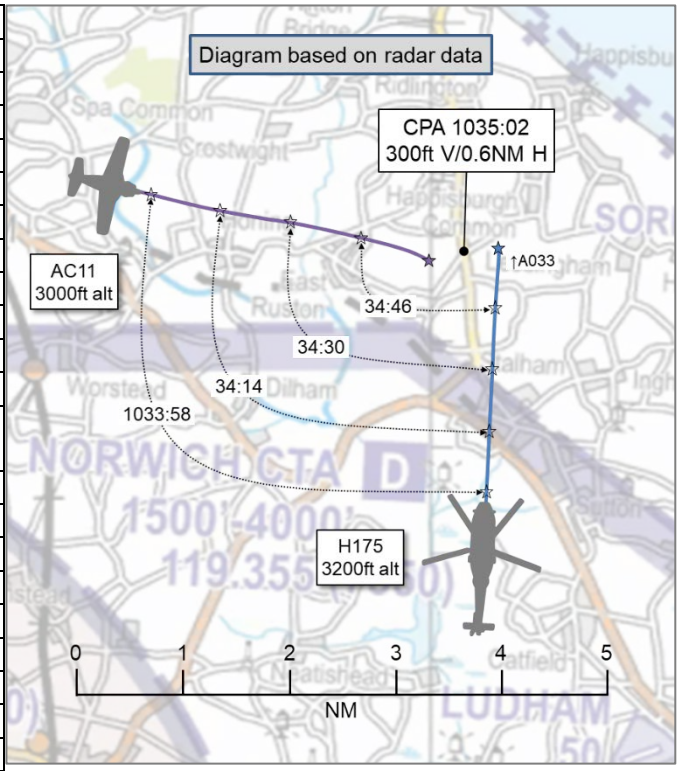
AIRPROX REPORT No 2021125

Date: 16 Jul 2021 Time: 1035Z Position: 5248N 00131E Location: 4.5NM ESE of N Walsham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	H175	AC11
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Basic
Provider	Norwich Radar	Norwich Radar
Altitude/FL	F026	F029
Transponder	A, C, S	A, C, S
Reported		
Colours	Red, white, blue	Wite, blue
Lighting	Anti-colls, position, landing lights	Anti-colls, beacon, nav, strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	3200ft
Altimeter	QNH (1022hPa)	QNH (NR hPa)
Heading	006°	100°
Speed	142kt	145kt
ACAS/TAS	TCAS II	'ADS-B out'
Alert	RA	None
Separation at CPA		
Reported	100ft V/0.5NM H	200ft V/1NM H
Recorded	300ft V/0.6NM H	



THE H175 PILOT reports that, on an outbound flight from Norwich RW09 to [an offshore platform], they were cleared on departure to 3000ft straight ahead. After being level at 3000ft they received the clearance to proceed own navigation to [the offshore platform]. They were routing east of Bacton, to stay clear of the gas venting station. As they were about to leave controlled airspace, Norwich Radar gave them Traffic Information, one fixed-wing 500ft below their level at 11 o'clock, at a range of about 5 miles, taking a descent down to 1000ft below their level (to stay clear of clouds) and they became visual with this traffic [a PA28]. Norwich Radar informed them about another fixed-wing at their 10.30 moving towards them, 400ft above, but descending slowly as well, now at a distance of 3-4NM. When the aircraft got closer, they received an ACAS Traffic Alert, "Traffic, Traffic", but were unable to spot the traffic from their perspective, as it was moving directly abeam, slightly above and towards them. At this point it was indicating +100ft from their level and within a mile. The other traffic [the PA28] was now straight ahead of them around 1000ft below, with a distance of about 5 miles. They received an ACAS Resolution Advisory from the aircraft on their left, and the aircraft took an automatic descent (no pilot action involved as this is an automatic system on the H175). At about 2600ft they received the call "clear of conflict" from their ACAS. They complied with the ATC calls and were now clear of traffic and climbed back to their cleared level (3000ft). The location was just south-east of Bacton, on the border of Controlled Airspace of Norwich. After speaking to ATC over the telephone, Radar estimated the traffic was around 0.5NM from them and 100ft above, which corresponds with their ACAS. The aircraft was outside controlled airspace and outside the radar responsibility area. The aircraft appeared to "hug" the airspace border. The other [AC11] pilot reported to Norwich Radar that they were visual with the helicopter, and they were on the frequency. Regarding SERA, as the helicopter was coming from the right, similar level, they believe they had the right of way. As [the other pilot] was visual with them, they expected the aircraft to take a wider spacing than the 0.5NM, and not to take a descent towards them, as their ACAS displayed. In the H175 pilot's opinion, the airspace around Norwich needs to be revised. With the amount of traffic going to and returning from offshore (IFR), one would expect the airspace

