

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 - HIGHWAYS

Transport - Roads

718TH – Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha

Members are invited to recommend to Finance
Committee –

- (a) the upgrading of part of **718TH**, entitled "Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha – detailed design and associated site investigations" to Category A, at an estimated cost of \$41.1 million in money-of-the-day prices; and
- (b) the retention of the remainder of **718TH** in Category B.

PROBLEM

The existing Tung Chung Road between Lung Tseng Tau and Cheung Sha is inadequate to cope with the existing and future traffic demands in terms of both capacity and safety.

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PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport, proposes to upgrade part of **718TH** to Category A at an estimated cost of \$41.1 million in money-of-the-day (MOD) prices to employ consultants to undertake detailed design for the proposed improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha and to carry out the associated site investigation works.

PROJECT SCOPE AND NATURE

3. The scope of **718TH** includes –

- (a) widening and realignment of the 6.2-kilometre (km) section of Tung Chung Road between Lung Tseng Tau and Cheung Sha from a single-lane road with two-way traffic to a single two-lane two-way road with a 7.3-metre (m) wide carriageway and a 1.6-m to two-m wide footpath; and
- (b) associated civil, structural, geotechnical, landscape, drainage and utility works, traffic aids, lighting, traffic surveillance, access control measures and environmental mitigation measures.

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

- (a) the detailed design of the proposed works described in paragraph 3 above;
- (b) associated site investigations and supervision; and
- (c) preparation of tender documents and assessment of tenders.

A site plan showing the proposed works is at Enclosure 1.

5. We plan to start the detailed design of the proposed works in July 2002 for completion in July 2003. We intend to commence the construction works

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in December 2003 for completion by phases from September 2005 to September 2006. The project estimate of **718TH** as a whole is \$931 million in September 2001 prices.

JUSTIFICATION

6. The existing seven-km Tung Chung Road is the only vehicular access connecting north and south Lantau between Tung Chung and Cheung Sha. It is a 3.5-m wide single-lane carriageway constructed over a hilly terrain with some 40 passing bays for two-way traffic and with sharp bends, poor visibility and steep gradients of up to 20% at certain locations. In view of the limited capacity and the substandard condition of the road, we are operating a dual-permit system¹ restricting the number of vehicles using the road.

7. The opening of the North Lantau Highway and the new airport in 1997 has significantly increased the traffic demand between north and south Lantau and exacerbated the traffic situation on Tung Chung Road. The road is currently operating beyond its capacity of 100 vehicles per hour (vph), with a volume/capacity ratio² of 1.3 during peak hours. To meet the traffic demand, we intend to upgrade Tung Chung Road to a 7.3-m wide two-lane two-way rural road. Upon completion of the works, the capacity of the upgraded Tung Chung Road will be increased to 1,100 vph, sufficient to cope with the traffic demand up to 2016³.

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¹ The dual-permit system means the Tung Chung Road Prohibited Zone Permit System and the Lantau Closed Road Permit System. Currently, all vehicles except franchised buses, Lantau taxis and emergency vehicles, require both permits to travel on the section of Tung Chung Road between Shek Mun Kap Road and South Lantau Road from 8:00 a.m. to 6:00 p.m. everyday. Vehicles not exceeding 5.5 tonnes but possessing only Lantau Closed Road Permits can travel on that section of Tung Chung Road outside the above period. Vehicles exceeding 5.5 tonnes are generally banned from using that section of the road.

² Volume to capacity (V/C) ratio is an indicator which reflects the performance of a road. A V/C ratio equal to or less than 1.0 means that a road has sufficient capacity to cope with the volume of vehicular traffic under consideration and the resultant traffic will flow smoothly. A V/C ratio above 1.0 indicates the onset of congestion; that above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further increase in traffic.

³ Assuming that the Tung Chung Road Prohibited Zone Permit System will be waived after the commissioning of the upgraded road and the Lantau Closed Road Permit System will remain in operation, the projected traffic flow during peak hour is 770 vph in 2006, 910 vph in 2011 and 1,000 vph in 2016.

