Exeter Airport Airspace Change Proposal

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Executive Summary

Overview

Exeter and Devon Airport Ltd (EDAL) has identified a requirement to adapt the existing airspace structure surrounding Exeter Airport to assist Air Traffic Control (ATC) in providing enhanced levels of information to aircraft operating in and out of the Airport and to aircraft operating in the local area. The proposed design is intended to complement the existing RNAV (GNSS) Instrument Flight Procedures (IFP) and provide an airspace structure that would support the provision of Air Traffic Services (ATS) to flight operations at the Airport whilst minimising the effects on other aviation stakeholders.

The Issue

The principle area of concern regarding current operations at Exeter is the limited protection currently afforded to Commercial Air Transport (CAT) aircraft by the current airspace arrangement. These aircraft include passenger-carrying airliners operating near the airport on arrival and departure.

Exeter Airport is located within Class G uncontrolled airspace, where aircraft are not subject to mandatory compliance with ATC instructions and are only required to adhere to a small set of compulsory flight rules. Aircraft can enter, leave and transit the airspace near the airport without Exeter ATC permission. Exeter has an Aerodrome Traffic Zone (ATZ) (Class G) that is the only regularised airspace established to provide a degree of protection to aircraft operating at the Airport.

Currently, commercial and passenger carrying aircraft operating in and out of Exeter require repeated ATC tactical intervention. This may include the re-routing of arriving aircraft or delaying the departure of CAT aircraft to ensure the correct separation standards are maintained. The majority of CAT aircraft arrive and depart via the N864 airway (Class A), oriented, north-south of Exeter. The practice of routing CAT aircraft outside of the en-route airspace structure prior to arrival at the destination, inevitably brings CAT aircraft into the same areas of operation as local General Aviation (GA) and transitory air traffic. This happens at the most critical stage of flight when on approach to the Airport. The rules regarding the provision of ATS to aircraft in Class G airspace are designed to minimise the risks to all aircraft. The ability of air traffic controllers to intervene with traffic avoidance instructions, given the rates of closure and climb/descent profiles, is limited. At this stage of flight aircraft also have limited manoeuvrability and therefore a limited response to Airborne Collision Avoidance System (ACAS) warnings. This difficult environment has led to reportable safety events between unknown aircraft and aircraft arriving and departing to/from Exeter. These incidents create a significant increase in workload for pilots and distract ATC from the task of ATS provision. Additionally, the arrival and departure phase of flight is a particularly busy time on the flight deck, when unexpected ATC interventions (often at very short notice) add significantly to pilot workload. While current operations are tolerably safe, a disproportionate amount of controller capacity is consumed ensuring this is the case. There have also been occasions where the prevalence of unknown traffic operating within the vicinity of the Airport could easily lead to a degradation of safety margins.

Proposed Solution

In accordance with CAA document CAP 725 [Reference 1], EDAL considered a number of alternatives to determine how best to meet the needs of the Airport and provide manageable effects on other aviation stakeholders. Options ranged from keeping the current airspace arrangement (i.e. doing nothing), through to changing the nature of the airspace surrounding the Airport by developing a Controlled Airspace (CAS) structure.

EDAL studied the options and concluded that, and except the preferred option of the development of a Class D CAS structure, the other alternatives were considered not viable in meeting the requirements of EDAL with regard to the provision of a greater level of integrity and efficiency to all local airspace users and the implementation of a known air traffic environment. Additionally, the introduction of an alternative CAS arrangement would mean that the routing of CAT and transitory aircraft would be more predictable and regularised. This in turn would reduce airspace traffic interactions and flight deck workload as well as reducing ATC workload.

The preliminary design concept considered a balance between the competing needs of all airspace users and the maintenance of safe flight operations. The design sought to determine an optimum airspace design that would minimise disruption to local aerodromes, GA activities and the regional operations of NATS and the MoD.

Consultation

NATMAC members plus selected additional aviation stakeholders were directly consulted on the proposal and a Consultation Document was published on the Exeter Airport website. A list of aviation stakeholder consultees is included at Annex A3. The purpose of the consultation was to gather aviation industry comment on the proposal. The comments received informed proposed re-designs of the CAS structure prior to this submission. The Consultation has generated a significant level of opposition from the GA community. The main concerns were as follows:

- The dimensions of the suggested CAS construct is disproportionate to the density of commercial activity at Exeter Airport.
- The DSGC believe that their club would be forced to close or re-position elsewhere to continue flight operations.
- The CAS design produces a funnelling effect as aircraft avoid CAS during transits.
- Limited access arrangements for local and transitory airspace users.

CAS Design

Following the closure of formal consultation, the airspace design was reviewed against the key issues raised in the responses. This analysis served as the basis for the finalised airspace design. Design changes considered by EDAL included the raising of base altitudes of the CTA's to facilitate the movement of aircraft beneath and in proximity to the CAS structure. The lateral extents of the finalised structure remained broadly similar to the consulted design. The volume of CAS is considered the minimum practicable necessary for the effective protection of the ATC operation as defined by an ATS provider and to support a safe and effective provision of ATS. EDAL considers the design is sufficient to safeguard IFP containment where appropriate and to provide a volume of CAS that supports the routine occurrences of vectoring multiple aircraft arrivals whilst sequencing with departing and transiting traffic.

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1 Introduction

1.1 Introduction

Exeter and Devon Airport Ltd (EDAL) plays a key part in the regional economy; therefore, it is essential that it continues to develop Exeter Airport to its full potential, while also respecting and supporting the needs of the local and transitory flight operations and aviation communities.

Despite continued economic pressures in Europe, EDAL reports that passenger numbers have increased by 20% between 2011/12 and 2016/17 with the introduction of new routes and EDAL anticipates that this will continue to increase in the coming years. EDAL considers that the increased volume of traffic (projected 3% year on year growth to the end of this decade) warrants a greater level of protection for procedures from now and into the future. The improved protection will facilitate an additional layer of safety and improve the effective and efficient management of local air traffic.

Exeter considered various options to improve protection whilst causing minimal disruption to aviation stakeholders. It was assessed that Class D Controlled Airspace (CAS) around the existing Exeter Airport Aerodrome Traffic Zone (ATZ) was the best alternative to affect the necessary change to safety levels and efficiency.

The proposed concept of operations relies upon Exeter ATC providing GA pilots with regular, timely and consistent access to the airspace upon request. EDAL is committed to ensuring that the essential requirements of introducing the proposed airspace design are met or exceeded. This means that fair and equitable access to local airspace by non-Exeter Airport users will be provided whenever operationally possible.

1.2 Exeter Airport Airspace Change Proposal

EDAL has identified a requirement to adapt the existing airspace structure surrounding the Airport to assist Air Traffic Control (ATC) in providing enhanced levels of information to aircraft operating in and out of Exeter Airport and to aircraft operating in the local area. The proposed design is intended to complement the existing RNAV (GNSS) Instrument Flight Procedures (IFP) at the Airport whilst minimising the effects on other aviation stakeholders.

Exeter has instructed Osprey Consulting Services Ltd (Osprey) to manage the Airspace Change Proposal (ACP) process and submission. It is expected that the ACP will introduce an airspace structure that will:

- Safeguard routinely utilised IFR flight operations at Exeter Airport.
- Ensure safe separation between the IFR traffic and promote proactive coordination of VFR traffic operating near the Airport.
- Protect aircraft operating within the Visual Circuit at Exeter that routinely need to extend beyond the boundary of the ATZ.

- Enhance efficiency by providing airspace and procedures that will reduce the instances of avoiding action.
- Reduce traffic delays on the ground/in the air.

1.3 Purpose and Objectives

The purpose of this document is to provide information regarding the proposal to establish a CAS structure to primarily support Commercial Air Transport (CAT) flight operations at the Airport; however, the establishment of CAS will also enhance the flight operation of all operators at the Airport. Osprey has prepared the document on behalf of EDAL in accordance with CAP 725 [Reference 1].

The objectives of the document are to:

- State the requirement that led to the Airspace Change Proposal.
- Describe the operations at Exeter Airport and how the development of an alternative airspace construct would enhance the efficiency of Airport flight operations.
- Describe the other options considered and explain why these options were considered insufficient to mitigate for the highlighted issues.
- Describe the preliminary design option taken forward to consultation with aviation stakeholder consultees.
- Summarise the consultation response feedback.
- Detail the rationale for adapting the preliminary design.
- Detail the final proposed change

1.4 Consultation

Prior to the commencement of the consultation process, the CAA notified EDAL that environmental factors would not be considered within the formal ACP and that it was content that the consultation process should only include aviation stakeholder consultees [Reference 2].

NATMAC members plus selected additional aviation stakeholders were directly consulted on the proposal and a Consultation Document was published on the Exeter Airport website. A list of aviation stakeholder consultees is included at Annex A3. The purpose of the consultation was to gather aviation industry comment on Exeter's proposal. Comments received would then inform proposed re-designs of the CAS structure prior to submission.

The ACP has been through a round of aviation stakeholder consultation and airport management staff have altered the proposed CAS design as a result of feedback received. The analysis of the consultation responses is presented in Section 4 of this document.

1.5 Related Documents

70998 005 Framework Briefing Document Issue 1.

70998 009 Exeter Justification for an Aviation Stakeholder Only Consultation.

70998 014 Exeter ACP HAZID Record.

70998 015 Exeter ACP Safety Programme Plan.

70998 016 Exeter ACP Part 1 Safety Case Report.

70998 017 Exeter ACP Part 2 Safety Case Report.

70998 018 Exeter ACP Consultation Document.

70998 020 Exeter ACP Consultation Report.

8168 Aviation Ltd: Exeter Proposed Airspace - Containment of Instrument Flight Procedures against Airspace Design.

2 The Need for Airspace Change

2.1 Justification

It is necessary to be absolutely clear about the requirements that together culminate in the need for an airspace change. Although Exeter ATC handles the current operational issues safely and effectively on a tactical basis, any future increase in traffic might result in overload situations as controllers try to manage greater numbers of aircraft in the same limited volume of airspace, particularly to the east of the Airport.

The principle area of concern regarding current operations at Exeter is the limited protection currently afforded to commercial aircraft. These aircraft include passenger-carrying airliners operating near the airport on arrival and departure. An explanation of how this is negatively affecting the airport's operations in terms of airspace, efficiency, and effectiveness are provided in the following sub-sections.

The introduction of an alternative airspace arrangement would mean that the routing of CAT and transitory aircraft would be more predictable and regularised. This in turn would reduce airspace traffic interactions and flight deck workload as well as reducing ATC workload. Additional benefits would be the provision of a greater level of integrity and efficiency to all local airspace users and the implementation of a known air traffic environment. Altogether, Exeter ATC would be able to provide a greater level of protection to local and transiting aircraft.

2.2 Current Airspace Structure and Operations

2.2.1 Airspace

Exeter Airport is located within uncontrolled Class G airspace, where aircraft are not subject to mandatory compliance with ATC instructions and are only required to adhere to a small set of compulsory flight rules. Aircraft can enter, leave and transit the airspace near the airport without Exeter ATC permission. Exeter has an Aerodrome Traffic Zone (ATZ) (Class G) of radius 2.5 Nautical Miles (NM) centred on the Exeter Airport Aerodrome Reference Point (ARP). The ATZ extends from ground level to 2,000 Feet above aerodrome level (AAL). The ATZ is the only airspace established to provide a degree of protection to aircraft operating at the Airport. Pilots of aircraft within the ATZ, or those who request entry into the ATZ, are required to make their presence known to Exeter ATC during Airport operating hours and comply with ATC instructions.

Figure 1 shows the current airspace structure surrounding the Airport.

Figure 1 Exeter Airport and the Current Surrounding Airspace Structure

2.2.2 Airspace Efficiency and Effectiveness

Currently, commercial and passenger carrying aircraft operating in and out of Exeter Airport, in Class G airspace, require repeated ATC tactical intervention. This may include the re-routing of arriving aircraft or delaying the departure of commercial passenger traffic to ensure the correct separation standards are maintained. The majority of CAT aircraft arrive and depart via the N864 airway (Class A), oriented, north-south of Exeter in the centre of Figure 1. This airspace offers protection to CAT flying under Instrument Flight Rules (IFR)[1]. CAT inbound to Exeter is vectored from this airway into the Class G (uncontrolled) airspace before a final descent and approach is made to the Airport.

