

**For discussion
on 24 February 2017**

Legislative Council Panel on Transport

Public Works Programme Item No. 870TH
– Feasibility Study on Route 11
(between North Lantau and Yuen Long)
Funding Application

PURPOSE

This paper briefs Members on the funding proposal for upgrading **870TH** “Feasibility Study on Route 11 (between North Lantau and Yuen Long)” (the Study) to Category A.

STUDY SCOPE AND NATURE

2. The scope of Public Works Programme (PWP) Item No. **870TH** comprises –

- (a) engineering feasibility and infrastructure study for the implementation of Route 11 (between North Lantau and Yuen Long) (hereafter referred to as the Route 11), which includes establishing the engineering technical feasibility and formulating the works implementation strategy;
- (b) alignment option study, which includes assessing the planning and configuration of the roads;
- (c) port operations, and marine traffic impact and safety study arising from Route 11 when it crosses the channel between Tsing Lung Tau and North Lantau;
- (d) preliminary environmental review, which includes assessing the possible environmental impacts arising from the works, recommending associated mitigating measures and carrying out preparation works for the environmental impact assessment pursuant to the Environmental Impact Assessment Ordinance (Chapter 499);

- (e) consultation exercises with relevant stakeholders and the public; and
- (f) employment and supervision of contractors for conducting the associated site investigation works.

3. A plan showing the preliminary alignment of Route 11 is at **Enclosure 1**.

4. Subject to the funding approval of the Finance Committee (FC), we plan to commence the Study in the second half of 2017 for completion by 2020.

JUSTIFICATION

5. At present, within the Northwest New Territories (NWNT), the population in Tuen Mun and Yuen Long are about 500,000 and 600,000¹ respectively. There are a number of major trunk roads within the region, including Tuen Mun Road, Yuen Long Highway, Castle Peak Road, San Tin Highway, Kam Tin Highway, Kong Sham Western Highway and Tsing Long Highway (including Tai Lam Tunnel and its connecting roads), etc., for the intra-district and inter-district connections, which facilitate commuting to and from the NWNT. In addition, the construction of the Tuen Mun-Chek Lap Kok Link (TM-CLKL) is in full swing. When the project is completed, it will become the most direct route to connect the NWNT with the Hong Kong-Zhuhai-Macao Bridge (HZMB) Boundary Crossing Facilities, Hong Kong International Airport (HKIA) and North Lantau.

6. In view of the future proposed developments in the NWNT, including the Hung Shui Kiu New Development Area (HSK NDA), Yuen Long South (YLS) development, housing developments along the West Rail Line, Yuen Long Industrial Estate Extension, the proposed logistics and other industrial developments in Tuen Mun Areas 38 and 49 and the rezoning of land parcels within the region, we reviewed in 2015 the overall traffic demands of the NWNT in the next 10 years or even in the longer term. In July 2015, we reported to this Panel our planning work in respect of the NWNT Traffic and Infrastructure Review (please refer to LC Paper CB(4)1306/14-15(04) for details), and regarding the long term planning of

¹ According to the "Profile of Hong Kong Population Analysed by District Council District, 2015" issued by the Census and Statistics Department in July 2016, the population of Tuen Mun and Yuen Long were 495 900 and 607 200 respectively.

the major trunk road of NWNT, we have already pointed out that we would bid for resources to conduct a feasibility study on Route 11 which links up North Lantau and Yuen Long.

7. The construction of Route 11 can match large-scale development at HSK NDA and YLS in order to increase the housing and economic land supply in Hong Kong. Concomitant with Tin Shui Wai, Yuen Long and Tuen Mun New Towns, HSK NDA and YLS development will become a major new town development cluster in the western part of Hong Kong. For HSK NDA, the first population intake is currently anticipated in 2024. Other major works will commence successively and the whole HSK NDA will be completed in 2037/38. By that time, 61,000 new housing flats will be provided to accommodate a new population of about 176,000, and about 150,000 employment opportunities will be created, bringing jobs closer to residents living in HSK, Tin Shui Wai, Tuen Mun and Yuen Long. For YLS development, the first population intake is currently anticipated in 2027. Upon completion of the project, it will provide 27,700 housing flats to accommodate about 82,700 new population and about 10,800 employment opportunities.

