# Legislative Council Panel on Transport Subcommittee on Matters Relating to Railways

# **Progress Update of the Construction of the South Island Line (East) and Kwun Tong Line Extension**

### Introduction

This paper reports to Members on the progress of the main construction works of the South Island Line (East) ("SIL(E)") and Kwun Tong Line Extension ("KTE") (as at 30 September 2016).

## Background

### SIL(E)

2. SIL(E) is a new railway corridor running from South to North of Hong Kong Island. It starts from South Horizons on Ap Lei Chau to Admiralty via Lei Tung, Wong Chuk Hang and Ocean Park with a total length of about seven kilometres (the alignment is at **Annex 1**). SIL(E) will connect the MTR Island Line, Tsuen Wan Line and the future Shatin to Central Link ("SCL") at Admiralty Station. The existing Admiralty Station will be expanded to form an integrated station for the four lines to provide seamless interchanges for passengers. In 2011, the estimated capital cost of SIL(E) was \$12,400 million (in December 2009 prices) or \$13,520 million (in money-of-the-day prices).

## <u>KTE</u>

3. KTE is an approximately 2.6-kilometre long railway extension of the existing Kwun Tong Line running from Yau Ma Tei Station to the new Ho Man Tin Station and Whampoa Station (the alignment is at **Annex 2**). In 2011, the estimated capital cost of KTE was \$5,300 million (in December 2009 prices) or \$5,900 million (in money-of-the-day prices).

# **Project Implementation and Funding Mode**

4. SIL(E) and KTE, being the extensions of the existing railway networks owned by MTRCL, are 'ownership' projects. Under the 'ownership' approach, MTRCL will be responsible for the financing, design, construction and operation of these railway projects, and will own the railways. The Government and MTRCL signed the Project Agreements for SIL(E) and KTE in May 2011. The original target commissioning dates are December and August 2015 for SIL(E) and KTE respectively.

5. The construction costs of the railways are so enormous that SIL(E) and KTE are not considered financially viable based on their fare and non-fare revenues alone. Funding support to MTRCL is needed from the Government to bridge the funding gaps<sup>1</sup> of the projects.

6. To implement SIL(E) and KTE projects, the Government granted the property development rights under the 'Rail-plus-Property Model' to bridge the funding gaps of the projects with caution that the land to be granted to MTRCL should not be more than what is required to bridge the funding gaps. As such, the Government granted in 2011 the topside property development rights at Wong Chuk Hang Depot and Ho Man Tin Station for the implementation of SIL(E) and KTE projects respectively.

7. Being granted the property development rights, MTRCL is responsible for all the costs of the property developments as well as the construction and operating costs of the railway projects. In addition, it has to bear long term risks in financing the projects, operating the railways, and market fluctuations in rail and property developments. The design philosophy of the 'Rail-plus-Property Model' is to strike a fair balance of risks and benefits between the Government and MTRCL. As the SIL(E) and KTE are ownership projects, MTRCL is responsible for the additional expenditure arising from the delay of the railway works. According to the report submitted by MTRCL to the Legislative Council ("LegCo") Subcommittee on Matters Relating to Railways ("RSC") in August 2015, the estimate of the construction cost of SIL(E) had been further revised

<sup>&</sup>lt;sup>1</sup> A railway is considered not financially viable if the present value of all its projected revenues net of projected expenditures falls short of the expected return on capital. During the initial public offering ("IPO") of MTRCL in 2000, the Government acknowledged to investors through the IPO Prospectus that the return required by MTRCL for any new railway project would ordinarily be between 1% and 3% above the Weighted Average Cost of Capital ("WACC"). This shortfall is known as the funding gap.

upward to \$16,900 million (in money-of-the-day prices) due to the complexity of the project and continued challenges encountered. The estimate of the construction cost of KTE had also been adjusted upward to \$7,200 million (in money-of-the-day prices).

