

**File Ref : ETWB(T)CR 12/1016/99**

**Legislative Council Panel on Transport  
Subcommittee on matters relating to Railways**

**KOWLOON SOUTHERN LINK  
PROGRESS REPORT**

**INTRODUCTION**

On 24 September 2002, the Chief Executive-in-Council decided to invite the Kowloon-Canton Railway Corporation (KCRC) to proceed with the detailed planning and design of the Kowloon Southern Link (KSL) project. The planning of the KSL is now at an advanced stage, and likely to be finalised early next year. This paper provides an update to Members on the latest development of the KSL.

**THE KSL SCHEME**

2. The KSL will extend the West Rail from its terminal at Nam Cheong Station, through the West Kowloon reclamation to Hung Hom Station. It will provide an efficient east-west link in the southern part of the Kowloon peninsula and enable some one million population (in 2016) within West Rail's 1-km catchment to have more direct access to the main employment/business areas in urban Kowloon. Upon its completion, passengers can interchange at Hung Hom with East Rail and the Shatin to Central Link.

3. Based on the latest set of land use planning data, which have a territorial population of some 8 million in 2016, the KSL will bring about annual public transport benefits in terms of time saving at about 22 million hours or in monetary terms, about \$1.9 billion (in 2002 prices), to the community. It will yield an economic internal rate of return of about 14% and generate about 2,800 job opportunities in the construction and related fields.

4. The detailed design of the KSL is near completion. KCRC now proposes to construct only one station at West Kowloon and defer the Canton Road (CAR) Station in view of the engineering considerations and the extensive disruption to the public during its construction. A detailed report

on the latest development of the KSL together with the supplementary information as requested by Members at the meeting on 6 June 2003 is given in the **Appendix** which is prepared by KCRC.

**NEXT STEP**

5. KCRC will continue to develop the one-station Proposal and will look into the construction of the CAR Station at an opportune time in future.

6. We will advise Members of the final scheme of the KSL, once it is finalised by early 2004. Public exhibition of the Environment Impact Assessment Report and gazettal of the scheme under the Railways Ordinance is planned in early 2004. Works are presently programmed to start in late 2004 for target completion by end 2008/ early 2009.

**CONCLUSION**

7. Members are requested to note the latest progress of the KSL implementations.

**Environment, Transport and Works Bureau  
18 November 2003**

**KOWLOON-CANTON RAILWAY CORPORATION**

**KOWLOON SOUTHERN LINK**

**Paper for the Panel on Transport  
Subcommittee on Railway Development Projects**

**INTRODUCTION**

The purpose of this paper is to inform the Subcommittee of the latest position in respect of the Kowloon Southern Link (KSL), and to provide supplementary information in respect of various issues raised by the Subcommittee at its meeting held on 6 June 2003.

**BACKGROUND**

2. On 6 June 2003, after discussing LC Paper No. CB(1)1836/02-03(02), Members considered it necessary to convene another meeting, prior to gazettal of the project, to review the design of the project with the Administration and KCRC. Members requested the Administration and KCRC to provide further information on the following to facilitate their consideration -

- (a) works programme for the proposed implementation of the KSL, including the organization, sequence, and timing of the execution of works;
- (b) traffic impact assessment of the proposed implementation of the KSL;
- (c) business impact assessment of the proposed implementation of the KSL, including the arrangement for affected parties to claim compensation for disturbance payment;
- (d) environmental impact assessment of the proposed implementation of the KSL, particularly its impact on the continued operation of the Cultural Centre facilities;
- (e) financing of the project, including the need for Government equity;

- (f) criteria for the choice of construction methods for different sections of the KSL, and the respective cost of the construction methods; and
- (g) KCR-MTR interchange arrangements and the need for revising the design of the KSL if the merger proposal of KCRC and MTRCL were to be taken forward.

This paper provides details of the KSL project, which the KCRC proposes should be gazetted under the Railways Ordinance. This paper also provides information sought by Members.

