



St Athan ILS ACP Step 2B

Initial Options Appraisal

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Table of Contents

1	Introduction	1
1.1	Background - a Scaled CAP 1616 Airspace Change Process.....	1
1.2	Initial appraisal and refined shortlist.....	1
2	Initial Options Appraisal	3
2.1	Introduction	3
2.2	Existing Procedures	3
2.3	Current Noise Impact for Communities	3
2.4	Air Quality and Emissions	4
2.5	Capacity and Resilience	4
2.6	General Aviation Access	4
2.7	Economic Impact: GA and Commercial Airlines.....	4
2.8	Fuel Burn: GA and Commercial Airlines	4
2.9	Infrastructure Costs	5
2.10	Operational Costs.....	5
2.11	Training Costs.....	5
2.12	Other Costs.....	5
2.13	Safety Assessment.....	5
3	Next Steps – Consultation	7
4	Conclusion	8
A1	High Level Objectives and Assessment Criteria	9
A2	Statement on St Athan ILS from [REDACTED]	13
A3	Statement on St Athan ILS from [REDACTED]	14

1 Introduction

CAP 1616 requires sponsors to complete a formal Options Appraisal that assesses the benefits of the various options compared to a baseline. As there is only one realistic option available for this scaled proposal, that is, to publish ILS procedures in the UK AIP, this appraisal is a high-level qualitative assessment of the single option against 'do nothing', that is, the permanent withdrawal of ILS procedures.

1.1 Background - a Scaled CAP 1616 Airspace Change Process

The sole aim of this proposed airspace change is to enable the publication of the extant CAA-approved St Athan ILS procedures, previously published in the Mil AIP, in the UK AIP.

Step 2B requires the change sponsor to carry out an 'Initial' systematic, qualitative appraisal of the impacts of the options identified in Step 2A, assessing the possible different approaches, to deliver a desired outcome. This helps provide consistency in options appraisal, which is essential in understanding the impacts of the potential change.

Following the initial Assessment Meeting on 20th March 2019, on the 4th June 2019 the CAA Airspace Regulation Department again met with representatives of St Athan to discuss an appropriately scaled ACP submission, in proportion to the changes being considered. Subsequent to this meeting, the CAA agreed¹ to a scaled ACP submission with a combined Define and Develop & Assess Gateway in July 2019. To meet this Gateway, the WG as airspace change sponsor, working with Osprey CSL, is required to make the following submissions:

- Step 1A: Statement of Need (previously submitted);
- Step 1B: Design Principles;
- Step 2A Options Development;
- Step 2B Options Appraisal.

This document, together with separate Step 1B Design Principles and Step 2A Options Development documents, forms the basis of the submission to that joint Gateway.

1.2 Initial appraisal and refined shortlist

Preceding submissions identify that there is only one viable option that meets the SoN for the successful implementation of the proposal, that is, to publish the St Athan ILS procedures in the UK AIP. This single option is therefore appraised against the

¹ Email [REDACTED] (CAA) to [REDACTED] (Osprey) RE: 71299 - St Athan ILS Procedures ACP-2018-35 (sent 13:18 on Fri 14/06/2019)

‘do nothing’ scenario, that is, the permanent withdrawal of ILS procedures from St Athan, which is seen as the only alternative. This appraisal demonstrates the minor nature of the proposal and its negligible impact on all stakeholders, while illustrating the negative operational and, particularly economic, impacts of ‘do nothing’.

Taking into account that the SoN identifies that no change is being proposed to the track, heights or slope of the ILS procedures previously published in the Mil AIP, nor to airspace structures or classification, nor to operational procedures, developing alternative options to meet the requirement proved a challenge. Options discounted included the development of new RNAV procedures, which would be too costly and, as there is a current need, take too long to implement. Also discounted were a full Level 1 airspace change, which was felt to be disproportionate and too expensive and a Level 0 change, which was discounted by the CAA as the change was greater than simply to UK AIP nomenclature.