(1500ft to 4000ft) to reach the coast to provide solid cover to anyone crossing it. Right now, there is a gap between the Offshore Safety Area and Norwich's controlled airspace. As this is open airspace, it functions like a corridor for traffic where Norwich Radar unfortunately has no authority, other than giving, for example, a Traffic Service. In the end, they rely on SERA which is, in their opinion, insufficient as they fly IFR in potentially marginal weather conditions. It is everyone's right to make use of that airspace, offshore, General Aviation, etc. but with a few changes it would make it safer for everyone.

The pilot assessed the risk of collision as 'Medium'.

THE AC11 PILOT reports cruising at around 3200ft to the north of the Norwich controlled airspace. They were receiving a Basic Service from the Norwich controller, who had passed them Traffic Information on the helicopter after passing Traffic Information on them to the helicopter pilot. There was not much other traffic around, and they saw the helicopter at a similar level and at a range of around 1NM. Because the helicopter was coming from their right, they turned slightly right to keep a sensible separation and to pass behind it.

The pilot assessed the risk of collision as 'Low'.

THE NORWICH RADAR CONTROLLER reports that the H175 helicopter [pilot] was in receipt of a Traffic Service routing from Norwich out to the oil/gas platforms at 3000ft. Two other aircraft under a Basic Service – [a PA28] at 1700ft and the AC11 at 3000ft – were in confliction and Traffic Information was passed. The pilot of [the H175] called visual with [the PA28] and [the AC11 pilot] called visual with [the H175], requesting a right turn into controlled airspace. At this point, the pilot of [the H175] transmitted "TCAS descending" followed shortly after by "clear of conflict". Both aircraft continued without further incident.

THE NORWICH SATCO reports it is unfortunate that this incident took place right on the boundary of controlled airspace (CAS), which necessitated [the AC11 pilot] requesting permission to enter CAS before the pilot could turn away from [the H175]. Clearly, there was never a risk of collision as the pilot reported visual with the helicopter; however, the short delay in confirming clearance to enter CAS was enough to trigger a TCAS RA.

Factual Background

The weather at Norwich was recorded as follows:

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METAR COR EGSH 161020Z 35011KT 310V020 9999 FEW019 19/12 Q1026 NOSIG=
METAR COR EGSH 161050Z 36012KT 320V030 CAVOK 20/12 Q1027 NOSIG=
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Analysis and Investigation

CAA ATSI

The Airprox occurred just outside the eastern boundary of Norwich Controlled Airspace.

ATSI had access to occurrence reports from the pilots of both aircraft and the Norwich controller. The Area Radar and Norwich RTF were reviewed for the relevant period. The RTF loading was low initially but increased slightly in the few minutes prior to the Airprox. In the interest of brevity, only the RTF from the two aircraft involved has been included in this report. Screenshots within this report have been taken from the Area Radar and are not necessarily indicative of what the Norwich controller was seeing at the time. Levels displayed are Flight Levels and the QNH entered into the Radar Display processor was 1026hPa, a difference of 13hPa (338 feet).

The H175 pilot had departed RW09 at Norwich, to the east initially, and had then turned to the north, the pilot had been cleared under their own navigation to [an offshore platform]. The helicopter was level at altitude 3000ft and the pilot reported that they did not gain visual contact with the AC11. The pilot received a TCAS Resolution Advisory, and the helicopter entered an auto-descent. At the time of the Airprox, the pilot was in receipt of a Traffic Service from Norwich Radar.

The AC11 pilot was transiting west-to-east and was northeast of Norwich at the time of the Airprox. The pilot reported sighting the H175. The pilot was in receipt of a Basic Service from Norwich Radar at the time of the Airprox.

