

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 - HIGHWAYS

Transport - Roads

561TH - Widening of Tolo Highway between Island House interchange and Ma Liu Shui interchange

Members are invited to recommend to Finance Committee the upgrading of **561TH** to Category A at an estimated cost of \$2,507.2 million in money-of-the-day prices.

PROBLEM

The section of Tolo Highway between Tai Po and Sha Tin will be unable to cope with future traffic demand. Also, the existing emergency telephone system along the road is approaching the end of its serviceable life and there is no closed circuit television (CCTV) system to enable efficient traffic management and speedy response to incidents.

PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport, proposes to upgrade **561TH** to Category A at an estimated cost of \$2,507.2 million in money-of-the-day (MOD) prices for the widening of the section of Tolo Highway between Island House interchange and Ma Liu Shui interchange (the Highway), and the provision of a CCTV system and a new emergency telephone system along this section of the Highway.

/PROJECT...

PROJECT SCOPE AND NATURE

3. The scope of works for **561TH** includes -
- (a) providing one additional lane, 3.65 metres wide and 5.4 kilometres long, in each direction of Tolo Highway between Island House interchange and Ma Liu Shui interchange, and improvements to the existing road curves of this section of the Highway;
 - (b) associated reclamation and construction of a seawall;
 - (c) extension of existing vehicular bridges and pedestrian/cyclist subways;
 - (d) providing a CCTV system and an emergency telephone system along the same section of the Highway;
 - (e) widening of the existing cycle track along the same section of the Highway from 4.4 metres to 6.0 metres and providing a 2.5-metre wide footpath on the seaward side of the cycle track;
 - (f) reprovisioning of Chinese University of Hong Kong (CUHK) facilities affected by the widening; and
 - (g) ancillary works on road resurfacing, drainage, road lighting, environmental mitigation, landscape, traffic signs and pedestrian/cyclist facilities.

JUSTIFICATION

4. The Tolo Highway is a strategic road link serving the Northeast New Territories and cross boundary traffic. The average daily traffic on the Highway has been growing at a rate of about 18% per annum in recent years. As we anticipate that the traffic demand on the Highway will continue to grow, we need to improve the road capacity by widening this section of the Highway from dual-3 lane to

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dual-4 lane by 2001. The following table shows the projected volume/capacity¹ (V/C) ratios in 2001 during morning peak hours with and without the proposed widening -

		V/C ratio (Year 2001)	
		South-bound	North-bound
(a)	Without the proposed road widening	1.32	1.04
(b)	With the proposed road widening	1.00	0.78

5. Due to the presence of an existing railway on the land-ward side of the Highway, we will have to proceed with the widening works on its seaward side through limited reclamation and associated construction of seawalls. We will also need to extend the existing pedestrian subways and vehicular bridges running along the Highway to cope with its new width.

6. There is currently no CCTV system on Tolo Highway to monitor traffic flow and to identify incidents. The existing emergency telephone system on the Highway is also approaching the end of its serviceable life after thirteen years of service. As part of the road widening project, we will replace the existing emergency telephone system and install a CCTV system on the Highway to enable speedy responses to and reporting of traffic incidents.

7. Cycling along this section of Highway has been a popular public activity, particularly during weekends and holidays. To enhance safety standards and comfort, we will widen the existing cycle track with an additional footpath along the seaward side of the Highway.

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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; above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further increase in traffic.

8. Due to the constraint of the railway, the project will take up 1 237 square metres of land in the Eastern Campus of CUHK and affect an internal road and a water sports facility of the University. We need to reproviseion these facilities.

9. As a result of the increase in traffic flow after the completion of the project, we expect that the residents along the widened Highway will be exposed to noise levels higher than the upper limits stipulated in the Hong Kong Planning Standards and Guidelines. We will provide noise barriers along most parts of the Highway to mitigate traffic noise.

FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the project to be \$2,507.2 million in MOD prices (see paragraph 11 below), made up as follows -

	\$ million
(a) Roads and drains	523.5
(b) Reclamation and seawall	336.2
(c) Widening of existing vehicular bridges and extension of existing pedestrian subways	69.0
(d) CCTV and emergency telephone systems	35.7
(e) Noise barriers	593.1
(f) Landscaping works	45.1
(g) Reprovisioning of affected facilities in CUHK	3.0

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(h) Consultants' fees for		137.1	
(i) construction stage	4.6		
(ii) site staff costs	131.4		
(iii) Electrical and Mechanical Services Trading Fund (EMSTF) charges	1.1		
(i) Contingencies		174.3	
		<hr/>	
	Sub-total	1,917.0	(at December 1997 prices)
(j) Inflation allowance		590.2	
		<hr/>	
	Total	2,507.2	(in MOD prices)
		<hr/>	

A breakdown of the estimates for consultants' fees and site staff costs is at the Enclosure.

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

Year	\$ million (Dec 1997)	Price adjustment factor	\$ million (MOD)
1998 - 99	5.4	1.06000	5.7
1999 - 2000	305.7	1.14878	351.2
2000 - 01	529.0	1.24642	659.4

/2001 - 02....

2001 - 02	845.7	1.35237	1,143.7
2002 - 03	168.1	1.46732	246.7
2003 - 04	63.1	1.59204	100.5
	—————		—————
	1,917.0		2,507.2
	—————		—————

12. We have derived the MOD estimate on the basis of the Government forecasts of trend labour and construction prices for the period 1998 to 2004. We will tender the proposed works under a re-measurement contract because the quantities for the reclamation works and the foundations of the bridges and the noise barriers are subject to variations due to actual site conditions. We will provide for adjustment due to inflation in the contract because the construction period will last longer than 21 months.

13. We estimate the annual recurrent expenditure to be \$23.8 million.

PUBLIC CONSULTATION

14. We consulted the then Tai Po District Board and the Transport and Traffic Committee of the then Sha Tin District Board on 29 April 1997 and 21 May 1997 respectively. Both supported the project.

15. We gazetted the proposed works under the Roads (Works, Use and Compensation) Ordinance on 5 December 1997 and received three objections. One objector withdrew his objection after we agreed to provide additional measures to mitigate the potential ecological impact. A second objector queried the genuine need for the project and also expressed concern about the environmental impacts of the works. We provided him with additional information regarding the forecast traffic conditions and details of the proposed works and he eventually withdrew the objection. The last objector was CUHK, who requested a compensatory land allocation because part of the proposed works would encroach upon the Eastern Campus of the University. CUHK withdrew the objection after we reached an

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agreement-in-principle on a land exchange proposal. The Secretary for Transport authorised the proposed works under the Ordinance on 4 September 1998.

ENVIRONMENTAL IMPLICATIONS

16. We completed an Environmental Impact Assessment (EIA) for the project in April 1997. The EIA identified traffic noise as the key issue, and recommended low noise road surfacing and a package of vertical and canopy noise barriers from 1.5m to 8m high to mitigate the problem. The EIA concluded that with these and other recommended mitigation measures (such as the provision of an air quality buffer zone for future developments and implementation of an Environmental Monitoring and Audit Programme during the construction stage), the environmental impacts of the project will be controlled to within the established standards. The Advisory Council on the Environment endorsed the EIA report in May 1997. We have incorporated all the recommended environmental mitigation measures in the detailed design.

LAND ACQUISITION

17. This project will take up 1 237 square metres of land in the Eastern Campus of CUHK. The clearance will affect an internal road and a water sports facility in the University. We have reached an agreement-in-principle with CUHK on a land exchange package, in lieu of resumption, and will re-provision the affected CUHK facilities.

BACKGROUND INFORMATION

18. We upgraded **561TH** to Category B in August 1995. We also upgraded part of **561TH** as **713TH** to Category A, entitled "Widening of Tolo Highway between Island House interchange and Ma Liu Shui interchange - detailed design and ground investigation" in June 1997 at an estimated cost of \$49.6 million in MOD prices.

