

For discussion
on 7 October 1998

PWSC(98-99)28

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 - HIGHWAYS

Transport - Roads

721TH - Widening of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange

Members are invited to recommend to Finance
Committee -

- (a) to upgrade part of **721TH** entitled "Widening of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange - preliminary design and ground investigations" to Category A at an estimated cost of \$29.9 million in money-of-the-day (MOD) prices; and
- (b) to retain the remainder of **721TH** in Category B.

PROBLEM

The existing Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange will not be able to cope with the future traffic demand.

/PROPOSAL

PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport, proposes to upgrade part of **721TH** to Category A at an estimated cost of \$29.9 million in MOD prices to employ consultants to undertake the preliminary design of the proposed project and to supervise the associated ground investigation works.

PROJECT SCOPE AND NATURE

3. The scope of works for **721TH** includes -
- (a) widening of approximately 7 kilometres of the existing Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange ('the Highway') from dual 2-lane to dual-3 lane;
 - (b) provision of a 3.3 metre wide hard shoulder along the slow lane of the Highway where site and land conditions permit, or a 1-metre wide marginal strip otherwise;
 - (c) modification of various existing slip roads joining, or roundabouts/interchanges along, the Highway to suit the above widening;
 - (d) an assessment of the existing condition and residual life of the pavement of the Highway together with proposals for extending the life of the existing pavement to match the design life of the new pavement; and
 - (e) associated works on roads, geotechnical conditions, environmental mitigation, drainage, landscaping, street lighting, traffic aids (including sign gantries), traffic control and surveillance facilities, and electrical and mechanical (E&M) installations.

4. The part of the project we now propose to upgrade to Category A comprises :

- (a) the preliminary design of the proposed works described in paragraph 3 above as well as related environmental, drainage, traffic impact assessments; and
- (b) the associated ground investigations.

JUSTIFICATION

5. The Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange is a 6.7-kilometre long dual 2-lane highway completed in 1994. It is a trunk route between Tuen Mun and Yuen Long. It also forms part of the major road network serving Tin Shui Wai.

6. The Highway is presently operating at about 70% of its capacity. According to the Tin Shui Wai Development Study completed by the Director of Territory Development in mid 1997, most sections of the Highway will be operating beyond capacity by 2001. We therefore propose to widen the Highway to dual 3-lane to meet the traffic demand up to at least 2011.

7. Furthermore, according to the preliminary results of the Crosslinks Further Studies on the road link between Hong Kong and Shenzhen, the Shenzhen Western Corridor will connect into the future Deep Bay Link which is planned for completion by late 2004. The Deep Bay Link will be connected to the Yuen Long Highway directly before the proposed Route 10 - North Lantau to Yuen Long Highway is completed in 2007. The cross border traffic between Hong Kong and Shenzhen through the Deep Bay Link will mostly route through the Yuen Long Highway between 2004 and 2007. Therefore, this forecast increase in traffic underscores the urgency of the proposed Yuen Long Highway widening works. The following table shows the projected volume/capacity¹ (V/C) ratios in 2001 and 2011 during morning peak hours with and without the proposed widening -

/Year

¹ The capacity here refers to the design capacity of the road. A V/C ratio equal to or less than 1.0 means that the road has sufficient capacity to cope with the volume of vehicular traffic under consideration. A V/C ratio above 1.0 indicates the onset of mild congestion; above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further increase in traffic.

Year	V/C ratio	
	without widening	with widening
2001	1.46	0.97
2011	1.49	0.99

8. We now need to proceed with the preliminary design and associated ground investigation works for the project so as to finalise the road widening layout, the land requirements, as well as the extent of environmental, drainage, traffic and other impacts on the areas concerned. Such information is essential for us to firm up the scope of the proposed road project for the subsequent detailed design stage.

9. In order to shorten the duration of the detailed design stage, we also propose to carry out ground investigation works for the detailed design concurrently with the preliminary design stage. We can do this in parallel because the new road corridor follows basically the existing alignment.

10. The Director of Highways proposes to employ consultants to undertake the preliminary design for **721TH** and to supervise the associated ground investigation works, as the Highways Department does not have the necessary in-house resources.

FINANCIAL IMPLICATIONS

11. We estimate the cost of this part of the project to be \$29.9 million in MOD prices, made up as follows -

	\$ million
(a) Consultants' fees	13.5
(i) preliminary design	11.9

/(ii)

(ii)	supervision of ground investigations	1.4	
(iii)	Electrical and Mechanical Services Trading Fund (EMSTF)	0.2	
(b)	Ground Investigations	9.8	
(c)	Contingencies	2.3	
		<hr/>	
	Sub-total	25.6	(at December 1997 prices)
(d)	Inflation allowance	4.3	
		<hr/>	
	Total	29.9	(in MOD prices)
		<hr/>	

12. We will award the consultancy through tendering on a lump sum basis with provisions for inflation adjustments, as the duration of the consultancy will exceed 12 months. A breakdown by man-months of the estimate for consultants' fees is at Enclosure. The consultants will supervise the ground investigation works under a contract to be awarded through normal competitive tendering procedures.

