

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 706 – HIGHWAYS

#### Transport – Roads

#### 519TH – Route 10 – North Lantau to Yuen Long Highway

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **519TH**, entitled “Route 10 – North Lantau to Yuen Long Highway – detailed design of the northern section” to Category A at an estimated cost of \$133.7 million in money-of-the-day prices; and
- (b) to retain the remainder of **519TH** in Category B.

### PROBLEM

The existing road network between the north west part of the New Territories (NWNT) and the urban areas will not be able to cope with future traffic demand generated by the anticipated population growth and developments in the NWNT and Lantau as well as by cross-boundary activities.

## PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport, proposes to upgrade part of **519TH** to Category A at an estimated cost of \$133.7 million in money-of-the-day (MOD) prices to employ consultants to undertake detailed design of a section of the proposed Route 10 – North Lantau to Yuen Long Highway (Route 10 (NLYLH)) between So Kwun Wat and Yuen Long Highway ("northern section"), and to carry out the associated site investigation.

## PROJECT SCOPE AND NATURE

3. The scope of works of **519TH** includes –

- (a) Southern section (section between North Lantau and So Kwun Wat) –

construction of about seven kilometres of carriageway from North Lantau to So Kwun Wat, which includes Tsing Lung Bridge, Tai Lam Chung Tunnel, and link roads connecting to Tuen Mun Road; and

- (b) Northern section (section between So Kwun Wat and Yuen Long Highway) –

construction of a 4.5-kilometre dual three-lane carriageway from So Kwun Wat to Yuen Long Highway near Lam Tei, which includes a four-km dual three-lane Lam Tei Tunnel, a toll plaza at Lam Tei Quarry and associated interchanges to connect with other necessary access roads.

- (c) For both southern and northern sections

- (i) associated civil, geotechnical, landscape, road and drainage works, ancillary buildings, toll facilities, electrical and mechanical installations, and environmental mitigation measures; and
- (ii) traffic control and surveillance system (TCSS).

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

- (a) detailed design of the proposed works for the northern section as set out in paragraph 3 (b) and (c)(i) above for the northern section;
- (b) associated site investigation and supervision; and
- (c) preparation of associated tender documents and assessment of tenders.

\_\_\_\_\_ A site plan and a typical cross section of Lam Tei Tunnel are at Enclosures 1 and 2 respectively. The alignment and configurations may be modified in the course of detailed design in the light of further study and views of the public when the scheme is gazetted.

## JUSTIFICATION

5. We need to construct Route 10 (NLYLH) northern section to meet the forecast traffic demand generated by the anticipated population growth in the NWNT as well as by cross-boundary activities. Route 10 (NLYLH) northern section represents the fourth north-south link besides Route 3 Country Park Section (Route 3 (CPS)), Tuen Mun Road and Tolo Highway.

6. In the light of committed developments under existing plans and strategic growth under the Territorial Development Strategy Review, we envisage that the population in the NWNT will increase from 800 000 in 1996 to 1 400 000 by 2011. Route 10 (NLYLH) northern section is necessary to cope with the increasing traffic demand generated from these developments.

7. Cross-boundary vehicular traffic between Hong Kong and the Mainland has been growing at a rapid rate due to the rapid economic development of the Pearl River Delta Region. Together with the proposed Shenzhen Western Corridor (SWC) and Deep Bay Link (DBL), Route 10 (NLYLH) will form part of the strategic road network to accommodate the increasing cross-boundary traffic. We are striving to complete SWC and DBL in 2005. Hence, we need to complete Route 10 (NLYLH) to connect with SWC/DBL to adequately cater for the cross-boundary traffic flow.

8. According to the latest traffic forecast, the morning peak hour volume/capacity<sup>1</sup> (V/C) ratios at critical sections of the nearby road links, with and without Route 10 (NLYLH), are as follows –

Strategic Routes	V/C Ratio				
	2001	2006		2011	
		Without SWC	With SWC	Without Route 10 (NLYLY)	With Route 10 (NLYLH)
Route 10 (NLYLH) southern section	-	-	-	-	0.34
Route 10 (NLYLH) northern section	-	-	-	-	0.37
Route 3 (Country Park Section)	0.84	0.94	1.04	1.15	0.94
Tuen Mun Road (Sham Tseng Section)	1.07	1.10	1.19	1.31	0.94

- Notes**
- (1) The figures in the above tables show the critical AM peak V/C ratios (urban areas bound) on various traffic corridors.
  - (2) A dash in the above table represents the non-provision of the relevant section of the proposed road.