The methodology for this proportionate initial options appraisal is a straightforward comparison of the impacts of the two options, both positive and negative. Whilst complying with the spirit of CAP 1616 and The Green Book², as no environmental impacts have been identified, the Department for Transport’s WebTAG³ analysis guidance has not been employed.

² The Green Book: Appraisal and Evaluation in Central Government;
<https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

³ DfT transport analysis guidance WebTAG:
<https://www.gov.uk/guidance/transport-analysis-guidance-webtag>

2 Initial Options Appraisal

2.1 Introduction

Although the Level of the proposed change has yet to be set by the CAA, Annex 1 provides an appraisal of the proposal against 'do nothing' using the criteria for a Level 1 change found in CAP 1616 Table E2 'Guide to expected approach to key analysis for a typical airspace change'.

The sponsor remains hopeful that, at the end of Step 2B, the CAA may allocate a more proportionate Level which would enable a more appropriate application of the CAP 1616 process.

Summarising Annex 1, there follows a comparison of 'do nothing', permanent withdrawal of the procedures, against the publication of the procedure in the UK AIP.

2.2 Existing Procedures

As ILS procedures were withdrawn when St Athan transferred from Military Aviation Authority (MAA) oversight to CAA oversight on 31st March 2019, there are currently no instrument approach procedures available at the airport. This forms the baseline operational environment. The purpose of this ACP is to re-establish the status quo.

2.3 Current Noise Impact for Communities

In 2018 there were 117 MRO movements, of which 69 were arrivals, all of which used the ILS. Over the past 5 years the average number of movements was 96 per annum, consistently representing just 1% of St Athan movements. Clearly any noise impact must be considered, managed and minimised but the number of movements associated with this ACP should be kept in perspective.

Aircraft flying ILS procedures previously published in the Mil AIP would have generated a level of noise on the ground that may have had an impact on local communities. While a number of flights may have slightly reduced due to the unavailability of an ILS (as evidenced in Annexes A2 and A3), ultimately the majority of these aircraft have still conducted an approach to St Athan (albeit radar vectored by Cardiff Airport). It could therefore be argued that current noise impact experienced by communities for such a small number of aircraft is unchanged by the re-introduction of the ILS.

With the withdrawal of these procedures, tracks flown by aircraft who would previously have flown an ILS approach, but which now fly visual approaches, are less predictable and may generate noise over a slightly different population on the ground. As there is no change to the track or slope of the procedure proposed for publication of the procedures in the UK AIP, nor to the type of aircraft or frequency of movements, if the proposal is approved, the current noise impact would return to historic norms.

2.4 Air Quality and Emissions

To maintain continuous descent when flying VFR without ILS glidepath information pilots may need to more frequently alter their engine power settings below 1000 ft (the threshold for air quality measurements) with an associated increase in fuel burn. This may have a potential minor adverse impact on air quality and emissions. Conversely, if the proposal is approved, as there is no change in the track or slope from the procedure published in Mil AIP, aircraft will be flying more predictable approach paths and there will be no change to air quality compared to before the ILS procedure was withdrawn.

2.5 Capacity and Resilience

There are no plans to increase airport capacity at St Athan, although both MRO operators have concerns that without the availability of ILS procedures at St Athan, demand for their services may diminish (see Annexes 2 and 3).

2.6 General Aviation Access

There would be no significant impact to General Aviation (GA) aircraft arrivals, departures and transits of the local area associated with the ILS. However, there may be a small impact in the 'do nothing' option as there will be a slight increase in the unpredictability of tracks flown by large aircraft who would previously flown an ILS procedure. All GA movements are controlled and managed by Cardiff ATC. If the proposal is approved, there would be no impact on GA aircraft, which would revert to previous conditions when the ILS procedures were available and there is no plan to change the way GA aircraft operate at St Athan. No changes are proposed to the parameters of the current airspace and therefore no change to airspace access is predicted.