### **THE PROJECT**

3. The proposed alignment for the KSL has not changed since Members last considered this issue in June. The only major change has been that the KCRC has decided to provide only one station along the alignment instead of two.<sup>1</sup> The West Kowloon Station will be retained. The station originally planned to be located in Canton Road will not now be taken forward, as explained in the following paragraphs. The latest layout plan for the KSL is at **Annex A**.

Annex A

4. Based on preliminary design and site investigation work, the KCRC previously proposed to construct a station in Canton Road using cut and cover methods. Further detailed work on the design of this station has shown that using cut-and-cover methods would give rise to major disruption, not only to traffic and pedestrians using Canton Road but also to the owners and occupiers of adjacent buildings.

5. As the cross section at **Annex B** illustrates, maintaining two traffic lanes with two-metre wide footpaths on either side would be impossible to achieve while the works were in progress. Major parts of the footpath on the eastern side of Canton Road would have to be closed from time to time, with only one metre of clearance from the site hoardings to the shop frontages. Even after completion of the works, Canton Road would have to remain permanently narrowed to two lanes, with the footpaths likewise reduced in places because of the need to provide sites for station entrances and station ventilation shafts, etc.

Annex B

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<sup>1</sup> This does not include the East Tsim Sha Tsui Station, which is currently being constructed as an extension to East Rail but will become a third station along the KSL alignment when the Tsim Sha Tsui Extension is modified and incorporated into the KSL to allow West Rail trains to terminate at Hung Hom Station.

6. Of more concern from the construction aspect is that the KCRC has found that the pile foundations of some of the existing buildings located on the eastern side of Canton Road terminate well above bedrock. This method of construction will create instability in the buildings and pose unacceptable risks.

7. The only practical alternative to using cut and cover methods of construction for the station would be to adopt a bored-tunnel design along Canton Road, with the station concourse sited off Canton Road either to the east or to the west. However, this option would require resumption of several properties to provide the site to enable excavation for and construction of the station concourse. Resumption would involve serious disruption to both owners and occupiers. Since there will be two railway stations -- the existing MTR Tsim Sha Tsui Station and the future KCR Tsim Sha Tsui East Station-- within 600 metres walking distance of Canton Road, there is no justifiable transport need to support resumption.

8. The KCRC has therefore re-examined the case for providing a station at Canton Road. Using the same patronage forecasting model adopted by the Government for its railway development study, the KCRC forecasts that by 2016, the incremental weekday patronage<sup>2</sup> generated for the KCRC network by a two station KSL would be about 207,000. This would drop by about 8% to 190,000 if only one station were to be provided at West Kowloon. However, the impact on KCRC's incremental fare revenue would be far less and result in a drop of only 3%. This arises from the fact that those passengers who would otherwise have used Canton Road Station are expected to switch to using either West Kowloon Station or the new East Tsim Sha Tsui Station, as both of these stations are within reasonable walking distance of Canton Road.

9. The KCRC has thus dropped any immediate plans to provide a station at Canton Road. This does not mean to say, however, that the KCRC does not recognise that, while not an essential station at this time on public transport grounds, it nonetheless could be a desirable station to provide if the practical difficulties of construction could be overcome and the capital costs reduced to a level which would not impact adversely on the project rate of return. The KCRC will continue to explore any possible options for providing a station, if not immediately, at least when circumstances make this possible, say, through cooperation with private sector developers undertaking future redevelopment of suitable sites along Canton Road.

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<sup>2</sup> Incremental patronage is the number of new passengers who would use the KCRC network as a whole. It does not include those passengers who already use the network and would choose to extend their journey using the KSL if it were available.

10. For the present, the KCRC is endeavouring to ensure that passengers travelling to or from the Canton Road area have convenient access to other stations. The KCRC is examining the provision of an underground pedestrian subways, possibly incorporating travellers if space permits, to link these stations to the Canton Road area. Negotiations are also in progress with the Government to provide access from the West Kowloon Station to the West Kowloon Cultural District and to the MTRC's Kowloon Station.

