Sixth Meeting of the Aerodromes Operations and Planning Sub-Group (AOP/SG/6)

Video Teleconference, 27 to 30 June 2022

Agenda Item 4: Provision of AOP in the Asia/Pacific Region

Planning, Design, Construction and Operations of Aerodromes

ICAO HQ UPDATE ON AGA MATTERS

(Presented by the Secretariat)

SUMMARY

This paper presents information related to aerodrome activities carried out recently in the Airport Operations and Infrastructure section, Air Navigation Bureau, ICAO Montreal.

1. INTRODUCTION

1.1 The Airport Operations and Infrastructure Section (AOI) delivers ICAO provisions on aerodrome matters to support States, air navigation service providers, aerodrome operators and air operators to achieve the relevant regulatory and operational improvements through its multi-disciplinary work programmes and technical expertise. The Section advises States, ICAO Council and Air Navigation Commission (ANC) on aerodrome matters with overall responsibility for Annex 14 — *Aerodromes*, *Procedures for Air Navigation Services (PANS) - Aerodromes* (Doc 9981) and related documents.

1.2 In order to achieve the above, various programmes and activities had been conducted with the assistance of the Aerodrome Design and Operations Panel (ADOP). The Panel continues the tasks of the former Aerodromes Panel with greater emphasis on efficiency and capacity issues through enhanced aerodrome operations. It also undertakes specific studies and subsequently develops provisions relating to aerodrome design and operations, as outlined in the Global Air Navigation Plan (ICAO GANP Portal) and Global Aviation Safety Plan (Doc 10004).

2. DISCUSSION

RECENT AMENDMENTS TO ANNEX 14, VOLUME I

2.1 State letter AN 4/1.2.30-22/14 dated 30 March 2022 contains Amendment 17 to Annex 14, Vol I with applicability date of 3 November 2022. The amendment concerns rescue and fire fighting for general aviation. The responsibility to ensure the safety of GA operations rests with the owner or pilot-in-command. The decision to operate at an aerodrome should be taken considering all factors, including rescue and fire fighting (RFF) facilities and services. Some States interpret the current text in Annex 14, Volume I to mean that all aerodromes, regardless of size and type of operations, must have dedicated RFF facilities. For small, exclusively GA aerodromes, this creates a major burden and has resulted in the restriction of operating hours or even closure of the aerodrome. To this end, the amendment to Annex 14, Volume I proposes new text to clarify that rescue and firefighting equipment and services shall be provided at an aerodrome when serving commercial air transport operations.

UPDATES TO GUIDANCE MATERIALS

2.2 As part of the ongoing process of continual updates to guidance materials, ICAO had successfully updated, and/or developed new, the guidance materials below:

- Amendment 1 to Doc 9157 Aerodrome Design Manual Part 2 TAXIWAYS, APRONS & HOLDING BAYS, 5th Edition, 2020

  Amendment 1 brings ADM Part 2 up to date with Amendment 15 to Annex 14, Volume I and includes, among others, guidance related to a standardized taxiway naming nomenclature.

- Doc 9157 Aerodrome Design Manual Part 3 PAVEMENTS: 3rd Edition, 2021 (unedited version available on ICAO-NET)

  Amendment 15 to Annex 14, Volume I, includes a new methodology for reporting the pavement strength using the ACR-PCR (aircraft classification rating-pavement classification rating) method, which will be applicable in November 2024. This 3rd edition of the manual is a complete rewrite of the previous 1983 edition including major evolutions in the domain of aerodrome pavements. It has been developed to provide valuable guidance on the design of pavements including their characteristics, and on evaluation and reporting of their bearing strength as well as detailed information concerning overload operations.

- Amendment 1 to Doc 9157 Aerodrome Design Manual Part 4 VISUAL AIDS, 5th Edition, 2021

  Amendment 1 includes new guidance related to the use of autonomous Aircraft Detection System (stemming from Amendment 15 to Annex 14, Volume I) and the use of Unmanned Aircraft System (UAS) in the calibration of PAPIs.

- Manual on the ICAO Bird Strike Information System (IBIS) (Doc 9332) (new) 2nd Edition, (in progress)

  To update guidance for ICAO Bird strike Information system and data management. Definitions, general overview of current reporting system, table of contents, data quality and analysis, Bird Strike Reporting Form are being reviewed.

