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Panel on Transport

Subcommittee on Matters Relating to Railways
Meeting on 2 March 2012

Updated background brief on installation of platform screen doors and automatic platform gates at railway stations

Purpose

This paper provides background information on the installation of platform screen doors[1] (PSDs) and automatic platform gates[2] (APGs) at railway stations. It also summarizes the discussions held by the Subcommittee on Matters Relating to Railways (the Subcommittee) on the subject.

Background

2. To enhance passenger safety, the then Mass Transit Railway (MTR) Corporation started in mid-1996 to examine the feasibility of retrofitting PSDs at existing MTR stations which were built in the 1970s and 1980s. Following successful completion of the trial installation at Choi Hung Station and taking into consideration of public views, MTR Corporation decided in 1999 to proceed with the PSD Retrofitting Programme at all 74 platforms of 30 underground stations on the Tsuen Wan Line, Kwun Tong Line, and Island Line in phases. The PSD retrofitting programme was completed in the first half of 2006 at a cost of $2 billion.

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[1] Platform screen doors are full height, total barriers between the station floor and ceiling.

[2] Automatic platform gates are chest-height sliding doors at the edge of railway platforms to prevent passengers from falling off the platform edge onto the railway tracks.

3. However, there are eight at-grade or aboveground stations in the pre-merger MTR system, namely Tsuen Wan, Kwai Fong, Kwai Hing, Heng Fa Chuen, Chai Wan, Kowloon Bay, Ngau Tau Kok and Kwun Tong Stations, which are provided with natural ventilation only. Due to structural constraints of these stations, retrofitting of PSDs might involve installation of ventilation and air-conditioning systems. In 2006, MTR Corporation commenced a feasibility study on retrofitting PSDs, platform gates or any other alternatives at the eight at grade or aboveground stations. In January 2008, based on the outcome of the feasibility study, the MTR Corporation Limited (MTRCL) decided to proceed with the retrofitting of APGs at these stations. The retrofitting works were expected to be completed by the end of 2012 at a cost of about $300 million.

4. For the Kowloon Canton Railway network, the station platforms of East Rail Line (ERL) and Ma On Shan Rail Line (MOSRL) are of an open environment relying on natural ventilation. Some platforms are curved and some are straight, all are without PSDs (except the East Tsim Sha Tsui Station). The pre-merger KCR Corporation (KCRC) had conducted technical studies and pointed out that, before retrofitting of APGs could be considered for the ERL stations, an automatic mechanical gap filler (MGF) system would first be installed at platforms with wide gaps between a train and a curved edge. Without installation of MGFs, such wide platform gaps might pose a risk to boarding and alighting passengers if APGs were provided. A trial on MGF was conducted at Lo Wu Station from July 2008 to the end of 2009.

Report by MTRCL in January 2011 on retrofitting of APGs on ERL

5. As reported by MTRCL in January 2011, based on the results of the technical studies regarding the retrofitting of APGs at ERL stations, it was concluded that the MGF system in its current form was not suitable for use on ERL. The trial showed that the MGF system performed poorly in terms of reliability and incurred a high number of failures. The system was even less reliable during typhoons and heavy rain, with the MGFs stalling and jamming persistently in adverse weather. Besides, MTRCL had identified some technical difficulties if APGs were to be retrofitted on ERL. MTRCL came to the view that both the signalling system and the train fleet would have to be replaced to solve all the technical problems.

Proposal of retrofitting of APGs in tandem with Shatin to Central Link (SCL) project

6. Under the SCL project, MTRCL also made a similar proposal of replacing the signalling system and new trains of ERL in order to permit operation of the North-South Line (NSL)[3]. For NSL, the following are being planned –

(a) new platform configuration at ERL stations as service will be provided by nine-car trains as opposed to the existing 12-car trains. This will help to eliminate the wide platform gap issue as trains calling in at stations with curved platforms can berth in the straighter part of the platforms under the new configuration;

(b) new trains will be designed with a wider body which will help overcome the wide platform gap problem;

(c) a new signalling system will be installed to operate a more frequent service to make up for the capacity lost by using nine-car rather than 12-car trains; and

(d) new trains equipped with motoring and braking systems suitable for use with APGs will be purchased.

7. MTRCL is of the view that retrofitting of APGs in tandem with construction of NSL of SCL would achieve synergy because both projects would require substantial work to be done on ERL platforms. According to MTRCL, if they are undertaken separately, it is almost certain that work will overlap at sites, causing delay to one project or the other, or once one has finished work on a particular platform, the other may go in to dismantle what has just been installed, creating waste and abortive work.

8. The Administration agrees with MTRCL's findings that synergy can be achieved if retrofitting of APGs on ERL is carried out in tandem with the SCL project. Nevetherless, the Administration has also requested MTRCL to explore retrofitting of APGs as a standalone project and retrofitting APGs at those ERL stations which do not have wide platform gaps first. With regard to a standalone project, according to MTRCL, the completion date of a standalone project would not be earlier than the estimated completion date of NSL of SCL of 2020. MTRCL explains that

[3] Under the SCL project, the existing ERL will be extended from Hung Hom, crossing the harbour to reach Admiralty, thereby forming a strategic line from the border at Lo Wu or Lok Ma Chau to the heart of the business centre on Hong Kong Island. This strategic line is termed North-South Line.

about 8½ years will be needed to procure and replace the signalling system and the train fleet with the first APGs being operational at the same time, and the retrofitting of APGs at all the stations will need about 1½ years. In particular, retrofitting work can only be carried out in a small window of three to four hours overnight so as not to affect normal passenger train service during the day. As regards those stations which do not have wide platform gaps, due to the technical limitations of existing signalling system, it would not be possible to retrofit APGs unless at least the signalling system is replaced. As such, the Administration agrees that it is not justifiable to pursue retrofitting of APGs as a standalone project or to retrofit APGs at stations without wide platform gaps first. The Administration also considers that the slightly earlier completion dates does not justify the abortive works involved.

