

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

### **HEAD 707 - NEW TOWNS AND URBAN AREA DEVELOPMENT**

#### **New Territories North Development**

#### **Civil Engineering - Multi-purpose**

**27CG – Yuen Long south eastern extension – site formation, roads and drainage works**

**28CG – Yuen Long south western extension – site formation, roads and drainage works**

Members are invited to recommend to Finance Committee –

- (a) the upgrading of **27CG** and part of **28CG**, retitled “Yuen Long south extension – road works in Areas 13 and 14”, to Category A at an estimated cost of \$385.5 million in money-of-the-day prices; and
- (b) the retention of the remainder of **28CG**, retitled “Yuen Long south western extension – remainder”, in Category B.

### **PROBLEM**

The existing roads and supporting infrastructure in Yuen Long Areas 13 and 14 will not be able to cope with future developments in Yuen Long South.

**/PROPOSAL .....**

## PROPOSAL

2. The Director of Territory Development (DTD), with the support of the Secretary for Planning and Lands, proposes to upgrade **27CG** and part of **28CG** to Category A at an estimated cost of \$385.5 million (\$187.6 million for **27CG** and \$197.9 million for **28CG**) in money-of-the-day (MOD) prices for the construction of roads and associated drainage works to support future developments in Yuen Long Areas 13 and 14.

## PROJECT SCOPE AND NATURE

3. The scope of **27CG** comprises construction of new roads, junction improvement and associated drainage works in Yuen Long Area 14, including –

- (a) construction of about 3.2 kilometre (km) of roads including Roads L2 (part), L4, L5 and associated footpath;
- (b) reconstruction of two sections of Tai Tong Road at its junctions with Roads L2 and L4;
- (c) reconstruction of a section of Tai Shu Ha Road East at its junction with Road L2;
- (d) construction of a vehicular bridge across the nullah at Ma Tin Pok;
- (e) construction of a pedestrian subway under Road L2 near Shap Pat Heung Interchange;
- (f) construction of retaining walls and implementation of drainage, slope and landscaping works associated with the road works mentioned in items (a) to (e) above;
- (g) provision of noise barriers and indirect noise mitigation measures in the form of window insulation and air conditioners to the affected dwellings; and
- (h) implementation of an environmental monitoring and audit (EM&A) programme for works mentioned in items (a) to (g) above.

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A site plan showing details of the proposed works under **27CG** is at Enclosure 1.

4. The scope of **28CG** comprises formation of land, construction of new roads, road widening/reconstruction, junction improvement and associated drainage works in Yuen Long Area 13. The part of **28CG** that we now propose to upgrade to Category A comprises –

- (a) construction of about 1.2 km of roads including Roads L1, L2 (part) and L3 and associated footpaths;
- (b) widening and reconstruction of a section of Ma Tin Road;
- (c) reconstruction of a section of Tai Shu Ha Road East and Kung Um Road;
- (d) construction of four vehicular bridges and widening of an existing vehicular bridge;
- (e) demolition of three existing vehicular bridges;
- (f) construction of retaining walls and implementation of drainage, slope and landscaping works associated with the road works mentioned in items (a) to (e) above;
- (g) provision of noise barriers and indirect noise mitigation measures in the form of window insulation and air conditioners to an existing school and the affected dwellings; and
- (h) implementation of an EM&A programme for works mentioned in items (a) to (g) above.

———— A site plan showing details of the proposed works under **28CG** is at Enclosure 2.

———— 5. The remainder of **28CG**, to be retained in Category B, comprises site formation and construction of associated road and drainage works in the part of Yuen Long Area 13 as hatched in grey at Enclosure 2.

6. We plan to start the proposed works under **27CG** and **28CG** in November 2002 for completion in May 2005.

## JUSTIFICATION

7. A number of new private developments in Yuen Long Areas 13 and 14 have either been completed or are, under construction or active planning. In Area 13, a residential development east of Road L1 (Greenery Place) has been completed and started population intake since February 2002, whilst the adjacent development to the south of Greenery Place is applying for land exchange. There is also another private development at the junction of Road L2 and Kung Um Road under planning with site formation works to start soon. In Area 14, a very substantial private development south of Road L2 (Serenio Verdo) will be completed in phases by 2004. With these developments, we estimate that the population in Yuen Long South will increase from about 10 000 at present to 62 000 in 2011.