11. The two railway tunnels along Canton Road will now be constructed using bored-tunnel methods. This will minimise disturbance to traffic and pedestrians, and avoid permanently narrowing Canton Road to two traffic lanes. However, there will be a need for three shafts to be excavated using cut and cover methods in Canton Road near 1 Peking Road to enable the tunnel boring machine shields to be recovered, outside Silvercord to provide a ventilation shaft, and outside the Gateway Towers to provide a tunnel ventilation shaft.

12. Moreover, given the close proximity of the two railway tunnels to one another, the ground between them must be grouted to ensure their stability. This can only be done from ground level, and will require short sections of Canton Road to be progressively narrowed to two traffic lanes for a limited time (and then the road reopened) as the grouting progresses in sequence with the tunnel-boring works.

13. The KCRC are exploring possible options to see how to reduce to the absolute minimum any disturbance created by these works. This will also be the subject of further detailed design by the contractor as part of the design-build contracts which the KCRC will use to construct the civil works for KSL.

14. Having finalised the design for the KSL, the KCRC hopes to see the project gazetted under the Railways Ordinance in early 2004. At the same time the Corporation intends to commence the Environmental Impact Assessment Ordinance process for the project.

### **SUPPLEMENTARY INFORMATION SOUGHT BY MEMBERS**

15. In respect of the supplementary information sought by Members, the KCRC's response is set out below.

Works programme and sequencing of works

16. A copy of the latest programme for the KSL project is provided at **Annex C**. As Members will note, the completion date for the project is forecast to be end 2008, with scheduled passenger operations commencing in early 2009.

17. The construction works will be undertaken for the most part through the use of design-build contracts, and will be directly supervised by KCRC staff. As regards the sequencing of works, the KCRC intends that the works will be carried out concurrently at four major sections along the whole alignment, as follows –

- (a) East Tsim Sha Tsui Station to Canton Road
- (b) Canton Road to Jordan Road, including West Kowloon Station
- (c) Jordan Road to Yau Ma Tei Ventilation Building
- (d) Yau Ma Tei Ventilation Building to Nam Cheong Station overrun tunnel

Traffic impact assessment

18. The decision to use the bored tunnel method of construction for Canton Road will reduce significantly the overall impact of the construction works on road traffic and pedestrians. Nevertheless, there will still be sections of the KSL alignment where temporary traffic management schemes will need to be implemented. These schemes will be subject to the approval of various Government Departments including Transport, Police and Highways to ensure that capacity of the sections of roads affected by the construction works will be adequate to meet traffic demand. Major locations where such schemes are expected to be necessary are as follows –

- (a) Section of Salisbury Road from Nathan Road to the Former Marine Police Headquarter

Two out of the nine traffic lanes will be closed for a period of nine months for the construction of temporary traffic decks, after which

all works will be carried out underground, with the exception of some limited surface access points to enable excavated material to be removed for up to three years.

(b) Section of Canton Road between Star House and Haiphong Road

As mentioned earlier in paragraph 12, a length of about 300 metres of the bored tunnel alignment will need ground treatment works and traffic along Canton Road will have to be reduced from three lanes to two lanes over short lengths. The works will be carried out in six stages, each of 50 metres length, with each stage taking about 3½ months to complete. After each stage is completed, that section of the road will be reopened to traffic.

Business impact assessment

19. The bored-tunnel method of construction along Canton Road will significantly reduce the impact of the construction works on business operations in the area. Cut-and-cover methods are restricted to three short sections affecting about 20 shops and other commercial premises. The KCRC will be talking to the owners and occupiers about the impact of the works with a view to reducing the potential for business compensation.