Financial arrangement for the retrofitting works of platform screen doors and automatic platform gates

9. Contribution from passengers to the capital cost of PSD retrofitting programme is needed. Since July 2000, contribution from passengers is arranged through the collection of $0.1 per Octopus MTR journey from passengers. The collection of the $0.1 passenger contribution will continue until it reaches $1 billion (i.e. half of the capital cost of the project).

10. For retrofitting of APGs at the eight at-grade or aboveground stations, MTRCL adopted the same financial arrangement for the PSD retrofitting programme at underground stations, i.e. half of the capital cost will be funded by charging $0.1 to each Octopus ride in the system. This will be achieved through the extension of the charging period under the existing scheme. The rest of the capital cost will be funded by MTRCL.

11. By June 2010, $775 million had been collected by MTRCL. According to the Administration, based on the financial records of the past few years, it is projected that the 10-cent collection arrangement will continue until 2017.

Discussions of the Subcommittee on the installation of platform screen doors and automatic platform gates

12. The Subcommittee has been following up on the funding arrangements for the PSD retrofitting programme, the progress of works, and the feasibility of retrofitting PSDs or APGs at the remaining stations. These issues were discussed at the Subcommittee meetings on 6 May and

13 June 2005, 4 May 2007, 27 March and 21 November 2008, 16 January 2009, 21 January 2011 and 13 January 2012.

Funding arrangements for the PSD retrofitting programme

13. At the meetings on 6 May and 13 June 2005, some members expressed concern about the collection of $0.1 per Octopus MTR journey as funding assistance for the PSD retrofitting programme. They considered it unfair that passengers should bear the cost of retrofitting PSDs which were necessary to be installed for passenger safety, and it was unreasonable that the additional charge would not cease even upon completion of the PSD retrofitting programme in 2006. They held the view that given its huge profits, MTR Corporation should not be collecting $0.1 per passenger per journey for a considerably long period of time for the retrofitting of PSDs.

14. MTR Corporation explained that the additional charge was intended to fund part of the substantial cost involved in retrofitting PSDs which was not covered in the original investment plan of the urban lines of MTR. MTR Corporation estimated that the $0.1 per journey contribution from Octopus passengers would help defray about half of the total cost of the project over the life cycle of PSDs. MTR Corporation pointed out that the PSD retrofitting programme was a highly expensive project at a capital cost of $2 billion. Contribution from passengers, which amounted to half of the cost, was $1 billion. MTR Corporation estimated that, without taking into account the time value of money[4] and changes in patronage, it took about 15 years counting from July 2000 to collect $1 billion from passengers.

Timetable for the installation of PSDs or APGs at all railway stations

15. The Subcommittee was concerned about the progress in the retrofitting of PSDs or APGs at all railway stations, in order to protect passengers, especially the visually impaired and young children, from falling onto the rail tracks. At the Subcommittee meeting on 4 May 2007, members requested concrete timetables to be provided by the two pre-merger railway corporations on the installation of PSDs or APGs at the remaining railway stations where PSDs or APGs still had not been installed.

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4 "Time value of money" is the idea that a dollar now is worth more than a dollar in the future, even after adjusting for inflation, because a dollar now can earn interest or other appreciation until the time the dollar in the future would be received.

16. The MTR Corporation informed members that based on its preliminary study, it would take about five years to complete the retrofitting of APGs at the eight at-grade and aboveground stations. KCRC informed members that the installation of MGFs at Lo Wu Station would not be completed until end of 2008, and another five years would be required to install APGs at all KCRC stations if this was proven to be technically feasible.

17. In the light of the information provided by the two railway corporations, the Subcommittee passed a motion at the meeting on 4 May 2007 requesting the pre-merger MTR Corporation and KCRC to complete the installation of PSDs or APGs at all railway stations by 2012 and 2013 respectively.

18. At its meeting on 27 March 2008, the Subcommittee requested MTRCL to expedite the APG retrofitting programme at the eight at-grade and aboveground stations, and to provide details of the programme to facilitate the monitoring by the Subcommittee. MTRCL advised in its supplementary information paper provided to the Subcommittee that the installation of APGs at the eight at-grade and aboveground stations would be completed progressively between the second and the fourth quarter of 2012.

19. At its meeting on 21 November 2008, the Subcommittee expressed major concern about the progress of the installation of APGs at ERL stations, and criticized MTRCL for failing to provide a completion date for the installation works. The Subcommittee urged the Administration to ascertain with MTRCL the new completion date for installation of APGs at ERL stations, if 2013 was confirmed no longer feasible. At the meeting on 21 November 2008, the Subcommittee passed the following motion -

> "That this Subcommittee expresses strong dissatisfaction with and condemnation of the failure of the Government and MTRCL to fulfil their promise to provide a concrete timetable for the installation of platform screen doors; and strongly requests the Government to press MTRCL to expedite the installation of platform screen doors."

20. To follow up the matter, the Subcommittee conducted a site visit on 13 December 2008 to Lo Wu Station to observe the on-going trial on MGFs and the relevant technical issues.

21. When the subject was further discussed at the Subcommittee meeting on 16 January 2009, MTRCL explained that if APGs were provided without installation of MGFs, the wide platform gaps between a train and a curved edge at the ERL stations might pose a risk to boarding and alighting passengers. MTRCL informed members that sufficient test data for analysis and assessment on the performance of MGFs would be ready by September 2009, and the full review would be completed by the end of 2009.

MTRCL's proposal of retrofitting of APGs in tandem with SCL project

22. At its meeting on 21 January 2011, the Subcommittee discussed the major findings of MTRCL's technical studies regarding the retrofitting of APGs on ERL. Subcommittee members in general expressed dissatisfaction with the findings and the MTRCL's proposal of retrofitting of APGs in tandem with the SCL project. Some members suggested that consideration could be given to installing APGs at certain busy ERL stations, such as the Kowloon Tong Station, where the platforms were less curved. These members considered that MTRCL should not just emphasize cost considerations in contemplating whether the two projects should be implemented in tandem or separately. The Subcommittee passed the following motion at the meeting on 21 January 2011-

> "That there have been as many as 48 accidents involving passengers falling onto rail tracks and 30 cases of suicide and attempted suicide over the past three years at MTRCL's stations which have not been retrofitted with platform screen doors or APGs, but MTRCL still refuses to immediately retrofit APGs on its ERL and MOSRL in disregard of both passenger safety and its corporate social responsibility, this Subcommittee therefore strongly condemns MTRCL for its indifference to passenger safety, and demands that MTRCL immediately retrofit APGs on its ERL and MOSRL to ensure passenger safety."