### **Essential Public Infrastructure Works related to Railway Projects**

8. In order to tie in with the commissioning of SIL(E) and KTE, the Government also entrusted the implementation of the associated 'Essential Public Infrastructure Works' ("EPIW") to MTRCL. They include construction and improvement of the pedestrian and linking facilities for providing convenient access to railway stations so that the consequential social and economic benefits of the railways can be fully realised. EPIW, which are constructed in parallel with the railway works, include:-

# EPIW of SIL(E)( Layout plan at Annex 3)

- (i) construction of public transport facilities underneath Wong Chuk Hang Station; improvement of the road network in the vicinity of Ocean Park Station and Wong Chuk Hang Station;
- (ii) modification of a section of Wong Chuk Hang Nullah between Ocean Park Road and Nam Long Shan Road;
- (iii) construction of a covered footbridge connecting Wong Chuk Hang Station with the adjacent industrial area and a covered footbridge linking the western part of Ap Lei Chau Estate to Yi Nam Road near Precious Blood Primary School; and
- (iv) construction of a pedestrian link to Aberdeen Channel Promenade and improvement of the road junctions of Ap Lei Chau Drive and Ap Lei Chau Bridge Road.

## EPIW of KTE (Layout plan at Annex 4)

- (i) construction of a pedestrian link system connecting Ho Man Tin Station to Ho Man Tin Estate, Oi Man Estate and the Hung Hom area south of Chatham Road North, which includes covered footbridges, covered walkways and subways;
- (ii) construction of a footbridge integrating with the existing footbridge across Chatham Road North and connecting Ho Man

Tin Station to Wuhu Street; and

(iii) construction of a public transport facility at Chung Hau Street near Ho Man Tin Station.

#### **Latest Progress of the Works**

9. MTRCL has submitted progress reports on SIL(E) and KTE (as at 30 September 2016) at **Annexes 5** to **6** respectively. The analysis and supplement made by the Highways Department ("HyD") on these progress reports are provided below.

### SIL(E)

10. The expansion works at Admiralty Station for SIL(E) involve the addition of three underground levels below Harcourt Garden east of the existing station and the construction of an approximately 200m long overrun tunnel for SCL. The additional three underground levels include one level for interchange and two levels for train platforms. The platforms at the upper level are reserved for the use of SCL while the platforms for SIL(E) are at the lowest level. Upon expansion, Admiralty Station will become an integrated station serving passengers of Island Line, Tsuen Wan Line, SCL and SIL(E). Hence, except that the construction cost (about \$300 million in money-of-the-day prices) of the overrun tunnel of SCL which would be fully absorbed by the SCL project, the construction cost of the expansion works of Admiralty Station will be apportioned between SCL and SIL(E) projects at a ratio of 70:30 in accordance with the estimated patronage at peak hours at the station. According to the cost estimate in 2011, SCL project has to share about \$2,700 million (in money-of-the-day prices) for the costs of building works, building services works, electrical and mechanical works for the portion of SCL at Admiralty Station. Besides, the SCL project has to share about 350 million for the costs of the portion of ventilation facilitates at Admiralty Station for SCL. Hence, the SCL will have to share an overall cost of about \$3,350 million (in money-of-the-day prices) at Admiralty Station. MTRCL advised HyD on 12 August 2015 that the completed cost estimate review of the expansion works of Admiralty Station of SIL(E) indicated an upward adjustment of the relevant cost of expansion works of Admiralty Station to be shared by SCL. According to the apportionment ratio of 70:30 above, the cost shared by SCL has to be adjusted upward from about \$3,350 million to about \$4,650 million with an increase of about \$1,300 million. Having examined the latest cost estimate submitted by MTRCL, HyD opined that there was room for the cost reduction. HyD with the assistance of its monitoring and verification consultant will continue to negotiate with MTRCL.

11. In order to connect the expansion part with the platforms of SIL(E) and SCL, underpinning works for the existing tunnel of the Island Line have to be carried out for excavation underneath. The excavation for the underpinning works was completed in December 2015. However, the progress of excavation has not resulted in the recovery of delay, which has in turn affected the progress of the subsequent structural works for the station expansion. MTRCL reported to LegCo RSC in November 2014 that its target was to commission SIL(E) at the end MTRCL submitted the revised baseline programme to HyD in early of 2016. September 2015 with the target commissioning date at the end of 2016. The electrical and mechanical works, and fire services installation works at the expansion of part of Admiralty Station were substantially completed in October The statutory inspections are being conducted by the relevant government 2016. departments in stages. If the works could successfully pass the inspections as scheduled, SIL(E) could be commissioned at the end of 2016. HyD would continue to closely monitor the progress of the relevant works.

