

# **Proposed Improvements to Budapest Airport's Noise Abatement Programme**

## **Submission to the Civil Aviation Directorate**

**28 February 2007**

The proposal numbering below relates to the proposals detailed in Budapest Airport's Proposed Noise Protection Programme for Consultation, published in January 20007.

### **Proposal 1 Creating a new SID BOKOD3D**

Budapest Airport supports the HungaroControl proposal to establish a new flight path, SID BOKOD31D, to the west of Ferihegy, for use when aircraft are taking off towards Budapest. The proposed flight path will turn aircraft west off the current south west flight path (PUSTA3D) at South of Tököl Airport, roughly above the path of busy highways and avoiding the city of Budapest. The advantages of this flight path are:

- It will reduce the number of departing aircraft flying over and turning over the city of Budapest
- The population density of this route is much lower than under the route over Budapest
- As aircraft will be directed above busy roads, nearby residents should experience little, if any, noticeable increase in noise from aircraft, as this noise will be much less than the existing noise from road vehicles.

#### **Statutory reference/publication:**

The modification must be published on map AD 2-LHBP-SID31 in the Aeronautical Information Publication (AIP) by HungaroControl.

#### **Task:**

HungaroControl must submit details of the new SID west of Ferihegy to the Civil Aviation Directorate for approval.

### **Proposal 2 Speed restriction for departing aircraft**

Budapest Airport supports the HungaroControl proposal to limit the speed of departing aircraft to 250 knots (460 kmh) below 10,000 feet (3,000 metres). In general, this means that less engine thrust will be used at lower altitudes, which will reduce engine noise. At lower speeds, aircraft will be able to follow SIDs more accurately, especially those which involve turns. This will minimise the spread of noise beyond the designated departure flight paths

#### **Statutory reference/publication:**

Aeronautical Information Publication (AIP) AD 2-LHBP-33 2.22 Procedures for flights 3.2 Standard instrument departures for Budapest/Ferihegy Airport /3.2.6.

#### **Task:**

HungaroControl has already taken the necessary steps by modifying the relevant section of the Aeronautical Information Publication (AIP) as follows:

3.2.6 "Following SID the highest speed below FL100 is 250 kt IAS."

### **Proposal 3 Avoid arrivals turns over the Buda hills**

At present, aircraft arriving from the north and west are directed to manoeuvre over the Buda Hills to prepare for their final approach, exposing residents on the higher ground to more noise than communities at lower levels would experience. Budapest Airport supports the HungaroControl proposal to direct aircraft to make these turns approximately 9 km further north, avoiding the Buda Hills.

**Statutory reference/publication:**

Aeronautical Information Publication (AIP) maps AD 2-LHBP-ARR13L and ARR13R.

**Task:**

HungaroControl must initiate terminating the two turning points over the Buda hills with the CAD. Following approval from the CAD, they must modify the applicable approach chart in the AIP and then publish the modified map without the two turning points in the AIP.

### **Proposal 4 Compulsory adoption of continuous descent approach (CDA)**

International best-practice today for aircraft landing over noise-sensitive areas is to descend smoothly at a constant angle of 3 degrees, with constant power and minimum use of their flaps, to reduce speed in the air. CDA also keeps aircraft higher over communities for longer. Budapest Airport supports the HungaroControl proposal to make the use of CDA compulsory for landing aircraft apart from in exceptional circumstances.

**Statutory reference/publication:**

Government decree no. 176/1997. (X 11.) / Temporary provisions / 3. Noise abatement flight procedures

**Task:**

We propose the modification of Government Decree 176/1997. (X 11.) / Temporary provisions / 3. Noise abatement flight procedures as set out in the attachment.

### **Proposal 5 Restricting the use of reverse thrust to idle thrust**

On landing, aircraft often put their engines into reverse (reverse thrust), in order to slow down more quickly and clear the runway early, so that the next plane can land. Reverse thrust is very noisy, especially at night. But at night there are fewer flights, and so there is less need for aircraft to clear the runway early. We therefore propose a mandatory restriction on the use of reverse thrust to idle thrust between 22:00 and 06:00 local time, except when the use of reverse thrust is unavoidable safety reasons, for example if the runway is wet, icy or snowy, and this is the only way to slow the aircraft down safely.

