For discussion **PWSC(2010-11)34**
on 25 January 2011

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 – HIGHWAYS
Transport – Railways
61TR – Shatin to Central Link – construction of railway works

Members are invited to recommend to Finance Committee –

(a) the upgrading of part of **61TR** entitled "Shatin to Central Link – construction of railway works – advance works", to Category A at an estimated cost of $6,254.9 million in money-of-the-day prices; and

(b) the retention of the remainder of **61TR** in Category B.

PROBLEM

The Shatin to Central Link (SCL) will intersect the South Island Line (East) (SIL(E)) and Kwun Tong Line Extension (KTE) at the expanded Admiralty Station and the future Ho Man Tin Station respectively. It is necessary to implement under the SIL(E) and KTE projects advance railway works of SCL to ensure better interface among the three projects.

/ **PROPOSAL**…..

PROPOSAL

2. The Director of Highways, with the support of the Secretary for the Transport and Housing, proposes to upgrade part of **61TR** to Category A at an estimated cost of $6,254.9 million in money-of-the-day (MOD) prices for the construction of advance railway works of the SCL at the Admiralty Station and Ho Man Tin Station (the Advance Railway Works).

PROJECT SCOPE AND NATURE

3. The SCL, with a total length of 17 kilometres (km), consists of two sections –

(a) Tai Wai to Hung Hom section: this is an extension of the Ma On Shan Line from Tai Wai via Southeast Kowloon to Hung Hom where it will join the West Rail Line. It will increase the Shatin-Kowloon rail capacity and provide railway service to the new developments in Southeast Kowloon; and

(b) Hung Hom to Admiralty section: this is an extension of the East Rail Line from Hung Hom across the Harbour to northern Wan Chai and Admiralty. It will increase the cross-harbour rail capacity and enhance the connectivity between the New Territories and Hong Kong Island.

A plan showing the proposed alignment of the SCL is at Enclosure 1.

4. The part of the project **61TR** we now propose to upgrade to Category A comprises–

(a) expansion of Admiralty Station to accommodate SCL railway facilities including overrun tunnels of approximately 200 metres (m) long and ventilation facilities for the station; and

(b) construction of the portion of Ho Man Tin Station for SCL.

These proposed Advance Railway Works form part of the works described in paragraph 5(a)(iii) below. Relevant layout plans are at Enclosures 2 and 3 respectively.

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5. The scope of **61TR** comprises –

(a) construction of the railway works for the SCL, which include –

(i) an 11 km extension of the Ma On Shan Line from the existing Tai Wai Station to Hung Hom where it will join the West Rail Line;

(ii) a 6 km extension of the East Rail Line from Hung Hom crossing the Victoria Harbour to Admiralty;

(iii) along (i) and (ii) above, construction of new stations including Hin Keng, Diamond Hill, Kai Tak, To Kwa Wan, Mau Tau Wai, Ho Man Tin, Hung Hom, Exhibition and Admiralty;

(iv) associated railway facilities at the new stations in (iii) above including station concourses, passenger waiting areas, platforms, control and signalling systems, etc.;

(v) stabling sidings at Diamond Hill (i.e. the ex-Tai Hom Village site) and associated approach tracks;

(vi) associated ventilation facilities for the railway tunnels;

(vii) modifications of existing stations along the Ma On Shan Line to cater for the future operation of eight-car trains[1];

(viii) modification of existing stations along the East Rail Line to cater for the future operation of nine-car trains[1];

(ix) bifurcation from the existing East Rail Line from Ho Man Tin to Hung Hom to form an underground section, to match with the vertical alignment of the cross harbour tunnel section of the SCL;

/(x) …..

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[1] To cater for difference in patronage forecast for the two lines.

(x) electrical and mechanical (E&M) systems for the SCL and modifications to the existing East Rail Line and Ma On Shan Line railway-related E&M systems;

(xi) ancillary construction works and equipment necessary for the operation of the SCL; and

(b) procurement of rolling stock, railway systems, as well as safety, operation and maintenance equipment.

6. We have completed the detailed design and working drawings for the Advance Railway Works. We plan to commence the construction of the Advance Railway Works in 2011 for completion in 2015 in conjunction with the works for the SIL(E) and KTE. A separate funding application will be made for the advance non-railway works (PWSC(2010-11)35).

JUSTIFICATION

Strategic Railway

7. The 17-kilometre SCL is a territory-wide strategic railway project with ten stations[2]. The project is linked with a number of existing railways, forming two strategic railway corridors, namely the "East West Corridor" and the "North South Corridor" –

(a) The "East West Corridor" refers to when SCL connects Tai Wai Station of the Ma On Shan Line with Hung Hom Station of the West Rail Line, passengers may travel from Wu Kai Sha Station to Hung Hom, East Kowloon, the West New Territories and Tuen Mun without interchanging, providing a more direct and convenient railway service for passengers commuting between the East New Territories and West New Territories.

/(b) …..

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[2] The ten stations of the SCL are: Tai Wai, Hin Keng, Diamond Hill, Kai Tak, To Kwa Wan, Ma Tau Wai, Ho Man Tin, Hung Hom, Exhibition and Admiralty.

(b) The "North South Corridor" refers to when SCL extends the existing East Rail Line from Hung Hom Station across the Victoria Harbour to Admiralty Station, passengers (using the East Rail Line) from Lo Wu and Huanggang (using the Lok Ma Chau Line) may reach the heart of Hong Kong Island directly.

8. The SCL will significantly reduce the journey time for passengers who travel among East Kowloon, the East New Territories and Hong Kong Island. It will also increase the capacity of the railways that carry passengers from Shatin to Kowloon and across the Harbour, as well as relieve the congestion on the existing railway lines. As a strategic railway expanding the catchment of the railway network in Hong Kong, the SCL will serve a wide catchment of 380 000 residential and 260 000 employment population. The SCL will –

(a) help redistribute railway passenger flows to relieve the existing railway lines in urban Kowloon and on Hong Kong Island;

(b) become an important component of the Kai Tak Development providing a public transport service not only to the proposed new commercial and residential developments in the area, but also to the multi-purpose stadium complex and other leisure and recreation facilities planned at Kai Tak;

(c) help relieve the reliance on road-based public transport in the existing developed areas, and alleviate the traffic congestion and environmental nuisance on existing road networks, including the demand on the Hung Hom Cross Harbour Tunnel; and

(d) stimulate the rejuvenation of the To Kwa Wan and Kowloon City areas.

9. The SCL will carry about 1.1 million railway passengers per day and generate annual economic benefits of $4.4 billion in terms of time saving to travellers in 2021. The new railway will also help improve the total employment situation by providing 11 000 employment opportunities during construction and another 9 600 employment opportunities during its operation.

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10. The SCL scheme was gazetted under the Railways Ordinance (Cap. 519) on 26 November 2010 and has entered the statutory consultation process. Under the Ordinance, any person may object to the scheme within 60 days after the first publication of the gazette notice. The Administration shall submit the scheme and all objections not withdrawn to the Chief Executive in Council for consideration not later than nine months after the expiry of the 60-day objection period or, where the scheme is amended, three months after the expiry of the 60-day period of lodging objections to the amendments. The Administration and MTR Corporation Limited (MTRCL) will carefully consider public views collected from the consultation with a view to enhancing the detailed design of SCL.

11. We have been conducting extensive public consultation since mid 2008. The concerned local stakeholders, including a total of 11 District Councils, were briefed on the proposed railway scheme. Roving exhibitions, public forums, school talks, and other public consultation activities have also been held to collect views and suggestions from the local communities. We have previously strived to complete the design and statutory consultation process as soon as possible so as to commence construction works as quickly as possible, and had expected that the Tai Wai to Hung Hom Section and the Hung Hom to Admiralty Section could be completed in 2015 and 2019 respectively. Since the SCL is large in scale and involves many issues which interest different communities, we have taken longer than expected to consider and follow up on the views and suggestions of the local communities. We have included, where appropriate, the suggestions of the local communities in the railway proposal and expect that the statutory consultation process can be completed by early 2012. Thereafter, we will seek funding approval for the remaining railway and non-railway works as soon as possible with a view to commencing construction works in 2012. Since extra underground geotechnical works under the Tai Wai to Hom Hung Section will be required to avoid resumption of private buildings, the railway works are expected to take six years and will be completed in 2018. To dovetail with a series of infrastructural projects such as Wanchai Development Phase II and Central-Wanchai Bypass, the Hung Hom to Admiralty Section is expected to be completed by 2020. While complying with the statutory procedures, we will continue to press ahead with the project for early start of construction and completion.

Expansion of Admiralty Station

12. The Advance Railway Works consist of expansion of the existing Admiralty Station and constructing the Ho Man Tin Station for accommodating SCL railway facilities.

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13. The existing Admiralty Station will be expanded eastwards below Harcourt Garden to accommodate railway facilities for the SCL and SIL(E). The expanded Admiralty Station will provide convenient interchange for the passengers interchanging among SCL, SIL(E), as well as the existing Island Line and Tsuen Wan Line. The SCL and SIL(E) railway tunnels have to run underneath those for the Tsuen Wan Line and Island Line to avoid affecting the railway operation of the existing Admiralty Station. As a result, SCL and SIL(E) railway tunnels and platforms will have to be depressed to more than 40 m below ground. Works for expanding the Admiralty Station will be complex and sizable in scale. The expanded Admiralty Station will comprise six levels, including the station entrance at the top level, three levels for interchanging SCL and SIL(E) passengers to other railway lines and accommodating plant rooms, the bottom two levels for the SCL and SIL(E) platforms.

14. The expanded portion of the Admiralty Station will be connected with the existing Admiralty Station to form an integrated station. Works for parts of the Admiralty Station for SCL and SIL(E) facilities must be constructed concurrently, so as to help reduce the overall size of the station, reduce construction costs and time required, and minimise disruption to the public during construction. As such, the SCL portion of the Admiralty Station has to be constructed in advance of other SCL works in order to tie in with the implementation progamme of the SIL(E), which is scheduled to commence in 2011 for completion in 2015.