Environmental impact assessment

20. KCRC has carried out an environmental impact assessment (EIA) to address all environmental issues arising from the project. As Members are aware, the impact of the project on the Cultural Centre and the Space Museum both during construction and later during operation of the railway is of particular concern.

21. The impact of ground-borne noise and vibration on the Cultural Centre and the Space Museum is being carefully studied. Certain principles have been agreed with the Administration as regards acceptance criteria and mitigation measures. KCRC is developing the details of these measures for inclusion in the EIA Report. As vibration is not covered under the EIA Ordinance, KCRC is developing separate mitigation measures which will be agreed with the Leisure and Cultural Services Department (LCSD).

22. During the construction stage KCRC plans to agree a weekly construction activities schedule with LCSD so as to avoid disturbance to the public using the facilities during major events. During the subsequent



passenger operations of KSL, a double floating track form will be used by KCRC to minimise the impact of noise and vibration from trains.

### Financing

23. Other than in the case of works entrusted to the Corporation by others, such as the Government or utility companies, where the cost is borne by the entrustor, the KCRC will wholly fund the capital and operating costs of the project from its own resources. There will be no requirement for equity injections or other forms of financial assistance from the Government. Excluding any entrusted works, the costs of which are expected to be relatively small, the latest capital cost for the KSL is estimated to be about \$8.3 billion MOD excluding finance charges.

### Construction methods

24. As design-build contracts will be used to construct the KSL, the successful tenderers for the works will be given some latitude to propose their own methods of construction within the constraints of certain basic requirements laid down by the KCRC. Subject to this caveat, the KCRC considers that the following construction methods will need to be adopted.

25. The twin tunnels under Salisbury Road will have to be constructed using cut-and-cover methods because of the close proximity of the tracks and the various physical constraints along the alignment. The tunnels under the former Marine Police HQ will have to be mined. Along Canton Road, the two tunnels will be constructed using bored tunnel methods starting from an access shaft at the south of the future West Kowloon Station. As mentioned earlier in paragraph 11, there will be a need to excavate three shafts in Canton Road using cut-and-cover methods. West Kowloon Station will be constructed using cut-and-cover methods. North of West Kowloon Station up to the Yau Ma Tei Ventilation Building, the tunnels can be constructed by either bored-tunnel or cut-and-cover methods, with cut and cover being the more likely choice. From the Yau Ma Tei Ventilation Building to Nam Cheong Station, cut and cover methods will have to be used to construct the tunnels because of the constraints imposed by existing buildings, structures and utilities. However, the short section under Cherry Street will be mined.

### KCR-MTR interchange arrangements

26. A merger or not between the KCRC and the MTRCL should not impact on the need for the KSL, which is identified as being a key project under

the Government's Railway Development Strategy 2000. The KSL has no direct interchange with the MTR network, other than at Nam Cheong Station and East Tsim Sha Tsui Station, the arrangements for which have already been put in place as part of the West Rail and ERE project.

27. The only connection to be provided at KSL opening is at West Kowloon Station via a proposed footbridge at the northern end across Jordan Road to the existing footbridge which is already connected to the MTRCL development. However, the design of the station allows for the possibility of future connections on the west side at concourse level, ground level and / or above ground at footbridge / walkway level at both ends of the station. This would allow KCR passengers to have direct access to the Airport Railway.

28. The KCRC is also of the opinion that an elevated walkway (with high speed travellers) along the line of Austin Road Extension could provide a desirable link between the KCR and MTR lines, and the future West Kowloon Cultural District. This will be raised for further planning at an opportune time in future.

### **CONCLUSION**

29. The KCRC believes that it has developed a cost-effective project which adequately balances the need to provide the essential rail link between West Rail and the future Mass Transportation Centre at Hung Hom with the requirement to reduce to the minimum any disturbance to the community while the works are under construction or later in passenger operation.

