

For discussion  
on 30 January 2002

PWSC(2001-02)94

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

**HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT**

**Hong Kong Island and Islands Development**

**Transport – Roads**

**754TH – Widening of Tung Chung Road between Pa Mei and Lung Tseng  
Tau**

Members are invited to recommend to Finance Committee the upgrading of **754TH** to Category A at an estimated cost of \$32 million in money-of-the-day (MOD) prices for the improvement of a section of Tung Chung Road between Pa Mei and Lung Tseng Tau.

### **PROBLEM**

The existing Tung Chung Road between Pa Mei and Lung Tseng Tau does not meet current design standards and is inadequate to cope with the current traffic demand in the area.

### **PROPOSAL**

2. The Director of Territory Development (DTD), with the support of the Secretary for Transport, proposes to upgrade **754TH** to Category A at an estimated cost of \$32 million in MOD prices for widening a section of Tung Chung Road between Pa Mei and Lung Tseng Tau.

**/PROJECT .....**

## PROJECT SCOPE AND NATURE

3. The scope of **754TH** comprises –
- (a) widening 950 metres (m) of Tung Chung Road between Pa Mei and Lung Tseng Tau from a single-lane road with two-way traffic to a single two-lane road;
  - (b) construction of three passing bays, footpaths and cycle track; and
  - (c) drainage, sewerage and landscaping works associated with the roadworks mentioned in items (a) and (b) above.

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A site plan is at Enclosure 1. We plan to start construction in June 2002 for completion in November 2003.

## JUSTIFICATION

4. The existing seven-kilometre 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 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 permit system restricting the number of vehicles using the road. The opening of North Lantau Highway and the new airport in 1997/1998 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 ratio<sup>1</sup> of about 1.3 during peak hours. The number of accidents on the road has increased from seven in 1996 to

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36 in 2001. At present, we are planning to widen the entire Tung Chung Road to a 7.3-m wide single two-lane carriageway. Upon completion of the widening works

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<sup>1</sup> 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 increases in traffic.

under this project, the capacity of the relevant section of the road will be increased to 1 100 vph, which is sufficient to cope with the traffic demand up to 2016<sup>2</sup>.

5. The section of Tung Chung Road between Pa Mei and Lung Tseng Tau could be widened first as the works are less complicated. The widening works for this section will bring early benefits to nearby residents of six villages and improve the safety of this section of road. We plan to start construction in June 2002 for completion in November 2003. For the remaining section of Tung Chung Road between Lung Tseng Tau and Cheung Sha, the Director of Highways (DH) commenced an investigation and preliminary design for the improvement of this section of the road in April 2001 for completion in mid-2002. Following detailed design, construction of this section of the road will start in early 2004 for completion by December 2006.

## FINANCIAL IMPLICATIONS

6. We estimate the cost of the project to be \$32 million in MOD prices, made up as follows –

	<b>\$ million</b>	
(a) Roadworks including three passing bays, footpaths and cycle track	13.4	
(b) Drainage and sewerage works	11.0	
(c) Landscaping works	1.6	
(d) Consultants' fees	3.0	
(i) construction stage	0.4	
(ii) site staff costs	2.6	
		/(e) .....
(e) Contingencies	2.9	
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Sub-total	31.9	(in September

<sup>2</sup> The projected traffic flow during peak hour is 710 vph in 2006, 810 vph in 2011 and 1 000 vph in 2016.

		2001 prices)
(f) Provision for price adjustment	0.1	
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Total	32.0	(in MOD prices)
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Due to insufficient in-house resources, we propose to engage consultants to supervise the proposed works. A breakdown by man-months of the estimate for the consultants' fees is at Enclosure 2.

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

Year	\$ million (Sept 2001)	Price adjustment factor	\$ million (MOD)
2002 – 2003	10.0	0.99700	10.0
2003 – 2004	20.5	1.00398	20.6
2004 – 2005	1.4	1.01101	1.4
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	31.9		32.0
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8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2002 to 2005. We will tender the proposed works under a fixed-price lump-sum contract because we can clearly define the scope of the majority of the works in advance. The contract will not provide for price adjustments as the contract period will not exceed 21 months.

9. We estimate the annual recurrent expenditure arising from the project to be \$0.35 million.

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## PUBLIC CONSULTATION

10. We consulted the Traffic and Transport Committee of the Islands District Council on 3 September 2001 on the proposed works. Members generally supported the project.

11. We gazetted the road scheme under the Roads (Works, Use and Compensation) Ordinance on 2 November 2001 and received no objections. The road scheme was authorised by the Secretary for Transport on 21 January 2002.

12. We consulted the LegCo Panel on Transport on 19 January 2001 on the widening option of Tung Chung Road and Members generally supported the project in principle and urged us to speed up the implementation of the project. We will further consult the LegCo Panel on Transport on 25 January 2002 on our latest proposal for improving Tung Chung Road, including this section of the road between Pa Mei and Lung Tseng Tau.

## ENVIRONMENTAL IMPLICATIONS

13. The project is not a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance.

14. As for the short-term construction impacts, we will incorporate into the contract standard measures to control pollution arising from construction, such as the use of silenced plants and frequent cleaning and watering of the site to avoid any adverse impact on the environment in the vicinity.