The practice of routing CAT aircraft outside of the en-route airspace structure prior to arrival at the destination, inevitably brings CAT aircraft into the same areas of operation as local General Aviation (GA) and transitory air traffic. This happens at the most critical stage of flight when on approach to the Airport. The rules regarding the provision of Air Traffic Services (ATS) to aircraft in Class G (uncontrolled) airspace are designed to minimise the risks to all aircraft. The ability of air traffic controllers to intervene with traffic avoidance instructions, given the rates of closure and climb/descent profiles, is limited. At this stage of flight aircraft also have limited manoeuvrability and therefore a limited response to Airborne Collision Avoidance System (ACAS) warnings ('Resolution Advisories' (RA)).

This difficult environment has led to reportable safety events between unknown aircraft and aircraft arriving and departing to/from Exeter. The result has been 3 Air Proximity (AIRPROX)[2] events in 2016 and over 600 recorded instances of controller intervention due to unknown aircraft over the 8-year period between 2009 and 2016. These incidents create a significant increase in workload for pilots and distract ATC from the task of providing a service in Class G airspace. Additionally, the arrival and departure phase of flight is a particularly busy time on the flight deck, when unexpected ATC interventions (often at very short notice) add significantly to pilot workload. While current operations are tolerably safe, a disproportionate amount of controller capacity is consumed ensuring this is the case. There have also been occasions where the prevalence of unknown traffic operating within the vicinity of the Airport could easily lead to a degradation of safety margins.

Routine Airline Safety Reports demonstrate that the immediate reaction of a pilot to urgent radar vectoring instructions can detract from the otherwise optimal operation of the aircraft. CAP 717 (*Radar Control - Collision Avoidance Concepts)* details the necessity for pilots to react promptly and decisively to such urgent instructions. Interruptions during critical, high workload, phases of flight (approach and departure from airports) are clearly undesirable and should be avoided wherever possible. The provision of a more suitable airspace structure would help to achieve this.

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[1] The most important concept of IFR flying is that separation is maintained regardless of weather conditions.
[2] An AIRPROX is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

2.3 Alternate Runway Operations

The airspace east and northeast of the EDAL is well used by a number of flight operators. Specifically, when local aerodromes in this area are busy, perhaps during organised fly-ins, EDAL plan to use Runway 08 to ensure that EDAL air traffic is routed away from the area. Agreement of airport operators and a light surface-level tailwind component are pre-requisites for this plan. In these situations EDAL flight operations can continue in Class G airspace away from areas experiencing high volumes of GA air traffic.

On one exceptionally busy day (a fly-in at Farway Common on Saturday 17th June 2017 when 84 aircraft landed or departed), EDAL utilised Runway 08 as the operational runway because the tailwind component during this period was 10 knots or less.

3 Options Considered

3.1 Overview

Exeter Airport lies within uncontrolled, Class G airspace. The Exeter ATZ, as discussed in Section 2.2.1, provides the only airspace within which all aircraft are required to make their presence known, by radio, to Exeter ATC and comply with instructions.

The safe operation of aircraft, particularly passenger aircraft, in the unknown and uncontrolled environment of Class G Airspace, is supported by the provision of ATS using radar surveillance or by a Procedural Service (PS). Exeter ATC provides ATS in core hours (approximately 06.30 local to 02.00 local daily). When using radar surveillance, the provision of a De-confliction Service (DS) requires controllers to provide vectors to aircraft in an attempt to ensure standard separation is maintained. When radar is not available, separation is only provided between participating IFR traffic by using a PS.

In accordance with CAA document CAP 725, Exeter must justify the need for changing its airspace and provide details of the options considered in the development of the proposed airspace design. Exeter has considered a number of alternatives to determine how best to meet the needs of the Airport and other aviation stakeholders. This section outlines the options and reasoning considered by Exeter. It describes the alternative options and why they were discounted before detailing the preferred option.

3.2 Option 0 – Do Nothing

If no action was taken, conflicting aircraft will continue to affect the routing of aircraft arriving and departing from Exeter Airport. Delayed departures and high levels of controller intervention would continue to reduce the overall effectiveness of flight operations at the Airport.

EDAL has concluded that this option is not viable as there will be no mitigation for the increasing level of activity current flight safety concerns and airspace efficiency is not resolved.

3.3 Option 1 – Do Minimal

3.3.1 Improved GA Education and Liaison

Radar surveillance at Exeter highlights the nature of aviation activity within the vicinity of the Airport and cumulative incidents have prompted a need to identify mechanisms to maintain, as a minimum, safety to all aviation users operating within the vicinity of the Airport. Exeter currently engages with local aviation operators, both directly and indirectly to encourage better communication, and use of the local airspace. EDAL will continue this effort and their development with the application of an Exeter Frequency Monitoring Code (FMC).

Whilst many transitory aircraft do contact Exeter ATC, there is no formal requirement for aircraft operating in Class G uncontrolled airspace to do so. However, EDAL considers that a significant number continue to fly close to the

Airport and its traffic patterns do so without requesting an ATS from Exeter ATC, with Safety Significant Events (SSE) continuing to occur. This is considered partly due to the transitory aircraft either calling too late (approaching the final approach tracks and ATZ boundary) or potentially making incorrect assumptions regarding Airport activity. EDAL considers that the current activity to provide a 'better informed' airspace environment are insufficient; therefore, Option 1 is not considered adequate to address the concerns presented in Section 2.

3.4 Option 2 - Change the Nature of the Airspace Surrounding the Airport

A collaborative approach with local airspace operators regarding the design of the new airspace presents an opportunity to develop permanent solutions that will endure, whilst at the same time enhancing the overall levels of safety for aircraft within the Exeter Airport air traffic management environment.

The options considered below in sub-sections 3.4.1 to 3.4.5 inform strategies to provide a 'more informed' environment surrounding the Airport, thereby improving the situational awareness for controllers and pilots alike. EDAL have considered several potential solution options and is keen to minimise the impact to local aviation stakeholders, whilst ensuring that aircraft operating in and out of Exeter have an additional layer of safety.

3.4.1 Transponder Mandatory Zone (TMZ)

The CAA defines a TMZ as an airspace of defined dimensions whereby the carriage and use of an operational transponder is mandated. This option would enhance situational awareness for the controllers, and other airspace users. However, only some of the aircraft that fly close to Exeter carry and operate a transponder. Additionally, carrying and operating a transponder is not mandatory in Class G uncontrolled airspace and it is known that many local airspace users do not carry this equipment.

The real crux of the issue is that Exeter ATC cannot communicate with aircraft if they choose not to call Exeter ATC of their own volition irrespective of whether aircraft operate transponders. In addition, whilst the carriage and use of a transponder would facilitate the activation of Traffic Collision Avoidance Systems (TCAS) it would not necessarily resolve the issues currently experienced by EDAL. In addition, it could add a financial burden on some elements of the GA community.

Outside of this ACP, but complementary to the development of a TMZ strategy, EDAL is considering proposing the introduction of an Exeter Secondary Surveillance Radar (SSR) Frequency Monitoring Code Procedure, sometimes referred to as a 'Listening-Out Squawk'. This, in combination with a TMZ, is likely to reduce the volume of radio transmissions (RT) and increase ATC capacity to manage GA transit aircraft. However, due to the nature of the airspace, the number of non-transponding aircraft that operate in proximity to the Airport that are not detectable by radar, EDAL considers that the implementation of a TMZ would not resolve the issues currently encountered. Therefore, the option for the implementation of a TMZ is not considered a viable solution.

3.4.2 Combined Radio Mandatory Zone (RMZ)/TMZ

A combined RMZ and TMZ would enhance ATC and pilot situational awareness, but would not deliver a 'known air traffic environment' or provide 'mandatory' control of the air traffic environment as the airspace would remain as Class G uncontrolled airspace.

This option would also require a larger area of airspace to be re-assigned as there would be no guarantee that contact could be secured and a plan agreed in the limited time available. Exeter ATC and transit aircraft and controllers would need more time and therefore airspace to develop and execute any plan. Since this option fails to address the full range of issues experienced at the Airport it has also been discounted as a viable option.

It was also noted during the consultation that the imposition of an RMZ or combined RMZ/TMZ would not be seen favourably by some GA operators; specifically this would be the stance of the gliding community.

3.4.3 Combined Class D and Class E + TMZ CAS

Following the implementation of en-route Class E + TMZ airspace replacing Class F en-route airspace in the UK, the CAA is considering new guidance/policy for aerodromes relating to the establishment of CAS. Considerations include outer areas of Class E CAS + TMZ surrounding inner areas of Class D CAS. This is expected to be based on a rationale of reducing the effects of establishing CAS on VFR flight operations currently operating in Class G where a sponsor of a change is considering Class D CAS.

Separation standards are not prescribed for application by ATC between VFR flights or between VFR and IFR flights in Class D or Class E airspace. However, ATC has a responsibility to prevent collisions between known flights and to maintain a safe, orderly and expeditious flow of traffic. This objective is met by passing sufficient traffic information and instructions to assist pilots to 'see and avoid' each other in Class D airspace but in Class E airspace the lack of traffic avoidance advice may be unacceptable to IFR CAT aircraft.

Instructions issued to VFR flights in Class D airspace are mandatory. These may comprise routeing instructions, visual holding instructions, level restrictions, and information on collision hazards to establish a safe, orderly and expeditious flow of traffic and ensure the effective management of ATC workload. However, VFR flights in Class E airspace do not require clearance and cannot be provided with instructions, particularly if when not in contact with ATC.

In Class D airspace routeing instructions may be issued which reduce or eliminate points of conflict with other flights. This ensures a consequent reduction in the workload associated with passing extensive traffic information. VRPs are established to assist in the definition of frequently utilised routes. This may not be possible in Class E airspace, particularly if VFR aircraft are not in contact with ATC, causing confliction for example in the area between leaving Airway N864 and a RNAV IAF.

Again, it is noted that the carrying and operating a transponder is not mandatory in Class G uncontrolled airspace. Many local airspace users do not carry transponder equipment. In addition, provision of a transponder could add a financial burden on some elements of the GA community. Consequently, this option has also been discounted as a viable option.

3.4.4 Flexible Class of Airspace Arrangement

Local airspace operators, including the Devon and Somerset Gliding Club (DSGC) and BGA, have suggested that the classification of the proposed CAS can be 'switched on and off' subject to local requirements. Evidence of this type of arrangement in operation in Europe was provided and forwarded to the CAA for guidance. The suggestion was that on the days that the DSGC are notified as active then CTA sectors to the north of Exeter would revert to Class G uncontrolled airspace to allow gliding flight operations to continue. However, on any of the days that the DSGC are notified as active but are not flying; for example, on clear weather days when sufficient lift is not available, or on days with poor cloud and visibility conditions, EDAL considers that there would not be a suitable protocol for re-establishing CAS in support of EDAL flight operations. Currently, there is also no effective way of disseminating a change in airspace classification back to CAS for all local and transitory airspace users.

EDAL considers that this type of airspace arrangement would undoubtedly lead to confusion for transitory aircraft. This would lead to a high probability that CAS infringements might increase. This option is therefore not considered as a viable solution.

3.4.5 Class D CAS

A Class D Control Zone (CTR) and associated Control Areas (CTAs) would offer protection to aircraft arriving or departing the Airport. EDAL recognises that full procedure containment for all current IFP's would be difficult to justify as a number of these procedures are not utilised in great numbers. However, EDAL considers the CAS structure should contain the RNAV (GNSS) Approaches, allowing Continuous Decent Approaches (CDA) to the runway and equally to allow an airspace volume that ATC would utilise for the vectoring of multiple aircraft onto each ILS.

EDAL recognises that the implementation of Class D CAS, could produce an adverse effect on GA and other aviation stakeholders. However, EDAL has received full support from local airport-based GA stakeholders. EDAL believes it is possible to facilitate continued access to the airspace for non-Exeter GA traffic through the development of Letters of Agreement (LoA) or Memoranda of Understanding (MoU). Carefully drafted agreements will mitigate any negative operational impacts on local aviation stakeholders.

The principle objectives for the design of CAS surrounding an airport are:

- To maintain the current level of safety.
- To make the airspace more efficient for all users.
- To provide protection to public transport passenger aircraft in the critical stages of flight, prior to landing and after departure.
- Minimized airspace dimensions, commensurate with the regulatory requirements, to a volume necessary to provide protection to aircraft arriving or departing the Airport on the predominantly utilised procedures.
- To provide the maximum levels of access for all classes of suitably equipped aircraft.

