For discussion
on 19 December 2008

Legislative Council Panel on Transport

720TH – Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling

PURPOSE

This paper seeks Members' views on our proposal to upgrade part of **720TH** - Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling (the Project) to Category A for the section of Tolo Highway between Island House Interchange and Tai Hang.

PROJECT SCOPE AND NATURE

2. The full scope of **720TH** (the Project) includes the widening of Tolo Highway between Island House Interchange and Tai Hang (Stage 1) and that of Fanling Highway from Tai Hang to Wo Hop Shek Interchange (Stage 2).

3. The part of the Project we now propose to upgrade to Category A comprises –

(a) widening of the section of Tolo Highway between Island House Interchange and Tai Hang of approximately 5.7 kilometres (km) long from a dual three-lane carriageway to a dual four-lane carriageway, with standard hard shoulders on both directions of the carriageway;

(b) widening of the sections of Tolo Highway from dual two-lane to dual three-lane at Island House Interchange and Lam Kam Road Interchange; widening of the northbound and southbound sections of Tolo Highway from a two-lane carriageway to a three-lane carriageway and from a two-lane carriageway to a four-lane carriageway respectively at Tai Po North Interchange; and realignment of the associated slip roads at the three interchange sections;

(c) realignment of a section of Tai Wo Service Road West;

(d) construction of 12 vehicular bridges and modification of seven existing vehicular bridges;

(e) installation of the following along the carriageway –

(i) vertical noise barriers of about 6 km long, ranging from 2 metres (m) to 8 m high;

(ii) single-leaf cantilever noise barriers of about 3.2 km long, 5 m high with 3 m or 4.5 m bend; and

(iii) double-leaf cantilever noise barriers of about 600 m long, 5 m high with 3 m bend;

(f) provision of a traffic control and surveillance system (TCSS);

(g) associated civil, structural, landscaping, electrical and mechanical works, and works on environmental mitigation, drainage, road lighting, water mains and traffic aids; and

(h) implementation of an environmental monitoring and audit (EM&A) programme for the works mentioned in paragraph 3(a) to 3(g) above.

A plan, with cross-section illustrations, showing the proposed works is at **Enclosure**.

4. We have substantially completed the detailed design for Stage 1 of the Project. We plan to commence the Stage 1 construction works in May 2009 for completion in phases by April 2013. We plan to commence the Stage 2 construction works in June 2010 for completion in 2014.

JUSTIFICATION

5. Tolo Highway and Fanling Highway form a strategic road link serving the Northeast New Territories (NENT) and cross-boundary traffic. In recent years, traffic during peak hours has been operating near the design capacities at some sections of the highways. Traffic queues stretching from Island House Interchange up to Tai Po North Interchange frequently occur during peak hours.

6. In view of the future developments in the NENT, it is anticipated that both the population and the cross-boundary traffic in the area will experience a significant growth which will in turn exacerbate the traffic condition of Tolo Highway and Fanling Highway.

7. According to the recent survey and traffic forecast, the observed/ projected traffic volume to capacity (v/c) ratios[1] of Tolo Highway between Island House Interchange and Tai Hang during peak hours with and without the proposed Stage 1 works are shown in the following table –

Year	**2008**	**2011**	**2016**	**2021**
v/c ratio without the proposed Stage 1 works	0.98	1.09	1.23	1.37
v/c ratio with the proposed Stage 1 works	–	–	0.91	1.00

8. To cope with the anticipated traffic demand from the NENT development and growth in cross-boundary traffic, we propose to widen the section of Tolo Highway between Island House Interchange and Tai Hang from a dual three-lane carriageway to a dual four-lane carriageway. We also plan to widen the highway interchange sections described in paragraph 3(b) above to improve the merging and diverging arrangements to meet current standards. Since Tolo Highway and Fanling Highway are not yet provided with hard shoulders as they were constructed some 20 years ago, we plan to construct full-width hard shoulders along the highways where practicable.

9. As Tolo Highway forms part of the strategic Route 9, we propose to provide a TCSS comprising variable message signs, lane control signals, variable speed limit signs, closed-circuit television cameras (CCTV) and vehicle detectors in Stage 1 of the Project to enhance the efficiency and effectiveness of traffic and incident management. To ensure the TCSS operates as an integrated system for the entire Tolo Highway, it will also cover the section between Ma Liu Shui Interchange and Island House Interchange.