12. After the commissioning of SIL(E), the public could reach the platforms of SIL(E) by means of the existing entrances of Admiralty Station. MTRCL has also installed a new lift near Rodney Street mainly for the convenience of persons in need to reach direct the concourse of Admiralty Station from the ground level or the deck level of the footbridges linking Citic Tower and United Centre. Regarding other entrances in the vicinity of Rodney Street, they would be opened to the public when the North South Corridor of SCL is commissioned. Harcourt Garden is scheduled for re-opening to the public at the end of 2017.

13. The fitting-out works, electrical and mechanical works, and building services installation works of the Nam Fung Tunnel connecting Admiralty Station and Ocean Park Station as well as other railway facilities at Wong Chuk Hang and Ap Lei Chau were completed. A series of test running of trains continues according to the schedule. The statutory inspections by the relevant government departments were also completed in end September 2016. MTRCL is now carrying out preparation works for the operation.

14. For the EPIW to facilitate the commissioning of SIL(E), entrusted by the Government to MTRCL mentioned in paragraph 8 above, the works were substantially completed as at September 2016. The covered footbridge linking the western part of Ap Lei Chau Estate to Yi Nam Road near Precious Blood Primary School and the new slip road completed under the improvement works of the road junctions of Ap Lei Chau Drive and Ap Lei Chau Bridge Road were opened in January and July 2015 respectively. The covered footbridge for connecting Wong Chuk Hang Station with the adjacent industrial area; and the public transport facilities underneath Wong Chuk Hang Station and the improvement works of the adjacent nullah and road network were opened to public in April and June 2016 respectively. The pedestrian link to Aberdeen Channel Promenade was also opened to the public in August 2016.

15. According to the revised cost estimate provided by MTRCL to HyD on 12 August 2015, EPIW of SIL(E) might exceed the approved project estimate<sup>2</sup> by about \$190 million. MTRCL informed HyD on 14 December 2015 that the revised cost would exceed the approved project estimate ("APE") by about \$220 Having further reviewed the construction cost, MTRCL informed HyD million. on 17 August 2016 that the revised cost would exceed the APE by about \$290 According to the information submitted by MTRCL, the cost increase in million. EPIW is mainly due to (i) unfavourable ground conditions; (ii) more complicated underground utilities; (iii) design revisions to suit actual site conditions; and (iv) provision for price adjustment. HyD is critically examining the latest cost estimate submitted by MTRCL. We have planned to submit a paper to the Subcommittee on Matters Relating to Railways ("RSC") in December 2016 and seek the support of the RSC Members on the increase of the APE for EPIW.

16. For the MTRCL's use of Fully Automatic Operation ("FAO") for SIL(E), we submitted a paper prepared by MTRCL to the RSC providing the relevant information on FAO in December 2012 for discussion at the meeting of RSC held on 4 January 2013. Like other existing MTR lines, detailed testing and trial runs will be conducted to ensure safe operation of the trains before the commissioning of SIL(E).

 $<sup>^2</sup>$  According to the estimate in 2011, the APE of 56TR for the EPIW of SIL(E) was \$927 million (in money-of-the-day prices).

## <u>KTE</u>

17. KTE was commissioned on 23 October 2016, extending the existing Kwun Tong Line to the new Ho Man Tin Station and Whampoa Station. For the EPIW to facilitate the commissioning of KTE, entrusted by the Government to MTRCL as mentioned in paragraph 8 above, the EPIW connecting Ho Man Tin Estate and Oi Man Estate, including the footbridges at Chung Yee Street, Sheung Lok Street and Fat Kwong Street, and the covered walkway, etc, were completed in mid-December 2015 and opened to the public. The remaining EPIW, including the two pedestrian subways for crossing Fat Kwong Street and Chung Hau Street, part of the footbridge connecting to Ho Man Tin Station, as well as the public transport facility at Chung Hau Street in the vicinity of Ho Man Tin Station, were opened to the public on the same day of the commissioning of KTE. Besides, the Transport Department, HyD and MTRCL are following up the matters raised after the commissioning of KTE, regarding the directional signs of the stations and the installation of tactile guide at the walkway connecting Ho Man Tin Station with Ho Man Tin Estate and Oi Man Estate for guiding the visually impaired persons.

