Operational Service Enhancement Project:-
P18 Extension of Times of Availability NATEB – ADN

Gateway documentation:
Stage 2 Develop and Assess

Options Appraisal
(Phase 1 Initial)
including Safety Assessment
V1.0

NATS Unclassified

Roles

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Issue 1	October 2021	First issue released to SARG.

Contents

1. Introduction

1.1 This document forms part of the document set required in accordance with the requirements of the CAP1616 airspace change process.

1.2 This document aims to provide adequate evidence to satisfy
Stage 2 Develop and Assess Gateway, Step 2B Options Appraisal including Safety Assessment.

1.3 Previous documents have reduced the number of design concepts to one, known as Option 2. This is the preferred option.

2. Change Level

2.1 The changes in this ACP have the potential to impact flights over the ground below 7000 ft. Hence in accordance with the Levels as defined in CAP1616, it is expected that this proposal is categorised as a Scaled Level 1 change.

2.2 In line with the requirements for a Level 1 change the environmental impact assessment has been conducted on the basis of CO_2 emissions and a qualitative assessment of the noise impact.

3. Options Appraisal (Phase 1 Initial)

3.1 This ACP proposes to extend the availability of the Conditional Route (CDR) portion of UK ATS route P18. This portion of P18 is between NATEB – ADN. This route structure already exists and is in use in today's operation. Outside the published hours of availability aircraft do still utilise this route segment as a result of pilot requests and/or tactical routing by ATC. Radar data from 5-11th August 2019, indicates approximately 2 out of 3 aircraft that planned via P600 due to unavailability of P18 were tactically routed via the inactive P18 CDR with an appropriate UK FIS. In the first year following implementation this change is expected to impact the flight plans of 16 flights per day on average. However, of these 16 flights, based upon historic trajectories 10 are likely to have been tactically routed via P18. Therefore, this change is only expected to cause a discernible change in tracks over the ground to on average 6 aircraft per day

3.2 The baseline (do nothing) option does not achieve any improvement or modernisation from today's operation, and is used as the benchmark against which the benefits of the proposed change can be measured. The Design Principles are either not met, partially met or met by default for this option, i.e. 'no change'. As such this option is not being progressed.

3.3 One option is therefore proposed which fulfils the design principles:

- Option 2: H24 CDR - availability subject to D-1 notified MoD activity.

3.4 The detailed makeup of both the baseline option and Option 2, including evaluation is detailed in Stage 2 Develop and Assess: Stage 2A(i) (ii) Airspace Change Design Options and Evaluation.

3.5 Baseline (Do Nothing) Option – Option 0

The do-nothing option assumes the changes proposed in the ACP are not implemented. Table 1: Options Appraisal – Do Nothing Option below indicates the effects on communities and stakeholders should this be the case.

Group	Impact	Level of Analysis	Evidence
Communities	Noise impact on health and quality of life	Qualitative	No change in noise impact from today's operations.
Communities	Air quality	Qualitative	No change in air quality from today.
Wider society	Greenhouse gas impact	Monetise and quantify	There would be no change in greenhouse gas emissions. This is due to no change in aircraft trajectories.
Wider society	Capacity/ resilience	Qualitative	An increase in forecasted traffic would increase sector complexity, constrain sector capacity and increase controller workload.
General Aviation	Access	Qualitative	No change from today.
General Aviation/ commercial airlines	Economic impact from increased effective capacity	Qualitative	No change from today.
General Aviation/ commercial airlines	Fuel burn	Qualitative	No change from today.
Commercial airlines	Training cost	Qualitative	There would be no training required.
Commercial airlines	Other costs	Qualitative	There would be no associated costs for airlines.
Airport/ Air navigation service provider	Infrastructure costs	Qualitative	There would be no associated infrastructure costs.
Airport/ Air navigation service provider	Operational costs	Qualitative	There would be no associated operational costs.
Airport/ Air navigation service provider	Deployment costs	Qualitative	There would be no associated deployment costs.

Table 1: Options Appraisal – Do Nothing Option.

3.6 H24 CDR - availability subject to D-1 notified MoD activity – Option 2

This design proposal is for the extension of the availability of P18 to become H24, subject to notified MoD activity.

