



## **Airports, risk and the public interest**

### **A report submitted to DCLG in the context of the consultation on the Draft National Planning Policy Framework, October 2011**

#### **Summary and recommendations**

Air travel is a relatively safe form of transport. Nevertheless, people living, working or travelling near the ends of airport runways face an increased risk of death or serious injury as the result of an aircraft crash compared with the general population. The Government's current policy for minimising this risk – Public Safety Zone policy – imposes planning restrictions in those areas where the risk is highest, in order to limit the number of people exposed.

AEF believes, however, that the policy is currently failing to provide an adequate level of protection. Ten years ago, the Institute for Public Policy Research made the following recommendations in its report *The Sky's the limit - policies for sustainable aviation*<sup>1</sup>:

- Both passengers and the public should have the right to access to information about the environmental and safety implications of air transport growth.
- The Government should offer UK citizens a level of protection equivalent to that secured by Health and Safety Executive policy to industrial hazards.

AEF considers that while the aviation industry has been allowed to grow considerably since then, these basic requirements have not been met.

We are also concerned that while PSZ policy can significantly restrict development in the area around an airport, it does not restrict development of the airport itself, giving airports an unjustified advantage in the planning system.

This paper presents examples of problems in the way third party risk around airports has been handled in a number of recent cases. Our experience of involvement in this issue leads us to the following conclusions:

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<sup>1</sup> <http://www.ippr.org/research-projects/44/7050/the-skys-the-limit-policies-for-sustainable-aviation>

- 1) While PSZ policy is set out in a DfT Circular it interacts in many ways with the planning system so should also be a matter for consideration by DCLG. Public safety generally, and third party risk around airports in particular, should be listed in the National Planning Policy Framework as important considerations in the context of planning proposals.
- 2) LPAs and their technical consultants regularly mis-apply PSZ policy and in some cases the DfT itself has made recommendations that appear to undermine its own policy. We believe that PSZ policy as it currently stands is ineffective and that a new approach to risk management is needed.
- 3) A key weakness of the policy is the fact that it applies in only one direction - restricting development around airports but not restricting changes in airport operations, even though both may have the same impact in terms of increases to third party risk. We see this as a fundamental injustice. Either the same restrictions should apply in both directions, or a complementary policy is needed to prevent unacceptable increases in third party risk arising from changes in airport operations.
- 4) One possible solution would be for DfT to retain the policy in its current form but
  - a. advocate its rigorous implementation (our evidence provides examples of cases in which we do not believe that DfT has provided the correct steer)
  - b. clarify for LPAs and consultants the limitations of the policy (see point 6), and
  - c. set out clearly what kind of supplementary risk analysis is necessary in cases where the policy does not apply. For this analysis to take account of local circumstances it should be based on societal rather than individual risk.

We believe, however, that the implementation of (ii) and (iii) would be likely show up the weaknesses of PSZ policy to such an extent that the policy would appear invalid as a standalone approach to risk.

- 5) Another solution, therefore, would be to scrap the PSZ policy altogether and replace it with a requirement for LPAs to undertake their own risk modelling (with Government setting out the criteria for the standards that must apply) when considering planning applications. However, given the current commitment to speeding up the planning process, and given that PSZ policy was introduced in order to obviate the need for risk assessment by LPAs in certain circumstances, this approach does not appear to us to achieve a good fit with other policies.
- 6) A third solution, and the one we favour, would be for DfT to advocate the rigorous implementation of current policy, including its guidance on transport infrastructure, and either to amend or supplement it with guidance on how both risk in areas adjacent to a PSZ, risk at airports without PSZs, risk arising from high density developments, and risk arising from changes in airport operations should be dealt with by LPAs. We suggest that this guidance should be prepared jointly by DfT and

DCLG. In the longer term, we believe responsibility for risk management around airports should be transferred to the HSE.

