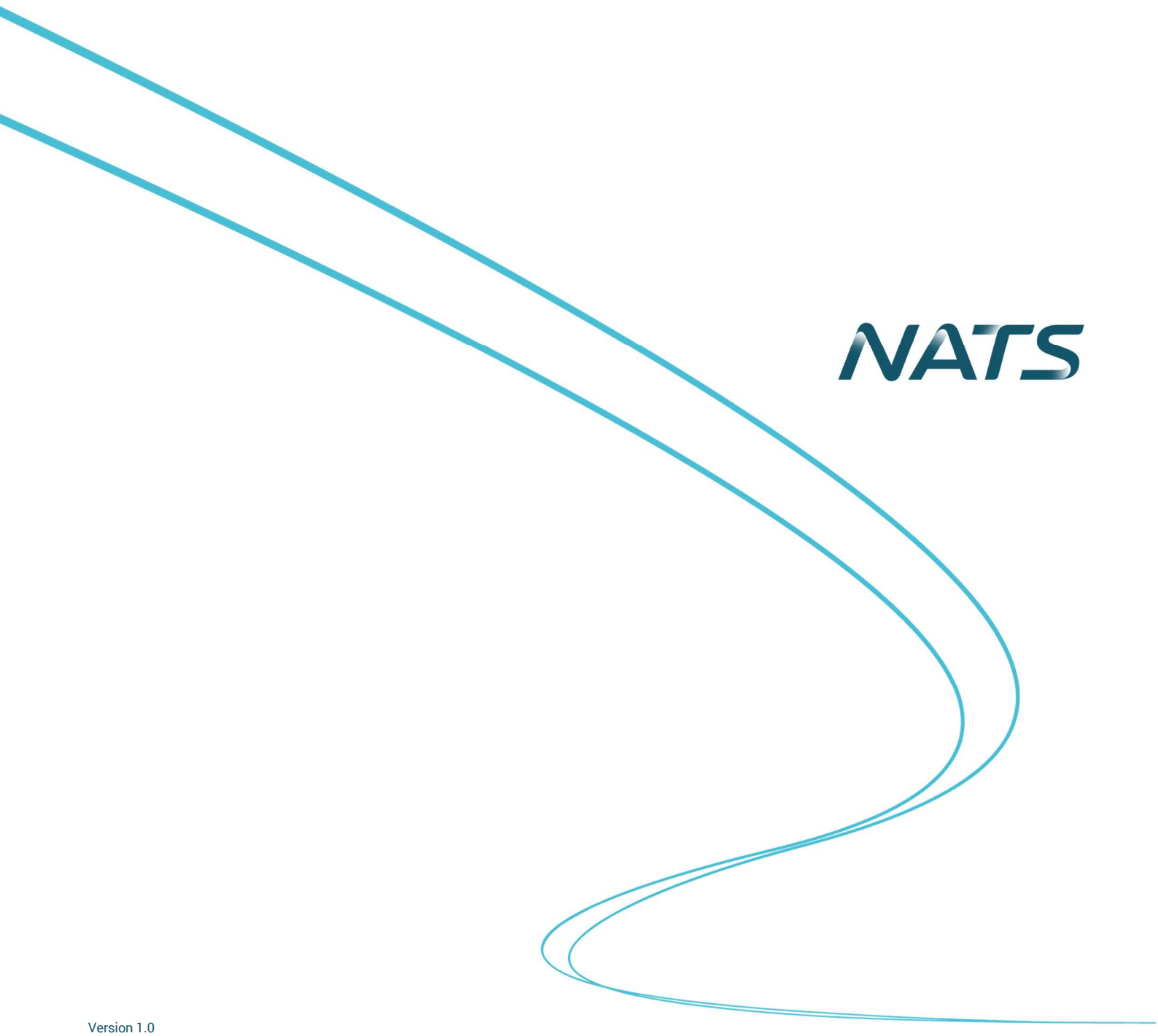
Impact Assessment – Withdrawal of the OCK DVOR. Issue 1.0

NATS Farnborough – 23 March 2023

Prepared by:

NATS Private

Version 1.0



Version 1.0

Contents

Executive Summary

1.1. DVOR Rationalisation Programme

NERL are withdrawing numerous legacy assets across the country as part of the DVOR rationalisation programme. The DVOR identified in the withdrawal plan which will affect the Farnborough operation is the Ockham (OCK) DVOR; this asset is scheduled to be decommissioned on 31st December 2023. Due to land access/lease stipulations there is no possibility of extending this date.

