

6 March 2015

## NORWICH AIRPORT CONTROLLED AIRSPACE – POST IMPLEMENTATION REVIEW

### 1. Introduction

- 1.1 Approval was given by the Directorate of Airspace Policy (DAP) for Norwich International Airport (NIA) to proceed with implementation of a controlled airspace (CAS) structure in the vicinity of the airport in August 2011. The airspace was introduced on 8 March 2012. The purpose of this document is to provide the outcome of a Post Implementation Review (PIR) in accordance with Stage 7 of the Airspace Change Process (ACP) as described in document CAP 725.
- 1.2 To initiate this PIR, Civil Aviation Authority (CAA) Information Notice IN-2013/038 was issued to inform the aviation community affected by the Norwich CAS change that a review was imminent and to invite comments on how the change has been perceived since implementation. In addition to the submission and comments by NIA, responses were received from the General Aviation Alliance (GAA), the British Gliding Association (BGA), the British Hang Gliding and Paragliding Association (BHPA), the MoD and NATS' Operations Policy section.

### 2. Background

- 2.1 The airspace proposal was developed over a number of years in response to the closure of RAF Coltishall and its associated Military Air Traffic Zone (MATZ), when a combined Norwich/Coltishall ATC operation had provided some management of traffic in the vicinity and therefore a degree of protection to Norwich arrivals and departures. The controlled airspace development evolved from the original proposal to reflect the concerns of local airspace users gleaned through consultation and the final design was seen as a balance between the need to contain and protect commercial passenger operations arriving at and departing from Norwich, whilst continuing to facilitate access to other airspace users to the maximum extent possible.

### 3. Key Objectives

- 3.1 The proposal introduced a CAS structure based on a Control Zone (CTR) and Control Area (CTA) for the protection of aircraft in the instrument approach and initial departure phases of flight. This included fixed and rotary wing instrument flight rules arrivals and departures and instrument training traffic. The CTR/CTA has an ICAO D Classification (Class D), thereby not technically constraining access to any user except those that are not radio equipped; although NIA have made it clear they would try to accommodate non-radio equipped aircraft through prior arrangement with ATC.

## **4. Air Traffic Management Requirements**

### 4.1 Training

4.1.1 In order to prepare controllers for the airspace change, a training package was written in-house for Norwich validated controllers. The package was approved by the then SRG and then delivered. The format of the training package was as follows:

- A Training Handbook was written and issued to all controllers. The purpose of the Handbook was for staff to pre-study Class D procedures and to retain the document as a reference guide.
- All controllers completed a Ground School Package. The purpose of Ground School was to prepare controllers for the practical training element, to enable staff to discuss procedures in more detail, and to answer any queries from the Training Handbook.
- A new radar simulator was procured and practical training exercises were written and delivered to all radar controllers. Practical training for Aerodrome and Approach rated controllers took the form of scenario based tabletop exercises; SRG visited and observed some of the training delivery.
- Upon completion of practical training, all controllers had to successfully complete an Oral Board which was conducted by a Unit Assessor and the process was then checked by a Unit Verifier.

### 4.2 Staffing

4.2.1 The unit's controller establishment was increased to 15 ATCOs to ensure that Radar could be double manned during the transition period and henceforth during core hours, thus ensuring the new airspace arrangements could be properly serviced. Two new ATCOs had to be recruited and trained to satisfy this requirement.

### 4.3 Liaison

4.3.1 To ensure that based operators and the local flying community were aware of the implications of the airspace change, a series of presentations was arranged. This also gave the opportunity for ATC to brief pilots on Class D procedures and to help address concerns caused by the establishment of the airspace. The main presentation was conducted at the Airport and attended by over 60 persons. Further presentations were given to the local GA community at Old Buckenham, Seething, Tibenham, Felthorpe and Crowfield airfields. In addition, NIA held eight 'Visit ATC' fly-ins where landing fees were waived and GA pilots had the opportunity to tour ATC. These fly-ins were well attended and similar events are continuing. NIA hosted a GASCo Safety evening in November 2013, and a fly-in by members of the IMC club in December 2013 was well received by those participating.

### 4.4 Documentation

4.4.1 The Norwich CTR/CTA was published in the UK AIP and on associated aeronautical charts as part of the 8 March 2013 AIRAC publication cycle. Furthermore, the new Visual Reporting Points (VRPs) were photographed and incorporated into a pilot's guide to Class D procedures which is posted on the NIA website.

## 5. Military Air Traffic Management Requirements

### 5.1 RAF Lakenheath

5.1.1 There are occasions when aircraft under the control of RAF Lakenheath require transit of the Norwich CTR/CTA. A Letter of Agreement (LoA) was drawn up between NIA and RAF Lakenheath whereby an IFR procedural clearance could be issued by Norwich ATC to RAF Lakenheath for onward relay to the pilot. The clearance provided satisfies the requirements of Class D airspace. The LoA is used routinely and works well.

### 5.2 Swanton Box

5.2.1 The Swanton Box was established to mitigate some of the impact of the Norwich CTA on MoD activity, and a LoA for the Swanton Box was signed with RAF Marham. Under an airspace sharing arrangement, the MoD has right of access to the western portion of the Norwich CTA, when Runway 27 is in use. The intent was to provide access for aircraft conducting general handling activity in the vicinity of Swanton Morley airfield. The MoD recognises that the Swanton Box has not been used frequently and their perception is that the LoA is not effective as it is too complex in its current form. Indeed, the Swanton Box has only been activated once for a military exercise and a further twelve times for transits by an aircraft inbound to RAF Marham. Thus, the Swanton Box has had little impact on Norwich operations or flight paths although the MoD believes that the Swanton Box is still required, albeit that the procedures would benefit, in their opinion, from a revised LoA.