In the absence of Route 10 (NLYLH) northern section, Tuen Mun Road, in particular the Sham Tseng section, would be operating at a high V/C ratio of about 1.31 in 2011 and Route 3 (CPS) would also be saturated by then. By that time Route 10 (NLYLH) northern section, as a new north-south link road, will be required to relieve the traffic conditions at Tuen Mun Road and Route 3. We therefore originally proposed to complete Route 10 (NLYLH) northern section in 2010-11. However, the Yuen Long (YLDC) and Tuen Mun District Councils (TMDC) are concerned about the traffic impact on Tuen Mun Road and strongly urge for the early implementation of Route 10 (NLYLH) northern section which links DBL to Sham Tseng. To address such concerns and to provide further safeguard against congestion on Tuen Mun Road, we propose to start the detailed design of Route 10 (NLYLH) northern section in mid-2002 for completion in end 2003 in order to have the flexibility of completing the project between 2007-08 /and .....

<sup>1</sup> 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

and 2010-11. To undertake the detailed design for Route 10 (NLYLH) northern section now will not oblige us to complete the project by a particular date at this stage. This will only be determined when we seek funding for the construction works.

9. We commenced the Investigation and Preliminary Design (I&PD) of the northern section in May 1999. We have already completed the I&PD and established a preferred alignment together with the associated land, environmental, drainage, traffic and other impacts on the affected areas. We now propose to undertake the detailed design of the northern section. As we do not have the necessary in-house resources, we need to employ consultants to undertake the detailed design and to supervise the associated site investigation works.

### FINANCIAL IMPLICATIONS

10. We estimate the cost of this part of the project to be \$133.7 million in MOD prices, made up as follows –

	<b>\$ million</b>
(a) Consultants' fees for	93.6
(i) review of I&PD, carrying out detailed design, preparation of tender documents and assessment of tenders	87.7
(ii) supervision of site investigation	1.2
(iii) Electrical and Mechanical Services (EMSD) and Office of Telecommunication Authority (OFTA) Trading Funds charges	4.7

/(b) .....

(b) Site Investigation	30.0	
(c) Contingencies	10.0	
	133.6	(in September 2001 prices)
(d) Provision for price adjustment	0.1	
	133.7	(in MOD prices)
Total:	133.7	

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 –

Year	\$ million (Sep 2001)	Price Adjustment Factor	\$ million (MOD)
2002 – 2003	59.6	0.99700	59.4
2003 – 2004	72.0	1.00398	72.3
2004 – 2005	2.0	1.01101	2.0
	133.6		133.7

12. We have derived the MOD estimate on the basis of Government's latest forecast of trend labour and construction prices for the period 2002 to 2005. We will employ consultants on a lump-sum basis with provision for price fluctuation because the duration of the detailed design will exceed 12 months. The consultants will supervise the site investigation works under contracts to be awarded through the normal competitive tendering process.

13. The proposed detailed design and site investigation have no additional annual recurrent financial implications.

/PUBLIC .....

**PUBLIC CONSULTATION**

14. We consulted the Tuen Mun Rural Committee (TMRC), the concerned village representatives (VRs) and local residents on the proposed alignment of the northern section and the ground investigation works at an interchange at Lam Tei between September 1999 and July 2000. At these consultative meetings we provided details of the project and explained the reasons for selecting the proposed location of the interchange. Upon the TMRC's request, we investigated alternative alignments and the possibility of relocating the proposed interchange to the existing Lam Tei Quarry on the southern side of Yuen Long Highway. Having regard to town planning, environmental, engineering, and construction cost considerations, as well as impact on local residents, we concluded that the proposed alignment was the most preferable option and relocating the interchange was not viable from technical and environmental points of view. We conveyed these findings to the TMRC and VRs. The TMRC and VRs generally accepted the proposed location of the interchange. They requested the Administration to review the relevant policies to resolve the issues of land resumption, compensation and re-housing arrangements prior to finalising the alignment. These would be handled according to statutory procedures.

