

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 706 – HIGHWAYS

#### Transport – Roads

#### 801TH – Widening of Tuen Mun Road at Tsing Tin Interchange

Members are invited to recommend to Finance Committee the upgrading of **801TH** to Category A at an estimated cost of \$60.6 million in money-of-the-day prices for the widening of Tuen Mun Road at Tsing Tin Interchange.

### PROBLEM

The capacity of the existing section of Tuen Mun Road at Tsing Tin Interchange is insufficient to cope with the future traffic demand.

### PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport and Housing, proposes to upgrade **801TH** to Category A at an estimated cost of \$60.6 million in money-of-the-day (MOD) prices for the widening of the section of Tuen Mun Road (TMR) at Tsing Tin Interchange.

### PROJECT SCOPE AND NATURE

3. The scope of **801TH** comprises –

/(a) .....

- (a) widening of a section of TMR about 240 metre (m) long from a dual-two lane to dual three-lane configuration;
- (b) installation of cantilevered noise barriers of a total length of approximately 190 m ranging from 7 to 8 m in height along the slow lanes of TMR;
- (c) laying of 195 m long low noise surfacing on each bound of TMR across the full width of the road;
- (d) realignment of four slip roads leading to/from Tsing Tin Interchange with a total length of 380 m;
- (e) associated works including drainage, slope improvement, road lighting, landscaping and traffic aids; and
- (f) implementation of an environmental monitoring and audit (EM&A) programme for the works mentioned in paragraph 3(a) to 3(e) above.

\_\_\_\_\_ A site plan with a cross section of the proposed works is at Enclosure.

4. We plan to commence the construction works in May 2008 for completion in November 2009.

#### **JUSTIFICATION**

5. Tsing Tin Interchange connects the Tuen Mun town centre with TMR. It is a dual two-lane carriageway and is currently heavily used. According to the traffic forecast of the Transport Department, this Interchange will not have adequate capacity to cater for the anticipated traffic demand. It is therefore necessary to increase the traffic capacity of this section.

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6. The projected volume/capacity (v/c) ratios<sup>1</sup> of TMR at Tsing Tin Interchange during peak hours in 2009, 2011 and 2016 with and without the proposed widening are tabulated below –

V/C ratio of TMR at Tsing Tin Interchange	Year			
	2008	2009	2011	2016
With the proposed road widening works	–	0.7	0.8	0.9
Without the proposed road widening works	1.0	1.1	1.2	1.4

7. To provide space for the widening of TMR, it is necessary to realign four existing slip roads leading to/from TMR at Tsing Tin Interchange. We will also upgrade the existing slopes supporting the slip roads to meet the prevailing standards in conjunction with the realignment works.

## FINANCIAL IMPLICATIONS

8. We estimate the cost of this project to be \$60.6 million in September 2007 prices (see paragraph 9 below) made up as follows –

	\$ million
(a) Roads and drains	1
(b) Environmental mitigation measures	2
(i) noise barriers	23.3
(ii) low noise surfacing	0.5
	<b>/\$ million.....</b>

<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 deteriorating progressively with further increase in traffic.

	<b>\$ million</b>
(c) Slope improvement, road lighting and traffic aids	1
(d) Landscaping works	
(e) Consultants' fees	
(i) EM&A <sup>2</sup> programme	0.3
(ii) Electrical and Mechanical Services Trading Fund <sup>3</sup> (EMSTF) charges	0.2
(f) Contingencies	_____
Sub-total	5 (in September 2007 prices)
(g) Provision for price adjustment	_____
Total	_____6 (in MOD prices)

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

<b>Year</b>	<b>\$ million (Sep 2007)</b>	<b>Price Adjustment Factor</b>	<b>\$ million (MOD)</b>
2008 – 2009	16.4	1.00750	16.5
2009 – 2010	32.8	1.01758	33.4
			<b>/Year.....</b>

<sup>2</sup> We will engage consultants to implement an EM&A programme at an estimated cost of \$300,000 to ensure timely and effective implementation of the recommended environmental mitigation measures.

<sup>3</sup> Since the establishment on 1 August 1996 under the Trading Fund Ordinance, the EMSTF charges government departments for design and technical consultancy services for electrical and mechanical installations provided by the Electrical and Mechanical Services Department. The services rendered for this project include providing technical advice to the Government on high mast lighting works and their impacts on the project from maintenance and general operation points of view.

