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Panel on Transport

Subcommittee on Matters Relating to Railways
Meeting on 4 July 2014

Background brief on East Rail Line service disruptions
on 27 and 28 April, and 1 and 2 May 2014

Purpose

This paper provides background information on the East Rail Line ("ERL") service disruptions on 27 and 28 April, and 1 and 2 May 2014. It also summarizes the major views and concerns expressed by Members during previous discussions on heavy rail incidents.

Background

2. According to the information provided by the Administration¹, the service disruption of ERL on 27 April 2014 was caused by the unstable performance of one of the routers of the data network transmission, which forms part of the monitoring and communications system of ERL at the Fo Tan Railway House. As the standby router is designed to be activated automatically only at the complete malfunctioning of the original router, automatic activation was not successful as the original router was only unstable instead of malfunctioning completely on the day of the incident. As a result, the operation of the data network transmission was affected. After switching off the original router and activating the standby router manually, train service resumed normal. The incident caused service disruption of 36 minutes. The original router was replaced that night after train service. Following the incident, the MTR Corporation Limited ("MTRCL") installed a data analyser to monitor the stability of data network transmission. Should there be any instability of the data network

¹ Source: The Administration's press release on "LCQ14: MTR East Rail Line incidents" issued on 28 May 2014

transmission, the problem can be detected and rectified as early as possible.

3. Unlike the case involving an unstable router on 27 April 2014, the incident on 28 April 2014 was caused by the malfunctioning of one of the concentrators of the data network transmission. Subsequent to the replacement of the malfunctioned concentrator on the day of the incident, the data network transmission resumed normal operation. The incident affected the railway service for 12 minutes.

4. The cause of ERL incidents on 1 May and 2 May 2014 was different from that of the cases on 27 April and 28 April 2014. The incident on 1 May 2014 was caused by the failure of the harddisk of the major train control system of the signalling system of ERL. As soon as the standby train control system was activated automatically, the signalling system resumed normal operation. The incident on 2 May 2014 was caused by the failure of the trackside encoder (a component of the signalling system). After the relevant component was replaced, the signalling system resumed normal operation. The two incidents caused service disruptions of 10 and 33 minutes respectively.

Major concerns raised by the Legislative Council Members

5. Members' major concerns on past heavy rail incidents are summarized below.

Incident handling

6. Under the existing arrangements, MTRCL is required by the Transport Department ("TD") to issue an Amber or Red Alert message to TD and other public transport operators in accordance with the seriousness of the railway incident. MTRCL is also required to notify TD within eight minutes of any service disruption incident that has occurred for eight minutes or is expected to last for eight minutes or more. Besides, according to Mass Transit Railway Regulations, MTRCL should report to the Electrical and Mechanical Services Department any incident which has a direct bearing on the safe operation of the railway.

7. In case of a major incident, MTRCL will activate the Incident Control Post to deal with the incident together with Administration departments including the Fire Services Department, the Police and TD in accordance with established procedures of contingency plans so as to expedite safe evacuation of passengers. In case the power supply to MTRCL is affected, a backup system on board of the trains will be

activated to supply electricity to major facilities on trains, including some of the lighting, ventilation and communication systems. Moreover, staff will be swiftly deployed to assist with passenger detrainment.

8. The Subcommittee on Matters Relating to Railways ("the Subcommittee") discussed MTRCL's incident handling at the meetings on 16 December 2008, 4 December 2009, 4 November 2010, 18 March 2011, 28 June 2012, 20 December 2013 and 28 February 2014. Members were gravely concerned about the delayed notification to TD and the contingency measures taken during the incident. In particular, members expressed dissatisfaction with the confusion in the dissemination of information to passengers regarding the service suspension and train service available, emergency bus arrangements, lack of crowd control at the emergency bus pick-up points, and the ad hoc changes made to the locations of those points.

9. At the meeting on 4 November 2010, members of the Subcommittee passed the following motion:

"That, as quite a number of serious incidents and disruptions have occurred on the railway systems of MTRCL over the past several years and there has been no improvement in the measures it has adopted in response to these incidents and the way it has handled them; its performance in handling the recent incidents has been more than disappointing and has aroused concern about and dissatisfaction with its railway operations among members of the public; this Subcommittee demands that MTRCL withholds the bonus payments for this year to its Chief Executive Officer and other management staff concerned as a punishment."

Outsourcing of maintenance staff

10. When discussing railway incidents at the Subcommittee meetings on 16 December 2008, 4 December 2009, 18 March 2011, 20 December 2013 and 28 February 2014, members in general expressed concern that the railway incidents might be caused by MTRCL's outsourcing of maintenance service, which might adversely affect the standard of rail maintenance. MTRCL explained that contractor staff was responsible for regular visual inspections; dye penetration tests and small scale preventive maintenance work; and track cleaning. While tasks such as replacement of rails, ultrasonic testing and rail grinding were carried out by MTRCL's in-house staff. They also assured the Subcommittee members that outsourced and in-house maintenance works were subject to the same standards and requirements. At the Subcommittee meeting on

20 December 2013, members passed two motions urging MTRCL to review or cease the outsourcing arrangements so as to improve the maintenance quality and avoid recurrence of the similar incident.