**Statutory reference/publication:**

Aeronautical Information Publication (AIP) AD 2-LHBP-25 / 2.21 Noise abatement provisions / 6. Night restrictions

**Task:**

We request the approval of the CAD for HungaroControl to modify the abovementioned section of the AIP as follows:

## New section 6.6

6.6 During the night hours, reverse thrust may only be used on idle reverse, since the use of the rapid exit taxiway is not preferred during this period due to traffic conditions. Deviation from this is only permitted if operational circumstances require the use of reverse thrust at a higher grade, for example in case of a slippery runway.

### **Proposals 6 & 8 Daytime and night-time runway preference**

Budapest Airport proposes to limit the impacts of daytime and night-time noise of landing and departing aircraft by directing which runways should be used.

Budapest Airport proposes that aircraft should normally land on Runway 2 from the direction of Üllő and take off from Runway 1 in the direction of Budapest. If the wind requires aircraft to land from the direction of Budapest, then they should land on Runway 1 and take off towards Üllő from Runway 2. Between 06.00 and 22.00 local time Budapest Airport proposes that some aircraft may still land and take-off over the Vecsés end of Runway 1 under approved circumstances. However, Budapest Airport proposes that landings over Rakoshegy may only be permitted in exceptional circumstances.

Currently, the percentage of flights which can land or take off in each direction on each runway is set by Government Decree 176/1997 (X.11.). Budapest Airport proposes that the Government abolishes these percentage restrictions and, instead, places a requirement on Budapest Airport to designate the preferential use of runway ends to ensure that take-offs and landings minimise noise disturbance. We also propose, however, that an absolute number limit is placed on the use of the most sensitive end of the Runway 2, namely landings over Rákoshegy.

Between 22.00 and 06.00 local time, we further propose that aircraft should not normally land on or take off from the Vecsés end of Runway 1. Deviation from this proposed runway preference would only be allowed in exceptional circumstances.

#### **Statutory reference/publication:**

Paragraph 12 (4) (a) of Joint Decree 18/1997 (X.11.). Government decree no. 176/1997. (X 11.) / Temporary provisions / 3. Noise abatement flight procedures. Aeronautical Information Publication (AIP) AD 2-LHBP-25 / 2.21 Noise abatement provisions / 2. Noise preferential runways / Sections 2.1. and 2.2.

#### **Task:**

Budapest Airport proposes the amendments to Government decree no. 176/1997. (X 11.)/Temporary provisions as set out in the attachment. We request CAD approval for HungaroControl to modify the two abovementioned sections of the AIP below as follows:

<b>Original text</b>	<b>Proposed text</b>
<b>2. Noise preferential runways</b>	<b>2. Noise preferential runways</b>
<b>2.1. According to the prevailing surface wind, normally runway 31R is used for landing and runway 31L for take-off.</b>	<b>2.1. According to the prevailing surface wind, normally runway 31R is used for landing and runway 31L for take-off.</b>
Exceptions: - Aeroplanes having noise certification	Exceptions: - <a href="#">Between 06.00 and 22.00 local time,</a>

according to ICAO Annex 16, Vol. One, chapter 3 or of light wake turbulence category or VIP flights may request runway 31L for landing;

- When the available runway length of RWY 31L is not acceptable according to the Flight Operational Manual for a given aeroplane, the pilot may request runway 31R for take-offs.

**2.2. If meteorological conditions (e.g. wind) require, runway 13R will be used for landings and runway 13L for take-offs.**

Exceptions:

- Aeroplanes having noise certification according to ICAO Annex 16, Vol. One, Chapter 3 or of light wake turbulence category, VIP flights and aeroplanes departing from stands Nr. 1-6 at Apron 1 may request runway 13R for take-off;

aeroplanes having noise certification according to ICAO Annex 16, Vol. One, chapter 3 or of light wake turbulence category or VIP flights may request runway 31L for landing;

- When the available runway length of RWY 31L is not acceptable according to the Flight Operational Manual for a given aeroplane, the pilot may request runway 31R for take-offs.