15. The Advance Railway Works also include SCL overrun tunnels[3] at the Admiralty Station, which are approximately 200 m long, and an integrated ventilation facility for the station adjoining the Hong Kong Park, which will serve both SCL and SIL(E) tunnels. As the SCL overrun tunnels and SIL(E) tunnels are in close proximity with each other, in order to avoid posing risks and affecting the operation of the existing railways, and in the interest of public safety, the SCL overrun tunnels and SIL(E) tunnels have to be constructed concurrently. While part of the ventilation facility will operate first to allow SIL(E) to commission in 2015, ventilation equipment serving SCL alone will be installed afterwards to tie in with the commissioning of SCL. It will occupy as little space as possible and its orientation has been so designed to avoid affecting nearby residents. The outlook of ventilation facility will match with surrounding environment.

/ **Construction**…..

[3] The overrun tunnels are for SCL trains to change track and turn back.

Construction of the SCL portion at Ho Man Tin Station

16. The proposed Ho Man Tin Station is an integrated station serving both SCL and KTE, providing convenient interchange for passengers between these two railway lines. As Ho Man Tin is located on a higher terrain than Ma Tau Wai and Hung Hom, the Ho Man Tin Station has to be constructed at more than 60 m below ground level. The Ho Man Tin Station will have eight levels, including the KTE platforms at the lowest level, the SCL platforms at the sixth level and interchanging concourses and plant rooms at other levels. As the KTE is running roughly perpendicular to SCL, the Ho Man Tin Station will be designed in a cross shape for the two railway lines to interchange. Due to the cross shape design of the Ho Man Tin Station and its construction to be done 60 m below ground, the construction works of Ho Man Tin Station is sizable in scale and complex. Like the expansion of Admiralty Station, the Ho Man Tin Station has to be constructed in advance of other SCL works to tie in with the implementation programme of the KTE, which is scheduled to commence in 2011 for completion in 2015.

17. The SIL(E) and KTE schemes (including the advance railway works to be implemented under the two projects) have been gazetted under the Railways Ordinance (Cap. 519). The Chief Executive in Council authorised the SIL(E) and KTE schemes (including the advance railway works to be implemented under the two projects) on 30 November 2010.

Works to be entrusted to the MTRCL

18. We plan to entrust the Advance Railway Works to the MTRCL for implementation in conjunction with the SIL(E) and KTE projects. Most of the civil construction works for the integrated stations will be completed under SIL(E) and KTE projects. The remaining minor building services and fitting out works serving SCL will be carried out after the SCL scheme has been authorised, and are not included in the Advance Railway Works.

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19. Under the principles agreed between Government and the MTRCL for applying to such entrustments, the entrustor (i.e. the Government in the SCL project) will pay the actual construction costs based on prices established from appropriate tendering processes. Services to be provided by the entrustee (i.e. MTRCL in the SCL project) for management and supervision of the project will be covered by an on-cost. We will employ an independent engineering consultant (IEC) to establish checking and control procedure on the capital cost estimate of the whole SCL project, including the on-cost for the design and construction of both railway and non-railway works. The on-cost for the construction of the Advance Railway Works as shown in paragraph 22(e), as calculated with reference to the assumed rate of 16.5% (being part of the total on-cost payable to MTRCL under the entire SCL project), is only a provisional figure. Upon the IEC's completion of the on-cost review, we would first agree with MTRCL on the total on-cost payable under the SCL project and, based on this sum, adjust the project cost of the SCL main railway and non-railway works for consideration by this Subcommittee in 2012. We expect that the actual on-cost rate to be lower than 16.5%, after the IEC's audit and our discussion with MTRCL.

Vetting by independent engineering consultants

20. As mentioned in paragraph 19 above, we will employ an IEC to vet the capital cost estimate of the whole SCL project, including the on-cost. This was also our undertaking when seeking approval for the design and site investigation of the SCL project (PWSC(2008-09)1). To this end, we have engaged an IEC to assess the reasonableness of the construction cost of the SCL project.

21. The IEC has reviewed the rates and quantities of the cost items of the Advance Railway Works and checked the same against the latest construction price trends and scope of the Advance Railway Works. In light of such review, the IEC considers the estimated construction costs as presented in paragraph 22 below reasonable. Regarding cost apportionment, the IEC considers that the apportionment ratio of 7:3 between SIL(E) and SCL projects in construction cost is reasonable; whereas the apportionment ratio of 3:1 between the KTE and SCL will have room to be lowered and needs to be further studied. If we agree to the IEC's final assessment on the cost apportionment ratio (which may be lower than 3:1), suitable adjustment to the construction cost of the remaining railway and non-railway works will be made before it is submitted to this Subcommittee for consideration in 2012. Furthermore, under the project entrustment arrangement, the Government will pay for the actual costs of the construction works based on prices established from appropriate tendering processes. We will closely monitor the project expenditure.

/ FINANCIAL…..

FINANCIAL IMPLICATIONS

22. We estimate the cost of the Advance Railway Works to be $6,254.9 million in MOD prices (please see paragraph 23 below), broken down as follows –

			$ million
(a)	SCL portion at Admiralty Station[4]		1,873.8
	(i) Station building works	1,351.4	
	(ii) Building services works	172.8	
	(iii) E&M works	349.6	
(b)	SCL portion of ventilation facility for Admiralty Station[5]		231.7
	(i) Building works	206.9	
	(ii) Building services works	24.8	
(c)	Overrun tunnel at Admiralty Station[6]		199.0
(d)	SCL portion at Ho Man Tin Station[7]		2,001.3
	(i) Station building works	1,496.3	
	(ii) Building services works	399.5	
	(iii) E&M works	105.5	

/$ million…..

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[4] The expanded Admiralty Station will become an integrated station serving passengers for both SCL and SIL(E). The construction cost is therefore apportioned between the two projects. As the floor area of the expanded portion of the Admiralty station, including the associated facilities for passengers, station concourse and platform etc, is proportional to the estimated passenger volume, for cost estimation purpose, a ratio of 7:3 is adopted for the apportionment between SCL and SIL(E) based on a ratio of peak hour line passenger volumes between the two lines. Government will be responsible for the SCL portion of funding and MTRCL for the SIL(E) of the funding. The IEC has completed the review of the cost apportionment ratio and considers a cost apportionment ratio of 7:3 reasonable.

[5] Same as the expansion of Admiralty Station, the cost of the ventilation facility is also apportioned between the SCL and SIL(E) projects based on a 7:3 ratio.

[6] As the 200 m overrun tunnels will only serve the SCL, the construction cost of the tunnels is therefore entirely budgeted under the SCL project.

[7] The Ho Man Tin Station is an integrated station serving both SCL and KTE. Similar to the arrangement of Admiralty Station, the construction cost is apportioned between the SCL and KTE projects, according to a ratio of 3:1, to be funded by Government and MTRCL respectively. The apportionment ratio of 3:1 between the KTE and SCL will have room to be lowered and needs to be further studied. If we agree to the IEC's final assessment on the cost apportionment ratio (which may be lower than 3:1), suitable adjustment to the construction cost of the remaining railway and non-railway works will be made before it is submitted to this Subcommittee for consideration in 2012.

		$ million	
(e)	On-cost payable to MTRCL [8]	710.5	
(f)	Contingencies	501.6	
	Sub-total	5,517.9	(in September 2010 prices)
(g)	Provision for price adjustment	737.0	
	Total	6,254.9	(in MOD prices)

23. Subject to approval, we will phase the expenditure as follows –

Year	**$ million (September 2010)**	**Price adjustment factor**	**$ million (MOD)**
2011 – 2012	1,015.4	1.04250	1,058.6
2012 – 2013	1,656.5	1.09463	1,813.3
2013 – 2014	1,399.9	1.14936	1,609.0
2014 – 2015	1,002.0	1.20682	1,209.2
2015 – 2016	444.1	1.27169	564.8
	5,517.9		6,254.9

24. We have derived the MOD estimate on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2011 to 2016. MTRCL will put the reprovisioning works out for tender. The contracts will provide for price adjustment.

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[8] The provisional sum of $710.5 million represents an on-cost at 16.5% of the project base cost (i.e. items (a) to (d) of paragraph 22 above) that will be payable to MTRCL for undertaking the technical studies, design and construction supervision of the Advance Railway Works. The actual on-cost rate is expected to be lower than the assumed 16.5% and will be subject to review by an IEC as well as further discussion between the Government and MTRCL.

25. The Advance Railway Works in itself will not give rise to any additional recurrent expenditure.

PUBLIC CONSULTATION

26. Since mid 2008, the Government and the MTRCL have undertaken public consultation on the SCL. Apart from consulting District Councils (DC), community consultation activities, including roving exhibitions and public forums, have been held. Various channels have also been utilized to brief local groups and residents on the railway scheme as well as to gather their views. Representatives of the Government and the MTRCL have attended more than 30 DC meetings of Sha Tin, Wong Tai Sin, Kowloon City, Yau Tsim Mong, Eastern, Wan Chai, Central and Western, North, Kwun Tong, Sai Kung and Southern Districts to introduce the project and brief DC Members on the progress of the SCL and to listen to their views.

27. We have also conducted a series of consultations with the Central and Western, and Kowloon City DCs on the integrated Admiralty Station and Ho Man Tin Station specifically. When we updated the Central and Western DC in April 2010 and the Kowloon City DC in July 2010 on the latest progress of the SCL project, the DC members gave in-principle support for the SCL works.

28. Generally speaking, the public is supportive and positive about the SCL project. Majority of parties and residents consulted have urged the Government to expedite the implementation of the project. In the coming months, we will continue to consider the views from public consultation with a view to enhancing the detailed design of the SCL.