13. Subject to approval, we will phase the expenditure as follows :

Year	\$ million (Dec 1997)	Price adjustment factor	\$ million (MOD)
1999 - 2000	20.9	1.14878	24.0

/2000

2000 - 2001	4.7	1.24642	5.9
	—————		—————
	25.6		29.9
	—————		—————

14. The proposed preliminary design and associated ground investigation works will not give rise to any annually recurrent expenditure.

PUBLIC CONSULTATION

15. We consider public consultation unnecessary at the preliminary design and ground investigation stage. We will consult the Tuen Mun Provisional District Board, Yuen Long Provisional District Board and the Advisory Council on the Environment when we have finalised the preliminary design of **721TH**.

ENVIRONMENTAL IMPLICATIONS

16. The proposed preliminary design and ground investigation works will not have any direct adverse environmental implications. However, the proposed road project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance. The law requires an environmental permit for the project before the commencement of work. We will prepare an EIA report and meet the requirements under the EIA Ordinance.

17. As part of the consultancy study, the consultants will conduct a detailed Environmental Impact Assessment (EIA) to identify, predict, and assess the potential environmental impacts arising from the road project. The EIA will identify the necessary environmental mitigation measures during the construction and operational phases of the project, and to resolve the problems. We shall incorporate all mitigation measures identified into the detailed design of the project.

/LAND

LAND ACQUISITION

18. The proposed preliminary design and ground investigation works do not involve any land acquisition.

BACKGROUND INFORMATION

19. We included **721TH** in Category B in August 1998.

20. We plan to start the preliminary design and ground investigation work in March 1999. The study will take some 16 months to finish. We aim to complete the study in June 2000. Thereafter, we will proceed with the detailed design work in November 2000 for completion in early 2002. We aim at starting the road widening works in the latter half of 2002 for completion in late 2004. We will take any necessary traffic management measures to alleviate traffic congestion during the construction period.

Transport Bureau
September 1998

(PWSC0014/WIN1)

**721TH - Widening of Yuen Long Highway between Lam Tei
and Shap Pat Heung Interchange**

Breakdown of estimates for consultants' fees (at December 1997 prices)