This impact assessment is being carried out to identify and address the operational impact of this withdrawal, the mitigation options available, and finally offers a preferred solution to resolve the issues identified.

1.2. Recommendations

1.2.1. Impact Assessment Recommendations

As a result of the impact assessment the following recommendations are made:

- Farnborough Airport to progress an administrative change to the existing RT Failure procedures to create 'solid line' coded initial approach procedures for: -
    - EGLF 8-1 : ILS/DME RWY 06
    - EGLF 8-2 : LOCDME RWY 06
    - EGLF 8-3 : SRA RWY 06
    - EGLF 8-4 : ILS/DME Y RWY 24
    - EGLF 8-5 : ILS/DME Z RWY 24
    - EGLF 8-6 : LOC/DME Y RWY 24
    - EGLF 8-7 : LOC/DME Z RWY 24
    - EGLF 8-8 : SRA Y RWY 24
    - EGLF 8-9 : SRA Z RWY 24
- Using CAP1781 guidance, Farnborough Airport to pursue through the regulator, approval to utilise RNAV substitution of the initial approach procedures generated as per above, together with RNAV Substitution of the missed approach applicable to: -
    - EGLF 8-4 : ILS/DME Y RWY 24
    - EGLF 8-6 : LOC/DME Y RWY 24
- Required AIP administrative updates are completed to be incorporated in the AIP no later than AIRAC 13/23. Recommended AIRAC for these changes is AIRAC 11/23.
- Farnborough Airport continue with the full FASI(S) ACP programme so that it is concluded within existing timeframes, thus providing a permanent solution to the RT failure requirements that no longer rely on legacy navigation systems/equipment.

1.2.2. Additional Recommended Actions

Additional recommended actions:

- This impact and associated recommendations are shared with the CAA for their input, initial oversight and approval at the earliest opportunity.
- In conjunction with the ANSP, following Impact Assessment approval, submit a Statement of Need in accordance with the CAP1616 process.
- Given the identified timescale of the rationalisation programme combined with the respective AIRAC cycles, Farnborough Airport commences the process of safety review with key stakeholders at the earliest opportunity.

Scope

2.1. Considerations

Under CAP1781 - Guidance for RNAV Substitution, Step 1 of the process flow overview states that airports should conduct an impact assessment to identify all flight procedures owned by Farnborough that are impacted by a specific navigational aid removal.

This impact assessment will consider the withdrawal of the Ockham DVOR in December 2023, as detailed in the NERL plan for DVOR rationalisation. The impact on the Farnborough operation will be considered for all Instrument Flight procedures and AIP entries excluding the sub paragraphs detailed in 2.2 below.

Once the impact is understood, the possible mitigation options will be investigated for applicability and feasibility and a preferred action plan will be developed for further consultation with the CAA.

Mitigation options considered are not limited to CAP1781 resolutions, and also look at CAP1616 resolutions.

2.2. Exclusions

2.2.1. STARs

STARs applicable to Farnborough are the responsibility of NERL, however these have no dependency on the Ockham DVOR.

2.2.2. SIDs

SIDs at Farnborough have no dependency on the Ockham DVOR.

