UK Civil Aviation Authority

Revision of Special Visual Flight Rules (SVFR) Weather Minima Criteria for Operations Within the London & London City CTRs

CAP 3066

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Executive Summary

The CAA is directed, as a priority, by the Transport Act 2000, Section 70, to "…exercise its air navigation functions so as to maintain a high standard of safety in the provision of air traffic services". As the aviation industry changes through technological advancement, operational adjustment and shifting environmental considerations, the regulatory environment must also adapt to these changes to ensure that safety remains uncompromised. Regulatory change should ideally be proactive, anticipating the regulatory requirements in advance of industry-led change to ensure safety is maintained. This review of the weather minima applicable to SVFR[1] operations within the London and London City Control Zones (the London CTRs) has been initiated by the CAA to ensure that a high standard of safety is maintained as the operating environment continues to evolve. A number of factors have been considered that relate to the current and future mix of operations within the SVFR environment of the London CTRs.

The increasing numbers of tall buildings and structures, considered to be those over 300ft in height, within the London CTRs complicates the ability of airspace users to navigate the landscape in conditions of low cloudbase while maintaining the required regulatory clearance from nearby obstructions. This also impacts the cockpit workload in conditions of poor visibility, with reduced time available to plan and execute a route to maintain clearance from obstructions once they are seen. The amount of time available to see and avoid other aircraft is also severely limited in the poorest visibility conditions allowed under the existing regulations, to the point they are considered not to offer a meaningful safety margin.

In line with existing and accepted practice, assessment of the suitability of in-flight weather for continued VFR / SVFR flight against required regulatory minima rests with the pilot-in-command. This also introduces a further possible source of error, either positive or negative, due to the accuracy of the assessment made by the pilot. There are numerous human factors that may influence the accuracy of the assessment made in-flight and this must form part of the consideration to define a suitable minimum visibility.

The final layer of complexity considered by this review is the introduction of Advanced Air Mobility (AAM) and new entrants into the urban aviation environment, The Future Flight Challenge[2]. The Future Flight Vision Roadmap[3] envisions Demonstration of AAM through 2024, followed by Industrialisation in 2026, Scaling through 2028 and leading to a Service-

[1] This paper refers to SVFR weather minima; however, the VFR minima for helicopters in the London CTRs may also require amendment as a result of the proposed change

[2] Future Flight Challenge | Civil Aviation Authority (caa.co.uk)

[3] UKRI-130821-FutureFlightVisionRoadmap.pdf & Future of Flight action plan (publishing.service.gov.uk)

Based, fully integrated AAM ecosystem in 2030. The scale of this industry is forecast to be such that the regulatory environment must adapt to set the conditions to maintain the safety of all airspace users. The review must lead to an outcome that is robust and fit for purpose, that will facilitate the safe application of SVFR in the London CTRs, and that takes into account the anticipated growth in traffic density and increasing complexity of operation.

As a result, the CAA considers there to be a requirement for proactive regulatory change to increase the minima applied to the poorest weather conditions currently allowable for SVFR operations in the London CTRs. The existing weather minima for SVFR operations require pilots to remain Clear of Cloud with the Surface in Sight (COCSIS), and with a minimum in-flight visibility of either 1500m for fixed wing aircraft or 800m for helicopters[4]. The CAA no longer considers these minima to be suitable to maintain the safety of aviation operations in this environment and propose to introduce a defined minimum cloudbase and an increased minimum visibility requirement for all aircraft types. The purpose of this review document is to articulate why the CAA believes this change is required and to request stakeholder feedback on the following SVFR weather minima proposal:

- Cloudbase 1000ft above ground level (agl);
- Visibility 3000m for all aircraft types;
- Applicable throughout the geographical area covered by the London and London City CTRs;
- Emergency services and MOD exemption from the amended criteria and able to operate to the current SVFR weather minima;
- Potential for AOC holders to apply for dispensation to operate to the current SVFR weather minima.

This review has learned lessons from the original proposal to change the SVFR weather minima, initiated in June 2020. Feedback received in response to that proposal has been instrumental in shaping this review. The CAA remains of the opinion that the proposed detail of the revised minima described above, and intended to be implemented throughout the airspace of the London CTRs, remains appropriate. However, an 8-week engagement period, plus 2 weeks for the Christmas and New Year period, from 5th December 2024 to 12th February 2025, advertised as widely as possible and encouraging feedback from all stakeholders, will seek feedback that can be used, where appropriate, to shape this proposal.

As stated above, the CAA no longer regards the current minima to be suitable or in keeping with contemporary aviation safety standards and considers a change to be

[4] SERA.5010 Special VFR in control zones (caa.co.uk)

necessary. However, the CAA remains open as to the detail of that change and encourages suggestions and feedback from stakeholders regarding how the proposal might be altered to better achieve its goals.

Once the engagement period has concluded, the feedback will be reviewed and categorised. Where required and appropriate, the CAA will provide individual responses to feedback; however, it is expected that themes will emerge during the engagement which the majority of feedback will fall into. CAA responses to the identified themes will be used to form an Engagement Response document that the CAA aims to publish approximately two months after the engagement period has ended. The Engagement Response document will also contain the confirmed SVFR weather minima amendment proposal, which will form the basis of the regulatory change, and finalised detail of how and when the change will be implemented.

