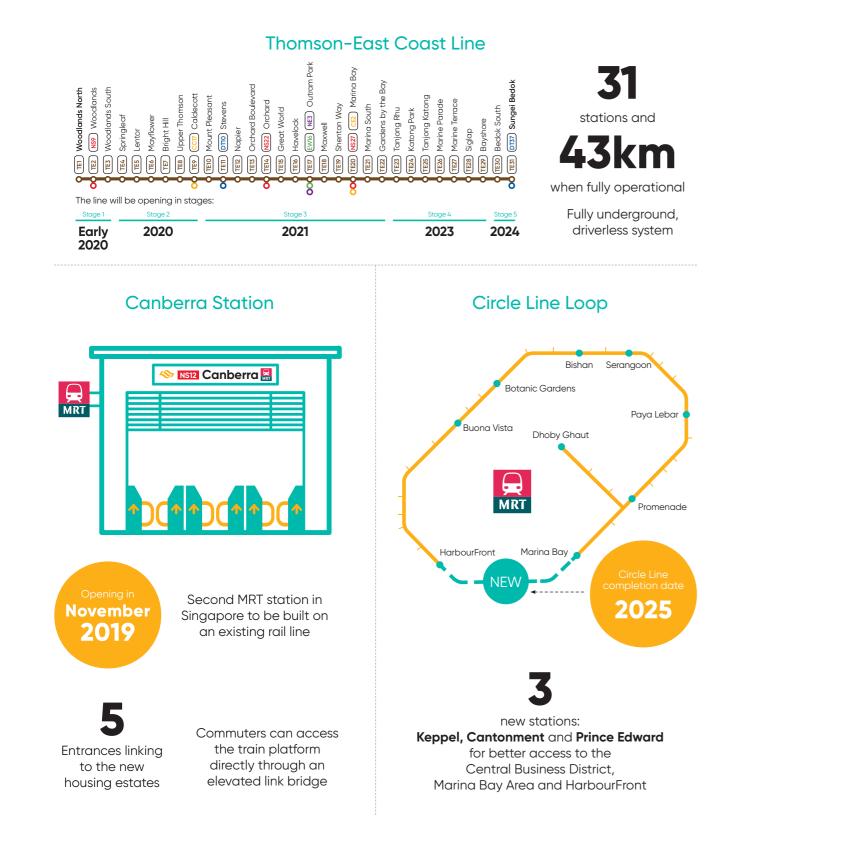
across our other lines.

Improving Connectivity

Our network will expand to include more lines and stations over the next five years.

Nurturing Our People

We are growing and upskilling our workforce to serve our commuters in the best possible way.





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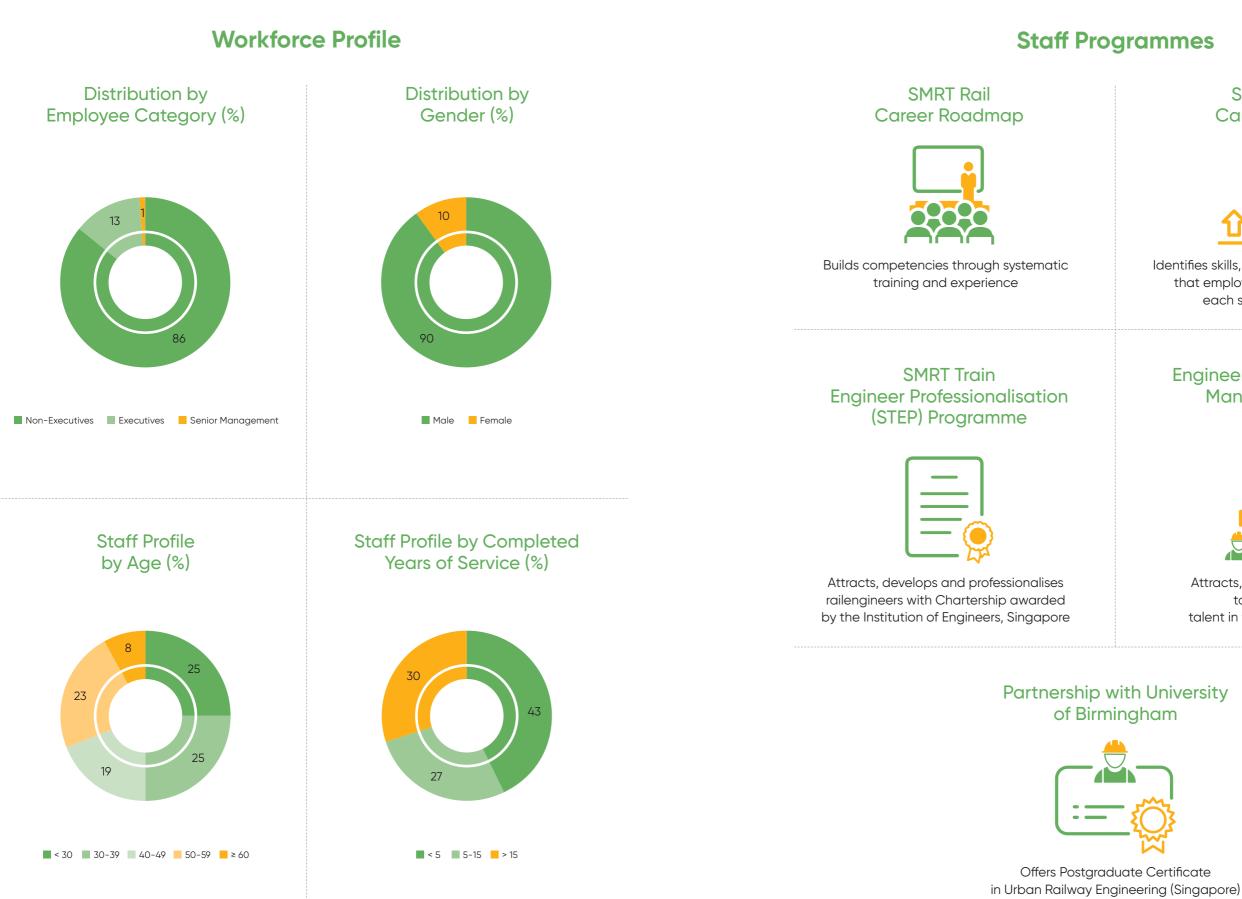
At a Glance



Securing Talent







12

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SMRT Trains Career Scheme



Identifies skills, knowledge and experience that employees need to develop at each stage of their career

Engineering Maintenance Manager Scheme



Attracts, develops and retains top engineering talent in frontline maintenance



Serving Our Community

We are committed to conducting our business in a socially and environmentally responsible way, balancing the interests of our stakeholders, from commuters to employees to business partners.

