

**For discussion
on 28 May 2018**

Legislative Council Panel on Economic Development
Proposed Creation of Two Directorate (D1) Posts
in the Civil Aviation Department
under the Transport Branch of Transport and Housing Bureau

PURPOSE

This paper seeks Members' view on a proposal to create one permanent directorate post and one supernumerary directorate post for about seven years up to 2024-25 in the Air Traffic Management Division (ATMD) under the Civil Aviation Department (CAD). The creation of the two posts are essential for handling the robust growth in air traffic of Hong Kong, as well as to oversee all preparation work within CAD that are critical to the successful operation of the Three-Runway System (3RS).

2. The two directorate posts proposed to be created are –
 - (i) one permanent Chief Air Traffic Control Officer (CATCO) (D1) designated as Chief (Operations and Personnel) (2) (C(OP)2); and
 - (ii) one supernumerary CATCO (D1) designated as Chief (Three-Runway System) (C(3RS)).

BACKGROUND

3. To meet the growing air traffic demand and maintain Hong Kong's competitiveness as an international and regional aviation hub, the Airport Authority Hong Kong (AAHK) is taking forward the 3RS project. With the full 3RS targeted for commissioning in end 2024, the runway capacity of Hong Kong

International Airport (HKIA) will progressively increase from the current 68 Air Traffic Movement (ATM) per hour to the ultimate target runway capacity of 102 ATM per hour in the long run.

4. It is the Government's policy to maintain and strengthen Hong Kong's leading position as an aviation hub. To support the policy, CAD is committed to providing safe, reliable and efficient air traffic control (ATC) services for flights arriving and departing from HKIA and aircraft overflying Hong Kong Flight Information Region (HKFIR), which covers a total of 276 000 square kilometers. The HKFIR map is illustrated at **Annex A**.

5. The ATMD needs to ensure adequacy and readiness of its manpower to handle the robust growth in air traffic of Hong Kong, including the traffic growth brought about by the future 3RS operation. For 3RS operation, ATMD would need to develop new/fine-tuned arrival and departure ATC-related procedures and draft detailed technical design of the future control tower operations as 3RS necessitates a new ATC tower¹. Significant amount of work with specific project milestones have to be completed in a timely manner to support the implementation of 3RS operation. These are complex and substantial tasks which require effective oversight and guidance by dedicated directorate officers with solid and rich experience in project management and strong expertise in ATC services.

JUSTIFICATIONS

Robust Growth in Air Traffic

6. Due to the strong growth in regional air traffic demand and our unique geographic position, Hong Kong experienced a robust growth of air traffic in the past 10 years from 2008 to 2017. During the period, the annual aircraft movements at Hong Kong International Airport (HKIA) grew from 302 541 to 422 420, representing a cumulative increase of 39.6% or a compound annual growth rate of 3.39%. The annual overflight traffic² also increased from 154 728 to 325 200, representing a cumulative increase of 110% with a compound annual growth rate of 7.7%. As of 2017, in terms of major air routes defined by the

¹ Please refer to the discussion paper entitled "Resources Proposals Relating to the Government Facilities and Equipment to Support the Three-runway System at the Hong Kong International Airport", LC Paper No. CB(4)1110/17-18(03), scheduled for discussion at the LegCo Economic Development Panel on 28 May 2018 for background of the need for the new ATC tower under 3RS operation.

² This refers to aircraft operating within the HKFIR which do not land or take-off at HKIA. It also includes flights into and out of Macao International Airport, which are also handled by CAD of the HKSAR Government.

International Civil Aviation Organization (ICAO), four³ out of ten major air routes are passing through the HKFIR requiring ATC services provided by CAD. The rising trend is expected to continue in the coming years, especially with strong demand of air traffic within the Asia Pacific Region and the commissioning of the 3RS. Prior to the commissioning of 3RS, the annual overflight traffic is expected to continue to rise (we already see an increase of annual overflight traffic of about 15.6% in 2017). 34 additional parking stands will also be targeted for commissioning from end-2018 until the completion of the 3RS to accommodate anticipated air traffic growth at HKIA. Furthermore, with the commissioning of 3RS, according to the HKIA Master Plan 2030 the annual aircraft movements at the HKIA are expected to further grow to 607 000 by 2030.

