

6. DISCUSSION OF THE RESULTS

6.1 GENERAL REMARKS

It is generally accepted that people's homes, educational facilities, hospitals and clinics are the most sensitive to aircraft noise intrusions. Home is where everybody has to return to in order to rest and recuperate for work. In educational facilities the transfer of information and knowledge is of paramount importance, and in hospitals and clinics patients need a quiet environment in order to rest and convalesce. It is for this reason that SANS 10117 recommends that these noise sensitive areas must not be exposed to noise levels in excess of $L_{Rdn} = 55$ dBA.

Therefore, in terms of this investigation the present and future location of the $L_{Rdn} = 55$ dBA contour is important for the effective land use planning.

However, it must also be noted that the noise contours at East London Airport are mainly caused by a number of noisy aircraft operating during the day. There is very little traffic during the night, i.e. when people are the most vulnerable to noise intrusions.

6.2 THE PRESENT SITUATION

The results in Figure 5.2.1 indicate that at present the contours generally cover a large portion of land around the airport. As may be expected the largest area is in line with Runways 11/29. This affects several residential areas where the noise caused by aircraft exceeds $L_{Rdn} = 55$ dBA. However, it is the settlements in immediate vicinity of the airport, i.e. Fort Grey, Grey Dell (indicated in hatched light green) and Willow Park that are the most severely affected. These areas include clinics (the Collendale and Fort Grey Clinics) and the Sinomonde Primary School.

To the east of Runway 11 there are also the residential areas of Rosemount and Greenfield, which include a number of schools and churches, and where the L_{Rdn} is in excess of 60 dBA.

The results also indicate that the site of the East London IDZ is not affected by aircraft noise under present conditions.

6.3 THE SITUATION IN 2008: NO EXTENSION OF RUNWAY 11/29

The results in Figure 5.2.2 indicate that, even though air traffic is expected to increase by approximately 18%, the extent of the contours is dramatically reduced by the year 2008. This is due to the scheduled withdrawal of all Chapter 2 aircraft by then. Chapter 2 aircraft, such as the Boeing 737-200, Boeing 727 and BAC 111, use low by-pass ratio jet engines that are particularly noisy. However, modern aircraft either use high by-pass ratio jet or turbo-prop engines, resulting in very much reduced noise emission levels.

As a result the size of the areas affected by aircraft noise intrusions in excess of $L_{Rdn} = 55$ dBA are also reduced. However, the settlements in close proximity to the airport

to the north and west of RW 11/29 still are exposed to aircraft noise levels in excess of 60 dBA.

6.4 THE SITUATION IN 2008: WITH THE EXTENSION OF THE RUNWAY 11/29

Comparing the results in Figures 5.2.2 and 5.2.3 it can be seen that the effect of the extension mainly is to shift the extent of the contours further to the west, while slightly reducing them in the east. The extent is also slightly further at the start of Runway 11. This due to the fact that the start of roll of aircraft on this runway is also shifted by an equal amount as the extension towards the west.

It is clear that in terms of the assessment of the impact of aircraft noise, the extension of Runway 11/29 has very little effect. This is illustrated In Figure 6.4.1, where a comparison is made between the noise contours without and with the Runway 11/29 extension.

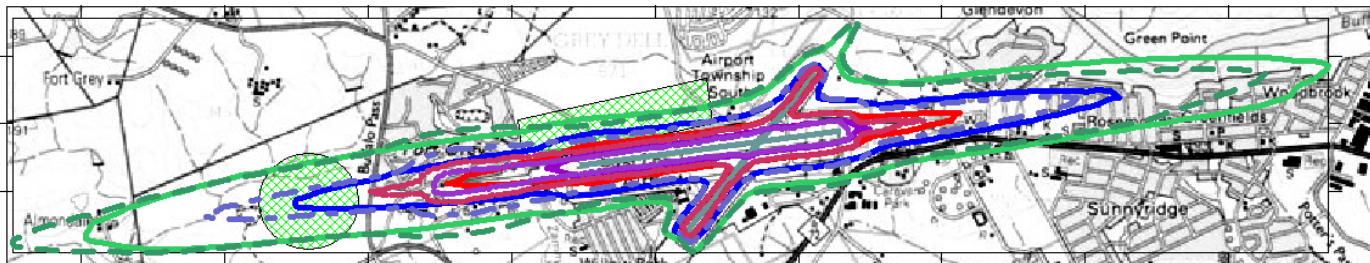


Figure 6.4.1: The effect the extension of Runway 11/29 has on the extent of the noise contours in 2008. The broken lines represent the location of the contours with the extended runway.

6.5 THE SITUATION FOR MAXIMUM CAPACITY CONDITIONS: 566 MOVEMENTS

As one may expect, the extent of the contours under the estimated conditions for maximum airport capacity are considerably larger than either at present or in 2008. Although these conditions are very unlikely to arise, they do give an indication of the direction and areas where any future problems with aircraft noise are likely to occur. These areas are in essence the same that are affected by aircraft noise at present, and only the severity of the noise impact would be very much higher.

Therefore, the consultants are of the opinion that for East London Airport, the maximum capacity noise contours cannot be used for assessment purposes. At best they should only serve as a very general guideline for land use planners.

6.6 THE SITUATION FOR MAXIMUM CAPACITY CONDITIONS: 1120 MOVEMENTS

The situation is considerably worsened by assuming a maximum capacity of 80 movements per hour, i.e. approximately 1120 daily movements distributed over 14 hours. Large areas that presently are under residential development would be subjected to unacceptably high levels of aircraft noise and would, therefore, be sterilised.