29. We gazetted the Advance Railway Works at Admiralty Station as part of the railway scheme of the SIL(E) under the Railways Ordinance (Cap. 519) (the Ordinance) on 24 July 2009, and its amendments on 4 June 2010. We received 85 objections to the gazetted scheme and the amendment scheme, among which five objections are related to the Advance Railway Works. The objectors were concerned about underground strata resumption for, environmental impacts of the proposed ventilation facilities and traffic congestion at Admiralty Station.

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30. We also gazetted the Advance Railway Works at Ho Man Tin Station as part of the railway scheme of the KTE under the Ordinance on 27 November 2009, and its amendments on 25 June 2010. We received 50 objections to the scheme and its amendments, among which six objections were related to the Advance Railway Works. The objectors were concerned about the proposed location of Ho Man Tin Station and its connectivity with the nearby housing estates.

31. Having considered the unresolved objections and the proposed modifications, the Chief Executive-in-Council authorized the SIL(E) scheme (including the Advance Railway Works at Admiralty Station) and the KTE scheme (including the Advance Railway Works at Ho Man Tin Station) respectively under the Ordinance on 30 November 2010. The notices of authorization were gazetted on 10 December 2010. Details of the unresolved objections are reported in the Legislative Council Briefs on the SIL(E) Authorization of Scheme and the KTE Authorization of Scheme issued on 30 November 2010. We also briefed the Subcommittee of Matters relating to Railways of the Legislative Council Panel on Transport (the Railway Subcommittee) on 16 December 2010 on the SIL(E) and KTE railway schemes.

32. We consulted the Railway Subcommittee on 6 December 2010 and 7 January 2011. At the Subcommittee meeting held on 6 December 2010, members requested the Government to provide supplementary information on financing arrangement for the SCL project, factors for increase in cost estimate of the SCL and information on individual items and estimation of the on-cost payable to the MTRCL. The relevant supplementary information is at Enclosure 4. At the Subcommittee meeting held on 7 January 2011, members further requested the following information-

(I) the economic performance of the SCL under different assumption of project cost;

(II) when the SCL comes into service, it will bring extra fare revenue to the existing MTRCL system;

(III) examples of on-cost payment by the Government to the MTRCL and details about the management and supervision services provided by the MTRCL on the design and construction works.

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The relevant information is at Enclosure 5. Members has also requested the Government to provide information on certain issues which are of concern to the locals, including whether the change from 12-car train to 9-car train will reduce carrying capacity of the East Rail Line, matters related to station entrances in Kowloon City, matters related to underground stratum resumption in Kowloon City and residents of Rhythm Garden's concern over the proposed stabling sidings in Diamond Hill, etc.. We will separately provide the information to the Railway Subcommittee.

ENVIRONMENTAL IMPLICATIONS

33. The SCL project is subject to separate study requirements as stipulated in the relevant Environmental Impact Assessment (EIA) study brief. The SIL(E) (including its associated stations, depots and ventilation facilities and provisions for interchanges with the SCL) and the KTE (including Ho Man Tin Station with associated structures and provisions for interchanges with the SCL) are designated projects under Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). Environmental permits (EP) are required for the construction of these works projects.

34. The cumulative construction impacts of the SIL(E) and the SCL Advance Railway Works at Admiralty Station were studied under the EIA for SIL(E) project. The SIL(E) EIA report concludes that the environmental impacts arising from the construction of the SIL(E) and the SCL Advance Railway Works at Admiralty Station can be controlled to within the criteria under EIAO and its Technical Memorandum. Director of Environmental Protection (DEP) issued the EP for the SIL(E) project on 8 December 2010. The cumulative operational impacts arising from the SIL(E) and the SCL Advance Railway Works at Admiralty Station will be addressed separately under the SCL EIA study.

35. The EIA report on KTE concludes that impacts from KTE (including that of provisions for interchanges with the SCL) are acceptable once the prescribed mitigation measures are applied upon completion of the construction works and throughout operation of the KTE. DEP issued the EP for KTE on 27 September 2010 and the amended EP on 1 December 2010.

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36. At the planning and design stages, MTRCL had considered all the proposed works and construction sequences to reduce the generation of construction waste where possible. In addition, MTRCL will require the contractors to reuse inert construction waste (e.g. excavated materials) on site or in other suitable construction sites as far as possible. In order to minimize the disposal of inert construction waste at public fill reception facilities[9], MTRCL will encourage the contractors to maximize the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

37. At the construction stage, MTRCL will require the contractors to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. MTRCL will ensure that the day-to-day operations on site comply with the approved plan. MTRCL will require the contractors to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. MTRCL will also control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

38. MTRCL estimate that the Advance Railway Works will generate in total about 2.53 million tonnes of construction waste. Of these, MTRCL will reuse about 18 000 tonnes (1%) of inert construction waste on site and 0.789 million tonnes (31%) of insert construction waste on other construction sites, and deliver 1.702 million tonnes (67%) of inert construction waste to public fill reception facilities for subsequent reuse. MTRCL will dispose of the remaining 21 000 tonnes (1%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be $48.5 million for this project (based on a unit cost of $27 per tonne for disposal at public fill reception facilities and $125 per tonne[10] at landfills).

/ HERITAGE …..

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9 Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public reception facilities requires a licence issued by the Director of Civil Engineering and Development.

10 This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at $90 per m^3), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

HERITAGE IMPLICATIONS

39. The Advance Railway Works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

40. For the expansion of Admiralty Station, about 1.33 hectares of underground strata of land within four private lots is required to be resumed and also rights of temporary occupation of 0.14 hectare of underground strata of land within two private lots will be created under the SIL(E) Scheme. The land acquisition cost is estimated to be nil. The proposed Ho Man Tin Station does not require any land resumption. Crops are found within the scheme area of the Ho Man Tin Station and will have to be cleared. We will charge the clearance cost estimated at $66,000 to **Head 701 – Land Acquisition**. A breakdown of the land resumption and clearance costs is at Enclosure 6.

BACKGROUND INFORMATION

41. We upgraded **51TR** "Shatin to Central Link – design and site investigation" at an estimated cost of $2,407.5 million in MOD prices in May 2008. We entrusted the design and site investigation works to the MTRCL and commenced the preliminary design in November 2008. We have completed the preliminary design for the SCL project. The detailed design is in progress.

42. We upgraded part of **58TR "**Shatin to Central Link – construction of railway works – protection works" as **59TR** "Shatin to Central Link – construction of railway works – protection works in Wan Chai Development Phase II" in July 2010 at an estimated cost of $152.6 million in MOD prices. The construction works are being carried out under the Wan Chai Development Phase II project.

43. We upgraded **61TR** to Category B in September 2010.

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44. Of the 1 007 trees within the project boundary, 839 trees will be felled, 17 trees transplanted and 151 trees preserved. One important tree[11] at Ho Man Tin will be affected during implementation of the project. A summary of the important tree affected is provided at Enclosure 7. We will incorporate planting proposals as part of the project, including planting no less than 599 new trees and around 3 000 m^2 of grassed area.

45. We estimate that the works in paragraph 5 will create about 610 jobs comprising 125 professional/technical staff and 485 labourers, providing a total employment of 21 400 man-months.

Transport and Housing Bureau
January 2011

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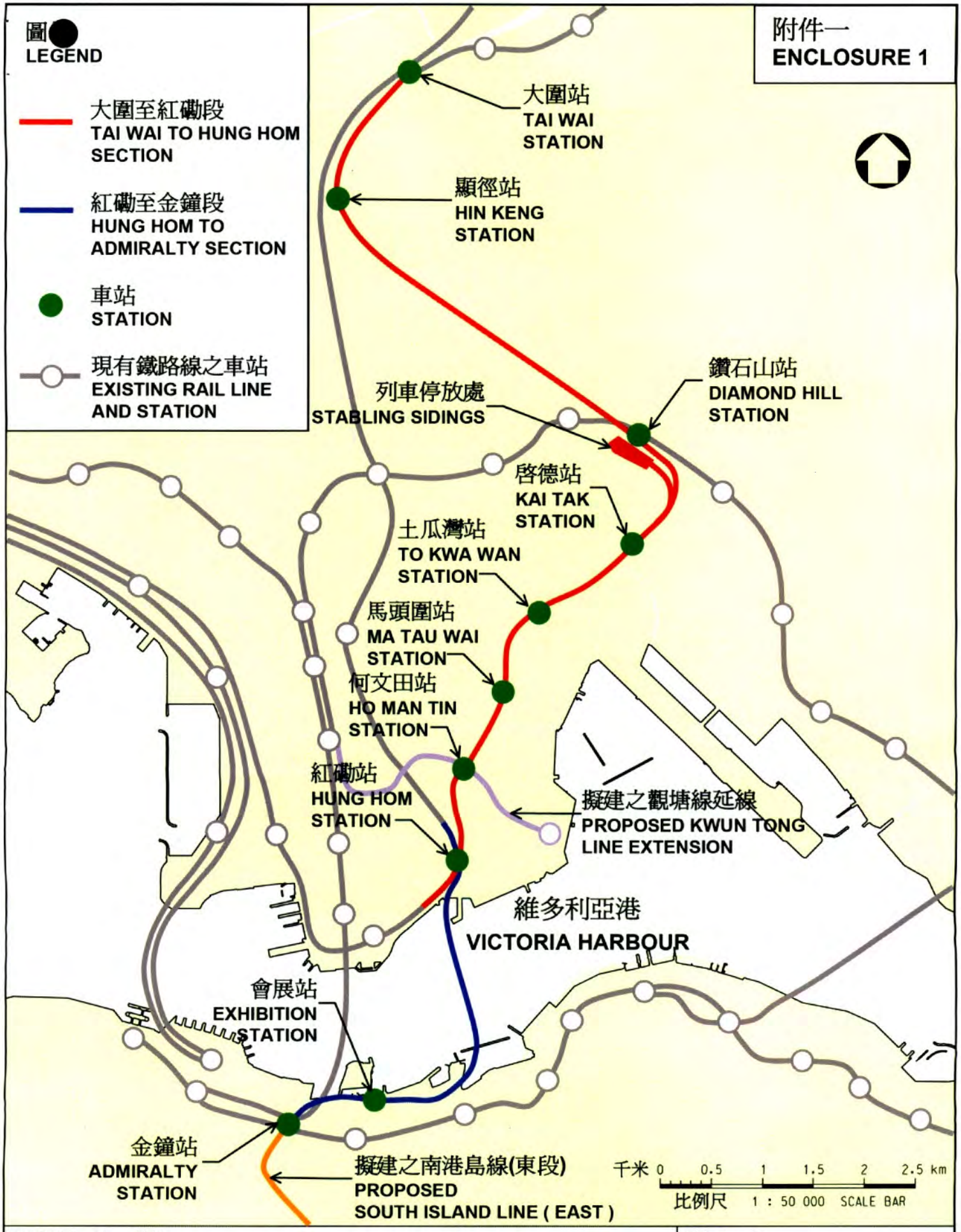
[11] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument and trees in memory of important persons or events;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree size, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 metres.