19. We have substantially completed the detailed design and working drawings for the proposed roadworks. We plan to start the roadworks in December 1998 for completion in December 2001.

20. We also plan to widen the remaining section of Tolo Highway and Fanling Highway between Island House interchange and Fanling, with installation of CCTV and renewal of existing emergency telephone systems, under **720TH** which was included in Category B in September 1998. We plan to start the detailed investigations for this project in early 1999 and the construction works in mid 2002 for completion in 2005 and we will seek necessary funding from the Committee in due course.

Transport Bureau
September 1998

(PWSC0016/WIN1)

561TH - Widening of Tolo Highway between Island House interchange and Ma Liu Shui interchange

Breakdown of estimates for consultants' fees and site staff costs (at December 1997 prices)

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier factor	Estimated fee (\$ million)
(a)	Administration of contract	Professional	24	40	3.0	4.2
		Technical	7	16	3.0	0.4
(b)	Site supervision by resident site staff employed by the consultants	Professional	479	40	2.1	59.6
		Technical	1 722	16	2.1	71.8
(c)	Electrical and Mechanical Services Trading Fund					1.1
					Total	137.1

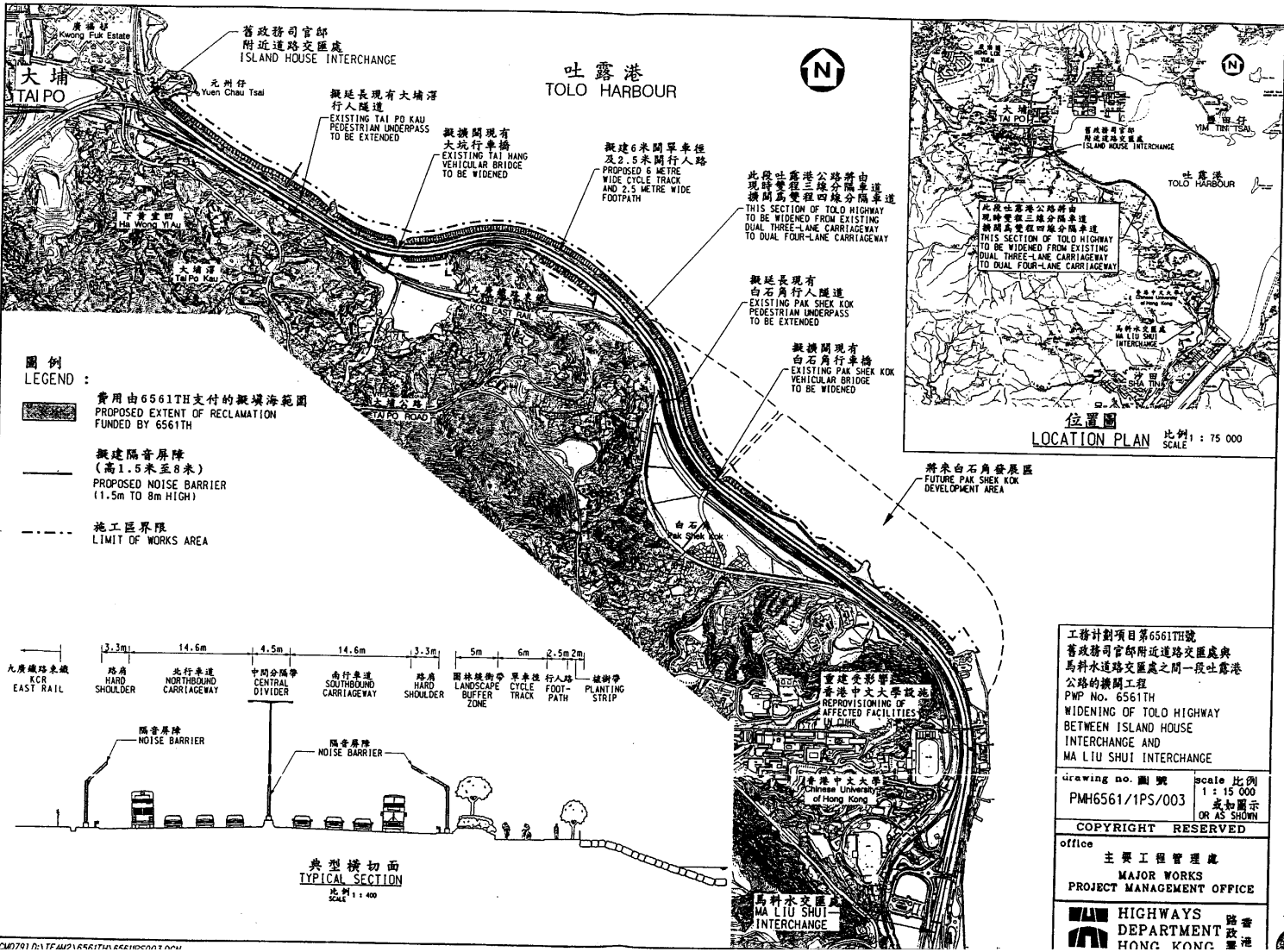
*MPS = Master Pay Scale

Notes

1. A multiplier factor of 3 is applied to the average 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. (At 1.4.97 MPS pt. 40 = \$59,210 p.m. and MPS pt. 16 = \$19,860 p.m.) A multiplier factor of 2.1 is applied in the case of site staff supplied by the consultants.