Our through the Arts People and Education Art in Transit tours Volunteered nearly conducted for **about** 1.000 hours in 2018 10,000 participants 1,000 joined 228 units of Learning Journey blood collected potentially saving 684 lives

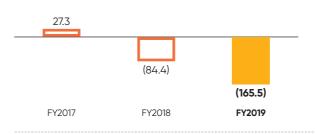
Key Financial and Operating Data

As our rail network expands, our commuters continue to be at the heart of our operations.



Total Revenue has decreased due to lower average fare.

Earning Before Interest and Tax (\$m)



Operating Data

Total route length (NSEWL & CCL) (to nearest km) Total car-kilometres operated (to nearest million) Total ridership (to nearest million) Average weekday ridership (to nearest thousand) Total passenger-kilometres (to nearest million) Average car occupancy (passenger per car)

Empowering Social **Responsibility** Address residents' concerns and feedback through engagement with community leaders



Supported communities we serve through almost **S\$2 million** in in-kind and cash sponsorships







Use of recycled water at five train washing plants, saving approximately 160,000 litres per month

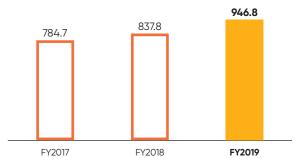


Eliminate, reuse and recycle waste. Close to 1,600 tonnes of scrap metal sent for recycling

At a Glance

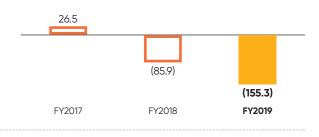
Financial Data

Operating Expenses (\$m)



Operating Expenses have increased due to higher staff costs, maintenance-related expenses for the ageing rail network and higher electricity costs.

Profit After Tax (\$m)



FY2015	FY2016	FY2017	FY2018	FY2019
130	130	130	137	137
127	131	135	142	143
731	756	768	753	830
2,148	2,197	2,353	2,258	2,482
8,129	8,322	8,271	7,886	7,819
64	63	61	55	55

From Our Chairman

I am happy to see a marked improvement in trains reliability and customer satisfaction. There is stronger staff ownership in SMRT; and with Kaizen, we are taking a serious and disciplined approach to what we do every day.

Working closely with MOT & LTA, we will continue to renew our systems and also deepen our engineering capabilities to provide faster service recovery through more effective corrective maintenance.

We have been proactively engaging our commuters & stakeholders, and enhancing our services to provide safe, reliable and comfortable journeys to all, including those with special needs.

Seah Moon Ming Chairman, SMRT Corporation & SMRT Trains

Group CEO's Message

Ling Wee and his team have done well to turn around Trains' performance. Reliability has reached levels amongst the best in the world. Our ground staff are well-led, motivated and diligent in carrying out their duties and working as a team. We are not resting on our laurels and stay committed to sustaining this performance.

Transformation is taking place in operations, maintenance and service. Much work is also being done to keep costs down through productivity efforts. Most importantly, quality service must be sustained through cultivating a high-performing mindset and an attitude of continuous improvement.

Rail travel is the backbone of the Singapore public transport system. SMRT will continue to play our part in its growth and performance by building competencies and a culture of service excellence.

Neo Kian Hong Group Chief Executive Officer, SMRT Corporation



OUR OPERATIONS



Chief Executive's Message

FY2019 was a milestone year. We saw significant and sustained improvement in rail reliability expressed in Mean Kilometres Between Failure (MKBF), particularly for the North-South Line, which has crossed the 1 million train-km mark. At the same time, results from the Public Transport Customer Satisfaction Survey 2018 showed a mean satisfaction score of 7.9 out of 10, the highest in more than a decade.

We are heartened by these developments. Working in partnership with LTA, our strategy of steady investments in maintenance and renewal projects are reaping results. Our people often work on complex tasks under challenging conditions and within a limited time. They have witnessed the direct impact they have on commuters' lives, and this has further encouraged them to press on. As we continue to improve workforce productivity, quality and competency, we are on our journey to sustain a high level of safety and reliability performance.

We have implemented initiatives such as music and festivities in stations, and are consistently listening to you, our commuters, as we continuously seek improvements to serve you better. The opening of Phase 1 of the Thomson-East Coast Line in January 2020 will allow us to create more positive commuter experiences. We are also looking to provide more inclusive service and amenities to our commuters as we continue Journeying With You.

Lee Ling Wee CEO, SMRT Trains

Our Operations





SMRT, with the support of the Land Transport Authority (LTA), relocated the NSEWL OCC at Victoria Street (top) to Kim Chuan Depot (bottom) in March 2019.

Our Networks

We serve commuters across the North-South and East-West Lines (NSEWL), Circle Line (CCL) and the Bukit Panjang Light Rail Transit (BPLRT). In the past year, we continued improving rail reliability through various renewal and maintenance efforts, even as we worked towards growing our network.

Integrating SMRT's Transport **Network Operations**

With the support of LTA, SMRT has relocated the NSEWL Operations Control Centre (OCC) to Kim Chuan Depot. The location, which is next to the Circle Line OCC, better integrates space, resources and facilities between both OCCs.

In April 2019, SMRT's Rail Operations Centre (ROC) was officially opened by Minister for Transport Mr Khaw Boon Wan. Housing our key transport network operations, the ROC provides enhanced real-time situation awareness and integrated command and control, ensuring greater reliability for our rail services. The ROC will subsequently incorporate the Maintenance Operations Centre (MOC) currently located at Bishan Depot. The eventual plan is to expand the capabilities of the ROC for better coordination of contingency and recovery operations, bus operations, safety, security and cybersecurity efforts, service communications and commuter services.

Enhancing the NSEWL

We are working closely with LTA to renew and improve the NSEWL power supply system. The laying of fibre optic cables along viaducts and tunnels helps transmit monitoring information in real-time to the OCC. This allows the system to better predict faults and address them before they occur.

The installation of Voltage Limiting Devices (VLDs) to replace the 64P touch voltage protection system helps to localise and isolate any power

failure, thereby avoiding widespread disruption to the rail network.