Impact Assessment

3.1. Affected Procedures and Publications

3.1.1. Procedures

The withdrawal of the Ockham DVOR affects the following Farnborough Airport Instrument Flight procedures:

- EGLF 5-1 : ATC SMAC
- EGLF 8-1 : ILS/DME RWY 06
- EGLF 8-2 : LOCDME RWY 06
- EGLF 8-3 : SRA RWY 06
- EGLF 8-4 : ILS/DME Y RWY 24
- EGLF 8-5 : ILS/DME Z RWY 24
- EGLF 8-6 : LOC/DME Y RWY 24
- EGLF 8-7 : LOC/DME Z RWY 24
- EGLF 8-8 : SRA Y RWY 24
- EGLF 8-9 : SRA Z RWY 24

The withdrawal of the Ockham DVOR affects the following Farnborough and En-route AIP Publications:

- EGLF 4-2 : Control Zone and Control Area Chart
- EGLF 2.19 : Radio navigation Aids
- EGLF 2.22 : Flight procedures
- ENR 6-83 : Farnborough CTR & CTA Chart

3.2. EGLF 5-1: ATC Surveillance Minimum Altitude Chart

The ATC SMAC contains a pictorial depiction of the OCK VOR/DME using standard aeronautical chart symbology. This requires an administrative update to the chart to depict DME symbology.

3.3. EGLF 8-1: ILS/DME RWY 06

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

In the event of RT Failure, the procedure stipulates a number of tracks to fly and positions of turn, achieving connectivity from the end of various Farnborough STARs. The tracks to fly and

positions to turn are determined by radials and DME ranges from the OCK DVOR. With the removal of the OCK DVOR, there will be no conventional guidance for aircraft to carry out this procedure.

3.4. EGLF 8-2: LOC/DME RWY 06

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

In the event of RT Failure, the procedure stipulates a number of tracks to fly and positions of turn, achieving connectivity from the end of various Farnborough STARs. The tracks to fly and positions to turn are determined by radials and DME ranges from the OCK DVOR. With the removal of the OCK DVOR, there will be no conventional guidance for aircraft to carry out this procedure.

3.5. EGLF 8-3: SRA RWY 06

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

3.6. EGLF 8-4: ILS/DME Y RWY 24

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

The missed approach procedure stipulates establishing on the 236 radial from OCK DVOR to proceed to VEXUB. This operates to provide track guidance after the initial turn back to the VEXUB hold. With the removal of the OCK DVOR, the missed approach will not be satisfactorily defined in the lateral sense.

In the event of RT Failure, the procedure stipulates tracks to fly and positions of turn, achieving connectivity from the end of various Farnborough STARs. The tracks to fly and positions to turn are determined by radials and DME ranges from the OCK DVOR. With the removal of the OCK DVOR, there will be no conventional guidance for aircraft to carry out this procedure.

3.7. EGLF 8-5: ILS/DME Z RWY 24

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

In the event of RT Failure, the procedure stipulates tracks to fly and positions of turn, achieving connectivity from the end of various Farnborough STARs. The tracks to fly and positions to turn are determined by radials and DME ranges from the OCK DVOR. With the removal of the OCK DVOR, there will be no conventional guidance for aircraft to carry out this procedure.

3.8. EGLF 8-6: LOC/DME Y RWY 24

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

The missed approach procedure stipulates establishing on the 236 radial from OCK DVOR to proceed to VEXUB. This operates to provide track guidance after the initial turn back to the VEXUB hold. With the removal of the OCK DVOR, the missed approach will not be satisfactorily defined in the lateral sense.

In the event of RT Failure, the procedure stipulates tracks to fly and positions of turn, achieving connectivity from the end of various Farnborough STARs. The tracks to fly and positions to turn are determined by radials and DME ranges from the OCK DVOR. With the removal of the OCK DVOR, there will be no conventional guidance for aircraft to carry out this procedure.

3.9. EGLF 8-7: LOC/DME Z RWY 24

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

In the event of RT Failure, the procedure stipulates tracks to fly and positions of turn, achieving connectivity from the end of various Farnborough STARs. The tracks to fly and positions to turn are determined by radials and DME ranges from the OCK DVOR. With the removal of the OCK DVOR, there will be no conventional guidance for aircraft to carry out this procedure.