## 6. Areas of Contention

### 6.1 Safety

#### 6.1.1 Comments from the GAA/BHPA:

- One pilot considered that the establishment of the Norwich airspace had improved safety because as a frequent user of Norwich he was now operating in a known traffic environment.
- The winch towing operation at Great Fransham located between Norwich CAS and Marham commented upon a significant increase in traffic passing over and around their operations. The operation stated that *“More aircraft in the same volume of airspace can only increase the risk of collision”*, however no evidence was provided to support this statement and NIA has seen no evidence of increased traffic in this area from live radar or radar recordings.
- One pilot considered that safety had been reduced by preventing his use of Norwich Airport in IMC. His comment was: *“as an IMC pilot, I can no longer recover to Norwich on instruments, due to the SVFR limit. This severely limits my safety options and would force a diversion to Cambridge under IMC. For me, then, it’s got worse with respect to safety.”* (Without further clarification, in the case of this comment it is not clear which particular rules the pilot was referring to although it should be noted that the privilege’s of the IMC Rating permit instrument approaches in Class D airspace to the appropriate minima.)

#### 6.1.2 Comments from the BGA:

- *“A simple perusal of Norwich arrival and departure boards confirms that commercial flights are few, and flight tracking information suggests that the*

*design of the CAS owes more to rigid design procedures than proportionate mitigation of actual risk to traffic”.*

- *The BGA is also concerned about the existence of 10nm DME arc procedures with height minima of 2000ft'. "With east winds the use of this procedure would, on the south side of Norwich, route heavy traffic at low level outside CAS just 3nm upwind of a busy gliding site. In itself this seems unwise; however now that traffic deliberately avoiding the class D is squeezed into that very area it appears doubly so. Regardless of the outcome of this review the BGA would recommend withdrawal of such procedures”.*

#### 6.1.3 Comments from NIA:

- *“The Norwich IFPs have not changed as a result of the establishment of CAS. Thus, the 10nm DME procedures have been in place for many years. These procedures are usually used outside of published hours when radar is not available; it is unlikely that there would be gliding activity at these times. Aircraft using these procedures during published hours would be receiving a radar service from Norwich and ATSOCAS would be applied to conflicting traffic”.*
- *“The perception that the establishment of CAS has created choke points is based on assumption not evidence; we have seen no marked increase in traffic in any area caused by traffic avoiding CAS”.*

#### 6.2 Avoiding the Norwich CTR/CTA

6.2.1 There has been some debate within GA organizations and on sites such as ‘Flyer’ magazine Forum regarding the merits or otherwise of seeking a clearance through the Norwich CTR/CTA. The GAA response to the PIR states that some radio equipped powered traffic may choose to avoid the airspace and route around it to save any potential for refusal; however pilots who did request a service reported that ATC were always helpful. Indeed the less experienced pilots that responded to the GAA said that they were assisted by the ATC staff and had now grown more confident in using the radio and calling for transits.

#### 6.2.2 Comment from the MoD:

*“The military is impacted by the Norwich CAS as aircraft are now routinely planning to route around the airspace with increased fuel and time in order to guarantee time on targets/into operating areas; that said, there have been no reports of access being denied when requested. The airspace does restrict extended pattern approaches to RAF Marham Runway 24 (a requirement for some Tornado approaches, particularly single engine). The Swanton Box is still required although it is recognised that the current procedures are not efficient and require review.”*

#### 6.2.3 Comment from NIA:

*“NIA tactically clear these aircraft through the airspace by using the Swanton Box. NIA have offered to review the LoA with Marham to reflect the arrangement with Lakenheath.”*

#### 6.3 Non-radio Aircraft

##### 6.3.1 Comment from the GAA/BHPA:

*“All non-radio traffic has had to plan to route round the airspace as access is impossible. Two hang gliding/paragliding clubs attempted to negotiate some access to the CAS but were rebuffed. BHPA believes that Norwich has failed to provide access to non-radio traffic when it could have done so”.*

### 6.3.2 Comment from NIA:

NIA has stated that they would try to accommodate non-radio equipped aircraft through prior arrangement with ATC. The LoAs with Felthorpe and Horsford also make provision for non-radio equipped aircraft and radio failure. However, despite its stated intention, NIA feels the need to respond to the GAA/BHPA comment in para 6.3.1 above and they have therefore made the following statement in relation to this issue: *“NIA were approached by the Suffolk Coastal Floaters based at Mendlesham who wanted access to the western portion of the CTA. They proposed that they telephone for clearance prior to launching from their site approximately 30nm south of the Airport. NIA would have had to cede them the airspace for a suitable window from its upper to lower limits on the off chance that, if the wind was favourable, they might reach the CTA some hours later. Also, the approval could not be rescinded as they would have no comms. This was obviously unacceptable to NIA – unfortunately a compromise could not be reached that was agreeable to all parties”*. Regarding access to non-radio traffic, NIA also wishes to point out that at no point since inception of the airspace has the airport been approached to allow non-radio access; the airport management remains amenable to meeting with operators of non-radio aircraft to discuss their access requirements.

## 6.4 Soaring Gliders

### 6.4.1 Comment from the GAA:

*“Soaring aircraft typically cannot afford to be given no clearance, or one that would terminate the flight early and so even if radio equipped and licensed will tend to plan to go round CAS”*.

