

**13TH ANNUAL REPORT OF THE 1996 SECTION 106 PLANNING AGREEMENT
BETWEEN BIRMINGHAM AIRPORT LIMITED AND
SOLIHULL METROPOLITAN BOROUGH COUNCIL**

EXECUTIVE SUMMARY

Birmingham Airport Limited rebranded its identity in 2010 and in 2011 formally changed its name to Birmingham Airport.

This report has been written to give an update of the operations at Birmingham Airport in relation to the Section 106 Planning Agreement between Solihull Metropolitan Borough Council (SMBC) and Birmingham Airport.

The Section 106 Agreement consists of eight schedules. This report is laid out under the heading of each of the eight schedules in the order that they appear in the Agreement.

The noise and track keeping system (ANOMS) used at Birmingham Airport provides the latest technology for tracking aircraft and monitoring noise levels. A remote terminal has been installed for the use of the Airport Monitoring Officer based at Solihull Metropolitan Borough Council.

This report will also give an update on airport developments that have taken place at the Airport during 2011.

Ongoing monitoring has shown that the Airport Company continues to comply with its obligations in the Agreement.

Compiled by Beverley Hill, Airport Monitoring Officer, Solihull Metropolitan Borough Council

ACKNOWLEDGEMENTS

I would like to acknowledge the assistance provided by members of staff at Birmingham Airport and the Environment Agency

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Glossary of Terms

Numbers in square brackets [] refer to references at the back of the report

<i>Airport Company</i>	Birmingham Airport, operators of the aerodrome licence and legally bound by the Section 106 Agreement.
<i>AEA</i>	Air Quality Consultants responsible for auditing and validating the Air Quality data.
<i>AMO</i>	<i>Airport Monitoring Officer.</i>
<i>airside</i>	Area of airport accessible only after proceeding through security checks, customs and passport control.
<i>annual limit</i>	The yearly total of <i>ATMs</i> allowed during the night time period (2330 to 0600) (<i>exempt movements</i> are excluded).
<i>ANITA</i>	<u>Airport and NEC Integrated Transport Access.</u>
<i>ANOMS</i>	<i>Airport Noise & Operations Monitoring System</i> - aircraft noise and tracking monitoring system used by <i>Birmingham Airport.</i>
<i>apron</i>	Areas of airfield used for operations and for the temporary holding of stationary aircraft.
<i>ATF</i>	<i>Airport Transport Forum</i> Birmingham Airport led forum to aid the development of a sustainable transport strategy. Set up in accordance with the DEFRA white paper "Developing an integrated transport policy" [1].
<i>ATM</i>	<i>Air Transport Movement</i> a landing or take-off of an aircraft engaged in the transport of passengers, cargo or mail on commercial terms.
<i>AUN</i>	<i>Automatic Urban Network</i> government approved air quality monitoring sites which form part of the National Air Quality Monitoring Network. Specific pollutants are monitored and the results are available on the government's web site [2].
<i>ASAS</i>	<i>Airport Surface Access Strategy.</i>
<i>BOD</i>	<i>Biochemical Oxygen Demand</i> a means of measuring water pollution using biological breakdown.
<i>COD</i>	<i>Chemical Oxygen Demand</i> a means of measuring water quality using chemical analysis.
<i>BCC</i>	<i>Birmingham City Council.</i>
<i>CDA</i>	<i>Continuous Descent Approaches.</i>
<i>Centro</i>	Passenger transport executive for the West Midlands.
<i>Chapter 2 aircraft</i>	Older, noisier aircraft, such as the BAC1-11 and the Boeing 737-200 series (banned in the UK from end of March 2002) as defined in Annex 16 to the convention on International Civil Aviation [3].
<i>Chapter 3 aircraft</i>	Quieter, more modern aircraft.
<i>dB (decibel)</i>	Measure of sound that uses a logarithmic scale from 0 (threshold of hearing) to 140 (threshold of pain).

