

ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 28 – CIVIL AVIATION DEPARTMENT

Subhead 000 Operational expenses

Members are invited to recommend to Finance Committee the following changes in the Civil Aviation Department with effect from 1 October 2007 –

- (a) the creation of the following supernumerary post for a period of five years and six months –

1 Assistant Director-General of Civil Aviation
(D2) (\$110,000 - \$116,800)

- (b) the creation of the following permanent post –

1 Chief Air Traffic Control Officer
(D1) (\$92,650 - \$98,300)

PROBLEM

We need to strengthen staffing support at directorate level in the Civil Aviation Department (CAD) to cope with the robust growth in air traffic and to ensure the continued provision of safe and reliable air traffic control (ATC) service.

PROPOSAL

2. The Director-General of Civil Aviation (DGCA), with the support of the Secretary for Economic Development and Labour, proposes to create the following posts with effect from 1 October 2007 –

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- (a) one supernumerary post of Assistant Director-General of Civil Aviation (ADGCA) (D2) for a period of five years and six months to lead a dedicated team to take forward the proposed replacement of the ATC system and the development of a new CAD headquarters on the Airport Island; and
- (b) one permanent post of Chief Air Traffic Control Officer (CATCO) (D1) to strengthen regulatory controls on the safety of CAD's ATC operations on an on-going basis and to bring our safety management measures in line with international standards.

JUSTIFICATION

3. As part of the Department's on-going efforts to improve the operational capacity and effectiveness of our ATC service while upholding the highest possible civil aviation safety standards, we will take forward a number of major initiatives in the next few years, including in particular the replacement of the ATC system and the development of a new CAD headquarters. The details are set out in the following paragraphs. There is a need to strengthen CAD's directorate support to enhance its capacity in taking forward these projects as planned.

(A) Proposed Creation of One Supernumerary Post of ADGCA

Need to Replace the Existing ATC System

4. Under the progressive liberalisation policy, Hong Kong's aviation sector has been growing rapidly since the opening of the Hong Kong International Airport (HKIA) in 1998. Over the past eight years, we have recorded phenomenal growth in all areas of air traffic, i.e. passenger throughput increased by 59%, cargo throughput by 120%, aircraft movements at HKIA by 72% and overflight traffic by 95%. Apart from the robust growth in air traffic, our ATC system has also been subject to additional strain due to the high concentration of airports in the Pearl River Delta (PRD) region, which has created a congested airspace that greatly reduces the efficiency of air traffic management. The situation has been exacerbated by the equally significant growth in air traffic to/from the Macao Airport, which relies heavily on our ATC service and takes up a substantial part of our ATC capacity.

5. The existing ATC system was designed in early 1990's and has been in operation since the opening of HKIA in 1998. It is approaching its full handling capacity and will reach the end of its usable life by around 2012. As technology advances, its design can no longer support some of the functionalities common in

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the most updated ATC systems and this has limited the inter-operability with other ATC systems (i.e. the exchange of operation-related data between systems). Hence, we recommend replacing the existing ATC system by a completely new system that is on a par with the most advanced systems adopted in other advanced ATC Centres. With much enhanced data transmission, processing and display power, the new system can provide up to twice the handling capacity of the existing system, thereby meeting the air traffic growth by 2025 as forecast by the Airport Authority (AA). Given the lead time for invitation of various tenders, system installations, test-runs and relevant staff training, we expect that the new system will commence operation by end 2012.

Need to Develop a New CAD Headquarters on the Airport Island

6. At present, the headquarters of CAD and its five functional divisions are scattered in four different locations (namely, ATC Complex on the air-side of HKIA, Airport Freight Forwarding Centre and Passenger Terminal Building on the land-side of HKIA, and Queensway Government Offices). Scattered accommodation is highly undesirable from the operation angle. It hinders efficient communication among the divisions and the headquarters, and results in duplication of administrative and support efforts, with unnecessary travel between the scattered offices as well as time wasted in undergoing security screening between the land and air-sides. More importantly, it slows down CAD's response time in emergency situations such as serious aircraft incidents. It also prevents CAD from providing convenient and one-stop service to the aviation industry based at HKIA.

7. A co-located CAD headquarters will also provide timely accommodation for the new ATC system, which would require a space three times the size of the existing ATC Centre. However, in-situ replacement is not possible given the limited space and the disruption that this will cause to the on-going ATC service which must be provided. Expansion of the existing centre is also not a viable option because of the lack of adjoining land and the disruption that might be caused to existing service.