**2.2. If meteorological conditions (e.g. wind) require, runway 13R will be used for landings and runway 13L for take-offs.**

Exceptions:

- Between 06.00 and 22.00 local time, aeroplanes having noise certification according to ICAO Annex 16, Vol. One, Chapter 3 or of light wake turbulence category, VIP flights and aeroplanes departing from stands Nr. 1-6 at Apron 1 may request runway 13R for take-off;

(Insert new subsection)

**2.3. In normal operations, the use of Runway 13L should be avoided for landings.**

Exceptions:

- Emergencies
- The unavailability of Runway 1 due to closure
- Meteorological conditions requiring aeroplanes to be brought into land quickly for safety reasons
- To clear operational bottlenecks.

In the latter case, only aeroplanes having noise certification according to ICAO Annex 16, Vol. One, Chapter 3 or of light wake turbulence category shall be permitted to land on 13L.

In any case, a maximum annual limit of no more than 1,000 landings on 13L is permitted.

Renumber original 2.3

## **Proposal 7 Night-time limits on some aircraft**

Budapest Airport will endeavour to limit the type of aircraft which will be allowed to land between 24.00 and 05.00 local time, to reduce the number of the noisiest aircraft at Ferihegy. As we have no power to ban aircraft without approval by the CAA, Budapest Airport proposes to reach agreement with airlines, so that over the next three years we can reduce the number of the following plane types from Ferihegy at these sensitive hours of the night.

We will try to achieve this earlier, but we need to allow airlines to phase in the change and to make changes to their plane fleet in a way which will not harm them or risk losing important traffic, especially cargo, from Ferihegy.

### **Statutory reference/publication:**

Paragraph 12 (2) (b) of Joint Decree 18/1997 (X.11.).

### **Task:**

While the above regulation provides for the airport operator to request the CAD to restrict certain types of aircraft, Budapest Airport does not, at this stage, wish to make this formal request. At this stage, we wish to achieve the operation of quieter aircraft types through agreement with airlines. Budapest Airport will therefore begin consultation and coordination with the relevant airlines during 2007 and will seek agreement with the airlines on a progressive removal of the noisiest aircraft at night.

## **Proposal 9 Increasing the permitted tailwind preference**

While the international standard procedure for taking off with a tailwind is traditionally 5 knots (9 km per hour), in fact most modern aircraft can fly safely with a much stronger tailwind. Budapest Airport and HungaroControl therefore propose an increase in the tailwind at Ferihegy to 10 knots (18 km per hour), as is already the case at some other airports (for example Brussels and Rome Fiumicino). This will make a significant difference to the proportion of aircraft taking off in each direction.

### **Statutory reference/publication:**

Aeronautical Information Publication (AIP) AD 2-LHBP-25 / 2.21 Noise abatement provisions / 2. Noise preferential runways / Section 2.3.d)

### **Task:**

We request the approval of the CAD for HungaroControl to modify the abovementioned section of the AIP as follows:

<b>Original text</b>	<b>Proposed text</b>
<b>2. Noise preferential runways</b>	<b>2. Noise preferential runways</b>
2.3. Noise abatement should not be the determining factor in runway nomination under the following circumstances:	2.3. Noise abatement should not be the determining factor in runway nomination under the following circumstances:
d) when the tail-wind component, including gusts, exceeds 5 kt;	d) when the tail-wind component, including gusts, exceeds <u>10</u> kt;

## **Proposal 10 Greater powers to enforce regulations, introduction of penalties**

Budapest Airport closely monitors the compliance of regulations by airlines, but at present we have no power to enforce these regulations. Budapest Airport has already asked GKM to allow us to administer penalty charges against airlines which breach the noise regulations, and has pledged to use any money raised only on noise mitigation and community support initiatives.

### **Statutory reference/publication:**

Paragraph 13 (2) of Joint Decree 18/1997 (X.11.). Paragraph 66/A § (5) of act XCVII. of 1995 and the executive decree to be issued.

### **Task:**

Budapest Airport proposes the amendments to Joint Decree 18/1997. (X 11.)/ Paragraph 13 (2) as set out in the attachment. We request the CAD to define the conditions under which Budapest Airport may carry out the administration of penalties for noise mitigation breaches, and to specify on what noise mitigation measures and community support initiatives Budapest Airport may spend the sum collected from penalties.

