



East Midlands Airport

RNAV Substitution for eligible Procedures

ACP-2024-009 Assessment Meeting  
Monday 20<sup>th</sup> May 2024



# Agenda

1. Introduction/Apologies for Absence (CAA)
2. Statement of Need (discussion & review) (Slide 3) (All)
3. Impact Assessment Review (Slide 4) (MAG)
4. Proposed solution (Slides 5 & 6) (MAG)
5. Proposed engagement (Slide 7 & 8) (MAG)
6. Proposed Level Change & justification (Slide 9) (MAG)
7. HRA (Slide 10) (All)
8. Safety & Compliance (Slide 11) (MAG)
9. Timescales (Slide 12) (All)
10. Next Steps, Questions and AOB (Slide 13) (All)

# Statement of Need

As part of the national transition to performance-based navigation (PBN), NATS plan to remove from service 27 of the Doppler VHF Omnidirectional Range (DVOR) network in the UK at the end of 2025. The Daventry (DTY) and Trent (TNT) DVORs will be removed from service as part of this national programme. **The East Midlands Airport Future Airspace project (ACP-2019-44) will provide the long-term solution.**

On implementation ACP-2019-44 will remove dependency on ground based navigational aids by providing Required Navigation Performance (RNP) SIDs and approaches to/from 7,000ft, in both runway directions (Runway 27 and Runway 09). In April 2023 MAG commenced a project to ensure the continuity of operations between January 2026 and the implementation of the Future Airspace project. An 'Impact Assessment' (IA) has been conducted (in accordance with CAP1781) and identified four Standard Instrument Departures (SIDs) and four Initial Approach Procedures (IAPs) are dependent on the DTY and TNT DVORs. In the IA each of the arrival/departure procedures was analysed to consider the most appropriate solution.

**The preferred solution, identified for the SIDs, is to utilise 'RNAV substitution', as detailed AIP EGNX 6-1/6-2 and EGNX7-10/7-11. 'Substitution' would provide an interim measure with FMS coding provided to aircraft, that would allow airlines to continue flying existing profiles without the ground-based assets.**

# Impact Assessment - Review

Option	CTR/ CTA	ATSMAC	DTY 3N (SAPCO 1N)	DTY 4P (SAPCO 1P)	TNT 2N	TNT 2P	IAP WRC 09	IAP WRC 27
Do-Nothing	Possible Option	Possible Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option
Removal of Procedures	Viable Option	Viable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Possible Option	Possible Option
Full ACP	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option
Use other DVORs	N/A	N/A	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option
SID Truncation	N/A	N/A	Unviable Option	Viable Option	Unviable Option	Unviable Option	N/A	N/A
ODDs	N/A	N/A	Unviable Option	Unviable Option	Unviable Option	Unviable Option	N/A	N/A
Own the facility	N/A	N/A	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option	Unviable Option
RNAV Substitution	N/A	N/A	Viable Option	Viable Option	Viable Option	Viable Option	Possible Option	Possible Option