- 7) The text of the Circular setting out PSZ policy, if this policy is to be retained (and supplemented) should be strengthened to
  - a. emphasise that, while policy is based on annual individual risk, the principle applied to transport infrastructure is that the potential for an equal number of casualties arising from an accident requires equivalent restrictions upon development (or removal of existing land uses);
  - b. indicate clearly that the tolerability criteria inherent in the guidance is based on parameters appropriate to residential areas and that, as with transport infrastructure, other criteria should be considered for types of development which differ significantly in their use;
  - c. make clear that the guidance does not apply to proposals for development which do not fall within PSZs and that land uses which may generate high occupancies which are close to PSZs should be considered carefully in respect of risk; and
  - d. clarify that the approach specified in the Circular is not a sufficient basis for assessing risk for airport development proposals.
  
- 8) To facilitate the planning process, and to ensure transparency and effective policy implementation, PSZ risk models should be in the public domain.

## **1. Introduction**

Around 80 per cent of jet aircraft accidents occur during take-off and landing. People on the ground near the ends of airport runways are, therefore, at a heightened risk of death or serious injury. In general, these people are there for reasons unrelated to aviation - they may live there, work there or be passing through - and the risk is, therefore, treated as Third Party Risk (TPR).

In the 1990s the Department for Transport (DfT) commissioned the development of a model of risk which predicts the probability of a crash at an airport based on air traffic and fleet mix, the likely location of crashes based on accident statistics, and the expected area which would be destroyed. This model was used to predict individual third party risk as a basis for updating rules for restricting occupation of these danger areas and informed the Public Safety Zone (PSZ) policy in DfT Circular 1/2002.

PSZ policy provides a simplified procedure for Local Planning Authorities (LPAs) to determine proposals for development in the areas of highest risk without the need to carry out complex, and costly, risk analyses. The objective is that “there should be no increase in the number of people living, working or congregating in Public Safety Zones and that, over time, the number should be reduced as circumstances allow.” The policy is implemented primarily through planning restrictions within PSZs to prohibit new or replacement development. PSZs are currently in place at 30 UK airports.

Public safety can be an emotive topic and the estimation of risk is challenging. The principles of dealing with risk must be communicated to decision makers and their advisors in the planning system and to the wider public with care. It is, therefore, unfortunate that the Civil Aviation Authority's (CAA's) web pages dealing with the Government's Public Safety Zone (PSZ) policy include (October 2011) the following:

The area of a PSZ corresponds to the 1 in 100,000 individual risk contour for that airport. What this means is that any person who lives within this risk contour for a period of a year, or has their normal place of work within this contour, has approximately a 1 in 100,000 chance per year of being killed as a result of an aircraft accident. Compared to other risks we take every day, this is very low.

The 1 in 100,000 individual risk associated with a PSZ is actually a low level of risk compared with many other risks that most people encounter in their daily lives. For example, the risk of being killed in a road accident is about 1 in 18,500 - equating to 2,946 deaths.

In fact, PSZs are defined as areas within which individual risk *exceeds* 1 in 100,000 and, at many airports, can exceed 1 in 10,000 for several hundred metres outside the airport fence. Further, the risk of death in a road accident is not a third party risk as most casualties are to people deriving some benefit from using the road.

## **2. The limitations of PSZ policy**

The Government provides guidance to Local Planning Authorities (LPAs) through the annex to Department for Transport (DfT) Circular 1/2010. This replaced Circular 1/2002 but, as both are identical in policy terms, they are referred to in what follows as "the Circular" with particular paragraphs identified by the numbering of the annex to the current version.

One weakness of the Circular is that it contains non-statutory guidance although many authorities with planning responsibility for airports have incorporated it into the Local Plans and Local Development Frameworks (LDFs). When, for example, Luton Borough Council's Local Plan expired, the Secretary of State declined to "save" the local PSZ policy on the grounds that it was national policy leaving what AEF regards as a confusing hiatus.