3.10. EGLF 8-8: SRA Y RWY 24

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

3.11. EGLF 8-9: SRA Z RWY 24

This procedure includes a conventional VEXUB VOR/DME hold, with the holding fix at VEXUB defined as D7.5 on Radial 236 from OCK DVOR. There is a co-incident RNAV hold that could be used in its place. In doing so, this would put a demand on all aircraft using this IFP to be compliant with the RNAV1 specification that defines the hold.

3.12. EGLF 4-2 – Control Zone and Control Area Chart

The Control Zone and Control Area Chart contains a pictorial depiction of the OCK VOR/DME using standard aeronautical chart symbology. This requires an administrative update to the chart to depict DME symbology.

3.13. EGLF 2.19 – Radio Navigation Aids

Table 2.19 contains reference to the OCK VOR/DME. The removal of OCK DVOR requires an administrative update to the AIP.

3.14. EGLF 2.22 – Flight Procedures (Sub para 1 a vi)

Text contained within this section of the Farnborough AIP makes reference to OCK DVOR to describe the action to be taken for aircraft that have lost communications with ATC and have not been issued with a suitable STAR via VEXUB. This text replicates the initial approach segment portrayed within the various IAPs detailed above.

Whichever mitigations are developed for the IAPs would need to be replicated within this text to avoid there being no conventional guidance for aircraft subject to the conditions above post removal of the OCK DVOR. Such aircraft are expected to be infrequent, being inbounds that are not routing via the ATS route network, therefore arriving from outside controlled airspace.

3.15. EGLF 2.22 – Flight Procedures (Sub para 2 e i 2)

This text references OCK DVOR to describe a location of airspace where provision of ATS services outside controlled airspace is likely to be limited. This requires an administrative update to the text to replace the reference to OCK DVOR with something in a similar location.

3.16. ENR 6-83 – Farnborough CTR & CTA Chart

The Control Zone and Control Area Chart contains a pictorial depiction of the OCK VOR/DME using standard aeronautical chart symbology. This requires an administrative update to the chart to depict DME symbology.

Mitigation Options

4.1. Aim of mitigation option development

Following discussions with the CAA to obtain guidance on the CAP1781 process and requirements, NATS Farnborough have identified and reviewed possible mitigations to the impacted procedures detailed in section 3.

These mitigations are detailed below, supplemented with a matrix demonstrating how, of the 13 affected procedures and publications, we have been able to mitigate the impact to continue operations post asset removal in December 2023.

To aid assessment and assurance of the options, the matrix used a RAG status with the following definitions:

Legend	**Mitigated solution by Dec 23**	**Temporarily mitigated solution by Dec 23; but permanent solution required**	**Mitigated solution possible, but outside Dec '23 timeline**	**No acceptable mitigated solution.**

4.2. Do Nothing

The "do nothing" option has been considered versus the impacts detailed above in section 3. This option removes any ability for crews to understand what to do in the event of RT failure, except for diverting to an alternative in accordance with ENR 1.1 (Para 3.4.2). Although a rare event, any RT failure scenario will give rise to significantly increased workload for flight crews and remove any clarity ATCOs may have as to the intentions of the subject aircraft and may impact on the safe provision of ATC service delivery.

Additionally, leaving the legacy SIDs published with incorrect charts and data in the AIP, may result in confusion that again introduced the risk of reduced safety margins. It is also envisaged that incorrect published data would raise regulatory concerns and be unacceptable to all interested stakeholders.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															

4.3. Conduct a full ACP (CAP1616 Level 1)

Farnborough controlled airspace was introduced on 27th February 2020, after having completed a long and complex ACP process that lasted a number of years. Due to the impact of the COVID pandemic on traffic volumes, the post implementation review for this ACP is yet to complete its year period prior to report publication. Work has started on FASI South Programme integration for Farnborough. To introduce another ACP that attempts to re-design airspace and procedures by way of a full ACP would utilise significant resource and time capacity and would not deliver a solution within the timescales required for the removal of Ockham DVOR.