8. The proposed Route 11 will be a strategic highway to support the proposed developments in the NWNT. Based on the latest traffic forecast currently available, after the commissioning of TM-CLKL, even with Tuen Mun Western Bypass (TMWB), Tuen Mun Road, Tai Lam Tunnel and Ting Kau Bridge would experience serious traffic congestion during peak hours in around 2036. Subject to the findings of the Study and if Route 11 is commissioned before 2036, the traffic conditions at Tuen Mun Road, Tai Lam Tunnel and Ting Kau Bridge during peak hours would improve. In other words, Route 11 can relieve the traffic congestion on the roads to and from the NWNT upon its completion. The volume/capacity ratios² of the major roads in the NWNT during the morning peak hours are tabulated as follows :

² A volume to capacity (v/c) ratio is normally used to reflect the traffic situation during peak hours. A v/c ratio less than 1.0 means the situation is acceptable. A v/c ratio above 1.0 indicates the onset of mild congestion and a v/c ratio between 1.0 and 1.2 indicates a manageable degree of congestion. A v/c ratio higher than 1.2 means the congestion is getting serious.

Major Roads	Without Route 11		With Route 11
	2031	2036	2036
Tuen Mun Road (Siu Lam Section)	1.3	1.3	1.1
Tuen Mun Road (Sham Tseng Section) – <i>West of Tsing Lung Tau</i>	1.2	1.2	1.1
Tai Lam Tunnel	1.2	1.3	1.1
Ting Kau Bridge	1.1	1.2	0.9

9. Furthermore, Route 11 will provide the third vehicular access to Lantau Island in addition to Tsing Ma Bridge/Kap Shui Mun Bridge and TM-CLKL. The incident of temporary closure of Kap Shui Mun Bridge due to an accidental clash by a vessel on 23 October 2015 had caused great concerns to the society about the need for improving the robustness of the land transport system linking HKIA, Lantau Island and the urban areas.

10. We understand that many objections were received during the implementation of ex-Route 10, including the environmental impacts, cost-effectiveness of the project, and how new roads could show the traffic flows with Tuen Mun Road and Tai Lam Tunnel, etc. Therefore, when we carry out feasibility study for Route 11, in addition to making reference to the latest planning and development parameters, we will also review the views on the ex-Route 10 and consider them together. We will consult the relevant District Councils, Rural Committees and the public as appropriate when there are preliminary results.

11. Route 11 is a complex and large-scale project. Based on past experience in the implementation of large-scale infrastructure project, from preliminary planning to commissioning, it will in general go through the investigation³, detailed design⁴ and construction⁵ stages, and will take more than 10 years. If Route 11 cannot be constructed in time, severe

³ Investigation stage covers preliminary design, consultation of stakeholders, carrying out environmental impact assessment and applying Environmental Permit according to Environmental Impact Assessment Ordinance (Chapter 499), gazettal and applying authorization of the associated works according to Roads (Works, Use and Compensation) Ordinance (Chapter 370), etc.

⁴ Detailed design stage covers detailed design, land resumption and handling the associated compensation, preparation of contract documents and tendering, etc.

⁵ Construction stage covers actual construction, testing and commissioning, handing over the completed works to the management and maintenance parties, etc.

congestion will appear in Tuen Mun Road, Ting Kau Bridge and Tai Lam Tunnel in around 2036. Therefore, it is necessary to commence the feasibility study on Route 11 at this stage to facilitate the development of the NWNT in a timely manner and to cope with the associated traffic demand. After completing the Study, the Government will consider the way forward according to the results of the Study and the availability of sufficient resources. If it is decided to continue with the implementation of Route 11, we have to follow the established public works procedures in carrying out the investigation, detailed design, and construction. We will apply the required funding from the Legislative Council in phases. The actual works and implementation timetable in each stage have to be ascertained according to the views of the stakeholders, difficulties encountered by the works, the progress in clearing the statutory procedures, etc.