Our engineers make the best of the scheduled early closures and late openings of stations to complete these complex projects within a limited time. As at the end of March 2019, 59.5% and 48.9% of the cables had been laid in the North-South and East-West lines respectively, and the VLD had been installed in 43 out of 53 stations.

Another major renewal effort is the re-signalling project that was completed in April 2019. The entire NSEWL is now operating with the Communications-Based Train Control signalling system, allowing trains to run at shorter intervals and easing commuters' waiting times.

Adding New Trains

As part of efforts to run more trains on the NSEWL, 57 new trains have been delivered to Bishan and Tuas Depots by early 2019. These trains are designed to operate with the new signalling system.

Replacement of First-Generation Trains

Our oldest trains, the Kawasaki Heavy Industries C151, which entered service in 1987, will be replaced by a fleet of new trains. Under Contract R151, which LTA awarded in July 2018, Bombardier Transport will supply 66 new trains. The finalisation of the train's design by the integrated systems engineering team from Bombardier Transport, LTA and SMRT is expected to be completed by the end of 2019, and the new fleet is projected to enter service progressively from the fourth quarter of 2021. The completion of the delivery of new trains is expected to be in 2024.

Renewing the BPLRT

We are intensifying and accelerating maintenance and renewal works for the BPLRT, made possible by the additional engineering hours gained through the adjustment of operating timings. Together

Our Operations



We are committed to delivering safe and reliable performance.



We are upgrading our escalators to serve commuters better.

with LTA and Bombardier (BPLRT's original equipment manufacturer), work is being done to implement a new signalling system and renew train cars.

Maintaining Station Escalators

Our escalators in service have an availability rate of more than 99.5%. To ensure they remain safe and are in good working condition, SMRT embarked on a five-year escalator refurbishment project across the NSEWL in 2016. The project involves 233 escalators at 42 stations.

Each escalator refurbishment involves the removal, installation and replacement of more than 1,000 parts and major components. In order to complete refurbishment while minimising the impact on commuters, we carry out work on only one escalator per station at any given time, except for bigger stations that have more escalators.

Looking Ahead

We continue to strengthen our rail maintenance capabilities by sharing engineering knowledge and capabilities with industry partners.

Meanwhile, we are making good progress on the Thomson-East Coast Line, a fully automated and driverless underground line that will begin passenger operations in end-January 2020. Together with LTA, we are also planning a series of system enhancements to the CCL. With these developments and the ongoing upgrading of the BPLRT, we envision an enhanced travelling experience for all our commuters in a better-connected transport network.



Playing Our Part to Safeguard Security and **Čybersecurity**



Joint Exercise conducted with the Singapore Police Force and the Singapore Civil Defence Force at Tuas Link MRT station.

SMRT Security policies are compliant to statutory & regulatory requirements, especially physical security and cybersecurity protection measures. Security policies and processes are benchmarked with various international security organisations and continuously reviewed. In 2018, our train and bus depots and systems along our networks have been designated Critical

Infrastructures (CI) and Critical Information Infrastructures (CII) respectively. All security officers deployed for access control at the designated premises are adequately trained and certified by Singapore Police Force's Police Licensing & Regulatory Department. In addition, SMRT regularly conducts Threat Vulnerability Risk Assessment on our SMRT premises to identify areas of physical weaknesses. These are subsequently

registered at joint platforms with LTA and other security agencies, and efforts are initiated to address known physical vulnerabilities by risk level assessment and prioritisation. In sustaining readiness, SMRT partners with LTA, MHA and SCDF for Table Top Exercises, Ground Deployment Exercises involving differing threat scenarios, such as gunmen or a chemical attack situation. These exercises are crucial for validating our response plans and equipping staff with the right know-how and mindset to stay vigilant and competent against uncertainties.

Systems on the NSEWL, CCL and BPLRT have been designated as Clls. Recognising the importance of owning computer systems necessary for the continuous delivery of essential services, we safeguard our CII systems and networks against potential attacks and weaknesses. SMRT partners with LTA, CSA and cybersecurity experts to conduct cybersecurity exercises to fine-tune our responses against possible service disruption. Staff are also kept up-to-date on cybersecurity best practices through mandatory e-learning, case studies, policies and reminders disseminated regularly.



Playing our part to safeguard security and cybersecurity.

SMRT views cybersecurity as an enabler to its business and operations. It is critical for SMRT to be protected against cyber threats and vulnerabilities. SMRT is working closely with LTA and CSA to install a robust framework of measures to counter cyber risks. Cyber defence is a continued effort that needs to be constantly and competently validated as well as vigilantly monitored.

Lee Fook Sun

Deputy Chairman, SMRT Trains

ENGINEERING



The Engineering group focuses on improving the performance of SMRT Trains. This new group was formed as part of the reorganisation of SMRT, with the objectives of raising new capabilities, training a competent workforce and sustaining and achieving financial strength.

To this end, the Engineering group taps into areas such as data analytics, condition monitoring and maintenance techniques. We also promote digitalisation to transform work processes and enhance innovation, learning and agility within the company.

We have made headway in the following areas which will help strengthen the capabilities of SMRT Trains:

Mobile Operation and Maintenance System (MOMS)

MOMS injects mobility and provides easy access to critical maintenance data for the various teams working across different timings and locations, whether depots, stations, viaducts or tunnels. Through the use of a common dashboard, the system offers a holistic view of the maintenance work and simplifies tedious work processes, freeing up staff to perform more complex roles. Users are able to access and track a digitised checklist, refer to work instructions, capture pictures and videos of work progress and complete the work order using mobile devices.

Digitalising the maintenance process by providing online updates and fault reporting on the go has



Staff utilising MOMS for escalator maintenance.

enabled us to improve work efficiency through faster processing, and with less duplication. Automated workflows with digital signatures for work completion allow for better checks and governance.

In the long run, all maintenance data captured in the digitised checklist can be easily retrieved for analytics and trending, giving us deeper insights into different aspects of maintenance work.

Predictive Decision Support System (PDSS)

PDSS is a single digitalised platform housing the Permanent Way (PWay) asset design, maintenance and condition data. Since its roll-out, this platform has provided PWay staff with advanced data processing and visualisation to support maintenance decisions such as:

- Efficient location of areas with frequent corrective maintenance
- Prioritisation of maintenance tasks
- Quantitative indication of asset health
- · Correlation of asset health data (to find precursors to failure)

The platform will enhance condition-based maintenance through a better maintenanceplanning regime. This is expected to reduce the amount of corrective maintenance.

