

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Government Office – Intra-governmental services

75KA – New Civil Aviation Department headquarters

Members are invited to recommend to Finance Committee the upgrading of **75KA** to Category A at an estimated cost of \$1,997.0 million in money-of-the-day prices for the construction of a new Civil Aviation Department headquarters building on the Airport Island.

PROBLEM

The functional divisions of the Civil Aviation Department (CAD) are scattered at different locations, which adversely affects the operational efficiency of the department. Additional space is also required for accommodating CAD's new Air Traffic Control (ATC) system.¹

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Transport and Housing, proposes to upgrade **75KA** to Category A at an estimated cost of \$1,997.0 million in money-of-the-day (MOD) prices to construct a CAD headquarters building on the Airport Island.

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¹ On 11 May 2007, the Finance Committee approved the funding of \$1,565 million for replacing CAD's ATC system.

PROJECT SCOPE AND NATURE

3. The scope of the project comprises –
- (a) the construction of a new CAD Headquarters building of about 65 000 square metres (m²) in construction floor area (CFA) or about 22 775 m² in net operational floor area (NOFA²) to provide for –
 - (i) offices of total NOFA of about 3 428 m²;
 - (ii) ATC facilities of total NOFA of about 10 923 m², including an ATC centre, its supporting equipment, systems and facilities; an aeronautical information centre; an aircraft search and rescue coordination centre; an aeronautical network centre;
 - (iii) other facilities of total NOFA of about 8 424 m², including aircraft accident investigation facilities; training and examination facilities; operational evaluation, research and development facilities; a multi-purpose auditorium; conference facilities; a library cum resource centre; an ATC tour presentation room and an educational path; a staff canteen; ancillary facilities; and car parking spaces³;
 - (b) the alteration of the Backup ATC Complex; and
 - (c) the reinstatement of the existing CAD offices.

———— A conceptual layout plan is at Enclosure 1⁴. We plan to start the construction works in September 2008 for completion in December 2011. The installation, testing and commissioning of the new ATC system will commence in April 2011. Upon satisfactory testing and acceptance of the new ATC system, the new headquarters building and the new ATC centre will be commissioned by end 2012.

/JUSTIFICATION

² NOFA is a standard term used to describe the floor area actually allocated to the users for carrying out the intended activities. Unlike CFA which takes into account all areas within the building structure envelope, NOFA does not include areas for toilets, bathrooms and showers, lift lobbies, stair halls, public/shared corridors, stairwells, escalators and lift shafts, pipe/services ducts, refuse chutes and refuse rooms, balconies, verandahs, open decks and flat roofs, loading/unloading areas, mechanical plant rooms, etc.

³ NOFA does not include car parking spaces.

⁴ The final design of the project is to be prepared by the selected design-and-build contractor in accordance with the conditions and requirements of the contract.

JUSTIFICATION

4. We need to replace the existing ATC system which is approaching the end of its usable life and cannot handle the forecast air traffic beyond 2012. It is not feasible to replace the existing system on site because the new ATC system requires space three times the size of the existing ATC centre. We are also concerned about possible disruption to the daily round-the-clock operation of the existing ATC Centre. We therefore need to construct a new building to house the new ATC system. Additional space has been earmarked to cater for the replacement of the new ATC system in the future and further expansion requirements arising from the growth in air traffic.

5. The opportunity is also taken to relocate CAD's functional divisions, which are scattered at various locations (see details at Enclosure 2) under one-roof. Aviation is a highly specialised and multi-disciplined industry. Its regulation requires close collaboration among different functional divisions of CAD. A co-located CAD headquarters will enhance productivity and improve the services to the aviation industry. The existing Control Tower and the ATC Backup Complex on the air-side of the Hong Kong International Airport (HKIA) will remain where they are, to provide air traffic controllers with a close and unobstructed view of the runways, taxiways and airport apron.

6. Moreover, it is necessary to add new facilities to meet operational requirements, including –

- (a) aircraft accident investigation facilities. Aircraft accident investigation is one of CAD's major responsibilities. It is specialised and time-critical, requiring close coordination and extensive technical support among different professions in the collection and analysis of evidence. Reassembling the critical parts of recovered wreckage to its original shape can greatly facilitate the necessary examination, surveying and testing. The new CAD headquarters building should be provided with dedicated facilities for this purpose;
- (b) a multi-purpose auditorium and conference facilities for meetings and group briefings for industry partners and staff, as well as for international and regional aviation conferences and meetings. At present, the department is constrained by the need to rent or borrow outside venues. The International Civil Aviation Organization (ICAO) promotes awareness of new regulatory requirements in civil aviation

