TOWN AND COUNTRY PLANNING ACT 1990 - SECTION 77 AND TOWN AND COUNTRY PLANNING (INQUIRIES PROCEDURE) (ENGLAND) RULES 2000

APPLICATIONS BY LONDON ASHFORD AIRPORT LTD

SITE AT LONDON ASHFORD AIRPORT LIMITED, LYDD, ROMNEY MARSH, TN29 9QL

NOTE TO INQUIRY

BACKGROUND CRASH RATE DEFINITIONS

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FOR LAAG

PLANNING INSPECTORATE REFERENCE: APP/L2250/V/10/2131934

LPA REFERENCES: Y06/1647/SH and Y06/1648/SH

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THE BYRNE MODEL DEFINTION OF BACKGROUND CRASH RATE

CONTEXT:

1) It appears LAA is trying to suggest that aircraft using other airports in the region could make a significant contribution to the probability of an aircraft crashing onto the Dungeness nuclear site.

2) This perspective is fundamentally flawed and demonstrates a failure to understand that frequency is not synonymous with probability, a point that was raised in my proof of evidence.

3) Risk is defined as the probability of an event weighted by the severity of the outcome. In this case the question is 'What is the probability of an aircraft and the nuclear power station being in the same place at the same time?' i.e. a collision.

4) It must be understood that not all aircraft movements have the same probability weighting. For example, you could have ten thousand movements of a particular flight manoeuvre (A) which has a 0.01% probability of colliding with the nuclear site to generate a single crash. Equally you could have only 10 movements of a higher risk flight manoeuvre (B) which has a 10% probability of collision to generate the same outcome.

5) In other words, it is not the number of flight movements which is so relevant as the probability of a particular manoeuvre deviating from its intended flight path and culminating in an **unavoidable** collision with the nuclear power station.

6) This is where the Byrne model and LAA's rationale breaks down in the attempt to compare a notional background crash rate with the increased risk posed by large aircraft taking off and landing at LAA.

CONSIDERATION OF AIRCRAFT EN ROUTE TO OTHER AIRFIELDS

7) There is no evidence to back Mr Village's assertion that aircraft approaching other airports, such as Gatwick, would be flying in the area at 6,000 ft. The closest airway, L15, is a little used route into Gatwick whose centre line is 8km away from the nuclear site and where aircraft fly at a minimum height of 8,000 feet.

8) The primary holding pattern for Gatwick is at Mayfield[1] which is around 15 to 20km further on from Lydd and which requires aircraft to hold to at least 7,000 feet. Since aircraft descend into a holding pattern, they would be at higher elevation, in excess of 10,000 ft, when passing LAA and at a separation of around 8km from the nuclear power stations. In addition, at no point would these aircraft be pointing towards the nuclear power stations.

9) Any aircraft which starts a descent from these higher elevations on a path which ultimately intersects with the nuclear power station must have experienced a problem some km further back (assuming the pilot has retained some degree of control). If the aircraft was dropping at, say, 1000 ft per km then it might have been 10km, 15 or 20+km away when the problem started. Clearly the pilot's ability to take diversionary action will be easier to execute and more effective at this height and separation than for an aircraft which is taking off, landing or performing low level manoeuvres at LAA; noting the CAA's comment in CAP168, appendix 2b. 3.1 CD 16.1 (LAA) which states that

'an aeroplane on the ground is most vulnerable during the landing and take off phases of flight when the pilot is severely restricted in the avoiding action which he or she can take.'

10) One would also have to consider that a small change in angle in the en route example will result in a much larger separation from the nuclear power station by the time the aircraft hits the ground.

11) This cannot be compared with the situation of a pilot finding him/herself in difficulty at low altitude close to the nuclear site where the struggle for survival will happen on a much shorter timescale. Even if the pilot was able to make the same small angular adjustment, the time to execute the manoeuvre and the response time of the aircraft would become more significant in determining the outcome. The aircraft may already be too close for this change in angle to prevent a collision, bearing in mind the potential for skew, skidding and fires once the aircraft has landed.