At **1006:00** the AC11 pilot made initial contact with the Norwich Radar controller and advised them that they were an AC11 from [departure airfield] to [destination airfield], with a new engine fitted and were on a test flight. The pilot advised that they were not intending to come into the Zone but to route right round to the coast, to the left and then into [their destination]. A Basic Service was agreed and the QNH of 1026hPa passed.

At **1026:30** the AC11 pilot advised the controller that they were going to do a backtrack round the coast and then (unintelligible). The controller acknowledged.

At **1028:40** the H175 pilot made their initial call to the controller advising that they were, "*outbound, passing 1300 feet, climbing 3000, runway heading, straight ahead*." The controller responded, "*roger, report reaching 3000*." The pilot responded, "*wilco*". (Figure 1). At **1031:10** the H175 pilot advised that they were now maintaining 3000ft and the controller acknowledged this and instructed the pilot to turn left on track (Figure 2). The controller then turned their attention to other aircraft.

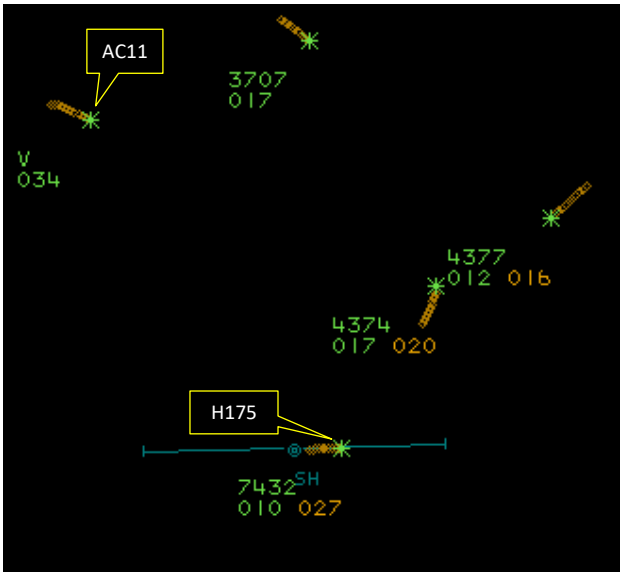


Figure 1 – 1028:40

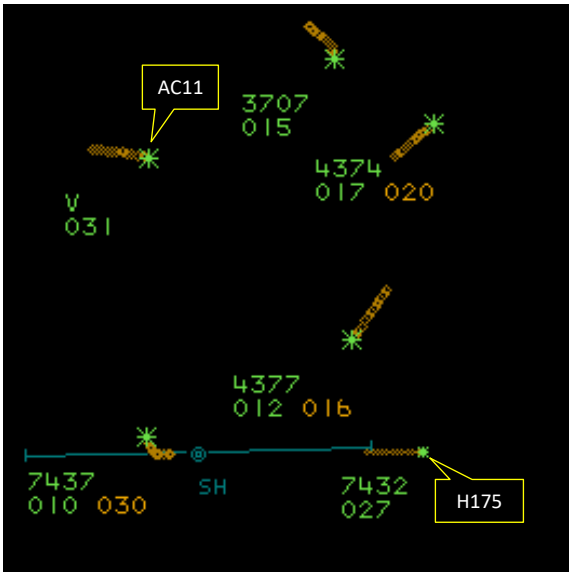


Figure 2 – 1031:10

At **1034:20** the controller passed Traffic Information to the H175 pilot, "*traffic in your left eleven o'clock, 3 miles, crossing left right, PA28 on this frequency, 600 feet below, commencing descent*." The pilot responded, "*visual with that traffic*." The controller then passed Traffic Information on the AC11, "*further traffic in your left half past ten, range of 3 miles, is on this frequency, at 3200*." The H175 pilot responded, "*looking for that one*." (Figure 3).

At **1034:30** the controller passed Traffic Information to the AC11 pilot, "*helicopter traffic right one o'clock at a range of 2 miles now, at 3000 feet*." The AC11 pilot responded, "*we are visual sir*." The controller responded, "*roger thank you.*" (Figure 4).