The Circular establishes a process for defining Public Safety Zones (PSZs) at ends of the runways of the busiest airports and for periodically reviewing them. Within these PSZs, establishment of all but the lowest occupancy land uses is to be discouraged and, over time, reduced. There is no requirement to remove existing development except from "inner" PSZs closer to the airport where the risk of a crash is much higher.

The PSZs correspond approximately to the areas where the annual risk of death to an individual present constantly exceeds 1 in 100,000. The model of individual risk used to define PSZs was developed by a team led by National Air Traffic Services (NATS) in the

1990s and has been updated by NATS since. The DfT finances the model development and the production of PSZs but only the original model has been published. Although AEF understands that the model is peer-reviewed, we believe that the model should be in the public domain for reasons set out later.

The threshold of annual individual risk which defines the PSZs, 1 in 100,000, was derived from a cost/benefit analysis in which the potential value of the third party lives lost in an aircraft accident was set against the cost of removing people from exposure to the danger. The analysis relies heavily on values of the average density of residential occupancy (persons per hectare) prevailing around airports in the mid-90s, and the then cost of land and of building.

The “inner” PSZs are areas within which the annual risk to an individual present constantly exceeds 1 in 10,000, the Health and Safety Executive’s (HSE’s) limit of tolerability for third party risk.

AEF accepts PSZ policy as adequate for LPAs to apply to straightforward, small-scale residential development proposals within PSZs, thus avoiding complex and costly risk assessments. However, based on the risk model and cost/benefit analysis which underlie the PSZ policy and the approach taken by the HSE to areas around other high risk installations, we believe that LPAs and government are failing to protect the public adequately when considering:

- transport infrastructure proposals falling within PSZs;
- high occupancy development proposals just outside PSZs; and
- proposals for airport development and increases in air traffic.

### **3. Transport Infrastructure in PSZs**

The Circular states clearly (paragraph 2) that, while individual risk is the main basis for the policy, it extends beyond this when adapting the guidance for application to transport infrastructure, a common feature close to airports. It (paragraph 18) advises that:

The density of occupation of a six-lane motorway or a mainline railway, averaged over a day, is similar to that of a housing development. Transport infrastructure is therefore considered for Public Safety Zone policy purposes as if it is residential, commercial or industrial development...

Proposals for major roads and motorways should be carefully assessed in terms of the average density of people that might be expected to be exposed to risk.

By the simple process of identifying whether the average occupancy of the area of a proposed development would result in density of occupation (persons per hectare) comparable with residential, commercial or industrial developments, the LPA is able to interpret the guidance for the special case of transport infrastructure in which each

individual is only exposed to risk fleetingly. The obvious principle being applied is that, if an aircraft accident could result in the same number of casualties as in land uses which are contrary to policy, the same restrictions should apply.

It is, therefore, surprising that we are unaware of any such transport proposals to which this guidance has been applied. On the contrary, it appears to be universally ignored:

**a) Luton BC East Luton Corridor Improvement Scheme**

Report to Development Control Committee 6th October 2004:

Public Safety Zones

69. The junction of Airport Way, Lower Harpenden Road and Gipsy Lane falls within the Public Safety Zone. DfT Circular 1/2002 does not permit proposals within Public Safety Zones which would increase the number of people living, working or congregating within the zone. In the case of transport infrastructure, the DfT note that careful consideration should be given to the location of major road junctions, traffic lights and roundabouts, which may lead to a number of stationary vehicles within the zone.

70. Following discussions between the Major Transportation Projects Team and the DfT and the submission of further information relating to traffic flows within the Public Safety Zone, no objections have been raised by the DfT to the proposal.

No reference was made to the other direction in paragraph 18 of the DfT Circular: "Proposals for major roads and motorways should be carefully assessed in terms of the average density of people that might be expected to be exposed to risk."

After an objector (AEF member Roger Wood) had addressed the meeting, the planning officer advised the Committee that as each vehicle occupant would spend a very short time in the PSZ, each would be exposed to a very low level of individual risk. This advice is the exact opposite of the advice in paragraph 18 of the Circular.