### 6.4.2 Comment from NIA:

Meetings were held as part of the ACP but NIA concluded that an LoA with the groups for soaring gliders was not practicable and documented this as part of the ACP.

### 6.4.3 Comment from the BGA:

*“The vast majority of glider pilots choose to stay clear of CAS. The workload, risk of refusal and distraction from the essential skills of lookout and soaring make that inevitable. There is therefore no data on refusal of glider entry to the CAS to be registered here; simply a statement that gliding has been effectively banned from using a large and important area of great soaring potential”*.

## 6.5 Balloons

### 6.5.1 Comment from the GAA:

*“Balloon pilots have found the established airspace restrictive because the requirements for VFR flight visibility have increased from 3km VFR outside CAS to 5km VFR within CAS. Balloons often fly in early morning when the visibility, due to haze, can be between 3km and 5km. The increased minimum has meant that some take-offs are delayed waiting for increased visibility by which time wind conditions can have changed and prevented the flight”*.

### 6.5.2 Comment from NIA:

*“The problem is that balloons are not addressed specifically under the Visual Flight Rules. NIA has an LoA with Richard Nash of BBAC and he has been advised to take up this issue with the CAA”*.

## 6.6 Size and Class of Norwich CAS in relation to Norwich's Commercial Traffic Figures

### 6.6.1 Comment from the GAA/BHPA:

A responding pilot considered that the level of traffic activity in the general area, Norfolk, was considerably less than in previous years and he felt that the size of the CAS was disproportionate to the activity. *“Fixed and rotary wing activity at Norwich has reduced in the last five years by 25% (21,000 to 16,000). A basis for the establishment of the Norwich CAS was an expected significant increase in commercial activity and the need for that increased activity to be efficiently operated for the benefit of the increased passenger numbers. At the time that the ACP was initiated, April 2009, the forecast was for growth between 2009 and 2012 of 38% (21,000 to 29,000 movements) with passenger numbers increasing 66% (550,000 to 912,000). It appears that the planned increase has not happened and this must call into question the need for the airspace granted as a result of that application”.*

### 6.6.2 Comment from the BGA:

*“The BGA had understood the original ACP to be primarily an attempt to mitigate potential military and commercial conflicts and saw the creation of such a large volume of CAS as a very blunt instrument to deal with that specific concern”.*

### 6.6.3 Comment from NIA:

*“The issue of the number of movements was addressed as part of the ACP with revised lower numbers submitted; (see ACP para 2.2.5.) It is not about numbers in isolation, it is about the threat to the travelling public. The ACP put the travelling passenger at the centre, in alignment with CAA policy. The proposal for the establishment of CAS was made on safety, not commercial grounds. However, it is conceded that commercial activity has not been in line with original forecasts. Activity has reduced across the aviation industry over the last five years, not just at NIA. However, both passenger numbers and aircraft movements at NIA have grown annually over the last three years and are forecast to continue to grow, albeit at a slower rate than original forecasts. The revised growth forecast is more to do with the national economy than local issues. Whilst the establishment of Class D airspace was the only option available to NIA at the time of the ACP, NIA believes that an RMZ would not provide the appropriate level of protection to IFR traffic using the airport”.*

### 6.6.4 Comment from the GAA:

*“It is noted that the design of the airspace does not appear to be operating as intended because a part of it is unused. An accepted recommendation of the 21st Century Class G work was that: ‘CAS and other measures should only be established where there is a demonstrated need for such airspace....’ However, part of the Norwich CTA appears not to be needed for any procedure. The area chart depicts a CTA extension to the south-east between 2500ft and FL50 and at first sight this appears to be designed to contain the LOC/DME 27 alternative procedures for Cat C & D aircraft. We do not think that Cat C & D aircraft use Norwich and if they did they are unlikely to need an alternative procedure when the primary procedure and all holds are drawn north of the centre line. However, we note that the LOC/DME 27 alternative procedures all commence at the NWI at altitude 2000ft. So the alternative procedure does not use that airspace which is established at 2500ft and above. It might have been established as protection for a hold but all the holds are north of the 09/27 centreline so that does not appear to be its purpose either. If this element of the airspace is indeed not necessary to meet*

*the purpose of the airspace perhaps it could be removed in accordance with the 21st Century Class G policy and CAP 725”.*

6.6.5 Comment from NIA:

*“The Norwich CAS was designed around the IFPs and PANS OPS requirements to provide containment in both a radar and non-radar environment. The airspace was then modified during consultation to make it as small as possible”.* Norwich also points out that Cat C and D aircraft do utilise the airport on a regular basis, as evidenced in their regular scheduled movements.

From the NIA CAS proposal:

4.8.1 CTA-2, with a lower limit of 2500ft amsl extending vertically to 6000ft amsl, adjoins the south-easterly boundary of CTA-1. Design of this segment has arisen from changes made to the originally proposed CTA configuration following consultation and post-consultation review.

4.8.2 CTA-2 provides holding area containment for Sector 2 entry into the terminal holding pattern at levels from 3000ft ALT to the upper limit of the CTA. Containment of Sector 2 entry is considered essential when holding is taking place as one of the primary arrival traffic flows would be from the south-west (BKY VOR). The “external” boundary of CTA-2 is tangential on each side to the holding entry area lobe. NIA’s recorded use of the hold shows that in the twelve months since CAS implementation, the hold has been used 84 times; however records were not kept of how the aircraft joined the hold. NIA provides a radar service for its promulgated opening hours but in the event of an aircraft movement that requires an extension to operating hours, radar services are not always available. There were 110 extensions in 2012 and 118 in 2013. A significant number of these movements would have been from the north west for RW 27 and thus would fly the alternate procedure without the use of radar. Similarly, a proportion of the movements would have joined from the southwest.