/seminars

seminars, workshops and training courses. ICAO welcomes assistance from its members in the form of providing venues for this purpose. With the new facilities, CAD will be able to play a more active role on this front, thereby further enhancing our status as an international and regional aviation centre;

- (c) an ATC tour presentation room and an educational path. To promote understanding and cultivate interest in aviation among the general public, CAD organises tours of its ATC facilities from time to time. The new facilities will allow the display of interesting elements such as aircraft models, photos and small antique aircraft/engines parts to enhance the attractiveness and effect of these tours; and
- (d) a library cum resource centre. At present, because of a lack of space, a large volume of books, reports and other aviation related documents are kept in stores. The new facility will enable CAD to better use such information and resources. Part of the reading materials will be made available to the industry and, where warranted, individual members of the public.

7. The new CAD headquarters will be located on the land-side of HKIA, on a site allocated by the Airport Authority (AA) at no cost to the Government at the southeastern part of the Airport Island (to the north of the Dragonair and China National Aviation Corporation Building).

FINANCIAL IMPLICATIONS

8. We estimate the total capital cost of the project to be \$1,997.0 million in MOD prices (see paragraph 9 below), made up as follows –

	\$ million
(a) Site works	10.1
(b) Foundations	126.8
(c) Building	752.0
(d) Building services	534.1

/(e)

	\$ million	
(e) Drainage	16.1	
(f) External works	143.4	
(g) Alteration works to the Backup ATC Complex	8.5	
(h) Furniture and equipment ⁵	140.0	
(i) Reinstatement of existing CAD offices	15.6	
(j) Consultants' fees for	7.5	
(i) Quantity surveying services	4.7	
(ii) Soft landscape services	1.5	
(iii) Risk management services	1.3	
(k) Contingencies	160.0	
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Sub-total	1,914.1	(in September 2007 prices)
(l) Provision for price adjustment	82.9	
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Total	1,997.0	(in MOD prices)
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⁵ Based on an indicative list of furniture and equipment items required, including a security system, audio-visual systems, a public address system, a simultaneous interpretation system, mobile emergency power generators, mobile-storage racks, a Radio-frequency Identification (RFID) library system and furniture for aircraft accident investigation facilities, ATC tour presentation room, educational path, staff canteen, library cum resource centre and general offices.

We propose to engage consultants to undertake quantity surveying, soft landscape and risk management services of the project. A detailed breakdown of the estimate for the consultants' fees by man-months is at Enclosure 3. The CFA of **75KA** is about 65 000 m². The estimated construction unit cost, represented by the building and the building services costs, is \$19,786 per m² of CFA in September 2007 prices. We consider this unit cost reasonable as compared to that of other government design-and-build projects.

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

Year	\$ million (Sep 2007)	Price adjustment factor	\$ million (MOD)
2008 – 09	20.0	1.00750	20.2
2009 – 10	150.0	1.01758	152.6
2010 – 11	500.0	1.02775	513.9
2011 – 12	600.0	1.03803	622.8
2012 – 13	400.0	1.05619	422.5
2013 – 14	150.0	1.07732	161.6
2014 – 15	94.1	1.09886	103.4
	1,914.1		1,997.0

10. We have derived the MOD estimates 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 2015. We will tender the project as a design-and-build contract. We intend to award the contract on a lump-sum basis because we can clearly define the scope of the works in advance. The contract will provide for price adjustments because the contract period will exceed 21 months.

/11.

11. We estimate the annual recurrent expenditure arising from the project to be about \$70.9 million.

12. Upon the commissioning of the new CAD headquarters, about 1 730 m² of rented office accommodation and four rented car parking spaces could be released, resulting in rental and building maintenance/management savings of about \$3.7 million per year, and about 1 040 m² of rent-free office accommodation at the HKIA Passenger Terminal Building could be returned to AA, resulting in possible management charge savings of about \$0.4 million per year. In addition, about 5 700 m² of government owned office accommodation and 38 Government owned car parking spaces could also be released for use by other departments.

PUBLIC CONSULTATION

13. The proposal has the general support of the Aviation Development Advisory Committee and the aviation industry, including the International Air Transport Association, Board of Airline Representatives, AA, Airline Operators Committee, airlines holding the Air Operator's Certificates issued by CAD, Hong Kong Aircraft Engineering Co. Ltd. and Hong Kong Air Traffic Control Association⁶. CAD has also informed the Islands District Council of the proposal.

14. On 26 November 2007, we consulted the Legislative Council Panel on Economic Development. Members generally supported the project.