8. In May 1998, we completed the Traffic and Transport Study Final Assessment Report for Yuen Long South, which concluded that future developments in the area would generate a significant volume of traffic. The provision of new roads and supporting infrastructure is essential to cope with the projected population generated from the southward expansion of Yuen Long Town. We have received strong requests from Yuen Long District Council to complete the proposed road schemes in Areas 13 and 14 at the earliest possible date so as to alleviate the traffic congestion in the existing road network.

9. Completion of the proposed road network under **27CG** and **28CG** will provide a direct road link between Yuen Long Town and Shap Pat Heung Interchange through Road L2 and will relieve the traffic congestion within the town centre. This direct link will also provide substantial improvements to the traffic flow of the existing road junctions along Ma Tong Road, Hop Yick Road, Fung Cheung Road and Kau Yuk Road. The existing and projected reserve capacities of the critical junctions during peak hours along Ma Tong Road with and without the proposed new roads are as follows –

**/Junction .....**

Junction	Reserve Capacity <sup>1</sup>				
	Without proposed new roads			With proposed new road	
	2001	2006	2011	2006	2011
Ma Tong Road / Tai Tong Road signalised junction	7%	-50%	—	98%	16%
Ma Tong Road / Ma Tin Road signalised junction	5%	-18%	—	222%	40%

## FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the proposed works to be \$385.5 million (\$187.6 million for **27CG** and \$197.9 million for part of **28CG**) in MOD prices (see paragraph 11 below), made up as follows –

	\$ million		
	<b>27CG</b>	<b>28CG</b>	<b>Total</b>
(a) Road works	75.0	73.0	148.0
(b) Vehicular bridges	19.0	45.0	64.0
(c) Drainage works	25.5	26.5	52.0
(d) Landscaping works	5.0	3.5	8.5
(e) Environmental mitigation measures	30.4	14.8	45.2
(i) noise barriers	26.0	12.0	
(ii) indirect mitigation measures	4.4	2.8	

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<sup>1</sup> “Reserve Capacity” (RC) is an indicator which reflects a junction’s performance. A positive RC indicates that the road junction has sufficient capacity to cope with the volume of vehicular traffic under consideration and the resultant traffic will flow smoothly. A negative RC indicates that the junction is overloaded, thus resulting in traffic queues and delay.

(f) EM&A programme	1.7	1.5	3.2	
(g) Consultants' fees	16.8	18.5	35.3	
(i) construction stage	0.8	1.2		
(ii) resident site staff costs	16.0	17.3		
(h) Contingencies	<u>17.3</u>	<u>18.3</u>	<u>35.6</u>	
Sub-total	190.7	201.1	391.8	(in September 2001 prices)
(i) Provision for price adjustment	<u>(3.1)</u>	<u>(3.2)</u>	<u>(6.3)</u>	
Total	<u>187.6</u>	<u>197.9</u>	<u>385.5</u>	(in MOD prices)

Due to insufficient in-house resources, DTD proposes to engage consultants to supervise the proposed works. A breakdown by man-months of the estimate for consultants' fees is at Enclosure 3.

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

(a) for **27CG**

Year	\$ million (Sept 2001)	Price adjustment factor	\$ million (MOD)
2002 - 2003	16.0	0.98625	15.8
2003 - 2004	60.0	0.98378	59.0
2004 - 2005	61.8	0.98378	60.8

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2005 - 2006	42.9	0.98378	42.2
2006 - 2007	<u>10.0</u>	0.98378	<u>9.8</u>
	<u>190.7</u>		<u>187.6</u>

(b) for **28CG**

<b>Year</b>	<b>\$ million (Sept 2001)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2002 - 2003	16.0	0.98625	15.8
2003 - 2004	62.0	0.98378	61.0
2004 - 2005	66.6	0.98378	65.5
2005 - 2006	46.5	0.98378	45.8
2006 - 2007	<u>10.0</u>	0.98378	<u>9.8</u>
	<u>201.1</u>		<u>197.9</u>

12. 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 2007. We will tender the proposed works under a standard re-measurement contract because the quantities of earthworks involved may vary according to the actual ground conditions. The contract will provide for price adjustments as the contract period will exceed 21 months.