dB(A)	A-weighted decibel refinement of the decibel rating that matches more closely the way the human ear responds to different noise levels.
DEFRA	Department for Environment and Rural Affairs.
DfT	Department for Transport.
EA	Environment Agency.
EPAQS	Expert Panel on Air Quality Standards which reports to Defra and advises on health based targets for air pollutants.
EPNdB	Effective Perceived Noise Decibel Allows not only for human sensitivity to different sound frequencies, but also takes account of the “perceived noisiness” of whistles, whines, etc. and the duration of a complete aircraft flyover.
ERDF	European Regional Development Funding.
Exempt movements	<p>ATMs may be exempt from night flying restrictions due to the following circumstances:</p> <ul style="list-style-type: none"> • aircraft diversions that have been brought about by changes in weather conditions at the original destination airport or an in-flight emergency • aircraft on medical evacuation or mercy flights where there is danger to life or health, human or animal • any take-off or landing in an emergency consistent with preventing danger to life or health • delays to aircraft resulting from widespread and prolonged disruption to air traffic • delays to aircraft that are likely to lead to serious congestion at the Airport or suffering to passengers or animals provided that aircraft is diverting because of night flying restrictions at other airports are not exempt movements
FDC	Flow Diversion Chamber.
Full aircraft engine ground running	Engine running on the ground at 80 - 100% of engine power.
IATA	International Air Transport Association.
LA_{eq}	Measure which averages out noise levels that fluctuate over a given time period, it is the average sound intensity expressed in decibel .
LA_{eq}(16 hour)	Average sound intensity over a specified time period, e.g. daytime.
landside	Area of airport accessible to all visitors i.e. accessible before proceeding through security checks, customs and passport control
modal share	Proportion of journeys to the airport by a particular type of transport (car, bus, train etc) and by category of user (passenger, employee etc).
MSP	Morning Shoulder Period - 0600 to 0700 hours (0600 - 0800 on Sundays).
Multi-modal Interchange	[Purpose-built area designed to allow easy exchange for passengers between different modes of transport e.g. bus, train, car.

NAQS	National Air Quality Strategy Government initiative aimed at controlling air pollution.
NEC	National Exhibition Centre, Birmingham.
Night Period	For the purposes of the night flying policy, 2330 to 0600.
Night Shoulder Period	2300 to 2330.
NMT	Noise Monitoring Terminal. Birmingham Airport has 7 fixed NMTs located in the local community and on the airfield.
Noise contour	Line on map connecting points where the same level of noise would be expected. The $63dBLA_{eq}$ contour has been used to decide which properties are eligible for inclusion in the Sound Insulation Scheme .
NPR	Noise Preferential Route NPRs cover the first 3000 feet altitude of the Standard Instrument Departure (SID) routes (note: this applies only to Departing flights).
Passenger Transport Modal Share	The proportion of journeys to the Airport by public transport (bus, coach, rail).
quota	The yearly limit on the total of quota counts for all ATMs at the Airport in the night period .
quota count	The amount of the quota assigned to one take-off or landing by an aircraft, as detailed in the noise classification for that aircraft type (see table 8).
S106	A legally enforceable contract between SMBC and Birmingham Airport [4]. The term Section 106 refers to a section of the Town and Country Planning Act 1990 [5].
SID	Standard Instrument Departure standard instructions that aircraft pilots are required to observe on take-off over a particular en-route navigational beacon, produced by the CAA and published in UK AIP.
SIS	Sound Insulation Scheme.
SMBC	Solihull Metropolitan Borough Council.
SSSI	Site of Special Scientific Interest.
start of roll	Position of an aircraft just before its take-off run begins.
TOC	Total Organic Carbon.