When DfT was challenged by Mr Wood after the above meeting, the response was:

The Department is satisfied that Luton Borough Council took into account Public Safety Zone policy in considering the planning application for the above scheme, and we consequently offered a 'no objection response on PSZ policy grounds' to the planning application" (Paul Cox email to Roger Wood, dated 6th October 2004).

**b) London City Airport planning application (07/01510/VAR) to allow up to 120,000 total aircraft movements per annum**

An objection was lodged that the increase in air traffic would take a busy 4-lane road, Connaught Bridge, into the 1 in 10,000 annual risk contour and that the Circular (paragraph 6) states that residential, commercial or industrial uses should be removed from this area and that (paragraph 18) "Transport infrastructure is . . . considered for Public Safety Zone policy purposes as if it is residential, commercial or industrial development".

Report to LB Newham Development Control Committee 30 July 2008, paragraph 6.20 states:

Connaught Bridge will be affected by the expanded PSZ, but as an existing structure National policy does not currently make any special provision for existing structures, in the same way it does for any proposed (and not yet consented) structures or buildings that might be built in the future.

This appears to contradict paragraph 6 of the Circular, however.

The advice given to members in the report to the LB Newham Development Control Committee when it approved the application on 8th October 2008 (paragraph 4.1) was: "TfL and DfT did not raise this as an issue when they were consulted on the application. The PSZ will increase in area slightly more than it currently does across Connaught Bridge. The inner 1 in 10,000 risk contour the PSZ at Connaught Bridge [sic] requires someone to be stationary at the same point for 10,000 years for there to be a notional risk. Pedestrians and vehicles using the Bridge are constantly moving and therefore the 1:10,000 risk is appreciably lower."

Again, this advice appears to be the exact opposite of the advice in paragraph 18 of the Circular.

**c) Thames Gateway Bridge**

Transport for London objected to the proposal to allow an increase in air traffic at London City Airport (see previous item) as the Bridge would fall within the expanded eastern PSZ of the Airport. Rather than follow the procedure set down in the Circular, DfT commissioned a special risk assessment from NATS (NATS Risk Assessment - The Effect Of London City Airport On The Thames Gateway Bridge, Version 1 08/08/2008). By calculating the maximum possible proportion of time (%) that a single point on the bridge could be occupied by a vehicle and scaling the maximum individual risk (constant occupancy) by this factor, NATS concluded that the maximum risk of a fatality of a motorist on the bridge would be less than 1 in 100,000 and that the bridge would not fall foul of the risk tolerability criteria in PSZ policy.

The fallacious nature of this scaling of the risk is obvious as it would lead to the conclusion that a person who was permanently within the PSZ could reduce their annual individual risk to below 1 in 100,000 by moving constantly, the faster the better.

But the important point here is that DfT appeared to actively undermine its own guidance by commissioning an alternative approach to risk assessment. When challenged on this, DfT responded: "The analysis detailed in the report is an extension of existing PSZ risk methodology" (Letter to Vice Chairman of AEF from Head of Contingencies and Regional Airports Team, DfT, 29 September 2008). We note, however, that the revised Circular issued in 2010 contains the same guidance as that in the then current version.

The DfT's conclusion based on the NATS analysis was reported to the LB Newham Development Control Committee (30 July 2008, para 10.26) as follows:

This matter was raised directly with the Department of Transport who have commented (in their letter dated 30th May 2008) that they do not have any safeguarding objections prejudicial to policy. This is based on individual risk contours, these being the level of risk an individual remaining in the same location for a period of a year would be subjected. The driver or occupant of vehicle [sic] which is within a PSZ for a short period of time is subject to a significantly lower level of risk.

If this was an accurate account, DfT has effectively contradicted the basis of its own policy as expressed in the Circular, paragraph 2: "Public Safety Zone policy is based predominantly on individual risk, while extending beyond it in relation to particular types of development such as transport infrastructure and to temporary uses." AEF considers it more likely that the confusion lay with the author of the report.