23. The Subcommittee urged MTRCL to make sustained efforts in exploring feasible solutions which could enable retrofitting APGs at ERL stations as early as possible, at least at those without wide platform gaps first, with a view to enhancing passenger safety.

24. At the request of the Subcommittee, the Administration provided a supplementary information paper on 18 August 2011 (Annex II to CB(1)2922/10-11(01)) on the additional cost implication if the APG project

on ERL and the SCL project were implemented separately and its response to the motion passed on 21 January 2011.

Latest update on retrofitting APGs in existing railway stations

25. At the meeting on 13 January 2012, the Administration and MTRCL briefed the Subcommittee on the latest update on retrofitting APGs in existing railway stations. Subcommittee members expressed dissatisfaction with the MTRCL's plan to prepare for APG retrofitting works along ERL in tandem with the SCL project, and requested MTRCL to provide more detailed justifications.

26. In respect of retrofitting APGs along MOSRL, the MTRCL advised that MOSRL was currently using four-car trains. When the SCL came into operation, it would be changed to allow operation of eight-car trains. Appropriate platform modifications would be necessary. Both retrofitting APGs and the construction of the East-West Corridor (EWC) of SCL would involve modifications of MOSRL's platforms. If the retrofitting of APGs along MOSRL was carried out as a standalone project, some of the APGs installed might need to be dismantled when construction of the SCL began, in order to reinstall APGs that fitted for the operation of eight-car trains, resulting in wastage. In order to minimize inconvenience and disturbance to passengers due to repeated works on the platforms, reduce waste and achieve synergy, MTRCL would carry out the APG retrofitting works on MOSRL in tandem with the construction of EWC of the SCL project scheduled for completion by 2018.

27. Some Subcommittee members, however, considered that the MTRCL should retrofit APGs at MOSRL stations first and reprovision the APGs when the platforms concerned underwent the modification works to allow operation of eight-car trains. MTRCL was requested to consider the suggestion and further report to the Subcommittee.

Council Questions

28. Hon WONG Sing-chi asked two questions about the retrofitting of PSDs and APGs at MTR stations at the Council meetings on 3 November 2010 and 6 April 2011 respectively. Hon KAM Nai-wai also asked a question on platform safety in MTR stations at the Council meeting on 2 March 2011. The questions and the Administration's replies are attached at **Appendix I** for members' reference.

Latest developments

29. The Subcommittee will further discuss the retrofitting of APGs on ERL and MOSRL at the next meeting on 2 March 2012.

Relevant papers

30. A list of relevant papers is at **Appendix II**.

Council Business Division 1
Legislative Council Secretariat
28 February 2012

Appendix I

Press Releases

LCQ14: Retrofitting of Platform Screen Doors and Automatic Platform Gates at MTR stations

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Following is a question by the Hon Wong Sing-chi and a written reply by the Secretary for Transport and Housing, Ms Eva Cheng, at the Legislative Council meeting today (November 3):

Question:

Since July 3, 2000, the then Mass Transit Railway (MTR) Corporation and the MTR Corporation Limited (MTRCL) have respectively collected an extra charge of $0.1 for each Octopus journey from passengers (the collection arrangement) to fund the project of retrofitting platform screen doors or automatic platform gates at 30 underground stations as well as eight aboveground and at-grade stations (the retrofitting project). The expenditure of the retrofitting project is about $2.3 billion, half of which is contributed by passengers through the collection arrangement, and MTRCL had collected $730 million as at the end of 2009. In this connection, will the Government inform this Council:

(a) given that in their reply to a question raised by a Member of this Council on June 9, 2010, the authorities stated that according to the estimate by MTRCL with reference to its financial records of the past few years, the collection arrangement will continue until 2017 to enable full recovery of the retrofitting project cost, whether the Government knows if there is any change to the cost of the retrofitting project at present; if there is, of the latest estimation and the reasons for such a change, as well as when the collection arrangement will last;

(b) whether it knows the accrued amount collected by MTRCL to date through the collection arrangement; whether the amount is sufficient to cover half of the expenditure of the retrofitting project; if so, of the progress and timetable of the retrofitting project; if not, whether MTRCL will revise its original option of sharing half of the project cost only and put in more resources to speed up the progress of the retrofitting project in order to protect passengers' safety;

(c) whether it knows the details of the works which MTRCL decided in 2008 to carry out at the eight aboveground and at-grade stations of the pre-merger MTR system, including the progress, timetable and expenditure, etc. of the works (list by the name of the stations); and

(d) of the number of accidents of passengers falling onto rail tracks due to various reasons in each of the past five years and the number of passengers involved; among them, the number of accidents which happened at stations without platform screen doors or automatic platform gates as well as the number and percentage of passengers involved?

Reply:

President,

For the various parts of the question, our reply is set out below:

(a) and (b) The pre-merger MTR Corporation Limited (MTRCL) announced in early 1999 the retrofitting of platform screen doors (PSDs) at 30 underground stations. The retrofitting programme was completed in 2006. As the works required a high capital cost of $2 billion which was not covered in the original investment plan of the MTR urban lines, after discussion with the Legislative Council, half of the project cost would be borne by

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- Appendix 1
- Appendix 2

MTRCL while the remaining half of the project cost (i.e. $1 billion) would be met through collecting 10 cents per trip from passengers using Octopus card. As such, collection of the 10 cents per trip from passengers using Octopus card travelling on the pre-merger MTR lines began in July 2000 and the arrangement will continue until the cost of $1 billion is recovered in full.