18. Ho Man Tin Station will be an integrated station connecting both SCL and KTE and providing convenient interchange for passengers travelling on these The construction cost of Ho Man Tin Station is therefore two railway lines. apportioned between SCL and KTE projects at a ratio of about 74:26 in accordance with the estimated patronage at peak hours at the station. According to the cost estimate in 2011, the SCL project has to share about \$2,900 million (in money-of-the-day prices) for the costs of building works, building services works, E&M works for the portion of SCL at Ho Man Tin Station. MTRCL advised HyD on 12 August 2015 that the completed cost estimate review of KTE indicated that the additional construction cost of Ho Man Tin Station shared by SCL would still remain within the budget. As regards the EPIW of KTE entrusted by the Government to MTRCL, MTRCL had completed further review of the The results indicated that the relevant construction cost should construction cost. be within budget.

### Conclusion

19. Following the commissioning of KTE on 23 October 2016, the service of the Kwun Tong Line has extended to Ho Man Tin Station and Whampoa Station.

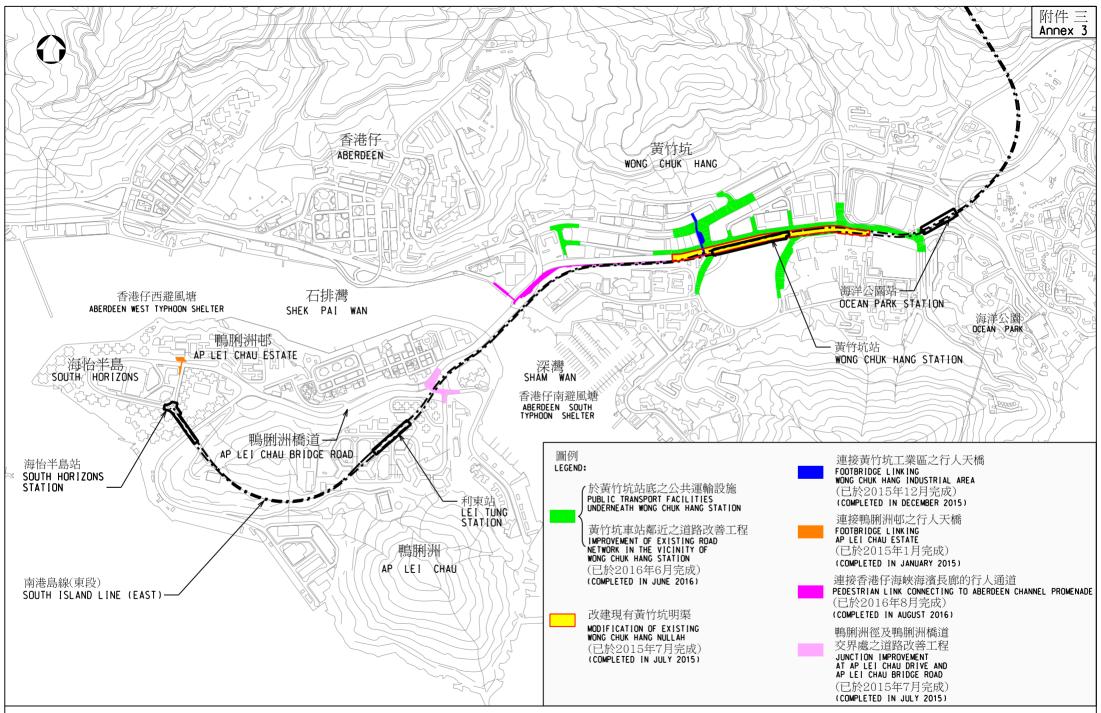
This provides one more public transport option to the residents of local districts.

20. Besides, MTRCL announced on 10 November 2016 that SIL(E) would be commissioned in December 2016. The overall progress of SIL(E) is generally in line with the revised baseline programme. With the concerted effort of relevant government authorities, the statutory inspections are proceeding on schedule. If the relevant works could successfully pass the inspections as scheduled, SIL(E) should be able to be commissioned at the end of 2016 to serve the people living and working in the Southern District.