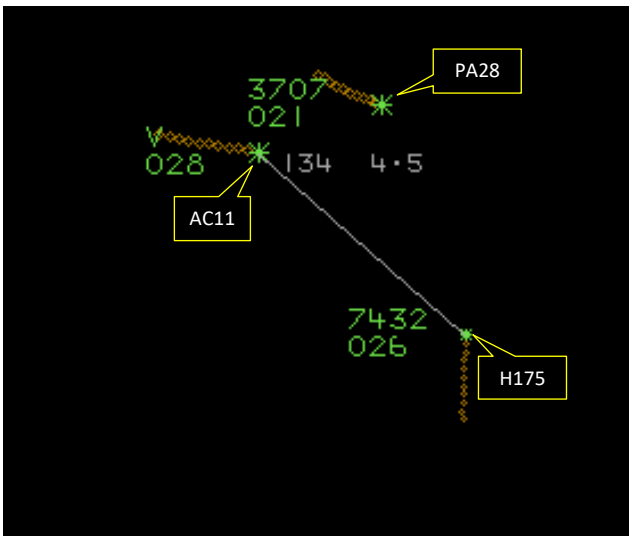


Figure 3 – 1034:20

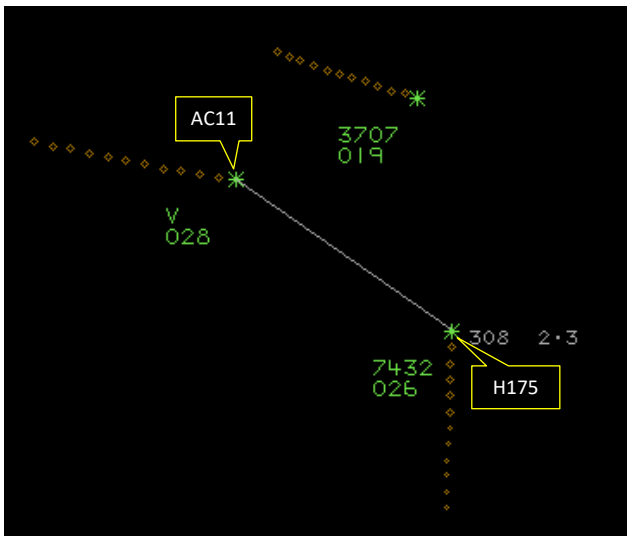


Figure 4 – 1034:30

At **1034:50** the AC11 pilot requested to route direct from their present position to [destination]. The controller instructed the pilot to squawk 7363 and the pilot read this back. The controller then advised the pilot that they could "*turn right direct now*" and the pilot read back "*direct [destination]*." (Figure 5).

At **1035:00** the H175 pilot advised the controller that they had received a TCAS and were descending. The controller acknowledged.

At **1035:02** CPA occurred, with the aircraft separated by 0.6NM laterally and 300ft vertically (Figure 6).