3.5 Preliminary Airspace Design Concept

EDAL considers that the most appropriate way to protect its local air traffic services and existing flight procedures is to introduce Class D CAS.

The preliminary design concept considered a balance between the competing needs of all airspace users and the maintenance of safe flight operations. The design sought to determine an optimum airspace design that would minimise disruption to local aerodromes, GA activities and the regional operations of NATS and the MoD.

Discussions with local GA, including sports and recreation operators, identified concerns related to a perceived restriction on access to local airspace. EDAL carefully considered the dimensions of the proposed CAS structure in response to these concerns. EDAL's subsequent design strategy involved a welcome input from local aviation operators in order to minimise impact, as far as is practicable, to those VFR flight operations at and near the Airport. A detailed review of the initial concept, identified concerns regarding insufficient '*head room'* between the base of some CTAs and the underlying terrain. Careful consideration was therefore given to modifying and simplifying the design, where at all possible.

Figure 2 on the following page provides a diagrammatical representation of the preliminary design concept included in the consultation document. The proposed Class D CAS design in Figure 2 comprised:

- CTR from surface level up to FL65.
- Two CTA sectors to the west of Exeter with base altitudes stepping-down toward the airport of 2,000 ft. (CTA 1) and 1,500 ft. (CTA 2) to the CTR boundary.
- Two CTA sectors to the east of Exeter with base altitudes stepping-down toward the airport of 3,000ft (CTA 4) and 1,500 ft. (CTA 3) to the CTR boundary.
- Two CTA sectors from the north of Exeter with a base altitude of 3,500 ft. (CTA 5) stepping-down to 3,000ft (CTA 4) to the CTR boundary.
- Two CTA sectors from the south of Exeter with a base altitude of 3,500 ft. (CTA 6) stepping-down to 3,000ft (CTA 4) to the CTR boundary.

It should be noted that:

- The Eastern portion of CTR not located beneath Airway N864 has an upper limit of FL65; the CTA above has an upper limit of FL105.
- The CTA sectors, or parts thereof, located beneath Airway N864 have an upper limit of FL65.
- The CTA sectors outside the lateral extent of Airway N864 have an upper limit of FL105.

Figure 2 Exeter Airport Preliminary CAS Design Concept Showing Proposed Lateral and Vertical Extents of the CTR and CTA Sectors

3.5.1 SSR Frequency Monitoring Code

Outside of this ACP, EDAL is ~~considering~~ proposing the introduction of an Exeter SSR Frequency Monitoring Code Procedure, which is likely to significantly reduce the volume of RT and increase ATC capacity to manage transit aircraft. The selection of such a code and associated frequency monitoring does not imply the provision of any form of ATS.

Procedures for the use of monitoring codes and actions to be taken by controllers will be detailed in MATS Part 2. Pilots who have no intention of entering the proposed Exeter CTR or CTA sectors can select the monitoring squawk to indicate they are 'listening-out' on the appropriate published frequency. Controllers will recognise that those aircraft transmitting this code can be contacted if necessary on the identified frequency. Those aircraft will not require an ATS and will remain outside CAS. The associated reduction in RT will provide Exeter ATC with additional capacity to deal with CAS transit requests.

4 Consultation Analysis Summary

4.1 Overview

This section summarises the aim of the consultation exercise, describes the aviation stakeholder consultee organisations and individuals that were consulted and provides a breakdown of the responses received. It also explores the support ratio of consultee responses received to give a general indication of the level of stakeholder acceptance of this proposal.

4.2 Consultation Summary

A preliminary CAS design concept was published in the Exeter ACP Consultation Document. The Consultation period ran from 10th March to 9th June 2017. The purpose of the consultation was to gather and analyse the views of the various aviation stakeholders concerning a proposal to establish CAS at Exeter Airport. Fundamentally, the consultation has enabled EDAL to obtain or confirm views and opinions about the impact of the proposed airspace change. The background to this consultation and the methodology used are detailed in Annex A2 to this document.

4.3 Aviation Stakeholder Consultee Organisations

The Exeter ACP Consultation Document was circulated to a total of 53[3] aviation stakeholder consultee organisations or individuals; of these three emails were returned as undelivered. Therefore, the total number of consultees that received the consultation email was 50. It should be noted that two of the aviation stakeholders that were initially returned as undelivered provided a response from a separate email source. The aviation stakeholder consultee lists are detailed in Annex A3 and comprise:

- 40 Aviation "National Organisations" (CAA National Air Traffic Advisory Committee (NATMAC list).
- 4 Airport Users.
- 6 Local Aerodromes/Aviation Consultees.
- 2 Local Authorities.
- CAA SARG.

The consultation document was distributed to all consultees by email and through a dedicated link on the EDAL website.

Aviation stakeholder consultees who may be affected by the proposed change included the MoD, airlines, aircraft operators, adjacent aerodromes, all local airspace users and the national bodies representing all UK aviation interests. National bodies such as the Light Aircraft Association (LAA), British Airline Pilots Association (BALPA), and Airport Operators Association (AOA) etc. are represented through the

[3] It should be noted that NATMAC comprises a total of 40 organisations. The consultation document was circulated to each individual. However, this analysis reflects the views of the organisations as a whole and not of the individuals representing them. In some cases it was found that representation had changed from the list provided by the CAA.

auspices of the NATMAC, sponsored by the CAA. A number of military organisations are also members of the NATMAC.

In addition, the following Local Authorities were consulted:

- Devon County Council.
- Exeter City Council.

The consultee groups are detailed in Figure 2 below.

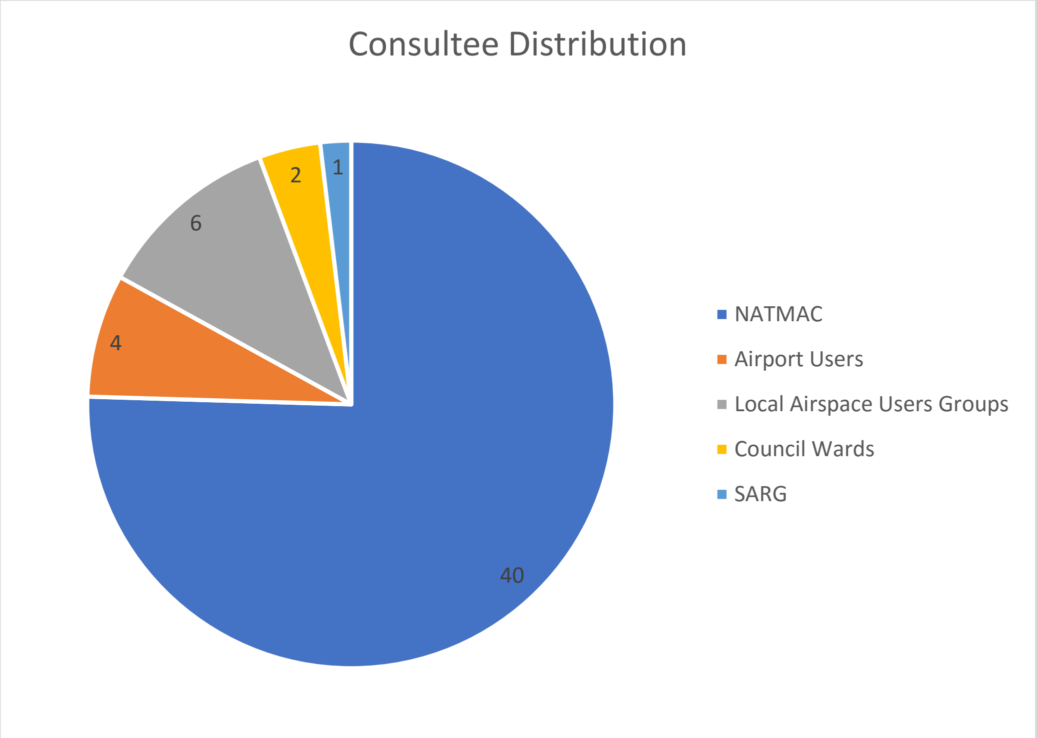

Figure 3 Consultee Distribution

4.4 Aviation Stakeholder Response Statistical Analysis

A total of eighteen responses (approximately 34 % of consultees) to this consultation were received. A breakdown of these is provided in Table 1.

	Consultee Group	Number Consulted	Responses	Response Rate (%[4])
1	NATMAC	40	12	30%
2	Airport Users	4	2	50%
3	Local Aerodromes/Aviation Consultees	6	4	66%

[4] Percentage of those originally consulted.

	Consultee Group	Number Consulted	Responses	Response Rate (%[4])
4	Local Authorities (For Information)	2	0	0%
5	SARG	1	0	0%
	Totals	**53**	**18**	**34%**

Table 1 Consultee Responses

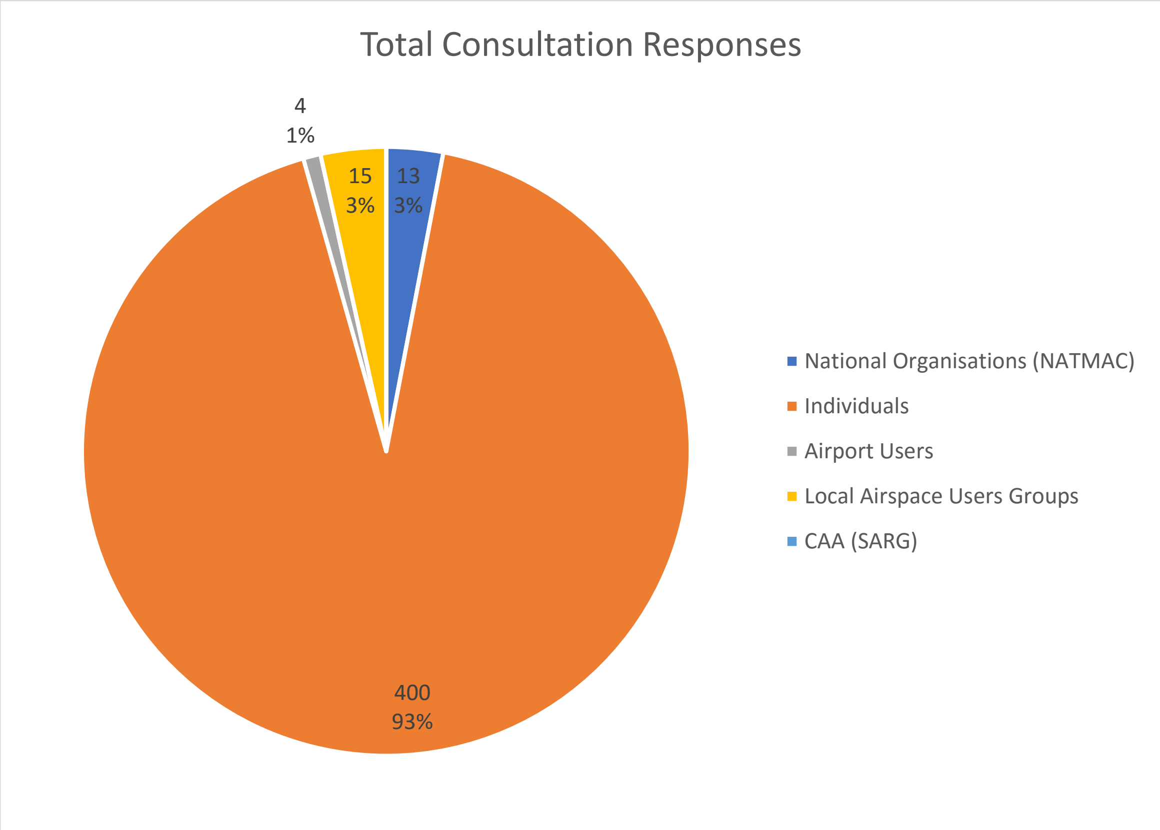

Figure 4 Breakdown of Consultee Responses Received

It should be noted that the NATMAC consultee list includes some CAA Departments who, for reasons of CAA impartiality, do not respond to consultations.