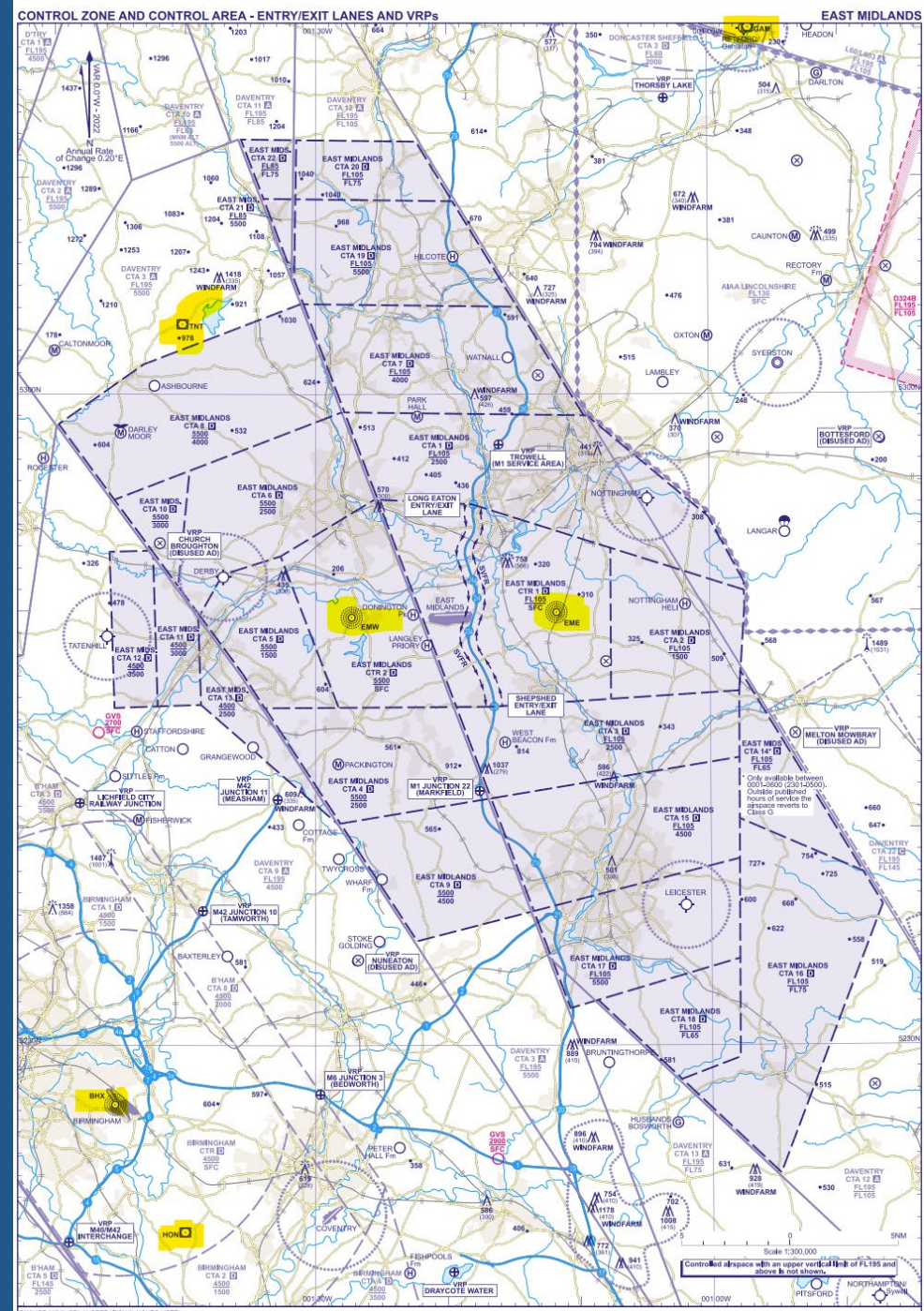


\*WRC = Without Radar Control

# Proposed Solution

Chart 4-1:

- TNT DVOR/DME – Remove symbology
- HON DVOR/DME – Remove symbology
- GAM DVOR/DME – Remove symbology
- BHX NDB – Remove symbology
- EME NDB – Remove symbology
- EMW NDB – Remove symbology



# Proposed Solution

Chart 5-1:

- TNT DVOR/DME
  - EME NDB
  - EMW NDB
  - TNT 2N
  - TNT 3P
  - DTY 3N (SAPCO 1N)
  - DTP 4P (SAPCO 1P)
  - POL 2P
  - IAP Runway 27 from ROKUP
  - IAP Runway 27 from PIGOT
  - IAP Runway 09 from ROKUP
  - IAP Runway 09 from PIGOT
- Remove symbology
  - Remove symbology\*
  - Remove symbology\*
  - RNAV Substitute
  - RNAV Substitute
  - RNAV Substitute
  - RNAV Substitute
  - RNAV Substitute???
  - RNAV Substitute
  - RNAV Substitute
  - RNAV Substitute
  - RNAV Substitute