[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 deteriorating progressively with further increase in traffic.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the construction works of Stage 1 of the Project to be $4,486.9 million in money-of-the-day (MOD) prices, made up as follows –

				$ million
(a)	Roads and drains			651.6
(b)	Earthworks			819.2
(c)	Vehicular bridges			884.3
(d)	Landscaping works			45.4
(e)	Noise barriers			737.7
	(i)	vertical	284.5	
	(ii)	single-leaf cantilever	381.6	
	(iii)	double-leaf cantilever	71.6	
(f)	TCSS			166.3
(g)	Site investigation			10.0
(h)	Consultants' fees			328.9
	(i)	construction supervision and contract administration	7.7	
	(ii)	resident site staff costs	299.7	
	(iii)	EM&A programme	10.2	

(iv)	Electrical and Mechanical Services Trading Fund (EMSTF)[2]	11.3		
(i)	Contingencies		320.7	
		Sub-total:	3,964.1	(in September 2008 prices)
(j)	Provision for price adjustment		522.8	
		Total:	4,486.9	(in MOD prices)

11. Item (a) under paragraph 10 includes road pavements, street furniture, traffic aids, drainage and temporary traffic arrangement measures. Item (b) under paragraph 10 includes slope cutting, embankment filling and retaining wall construction. Item (c) under paragraph 10 includes the demolition and modification of existing bridges and construction of temporary bridges. Item (g) under paragraph 10 includes the site investigation works which could not be done during the detailed design stage due to access difficulties. We estimate that the proposed works will create about 2 280 jobs (440 for professional/technical staff and 1 840 for labourers) providing a total employment of about 77 900 man-months.

PUBLIC CONSULTATION

12. We consulted the Traffic and Transport Committee (T&TC) of the Tai Po District Council (TPDC) on 13 September 2007 and 14 March 2008 on the Project. We also consulted the Tai Po Rural Committee on 12 May 2007 and 11 March 2008. Both supported the Project and requested its early implementation.

13. We gazetted the road scheme for the proposed Stage 1 works under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) (the Ordinance) on 26 October 2007 and received three objections. All of them

[2] Upon its establishment from 1 August 1996 under the Trading Funds Ordinance, the EMSTF charges government departments for design and technical consultancy services for electrical and mechanical (E&M) installation. 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.

remained unresolved. Details of the unresolved objections[3] are as follows –

(a) Objector No.1 objected to the resumption of his lots. He claimed that the time schedule for land resumption and clearance was not given and the actual amount of compensation was not known. In addition, he considered that the Administration should compensate him for the loss incurred for not implementing the Project in 2003. We advised the objector on the target commencement date for the proposed works and explained that the Administration was not in a position to advise the amount of compensation until the time of resumption as the actual amount would be subject to the prevailing rate at the time of land reversion. We also explained that he would be compensated in accordance with the prevailing land resumption policy. Despite our explanation, the objector maintained his objection;

(b) Objector No.2 objected to the resumption of a portion of her lot. She claimed that the operation of her garage on the lot would be adversely affected by the land resumption and requested the Administration to confirm the area of the residual portion of her lot that would not be resumed. In order to minimize the impact on the operation of this objector's garage, the road scheme was slightly modified by constructing a short section of retaining wall so as to reduce the area to be resumed within her lot. The objector accepted our proposed modifications in resolving her concern on the operation of her garage. However, as the Administration would only advise the area of the portion of the lot to be resumed under the Ordinance but not the area of the residual portion of her lot, the objector maintained her objection; and

(c) Objector No.3 also requested the Administration to consider resuming the residual portion of his lot which is outside the scope of resumption for Stage 1 of the Project in addition to the required area, as he claimed that the residual portion would have no economical/commercial value. In addition, the objector requested the Administration to advise the actual amount of compensation for partial resumption of his lot. He was of the view that the compensation should cover other loss/cost in relation to the resumption. We responded to the objector that the residual portion of the objector's lot did not satisfy the

[3] Under the Ordinance, an objection that is withdrawn unconditionally is treated as if the objector has not lodged the objection. An objection which is not withdrawn or withdrawn with conditions is treated as an unresolved objection and will be submitted to the Chief Executive-in-Council for consideration.

requirements under the existing resumption policy and the Administration was not in a position to advise the amount of compensation until the time of resumption as the actual amount would be subject to the prevailing rate at the time of land reversion. We also explained that he would be compensated in accordance with the prevailing land resumption policy. Subsequently, the objector requested the Administration to provide staircases and accesses to the residual portion of his lot if his earlier request for the resumption of his entire lot would not be considered. We explained that access to the residual portion of his lot would be maintained throughout and after the construction period. The objector did not respond to our further explanation and thus the objection is considered unresolved.