Chapter 1
Background

1.1 The CAA is seeking to address a longstanding concern surrounding the suitability of the SVFR weather minima that is operated within the London CTRs. This concern was initially brought in to focus by the tragic helicopter accident that occurred near Vauxhall Bridge in 2013 and has undergone a gradual evolution over the years since.

1.2 In 2013, following a number of helicopter accidents in the North Sea, the CAA initiated a review into offshore operations which culminated in the publication of CAP 1145[5] in 2014. The experience of the offshore review naturally led to CAA consideration of the requirement for a proactive onshore review, which was initiated in 2018, implementing a systematic safety analysis of onshore commercial helicopter operations including emergency services, non-commercial complex helicopter (NCC) and specialised operations (SPO) sectors. This concluded with the publication of CAP 1864[6] in 2019, which provided valuable insights into enhancing safety standards for onshore helicopter operations and included a call for a review of the SVFR weather minima within the London CTRs. However, the implementation of these recommendations has faced challenges, highlighting the complexity of enacting such regulatory changes.

1.3 In 2019, the CAA established the London Helicopter Routes Working Group, which had a broad remit to consider the operation of the London Helicopter Routes and the associated regulations, and comprised representation from CAA, NATS, MOD, industry and operators. This Working Group highlighted the significant changes that had taken place over time in the operating environment, particularly with regards to the proliferation of tall buildings and obstacles across London. As a result of this work, a number of changes were made to ensure the information available to operators was accurate and appropriate, and to more clearly communicate the relevant information. This included working with the Met Office to advertise the London Helicopter Meteorology Brief, a service that was commenced in December 2016 but had gained little traction with the stakeholder community.

1.4 A letter was issued to NATMAC members in June 2020 informing them that the CAA would be introducing more stringent SVFR weather minima applicable to

[5] CAP1145: Safety review of offshore public transport helicopter operations in support of the exploitation of oil and gas (caa.co.uk)

[6] CAP1864: Onshore Helicopter Review Report (caa.co.uk)

helicopter operations within the London CTRs. Feedback received by the CAA in response to this announcement led to the decision to pause the implementation of the change at that time; however, the underlying concern remains and is held on the CAA Risk Register to be addressed.

1.5 The advent of AAM, seeking to safely introduce passenger carrying, electric-powered, vertical take-off and landing (eVTOL) aircraft into the urban environment, has now galvanised the need for a proactive change to the applicable SVFR weather minima and requires action to ensure the continued safety and efficiency of future SVFR operations in the London CTRs.

Chapter 2

The Need for Change

Current SVFR Weather Minima

2.1 Within the London CTRs, SVFR weather minima currently align with the Standardised European Rules of the Air (SERA), SERA.5010[7], with UK-specific variations as detailed in Official Record Series 4[8] (ORS4) publications. SERA.5010 requires pilots to maintain a minimum visibility of 1500m (800m for helicopter operations), a speed of 140kts or less[9] and to remain clear of cloud with the surface in sight (COCSIS)[10]. While these standards have served as the basis of SVFR minima for many years, concerns have been raised regarding their continued suitability as the aviation environment has evolved over time to become more complex and more congested.

Changing Urban Landscape

2.2 The existing SVFR weather minima were designed and implemented at a time when the urban landscape looked very different. The proliferation of tall buildings and obstructions, considered to be those over 300ft in height, especially in the heart of London and along the River Thames, has created new challenges for airspace users, particularly when operating in the marginal weather conditions associated with SVFR operations. Analysis initiated by the London Helicopter Routes Working Group (LHRWG) updated the London Helicopter Routes procedures, as published in the UK Aeronautical Information Publication (AIP) and depicted on the 1:50,000 VFR chart “Helicopter Routes in the London CTR & London City CTR”, to define recommended minimum altitudes that maintain the required minimum height above nearby obstructions. These procedures now recommend a minimum altitude of 1000ft amsl for the entirety of the Helicopter Route H4 between Barnes and the Isle of Dogs, for example.

[7] SERA5010 Special VFR in control zones (caa.co.uk)

[8] ORS4 no.1496: (UK) Standardised European Rules of the Air – Exceptions to the Minimum Height Requirements; ORS4 no.1477: UK) Standardised European Rules of the Air – Exceptions to the Minimum Height Requirements

[9] Guidance material to SERA.5010 states that 140kts is to be considered an absolute maximum acceptable speed when visibility is in excess of 1500m and provides advisory speeds of 120kts in 2000m visibility, 100kts in 1500m visibility and 50kts in 800m visibility

[10] UK AIP, ENR 1.2, para 2, SPECIAL VFR FLIGHT also refers. Additional rules applicable to helicopter operations within the London CTRs are stated in the UK AIP, AD 2 EGLL AD 2.22, para 9, 11 & 12

2.3 However, such hazards are not confined to the London Helicopter Routes and are found throughout the London CTRs. While there are some open, more sparsely populated areas, the area that covers the eastern half of the London CTR and into the London City CTR is characterised by a densely clustered urban environment with an array of tall buildings and landmarks. Operating in this environment, in the poorest weather allowed by current SVFR regulations, is undoubtedly challenging.