圖則名稱 drawing title

擬建之沙田至中環線的走線

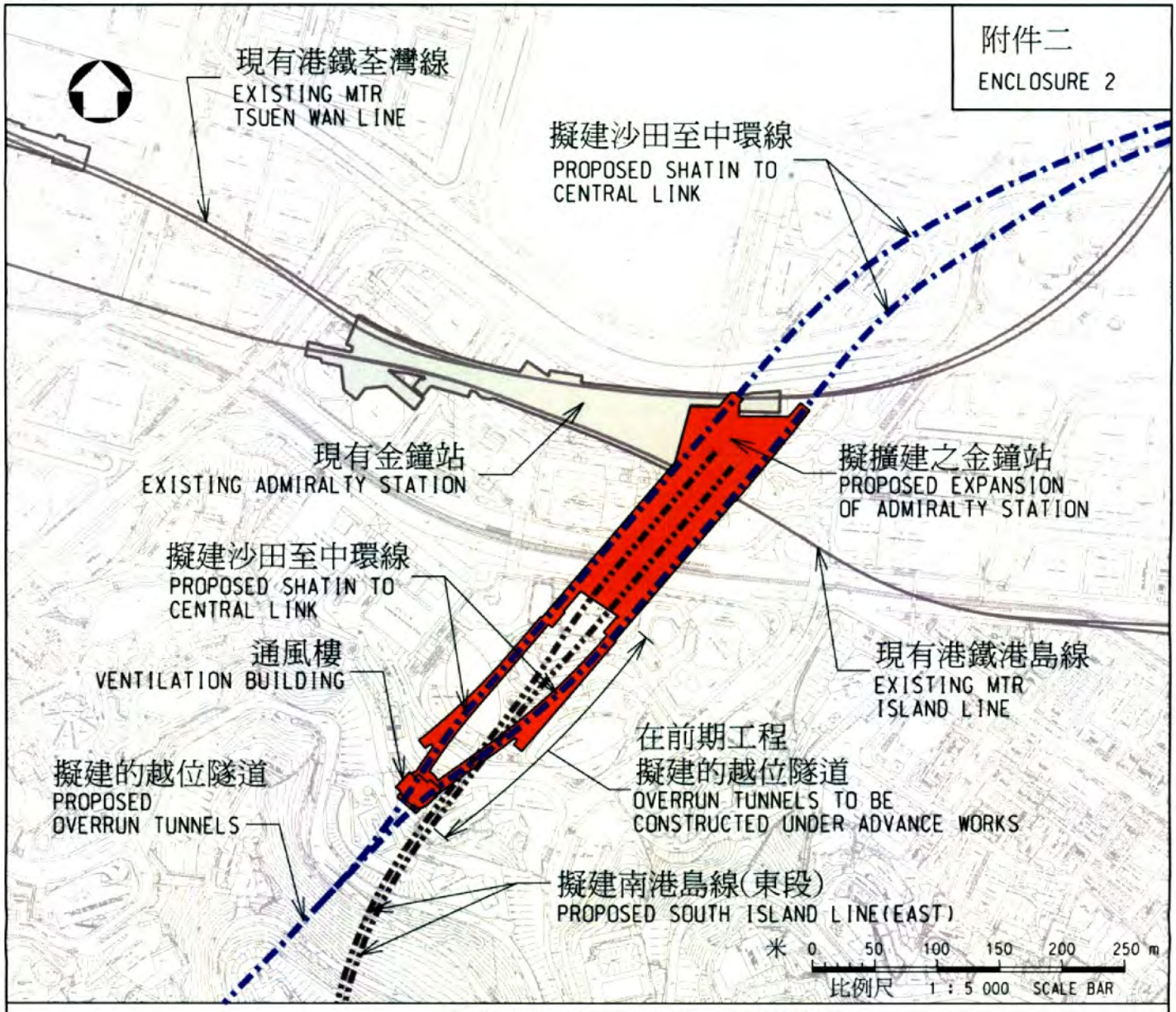
PROPOSED ALIGNMENT OF THE SHATIN TO CENTRAL LINK

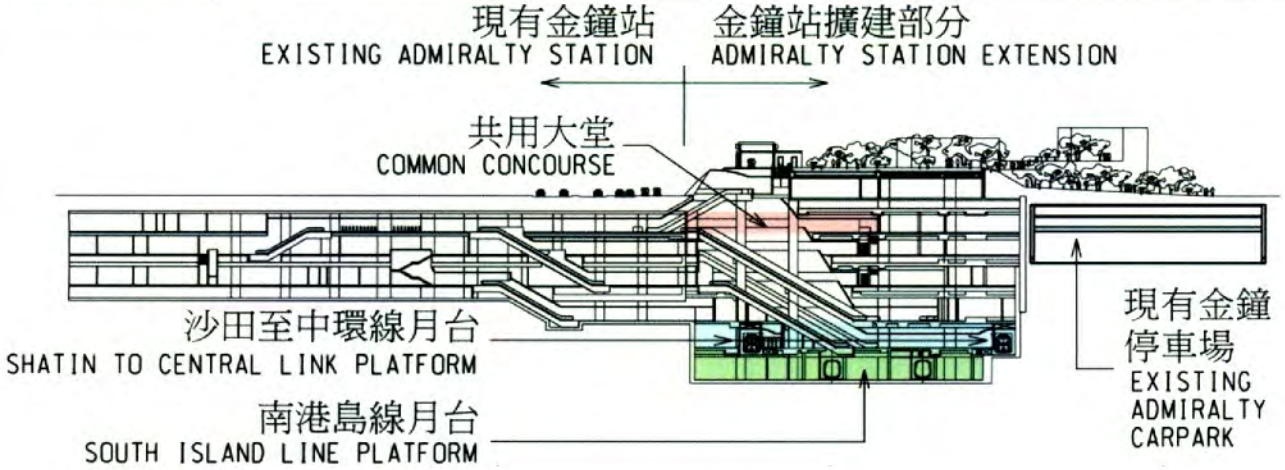
圖號 drawing no.
HRWSCL003-SK0225

鐵路拓展處 RAILWAY DEVELOPMENT OFFICE

路政署
HIGHWAYS DEPARTMENT

附件二
ENCLOSURE 2





典型橫切面示意圖 (不按比例)
TYPICAL CROSS SECTION (N.T.S.)

圖則名稱 drawing title

工務計劃項目第61TR號
沙田至中環線 — 鐵路建造工程 — 前期工程
項目(a) — 金鐘站擴建工程

PWP ITEM NO. 61TR
SHATIN TO CENTRAL LINK - CONSTRUCTION OF RAILWAY WORKS - ADVANCE WORKS
ITEM (a) - EXPANSION OF ADMIRALTY STATION

圖號 drawing no.
HRWSCL003-SK0226

鐵路拓展處 RAILWAY DEVELOPMENT OFFICE

路政署
HIGHWAYS DEPARTMENT

A4 210X297

HRWSCL003-SK0226.dgn 28-12-2010

附件三
ENCLOSURE 3

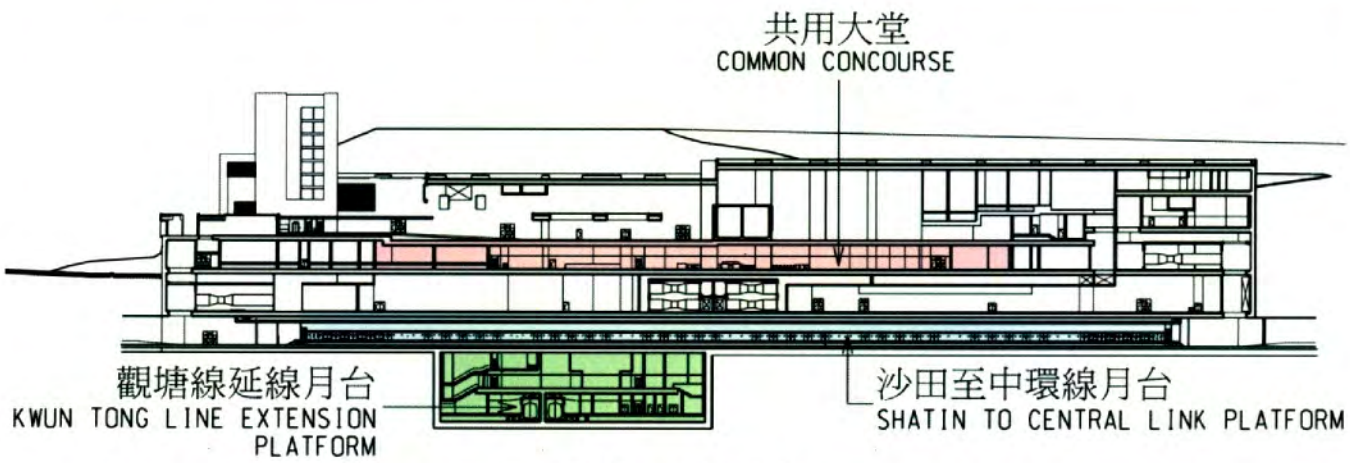
擬建沙田至中環線
PROPOSED SHATIN TO CENTRAL LINK

擬建觀塘線延線
PROPOSED KWUN TONG LINE EXTENSION

擬建何文田站
PROPOSED HO MAN TIN STATION

現有港鐵東鐵線
EXISTING MTR EAST RAIL LINE

米 0 50 100 150 200 250 m
比例尺 1 : 5 000 SCALE BAR



典型橫切面示意圖 (不按比例)
TYPICAL CROSS SECTION (N.T.S.)