#### **d) London Cable Car**

Several environmental and community organisations objected that the proposed cable car across the Thames would pass through the PSZ of London City Airport on the grounds that the assessment procedure stipulated in the Circular for transport infrastructure would, because of the "connected" nature of a cable car, result in an effective density of occupation in the PSZ which would be significantly greater than for residential development. Transport for London (TfL), with the support of DfT, commissioned a risk assessment from NATS (NATS Risk Assessment – The London Cable Car and London City Airport Public Safety Zones, Version 1, 18/02/2011, OA 1109) which concluded that the annual risk of an aircraft affecting the cable car was lower than one in 15 million. However, it simultaneously concluded that the annual risk of fatality to an individual beneath the cable at the point where it intersected the approach path to the airport would be

approximately 1 in 91,000. It is difficult to see how a person could be at greater risk than a structure measuring 1.1 kilometres in length and 20 metres wide but NATS sustained its position in a further report (NATS Response to London Cable Car Representations, Version 1, 08/03/2011, OA 1113) responding to the objections from AEF and others although it failed to explain the method it had employed to estimate risk to the whole structure.

Again DfT seemed to be acting to the detriment of its own policy in supporting a method which is not open to scrutiny and which violates the simple rule that the same number of potential casualties should lead to the same outcome.

#### **e) Stansted Airport second runway**

The Environmental Statement (Stansted G2 Airport Project Environmental Statement, Volume 13: Third Party Risk) submitted with the planning application addresses the incursion of major roads into the PSZ of the existing runway. The numbers of peak hour road users likely to be within the 1 in 100,000 and 1 in 10,000 individual risk contours at any moment is estimated but not carried through to estimate the density of occupation as prescribed in the Circular.

For the A120 road, this is around 92 per hectare (ha) for the Base Case (no second runway) in 2030 and 77 per ha for the Development Case. For the new access road proposed for the Development Case, the density would be a minimum of 53 per ha. As these are all of the same order as the residential density (62 per ha) assumed in the cost/benefit analysis which underlies the individual risk criteria in the PSZ policy, it is clear that measures should be taken to remove the A120 from the 1 in 10,000 risk area and that the proposed access road should not be built through the PSZ without measures to radically reduce the risk to road users.

However, the conclusion drawn is (paragraph 8.2.13) "Against the criteria derived from the PSZ policy the estimated changes due to the development, in individual risk exposures and numbers of road users likely to be exposed at any time, are considered acceptable. It is therefore judged that in this respect the effect of the G2 Airport Project is negligible", thus conveniently avoiding the result that the absolute numbers are contrary to the policy as set out in the Circular.

AEF concludes from these experiences that the guidance on transport infrastructure in the guidance is in many cases not being implemented by planning officers or consultants planning officers and consultants and that instead notions of individual risk are being applied when guiding members of Development Control Committees. Further, DfT itself does not appear to regard the guidance as appropriate in all circumstances. DfT should either re-affirm its commitment to the guidance or clarify the areas in which it needs amendment, ensuring that it clearly prescribes the procedure which should be followed by LPAs.

#### **4. High occupancy development proposals outside PSZs**

The PSZ boundary is based on a balance of costs and benefits with reference to the parameters of typical residential areas around airports. If the same calculations were made for developments which provided higher densities of occupancy such as flats, schools, shopping malls and places of entertainment, the limit of tolerability of risk would be much lower. We understand that in Eire, where PSZ policy is based on that in the UK, development of high occupancy land uses such as high density housing (greater than 120 persons per hectare), schools, hospitals and other uses which would allow for congregation of large numbers of people is precluded within the 1 in a million annual individual risk contour.