2.7 Economic Impact: GA and Commercial Airlines

There is no predicted economic impact on GA of either 'do nothing' or the preferred solution. If the procedures are permanently withdrawn and commercial airlines are obliged to operate VFR, there may be an increase in the number of aircraft who will be forced to divert in poor visibility conditions. This will generate an additional cost for these airlines. Furthermore, as detailed in Annexes 2 and 3, in their highly competitive market, MRO operators based at St Athan have major concerns that the permanent withdrawal of the ILS procedures will have a significant and long term negative impact on the attractiveness of their businesses, which could have a significant economic impact. If procedures are published in the UK AIP, there will be no change and the airport will continue to be an attractive proposition to existing and potential future MRO customers.

2.8 Fuel Burn: GA and Commercial Airlines

There is no predicted impact on fuel burn for GA from either 'do nothing' or the preferred solution. For commercial airlines, fuel burn may be marginally higher if the ILS is permanently withdrawn due to the increased unpredictability of aircraft

tracks when flown VFR, or when radar-vectored by ATC for a VFR approach. There would also be an increased fuel burn if aircraft were forced to divert if unable to complete a VFR approach.

The preferred solution is to establish the continued use of the ILS procedures via publication in the UK AIP; this option would result in fuel burn remaining at the level attributed to aircraft flying ILS procedures previously published in the Mil AIP. The preferred solution is therefore qualitatively assessed to result in a marginally lower fuel burn impact versus the permanent withdrawal of the ILS.

2.9 Infrastructure Costs

If ILS procedures are permanently withdrawn, the ILS equipment would be decommissioned, with the attendant associated costs. This would also represent poor value for money to Welsh taxpayers as the facility will have not provided maximum return on the investment for its introduction. If the proposal is approved, the only infrastructure costs would be for planned routine maintenance.

2.10 Operational Costs

If ILS procedures are withdrawn and commercial aircraft are obliged to fly visual approaches, there is an increased likelihood of aircraft being diverted in low visibility conditions, with airlines incurring additional costs. There may also be additional marginal costs associated with the increased workload and reduced capacity of NATS Cardiff ATCOs providing radar-vectors to aircraft inbound to St Athan. If the proposal is approved, there will be no additional operational costs.

2.11 Training Costs

No additional training costs are anticipated for either 'no nothing' or if the proposal is approved, although commercial pilots may be unfamiliar flying visual approaches and, if approved, pilots will need to be made aware of the newly published procedures.

2.12 Other Costs

No other costs have been identified.

2.13 Safety Assessment

It is a key assumption that the previously published (in the Mil AIP) ILS procedures were safe. It is also assumed that, even if they are not well-practiced, commercial pilots landing at St Athan to utilise MRO facilities would be competent to operate VFR. Nevertheless, VFR operations may well be unfamiliar to them which will incur some level of additional risk. Similarly, providing radar vectors to commercial aircraft for a visual approach at St Athan is a non-standard procedure and different to providing vectors to intercept the ILS localiser. Thirdly, the increased unpredictability of large aircraft operating in the Cardiff CTR/CTA, but not flying a published procedure, will also incur some additional risk. Although the level of

additional risk associated with the removal of ILS procedures has not been analysed in detail, it will inevitably be greater than approval of the proposal, for which there will be no change and therefore no additional risk.

3 Next Steps – Consultation

Given the scaled and limited extent of this change proposal, to date only informal stakeholder engagement has been conducted with the MRO companies based at St Athan (see Annexes 2 and 3).

In light of timescales, further informal engagement, initially to make stakeholders aware of the proposal, is planned to run concurrently with the submission for the combined Gateway.

The scale of formal consultation required at Stage 3 will be discussed and agreed with the CAA. The sponsor currently plans to consult local ANSPs at the adjacent airports at Cardiff and Bristol. Furthermore, as the St Athan ILS procedures are almost wholly contained within controlled airspace managed by Cardiff Airport, the Cardiff Airport Consultative Committee has been identified as an ideal conduit for engagement with the local community.

4 Conclusion

CAP 1616 requires sponsors to complete an Options Appraisal that assesses the benefits of the various options compared to a baseline. As there is only one realistic option available for this proposal, that is to publish ILS procedures in the UK AIP in a scaled manner, the appraisal is a high-level qualitative assessment of the single option against 'do nothing', that is the permanent withdrawal of ILS procedures. The costs and benefits have not been quantitatively monetised, but a qualitative assessment has been provided at Annex A1.