Budapest Airport proposes that the amendments are also transposed into Paragraph 4. § (3) of Act CX. of 2006 which enacts Section h) of paragraph 66/A. § (1) of chapter 7. of Act XCVII. of 1995 on aviation. We also propose that the airport operator and HungaroControl be added to the list of bodies for coordination for determining the detailed rules of levying the penalties under this Act.

## **Proposal 11 Fewer exemptions to regulations to be allowed by the CAA**

We believe that enforcement also requires a clear commitment by the CAD itself to adhere strictly to the regulations that it is responsible for enforcing. The CAD should draw up clear procedural guidelines which specify the circumstances in which it can exempt any aircraft from noise abatement regulations, and to prepare a monthly report to GKM explaining each exemption. This report should be published on the CAD website and made available to the Noise Protection Committee for discussion as a standing agenda item. Budapest Airport will support the CAD in drawing up the guidelines for exemptions..

### **Statutory reference/publication:**

Joint Decree 18/1997 (X.11.)/Paragraph 12 (3). Government Decree no. 176/1997 / Appendix / Temporary provisions / Section 5.

### **Task:**

Budapest Airport proposes the amendments to Joint Decree 18/1997. (X 11.)/ Paragraph 12 (3) as set out in the attachment. We request the CAD to compile and publish in the AIP a schedule of circumstances under which exceptions can be granted. We request the CAD to define in its rules of organisation and operation the circumstances that exempt any aircraft from noise abatement regulations. It should inform GKM and the Noise Protection Committee each month about the exact number of and the reasons for exceptions and should make this information available on its website.

## **Proposal 12 Encouraging best practice among pilots**

Budapest Airport will work together with airlines to ensure that all pilots are familiar with the noise protection procedures, and provide training and information to help all pilots to reach the standards of the best pilots. We will develop incentives to encourage a competitive spirit and sense of pride among our pilot community, rewarding excellent performance in following noise abatement procedures.

### **Task:**

It is the task of Budapest Airport and of HungaroControl to organise and hold training for the pilots of the airlines using Ferihegy. At the training the mandatory noise abatement procedures and regulations to be applied at and around Ferihegy must be outlined. We have to expect pilots to adhere to regulations closely. Budapest Airport will develop an incentive programme during 2007 to reward excellent performance among pilots.

## **Proposal 13: Noise-sensitive management of aircraft parked at Terminal 1**

We are aware that some aircraft parked at Terminal 1 cause a particular noise problem for some residents in Szemeretelep. The main reasons for this are that some of these aircraft are noisier than most of the fleet using Ferihegy, for instance because they are turboprop aircraft, and because there are no buildings or other barriers between these aircraft and the communities.

One of the ways we can reduce the noise impact of these aircraft is to change the way they are parked. We may park some of the aircraft at other stands, which have buildings between them and communities. We may also change the layout of the stands at Terminal 1, so that the aircraft are not parked face-on to the communities, but angled slightly away from them. And we can, for the noisiest aircraft, require them to be pushed back from their stands, with their engines turned off, rather than let them move off the stand and turn onto the taxiways under their own engine power. This will not completely solve the problem, but it will help to reduce it.

### **Statutory reference/publication:**

Joint Decree 18/1997 (X.11.) Paragraph 12 (5). Airport Rules 5.3.2.6. and 5.3.2.7. on the rules of engine start-up and section 5.3.3.2. and appendices M1-2 and M4-6 on the apron layout. AIP AD2-LHBP-PDC/1 Parking on apron 1.

### **Task:**

Budapest Airport's Airside Operations Division and Environmental Department will review in 2007 the stand allocation for Terminal 1, so that operational and environmental considerations are taken into account together. Budapest Airport will submit modifications to the Airport Rules with regard to the new stand allocations for approval by the CAD.