In 2008, MTRCL decided to retrofit automatic platform gates (APGs) at the eight aboveground and at-grade stations in the former MTR system. These stations are Heng Fa Chuen, Chai Wan, Kwai Fong, Kwai Hing, Tsuen Wan, Kowloon Bay, Ngau Tau Kok and Kwun Tong Stations. The cost of the retrofitting works is about $300 million, half of which would continue to be borne by passengers using Octopus card through collecting 10 cents per trip and the other half would be borne by MTRCL.

By June 2010, $775 million had been collected by MTRCL. Based on the financial records of the past few years, it is projected that the 10-cent collection arrangement will continue until 2017, which is the same as the projection announced previously.

(c) The works of retrofitting APGs at the eight aboveground and at-grade stations started in 2010, and are expected to be completed by the end of 2011, one year earlier than originally scheduled. The progress of the works is tabulated in appendix 1.

According to MTRCL, the contracts for the aforementioned works with an overall cost of $300 million do not have cost breakdown by stations.

(d) Passenger-on-track cases include accidents in which passengers fall onto the track (e.g. under the influence of alcohol or medicine, due to sickness etc); suicides and attempted suicides; and trespasses onto the track (e.g. passengers trying to retrieve items fallen onto the track, crossing the track to the platform on the other side etc). Over the past five years, all such cases happened at stations without PSDs (Note). The number of cases is set out in appendix 2.

(Note) The cases for 2006 include two cases involving contractor staff at stations with PSDs. One was a case of a contractor staff fallen onto the track by accident, and the other was a trespass onto the track involving 10 contractor staff.

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Appendix 1: Progress of the works of retrofitting automatic platform gates ("APGs") at the eight MTR aboveground and at-grade stations

<table>
<tr><td colspan="3">Detailed design</td><td>Completed</td></tr>
<tr><td colspan="3">On-site prototype test</td><td>Completed</td></tr>
<tr><td colspan="3">Manufacturing of APGs</td><td>Ongoing</td></tr>
<tr><td colspan="3">Reliability test</td><td>Ongoing</td></tr>
<tr><td rowspan="7">Commencement of retrofitting works at various stations</td><td rowspan="2">Island Line</td><td>Hang Fa Chuen Station</td><td rowspan="2">Commenced in April 2010</td></tr>
<tr><td>Chai Wan Station</td></tr>
<tr><td rowspan="2">Kwun Tong Line</td><td>Kowloon Bay Station</td><td rowspan="3">Commenced in July 2010</td></tr>
<tr><td>Ngau Tau Kok Station</td></tr>
<tr><td rowspan="2">Tsuen Wan Line</td><td>Kwai Fong Station</td></tr>
<tr><td>Kwai Hing Station</td></tr>
<tr><td>Kwun Tong Line</td><td>Kwun Tong Station</td><td rowspan="2">To commence in February 2011</td></tr>
<tr><td>Tsuen Wan Line</td><td>Tsuen Wan Station</td></tr>
<tr><td colspan="3">Completion of all retrofitting works</td><td>End 2011</td></tr>
</table>

Appendix 2: Number of MTR Passenger-on-track cases over the past five years

	Fallen onto the track by accident	Suicide and attempted suicide	Trespassing onto the track	Total
2006 [Note]	24 (25)	10 (10)	44 (54)	78 (89)
2007	15 (16)	10 (10)	51 (53)	76 (79)
2008	13 (14)	7 (8)	40 (45)	60 (67)
2009	20 (20)	19 (20)	59 (72)	98 (112)
2010 (up to September)	15 (16)	4 (4)	46 (59)	65 (79)
Total	87 (91)	50 (52)	240 (283)	377 (426)

(Numbers in brackets represent the number of persons involved. Some cases involved more than one person.)

[Note] The cases for 2006 include two cases involving contractor staff at stations with platform screen doors. One was a case of a contractor staff fallen onto the track by accident, and the other was a trespass onto the track involving ten contactor staff.

Press Releases

LCQ9: Retrofitting platform screen doors or automatic platform gates at MTR stations

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Following is a question by the Hon Wong Sing-chi and a written reply by the Secretary for Transport and Housing, Ms Eva Cheng, at the Legislative Council meeting today (April 6):

Question:

As regards retrofitting platform screen doors (PSDs) or automatic platform gates (APGs) at stations along the East Rail Line (EAL) and Ma On Shan Line (MOSL) of the MTR Corporation Limited (MTRCL), will the Government inform this Council:

(a) given that in its reply to a question raised by a Member of this Council on June 9, 2010, the Transport and Housing Bureau (THB)indicated that "as there are platforms with relatively greater curvatures and wider platform gaps at some stations of the East Rail Line, the problem of wide platform gaps has to be properly resolved before APGs are installed at stations along the line in order to reduce the risk of passengers inadvertently stepping into the platform gaps because of sight line obstructions caused by the APGs", whether the authorities know:

(i) the definitions of "relatively greater curvatures" of the platforms and "wider platform gaps" referred to by THB, and whether there are objective measurement standards for such; if yes, of the details; if not, the reasons for that;

(ii) among the stations along EAL and MOSL, the names of those stations having platform(s) with relatively greater curvatures and wider platform gaps, as well as other stations (please list the stations by rail line); and

(iii) whether MTRCL will first retrofit PSDs or APGs at those stations with straight platforms only; if so, of the details and timetable; if not, the reasons for that;

(b) concerning the numbers of passengers who fell onto tracks as set out in Annex I of THB's reply to my question on January 19, 2011, of the respective numbers of injuries and deaths among such cases, with a breakdown by station and year;

(c) given that MTRCL indicated in its paper submitted to the Subcommittee on Matters Relating to Railways in January 2011 that "Synergy can be identified through integrating the APG and SCL (the Shatin to Central Link) projects while large amounts of redundancy and wastage would be incurred if the two were implemented separately", whether the authorities know the criteria and methods for evaluating the "synergy" and "large amounts of redundancy and wastage" referred to by MTRCL, as well as the details; if not, of the reasons for that, and when the Government can obtain such information; and

(d) given that MTRCL also indicated in the paper mentioned in (c) that consideration must be given to the impact that APGs would have on the circulation of air on EAL platforms, and that studies showed that existing station ventilation would have to be improved to maintain a comparable environment as before the installation of APGs for passengers waiting for trains on platforms, whether the authorities know if MTRCL (or its predecessor, the MTRCL before the rail merger) had studied the issue of ventilation when it retrofitted PSDs or APGs at other underground stations in the past and if it has conducted such studies at present when retrofitting PSDs or APGs at the eight aboveground and at-grade stations; if so, of the respective details of such studies and the aforesaid studies on EAL; if not, the reasons for that?