4.8.3 Additionally, CTA-2 provides a small measure of additional protection for departing traffic routing south-eastwards towards BANEM once leaving the CTR, and for arriving traffic from the south-west (BKY VOR) and south which is manoeuvring towards the RNAV southerly IAWP.

4.8.4 The base level of 2500ft amsl applied to this segment provides improved flexibility for GA operators who might choose to remain outside controlled airspace. There may be some environmental benefit (i.e. potential for reduced noise), to be derived from the additional 1000ft made available as Class G airspace, although the area is sparsely populated.

6.6.6 Comment from the BHPA:

*“The BHPA believes that Class D is unnecessary and that the extent of the Class D airspace is excessive for the current and foreseeable level of operations at Norwich”.*

6.6.7 Comment from the MoD:

*“It appears that this airspace has not reached the number of movements that was intended and the MoD asks whether the CAA intends to review the airspace to see if it is still appropriate given the impact on other airspace users. The MoD also requests Norwich’s actual traffic figures in view of the annual downturn and asks whether or not the figures meet the intent for which*

*the CAA originally agreed this airspace. The MoD believes that the airspace appears overly large for the number of large aircraft using it and military aircrew consider the airspace as a hindrance and a reduction to the overland general handling area available to them”.*

## 6.7 A Radio Mandatory Zone instead of CAS?

### 6.7.1 Comment from the GAA:

*“Although it was not an option at the time of the Norwich application, taking into account the current movement data for Norwich, it is suggested that a Radio Mandatory Zone (RMZ) of a more suitable size might be a simpler and more appropriate solution to the requirements of airports such as Norwich than the establishment of CAS”.*

### 6.7.2 Comment from the BGA:

*“The BGA is forced to the conclusion that, had the option been available at the time, a suitably sized RMZ would have permitted a more proportionate solution to the issues raised in the original ACP without the unintended consequence of effectively excluding others from a large volume of airspace which sees low densities of commercial air traffic. The BGA suggests that as soon as the option becomes available, a small tailored RMZ is used instead of today's large footprint Class D”.*

### 6.7.3 Comment from NIA:

*“NIA averages over one hundred aircraft movements a day and has been proactive in allowing access to the airspace by as many users as possible. Additionally, as the only aircraft that can be legitimately excluded from class D airspace are non-radio aircraft, NIA believes that an RMZ would not make any difference. Regardless of classification, the airspace has been designed to encompass the published IFPs. An RMZ of smaller dimensions would not serve this purpose”.*

## **7. Environmental Effects**

### 7.1 IFR Departures

7.1.1 Norwich Airport does not have published SIDs. Thus, there has been no change to departure profiles due to the establishment of CAS.

### 7.2 IFR Arrivals

7.2.1 The Norwich IAPs were changed in 2008 and designed around the NWI NDB situated on the airfield following the demise of the NH NDB which was situated around 4nm east of the airfield. No changes were required to these procedures due to the establishment of CAS.