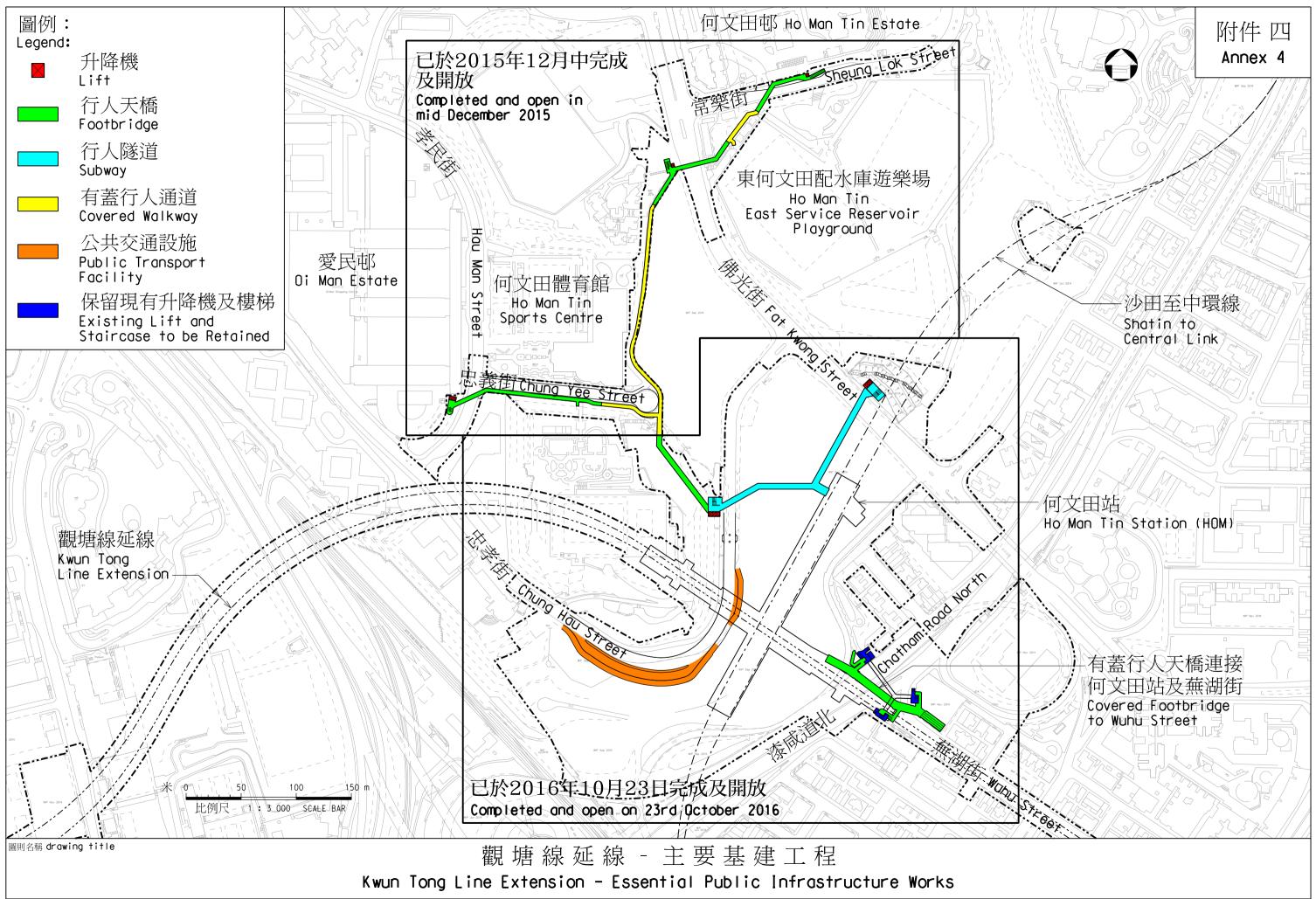
Transport and Housing Bureau Highways Department November 2016







南港島線(東段)-主要基建工程 SOUTH ISLAND LINE (EAST) - ESSENTIAL PUBLIC INFRASTRUCTURE WORKS



Annex 5

# Legislative Council Panel on Transport Subcommittee on Matters Relating to Railways

# Progress Update of the South Island Line (East) (As at 30 September 2016)

### Purpose

This paper provides an update on the works progress of the South Island Line (East) (SIL(E)) project as at 30 September 2016.

### Background

2. SIL(E) is a 7-kilometre, medium-capacity railway that connects the Southern District with the existing railway network in Hong Kong through tunnels and viaducts with stations at Ocean Park, Wong Chuk Hang, Lei Tung and South Horizons. A train maintenance depot is located in Wong Chuk Hang.

## **Project Progress**

3. As at 30 September 2016, the overall works for SIL(E) are 98.9% complete. 99.1% of civil works and 98.5% of the electrical and mechanical (E&M) works have been completed respectively. The Admiralty Station extension works have reached their final stage and the associated statutory inspections are going smoothly as planned. Passenger service of SIL(E) is expected to commence at the end of 2016.