11. MTRCL at the meeting on 28 February 2014 updated the Subcommittee on the information of their outsourcing maintenance staff². As at 2013, the number of in-house and outsourced maintenance staff deployed in the MTR network was 4 031 and 1 201 respectively. Among the outsourced maintenance staff, 57.9% were responsible for station maintenance; 29.1% for infrastructure maintenance; and 13% for rolling stock maintenance. The number of in-house and outsourced maintenance staff deployed in the MTR network is in **Appendix I**.

Penalty

12. At the Subcommittee meeting on 4 December 2009, members urged that the Administration should step up monitoring effort and impose a penalty system on MTRCL, such as issuing warning letters to or imposing fines on MTRCL in case of substandard performance. On 28 June 2012, the Subcommittee members expressed concerns on railway service performance. They suggested that MTRCL should introduce a mechanism for the offer of compensations to passengers affected in railway incidents, and the Administration should consider apportioning blame for railway incidents or introducing a penalizing mechanism. On 20 December 2013, the Subcommittee passed a motion, urging the Administration to consider expanding the scope of penalty imposed on MTRCL by including deductions of the remunerations and bonuses of its directors, as well as setting out the timetable for implementation of the said deductions.

13. The Administration completed the review of Fare Adjustment Mechanism ("FAM") of MTRCL in April 2013 and the new mechanism becomes effective from June 2013. Under the revised FAM, there is a service performance arrangement whereby a fine, ranging from \$1 million to \$15 million, will be imposed on MTRCL for serious service disruptions, defined as disruptions of 31 minutes or above. The Administration agrees with the argument advanced by MTRCL that disruptions of a shorter duration should not be counted for this purpose in order not to put undue pressure on MTRCL's frontline staff who otherwise might be tempted or pressured into rushing their repair works to avoid the penalty, putting quality or safety at risk. It should also be noted that disruptions caused by

² Source: The Administration's paper on "Follow-ups on the Service Suspension of Tseung Kwan O Line and Part of Kwun Tong Line on 16 December 2013, and Report on Subsequent Major Incidents on East Rail Line and Light Rail" in February 2014 [LC Paper No. CB(1)980/13-14(05)]

factors outside MTRCL's control such as passengers' behaviour and bad weather, will not be counted either. The arrangement is similar to some practices adopted overseas, such as in Singapore and Melbourne. Any fine imposed is credited to a fare concession account for fare concessions through the time-limited "10% Same Day Second Trip Discount" scheme.

14. Regarding the cumulative total amount of fines paid by MTRCL since the implementation of the service performance arrangement mentioned in paragraph 13, the Administration³ advised in May 2014 that since the introduction of the "Service Performance Arrangement" in 2013, MTRCL has been fined a total of \$40.5 million for service disruptions of 31 minutes or above in 2012 and 2013. The proceeds are returned to passengers through the "10% Same Day Second Trip Discount" scheme. The accumulated fine of \$13 million due to the incidents in 2012 has been returned to passengers from July 2013 onwards, and the \$27.5 million accumulated due to the incidents in 2013 will be returned to passengers starting from June 2014.

Ageing problems of railway systems

15. At the Subcommittee meeting on 5 July 2013, a member noted that from 1 January to 31 May 2013, 40 out of 75 delays for heavy rail were attributed to equipment fault. As some of the trains had serviced ERL for some 30 years, he wondered whether the equipment fault was due to the ageing of the fleet. Besides, two Members expressed concern about the ageing of the signalling system. For instance, MTRCL's increase in train frequency might have accelerated the ageing of the data transmission components in the signalling system, resulting in malfunction of the system. In this connection, these two Members asked questions at the Council meetings of 14 May and 21 May 2014.

Quality management

16. At the Subcommittee meeting on 28 February 2014, members noted that a broken fastening wire in an overhead line support bracket near Tiu Keng Leng Station had caused the train service suspension on 16 December 2013. MTRCL informed members that the breakage was due to improper installation of the overhead line support bracket during construction. Also, MTRCL reported that ERL incidents on 9 February and 18 February 2014 as well as the Light Rail incidents on 17 December 2013 and 22 January 2014 had been caused by faulty overhead line insulators. MTRCL's investigations into the incidents concluded that there were quality issues

³ Source: The Administration's press release on "LCQ15: MTR railway services" issued on 14 May 2014

with the insulators that caused the above service disruptions on ERL and the Light Rail. In this connection, the Subcommittee urged MTRCL to enhance their quality management in railway operations.