圖則名稱 drawing title
工務計劃項目第61TR號
沙田至中環線 — 鐵路建造工程 — 前期工程
項目(b) — 何文田站建造工程
PWP ITEM NO. 61TR
SHATIN TO CENTRAL LINK - CONSTRUCTION OF RAILWAY WORKS - ADVANCE WORKS
ITEM (b) - CONSTRUCTION OF HO MAN TIN STATION

圖號 drawing no.
HRWSCL003-SK0227

鐵路拓展處 RAILWAY DEVELOPMENT OFFICE
路政署
HIGHWAYS DEPARTMENT

A4 210X297

HRWSCL003-SK0227.dgn 28-12-2010

Supplementary Information requested by Subcommittee on Matters Relating to Railways at the Meeting held on 6 December 2010

At the meeting of the Subcommittee on Matters Relating to Railways (Subcommittee) held on 6 December 2010, we sought Members' support for submitting funding applications to the Public Works Subcommittee (PWSC) and the Finance Committee (FC) for the advance railway works and non-railway works of the Shatin to Central Link (SCL). At the meeting, Members requested supplementary information from the Administration. This paper sets out the relevant supplementary information, including –

(A) Financing arrangement for the SCL project;

(B) Factors for increase in cost estimate of the SCL and information on individual items; and

(C) Estimation of the on-cost payable to the MTR Corporation Limited (MTRCL).

(A) Financing Arrangement for the SCL

1. The financing arrangement for the SCL has been discussed by the Legislative Council (LegCo) many times. During the Rail Merger consultation, the Administration briefed the LegCo on the two financing approaches (i.e. the ownership and concession approaches) of new railway projects. There were detailed discussions on this subject by the Panel on Transport and the Panel on Financial Affairs in April 2006, followed by discussion by the Bills Committee on the Rail Merger Bill. In June 2007, when the LegCo resumed Second Reading debate on the Bill, the concession approach and the reasons for adopting it were explained. Relevant papers were also issued to the LegCo for Members' reference (Paper No.: CB(1)1291/05-06(01) and File Ref.: ETWB(T) CR 1/986/00). In 2008, when the Administration reported to the LegCo that it decided to proceed with the SCL, the Administration had explained in detail the considerations for adopting the concession approach in the implementation of the SCL (Paper no. THB(T)CR10/1016/99).

2. Before the Rail Merger in December 2007, all railway projects were financed under the ownership approach. Under this approach, the railway corporations were responsible for the funding, design, construction, operation and maintenance of a railway, and ultimately owned it. Since the two railway corporations operated on commercial principles, they would not take up financially non-viable railway projects unless some form of financial support was provided by the Government. At present, forms of financial assistance previously provided by the Government included the granting of property development rights and provision of a lump sum capital grant. The form of funding support for each railway project is considered on a case-by-case basis.

3. Since the Rail Merger, the MTRCL has been granted a service concession by the Kowloon-Canton Railway Corporation (KCRC) to operate the existing and new KCRC railway lines under construction. The MTRCL is now responsible for the operation, maintenance and improvement of the Kowloon-Canton Railway (KCR) system, including the replacement of the concession assets, during the concession period. It exercises control over all the operational arrangements of the KCR network in addition to its own network and is responsible for the performance of the whole system. Upon expiry or termination of the service concession, the MTRCL would be required to return to the KCRC an operating KCR system that meets the prevailing operating standards. In other words, the KCRC is not disposing of the railway system to the MTRCL, and the MTRCL is not acquiring the KCRC's railway assets (except for certain low value items such as spare parts and consumables) under this arrangement.

4. When the Administration updated Members on the SCL project in 2008, it was stated that at the Executive Council meeting on 31 March 2008, the Administration had proposed financing the SCL project using the concession approach, and had explained the factors considered for adopting such an approach. The SCL will comprise extensions of the Ma On Shan Line, the West Rail Line and the East Rail Line of the existing KCR system. It has been agreed under the Rail Merger framework that the KCRC will grant to the MTRCL the right to access, use and operate all these existing railways under the concession approach. Therefore, there would be merits in implementing the operation of the SCL under the same approach. When the 50-year service concession period for the existing KCR network expires, we will have to negotiate with MTRCL or a new operator on the extension of the service concession. The ownership of the SCL by the Government will facilitate the negotiation with the MTRCL. Furthermore, under this arrangement, the KCRC will retain beneficial ownership of the SCL and the MTRCL will need to return an operating SCL as part of the whole KCR system to the KCRC upon the expiry or termination of the service concession.

5. Under the service concession approach, the Government will provide for the railway facilities of a new railway and the MTRCL will be granted a service concession to operate it. Service concession payments will be paid by the MTRCL to the owner of the railway in exchange for the right of operation. The service concession payment for the SCL payable by the MTRCL will be calculated according to the mechanism established by the Merger Agreement. In a nutshell, under the Operating Agreement made between the Government and the MTRCL during the Railway Merger, the service concession payment payable by the MTRCL will be 90% of the net present value of the revenue from the SCL (i.e. net present value of revenue from operation minus net present value of MTRCL's cost in operating the railway and cost in capital replacement). This structure of service concession payment is the same as the charging model stipulated in the service concession agreement for the existing KCR network (including the East Rail Line, Ma On Shan Line and the West Rail Line). In other words, the MTRCL has to make a fixed service concession payment and a variable service concession payment[1] annually. Since the Government is the only shareholder of KCRC, the Government will benefit from receiving the service concession payments.

6. At its meeting on 6 December 2010, the Subcommittee was also concerned that upon the commissioning of the SCL, passengers could interchange for rail lines of not only the KCR network but also the MTR network, thereby increasing the patronage of the MTRCL rail lines and generating additional fare revenue for the MTRCL. In fact, after the Rail Merger, passengers can interchange between the former MTR and KCR networks without going through ticket gates, and the fare revenue of the trips are shared between the two corporations according to the terms of the Operating Agreement. This arrangement facilitates interchanging between the rail networks and savings on second boarding charge. It is also a win-win arrangement for both corporations, and enables them to provide more efficient railway services. Upon the commissioning of the SCL, passengers will be able to interchange for different rail lines, benefitting both rail networks, and the fare revenue of the trips will also be shared according to the existing mechanism.

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[1] For the existing KCRC network, the annual fixed service concession payment payable by the MTRCL is $750 million, while the variable service concession payment which is payable from the third year after the Rail Merger (i.e. 2 December 2010) will be based on the annual revenue and calculated according to the progressive percentages listed below:

Fare Revenue of the KCRC Network	Variable Service Concession Payment
First $2.5 billion	0%
$2.5 billion - $5 billion	10%
$5 billion - $7.5 billion	15%
Above $7.5 billion	35%

(B) Factors for Increase in Cost Estimate of the SCL and information on individual items

Preliminary Estimate

1. In March 2008, based on the proposal jointly submitted by the then MTRCL and the then KCRC in 2005, we estimated that the total project cost of the Shatin to Central Link (SCL) was about $38.17 billion in April 2007 prices. At that time, the SCL project was at a conceptual stage, with its design and site investigation not yet commenced, and no pre-feasibility study had been conducted. Therefore, the estimated cost was only a crude preliminary estimate.

Latest Estimate

2. Over the two years from 2007 to 2009, the estimated construction cost of the SCL (including railway works and non-railway works) increased by about 30% due to the upsurge in the cost of construction materials. In addition, we have incorporated some of the suggestions and requests raised / made by different stakeholders during the public consultation period. The suggestions and requests concerned the design of and proposed facilities under the railway and were incorporated with reference to the actual situation or as necessary. The estimated cost for these engineering changes is about $5 billion. Furthermore, in the course of the preliminary design, the MTRCL has to revise the design to cope with actual site conditions and technical requirements. Large-scale traffic diversions would also need to be implemented in different areas during the construction stage. The estimated cost for these changes is about $7 billion. Based on the current assessment, the estimated cost for the entire SCL project will be over $60 billion, including the cost for railway works, non-railway works, essential public infrastructure works, advance works and protection works.

3. In late 2008, we commenced design works and an extensive public consultation exercise for the project. Having regard to the actual situation or needs, we have incorporated changes to engineering works suggested and requested by certain stakeholders. These engineering changes will increase the estimated cost of the works about $5 billion. The breakdown and detailed explanations are given below –

(a) Addition of Hin Keng Station (estimated to increase cost by about $1.2 billion)

At the strong request of the public, the Hin Keng Station will be added to the SCL to alleviate the congestion in the Tai Wai Station and facilitate access to railway services by local residents, thereby enhancing the transport and social linkage of the district. The construction cost of this station will be slightly higher than that of a typical above-ground station in general as the station will be built adjacent to a slope at the East Rail Line. During the construction stage, additional support and protection works will be required to ensure that the operation of the East Rail Line will not be affected. Alterations to the turnaround tracks in the existing Tai Wai Depot will also be necessary to tie in with the works.

(b) Further enhancement of the proposed Tsz Wan Shan pedestrian link (estimated to increase cost by $0.7 billion)

During the public consultation, we understand that there is strong demand from the residents of Tsz Wan Shan for additional pedestrian links within the district. Residential developments in Tsz Wan Shan are built on undulated terrain, and it is exhausting for pedestrians, particularly the mobility-handicapped or elderly, to traverse long steep gradients. The proposed pedestrian link aims to improve the traffic condition in the Tsz Wan Shan district, provide safe and barrier-free access linking up the Diamond Hill Station of the SCL with the neighbouring residential developments, and encourage the local community to make use of railway services which are environmental-friendly. The pedestrian link under design covers a large area and is sizeable in scale, comprising covered walkways of about 500 (metres) m long and footbridges of over 600 m long, with the provision of 23 lifts, four escalators and five travellators.