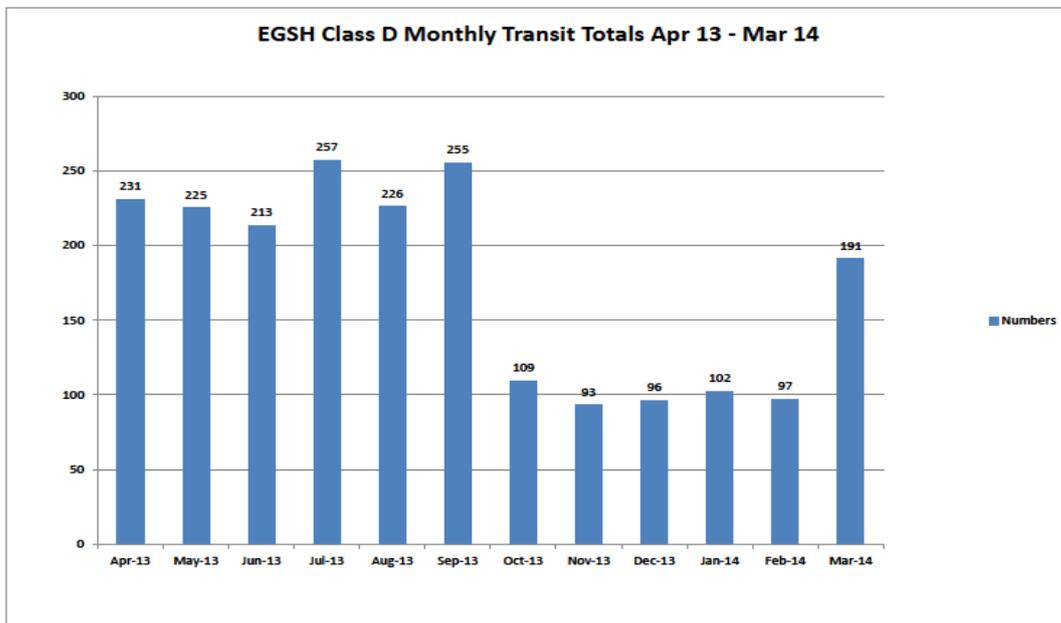
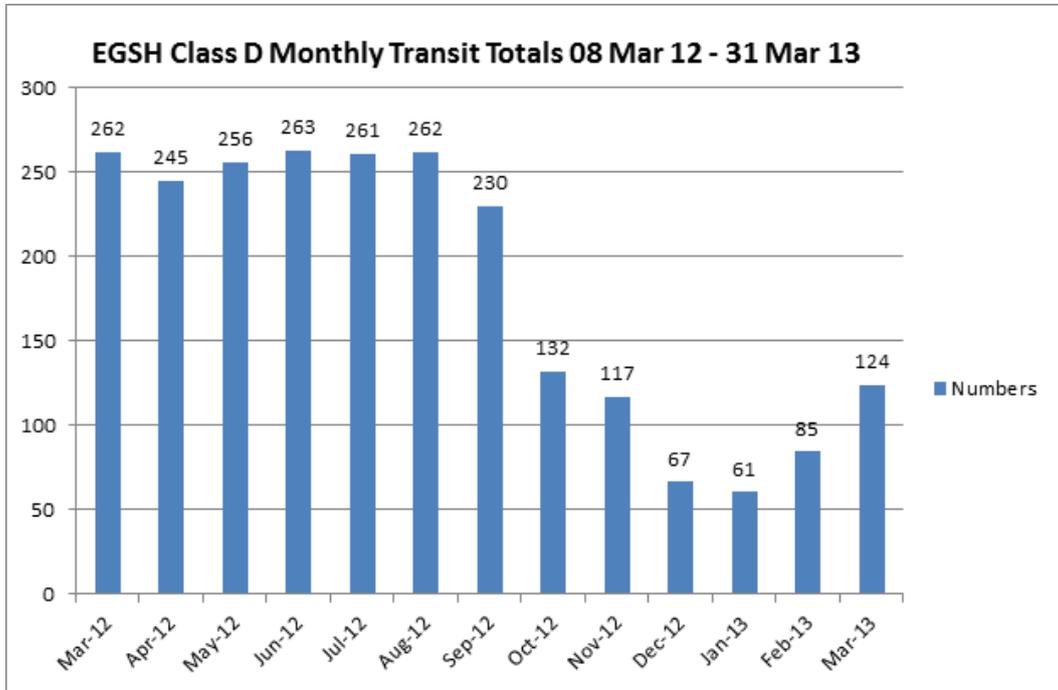
### 7.3 VFR Traffic

7.3.1 Norwich ATC procedures are designed to allow VFR aircraft the flexibility they require. As part of the CAS Implementation Plan, VFR procedures were reviewed and it was decided that no changes to current operations were required. VRPs were established for the convenience of the pilot. Whilst transits are occasionally instructed to route via VRPs, aircraft using the airfield are usually allowed to depart and return as they did before the introduction of CAS.

## 8. Effectiveness of Change

### 8.1 CAS Transits

8.1.1 There were 2365 transits of the Norwich CAS over the thirteen months between inception and 31 March 2013 and a further 2095 transits between April 2013 and March 2014. These are broken down by month in the following tables:



Norwich CAS Transits

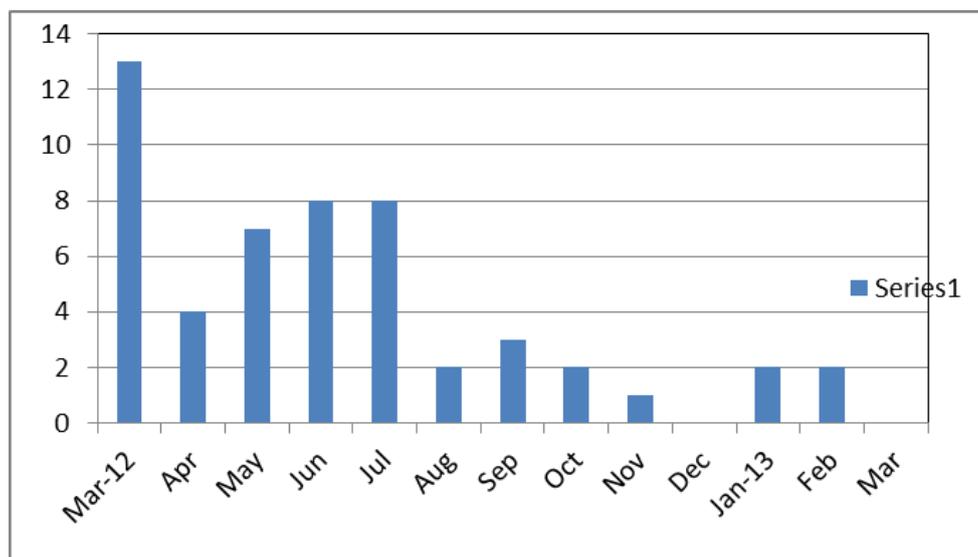
## 8.2 Refusal of Entry into CAS

8.2.1 To date there have been no refusals of entry into the Norwich CTR/CTA; this is confirmed both by NIA and through responses of GA pilots to the GAA. However, there have been three occasions where the controller has been unable to issue a clearance to enter CAS. A synopsis of these instances is as follows:

- Less than three weeks after the airspace was established, an aircraft called for VFR crossing clearance routing from Weybourne to Rochester. The trainee controller was very busy at the time, (although this would not have been apparent just by reference to the RT), and did not get back to the pilot, so the pilot elected to route around CAS. The pilot then wrote to the DAP and to AOPA to complain about what he perceived as mismanagement of the airspace. His letter was published in the June 2012 edition of General Aviation. The incident was investigated by NIA and a response to the article was sent to AOPA, which was duly published. This incident was also reported in the PIR response from the GAA.
- A military AH 64 operating at low level called for a VFR crossing clearance at night. The controller was unable to issue a VFR clearance as it was night (before the regulation change). The controller was also unable to issue an IFR clearance as the aircraft was below the safety altitude, or a Special VFR clearance due to other IFR traffic already in CAS. Thus, the aircraft routed around the CTR and under the CTA.
- A non-squawking C150 called for a VFR crossing clearance. The controller was unable to identify the aircraft as it was not painting on primary radar. Furthermore, the aircraft had very poor RT and was barely readable. As there were four IFR aircraft being vectored inbound for the ILS with another in the hold, the controller did not feel comfortable offering a crossing clearance to an unknown aircraft with poor RT.