/ENVIRONMENTAL

⁶ Some representatives of the aviation industry are concerned about the possible increase in ATC and en-route navigation charges resulting from the financial investment by CAD and have asked for greater transparency in any adjustment to these charges in future. Nevertheless, the industry representatives generally support the replacement of the ATC system and the building of a CAD headquarters on the Airport Island, which they agree will help sustain the healthy growth of the aviation industry.

Given the expected increase in the number of flights using HKIA, it is estimated that the replacement of the ATC system together with the development of a new CAD headquarters will only result in a mild increase of less than \$300 in the cost per flight using HKIA, or about 6% of the existing figure. Likewise, it is not envisaged that the en-route navigation charge, currently at \$4.8 per nautical mile, will see any significant change arising from the project when the increased costs are expected to be cancelled out by the increased traffic.

ENVIRONMENTAL IMPLICATIONS

15. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The project itself will not cause adverse environmental impacts. We undertake to implement the standard pollution control measures during construction to control short term environmental impacts.

16. During construction, we will require the contractor to control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contracts. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

17. We have considered measures (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects) in the planning and design stages to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. using excavated materials for filling) 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 facilities⁷. 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 minimize the generation of construction waste.

18. We will also 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 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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⁷ 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.

19. We estimate that the project will generate in total about 100 900 tonnes of construction waste. Of these, we will reuse about 55 100 tonnes (54.6%) of inert construction waste on site, deliver 36 700 tonnes (36.4%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 9 100 tonnes (9.0%) of non-inert construction waste at landfills. The total cost of accommodating construction waste at public fill reception facilities and landfill sites is estimated to be around \$2.1 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne⁸ at landfills).

HERITAGE IMPLICATIONS

20. This project will not affect any heritage site i.e. all declared monuments, graded historic buildings and sites of archaeological interests.

LAND ACQUISITION

21. The project does not require any land acquisition.

BACKGROUND INFORMATION

22. We upgraded **75KA** to Category B in January 2007. We employed consultants to carry out minor investigation works including topographical survey, traffic impact assessment, preliminary environmental review, utilities mapping and tree survey in May and June 2007. We also engaged a term contractor to conduct ground investigation works in June 2007. We have appointed a consultant to perform quantity surveying services for the pre-contract works. The total cost of the above consultancy services and works is about \$2.2 million. We charged this amount to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". All minor investigation works and ground investigation works have been completed. We are now preparing the tender document.

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⁸ This estimate has taken into account the cost of developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost of existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

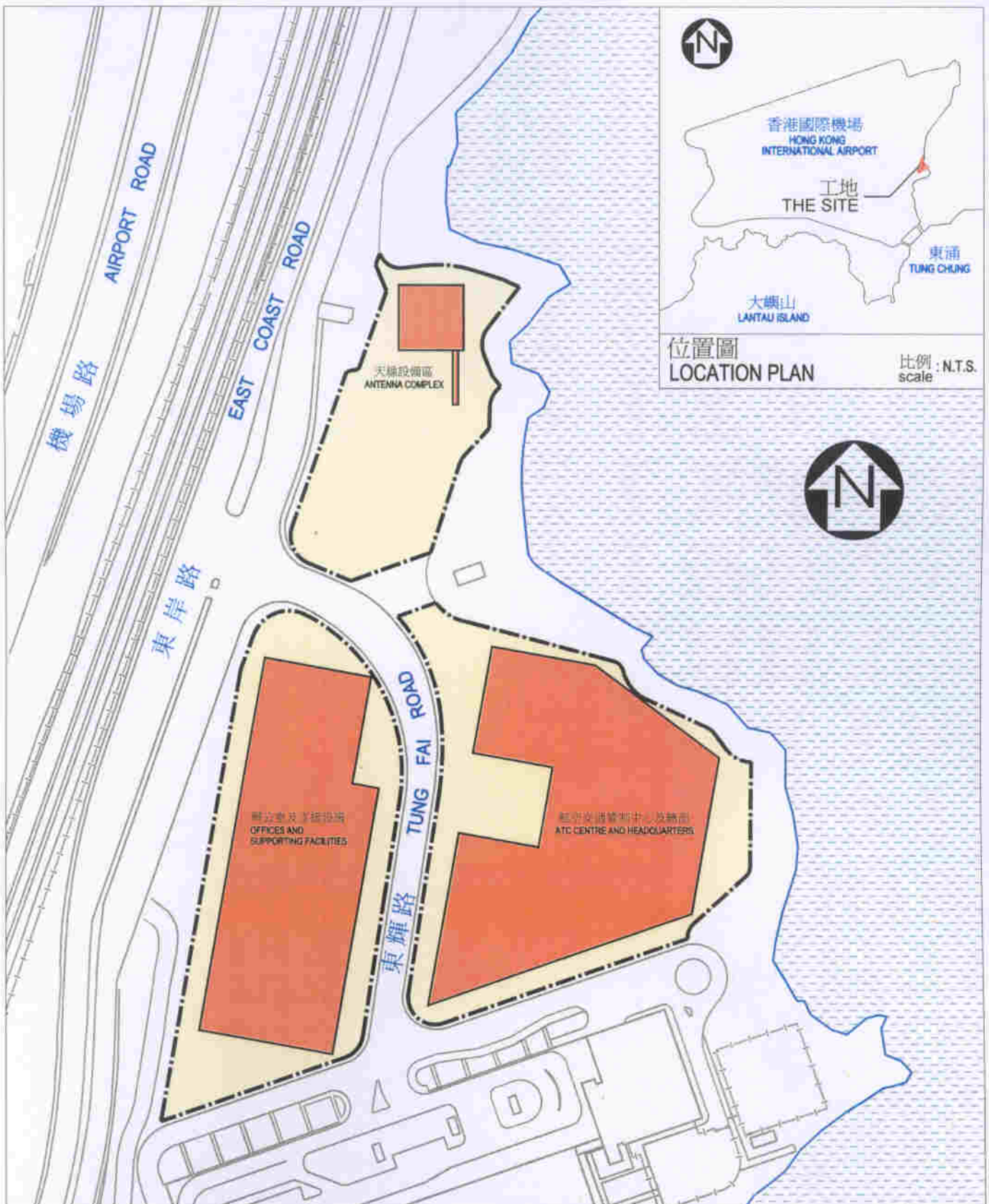
23. The proposed project will involve the removal of 76 trees. All trees to be removed are not important trees⁹ and will be transplanted within the project site. We will incorporate planting proposals as part of the project, including estimated quantities of 50 trees and 45,000 shrubs/groundcovers.