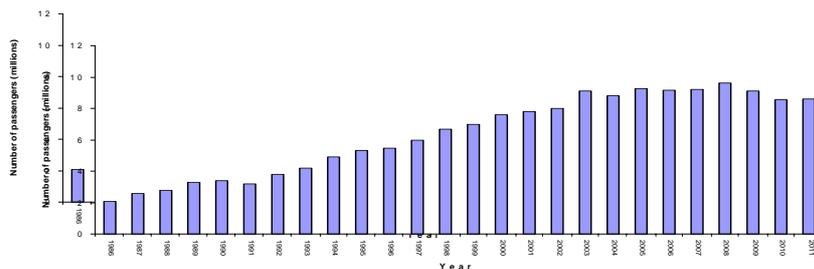
INTRODUCTION

In 1995, responding to increasing demand for air travel, the Airport Company applied for permission to expand its passenger terminal facilities. After consideration by SMBC's Planning Department, permission was granted subject to certain conditions designed to minimise the impact of airport operations on local residents and their environment. These conditions are set out in a Section 106 Planning Agreement published in July 1996 and amended in 2004.

This document, the 13th Annual Report of the S106 Planning Agreement, is laid out under the eight schedule headings as found in the Agreement in order to facilitate cross-referencing.

As far as practicable, the reporting period for this document has been aligned to the calendar year, with the report covering data from 2011. This enables comparison of environmental performance year on year. Figure 1 shows the passenger numbers at the airport since 1986.

Figure 1. Passenger numbers at Birmingham Airport 1986-2011



AIRPORT MONITORING

The role of the Airport Monitoring Officer (AMO) is to audit all aspects of the Section 106 Agreement. A work schedule for the AMO has been given in Table 1, which shows the type of auditing work carried out each year. Additional investigations are undertaken in response to complaints or as proactive projects.

The AMO also acts as a point of contact for airport complaints, which are investigated in the context of the Section 106 Agreement. If the subject of the complaint is found to be within the restrictions applied to airport operations by the S106 Agreement, no further action is taken, and the complainant is informed of the situation. However if the subject of the complaint is found to breach any of the Section 106 Agreement Schedules, the matter is taken up with the Airport Company. To date there has never been such a breach.

In the first instance any environmental complaint relating to the Airport Company should be directed to the Government and Industry Affairs Team at the Airport who can be contacted in the following ways:

- By calling the Environmental Helpline on 0121 767 7433.
- By emailing EnvironmentTeam@birminghamairport.co.uk
- By visiting the noise section of the website www.birminghamairport.co.uk

- By writing to Government and Industry Affairs Team, Diamond House, Birmingham Airport, B26 3QJ

However in the event of continued dissatisfaction, the Airport Monitoring Officer should be contacted. For more information about the work of the AMO, the Section 106 Planning Agreement, general enquiries, or further help regarding a complaint, please contact Beverley Hill on 0121 704 6908 (Direct Line) or email beverleyhill@solihull.gov.uk

In 2011 the Civil Aviation Authority (CAA) carried out a major audit of Birmingham Airport as part of the usual rolling programme of audits carried out on UK airports. The audits are carried out to confirm that airfields are operating in accordance with their licence. The outcome of the audit by CAA was very positive.

Table 1 Work schedule of AMO

Schedule of Section 106	Proposed Work	Frequency
1. Land Use and Planning	Attend consultation meetings	When held
2. Highways and Drainage	Check compliance with Environment Agency consent	1 per annum
3. Noise Control	Side by side noise monitoring at Terminal 2	2 per annum
	Paper checks on Ground Runs	4 per annum
	Noise readings and sightings - tracked back to ANOMS	4 per annum
	Complaints audit	2 per annum
4. Night Flying	Noise monitoring	As required
	Paper checks	4 per annum
5. Air Quality	Compare Birmingham Airport results with SMBC and UK results	4 per annum
	Complaints audit	2 per annum
6. Air Traffic	Observations on track keeping	4 per annum
7. Community and Environment	Check amounts transferred from night noise fines	1 per annum

1. LAND USE & PLANNING

The Airport Company continues to comply with all six clauses of Schedule 1.

Runway Extension

SMBC formally granted Planning Approval for the Runway Extension on 2 November 2009. SMBC has issued the Notice of Planning Approval (with 26 Planning Conditions) and the S106 Planning Agreement (with 16 Schedules of Planning Obligations). These are both available on the Airport Company's website.