Track Access Management System (TAMS)

TAMS automates and optimises track booking and control process in order to better manage our maintenance activities during the limited engineering hours. The system has been implemented in the NSEWL and will be scaled up to provide similar benefits to the CCL.

Training and Upskilling

A competent workforce is essential to SMRT's success, and upskilling is achieved through continuous training. To this end, SMRT's training arm, SMRT Institute, has now been subsumed under the Engineering Group.

The Institute's key initiatives include updating the Trains skill and competency framework, strengthening the basic maintenance skills of technical staff, and improving the effectiveness of

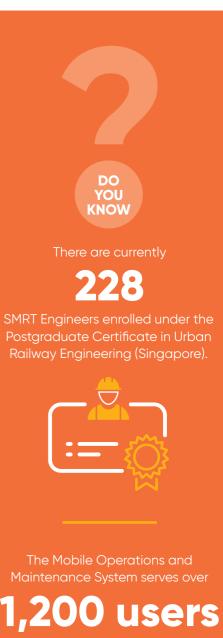
workplace learning. Aside from more structured practical training, and supported with more ground coaches, digital platforms are also being harnessed to encourage more self-directed and collaborative learning.

We have been running the SMRT Train Engineer Professionalisation (STEP) programme since 2015. As part of the STEP programme, SMRT has partnered with the University of Birmingham to develop the Postgraduate Certificate in Urban Railway Engineering (Singapore). The pioneer cohort of 43 SMRT engineers earned their certificates in October 2018. To recognise the skills and values that STEP confers, SMRT has collaborated with the Institution of Engineers, Singapore, to design the Chartered Engineer programme for railway and transportation professionals. In 2018, 34 of our engineers obtained this professional accreditation. This year, as part of the curriculum enhancement, more local content is being injected, with a stronger focus on effective maintenance, repair and overhaul.

SMRT Institute is also building a workplace learning rail sector training ecosystem in Singapore, through partnerships with the SkillsFuture Singapore, Singapore Rail Academy, SBS Transit and institutes of higher learning. This will enable employees to acquire higher qualification through effective workplace learning, strengthen professionalism in the rail industry and support the development of sustainable rail workforce for Singapore's growing network.

Since 2014, SMRT has also collaborated with the Singapore Institute of Technology (SIT), Land Transport Authority (LTA) and SBS Transit to develop the Sustainable Infrastructure Engineering (Land) degree programme, which features a year-long immersive internship. SMRT hosted the second batch of SIT interns in 2018, equipping them with relevant ground experience.

Our work-study initiative, the Earn and Learn Programme, offers our staff who are graduates from an Institute of Technical Education the opportunity to upskill. After completing the 18-month training programme, they receive a Workforce Singapore Certificate in Rapid Transit System Engineering. Those who choose to continue for another 12 months obtain the full Diploma in Engineering - Rapid Transit Technology from Singapore Polytechnic.



and has been implemented at

17 of 23

branches under trains maintenance and engineering.



COMMUTER ENGAGEMENT



SMRT values every feedback and deliberate each and every one in a careful manner. We proactively take care of our commuters' interests. SMRT set up the Commuter Engagement Office in February 2018 to champion the needs of commuters by looking at various aspects of our MRT operations and maintenance that affect their journeys.

Listening to Our Commuters

Commuter feedback is fundamental to our work. It is handled by the Customer Relations Team in the Commuter Engagement Office. This team comprises a Contact Centre that listens to what people are telling us via various feedback channels, and a care team that reaches out to commuters who need special attention and those affected by incidents within our network.



Our station staff are always ready to give a helping hand.

Commuter Engagement



We celebrated Chinese New Year with a 'Hui Chun' event at Esplanade MRT station.

In 2018, we developed a quality assurance framework to improve the way we listen, achieve better compliance and raise our level of service. We progressively outsourced routine functions of our Contact Centre to shorten response time and increase productivity.

Delighting Our Commuters

The Commuter Engagement Office also embarked on several initiatives to make travelling with SMRT more delightful, and to build communities around the stations we operate.

We launched the Music in Stations programme in September 2018 to play curated soothing music in several stations during peak hours. The response was encouraging, with many commuters writing in to commend the idea and sharing how the music helped them feel more relaxed during their journeys. We subsequently expanded the initiative in phases, and have since implemented it in all our stations.

We also rolled out Festivities in Stations to celebrate festive occasions, such as Christmas, Chinese New Year and Hari Raya with our

commuters. These celebrations included festive music and special activities like line dancing and batik painting at selected stations. To strengthen community ownership of our MRT network, we worked with the communities around our stations to organise these celebratory activities.

We expanded other community activities, for example, our Adopt-a-Station programme which gives students the opportunity to serve the community at a station near their schools. Their activities included performances, giving out notes of appreciation to commuters and serving as junior Service Ambassadors.



Carollers brought the Christmas joy to Orchard MRT station in December 2018.

Looking Ahead

Our core roles of listening, caring and delighting remain unchanged today.

With an ageing population, there is a need to make our stations more inclusive for commuters with different needs, such as those in wheelchairs or with other physical disabilities. We are redesigning our Inclusive Service Delivery training for staff, and looking at infrastructural improvements to make our stations more accessible and easier to navigate. We will also deepen our capabilities to help those with





We ensure our commuters never feel lost within our network.

other special needs including dementia and autism. One example is to build care rooms in stations to provide a calming environment for commuters who need it.

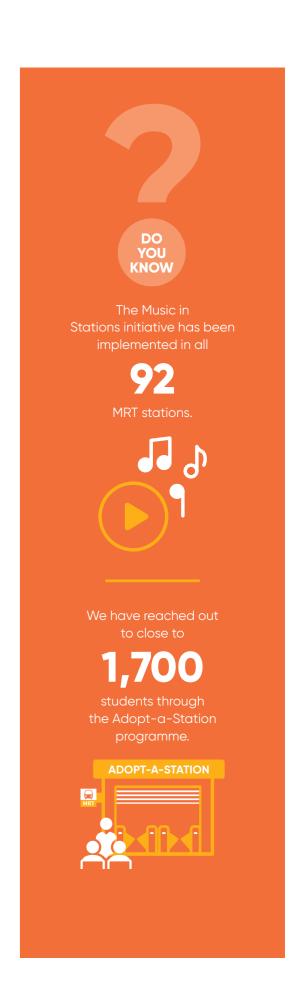
We see the importance of listening to and acting on feedback from commuters in a timely and effective manner. We are embarking on a listening point ("You Talk. We Listen") initiative in the form of a mobile booth at selected stations during evening peak hours. Through this, we will invite commuters to share their travel experiences with us. The survey data we collect will give us a more accurate snapshot of what commuters think of our services and what improvements they hope to see.