## 8.3 Norwich CAS Infringements

8.3.1 In the 12 months since inception, there have been 52 CAS infringements. As can be seen from the table below, there were 13 infringements in the first month, which reduced to around 7 or 8 a month and then tailed off through the autumn with the natural reduction in GA traffic and also as the community got used to the existence of the airspace.



Norwich CAS Infringements

Norwich Airport has taken a fairly relaxed approach to minor CAS infringements as the policy has been to educate rather than chastise. So far, there have been relatively few significant infringements; most have just strayed over the line. Infringements are treated on a case by case basis and formally reported if appropriate.

## **9. Other Benefits**

Other than those already recorded, no other specific benefits have been identified as a result of the introduction of Norwich CAS.

## **10. Operational Impact**

10.1 As well as LoAs with RAF Marham and RAF Lakenheath, additional LoAs were agreed to ensure appropriate airspace sharing arrangements were in place following the establishment of the Norwich CTR/CTA. All LoAs were reviewed after 6 and 12 months with the signatories and refined as required.

- British Balloon and Airship Club - Members of the British Balloon and Airship Club operate from 3 sites within the Norwich CTR. Under the LoA, pilots obtain a clearance to enter the Norwich CTR by telephone prior to launch. The procedure works very well and there have been no issues reported by either party.
- East Anglia Air Ambulance - The East Anglia Air Ambulance is based at Norwich Airport. However, it often lands at the Norfolk and Norwich Hospital which is situated within the Norwich CTR. On departure from the hospital, the helicopter has a standing agreement VFR clearance to enter the Norwich CTR not above 500 feet until in 2 way contact with Norwich ATC. This procedure works very well and no issues have been reported by either party.
- Felthorpe - The airfield at Felthorpe lies within the Norwich CTR. Under an LoA, a VFR corridor was established to allow aircraft to operate at Felthorpe with minimum disruption from the establishment of CAS. The procedure was introduced at the inception of CAS and then refined 12 months later. The LoA also contains procedures for non-radio equipped aircraft to operate out of Felthorpe. The procedures work very well and satisfy the requirements of all parties.
- Horsford - There is a private strip at Horsford which lies within the Norwich CTR. An LoA has been agreed with the owner along the same lines as the procedures for Felthorpe. Again, the procedures work well and the owner is happy to continue with the arrangement.
- North Denes - The 09 NDB(L) procedure at North Denes penetrates the Norwich CTA. After much negotiation, an LoA was eventually agreed that allows North Denes access to the Norwich CTA under a standing agreement where Norwich sequence around the North Denes traffic. The procedure has been used several times since inception and has worked well with no delay to North Denes traffic and only minimal delay to Norwich traffic.
- Thorpe Kite Flyers - Permission has been granted for kites operated by members of the Thorpe Kite Flyers Group to enter the Norwich CTR from their notified site subject to certain conditions. The procedure has minimal impact on Norwich operations and there is no reason for it to be withdrawn.
- Model Aircraft - Permission has been granted for small unmanned aircraft operated by members of various model aircraft clubs to enter the Norwich CTR in the vicinity of their notified launch site. The procedure has no impact on Norwich operations and there is no reason for permission to be withdrawn.

## 11. Airspace Change Process Issues & CAA Recommendations for Refinement

### 11.1 Access to CAS for Radio Equipped Aircraft

11.1.1 Whilst NIA has made every effort to provide access to all radio equipped traffic, there remains a degree of scepticism amongst some pilots whom it seems would choose to avoid Norwich CAS altogether rather than even making a request for transit for fear of refusal. It is recommended that NIA continues with its programme of liaising with pilots of radio equipped aircraft in the area to encourage them to request transit of the airspace rather than for this traffic to utilise extended routeings unnecessarily, thereby concentrating traffic at the boundaries of the CTR/CTA. This liaising should extend to glider pilots wishing to transit the airspace, as it may be possible to permit transit within an increased vertical parameter on occasions. Whilst providing gliders with transit of CAS when possible, it is recognised that options for glider soaring are likely to be very limited, if not impossible, when there is other IFR traffic imminent.

### 11.2 Access to CAS for Non-radio Aircraft

11.2.1 Whilst Class D CAS does not routinely permit the presence of non-radio traffic, there may be some opportunities for the pilots of non-radio aircraft to access the airspace under prescribed circumstances. Part of the access issue appears to be a lack of understanding amongst the operators of non-radio traffic of the problems associated with permitting such traffic inside CAS and on the restrictions this puts on the ANSP involved in relation to separation from other traffic. The CAA encourages non-radio aircraft operators to approach Norwich to arrange access to CAS, as the Air Traffic Control unit there has consistently indicated a willingness to facilitate this where possible.

