

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING

Civil Engineering – Land development

769CL – Pilot study on underground space development in selected strategic urban areas

Members are invited to recommend to the Finance Committee the upgrading of **769CL** to Category A at an estimated cost of \$70.0 million in money-of-the-day prices for carrying out a pilot study on underground space development in selected strategic urban areas in Hong Kong.

PROBLEM

We need to examine the opportunities for expanding our land resources by underground space development in four strategic urban areas.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade **769CL** to Category A at an estimated cost of \$70.0 million in money-of-the-day (MOD) prices for conducting a pilot study on underground space development (the Study) in four strategic urban areas.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **769CL** comprises –
- (a) planning and engineering study and technical assessments, including –
 - (i) evaluation of overall merits and key issues of underground space development in four selected strategic urban areas, namely Tsim Sha Tsui West, Causeway Bay, Happy Valley and Admiralty/Wan Chai;
 - (ii) formulation of an Underground Master Plan for each of the four strategic areas;
 - (iii) identification of priority underground space development projects within the strategic areas and preparation of conceptual design schemes for these priority projects;
 - (iv) establishment of engineering feasibility of the priority projects in item (iii) above by carrying out broad planning and technical assessments (including assessment of impacts on road traffic and pedestrian circulation) and preliminary environmental review, and highlighting of any development constraints and key issues to be addressed in the implementation of these priority projects; and
 - (v) financial assessment on cost-effectiveness and recommendation of further study for implementation of each priority project as needed;
 - (b) public engagement and consultation with relevant stakeholders; and
 - (c) associated site investigation works including supervision.

_____ A location plan showing the study areas for the four strategic areas is at Enclosure 1.

4. Subject to funding approval of the Finance Committee, we plan to commence the Study in January 2015 for completion by mid-2017.

JUSTIFICATION

5. There is a pressing need to increase land supply for various uses by sustainable and innovative approaches to support social and economic development. One potentially practicable approach is through the enhanced use of underground space for commercial and other suitable uses, particularly in congested urban areas with little potential of new land supply.

6. The use of underground space in densely developed urban areas will offer good opportunities for creation of space, enhancement of connectivity and improvement of the urban environment. Moreover, underground space can be used to house new facilities or relocate existing above-ground facilities that are incompatible with the urban setting, thereby releasing valuable surface land for other beneficial and compatible land uses.

7. Hong Kong has been using underground space for public and commercial facilities for many years. However, most of them are associated with individual development projects, such as basement car parks and shopping centres, as well as Mass Transit Railway (MTR) stations. To develop underground space strategically, we need to further review the relevant policies, regulations and administrative measures.

8. The 2013 Policy Address highlighted that underground space was a viable source of long-term land supply and there was a need to further explore the potential of developing underground spaces in the urban areas of Hong Kong. To take forward the initiative, the Civil Engineering and Development Department commenced a territory-wide study (the Territory-wide Study) in December 2013 for completion by December 2015 on underground space development in the urban areas of Hong Kong, which aimed at establishing a comprehensive and objective methodology for developing urban underground space.

9. Complementary to the Territory-wide Study and as a further step to expedite underground space development, we have selected the four strategic areas for a pilot study to identify suitable priority projects for early implementation. These areas are selected for the following reasons –

/(a)

- (a) with the continuous economic growth of Hong Kong, these areas have been transformed from traditional commercial-cum-residential areas to densely developed nodes for commercial, entertainment and tourism purposes. However, the complex urban setting and the limited land resources in these areas are imposing constraints on improving the built environment and hindering further development. The above-ground space is also limited and becoming more and more congested due to the large pedestrian and traffic flow; and
- (b) the four strategic areas are of high development potential, as they are mostly covered by existing and/or planned MTR networks and serve as transportation hubs to the nearby areas. In addition, there are new and planned development/redevelopment projects as well as sizeable parks or open space, such as Victoria Park and Kowloon Park, which can provide suitable conditions and opportunities for large-scale underground space development for commercial and other uses, while maintaining their current uses as parks on surface land. Underground shopping streets connecting MTR stations and the existing or planned developments could also help relieve the heavy pedestrian flow on the ground and enhance the accessibility to the adjacent areas.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the Study and the associated site investigation to be \$70.0 million in MOD prices (please see paragraph 11 below), broken down as follows –