### Stations and Depot in Southern District

4. Ocean Park Station, Wong Chuk Hang Station and Wong Chuk Hang Depot have entered into trial operation phase and a series of testing and preparatory work is underway to pave way for future operation.



Testing for station facilities and various systems at Ocean Park Station and Wong Chuk Hang Station is underway

5. Structural works for Lei Tung Station and its entrances have been completed with fitting-out and E&M works substantially completed. The station has entered into trial operation phase.



Structural works for Lei Tung Station has been completed

6. South Horizons Station and its entrances, the End Plant Building at Yuk Kwai Shan and the ventilation building at Lee Wing Street have entered into trial operation phase upon completion of construction.



Construction is complete at South Horizons Station

## Track-related Works and Train Testing

7. Construction of Nam Fung Tunnel, Ap Lei Chau Tunnel and the viaduct has been completed. All track-laying works, installation of overhead lines and trackside auxiliary services between Admiralty Station and South Horizons Station have been completed.

8. Trial operation of trains has commenced from 1 October 2016. Trains are running along the whole line between Admiralty Station and South Horizons Station in accordance with the future operating timetable.

### Essential Public Infrastructure Works (EPIW)

9. To enhance convenience for the residents of Southern District, the Corporation was also entrusted to carry out of a number of EPIW in addition to the railway. These include (i) the construction of public transport facilities under Wong Chuk Hang Station; improvement of the existing road network in the vicinity of Ocean Park Station and Wong Chuk Hang Station; (ii) modification of a section of Wong Chuk Hang Nullah between Ocean Park Road and Nam Long Shan Road; (iii) the construction of a covered footbridge connecting Wong Chuk Hang Station with the adjacent industrial area; and a covered footbridge crossing Ap Lei Chau Bridge Road to link the western part of Ap Lei Chau Estate to Yi Nam Road near the Precious Blood Primary School; and (iv) the construction of a pedestrian link to the Aberdeen Channel Promenade and improvement of the road junctions of Ap Lei Chau Bridge Road.

10. As of 30 September 2016, the EPIW have been completed and opened to public.

### Admiralty Station Extension

11. Admiralty Station is undergoing expansion to become an interchange station for the Island Line, Tsuen Wan Line, SIL(E) and Shatin to Central Link (SCL). There are three levels at the existing Admiralty Station including one concourse level and two platform levels serving passengers on the Tsuen Wan Line and Island Line. The extension works of Admiralty Station are being carried out under Harcourt Garden, east of Admiralty Station, with three additional levels being constructed below the existing station.

12. The extension works of Admiralty Station as part of the SIL(E) project include the construction of a cut-and-cover station box and platforms for the SIL(E) and SCL at Harcourt Garden. The works also cover two overrun tunnels for SCL, each with an approximate length of 200 metres. Excavation for the platforms and tunnels of SIL(E) and the platform tunnels of SCL was completed in May 2015. Construction of the SCL tunnel structures is in progress. Construction of the Hong Kong Park Ventilation Building has been completed.

13. The construction of the station structure is substantially complete, the fitting-out, E&M and BS installation works under the SIL(E) project are substantially completed. The associated statutory inspections are going smoothly as planned

14. After the opening of SIL(E), passengers can reach the Admiralty Station extension by means of the existing station entrances. A new lift will be provided near Rodney Street, connecting the station concourse, ground level, and the landscaped deck level of Harcourt Garden for the convenience of persons in need. A covered walkway on the landscaped deck level of Harcourt Garden near Rodney Street connecting CITIC Tower Footbridge and United Centre Footbridge is under construction and will be opened for public in conjunction with the opening of SIL(E). The new Admiralty Station Entrance E on Rodney Street will be fully operational when SCL is commissioned.



Fitting-out, E&M and BS installation works of SIL(E) platform level have been substantially completed.

# Conclusion

15. Members are invited to note the above information.

MTR Corporation Limited November 2016

#### Annex 6

#### Legislative Council Panel on Transport Subcommittee on Matters Relating to Railways

#### Progress update of the Kwun Tong Line Extension (As at 30 September 2016)

#### Background

The Kwun Tong Line Extension (KTE) project is a 2.6-kilometre underground extension of the existing Kwun Tong Line (KTL) from Yau Ma Tei to Whampoa, with an intermediate station at Ho Man Tin. Ho Man Tin Station will be an interchange station with the future Shatin to Central Link (SCL).