14. Having considered the unresolved objections and the modifications, the Chief Executive-in-Council authorised the proposed Stage 1 works under the Ordinance on 3 June 2008. The authorisation notice was published on 27 June 2008.

15. We have consulted the Advisory Committee on the Appearance of Bridges and Associated Structures[4] on the proposed aesthetic design of the noise barriers and the vehicular bridges under the proposed Stage 1 works. The Committee accepted the proposed aesthetic design.

ENVIRONMENTAL IMPLICATIONS

16. The Project is a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). The Director of Environmental Protection approved the EIA report for the Project in July 2000 with conditions. An environmental permit is required for the construction and operation of the Project.

17. To facilitate the application for environmental permit, we have recently completed an environmental review (ER) of the approved EIA report. The EIA report and the ER concluded that the environmental impact of the Project can be controlled to within the criteria under the EIA Ordinance and the Technical Memorandum on the EIA Process. We shall implement the

[4] 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; the Hong Kong Institute of Planners; an academic institution; Architectural Services Department; Highways Department; Housing 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.

measures recommended in the approved EIA report, the ER report and the EM&A manual. The key mitigation measures include the installation of noise barriers at varying heights, laying of low noise road surfacing and compensatory planting for the loss of woodland habitats.

18. During construction, we will control noise, dust and site run-off nuisance to comply with the established guidelines and standards through the implementation of appropriate mitigation measures. 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.

19. We have minimised the cutting of existing slopes and maximized the angle of cut slopes through optimal road alignment design and used pre-cast concrete components in the planning and design stages to reduce the generation of construction waste as much as possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated rock and soil materials) on site or in other suitable construction sites as far as practicable to minimise the disposal of construction waste to public fill reception facilities[5]. We will encourage the contractor to maximise 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.

20. We will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure 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[6].

21. We estimate that the proposed Stage 1 works will generate about 999 580 tonnes of construction waste. Of these, we will reuse about 537 400 tonnes (53.8%) of inert construction waste on site and deliver about 434 600 tonnes (43.5%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose about 27 580 tonnes (2.7%)

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[5] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

[6] The trip ticket system is to track the disposal of construction waste generated under public works contracts and to ensure its proper disposal at designated disposal facilities.

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 $15.2 million for the proposed Stage 1 works (based on an unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[7] at landfills).

22. Of the about 16 150 trees within the project boundary of Stage 1, about 5 030 trees will be preserved. The proposed Stage 1 works will involve the removal of about 11 120 trees, including about 10 930 trees to be felled and about 190 trees to be transplanted within the project site. The majority of the trees affected are common species and were planted within existing man-made slope areas when and after Tolo Highway was constructed. All the trees to be felled are either of invasive weedy species, poor health or form (e.g. leaning or contorted form), located on steep slopes, low post-transplantation survival rate or impractical to prepare proper root balls. Of the 12 important trees[8] identified within the project site, 11 can be retained and the remaining one will be transplanted to a new location within the project site. We will incorporate planting proposals as part of the proposed Stage 1 works, including an estimated quantity of about 3 620 heavy standard trees, 44 000 seedlings, 50 500 shrubs which totals to approximately 98 780 square metres of woodland planting area. The total number of trees to be planted will outweigh the number of trees affected by the Project. We have briefed the T&TC of the TPDC and green groups on the tree proposal and received no adverse comments on it.

23. Regarding the recycling/reusing of trees to be felled during construction of the Stage 1, we propose the following measures –

(a) producing Country Park facilities by using the tree trunks of felled trees of suitable size, species and shape as far as possible. The recovered timber may be used to produce park furniture, fences, benches, steps, etc.; and

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[7] 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^3), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

[8] "Important trees" refer to trees in the Register of Old and Valuable Trees, or 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 tree, tree as landmark of monastery or heritage monument, and trees in memory of important persons or events;
(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 meter (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 metres.

(b) looking into the feasibility to produce mulch and compost by chopping the tree trunks to small pieces. The material produced may be used to control erosion and improve growing conditions for plants.

