



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

NACC/WG/AGA/TF/1 — WP/10
21/06/23

First North American, Central American and Caribbean Working Group (NACC/WG) Aerodromes and Ground Aids (AGA) Implementation Task Force Meeting (NACC/WG/AGA/TF/1)
Mexico City, Mexico, 3 to 7 July 2023

Agenda Item 9: Other business

AERODROME MAPPING DATA SETS

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This Working Paper presents the importance that States in CAR Region develop and complete Aerodrome mapping database (AMDB), as a collection of aerodrome mapping data organized and arranged as a structured data set. Aerodrome mapping data includes aerodrome geographic information that supports applications that improve the user's situational awareness or supplement surface navigation, thereby increasing safety margins and operational efficiency.

Action:	Suggested actions are presented in Section 4.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Strategic Objective 1 – Safety• Strategic Objective 2 – Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none">• Annex 15• PANS-AIM• PANS-OPS• Doc 9881• Doc 8697• RTCA DO 272D/EUROCAE ED-99D

1. Introduction

1.1 With Amendment 37, Fourteenth Edition (July 2013), ICAO Secretariat with assistance from the Aeronautical Information Services–Aeronautical Information Management Study Group (AIS-AIMSG) and the Aerodromes Panel (AP) in ICAO Head Quarters, restructured definitions relating to Aerodrome Mapping Data (AMD), this data collected for the purpose of compiling aerodrome mapping information.

1.2 States must develop the Aerodrome mapping data, that is collected for purposes that include the improvement of the user’s situational awareness, surface navigation operations, training, charting, and planning.

2. Discussion

2.1 An **Aerodrome Mapping Database (AMDB)**, is a collection of aerodrome mapping data organized and arranged as a structured data set and is part of the **Digital data sets**, detailed specifications contained in the PANS-AIM - ICAO Doc. 10066, digital data shall be in the form of the following data sets:

DATA SETS
1. AIP data set;
2. terrain data sets;
3. obstacle data sets;
4. aerodrome mapping data sets; and
5. instrument flight procedure data sets.

- Aerodrome / Heliport Data (TBL1_1_EN-EDENPROD-#760477-v1)

Table A 1-1 Aerodrome/Heliport data										
Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Site	Text	The location of the reference point on the aerodrome.						
		Direction	Text	Direction of aerodrome reference point from centre of the city or town which the aerodrome serves						
		Distance	Distance	Distance of aerodrome reference point from centre of the city or town which the aerodrome serves						
Landing direction indicator				A device to indicate visually the direction currently designated for landing and for take-off.						
	Location		Text	Location of landing direction indicator						
	Lighting		Text	Lighting of landing direction indicator	if any					
Secondary Power Supply				The description of the secondary power supply						
	Characteristics		Text	Secondary power supply switch-over time						
	Switch-over time		Value							
Anemometer				Device used for measuring wind speed						
	Location		Text	Location of anemometer						
	Lighting		Text	Lighting of anemometer	if any					
ABN / IEN				Aerodrome beacon / Identification beacon used to indicate the location of an aerodrome/heliport from the air.						
	Location		Text	Location of aerodrome/heliport beacon/identification beacon	if any					
	Characteristics		Text	Description of aerodrome/heliport beacon/identification beacon						
	Hours of operation		Schedule	Hours of operation of aerodrome/heliport beacon/identification beacon						
Wind Direction Indicator				The observation site of Runway Visual Range.						
	Location		Text	Geographical location of runway visual range (RVR) observation sites						
	Lighting		Text	Lighting of wind direction indicator						
RVR observation site				The observation site of Runway Visual Range.						
	Position		Point	Geographical location of runway visual range (RVR) observation sites						
Frequency Area				Detailed name of a surface movement area unless a specific frequency is required.						
<div style="display: flex; justify-content: space-between;"> Airport-Heliport Runway TLOF-FATO Apron-Taxiway Communication Facilities </div>										

2.2 Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability. Considering that detailed specifications concerning metadata (ISO 19115-Geographic information) are contained in the PANS-AIM (Doc 10066), Chap. 4, para.4.2 Metadata Requirements.

2.3 The metadata to be collected shall include, as a minimum:

- a. the names of the organizations or entities performing any action of originating, transmitting, or manipulating the data;
- b. the action performed; and
- c. the date and time the action was performed.

Note.— ISO Standard 19115 specifies requirements for **geographic information metadata**.

2.4 The Aerodrome mapping data sets shall contain the digital representation of aerodrome features that consist of attributes and geometries, which are characterized as points, lines, or polygons, for example runway thresholds, taxiway guidance lines, and parking stand areas.