4.5 Meetings with Major Local Aviation Stakeholders

Prior to the commencement of the consultation period, a number of meetings were held with local aviation stakeholders. The purpose of these meetings was to present stakeholders with the details to be incorporated into the Consultation Document ahead of the formal consultation. These pre-consultation meetings were organised with the following local stakeholders:

- Devon and Somerset Flight Training located at Dunkeswell Aerodrome.
- Devon and Somerset Gliding Club located at North Hill Aerodrome.
- Defence Airspace and Air Traffic Management (DAATM)/Flag Officer Sea Training (FOST).
- National Air Traffic Services (NATS)/Cardiff Airport.
- Skydive Buzz Ltd located at Dunkeswell Aerodrome.

4.6 Consultation Support Ratio

Of the 432 responses received during the consultation period:

- 15 consultees (3.5 %) supported the proposal.
- 406 consultees (94 %) objected to the proposal.
- 9 consultees (2 %) provided a neutral response or provided no comments on the proposal.
- 2 consultees (0.5 %) provided questions for clarification purposes but did not formally provide a response.

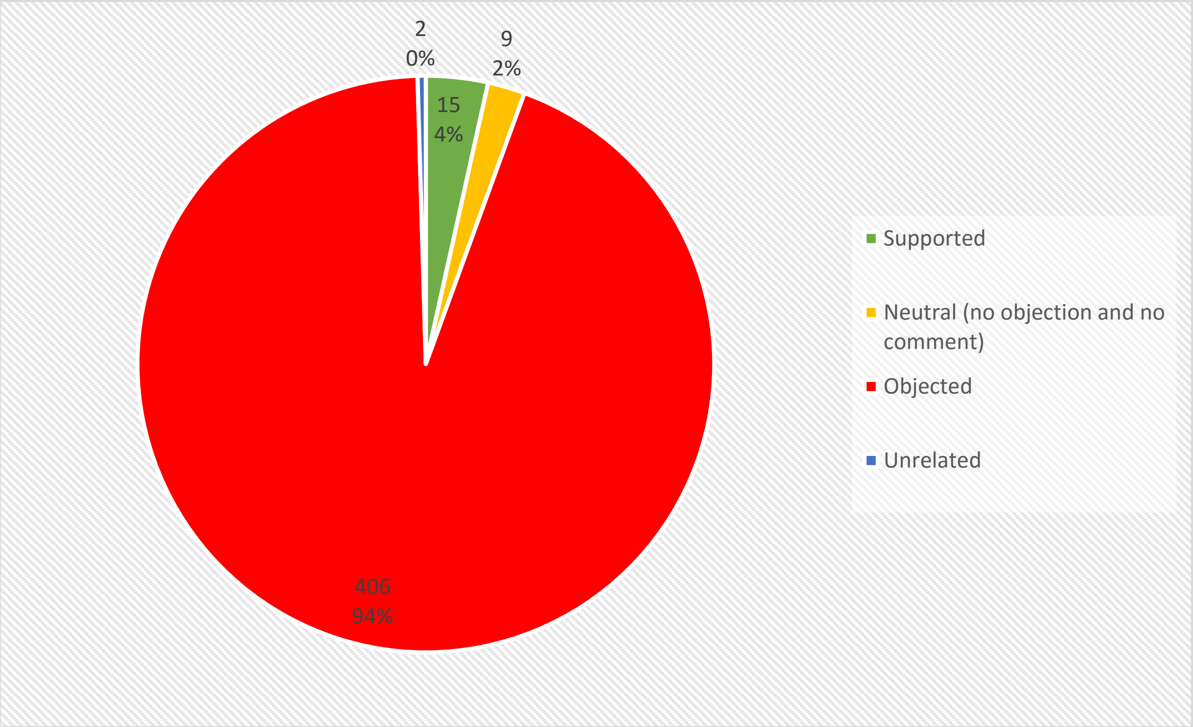

Figure 5 Support Ratio from All Responses Received

4.6.1 Consultees

Of the eighteen responses received from those consulted, some of those based at Exeter Airport and other agencies have stated support for the development of CAS in support of flight operation at and in the area of the Airport. Other consultees expressed an objection to the proposed CAS.

4.6.2 Other Responses

Of the 414 responses to the consultation received from those not in the formal consultee list, the majority were from GA and private pilots, some of whom are members of local flying or gliding clubs.

4.7 Key Issues Arising

The response analysis process identified a number of key themes in those responses that objected to the proposal and presents some solutions proposed by some consultees. They are outlined in Table 2.

<table>
<tr><th>Nature of Concerns</th><th>Number of Consultees who Raised the Concern</th><th>Proposed Solution or Redesign</th></tr>
<tr><td>Disproportionate/unrealistic/unjustified size of proposed airspace</td><td>239</td><td rowspan="2">Airspace to remain as Class G uncontrolled airspace
Removal of all Class D CAS to the north of the proposed CTR, with Class D established to the south
Removal of all Class D CAS and redesign either an RMZ airspace or Class E CAS construct</td></tr>
<tr><td>Loss of airspace amenity for transitory GA aircraft and gliders</td><td>219</td></tr>
<tr><td>Loss of Devon and Somerset Gliding Club as an amenity</td><td>77</td><td>Suggested Glider Box concept concluded as unacceptable; therefore, airspace to remain as Class G uncontrolled airspace</td></tr>
<tr><td>Funnelling effect potentially increasing risk to aircraft avoiding proposed CAS</td><td>24</td><td>Airspace to remain as Class G uncontrolled airspace
Raise the base altitudes of CTA sectors</td></tr>
<tr><td>GA access to an Exeter Airport CAS construct</td><td>54</td><td>Airspace to remain as Class G uncontrolled airspace
Removal of all Class D CAS to the north of the proposed CTR, with Class D established to the south
Removal of all Class D CAS and redesign either an RMZ airspace or Class E CAS construct</td></tr>
</table>

Table 2 Issues Raised Regarding the Proposed CAS at Exeter Airport

It was noted that some consultees who objected to the proposal, considered that some form of Class D CAS of a smaller scale was appropriate in support of Exeter

Airport scheduled CAT flight operations. Additionally, it was noted that some GA operators would see the imposition of an RMZ or combined RMZ/TMZ unfavourably, specifically from members of the gliding community.

4.8 Consultation Conclusions Summary

The Consultation has generated a significant level of opposition from the GA community, specifically supported by the BGA and the GAA. The main concerns are as follows:

- The dimensions of the suggested CAS construct is disproportionate to the density of commercial activity at Exeter Airport.
- The DSGC believe that their club would be forced to close or re-position elsewhere to continue flight operations.
- The CAS design produces a funnelling effect as aircraft avoid CAS during transits.
- Limited access arrangements for local and transitory airspace users.

The Consultation has also raised objection from the MoD. These objections concern access arrangements to the suggested CAS, MoD flight operations in the area and the development of a Flexible Use of Airspace (FUA) concept relating to the usage of Danger Area 012/3. Additionally, NATS London Area Control Centre (LACC), in conjunction with NATS Bristol and Cardiff Airports, raised concerns related to the airspace design. They assessed that the design would complicate ATM arrangements in the area, with particular reference to Bristol and Cardiff connectivity to Airway N864.

5 Preliminary Airspace Design Review

5.1 Preliminary Airspace Design Development

Following closure of the Consultation, and in the light of the key themes noted in consultation responses received, EDAL undertook a detailed review of the following particular aspects of the proposed airspace design:

- Size of the CAS construct.
- Alternative classification of airspace.
- Funnelling of Aircraft.
- BGA, GA transiting aircraft.

5.2 Disproportionate CAS Size

Some consultees remarked that the proposed CAS design was disproportionate to the nature of flight operations at the Airport and that a much reduced volume of CAS would be sufficient. Some contended that there was no requirement for CAS to the north of the Airport, or that a less restrictive airspace structure would be perceived as more acceptable to other airspace users. In addition, many consultees noted that other, much larger airports such as London Gatwick Airport has a much smaller CAS design to that consulted by EDAL and therefore EDAL's requirements regarding the volume of CAS must be tailored. Gatwick's location underneath the London Terminal Manoeuvring Area allows connectivity with the national controlled airspace infrastructure, leaving a requirement for a much smaller CTR/CTA structure specifically for its own use. EDAL similarly requires a CAS volume that allows connectivity for aircraft arriving and departing via Airway N864. The finalised CAS design is intended to provide a volume of airspace to incorporate connectivity for arriving and departing aircraft with the existing CAS structure (Airway N864) directly above the Airport.

5.3 Loss of DSGC as an Amenity

North Hill Airfield (unlicensed) is a privately-owned glider site approximately 10 NM northeast of Exeter Airport. With the implementation of Class D airspace at Exeter, the airfield will remain in Class G uncontrolled airspace, but a CTA Sector would overlay the airfield and that the establishment of Class D CAS will have an effect on North Hill flight operations. This was highlighted in the response from the Club and from some of the DSGC membership. EDAL understands the effect that its CAS design would have on DSGC flight operations and is exploring avenues to minimise the effects on DSGC flight operations including the development of CAS access procedures.

DSGC expressed that their routine flight operations do not always conform to VFR in Class G airspace when operating above 3,000 ft. amsl. DSGC stated that aircraft routinely operate at the cloud base with some of their membership operating within cloud. DSGC aircraft are therefore operating in Instrument Meteorological Conditions (IMC) and operating under IFR. DSGC has not provided an indication of the number of pilots at DSGC that operate IMC, nor the frequency of this type of flight operation.

5.4 Loss of Airspace Amenity

5.4.1 Transitory GA Aircraft and Gliders

A number of responses indicate that many GA transit flights (including gliders) take place in the airspace to the north of the Airport, along the centre of the southwest peninsula and to south of the Airport along the coast. A number of responses indicated the introduction of the preliminary CAS design concept would funnel transit aircraft that did not want to cross or enter CAS, into narrow channels to the north, between Exeter and NATS Cardiff Airport CAS, and to the south between Exeter and the Lyme Bay Danger Area complex.

EDAL has decreased the volume of CAS in both these areas by raising the base altitudes of CTA sectors to allow greater width with more 'headroom' for transit aircraft.

5.4.2 GA Access to an Exeter Airport CAS Construct

The perception within the GA community was that 'it is traditionally difficult' in some cases for GA aircraft to gain CAS crossing clearances from an Airport. If contact can't be made, then aircraft are funnelled into smaller pockets of Class G uncontrolled airspace, increasing the risk to those aircraft.

EDAL reiterates that ATC will facilitate access to CAS by transit aircraft. Access will only not be granted for reasons of aircraft safety. EDAL will have the appropriate resources to enable all requests for CAS crossing/entry to be dealt with in a timely manner.

6 Airspace Change Design Proposal

6.1 Airspace Design Development

Following the closure of formal consultation, the airspace design was reviewed against the key issues raised in consultee responses. This analysis served as the basis for the finalised airspace design presented in this section.

6.2 Consulted CAS Structure Review Adaptations

6.2.1 CTR

EDAL considers that the arguments presented during consultation do not justify a change to the dimensions of the CTR; in the final design the lateral dimensions will remain the same as those presented during consultation. The CTR is sub-divided into three sections with regard to the vertical extent: CTR-A is located beneath Airway N864 and therefore will align vertically with the base of the Airway. The eastern portion - CTR B, is aligned vertically with the top of the CTA sectors at FL105, and the small western section also having the same vertical alignment of a top of FL105.

Requests for aircraft to cross the CTR can be managed through 2-way VHF communication between aircraft and Exeter ATC.

6.2.2 CTA-1 & CTA-2

Reference has been made by a number of consultees regarding the base altitude of the consulted CTA-1 at 2,000 ft. amsl. There will be approximately 830 ft. between the CTA base and the underlying terrain. Consultees indicated that in certain weather conditions it would be difficult for aircraft to remain clear of CAS if they wished to comply the VFR weather avoidance limits.

- EDAL considered that the base altitudes of CTA-1 and CTA-2 would have to remain as consulted to ensure that RNAV instrument arrival flight profiles are contained within CAS.
- EDAL intends to add text to the EDAL UKIAIP entry highlighting this issue and publishing a CAS crossing service on the appropriate VHF communication frequency. EDAL will also communicate with all local aviation stakeholders re-emphasising the fact that a clearance to cross CAS will be available.

CTA-2 is sub-divided into three sections with regard to the maximum vertical extent: CTA-2A has a top level of FL105. CTA sectors 2B and 2C are aligned vertically with base of Airway N864.