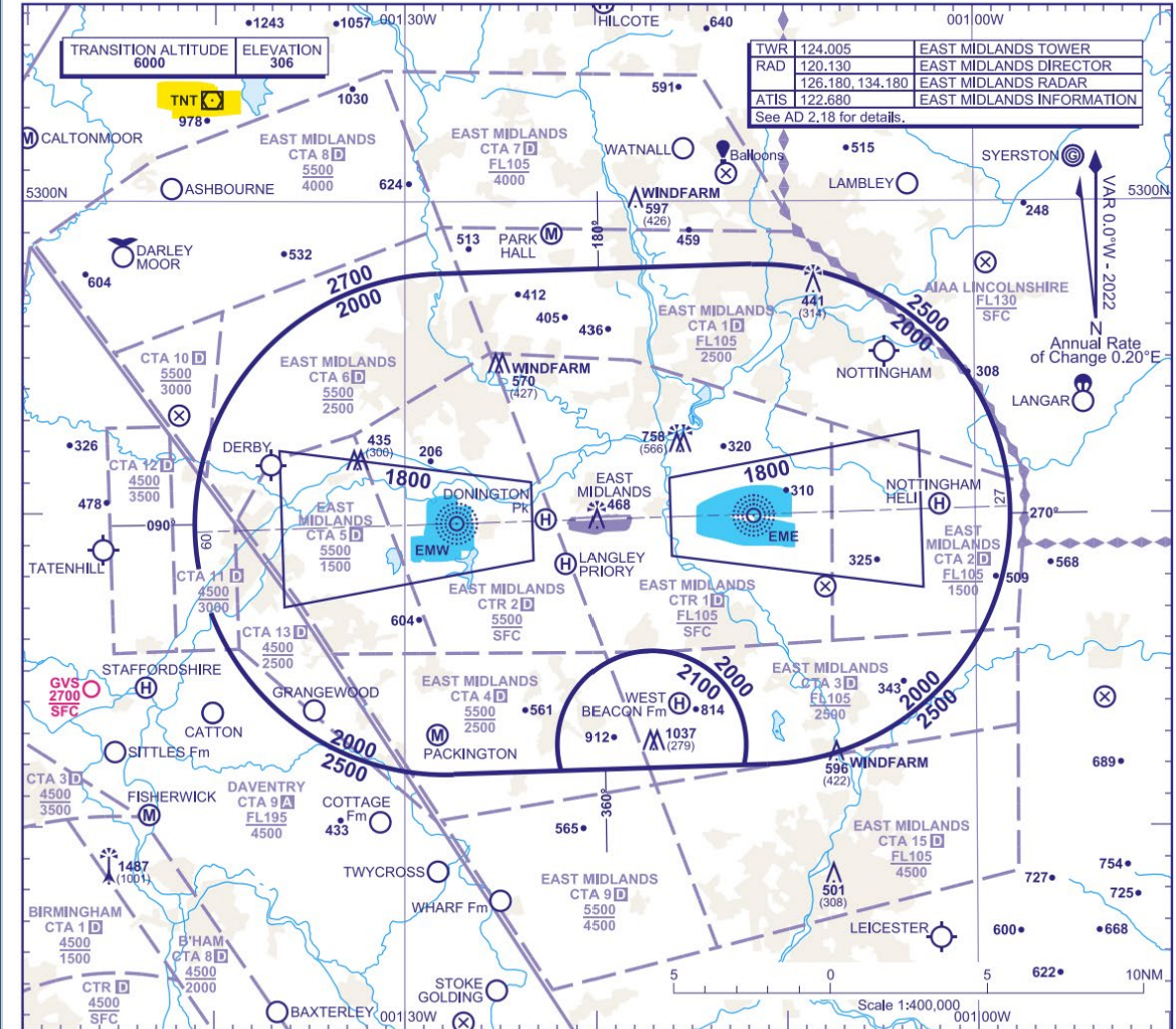
\*Subject to the RCF procedures being re-written in AD2.22



## ATC SURVEILLANCE MINIMUM ALTITUDE CHART - ICAO

BEARINGS, TRACKS AND RADIALS ARE MAGNETIC  
ELEVATIONS IN FEET AMSL 1501  
HEIGHTS IN FEET AGL (1001)

