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Replacement of Power Rail Completed on the North-South and East-West Lines

Coordinating Minister for Infrastructure and Minister for Transport Mr Khaw Boon Wan officiated at the completion ceremony of the power rail replacement project on the North-South and East-West Lines (NSEWL). The last section of power rail was replaced near Ang Mo Kio MRT station on the North-South Line on 15 August 2017. The power rail replacement project is the second major renewal project, following the re-sleepering project,¹ under a multi-year programme to rejuvenate the 30 year-old NSEWL.

2. A total of approximately 180 km of aluminium-stainless steel composite rails which supply electricity to NSEWL trains were replaced over a two-year effort that began in September 2015. The completion of power rail replacement will reduce the occurrence of power rail faults on the NSEWL, Singapore's oldest, longest and most heavily-used MRT lines. The design of the power rail system was also improved by reducing the distance between brackets and rail assembly claws for better support.

3. As works could only be done during limited engineering hours², the project required constant coordination with regular maintenance work and other rail improvement projects, such as sleeper replacement, re-signalling and noise barrier installation. The project was carried out by over 400 staff, technicians and engineers from LTA, SMRT and their contractors, GATES PCM and Alstom.

4. Even as LTA and SMRT were replacing the power rail, they also ramped up preventive and predictive maintenance efforts to further minimise the risk of train service delays from power rail faults. A condition monitoring tool known as the Linear Variable Differential Transformer (LVDT) was introduced in 2013 to enable real-time monitoring of the power rail's vertical alignment. Since then, more sensors have also been deployed

¹ The sleeper replacement project was completed in December 2016.

² Engineering hours are between 1.30am and 4.30am every night.

throughout the network to provide the Maintenance Operations Centre early warning of potential power rail system problems.

5. Mr Ngien Hoon Ping, Chief Executive of LTA said: “LTA has been working closely with SMRT to renew and upgrade our rail system. We have successfully achieved two major milestones, the sleeper replacement and now the power rail replacement on the NSEWL. We will be embarking on more major infrastructure renewal projects, such as the replacement of the NSEWL power supply system and first-generation trains. The tenders for these renewal projects have closed, and LTA is currently evaluating the bids. When these projects are completed, we are confident that commuters can enjoy even better rides.”

6. Mr Lee Ling Wee, Chief Executive Officer of SMRT Trains said: “The power rail replacement project marks the first network-wide renewal of power rail on the NSEWL and will contribute to more reliable train journeys as other parts of the NSEWL are also rejuvenated. All these upgrading works are necessary to ensure that the system’s reliability can be improved and its capacity expanded to keep up with commuters’ needs. I thank the joint engineering team for completing this project safely, and also the commuters and residents staying next to the viaducts for their patience in bearing with some inconveniences as the works were carried out.”

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