8. As the traffic on Tung Chung Road becomes busier in recent years, the number of accidents on the road has increased from seven in 1996 to 36 in 2001. Rescue and recovery operations for serious traffic accidents on the road are difficult and often require full road closure for two to 12 hours due to jam-packed traffic at both ends of the accident scene. The prolonged road closures have caused a lot of inconvenience to the residents of south Lantau. To enhance road safety, we will upgrade Tung Chung Road to meet the essential road design requirements and will reduce the steep road gradient to less than 15%. We will also devise appropriate traffic safety enhancement measures at the detailed design stage to further improve the road safety condition of the upgraded road.

9. We started the investigation and preliminary design (I&PD), including the assessment of the land, environmental, drainage, traffic and other impacts on the affected areas, for improving Tung Chung Road in April 2001. We have completed the I&PD and established the preferred alignment. Due to insufficient in-house resources, we now propose to employ consultants to undertake the detailed design and to supervise the associated site investigations.

10. In view of the unsatisfactory condition of the existing Tung Chung Road, we are proceeding with the project urgently under a fast track programme. We will carry out the necessary administrative and statutory procedures, detailed design and site investigations concurrently. We will also critically examine the feasibility of night-time works in the detailed design stage with a view to shortening the construction period. Construction works will be carried out in different sections concurrently and each section would be opened to traffic as soon as it is completed to bring about local improvements.

FINANCIAL IMPLICATIONS

11. We estimate the cost of this part of the project to be \$41.1 million in MOD prices, made up as follows –

	\$ million
(a) Consultants' fees	17.9

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(i) I&PD review, detailed design, preparation of tender documents and assessment of tenders	16.4	
(ii) supervision of site investigations	1.2	
(iii) Electrical and Mechanical Services Trading Fund (EMSTF) charges	0.3	
(b) Site investigations	20.0	
(c) Contingencies	3.8	
	41.7	(in September 2001 prices)
(d) Provision for price adjustment	(0.6)	
	41.1	(in MOD prices)
Total:	41.1	(in MOD prices)

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

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

Year	\$ million (Sep 2001)	Price Adjustment Factor	\$ million (MOD)
2002 – 2003	30.0	0.98625	29.6
2003 – 2004	11.7	0.98378	11.5
	41.7		41.1
	41.7		41.1

13. We have derived the MOD estimate on the basis of the Government's latest forecast of trend labour and construction prices for the period 2002 to 2004. We will employ consultants on a lump-sum basis with provision for price fluctuation as the duration of the consultancy agreement will exceed 12 months. The consultants will supervise the site investigation works under a contract to be awarded through competitive tendering.

14. The proposed detailed design and site investigations have no annual recurrent financial implications.

PUBLIC CONSULTATION

15. We consulted the Islands District Council (IDC) on 11 January 2001 and 15 October 2001 on the project. We also briefed the Traffic and Transport Subcommittee of IDC about the progress on 7 May 2001, 3 September 2001, 14 January 2002 and 6 May 2002. Members supported the project and urged us to complete it as soon as possible.

16. As a large portion of the proposed road alignment of the project falls within the boundaries of the Lantau North, Lantau South and the proposed Lantau North (Extension) Country Parks, we briefed the Country and Marine Parks Board (CMPB) and its Country Parks Committee (CPC) on 11 January 2001 and 19 November 2001 respectively. They had no objection to proceeding with the design of the proposed road alignment and required us to consult them again when the Environmental Impact Assessment (EIA) report of the project is available. We will consult them on the EIA report at the next CMPB meeting on 20 June 2002.

17. We briefed the Advisory Council on the Environment (ACE) and its EIA Subcommittee on 27 February 2001 and 5 November 2001 respectively. Their comments on the project, including the environment aspects and design of the road, were taken into account in the EIA studies. We consulted the ACE EIA Subcommittee about the EIA report at its meeting on 27 May 2002. The Subcommittee concluded that it would recommend the EIA report to the ACE for endorsement on 17 June 2002 with conditions.

18. We briefed the Legislative Council Panel on Transport on 19 January 2001 and 25 January 2002. The Panel members urged us to take all possible measures to complete the project as soon as possible. We are fully aware of the urgency of the project and are proceeding with the project urgently under a fast track programme.