	\$ million
(a) Consultants' fees for	49.6
(i) planning study	16.9
(ii) engineering study and technical assessments	25.3
(iii) public engagement and consultation with relevant stakeholders	6.4
	/(iv)

	\$ million	
(iv) supervision of site investigation works	1.0	
(b) Site investigation works	8.3	
(c) Contingencies	5.5	
		(in
Sub-total	63.4	September
		2014 prices)
(d) Provision for price adjustment	6.6	
		(in MOD
Total	70.0	prices)

Due to inadequate in-house resources, we propose to engage consultants to conduct the Study and supervise the associated site investigation works. A breakdown of the estimates for consultants' fees by man-months is at Enclosure 2.

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

Year	\$ million (Sept 2014)	Price adjustment factor	\$ million (MOD)
2014 – 2015	1.5	1.00000	1.5
2015 – 2016	22.2	1.06000	23.5
2016 – 2017	34.0	1.12360	38.2
2017 – 2018	5.7	1.19102	6.8
	63.4		70.0

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 2018. We will engage consultants to undertake the Study 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 for site investigation works will provide for price adjustment.

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

PUBLIC CONSULTATION

14. We consulted the following committees of the relevant district councils (DCs) on the Study –

- (a) Development, Planning and Transport Committee of the Wan Chai District Council (WCDC) on 11 February 2014;
- (b) Community Building Committee of the Yau Tsim Mong District Council (YTMDC) on 13 February 2014; and
- (c) Planning, Works and Housing Committee of the Eastern District Council (EDC) on 20 March 2014.

15. The majority of the WCDC, YTMDC and EDC members supported the Study, whilst a few in WCDC queried about the cost-effectiveness of underground space development. Members of the three DCs suggested that the Study should address the potential traffic and environmental impacts in developing conceptual design schemes and due consideration should be given to interface issues with MTR and other above-ground developments. All DCs consulted requested that opportunities for improving the living environment of the public should be explored in the underground space development, such as provision of public space, cultural, arts and recreational facilities, and that the relevant DCs and stakeholders should be engaged during the course of the Study.

16. In addition, we submitted an information paper to the Food, Environment, Hygiene and Works Committee of the Central and Western District Council (CWDC) in March 2014 on the Study. The CWDC members noted the proposal. We will address the various concerns of the four DCs in detail during the Study.

/17.

17. We consulted the Harbourfront Commission on 29 April 2014. Members generally supported the Study and suggested that the Government should duly consider making use of underground space to improve the urban environment, enhance the traffic and transport facilities, reorganise underground utilities as well as facilitate urban connectivity, in addition to creating space for commercial uses. Some members requested that disruption to traffic and the existing facilities on ground level should be minimised during the construction stage. Sustainability of underground space development, urban design and cost-effectiveness should also be considered in the Study.

18. We consulted the Legislative Council Panel on Development on 27 May 2014. Members generally supported submitting the funding proposal to the Public Works Subcommittee (PWSC) for consideration but requested supplementary information on the respective scope of the Territory-wide Study and the Study, the justification for conducting the two studies concurrently and the reasons for selecting the four strategic areas for the Study be included in this paper. The requested supplementary information is at Enclosure 3.

ENVIRONMENTAL IMPLICATIONS

19. The Study and the associated site investigation works are not designated projects under the Environmental Impact Assessment Ordinance (EIAO) (Chapter 499) and will not cause any long-term environmental impact. However, we will carry out a Preliminary Environmental Review (PER) to integrate environmental consideration into the Study. The PER will provide environmental information and input into different parts of the Study, as well as address any potential environmental impacts and recommend suitable mitigation measures of the priority projects identified in the Study. The PER will also identify any arising designated projects under the EIAO so as to facilitate follow-up actions by the future project proponents in meeting the EIAO requirements.

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

/HERITAGE

HERITAGE IMPLICATIONS

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

BACKGROUND INFORMATION

23. We upgraded **769CL** to Category B in September 2013.

24. The Study and the associated site investigation works will not involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the study of priority projects identified under the Study. We will also incorporate tree planting proposals and identification of maintenance agents, as appropriate, for the future implementation of the priority projects.

