

Bournemouth Airport consultation

You may be aware that Bournemouth Airport are carrying out a statutory Civil Aviation consultation about renewal of their Air traffic approach equipment. On the surface this does not significantly change the arrangements for aircraft flying over Brockenhurst but the new equipment can be programmed to reduce the impact of noise in our area. In addition it can save energy by using less aviation fuel and thereby also reduce pollution. We have therefore submitted a response to the consultation which is given below. Our assessment and the answer to the specific questions is :-

Assessment of consultation

Sub-Option c - Straight-in Approach with Combined Initial and Intermediate Fixes

Under this sub-option, the RNP approach is flown as a direct arrival approach. During normal operational hours, Air Traffic Control provide the guidance to the aircraft (radar vectored) to position the aircraft on a straight-in approach, in line with the runway, so that the aircraft can complete the final approach. The implementation of sub-option 3c waypoints defining the approach is illustrated in Figure 18 and Figure 19 overlaid with the traffic patterns for typical passenger airline aircraft ILS arrivals in 2017 and 2018.

The provision of an aircraft heading by the Radar Controller, together with the accuracy that the heading can be flown, will result in variability of the point the aircraft intercepts the runway centre line leading to dispersion of tracks around the Initial Approach Fix, as is the case today.

With the RNP approach, the Initial/Intermediate Approach fix waypoint defines the point at which aircraft will turn onto the runway centreline. The increased level of automation on the aircraft, may 'smooth' the turn to join the runway centreline close to the intermediate fix leading to lower levels of dispersion in the vicinity of the Initial Approach Fix than a comparable ILS approach.

For Runway 26, where it is expected that the ILS will remain the approach of choice for the majority of aircraft the concentration of RNP tracks at the Initial Approach Fix will not be noticeable. This is the procedure today and so this sub-option results in the same distribution of aircraft undertaking commercial air transport operations as today. This is the primary advantage of this approach.

During out of hours operations when radar is not available, aircraft would join the procedure by self-positioning whilst maintaining altitude above the minimum levels, as is done today for the existing ILS. It is expected that as part of this procedure, some aircraft may continue to utilise the NDB, overflying the airfield to then intercept the approach. It would be expected that eventually all aircraft would route directly to the combined initial and intermediate approach fix under this sub-option.

For training flights, this procedure provides lower benefit since the approach consists only of an intermediate and final approach segment. Without the initial approach segment, this configuration limits the training options that are available to the training organisations resident at Bournemouth, and those that utilise the published approach procedures from other airfields.

- **Sub-Option : d - Limited T Bar with 2 Initial Approach Fixes**

Under this sub-option, the RNP approach would be provided with initial approach segments that would enable aircraft to join the approach in a similar position to that which they would do if being vectored by ATC. The implementation of sub-option 3d waypoints defining the approach is illustrated in Figure 18 and Figure 19 overlaid with traffic patterns for all commercial aircraft arrivals in 2017 and 2018.

Highlighted in red on each figure is an illustration of the anticipated alteration in traffic patterns which could be expected to occur for each runway if the implemented solution under this sub-option was selected. The net effect would be a general movement of aircraft to the west as a result of the aircraft navigation systems anticipating turns more linked to the IAF. The illustration focuses on the southern join as this is likely to be the most impacted. Joins from the North Runway 08 and Runway 26 would be expected to lead to some concentration of tracks in the centre of the existing bands, whilst direct arrivals as seen from the West to Runway 08 and East to Runway 26 would be unaltered due to their existing concentration on the central IAF.

As far as I can judge, if our suggestions are adopted, option D would be the best for us but if they were not adopted option C would be best. On the form we have to tick a preference box so I think we tick D and cover the point in general comments.

Response

Option C – runway 08 response Rationale comments box.

We understand the need to replace the existing ILS system now and support the use of a RNP approach but would like to use the opportunity of this change to reduce the aircraft noise in the area and to provide some energy savings. Our suggestions of areas where this could be done are given in the comments section below. We feel that the CAA, like us, should take their part in supporting measures which contribute to the objective of the UK becoming carbon neutral since it is only by everyone doing what they can, that this can be achieved.

Option D – Runway 26 Response Rationale comments box

We understand the logic of introducing a RNP approach for runway 26 at the same time as RNP replacing the ILS for runway 08, and support the proposed RNP approach but would like to use the opportunity of this change to reduce the aircraft noise in the area and to provide some energy savings. We note from figure 4 that Brockenhurst parish is by far the most affected by air traffic density with present and intended routeings, combined with the greater use of runway 26. We also note that PBN approaches will become the main type of approach in the relatively near term, between 2024 and 2030, and so, in effect, this is consulting on the main approach routeing and profile to be used into the airport and over Brockenhurst for the future. Accordingly the proposals for RNP approaches to 26 should be considered much more seriously than as an occasional alternative to the present ILS as their impact will be very significant. Our suggestions of areas where improvements to current proposals could be made are given in the comments section below. We feel that the CAA, like us, should take their part in supporting measures which contribute to the objective of the UK becoming carbon neutral since it is only by everyone doing what they can, that this can be achieved.