6.2.3 CTA-3

Specific reference was made by Devon and Somerset Flight Training (DSFT) located at Dunkeswell Aerodrome regarding the base altitude of CTA-3 in the consultation design. They stated that the base altitude of CTA-3 at 1,500 ft. amsl would have an impact on circuit flight operations at the Aerodrome. They discussed that their circuit was flown predominantly to the southeast of the runway to separate against para-dropping flight operations at the Aerodrome and to remain clear of gliding operations at North Hill Aerodrome located on the western edge of their ATZ.

The Aerodrome elevation is reported as 839 ft. amsl and the circuit height is reported as 800 ft. aal. This equates to a circuit altitude of 1,639 ft. amsl. Should aircraft need to fly a wider circuit to the southeast and outside of the published ATZ, an aircraft could inadvertently infringe the proposed CTA-3.

- EDAL has considered this issue and concluded that raising CTA-3 to 1,700 ft. amsl, would mitigate the potential for inadvertent CAS infringement.

DSFT also stated that VHF radio communication with Exeter Airport is limited by terrain for aircraft on the ground at Dunkeswell Aerodrome. It is therefore difficult for aircraft operating from Dunkeswell to arrange sequencing with aircraft arriving from or departing Exeter Airport to the east.

- EDAL intend to develop a LoA with the operator of Dunkeswell Aerodrome, that details that aircraft who require entry into CAS are encouraged to pre-note their intentions with Exeter ATC via landline before getting airborne. It must be noted that explicit clearance to enter CAS will only be provided when 2-way VHF communication between Exeter ATC and the aircraft concerned is achieved.

DSGC have a gliding flight profile whereby a glider is aero towed to operate on the south coast approximately between Seaton and Sidmouth before flying a high-speed return to their North Hill Aerodrome.

- EDAL intend to develop a LoA with DSGC that will allow a glider flying this profile to enter CAS on the return leg using the appropriate Exeter ATC VHF frequency.

Funnelling of aircraft was a recurring theme within consultee responses. When considering funnelling to the south-east of the Airport adjacent to the town of Seaton on the south coast was maintaining a viable 2 NM width corridor between CTA-3 and D012 for aircraft that do not wish to arrange a crossing of CAS.

- EDAL concluded that it would be appropriate to leave this gap open. However, in the event that Instrument Flight training utilising the NDB(L)/DME RWY 26 procedure was taking place whilst Runway 08 was the duty runway and strong northerly/north-easterly wind conditions were present, the potential exists that aircraft might exit CAS; EDAL will detail the potential for this occurrence in the UKIAIP and in local flying orders.

CTA-3 is sub-divided into two sectors with regard to the maximum vertical extent: CTA-3A has a top level of FL105 and CTA-3B has a maximum vertical extent of FL65 in alignment with Airway N864.

6.2.4 CTA-4 and new CTA-5 and CTA-6

The preliminary design of CTA-4 was considered restrictive to flight operations at Dunkeswell (elevation 839 ft.) and North Hill (elevation 921 ft.) Aerodromes due to the original base altitude of 3,000 ft. amsl. In addition, a response from the operator of Watchford Farm (elevation 840 ft.) stated that the proposed base of the CAS structure would restrict their PFL and Aerobatics flight operations within their circuit area. The originally proposed CAS base altitude would therefore provide 2,161 ft. clearance for Dunkeswell beneath the base of the preliminary CAS design structure, 2,079 ft. clearance beneath at North Hill and 2,160 ft. clearance beneath at Watchford Farm.

- The remaining vertical and lateral confines of the southerly and easterly section of the preliminary design of CTA-4 is maintained. The northwest section of CTA-4 is re-named as CTA-5 and remains the same in the vertical dimension.
- A new CTA-6 has been designed to the northeast of the CTR and CTA-3. The revised base altitude is 3,900 ft. amsl and is considered by EDAL to provide significantly more airspace in the vertical dimension to provide more flexibility for the circuit operations at each aerodrome.

These three CTA sectors have also been sub-divided to align vertically with Airway N864 (CTA-4B, 5B and 6A) with a maximum level of FL65, and the other CTA sectors (CTA-4A, 4C, 5A, and 6B) with a maximum level of FL105.

6.2.5 New CTA-7, CTA-8 and CTA-9

In an effort to keep the preliminary design simple, EDAL designed a preliminary CTA sector to the north of the Airport that had a base altitude of 3,500 ft. amsl (CTA-5 in preliminary consultation design structure). Within some consultee responses, particular reference was made regarding the low base altitudes for the CTA's to the north of Exeter Airport and how it would affect local aerodrome flight operations and also transit flight operations into and out of the south-west peninsula.

- To mitigate these concerns, the preliminary design of CTA-5 is sub-divided into three newly formed CTA sectors with an associated increase in base altitudes. These sectors are as follows:
  - The new CTA-7 is aligned with the western edge of Airway N864 and borders the north of a portion of CTA-5. This will have an increased base altitude of 4,000 ft. amsl. The base altitude still provides containment for IFR RNAV procedures for arrivals from the north via Airway N864 onto Runway 08.
  - The new CTA-8 is aligned with northern borders of CTA-5 and CTA-6 and has a base altitude of 4,500 ft. amsl. The increase in base altitude provides more room for local and transit aircraft who prefer not to arrange a CAS crossing.
  - The new CTA-9 borders the northern edges of CTA-7 and CTA-8 and has a base altitude of 5,500 ft. amsl. The raising of the base altitude by 2,000 ft. from the consulted preliminary design structure will provide a significant increase in vertical airspace for local and transitory aircraft that would prefer not to arrange a crossing of the CAS.

These three CTA sectors have also been sub-divided to align vertically with Airway N864 (CTA-8A, and 9C) with a maximum level of FL65, and the other CTA sectors (CTA-7, 8B, 9A, and 9C) with a maximum level of FL105.

6.2.6 New CTA-10 and CTA-11

A few consultee responses indicated a funnelling issue for aircraft in transit to the south of Exeter Airport around the coast at Seaton. This is discussed above in Section 6.2.3.

- The preliminary design of CTA-6 to the south of the Airport has been sub-divided horizontally into new CTA-10 and CTA-11. The base altitude of CTA-

10 remains at 3,500 ft. amsl to contain IFR arrivals to both runways from Airway N864 in the south. The base altitude of the southerly CTA-11 section is raised to 4,500 ft. amsl. This provides an additional volume of transit airspace and still provides containment for IFR arrivals to both runways from Airway N864 in the south.

These two CTA sectors have also been sub-divided to align vertically with Airway N864 (CTA-10B and 11B) with a maximum level of FL65, and the other CTA sectors (CTA-10A, 10C, 11A, and 11C) with a maximum level of FL105.

6.2.7 CTA-12A, B and C

EDAL agreed that MoD will maintain primacy for the airspace within D012. The MoD suggested that when this area was not required for military use the airspace contained in the CTA-12 complex could be ceded to EDAL in support of their flight operations. The vertical extents of the CTA-12 sub-sectors would be the same as that of the adjacent CTA-4, CTA-10 and CTA-11 sectors. The CTA-12 complex would be notified as active when D012 was notified as closed. Activation would also be in accordance with EDAL opening hours.

6.3 CAS Final Design

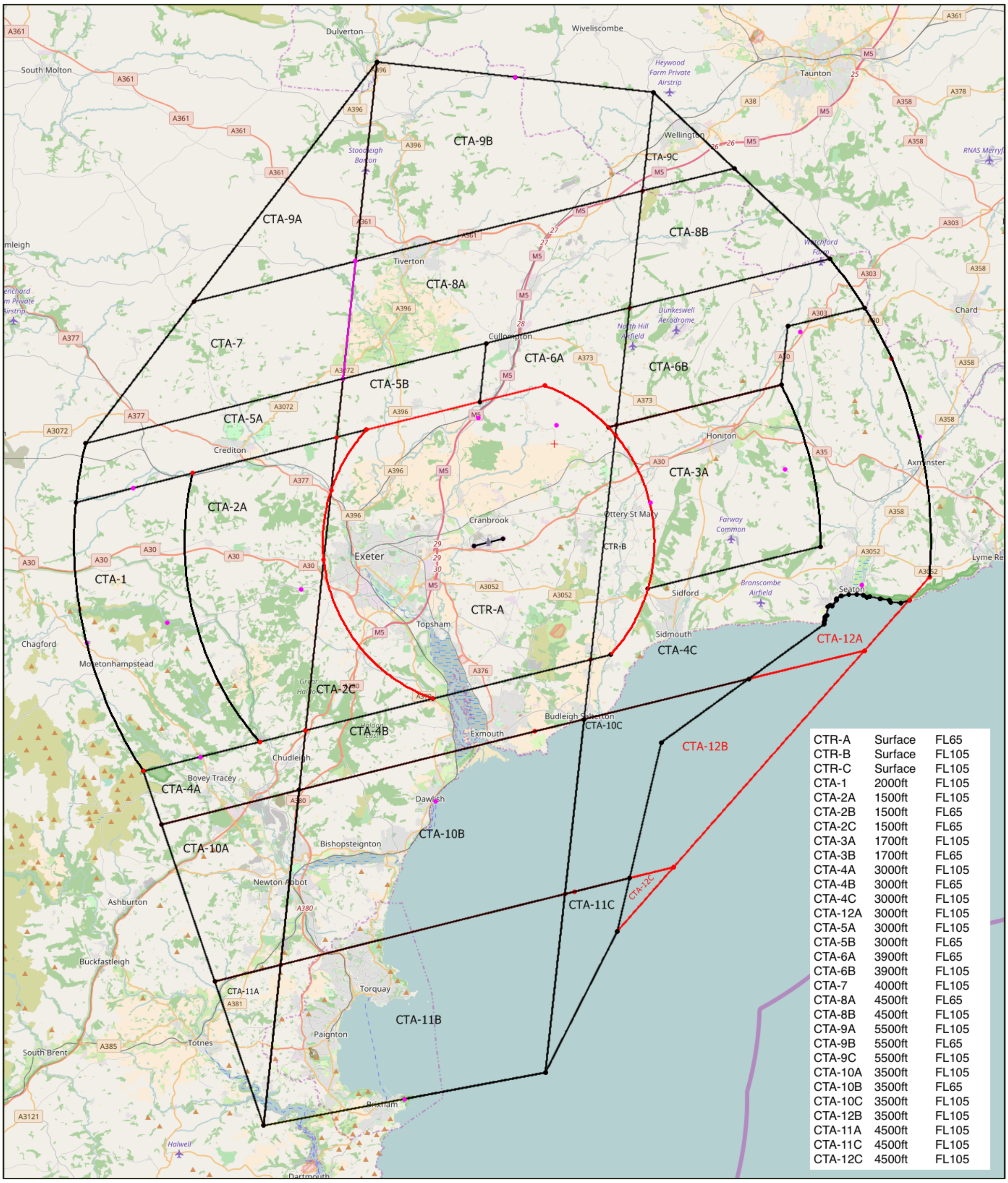

Figure 6 Finalised EDAL CAS Design

The volume of CAS is considered the minimum practicable necessary for the effective protection of the ATC operation as defined by an ATS provider and to support a safe and effective provision of ATS. EDAL considered the requirement that the CAS design would safeguard IFP containment where appropriate and to provide a volume of CAS sufficient to support the routine vectoring of multiple aircraft arrivals whilst sequencing with departing and transiting aircraft.

6.4 Containment of Existing Instrument Flight Procedures

During the development of the proposed CAS structure, EDAL considered that the existing Instrument Flight Procedures would remain unchanged. EDAL also considered that containing all IFP's would require a much larger volume of airspace than could be justified as some of the current conventional IFP's are not routinely utilised. Therefore, EDAL finalised on a CAS design structure that would support the RNAV procedures when flown using CDA profiles and the radar vectoring of aircraft for ILS approach. EDAL will provide information for pilots in relevant airport documentation and in the UKIAIP relating to which IFP's are not fully contained within the proposed CAS.

Specific analysis if the containment of EDAL IFP's has been completed and is contained in *8168 Aviation Ltd: Exeter Proposed Airspace - Containment of Instrument Flight Procedures against Airspace Design* submitted with this ACP.