25. We estimate that the Study and the associated site investigation works will create about 35 jobs (five for labourers and another 30 for professional/technical staff), providing a total employment of 835 man-months.

26. This paper supersedes PWSC(2014-15)31 which was not discussed by the PWSC during the 2013-14 legislative session. The programme, phasing of expenditure and estimated cost of the project have been updated due to the lapse of time.



圖例 LEGEND :



四個策略性地區的研究範圍
STUDY AREAS OF FOUR
STRATEGIC AREAS

尖沙咀西
Tsim Sha Tsui
West

九龍
KOWLOON

維多利亞港

VICTORIA
H A R B O U R

金鐘 / 灣仔
Admiralty / Wan Chai

銅鑼灣
Causeway Bay

香港島
HONG KONG ISLAND

跑馬地
Happy Valley

SCALE 比例尺
METRES 400 0 400 800 METRES

名稱 title

工務工程計劃項目第769CL號
城市地下空間發展：策略性地區先導研究
PWP ITEM NO.769CL
PILOT STUDY ON UNDERGROUND SPACE DEVELOPMENT
IN SELECTED STRATEGIC URBAN AREAS

辦事處
office

規劃部
土木工程處

PLANNING DIVISION
GEOTECHNICAL ENGINEERING OFFICE

圖則編號 drawing no.

M_SR_14_010_5b



土木工程拓展署
CIVIL ENGINEERING
AND DEVELOPMENT
DEPARTMENT

**769CL – Pilot study on underground space development in
selected strategic urban areas**

Breakdown of the estimates for consultants' fees (in September 2014 prices)

Consultants' staff costs (Note 1)			Estimated man- months	Average MPS* salary point	Multiplier (Note 2)	Estimated fee (\$ million)
(i)	Planning study	Professional	65	38	2.0	9.3
		Technical	155	14	2.0	7.6
(ii)	Engineering study and technical assessments	Professional	100	38	2.0	14.3
		Technical	226	14	2.0	11.0
(iii)	Public engagement and consultation with relevant stakeholders	Professional	20	38	2.0	2.9
		Technical	71	14	2.0	3.5
(iv)	Supervision of site investigation works	Professional	3	38	2.0	0.4
		Technical	13	14	2.0	0.6
Total						49.6

* MPS = Master Pay Scale

Notes

1. The actual man-months and fees will only be known after we have selected the consultants through the usual competitive bidding system.
2. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (Subject to approval of the Finance Committee, MPS salary point 38 = \$71,385 per month and MPS salary point 14 = \$24,380 per month.)

Study scope and justification of conducting the Territory-wide Study and the Study concurrently

The Territory-wide Study and the Study are two separate studies with different objectives and scope.

2. The objective of the Territory-wide Study, commenced in December 2013, is to explore the opportunities and constraints of underground space development in the whole urban areas and new towns of Hong Kong with a view to enhancing the use of underground space resources in a systematic and holistic manner. The scope of the Territory-wide Study comprises –

- (a) review of local and overseas examples to identify suitable measures and implementation strategies to facilitate underground space development in Hong Kong;
- (b) identifying broadly areas with clear potential for underground space development in the urban areas and new towns of Hong Kong to establish territory-wide opportunities;
- (c) development of conceptual schemes to demonstrate opportunities for space creation and connectivity enhancement for selected areas, and highlight any possible development constraints/issues in implementation;
- (d) review of specific topics related to underground space development, including the prospect of infrastructure reorganisation, harbour-crossing pedestrian-cum-retail link development, and developing underground space for new developments; and
- (e) consultation with relevant stakeholders.

3. On the other hand, the objective of the Study is to determine the enhanced use of underground space in four strategic areas, as a pilot for early implementation, viz. Tsim Sha Tsui West, Causeway Bay, Happy Valley and Admiralty/Wan Chai at the district level for commercial and other uses. The detailed scope of the Study is given in paragraph 3 of the main paper.