ICAO HIGH LEVEL CONFERENCE ON COVID-19

2.3 The ICAO High Level Conference on COVID-19 (HLCC) was held virtually from 12 to 22 October 2021. The topic of ground handling was deliberated under Agenda Item 3.3 of the Conference and nine working papers related to aerodromes were discussed. As an outcome of the HLCC recommendations, new work items for ICAO (AOI) will include provisions related to:

(a) the oversight of ground handling;

(b) consolidating emergency response plans in a single Annex for any significant event including public health emergencies; and

(c) development of provision related to assistance to accident victims and their families.

ADOP/4 MEETING

2.4 The fourth meeting of the Aerodrome Design and Operations Panel (ADOP/4) was convened from 15 – 17 and 22 – 24 February 2022 and attended virtually by 65 participants nominated by 20 Contracting States and seven international organizations. ADOP/4 developed 8 recommendations related to amendment proposals in *Annex 14, Volumes I & II* and *PANS-Aerodromes* (Doc 9981) and 2 recommendations related to job cards.

2.5 Relevant details of the proposed amendments to ***Annex 14, Volume I*** are as follows:

- Obstacle Limitation Surfaces:

  Major amendments to provisions on obstacle limitation surfaces (OLS) in Annex 14, Volume I, which is a paradigm shift to the existing provisions established in the mid-1970's, has been proposed. This significant work on the new OLS and associated aeronautical studies are to better protect airspace around aerodromes, taking into account modern aircraft performance and the needs of non-aeronautical stakeholders. With the new concept, both the safety and accessibility of the aerodrome are being protected and greater protection is ensured to different types of flight procedures conducted at an aerodrome. Acknowledging that these major changes will require additional time for States and the industry to implement the provisions, an effective date of July 2024 with an applicability date of 23 November 2028, is being proposed.

- Aerodrome Design:

  Correction to the width of graded portion of Code D taxiway strip

  - *Due to an arithmetic correction in the calculation of the width of graded portion of Code D taxiway strip, the "taxiway plus shoulder" width for taxiways with an outer main gear wheel span 9 m up to but not including 15 m where the code letter is D equals 34 m, resulting in a graded portion of taxiway strip width of half of 34 m, which is 17 m and not 18.5 m as stated in Amendment 14 to Annex 14, Volume I.*

  Revised strip width for Code 3 non-instrument runways

  - *ADOP/4 agreed to reduce the required half strip width for Code 3 NINST runway from the current 75 m to 55 m in Annex 14, Volume I, paragraph 3.4.5, with consequential changes to the grading and strength requirements in paragraphs 3.4.9 and 3.4.18. This was based on an analysis conducted on lateral runway veer-offs containing a total of 5,684 cases over a 24-year period from 1995 to 2018.*

- Airport Operations

  ADOP/4 adopted a phased approach to the amendment proposals related to ground handling. The first phase contained minimal amendments to Annex 14, Volume 1, related to new definitions, safety-related aspects affecting apron design and management pertaining to ground handling and impact assessment and oversight requirements for the ground handling sector.

- Visual aids for navigation

Threshold markings for paved runways

- *In the current provisions of Annex 14, Vol. I, Chapter 5, section 5.2.4, there is no requirement for the application of threshold markings in case of paved non-instrument runways where the Code number is 1 or 2. This is not in line with the current provisions for runway centre line marking (Chapter 5.2.3) and runway designation marking (Chapter 5.2.2), where those markings are applicable for all kinds of paved runways. ADOP/4 agreed to the development of a coherent applicability for the basic patterns of runway markings (runway threshold marking, runway designation marking and runway centre line marking) which would facilitate the use and understanding of the Annex 14, Vol I provisions.*

Harmonization of aerodrome lighting requirements for CAT II operations below 350m

- *Via Annex 14, Volume 1 Amendment 11-B, runway visual range (RVR) requirements for Category II operations were reduced from 350 m to 300 m. Despite this reduction, aerodrome infrastructure requirements for visual aids, i.e., taxiway centre line lighting, had remained unchanged in the Annex. It was acknowledged that failure to harmonize infrastructure requirements for aerodrome visual aids might result in aircraft landing on a Category II runway at 300 m RVR but, in theory, was unable to use the taxiway facilities as they were not planned to support operations below 350 m RVR. ADOP/4 agreed to amend the relevant provisions related to this anomaly.*

Clarifications on the use of "design value" for maintenance of visual aids

- *The proposed amendment clarified the term "design value" in Annex 14, Volume I, paragraph 10.5.1, concerning the maintenance of visual aids for aerodromes mandating light intensities higher than the minimum required by the Standard.*