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- Annex

Reply:

President,

The replies to various parts of the question are as follows:

(a)

(i) In railway operations, factors such as wind speed, train speed, geographic conditions and passenger loading could cause slight, left-right swaying movements in trains while entering or leaving a platform. Hence, a suitable distance between the platform and the train has to be maintained to prevent trains from hitting the platform to ensure safe train operations. In the case of a curved platform, arc movements of a train occur when it is entering or leaving a platform. Therefore, a certain distance is also required between the train and the platform.

The design and construction of the East Rail Line (EAL) were different from that of the other railway lines. This is because apart from domestic passenger trains, there are Intercity Through Trains with wider train bodies operating on the EAL. Due to geographic constraints, some EAL platforms are located on curved sections, necessitating wider gaps between the train and the platform. There are design standards for these technical aspects.

The MTR Corporation Limited (MTRCL) has already taken the following measures to ensure the safety of passengers waiting on platforms:

- Platform gap fillers are installed to narrow the gap between the train and the platform;

- Yellow tactile strips are installed along platform edges to remind passengers not to stand beyond the yellow line;

- Door chimes are broadcast before train doors close to remind passengers not to charge in the compartments;

- CCTV system is installed at platforms for monitoring purpose, public announcements are made on platforms and in train compartments to remind passengers to mind the platform gaps; and

- Illumination is installed under the platforms and flashing lights are installed at the edge of the EAL platforms at locations where the gap between the platform and the train is relatively wide so that passengers would pay attention to the gap.

(ii) At present, the platforms at Tai Wai Station, Sha Tin Station, Fo Tan Station, Racecourse Station, Fanling Station, Sheung Shui Station, Lok Ma Chau Station on the EAL and all stations on the Ma On Shan Line (MOL) are straight. Some platforms at Hung Hom Station, Mong Kok East Station, Kowloon Tong Station, University Station, Tai Po Market Station, Tai Wo Station and Lo Wo Station on the EAL are situated on curved sections.

(iii) The design of the MTR station platforms is safe. With the above facilities and measures taken by MTRCL, as well as regular passenger education activities, MTRCL has been providing a safe travelling environment for passengers.

Regarding the retrofitting of automatic platform gates (APGs) along EAL, technical studies have been conducted by the MTRCL with a view to identifying feasible solutions. The studies reveal that retrofitting of APGs at EAL stations poses particularly difficult challenges, which include safety risk associated with wider platform gaps; limitations of the existing signalling system; limitations of the existing trains; and limitations of platform structure. The feasibility of retrofitting of APGs at straight platforms first have been considered. However, due to the problems with the existing

system, retrofitting of APGs at straight platforms will require at least the replacement of the signaling system.

(b) Regarding the reply on January 19, 2011 to the Legislative Council on passenger-on-track cases from 2006 to September 2010, the information provided by MTRCL regarding the cases in respect of the year, stations, number of injuries and fatalities are set out in the Annex. There were different causes to these passenger -on-track cases, which include accidents in which passengers fall onto the track (e.g. under the influence of alcohol or medicine, due to sickness etc); suicides and attempted suicides; and trespasses onto the track (e.g. passengers trying to retrieve items fallen onto the track, crossing the track to the platform on the other side etc).

(c) According to MTRCL, before retrofitting of APGs at EAL stations, the following are required to ensure passenger safety, reliable train service and maintenance of current service levels :

(i) development of a highly-reliable Mechanical Gap Filler system which is suitable for use under Hong Kong's adverse weather conditions, or other solutions that can solve platform gap problem to effectively address the safety risk caused by wider platform gaps;

(ii) installation of a new signalling system;

(iii) a train fleet equipped with motoring and braking systems suitable for use with APGs; and

(iv) modifications to station platform structure and ventilation systems.

Under the North-South Line (NSL) of the Shatin to Central Link (SCL) project, MTRCL has proposed a new signalling system and new trains for the operation of the NSL. As both retrofitting of APGs on EAL and SCL projects require substantial work to be done on EAL platforms, MTRCL is of the view that the two projects should be carried out in tandem to achieve synergy. However, if APGs are to be retrofitted as a standalone project, work will overlap at sites, causing delay to one project or the other; or once one has finished work on a particular platform, the other will commence and may go in to dismantle what has just been installed, creating waste and abortive work.

According to MTRCL's assessment, even if the timeframe or time clash of the two projects are not taken into account, the following wastage would be incurred during the construction of the SCL if retrofitting of APGs at EAL stations is to be implemented as a standalone project:

EAL is currently operated with 12-car trains. The future NSL of the SCL project will be operated with 9-car trains. This is because the NSL of SCL will extend the rail line through the Hong Kong Convention and Exhibition Centre to Admiralty where platforms for 12-car trains cannot be accommodated due to space constraints. When SCL is in service, trains will stop at the straighter part of the platforms to help narrow the platform gap. As the train door positions may have to re-align with the straighter part of the platforms, all the relevant APGs will have to be dismantled and reinstalled, resulting in wastage.

If retrofitting of APGs on EAL platforms is to be implemented as a standalone project, the MTRCL will need to first procure 12-car new trains to maintain its current service level. When SCL is completed, due to the above technical reason, 9-car trains will be used. As the combinations of motor cars and trailer cars of 9-car trains and 12-car trains are different, a certain number of trailer cars will be wasted when converting 12-car trains into 9-car trains. More motor cars will need to be procured and driving-cabs will have to be modified and all previous work done will be wasted. At the same time, enhancements will have to be made to the signalling system with a

view to increasing train frequency and total capacity.