Advanced Air Mobility

2.4 At the Global Urban & Advanced Air Summit Asia in Singapore in September 2023, Sir Stephen Hillier, Chair of the CAA, said of the advent of AAM that:

> "Aviation now stands on the cusp of its next, and potentially biggest, revolution since the invention of the jet engine. Radically different types of vehicles have the potential to revolutionise the way people move around cities, improve transportation options, and contribute to a more sustainable aviation ecosystem."[11]

2.5 AAM is set to usher in a transformative era in aviation, with the introduction of eVTOL aircraft and urban air mobility services presenting a paradigm shift in air travel within urban environments. This revolution will also bring a number of operational challenges and opportunities that further the requirement to review the current SVFR weather minima. eVTOL aircraft possess the capability for vertical takeoffs and landings in confined urban spaces and their introduction may also lead to a proliferation of landing sites, or vertiports, to achieve the flexibility and utility of the industry's vision. The diverse flight profiles and operational patterns of these aircraft types will add further to the complexity and challenges in the low-level airspace environment of the London CTRs. The additional volume of AAM traffic required to meet expected demand and to achieve a sustainable industry is anticipated to result in a significantly increased traffic density in the urban airspace environment. An early Future Flight Challenge review indicated that, compared with today's level of helicopter activity, a successful AAM model could see the number of operations increase by an order of magnitude within the London CTRs. As described in the Future Flight Vision and Roadmap[12], the coexistence of traditional fixed-wing aircraft, helicopters, and eVTOLs can only be achieved through integration of such AAM services, adding further complexity in this challenging environment.

[11] UK on cusp of next aviation revolution, says UK regulator (caa.co.uk)

[12] UKRI-130821-FutureFlightVisionRoadmap.pdf

2.6 The potentially transformative nature of AAM reinforces the need for a proactive revision of SVFR weather minima, which should consider the unique operational requirements, increased urban integration, and potential congestion in low-level urban airspace that will result as the sector develops. This revision must balance the existing needs of traditional airspace users against the emerging requirements of AAM to foster an environment that encourages innovation and growth in this sector of aviation while maintaining the highest standards of safety and efficiency in the low-level urban airspace environment.

Safety Margins

2.7 The concept of safety margins in aviation relates to the buffer or cushion, beyond the absolute minimum requirements, that ensures a level of redundancy and helps to mitigate risk. In the context of visual flight air operations, visibility directly impacts a pilot's ability to maintain situational awareness, to make timely decisions, to see and avoid other airspace users and obstructions, and to safely navigate through complex environments and landscapes. The CAA has carefully considered whether, in the context of the complex and evolving urban airspace environment of the London CTRs, the current SVFR visibility limit of 800m for helicopters[13] provides an adequate safety margin, especially given the unique challenges of low-level flight in this environment.

2.8 SERA.5005 defines some safety margins relevant to this topic, for example when operating over congested areas of cities, pilots must fly at a height 1000ft above the highest obstacle located within 600m of their position[14]. However, in the UK through ORS4 no.1496, the CAA authorises and permits aircraft to be flown below these limits and, instead, to maintain flight no closer than 500ft to any person, vessel, vehicle or structure (the 500ft rule) when operating under SVFR[15]. This exception to the minimum height requirements reduces the safety margin inherent in the original regulation. Complying with the 500ft rule when operating at the limit of SVFR visibility minima results in a significant cockpit workload and could potentially become unachievable when operating over an urban landscape characterised by tall buildings and obstructions if also contending with a very low cloudbase.

2.9 Other factors are also relevant to the question of whether the existing minima provide an adequate safety margin. Pilots operating in conditions they assess to

[13] SERA.5010(b)(2). It is acknowledged that different minima currently apply to operations using the London Helicopter Routes, as published in the UK AIP Pt3 EGLL AD2.22 para 10b.i.

[14] SERA.5005(f)(2)

[15] ORS4 no.1496 para 7(a) & (b). This publication includes a number of permissions and authorisations related to VFR and SVFR operations, by day and by night

be at the 1500m or 800m visibility limit who encounter any sudden and localised variations in visibility or cloudbase, as can often happen when operating in poor weather, will at best be in temporary non-compliance of that limit and, perhaps more significantly, may find themselves dealing with a temporary loss of situational awareness. Indeed, if conditions deteriorate more generally to below the existing weather limits, pilots may find themselves with no choice but to continue flight below minima at significant risk. Even turning around may not resolve the issue and options for safe landing in the dense, urban environment of the London CTRs are extremely limited.

2.10 It can be useful to think of the visibility limit applied to SVFR operations in terms of the amount of time this provides a pilot to react to something they see, such as an obstruction. At the 50kts suggested in the SERA.5010 guidance material (GM)[16] for operations with 800m visibility, it takes an aircraft ~31 seconds to travel 800m; at 60kts this is reduced to ~26 seconds; 90 kts is ~17 seconds; 100kts is ~15.5 seconds; and 120kts is ~13 seconds.

2.11 If operating at 50kts as recommended in the GM, ~31 seconds can possibly be considered reasonable if it is assumed that the obstruction is seen when it is 800m away; any delay in the pilot becoming aware of the obstruction brings it closer at a rate of ~26 metres per second.

2.12 However, if the obstruction is replaced by another aircraft and they are approaching one another, each at 60kts, the aircraft will have a closing speed of 120kts. If such a situation were to arise, this closure speed would offer them a maximum of ~13 seconds to see and avoid[17].

2.13 Research has shown that, from the moment of visually acquiring another aircraft, on average a pilot requires 9 to 12.5 seconds to process the closure geometry and take appropriate, controlled, avoiding action[18]. In this example, at least one of the pilots must acquire the other aircraft the instant it appears at 800m; any delay in acquisition places the aircraft within the 9 to 12.5 seconds required to safely effect avoiding action in a controlled manner.

