ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT Transport – Roads 822TH – Cross Bay Link, Tseung Kwan O

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of 822TH, entitled "Cross Bay Link, Tseung Kwan O – detailed design and site investigation", to Category A at an estimated cost of \$68.3 million in money-ofthe-day prices; and
- (b) the retention of the remainder of **822TH** in Category B.

PROBLEM

We need to carry out the detailed design and site investigation works for the proposed Cross Bay Link (CBL), Tseung Kwan O (TKO), so as to meet the anticipated traffic demand in TKO.

/PROPOSAL

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Transport and Housing, proposes to upgrade part of **822TH** to Category A at an estimated cost of \$68.3 million in money-of-the-day (MOD) prices to undertake the detailed design and associated site investigation works for the CBL.

PROJECT SCOPE AND NATURE

- 3. We propose to upgrade part of **822TH** to Category A, comprising
 - (a) detailed design of the works described in paragraph 5(a) and (b) below;
 - (b) associated site investigation works and supervision; and
 - (c) preparation of tender documents and assessment of tenders for the works described in paragraph 5 (a) and (b) below.

A plan showing the location of the proposed CBL is at Enclosure 1.

4. Subject to funding approval of the Finance Committee (FC), we plan to commence the proposed detailed design and associated site investigation works in August 2014 for completion by end 2016.

5. We will retain the remainder (i.e. construction works) of **822TH** in Category B and will seek funding for these works according to their implementation programme. The scope of the remainder (i.e. construction works) mainly comprises –

(a) construction of a dual two-lane carriageway approximately 1.8 km long with a cycle track and a footpath. This road is mainly on viaduct, connecting the proposed Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) to Wan Po Road near Area 86 of TKO across Junk Bay, and provision of the necessary slip roads and junction improvements; and

(b) the associated civil, structural, marine, electrical and mechanical, traffic control and surveillance system, landscaping, as well as environmental protection and mitigation works.

JUSTIFICATION

To match with the development of the TKO-LTT

6. To match with the development of the proposed $TKO-LTT^{1}$, we propose to construct the CBL to connect the TKO-LTT and Wan Po Road, so as to alleviate traffic congestion and meet the long term traffic demand in TKO.

7. The next phase of developments of TKO will be concentrated in the town centre area south of Po Yap Road and in the southeastern part of TKO along Wan Po Road such as Area 85, Area 86 (the Lohas Park) and TKO Industrial According to the current plan, the proposed TKO-LTT will be Estate. commissioned in 2020 at the earliest². If the CBL is not completed by that time, the traffic from the tunnel portal of the TKO-LTT to Area 86 and TKO Industrial Estate will have to go through Po Yap Road and many signal-controlled junctions, causing traffic congestion at the junctions along Po Yap Road and Wan Po Road. It will require an additional 12 minutes of travelling time as compared with using the CBL. According to the traffic impact assessment completed in 2012, the CBL should be commissioned timely to cater for the traffic generated from the anticipated new developments and to avoid the traffic congestions along Wan Po Road and in the TKO town centre area. We aim to tie in the commissioning date of the CBL with that of the TKO-LTT.

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¹ In May 2013, the FC approved the funding for the detailed design and associated site investigation works of the TKO-LTT at an approved project estimate of \$196 million in MOD prices.

² The project was gazetted under the Roads (Works, Use and Compensation) Ordinance (Chapter 370) on 10 May 2013. The Environmental Impact Assessment (EIA) report was approved by the Director of Environmental Protection (DEP) under the EIA Ordinance (Chapter 499) in July 2013. The detailed design of the project commenced in September 2013. If the preparation works and gazetting procedures (including resolution of objections) proceed smoothly, and that the funding approval from the FC for the construction works is obtained, the proposed TKO-LTT is scheduled to be commissioned in 2020 at the earliest.

8. The table below shows the anticipated traffic condition during the peak hours at the Wan Po Road/Chiu Shun Road roundabout and other signal-controlled junctions (shown in Enclosure 2) with and without CBL.

