For discussion **PWSC(2002-2003)32**
on 22 May 2002

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 - NEW TOWNS AND URBAN AREA DEVELOPMENT
New Territories North Development
Transport - Roads
193TH - Ting Kok Road upgrading, stage 1, phase 2

Members are invited to recommend to Finance Committee the upgrading of **193TH** to Category A at an estimated cost of $218.4 million in money-of-the-day prices.

PROBLEM

The existing Ting Kok Road between Tai Po Industrial Estate and Shuen Wan cannot cope with the anticipated growth in traffic demand in the area.

PROPOSAL

2. The Director of Territory Development (DTD), with the support of the Secretary for Transport, proposes to upgrade **193TH** to Category A at an estimated cost of $218.4 million in money-of-the-day (MOD) prices for upgrading Ting Kok Road between Tai Po Industrial Estate and Shuen Wan.

PROJECT SCOPE AND NATURE

3. The scope of **193TH** comprises -

/(a) …..

(a) widening, upgrading and realignment of about 1.5 kilometres of Ting Kok Road to a dual 2-lane carriageway;

(b) construction of footpaths, cycle tracks and a pedestrian/cyclist subway;

(c) slope stabilisation works including earthworks, earth retaining structures and bored pile walls;

(d) drainage and landscaping works associated with the works mentioned in items (a) to (c) above; and

(e) provision of noise mitigation measures including low noise road surfacing and noise barriers.

A site plan is at Enclosure 1. We plan to start construction in September 2002 for completion in December 2004.

JUSTIFICATION

4. Ting Kok Road is the main road serving the villages and housing developments between Tai Po Industrial Estate and Tai Mei Tuk at Tolo Harbour. The existing Ting Kok Road between Tai Po Industrial Estate and Shuen Wan is a single 2-lane carriageway with substandard sharp bends. The Traffic and Transport Assessment completed in December 2001 indicates that traffic flow at this section of Ting Kok Road will exceed its design capacity during peak hours in 2006 without proposed upgrading works. To cope with the anticipated increase in traffic demand, we propose to upgrade this section of Ting Kok Road to a 7.3 metre-wide dual 2-lane carriageway.

5. The volume to capacity (V/C) ratios[1] at peak hours for the above section of Ting Kok Road with and without the proposed upgrading works are as follows –

/**Year** …..

[1] 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.

	Year			
	2001	**2006**	**2011**	**2016**
Without proposed upgrading works	0.79	1.18	1.36	1.56
With proposed upgrading works	-	0.31	0.36	0.42

6. To enhance general traffic safety, we will remove sharp bends in the road geometry, improve junctions with side roads and realign footpaths and cycle tracks. We will also provide a subway for pedestrians and cyclists at Wong Yue Tan where the footpath and cycle track will cross the carriageway.

7. There have been records of landslides along the section of Ting Kok Road proposed for upgrading. According to the slope stability analysis carried out by the consultants, the stability of the concerned slopes does not meet the minimum safety requirement. As the slopes are abutting Ting Kok Road, we will carry out slope stabilisation works such as installation of soil nails and buttresses on the existing slopes to ensure public safety. We will also construct earth-retaining structures including bored pile walls associated with the slope stabilisation works.

8. There are 305 trees along this section of Ting Kok Road. We have carefully considered measures to avoid affecting these trees during construction. We found out that 145 trees could be retained and 90 could be transplanted. The remaining 70 trees would be felled because of their poor condition and low survival rate after transplant. To compensate for the loss of the felled trees and for further greening, we will plant about 490 trees using native species along the roadside. As regards landscaping works, we will provide and reprovision a total of about 37 000 square metres of amenity area and planting alongside the road. We will use hydroseeding to protect formed slopes.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the project to be $218.4 million in MOD prices, made up as follows –

/$ million …..

			$ million	
(a)	Slope stabilisation works including earthworks, earth retaining structures and bored piled walls		127.3	
(b)	Roadworks with associated footpaths and cycle tracks		23.3	
(c)	Pedestrian/cyclist subway		4.7	
(d)	Drainage works and waterworks		16.8	
(e)	Landscaping works		3.4	
(f)	Noise mitigation measures		5.5	
	(i) noise barriers	4.0		
	(ii) low noise road surfacing	1.5		
(g)	Consultants' fees for		21.0	
	(i) construction stage	3.0		
	(ii) resident site staff costs	18.0		
(h)	Contingencies		20.0	
	Sub-total		222.0	(in September 2001 prices)
(i)	Provision for price adjustment		(3.6)	
	Total		218.4	(in MOD prices)

Due to insufficient in-house resources, DTD proposes to employ consultants to supervise the construction. A breakdown by man-months of the estimate for the consultants' fees is at Enclosure 2.

/10. …..

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

Year	$ million (Sept 2001)	Price adjustment factor	$ million (MOD)
2002 – 2003	35.0	0.98625	34.5
2003 – 2004	90.0	0.98378	88.5
2004 – 2005	80.0	0.98378	78.7
2005 – 2006	17.0	0.98378	16.7
	222.0		218.4

11. 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 2006. We will tender the proposed works under a standard remeasurement contract because the works involve extensive earthworks, the quantities of which may vary according to the actual ground conditions. The contract will provide for price adjustments because the construction period will exceed 21 months.

