

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 – detailed design", to Category A at an estimated cost of \$18.3 million in money-of-the-day prices; and
- (b) to retain the remainder of **721TH** in Category B.

PROBLEM

With the committed and future developments in the North West New Territories, it is forecast that the capacity of the existing Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange would be insufficient to cope with future traffic demand.

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

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\$18.3 million in money-of-the-day (MOD) prices to employ consultants to undertake the detailed design of widening the section of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange.

PROJECT SCOPE AND NATURE

3. The scope of works of **721TH** includes -
 - (a) widening approximately seven 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) providing a 1-metre wide margin together with a 3.65-metre wide hard shoulder along the slow lane of the Highway;
 - (c) modifying existing slip roads and roundabouts/interchanges affected by the proposed road widening works;
 - (d) modifying and reprovisioning existing highway structures affected by the proposed road widening works, including vehicular bridges, vehicular underpasses, pedestrian subways and culverts; and
 - (e) providing associated road rehabilitation, geotechnical, environmental mitigation, landscaping, drainage and street lighting works, traffic aids (including sign gantries), traffic control and surveillance facilities, fire hydrants, and electrical and mechanical installations.

4. The part of the project we now propose to upgrade to Category A comprises -
 - (a) detailed design of the proposed works described in paragraph 3 (a), (b), (c) and (e) above; and
 - (b) preparation of the tender documents for the construction contract.

A site plan is at Enclosure 1 for Members' reference.

5. We will undertake the detailed design for the modification of existing highway structures affected by the proposed road widening, as described in paragraph 3(d) above, using in-house resources.

JUSTIFICATION

6. The Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange is a 6.7-kilometre long dual 2-lane carriageway. It is a strategic route in the North West New Territories (NWNT) connecting Tuen Mun and Yuen Long. It also forms part of the major road network serving Tin Shui Wai.

7. With the committed and future developments in NWNT, we expect the population in that region to increase substantially from 960 000 to 1 510 000 (representing a 57% increase) between the years 2001 and 2016. This population growth will generate significant additional traffic demand on Yuen Long Highway. Besides, upon the completion of the proposed Deep Bay Link and Route 10 - North Lantau to Yuen Long Highway tentatively scheduled in 2005 and 2007 respectively, further traffic pressure on Yuen Long Highway could be expected as the three strategic routes would be connected at Lam Tei Interchange.

8. At present, the Highway is already operating near its capacity with a traffic volume to capacity (V/C) ratio¹ of 1.0 during peak hours. The projected V/C ratios during peak hours for the Highway in 2004, 2011 and 2016, with and without the proposed widening, are as follows –

Year	V/C ratio	
	Without widening	With widening
2004	1.12	0.86
2011	1.44	0.96
2016	1.61	1.07

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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 and a ratio above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further increases in traffic.

As most sections of Yuen Long Highway are expected to be operating beyond capacity by 2004, it is therefore necessary to widen it to dual 3-lane standard. The proposed dual 3-lane Highway would be able to cope with the anticipated traffic demand up to at least 2011. We will keep on monitoring the traffic conditions in NWNT and will continue to review the need for further improving the road.

FINANCIAL IMPLICATIONS

9. We estimate the cost of this part of the project to be \$18.3 million MOD prices (see paragraph 10 below), made up as follows -

	\$ million	
(a) Consultants' fees for	15.9	
(i) review of investigation, detailed design and preparation of contract documents	15.4	
(ii) Electrical and Mechanical Services Trading Fund (EMSTF) ²	0.5	
(b) Contingencies	1.6	
Sub-total	17.5	(at December 1999 prices)
(c) Provision for price adjustment	0.8	
Total	18.3	(in MOD prices)

A breakdown by man-months of the estimate for consultants' fees is at Enclosure 2.

10. Subject to approval, we will phase the expenditure as follows -

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² According to the untying programme, Highways Department shall continue to use the services of EMSTF to meet part or all of its electrical and mechanical service needs until 1 August 2002.