## **Proposal 14 Mobile ground power for aircraft parked at specified stands**

One of the sources of noise on the ground is parked aircraft running their auxiliary power units while they are parked, to keep power to their flight instruments, lighting and air conditioning units. The noise from these auxiliary power units is similar to jet engine noise – like a high-pitched whine. Where aircraft are parked at stands which do not have buildings or other barriers blocking noise to local communities like Szemeretelep, we can provide electrical power to the aircraft from mobile ground generators, instead of the aircraft's own

auxiliary power units. The mobile ground generators are much quieter than the aircraft's own power units. This will cut the amount of time a parked aircraft is making a noise.

**Statutory reference/publication:**

Joint Decree 18/1997 (X.11.) Paragraph 12 (5) (a)

**Task:**

Budapest Airport will examine which stands require installing mobile power generators and coordinate action with the Ground Handling organisations on the ability to provide power generators.

**Proposal 15 Aircraft taxiing at idle thrust**

When aircraft taxi to and from runways, they generally drive under their own engine power. However, it is possible for them to taxi effectively with their engines set at only idle power. This will help to cut taxiing noise, and also save airlines some fuel.

**Statutory reference/publication:**

Budapest Ferihegy International Airport, Airport Rules / Chapter V. / 5.3.3 The rules of the taxiing of aircraft / 5.3.3.1 General rules

**Task:**

We request approval from the CAD for the following modification to the Airport Rules 5.3.3.1, as follows:

5.3.3.1 Following release of their brakes, aircraft preparing for departure on the apron should avoid applying thrust and shall carry out operations on idle thrust, except if operational conditions prevent this, e.g. slope, strong headwind, overloading, etc.

**Proposal 16 Noise deflection structures**

Where a viable case can be made that noise deflection structures will reduce the ground noise heard by local communities, Budapest Airport will consider investing in them. Such structures may be fixed noise walls or earth mounds, or mobile noise barriers placed in certain noise-sensitive areas. These measures may also include the building of a new engine testing stand, so that aircraft which need to run their engines under power to test them after servicing can do so without high levels of noise affecting local communities.

All of these potential structures will only be considered once the other changes have taken place, because we may find them unnecessary if the other initiatives are successful in cutting noise on the ground.

**Statutory reference/publication:**

Joint Decree 18/1997 (X.11.) Paragraph 12 (5) (b)

**Task:**

Once Budapest Airport has examined and introduced the above modifications at the aprons and stands, if necessary we will procure noise deflection structures for additional noise abatement using noise protection charges.

## **Proposal 17 Passive acoustic protection**

Budapest Airport is obliged to install passive acoustic protection relating to noise mitigation pursuant to under government decree no. 176/1997, once noise protection zones are approved. We will, of course, meet all our obligations.

But we have already announced that once we have developed the noise contours that show which groups of residents are the most badly-affected by noise from aircraft, we will offer early implementation of the noise protection measures to this first group of residents, in advance of our legal obligation. This means that some residents who suffer from the worst levels of noise now and who will still be affected by higher levels of noise from aircraft in future will not have to wait to apply for passive acoustic protection.

We will develop and publish a scheme for passive acoustic protection for these groups of residents, which could mean that they will receive support many months before the noise protection zones are approved.

### **Task:**

Budapest Airport undertakes to install passive acoustic protection, in line with the provisions of Government Decree no. 176/1997 (X.11.) to the most affected properties on a voluntary basis in the planned, but not yet approved noise protection zone. We will coordinate with the affected municipalities on the selection of properties.

## **Work in progress**

The 17 detailed proposals described above constitute the second phase of the three-stage improvements to Budapest Airport's noise abatement measures. In addition, we have several issues on which we are still working with HungaroControl and with airlines, including:

1. Establishing final approach for arrivals over Budapest further away from Ferihegy.
2. Modifying the main departure SID from Runway 1 towards Budapest.
3. Modifying SID Norah3D to avoid the most populated areas.
4. Establishing a new turboprop SID from Runway 2.
5. Working out a PRNAV approach for landings from the direction of Üllő, to avoid landing aircraft from flying over Üllő on final approach.
6. Developing new noise abatement procedures for takeoffs in the direction of Vecsés and Üllő.
7. Increasing the altitude threshold for retracting flaps from 1000 feet to 3000 feet for takeoffs.
8. Reducing engine power from take-off thrust to a lower grade at an altitude of 1500 feet.