12) This illustrates the fundamental flaw in the Byrne methodology which uses a 2 dimensional plot derived from a small number of historical crashes surrounding unrelated runways in an attempt to solve the four dimensional problem of predicting the probability of a collision at a single, very specific, location relative to the runway at LAA.

[1] There is a holding path near Lydd but this is only used if both the Mayfield and LARK stacks are full.

The data points are unintelligent as they give no information on the events, heights, timescales and distances which led up to the crash. As we have seen, the entire airfield crash rate model breaks down the closer the event occurs to the nuclear site as it assumes aircraft will always be able to avoid the power stations.

WHAT PHASES OF FLIGHT ARE INCLUDED IN THE BACKGROUNDS CRASH RATE

13) In terms of uncontrolled aircraft failure, the ESRT 2009 report, LAAG CD13.9. page 11 footnote confirms that the background crash rate includes the latter stages of climb and the initial descent[2]. So this incorporates the traffic which is heading into and out of the other airfields in the South East i.e. these flight movements are already included in the NII's assessment of background crash rate.

14) My supplementary evidence (paragraphs 70 to 80) shows that data base for large en route aircraft crashes is zero as all four incidents were wrongly assigned[3]. ESRT admits there has been no en route commercial airline crashes for the last 25 years.

15) My supplementary evidence also notes that the model is skewed in a way that underestimates the ratio of airfield to background crash rates because of:

*An assumption that aircraft will be able to avoid the nuclear power station in both cases (flawed as described above)

*A failure to account for the fact that airfield traffic would approach at a much shallower angle, so more likely to skid. This could increase the probability of a collision derived from Lydd based traffic by orders of magnitude.

*A failure to account for the fact that the shallower angle of approach from airfield traffic means an increase in the effective target area presented by the nuclear power stations, which again increases the probability of a collision.

16) It should also be remembered that aircraft travelling to or from other airports would not be exposed to the exceptional birdstrike risk which prevails on the Dungeness peninsula (ESRT 2010 report LAA 15 F.1, which refers to the bird strike

[2] '*The latter stages of the climb to cruising altitude and the initial descent phases have been included in this estimate (of en route accident rate) since these phases do not occur close to the airfield and will, therefore, count towards the background rate as employed in the AEA (Byrne model) methodology*'

[3] Mr Nicholls evidence paragraph 5.5 refers to crash rate data reviewed in 2008 (reference document given to LAAG during the inquiry). This still has the same four, incorrect assignments for background crashes, there being no new background crashes since that date.

risk as being 6 times UK average). This is a hazard for LAA traffic manoeuvring below 2,000 to 3,000 ft but not for aircraft at higher elevations.

CONCLUSION

17) The purpose of this note was to clarify the stages of flight which are included within the Byrne model's definition of background crash rate. However it has been necessary to widen the context to compare the risk presented by the introduction of large aircraft taking off and landing at Lydd with that of traffic using other airports in the South East.

18) To suggest that the background risk would dominate is incorrect and grossly misleading to the inquiry. To imply that probability is merely a function of flight frequency demonstrates a serious failure to understand the basic principles of probability theory.

19) Although the frequency of flight movements into and out of LAA may be less, the probability of an aircraft deviating from its path in a way that leads to an **unavoidable** collision with the nuclear power station will be greater.

20) The fact remains that the Byrne methodology is unsound and cannot be used to predict the probability of a collision derived from Lydd based traffic with any degree of certainty. What is certain is that the introduction of large aircraft operating at an expanded LAA renders the situation inherently unsafe by causing a step change in the probability of a major nuclear accident[4] . This is why the plans should be refused in accordance with NII guidelines.

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[4] In going from 220 small aircraft movements per year to 10,000 small and large aircraft movements in the developed case (aro 45 times) to 32,000 aircraft movements (aro 145 times) if the airport achieves its masterplan.