In addition, we are reviving our Engage portal, comprising a database of commuter respondents who have expressed their willingness to be more connected with us. This group will receive SMRT's latest news and regular updates, while helping us make continuous improvements in our service delivery. We hope to cultivate this group to give us a better understanding of our commuters' concerns and sentiments.

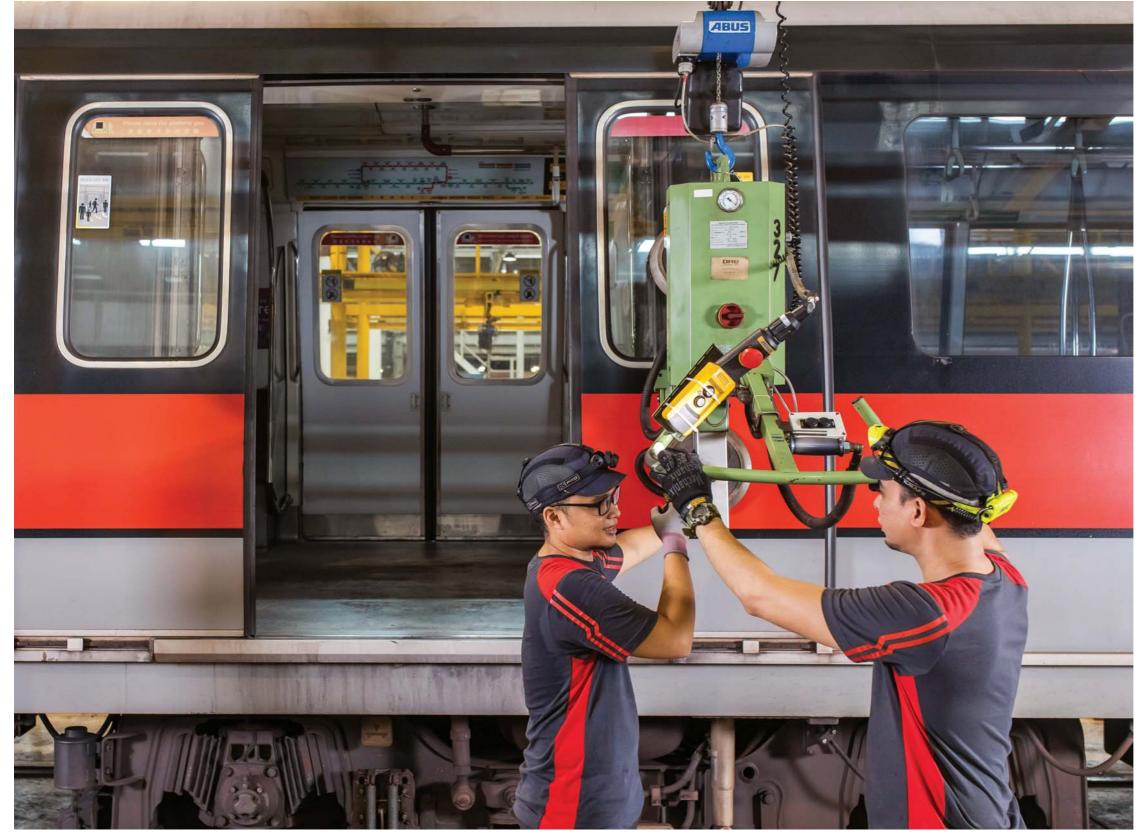
The above are examples of how we are moving towards data- and feedback-driven approach to understanding the needs of our commuters and acting on their feedback. This is in line with our commitment to make steady improvements in the way we serve our commuters.

We gather valuable feedback and suggestions from those in our Engage portal.





OUR PEOPLE



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As a people-centric business, we are supported by a disciplined and competent workforce of 5,750 employees. Committed to providing safe, reliable and comfortable journeys for our commuters, they work round the clock as one team, often completing complicated tasks under challenging conditions. Our employees' health, safety and well-being are paramount to us.

Promoting Workplace Harmony and Industrial Relations

An engaged, enabled and energised workforce contributes to our organisational goals, allowing us to serve our commuters in the best possible way. We share a close relationship with the National Transport Workers' Union (NTWU) and work together on frequent dialogues and consultation sessions. In February 2019, we signed two MoUs (Memorandums of Understanding) to cement both parties' commitment to co-building our workforce. The MoUs cover:

- Sharing of technology and business plans impacting the job scope of workers in the future landscape
- Reviewing of current training plans and identification of training gaps and needs in the upskilling and reskilling of workers in line with the changing environment

Our People



SMRT leadership regularly engage with and visit staff, who have the opportunity to showcase their Kaizen initiatives.

- Development and mapping of training programmes for workers to be future-ready
- Fostering of a life-long learning culture amongst the workers

Our engagement platforms in partnership with NTWU keep employees informed and encourage two-way interaction between management and employees. Channels such as town halls, briefings, focus group discussions and joint projects strengthen this relationship.

Instilling Pride and Professionalism through Competency-Building

Our SMRT Trains Career Scheme and SMRT Rail Career Roadmap prepare our workforce for the future. These schemes map out competencybased professional development pathways for employees at all levels. They also offer attractive

career propositions with structured development, progression and job rotation opportunities anchored on skills mastery, value inculcation and productivity.

For example, the professional growth of our rail engineers matters to us. Initiatives such as the Postgraduate Certificate in Urban Railway Engineering (Singapore) offered by the University of Birmingham and SMRT, the SMRT Train Engineer Professionalisation (STEP) programme and Chartered Engineer programme provide professional growth opportunities. As part of our continuous effort to develop the careers of our staff, SMRT has recently started working with the Institution of Engineers, Singapore (IES), institutes of higher learning and industry partners to develop a national engineering career progression pathway for technologists and technicians in Singapore.