HERITAGE IMPLICATIONS

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

LAND ACQUISITION

25. We will resume about 9 240 and 130 square metres of agricultural land and building land respectively for the proposed works. The land acquisition and clearance will affect 7 households involving 29 persons and 8 domestic structures. The Director of Housing will offer the eligible clearees accommodation in public housing in accordance with the existing housing policy. We will charge the land acquisition and clearance costs, estimated to be $59.5 million, to **Head 701 "**Land Acquisition".

WAY FORWARD

26. We intend to seek the funding support of the Public Works Sub-committee and Finance Committee of the Legislative Council on 21 January 2009 and 13 February 2009 respectively to upgrade part of the Project to Category A for the Stage 1 construction works. Subject to funding approval, we plan to commence the Stage 1 construction works in May 2009 for completion in phases by April 2013.

ADVICE SOUGHT

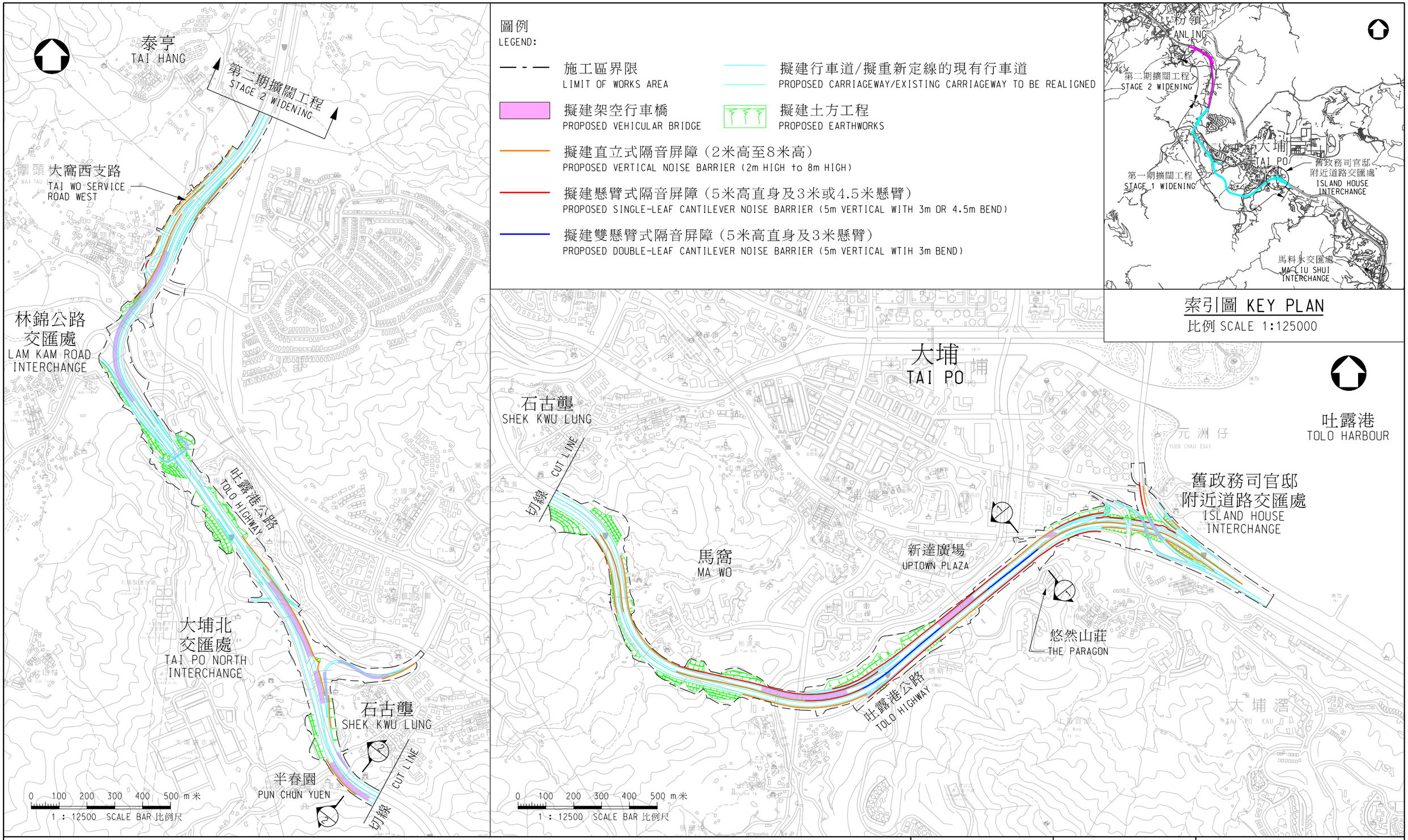
27. Members are invited to comment on this paper.