## EAST MIDLANDS



**MINIMUM INITIAL ALTITUDE**  
Within the ATC Surveillance Minimum Altitude area the minimum initial altitude to be allocated by the approach surveillance controller is:  
a) 2000 in the sector defined by the lateral limits: 525742N 0012817W - 525800N 0011144W thence clockwise by an arc of a circle radius 8NM centred on 525000N 0011121W to 524201N 0011059W - 524143N 0012726W thence clockwise by an arc of a circle radius 8NM centred on 524942N 0012751W to 525742N 0012817W, except:  
b) 2100 in the sector defined by the lateral limits: 524150N 0012147W thence clockwise by an arc of a circle radius 3NM centred on 524239N 0011703W to 524200N 0011214W - 524150N 0012147W.

**OUTSIDE THE DESIGNATED ATC SURVEILLANCE MINIMUM ALTITUDE AREA**  
The minimum altitude to be allocated by the approach surveillance controller will be either the Minimum Sector Altitude, or 1000 above any fixed obstacles:  
a) within 5NM of the aircraft, and  
b) within the sector 15NM ahead of and within 20° either side of the aircraft's track.  
\*When the aircraft is within 15NM of the radar antennae, the 15NM in a) and the 15NM in b) may be reduced to 3NM and 10NM respectively.

**LOSS OF COMMUNICATION PROCEDURES**  
**Initial Approach**  
Continue visually or by means of an appropriate approved final approach aid. If not possible proceed at 3000, or last assigned level if higher to NDB(L) EMW for RWY 09 approaches or NDB(L) EME for RWY 27 approaches.  
**Intermediate and Final Approach**  
Continue visually or by means of an appropriate final approach aid. If not possible follow the Missed Approach Procedure to NDB(L) EMW for RWY 09 approaches or NDB(L) EME for RWY 27 approaches.  
† In all cases where the aircraft returns to the holding facility the procedure to be adopted is the Radio Failure Procedure detailed at ENR 1.1.3.

# Proposed engagement



We have already engaged aviation stakeholders through forums such as the Pilot Liaison Group (PLG) and direct communications with based carriers. We propose to continue using similar mechanisms to inform and provide the opportunity for feedback.



We have already engaged non-aviation stakeholders through forums such as our Consultative Committee and meetings with Town and Parish Councillors. We propose to continue using similar mechanisms to inform and assure.

**“ Works to remove dependency on MCT & TNTs DVORs and progression on the Manchester Airport Future Airspace project Pilot Liaison Group (PLG) 24-04-2024**

— Future Airspace Consultation & Technical Liaison Manager  
 — Future Airspace Design Lead  
 — Future Airspace Design Specialist

Processes underway

Term	ACP Reference	Project Name	Priority	Impact	Notes	Status
Medium term	ACP-2024-009	RNAV Substitution of Eligible Conventional Procedures	TBC (LBA is 3)	1	'RNAV Substitution' will provide operational resilience and allow the SIDs and IAFs to continue to be flown following the same lateral and vertical profiles as today without the TNT and DTY DVORs.	Complete ✓
Long term	ACP-2019-044	East Midlands Airport Future (FAS)	1	3	East Midlands Airport Future (FAS)	Awaiting assessment meeting
					Truncation of the DTY SIDs to SAPCO	Airspace Change proposal (for submission) now well advanced
						Simulations in June

MAG

**We are the Journey Makers**

EMA Parish Engagement Forum  
 22nd April 2024  
**Future Airspace Update**

ACP-2024-009  
**RNAV Substitution of Eligible Conventional Procedures**

→ All targeted NavAids will be switched off 01/01/2026 regardless of any remaining dependencies.

... on Daventry and Trent DVORs continues.