7. Phenomenal growth in air traffic not only creates substantial increase in the workload of ATMD, but also increases the level of work complexity, which requires many sophisticated and time-critical executive decisions to be made. For instance, the increase in air traffic transiting the HKFIR without landing and take-off at HKIA necessitates a more stringent oversight to daily operations to ensure effective regulation of air traffic flow. It also requires close collaboration between different parties, both internally and externally, to ensure seamless and safe transfer of air traffic control between Flight Information Regions. As such, more managerial oversight is required in respect of the daily deployment of ATC operational personnel and associated human resources planning.

8. ATMD is the biggest division of CAD comprising around 480 posts at present. The Air Traffic Control Officers (ATCOs) work on roster to provide 24 hours non-stop ATC services. There are ATC operations in the Air Traffic Control Center (ATCC) within the CAD Headquarters and in the Aerodrome Control Tower located in the airside of the airport. Currently, the Chief Air Traffic Control Officer (Operations and Personnel) (C(OP)) (D1) is responsible for overseeing the entire ATC operations in the ATCC and Aerodrome Control Tower. The C(OP) is responsible for overseeing the management and operations of ATC services, planning and administering the deployment of staff and associated human resources issues, planning and execution of strategic and tactical air traffic flow management measures, overseeing the safety and effectiveness of ATC operating procedures, and liaison and co-ordination with other ATC service providers in other FIRs. In the light of increasing workload and complexity of air traffic

³ The major air routes passing through the HKFIR are AR1 - Between Europe and East Asia; AR3 - Between Southeast Asia and East Asia; AR7 - Between East Asia and North America; and AR8 - Between East Asia and Australia. (Source: ANSP Air Navigation Plan Vol II 2017).

management in the HKFIR, it is no longer practical to rely on one single C(OP) to manage all these complex and time critical operational affairs on a real time basis.

9. In order to maintain an effective oversight of ATC operations and optimise the planning and utilisation of the human resources to handle the robust growth in air traffic, we consider it necessary to create one permanent post of CATCO, to be designated as Chief Air Traffic Control Officer (Operations and Personnel) (2) (C(OP)2), to lead the operations of the Approach Control Unit and Aerodrome Control Unit⁴. Apart from that, the proposed C(OP)2 will also oversee the phased operational transition to 3RS to ensure that frontline ATC staff are fully conversant with the new mode of ATC operations, the design of which would have incorporated their views.

10. The existing C(OP), to be re-designated C(OP)1, will oversee the Terminal Control Unit and En-route Control Unit⁵. Besides, C(OP)1 will be responsible for allocation of human resources in conjunction with the Training and Safety Section and overseeing the planning and implementation of regional Air Traffic Flow Management (ATFM). The job descriptions of the proposed C(OP)2 and revised job description of C(OP)1 are at **Annex B** and **Annex C** respectively.

3RS Project

11. To meet the growing air traffic demand and maintain Hong Kong's competitiveness as an international aviation hub, the Executive Council endorsed the AAHK's proposal to develop HKIA into a 3RS in March 2015. According to AAHK, the 3RS construction works which commenced in August 2016 will take around eight years to complete. The commissioning of the third runway is scheduled for 2022 after which the existing North Runway will be closed for reconfiguration. The full commissioning of the 3RS is targeted in end 2024.