12. We estimate the annual recurrent expenditure arising from this project to be $0.629 million.

PUBLIC CONSULTATION

13. We gazetted the proposed roadworks under the Roads (Works, Use and Compensation) Ordinance on 22 August 1997 and received three objections. After a series of discussions, two objectors withdrew their objections. The remaining objector, who did not agree to the resumption of his land, refused to withdraw his objection. On 11 May 1999, the Chief Executive in Council authorised the proposed works.

/14. …..

14. We consulted the Traffic and Transport Committee (T&TC) of the then Tai Po District Board on the proposed works on 6 July 1995. Members of the T&TC had no objection to the proposed works. We also consulted Members of the Tai Po District Council (TPDC),Village Representatives (VRs) and local residents directly affected by the works on 15 April 2002. The local TPDC members and VRs raised no objection to the project and offered useful suggestions for reprovisioning of affected facilities. We plan to consult the T&TC of TPDC again on 16 May 2002.

15. We circulated a paper to the LegCo Panel on Transport on 26 April 2002 and members noted the proposal at the meeting. Members further discussed this item at a special meeting of the Panel on 6 May 2002. Whilst raising concerns on tree felling and timely completion of the works, Members raised no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

16. We completed an Environmental Impact Assessment study in January 1997. The study report identified the noise impacts arising from the project and recommended measures to mitigate the impacts to within established standards and guidelines. We will implement the mitigation measures which include the replanting of trees and the provision of direct noise mitigation measures. We will plant trees and shrubs on all disturbed and new slopes and provide amenity planting alongside the road. The direct noise mitigation measures include provision of low noise road surfacing and noise barriers (1.5 metres to 1.9 metres high) at some sections of the road. These will reduce traffic noise from 74 dB(A) to within the limit of 70 dB(A). We have included the costs of landscaping works ($3.4 million) and noise mitigation measures ($5.5 million) in the overall project estimate.

17. We will incorporate into the contract standard measures to control pollution arising during construction. These measures include frequent watering of the site, the provision of wheel-washing facilities and covering of materials on trucks to reduce emission of dust, the use of silenced construction plant, siting of equipment and mobile noise barriers for controlling construction noise, and other procedures as recommended in Environmental Protection Department's Recommended Pollution Control Clauses.

/18. …..

18. 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 levels and layout of the proposed works. To further minimise the generation of C & D materials, we will encourage the contractor to use non-timber formwork and recyclable materials for temporary works.

19. We will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site will comply with the approved WMP. We will require the contractor to reuse the excavated materials on site or on other construction sites as filling material as far as possible to minimise the disposal of public fill. 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 require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 49 000 cubic metres (m^3) of C&D materials. Of these, we will reuse about 32 500 m^3 (66%) on site, reuse about 16 000 m^3 (33%) as fill in public filling area[2] and dispose of about 500 m^3 (1%) at landfills. The notional cost of accommodating C&D waste at landfill site is estimated to be $62,500 for this project (based on a notional unit cost [3] of $125/$m^3$).

LAND ACQUISITION

20. We will resume about 0.5 hectares of agricultural land and two mixed lots of building and agricultural land, of which the area of the building land portion is about 275 square metres. The land acquisition and clearance will not affect any household. We will charge the costs of land acquisition and clearance, estimated to be $33 million, to **Head 701** - Land Acquisition.

/BACKGROUND …..

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[2] 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.

[3] 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^3$), 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.

BACKGROUND INFORMATION

21. We implement the upgrading of Ting Kok Road in two stages under **183CL** and **193TH**. The upgrading of the section of Ting Kok Road between Shuen Wan and Tai Mei Tuk is under **183CL** "Ting Kok Road upgrading stage 2 and associated works". We commenced the works in June 1998 and completed them in November 2001.

22. In March 1988, Finance Committee approved the upgrading of part of **193TH** to Category A as **376TH** "Ting Kok Road upgrading – stage I, phase I" at an estimate cost of $156 million for the local widening of a section of Ting Kok Road between Tai Po Industrial Estate and Plummer Village and a cycle track from Tai Po Industrial Estate to Tai Mei Tuk. We started the works in April 1990 and completed them in March 1994. In September 2001, we included the remainder of **193TH** in Category B for the Ting Kok Road upgrading, stage 1, phase 2 works.

23. We engaged consultants to carry out site investigation and detailed design for the proposed works and charged the cost of $5 million to the block allocation **Subhead 7100CX** "New towns and urban area works, studies and investigations for items in Category D of Public Works Programme". The consultants completed the detailed design and drawings in April 2002.

24. We estimate that the proposed works will create some 132 new jobs comprising 34 professional/technical staff and 98 labourers, totalling 3 330 man-months.

Transport Bureau
May 2002

Enclosure 2 to PWSC(2002-03)32

193TH - Ting Kok Road upgrading, stage 1, phase 2

Breakdown of the estimates for consultants' fees

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier	Estimated fee ($ million)
(a) Consultants' fees for construction stage					
(i) contract administration					2.9
(ii) preparation of as-built drawings					0.1
(b) Resident site staff costs	Professional	90.0	38	1.7	9.2
	Technical	265.0	14	1.7	8.8
			Total consultants' staff costs		21.0

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.7 is applied in the case of 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 proposed consultancy is part of the overall consultancy agreement for Tai Po New Town Development. The consultants' staff cost for construction stage (including contract administration and preparation of as-built drawings) is calculated in accordance with the terms of this consultancy agreement for investigation, design and supervision of construction works.

3. The consultants' staff cost for site supervision is based on estimates prepared by the Director of Territory Development. We will only know the actual man-months and actual costs after completion of the construction works.