Staff being presented with Thank You stickers on Public Transport Workers' Appreciation Day.

Shaping a Sustainable Workforce Profile

We consistently seek to shape a dedicated and high-performing workforce, tapping on the innate value of a diverse employee profile. We take care of the needs of our workforce - including employees' physical and mental health - through job redesign, flexible work arrangements, healthcare provisions and health-and-wellness programmes. Our inhouse medical clinic at Bishan Depot provides employees with free consultations, reliable healthcare and medical screening. We also offer our employees free flu vaccinations.

We have an Enhanced Flexible Benefit Scheme to provide hospitalisation and in-patient benefits. The SMRT CARE Fund assists employees with financial exigencies and has been a source

of welcome relief to numerous employees and their families in times of need.

Nurturing Our Culture of Integrity, Safety, Service and Excellence

Our core values of Integrity, Safety, Service and Excellence reflect our emphasis on building a disciplined workforce committed to meeting our service and reliability goals. These values are underscored at the start of every employee's journey through the SMRT Service Excellence programme, which brings the ideas of Safety, Reliability, Care and Comfort to life. Our Service Excellence Campaign sustains mindshare of these service values in the day-to-day work of our staff through Leader Ambassadors who are advocates appointed across all employee segments and business units.

SAFETY AND SECURITY: TOWARDS OUR VISION OF ZERO ACCIDENT AND ZERO SECURITY BREACH

Cultivating Positive Behaviours

New employees are introduced to safety and security requirements as part of their orientation programme and are encouraged to play their part by reporting any safety hazards or security concerns. Staff who have proactively contributed to improving safety and security are recognised as Safety and Security Activists.

We promote year-round safety and security awareness through education and engagement including an annual Safety & Security outreach event that encourages all staff to share safety and security practices. Since November 2018, we have intensified our efforts to encourage safety mindfulness through our "Daily Safety Moment" - a daily email and Workplace posting providing staff with safety content and messages for their knowledge and use in conducting their own safety discussions during meetings or work briefings.

We continue to partner with DuPont Sustainable Solutions on the Kaizen Safety programme, which further highlights safety mindfulness, engagement, workforce discipline, compliance and accountability.

Investing in Technologies

In addition to investing in our people and processes to drive high safety performance, we invest in technologies that make our work and environment safer. Recent projects include the Laser Track Trolley and Speed Tester for Train Traction Control Unit Blower. We are also exploring the use of technologies such as an Audible Warning System and Fatigue Detector to enhance the alertness and driving behaviour of our Train Captains.

Encouraging Stakeholder Safety

Our safety and security efforts extend beyond our staff and include our commuters, contractors working on SMRT premises, our tenants and other relevant stakeholders.



Our award-winning Laser Track Trolley allows measurement of running rail wear and track geometry to be done more safely and efficiently, while achieving high degree of reliability and accuracy.

- Commuters: We are committed to making sure every touch point in our commuters' journey is safe. Beyond ensuring our equipment is well maintained, we proactively engage our commuters on safe travel tips through educational tours and posters.
- Contractors: As we outsource certain activities, contractors are to comply with national and organisational safety regulatory rules. In addition, we extend mandatory safety training to contractors prior to commencement of their work
- **Tenants:** We set stringent safety requirements for our tenants, e.g. in terms of the fittingout of their shops, the materials used, etc. We also regularly remind tenants of the importance of safety.
- Other Stakeholders: We engage schools and communities around our MRT stations and on relevant platforms, to share with them about commuting safely in our network.

Safety & Security Governance Structure

SMRT is a member of various security steering committees and work groups comprising the Land Transport Authority (LTA), Ministry of Home Affairs (MHA), Singapore Police Force (SPF) and Singapore Civil Defence Force (SCDF). Such joint platforms serve to deepen collaboration and align security plans to address existing and emerging security risks.

Internally, a Risk, Audit and Compliance (RAC) Meeting chaired by our Group CEO governs our safety and security systems and drives safety and security messages across SMRT. The Technical Safety Board continues to govern modifications that affect our transport system to ensure the design integrity of equipment and facilities. Our Workplace Safety and Health Committees are also constituted in accordance with the Workplace Safety and Health Act.

In terms of fire safety, we are aligned with SCDF requirements, with designated Fire Safety Managers and Emergency Response Teams for all train depots and MRT stations.

Managing Safety and Security Risks and Compliance

SMRT Trains regularly examines safety and security risks, identifying potential vulnerabilities and implementing suitable control measures and preventive actions.

We are accredited by international and local industry standards such as:

- OHSAS 18001: Occupational Health and Safety Management
- ISO 14001: Environmental Management System
- ISO22301: Business Continuity Management System
- BizSAFE STAR certification

We adopt these best practices in our commitment to mitigate risks and make safety and security an integral part of our operations, for the well-being of all our employees, partners and commuters.

Our system is regularly audited by LTA and other government bodies to ensure compliance with various safety and security requirements. We follow SGSecure guidelines and collaborate closely with LTA and other security agencies, such as MHA, SPF and SCDF, to maintain emergency preparedness and responses. We conduct and actively participate in joint scenario-based exercises to validate our emergency procedures and response protocols.

Our People

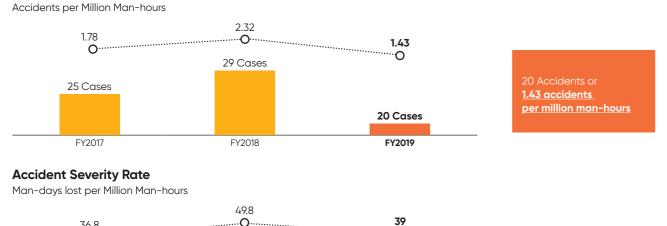
Improving Safety Statistics

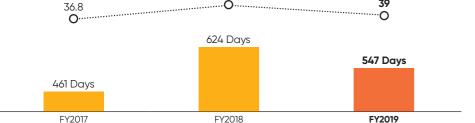
Accident Frequency Rate

The Employee Accident Frequency Rate has seen a steady improvement and currently stands at 1.43 accidents per million man-hours with 20 cases of reportable accidents*. This is an improvement of 38% compared to the previous year.

The Employee Accident Severity Rate has similarly shown improvement and currently stands at 39.0 man-days lost per million man-hours, with 547 days lost due to reportable accidents. This is an improvement of 21% compared to the previous year.