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ENVIRONMENTAL IMPLICATIONS

19. The proposed detailed design will not give rise to any adverse environmental implications. However, part of the proposed site investigation works will be carried out within the Country Parks and is therefore a designated project under Schedule 2 of the EIA Ordinance. The proposed road project is also a designated project under Schedule 2 of the EIA Ordinance. We submitted the EIA report of the proposed road project, including the site investigation works, to the Director of Environmental Protection (DEP) in April 2002 in accordance with the requirements of the EIA Ordinance. DEP advised on 7 May 2002 that the EIA report is suitable for public inspection under the EIA Ordinance. We are following the statutory procedures of making the EIA report available for comments by the public and ACE. We will obtain environmental permits for the proposed site investigation works and road project prior to commencement of the works.

20. The proposed site investigations will only generate a minimal amount of construction and demolition (C&D) materials. We will require the consultants to consider measures in the detailed design to minimize the generation of C&D materials and to reuse/recycle C&D materials as much as possible in the future implementation of the construction contracts.

LAND ACQUISITION

21. The proposed detailed design and site investigations do not require land acquisition. However, land acquisition will be required before the commencement of construction of the project. The details and scope of the land acquisition required will be ascertained in the detailed design stage.

BACKGROUND INFORMATION

22. In November 1996, we carried out a feasibility study on the improvement of Tung Chung Road to a two-lane road with an additional climbing lane at the uphill sections. The study considered two possible improvement schemes. The first one was to widen the road along the existing alignment and the second one was to improve the road to the current design standard. We presented both schemes to the CPC under the CMPB in March 1997. The CPC expressed concern about the impacts of the works on the Country Parks and advised that other alternative north-south routes should be considered.

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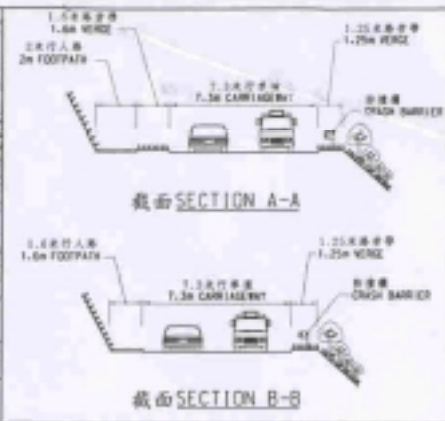
23. After reviewing the situation, we found that a Lantau north-south road link between Tai Ho Wan and Mui Wo (TH-MW) would be feasible. We carried out an investigation study for the TH-MW road link in July 1998 and included the TH-MW road link in Category B as **718TH** “Lantau north-south road link between Tai Ho Wan and Mui Wo” in September 1998. However, DEP took the view that the project would result in adverse environmental impacts and the EIA report could not meet the requirements of the Study Brief and the Technical Memorandum issued under the EIA Ordinance.

24. We then explored all possible Lantau north-south route options thoroughly, including tunnels, but found that they were not viable because of very high capital and maintenance costs, severe environmental impacts or great land resumption problems. On re-examining the option of widening Tung Chung Road, we found that by adopting a road gradient of less than 15%, providing passing bays instead of climbing lanes, and shifting the road alignment to the eastern side of Tung Chung Road away from Tung Chung Stream, we would be able to reduce the environmental impacts and encroachment on the Country Park. We considered that this improvement scheme of Tung Chung Road would be the most promising solution.

25. In April 2001, we engaged consultants to undertake an I&PD of the improvement scheme of Tung Chung Road at an estimated cost of \$14.6 million in MOD prices under **Subhead 6100TX** “Highway works, studies, and investigations for items in Category D of the Public Works Programme”. After completion of the investigation study in March 2002, we retitled **718TH** to “Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha”.

26. As regards the 950-m section of Tung Chung Road between Pa Mei and Lung Tseng Tau, the Finance Committee approved the upgrading of **754TH** “Widening of Tung Chung Road between Pa Mei and Lung Tseng Tau” to Category A on 8 March 2002 for the improvement works. The Director of Territory Development commenced the works in May 2002 for completion in late 2003.