Construction of the Runway Extension is due to commence in 2012 with the Extension due to be open for operations in 2014. Upon the "commencement date" the new Section 106 agreement will come into force and the 1996 S106 Agreement will no longer be effective. The commencement date is defined in the 2009 S106 and is effectively based on the start of the runway extension and taxiway works themselves (and not, for instance, on the works to divert the A45)

Work to re-align the A45 Coventry Road is due to commence in 2012 and will be followed by the construction of the Runway Extension (due in 2013) Compulsory Purchase Orders have been issued to secure part of the land necessary for the Runway Extension and negotiations with the owners continue with a view to acquisition of the land.

Other Developments

Birmingham Airport is now a single Passenger Terminal facility. The 'One Terminal' project to link the Terminals known as Terminal one and Terminal Two has now been completed. All passengers will transfer through a new central area and the former two terminals have merged into a single unit to improve passenger flows and operational efficiency.

The Travelodge Hotel development on the Elmdon Terminal opened for business in August 2011.

The Instrument Landing System (ILS) was replaced in 2011.

Following consultation with SMBC various projects have allowed as permitted development. These include a new hangar facility as permitted development to be known as the Eurojet Hangar. It will be at the Elmdon Terminal Site and include office accommodation and ancillary parking for staff and visitors. This has been constructed and is in use. A compass base as part of the Eurojet Scheme has also been carried out under permitted development powers, as well as (amongst others), the construction of a smoking terrace within the main passenger terminal, high mast lighting at Elmdon Terminal Site and extension of the police dog exercise compound.

The Airport Company will replace the existing Watchman Radar at the Elmdon Terminal Site with a new Primary Radar in a revised location. Possible locations are currently being considered which provide the necessary coverage and also have safeguarded sites.. This proposal is likely to be classed as permitted development.

Construction of the new Air Traffic Control Tower commenced in May 2011. It is due for completion April 2012. This will then be fitted out with the Air Traffic Control facilities and it is anticipated that the new Tower will be fully operational in April 2013.

The International Building and Link Block adjacent to the Elmdon Building at the Elmdon Terminal Site are to be demolished in 2012. The building is not currently occupied.

The Airport has installed 200 photovoltaic panels on the roof of the terminal building. This will generate an estimated 40,000 kWh per year and the energy created is to be used at the Airport.

In March 2011 the Department for Transport (DfT) published a scoping document on the Government's plans to review aviation policy. This document- Developing a sustainable framework for UK aviation- is a consultation document which closed in October 2011. A draft policy framework is expected in Summer 2012 for final publication in 2013.

A review of the Airports public safety zones (PSZ) has been undertaken. The PSZ are areas of land at the end of the runway for which there are planning restrictions. This is to control the number of people at risk in the very unlikely event of an aircraft accident on take off or landing. Consultation was carried out by the CAA and the Airport during a notification period. No comments were received and the revised PSZs are now in place.

2. SURFACE TRANSPORT

Schedule 2 of the Section 106 Agreement relates to monitoring the mode of surface access used by all Airport users to reach the Airport. Part of the Agreement states:

“The Airport Company shall use **all reasonable endeavours** to achieve a Public Transport Modal Share of **20%** by 31st December 2005 or when the number of air passengers is at the rate of 10 million passengers per annum, **whichever event occurs later.**”

Other obligations in Schedule 2 require the Airport Company to provide an air-rail link, carry out a multi modal interchange study, prepare and keep under review a public transport plan with a strategy for achieving the 20% Public Transport Modal Share. Air-Rail Link and the Multi-Modal Interchange were opened in 2003.

The Airport Company published an Airport Surface Access Strategy in 2007, which together with the new ‘Airport Master Plan ‘Towards 2030’,’ sets out a framework for the development of the surface access for the Airport to 2030. The Strategy is due to be reviewed in 2012, however due to the forthcoming Aviation White Paper, the Airport Company will be updating both the Master Plan and Surface Access Strategy following this publication being released. It is anticipated an updated version will be published in 2013.

The existing Airport Surface Access Strategy covers the period up to 2012 and introduces a new methodology for measuring modal shares and sets new modal share targets based on this methodology. These developments are discussed below.