Recent developments

17. The Administration is invited to brief members on ERL service disruptions on 27 and 28 April, and 1 and 2 May 2014 at the Subcommittee meeting to be held on 4 July 2014.

Relevant papers

18. A list of relevant papers is in **Appendix II**.

Council Business Division 1
Legislative Council Secretariat
2 July 2014

Panel on Transport
Subcommittee on Matters Relating to Railways

**The number of in-house and outsourced maintenance staff
deployed in the MTR network
(2010 to 2013)**

	Number of in-house and outsourced maintenance staff in the MTR network			
	2010	2011	2012	2013
Number of in-house maintenance staff	3 828 (76.4%)	3 891 (75.4%)	3 960 (77.3%)	4 013 (77%)
Number of outsourced maintenance staff	1 182 (23.6%)	1 269 (24.6%)	1 166 (22.7%)	1 201 (23%)

Job nature	Number of outsourced maintenance staff			
	2010	2011	2012	2013
Station Maintenance	731 (61.8%)	781 (61.5%)	674 (57.8%)	695 (57.9%)
Rolling stock maintenance	143 (12.1%)	174 (13.7%)	160 (13.7%)	156 (13%)
Infrastructure maintenance	308 (26.1%)	314 (24.7%)	332 (28.5%)	350 (29.1%)
Total	1 182	1 269	1 166	1 201

Source: The Administration's paper on "Follow-ups on the Service Suspension of Tseung Kwan O Line and Part of Kwun Tong Line on 16 December 2013, and Report on Subsequent Major Incidents on East Rail Line and Light Rail" in February 2014 [LC Paper No. CB(1)980/13-14(05)]

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List of relevant papers on East Rail Line service disruptions
on 27 and 28 April, and 1 and 2 May 2014

Date of meeting	Committee	Minutes/Paper	LC Paper No.
16.12.2008	Subcommittee on Matters Relating to Railways	Administration's paper on MTR Kwun Tong Line overhead power system failure on 8 December 2008 and recent railway incidents	LC Paper No. CB(1)398/08-09(01) http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/papers/tp_rdp1216cb1-398-1-e.pdf
		The MTR Corporation Limited's paper on MTR Kwun Tong Line overhead power system failure on 8 December 2008 and recent railway incidents	LC Paper No. CB(1)398/08-09(02) http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/papers/tp_rdp1216cb1-398-2-e.pdf
		Minutes	LC Paper No. CB(1)1786/08-09 http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/minutes/rdp20081216.pdf
4.12.2009	Subcommittee on Matters Relating to Railways	Administration's paper on MTR Tseung Kwan O Line Signaling Equipment Fault incident on 9 October 2009 and Tsuen Wan Line Train Fault incident on 10 October 2009	LC Paper No. CB(1)309/09-10(01) http://www.legco.gov.hk/yr09-10/english/panels/tp/tp_rdp/papers/tp_rdp1216cb1-309-1-e.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
		Administration's paper on MTR Tseung Kwan O Line signalling equipment fault incident on 21 August 2009	LC Paper No. CB(1)2607/08-09(01) http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/papers/tp_rdpcb1-2607-1-e.pdf
		Minutes	LC Paper No. CB(1)1016/09-10 http://www.legco.gov.hk/yr09-10/english/panels/tp/tp_rdp/minutes/rdp20091204.pdf
4.11.2010	Subcommittee on Matters Relating to Railways	Administration's paper on Tsuen Wan Line train fault incident	LC Paper No. CB(1)277/10-11(02) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp1104cb1-277-2-e.pdf
		Minutes	LC Paper No. CB(1)1068/10-11 http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/minutes/rdp20101104.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
18.3.2011	Subcommittee on Matters Relating to Railways	Administration's paper on "MTR Tsuen Wan Line service disruption on 21 October 2010"	LC Paper No. CB(1)1585/10-11(03) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0318cb1-1585-3-e.pdf
		Administration's paper on "Recent railway incidents involving MTR rail cracks"	LC Paper No. CB(1)1585/10-11(04) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0318cb1-1585-4-e.pdf
		The MTR Corporation Limited's paper on "Follow-up actions on MTR Tsuen Wan Line service disruption on 21 October 2010"	LC Paper No. CB(1)1585/10-11(05) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0318cb1-1585-5-e.pdf
		The MTR Corporation Limited's paper on "Recent railway incidents involving MTR rail cracks"	LC Paper No. CB(1)1585/10-11(06) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0318cb1-1585-6-e.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
		Administration's paper on "Recent railway incidents involving MTR rail cracks"	LC Paper No. CB(1)1323/10-11(02) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0221cb1-1323-2-e.pdf
		The MTR Corporation Limited's paper on "Recent railway incidents involving MTR rail cracks"	LC Paper No. CB(1)1323/10-11(03) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0221cb1-1323-3-e.pdf
		Minutes	LC Paper No. CB(1)2913/10-11 http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/minutes/rdp20110318.pdf
8.6.2011	Council meeting	Hon CHEUNG Hok-ming raised a question on MTRCL's rail services and fare adjustment mechanism	http://www.info.gov.hk/gia/general/201106/08/P201106080147.htm
8.6.2011	Council meeting	Hon WONG Sing-chi raised a question on rail service and incidents of MTRCL	http://www.info.gov.hk/gia/general/201106/08/P201106080126.htm