In addition, a full ACP may not be considered a proportionate response to the issue, given that the impacts identified are specific to RT Failure and uncommonly used missed approaches and a terminal hold.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															

4.4. Replication of Initial Approach Procedures using New RNAV coding

Replication of the Initial Approach Procedures (referenced as RT Failure procedures within the IAPs at Farnborough) have a number of complex tracks across the ground and generation of new RNAV coded routes is problematic within the PAN Ops requirements for RNAV operations.

There is a risk that removal of the OCK DVOR reference from the missed approach procedure for ILS/DME and LOC/DME Y for RWY 24 results in a small deviation from current track across the ground, and whilst still rare it is expected to have a handful of such operations per year. This because of aircraft FMS systems seeking to establish on the OCK Radial instead of going direct to VEXUB.

This would therefore be regarded as a level 1 ACP under CAP1616 processes, with no other airspace modernisation.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															

4.5. Negotiate an agreement/contract with NERL to keep the OCK DVOR in service until completion of the Farnborough FASI South ACP.

Work on FASI South programme integration for Farnborough has commenced, however any amendments to airspace and procedures as a result of this is not expected until Spring 2025 at the very earliest.

Land ownership and development requirements in the vicinity of the OCK DVOR means there is no possibility of extending continued use of the OCK DVOR beyond 31st December 2023.

As a result, this option is not viable.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Extend the use of the OCK DVOR															

4.6. Utilise an existing VOR in place of OCK DVOR

NATS Procedure design group were contracted to provide analysis on options to resolve the issues for the Farnborough IAPs. They indicate that a number of VORs in the vicinity of Farnborough are also due to be rationalised/removed and their geometry relevant to the RT Failure procedures would not precisely replicate the existing procedures. As a result, this would not be a stand-alone solution, but rely on the CAP1616 level 2C ACP option above.

Given the geometry issues, this is not perceived as a viable option.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Extend the use of the OCK DVOR															
Utilise existing VOR in place of OCK DVOR															

4.7. Administrative update to the AIP

The change to para 2.19 and 2.22 sub para 2 e i 2 can be achieved by simple admin updates to the AIP. It is also believed that given the minimal and editorial nature of the changes to charts 4-2, 5-1, 6-2 and ENR 6-83, these can also be achieved through relatively simple administrative updates.

The text contained within 2.22 Para 1 a vi replicates the RT Failure chart depictions within EGLF 8-x and therefore would not be suitable for an administrative amendment only. Farnborough considered that traffic using this textual procedure would normally be arrivals from outside controlled airspace and actually this text should refer to the IAPs, understanding that traffic still outside controlled airspace subject to RT fail would be expected to divert to the nearest suitable outside controlled airspace aerodrome.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Extend the use of the OCK DVOR															
Utilise existing VOR in place of OCK DVOR															
Administrative Update to AIP															

4.8. RNAV Substitution of Initial Approach Procedures

CAP1781 details a process that could be followed if other options to resolve the removal of OCK DVOR are not possible or practicable. This process has a number of requirements on order to justify RNAV substitution. This process is referenced as only for RNAV1 procedures however, some STARs for Farnborough are specific to RNAV5 operations (ABSAV1P, NOTGI1P and CPT1P) and any RNAV substitution would need to be available for this traffic.

The routes that would need to be included for RNAV substitution are the RT failure elements and missed approaches for ILS/DME and LOC/DME Y RWY 24, and these are not coded within all fleet FMSs currently. For RNAV substitution to be available, the RT failure procedures would need to be renamed as an initial approach procedure with the currently dashed lines amended to solid

lines, coded by the coding houses and deployed, prior to any RNAV substitution being taken forward.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Extend the use of the OCK DVOR															
Utilise existing VOR in place of OCK DVOR															
Administrative Update to AIP															
RNAV Substitution of Initial Approach Procedures															

4.9. Redesign of Initial Approach Procedures using NDBs

NATS Farnborough have worked closely with NATS Procedure Design group to understand what other options could be deployed without limitation based upon Airspace volume or other ATSUs. This generated many versions, all of which would generate a change in the track across the ground, giving rise to an ACP requirement under CAP1616.