### 11.3 Swanton Box

11.3.1 The Swanton Box LoA has had little impact on Norwich operations, however, the MoD believes that a more appropriate airspace sharing solution might be possible and if so it should approach NIA with suitable proposals for discussion. Options include, but are not limited to:

- The suggestion by NIA for an agreement similar to the LoA with RAF Lakenheath, where aircraft are given an IFR procedural clearance through CAS, thereby guaranteeing separation.
- Whilst the MoD believes that it is essential that the Swanton Box remains in place, it also believes that the current agreement is not simple enough for the crews to operate owing to the requirement to monitor a Norwich frequency. The MoD would appreciate the removal of the requirement for frequency monitoring by NIA and placing the monitoring requirement onto Marham with NIA having a 30 minute clawback should the airspace be required for commercial traffic. However, it should be noted that the frequency monitoring requirement was suggested by DAP at the time to avoid a potential conflict problem between a go-around from Runway 27 at NIA and traffic in the Swanton Box; a 30 minute clawback arrangement would not resolve this issue. If subsequent evidence now shows that this requirement is no longer necessary, it would be up to the MoD to present an alternative plan for how best to resolve this issue.
- Even if better options for managing this piece of airspace are identified, it should still be noted that Class D training for MoD controllers would become an issue if the MoD and Norwich were going to share the same airspace at the same time and would therefore need to operate to the same rules.

#### 11.4 Use of the NWI Hold

- 11.4.1 The alternate procedure for Runway 27 is used extensively as most of NIA's fixed wing traffic is from the north. By using the alternate procedure, the traffic can go straight to the outbound leg from the hold without having to enter the hold. Also, most of Norwich's procedural work is done out of hours when radar is not available, therefore replacing this airspace with radar monitoring is not an option.
- 11.4.2 NIA states that when the QNH is low, only one level is currently available for holding within CAS whilst still allowing departures. The original airspace request was for up to altitude 6000 feet, but only CAS up to FL50 was approved. NIA recognises that the low pressure issue combined with the requirement for two holding levels inside CAS does not occur often enough to request the top level be raised to meet the original CAS submission, although the Transition Altitude (TA) raised to at least 5000ft above Norwich CAS would resolve this issue from a Norwich perspective.
- 11.4.3 In contrast to the NIA perspective, the CAA believes that the occasional use of a second holding level of FL40 does not justify the extra Class D CAS implemented for the protection of traffic holding at this level. Therefore, following the discussion of options with NIA, it is agreed that the TA above Norwich CAS will be raised from 3000ft to 5000ft, whilst at the same time the upper level of the Norwich CTR and CTA will be lowered from FL50 to 4000ft. This will be considered as a temporary withdrawal and the revised airspace must be in place for a minimum of twelve months before any further changes can be made. It should be noted that the CAA is developing guidelines for the 'Release of Controlled & Segregated Airspace' (RCSA) however this document has not yet been finalised as CAA policy.
- 11.4.4 The decision to temporarily withdraw this CAS will be reviewed by the CAA after a twelve month period and the withdrawal will be made permanent after two years unless NIA has requested reinstatement of the CAS in the meantime. Additionally, raising the TA to 5000ft will make the holding levels more predictable in the eventuality that NIA requests reinstatement of this CAS ahead of the national project to raise the TA to 18,000ft.
- 11.4.5 NIA may request reinstatement of the CAS if they are able to demonstrate to the CAA that an increase in traffic levels justifies the requirement for two holding levels. SARG AR would need to agree with NIA that they have reached a stage of routine and sustained use of their orbital hold, leading to aircraft not being adequately protected and/or leading to unacceptable rerouting of departing traffic. This reinstatement would be based on a top level of 5000ft QNH and the relevant parts of the original ACP would be the basis of any consultation process. Should agreement be reached to reinstate the CAS, AR will put in place a timely and proportionate documented process for NIA to reflect this agreement and to ensure that reversion is protected. Other conditions of the RCSA process are captured in the 'Release of Controlled & Segregated Airspace' policy statement (23 Aug 2010).

#### 11.5 Use of an RMZ or TMZ

- 11.5.1 Instead of Class D airspace, the implementation of an RMZ in a Class E airspace environment could be seen as a viable option if a lack of access to radio equipped VFR traffic was a problem. However, as highlighted in this report, this has not proved to be the case. An RMZ would not resolve any perceived lack of access issues raised by non-radio aircraft and an RMZ in a Class G environment would not offer the same protection to IFR traffic that Class D airspace provides. A TMZ would provide NIA with even fewer options to protect its IFR traffic than might be possible with an RMZ.

A TMZ would mean that NIA would not have the option of requesting traffic to manoeuvre clear of IFR traffic and in fact it would not even be possible to check an aircraft's intentions unless the traffic also chose to be in radio contact with NIA.

## 11.6 Changing the CTA from Class D to Class E

11.6.1 Changing the Norwich CTA to Class E whilst retaining the Class D CTR would create a potentially confusing environment where different sets of rules apply to aircraft transiting the airspace. This would make the airspace unnecessarily complicated with no obvious benefit, especially if the CTA was also notified as a TMZ/RMZ. Through the CTA there would be no ability to control VFR traffic and only the ability to request a change of routing or level for traffic in radio contact, but without any guarantee of compliance. This would not apply to the CTR where traffic would remain under full control of NIA. Additionally, the Norwich CAS has been established for several years now and a change at this stage is also likely to create confusion and lead to infringements.