Date of meeting	Committee	Minutes/Paper	LC Paper No.
8.2.2012	Council meeting	Hon Mrs Sophie LEUNG LAU Yau-fun raised a question on contingency arrangements for railway incidents	http://www.info.gov.hk/gia/general/201202/08/P201202080250.htm
28.6.2012	Subcommittee on Matters Relating to Railways	The MTR Corporation Limited's paper entitled "MTR railway service performance"	LC Paper No. CB(1)2236/11-12(01) http://www.legco.gov.hk/yr11-12/english/panels/tp/tp_rdp/papers/tp_rdp0628cb1-2236-1-e.pdf
		The MTR Corporation Limited's paper entitled "Occurrences of non-stopping of MTR trains or door opening procedures not properly followed by MTR train captains"	LC Paper No. CB(1)1162/11-12(01) http://www.legco.gov.hk/yr11-12/english/panels/tp/tp_rdp/papers/tp_rdp0113cb1-1162-1-e.pdf
		Minutes	LC Paper No. CB(1)2626/11-12 http://www.legco.gov.hk/yr11-12/english/panels/tp/tp_rdp/minutes/rdp20120628.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
5.7.2013	Subcommittee on Matters Relating to Railways	The MTR Corporation Limited's paper on service performance of the MTR Corporation Limited	LC Paper No. CB(1)1421/12-13(01) http://www.legco.gov.hk/yr12-13/english/panels/tp/tp_rdp/papers/tp_rdp0705cb1-1421-1-e.pdf
		The MTR Corporation Limited's supplementary information paper on service performance of the MTR Corporation Limited (follow-up paper)	LC Paper No. CB(1)1286/13-14(01) http://www.legco.gov.hk/yr12-13/english/panels/tp/tp_rdp/papers/tp_rdp0705cb1-1286-1-e.pdf
		Minutes	LC Paper No. CB(1)534/13-14 http://www.legco.gov.hk/yr12-13/english/panels/tp/tp_rdp/minutes/rdp20130705.pdf
20.12.2013	Subcommittee on Matters Relating to Railways	Administration's paper on Tseung Kwan O Line service disruption on 16 December 2013	LC Paper No. CB(1)595/13-14(01) http://www.legco.gov.hk/yr13-14/chinese/panels/tp/tp_rdp/papers/tp_rdp1220cb1-595-1-c.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
		Minutes	LC Paper No. CB(1)1011/13-14 http://www.legco.gov.hk/yr13-14/english/panels/tp/tp_rdp/minutes/rdp20131220.pdf
28.2.2014	Subcommittee on Matters Relating to Railways	Administration's paper on follow-ups on the service suspension of Tseung Kwan O Line and part of Kwun Tong Line on 16 December 2013, and report on subsequent major incidents on East Rail Line and Light Rail	LC Paper No. CB(1)980/13-14(05) http://www.legco.gov.hk/yr13-14/english/panels/tp/tp_rdp/papers/tp_rdp0228cb1-980-5-e.pdf
19.3.2014	Council meeting	Dr Hon LAU Wong-fat raised a question on MTR services	http://www.info.gov.hk/gia/general/201403/19/P201403190438.htm
3.4.2014	Finance Committee	Administration's replies to Members' initial written questions of the Estimates of Expenditure 2014-15 (Question Serial Nos. 0647, 1624, 0978, 1147, 1163, 4185, 4186, 5102, 6064)	http://www.legco.gov.hk/yr13-14/english/fc/fc/w_q/t_hb-t-e.pdf
9.4.2014	Council meeting	Hon Albert HO Chun-yan raised a question on railway safety	http://www.info.gov.hk/gia/general/201404/09/P201404090399.htm
14.5.2014	Council meeting	Dr Hon LAM Tai-fai raised a question on MTR railway services	http://www.info.gov.hk/gia/general/201405/14/P201405140494.htm

Date of meeting	Committee	Minutes/Paper	LC Paper No.
21.5.2014	Council meeting	Hon CHAN Chi-chuen raised a question on MTR services	http://www.info.gov.hk/gia/general/201405/21/P201405210371.htm
28.5.2014	Council meeting	Hon Charles MOK raised a question on MTR East Rail Line incidents	http://www.info.gov.hk/gia/general/201405/28/P201405270868.htm

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