8. In view of the above, we propose to develop a co-located CAD headquarters on the land-side of the Airport Island to house both the new ATC system and the whole Department. Apart from addressing the shortcomings of scattered accommodation mentioned in paragraph 6 above, the development proposal will enhance the productivity of CAD and maximise the synergy among various stakeholders also located on the Airport Island. With the consent of AA, a site at the southeastern part of the Airport Island has been identified as the location for the new CAD headquarters cum ATC Centre.

9. The replacement of the ATC system and the construction of the CAD headquarters are estimated to cost a total of about \$3.1 billion. We will separately seek the approval of the Finance Committee for the two projects during the course of 2007-08.

Dedicated Project Team

10. Having considered the scope and complexity of work involved in replacing the ATC system and constructing the CAD headquarters, we propose to set up a dedicated team within CAD to ensure the timely completion of the twin projects and a seamless transition to the new ATC system upon its commissioning by end 2012. During the initial project stage (from October 2007 to September 2009), the team will provide substantial inputs to the works department in the planning, tendering and design of the CAD headquarters, taking into account the specialised accommodation requirements of the ATC system. The team will also draw up the detailed specifications to prepare for the procurement of the ATC system (comprising 17 major sub-systems and other ancillary systems). During the implementation stage (from October 2009 to December 2012), in addition to monitoring equipment delivery and installation and conducting test-runs, the team will co-ordinate and arrange the training of existing ATC and maintenance staff by phases without affecting the normal operations of the Department. The team will also liaise with the works agents, AA and other relevant parties, and monitor the progress of the construction of the CAD headquarters. Towards the end of the projects (up to early 2013), the team will develop the transition plan to ensure smooth migration to the new ATC system without any disruption to the ATC service. The above are all labour intensive tasks requiring in-depth ATC expertise. A list of the critical tasks for the new ATC system throughout the project stage is at Enclosure 1.

Encl. 1

Need for an ADGCA Post

11. The complexity of the above time-critical tasks calls for strong leadership and full-time attention of an officer at an appropriately senior level from the preparatory to the execution stages. We therefore consider it necessary to pitch the post of team leader at ADGCA level as the incumbent would need to make use of his/her breadth and depth of knowledge and experience to provide critical steer and inputs, take proactive actions to resolve issues affecting the timely implementation of the projects, and maintain close liaison with stakeholders within and outside the Government. Reporting directly to DGCA, he/she is expected to demonstrate strong leadership skills in making sharp and fast analysis of complex issues, advocate and lead changes, exercise political acumen in conducting business with key stakeholders, and possess strategic planning skills to ensure timely

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completion of the projects. To this end, we propose to create one supernumerary post of ADGCA, to be designated as Assistant Director-General of Civil Aviation (Air Traffic Control Project) (ADGCA(ATC Project)), for a period of five years and six months from 1 October 2007 to see through the preparation and implementation of the projects. The duration is necessary as the officer is responsible not only for the development of the new CAD headquarters, but also the preparatory work, including staff training, which will be needed for the smooth commissioning of the new ATC system. The implementation timetable of the projects is at Enclosure 2. The job description of the proposed ADGCA post is at Enclosure 3.

Encl. 2
Encl. 3

Non-directorate Support

12. The ADGCA(ATC Project) will be supported by a team of 41 non-directorate staff, comprising –

- (a) two Air Traffic Control Officer I (ATCO I) and 17 Air Traffic Control Officer II (ATCO II) posts to be created in two batches in 2007-08 and 2008-09^{Note}, together with six Air Traffic Flight Services Officers I and three Aeronautical Communications Officers I to be temporarily redeployed within CAD. The incumbents will be responsible for planning and designing the operational requirements of the new system, preparing tender specifications, overseeing the installation, testing and evaluation of the new system, and designing new operation and flight procedures;
- (b) two Electronics Engineer (EE) posts to be created in 2007-08, together with one Senior Electronics Engineer and two EEs to be temporarily redeployed within CAD, and seven non-civil service contract Technical Officers to be employed. The incumbents will be responsible for planning and designing the system requirements and specifications, conducting tender exercises to procure various components of the system, overseeing system installation and commissioning, and performing integration testing and safety assessment of the ATC facilities; and
- (c) one Senior Architect post, already created on a supernumerary basis, mainly to assist in monitoring and co-ordinating the construction of the new CAD headquarters.