There is a risk that removal of the OCK DVOR reference from the ILS/DME and LOC/DME Y for RWY 24 results in a small deviation from current track across the ground, and whilst still rare it is expected to have a handful of such operations per year. This is because of aircraft FMS systems seeking to establish on the OCK Radial instead of going direct to VEXUB.

This would therefore be anticipated as a level 1 ACP under CAP1616 processes, with no other airspace modernisation, and would not meet the December 2023 deadline.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Extend the use of the OCK DVOR															
Utilise existing VOR															

in place of OCK DVOR															
Administrative Update to AIP															
RNAV Substitution of Initial Approach Procedures															
Redesign of Initial Approach Procedures Using NDBs															

4.10. Hybrid RNAV Substitution with Administrative Update to AIP

Previous options have not achieved resolution for all impacts of the OCK DVOR removal. This option is developed as a combination of the administrative AIP update and utilises CAP1781 processes to provide RNAV substitution to enable OCK DVOR to be removed from all the IAPs at Farnborough.

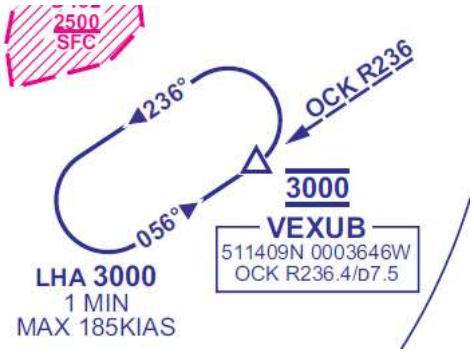
Utilising expert feedback from the Lead Operators Technical Group (LOTG) meeting on 10th February 2023, they have advised that coding of both a "solid lined" initial approach procedure for Farnborough and missed approaches (to address the ILS/DME and LOC/DME Y RWY 24 dependency) ***is technically possible and also delivers significant crew workload benefits when dealing with RT failure scenarios in such complicated airspace.***

The LOTG also noted that when considering navigational performance, it was more critical to ensure RNAV capability on the routes promulgated, and there was unlikely to be a perceivable difference from an ATC perspective when observing aircraft on such routes equipped to RNAV5 or RNAV1 standards. ***Given the feedback from LOTG, Farnborough proposes this portion is included***

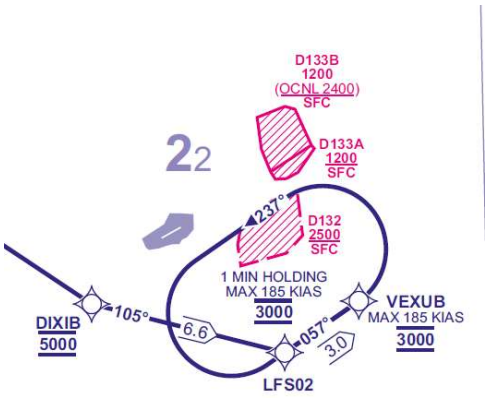
within the RNAV substitution process, on the undertaking that aircraft flying it are required to be Radar monitored and other traffic deviated to avoid any observed lateral non-conformance.

The fallback position would be to promulgate guidance to RNAV5 aircraft that RT failure requires them to divert elsewhere due to lack of supporting procedures. This would also apply to textual instructions in EGLF 2.22 Para 1 a vi.

Finally, in order to address the conventional VEXUB hold and reliance on the OCK DVOR, Farnborough requests the promulgation of the current RNAV1 VEXUB hold as an RNAV1/5 hold to be a change delivered within the CAP1616 level 2C process.