Runway distance remaining signs

- *ADOP/4 agreed to a set of proposed amendments related to runway distance remaining signs which aimed to provide enhanced situational awareness for pilots in all visibility conditions, particularly since they reduce the time it takes pilots to determine the remaining runway distance available, during take-off or landing operations. The purpose of these signs was to provide pilots with distance-to-go information to the extremity of the runway.*

Improved operational safety through enhanced visual aids to denote construction works at aerodromes

- *ADOP/4 acknowledged that many fatal accidents had occurred worldwide due, in part, to inadequate and/or unclear visual aids for denoting restricted areas of use, in particular, during construction works on the movement areas. The existing specifications for visual aids in Annex 14, Volume I, Chapter 7 were reviewed and new provisions developed for the use of lighted crosses on closed and partially closed runways, the use of signages during construction works at aerodromes, and provisions to enhance safety of aircraft operations in regard to closed runways/taxiways.*

2.6 ADOP/4 endorsed the amendment proposals in ***Annex 14, Volume II***, related to Certification and SMS of heliports, obstacle limitation surfaces and heliport visual aids (lighting). If approved by ANC and adopted by the Council in accordance with the established process, extending the scope of SMS to certified heliports will be included in the next amendment of Annex 19. The objectives of existing SARPs in Annex 14, Volume II, have not been changed, mostly they have been modified or extended to allow the flexibility required for the introduction of heliports in obstacle rich environments.

2.7 ADOP/4 agreed to a new chapter titled "Obstacle evaluation and control" in ***PANS-Aerodromes*** **(Doc 9981)**, which if approved by ANC and approved by the Council in accordance with the established process, will supplement the proposed SARPs in Chapter 4 of Annex 14, Volume I related to the management of obstacles by providing additional provisions on the implementation and design of Obstacle free surfaces (OFS) and Obstacle evaluation surfaces (OES); and on conduct of aeronautical studies for the evaluation of obstacles.

2.8 ADOP/4 endorsed **four new job cards** to be submitted to the ANC as follows:

- Guidance for airports in mountainous areas

  Many aerodromes in the different parts of the world are open for public use and built in mountainous areas with longitudinal slopes of more than 2%, for the operations of aeroplanes with maximum take-off mass less than 5,700 Kg. These aerodromes can neither comply with Annex 14, Volume I specifications nor guidance provided in Doc 9150, Stolport Manual. Establishing international specifications/guidance material related to such aerodromes (altiports) is necessary to provide a level of safety consistent with that established for land aerodromes.

- Evolution of Collaborative Decision-Making concepts for aviation (Total Airport Management)

  As global air transport continues to expand into the future, capacity constraints will emerge both in airspace usage as well as in airport infrastructure. The use of a Total Airport Management (TAM) concept, derived from A-CDM, can allow for the efficient use of the aviation system's capacity as well as ensure efficient aviation operations overall. A-CDM has emerged as a concept that can allow for the efficient use of constrained resources. However, A-CDM may not be appropriate in all contexts, lacks global harmonization, and may be overly focused on a single airport rather than the broader system. It is necessary to continuously evolve the Collaborative Decision Making concepts in aviation so as to adequately prepare for future capacity constraints, meet forecasted demand and ensure efficient operations.

- Vertiports

  The projected growth of Remotely Piloted Aircraft Systems/ Unmanned Aircraft Systems (RPAS/UAS) and Urban Air Mobility (UAM) operations with VTOL capabilities, is expected to generate increasing demand for RPAS/UAS/Air taxi operators to be able to operate at heliports/vertiports. Although the requirements for heliport infrastructure to support helicopter operations are well-defined in Annex 14, Volume II, a new range of vehicles are under development which behave, to a greater or lesser extent, like traditional helicopters, but for which there is no precedent to operate them from traditional heliports. In addition, the requirements for vertiport infrastructure is not defined in SARPs and it will be necessary to

develop infrastructure requirements which are able to accommodate both piloted and "no pilot on board" operations, and to facilitate the specific requirements of electric VTOL operations which, being in the main battery powered, will require dedicated recharging facilities at vertiports. In respect to RPAS/UAS, although existing provisions of the Chicago Convention apply, they cannot be implemented as written for manned aviation, due to the absence of the pilot on board the aircraft and the predominant reliance on visual cues in particular during ground operations.