2.14 Similar applicability can be shown for fixed-wing aircraft operating under SVFR with a minimum visibility of 1500m; at 90kts it takes ~32 seconds to cover 1500m. Two aircraft approaching each other at 90kts would therefore have approximately 16 seconds to acquire and act accordingly. With each aircraft at

[16] GM1 SERA.5010(a)(3)

[17] The data cited here have been derived using speed/distance/time calculations, that will be familiar to pilots, for the speed and visibility combinations listed

[18] CAP2093: CAA Impact Analysis – Changes to VMC Minima in UK Class D Airspace (caa.co.uk)

100kts, the recommended minimum in the SERA GM with 1500m visibility[19], this is reduced to ~14 seconds.

2.15 The implication of these timings is that the current minima do not include an appropriate safety margin and instead represent the absolute minimum visibility at which an aircraft, being flown at very low airspeed, can be operated in such weather conditions if it is assumed that all external factors can be controlled. This does not accord with contemporary aviation operations or safety regulation and the CAA considers that it is no longer appropriate.

Weather Assessment

2.16 The responsibility for assessing the in-flight weather conditions and determining if they satisfy the criteria for continued SVFR operation rests with the pilot[20]. While there are good reasons for this accepted standard, significant variation will exist in the accuracy of the in-flight assessments made by individual pilots. Factors such as the training received, level of experience, previous exposure to similar weather conditions, and the conditions themselves[21] will all influence the accuracy of an individual's assessment. Human Factors, familiar to those in the aviation community, will also play a significant part and can include issues such as:

- stress, perhaps due to the challenging weather conditions or other operational pressures;
- fatigue, which can impair cognitive functions including attention, memory and judgement;
- situational awareness, which is paramount to maintaining cognitive function and enabling accurate assessments, can be significantly impacted by poor weather and high cockpit workload; and
- confirmation bias, which is the unconscious selection of information that accords with expectation or leads an individual to rigidly adhere to a previously formulated plan.

2.17 These, and many other, factors can influence the accuracy of a pilot's assessment of in-flight visibility and lead to both under- and overestimation errors. An underestimation would be considered a positive error, where a pilot

[19] GM1 SERA.5010(a)(3)

[20] GM1 SERA.5010(b)(2) Special VFR in control zones: When assessing the prevailing flight visibility, pilots should use their best judgment

[21] Pilot Weather Assessment: Implications for Visual Flight Rules Flight Into Instrument Meteorological Conditions (trb.org)

believes they are operating with 800m visibility but are actually experiencing conditions of perhaps 1000m visibility. An overestimation would be considered a negative error, where a pilot believes they are operating with 800m visibility but are actually experiencing conditions of perhaps 700m visibility. While a positive error of judgement in assessing the conditions would help to alleviate the issues identified regarding the lack of safety margin in the extant SVFR criteria, a negative error could result in a pilot continuing flight in conditions that are actually below the required minima, further eroding the safety margin and reducing the safety of flight.

Summarising The Need for Change

2.18 The existing SVFR weather minima, originally designed for a very different urban and aviation landscape, are no longer considered by the CAA to provide sufficient safeguards for operations within the London CTRs in the poorest weather conditions these current minima allow.

2.19 The cumulative impact of the factors discussed above creates an operating environment that is not considered conducive to the maintenance of the highest aviation safety standards. The number of tall buildings and urban obstructions has increased significantly, particularly in central areas of the London CTRs and along the River Thames. The introduction of AAM services in the near future, including eVTOL aircraft, is forecast to increase the density and complexity of air traffic operating in this airspace, significantly raising the risks associated with reduced visibility and its impact on situational awareness. In the poorest weather conditions allowable under the existing minima, the effect of human factors must also be taken into account, particularly when considered in the context of the lack of inherent safety margin in the current criteria.

2.20 As such, a proactive review of the current SVFR weather minima is essential to ensure that they remain fit for purpose and provide the necessary safety margins for both traditional airspace users and the emerging AAM operations. This review must consider all of these factors to determine appropriate SVFR weather minima that will ensure the adequate protection of pilots and the public, while promoting safe, efficient and integrated operations in the increasingly congested and complex urban airspace environment of the London CTRs.

Chapter 3

Previous Change Proposal

CAA SVFR Weather Minima Proposal, June 2020

3.1 In response to the findings of the onshore helicopter review and the work conducted by the LHRWG, the CAA published a letter[22] in June 2020 (the proposal letter), distributed through NATMAC representatives, informing stakeholders of the CAA intent to amend the SVFR weather minima applicable to helicopter operations within the London CTRs. This proposal sought to introduce a 3000m horizontal visibility and 1000ft agl cloudbase minima for helicopter operations within the London CTRs, intended to alleviate the identified safety risks. In the proposal letter, the CAA stated that it no longer considered the existing SVFR minima to be appropriate for helicopter operations within the London CTRs due to the prolific growth in the number of tall buildings and the complex nature of the Instrument Flight Rules (IFR) operation. It was anticipated that the new measures would be introduced from 13th August 2020 through the publication of an AIC, scheduled for publication on 30th July 2020. The CAA received valuable feedback from stakeholders in response to the proposal letter and, as a result of that feedback, chose to pause the proposed amendment at that time, as stated in its letter of 20th July 2020[23].