39.0 Man-days lost per million man-hours



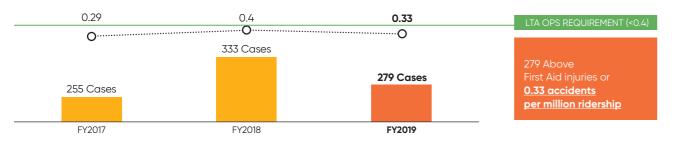


* Reportable incidents refer to work-related accidents with medical leave of more than 3 days or hospitalisation of at least 24 hours.

The passenger accident rate defined by the LTA Operating Performance Standard (OPS)* stands at 0.33 accidents per million ridership with 279 passenger accidents above first aid**, which is a 15% improvement compared to the previous year.

Trains Passenger Injuries (Above First Aid)

Per Million Ridership



* LTA OPS passenger accidents are defined as any accidents within the MRT network where victims are conveyed to hospital

** Above first aid refers to passengers who were conveyed to the hospital

Towards Safety & Security Excellence

As part of the continuous improvement process, we benchmark our safety performances against the industry as well as nationally and internationally. For instance, SMRT Trains benchmarks its safety performance and practices against other urban metros through our participation in the CoMET and Nova railway benchmarking group. Where relevant, we adopt best practices.

Our efforts have gained national and international recognition. In FY2019, we won the following awards:

- Institute of Occupational Safety and Health (IOSH) - International Railway Group Award 2018 for Improvement within Health and Safety: Permanent Way for Laser Track Trolley Rail Wear Measurement Project (Winner)
- WSH Council WSH Innovation Awards 2018 - SMRT NSEWL Control Ops for the project: Hotspots Management System (Silver)
- LTA Annual SHE Award Convention 2018: Safe Rail Line of the Year – Circle Line (Merit Award)

We continue to aspire towards our vision of "Zero accident and zero security breach" to ensure our staff, partners and commuters are safe and out of harm's way, every day.

DO

YOU

KNOW

SMRT aims to recruit up to

1.500

five years. This includes hiring

more Engineers for its current MRT lines

and the Thomson-East Coast Line.

The new joiners will increase

Trains' headcount by

26%

and boost the number of

SMRT rail engineers by



OUR COMMUNITY



45

SMRT's vision is *Moving People*, *Enhancing Lives*, and our corporate social responsibility (CSR) strategy focuses on the latter. We are committed to conducting our business in a *socially and environmentally responsible way*, balancing the interests of our stakeholders, from commuters to employees and business partners. At SMRT Trains, we also leverage *our facilities and our people* to create a positive impact on the communities we serve.

Social Responsibility

Stakeholder Engagement

SMRT's continued maintenance and renewal efforts on the tracks have an effect on residents across the island. Together with LTA, we are taking steps to address any concerns or feedback residents may have. The key to achieving this is community engagement. We build and strengthen relationships with community leaders through face-to-face engagements and regular Learning Journeys.

Noise management is an important area. Our Permanent Way team assesses the noise levels of the train moving on the tracks and follows up with the necessary track maintenance. These efforts have helped to address noise-related feedback from Lakeside, Yishun and East Coast residents.

Our Community

We also share key information about noisy works through our website and with community leaders to help residents better prepare for any disamenity due to noise.

Escalator refurbishment and maintenance is another area of engagement with our constituencies. Sharing what the work entails is essential. Through them, we encourage the elderly, commuters with limited mobility and those carrying bulky items to use the lifts at our stations.

Our Sponsorships

SMRT believes in supporting the communities we serve. In line with our CSR Pillars, sponsorships in FY2019 supported social service agencies by enhancing their beneficiaries' mobility and empowering the community through the arts and education. Some of these organisations included the President's Challenge, Community Chest and Society for the Physically Disabled, as well as national initiatives such as the National Day Parade. We have contributed more than S\$1.7 million worth of in-kind sponsorships to social service agencies, multiplying their outreach efforts for the good of the community.

Environmental Sustainability

Environmental stewardship is important to SMRT. We constantly seek to improve our technology and operational processes to achieve better resource management.

Our Green initiatives are organised under four sub-committees dedicated to helping SMRT become an even more sustainable organisation:

Energy Conservation

Other than introducing photovoltaic systems at both Bishan and Tuas depots, SMRT's commitment to energy saving can be seen in our stations with the installation of LED lighting and the equipping of escalators with energy-saving features. In October 2018, SMRT implemented district cooling and subsequently decommissioned the cooling towers at Raffles Place MRT station. District cooling not only frees up space and cuts servicing costs, while enabling us to achieve up to 30%-40% savings in utility costs.

Water Conservation

To conserve more water, we successfully upgraded five of our train washing plants to incorporate the use of recycled water within the train wash cycle. This has allowed savings of up to 1,000 litres per wash, which translates to approximately 160,000 litres per month.

Our team is working with the Public Utilities Board to reduce water consumption by 10% annually. Water conservation is further enhanced by the implementation of rainwater harvesting as well as the use of NEWater (reclaimed water) at our Tuas West Depot to augment our depot needs. We are making good progress to achieve our goal of having at least 90% of our train stations successfully certified under the Water Efficient Building programme.

Waste Management

Our train washing plants are equipped with water treatment systems for treating waste water from washings. Waste water is treated by filtering out oil and sand particles, neutralising the pH level and removing harmful metal-based pollutants.

Our washing plant at Tuas West Depot is also fitted with an Ultraviolet Sterilising Photo Catalytic Device that helps with the in-depth treatment and removal of organic waste containing large surface-active agents and other pollutants.

We aim to reduce waste by ensuring responsible practices, with an emphasis on eliminating, reusing and recycling. In 2018, we sent close to 1,600 tonnes of scrap metal for recycling and collected approximately 53 tonnes of toxic waste for disposal by reputable licensed contractors.

Green Advocacy

Our Green Committee disseminates information on SMRT's eco-friendly practices, and energy



A train being washed at Bishan Depot's wash plant.

and water conservation, as well as waste management efforts to SMRT staff and community stakeholders.

Our Facilities

Art in Transit

SMRT actively supports the local arts scene. Since 2011, we have been working with Art Outreach, a non-profit organisation that promotes arts education in Singapore, to organise the Art in Transit tours in our Circle Line stations. Participants learn about the art installations in the stations and the heritage of the community in the vicinity. We have conducted more than 560 tours for some 10,000 students and members of the public.