7 Regional Aviation Stakeholder Cooperation Development

7.1 Overview

A number of GA flight operations take place near Exeter Airport. Draft LoA's have been developed to efficiently coordinate with operators at Dunkeswell and North Hill Aerodromes, NATS Bristol and Cardiff Airports, and the London Area Control Centre (LACC) regarding ATS provision for aircraft operating in Airway N864. Additionally, EDAL is negotiating complementary procedures with the MoD regarding flight operations within the Lyme Bay Danger Area complex, Plymouth (Mil) and RNAS Yeovilton areas. These LoA's will contain commitments that accommodate individual airspace requirements ahead of CAS implementation.

7.2 British Gliding Association

The British Gliding Association (BGA) raised concerns relating to the size of the CAS construct and its effect on gliders that need to transit across the region to access the SW peninsula. In addition, the BGA raised concerns on this proposal's impact on DSGC flight operations.

The BGA were disappointed that the CAS structure, particularly to the north of the CTR, was still being proposed by EDAL as the final CAS design. However, they were supportive of amendments that raise the base altitudes of individual CTA sectors.

- EDAL will continue to engage with the BGA to mitigate their concerns as far as practicable. EDAL intend to work with the BGA to develop mechanisms that will help accommodate large-scale gliding events in the area.

7.3 Dunkeswell Aerodrome

Dunkeswell is considered a busy hub for one of the largest GA communities in the southwest of England. The finalised CAS design has taken into consideration issues raised during consultation and conclusions from additional post-consultation engagement.

- Further engagement will continue to establish procedures for inclusion in a LoA between EDAL and DSFT that resolve notification, clearance and communication procedures for aircraft operating from Dunkeswell that choose to enter CAS.

7.3.1 Skydive Buzz Ltd Parachuting Operations

The parachuting operations of Skydive Buzz at Dunkeswell are currently afforded unrestricted airspace and coordinated flight operations with NATS Cardiff Airport ATC and LACC into Airway N90 when required. After Exeter's CAS implementation, a coordinated transit into the CAS will be required for Skydive Buzz flights.

- An LoA between EDAL and Skydive Buzz Ltd will establish the flight notification and communication requirements to minimise any effect on Skydive Buzz flight operations.

- Procedures for the coordination of Skydive Buzz flight operations will be defined in an LoA between EDAL, NATS Cardiff Airport and LACC.

Dunkeswell currently employs procedures to deconflict DSFT flight operations from the drop zone operations and EDAL expect that these procedures will remain in place. Currently, transit aircraft operating VFR in the Class G airspace close to the drop-zone area remain clear in accordance with regulatory guidance.

- Aircraft operating VFR in Class G airspace in receipt of an ATS by Exeter ATC, are reminded of drop zone activity and of their responsibility to remain clear of this area. Aircraft crossing the proposed CAS under VFR will similarly be reminded of their responsibility to remain clear of the drop zone.

7.4 DSGC (North Hill Aerodrome)

Initial consultation with representatives of the DSGC alongside the BGA during the ACP development process concentrated on a strategy that would integrate the flight operations of the DSGC within a CAS structure. Initial concepts regarding the implementation of CAS with associated Radio Mandatory Zones (RMZ) and the use of Glider Boxes where gliding flight operations can take place were discussed.

An initial Glider Box concept was seen by both parties to have the potential to facilitate flight operations from the club into the proposed CAS. EDAL are extremely keen to continue these discussions toward a consensual agreement.

It is noted that above 3,000 ft. amsl in Class G uncontrolled airspace, the VFR rules provided in Manual of Air Traffic Services (MATS) Part 1 (CAP 493) dictate that aircraft should remain 1,000 ft. below the base of cloud and have a horizontal separation from cloud of 1,500 m. It is noted that the same requirement exists for VFR operations in Class D CAS. In Class D CAS, IFR traffic is to be separated from other IFR traffic. Further discussion is to take place between EDAL and DSGC to establish that DSGC glider flights will be responsible for their own separation from other DSGC glider flights within the confines of agreed Glider Box lateral and vertical dimensions in all meteorological conditions. Subject to CAA regulatory agreement, this will be detailed as part of the LoA between the two parties.

- A LoA between Exeter ATC and the DSGC will be developed to incorporate procedures that will allow DSGC flight operations within designated areas of the proposed Exeter CAS. In addition, the LoA will detail arrangements for aircraft notification of their requirement to transit/operate in other areas within the proposed CAS structure.

7.5 MoD - Defence Airspace and Air Traffic Management (DAATM)

The primary issue raised by DAATM related to the increased risk of collision to transit aircraft operating in a narrowed section of Class G airspace between the consulted Exeter CAS structure and the existing NATS Cardiff Airport CAS. In addition, DAATM considered that measures were in place to assure that appropriate ATC staffing levels at EDAL would be in place when CAS was implemented.

- EDAL has considered this element of the DAATM consultation response in conjunction with other consultees that made reference to this effect. EDAL has therefore reduced the volume of the CTA sectors in this area by raising base altitudes.

- EDAL will also re-emphasise their responsibility for LARS provision within 30 NM of the airport and stress that ATS would be provided to aircraft that request a service.
- EDAL stated that appropriate ATC staffing levels will be available on implementation of CAS.

DAATM also confirmed a requirement to continue discussions to develop airspace sharing agreements that help mitigate the impact of this change on military Air Traffic Units and training flight operations close to Exeter Airport.

- The MoD indicated the potential to agree a Flexible Use of Airspace (FUA) arrangement potentially allowing Exeter to utilise a portion of the airspace associated with D012 from 3,500 ft. amsl and above when the MoD did not require the airspace. Further discussions will take place to establish agreement on a concept of operations.
    - The initial design concept had an overlap into D012 with a view to EDAL utilising this airspace at times agreed between EDAL and the MoD. A concept of operations is under discussion between the parties that includes a CTA construct (CTA-12 A, B and C) that would be active when D012 was closed. Figure 6 shows the lateral and vertical extent of the CTA-12 sectors.
    - The MoD requested that any proposed CAS must not utilise any airspace associated with D013. Exeter agreed to avoid utilising the airspace of D013; the finalised design concept would include this constraint.
- DAATM Units (Plymouth Military, Swanwick Military and RNAS Yeovilton) who provide ATS in the region have a permission that caters for autonomous crossing of Airway N864. The proposed Exeter CAS would provide a barrier to access to this Airway.
    - DAATM and EDAL will develop text to overcome this constraint in an LoA between the Units concerned to allow a crossing of the Exeter CAS structure.
- RNAS Yeovilton operates a system of IF training areas in support of rotary wing flying training at the Unit. These areas constitute the Yeovilton Area of Intense Aviation Activity (AIAA). The individual areas are activated as required on an opportunity basis by Yeovilton, and the vertical dimensions of the areas range from the surface up to 6,000 ft. amsl. The proposed CAS is expected to infringe one area (Area 5) in the southwest corner of the AIAA.
    - DAATM are reviewing utilisation of this specific area with a view to amending its dimensions. This will ensure there is no crossover of airspace. However, if this is not suitable, an FUA concept will be developed and detailed will be published in a LoA between the two Units.
- Discussion with the MoD will establish how the implementation of the proposed Exeter CAS would affect the provision of TACAN Approach procedures; specifically, the procedures associated with RNAS Yeovilton Runways 04 and 09. The 15 DME arc of these two TACAN Procedures, in generic terms, routes aircraft from the eastern edge of Taunton via the

overhead of the town of Chard. Aircraft are therefore routed approximately 2 NM from the edge of the proposed CTA's 4 and 6.

- The two Units are developing text for inclusion in the LoA that will detail notification procedures for aircraft utilising these approaches and a FUA concept that would allow transit of EDAL CAS by these aircraft.

7.5.1 Special Use Airspace – Buffer Zone Policy

Special Use Airspace (SUA) is airspace designated for operations and which limits access by non-participating aircraft. The designation of SUAs identifies to other users the areas where such activity occurs, provides for segregation of that activity from other users, and allows charting to keep airspace users informed of potential hazards [Reference 3].

In some instances aircraft engaged in certain activities within existing structures (i.e. Danger Areas) have unintentionally exceeded the promulgated limits of the area. In these cases a mitigation is implemented through the addition of a Safety Buffer. Activities that require the addition of a safety Buffer include:

- Air combat or high energy manoeuvres; military exercises; supersonic flight; pilotless target aircraft; Unmanned Air Systems (UAS) Beyond Visual Line of Sight (BVLOS) operations.

In the development of a new airspace structure, a lateral Safety Buffer will normally be established and promulgated in order that the minimum separation of 5 NM is achieved. The vertical Safety Buffer is 2,000 ft.

The proposed CAS structure abuts D012 and D013 to the south and southeast of Exeter Airport. Operations in D012 and D013 include:

- D012: Live firing, para-dropping, target towing, UAS (Visual Line of Sight (VLOS) and BVLOS operations
- D013: As per D012 activities, plus torpedo dropping, air combat manoeuvres, high energy manoeuvres and pilotless target aircraft.

As indicated, there is a requirement to implement a Safety Buffer when certain operations are taking place in these Danger Areas.

Note: CTA sectors 12A, B and C will only be operational when D012 is closed; therefore, implementation of the Buffer Zone Policy will not affect EDAL flight operations when these CTA sectors are operational.

EDAL notes that only new airspace constructs are included in the requirement to develop Buffer Zones surrounding existing operations hazardous to flight. EDAL has no evidence of any incidents where the Buffer Zone Policy was implemented and anticipate that the risk of any future incidents occurring is low.

However, if the implementation of a Buffer Zone is required (specifically for D012) then this would effectively close the approach lane for Runway 26 at EDAL at certain times. In these instances, there would be a highly significant and unacceptable impact on EDAL flight operations. EDAL and the MoD will continue discussion to develop a LoA to effectively coordinate activities that negate the requirement for implementation of a Buffer Zone.

7.6 NATS Operations

7.6.1 NATS Bristol Airport & LACC

A standard Bristol inbound route exists between Berry Head (BHD) and Bristol Airport. This route is flown after 2300hrs when the delegated ATS function for N864 is returned to LACC from NATS Cardiff Airport.

- Due to the limited movements inbound to Exeter after 2300hrs Exeter, in conjunction with NATS Bristol Airport and LACC, will develop a procedural solution that allows LACC to continue to route inbound aircraft direct from BHD to Bristol Airport. These aircraft will be in the descent to FL100 through the proposed Exeter CAS. This solution will be published in a LoA between the Units concerned.

7.6.2 NATS Cardiff Airport & LACC

Aircraft operating on N864 between FL70 and FL100 would remain under control in accordance with current procedures, and aircraft operating up to FL105 in the adjacent Exeter CAS would be under the control of Exeter ATC. This entails more complex airspace boundaries and changed separation requirements.

- The levels and dimensions of CTA sectors to the north of Exeter were considered thoroughly as part of the post-consultation review by EDAL. It is now proposed that the consulted CTA-5 would be sub-divided into 3 separate sectors, with the base altitudes amended. Engagement with Exeter based CAT operators indicated their significant support to keep the upper level of proposed Exeter CTAs abutting Airway N864 at FL105. This would allow them to consistently utilise CDA profiles to each runway direction at Exeter.
- Following engagement with NATS Cardiff Airport and LACC, the levels of aircraft inbound to Runway 26 at Exeter from the north were observed over a period of time. These observations by EDAL identified that aircraft operated in a broad range from FL60 to FL110. FlyBE DH8 aircraft were noted to be between FL100 and FL70 when passing abeam Heywood Farm which is consistent with a CDA profile. Aircraft were also noted to be between FL60 and FL50 when passing abeam Watchford Farm which is also consistent with a CDA profile.
- FL105 standardises the top of CAS for all proposed Exeter CTAs and facilitates airway connectivity southeast of Exeter at weekends, when Airway N90 is active.

Aircraft operating on N864 inbound to Exeter will therefore be considered as ‘known traffic’ released to Exeter by either NATS Cardiff Airport or LACC. The standard release for traffic inbound to Exeter from the north is made as aircraft descend to FL80; from the south this release is when descending to FL120. Neither Cardiff nor LACC will transfer aircraft to Exeter if other traffic below these levels might conflict with an inbound release, unless prior co-ordination takes place. Therefore, traffic released to Exeter cannot be considered a factor to other traffic operating on N864.

Cardiff employs 3 NM lateral coordinated separation between aircraft. Exeter, at present, employs 5 NM lateral separation. Exeter is currently delivering an equipment upgrade in the form of new Radar Data Display Systems. When the new display system is operational following certification by the CAA, Exeter will have the capability to apply coordinated 3 NM lateral separation between aircraft.