13. We estimate the annual recurrent expenditure arising from the proposed works to be \$3.96 million.

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## PUBLIC CONSULTATION

14. We consulted the Shap Pat Heung Rural Committee on 26 August 1997 and the Environmental Improvement Committee of the then Yuen Long Provisional District Board (YLPDB) on 26 September 1997 on the proposed works. Members of both committees supported the proposed works. We consulted the YLPDB on 28 August 1997 and 23 October 1997. They also supported the proposed works.

15. We briefed the Town Planning and Development Committee of the YLPDB on the proposed works on 2 September 1997, 15 September 1999 and 11 July 2001. They supported the proposed works and urged for early implementation of the road schemes to relieve the anticipated traffic congestion in Yuen Long Town arising from the population intake from several residential developments in Areas 13 and 14.

16. We gazetted the road schemes under the Roads (Works, Use and Compensation) Ordinance (RO) on 26 May 2000. We received 33 objections and 247 objections for **27CG** and **28CG** respectively.

17. For **27CG**, 28 objections were related to the resumption of private land, two objections involved requests for additional works and three objections were general objections with no specific land lot involved. We explained the road scheme to the objectors and 16 of them subsequently withdrew their objections with conditions. The remaining 17 objectors maintained their objections. To address the concerns of some of the objectors, we revised the road scheme and gazetted the amended scheme under the RO on 23 February 2001. We have not received further objections to the amended scheme.

18. For **28CG**, 16 objections were related to the resumption of private land and 231 objections from villagers of Ma Tin Tsuen were concerned with the aggravation of the flooding problem that might be brought about by the new roads. The villagers also required Government to amend the land use zoning of the Yuen Long Outline Zoning Plan to compensate for their loss of small house development opportunities caused by implementation of the proposed new roads. We explained the road scheme to the 16 objectors involving land resumption and three of them

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subsequently withdrew their objections with conditions. We also explained to the 231 objectors that a floodwater pumping station at Ma Tin Tsuen would be constructed under **117CD**<sup>2</sup> to provide long-term flood protection to their village. We advised the objectors that their re-zoning request had to be considered through application to the Town Planning Board. The remaining objectors maintained their objections.

19. On 25 September 2001, the Chief Executive in Council overruled the objections on grounds of public interest and authorised the proposed road works without modification.

20. We circulated an information paper on the proposed works to the LegCo Panel on Planning, Lands and Works in May 2002.

## ENVIRONMENTAL IMPLICATIONS

21. We completed an Environmental Impact Assessment (EIA) study for the projects in November 1997. The EIA report was endorsed by the Director of Environmental Protection in November 1997 and accepted by the Advisory Council on the Environment in December 1997.

22. The EIA study identified that road traffic noise during the operational stage as the major concern. The key measures to mitigate the predicted long term impacts include the provision of about 2.2 km of noise barriers ranging from 1.2 m to 4.2 m in height, and implementation of indirect noise mitigation measures in the form of window insulation and air conditioning to protect existing noise sensitive receivers at locations such as road junctions where, owing to space constraints and the need to maintain acceptable sight line at the road junctions, installation of noise barriers is not practical. It also identified that 64 existing dwellings and 39 classrooms of a school would be eligible for consideration of indirect mitigation remedies. With these measures, the predicted noise level will be reduced at least by 5 dB(A) and will then comply with the acceptable noise levels as stated in the Hong Kong Planning Standards and Guidelines.

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<sup>2</sup> In June 2001, Finance Committee approved the upgrading of part of **74CD** to Category A as **117CD** "Village flood protection for Mai Po Lo Wai, Mai Po San Tsuen, Ma Tin Tsuen and Shui Pin Wai, North West New Territories" at an estimated cost of \$174.8 million in MOD prices. Construction works commenced in December 2001 for completion by end 2004.