FINANCIAL IMPLICATIONS

12. We estimate the cost of the Study and the associated site investigation works to be \$87.7 million, with breakdown as follows –

	\$ million
(a) Consultants' fees	58.6
(i) engineering feasibility and infrastructure study	23.3
(ii) alignment option study	10.6
(iii) port operations and marine traffic impact and safety study	8.7
(iv) preliminary environmental review	11.8
(v) consultation exercises with relevant stakeholders and the public	2.9
(vi) supervision of associated site investigation works	1.3
(b) Site investigation works	12.1

	\$ million	
(c) Contingencies	7.0	
Sub-total	77.7	(in September 2016 prices)
(d) Provision for price adjustments	10.0	
Total	87.7	(in MOD prices)

13. In view of the complex and multi-disciplinary nature of the study requirements, we propose to engage consultants to undertake the Study and supervise the associated site investigation works. A breakdown of the estimates for the consultants' fees by man-months is at **Enclosure 2**.

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

Year	\$ million (Sep 2016)	Price adjustment factor	\$ million (MOD)
2017-2018	24.5	1.05750	25.9
2018-2019	25.0	1.12095	28.0
2019-2020	23.9	1.18821	28.4
2020-2021	4.3	1.25950	5.4
	77.7		87.7

15. 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 from 2017 to 2021. According to the Stores and Procurement Regulations, we will engage consultants to undertake the Study on a lump sum basis⁶. 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 for site investigation works will provide for price adjustment such that when there are movements in the cost of labour and materials, the prices can be adjusted.

⁶ The cost payable to the consultants will be adjusted with reference to the consumer price index.

PUBLIC CONSULTATION

16. Members of the Tuen Mun District Council in general requested the expeditious implementation of Route 11 when discussing the road network for external connectivity of Tuen Mun in the Traffic and Transport Committee Meeting on 14 November 2014, and in the District Council Meeting on 6 January 2015. Members of the Yuen Long District Council passed the motion moved by members in the Traffic and Transport Committee Meeting on 22 July 2016 requesting the expeditious study on construction of Route 11 to cope with the future traffic demand in Yuen Long.

ENVIRONMENTAL IMPLICATIONS

17. The proposed Route 11 is a designated project under the Environmental Impact Assessment Ordinance (Chapter 499) and an Environmental Impact Assessment for the proposed Route 11 will be carried out. However, the Study is not a designated project and will not cause long-term adverse environmental impacts. We have included in the project estimates the cost of implementing suitable pollution control measures to mitigate short-term environmental impacts arising from the site investigation works under the Study.

18. The proposed site investigation works will only generate very little construction waste. We will require the consultants to fully consider measures to minimize the generation of construction waste and to reuse/recycle construction waste as much as possible in the future implementation of the construction projects.

HERITAGE IMPLICATIONS

19. The Study and the associated site investigation works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites and buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

TREE IMPLICATIONS

20. The Study and the 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 Study.

LAND ACQUISITION

21. The Study and the associated site investigation works will not require any land acquisition.

EMPLOYMENT OPPORTUNITIES

22. We estimate that the Study and the associated site investigation works will create about 30 jobs (3 for labourers and another 27 for professional/technical staff)⁷ providing a total employment of 850 man-months.

BACKGROUND

23. Route 11 is based on the concept of ex-Route 10. A PWP Item No. 519TH entitled “Route 10 – North Lantau to Yuen Long Highway” (ex-Route 10) was in Category C in 1993 and a feasibility study was carried out in 1995. The scope of the works of 519TH “Route 10 – North Lantau to Yuen Long Highway” consisted of three parts:

- (a) Southern Section (section between North Lantau and So Kwun Wat);
- (b) Northern Section (section between So Kwun Wat and Yuen Long Highway);
- (c) other associated civil, geotechnical, landscape, road and drainage works, traffic control and surveillance system (TCSS) for the Southern and Northern Sections.