Year	\$ million (Sep 2007)	Price Adjustment Factor	\$ million (MOD)
2010 – 2011	8.9	1.02775	9.1
2011 – 2012	1.5	1.03803	1.6
	59.6		60.6

10. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2008 to 2012. We will tender the proposed works under a standard remeasurement contract. We will not allow for price adjustment in the contract as the construction period will not exceed 21 months.

11. We estimate the additional recurrent expenditure upon completion of the project to be about \$228,000 annually.

## **PUBLIC CONSULTATION**

12. We consulted the Traffic and Transport Committee of Tuen Mun District Council (TMDC) on 10 November 2006. Members supported the project and requested its early implementation. We consulted the Leisure and Culture Committee (LCC) of TMDC on 14 August 2007 on the tree felling and planting proposals and the permanent and temporary alienation of part of Castle Peak Road (San Hui) Park. We took into account Members' concern for felling of trees within the Park and their desire for preservation. A site visit was arranged for the LCC members on 17 September 2007 during which we explained our proposal for tree felling and transplanting and the reasons for doing so. Members supported our proposal.

13. We consulted the Environment, Hygiene and District Development Committee of TMDC on 21 September 2007 on the findings of the Environmental Impact Assessment (EIA) study of the project. Members had no adverse comments but requested us to consider the installation of noise barriers along TMR from Tseng Choi Street to Tuen Mun Heung Sze Wui Road. We explained to Members that the feasibility of the said noise barriers was under investigation in a separate project<sup>4</sup>.

14. We have consulted the Advisory Committee on the Appearance of Bridges and Associated Structures<sup>5</sup> on the aesthetic design of the proposed noise barriers under the project. The Committee accepted the proposed aesthetic design.

15. We gazetted the proposed works under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) (the Ordinance) on 27 July 2007 and received no objection. The works were authorised under the Ordinance on 11 October 2007 and the notice of authorisation was gazetted on 18 October 2007.

16. We consulted the Legislative Council Panel on Transport on the project on 28 January 2008. Members supported the early implementation of the project.

## ENVIRONMENTAL IMPLICATIONS

17. The project is a designated project under Schedule 2 of the EIA Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project. The key environmental concern is traffic noise. We have completed the EIA report for the project and the report was exhibited for public inspection between 14 December 2007 and 12 January 2008 under the EIA Ordinance. No public comments were received and the Director of Environmental Protection approved the EIA report under the EIA Ordinance on 23 January 2008.

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<sup>4</sup> We upgraded **6810TH** "Retrofitting of noise barriers on Tuen Mun Road Town Centre Section" to Category B in January 2006.

<sup>5</sup> The Advisory Committee on the Appearance of Bridges and Associated Structures, which comprises representatives of the Hong Kong Institute of Architects, the Hong Kong Institution of Engineers, Architectural Services Department, Highways Department, Housing Department, Planning Department and Civil Engineering and Development Department, is responsible for vetting the design of bridges and other structures associated with the public highway system, including noise barriers and semi-enclosures, from the aesthetic and visual impact points of view.

18. The EIA report concluded that the environmental impacts of the project could be controlled to within established criteria under the EIA Ordinance and the Technical Memorandum on EIA Process. We will implement the mitigation measures as recommended in the EIA report and the EM&A manual.

19. The key environmental mitigation measures include the installation of cantilevered noise barriers and laying of low noise road surfacing along the full width of the road at the widened section of TMR.

20. For impacts during the construction stage, we will control noise, dust and site run-off nuisance to comply with established criteria through the implementation of appropriate mitigation measures in the works contract. We will implement an EM&A programme during the course of construction to ensure that proactive measures are adopted to avoid the occurrence of adverse environmental impacts to the public.

21. We have considered measures in the planning and design stages to minimise the generation of construction waste where possible. These measures include the reviews of the extent for road reconstruction works and road alignments. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities<sup>6</sup>. We will encourage the contractor to minimise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

22. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation measures to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

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<sup>6</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulations. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

23. We estimate that the project will generate about 14 720 tonnes of construction waste. Of these, we will reuse about 1 746 tonnes (12%) of inert construction waste on site and deliver 11 300 tonnes (77%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of about 1 674 tonnes (11%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be about \$0.5 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne<sup>7</sup> at landfills).