Group	Impact	Level of Analysis	Evidence
Communities	Noise impact on health and quality of life	Qualitative	The proposed change is to the availability of a CDR contained predominantly over the sea. However, as this change will alter the direction some aircraft arrive at or depart from Aberdeen airport, this change has the potential to impact the tracks of some flights overland, below 7000ft.[1] Depending upon runway orientation, some aircraft to/from Aberdeen Airport using P18 can overfly more populated areas of Aberdeen to a greater extent than that orientated via P600. This change will increase the number of flights using P18 during the time P18 is not currently available[2]. This is likely to lead to an increase in population overflight. However, Radar data from 5-11th August 2019 demonstrates that aircraft in the vicinity of Aberdeen airport are dispersed within wide swathes diminishing the impact of any one flight on an individual location as the aircraft tracks over the ground are not constrained or predictable. Furthermore, this data indicates that 72 aircraft used P18 outside of the published hours. NATS analytics expects this change to affect the flight plans of on average 16 flights per day or 112 per week in the first year of implementation. This suggests 72 out of the 112 planned impacted flights already use P18, therefore this change is expected to result in an increase of <6 flights per day (based on 2019 traffic) utilising P18. The impact of this change is assessed to be low.
Communities	Air quality	Qualitative	Government guidance says that aircraft flying higher than 1000 ft are unlikely to have a significant impact on air quality. Below 1000ft aircraft are either established on final approach or in their initial climb out. As there will no change to aircraft trajectories below 1,000ft, the proposal is not expected to have a significant impact on air quality
Wider society	Greenhouse gas impact	Quantified	Extending the hours of availability of P18 H24 will lead to a CO_2 saving of between 150 and 250 kg per impacted flight.
Wider society	Capacity/ resilience	Qualitative	Improved flight planning predictability will benefit ATC and Aircraft operators.
General Aviation	Access	Qualitative	GA will be required to request clearance to transit the CDR or fly underneath the base of the CDR as per the current operation when P18 is active. . The MoD access to the CDR will reflect the current procedures for when the CDR is available. The MoD will be able to request closure of the CDR by providing notification of intended MoD activity the day preceding the planned use.
General Aviation/ commercial airlines	Economic impact from increased effective capacity	Quantify	The extension of the hours of availability of P18 is not driven by increasing capacity. P18 usage is expected to grow in line with forecast aviation growth. This ACP is expected to result in an increase of 5696 flights in 2022 and 7647 flights in 2032 flight planning a route via P18.
General Aviation/ commercial airlines	Fuel burn	Monetise	There is expected to be a reduction in fuel burn of 50-80 kg per impacted flight for commercial airlines. This will offer a saving of between £23 and £36.80 per impacted flight.[3]
Commercial airlines	Training cost	N/A	N/A – there is not expected to be any airline training cost associated with the extension of availability of P18
Commercial airlines	Other costs	N/A	N/A – there are no other known costs which would be imposed on commercial aviation
Airport/ Air navigation service provider	Infrastructure costs	Qualitative and quantitative	There would be no associated infrastructure costs to the ANSP

[1] ERCD will be commissioned to undertake noise analysis which will be included within the stage 3 documentation.
[2] Current published availability hours of P18 CDR: Fri (or the day preceding a PH) 1500 (1400) to Mon (or the day following a PH) 1000 (0900); Tue-Fri 0530-0900 (0430-0800). May-Sep, Mon-Thu 1900-0900.
[3] Based on IATA jet fuel cost on 3rd September 2021: USD 638.27 per metric tonne, converted to GBP at 0.72USD/GBP. All fuel costs in this document are based on these figures.

Airport/ Air navigation service provider	Operational costs	N/A	N/A – this proposal would not lead to changes in operational costs
Airport/ Air navigation service provider	Deployment costs	Qualitative and quantitative	There would be no associated deployment costs

Table 2: Options Appraisal – Option 1.

4. Safety Assessment

4.1 Safety Assessment – Do nothing

If there was to be no change to the current availability of P18 there would be no foreseeable change to the current safety performance. This ACP is driven by a desire to reduce routing inefficiencies and improve predictability, which will enable a reduction in CO_2 emissions and operator fuel costs, not any safety concerns.

4.2 Safety Assessment – H24 CDR - availability subject to D-1 notified MoD activity (NATS preferred)

A qualitative high-level safety appraisal indicates that nothing is presently foreseen with this proposed option that would negatively impact on the level of safety achieved within the current operation. Increased availability of the CDR would improve predictability, reducing workload associated with significant changes to the flight planned route and the provision of a UK FIS. The availability of CAS does provide additional separation assurance within the route structure and would therefore provide a consequential benefit.

NATS' first priority is safety (and transparently demonstrating its commitment to safety). NATS will construct an appropriate safety case in accordance with standard practice during Stage 4.

5. Conclusion and Next Steps

5.1 This proposal has been developed following the submission of a Statement of Need. Its text was:

Current Situation

P18 is a conditional Route (CDR) with associated Airway, located between NATEB (Newcastle) and ADN (Aberdeen). Its current hours of availability are detailed in the AIP as: NATEB - ADN CDR1 Fri (or the day preceding a PH) 1500 (1400) to Mon (or the day following a PH) 1000 (0900); Tue-Fri 0530-0900 (0430-0800). May-Sep, Mon-Thur 1900-0900.

Cause

The limited availability of this CDR prevents the optimization of environmentally efficient routings.

Issues to be addressed

As part of the Operational Service Enhancement Project and commitment to enabling environmental improvements, NATS has identified the need to increase the hours of availability of CDR P18. Increasing the hours would enhance connectivity whilst improving fuel efficiency and reducing green-house gas emissions.

5.2 This document describes options which address the Statement of Need by extending the hours of availability of this CDR.

5.3 A single design option (Option 2) has been appraised and will be carried forward for further development and consultation. This option has been developed through engagement with the MoD, Aberdeen Airport, Aberdeen Airport ATC, Aberdeen Airports ACC and FLOPSC as well as relevant members of NATMAC. NATS thanks all these stakeholders and looks forward to continuing the development of this proposal.

5.4 Subject to CAA approval at the Stage 2 Gateway Assessment, this proposal will then move on to Stage 3 – Consult.

End of document