15. We consulted the Tuen Mun District Council (TMDC) on the Route 10 (NLYLH) project between November 2000 and November 2001. TMDC had no in-principle objection to the project and the proposal to proceed with the detailed design of the northern section. However, the TMDC requested the Administration to address the concerns of local residents related to land resumption, compensation and re-housing. A working group was formed to follow up on these issues. The group supported the project but requested the Administration to review the relevant policies to properly resolve the land resumption, compensation and re-housing issues. We are examining these issues and will address them according to statutory procedures. When consulted on the SWC/DBL projects in August and September 2001, the TMDC was concerned about the traffic impact on Tuen Mun Road. Members passed a motion that the Administration should complete Route 10 (NLYLH) as soon as possible to cater for the traffic from SWC and DBL. Taking into account the time required for the preparatory and construction works, the completion of Route 10 (NLYLH) could be advanced to 2007-08 the earliest.

16. When consulted on the SWC/DBL projects in September 2001, the Traffic and Transport Committee of the YLDC also expressed concerns about the traffic impact on Tuen Mun Road. At the YLDC meeting in December 2001, Members passed a motion that the Council welcomed the construction of DBL and

/Route .....

Route 10 (NLYLH), but requested the Government to minimise the impact during construction, to provide connections to the local areas in Yuen Long and to resolve the land resumption and re-housing issues.

17. When consulted on SWC/DBL in October 2001, the Legislative Council Panel on Transport raised concerns that the SWC and DBL traffic, upon opening, would cause unacceptable congestion at Tuen Mun town centre and Tuen Mun Road, and considered that the planning of the supporting infrastructure, especially the northern section of Route 10 (NLYLH), should be co-ordinated with the SWC and DBL programme. At the same time, Panel members had received comments from various bodies and members of the public regarding Route 10 (NLYLH). The Panel discussed the Route 10 (NLYLH) project on 23 November 2001 and organized five public hearings together with the concerned parties between November 2001 and January 2002.

18. During the Panel meetings, Route 3 (CPS) Company indicated that there was still spare capacity at Route 3 and the route would not reach saturation until 2016. Route 10 (NLYLH) northern section would not be required until then. We explained our forecast that Route 3 would be saturated by 2010-11 during peak hours and Route 10 (NLYLH) northern section would be required by then. It was however due to the concerns raised by Members, the TMDC and the YLDC that we would be prepared to start the detailed design of Route 10 (NLYLH) northern section in 2002 to retain the flexibility of completing the project between 2007-08 and 2010-11. As regards Sir Gordon Wu's suggestion that Route 10 (NLYLH) be replaced with a link road between Tuen Mun and Chek Lap Kok, we explained that such a route is already on our drawing board but its priority is lower than that of Route 10 (NLYLH). This is because it relates to future traffic demand arising from the further development of the logistics industry in Lantau, the possible fifth land crossing to the western shore of the Pearl River Delta, as well as the future development of any new container terminals. This link cannot perform the important functions of Route 10 (NLYLH), such as providing a connection between the NWNT and the urban areas and container ports and relieving Tuen Mun Road and Route 3 in the longer term.

19. At the last meeting on 23 January 2002, Members did not raise any objection to SWC/DBL, and did not come to a view on Route 10 (NLYLH) northern section. Some members suggested we further consult the Hong Kong Logistic Development Council on the development of road infrastructure to cope with the development of logistics industry in Hong Kong.

**/ENVIRONMENTAL .....**

## ENVIRONMENTAL IMPLICATIONS

20. The Route 10 (NLYLH) project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project. We will submit the EIA report to the Director of Environmental Protection for approval under the EIA Ordinance and will follow the statutory procedures and make the EIA report available for comments by the public and the Advisory Council on the Environment. We have to obtain an environmental permit for the project prior to the commencement of construction.

21. The proposed detailed design will not give rise to any adverse environmental implications. We will implement standard environmental pollution control measures to manage the environmental impacts of the associated site investigation. The site investigation will only generate a minimal amount of construction and demolition material (C&D) materials. We will require the detailed design consultants to fully consider measures to minimise the generation of C&D materials and to recycle/reuse C&D materials as much as possible in the future implementation of construction contracts.

## LAND ACQUISITION

22. The proposed detailed design and site investigation do not require any land acquisition. However, land acquisition will be required before the commencement of construction of projects. The details and scope of the land acquisition required will be ascertained in the detailed design stage.