4. The two studies will complement each other. More specifically, the Territory-wide Study will establish a comprehensive and objective methodology for prioritising and selecting 15 potential areas, and then proceed to develop conceptual schemes to demonstrate opportunities for underground space development in these areas. To take forward any of the schemes in the identified potential areas, a separate detailed study has to be conducted to establish the feasibility of each priority project through detailed planning and technical assessments including environmental and conservation, transport and traffic, geotechnical, socio-economic, infrastructure requirements, fire and safety engineering, land issues etc.

5. For the Study on the proposed four strategic urban areas, the potential for underground space development in each of them has already been broadly identified through previous studies conducted for improving local pedestrian circulation. As such, the Study could be more specific and will draw up Underground Master Plans, develop conceptual schemes, identify priority projects and establish their engineering feasibility. In fact, feeding early information and findings from the Territory-wide Study, such as key constraints encountered and their respective solutions in notable examples, to the Study will also facilitate formulation of suitable measures and implementation strategies for underground space development in the four strategic areas.

Reasons for selecting the four strategic areas for the Study

6. The four strategic areas were selected with reference to the findings of previous studies related to pedestrian circulation in the areas. Under the Study, development opportunities will be examined with a view to drawing up an Underground Master Plan for each area. In broad terms, the potential and merits for underground space development in each area are identified as follows –

Tsim Sha Tsui West

Tsim Sha Tsui is a node for commercial, tourism, cultural and entertainment purposes. The West Kowloon Cultural District is at the western end whereas the Kowloon Park is situated in the centre. Tsim Sha Tsui West is the transportation hub with the existing MTR Kowloon Station of the Tung Chung Line and the Airport Express, Austin Station of the West Rail Line, Jordon Station and Tsim Sha Tsui Station of the Tsuen Wan Line, and West Kowloon Terminus of the Express Rail Link under construction in the area. Underground space development of pedestrian cum retail links connecting the aforesaid MTR stations/terminus and the existing or planned developments could help relieve the heavy pedestrian flow between West Kowloon and the

central part of Tsim Sha Tsui. It would also increase the supply of the much needed space for commercial and other uses in the area. Besides, the sizeable Kowloon Park provides suitable conditions for large-scale underground space development while maintaining the existing park facilities on the surface ground.

Causeway Bay

Causeway Bay has been developed as a node for commercial, tourism and entertainment purposes and serves as the core commercial and retail area in Hong Kong. With the Victoria Park adjoining the eastern part of the district, the adjacent Tai Hang and Tin Hau areas are also gradually transforming into catering/dining clusters. These areas are easily accessible as they are situated along the existing MTR Island Line (served by Causeway Bay Station and Tin Hau Station) and the North Island Line under planning. Developing well-planned underground streets would provide opportunities for alleviating the heavy pedestrian and traffic flow on ground level and enhancing the connectivity with the neighbouring areas including the harbourfront. In addition, underground streets may serve as pedestrian-cum-retail links extending the core commercial centre of Causeway Bay towards the adjacent Tai Hang and Tin Hau areas. The sizeable open space in Victoria Park also provides good opportunities for large-scale underground space development.

Admiralty/Wan Chai

Admiralty/Wan Chai has been developed as a commercial, tourism and convention cum exhibition centre, with office buildings, hotels, public facilities as well as open spaces. Golden Bauhinia Square, Hong Kong Convention and Exhibition Centre and the new reclaimed land of the on-going Wan Chai Development Phase II project are situated at the northern part of the area, which is accessible by the existing MTR Island Line (served by Admiralty Station and Wan Chai Station) and the North Island Line under planning. Again, developing underground streets could enhance the connectivity with neighbouring areas including the harbourfront. This could also facilitate the expansion of the core business/commercial centre from Central towards Admiralty and Wan Chai.

Happy Valley

Happy Valley is mainly occupied by upper-end residential neighbourhoods, the sizeable Happy Valley Racecourse, as well as a few open spaces. Traffic congestion is often caused by the large crowd and heavy traffic flow in times of horse racing at the Happy Valley Racecourse. Underground streets connecting the area with adjacent MTR Causeway Bay Station, if implemented, could alleviate the traffic problem on ground level and enhance the connectivity with Causeway Bay. Besides, it could facilitate the expansion of the core commercial area from Causeway Bay towards Happy Valley. In addition, the sizeable open space inside the Racecourse provides suitable conditions for large-scale underground space development.