27. We estimate that the proposed detailed design and site investigations will create some 75 jobs comprising 35 professional/technical staff and 40 labourers, totalling 516 man-months.



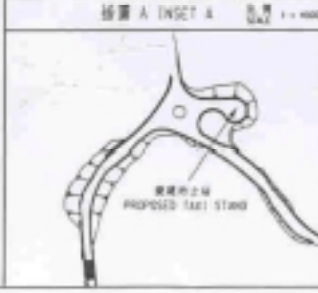
註釋 NOTES

圖例 LEGEND

- 建議斜坡 PROPOSED SLOPES
- 國家公園界線 COUNTRY PARK BOUNDARY
- 現有東涌道 EXISTING TUNG CHUNG ROAD
- 建議橋樑 PROPOSED BRIDGE
- 建議路線 PROPOSED ROAD ALIGNMENT

工程計劃項目第71547號
東涌道介乎龍井潭與長沙之間
的擴闊工程(由路政處發展處)

PMP ITEM No. 7547A
WIDENING OF TUNG CHUNG ROAD
BETWEEN LUNG TSENG TAI AND
PA MEI UNDER CONSTRUCTION
BY TERRITORY DEVELOPMENT
DEPARTMENT



核准	LEUNG KAY HO	日期	13/11/10
繪圖	黃國輝	日期	10/11/10
校核	黃國輝	日期	10/11/10

項目 DESCRIPTION

設計	7.7 CHEUNG	繪圖	W. K. LEUNG
校核	7.7 CHEUNG	日期	10/11/10

合約編號 CONTRACT NO.

項目編號 ITEM NO.

工程計劃項目編號 PMP ITEM No. T18TH

圖則名稱 plan title
工程計劃項目第71547號
東涌道介乎龍井潭與長沙之間
的擴闊工程
PMP ITEM No. 718TH
IMPROVEMENT TO TUNG CHUNG ROAD
BETWEEN LUNG TSENG TAI AND
CHEUNG SHA

圖則編號 plan no.	比例 SCALE
MWCT18TH-SPO005A	1:25,000 28-A AS SHOWN

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主要工程管理處
MAJOR WORKS
PROJECT MANAGEMENT OFFICE

HONG KONG
HONG KONG

Enclosure 2 to PWSC(2002-03)53

718TH - Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha

Breakdown of estimates for consultants' fees and site investigation costs (in September 2001 prices)

			Estimated Man- months	Average MPS* Salary Point	Multiplier	Estimated Fee (\$ million)
Consultants' staff costs						
(a)	Review of the findings of I&PD	Professional	10	38	2.4	1.4
		Technical	9	14	2.4	0.4
(b)	Detailed design	Professional	60	38	2.4	8.7
		Technical	86	14	2.4	4.0
(c)	Preparation of tender documents and assessment of tenders	Professional	10	38	2.4	1.4
		Technical	10	14	2.4	0.5
(d)	Supervision of site investigation works	Professional	6	38	1.7	0.6
		Technical	18	14	1.7	0.6
(e)	EMSTF charges					0.3
						<hr/>
Total consultants' staff costs						17.9
Out-of-pocket expenses						
(a)	Site investigations					<hr/> 20.0
						<hr/>
Total						37.9

* MPS = Master Pay Scale

Notes

1. A multiplier 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 1.4.2001, MPS pt. 38 = \$60,395 per month, and MPS pt. 14 = \$19,510 per month.) A multiplier of 1.7 is applied in the case of site staff supplied by the consultants.
2. Out-of-pocket expenses are the actual costs incurred. The consultants are not entitled to any additional payment for overheads or profits in respect of these items.
3. The figures given above are based on estimates prepared by the Director of Highways. We will know the actual man-months and fees only 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 Fund Ordinance, government departments are charged for design and technical consultancy services for electrical and mechanical (E&M) installations provided by Electrical and Mechanical Services Department (EMSD). The services rendered for this project include checking consultants' submissions on all E&M installations and providing technical advice to Government on all E&M works and their impacts on the project.