## HERITAGE IMPLICATIONS

24. The project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office.

## LAND ACQUISITION

25. The proposed works do not require any land acquisition.

## BACKGROUND INFORMATION

26. We upgraded **801TH** to Category B in January 2006. We engaged consultants to carry out an EIA study for the project in January 2007 at an estimated cost of \$1.0 million under **Subhead 6100TX** “Highways works, studies and investigations for items in Category D of the Public Works Programme”. In August 2007, we commenced the ground investigation at an estimated cost of \$450,000 under **Subhead 6100TX**. The consultants have completed the EIA study in November 2007. The ground investigation works were completed in October 2007. Highways Department has completed the detailed design using in-house resources.

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<sup>7</sup> This estimate has taken into account the cost for development, 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 is likely to be more expensive) when the existing ones are filled.



27. Of the 550 trees within the project boundary, 503 will be preserved. The proposed works will involve the removal of 47 trees including 40 trees to be felled and seven to be transplanted within the project site. All trees to be removed are not “important trees”<sup>8</sup>. We will incorporate planting proposals as part of the project, including estimated quantities of 47 trees and 2 855 shrubs.

28. We estimate that the proposed works will create about 85 jobs (11 for professional/technical staff and 74 for labourers) providing a total employment of about 1 350 man-months.

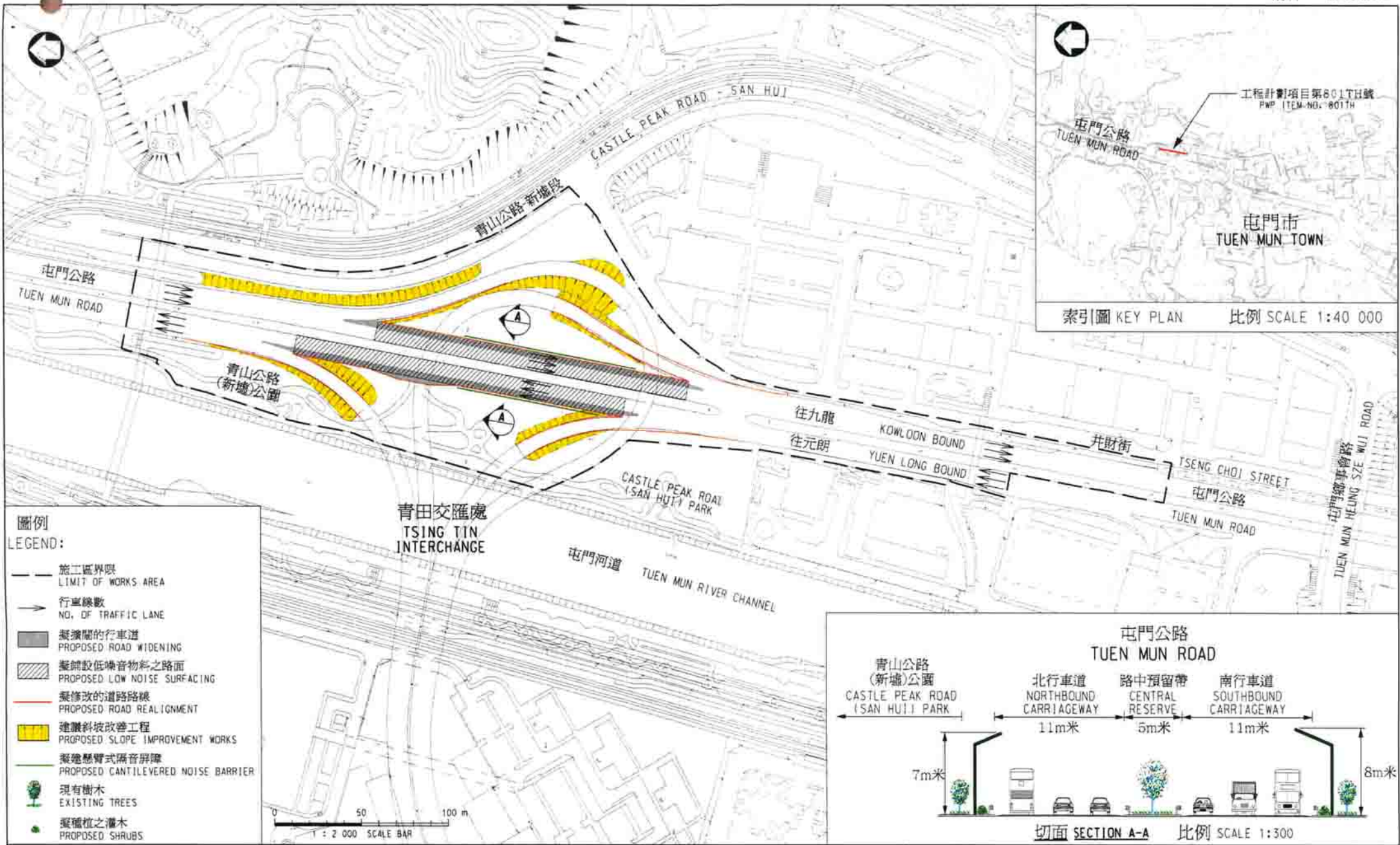
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Transport and Housing Bureau  
February 2008