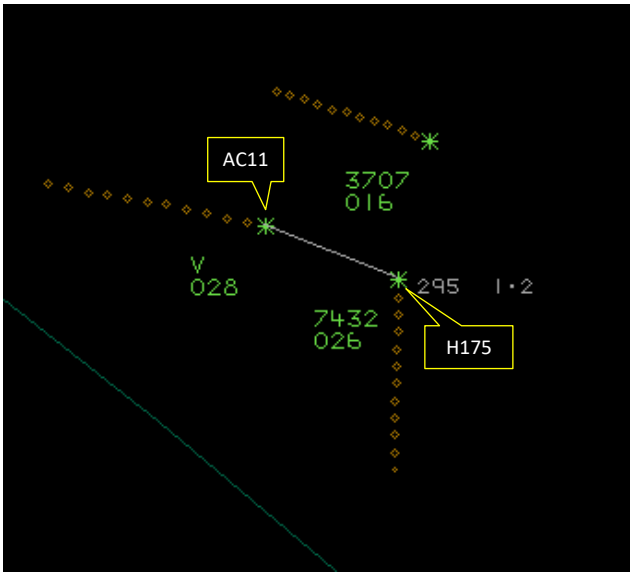


Figure 5 – 1034:50

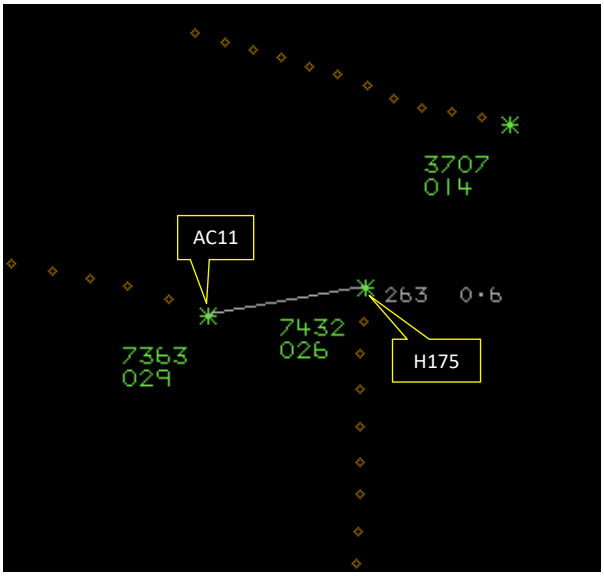


Figure 6 – 1036:02 – CPA

At **1035:20** the controller issued the AC11 pilot with a clearance to transit controlled airspace VFR and the pilot responded with "*clear VFR*."

At **1035:40** the H175 pilot advised that they were clear of traffic and climbing back to 3000ft. The controller acknowledged.

The H175 pilot was in receipt of a Traffic Service. The relevant CAP 774 extracts:

> 3.1 A Traffic Service is a surveillance based ATS, where in addition to the provisions of a Basic Service, the controller provides specific surveillance derived traffic information to assist the pilot in avoiding other traffic. Controllers may provide headings and/or levels for the purposes of positioning and/or sequencing; however, the controller is not required to achieve deconfliction minima, and the pilot remains responsible for collision avoidance.
>
> Traffic information:
>
> 3.5 The controller shall pass traffic information on relevant traffic and shall update the traffic information if it continues to constitute a definite hazard, or if requested by the pilot. However, high controller workload and RTF loading may reduce the ability of the controller to pass traffic information, and the timeliness of such information. Traffic is normally considered to be relevant when, in the judgement of the controller, the conflicting aircraft's observed flight profile indicates that it will pass within 3 NM and, where level information is available, 3,000 ft of the aircraft in receipt of the Traffic Service or its level-band if manoeuvring within a level block. However, controllers may also use their judgment to decide on occasions when such traffic is not relevant, e.g., passing behind or within the parameters but diverging. Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5 NM, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary. Controller judgement is essential to ensure that traffic information is relevant and timely. Controllers should take account of the aircraft's relative speeds, lateral and vertical closure rates, and track histories. Distances displayed on ATS surveillance systems can be at variance to the actual distances between aircraft due to the limitations in accuracy of surveillance systems. Furthermore, some aircraft may not be displayed at all by ATS surveillance systems.

At 1034:20 when the controller passed Traffic Information to the H175 pilot on the unrelated PA28, the H175 pilot reported having this traffic in sight. When the controller then passed Traffic Information on the AC11, the H175 pilot responded that they were looking for the traffic.

The H175 pilot did not gain sight of the AC11, and 40sec after receipt of the Traffic Information, the pilot received a TCAS RA, and the aircraft entered an auto descent to resolve the confliction.

The range included with the Traffic Information passed to the H175 pilot on the AC11 was 3 miles, the area radar replay indicates that the aircraft were 4.5 miles apart at this point. There was no opportunity to update this Traffic Information prior to the RA being triggered, this was due to the time required for the controller to pass reciprocal Traffic Information to the AC11 pilot, and to address their request for a direct routing.

The AC11 pilot was in receipt of a Basic Service. The relevant CAP 774 extracts:

> 2.1 A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities, conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot's responsibility.
>
> 2.7 A controller with access to surveillance-derived information shall avoid the routine provision of traffic information on specific aircraft but may use that information to provide a more detailed warning to the pilot. 2.8 If a controller/ FISO considers that a definite risk of collision exists, a warning shall be issued to the pilot (SERA.9005(b)(2) and GM1 SERA.9005(b)(2)). 2.9 Whether traffic information has been provided or not, the pilot remains responsible for collision avoidance without assistance from the controller.

When the AC11 pilot made initial contact with the Norwich controller they did not advise what level or levels they would be operating at. When the H175 pilot arrived on frequency they reported that they would be climbing to 3000ft on departure. Had the operating level of the AC11 pilot been established during their initial RT call, this may potentially have alerted the controller to the fact that the two aircraft would be operating at similar levels and perhaps prompted the controller to start monitoring the potential for confliction at an earlier stage.