Roundabout	"Design Flow to Capacity" Ratio (for roundabout) ³	
	Without CBL	With CBL
Wan Po Road/ Chiu Shun Road	1.25	0.71

Signal-controlled junction	Reserve Capacity (for signal-controlled junction) ⁴	
	Without CBL	With CBL
Wan Po Road/Pak Shing Kok Road	-30%	60%
Wan Po Road/Shek Kok Road	-51%	67%
Po Yap Road/Tong Chun Street	-70%	15%
Po Yap Road/Tong Yin Street	-44%	75%
Po Shun Road/Chui Ling Road/Po Yap Road	-37%	20%

Upon the completion of the CBL, it is expected that the anticipated congestion of the above roads will be relieved. Furthermore, external traffic to and from the southeastern part of TKO needs not go through the TKO town centre, thereby minimising the adverse traffic and environmental impacts on residents in the vicinity.

/**To**

³ The traffic condition of roundabout is indicated by its "design flow to capacity" ratio. A ratio equals to or less than 1.0 is considered acceptable. A ratio above 1.0 indicates that roundabout is overloaded, resulting in traffic queues and longer delay time.

⁴ The traffic condition of signal-controlled junction is indicated by its reserve capacity. A positive reserve capacity figure indicates the junction is operating with spare capacity. A negative reserve capacity figure indicates that junction is overloaded, resulting in traffic queues and longer delay time.

To enhance the road network of TKO

9. Currently, Wan Po Road is the only road linking the southeastern part of TKO to other areas. The commercial and industrial activities in the southeastern part of TKO, particularly those in TKO Industrial Estate, would be seriously affected if Wan Po Road is blocked by traffic accidents. The proposed CBL will provide an alternative access route to the southeastern part of TKO, thereby enhancing the road network of the area and catering for the long term traffic demand.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed detailed design and associated site investigation works to be \$68.3 million in MOD prices (please see paragraph 11 below), broken down as follows –

		\$ million
(a)	Consultants' fees for	34.5
	(i) detailed design and supervision of site investigation works	27.3
	(ii) wind tunnel test ⁵	3.0
	(iii) preparation of tender documents and assessment of tenders	4.0
	(iv) management of resident site staff for site investigation works	0.2
(b)	Remuneration of resident site staff for site investigation works	1.8

/(c)

As the CBL is an elevated bridge across Junk Bay, the design of the CBL requires to take into account wind resistant capacity. Wind tunnel test is the most effective method to analyse the wind resistant capacity and aero-responses of the bridge.

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		\$ million	
(c)	Site investigation works	17.8	
(d)	Contingencies	5.0	
	Sub-total	59.1	(in September 2013 prices)
(e)	Provision for price adjustment	9.2	2013 prices)
	Total	68.3	(in MOD prices)

As the project involves various complicated detailed design works, the Civil Engineering and Development Department (CEDD) proposes to engage consultants to carry out the detailed design and supervision of site investigation works. A breakdown of the estimates for consultants' fees and resident site staff costs by man-months is at Enclosure 3.

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

Year	\$ million (Sept 2013)	Price adjustment factor	\$ million (MOD)
2014 - 2015	3.4	1.05450	3.6
2015 - 2016	28.9	1.11777	32.3
2016 - 2017	19.2	1.18484	22.7
2017 - 2018	5.7	1.25593	7.2
2018 - 2019	1.9	1.33128	2.5
	59.1		68.3

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12. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2014 to 2019. We will tender the proposed detailed design consultancy on a lump sum basis with provision for price adjustment. We will tender the proposed site investigation works under a standard re-measurement contract because the quantity of works involved may vary depending on actual ground conditions. The contract will provide for price adjustment.

13. The proposed detailed design and associated site investigation works will not give rise to any recurrent consequences.

PUBLIC CONSULTATION

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14. We commenced the investigation and preliminary design study for the CBL in early 2009, and have subsequently completed a three-stage public engagement (PE) exercise, including a design ideas invitation event, exhibitions, and a voting activity for the design options. Taking into account public views collected in the PE exercise, environmental impact and engineering considerations, we have adopted the design option as shown in Enclosure 4.

15. We consulted the Sai Kung District Council (SKDC) in January 2013. SKDC members in general supported the proposed project and urged for its early implementation. We gazetted the project under the Roads (Works, Use and Compensation) Ordinance on 10 May 2013 and are resolving the objections according to the statutory procedures. We will maintain close liaison with the concerned parties on the progress of the project during the detailed design stage.

16. We consulted the Advisory Committee on the Appearance of Bridges and Associated Structures $(ACABAS)^6$ on the aesthetic design of the proposed project. The Committee supported the project.