Feedback Themes from 2020

3.2 The CAA gave careful consideration to this feedback in 2020 and has done so again in undertaking the present (2024) regulatory review. A number of themes emerged from the stakeholder feedback received in 2020:

- Theme 1 - the rationale behind the proposal;
- Theme 2 - the engagement process;
- Theme 3 - the details of the proposed minima;
- Theme 4 - other options to achieve the same results.

[22] NATMAC Informative Letter: CAA Proposal to Amend SVFR Conditions for Helicopters within the London CTR and London City CTR, dated 16th June 2020

[23] NATMAC Informative Letter: CAA Proposal to Amend SVFR Conditions for Helicopters within the London CTR and London City CTR, dated 20th July 2020

3.3 The following paragraphs provide further detail of the feedback received under each theme and the CAA response to that feedback, relevant to this review:

i) Theme 1: The rationale behind the 2020 proposal. The proposal letter focused on the findings of the onshore helicopter review and the fatal helicopter accident that occurred near Vauxhall Bridge in 2013. Stakeholders suggested it was disproportionate for this single event to tarnish "an otherwise exemplary record" and to shape the rules for all future users of the airspace. It was also noted in feedback that, while the Coroner's report into the accident had suggested a review, the AAIB report did not raise it as a safety recommendation.

- **CAA response.** As indicated above, the present review has been informed by a number of factors, with the findings of the onshore helicopter review and the 2013 Vauxhall helicopter accident only a part. It should be noted that the Coroner's Prevention of Future Deaths report stated that "Despite a good safety record, it would seem that the relevant bodies in relation to aviation safety along the Thames need to expedite a specific review of H4 and consider any need to alter flying rules, to assure the public of ongoing safety given the current concerns of pilots about the difficulties of flying along the Thames." This was a key factor leading to the initiation of the onshore safety review and subsequent recommendation for increased weather minima. In addition, and as discussed above, the following are material to the CAA decision to conduct this review of the extant regulation:

    - The changing urban landscape and the proliferation of tall buildings and obstructions.
    - The evolving traffic mix and increasing traffic density that will result from the introduction of AAM in the near- to mid-term.
    - The acceptability of such limited safety margins applied to flights operating under the current SVFR minima, and accordance with contemporary aviation operations and safety regulation.
    - The challenge of accurate in-flight weather assessment, in the poorest weather conditions permitted by the present minima, and the attendant risk to operational safety.

ii) Theme 2: The engagement process for the 2020 proposal. The CAA issued the proposal letter to members of the NATMAC on 16th June 2020, with an expectation it would be shared with their stakeholder communities, as required, to reach those that would be impacted. The proposal letter requested feedback to be submitted by 9th July 2020 and stated the CAA's intent to issue an AIC on 30th July leading to formal implementation of the new SVFR minima

from 13th August 2020. Stakeholders highlighted two key concerns with this process:

- the CAA had not included the full range of stakeholders that may be impacted by the change; and
- the very short period between publication of the proposal letter and the planned implementation of the change did not allow sufficient time for stakeholders to assess the impact of the change and to provide considered and complete responses.

- **CAA response.** The CAA has taken these concerns into account in conducting the present (2024) review. On that basis, a number of changes have been made to the engagement process. This engagement document will be made accessible to all industry stakeholders and to the general public by publishing it on CitizenSpace, the CAA's Consultation Hub. The CAA will also ensure it is widely publicised throughout the stakeholder community and the engagement period will last for 8 weeks, plus 2 weeks for the Christmas and New Year period, from 5th December 2024 to 12th February 2025. The CAA will give careful consideration to all feedback received during the engagement period and commits to modify its proposal based on stakeholder concerns and suggestions where it considers that to be appropriate. The CAA will publish its responses to the feedback received through this exercise and confirm the details of any amendment it decides to implement.

iii) Theme 3: The 2020 proposal minima. Much of the feedback received in 2020 focused on the detail of the proposed minima: 3000m visibility and a 1000ft agl cloudbase. It was suggested that the proposed criteria were overly restrictive and their introduction would make weather decisions more difficult.

- **CAA response.** The CAA has carefully considered stakeholders' concerns, as expressed in 2020, regarding the potential negative impacts of these stricter criteria and remains of the view that these minima would be appropriate.

- **CAA response.** The much-changed urban landscape and considerable increase in the number of tall buildings and obstructions across the area, and the evolving mix of traffic and increasing traffic volumes, particularly in view of the approaching introduction of AAM, are factors that must be considered as part of this review to set appropriate weather criteria for contemporary aviation operations in the London CTRs.

- **CAA response.** To establish a reasonable and appropriate cloudbase minima, the operating environment and the applicable regulations[24] must be considered alongside the traffic mix and traffic density that are expected in the near- to mid-term. The 500ft rule, as set out in ORS4 no.1496, is of particular concern in this context. The CAA anticipates that the future of aviation will be characterised by increased traffic density, with a mix of helicopters, fixed wing and AAM vehicles. It considers that, in practice, it will be extremely challenging for operators to apply the 500ft rule and conduct safe flight operations in the urban environment of the London CTRs with a cloudbase lower than 1000ft agl. The CAA notes that the minimum recommended altitudes on the London Helicopter Routes, and specifically the minimum recommended altitude of 1000ft amsl on the H4 route, were introduced to ensure operational safety while applying the 500ft rule. Therefore, the CAA considers a 1000ft agl minimum cloudbase to be reasonable and proportionate for the operating environment within the London CTRs.

