

LegCo Panel on Transport

Follow-up to the meeting on 25 June 1999

(A) Financing arrangements for Ma On Shan (MOS) Rail and Kowloon-Canton Railway Extension to Tsim Sha Tsui (TST Extension)

The Administration to provide further information on the following before the Finance Committee considers the funding proposal on 2 July 1999:

- (i) the full report of the Kowloon Canton Railway Corporation (KCRC)'s proposal to implement the MOS Rail and TST Extension, including the detailed financial analysis of the project;
- (ii) the actual timetable of the extension of the MOS Rail to the urban areas;
- (iii) whether the KCR East Rail would have sufficient capacity to absorb the demand generated from the proposed Sheung Shui to Lok Ma Chau Spur Line and the MOS Rail; and
- (iv) whether the funding proposal of the MOS Rail and the TST Extension could be split into two papers for separate consideration by the Finance Committee and the respective internal rate of return of the two projects.

Legislative Council Secretariat

26 June 1999

政府總部運輸局的信頭
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30 June 1999

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Dear Ms Leung,

LegCo Panel on Transport
Follow-up to Meeting on 25 June 1999

I refer to your letter of 26 June, and attach the following information requested by Panel members -

- (a) key assumptions in KCRC's financial projection for the MOS Rail and TST Extension (Appendix I); and
- (b) passenger loading for the East Rail between Tai Wai to Kowloon Tong stations during the peak hours (Appendix II).

Our response to the remaining questions is as follows -

- (a) Second rail connection from Tai Wai to urban Kowloon

The alignment of the second rail connection, which can either go east to Diamond Hill then to Hung Hom or go west to reach West Kowloon, is being examined by the second Railway Development Study. Upon receipt of the findings and recommendations of the Study, Government will need to examine these recommended alignment and options in detail, and if necessary evaluate individual projects in more detail, before taking a decision on the priority and timetable of our next batch of railway projects. Based on the experience of the

1994 Railway Development Strategy, it is envisaged that a decision on this second rail connection will be taken in 2001.

(b) Separating TST Extension from MOS Rail

In order to relieve the congestion at Kowloon Tong station including the interchange loading from the MOS Rail, the KCR Extension to Tsim Sha Tsui is essential to the MOS Rail by providing another point of interchange with the MTR network. It hence forms part and parcel of the MOS Rail project, and does not have sufficient justification for being an independent railway project and investment without the MOS Rail.

At the two LegCo case conferences on this matter this month, the following information was requested by Members and is now also provided at Appendices III and IV -

- (a) comparison of the estimated costs of using an underground railway and viaduct design for the MOS Rail; and
- (b) distance between railway viaduct and residential development along MOS Rail and West Rail.

Yours sincerely,

(Davey Chung)
for Secretary for Transport

DC/ak

Key Assumptions to Financial Projection

The key assumptions appended below form the basis of the cashflow and financial projections relating to Ma On Shan Rail and East Rail Tsim Sha Tsui Extension.

Economic and Financial

1. Inflation

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002 and beyond</u>
General Inflation (% p.a.)	2%	3%	4%	5%

2. Interest Rate

Interest rate for borrowings 10.0% p.a.

3. Exchange Gain or Loss

No exchange gain or loss is assumed in the projections for the following reasons -

- (a) All major contracts are awarded in Hong Kong or US Dollars.
- (b) Forward contracts and swaps are used to hedge exchange exposure arising from contract payments and borrowings as far as practicable.

4. Fare Policy

For the purpose of calculating revenue for financial projections, KCRC has assumed a base fare of \$8.2 (1997 prices) from Lee On to Tai Wai. This fare level is comparable to the fare over a similar distance on the MTRC. In determining the actual fare for Ma On Shan Rail and East Rail Tsim Sha Tsui Extension, the following essential factors will be taken into consideration -

- (a) operating costs
- (b) annual rates of inflation
- (c) affordability of passengers
- (d) distances travelled and fares relative to other modes of transport

5. Passenger Traffic Projection

								(‘000)
<u>MOS Rail</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
Base Case	279	280	282	282	286	286	287	290*
Base ⁺²	290	304	317	320	323	327	331	338*

* Assumed to increase at 0.4% per annum thereafter.

Property Development

6. East Rail

Income generated from the development of properties at Ho Tung Lau and Fo Tan, which are owned by KCRC, will be applied towards the debt repayment of Ma On Shan Rail and East Rail Tsim Sha Tsui Extension.

7. Ma On Shan Rail and East Rail Tsim Sha Tsui Extension

The property development income from Tai Wai Station and depot, and Lee On and Sha Tin Tau Stations on the Ma On Shan alignment will be used to finance the debt repayment of the project.

Financial Projections

8. Taking into account the above, it is estimated that the project internal rate of return (IRR) of the Ma On Shan Rail and East Rail Tsim Sha Tsui Extension lies between 7.3% and 8.4%.

KOWLOON-CANTON RAILWAY CORPORATION

MOS RAIL PATRONAGE FORECASTS

1. Background

- 1.1 The patronage forecasts are generated using a territory-wide computerised transport model. This model recognises all forms of transport, such as rail, light bus, franchised bus, taxi, private cars, etc. The transport model was calibrated against the 1992 Travel Characteristics Survey, and was further validated against passenger and traffic flows in the public transport and road networks, observed during 1995. The model has been enhanced by subdividing the original study zones in the NENT and Ma On Shan areas, into smaller zones, thereby improving the representation of the ER/MOS rail passenger catchment areas.
- 1.2 Input data to the model includes future planning assumptions, for example, socio-economic data, the different types of transport and corresponding networks, as well as the convenience of usage to the travellers. For MOS patronage forecasts, service characteristic such as fares, frequency, access to the MOS rail stations, connectivity with other systems, and competing forms of transport, were entered into the transport model.