In response to public request, we will commence construction of the pedestrian link once the construction of the SCL project has started, so that the link can be completed in phases as early as possible. We now assessed that the first phase of the pedestrian link will be completed for use in two to three years after the commencement of the works.

(c) Relocation of the International Mail Centre (IMC) from Hung Hom to Kowloon Bay (estimated to increase cost by $1.2 billion[2])

After the design works of the SCL commenced in late 2008, it was confirmed that the IMC should be relocated from Hung Hom to Kowloon Bay. As the tunnel of the East West Corridor of the SCL will pass through the site of the existing IMC, it was confirmed after detailed investigation that the existing mail centre had to be demolished and reprovisioned. Through public views collected during public consultation, we fully understand that the public expects that the services of the IMC would not be affected. Therefore, we must carefully plan the reprovisioning works, including the reprovisioning timetable. The new IMC at Wang Chin Street in Kowloon Bay will comprise six storeys with a usable floor area of about 20 000 square metres (m^2). The design and standards of the facilities for the IMC will have to meet the requirements of the Hongkong Post. In addition to adopting a number of greening and energy efficient features, automatic mail sorting and related equipment with a daily handling capacity of 4.5 million items will be provided in the new IMC. The existing IMC will be demolished after the reprovisioning works.

(d) Relocation of the Harbour Road Indoor Games Hall and Wan Chai Training Pool (estimated to increase cost by $800 million)

The need to relocate the recreational facilities at Harbour Road was confirmed after the design works for the SCL commenced in late 2008. As the Exhibition Station of the SCL will be located under the existing Harbour Road Indoor Games Hall and Wan Chai Training Pool, both facilities will have to be relocated to the car park area south of their present site. The facilities to be reprovisioned include a swimming pool, a games hall, a gymnasium, multi-purpose rooms, squash courts, table tennis saloons, changing rooms, store rooms, first aid room, electrical and mechanical plant rooms and filtering facility for the swimming pool. We fully understand that the public expects that the services of the indoor games hall and training pool at Wan Chai will not be affected. Therefore, we will carefully plan the reprovisioning works, including the reprovisioning timetable of the relevant facilities. The new building will have a floor area of about 16 500 m^2 and the reprovisioned facilities will meet the latest standards. In particular, the Wan Chai training pool will become an indoor pool and be upgraded to a 50 m × 25 m pool of international standards for the training of athletes.

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[2] $1.2 billion covers the construction cost of $893 million and other costs of about $300 million, including the on-cost payable to MTRCL, contingency and provision for price adjustment.

(e) Reprovisioning and enhancement of Harcourt Garden (estimated to increase cost by $200 million[3])

In the 2008 design of the SCL, it was confirmed that the Admiralty Station will be expanded into an integrated station serving both SCL and SIL(E). This proposal is more desirable than the original design of building two separate stations. For the construction of the integrated station, the MTRCL will need to make use of the Harcourt Garden as a works area. The garden will also be converted, elevated and reprovisioned to facilitate the construction of the underground station. During construction, most parts of the garden will be temporarily closed for about four years and the remaining parts will continue to be opened to the public. We will minimise the area affected by the works and strive for early completion of the garden. The Central and Western District Council has been consulted and we understand the public's concerns about the impact of the works as well as the public's expectation of the reprovisioning works.

The Harcourt Garden will be redesigned and the works will be carried out and completed in tandem with the expansion works of the Admiralty Station. To tie in with the works of the underground station, the garden will be elevated by five to six metres and provide more open space and a landscape deck. The space enjoyed by the public will be increased from the present around 5 000 m^2 to around 9 000 m^2. Lifts linking up the station concourse, ground level and the garden will be installed at the entrance to the garden to provide barrier-free access. The Harcourt Garden will be connected to the footbridges linking up the neighbouring commercial buildings to achieve pedestrian and vehicle segregation and provide comfortable and safe links for pedestrians to and from the station, Harcourt Garden and the neighbouring commercial buildings.

(f) Additional disposal and import of fill materials due to changes of stockpiling areas and barging point (estimated to increase cost by $ 600 million)

In the past extensive public consultation, we became aware of the public's concern about the excavated materials to be temporarily stored in the Kai Tak area and have therefore substantially reduced the storage area in the latest planning. As a result, one million cubic metres of excavated materials generated from the construction of the SCL tunnels and stations in Diamond Hill and Kowloon City could not be stored for the subsequent backfilling, leading to a considerable increase in transportation cost. As the barging point at Hoi Sham Park has been

[3] $0.2 billion covers the reprovisioning cost of $126 million and other expenditures of about $70 million, including on-cost payable to MTRCL, contingency and provision for price adjustment.

cancelled, the excavated materials generated in the vicinity will have to be transported to the barging point at Kai Tak, increasing the cost of transportation and handling of the excavated materials.

(g) Reprovisioning of recreational facilities of the Police Force (estimated to increase cost by $300 million)

The tunnel of the North South Corridor of the SCL will pass through the Police recreational facilities next to the Causeway Bay Typhoon Shelter. As we have to avoid unnecessary reclamation, it was confirmed after detailed design that the Police recreational facilities will have to be entirely demolished to make way for the construction of this section of SCL tunnel and the ventilation facilities above the tunnel. Upon completion of the works, the area available for the reprovisioning of the Police recreational facilities will be reduced, therefore, the facilities will adopt a multi-storey design to provide an area equal to the original facilities, hence resulting in an increase of construction cost.

4. Furthermore, in the course of design, the MTRCL has to revise the design to cope with actual site conditions and technical requirements. Large-scale traffic diversions would also need to be implemented in different areas during the construction stage. The estimated cost for these changes is about $7 billion, with breakdown and detailed explanations as shown below –

(a) Changes to the design of stations, e.g. revision of the design of stations to take into account the latest site investigation information (estimated to increase cost by $1.2 billion)

After conducting a series of site investigation along the alignment of the SCL, the MTRCL confirmed it was necessary to revise the design to take account of the information obtained, including –

- additional strengthening works for the external walls of the existing Diamond Hill Station to avoid implications for the safety of the station during the construction of the SCL;
- additional lateral diaphragm walls and related bracing structures to further reduce the impact on the neighbouring buildings during the construction of the Ma Tau Wai Station; apart from this, there is an increase in depth of the diaphragm walls as to the rock stratum in the vicinity of the Ma Tau Wai Station is deeper than expected.
- the large quantity of gravel found at the ex-Tai Hom Village site has to be crushed or removed before building 400 bored piles

and 600 m long diaphragm walls at the site; and

- the seawall and disused railway facility found at the old reclamation of the Hung Hom Station have to be removed before construction of the tunnel.

(b) Additional fire service provisions at stations to meet latest fire safety requirements (estimated to increase cost by $900 million)

Fire service equipment for railways is different from that of ordinary buildings, most of which cannot be finalised until the design stage and after deliberations with and analysis of risks by the Fire Services Department (FSD). As described in paragraph 1 above, design for SCL had not yet started when the preliminary cost estimate was submitted to LegCo in March 2008. The rough estimated costs for stations, including fire safety facilities, were based on the typical design of previous stations. Since early 2010, MTRCL discussed in detail with FSD the detailed design of most stations and the necessary fire safety facilities upon receipt of the detailed design and in view of the incidents in the past few years, the FSD requested for enhancement of the protection for fire service staff entering the scene of the incidents as well as means of escape for the public after receiving the station design from MTRCL. Hence, the following additional facilities will be provided under SCL to cater for the prevailing fire services requirements –

- additional fire service lifts (nine in total) for the secondary fire service entrances at the stations;
- separate entrance for the underground CLP transformer room, hence an increase in the area of the stations;
- enhancement of the backup fume extracting facilities at the stations, hence an increase in the area of the stations; and
- automatic sprinkler system for the stabling tracks of the stabling siding at Diamond Hill, and automatic sprinkler and fume extracting systems for the sector tracks of the stabling sidings.

(c) Additional emergency access and egress to meet latest fire safety requirements (estimated to increase cost by $900 million)

In early 2010, after MTRCL submitted the detailed design of the emergency access, the FSD requested for enhancement of the ventilation system for longer railway tunnels and the protection for fire service staff entering the scene of the incidents and means of escape for the public. The requests were made in view of the incident in Tai Lam Tunnel of the West Rail on 14 February 2007. Hence, the SCL will have the following additional facilities –

- An additional ventilation building and emergency access at Ma Chai Hang Playground;
- an additional emergency access at the open space beside Wong Tai Sin Temple; and
- an additional ventilation ducts for the SCL Lion Rock Tunnel and cross harbour tunnel, hence an increase in the cross-sectional area of both tunnels.

(d) Additional ground treatment works to enhance safety of buildings near Ma Tau Wai Station (estimated to increase cost by $900 million)

To further safeguard the buildings near Ma Tau Wai Station from the impact of the construction of the station and the railway tunnel along Ma Tau Wai Road, ground treatment works will be carried out in the vicinity of Ma Tau Wai Road and it is estimated that about 80 000 cubic metres of grout will be required; the MTRCL also proposed the setting up a monitoring system to ensure the safety of the neighbouring buildings.