The layout plan of the alignment of ex-Route 10 is at Enclosure 3.

24. The Southern Section of ex-Route 10 was gazetted under the Roads

⁷ The jobs for labourers to be created will mainly be responsible for carrying out site investigation works and the jobs for professional/technical staff to be created will mainly be responsible for carrying out the Study and the supervision of the associated site investigation works.

(Works, Use and Compensation) Ordinance (Chapter 370), in 2000 and 2002. For the Northern Section, the funding proposal for its detailed design was rejected in the meeting of Finance Committee on 8 March 2002. Subsequently, in view of the development of the Hong Kong-Shenzhen Western Corridor, the traffic and transport infrastructure in the NWNT and Lantau was reviewed again in 2002, which comprised formulating feasible road networks and including ex-Route 10 in the review, and establishing the implementation programme and the relative priorities of the recommended roads. Therefore, it was gazetted in 2003 that the Government decided not to follow the original plan to execute the works for ex-Route 10 Southern Section.

25. The Government consulted this Panel on the result of the review in 2007 (please refer to LC Paper CB(1)2023/06-07(05) for details), and proposed to implement the TM-CLKL and TMWB to provide a new strategic road linking the NWNT, HZMB Hong Kong Boundary Crossing Facilities, North Lantau and HKIA, and to provide a more direct route for vehicles commuting between the NWNT and Northwest Lantau. Ex-Route 10 was retained as a long term option for consideration when there was further development in the NWNT. The Members in general support the above suggestions.

26. Upon commissioning of the Hong Kong-Shenzhen Western Corridor (now known as Shenzhen Bay Bridge) and Deep Bay Link (now known as Kong Sham Western Highway), the Transport Department numbered the road linking Shenzhen Port Area and Lam Tei as Route 10, and renamed the road linking North Lantau and Yuen Long as Route 11.

27. Funding for TM-CLKL was approved by the Legislative Council in 2013, and its construction is currently under way. Apart from providing a more direct route for vehicles commuting between the NWNT and Northwest Lantau, TM-CLKL upon completion can also spare some capacity of existing roads (including Tuen Mun Road) to ease traffic. For TMWB, the HyD has consulted stakeholders many times on its alignment, portal and design in the past few years. Having considered the comments of various parties and upon further planning, the HyD consulted the relevant District Councils and Rural Committee in the latter half of last year on the latest proposed alignment and is making preparation for the investigation study and the preliminary design which is targeted for commencement by mid-year.

28. Regarding Tuen Mun Road, the Government upgraded the road to the current design standard as far as practicable. Improvement and