2. Population Assumptions

- 2.1 A key variable in forecasting rail patronage, is the population and the related employment assumptions for those living within the rail catchment areas. For MOS rail two cases are taken into account, the Base Case which assumes a total population in the Shatin and Ma On Shan Sectors of 697,000 in 2011, and the Base +2 case which assumes a higher total population of 802,000.
- 2.2 These total population assumptions drive the population in each of the MOS rail station catchment areas. Within each of the areas, residents can easily walk to a MOS rail station. The catchment population assumptions are summarised in Table 1 below, and are shown

diagrammatically in Annex 1. The 1996 Population By-census numbers are given in the table for reference purpose.

Table 1 MOS Rail Catchment Area Population Assumptions

MOS Rail Catchment Area	1996	2011	
	By-Census	Base Case	Base + 2
South East Shatin (4 Stations; STT, SKS, CIO and SHM)	189,750	200,980	235,080
Ma On Shan (4 Stations; CHG, HEO, MOS and LEO)	139,660	216,300	264,777
Total	329,410	417,280	499,857

3. Patronage Findings

3.1 For the Base Case and “Base + 2” catchment area population assumptions in Table 1 above, the model has generated MOS rail patronage forecasts shown in Table 2 below

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Table 2 2011 MOS Rail Patronage Forecasts

Population Scenario	Weekday Patronage
Base Case	290,000
Base + 2	338,000

3.2 The above patronage forecasts are combined with fare assumptions, to generate revenue calculations for separate financial modelling purposes. These patronage forecasts for MOS rail, can be compared with the ER 1996 weekday domestic patronage recorded at about 560,000, for a total population of 1.09 million in the North-East NT. From this total population, about 568,000 are within reasonable proximity to ER stations, and can be taken as the rail station catchment population. This comparison shows that actual ER patronage of 560,000 derived from a catchment-population of 568,000, is a much higher percentage than MOS rail’s equivalent of 290,000 derived from a population of 417,280 in the 2011 Base Case. This is a more prudent patronage forecast despite the fact that MOS rail stations by design and location are more convenient to residents in the station catchment areas.

3.3 The MOS Rail provides a very competitive service in terms of shorter rail journey times from Ma On Shan area to important areas in Kowloon and Hong Kong Island, shown in Table 3 below -

Table 3 Journey Time Comparison (in minutes)

From station to	MOS	Direct Rail via MOSR/ER/MTR	Direct Bus	
			Time	Diff.
Mong Kok		24	60	+36
Tsim Sha Tsui		31	70	+39
Kwun Tong		39	50	+11
Causeway Bay		47	60	+13
Central		44	70	+26

3.4 These significant savings in journey time have been calculated using scheduled bus journey times, and do not take into account congestion affecting average journey times. These time savings will be even higher for those areas which are not served by direct bus routes. The reliability of travel by rail is of significant advantage compared with other forms of transport which are vulnerable to varying traffic conditions and peak congestion for commuters.

九廣鐵路公司
Kowloon-Canton Railway Corporation

東<??>部 East Rail Division
大<??>—九龍塘繁忙路段高<??>時間上座率
Tai Wai - Kowloon Tong Critical Section Peak Hour Load Factor

時段-平日上午 8-9 時
Interval - Weekday 8.00 a.m. - 9.00 a.m.

趨勢
Trend -

月份 Month	1998		1999	
	繁忙路段客源 Critical Section Flow	上座率 Load Factor	繁忙路段客源 Critical Section Flow	上座率 Load Factor
Jan (一月)	49,398	70.2%	45,255	59.2%
Feb (二月)	48,100	68.2%	44,281	57.7%
Mar (三月)	49,310	73.7%	44,847	58.3%
Apr (四月)	48,107	71.9%	43,852	56.7%
May (五月)	47,614	71.2%		
Jun (六月)	46,929	68.5%		
Jul (七月)	45,854	66.8%		
Aug (八月)	45,123	65.8%		
Sep (九月)	46,117	67.2%		
Oct (十月)	47,503	68.9%		
Nov (十一月)	46,468	67.4%		
Dec (十二月)	44,423	61.1%		
Average (平均數字)	47,071	68.4%		

Ma On Shan Rail
Capital Cost Estimate for Tunnel and Viaduct

		Cost (\$ million)	
		Viaduct	Tunnel
1	Tai Wai to Shek Mun	11,691	2,838
2	Shek Mun to Chevalier Garden	1,729	436
3	Chevalier Garden to Lee On	10,226	1,993
	Sub-total	23,646	5,267
4	"Railway Systems" - E & M, Rolling Stocks and Trackworks: Site Investigation, Detailed Design, Project Management, Pre-operating Cost and Miscellaneous	12,829	6,077
Grand Total		36,475	11,344

Proximity of viaduct to the nearest residential development

	<u>Ma On Shan Rail</u>		<u>West Rail</u>
Name of Residential development	Ashley Garden at Sha Kok Street	Bayshore Tower at MOS Station	Fu Loy Garden at Yuen Long town centre
Nearest distance to the parapet of viaduct	14 meters	38 meters	19.1 meters
Anticipated noise level	58.0 dB(A)	52.0 dB(A)	54.8 dB(A)