EDAL has scheduled flights that do not plan for a clearance to enter and transit within Airway N864 (e.g. Exeter Airport to/from Dublin Airport). These routine, but infrequent, flights are subject to ground-ground verbal coordination.

- Aircraft separation requirements will be defined and detailed in the LoA between EDAL and the two Units.

EDAL has suggested that LACC and Cardiff consider the delegation of ATS provision within the proposed Exeter CTAs above FL65 to Cardiff and LACC.

- To date no formal response to this suggestion has been received by EDAL. Further engagement will include this topic.

7.6.3 LACC - Western Radar

Introduction of Exeter Class D CAS would require new procedures to be developed between Exeter ATC and Western Radar that would enable the effective management of Exeter Airport arrivals and departures in receipt of an ATS from Western Radar.

- EDAL and Western Radar will amend the existing LoA between the two Units to reflect adaptations to procedures to ensure continued complementary operations.

8 References

Reference	Name	Origin
1	CAP 725 CAA Guidance on the Application of the Airspace Change Process Third Edition (corrected) April 2007	CAA
2	CAA: e-mail Dated 5th October 2016 at 1249hours	CAA
3	CAA Policy Statement Special Use Airspace: Safety Buffer Policy for Airspace Design Purposes Dated 22nd August 2014	CAA SARG
4	Code of Practice on Consultation July 2008	Cabinet Office URN 08/1097

Table 3 Table of References

A1 Glossary

Acronym	Meaning
ACC	Airport Consultative Committee
ACP	Airspace Change Proposal
agl	Above ground level
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
amsl	Above mean sea level
AOA	Airport Operators Association
AOPA	Aircraft Owners and Pilots Association
APS	Approach Control Surveillance
AR	Airspace Regulation
ARPAS	Association for Remotely Piloted Aircraft Systems
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Service
AWY	Airway
BAA	British Airports Association
BABO	British Association of Balloon Operators
BALPA	British Airline Pilots' Association
BATA	British Air Transport Association
BBAC	British Balloon and Airship Club
BBGA	British Business and General Aviation Association

Acronym	Meaning
BGA	British Gliding Association
BHA	British Helicopter Association
BHPA	British Hand Gliding and Paragliding Association
BMAA	British Microlight Aircraft Association
BMFA	British Model Flying Association
BPA	British Parachute Association
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAS	Controlled Airspace
CAT	Commercial Air Traffic
CCD	Continuous Climb Departure
CDA	Continuous Descent Approach
CFIT	Controlled Flight Into Terrain
CNS	Communication, Navigation & Surveillance
CTA	Control Area
CTR	Control Zone
DAATM	Defence Airspace and Air Traffic Management
DAP	Directorate of Airspace Policy (part of the CAA – now SARG)
DfT	Department for Transport
DSGC	Devon and Somerset Gliding Club
ELFAA	European Low Fares Airline Association
FIR	Flight Information Region
FMS	Flight Management System
ft.	Feet

Acronym	Meaning
GA	General Aviation
GASCo	General Aviation Safety Council
GAT	General Air Traffic
GAPAN	Guild of Air Pilots and Air Navigators
GATCO	Guild of Air Traffic Control Officers
GPS	Global Positioning System
HCGB	Helicopter Club of Great Britain
HQ DAAvn	Headquarters Director Army Aviation
HTZ	Helicopter Traffic Zone
IAIP	Integrated Aeronautical Information Package
IFP	Instrument Flight Procedure
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
LAA	Light Aircraft Association
LoA	Letter of Agreement
MAA	Military Aviation Authority
MATZ	Military Air Traffic Zone
MSA	Minimum Safe Altitude
MoD	Ministry of Defence
NAP	Noise Abatement Procedure
NATMAC	National Air Traffic Management Advisory Committee
NATS	The National Air Traffic Service Provider
NERL	NATS En-Route Ltd
NCHQ	Navy Command Head Quarters

Acronym	Meaning
NM	Nautical Miles
NPR	Noise Preferential Route
OS	Ordnance Survey
PSR	Primary Surveillance Radar
RAF	Royal Air Force
RMZ	Radio Mandatory Zone
RPAS	Remotely Piloted Aircraft Systems
RTF	Radiotelephony
SARG	CAA Safety and Airspace Regulation Group
SERA	Standard European Rules of the Air
SVFR	Special Visual Flight Rules
TMA	Terminal Control Area
TMZ	Transponder (SSR) Mandatory Zone
UAV	Unmanned Air Vehicles
UKAB	UK Airprox Board
UKFSC	UK Flight Safety Committee
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VOR	VHF Omni Directional Radio Range; a type of short-range radio navigation system for aircraft

A2 Consultation Background and Methodology

A2.1 Background to the Consultation

EDAL has identified the need for a change to the arrangements and procedures in the immediate airspace surrounding Exeter Airport to provide requisite protection to aircraft during critical departure and final approach stages of flight.

Exeter Airport operations are currently restricted by departure and arrival procedures that are not afforded any CAS protection. These require persistent ATC intervention, often at very short notice, and are subject to protracted rerouting. Hence, EDAL believes that CAS is necessary to improve levels of protection for CAT and other aircraft operating to and from Exeter Airport at these critical stages of flight.

In order to enhance safety and improve the efficiency of Exeter Airport operations, EDAL are proposing to achieve this through:

- The design of Class D CAS airspace to adequately contain routinely utilised Exeter Airport published IFPs.
- The provision of lateral separation of arrival and departure routes.

CAS will provide additional protection for CAT during arrival and departure (both vulnerable phases of flight for airliners). This will have a positive impact on airspace efficiency and will likely have associated environmental benefits. Currently, deviation of airliners operating to and from the Airport is a regular occurrence due to the unknown and unpredictable nature of the Class G uncontrolled airspace surrounding the Airport. The introduction of CAS will reduce the likely occurrence of aircraft deviations, particularly airliners on approach and departure.

EDAL, as the Sponsor of the proposed airspace change, is required to submit a case to the CAA to justify the change in the airspace surrounding Exeter Airport. In addition, as part of the ACP, it is EDAL's responsibility to consult with relevant aviation stakeholders who may be directly or indirectly affected by the proposal.

A2.2 Consultation Method

The EDAL ACP consultation was conducted in accordance with the principles set out in the Cabinet Office Code of Practice on Consultation [Reference 4], as required by the CAA. A comprehensive Consultation Document was prepared by EDAL, presenting the proposal, rationale for the change, the perceived effects, and mitigation measures considered by EDAL. A link to the Consultation Document was made available on the EDAL website. Consultees were notified by email alerting them to the consultation and how to access the Consultation Document.

Local aviation stakeholders were engaged at an early stage during the design process. Prior to the preparation of the Consultation Document, meetings were conducted with the following major aviation stakeholders:

- DSFT (based at Dunkeswell Aerodrome).

- DSGC (based at North Hill Aerodrome).
- MoD DAATM.
- NATS LACC and NATS Cardiff Airport.

The primary purpose of these meetings was to expose stakeholders to the proposed airspace design prior to any formal consultation comment.

Full consultation commenced with wide circulation of the electronic Consultation Document and conceptual airspace designs to all identified aviation stakeholders on 10th March 2017. The required minimum period for formal consultation is twelve weeks but the process recognised the number of Public Holidays during the period. The duration of the consultation was extended to 9th June 2017, allowing an extra week for the Public Holidays associated with the Easter holiday period.

Consultees were asked to consider the proposal and submit a response to EDAL using an online response form on the EDAL consultation website or through a dedicated email address (acpconsultation@exeter-airport.co.uk).

In order to promote maximum response, the following reminders were sent to encourage a maximum response from local aviation stakeholders:

- 29th May 2017 – Thomson Airways;
- 27th June 2017 – Farway Common Airstrip; and
- 27th June 2017 – Skydive Buzz Ltd.

A3 Aviation Stakeholder Consultee List

Airport User Group
FlyBe
Airways Flight Training
Aviation Southwest
Robin Flying Group

Local Airspace Users Group
Dunkeswell Aerodrome: Devon and Somerset Flight Training
Dunkeswell Aerodrome: SkyDive Buzz Ltd
North Hill Airfield: Devon and Somerset Gliding Club
Farway Common Airstrip
Branscombe Airfield
Watchford Farm Airstrip

National Organisations (NATMAC) (as correct at	
Headquarters 3rd Air Force UK (USAF)	3 AF-UK/A3
Aerodrome, Airspace Regulation and Air Traffic Standards (CAA)	AAA
Aviation Environment Federation	AEF
Airport Operators Association	AOA
Airport Operators Association	AOPA
Airport Operators Association UK	AOPA UK
Aviation Division Navy Command Headquarters (x2)	Aviation Division NCHQ
British Airways	BA
British Aerospace Systems Ltd	BAE Systems
British Airline Pilots' Association	BALPA
British Air Transport Association	BATA
British Balloon and Airship Club	BBAC
British Business and General Aviation Association	BBGA
British Gliding Association	BGA
British Hang Gliding and Paragliding Association	BHPA
British Microlight Aircraft Association	BMAA

British Model Flying Association	BMFA
British Parachute Association	BPA
British Helicopter Association	BHA
CAA Safety and Airspace Regulation Group	CAA SARG
Defence Airspace and Air Traffic Management	DAATM
General Aviation Alliance	GAA
General Aviation Safety Council	GASCo
Guild of Air Pilots and Air Navigators	GAPAN
Guild of Air Traffic Control Officers	GATCO
Helicopter Club of Great Britain	HCGB
Heathrow Airport	LHR
Heavy Airlines	-
Headquarters Director Army Aviation	HQ DAAvn
Honourable Company of Air Pilots	HCAP
Light Aircraft Association	LAA
Light Airlines	-
Low Fares Airlines	-
Military Aviation Authority	MAA
Ministry of Defence	MoD
MoD Flight Test Regulator	MFTR
National Air Traffic Services	NATS
Private Pilot's Licence/Instructor Rating	PPL/IR Europe
Unmanned Air Vehicle Systems Association (x2)	UAVS Association
UK Airprox Board	UKAB
UK Flight Safety Committee	UKFSC

Local Authorities
Devon County Council
Exeter City Council

A4 Proposed CAS Co-ordinates

CAS Sector	Point	WGS84		Amplifying Text	Lower Limit	Upper Limit
		Latitude (dec)	Longitude (dec)			
CTR-A						
CTR-A-1	1	50.8018733	-3.5297871		Surface	FL65
CTR-A-2	2	50.8283036	-3.3605719			
CTR-A-3	3	50.734292	-3.413811	clockwise arc radius 6.0NM		
CTR-A-4	4	50.7987269	-3.293463			
CTR-A-5	5	50.6637101	-3.3169699			
CTR-A-6	6	50.6402282	-3.4667122			
CTR-A-7	7	50.734292	-3.413811	clockwise arc radius 6.0NM		
CTR-A-8	8	50.7238849	-3.5703313			
CTR-A-9	9	50.7656505	-3.5632932			

CTR-A-10	10	50.734292	-3.413811	clockwise arc radius 6.0NM		
CTR-A-1	1	50.8018733	-3.5297871			
CTR-B						
CTR-B-1	1	50.7987269	-3.293463		Surface	FL105
CTR-B-2	2	50.734292	-3.413811	clockwise arc radius 6.0NM		
CTR-B-3	3	50.6666615	-3.2980549			
CTR-B-4	4	50.6637101	-3.3169699			
CTR-B-1	1	50.7987269	-3.293463			
CTR-C						
CTR-C-1	1	50.7656505	-3.5632932		Surface	FL105
CTR-C-2	2	50.7238849	-3.5703313			
CTR-C-3	3	50.734292	-3.413811	clockwise arc radius 6.0NM		
CTR-C-1	1	50.7656505	-3.5632932			
CTA-1						
CTA-1-1	1	50.758199	-3.8055933		2000ft	FL105

CTA-1-2	2	50.7758079	-3.694979			
CTA-1-3	3	50.734292	-3.413811	anticlockwise arc radius 11.0NM		
CTA-1-4	4	50.6141613	-3.6313248			
CTA-1-5	5	50.5965597	-3.7415528			
CTA-1-6	6	50.734292	-3.413811	clockwise arc radius 15.0NM		
CTA-1-1	1	50.758199	-3.8055933			
CTA-2A						
CTA-2A-1	1	50.7758079	-3.694979		1500ft	FL105
CTA-2A-2	2	50.7974521	-3.5579288			
CTA-2A-3	3	50.7656505	-3.5632932			
CTA-2A-4	4	50.734292	-3.413811	anticlockwise arc radius 6.0NM		
CTA-2A-5	5	50.7238849	-3.5703313			
CTA-2A-6	6	50.6211116	-3.587594			
CTA-2A-7	7	50.6141613	-3.6313248			
CTA-2A-8	8	50.734292	-3.413811	clockwise arc radius 11.0NM		