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ACABAS comprises representatives of the Hong Kong Institute of Architects, Hong Kong Institution of Engineers, Hong Kong Institute of Planners, academic institutions, Architectural Services Department, Highways Department, Housing Department, and CEDD. It is responsible for vetting the design of bridges and other structures associated with the highway system, including noise barriers and enclosures, from the aesthetic and visual impact points of view. 17. We consulted the Legislative Council Panel on Transport on 28 February 2014. Panel Members in general supported the project.

ENVIRONMENTAL IMPLICATIONS

18. The proposed detailed design and associated site investigation works are not designated projects under the EIA Ordinance and will not cause any long-term environmental impact. We have included in the project estimate the cost of implementing suitable mitigation measures to control short term environmental impact during the site investigation works.

19. The proposed site investigation works will only generate very little construction waste. We will require the consultants to comprehensively examine measures to minimise the generation of construction waste and to reuse/recycle construction waste as much as possible during the construction stage in future.

20. The proposed CBL is a designated project under Schedule 2 of the EIA Ordinance. We had completed an EIA study, the report of which was approved by DEP under the EIA Ordinance on 11 July 2013 and the associated Environmental Permit was granted by DEP on 15 August 2013. We will implement the measures recommended in the EIA report.

HERITAGE IMPLICATIONS

21. The proposed detailed design and associated site investigation works will not affect any heritage sites, 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

22. The proposed detailed design and associated site investigation works do not require any land acquisition.

/BACKGROUND

BACKGROUND INFORMATION

23. We upgraded **822TH** to Category B in April 2007.

24. On 9 January 2009, the FC approved upgrading part of **822TH** to Category A as **826TH** "Cross Bay Link, Tseung Kwan O – investigation and preliminary design" at an approved project estimate of \$59.1 million in MOD prices for engaging consultants to undertake the preliminary design and the associated site investigation works for the CBL. The concerned work has been completed.

25. The proposed detailed design and associated site investigation works will not directly involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the detailed design stage. We will incorporate tree planting proposals in the construction phase.

26. We estimate that the proposed detailed design and associated site investigation works will create about 41 jobs (11 for labourers and another 30 for professional/technical staff) providing a total employment of 715 man-months.

Transport and Housing Bureau March 2014

附件1 ENCLOSURE



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附件2 ENCLOSURE 2



822TH (Part) – Cross Bay Link, Tseung Kwan O

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2013 prices)

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
(a) Consultants' fees for –					
 (i) Detailed design and supervision of site investigation works^(Note 2) 	Professional Technical	170 95	38 14	2.0 2.0	22.9 4.4
(ii) Wind tunnel test and assessment ^(Note 2)	Professional Technical	18 12	38 14	2.0 2.0	2.4 0.6
(iii) Preparation of tender documents and assessment of tenders ^(Note 2)	Professional Technical	20 28	38 14	2.0 2.0	2.7 1.3
				Sub-total	34.3
(b) Resident site staff (RSS) costs ^(Note3)	Professional Technical	11 22	38 14	1.6 1.6	1.2 0.8
Comprising –				Sub-total	2.0
(i) Consultants' fees for management of RS investigation works	or S for site s			0.2	
(ii) Remuneration of R responsible for site investigation works	SS s			1.8	
				Total	36.3

* MPS = Master Pay Scale

Notes

- A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff costs of consultants' staff, including overheads and profit, as the staff will be employed in the consultants' offices. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants. (As at now, MPS point 38 = \$67,370 per month and MPS point 14 = \$23,285 per month.)
- 2. The actual man-months and fees will only be known after we have selected the consultants through the usual competitive bidding system.
- 3. The actual man-months and fees will only be known after completion of the site investigation works.



圖則名稱 drawing title	繪圖 drawn	簽署initial	日期 date	項目編號 item no.	辦事處 office
	YL LO	SIGNED	27.2.14	822TH	新界東拓展處
	核對 checked	簽署initial	日期 date	比例 scale	DEVELOPMENT OFFICE
	TYLEUNG	SIGNED	27.2.14	N.T.S.	
PWP ITEM NO• 822TH - CROSS BAY LINK• TSEUNG KWAN O				圖則編號 drawing no.	二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十
	核准 approved	簽署initial	日期 date		CEDD CIVIL ENGINEERING
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