#### **Project Progress**

2. Starting from 23 October 2016, Kwun Tong Line Extension commences service extending the railway operation of the existing KTL from Yau Ma Tei to the new Ho Man Tin and Whampoa stations. The journey time between Whampoa and Yau Ma Tei stations is approximately 5 minutes.

3. Before the commissioning of the railway extension, all statutory inspections for railway services and operational safety by relevant government departments were completed. Extensive pre-opening trial operation, emergency drill exercises and stress tests were also thoroughly conducted before the opening.

#### Ho Man Tin Station

4. Ho Man Tin Station will serve as the future interchange station between the KTL and the SCL, with five major entrances to serve the community. The 8-level station is in cruciform-shaped design with dedicated interchanging escalator connections, transfer lobby and entrance connections at various levels, providing convenient access and transfer service between KTL and the future SCL. Structural works and fitting-out works for the station and entrances have been completed.

5. Following the completion of all statutory inspections by the relevant government departments, Ho Man Tin station was handed over to the operations team in preparation for service commencement in July.



Station facilities at Ho Man Tin station are installed.



External finishing works of Ho Man Tin Station has been completed.

6. Utilities connection and landscaping works in the vicinity of Ho Man Tin Station and reinstatement works for roads and facilities affected by KTE construction works were completed. Yan Fung Street was reinstated and re-opened to the public on 26 September 2016.

7. The reinstatement works of the Fat Kwong Street Playground and Wuhu Street Temporary Playground were completed. The abovementioned facilities were handed back to the Leisure and Cultural Services Department (LCSD) in September.

### Essential Public Infrastructure Works (EPIW)

8. To provide convenient access to railway service for local commuters, the Corporation was entrusted by the government to carry out a number of relevant Essential Public Infrastructure Works (EPIW) comprising a series of covered pedestrian walkways, footbridges and subways constructed alongside the railway works. The EPIW have been completed and some of the facilities have been opened for public use since December 2015. The public transport facilities at Chung Hau Street, the two sections of subway crossing underneath Fat Kwong Street and Chung Hau Street, and the section of footbridge connecting Chatham Road North and Ho Man Tin Station.

#### Whampoa Station

9. Whampoa Station, the terminal station of Kwun Tong Line, is comprised of East and West Concourses with a single platform in between. The frequency of train service during peak periods for Ho Man Tin Station will be approximately 2 minutes while that for Whampoa Station will be approximately 4 minutes. During non-peak periods on weekdays, the average train service frequency will be around 3 minutes for all the stations of Kwun Tong Line including Ho Man Tin Station and Whampoa Station.



Customer Service Centre at the East Concourse of Whampoa station

10. The entrance structures at Man Siu Street, Hung Hom Road as well as the integrated entrances at Shung King Street and Tak On Street connecting to the shopping malls of Whampoa Garden have been completed. Structural works for the ventilation structure and emergency evacuation access at Shung King Street, Tak Ting Street and Wan Hoi Street were also completed while external finishing and fitting-out work was substantially completed in September 2016.

11. For the roads and underground utilities affected by KTE works, the reinstatement works are progressing in compliance with the requirements by the relevant government departments. In view of the congested site and busy traffic in Whampoa, the reinstatement works have to be implemented in stages in order to maintain the existing numbers of traffic lanes so as not to compromise the traffic flow and the safety of road users.

12. Currently, reinstatement works including drainage and utilities connection works are being carried out progressively to facilitate backfilling and road resurfacing works. During the course of works, temporary traffic management scheme are being implemented in stages at part of Tak Man Street, Hung Hom Road, Tak On Street, Tak Ting Street, Shung King Street, Wan Hoi Street, Tak Fung Street and Man Tai Street. When KTE commences passenger service, most of the footpath adjacent to station entrances has been re-opened while road reinstatement works continue at

some carriageways and footpaths including at the junction of Tak Man Street and Hung Hom Road until the first quarter of 2017.



Road reinstatement works at Hung Hom Road are being carried out.

### Conclusion

13. The opening of the extension of Kwun Tong Line brings greater convenience for passengers travelling to and from Ho Man Tin and Whampoa and its vicinity, providing seamless connections to MTR's integrated railway network.

14. Members are invited to note the above information.

MTR Corporation Limited November 2016