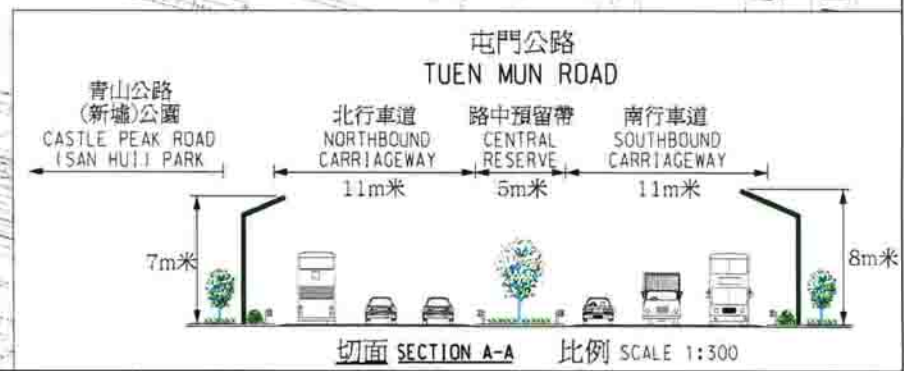
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<sup>8</sup> “Important trees” refer to trees in the Register of Old and Valuable Trees, and any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of a monastery or heritage monument, and trees in memory of important persons or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 m.



- 圖例**  
LEGEND:
- 施工區界限  
LIMIT OF WORKS AREA
  - 行車線數  
NO. OF TRAFFIC LANE
  - 擬擴闊的行車道  
PROPOSED ROAD WIDENING
  - ▨ 擬鋪設低噪音物料之路面  
PROPOSED LOW NOISE SURFACING
  - 擬修改的道路路線  
PROPOSED ROAD REALIGNMENT
  - 建議斜坡改善工程  
PROPOSED SLOPE IMPROVEMENT WORKS
  - 擬建懸臂式隔音屏障  
PROPOSED CANTILEVERED NOISE BARRIER
  - 現有樹木  
EXISTING TREES
  - 擬種植之灌木  
PROPOSED SHRUBS
- 0 50 100 m  
1:2 000 SCALE BAR



圖則名稱 plan title		設計 designed		繪圖 drawn		圖則編號 plan no.		比例 scale	
工務計劃項目第801TH號 - 屯門公路近青田交匯處段道路擴闊工程		M.D.TAM 04/02/08 SIGNED		Y.K.NG 04/02/08 SIGNED		HMW601TH-SP0002		1:2000 OR AS SHOWN	
PWP ITEM NO. 801TH - WIDENING OF TUEN MUN ROAD AT TSING TIN INTERCHANGE		覆核 checked		批准 approved		© 版權所有 COPYRIGHT RESERVED		HONG KONG	
		K.C.LAI 04/02/08 SIGNED		P.D.MORGAN 04/02/08 SIGNED		HIGHWAYS DEPARTMENT		路政署	
		主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE				HONG KONG		路政署	