The analysis illustrates clearly that there is a negligible impact of the proposal on all stakeholders, whether they be other airspace users, ANSPs or people on the ground. However, although the permanent withdrawal of ILS procedures will have a marginal negative impact on most stakeholders, their withdrawal is already impacting MRO businesses. The permanent withdrawal is forecast to have a significant and long term negative impact on MRO operators at St Athan, who provide much-needed, well-paid jobs in the local area. The tone of their submissions in support of the proposal (Annexes 2 and 3) well-illustrates their concerns. The unavailability of an ILS procedure equally impacts on cockpit and controller workload.

The sponsor therefore urges the CAA to consider the proposal favourably and, if possible, to expedite the proposal through the remaining stages of the airspace change process.

A1 High Level Objectives and Assessment Criteria

Group	Impact	Option 1: Permanently withdraw St Athan ILS procedures	Option 2: Publish St Athan ILS Procedures in UK AIP
Communities	Noise impact on health and quality of life	Wider dispersal of noise due to lower track predictability. Pilots will not be flying with reference to the localiser that provides lateral course guidance; ATCOs may vary the radar vectors they provide; Pilots will be flying VFR and may fly a different track over the ground in comparison to the ILS localiser.	<p>As there is no change of the ground track from the procedure published in Mil AIP and experienced by those on the ground, there will be no change to noise impact.</p> <p>The relatively small number of aircraft movements and the fact that this ACP is not intended to increase capacity are relevant factors when considering environmental factors.</p>
Communities	Air Quality	Flying VFR without ILS glidepath information, to maintain continuous descent, pilots may need to alter their engine power settings below 1000 ft (threshold for air quality measurements) with an associated increase in fuel burn, and potentially have an adverse impact.	<p>As there is no change in the track or slope from the procedure published in Mil AIP, there will be no change to air quality.</p> <p>The relatively small number of aircraft movements and the fact that this ACP is not intended to increase capacity are relevant factors when considering environmental factors.</p>
Wider Society	Greenhouse Gas impact	Flying VFR without ILS glidepath information, to maintain continuous descent, pilots may need to alter their engine power settings in the vicinity of the airport, with an associated increase in fuel burn, and potentially have an adverse impact.	<p>As there is no change to the procedures published in the Mil AIP, there will be no change to current greenhouse gas emissions.</p> <p>The relatively small number of aircraft movements and the fact that this ACP is not intended to increase</p>

Group	Impact	Option 1: Permanently withdraw St Athan ILS procedures	Option 2: Publish St Athan ILS Procedures in UK AIP
			capacity are relevant factors when considering environmental factors.
Wider Society	Capacity and resilience	There would be no impact on overall UK airspace infrastructure. Resilience and capacity of St Athan and Cardiff airport may be affected if radar vectoring is used, as there is a small increase in ATCO workload versus the predictability of the previously published procedure.	No impact on overall UK airspace infrastructure. Resilience of St Athan and Cardiff ATS returns to normal.
General Aviation	Access	No change to existing airspace arrangements. GA users of St Athan will continue to arrive, depart and transit the airspace under extant operational arrangements and under the control of Cardiff ATC. There is a potential small impact due to the increased unpredictability of large aircraft inbound to St Athan as they will be flying VFR, rather than IFR.	No change to existing airspace arrangements. GA users of St Athan will continue to arrive, depart and transit the airspace under extant operational arrangements and ILS flights will be wholly predictable. Both GA and ILS traffic will be under the control of Cardiff Airport ATC.
General Aviation / commercial airlines	Economic impact from increased effective capacity	No increase to effective capacity is planned, therefore there is no economic benefit for GA/airlines/other users of the airport. Operating VFR, customers of St Athan's MRO facilities inbound in poor visibility may be forced to divert, having a quantifiable adverse economic impact on the resilience of those businesses, together with a negative reputational impact on both them and the airport. Attractiveness of St Athan as a potential MRO facility will be significantly diminished.	Effective capacity and economic viability of the airport is maintained for the life of MRO operations at St Athan. The significance of the economic benefits of St Athan in this area of South Wales should not be underestimated. The MRO organisations at St Athan currently employ 200 personnel on salaries well in excess of the local average.