Regarding the time required for the project, according to MTRCL's assessment, it is expected that the retrofitting of APGs as a standalone project at EAL stations will take about ten years to complete. About eight and a half years will be needed to procure and replace the signalling system and the train fleet with the first APGs being operational at the same time, and then the retrofitting of APGs at all the stations will take about one and a half years. Once the SCL Project is given the go-ahead, the NSL is expected to be completed in 2020, similar to that of implementing the APG project as a standalone one. Therefore, it does not justify the abortive works.

Besides, work will continuously be carried out on EAL platforms if both projects are undertaken separately, causing extensive inconvenience to passengers.

(d) Ventilation was taken into account when the pre-merger MTRCL retrofitted Platform Screen Doors (PSD) at all underground stations and APGs at the eight aboveground and at-grade stations. Consultants were commissioned by MTRCL (and the pre-merger MTRCL) during the design stage to evaluate the impact of PSDs and APGs on ventilation at stations.

Before PSDs were retrofitted at underground stations, trains in motion could produce piston effect and drive fresh air from the station into the tunnel to provide ventilation. Retrofitting of PSDs can reduce the loss of air-conditioning and maintain the temperature at platforms at a consistent level in order to provide a better travelling environment for passengers. However, as the tunnel and platform area were separated after retrofitting of the PSDs, additional facilities such as air ducts and ventilation system had to be built at tunnels. The pre-merger MTRCL carried out major alterations to the station and tunnel ventilation, air-conditioning and smoke extraction systems.

Ventilation for the eight aboveground and at-grade stations is different from that of the underground stations as natural ventilation is used. After APGs are retrofitted, further enhancement to ventilation is required at platforms in order to maintain the same level of comfort for passengers. Therefore, installation of conducting fans at station platforms where APGs are retrofitted has been included in the project.

As for the impact on ventilation at EAL platforms after APGs are retrofitted, preliminary studies show that substantial improvement works to the existing station ventilation will have to be carried out to maintain a comparable environment as before the installation of APGs for passengers waiting for trains on platforms. MTRCL will conduct a detailed study when designing the APG system for EAL stations.

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Annex

Number of passengers fell onto tracks from 2006 to September 2010 categorized by stations (including the number of injured and fatality)

Station	2006			2007			2008			2009			January to September 2010		
	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality
Hang Fa Chuen	2	0	0	5	0	1	2	1	0	3	1	0	1	0	0
Chai Wan	0	0	0	2	1	0	1	0	0	2	1	0	2	1	0
Kowloon Bay	4	0	0	3	1	0	0	0	0	6	2	1	0	0	0
Ngau Tau Kok	0	0	0	2	0	2	2	2	0	3	1	0	1	0	1
Kwun Tong	5	2	0	2	0	0	2	2	0	0	0	0	3	1	0
Kwai Fong	0	0	0	2	2	0	2	0	2	2	1	1	0	0	0
Kwai Hing	0	0	0	2	0	0	1	1	0	4	1	0	1	0	0
Tsuen Wan	1	1	0	2	2	0	1	0	0	3	1	0	1	1	0
Hung Hom (East Rail Line)	2	1	0	2	0	0	1	0	0	2	0	0	1	0	0
Mong Kok East	2	0	0	2	1	0	4	1	0	3	0	1	3	0	0
Kowloon Tong	5	1	1	10	2	1	6	0	1	5	1	1	7	0	0
Sha Tin	0	0	0	3	1	0	0	0	0	6	0	2	0	0	0
Tai Wai (East Rail Line)	2	1	0	0	0	0	2	1	0	4	0	1	4	1	0
Fo Tan	2	0	1	3	0	1	2	0	1	3	0	0	1	0	0
University	1	0	0	0	0	0	2	0	0	3	0	1	1	0	0
Tai Po Market	0	0	0	2	0	0	1	1	0	1	0	0	2	0	1
Tai Wo	4	0	0	1	0	0	0	0	0	2	0	0	1	0	0

Station	2006			2007			2008			2009			January to September 2010		
	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality	Number of cases	Number of Injured	Number of fatality
Fanling	6	1	1	4	1	1	1	1	0	1	0	0	0	0	0
Sheung Shui	7	2	1	10	1	0	7	1	0	5	1	0	2	0	1
Lok Ma Chau	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0
Lo Wu	0	0	0	0	0	0	8	0	0	11	0	0	9	1	0
Tai Wai (Ma On Shan Line)	1	1	0	1	0	0	1	0	0	3	2	0	2	1	0
Che Kung Temple	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Heng On	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Ma On Shan	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
Hung Hom (West Rail Line)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Light Rail	23	12	0	10	3	0	11	5	0	14	7	2	12	7	0

(Remarks：The above figures excluded 34 cases involving trespassing or attempted suicide between stations on different rail lines.)

Press Releases

LCQ15: Platform safety of MTR stations
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Following is a question by the Hon Kam Nai-wai and a written reply by the Secretary for Transport and Housing, Ms Eva Cheng, at the Legislative Council meeting today (March 2):

Question:

Regarding platform safety in railway stations of the MTR Corporation Limited ("MTRCL"), will the Government inform this Council:

(a) whether it knows, in each of the past three years, the number of staff deployed by MTRCL at station platforms during train service hours to assist in regulating passenger flows and advise passengers not to bump into or charge the train doors, with a breakdown by rail line, name of station, whether or not platform screen doors ("PSDs") or automatic platform gates ("APGs") are installed, as well as the place and time periods of such staff deployment; whether additional staff are deployed by MTRCL during peak hours to maintain order at station platforms; if so, of the details (including the number of additional staff so deployed and the criteria and time periods for such deployment); if not, the reasons for that; whether MTRCL has reviewed the adequacy of its existing manpower and the effectiveness of deploying staff to maintain order at platforms; if it has, of the details, if not, the reasons for that;

(b) whether it knows, in each of the past three years, the number of MTRCL staff falling onto rail tracks while maintaining order, with a breakdown by rail line, name of station, whether or not PSDs or APGs are installed and the working hours of the staff; whether there are means to prevent staff working at platforms without PSDs or APGs from falling onto the tracks, and whether the effectiveness of such means has been reviewed; if so, of the details, if not, the reasons for that;