We consider that a project team of the proposed size is necessary in ensuring the smooth implementation of the projects. Indeed, in the last exercise of relocating

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^{Note} Two ATCO I and seven ATCO II posts will be created in 2007-08 whereas the remaining ten ATCO II posts will be created in 2008-09.

the international airport cum ATC Centre from Kai Tak to Chek Lap Kok, a project team comprising 67 ATC specialists and 18 engineers was established. The organisation chart of CAD incorporating the proposed project team is at Encl. 4 Enclosure 4.

(B) Proposed Creation of One Permanent Post of CATCO

Establishment of an Air Traffic Management Standards Office (ATMSO)

13. Safety has always been a top priority in the civil aviation industry. A study conducted by the United Kingdom Civil Aviation Authority (UKCAA) on Hong Kong's ATC operations in 2000 recommended, amongst other things, that an independent office be established to oversee the operation of CAD's Air Traffic Management Division (ATMD), the ATC service provider in Hong Kong. Such arrangement would provide a more objective check and assessment of our ATC operations. It is also in line with the international best practice and is instrumental in upholding our safety standards. In this regard, we briefed the Legislative Council Panel on Economic Services in April 2001 on the UKCAA's recommendations and Members in general supported the recommendation of establishing an independent office to oversee CAD's ATC operations.

14. As an interim measure to take forward the UKCAA's recommendation, CAD has set up a temporary unit in its Flight Standards and Airworthiness Division (FSAD) since March 2003 to perform some of the essential regulatory functions, such as setting up of ATC operational regulatory standards and procedures, through internal redeployment of one CATCO, one ATCO I and one ATCO II from ATMD. This arrangement is not desirable from the operational point of view. We see a need to set up a separate ATMSO with dedicated staff on a permanent basis to oversee safety issues relating to ATC operations independently. Apart from strengthening regulatory controls on the ATC service to ensure maintenance of the highest possible operational and safety standards, the new ATMSO will be entrusted with new tasks arising from the evolving developments in the civil aviation industry. For example, with the replacement of the ATC system, and the on-going initiatives to enhance airspace and air traffic management in the PRD region, the proposed ATMSO is expected to play an active role in formulating new safety requirements in accordance with latest international standards as well as reviewing the appropriateness of current requirements.

15. To enhance safety in the provision of ATC service, the International Civil Aviation Organization (ICAO) promulgated in 2006 a new standard under Annex 11 to the Convention on International Civil Aviation to require all ATC service providers to implement a Safety Management System (SMS) to manage

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safety in a proactive and coherent manner. To comply with the above ICAO standard, the proposed ATMSO will develop a CAD Safety Programme, in accordance with which ATMD will develop a set of operating procedures. ATMSO will also be responsible for monitoring the implementation of ATMD's SMS procedures through regular inspections and audits. The process is expected to take place from time to time, as and when new standards are promulgated by ICAO.

16. Furthermore, the anticipated expansion of ATC operations associated with the new ATC system will require an even higher standard of safety. To maintain Hong Kong's status as an aviation hub, the proposed ATMSO will be tasked to launch more proactive and predictive safety initiatives with a view to identifying systemic and potential hazards as early as possible so that the risk to operations can be minimised.

Need for a CATCO Post

17. For the proposed ATMSO to achieve its intended objectives, it has to be led by a sufficiently senior professional officer with rich experience and knowledge in ATC operations. We therefore consider it necessary to create one permanent post of CATCO, to be designated as Chief, Air Traffic Management Standards (C, ATMS), as the head of the proposed office. The C, ATMS will perform the regulatory functions on ATC operations, including safety oversight activities and administration of personnel licensing for air traffic controllers in Hong Kong. He/she will be supported by one ATCO I and one ATCO II, who will conduct audit inspections to ATMD, and assist him/her in researches and analyses for formulating safety oversight strategies and policies. The two supporting ATCO posts will be created by the Department later in the year. The job description of the proposed CATCO post is at Enclosure 5. The organisation chart of FSAD showing the proposed ATMSO is at Enclosure 6.