KCRC

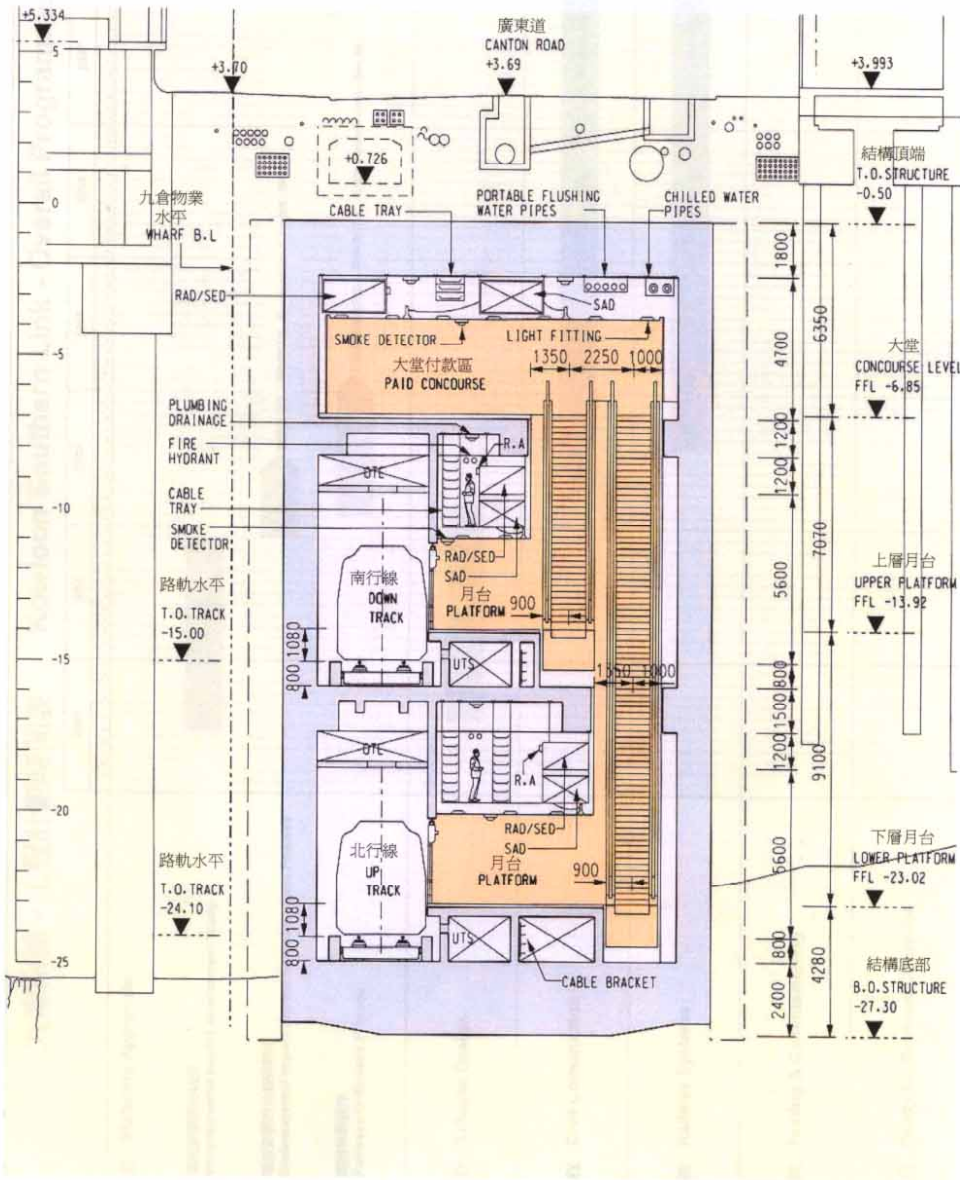
12 November 2003



Annex B

附件二  
Annex B

切面圖 Typical Section



九龍南線 - 工程計劃時間表 **Kowloon Southern Link - Overall Programme**

	2002					2003					2004					2005					2006					2007					2008					2009															
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
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