- **CAA response.** The CAA has also based its proposal to increase minimum visibility to 3000m on what it considers to be a reasonable regulatory limit in the context of the modern urban environment. As traffic density and operating complexity are expected to rise with the advent of AAM new entrants, the CAA remains of the view that it is appropriate to increase minimum in-flight visibility to enable pilots to maintain the levels of capacity and situational awareness they require through the management of the impact of weather on the cockpit workload. Increasing the visibility limit would also restore safety margins which, as noted above, are currently considered insufficient. In a flight visibility of 3km, two aircraft approaching one another at 100kts would have approximately 30 seconds for at least one of the pilots to acquire the other aircraft and to take appropriate avoiding action.

[24] SERA.5005(f) & ORS 4 no.1496

- **CAA response.** Pilots are required to decide if the weather is suitable before every flight, based upon the weather criteria of the flight rules they intend to follow. That weather decision is not considered by the CAA to be made any more challenging as a result of a change in the relevant criteria. Indeed, following the Vauxhall accident, the CAA met with the British Helicopter Authority and Met Office to explore the possibility of introducing a London CTR weather forecast. Since 2016, the Met Office has published the London Helicopter Meteorology Brief, a plan-view forecast of the London CTRs detailing the forecast cloudbase and visibility using a 'traffic light' warning system to indicate that a visibility of 3000m, or a cloudbase of 1000ft, is expected to be breached. This product is considered by the CAA to be an extremely useful aid to pilots in their assessment of the forecast weather within the London CTRs.

A number of responses to the 2020 proposal also questioned where the proposed weather minima would be referenced from, citing significant variability in actual weather conditions across the London CTRs. There were concerns that the airspace could be "closed" by the ANSP should the weather at the relevant airport be reported to be below the required minima. It was also suggested that if the onus to assess the actual in-flight weather conditions were placed upon the pilot, this would "make a mockery" of the change and that the proposed change would encourage some operators to ignore the minima and to fly below the revised limits.

- **CAA response.** As is the case today, it will remain the responsibility of the pilot-in-command to assess the in-flight weather conditions against the required VFR / SVFR minima. It is recognised and accepted by the CAA that in-flight cloudbase and visibility conditions can vary across the geographical area covered by the London CTRs. Therefore, there will not be a central reference point within the London CTRs where these minima are measured with the intent for an ANSP to "close" the airspace; the assessment of in-flight conditions will remain with the pilot-in-command.

- **CAA response.** As already stated, it will remain the responsibility of the pilot in command to assess the in-flight weather conditions against the required VFR / SVFR minima. Maintaining this status quo does not "make a mockery" of the regulations; on the contrary, the CAA considers that to change this position would have a significant and damaging impact to visual flight in the UK that would undoubtedly raise significant, and justified, resistance from the vast majority of the aviation community.

- **CAA response.** The Air Navigation Order 2016 clearly details the responsibilities of the pilot-in-command of an aircraft[25]. These include a general responsibility for the operation and safety of the aircraft, and specific responsibilities related to commencing or continuing flight under VFR or SVFR. The CAA would investigate any suggestions or reports of licence holders wilfully flouting regulations and the appropriate action would be taken against those found to have done so.

iv) Theme 4: Further options that could be explored. A number of stakeholders provided suggestions of further options that could be explored in place of an amendment to the existing SVFR weather minima. The first suggestion was to simply retain the existing regulation and maintain the current situation, with each operator managing the risk appropriately for their particular operation. The introduction of an IFR option, in the form of PinS approaches, to a VFR / SVFR route north and south of the London Heliport was also considered to be an option that would have a significant, positive, flight safety impact on helicopter operations in the London CTRs. Some feedback highlighted that the London CTRs cover a very large area, with only a proportion being characterised by a densely populated, urban environment.

- **CAA response.** The environment has changed considerably since the establishment of the London Heliport in 1959 and the introduction of the first London helicopter routes in the 1970s. The airspace has also evolved during this time and was established in its current form in 2014. The CAA is of the view that the existing minima[26] are no longer fit for the purpose of maintaining a safe operating environment for all current and future airspace users. As well as the altered architectural landscape and proliferation of tall buildings, the introduction of AAM will further change the operating landscape, including the traffic mix and density. Each of these factors requires proactive regulatory change to ensure continued safe flight operations within the London CTRs.

[25] The Air Navigation Order 2016 (legislation.gov.uk)

[26] SERA.5005(f) & ORS 4 no.1496

- **CAA response.** The introduction of IFR options, such as PinS approaches, would require a Sponsor to submit a DAP1916: Statement of Need[27] and to follow the CAA CAP1616 airspace change process. The flight safety impact of the introduction of PinS approaches would be of specific benefit to helicopter traffic and, more specifically, to helicopter traffic entering the London CTRs. However, the introduction of PinS approaches would not improve the safety of operations conducted in SVFR conditions once that traffic is established in the London CTRs. The CAA believes that changing the SVFR weather minima will have a positive flight safety benefit for all airspace users operating in accordance with SVFR in the London CTRs.

- **CAA response.** The London CTRs cover a large geographical area which, although quite extensively urban, does also contain some open and more sparsely populated areas. In particular, it is the eastern half of the London CTR and into the London City CTR that is characterised by a densely clustered urban environment, with an array of tall buildings and architectural landmarks. The present review acknowledges this variation in landscape within the London CTRs and the CAA is keen to hear stakeholder views about how this might influence the proposed regulatory amendment.