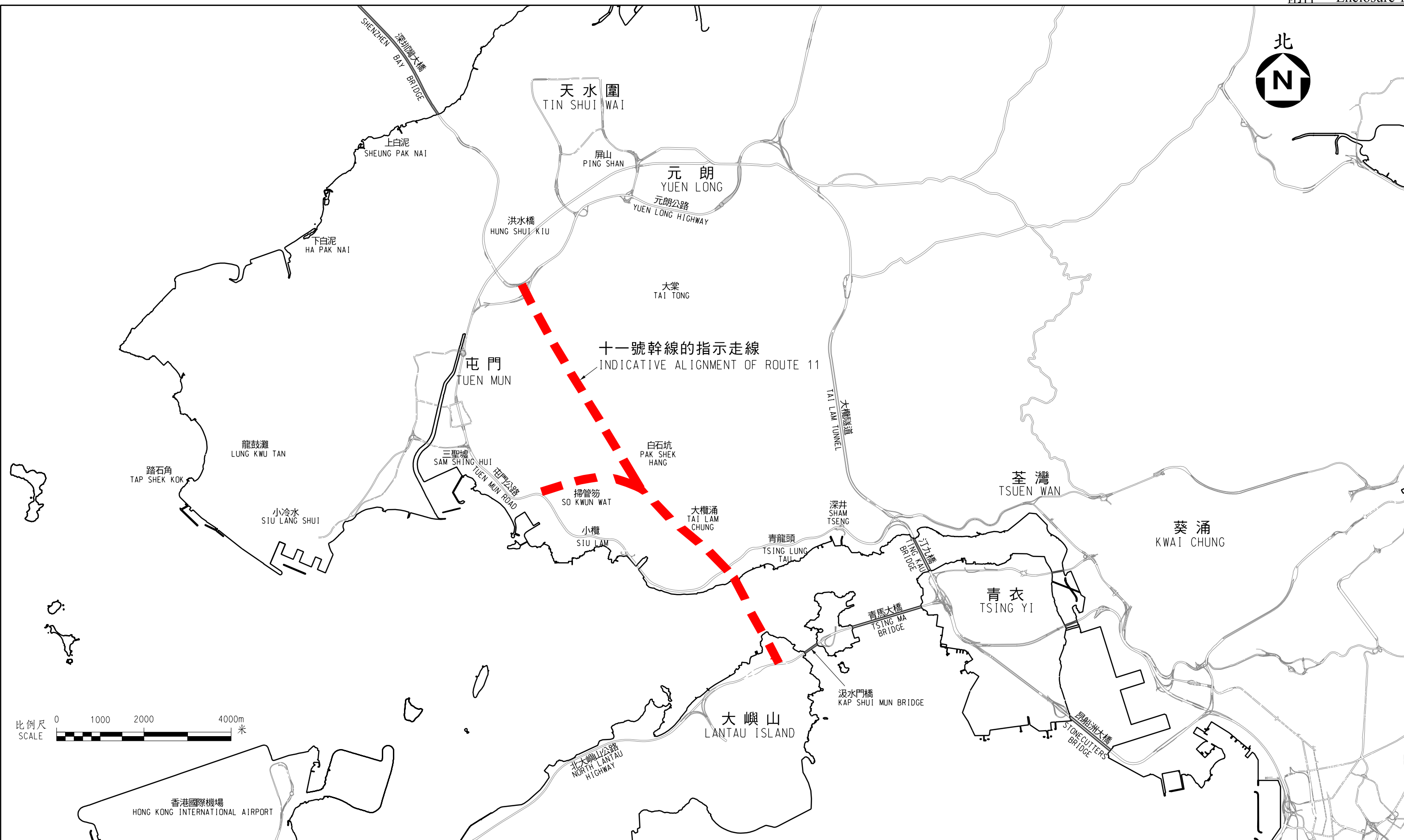
reconstruction of the section of Tuen Mun Road from Tsuen Wan to Sham Shing Hui in Tuen Mun commenced in 2008. The works included reconstruction and resurfacing of pavement, widening of traffic lanes, provision of hard shoulders, improvement of the traffic control and surveillance system and retrofitting of noise barriers and noise enclosures. The works were completed in end 2014. However, there is limited space to further widen Tuen Mun Road. In the face of the growth in traffic brought about by long term development, we consider it necessary to explore other options to fulfil the long-term traffic demand of the NWNT.


29. We reviewed in 2015 the overall external traffic demands for external connectivity of the NWNT in the long term and considered there was a need to study the feasibility of Route 11. Thus, we upgraded PWP Item No. **870TH** to Category B in October 2015.

WAY FORWARD

30. We will subsequently consult the members of the Public Works Subcommittee, and then seek funding approval from the Finance Committee.