##### **a) Stirling Place, Kimpton Road, Luton (Application No. 08/00845/FUL): mixed use development including 400 residential units**

Luton and District Association for the Control of Aircraft Noise (LADACAN), objected to this planning application on grounds which included the site's proximity to the PSZ when national policy supported expansion of the Airport to accommodate a 3-fold increase in air traffic, which would undoubtedly have led to the expansion of the PSZ to encompass the site of the proposed development. LADACAN also objected on the grounds that the site was well within the 1 in 1 million annual individual risk contour published by the DfT for the SERAS study and that, as the proposed density of occupation exceeded that assumed in the cost/benefit analysis which formed the basis of the PSZ policy by a factor of ten, planning permission should be refused unless a more detailed risk analysis was undertaken and indicated that the risk to residents could be reduced to acceptable levels.

These objections were neither reported nor commented upon in writing to the Development Control Committee at its meeting on 20th May when it granted permission and it was left to the LADACAN representative to try to explain the objections in a 5-minute "right to speak" presentation. When asked by the Committee Chairman to respond to the objection, the only advice offered to the Committee by the Development Control Manager was "the site is not in the Public Safety Zone", a fact which had been stated by LADACAN in the first sentence of its objection.

##### **b) London Borough of Newham Local Development Framework Core**

The submission draft Core Strategy (CS, March 2011) includes medium density housing allocations which are just outside the PSZs of London City Airport at Albert Basin and Silvertown Quays. The CS references housing densities in the London Plan which range from 35 to 405 units per hectare. It is not clear where in this range "medium density" would fall but it can be expected to exceed the density

assumed in the cost/benefit analysis which underpins the PSZ policy tolerability limit of annual individual risk for new development, namely 1 in 100,000.

AEF is very concerned that planners take the view that, if the DfT provides no guidance for development proposals outside the PSZ, the risk levels in such locations are low enough to be ignored. It believes that proposals for development of land within the 1 in a million annual individual risk contour which would result in a high density of occupation should be subject to risk assessment based upon the risk and cost/benefit models which underpin the PSZ policy.

## **5. Variations in risk arising from airport development proposals**

Whether considering specific planning applications or developing strategic plans, Local Planning Authorities (LPAs) need to understand two potential effects of airport development proposals:

- The changes to PSZs which will vary the policy constraints on land uses near the runway ends; and
- Changes to the overall level of risk to which the population on the ground around the airport will be exposed.

### **a) Changes to PSZs**

Estimating the impact of airport developments, particularly increases in aircraft movements, on PSZs should be relatively straightforward but AEF's experience shows that poor access to the DfT model for predicting PSZs may restrict the accuracy of the information available. In response to objections that no PSZs had been submitted with its planning application (07/01510/VAR) to allow up to 120,000 total aircraft movements per annum, London City Airport produced PSZs on a drawing dated 28.03.08 which states "PSZ contours are indicative only and represent the best interpretation of the NATS model available". Yet the eastern PSZ produced by NATS for DfT in its Thames Gateway Bridge assessment assuming the same aircraft movement numbers (see above) was very much wider.

At the appeal against refusal of permission for expansion at Coventry Airport, the operator WMIA Ltd is reported in the Inspector's report as having stated that its consultant "used a simple contour rather than the DfT approach because that involved an element of judgement about where to pinch the triangle, and he was not party to DfT assumptions."

AEF regards the current restriction on access to the DfT PSZ risk model as a serious barrier to proper consideration of risk around airports by LPAs and, ultimately, to sustaining public safety.

## **b) Changes to the level of risk around airports**

Here the issues to be addressed are more complex and guidance for LPAs is not readily available. The Circular provides no guidance:

The guidance is not intending to inform the discretion of Local Planning Authorities' decision making with regard to any applications from airport operators to increase air transport movements. But we will consider whether this point might be clarified in a future update of the Circular." (Letter from Head of Airports Policy Division, DfT, to Director of AEF, 11 December 2008).

The update of the Circular did not refer to this point.

In most of the airport development planning applications submitted since the Circular was first published, AEF can find no evidence that any consideration was given to the impact that the proposals would have on the overall risk exposure of the local population. At Birmingham, London City and Southend, it was clear that an assessment of the change to PSZs was held to be sufficient to deal with the risk question.