Transport and Housing Bureau
December 2008

圖例
LEGEND:

- 施工區界限 LIMIT OF WORKS AREA
- 擬建架空行車橋 PROPOSED VEHICULAR BRIDGE
- 擬建直立式隔音屏障（2米高至8米高） PROPOSED VERTICAL NOISE BARRIER (2m HIGH to 8m HIGH)
- 擬建懸臂式隔音屏障（5米高直身及3米或4.5米懸臂） PROPOSED SINGLE-LEAF CANTILEVER NOISE BARRIER (5m VERTICAL WITH 3m OR 4.5m BEND)
- 擬建雙懸臂式隔音屏障（5米高直身及3米懸臂） PROPOSED DOUBLE-LEAF CANTILEVER NOISE BARRIER (5m VERTICAL WTIH 3m BEND)
- 擬建行車道/擬重新定線的現有行車道 PROPOSED CARRIAGEWAY/EXISTING CARRIAGEWAY TO BE REALIGNED
- 擬建土方工程 PROPOSED EARTHWORKS

索引圖 KEY PLAN
比例 SCALE 1:125000



圖則名稱 drawing title

工務計劃項目第720TH號(部分)
舊政務司官邸附近道路交匯處與泰亨之間的吐露港公路擴闊工程 - 平面圖
PWP ITEM NO. 720TH (PART)
WIDENING OF TOLO HIGHWAY BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - LAYOUT PLAN

設計 designed	繪圖 drawn	圖則編號 drawing no.	比例 scale
K.F.TAM 14/11/08	S.K.TSE 14/11/08	HMW6720TH-SP0001	如圖示 AS SHOWN
覆核 checked	批准 approved		
Y.M.LAM 14/11/08	K.M.BOK 14/11/08		