The Traffic Information passed to the pilot of the AC11 on the H175 enabled the AC11 pilot to gain sight of the H175. The radar replay indicates that there was 200ft separation between the two aircraft

at this point, the pilots would have been aware of this, having received level reports within the Traffic Information passed.

Immediately after reporting having the H175 in sight, the AC11 pilot requested a right turn onto a direct track for [their destination], and this was agreed by the controller. The TCAS RA was reported by the H175 pilot just as the AC11 pilot was commencing the right turn.

An investigation report for this Airprox event was not received from Norwich ATC.

Conclusion

The Traffic Information passed to the pilot of the H175 was not timely and accurate, in that the aircraft were within 5 miles (4.5 miles) of each other when it was passed, and the reported range provided was 3 miles. There was then insufficient time for the Traffic Information to be updated prior to the RA being triggered.

When the AC11 pilot reported having the H175 in sight, the controller could have reasonably expected the AC11 pilot not to come into proximity to the H175.

The AC11 pilot chose to manoeuvre laterally in an attempt to resolve the confliction.

Norwich ATC Management is reminded of its obligations under Regulation (EU) 376/2014 as retained (and amended in UK domestic law) under the European Union (Withdrawal) Act 2018, Article 4, paragraphs 6(d) and 7, to submit a mandatory occurrence report, within 72 hours of when they are first made aware of an occurrence, and to conduct an analysis of the occurrence, in order to identify any safety hazards, followed by submission of follow up reports, in accordance with the 30 day and 3 month timescales contained in Article 11 of the regulation.

UKAB Secretariat

The H175 and AC11 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as converging then the AC11 pilot was required to give way to the H175.[2]

Summary

An Airprox was reported when an H175 and an AC11 flew into proximity 4.5NM ESE of N Walsham at 1035Z on Friday 16th July 2021. The H175 pilot was operating under IFR in VMC and was in receipt of a Traffic Service from Norwich Radar; the AC11 pilot was operating under VFR in VMC and was in receipt of a Basic Service from Norwich Radar.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a GPS log file from the AC11 pilot, reports from the air traffic controllers involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first considered the actions of the H175 pilot and heard from a helicopter pilot member that this particular area is often quite busy with helicopter traffic transiting between Norwich Airport and offshore. In this case, the Board agreed that the helicopter pilot had taken appropriate actions to mitigate against loss of separation in Class G airspace. Some members wondered if the H175 pilot might have been better served requesting a Deconfliction Service in Class G airspace to assist in reducing the likelihood of other VFR traffic passing close enough to their aircraft to trigger a TCAS RA, and the Board

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.

heard from a controller member familiar with the area that it is standard practice to offer a Traffic Service to aircraft departing towards offshore. That said, the Board agreed that there had been nothing to prevent the H175 pilot requesting a higher level of Service. Members agreed that, in the event, the triggering of a TCAS RA in the H175 (**CF3**) had concerned its pilot as to the relative proximity of the traffic (**CF2**) which they had not sighted.

Turning to the actions of the AC11 pilot, the Board agreed that they had constructed a reasonable plan for their transit, including a contingency for entering the Norwich CTA. Members noted that the AC11 pilot had become visual with the H175 after they had been passed Traffic Information by the Norwich controller and that they had then altered course to pass behind the helicopter. There was then a brief discussion on whether or not the AC11 pilot had afforded sufficient separation from the helicopter because a TCAS RA had been generated on board the H175, but the overriding view was that the TCAS 'bubble' is not well suited to VFR separation in Class G airspace and that the AC11 pilot had also been constrained by the presence of the Norwich CTA while awaiting permission form the Norwich controller to enter controlled airspace.

The Board then considered the actions of the Norwich controller and noted that the initial passage of Traffic Information had been when the 2 aircraft were slightly less than 5NM apart. Whilst this could be considered to be marginally late, the controller is only required to 'aim to pass information' before the aircraft are within 5NM of each other and so the Board agreed that the controller had fulfilled their duties under the terms of a Traffic Service. The Board also noted that a Short Term Conflict Alert had been generated by the Norwich radar (**CF1**) but could not determine if this had been generated before or after the passage of Traffic Information.