- *Global Provisions for design, certification and operations of water aerodromes*

  A number of States have noted an increase water aerodrome operations and identified the need for standardized global specifications and procedures to certify water aerodromes open to the public, to provide a level of safety that is consistent with that established for land aerodromes and heliports as set out in the existing specifications of Annex 14, Volumes I and II. Current edition of the ICAO Annexes relating to aerodromes are absent of any expressed specifications relating to the design, certification and operations of water aerodromes. Establishing international specifications related to water aerodromes is necessary to provide a level of safety that is consistent with that established for land aerodromes and heliports as set out in the existing specifications of Annex 14, Volumes I and II.

2.9 Other related matters discussed at ADOP/4 are:

- *Review of runway definitions*

  ADOP agreed to establish a joint working group with the FLTOPSP to review the existing definitions of runways and to see if a new proposal could be developed which would be more consistent with the principles of performance-based aerodrome operating minima (PBAOM).

- *Airport Emergency Plans and Assistance to Air Crash Victims and their Families*

  ADOP/4 was requested to develop guidance to aerodromes in this area, and in particular to close existing gaps in SARPs and guidance material by consolidating provisions on health emergency plans and family assistance centres with existing aerodrome emergency plans. This includes the development of a new chapter in Procedures for Air Navigation Services (PANS) - Aerodromes (Doc 9981) on Airport Emergency Planning, including Objectives and Operational Procedures on preparedness and response to public health emergencies and assistance to air crash victims and their families to ensure a globally harmonized response to such events. This same proposal sought to update Airport Services Manual, Part 7 — Airport Emergency Planning (Doc 9137), which was last published in 1991.

- *Report of the ADOP-RPASP Joint Task Force*

  A joint task force between the Remotely Piloted Aircraft Systems Panel (RPASP) and ADOP was established as part of the coordination needed through the evolution of the regulatory framework around the topic of Remotely Piloted Aircraft Systems (RPAS). The task force had been set up with the objective to facilitate the safe, secure and efficient integration of Remotely Piloted Aircraft (RPA) into non-segregated airspace and aerodromes while maintaining existing level of safety for manned aviation.

- *Development of ICAO provisions related to unauthorised drone operations at aerodromes*

  ADOP/4 was updated regarding the detailed guidance material published on 8 March 2021 by EASA, to assist aerodromes and involved law enforcement agencies to assess the risks from and prepare for the management of such incidents when they occur. This document on "Drone Incident Management at Aerodromes" provides (non-binding) safety promotion material that incorporates the latest knowledge about combined safety and security threat that such incident represents and is universally applicable.

  Separately, IATA updated ADOP/4 regarding the industry initiative led by IATA, which started in early 2020 to develop guidance material on how to handle unauthorized UAS. The industry group included participants from ACI, IATA, IFATCA, IFALPA, ATMOPSP, ADOP, and AVSEC. The group had submitted its work to ICAO on 8 February 2021. The intention of this initiative is to reduce procedural delays of executing the work through job cards and provide ICAO with "camera ready" provisions. Instead of creating a job card it was suggested to look at the two available documents, merge them if required and produce a final document.

iPACK ON PREPARING FOR THE CERTIFICATION OF AERODROMES

2.10 This is a joint effort with ACI to develop an Implementation Package (iPACK) which is a self-contained package to assist and guide aerodrome operators and/or Civil Aviation Authorities (CAAs) in the implementation of ICAO provisions and Airports Council International's best practices in preparation for the certification of aerodromes. The iPACK is expected to be available towards end of 2022/early 2023 in parallel with the works of updating (Doc 9774) *Manual on Certification of Aerodromes.*

41st SESSION OF ICAO ASSEMBLY

2.11 The 41st session of the ICAO Assembly has been scheduled from 27 September to 14 October 2022. The agenda for the Technical Commission comprises the following:

- Item 29: Annual Reports of the Council to the Assembly for 2019, 2020 and 2021
- Item 30: Aviation Safety and Air Navigation Policy
- Item 31: Aviation Safety and Air Navigation Standardization
- Item 32: Aviation Safety and Air Navigation Regional Implementation Coordination Mechanisms
- Item 33: Other Issues to be Considered by the Technical Commission

2.12 Paper related to aerodromes are expected and will be dealt with in accordance with established procedures. The website for the Assembly is available at:

https://www.icao.int/Meetings/a41/Pages/default.aspx

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this information paper.

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