主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

HIGHWAYS DEPARTMENT HONG KONG 香港路政署

C:\CDMS\MW\dms00908\HMW6720TH-SP0001.dgn

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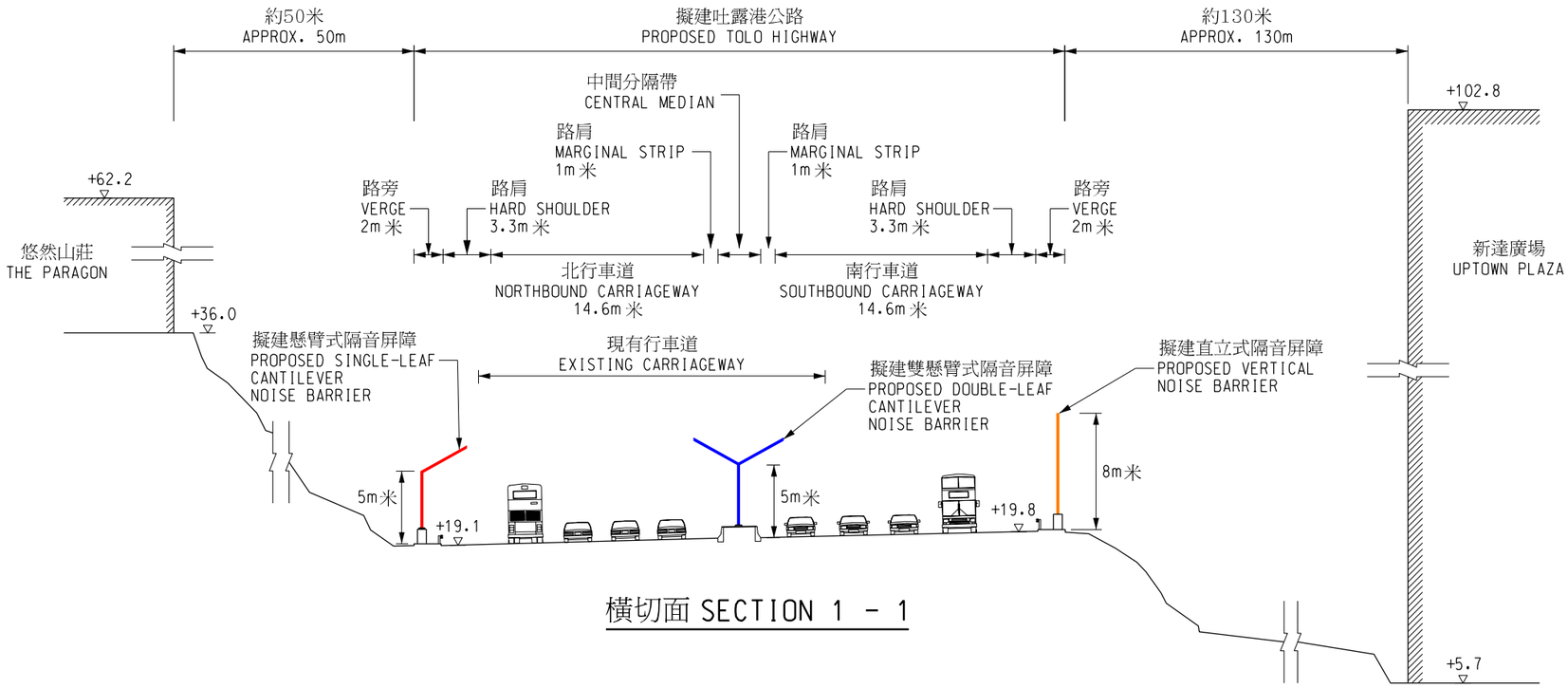
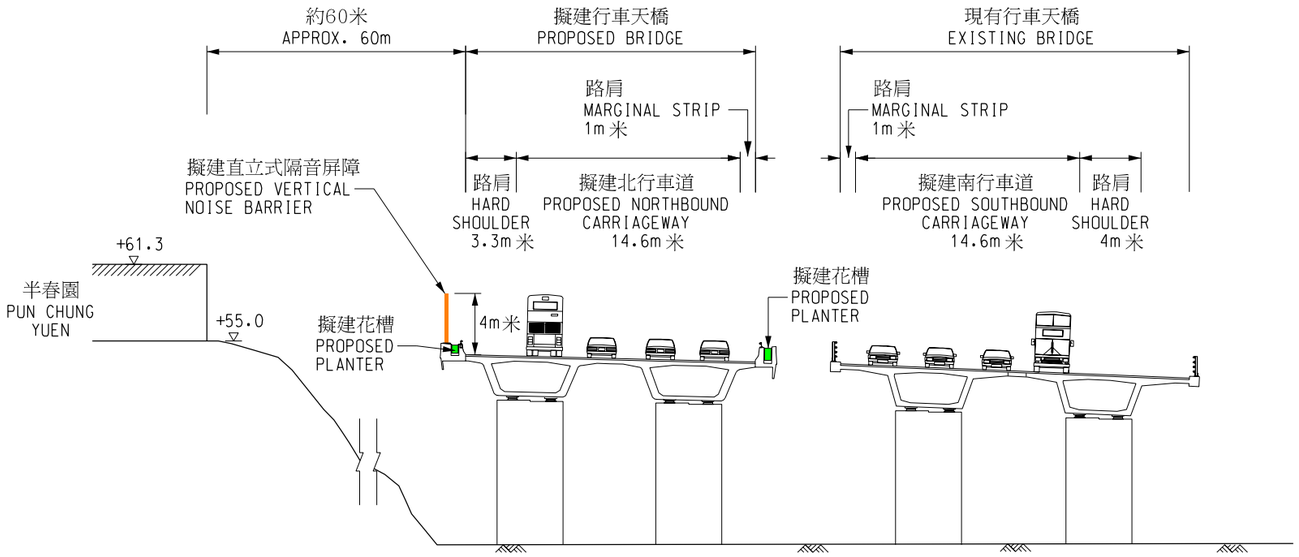


橫切面 SECTION 1 - 1



橫切面 SECTION 2 - 2

註釋 NOTES:

所有水平均以米為單位並在香港主水平基準上。

ALL LEVELS ARE IN METRES ABOVE HONG KONG PRINCIPAL DATUM.

圖則名稱 drawing title

工務計劃項目第720TH號(部分)
舊政務司官邸附近道路交匯處與泰亨之間的吐露港公路擴闊工程 - 切面圖

PWP ITEM NO. 720TH (PART)
WIDENING OF TOLO HIGHWAY BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - SECTIONS

設計 designed	繪圖 drawn	圖則編號 drawing no.	比例 scale
K.F.TAM 19/11/08	P.K.CHEN 19/11/08	HMW6720TH-SP0002	示意圖 DIAGRAMMATIC
覆核 checked	批准 approved		
Y.M.LAM 19/11/08	K.M.BOK 19/11/08		

主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

HIGHWAYS DEPARTMENT HONG KONG 路政署 香港

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A3 420 x 297