Finally, the Board considered the risk involved in this Airprox. Members noted that the H175 pilot had assessed the risk of collision as 'Medium' but that this had been based entirely on their perception of proximity from the TCAS II. Conversely, the AC11 pilot had sighted the helicopter, taken action to maintain or increase the separation and assessed the risk of collision as 'Low'. Additionally, radar separation had been recorded at 300ft vertically and 0.6NM horizontally. The Board therefore considered that normal safety standards and parameters for flight in Class G airspace had pertained and that there had been no risk of collision. Accordingly, the Board assigned a Risk Category E to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

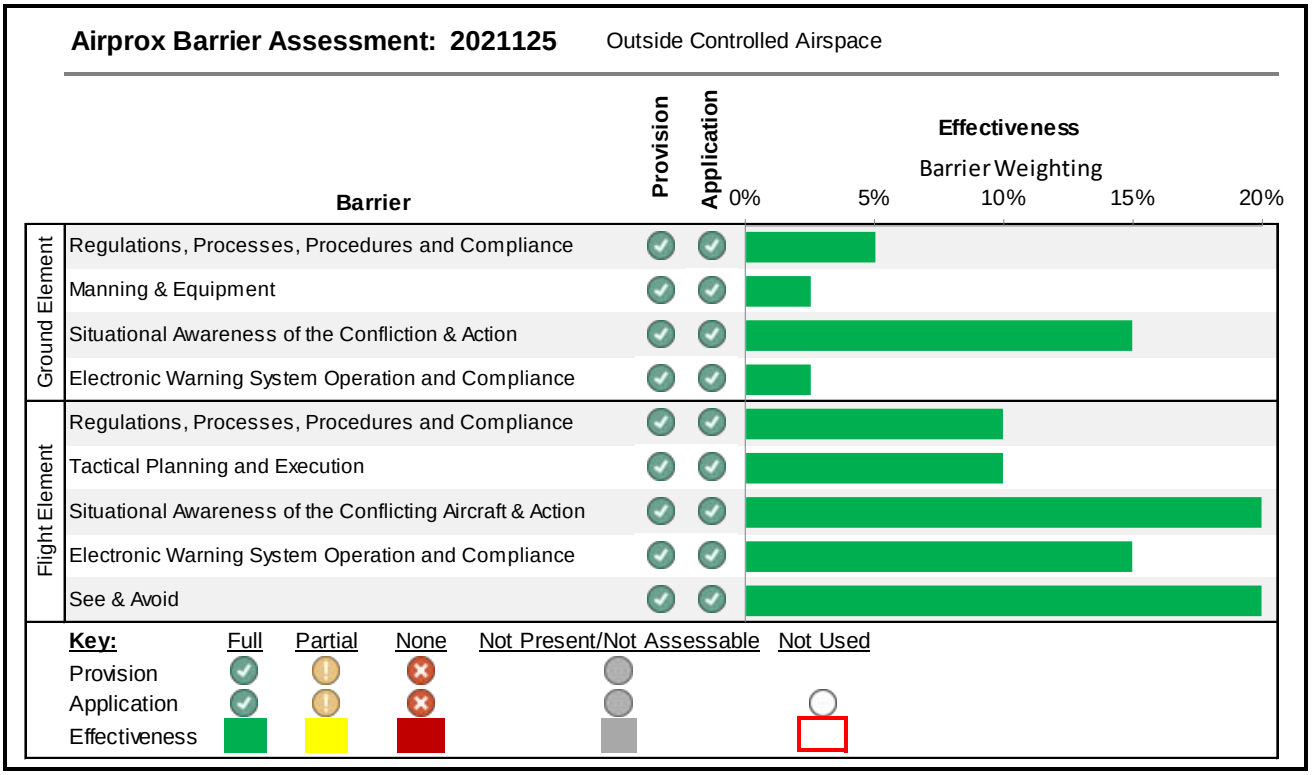
Contributory Factors:

	2021125			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Electronic Warning System Operation and Compliance			
1	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
2	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft
	• Electronic Warning System Operation and Compliance			
3	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	

Degree of Risk: E

Safety Barrier Assessment[3]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that all recognised barriers to mid-air collision had been fully effective in this case.



[3] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.