15. We have considered in the planning and design stages ways of minimising the generation of construction and demolition (C&D) materials by giving due consideration to designing the level and layout of the roadworks. We estimate that the project will generate about 1 900 cubic metres (m<sup>3</sup>) of C&D materials. Of these, we will reuse about 800 m<sup>3</sup> (42%) on site, 600 m<sup>3</sup> (32%) as fill in public filling areas<sup>3</sup> and will dispose of 500 m<sup>3</sup> (26%) at landfills. The /notional .....  
notional cost of accommodating C&D waste at landfill sites is estimated to be \$62,500 for this project (based on a notional unit cost<sup>4</sup> of \$125/m<sup>3</sup>). We will

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<sup>3</sup> A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

<sup>4</sup> This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m<sup>3</sup>), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

require the contractor to reuse the excavated materials on site or on other construction sites as filling materials as far as possible to minimise the disposal of public fill.

16. We will require the contractor to submit a waste management plan to the Engineer for approval. The waste management plan will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will require the contractor to ensure that the day-to-day operations on site comply with the waste management plan. To further minimize the generation of C&D materials, we will encourage the contractor to use non-timber formwork and recyclable materials for temporary works. We will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. We will record the disposal, reuse, and recycling of C&D materials for monitoring purposes.

#### LAND ACQUISITION

17. The proposed works do not require land acquisition.

#### BACKGROUND INFORMATION

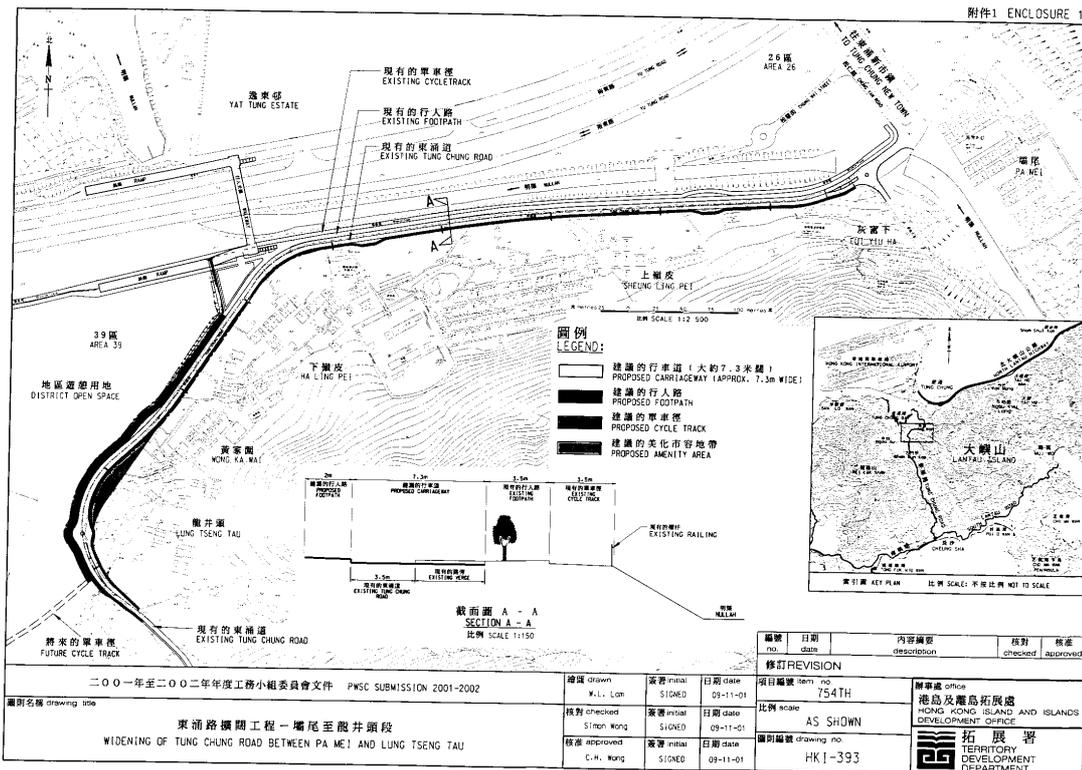
18. We included **754TH** in Category B of the Public Works Programme in May 2001. In June 2001, we engaged consultants to carry out the detailed design for the proposed works. We have charged the cost of \$0.8 million to the block allocation **Subhead 7100CX** "New towns and urban area works, studies and investigations for items in Category D of the Public Works Programme". The consultants have substantially completed the detailed design in January 2002.

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19. We estimate that this project will create some 55 jobs comprising 12 professional/technical staff and 43 labourers, totalling 890 man-months.

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Transport Bureau  
January 2002



**754TH – Widening of Tung Chung Road between Pa Mei  
and Lung Tseng Tau**

**Breakdown of estimate for consultants' fees**

<b>Consultants' staff costs</b>		<b>Estimated man- months</b>	<b>Average MPS* salary point</b>	<b>Multiplier</b>	<b>Estimated fees (\$ million)</b>
(a) Consultants' fees for construction stage					
(i) contract administration	Professional	1.5	38	2.4	0.22
	Technical	2.0	14	2.4	0.09
(ii) preparation of as-built drawings	Professional	0.3	38	2.4	0.04
	Technical	1.3	14	2.4	0.06
(b) Resident site staff costs	Professional	9.0	38	1.7	0.92
	Technical	50.0	14	1.7	1.66
<b>Total consultants' staff costs</b>					2.99
					<b>Say 3.0</b>

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 2.4 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. A multiplier of 1.7 is applied in the case of resident site staff supplied by the consultants. (At 1.4.2001, MPS pt. 38 = \$60,395 per month and MPS pt. 14 = \$19,510 per month.)
2. The figures given above are based on estimates prepared by the Director of Territory Development. The consultancy works for this project have been included as part of the overall consultancy agreement for the design and construction of North Lantau Development.