Modal Share

Please note that the CAA has not yet published the 2011 data. The published 2010 passenger modal share figure of 25.7% is taken from the Civil Aviation Authority survey, which was undertaken over a 12 month period. The survey for 2009 was taken over a period of 7 months.

The Airport Surface Access Strategy sets separate Public Transport Modal Share targets for passengers and employees. The Public Transport Mode Share includes all modes other than private car and taxi.

The Public Transport Mode Share for passengers now includes those people arriving at the Airport on buses from off-site car parks and those passengers arriving on courtesy buses from hotels.

The definition of the Public Transport Mode Share for employees is unchanged.

Table 2 and Table 3 show the Public Transport Modal Shares for 2005 – 2010, based on these definitions. The Airport Surface Access Strategy sets new 2012 Public Transport Modal Share targets of 25% for both passengers and employees.

The Airport Surface Access Strategy also introduces a new target which relates to the ratio between total vehicle trips (inbound and outbound) and total passengers. The Airport Surface Access Strategy sets a 2012 target for this ratio of 1.08. Table 4 shows the value of this ratio for 2005 - 2010

Table 2 Passenger Mode Shares and 2012 Targets

Passenger Mode Shares %	2005	2006	2007	2008	2009	2010	2012 Target
A. Car	58.5	57.1	58.3	56.2	55.4	53.5	55
B. Taxi	20.7	21.2	21.3	19.5	17.8	20.8	20
C. Off-site Car Park or Hotel Bus	9.1	7.5	7.0	8.6	7.7	7.1	9
D. Rail	9.1	11.7	10.7	13.2	15.1	14.6	12
E. Coach	0.8	1.0	1.1	0.9	0.8	1.3	2
F. Local Bus	0.7	0.6	1.0	0.8	1.1	1.9	1
G. Cycle							
H. Other	1.1	0.9	0.6	0.8	2.1	0.8	1
Public Transport (non-car/non-taxi, C-H)	20.8	21.7	20.4	24.3	26.8	25.7	25

Table 3 Employee Mode Shares and 2012 Targets

Employee Modal Shares %	2003-5	2004-6	2005-7	2006-8	2009*	2010	2012 Target
A. Car	77.4	74.0	72.6	72.7	73.0	76.1	73
B. Taxi	2.3	2.7	3.7	4.2	2.4	2.2	2
C. Off-site Car Park or Hotel Bus	0	0	0	0	0		0
D. Rail/Air-Rail Link	4.5	5.3	4.7	4.7	5.2	6.7	6
D. Coach							
E. Local Bus (& Coach)	13.4	15.0	15.2	14.9	17.0	11.4	16
F. Cycle	0.7	0.7	0.7	0.5	1.2	1.6	2
G. Other	1.7	2.2	3.1	3.0	1.2	2.0	1
Public Transport (non-car/non-taxi, C-H)	20.3	23.2	23.6	23.0	23.4	21.7	25

*Employee Mode Share for 2009 only, not expressed as a three-year average

Table 4 Vehicle/Passenger Ratio and Target

Vehicle Trips per Passenger	2005	2006	2007	2008	2009	2010	2012 Target
Total Vehicle Trips (millions)	10.81	10.74	10.60	10.80	9.61	9.39	
Total Passengers	9.39	9.15	9.18	9.63	9.10	8.57	
Vehicle Trips per Passenger	1.15	1.17	1.16	1.12	1.06	1.10	1.08

Note: Vehicle trips include all those on Airport Way and entering or leaving the Long Stay and Staff Car Parks

Surveys

Information on modal shares is obtained through a series of surveys carried out at the Airport over the year. For passengers, the Airport Company previously conducted the surveys continuously in the departure lounges and landside areas of the Terminal building, but in 2010 the Civil Aviation Authority undertook the passenger surveys and will do so in future years.

For employees, the Airport Company previously conducted interview surveys of employees at the Airport, but in 2010 the surveys were based on the annual Airport Employment Survey returns. In 2009, the Airport Company's Survey Programme was reduced, compared with previous years, as the Airport Company had to respond with fewer resources to the economic situation, the impact on air transport and a decline in traffic.