Year	\$ million (Dec 1999)	Price adjustment factor	\$ million (MOD)
2000 - 2001	4.6	1.00000	4.6
2001 - 2002	8.8	1.04500	9.2
2002 - 2003	4.1	1.10770	4.5
	17.5		18.3

11. We have derived the MOD estimate on the basis of Government's latest forecast of trend labour and construction prices over the period 2000 to 2003. We will employ consultants on a lump sum basis with provision for inflation adjustments, as the duration of the detailed design will exceed 12 months.

12. The proposed detailed design has no additional annually recurrent financial implications.

PUBLIC CONSULTATION

13. We consulted the Tuen Mun Rural Committee on 15 July 1999, the Ping Shan Rural Committee on 2 November 1999 and the Shap Pat Heung Rural Committee on 5 November 1999. They supported the project. We also consulted the Yuen Long District Council on 2 February 2000 and Tuen Mun District Council on 7 March 2000 on the findings of the Preliminary Design and Ground Investigation Study for the proposed works. The District Councils supported the project.

ENVIRONMENTAL IMPLICATIONS

14. The proposed detailed design will not give rise to any adverse environmental implications. The project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project.

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We are undertaking an EIA for the project to identify, predict and assess the potential environmental impacts arising from the construction and operation of the project and to recommend the necessary mitigation measures to minimize and control the impacts within established standards. We will incorporate the recommended mitigation measures in the detailed design. We will submit the EIA report for the Director of Environmental Protection's approval under the EIA Ordinance and will follow the statutory procedures of making the EIA report available for comments by the public and the Advisory Council on the Environment. We shall obtain an environmental permit for the project prior to the commencement of the construction.

15. The proposed detailed design will not generate any construction and demolition materials (C&DM). We shall require the detailed design consultants to fully consider measures to minimize the generation of C&DM for incorporation into the future construction contract.

LAND ACQUISITION

16. The proposed detailed design does not require any land acquisition.

BACKGROUND INFORMATION

17. We included **721TH** in Category B in September 1998. We upgraded the preliminary design and ground investigation package of **721TH** to Category A in November 1998 as **733TH** at an estimated cost of \$29.9 million in MOD prices. We have already completed the preliminary design and ground investigations of the widening works together with the associated traffic and drainage impact assessments on the affected areas.