(e) Optimisation of alignment to avoid land acquisition for private buildings and reduce disruption to the operation of the East Rail Line (estimated to increase cost by $1.3 billion)

In the course of design, the MTRCL has adopted the following measures to optimise the alignment of the SCL –

- The configuration of the tunnels at both ends of the Exhibition Station has been revised to allow cross platform interchange with the future North Island Line at the Exhibition Station, leading to an increase in the depth of the Exhibition Station and the SCL tunnel;
- The new alignment of the North South Corridor that bifurcates

from the existing East Rail Line north of Hung Hom has been revised and it will not be necessary to build a tunnel under the tracks of the existing East Rail Line, reducing substantially the construction risk and the threat to train safety. However, the section of slope at the East Rail Line has to be upgraded and the affected facilities of the East Rail Line reprovisioned;

- The original alignment affects the foundation of some buildings near Ma Tau Wai Road and acquisition of those building would be required. After optimisation, the alignment will only run near those buildings and no acquisition will be necessary, but additional ground treatment works are required.

(f) Installation of noise mitigation measures at Ma On Shan Line (estimated to increase cost by $800 million)

As the Ma On Shan Line will run on eight car trains instead of four car trains with a higher frequency upon commissioning of the SCL, there is a need to conduct an environmental impact assessment (EIA) to re-evaluate the noise and a sum has been allowed for the necessary noise mitigation measures. The MTRCL is exploring means to mitigate noise and decide on the scale of the measures after completion of the EIA report and detailed design.

(g) Implementation of traffic diversions at Lung Cheung Road, Ma Tau Wai Road and Chatham Road (estimated to increase cost by $1 billion)

In the course of design, the MTRCL has confirmed that the following large-scale traffic diversion measures would need to be implemented during the construction of the SCL –

- The three existing westbound lanes of Lung Cheung Road will be re-routed via the ex-Tai Hom Village site to facilitate the construction of station subways connecting the existing Diamond Hill Station to its extension under the SCL project. The traffic diversion measures will also include the provision of a temporary pedestrian subway across Lung Cheung Road, and the implementation of traffic diversions in phases to tie in with the progress of the works;
- Traffic diversions will be implemented in phases at Nam Kok Road, Olympic Garden Roundabout, Olympic Avenue, Sung Wong Toi Road and Pak Tai Street in Kowloon City to facilitate the construction of two subways connecting the To Kwa Wan Station to Nam Kok Road and Pak Tai Street. The two

subways are provided to tie in with the revised To Kwa Wan Station;

- The Cheong Wan Road Flyover will be modified permanently for the construction of the railway tunnel connecting the SCL to the Hung Hom Station; and
- Temporary flyovers will be constructed at Chatham Road North to divert traffic on its existing seven lanes in phases for the construction of the cut-and-cover tunnels of the North South Corridor and the East West Corridor.

Final Estimate of the Cost

5. As mentioned in paragraph 2 above, the cost estimates of the SCL project is still subject to change e.g. the MTRCL has only completed nearly half of the detailed design of the SCL and the remaining design works are still ongoing. Moreover, the statutory consultation period has just started and will last until early 2012. Upon expiry of the consultation period, we will carefully consider and study whether to amend the railway scheme in light of the views and suggestions collected from the public during that period. According to this programme, the detailed design of the SCL project is expected to complete in about early 2012. We will consider whether the SCL cost estimates require further adjustment.

Cost Control

6. The Government plans to entrust the construction works of the SCL to the MTRCL. We will request the MTRCL to comply with its own management systems and procedures. The MTRCL also has the obligation to provide any information concerning any matters relating to the SCL project as requested by the Government. The Government will closely monitor the works of the MTRCL to ensure that the implementation of the project is within the approved project estimate, in compliance with quality requirements and on schedule. The procurement and tender procedures of the SCL project (including advance works) will comply with the relevant requirements of the Agreement on Government Procurement of the World Trade Organization. We will control the construction cost properly, and will engage an independent consultant to review the cost estimate of the SCL project. The audit is expected to be completed in early 2012.

(C) On-cost Payable to the MTR Corporation Limited

1. Under the concession approach, the MTR Corporation Limited (MTRCL) will only be entrusted with the design and construction of the new projects, after the Government's formal approval. The MTRCL and the Government must also agree on the fee of such entrustment. In the case of SCL, services to be provided by the MTRCL for the management and supervision of the design and construction works of the project will be covered by an on-cost, which includes, but is not limited to, staff cost for the MTRCL's dedicated project management team and the headquarters for providing support for the project; accommodation costs for the dedicated project management team and consultants; and corporate costs (e.g. legal, financial, human resources, public relations, operating support, insurance, corporate governance and other relevant overheads).

2. The on-cost payable to the MTRCL could be determine by a percentage (known as on-cost rate) of the actual expenditure of the design and construction works undertaken. At present, we are negotiating with the MTRCL the on-cost rate for the design and construction works (including the advance construction works) of the SCL. The determination of a reasonable on-cost rate takes time. We would need to, for example, examine the MTRCL's audited accounts of previous projects and ascertain the actual on-cost apportioned to individual projects, and would also need to further negotiate with the MTRCL. Hence the on-cost shown in the Public Works Subcommittee paper is only an indicative figure. For the purpose of providing an estimate, we have adopted a percentage[4] of 16.5% in the cost breakdown. This should not, however, be taken to mean that we would be paying on-cost for advance construction works to the MTRCL on this basis; nor should it be taken as the Government's agreement to adopting the same percentage as the actual on-cost rate for both design and construction works (including the advance construction works). We will seek independent consultancy advice in assessing the reasonableness of the on-cost rate to be proposed by the MTRCL for the SCL project.

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[4] The percentage is adopted with reference to an agreement made in 2003 between the Government and MTRCL, which provides that if MTRCL is entrusted with civil engineering projects, an amount at 16.5% of the project cost will be payable to MTRCL as the on-cost for the design, construction supervision, contract administration and the relevant insurance premium of the project.

Supplementary Information requested by Subcommittee on Matters Relating to Railways at the Meeting held on 7 January 2011

(I) The economic performance of the Shatin to Central Link under different assumption of project cost

The Shatin to Central Link (SCL) is a strategic railway. Upon completion, it will extend the railway service network in Hong Kong and will provide service to a great number of passengers. Its service area covers a residential population up to 300 000 and employment opportunities of 283 000. According to the current estimate on the number of passengers, the SCL will carry about 1.1 million passengers per day in year 2021. In terms of time saving of passengers, it will be able to generate $4.4 billion of economic benefit each year. In addition, the new railway can help improve the employment situation in Hong Kong. 11 000 and 9 600 employment opportunities will be created during SCL's construction and operation period respectively.

2. To evaluate the economic internal rate of return (EIRR) of the SCL, there must be an accurate estimate of construction cost. According to the current estimate, the project cost for the SCL is over $60 billion[1]. But it is not until early 2012 when the detailed design and the statutory consultation process are complete, we will be able to ascertain how to fine-tune the design of the SCL to meet the actual construction requirements and to incorporate the public's views and suggestions. An accurate cost estimate for the project can be determined by then. At the meeting of the Subcommittee on Matters Relating to Railways held on 7 January 2011, Members requested the Administration to provide information on the EIRR of the SCL with different presumed project costs, so as to help Members understand the economic performance of the SCL under different cost scenarios. The following are the results of a sensitivity test on the economic internal rate of return of the SCL with a presumed project cost of $60 billion, $64 billion and $68 billion (in September 2009 prices) under different patronage assumptions -

[1] The project cost covers the cost of railway and non-railway works, essential public infrastructure works, advance works and protection works.

EIRR (%) / Daily patronage in 2021 (million passengers)	Presumed project cost ($ billion)		
	60	64	68
0.99	5.7	5.4	5.1
1.1	6.3	6.0	5.7
1.21	6.9	6.6	6.2

From the above assumed scenarios, we can see that the SCL project is economically viable. Taking recent railways projects as examples, the EIRR of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Railway (XRL) and the West Island Line (WIL) are 6% and 5 % respectively. The above figures were worked out under a hypothetical situation. An accurate estimate on the project cost of the SCL will be submitted with the funding application for the SCL remaining works in 2012.

3. Owing to its sizeable scale, the project cost of the SCL is much higher than other railway projects. To better control the costs, we will commission an independent consultant to audit the estimated project cost of the SCL. The audit is expected to be completed in early 2012.

(II) When the SCL comes into service, it will bring extra fare revenue to the existing MTR Corporation Co. Ltd. (MTRCL) system

4. According to the Operation Agreement between the Government and MTRCL, in calculating the revenue generated by the SCL the revenue of the entire railway network before SCL came into operation will be deducted from the revenue of the entire railway network after the SCL comes into operation. This will form the basis on which the amount of service concession payment[2] payable from MTRCL to Government will be calculated. This method has already taken into account the extra fare revenue generated from the SCL for both the MTR and KCR systems.

[2] The service concession payment payable by the MTRCL will be 90% of the net present value of the revenue from the SCL (i.e. net present value of revenue from operation minus net present value of MTRCL's cost in operating the railway and cost in capital replacement). The remaining 10% will be MTRCL's cost in operating the SCL during the concession period.

5. When the SCL is in operation, passengers can conveniently interchange between different rail lines including those in the KCR and the MTR systems. According to the current estimates on passenger flows, the SCL can help re-distribute passengers between different rail lines when it comes into operation in 2020, in particular the cross-harbour and the East Kowloon sections of the existing rail lines. It is expected that about 190 000 passengers crossing the harbour via the existing Tsuen Wan Line, Tung Chung Line and Tseung Kwan O Line will switch to use SCL. Meanwhile, about 70 000 Northeast New Territories passengers heading to East Kowloon per day will switch to use SCL (Tai Wai to Hung Hom Section) instead of taking the KCR's East Rail Line and interchange to MTR's Kwun Tong Line. It is also expected that by 2021, the daily patronage of the entire railway network will increase by about 380 000 passengers (approximately 8% of the total). Although there will be an estimated increase of patronage in some existing MTR lines for about 70 000 passengers per day, it cannot offset the loss of 260 000 passengers per day from the cross-harbour section and the East Kowloon section. Hence, according to the current projection of patronage, the SCL will not generate extra fare revenue for the existing MTR system.