12. To prepare for the 3RS operations, ATMD would need to develop new arrival and departure procedures, refine existing procedures as well as technical detailed design of the control tower operations. Phased procedures and transitions have to be carefully designed well in advance to cater for both the commissioning of the third runway by 2022 and full commissioning of the 3RS by end 2024. In

⁴ The Approach Control Unit is responsible for air traffic approaching to and departing from HKIA at altitude of 25 000 feet or below. The Aerodrome Control Unit is responsible for the aircraft operating at HKIA and in the vicinity of HKIA.

⁵ The En-route Control Unit is responsible for air traffic operating within HKFIR, which includes overflying traffic at high altitude, traffic coming into HKIA or leaving HKFIR to adjacent FIR. The Terminal Control Unit is mainly responsible for feeding air traffic inbound to HKIA from the designated airborne holding areas.

addition, various safety risk assessments in relation to the design of flight procedures and ATC procedures applicable to 3RS operations in accordance with ICAO standards⁶ and requirements also need to be conducted. These are complex and substantial tasks which require the oversight and input of a dedicated directorate officer with rich experience and strong expertise in ATC services.

13. Apart from ATMD, other divisions in CAD also play a crucial role to support the 3RS Project. These include vetting and approving the design of the third runway, taxiways and the associated facilities, as well as the proposed Airport Height Restriction Plan; providing technical comments and inputs to consultancy studies and reports submitted by AAHK; and installing necessary air navigation services equipment for the 3RS. The enormous size and intricacy of tasks call for careful and comprehensive strategic planning and co-ordination so as to ensure their timely completion and smooth commissioning. To ensure an effective oversight and monitoring through regular and ad hoc reports, early identification of risks and problems as well as proactive actions to resolve critical issues are all of paramount importance. In addition, frequent liaison with other stakeholders such as AAHK, relevant government departments and airlines is also expected. Dedicated manpower at directorate level is essential to ensure effective and timely co-ordination among all divisions and stakeholders concerned.

14. In the light of the above, we consider it pivotal to create one supernumerary post of CATCO, to be designated Chief (Three-Runway System) (C(3RS)). The officer will be responsible for managing and overseeing within ATMD the necessary preparatory work in relation to ATC system and procedure, including preparatory work in relation to the enhancement of ATC system functionalities and parameters as well as updating the system database to support procedure evaluation and equipment testing, etc. The officer will also be responsible for co-ordinating with other divisions in CAD on other 3RS-related tasks. The officer will act as the Project Manager of 3RS-related tasks in CAD to monitor the progress and ensure the timely completion of all critical milestones. The new C(3RS) will report to Assistant Director-General (Air Traffic Management). The officer will also be a member of the Project Steering Committee chaired by a Deputy Director-General of Civil Aviation. The job description of the proposed C(3RS) is at **Annex D**.

⁶ Hong Kong, being part of China which is one of the 192 Contracting States of ICAO, has an obligation to comply with standards set by ICAO.

Non-directorate Support

15. In 2018-19, 30 posts will be created, of which 20 posts are permanent posts and the remaining 10 posts are time-limited from 2018-19 to 2025-26 to strengthen the frontline operational team for the provision of ATC services. They will render support to the proposed C(OP)2 and the re-designated C(OP)1 in the provision of daily ATC services.

16. In addition, another 10 permanent posts, consisting of three posts in the air traffic control officer grade, two posts in the air traffic flight services officer grade, four posts in the operations officer grade and one post in the executive officer grade will be created under ATMD in 2018-19. Together with one existing time-limited post in the air traffic control officer grade⁷, they will form a dedicated team to provide professional and executive support for the proposed C(3RS).

17. Taking into account the above, it is anticipated that there will be a total of 522 posts under ATMD by 2018-19, which include the two D1 posts proposed in this paper, 319 posts in the air traffic control officer grade and 131 posts in the air traffic flight services officer grade, 65 posts in aeronautical communications officer grade, four posts in operations officer grade and one post in the executive officer grade. The proposed organisation chart showing the senior management of ATMD, after the creation of the new posts, is at **Annex E**.