... submitted in June 2023 was approved by

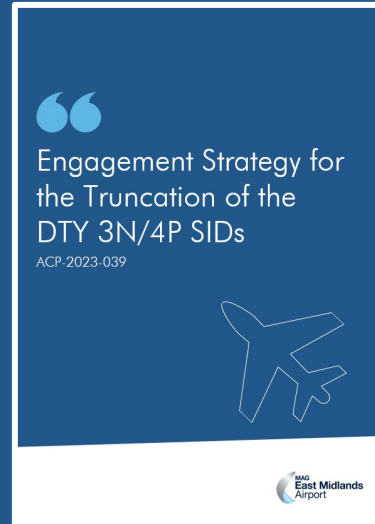
... 27  
 ...  
 ... and Trent

✓  
 Awaiting

MAG East Midlands Airport



# Proposed engagement



- We will submit an engagement strategy that summarises our proposed/completed engagement.
- We will summarise our completed engagement in the submitted documentation. We will detail feedback from stakeholders to show support or otherwise of our proposal.
- We need to establish airlines can fly RNAV substitutions.
  - Our Flight Equipage survey has revealed the technical capabilities and navigation systems used by carriers using EMA.
  - We currently have data on airlines flying 80% of the 2024 summer schedule. We are working hard to improve that to 95% of operators.
- We will follow up the presentation made to Pilot Liaison Group (PLG) with an e-mail to operators with the details of the RNAV substitution. Mail will be sent in June giving operators 28 days to reply (total of more than 70 days since PLG).
- Our colleagues in the Flight Evaluation Team will support our efforts within their own communications and meetings with operators using East Midlands Airport.

2024									2028								
Departures									Arrivals								
Aircraft Type / variant	FIG Manufacturer	RNAV 1 (DME/DME)	RNAV 1 (SRS)	RNP1	RNP1 + Rf sums	RNAV Holding	Conventional procedures only		Aircraft Type / variant	FIG Manufacturer	RNAV	LPV (GBAS)	LPV/VNAV (Baro/VNAV)	GBAS	Conventional procedures only		
1 B737-800V	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		1 B737-800V	Smiths (GE)	Yes	No	Yes	Mixed Capability	No		
2 B737-MAXB	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		2 B737-MAXB	Smiths (GE)	Yes	No	Yes	Yes	No		
3 B737-700V	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		3 B737-700V	Smiths (GE)	Yes	No	Yes	No	No		
4 A320-200	Honeywell	Yes	Yes	Yes	Yes	Yes	No		4 A320-200	Honeywell	Yes	No	Yes	No	No		
5 A320-200	Thales	Yes	Yes	Yes	Yes	Yes	No		5 A320-200	Thales	Yes	No	Yes	No	No		

2024									2028								
Departures									Arrivals								
Aircraft Type / variant	FIG Manufacturer	RNAV 1 (DME/DME)	RNAV 1 (SRS)	RNP1	RNP1 + Rf sums	RNAV Holding	Conventional procedures only		Aircraft Type / variant	FIG Manufacturer	RNAV	LPV (GBAS)	LPV/VNAV (Baro/VNAV)	GBAS	Conventional procedures only		
1 B737-800V	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		1 B737-800V	Smiths (GE)	Yes	Undecided	Yes	Mixed Capability	No		
2 B737-MAXB	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		2 B737-MAXB	Smiths (GE)	Yes	Undecided	Yes	Yes	No		
3 B737-700V	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		3 B737-700V	Smiths (GE)	Yes	Undecided	Yes	No	No		
4 A320-200	Honeywell	Yes	Yes	Yes	Yes	Yes	No		4 A320-200	Honeywell	Yes	Undecided	Yes	No	No		
5 A320-200	Thales	Yes	Yes	Yes	Yes	Yes	No		5 A320-200	Thales	Yes	Undecided	Yes	No	No		
6 B737-MAX10	Smiths (GE)	Yes	Yes	Yes	Yes	Yes	No		6 B737-MAX10	Smiths (GE)	Yes	Undecided	Yes	Yes	No		

Additional information	
If any of your fleet has reliance on conventional procedures only please provide an indication of how long this dependency is planned to remain before a transition to RNAV only.	n/a
If yes, what are these dependencies? (e.g. ...)	n/a
Could you please tell us your Navigation Database Coding provider? (e.g. LIDO, Jeppesen etc.)	Thales(B737/A320)/Honeywell (A320)
Please add any further comments that you may have on this survey	n/a
Assuming ISA +10 conditions, could the worst performing aircraft that operates from Manchester fly a	
✓ 6%? Yes @ MTOW	
✓ 8%? Yes @ MTOW	
✓ 10%? Dependant on Take-off weight - Not achievable at MTOW	
Comments:	n/a

Airline Name/Company
Name
Position
Email Address

# Propose Level Change

CAP1616 V5 (2024 onwards)

Level 1	Change with the potential for a high impact on stakeholders.
Level 2	Change with the potential for a medium impact on stakeholders.
Level 3	Change with the potential for a low impact on stakeholders.