Encl. 5
Encl. 6

Alternatives Considered

18. We have critically examined whether the existing directorate staff in CAD have the spare capacity to absorb the duties of the two proposed posts. Regarding the proposed ADGCA post, we consider that entrusting the leadership and co-ordinating role to an existing officer is not feasible. Indeed, when comparing the present situation with the final years of Kai Tak, CAD is now facing a much heavier workload due to the rapid growth in air traffic; the increased number of local airlines, aircraft and flight crew; the more stringent requirements in aviation security since the 9-11 incident; and enhanced safety standards. As a result, the existing five ADGCAs are fully occupied and unable to take up the additional duties arising from the projects. Sharing the duties among the existing posts is also impractical given the need for unified leadership and high-level co-ordination to see through the projects.

19. Similarly, we can find no spare capacity among the existing four CATCOs to perform the responsibilities of the proposed permanent CATCO post to head ATMSO. As mentioned above, we have already set up a unit through internal redeployment from ATMD on a temporary basis. However, this temporary arrangement has added pressure on the already critical staffing situation in CAD, particularly with regard to the air traffic control side, and is becoming unsustainable as air traffic at HKIA continues to grow. It is therefore necessary to create one permanent post of CATCO to head the proposed ATMSO.

FINANCIAL IMPLICATIONS

20. The staffing proposal will bring about an additional notional annual salary cost at mid-point of \$2,505,000, as follows –

Rank	Notional Annual Salary Cost at Mid-point \$	No. of post
ADGCA (D2)	1,360,800	1
CATCO (D1)	1,144,200	1
Total	2,505,000	2

The full annual average staff cost, including salaries and staff on-cost, is \$3,384,000. In addition, this proposal will necessitate the creation of 23 additional non-directorate posts at a notional annual mid-point salary cost of \$16,462,260 and full annual average staff cost of \$28,791,000.

21. We have included the necessary provision in the 2007-08 draft Estimates to meet the cost of this proposal.

PUBLIC CONSULTATION

22. We consulted the Legislative Council Panel on Economic Services on 26 February 2007. Members in general supported the staffing proposal.

BACKGROUND

23. The Administration is committed to maintaining Hong Kong's position as a centre of international and regional aviation. To facilitate the long-term development of the civil aviation industry, we will earmark about \$3.1 billion to replace CAD's existing ATC system and develop a new CAD headquarters on the Airport Island.

/ESTABLISHMENT

ESTABLISHMENT CHANGES

24. The establishment changes in CAD for the past two years are as follows –

Establishment (Note)	Number of posts		
	Existing (as at 1 April 2007)	As at 1 April 2006	As at 1 April 2005
A	20#	20	20
B	257	255	252
C	398	433	434
Total	675	708	706

Note :

A - ranks in the directorate pay scale or equivalent

B - non-directorate ranks the maximum pay point of which is above MPS point 33 or equivalent

C - non-directorate ranks the maximum pay point of which is at or below MPS point 33 or equivalent

As at 1 April 2007, there was no unfilled directorate post in CAD.

CIVIL SERVICE BUREAU COMMENTS

25. The Civil Service Bureau supports the proposed creation of the two directorate posts to take forward the projects to replace the ATC system and develop a new CAD headquarters on the Airport Island, and to set up an ATMSO to oversee the safety of CAD's ATC operations on an on-going basis. The grading and ranking of the proposed posts are considered appropriate having regard to the level and scope of responsibilities required.

ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE

26. The Standing Committee on Directorate Salaries and Conditions of Service has advised that the grading proposed for the post of CATCO would be appropriate if the proposal were to be implemented.

**Critical Tasks to be Undertaken by the Project Team
in respect of the New Air Traffic Control System**

2007-08

- Define overall system design and operational requirements, including the human-machine interfaces for some 17 major components and other ancillary facilities of the air traffic control (ATC) system
- Liaise with neighbouring ATC authorities on the interface and protocol standards for the inter-operability of the new ATC system with their systems

2008-09

- Define training requirements in the tender and contract specifications for various components and ancillary facilities
- Formulate the training plan for the operations of the new ATC Centre and revised flight procedures
- Prepare tender documents for the procurement of various components and ancillary facilities

2009-10

- Conduct tender evaluations and award contracts for various components and ancillary facilities
- Participate in the “train-the-trainer programme” in the factories of various equipment suppliers
- Prepare the training materials to suit Hong Kong’s traffic configuration and operating environment, including the system degradation on failure and failure recovery procedures
- Draft course plans for subsequent training of operational controllers in various operational streams
- Formulate the work plan for transition and parallel operations of the existing and new ATC Centres