2.5 Aerodrome mapping data — requirements for provision:

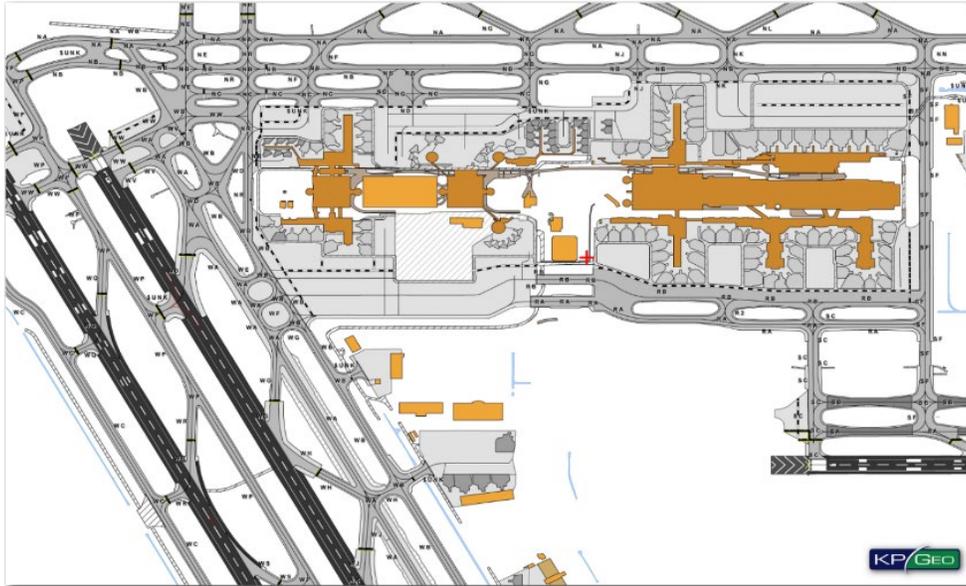
- Aerodrome mapping data should be supported by electronic terrain and obstacle data *eTOD for Area 3 to ensure consistency and quality of all geographical data related to the aerodrome.
- Accuracy and integrity requirements for aerodrome mapping data are contained in Appendix 1 of PANS AIM - Doc 10066
- Electronic terrain and obstacle data pertaining to Area 3 and aerodrome mapping data may be originated using common acquisition techniques and managed within a single geographic information system (GIS), Doc 9881
- The content of the aerodrome mapping data sets is defined in RTCA DO 272D/EUROCAE ED-99D.

2.6 AMDBs are produced using stringent aeronautical standards and support onboard applications, which improve safe surface navigation, and increase safety margins and operational efficiency.

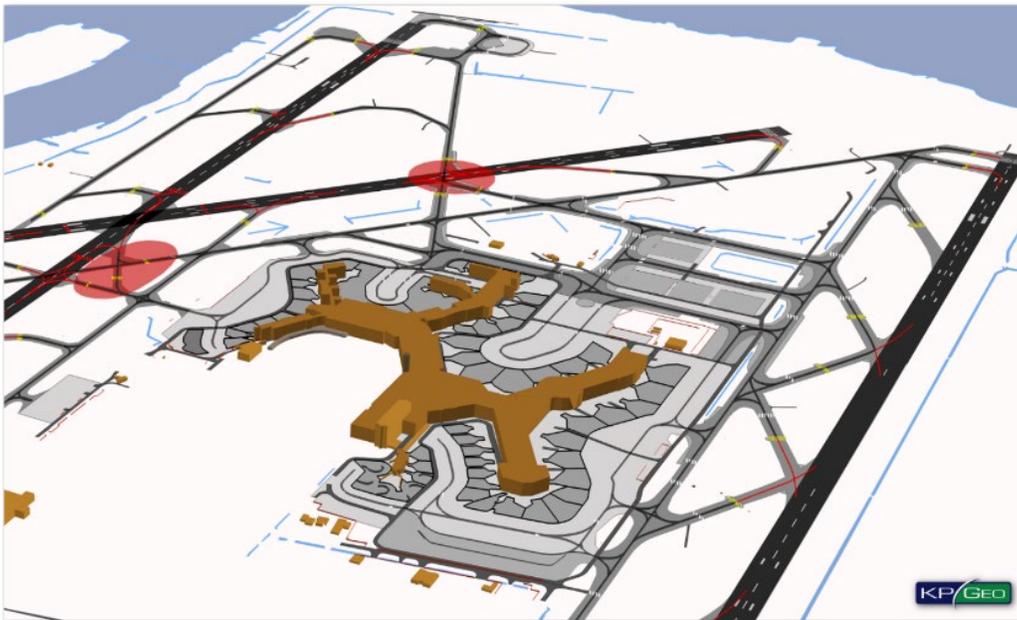
3. Conclusion

3.1 AMDB is part of the modern Aeronautical Information Management (AIM) system — which is replacing traditional Aeronautical Information System (AIS). This change is being mandated by the operational concept known as System-wide information management (SWIM).

✚ AMDB Geo-data base (Houston International Airport ICAO: KIAH)



✚ AMDB Geo data base (Vancouver International Airport ICAO: CYVR)



4. Suggested actions

4.1 The Meeting is invited to:

- a) CAR States should be made available Aerodrome mapping data sets for aerodromes regularly used by international civil aviation, for the purpose of stating surface mapping information requirements for users;

— 5 —

- b) all the requirements are not all-inclusive but represent those of more immediate concern to civil aviation;
- c) for CAR airworthiness authorities, civil aviation authorities (CAAs), and the aviation industry involved urge aerodrome mapping database (AMDB) originators and integrators to provide those data to system designers and users;
- d) in addition, is important to disseminate some AICs by CAAs, that provide guidance material on the structure of AMDBs. Based on the availability of standardized current AMDBs, a variety of applications can be envisioned; and
- e) the assumption that if all users are using consistent aerodrome mapping data, operations can be improved, and new capabilities can be realized.

— END —