24. We estimate that the proposed works will create about 935 jobs (850 for labourers and another 85 for professional/technical staff) providing a total employment of 28 700 man-months.

Transport and Housing Bureau
December 2007

⁹ “Important tree” refers 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 an important person 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.



位置圖
LOCATION PLAN
比例 : N.T.S.
scale

75KA 新民航處總部 NEW CIVIL AVIATION DEPARTMENT HEADQUARTERS	drawn by 繪圖 K.H. CHAN	date 日期 10/2007	drawing no. 編號 AB/7149/XA101	scale 比例 1 : 2000
	approved 覆核 DAVID CHAK	date 日期 10/2007	 ARCHITECTURAL SERVICES DEPARTMENT 建築署	
	office 辦事處 PROJECT MANAGEMENT BRANCH	工程策劃管理處		

Existing locations of Civil Aviation Department offices

Location	Premises	Major formations
HKIA, Lantau	ATC Complex	Air Traffic Control Centre Air Traffic Control Tower* Aeronautical Information Centre Aeronautical Network Centre Search and Rescue Coordination Centre Air Traffic Management Division's Training Unit Offices of Air Traffic Management Division
	Backup ATC Complex	Backup Air Traffic Control Centre* Backup Air Traffic Control Tower* Staff cafeteria
	Passenger Terminal Building	Offices of Airport Standards Division Offices of Airport Administration Unit
	Air Freight Forwarding Centre	Offices of Flight Standards and Airworthiness Division Offices of Engineering and Systems Division
Queensway, Hong Kong	Queensway Government Offices	Director-General of Civil Aviation's office Offices of the Air Services Division Offices of the Administration Division Offices of the Finance Division

(* Facilities that will not be re-located as part of this project)

75KA – New Civil Aviation Department headquarters

Breakdown of the estimate for consultants' fees

Consultants' staff costs		Estimated man-Months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Quantity surveying services (Note 2)	-	-	-	1.7
		-	-	-	3.0
(b)	Soft landscape services (Note 3)	13.2	38	2.0	1.5
(c)	Risk management services (Note 3)	11.4	38	2.0	1.3
				Total	<u>7.5</u>

*MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultant's overheads and profit, as the staff will be employed in the consultant's office. (As at 1 April 2007, MPS point 38 = \$56,945 per month.)
2. The consultants' staff cost for quantity surveying services is calculated in accordance with the existing consultancy agreements for the provision of quantity surveying services for **75KA**. The assignment will only be executed subject to Finance Committee's approval to upgrade **75KA** to Category A.
3. We will only know the actual man-months and actual costs after completion of the construction works.