/2010-11

2010-11 and onwards

- Conduct tender evaluations and award contracts for various components and ancillary facilities
- Monitor the production of the relevant equipment, attend factory acceptance testing and supervise the site installations
- Carry out site testing, acceptance and integration of various components and ancillary facilities
- Conduct classroom and hands-on training and refresher courses on operating the new ATC system and revised operational and flight procedures
- Arrange relief for more than 200 operational controllers who will have to undergo training related to the new ATC system in batches
- Design and carry out drills for the transition and parallel operations of the existing and new ATC Centres
- Plan and execute the transition between the existing and new ATC Centres and their parallel operations during the initial stage

Implementation Timetable of the Projects

Activity	Target completion date
1. Funding approval for the new air traffic control (ATC) system, staffing proposal and Civil Aviation Department (CAD) headquarters	May 2007 (system and staffing proposal) December 2007 (headquarters)
2. Tender invitations and award of contracts for CAD headquarters	August 2008
3. Finalisation of tender specifications for various components of the new ATC system	January 2010
4. Tender invitations for various components of the new ATC system	March 2010
5. Award of contracts for various components of the new ATC system	October 2010
6. Delivery of the new ATC system	July 2011
7. Construction of new CAD headquarters	December 2011
8. Installation and integration of the new ATC system for testing and evaluation	February 2012
9. Operational evaluation and controller training	December 2012
10. Transition to and commissioning of the new ATC system	December 2012
11. Commissioning of new CAD headquarters by phases	December 2012 – March 2013
12. Delivery of backup ATC system	January 2014
13. Installation, integration and commissioning of backup ATC system	January 2015

Job Description

Assistant Director-General of Civil Aviation (Air Traffic Control Project)

Rank : Assistant Director-General of Civil Aviation (D2)

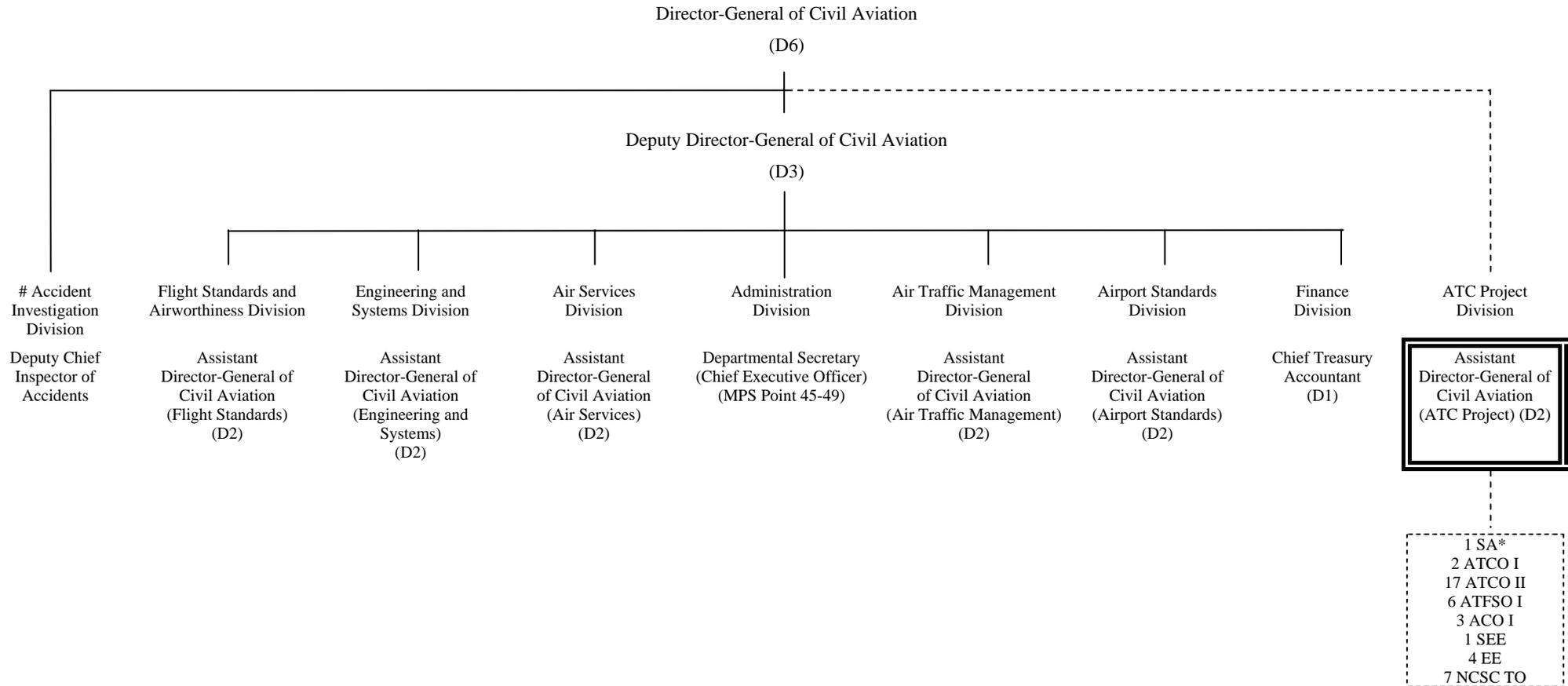
Responsible to : Director-General of Civil Aviation