Our Community



Learning Journey participants getting a better understanding of the different roles that go behind-the-scenes to ensure a safe and reliable train ride for everyone.

Learning Journey

The SMRT Learning Journey is an educational programme about what goes on behind-thescenes in our train network and how participants can play a part in ensuring a safe and enjoyable journey. Initially targeting secondary schools and institutes of higher learning, the programme has been extended to community groups.

The Learning Journey includes a guided tour of our fully automated Circle Line Operations Control Centre to learn more about SMRT's operations and how SMRT is committed to safety and security. In 2018, the programme saw about 1,000 participants.

Our People

Corporate Giving through Staff

Staff involvement is essential in supporting and enriching SMRT's ongoing community initiatives. Our volunteers contributed nearly 1,000 hours in 2018, through initiatives such as:

Singapore Red Cross Blood Donation Drives

In 2018, SMRT ran two blood donation drives at Raffles Place MRT station. Close to 100 SMRT volunteers assisted with registration and ushering duties and serving refreshments to the donors. A total of 228 units of blood were collected, which could potentially save 684 lives.

Community in Stations with Heartware Network

As part of our efforts to promote inclusivity in our network, about 30 volunteers from SMRT joined hands with volunteers from Heartware Network, a charitable youth organisation, to take a group of senior citizens on a tour of the Circle Line MRT Stations. Besides introducing the various commuter touch points and providing information about the local heritage around the stations, the "Community in Stations" initiative treats the elderly to a day out and provides our youth volunteers the opportunity to befriend them.



SMRT station staff and Heartware Network youth volunteers showing seniors how to top up their EZ-link cards.



Our Community



SMRT staff participated in the Community Chest Fu Dai event by packing and delivering Fu Dai to 6,000 seniors and families.



One of our Red Cross Blood Donation Drives at Raffles Place MRT station.

Looking Ahead

Space for Good

Our MRT stations are key public spaces which can facilitate social cohesion, and contribute to the development of strong communities. We are constantly exploring ways to partner local community groups and schools to foster stronger ties.

We continue to work closely with local charities to organise a network-wide crowd-funding campaign through the use of our iconic MRT fare gates as donation booths.

SMRT is actively reaching out to various groups to enable mobility and inclusivity though our station assets. We continue to collaborate with our adopted charities and create more "Space for Good".



Awards and Accolades

SERVICE EXCELLENCE

Outstanding Award (8 winners) National Kindness Award, Transport Gold 2018, Singapore Kindness Movement

Commendation Award (151 winners) National Kindness Award, Transport Gold 2018, Singapore Kindness Movement

Star Award (106 Winners) Excellent Service Award 2018, Land Transport Authority

Gold Award (622 Winners) Excellent Service Award 2018, Land Transport Authority

Silver Award (741 Winners) Excellent Service Award 2018, Land Transport Authority

Best Service Partner – SMRT Buses Land Transport Excellence Awards 2019, Land Transport Authority

Best Public Transport Happy Toilet – SMRT Buses Ltd (Bukit Panjang Integrated Transport Hub) Let's Observe Ourselves Awards 2018, Restroom Association (Singapore)

Customer Experience Mystery Shopper Awards (Voice): SMRT Customer Relations – Silver

18th Annual International Contact Centre Awards 2018, Contact Centre Association of Singapore

Customer Experience Mystery Shopper Awards (Email): SMRT Customer Relations – Bronze

18th Annual International Contact Centre Awards 2018, Contact Centre Association of Singapore

HEALTH, SAFETY AND SECURITY

International Railway Group Award 2018 for Improvement within Health and Safety, Permanent Way (Laser Track Trolley Rail Wear Measurement Project) – Winner Institute of Occupational Safety and Health (IOSH)

Safe Rail Line of the Year: Circle Line – Merit Annual Safety Award Convention 2018, Land Transport Authority

Most Innovative/Effective Safety Programme by a Public Transport Operator – SMRT Buses Land Transport Excellence Awards 2019, Land Transport Authority

WSH Innovation Award: Hotspots Management System, Power SCS – Silver Workplace Safety and Health Awards 2018, Workplace Safety and Health Council

WSH Innovation Awards: Permit-To-Work Mobile Application, NSEWL Control Operations – Certificate of Commendation Workplace Safety and Health Awards 2018, Workplace Safety and Health Council

Safety and Security Watch Group Commendation Award – SMRT Buses Ltd (Woodlands Zone)

National Safety and Security Watch Group Award 2018, Singapore Police Force and Singapore Civil Defence Force

TOPSIS Organisational Bronze Award – SMRT Buses Ltd

Threat Oriented People Screening Integrated System (TOPSIS) Forum 2019

OPERATIONAL EXCELLENCE

Most Improved MRT Line – North-South Line Land Transport Excellence Award, Land Transport Authority

Best Land Transport Operations & Maintenance Initiatives – SMRT Trains Land Transport Excellence Award, Land Transport Authority

Most Innovative Solution – SMRT Trains Land Transport Excellence Award, Land Transport Authority

CORPORATE SOCIAL RESPONSIBILITY

President's Challenge Award President's Challenge Appreciation Night 2018

Charity Platinum Award (SMRT Corporation Ltd) Community Chest Awards 2018, National Council of Social Service

Charity Gold Award (SMRT Trains Ltd) Community Chest Awards 2018, National Council of Social Service

Friend of the Arts Award Patrons of the Arts Award 2018, National Arts Council

Blood Mobile Organiser (Merit Award) Singapore Red Cross Society

COMMUNICATIONS, PUBLIC RELATIONS & MARKETING RESPONSIBILITY

Outstanding Social or Digital Media Campaign – Merit PRISM Awards 2019, Institute of Public Relations of Singapore

Best Engagement by Media Owner: WINK+ App – Gold Loyalty & Engagement Awards 2018, Marketing Interactive

Best App/Portal/Website by a Media Owner: WINK+ App – Gold The SPARK Awards for Media Excellence 2018, Marketing Interactive

Best Commercial/Acquisition Team: XCO – Bronze The SPARK Awards for Media Excellence 2018, Marketing Interactive

Best Creative Team: XCO – Bronze The SPARK Awards for Media Excellence 2018, Marketing Interactive

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Visit our website for more information and to contact us





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SMRT takes corporate citizenship seriously and we endeavour to do our part to protect the environment.