CTA-2A-1	1	50.7758079	-3.694979			
CTA-2B						
CTA-2B-1	1	50.7974521	-3.5579288		1500ft	FL65
CTA-2B-2	2	50.8018733	-3.5297871			
CTA-2B-3	3	50.734292	-3.413811	anticlockwise arc radius 6.0NM		
CTA-2B-4	4	50.7656505	-3.5632932			
CTA-2B-1	1	50.7974521	-3.5579288			
CTA-2C						
CTA-2C-1	1	50.7238849	-3.5703313		1500ft	FL65
CTA-2C-2	2	50.734292	-3.413811	anticlockwise arc radius 6.0NM		
CTA-2C-3	3	50.6402282	-3.4667122			
CTA-2C-4	4	50.6211116	-3.587594			
CTA-2C-1	1	50.7238849	-3.5703313			
CTA-3A						
CTA-3A-1	1	50.8046262	-3.292433		1700ft	FL105
CTA-3A-2	2	50.8287441	-3.1361568			

CTA-3A-3	3	50.734292	-3.413811	clockwise arc radius 12NM		
CTA-3A-4	4	50.7317561	-3.0990565			
CTA-3A-5	5	50.7064466	-3.2626927			
CTA-3A-6	6	50.734292	-3.413811	anticlockwise arc radius 6NM		
CTA-3A-7	7	50.7987269	-3.293463			
CTA-3A-1	1	50.8046262	-3.292433			
CTA-3B						
CTA-3B-1	1	50.8034328	-3.3001256			
CTA-3B-2	2	50.8046262	-3.292433			
CTA-3B-3	3	50.7987269	-3.293463		1700ft	FL65
CTA-3B-4	4	50.734292	-3.413811	anticlockwise arc radius 6NM		
CTA-3B-1	1	50.8034328	-3.3001256			
CTA-4A						
CTA-4A-1	1	50.5965597	-3.7415528			
CTA-4A-2	2	50.6211116	-3.587594		3000ft	FL105
CTA-4A-3	3	50.585219	-3.5936022			

CTA-4A-4	4	50.5643558	-3.7243116			
CTA-4A-1	1	50.5965597	-3.7415528			
CTA-4B						
CTA-4B-1	1	50.6211116	-3.587594		3000ft	FL65
CTA-4B-2	2	50.6637101	-3.3169699			
CTA-4B-3	3	50.6278704	-3.3231819			
CTA-4B-4	4	50.585219	-3.5936022			
CTA-4B-1	1	50.6211116	-3.587594			
CTA-4C						
CTA-4C-1	1	50.863882	-3.129977		3000ft	FL105
CTA-4C-2	2	50.8750403	-3.0569243			
CTA-4C-3	3	50.734292	-3.413811	clockwise arc radius 16NM		
CTA-4C-4	4	50.7133969	-2.9954803			
CTA-4C-5	5	50.6995837	-3.0142236			
CTA-4C-6	6	-	-	Follow The Coastline		
CTA-4C-7	7	50.685	-3.0955556			
CTA-4C-8	8	50.6521883	-3.1669378			

CTA-4C-9	9	50.6278704	-3.3231819			
CTA-4C-10	10	50.6637101	-3.3169699			
CTA-4C-11	11	50.6666615	-3.2980549			
CTA-4C-12	12	50.734292	-3.413811	anticlockwise arc radius 6NM		
CTA-4C-13	13	50.7064466	-3.2626927			
CTA-4C-14	14	50.7317561	-3.0990565			
CTA-4C-15	15	50.734292	-3.413811	anticlockwise arc radius 12NM		
CTA-4C-16	16	50.8287441	-3.1361568			
CTA-4C-1	1	50.863882	-3.129977			
CTA-12A						
CTA-12A-1	1	50.685	-3.0955556		3000ft	FL105
CTA-12A-2	2	-	-	Follow the coastline		
CTA-12A-3	3	50.6995837	-3.0142236			
CTA-12A-4	4	50.6691163	-3.0572462			
CTA-12A-5	5	50.6521883	-3.1669378			
CTA-12A-1	1	50.685	-3.0955556			

CTA-5A						
CTA-5A-1	1	50.793668	-3.7962592		3000ft	FL105
CTA-5A-2	2	50.832478	-3.5520065			
CTA-5A-3	3	50.7974521	-3.5579288			
CTA-5A-4	4	50.758199	-3.8055933			
CTA-5A-1	1	50.793668	-3.7962592			
CTA-5B						
CTA-5B-1	1	50.832478	-3.5520065		3000ft	FL65
CTA-5B-2	2	50.8538114	-3.4161258			
CTA-5B-3	3	50.8187134	-3.4221661			
CTA-5B-4	4	50.7974521	-3.5579288			
CTA-5B-1	1	50.832478	-3.5520065			
CTA-6A						
CTA-6A-1	1	50.8538114	-3.4161258		3900ft	FL65
CTA-6A-2	2	50.874993	-3.2801163			
CTA-6A-3	3	50.8046262	-3.292433			
CTA-6A-4	4	50.8034328	-3.3001256			

CTA-6A-5	5	50.734292	-3.413811	anticlockwise arc radius 6NM		
CTA-6A-6	6	50.8283036	-3.3605719			
CTA-6A-7	7	50.8187134	-3.4221661			
CTA-6A-1	1	50.8538114	-3.4161258			
CTA-6B						
CTA-6B-1	1	50.874993	-3.2801163		3900ft	FL105
CTA-6B-2	2	50.9042913	-3.0901086			
CTA-6B-3	3	50.734292	-3.413811	clockwise arc radius 16NM		
CTA-6B-4	4	50.8750403	-3.0569243			
CTA-6B-5	5	50.863882	-3.129977			
CTA-6B-6	6	50.8287441	-3.1361568			
CTA-6B-7	7	50.8046262	-3.292433			
CTA-6B-1	1	50.874993	-3.2801163			
CTA-7						
CTA-7-1	1	50.8786893	-3.6937344		4000ft	FL105
CTA-7-2	2	50.9028366	-3.5400867			

CTA-7-3	3	50.832478	-3.5520065			
CTA-7-4	4	50.793668	-3.7962592			
CTA-7-1	1	50.8786893	-3.6937344			
CTA-8A						
CTA-8A-1	1	50.9028366	-3.5400867		4500ft	FL65
CTA-8A-2	2	50.9450509	-3.2678211			
CTA-8A-3	3	50.874993	-3.2801163			
CTA-8A-4	4	50.832478	-3.5520065			
CTA-8A-1	1	50.9028366	-3.5400867			
CTA-8B						
CTA-8B-1	1	50.9450509	-3.2678211		4500ft	FL105
CTA-8B-2	2	50.9583862	-3.1808317			
CTA-8B-3	3	50.9042913	-3.0901086			
CTA-8B-4	4	50.874993	-3.2801163			
CTA-8B-1	1	50.9450509	-3.2678211			
CTA-9A						
CTA-9A-1	1	51.0220311	-3.5198046			

CTA-9A-2	2	50.9028366	-3.5400867		5500ft	FL105
CTA-9A-3	3	50.8786893	-3.6937344			
CTA-9A-1	1	51.0220311	-3.5198046			
CTA-9B						
CTA-9B-1	1	51.0220311	-3.5198046		5500ft	FL65
CTA-9B-2	2	51.0039336	-3.2574684			
CTA-9B-3	3	50.9450509	-3.2678211			
CTA-9B-4	4	50.9028366	-3.5400867			
CTA-9B-1	1	51.0220311	-3.5198046			
CTA-9C						
CTA-9C-1	1	51.0039336	-3.2574684		5500ft	FL105
CTA-9C-2	2	50.9583862	-3.1808317			
CTA-9C-3	3	50.9450509	-3.2678211			
CTA-9C-1	1	51.0039336	-3.2574684			
CTA-10A						
CTA-10A-1	1	50.5643558	-3.7243116		3500ft	FL105
CTA-10A-2	2	50.585219	-3.5936022			

CTA-10A-3	3	50.4796912	-3.6112297			
CTA-10A-4	4	50.4696813	-3.673768			
CTA-10A-1	1	50.5643558	-3.7243116			
CTA-10B						
CTA-10B-1	1	50.585219	-3.5936022			
CTA-10B-2	2	50.6278704	-3.3231819			
CTA-10B-3	3	50.522479	-3.3414102		3500ft	FL65
CTA-10B-4	4	50.4796912	-3.6112297			
CTA-10B-1	1	50.585219	-3.5936022			
CTA-10C						
CTA-10C-1	1	50.6278704	-3.3231819			
CTA-10C-2	2	50.6521883	-3.1669378			
CTA-10C-3	3	50.6138889	-3.25		3500ft	FL105
CTA-10C-4	4	50.5321368	-3.2799232			
CTA-10C-5	5	50.522479	-3.3414102			
CTA-10C-1	1	50.6278704	-3.3231819			

CTA-12B						
CTA-12B-1	1	50.6521883	-3.1669378		3500ft	FL105
CTA-12B-2	2	50.6691163	-3.0572462			
CTA-12B-3	3	50.5386423	-3.2383168			
CTA-12B-4	4	50.5321368	-3.2799232			
CTA-12B-5	5	50.6138889	-3.25			
CTA-12B-1	1	50.6521883	-3.1669378			
CTA-11A						
CTA-11A-1	1	50.4696813	-3.673768		4500ft	FL105
CTA-11A-2	2	50.4796912	-3.6112297			
CTA-11A-3	3	50.3824776	-3.6273971			
CTA-11A-1	1	50.4696813	-3.673768			
CTA-11B						
CTA-11B-1	1	50.4796912	-3.6112297		4500ft	FL65
CTA-11B-2	2	50.522479	-3.3414102			
CTA-11B-3	3	50.4145807	-3.3599906			
CTA-11B-4	4	50.3824776	-3.6273971			

CTA-11B-1	1	50.4796912	-3.6112297			
CTA-11C						
CTA-11C-1	1	50.522479	-3.3414102		4500ft	FL105
CTA-11C-2	2	50.5321368	-3.2799232			
CTA-11C-3	3	50.5	-3.2916667			
CTA-11C-4	4	50.4145807	-3.3599906			
CTA-11C-1	1	50.522479	-3.3414102			
CTA-12C						
CTA-12C-1	1	50.5321368	-3.2799232		4500ft	FL105
CTA-12C-2	2	50.5386423	-3.2383168			
CTA-12C-3	3	50.5	-3.2916667			
CTA-12C-1	1	50.5321368	-3.2799232			

A5 Expectations for Future ATM at EDAL

A5.1 ATM Projections

Projected increases in Air Transport Movements (ATM) are anticipated at Exeter. This detail is replicated from the Exeter Airport Management Business Plan and is summarised in Figure 2.

	FY17	FY18	FY19	FY20	FY21	FY22
Scheduled	11,720	11,942	13,050	13,460	13,710	14,370
IT Charter	1,295	1,322	1,316	1,376	1,370	1,584
Mail	510	504	506	508	506	506
General Aviation	8,735	8,893	8,893	8,893	8,893	8,893
Corporate Aviation	1,978	1,856	1,949	2,047	2,149	2,257
Training & Testing	10,597	9,998	9,998	9,998	9,998	9,998
Military & Official	475	410	410	410	410	410
Compass Swing	66	66	66	66	66	66
Engine Testing	240	236	236	236	236	236
Maintenance	391	394	394	394	394	394
Medical	17	17	17	17	17	17
Overshoots	1,077	1,051	1,051	1,051	1,051	1,051
Others	3,316	3,257	3,257	3,257	3,257	3,257
Total	**40,417**	**39,947**	**41,143**	**41,713**	**42,057**	**43,039**

Figure 7 Projected Exeter Airport ATM FY2017 – FY2022

It should be noted that ground-based movements are anticipated to remain at the current levels, are included in the Figure, but should be subtracted from projected movement totals.