Main Duties and Responsibilities –

1. To lead a dedicated team within the Civil Aviation Department (CAD) to oversee and co-ordinate the replacement of the air traffic control (ATC) system and development of a new CAD headquarters on the Airport Island (the Project).
2. To head the Steering Committee comprising representatives from relevant bureaux/departments for securing funding approvals and overseeing the implementation of the Project, including the timely installation and commissioning of the new ATC system.
3. To act as a focal point of contact with relevant bureaux/departments for the implementation of the Project, and to represent CAD in its liaison and negotiation with the non-government agencies, including the Airport Authority, the building contractor, equipment suppliers, and security, maintenance and other service providers.
4. To co-ordinate divisional inputs and to resolve any policy and design issues to ensure timely preparation of various tender documents, assessment of bids received and award of the tenders for the new ATC system and the CAD headquarters.
5. To co-ordinate divisional efforts to draw up and implement a transition plan, which includes devisal of flight procedures and phased training for all ATC staff for operating the new system; timely delivery, installation and testing of ATC equipment; relocation of offices; contingency plan for any delays; and detailed operational plan to ensure a seamless transition from the existing ATC system to the new system.

6. To closely monitor throughout the construction of the CAD headquarters for early detection and rectification of any slippage, mismatches in design or building defects to ensure that the construction works can be completed on time and to the satisfaction of the users.
7. To provide policy inputs and set up guidelines in respect of maintenance, management and security requirements for the new headquarters, and to participate in the selection of service providers and establishment of the related administration procedures.
8. To periodically report to the senior management of CAD and the Economic Development and Labour Bureau on the progress of the Project's implementation.
9. To conduct, as and when necessary, consultation sessions with stakeholders such as the International Air Transport Association, Board of Airline Representatives, and the Hong Kong-based airlines and aircraft engineering companies so as to keep them informed of the progress of the Project and the new ATC system, and seek to address their concerns thereof.

Organisation Chart Civil Aviation Department



The Director-General of Civil Aviation is also the Chief Inspector of Accidents. The Accident Investigation Division will only be mobilised when required by drawing specially trained staff from other Divisions.

 Supernumerary Assistant Director-General of Civil Aviation post proposed to be created.

 Other non-directorate posts to be created by phases.

* Existing supernumerary post.

Legend:

SA	Senior Architect
ATCO I	Air Traffic Control Officer I
ATCO II	Air Traffic Control Officer II
ATFSO I	Air Traffic Flight Services Officer I
ACO I	Aeronautical Communications Officer I
SEE	Senior Electronics Engineer
EE	Electronics Engineer
NCSC TO	Non-civil service contract Technical Officer