ALTERNATIVES CONSIDERED

18. Despite the significant growth in air traffic over the years, the senior management of ATMD has remained thin with only one C(OP) in charge of all ATC operations. In the past ten years, CAD has endeavoured to make the best use of available resources to meet the increasing service need without compromising safety, including streamlining ATC operating procedures and making use of latest technology to enhance ATC operational safety and efficiency. However, in view of the continuous increase in air traffic and the ongoing 3RS Project, status quo is no longer sustainable. We have critically examined whether the existing directorate staff in CAD have the spare capacity to absorb the duties of the two proposed D1 posts. The other existing CATCOs in ATMD⁸ are all fully engaged and stretched hence will not be able to absorb the additional workload.

⁷ Time-limited until end of 2018-19.

⁸ There are four CATCOs in ATMD, responsible for operations viz. C(OP), training and safety, technical and development, and procedures and evaluation.

19. As the targeted commencement of the 3RS operation is in end 2024, CAD has also assessed if the two posts could be created at a later stage. However, taking into account the large number of inter-dependent tasks required to be completed in the coming six years including procedures and system evaluation and implementation, on-going recruitment and training of additional air traffic controllers, handling of ever-increasing day-to-day air traffic volume, planning for the ultimate transition to the 3RS operations and so forth, a very close collaboration amongst different sections in ATMD and different divisions within CAD are needed. The two dedicated directorate officers with solid background and expertise in handling ATC related projects, overseeing ATC operations and transition of ATC operations are critical to strengthen the oversight of the 3RS project as well as the oversight of daily operations. They are required to formulate a holistic strategy for the migration to 3RS operation in a safe, timely and orderly manner. Hence, the establishment of the two posts is urgently needed.

FINANCIAL IMPLICATIONS

20. The proposed creation of the two directorate posts in CAD will incur an additional notional annual mid-point salary cost of not exceeding \$3,530,400, as follows –

<u>Rank</u>	<u>Notional annual salary cost at mid-point (\$)</u>	<u>No. of post</u>
Chief Air Traffic Control Officer (D1)	<u>3,530,400</u>	<u>+2</u>
Total	3,530,400	+2

21. The additional full annual average staff cost, including salaries and staff on-costs, is about \$4,848,000. As regards the 40 additional non-directorate staff (paragraphs 15 – 16 refer), the additional notional salary cost at mid-point will not exceed \$24,102,900. The full annual average staff cost, including salaries and staff on-cost, is about \$36,280,000. We have included sufficient provision in the 2018-19 Estimates to meet the cost of the proposal and will reflect the resources required in the Estimates of subsequent years.

ADVICE SOUGHT

22. Members' views on the staffing proposal are invited. We will seek the necessary funding approval from the LegCo in accordance with the established procedures.

**Transport and Housing Bureau
Civil Aviation Department
May 2018**

Map of Hong Kong Flight Information Region (HKFIR)



Source: ICAO FIR View <http://gis.icao.int/Flexviewer/>

Proposed Job Description

Chief Air Traffic Control Officer (Operations & Personnel)²

Rank : Chief Air Traffic Control Officer

Responsible to : Assistant Director-General of Civil Aviation (Air Traffic Management)

Main Duties and Responsibilities –

1. Oversee the management and operations and ensure safety and effectiveness of the Approach Control Unit and Aerodrome Control Unit in the Air Traffic Control Centre and Aerodrome Control Tower respectively and closely co-ordinate with the Chief (Operations and Personnel)¹ to ensure the delivery of safe, orderly and efficient air traffic services;
2. Oversee the phased operational transition to 3RS and ensure that frontline ATC staff are fully conversant with the new mode of operations;
3. Oversee and/or participate in the liaison and co-ordination with neighbouring air traffic services providers for the co-operation/co-ordination related to Approach Control Unit and Aerodrome Control Unit operations;
4. Develop training programmes and activities including the promotion of safety culture in Air Traffic Management Division in conjunction with Chief (Training & Safety); and
5. Oversee, in collaboration with Chief (Operations and Personnel)¹, the co-ordination with other organisations such as Airport Authority Hong Kong, International Civil Aviation Organization and other members of the aviation industry in respect to planning and implementation of measures and procedures relating to air traffic control operations and special aviation activities.