6. We have also conducted sensitivity test on the patronage forecast of the SCL. Assuming that there is a 10% increase in patronage (including local and cross boundary passengers) from 1.1 million to 1.21 million in 2021, the corresponding increase in passengers in the whole railway system is about 0.42 million passengers (up by about 9 %). According to the current projection of patronage, there will be a loss of about 0.29 million passengers per day from the cross-harbour section and the East Kowloon section and some rail lines of the MTR system will increase by about 80 000 passengers. Hence, the commissioning of the SCL still will not generate any fare revenue for the existing MTR system.

(III) Examples of on-cost payment by the Government to the MTRCL and details about the management and supervision services provided by the MTRCL on the design and construction works

(A) Examples of on-cost payment by the Government to the MTRCL

7. Before the Rail Merger, railway projects were all implemented by the ownership approach. There were no precedents on entrusting the main railway works of a Government-funded railway project to railway corporations. Therefore, all the railway works entrusted by the Government to the two railway corporations before the Rail Merger were limited to essential public infrastructure works (EPIW), such as the construction of pedestrian footbridges or subways connecting with railway stations, public transport interchanges near railway stations and road works in the vicinity of railway stations. The rates of on-cost payable by Government to the two railway corporations were all 16.5% of the construction costs of the works. The on-cost were used to cover expenditure incurred by the railway corporations in conducting technical studies, design works and supervision of works during the

construction period. The scale of such EPIW was far smaller than that of the main railway works.

8. The Government has conducted detailed studies and discussions with the two railway corporations on the rate of on-cost payment, and has agreed with the corporations in 2003 that an on-cost rate of 16.5% would be adopted for entrustment of projects between Government and the corporations. Some previous examples included –

Railway-related works entrusted by the Government to the two railway corporations

Project (FC Approval Date)	**Scope of Works**	**Entrusted Party**	**Year**	**On Cost Rate**
Public transport interchange at Lok Ma Chau Terminus of Sheung Shui to Lo Ma Chau Spur Line (25 June 2004)	● Public transport interchange ● Escalators, lifts, elevated pedestrian passages	KCRC	2004 - 2007	16.5%
EPIW for East Rail Line – Sheung Shui to Lok Ma Chau (21 Feb. 2003)	● Part of the cross-border facilities used by the Government at Lok Ma Chau Terminus ● Passenger connectivity facilities for linking Lok Ma Chau Terminus and Huanggang Check Point ● Expand and improve the existing passages	KCRC	2003 - 2007	16.5%
The remaining works of the EPIW for West Rail (Phase 1)-Kam Tin Section (6 July 2001)	● Roads ● Flyovers ● Pedestrian footbridges ● Facilities for pedestrians and cyclists ● Noise barriers	KCRC	2002 - 2003	16.5%
EPIW for East Rail Line – Hung Hom to Tsimshatsui (9 Feb. 2001)	● 3 pedestrian subways ● Lifts, escalators and ventilation facilities for pedestrian subways ● Road reconstruction	KCRC	2001 - 2004	16.5%
EPIW for Tseung Kwun O Line at Po Lam (26 Nov. 1999)	● Pedestrian Footbridge	MTRC	2000 - 2002	16.5%

Project (FC Approval Date)	**Scope of Works**	**Entrusted Party**	**Year**	**On Cost Rate**
EPIW for Tseung Kwun O Line (11 June 1999)	● Road widening works	MTRC	1999-2001	16.5%

Works entrusted by MTRCL to the Government

Project	**Scope of Works**	**Entrusted Party**	**Year**	**On Cost Rate**
Tsing Ma Bridge	Railway facilities of Airport Express and Tung Chung Line at Tsing Ma Bridge	Highways Department	1995-1998	16.5%
North Lantau Expressway	Railway facilities of Airport Express Line and Tung Chung Line related to the North Lantau Expressway	Highways Department	1995-1998	16.5%

9. After the Rail Merger, the Government continued to adopt an on-cost rate of 16.5% in calculating the on-cost of EPIW entrusted to MTRCL in accordance with the agreement. For example, from 2010 to 2014, the Government entrusted the MTRCL with the WIL EPIW (including two covered pedestrian passage systems and a public transport interchange) and the on-cost payable to MTRCL was calculated with reference to 16.5%, as approved by the Finance Committee (FC) of the Legislative Council (LegCo) in July 2009.

(B) Room for adjusting the on-cost

10. Following the Rail Merger, the Government obtained FC's funding approval for providing capital subvention for MTRCL to construct the WIL. In 2010, the Government obtained FC's funding approval for constructing the XRL under a service concession approach and entrusted the works to MTRCL. 9.8% of the approved funds for the WIL project was on-cost, and 7.38% of the funds approved for the XRL project was on-cost.

11. For the above two railway projects, we engaged independent consultants to assess whether the cost estimate of the projects (including on-cost) were reasonable. After which, we further discussed with the MTRCL on the appropriate on-cost rate for the projects. We could lower the on-cost rate for these two railway projects to less than 16.5% because the scale of constructing the entire rail is much larger than only constructing EPIW for railway lines. The MTRCL can enjoy a greater economy of scale in project management.

12. Based on the experiences from these two railway projects, we believe that there is room for the MTRCL to cut down the on-cost payment for the construction of the SCL, but the reduction is subject to detailed study. The SCL project is quite different from the two railway projects mentioned above. For example, XRL only has one station and most of the construction works will be in rural areas. The SCL will have ten stations, six of which will be interchange stations, and most of the construction works will be carried out in the dense urban districts with older buildings, making the construction works more complex. Although WIL is also being constructing in a similar urban area as SCL, WIL is much shorter and only has three stations. Hence, the project management work for SCL will be far heavier and more complex than the two railway projects aforementioned. We initially assessed that the room for adjustment of the on-cost payment for the SCL may not be as great as that in the two railway projects. To study the on-cost for constructing the SCL (including main railway works and related works), we will adopt the same approach in the two railway projects mentioned above, and include in the cost estimate the cost of engaging independent consultants, so that consultants might be engaged to assist in auditing MTRCL's proposed cost estimate for the SCL project (including on-costs) in detail, so as to ascertain whether the proposed costs are reasonable. The audit report from the independent engineering consultant will only be completed in 2012 in the final stage of the SCL design, as the scope and details of works would be defined in greater detail by then.

13. Since the audit conducted by the independent consultant will only be completed in 2012, we have adopted a 16.5% on-cost rate for calculating the on-cost on a temporary basis. After the independent consultant has completed its audit report, we will further discuss with the MTRCL to work out the final on-cost rate for the project. We will adjust the on-cost rate when we seek funding approval from FC for the SCL remaining railway and non-railway works in 2012.

Breakdown for on cost payment

14. The on-cost payment will mainly cover the staff cost and administrative overheads for the project team, the project headquarters team as well as other support services for the teams. The project team is responsible for project planning and management, as well as supervision during the construction period of the SCL. The project headquarters team supports project supervision and planning, draws up implementation programmes, and performs contract management and procurement duties. Other supporting services include human resources, legal services, public relations, financial and information technology etc.

15. The MTRCL now estimates that the on-cost payment will mainly cover the costs incurred by the project team (more than 80%). When the construction of SCL commences in 2012, it is estimated that there will be about 1200 persons in the team. They are mainly site resident engineers and supervisors to ensure the works comply with requirements relating to safety, quality and environmental protection as stipulated in the contracts, ensure that the works progress as scheduled. As the SCL is sizeable in scale and involves a large number of railway works, non-railway works, reprovisioning works and road diversion works, it is necessary to deploy sufficient manpower to supervise these works so as to ensure that the quality and progress of works comply with the relevant requirements. Most of the project headquarters team and supporting staff are recruited for the sole purpose of the SCL project. It is estimated that there will be about 300 staff working for the project when the construction works commence in 2012. Majority of them will be responsible for contract management and liaison with the public. More than a hundred of contracts for railway stations, electrical and mechanical works, installation works, subways connecting different stations, cross-harbour railway tunnels, railway tracks, cable signalling system, rolling stocks, power supply system, stabling sidings, and 20-plus reprovisioning works items have to be awarded, and contract auditing and management works will be heavy. Besides, as the SCL project will involve construction works in 11 districts, the MTRCL has to set up Community Liaison Groups to maintain closely communicate with residents and to address concerns by the public during the construction period. More staff is therefore needed in this regard.

Enclosure 6 to PWSC(2010-11)34

61TR – Shatin to Central Link – construction of railway works

Breakdown of the Estimated Clearance Cost

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Clearance cost	
- Ex-gratia allowance of crop compensation	60,000[1]
Contingency	6,000
Total Clearance Cost	66,000

[1] The Ho Man Tin Station is an integrated station serving both SCL and KTE. Similar to the arrangement for the construction cost of the Ho Man Tin Station, the clearance cost is apportioned between SCL and KTE projects, according to a ratio of 3:1, to be funded by Government and MTRCL respectively. The above cost is SCL's portion of the land clearance cost. We have employed an independent consultant as mentioned in paragraph 21 of the paper to review the apportionment ratio.

Tree ref. no. [1] (and/or photo no.)	Tree species (Botanical name)	Tree maintenance department	Tree size			Form[3] (Good/ Fair/ Poor)	Health condition (Good/ Fair/ Poor)	Amenity value (High/ Med/ Low)	Survival rate after transplanting (High/ Med/ Low)	Recommendation (Retain/ Transplant/ Fell)	Remarks (including justification for proposed tree removal /ecological and historical significance (if any) of affected trees, etc.)
			Overall height (metres)	Trunk[2] diameter (mm)	Average crown spread (metres)						
T919	*Ficus microcarpa*	AFCD	11.0	1.11	8.0	Fair	Fair	Medium	Low	Fell	Affected by permanent work, impossible to retain in-situ Poor survival rate after transplanting Oversized tree not transportable.

[1] Tree(s) in the Register of Old and Valuable Trees should be highlighted.

[2] Trunk diameter of a tree refers to its diameter at breast height (i.e. measured at **1.3 m** above ground level).

[3] Form of a tree will take account of the overall tree size, shape, and any special feature.