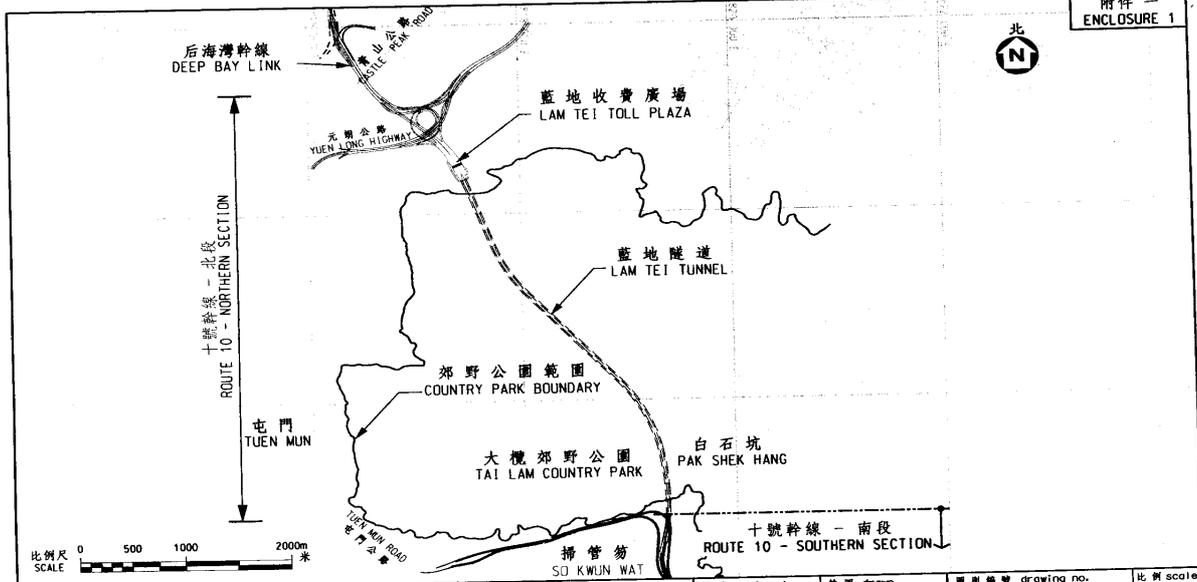
## BACKGROUND INFORMATION

23. We upgraded **519TH** to Category B in August 1997. We upgraded part of **519TH** to Category A in December 1997 as **715TH** "Route 10 – North Lantau to Yuen Long Highway – investigation and preliminary design" at an estimated cost of \$353.8 million in MOD prices to undertake investigation and preliminary design of Route 10 (NLYLH). We completed the preliminary design for the southern section in September 1999 and upgraded part of **519TH** to Category A in December 1999 as **738TH** "Route 10 – North Lantau to Yuen Long Highway – detailed design of the southern section" at an estimated cost of \$454.5 million in MOD prices to undertake the detailed design of the southern section. For the northern section, we plan to start the detailed design in mid 2002 for completion in end 2003.

24. We estimate that the project will create 85 jobs comprising 55 professional/technical staff and 30 labours totalling 1 220 man-months.