* * * * *

Revised Job Description

Chief Air Traffic Control Officer (Operations & Personnel)¹

Rank : Chief Air Traffic Control Officer
Responsible to : Assistant Director-General of Civil Aviation (Air Traffic Management)

Main Duties and Responsibilities –

1. Oversee the management and operations and ensure safety and effectiveness of the Terminal Control Unit and En-route Control Unit in the Air Traffic Control Centre and closely co-ordinate with the Chief (Operations and Personnel)² to ensure the delivery of safe, orderly and efficient air traffic services;
2. Oversee and review the strategic planning and implementation of tactical Air Traffic Flow Management for air traffic within Hong Kong Flight Information Region;
3. Oversee and/or participate in the liaison and co-ordination with regional air traffic services providers for the co-operation/co-ordination in relation to operations of ENR;
4. Develop training programmes and activities including the promotion of safety culture in Air Traffic Management Division in conjunction with Chief (Training & Safety); and
5. Oversee, in collaboration with Chief (Operations and Personnel) ², the co-ordination with other organisations such as Airport Authority Hong Kong, International Civil Aviation Organization and other members of the aviation industry in respect to planning and implementation of measures and procedures relating to air traffic control operations and special aviation activities.

* * * * *

Proposed Job Description

Chief Air Traffic Control Officer (Three-Runway System)

Rank : Chief Air Traffic Control Officer

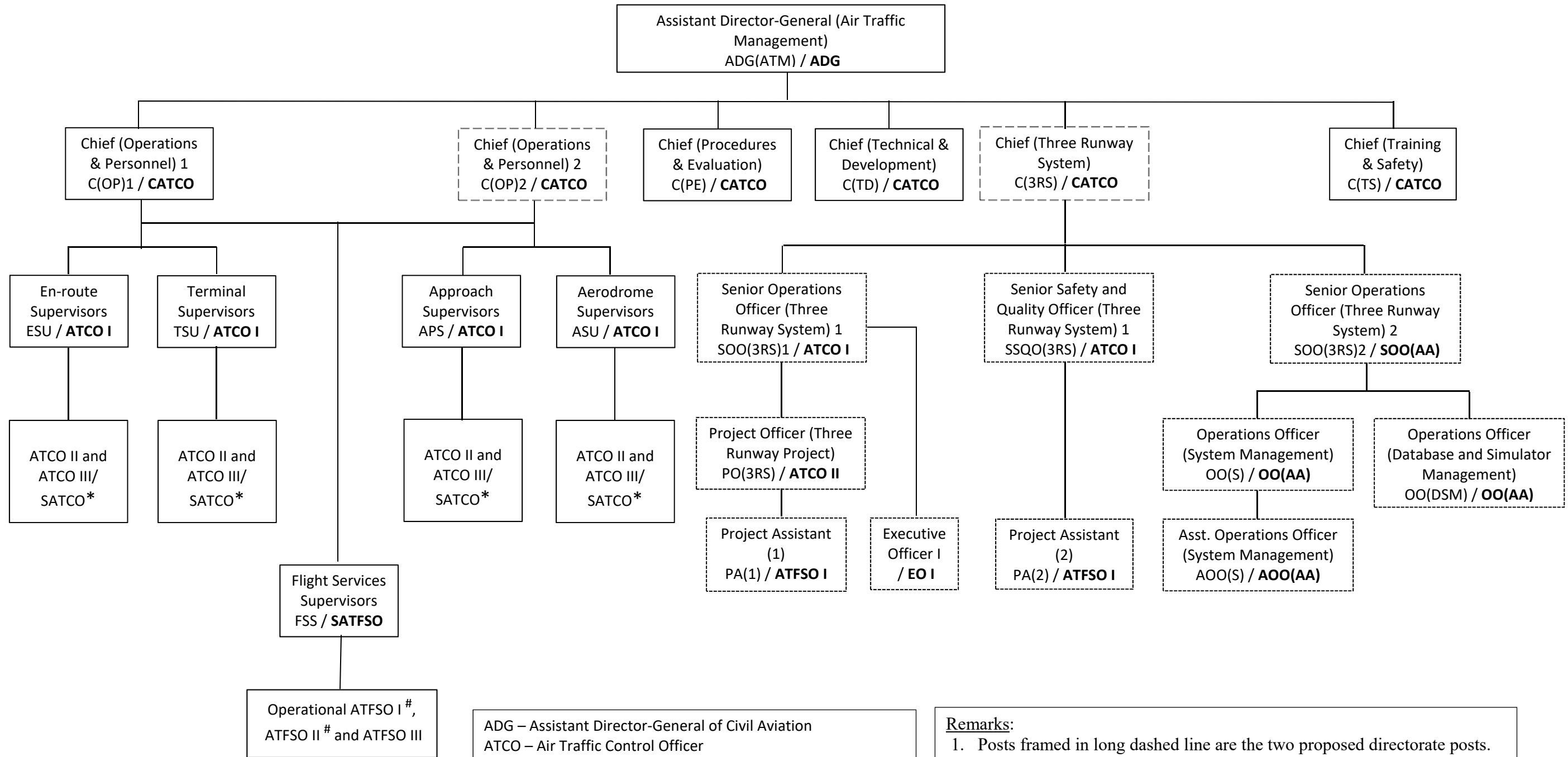
Responsible to : Assistant Director-General of Civil Aviation (Air Traffic Management)