Conventional VEXUB Hold



Farnborough VEXUB Hold

Designator	Sequence Number	Path Term-inator	Waypoint Name	Waypoint Co-ordinates	Fly-over	Course/ Track °M (°T)	Magnetic Variation	Timing (MIN)	Turn Direction	Level Constraint	Speed Constraint	Navigation Performance
VEXUB	-	-	VEXUB	511409.00N 0003645.76W	Y	057° (056.3°)	-0.4	1 MIN	LEFT	3000	-185	RNAV1

RNAV1 VEXUB Hold

The protected areas for RNAV5 holding would be larger than that applicable to the current RNAV1 hold, however the current RNAV1 hold is subject to ATC Radar monitoring against Heathrow and

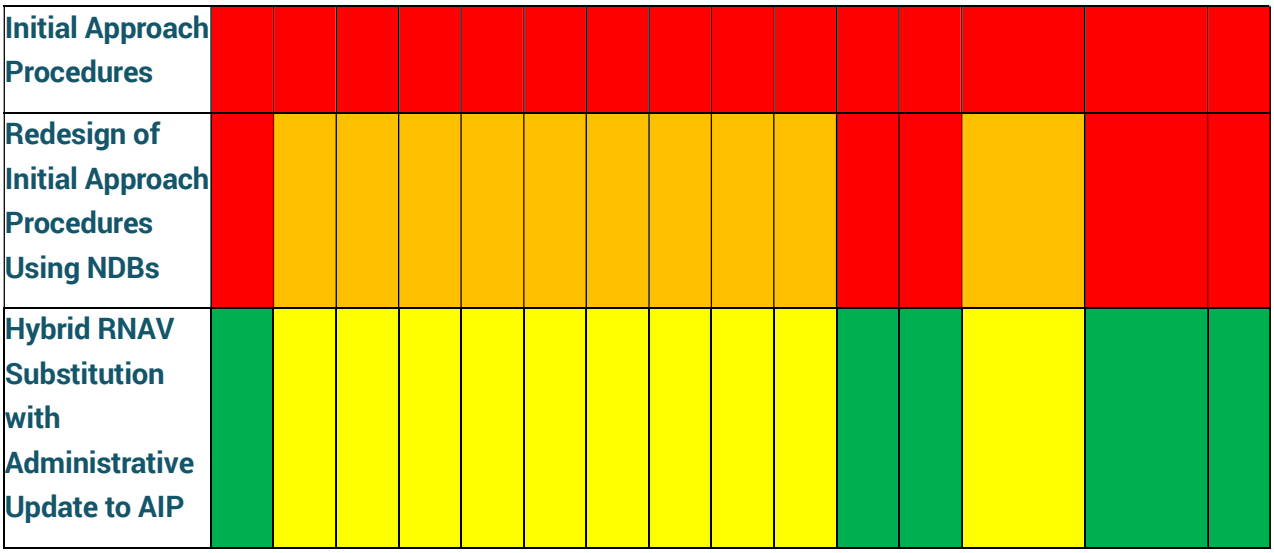
Gatwick operations. ***Extension to RNAV5 standards would not generate additional ATC monitoring requirements or workload and given the fact RNAV5 aircraft are normally vectored, this amendment results in no change across the ground for RNAV5 aircraft.***

Delivery of this option is considered as a two-step process

1. Amend AIP documentation by migrating Initial Approach Procedures within the approach plates to standalone 'solid line' procedures
2. Conduct a 1781 RNav substitution of the required procedures to ensure removal of dependency from the OCK VOR and update any required textual information

Given all the above, this solution would still be regarded as temporary to be resolved fully within the ACP applicable to FASI south.