## 12. Conclusions

### 12.1 NIA Conclusions

12.1.1 NIA applied for CAS during 2011 and implemented in 2012. NIA total aircraft movements and passenger numbers since 2010 are:

Year	Movements	Passengers
2010	36,423	426,118
2011	39,179	428,369
2012	40,357	430,645
2013	41,436	466,475
2014	40,960	466,016

From an NIA perspective, the introduction of controlled airspace in the vicinity of Norwich has been a success as it has enhanced safety in the vicinity of the airport. The airport recruited more staff, developed a comprehensive training package and embarked on a comprehensive campaign to involve other airspace users. The airport operator states that it firmly believes in the shared airspace concept and that it has maintained this ethos throughout all aspects of the management of the airspace.

### 12.2 Stakeholder Conclusions

12.2.1 The responses collected by the GAA indicate that overall, in practice airspace users are being allowed access to the Norwich CAS by RT request and have little criticism of the day-to-day operations. However, the perception of the GAA/BHPA is that Norwich has effectively rebuffed attempts to gain non-radio access. The BGA believes that the implementation of CAS at Norwich has effectively excluded gliders from a large and important area of great soaring potential. Also, the MoD and some elements of the GA community feel that the reduction in movements at Norwich between the time of application and the present day calls into question the validity of the original application and the need for the established CAS to remain in force.

12.2.2 There have also been requests for the introduction of an RMZ option to be considered for Norwich. The perception of some elements of the GA community is that this could offer proportionate protection to a carefully designed critical area thereby avoiding the need for the current volume of CAS. The perception is also that much of the airspace is designed to serve procedures which are rarely if ever used.

## 12.3 Regulatory Conclusions

- 12.3.1 The CAA is satisfied that implementation of CAS at Norwich has generally been beneficial in terms of meeting the key objectives of protecting aircraft in the instrument approach and initial departure phases of flight, whilst not disproportionately constraining access to other airspace users, except those that are not radio equipped. Indeed there have been no safety related events since the inception of the CAS associated with itinerant traffic and NIA in/outbound IFR traffic. SARG (Airspace Regulation) confirms that NIA has been proactive and co-operative, both in its approach to managing its airspace and in its engagement with the CAA. Protecting the travelling public and placing the needs of the passenger at the centre of any proposal is also in line with CAA policy. Although traffic levels have not matched predicted figures at the time of the CAS application, they have nonetheless increased every year since the industry-wide drop in 2008.
- 12.3.2 The traffic mix rather than overall traffic numbers, and a number of safety incidents were the main drivers behind the original approval of CAS and the fact that NIA has been proactive in making every effort to allow access to motorised, radio equipped aircraft since CAS implementation also greatly mitigates against those GA pilots who choose not to request a transit of the airspace for fear of a refusal. There have been no AIRPROXs reported in the Norwich CTR/CTA since implementation although there have been two in Class G airspace in the vicinity of Norwich.
- 12.3.3 There is also scope for the MoD to liaise more closely with Norwich with a view to providing more reliable routes for fuel critical military traffic wishing to traverse Norwich CAS. This is particularly relevant in relation to traffic operating to and from nearby bases such as Marham and Lakenheath where many of the transit routes are likely to be regular and predictable.
- 12.3.4 The CAA encourages non-radio aircraft operators to approach Norwich to arrange access to CAS, as the Air Traffic Control unit there has consistently indicated a willingness to facilitate this where possible.
- 12.3.5 The NWI hold is currently underutilised at FL40. Therefore, with effect from 17 September 2015 at AIRAC 10/2015, the TA above Norwich CAS will be raised from 3000ft to 5000ft whilst at the same time the upper level of the Norwich CTR and CTA will be lowered from FL50 to 4000ft under a temporary withdrawal process. This process allows for NIA to request reinstatement of the CAS within two years if they are able to demonstrate to the CAA that an increase in traffic justifies the requirement for two holding levels.
- 12.3.6 It is likely that the implementation of the Norwich CTR/CTA has improved overall safety for traffic operating within CAS although this is likely to have negatively affected the efficiency of some flights in the area, notably non-radio traffic and soaring gliders which now avoid the area. Although the increased visibility requirements within CAS may also restrict the ability of balloon flights to operate in the area, this can also be seen as appropriate to the classification of the airspace when IFR flights are being conducted.
- 12.3.7 Provided NIA continues to liaise with the local GA community in the way it has done to date and in the manner suggested, this should help to mitigate the impact of Norwich CAS. Although an RMZ could theoretically be an option for Norwich, it would not provide Norwich ATC with the assurance they need for their arriving and departing traffic in the same manner that CAS does. This is because they would not have any

control over transiting VFR traffic which may choose to fly the most direct route, possibly adversely affecting the profiles of Norwich's arriving/departing traffic.

12.3.8 From an environmental perspective, the implementation of CAS around NIA has had minimal effect on traffic utilising the airport as arrival and departure routes have not been affected as a result of new CAS. Any change to the use of the airspace probably revolves around traffic which now routes around the new CAS rather than transiting across it, although figures for such traffic cannot be estimated. For suitable aircraft, further efforts by NIA to enable and encourage traffic to transit the airspace should help to alleviate this issue, although it is recognised that this will not be an option for all traffic.

12.3.9 Subject to the change in TA and the reduction in the size of the Norwich CTR/CTA as stated in paragraph 12.3.5, the overall regulatory conclusion is that the CAS around NIA is working adequately. There are still options for improvement as stated in paragraph 11 however, despite lower than predicted traffic figures, the procedures as implemented should continue subject to the recommended adjustments mentioned previously.

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