As a typical example, the Report to Development Control Committee of Southend – on-Sea Borough Council, 20 January 2010 on an application for consent to expand the Airport concluded on the basis of projections of the change to the PSZ which would arise from the proposal and a review of locations which would newly fall within the PSZs: "In terms of public safety and third party risk, the proposal is considered to comply with policy and associated guidance." No attempt was made to quantify and assess the aggregate increase in risk to the population around the Airport.

Further, where some attempt was made to look beyond the changes to PSZs, the PSZ policy was still regarded as an adequate basis for assessing risk. The Inspector at the Coventry Airport appeal wrote (12<sup>th</sup> January 2007, paragraph 20.64):

Objectors submit that risk assessment should be carried out on the basis of societal, rather than individual, risk. Given the DfT guidance [CD19, para 2](20.53) that would be to introduce a form of assessment at CVT which is not applied to airports elsewhere in the UK. I can see no reasonable basis for departing from that guidance. For the record, individual risk at a particular location is the likelihood per year that an unprotected person at that location will be killed as a consequence of an aircraft impact [CVT11/1, para 4.2; CD19, para 2].

No attempt to establish the increment in aggregate risk to the surrounding population which would arise from the proposed development had been made.

BAA's planning application for a second runway at Stansted (Stansted G2 Airport Project Environmental Statement, Volume 13: Third Party Risk) based its TPR assessment on the increase in the numbers of residents and, for employees, resident-equivalents in the PSZs. Although the numbers would double, the result is claimed to be acceptable as the numbers would be lower than at some other selected airports. No attempt is made to assess the increase in risk to residents beyond the 1 in 100,000 individual risk contour (where the HSE tolerability criterion requires that annual risk above 1 in a million be reduced to "as low as reasonably practicable" – ALARP).

Even when relying on the risk model underlying PSZ policy, some bizarre conclusions are reached. The hazard assessment presented in the Environmental Statement for the proposed Coventry Airport new passenger terminal is based on the DfT's individual risk model which is explained in great detail. However, it appears also to be applied to calculate the risk of a crash on a number of hazardous installations near to the Airport. This is inappropriate because it is an inherent assumption of the DfT model that the individual at risk is small in comparison with the area destroyed by an aircraft crash. This would, of course, not be the case for industrial plant. Further, it claims that the risk estimates so produced are within tolerability criteria which are appropriate for individual third parties whereas the appropriate procedure in such cases is, having calculated the aggregate risk of the hazardous plant's integrity being impaired, to calculate the annual risk to which individuals in the vicinity would be exposed.

The only case in which, to the knowledge of AEF, an adequate assessment of third party risk in respect of an airport planning application has been carried out is at Farnborough. In this case it is probably significant that the LPA, Rushmoor Borough Council, had a specific Local Plan policy requiring public safety to be a factor in planning for the airport and that it was the Council which commissioned a consultant, ESR Technology, to advise on the third party risk (TPR) content of the applicant's Environmental Statement (ES). The following extracts from the consultants' report (ESR/D1001023/02/Issue 3, October 2009) have, in AEF's view, relevance for the treatment of TPR around airports in general. Effective Government guidance for LPAs on how to treat the risk arising from applications for airport development would be the only way, we believe, to effectively obviate the need for such detailed analysis in other cases.

2. Overall, ESR Technology considers that the treatment of public safety in the ES does not provide a sound basis for determination of the application. It is limited to a consideration of the future extent of the Public Safety Zones at the airport, the 1 in 10,000 and 1 in 100,000 per annum individual risk contours for the proposed future operations and the implications regarding Conditions 13 and 14 of the current planning consent that relate to public safety. Whilst these are relevant considerations in this case, ESR Technology believes that the requirements for the assessment of public safety impacts of airport development go well beyond these limited issues.