[27] DAP1916 - Statement of Need (caa.co.uk)

Chapter 4

CAA SVFR Weather Minima Proposal

Proposed SVFR Weather Minima

4.1 Having considered the factors discussed above, including the evolving urban landscape, the advent and expected growth of AAM, the increasing complexity of air operations within the London CTRs and the contemporary demands of aviation safety, the CAA proposes that the weather minima applicable to SVFR operations within the London CTRs are amended to the following:

- Cloudbase 1000ft above ground level (agl);
    - The CAA remains of the view that 1000ft agl cloudbase minimum is the lowest that can reasonably be applied to allow safe operations to be conducted over the densely populated urban areas within the London CTRs whilst according with the regulatory requirements relating to the minimum height above nearby obstacles[28].
- Visibility 3000m for all aircraft types;
    - In accordance with existing regulation, the responsibility for the assessment of the prevailing weather conditions and the decision to continue flight under SVFR will rest with the pilot-in-command. As detailed in SERA guidance material[29], when assessing inflight visibility, pilots should use their best judgment based upon flight experience, knowledge of local conditions, visible landmarks, etc, and should also have access to the latest meteorological products.
    - The visibility limit of 3000m, which offers approximately 20 seconds for opposing aircraft travelling at 140 kts to see and avoid, is considered to offer a reasonable safety margin when set against the average of 9 to 12.5 seconds required for a pilot to assess a potential conflict and to take effective avoiding action. The CAA believes that, in combination with the introduction of a minimum cloudbase requirement, these minima will improve the safety of SVFR operations within the London CTRs.

[28] SERA.5005(f) & UK CAA Official Record Series 4 No: 1496

[29] GM1 SERA.5010(b)(2) Special VFR in control zones

- Exemption applied to emergency services and MOD, allowing operation using current SVFR weather minima;
    - The CAA considers that the emergency services and MOD should be exempt from the proposed amendment and able to operate to the existing SVFR weather minima. This exemption should be unconditional to allow operations in the event of emergency or national security events, as well as for the conduct of training flights.
- Dispensation possible for AOC holders;
    - The CAA is open to the introduction of a mechanism to allow AOC holders to apply for a dispensation that enables them to operate to the existing SVFR weather minima. We are asking for your views about whether such a mechanism is necessary. If the feedback received suggests that it is, the application process, possible dispensation conditions and regulatory oversight requirements will be developed, including, if applicable, seeking further stakeholder input.

Chapter 5

Implementation Process and Timeline

Timeline

5.1 The engagement period is set to last for 8 weeks, plus 2 weeks for the Christmas and New Year period, from 5th December 2024 to 12th February 2025, during which time the CAA encourages stakeholders to provide feedback, as detailed below, on the proposed amendment to the SVFR weather minima applicable in the London CTRs. Once the engagement period closes, we will review, categorise and consider the feedback and use it to refine the proposed amendment, where appropriate. The review period will run from 13th February to 12th March and the CAA will aim to publish an Engagement Response document and details of any finalised regulatory amendment no later than the 10th April. We expect to submit an Aeronautical Information System (AIS) change request on 11th April to meet the Aeronautical Information Regulation and Control (AIRAC) 07/2025 publication timeline. This would see the amendment published on 29th May 2025 and it would become effective in the UK AIP on 10th July 2025 to introduce revised SVFR weather minima for operations in the London CTRs.

5.2 The Aeronautical Information Publication (AIP) amendments that will be required to implement the revised SVFR weather minima will depend upon the finalised detail of the proposal. However, it is expected that amendments will be required to the following sections:

- ENR 1.2 para 1 VFR Flight;
- ENR 1.2 para 2 Special VFR Flight;
- ENR 1.4 para 2.4 Class D – Controlled Airspace
- AD2 EGLL - London Heathrow

Engagement Response Document

5.3 The CAA will conduct a review of all feedback received by the 12th February 2025 deadline and assess its relevance[30] to inform the proposed London CTRs

[30] Feedback will be considered relevant if it: relates to VFR / SVFR operations within the London CTRs; supports, opposes or suggests changes to the CAA proposals on which stakeholder views are being sought; provides information or views about the impacts of the CAA proposals; responds to one or more of the CAA's feedback questions; is otherwise considered by the CAA to offer information, views or rationale that may help to inform its final policy decision.

SVFR weather minima amendment. All applicable feedback will be categorised to establish feedback themes. Part of the categorisation process will evaluate whether the feedback could be used to change or refine the final detail of the proposed amendment.

5.4 Once the categorisation of the feedback has been completed, the CAA will consider its response to each of the feedback themes that are identified. These responses will be collated into an Engagement Response document. Where necessary, and if required, we will respond directly to individual feedback received.

5.5 All feedback identified during the categorisation process as potentially significant to the final detail of the proposed amendment, including in areas where specific feedback has been sought, will be further reviewed by the CAA. During this process the feedback will be considered, in the context of the CAA's statutory duties and the intended effect of the review, in order to finalise the detail of the amendment. At the end of this process, the CAA will make its final decision and we will publish details, including any amendment we decide to implement, in the Engagement Response document, which we aim to publish on 10th April 2025. This document will detail the AIP amendments that will be notified through the publication of the next AIRAC (expected to be AIRAC 07/2025).