(c) whether it knows if MTRCL had compiled statistics in each of the past five years on delays in train service and other consequences caused by passengers falling onto rail tracks due to various reasons; if so, of the details; if not, the reasons for that; and

(d) given that in his reply to a question raised by a Member of this Council on June 9, 2010, the Secretary for Transport and Housing indicated that a number of measures (such as installing platform gap fillers and yellow tactile strips in the gaps and along the edges of the platforms, installing illumination and flashing lights under the platforms and at the edge of the platforms respectively, installing CCTV systems at platforms, broadcasting announcements at platforms and in train compartments, as well as conducting education activities, etc.) had been taken by MTRCL in order to prevent passengers from falling onto the tracks in stations where PSDs or APGs had not been installed, whether it knows:

(i) if MTRCL had reviewed the effectiveness of those measures and explored other more effective options in the past three years; if it had reviewed and explored, of the details; if not, the reasons

for that; and

(ii) if MTRCL has put in place a mechanism to inspect and maintain such facilities on a regular basis; if it has, of the details and the resources (including the amount of expenditure) put in; if not, the reasons for that?

Reply:

President,

For the various parts of the question, our reply is set out below:

(a) All platforms of the various railway lines of the MTR Corporation Limited (MTRCL) are always manned by station staff during operating hours of the day. In general, during the morning and evening peak hours and at stations with busier traffic (Note 1) , the passenger flow is heavier and MTRCL will arrange more staff and platform assistants to assist with crowd control and maintain order. For the Light Rail, MTR staff patrol Light Rail stops regularly and maintain close communication with the operation control centre in order to provide assistance to passengers. During peak hours, MTRCL also arranges platform assistants at Light Rail stops with high passenger flow (Note 2) to assist passengers in boarding and alighting Light Rail vehicles.

The major duties of station staff and platform assistants include: (i) reminding passengers to queue up and maintain order of waiting passengers before arrival of trains; (ii) reminding passengers to queue up if they are not standing in the waiting queue; (iii) preventing passengers from walking through queues, and making sure that they stand behind the yellow line; (iv) monitoring whether there is congestion of passengers and taking necessary actions to ease the congestion; and (v) assisting passengers in boarding and alighting trains, and preventing passengers from rushing into trains when train doors are closing.

MTRCL will arrange station staff and platform assistants to assist with crowd control at platforms considering the needs of different railway lines and stations. Instead of being assigned to perform duty at a designated station, these station staff and platform assistants will be deployed according to the needs of different stations and time periods. In fact, MTRCL has strengthened related manpower according to the overall need so as to provide better service to passengers. According to information provided by MTRCL, over the past three years, the number of station staff and platform assistants performing duties at heavy and light rail platforms increased from 1,073 in 2008 to 1,118 in 2009 and 1,172 in 2010. MTRCL conducts review on related staff establishment regularly and makes appropriate adjustments whenever necessary.

MTRCL introduces new measures from time to time in order to strengthen passenger safety awareness when they travel on the MTR, and appeals to passengers to maintain good order. For example, since July 2010, during peak hours at MTR interchange stations (Note 3), platform assistants will hold up the "Stop" sign and activate the electronic whistle when train doors are about to close, in order to urge passengers not to attempt entering train compartments when train doors are closing. This measure will gradually be introduced to other stations of the MTR system, with a view to reminding passengers more effectively not

to rush into train compartments when train doors are closing.

(b) Over the past three years, no MTR staff fell onto track when performing crowd control duties. In fact, all station staff or platform assistants performing platform duties are required to attend the related training before carrying out platform duties. They also need to attend refresher courses every year. Contents of the courses emphasise that, when performing duties at platform without platform screen doors or automatic platform gates, station staff and platform assistants must stand behind the yellow line, and that ensuring the safety of passengers and that of their own is the first priority.

(c) and (d) Passengers fall onto the track for various reasons, including: (i) falling onto the track by accident (e.g. under the influence of alcohol or medicine, due to sickness etc); (ii) suicides and attempted suicides; and (iii) trespasses onto the track (e.g. passengers trying to retrieve items fallen onto the track, crossing the track to the platform on the other side, etc).

In the past five years, there were 61 cases of train service delay of eight minutes or more as a result of passenger(s) fallen onto the track.

The design of platforms at stations of the existing railway system is safe. MTR is a railway system carrying 1.5 billion passenger trips annually. In the past three years, the number of reportable events (Note 4) per million passengers carried is about 1.1 cases yearly. To raise the safety awareness of the passengers, MTRCL has been organising promotional campaigns from time to time. MTRCL also reviews and makes new plans for such promotional campaigns every year. Regarding trespassing cases in the East Rail Line, MTRCL installed additional notices indicating that entering tracks is forbidden at platforms of the East Rail Line in recent years.

As regards the relevant platform facilities, station staff inspect the related facilities on a daily basis to make sure that they are in good condition. MTRCL also conducts regular maintenance of such facilities. Since the expenses for the maintenance works concerned are part of the overall maintenance expenses of stations, MTRCL does not have breakdown for this individual item.

Note 1: Of the 84 MTR stations, platform assistants are already arranged for 73 busy stations, except Kwai Hing, Tai Wo Hau, Che Kung Temple, Shek Mun, Wu Kai Sha, Tung Chung, Asia World-Expo, Sai Wan Ho, Shau Kei Wan, Chai Wan and LOHAS Park Stations.

Note 2: Including Town Centre, Tuen Mun, Ming Kum, Shek Pai, Choy Yee Bridge, Tai Hing (North), Tai Hing (South), Ngan Wai, Prime View, Affluence, Tuen Mun Hospital, Siu Hong, Lam Tei, Leung King, San Wai, Hung Shui Kiu, Hang Mei Tsuen, Tin Yiu, Locwood, Tin Shui, Chung Fu, Chestwood, Tin Heng, Tin Sau, Tin Yuet, Tin Wing, Ginza, Tin Tsz, Tin Shui Wai, Tai Tong Road and Yuen Long stops.