Job Description
Chief, Air Traffic Management Standards

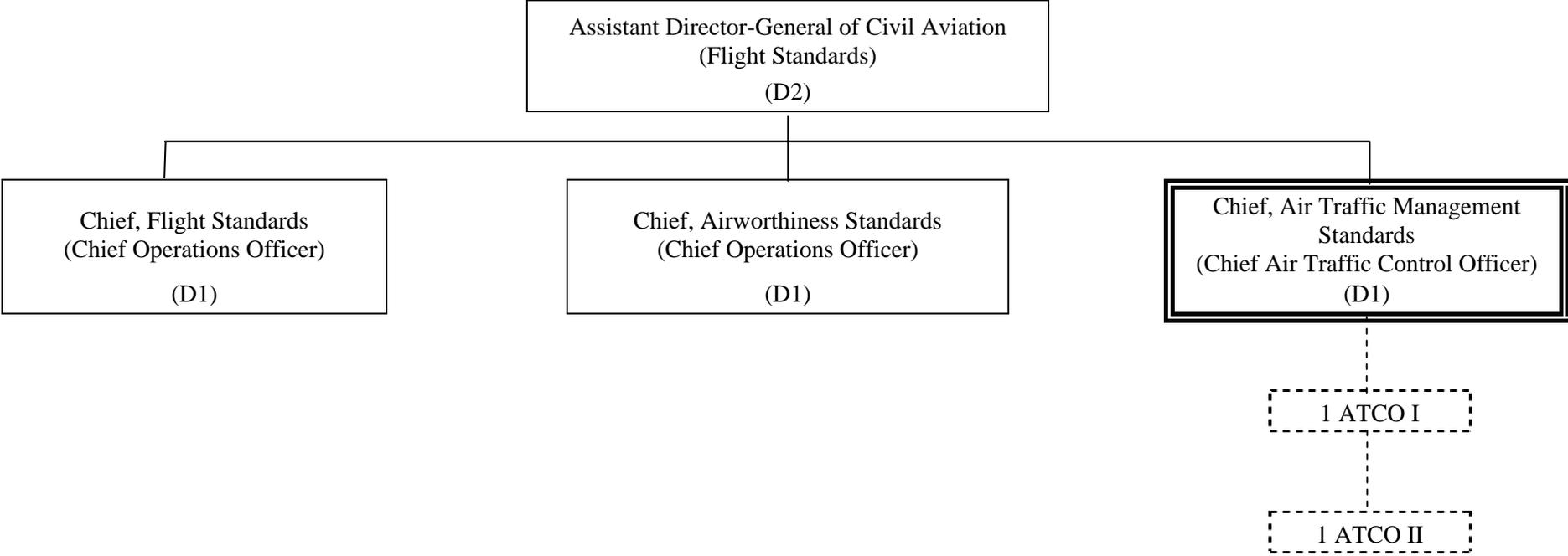
Rank : Chief Air Traffic Control Officer (D1)

Responsible to : Assistant Director-General of Civil Aviation (Flight Standards)

Main Duties and Responsibilities –

1. To vet, endorse and regularly review the air traffic management (ATM) operational procedures developed by the air navigation service provider to ensure compliance with the safety policies and safety regulatory requirements set by the ATM Standards Office (ATMSO).
2. To oversee the implementation of an independent check-and-balance mechanism on the safety of ATM operations through conducting regular inspections and audits to the air navigation service provider, and recommending strategies and action plans for enhancement of safety.
3. To develop, implement and regularly review the air traffic controller licensing policies and procedures, and oversee the administration of the air traffic controllers' licences, control ratings and associated medical certificates in accordance with the Hong Kong air navigation legislative requirements.
4. To administer the Flight Standards and Airworthiness Division's Mandatory Reporting Scheme on reportable occurrences related to ATM operations by analysing those occurrences and providing recommendations for safety promotion in accordance with the Articles and Schedules of the Air Navigation (Hong Kong) Order 1995.
5. To liaise and collaborate at senior levels with other aviation regulatory authorities, government agencies and international agencies (e.g. International Civil Aviation Organization) to review safety issues of mutual concern with a view to enhancing the ATM safety standards and regulations in Hong Kong.
6. To act as Accidents Investigator, as and when the Director-General of Civil Aviation decides to mobilise the Accident Investigation Division, to investigate aircraft accidents and serious incidents, and to review ATC incident investigation reports submitted by the air navigation service provider.
7. To assume overall management of ATMSO and to ensure that its staff are properly trained and equipped to perform its regulatory functions.

Organisation Chart
Flight Standards and Airworthiness Division, Civil Aviation Department



 Permanent Chief Air Traffic Control Officer post proposed to be created.
 Other non-directorate posts to be created.

Legend:
ATCO I Air Traffic Control Officer I
ATCO II Air Traffic Control Officer II