Group	Impact	Option 1: Permanently withdraw St Athan ILS procedures	Option 2: Publish St Athan ILS Procedures in UK AIP
General Aviation / commercial airlines	Fuel burn	Fuel burn predicted to be marginally greater (and less predictable) as aircraft will be flying VFR with potential for extended track miles in flight; tactical ATC intervention; unsupported continuous descent and an exact route dependent on pilot and ATC coordination, rather than the ILS procedure.	No change to fuel burn, as no change to procedure track or slopes.
Commercial airlines	Training costs	No additional training predicted, although commercial airline pilots may have limited experience of flying VFR.	Minimal routine training for pilots, to ensure awareness of the new published procedures.
Commercial airlines	Other costs	The risk of diversion increases when VFR approaches are flown. This would expose MRO customer aircraft to additional ATC/Nav charges and fuel and potentially to crew re-scheduling.	No other costs identified.
Airport / ANSP	Infrastructure costs	If ILS procedures are withdrawn permanently, the ILS equipment would be decommissioned, with the associated costs.	No additional infrastructure costs.
Airport / ANSP	Operational costs	ATCO workload at NATS Cardiff may increase marginally, but unlikely to result in additional ATCO costs.	No additional operational costs.
Airport / ANSP	Deployment costs	No deployment costs	Costs associated with producing CAP 1616 deliverables.

Group	Impact	Option 1: Permanently withdraw St Athan ILS procedures	Option 2: Publish St Athan ILS Procedures in UK AIP
Safety Assessment	Safety Assessment	Commercial airline pilots arriving at St Athan to make use of MRO facilities would routinely fly instrument approaches (eg ILS) and are unlikely to be well-practiced in VFR operations. These aircraft's tracks through the Cardiff CTA and CTR will be less predictable and they may require additional radar vectors from ATC.	Procedures in the Mil AIP were approved by CAA and assumed safe, there is no change to the safety argument.

A2 Statement on St Athan ILS from [REDACTED]

From: [REDACTED]

Sent: 08 July 2019 10:53

To: [REDACTED]

[REDACTED]

Cc: [REDACTED]

[REDACTED]

Subject: ILS

[REDACTED]

This is an extraordinary situation that is genuinely impacting our business, both in terms of the practicalities of airfield operation, and the credibility of EGD/EGSY as an airfield - the repeated activation and de-activation of this ILS is impossible to explain to our customers and does not create a professional image of this location. Furthermore, many of our larger 'national carrier' customers are very reluctant to operate to a VFR location, since their crews have limited experience with these kind of operations ([REDACTED] Airways recently refused to bring aircraft to our facility). Obviously the risk of diversion is increased with VFR approaches, and our customers are not only impacted with the direct costs of the ATC/Nav charges and fuel, but suffer significant effects of crew re-scheduling - which can be economically very substantial. The reputational damage to both [REDACTED] and St. Athan of VFR diversions is not possible to tangibly estimate, but is a genuine concern for us.

After 7 years of operation at St. Athan our business has matured to a point where the throughput is relatively stable. We received 46 aircraft arrivals in 2018 with three departures, and do not expect that will change - we are budgeting approximately 50 movements per year for the next couple of years.

Best Regards,

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

A3 Statement on St Athan ILS from [REDACTED]

From: [REDACTED]
Sent: 08 July 2019 16:02
To: [REDACTED]
Subject: ILS at St. Athan
Importance: High

Dear [REDACTED]

[REDACTED] operation is dependent on a constant ILS availability.

We would lose substantial business worth millions of pounds, if we can't prove to our clients, that we have an ILS available. This would have a knock on effect, because our investors wouldn't continue to invest in our company, which would jeopardize our restructuring and growth plans.

At this stage, our main customers are reluctant to sign any GTA (General Terms Agreement) unless we can give green light on the ILS.

We really hope that a solution can be provided asap.

With kind regards,

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]