Feedback Request

5.6 The purpose of the 8-week engagement period is to seek feedback from affected stakeholders on the proposal, the basic elements of which are to introduce a minimum cloudbase of 1000ft agl and a minimum visibility of 3000m for SVFR operations within the London and London City CTRs. In addition, the proposal suggests the revised minima apply throughout the geographical area contained by the London CTRs; includes an exemption applied to emergency services and MOD operations; and seeks views on whether a mechanism that would allow AOC holders to apply for dispensation from the revised minima is required.

5.7 The CAA believes the existing minima must be amended because they are no longer considered fit for purpose or appropriate for maintaining aviation safety standards in the London CTRs. All stakeholders are invited to provide feedback on this proposal during the engagement period. The CAA remains open as to the precise detail of the amendment and welcomes suggestions for how its proposals might be altered to better achieve the goals outlined above. All stakeholder feedback will be reviewed as part of this engagement process and we will alter the proposal, if it is deemed appropriate to do so, in light of that feedback.

5.8 Stakeholders are encouraged to provide feedback on the proposed amendment to the SVFR weather minima applicable in the London CTRs. Feedback may be provided in a number of ways:

- Through the online Citizen Space consultation.
- By completing the feedback form at the end of this document, or writing a letter containing the feedback, and posting it to:
    - London SVFR Amendment Feedback
      c/o Airspace Regulation
      Civil Aviation Authority
      Aviation House
      Beehive Ringroad
      Crawley
      West Sussex
      RH6 0YR
- By plain text email to airspace.policy@caa.co.uk; please ensure the subject line states “London SVFR Amendment Feedback” to ensure it can be referred to the appropriate team.

5.9 All effort will be made to ensure that feedback provided by post or email is referred to the appropriate team. All feedback must be received no later than 12th February 2025; any feedback received after this date cannot be guaranteed to be considered in the feedback review.

Chapter 6

Feedback Form

Part 1: About you

1. What is your name?

Name (required)

2. What is your email address?

Email

3. Can we publish your response?

☐Yes
☐Yes, but keep my name private
☐No

If No, please be aware that, as a public authority, we are bound by the Freedom of Information Act and may therefore be obliged to disclose all or some of the information you provide in accordance with the Freedom of Information Act 2000.

4. Do your views officially represent those of an organisation?

☐Yes
☐No

If YES, please specify the name of your organisation:

5. Which of the following best describe you or the group you represent?

☐Aerodrome/Heliport operator
☐Air Navigation Service Provider
☐Air traffic control staff
☐Aviation industry consultant
☐Aviation industry representative body
☐Commercial aviation
☐General aviation
☐Emergency services
☐Military
☐Training organisation
☐Helicopter operator
☐Fixed wing operator
☐UAV operator
☐Other

If OTHER, please specify:

Part 2: Your views on the proposed minima

6. Should the revised SVFR weather minima be as proposed by the CAA, more restrictive or less restrictive?

- CAA proposes 3000m visibility and 1000ft agl cloudbase for all aircraft types

☐As proposed by the CAA
☐More restrictive
☐Less restrictive

If you selected more or less restrictive, please provide an alternative suggestion and explain your rationale:

7. Where should the revised SVFR weather minima apply?

- CAA proposes that revised weather minima should apply throughout the geographical area covered by the London and London City CTRs

☐Throughout the London and London City CTRs, as proposed by the CAA
☐Applied to a limited geographical area within the London and London City CTRs
☐Other

If you chose a limited geographical area or Other, please provide details of the boundary you suggest, or Other option, and the rationale for your suggestion:

8. Do you agree that certain airspace users should be exempted from the proposed minima? (Please select all that apply)

HEMS: YES or NO
NPAS: YES or NO
Military: YES or NO
Other: YES or NO

If you selected Other, please describe the other airspace users you think should be exempted from the proposed minima and provide the rationale for your suggestion:

9. Should AOC holders be able to apply for dispensation from the proposed minima?

YES or NO: Choose an item.
Please provide a rationale to support your selection:

Part 3: The impact of the proposed minima on you

10. What do you expect will be the impact, on you or your operation, of the SVFR weather minima proposed by the CAA?

☐Positive impact
☐Negative impact
☐Neutral or No impact

Please provide details to explain your selection:

Article 1 of UK Regulation (EU) 2018/1139 requires the CAA to comply with several duties in the exercise of its functions. To help us to satisfy these duties we invite stakeholders to describe the effects they envisage the proposals might reasonably have in the following specific areas:

11. **Safety.** What impact do you expect the proposed SVFR weather minima will have on civil aviation safety in the London CTRs?

☐Positive impact
☐Negative impact
☐Neutral or No impact

Please provide details to explain your selection:

12. **Efficiency.** What do you expect the impact of the proposal will be on the efficiency of Air Traffic Management in the London CTRs?

☐Positive impact
☐Negative impact
☐Neutral or No impact

Please provide details to explain your selection:

13. **Environment.** What impact do you expect the proposal will have on the environment (for example, increased fuel burn, increased CO2 emissions)?

☐Positive impact
☐Negative impact
☐Neutral or No impact

Please provide details to explain your selection:

14. **Security.** What impact do you expect the proposal will have on civil aviation security?

☐Positive impact
☐Negative impact
☐Neutral or No impact

Please provide details to explain your selection:

15. **Finance.** What do you expect will be the financial impact of the proposal on you or your operation?

☐Positive impact
☐Negative impact
☐Neutral or No impact

Please provide details to explain your selection:

Part 4: Any further comments or information

16. Do you have any other suggestions, or anything further you would like to add to your response that is relevant to this proposal?