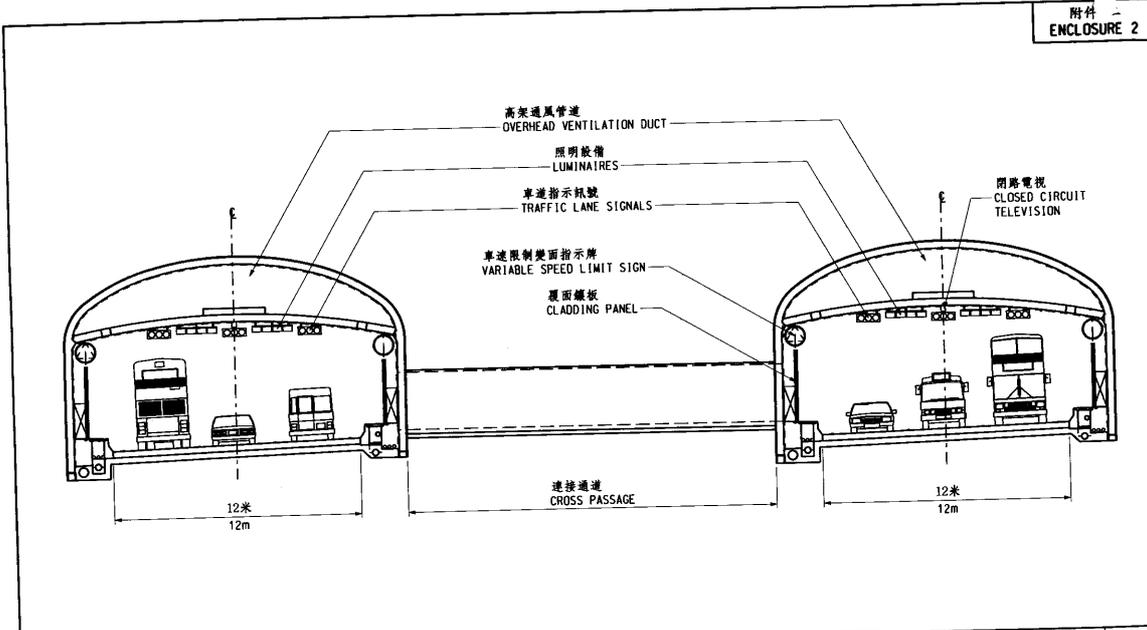
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Transport Bureau  
January 2002



圖則名稱 drawing title		設計 designed S.L.LEE SIGNED 12/01/2002	繪圖 drawn S.H.CHENG SIGNED 12/01/2002	圖則編號 drawing no. MW6519TH-SP0012	比例 scale 如圖示 AS SHOWN
十號幹線 - 北大嶼山至元朗公路北段範圍 SCOPE OF ROUTE 10 - NORTH LANTAU TO YUEN LONG HIGHWAY NORTHERN SECTION		覆核 checked S.L.LEE SIGNED 24/01/2002	批准 approved W.K.HO SIGNED 24/01/2002	© 版權所有 COPYRIGHT RESERVED	
		主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE		 HIGHWAYS DEPARTMENT HONG KONG 路 政 署	

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圖則名稱 drawing title

藍地隧道的典型橫切面  
TYPICAL CROSS SECTION OF  
LAM TEI TUNNEL

設計 designed S. L. LEE SIGNED 16/12/01	繪圖 drawn S. H. CHENG SIGNED 16/12/01	圖則編號 drawing no. MW6519TH-SP0009	比例 scale 不按比例 N. T. S.
覆核 checked S. L. LEE SIGNED 16/12/01	批准 approved W. R. HO SIGNED 16/12/01	© 版權所有 COPYRIGHT RESERVED	
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**519TH - Route 10 - North Lantau to Yuen Long Highway**

**Breakdown of the estimate for consultants' fees (at September 2001 prices)**

<b>Consultants' staff costs</b>			<b>Estimated man- months</b>	<b>Average MPS* salary point point</b>	<b>Multiplier Factor</b>	<b>Estimated fee (\$ million)</b>
(a)	Review of the findings of the investigation and preliminary design	Professional	61	38	2.4	8.8
		Technical	56	14	2.4	2.6
(b)	Carrying out detailed design	Professional	266	38	2.4	38.6
		Technical	337	14	2.4	15.8
(c)	Preparation of tender documents and assessment of tenders	Professional	121	38	2.4	17.5
		Technical	94	14	2.4	4.4
(d)	Supervision of site investigation	Professional	7	38	1.7	0.7
		Technical	15	14	1.7	0.5
(e)	EMSD, OFTA Trading Funds charges					<u>4.7</u>
Total consultants' staff costs						93.6
<b>Out-of-pocket expenses</b>						
(a)	Site investigation					<u>30.0</u>
Total						<u>123.6</u>

\*MPS = Master Pay Scale

**Notes**

1. A multiplier of 2.4 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. (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 cost incurred. The consultants are not entitled to any additional payment for the overheads or profit 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 actual fees only when we have selected the consultants through the usual competitive lump-sum fee bid system.
4. The EMSD and OFTA Trading Funds were established on 1 August 1996 and 1 June 1995 respectively under the Trading Fund Ordinance. Government departments are charged for design and technical services for electrical and mechanical (E&M) and telecommunication installations provided by EMSD and OFTA respectively. The services rendered for this project include checking consultants' submissions on all E&M and telecommunication installations, and providing technical advice to government on all E&M works and their impacts on the project.