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Do Nothing															
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Extend the use of the OCK DVOR															
Utilise existing VOR in place of OCK DVOR															
Administrative Update to AIP															
RNAV Substitution of															

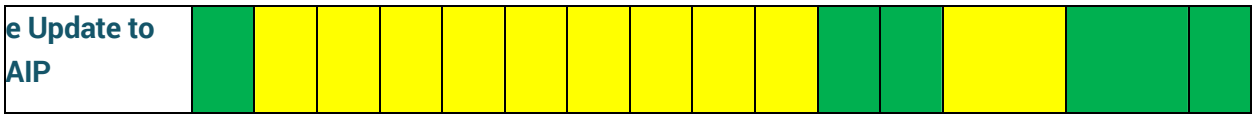

Initial Approach Procedures
Redesign of Initial Approach Procedures Using NDBs
Hybrid RNAV Substitution with Administrative Update to AIP

Conclusion

5.1. Option moderation

Section 4 of this report considered multiple options which have been clearly summarised in both textual and matrix format. Only those options with a realistic probability of completion should be considered; as such, the table from 4.10 is updated below to remove options returning solely 'red' status:

	EGLF 5-1	EGLF 8-1	EGLF 8-2	EGLF 8-3	EGLF 8-4	EGLF 8-5	EGLF 8-6	EGLF 8-7	EGLF 8-8	EGLF 8-9	EGLF 4-2	EGLF 2.19	EGLF 2.22 Para 1 a vi	EGLF 2.22 Para 2 e i 2	ENR 6-83
Conduct a Full ACP (Level 1)															
Replication of Initial Approach Procedures using New RNAV Coding															
Administrative Update to AIP															
Redesign of Initial Approach Procedures Using NDBs															
Hybrid RNAV Substitution with Administrativ															



Following significant research with procedure design experts, engagement with industry and airspace user stakeholders it is considered that to ensure all issues are resolved, the proposed hybrid solution of CAP1781 RNAV substitution of the Initial Approach Procedures (previously the RT failure procedures) from PEPIS to ILS/LOC RWY 06 or 24 together with the ILS/DME and LOC/DME Y RWY 24 missed approach and promulgation of the VEXUB hold as RNAV1/5 achieves the following outcome benefits:

- ***Meets the requirements of Farnborough to remove dependency on the OCK VOR within the required timescales***
- ***Delivers additional safety and workload reduction benefit to crews in the result of an RT fail scenario by ensuring the procedure is coded into the FMS which is not currently the case, this benefit is significant given the complexity of the procedures and surrounding airspace***

5.2. Recommendations of the Conclusion

5.2.1. Impact Assessment Recommendations

As a result of the impact assessment the following recommendations are made:

- Farnborough Airport to progress an administrative change to the existing RT Failure procedures to create 'solid line' coded initial approach procedures for: -
    - EGLF 8-1 : ILS/DME RWY 06
    - EGLF 8-2 : LOCDME RWY 06
    - EGLF 8-3 : SRA RWY 06
    - EGLF 8-4 : ILS/DME Y RWY 24
    - EGLF 8-5 : ILS/DME Z RWY 24
    - EGLF 8-6 : LOC/DME Y RWY 24
    - EGLF 8-7 : LOC/DME Z RWY 24
    - EGLF 8-8 : SRA Y RWY 24
    - EGLF 8-9 : SRA Z RWY 24
- Using CAP1781 guidance, Farnborough Airport to pursue through the regulator, approval to utilise RNAV substitution of the initial approach procedures generated as per above, together with RNAV Substitution of the missed approach applicable to: -
    - EGLF 8-4 : ILS/DME Y RWY 24
    - EGLF 8-6 : LOC/DME Y RWY 24
- Required AIP administrative updates are completed to be incorporated in the AIP no later than AIRAC 13/23

- Farnborough Airport continue with the full FASI(S) ACP programme so that it is concluded within existing timeframes, thus providing a permanent solution to the RT failure requirements that no longer rely on legacy navigation systems/equipment.

5.2.2. Additional Recommended Actions

Additional recommended actions:

- This impact and associated recommendations are shared with the CAA for their input, initial oversight and approval at the earliest opportunity.
- In conjunction with the ANSP, following Impact Assessment approval, submit a Statement of Need in accordance with the CAP1616 process.
- Given the identified timescale of the rationalisation programme combined with the respective AIRAC cycles, Farnborough Airport commences the process of safety review with key stakeholders at the earliest opportunity.