23. We will incorporate into the contract standard measures to control pollution arising during construction. These measures will 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. We have included the costs of noise mitigation measures (\$45.2 million) and an EM&A programme (\$3.2 million) in the overall project estimate.

24. We have considered at 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 roadworks. We estimate that the two projects will generate about 40 500 cubic metres (m<sup>3</sup>) of C&D materials in total. Of these, we will reuse about 6 100 m<sup>3</sup> (15%) on site, 8 100 m<sup>3</sup> (20%) as fill in public filling areas<sup>3</sup> and will dispose of 26 300 m<sup>3</sup> (65%) at landfill, which mainly comprises topsoil and vegetation that are not suitable for public filling or any other construction purposes. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$3.29 million (based on a notional unit cost<sup>4</sup> of \$125/m<sup>3</sup>).

25. We will require the contractor to submit a waste management plan (WMP) 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 day-to-day operations on site comply with the approved WMP. 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. 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.

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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.

26. The proposed works will affect 180 trees, of which 25 will be transplanted. We will compensate for the loss by replanting 1 800 trees and shrubs along the proposed roads. We will use hydroseeding to protect formed slopes as appropriate.

## LAND ACQUISITION

27. We will resume about 7.4 hectares of agricultural land and 2 083 m<sup>2</sup> of building land for **27CG** and **28CG**. The land acquisition and clearance will affect 177 households involving 640 persons and 1 067 structures. Under the existing policy, the Director of Housing will offer eligible families accommodation in public housing. We will charge the cost of land acquisition and clearance, estimated at \$438.0 million, to **Head 701** – Land Acquisition.

## BACKGROUND INFORMATION

28. We upgraded **27CG** and **28CG** to Category B in December 1993 and December 1992 respectively. In August 1996, we engaged consultants to undertake detailed design and investigations for the proposed works. We have charged the cost of \$3.2 million for **27CG** and \$4.3 million for **28CG** to 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 completed the detailed design and drawings. We schedule to commence the remaining works in mid 2004 for completion by end 2007.

29. We estimate that the proposed works will create some 250 jobs, comprising 55 professional/technical staff and 195 labourers, totalling 7 000 man-months.

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## Enclosure 3 to PWSC(2002-03)29

### Breakdown of estimate for consultants' fees

#### (I) 27CG – Yuen Long south eastern extension – site formation, roads and drainage works

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier <sup>(Note 1)</sup>	Estimated fees (\$ million)
(a) Consultants' fees for construction stage <sup>(Note 2)</sup>						
(i) contract administration	Professional		4.0	-	-	0.58
	Technical		2.5			0.12
(ii) preparation of as-built drawings	Professional		0.3	-	-	0.04
	Technical		1.3			0.06
(b) Resident site staff costs <sup>(Note 3)</sup>	Professional		62.5	38	1.7	6.42
	Technical		290.0	14	1.7	9.62
<b>Total consultants' staff costs</b>						<b>16.84</b>

#### (II) 28CG – Yuen Long south western extension – site formation, roads and drainage works

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier <sup>(Note 1)</sup>	Estimated fees (\$ million)
(a) Consultants' fees for construction stage <sup>(Note 2)</sup>						
(i) contract administration	Professional		5.5	-	-	0.80
	Technical		4.5			0.21
(ii) preparation of as-built drawings	Professional		0.7	-	-	0.10
	Technical		2.0			0.09
(b) Resident site staff costs <sup>(Note 3)</sup>	Professional		64.0	38	1.7	6.57
	Technical		323.0	14	1.7	10.71
<b>Total consultants' staff costs</b>						<b>18.48</b>

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 1.7 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at 1.4.2001, MPS pt. 38 = \$60,395 per month and MPS pt. 14 = \$19,510 per month)
2. The consultants' staff cost for construction stage (including contract administration and preparation of as-built drawings) is calculated in accordance with the existing consultancy agreement for investigation, design and supervision of construction works for Yuen Long South Development.
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.