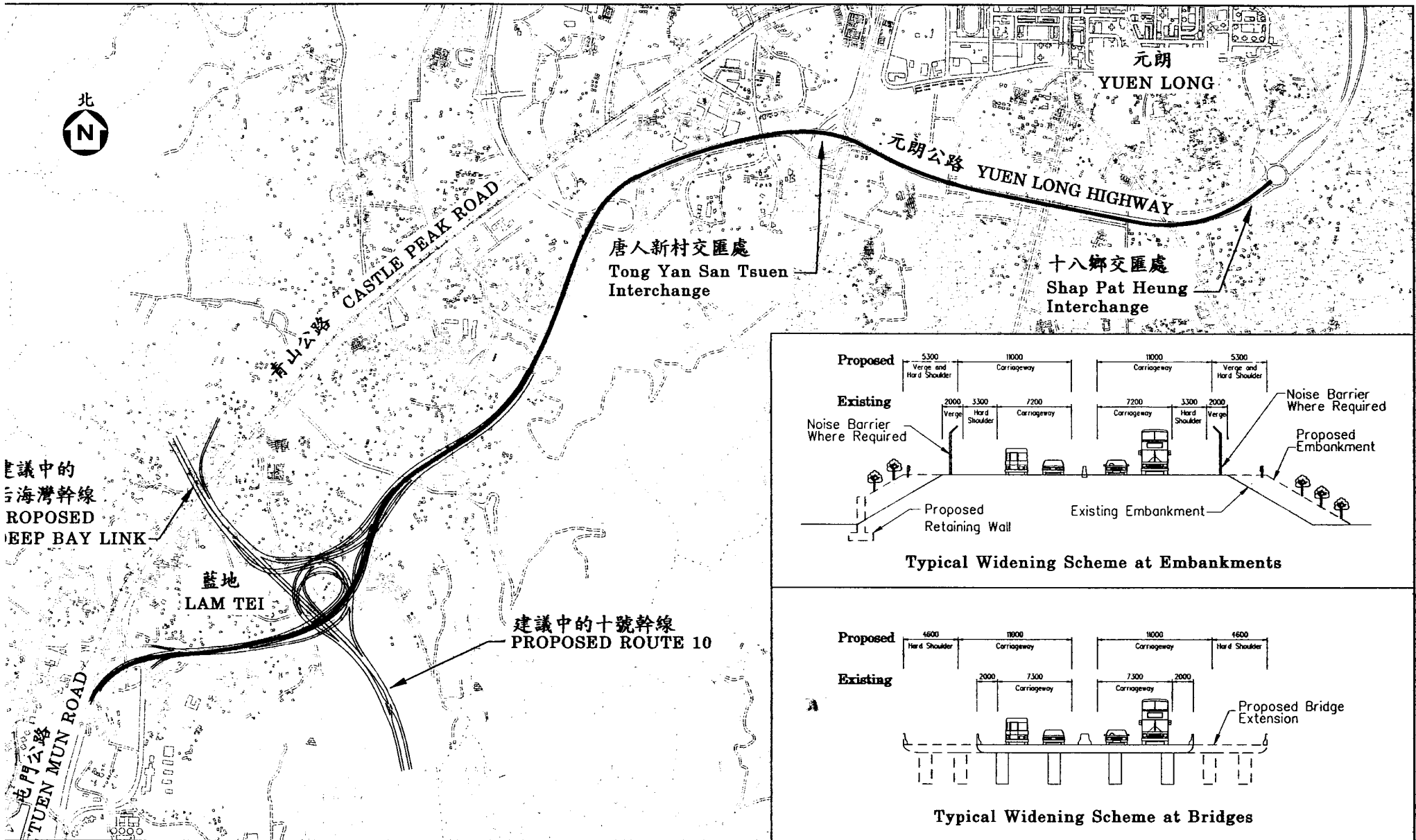
18. We plan to start the tendering procedures as soon as possible so that the detailed design package would commence in October 2000 for completion in mid 2002. We aim to start construction works in late 2002 for completion in late 2004.

19. We estimate that the project works will create some seven new jobs in professional/technical staff.

20. The improvement works of the remaining section of Yuen Long Highway is being carried out under PWP item **706TH** - "Highway between Shap Pat Heung Interchange and Pok Oi Interchange - remaining works" at an estimated cost of \$260.8 million in MOD prices. We estimate this project will be completed in mid 2002.

Transport Bureau


April 2000



1. 圖則名稱

元朗公路藍地至十八鄉段擴闊工程
- 詳細設計

Widening of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange
- Detailed Design

drawn by M. K. Leung	date 23-03-00	drawing no. 圖號 YLH 022A	scale 比例 1 : 25000
approved by P.H. Chan	date 23-03-00	 HIGHWAYS DEPARTMENT HONG KONG 路政署 香港	
office 辦事處 主要工程管理處 Project Management Office			

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

Breakdown of estimates for consultants' fees (at December 1999 prices)

Consultants' staff costs			Estimated man months	Average MPS* salary point	Multiplier factor	Estimated fee (\$ million)
(a)	Review of the findings of Investigation and Preliminary Design Assignment (including review of preliminary design)	Professional	7	40	2.4	1.1
		Technical	7	16	2.4	0.4
(b)	Detailed design	Professional	60	40	2.4	9.0
		Technical	74	16	2.4	3.7
(c)	Preparation of contract documents	Professional	6	40	2.4	0.9
		Technical	6	16	2.4	0.3
Sub-total						15.4
(d)	EMSTF charges					0.5
Total consultants' staff costs						15.9

* MPS = Master Pay Scale

Notes

1. A multiplier factor of 2.4 is applied to the average Master Pay Scale (MPS) point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (As at 1.4.99, MPS pt. 40 = \$62,780 p.m., and MPS pt. 16 = \$21,010 p.m.).
2. The figures given above are based on estimates prepared by the Director of Highways. We will only know the actual man months and fees when we have selected the consultant through the usual competitive fee bidding system.