## ACP-2024-009

### RNAV Substitution of Eligible Procedures

- Aircraft are routinely vectored, under radar control, to make an ILS approach to the duty runway.  
✓ This will continue unchanged.
- Aircraft routinely fly 'RNAV Overlay versions' of the SIDs, and most have done for 10 years+.  
✓ This will continue unchanged.
- No change to any lateral track or vertical profile flown because of this ACP.
- No change to this ACP because of the approval/implementation of ACP-2023-039.
- The DTY/TNT DVORs will be withdrawn 1<sup>st</sup> January 2026.

# Habitat Regulations Assessment (HRA)

CAP1616f paragraph 3.68 states 'a Habitat Regulations Assessment is required for airspace change proposals which are likely to have a significant effect – either or alone or in combination with other plans or projects – on European sites.' CAP1616i Paragraph 2.15 refers the change sponsor of a Level 3 change to follow the requirements detailed in CAP1616h. CAP1616h B12 requires the change sponsor to complete the habitats regulations assessment early screening criteria form as contained in CAP1616i.

		Answer
Q1.	Are there any changes to air traffic patterns or numbers of movements expected below 3,000ft due to the airspace change proposal? <i>If the answer to Q1 is 'no' then habitats regulations assessment is no longer required.</i> <i>If the answer to Q1 is 'yes', then proceed to Q2 below.</i>	No
Q2A.	Are there any European sites within a radius of 18KM of each runway end?	n/a <i>see answer to Q1 above</i>
Q2B.	Are any European sites identified in Q2A overflown (i.e. plane passing directly overhead or within 2,655ft of the boundary of a European site at 3,000ft or below) by proposed flight routes? <sup>1</sup> <i>If the answer to Q2A and Q2B are both 'no', then habitats regulations assessment is no longer required.</i> <i>If the answer to Q2A or Q2B is 'yes', then proceed to Q3 below</i>	
Q3A	Will the airspace change proposal reduce the number of movements overflying one or more European sites, while not increasing them over another? <sup>2</sup>	n/a <i>see answer to Q1 above</i>
Q3B	Will the airspace change proposal increase the altitude of aircraft overflying one or more European sites, whilst not decreasing altitude over another? <i>If the answer to Q3A and Q3B are both 'yes', then habitats regulations assessment is no longer required.</i> <i>If the answer to Q3A or Q3B is 'no' then secondary screening will be required.</i>	

<sup>1</sup>CAP1498 provides the CAA's definition of overflight as it relates to airspace regulation. Adopting this definition, for a 48.5° elevation angle threshold, overflight would be experienced from any aircraft flying at a height of 3,000ft and within a lateral distance of approximately 2,655ft from the boundary of a European site.

<sup>2</sup>In the event that more than one European site is overflown, consideration **must** be given to whether or not changes are positive, remain the same or are negative at each individual location. A habitats regulations assessment can only be screened out where there is no change or where there is benefit to all relevant European sites.

# ACP-2024-009 Safety & Compliance work (CAP1781b)

- In accordance with CAP1781b.
- One or more Hazard ID meetings.
- Written up in accordance with the ANSPs SMS.
- Meet the requirements (goals & sub-goals) required by CAB1781b.
- Radar monitoring will commence one month before 'O' date and continue for 12 months thereafter (routine ANOMS capture).



# Next Steps

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## Next Steps (MAG)

- Draft Assessment Meeting Minutes.
- Publish Assessment Meeting Material.
- Begin engagement and compilation of evidence for submission.

## Next Steps (CAA)

- Review Assessment Meeting Minutes.

## Next Steps (MAG)

- Update Portal.

## Questions/AOB

# Questions/AOB