General comments box

We support the proposal to install RNP satellite-based aircraft approach equipment to the two runways 08 and 26. In itself this does not have to change the path of approaching aircraft and there could be little improvement in the disturbance to forest animals or residents.

However the RNP installation can be used to provide approaches which give less disturbance to the tranquillity of the New Forest and some fuel saving. This would be beneficial to residents, ponies and wildlife, as well as cost-saving to the operating companies and a reduction in pollution. As a Council we are being pressed to encourage any measures which can contribute to the New Forest National Park Authority Policy of tranquillity in the forest and the National objective to become carbon neutral, as well as to reduce pollution.

The most straightforward change which Bournemouth airport could carry out is to increase the angle of approach from 3 degrees to say 3.2 or 3.3 degrees. This increases the height over the ground at any given distance for approaching aircraft and, even more importantly, reduces engine thrust needed on the approach. As well as reducing the noise footprint of approaching aircraft over areas of the New Forest, it also allows some fuel saving. It could be even more beneficial for the Forest if the approach angle change is combined with a planned continuous descent from an

earlier stage of the arrival. Such changes have been proven elsewhere and are now used in a number of UK and non-UK airports.

When we raised these points during the consultancy phase the airport said that they would not wish to offer an increased approach angle because they would still have to cater for the present approach angle. They suggested this would involve the expense of two sets of landing lights and be confusing for trainee pilots. We understand that other airports offering an increased approach angle do not install two sets of lights, and simply brief the difference in what will be seen depending on the approach used, as well as approach guidance lighting frequently displaying differently for different sizes of aircraft, a fact which they are trained to cover. It seems to us that new pilots should be trained to be capable of using the single lighting system which is used despite different approach angles. It should also be noted that our suggestion is that the default approach to be used would be a marginally steeper approach, and so any approach lighting guidance could simply align with this rather than the 3 degree ILS. This would seem essential in the medium term in any event, as the documentation suggests PBN approaches will become the norm between 2024 and 2030, rather than the ILS.

The proposal does show some fuel saving by reducing approach lengths in certain circumstances but there is no modelling for different approach angles. We therefore ask the CAA to press Bournemouth airport to examine these approach procedures since it seems they can provide improvements in tranquillity over the New Forest, provide fuel savings and reduce pollution and carbon emissions. We recognise that the scale of the improvement on noise impact for the Forest and fuel consumption is limited but in our effort to support the National objective to become carbon neutral, we have to recognise that much of this has to be done by an accumulation of comparatively small savings.

The present experience for residents of Brockenhurst is well demonstrated by Figure 4, showing our parish to be the most affected by air traffic density of any areas surrounding the airport. It clearly demonstrates that this exposure is typically in the form of a joining turn to align with the approach. In this turn, aircraft require a higher level of thrust to maintain a given altitude or descent path than if flying in a straight line. It is noticeable from the experience of Brockenhurst residents that the noisiest and most disturbing flights are those that perform this joining turn in level flight or with only a shallow descent, as the thrust of the engines has to come up significantly to compensate. This need not be the case, and it is imperative that the vertical profile of the RNP approach design ensures aircraft are in a proper descent, of 3 degrees or more, while completing this joining turn and overflying the village. If this requirement is not built in, we can see a 'T bar' approach design actually making the problem worse, but, if incorporated, it could greatly improve matters.

We also note that the present 'T bar' design enshrines the point of joining the approach directly over the village (albeit that much radar vectoring also does the

same thing). Why not make the joining point either (ideally) closer to the airport, or further out and at higher intercept altitude to improve matters? A 'T bar' at 7.5 miles and 2500 feet, or 15 miles and 4500 feet, even 9 miles and 2700ft would make a big difference to the village.

In general we are not clear how one could justify retaining the status quo arrangements in the areas we have highlighted, when improvements are so readily possible at this point. Given that these sorts of measures are being enacted at many commercial airports, they would seem to be entirely appropriate for adoption by training organisations based at Bournemouth if their trainees are to be prepared for the 'real' world. Given the significant impact of an airport on the surrounding population and environment, deciding to adopt such modest changes to improve its impact when the opportunity arises would seem the only reasonable course of action.

In summary, when coming to your decision we urge you to take into account:

- 1) The disproportionate effect currently experienced by Brockenhurst; the likelihood that these RNP approaches will become the long term default approach, even on runway 26;
- 2) That there is a meaningful opportunity and benefit therefore in a steeper approach path, both in noise, emissions, and fuel saving terms, due to both required aircraft thrust and height over the ground;
- 3) That there is a rare opportunity to amend the lateral and vertical approach profiles to increase the separation from the village of Brockenhurst and other populated Forest areas by careful siting of any T bar, final approach intercept point, and required minimum continuous descent profile approaching the intercept point.