2. The consultants' fees for work in the construction stage is a provisional part of the lump sum price quoted by the selected consultants under Agreement No. CE96/96 "Design and Construction Assignment for Widening of Tolo Highway between Island House Interchange and Ma Liu Shui Interchange" which is available for acceptance by Government subject to approval of upgrading of **561TH** to Category A.

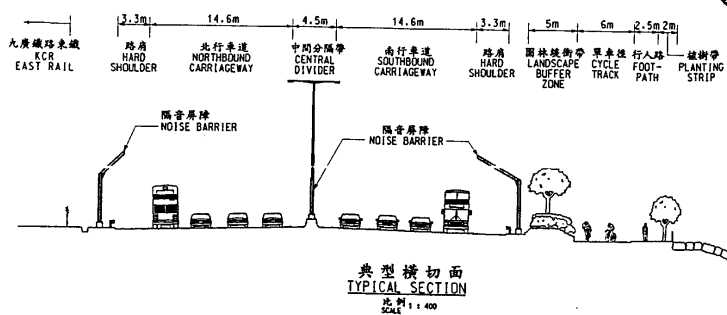
3. Since the establishment of the EMSTF on 1 August 1996 under the Trading Funds Ordinance, government departments pay for design and technical consultancy services for electrical and mechanical (E&M) installations provided by EMSD. The services rendered for this project include checking consultants' submissions on all E&M installations and providing technical advice to the Government on all E&M works and their impacts on the project.

(PWSC0016/WIN1)



圖例
LEGEND:

- 費用由6561TH支付的擬填海範圍
PROPOSED EXTENT OF RECLAMATION FUNDED BY 6561TH
- 擬建隔音屏障
(高1.5米至8米)
PROPOSED NOISE BARRIER (1.5m TO 8m HIGH)
- 施工區界限
LIMIT OF WORKS AREA



吐露港
TOLO HARBOUR



工務計劃項目第6561TH號
舊政務司官邸附近道路交匯處與
馬料水道路交匯處之間一段吐露港
公路的擴闊工程
PWP No. 6561TH
WIDENING OF TOLO HIGHWAY
BETWEEN ISLAND HOUSE
INTERCHANGE AND
MA LIU SHUI INTERCHANGE

Drawing no. 圖號
PMH6561/1PS/003
Scale 比例
1 : 15 000
或如圖示
OR AS SHOWN

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office 主要工程管理處
MAJOR WORKS
PROJECT MANAGEMENT OFFICE

HIGHWAYS DEPARTMENT 路政署
HONG KONG 香港

FROM 7/01 DATE 1/1/95 BY 1/1/95