Note 3: Including Tsim Sha Tsui, East Tsim Sha Tsui, Yau Ma Tei, Mong Kok, Prince Edward, Mei Foo, Lai King, Central, Admiralty, North Point, Quarry Bay, Yau Tong, Tiu Keng Leng, Hong Kong, Tsing Yi, Hung Hom, Kowloon Tong, Tai Wai, Nam Cheong, Yuen Long, Tin Shui Wai, Siu Hong and Tuen Mun stations.

Note 4: Reportable events refer to the accidents and occurrences that are to be reported to the Government under the Mass Transit Railway Regulations (Cap. 556A).

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Appendix II

List of relevant papers

Date of meeting	Committee	Minutes/Paper	LC Paper No.
6.5.2005	Subcommittee on Matters Relating to Railways	Information paper provided by the MTR Corporation Limited	LC Paper No. CB(1)1406/04-05(03) http://www.legco.gov.hk/yr04-05/english/panels/tp/tp_rdp/papers/tp_rdp0506cb1-1406-3e.pdf
		Minutes of the meeting	LC Paper No. CB(1)1968/04-05 http://www.legco.gov.hk/yr04-05/english/panels/tp/tp_rdp/minutes/rd050506.pdf
13.6.2005	Subcommittee on Matters Relating to Railways	Information paper provided by the MTR Corporation Limited	LC Paper No. CB(1)1722/04-05(03) http://www.legco.gov.hk/yr04-05/english/panels/tp/tp_rdp/papers/tp_rdp0613cb1-1722-3e.pdf
		Minutes of the meeting	LC Paper No. CB(1)2199/04-05 http://www.legco.gov.hk/yr04-05/english/panels/tp/tp_rdp/minutes/rd050613.pdf
4.5.2007	Subcommittee on Matters Relating to Railways	Background Brief on retrofitting of platform screen doors and automatic platform gates at railway stations	LC Paper No. CB(1)1448/06-07 http://www.legco.gov.hk/yr06-07/english/panels/tp/tp_rdp/papers/tp_rdp0504cb1-1448-e.pdf

Date of meeting	Committee	Minutes/Paper	LC Paper No.
		Minutes of the meeting	LC Paper No. CB(1)2056/06-07 http://www.legco.gov.hk/yr06-07/english/panels/tp/tp_rdp/minutes/rd070504.pdf
27.3.2008	Subcommittee on Matters Relating to Railways	Background brief on certain matters raised by the Bills Committee on Rail Merger Bill	LC Paper No. CB(1)1037/07-08 http://www.legco.gov.hk/yr07-08/english/panels/tp/tp_rdp/papers/tp_rdp0327cb1-1037-e.pdf
		Minutes of the meeting	LC Paper No. CB(1)1374/07-08 http://www.legco.gov.hk/yr07-08/english/panels/tp/tp_rdp/minutes/rd080327.pdf
		Administration's letter on progress update on matters arising from the Rail Merger Bill, attaching a paper from MTR Corporation Limited on the progress of the related matters (Annex 2)	LC Paper No. CB(1)545/07-08(01) http://www.legco.gov.hk/yr07-08/english/panels/tp/tp_rdp/papers/tp_rdp0111cb1-545-1-e.pdf
		Paper on retrofitting of automatic platform gates at 8 MTR at-grade and aboveground stations from MTR Corporation Limited (Follow-up paper)	LC Paper No. CB(1)1398/07-08(01) http://www.legco.gov.hk/yr07-08/english/panels/tp/tp_rdp/papers/tp_rdp0327cb1-1398-1-e.pdf
21.11.2008	Subcommittee on Matters Relating to	Updated background brief on installation of platform screen doors	LC Paper No. CB(1)211/08-09 http://www.legco.gov.hk/y

Date of meeting	Committee	Minutes/Paper	LC Paper No.
	Railways	and automatic platform gates at railway stations	r08-09/english/panels/tp/tp_rdp/papers/tp_rdp1121cb1-211-e.pdf
		Information paper provided by the MTR Corporation Limited	LC Paper No. CB(1)209/08-09(05) http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/papers/tp_rdp1121cb1-209-5-e.pdf
		Minutes of the meeting	LC Paper No. CB(1)588/08-09 http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/minutes/rdp20081121.pdf
16.1.2009	Subcommittee on Matters Relating to Railways	Information paper provided by the MTR Corporation Limited	LC Paper No. CB(1)557/08-09(05) http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/papers/tp_rdp0116cb1-557-5-e.pdf
		Minutes of the meeting	LC Paper No. CB(1)1146/08-09 http://www.legco.gov.hk/yr08-09/english/panels/tp/tp_rdp/minutes/rdp20090116.pdf
21.1.2011	Subcommittee on Matters Relating to Railways	Information paper provided by the Administration	LC Paper No. CB(1)1072/10-11(01) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp0121cb1-1072-1-e.pdf
		Information paper provided by the MTR Corporation Limited	LC Paper No. CB(1)1072/10-11(02) http://www.legco.gov.hk/y

Date of meeting	Committee	Minutes/Paper	LC Paper No.
			r10-11/english/panels/tp/tp_rdp/papers/tp_rdp0121cb1-1072-2-e.pdf
		Minutes of the meeting	LC Paper No. CB(1)1916/10-11 http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/minutes/rdp20110121.pdf
		Supplementary information paper on the additional cost implication if APG project on ERL and SCL project were implemented separately from the Administration (Follow-up paper)	LC Paper No. CB(1)2922/10-11(01) http://www.legco.gov.hk/yr10-11/english/panels/tp/tp_rdp/papers/tp_rdp1104cb1-2922-1-e.pdf
13.1.2012	Subcommittee on Matters Relating to Railways	Information paper provided by the MTR Corporation Limited	LC Paper No. CB(1)785/11-12(03) http://www.legco.gov.hk/yr11-12/english/panels/tp/tp_rdp/papers/tp_rdp0113cb1-785-3-e.pdf

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