3. The associated Scoping Report that was issued in April 2009 suffered from the same deficiency. In response, Rushmoor Borough Council advised RPS that there was a need to draw a distinction between PSZ policy which is intended to control new housing and other development near existing airports and policies relating to the control of airport development near existing housing. In the planning context, risks to people occupying existing areas of development in the vicinity of the airport represents 'demonstrable harm'. Under these circumstances, the applicant should provide a proper account of these impacts in order that the Council can weigh these factors in the balance when determining the application. The Council stated explicitly that 'It will be necessary to assess whether the third party risk associated in practice with operations at Farnborough Airport would increase as a result of the proposal.' This basic requirement has not been met.

5. The risks calculated for the current permission and the proposed variation in the condition are based on different risk modelling assumptions concerning the probability of an aircraft crash for operations of the type undertaken at Farnborough which prevents a valid comparison being made between the impacts of the current permission and those associated with the proposed future operations. Since risk to people in the vicinity of the airport is directly proportional to the level of activity, the risk will inevitably increase if the movement limit is increased. No account of this increase in risk has been provided in the ES and the use of different risk modelling assumptions for the two cases obscures the real impact associated with the proposed variation. We view this to be a significant deficiency in the treatment of public safety in the ES. It is of further concern that the risk modelling assumptions made in the determination of the risk contours for the proposed future operations have not been defined and their validity can therefore not be confirmed.

6. In order to support the determination of the application, we believe that risk estimates for the current and proposed future operations should be provided, based on the same risk model and using the current best estimates for all relevant modelling parameters such as aircraft crash rate. Relevant modelling parameters should be clearly defined such that their validity can be subject to proper peer review. Ideally, where there are potentially significant uncertainties in key modelling parameters, these should be taken into account by the use of uncertainty analysis and limits for the range of likely risks should be provided.

7. The treatment of public safety in the ES is limited to consideration of the areas subject to individual risks at or above 1 in 100,000 per annum. ESR Technology considers this to be an inadequate basis for

assessment of the public safety implications of airport development. The 1 in 100,000 per annum individual risk contour has previously been identified as the basis for PSZ policy and as the risk limit to be employed when balancing risks, costs and benefits in relation to new housing development near existing airports. It has no specific relevance in the assessment of public safety impacts of airport development near existing housing development. The ES should address what might be considered potentially significant harm. Individual risks below the level of 1 in 100,000 per annum have normally been considered significant in the planning context. Health & Safety Executive criteria, for example, normally consider that individual risks at or above 1 in a million per annum are potentially significant in the planning context. Risks below the level of 1 in 100,000 per annum considered in the ES should be formally addressed.

8. Consideration of individual risk estimates alone may not adequately address significant risks in some instances. Where sufficiently large numbers of people are subject to relatively low annual individual risks, the probability of an event in which there are a significant number of fatalities need not be trivial. This is particularly true in the case of airport risks. ESR Technology believes that a proper treatment of the public safety impacts of airport development should include an assessment of these aspects of the risk. That is to say, estimates should be made of the probability of crash events and the numbers of third party fatalities likely to be associated with them, as would be provided by use of established methods for the assessment of societal risk.

While AEF strongly supports the approach to risk outlined in these extracts, we remain concerned that the conclusions drawn in the report are weakened by the lack of guidance from Government. The ESR report finds the “risks to be significant but not exceptional, when compared with risks encountered at other airports”: not a comforting conclusion.

## **6. Conclusions**

AEF believes that, while the current PSZ policy as set out in the Circular makes a useful contribution to ensuring that planning decisions contribute to protecting the public from harm, its limited scope and the difficulty of the topic for both planners and, in some cases, consultants are resulting in planning decisions which are not in the public interest. We are also concerned that the risk model and tolerability criteria are public property and should be fully in the public domain, together with the assumptions which are made in individual airport producing PSZs. We therefore consider it imperative that third party risk around airports should be addressed in the context of the current reviews both of aviation policy and of planning policy.