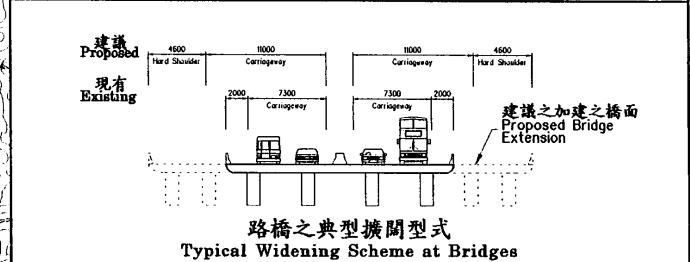
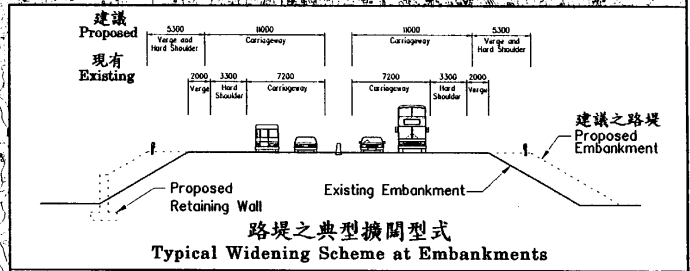
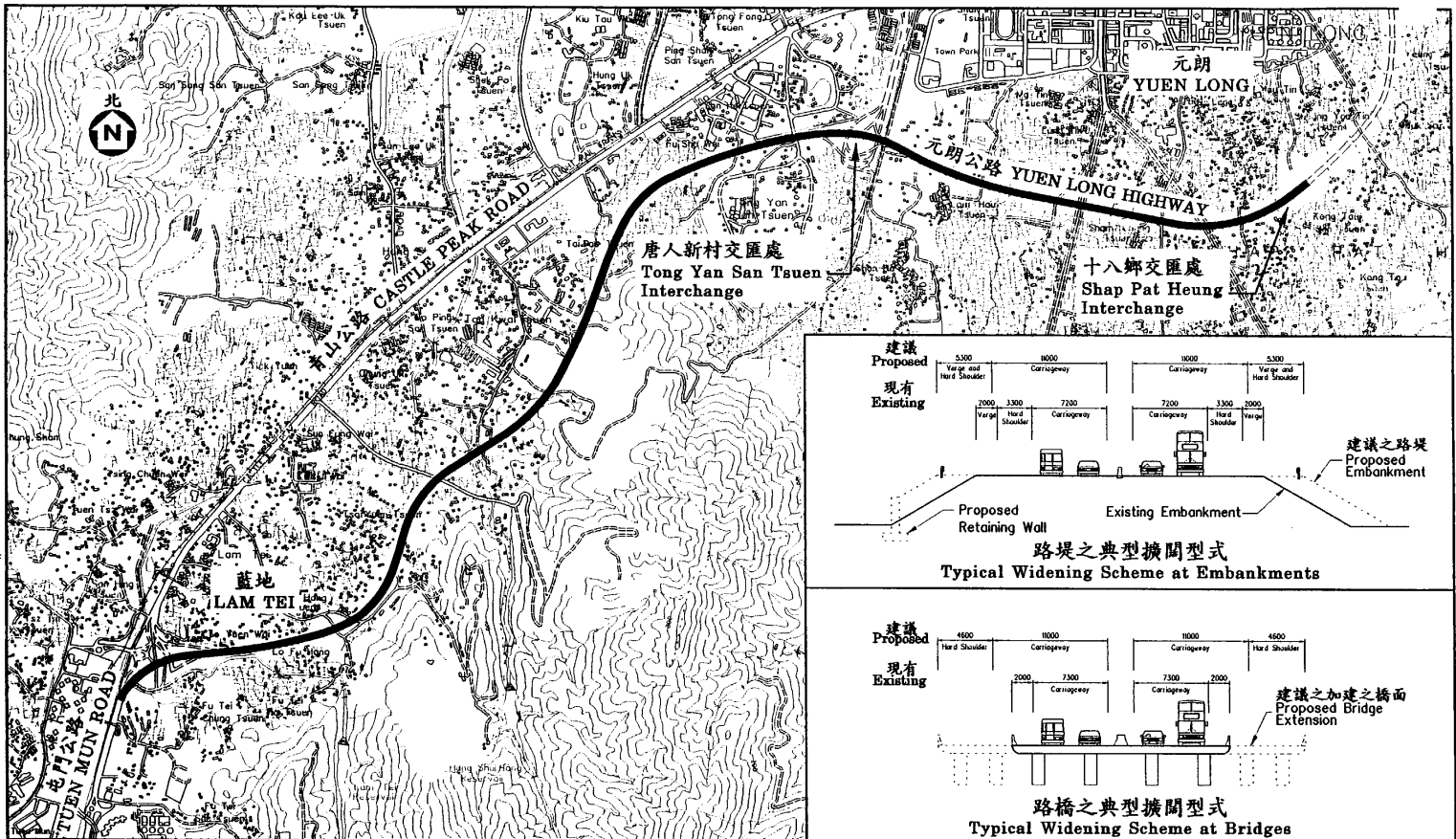
Consultants' staff costs			Estimated man- months	Average MPS salary point	Multiplier factor	Estimated fee (\$ million)
(a)	Review of the	Professional	2	40	3.0	0.4
	findings of previous feasibility studies, and examination of alignments and design options	Technical	5	16	3.0	0.3
(b)	Impact assessments	Professional	15	40	3.0	2.7
		Technical	30	16	3.0	1.8
(c)	Determination of land requirements	Professional	2	40	3.0	0.4
		Technical	5	16	3.0	0.3
(d)	Preliminary Design	Professional	20	40	3.0	3.6
		Technical	40	16	3.0	2.4
(e)	Supervision of Ground Investigations	Professional	7	40	2.1	0.8
		Technical	14	16	2.1	0.6
(f)	Charges by EMSTF					0.2
Total consultants' staff costs						13.5
Out-of-pocket expenses						
(a)	Ground Investigations					9.8
Total out-of-pocket expenses						9.8

* MPS = Master Pay Scale

Notes

- (1) A multiplier factor of 3 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultant offices. (At 1 April 97, MPS pt. 40 = \$59,210 p.m., and MPS pt. 16 = \$19,860 p.m.). A multiplier factor of 2.1 is applied in the case of site staff supplied by the consultants.
- (2) Out-of-pocket expenses are the actual costs incurred. The consultant is not entitled to any additional payment for the overheads or profit in respect of these items.
- (3) The figures given above are based on estimates prepared by the Director of Highways. We will only know the actual man months and actual fees when we have selected the consultant through the usual competitive lump sum fee bid system.
- (4) Since the establishment of the EMSTF on 1 August 1996 under the Trading Funds Ordinance, government departments pay for design and technical consultancy services for electrical and mechanical (E&M) installations provided by EMSD. The services rendered for this project include checking consultants' submissions on all E&M installations and providing technical advice to the Government on all E&M works and their impacts on the project.

(PWSC0014/WIN1)



11110 圖則名稱

元朗公路藍地至十八鄉段擴闊工程
- 勘察研究、初步設計及詳細設計的土地勘測
Widening of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange
- Investigation, Preliminary Design and Ground Investigation for the Detailed Design

drawn by
P.S. LAM

date
23-9-1998

approved by
P.H. CHAN

date
23-9-1998

office 辦事處
主要工程管理處
Major Works
Project Management Office

drawing no. 圖號
YLH 005

scale 比例
1:25000

HIGHWAYS DEPARTMENT
HONG KONG

路政署
HONG KONG