**Transport and Housing Bureau
Highways Department
February 2017**



<p>圖則名稱 plan title</p> <p>工務計劃項目第870TH號 十一號幹線(北大嶼山至元朗) - 指示平面圖 PWP ITEM NO. 870TH ROUTE 11 (BETWEEN NORTH LANTAU AND YUEN LONG) - INDICATIVE LAYOUT PLAN</p>	<p>圖則編號 plan no.</p> <p>HMW6870TH-SK0018</p> <p>比例 scale</p> <p>1:80000</p> <p>© 版權所有 COPYRIGHT RESERVED</p> <p> HIGHWAYS DEPARTMENT HONG KONG 路政署 香港</p>
--	--

**870TH – Feasibility study on
Route 11 (between North Lantau and Yuen Long)**

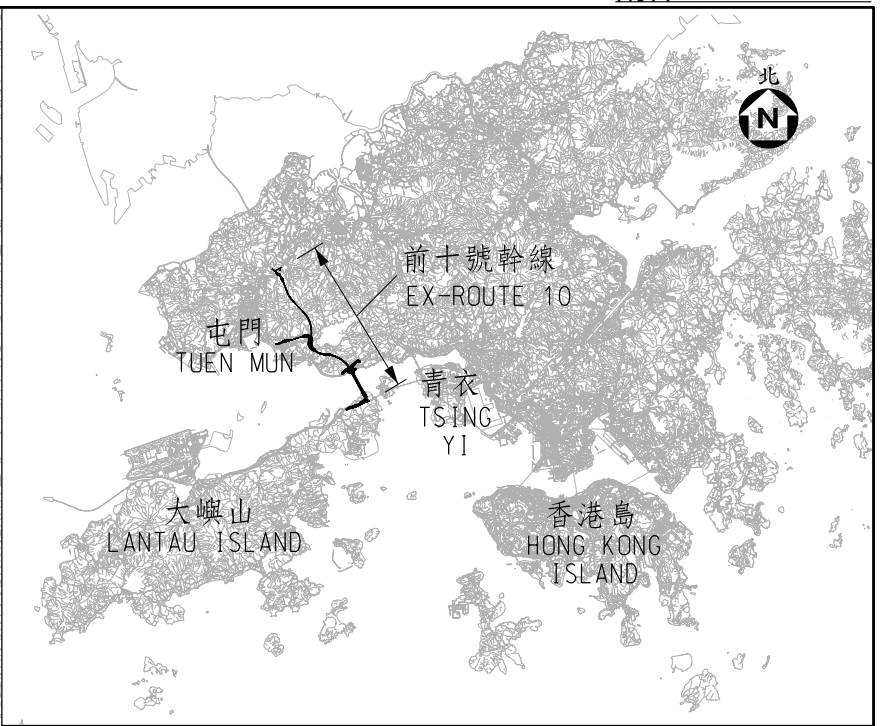
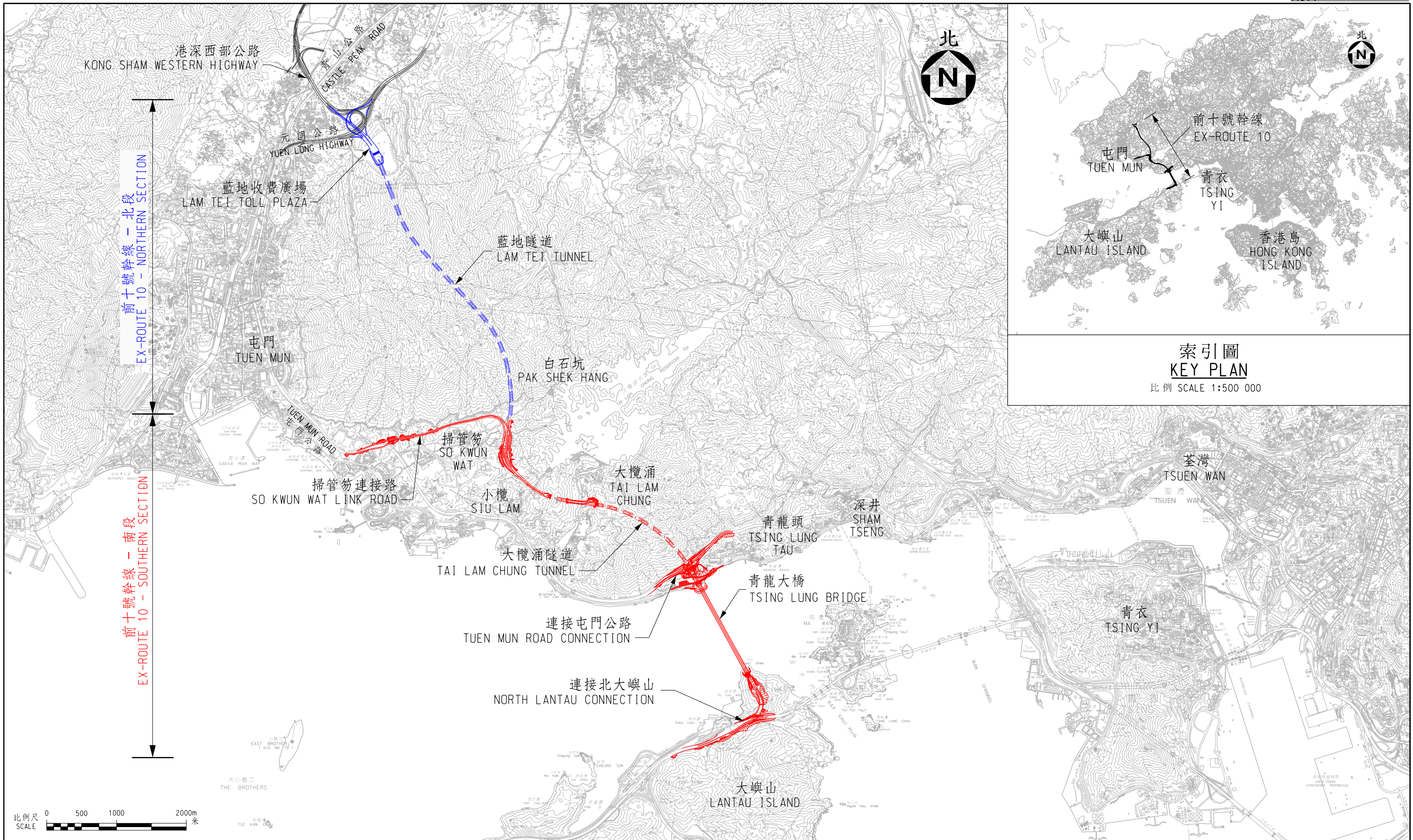
**Breakdown of estimates for consultants' fees
(in September 2016 prices)**