Main Duties and Responsibilities –

1. Oversee and administer the planning and co-ordination work of the Three-Runway System (3RS) Project Team of the Civil Aviation Department (CAD) with reference to various stages of the Project and the respective mode of air traffic control operations along the 3RS Project timeline;
2. Oversee the progress of tasks handled by individual divisions and ensure the project milestones are achieved along the 3RS project timeline and provide regular and ad hoc reports to the Project Steering Committee chaired by a Deputy Director-General of Civil Aviation in the capacity of a Project Steering Committee member;
3. Oversee and co-ordinate submissions of operational requirements for tenders of system and equipment related to the 3RS Project to the authority for funding approval;
4. Oversee safety risk assessments, planning and design of instrument flight procedures associated with 3RS in accordance with International Civil Aviation Organization standards and regulatory requirements;
5. Oversee and monitor the Pearl River Delta airspace optimisation initiatives and supervise relevant technical developments to support 3RS operations; and
6. Oversee planning and organisation of media briefings and act as the focal point of CAD in liaison with relevant parties on 3RS-related matters.

* * * * *

Proposed Organisation Chart of the Air Traffic Management Division



ADG – Assistant Director-General of Civil Aviation
 ATCO – Air Traffic Control Officer
 ATFSO – Air Traffic Flight Services Officer
 AOO – Assistant Operations Officer
 CATCO – Chief Air Traffic Control Officer
 EO – Executive Officer
 OO – Operations Officer
 SATCO – Student Air Traffic Control Officer
 SATFSO – Senior Air Traffic Flight Services Officer
 SOO – Senior Operations Officer

Remarks:

1. Posts framed in long dashed line are the two proposed directorate posts.
2. Posts framed in dotted line will be newly created in 2018-19;
3. * represents addition to the current establishment of SATCO: 10 time-limited SATCO posts and 10 permanent SATCO posts will be created in 2018-19.
4. # represents addition to the current establishment of ATFSO: 8 permanent ATFSO I posts and 2 permanent ATFSO II posts will be created in 2018-19.