Consultants' staff costs (Note 1)		Estimated man-months	Average MPS* salary point	Multiplier (Note 2)	Estimated fee (\$ million)
(a) engineering feasibility and infrastructure study	Professional	119	38	2.0	18.4
	Technical	92	14	2.0	4.9
(b) alignment option study	Professional	59	38	2.0	9.1
	Technical	29	14	2.0	1.5
(c) port operations and marine traffic impact and safety study	Professional	42	38	2.0	6.5
	Technical	41	14	2.0	2.2
(d) preliminary environmental review	Professional	57	38	2.0	8.8
	Technical	57	14	2.0	3.0
(e) consultation exercises with relevant stakeholders and the public	Professional	14	38	2.0	2.2
	Technical	14	14	2.0	0.7
(f) supervision of associated site investigation works	Professional	5	38	2.0	0.8
	Technical	10	14	2.0	0.5
				Total	58.6


* MPS = Master Pay Scale

Notes

1. The actual man-months and fees will only be known when we have selected the consultants through the usual competitive fee bidding system.
2. 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. (As at now, MPS pt. 38 = \$77,320 per month and MPS pt. 14 = \$26,700 per month.)



索引圖
KEY PLAN
比例 SCALE 1:500 000

圖則名稱 plan title	圖則編號 plan no.	比例 scale
前十號幹線 - 北大嶼山至元朗公路 - 平面圖	HMW6870TH-SK0015	1:50000 OR AS SHOWN
EX-ROUTE 10 - NORTH LANTAU TO YUEN LONG HIGHWAY - LAYOUT PLAN	© 版權所有 COPYRIGHT RESERVED	
 HIGHWAYS DEPARTMENT HONG KONG		路 香 政 港 署