There is also continuous monitoring of road traffic on Airport Way and the number of vehicles entering the public and staff car parks.

With regards to employee travel a plan is being developed for all on-site organisations and will include a company specific travel survey and action plan. It is hoped that the survey will be used as the modal share monitoring figure and will promote sustainable travel alternatives.

Recent Trends

The 2010 employee modal share figure of 21.7% is lower than that of 2009 but this may be due to a change in reporting procedures. This figure uses a 12 month period (2010) rather than averaging out over three years as previously done.

Rail

The Airport Company submitted a response to the West Midlands Regional Rail Plan, which included seeking improvements to Birmingham International Station and more rail services for Birmingham International which will improve rail access for both the Airport and the NEC.

A refurbishment to Birmingham International Station has been confirmed to improve and update the environment. It is anticipated a completion date for February 2012.

The Airport Company has written to the Secretary of State for Transport to seek a name change for Birmingham International Railway Station to be renamed Birmingham Airport Railway Station. Currently Birmingham Airport is the only UK airport to have a railway station and it not to have 'Airport' in its title. This request has led to the option of a change of name being included in the Invite to Tender proposal for the West Coast Mainline re-franchising, due to be operated from 2012.

The Airport Company continues to work closely with Centro, Network Rail and the Train Operating Companies. Centro is preparing a new Regional Rail Strategy for the West Midlands where access to the Airport will be a key issue, discussions are taking place with Birmingham Airport regarding this.

In February 2011, the Government launched a formal consultation process on the High Speed Rail proposal which closed in July 2011. It set out the Government's proposed strategy for a national high speed rail network for Britain and the route for an initial line between London and the West Midlands. In January 2012 the go-ahead was given for phase one of the line to be constructed by 2026.

The result was welcomed by the Airport Company and will help deliver an improved national transport network and provide additional connectivity to the Airport, along with improved local economic growth and regeneration. The link will reduce travelling times to the Airport from London to 31 minutes. Details of the HS2 proposals can be found at the DfT website (www.dft.gov.uk)

In May 2011 the Secretary of State announced that the next InterCity West Coast franchise would start on 9th December 2012. The Department for Transport published an Invitation to Tender to mark the commencement of the formal bidding stage to replace the current operator on the West Coast Main Line. The new franchise will continue through to March 2026

Bus and Coach

In May 2011 the Secretary of State for Transport formally opened the ANITA scheme. (Airport and NEC Integrated Transport Access)

The scheme includes new bus infrastructure, improvements at the Multi Modal Interchange and facilities for cyclists. The proposed ANITA bus services will involve extended operating hours and frequencies to connect the Airport to Birmingham, Solihull and Coventry. These are subject to approval from the Traffic Commissioners.

The Airport Company and NEC continue to work with Solihull MBC, Centro and National Express on the ANITA bus services.

Centro is reviewing the East Birmingham and North Solihull Bus Review with revised bus services for East Birmingham and North Solihull proposed for March 2011.

A new bus service started in 2011 which operates between Birmingham International Station/Multi Modal Interchange and Blythe Valley Business Park.

The Airport Company are continuing to work with bus and coach operators to improve routes and facilities available to passengers and employees.

Public Transport Information

The Airport Company continues to review the range and quality of public transport information available at the Airport, and is considering how such information can be provided as real time information and through electronic media such as online and via mobile phones.

As part of the ANITA scheme, Real Time Information displays have been installed in the Multi Modal Interchange and in the Baggage Reclaim Areas. There is also information regarding Motorways, Rail and Bus services.

A new touch screen facility has been installed on the first floor of the Multi Modal Interchange. This provides information on onward travel.

The Airport Company will continue to work with Centro on information and signage best practice.

Cycling

The Airport Company continued to promote cycling as a convenient and healthy way for journeys to work. There are now 70 lockers available for staff use.

The Airport Company has provided a letter of support to Solihull MBC for its application for European Regional Development Funding (ERDF) to create a North Solihull Strategic Cycle Network with a view to improving connectivity between North Solihull and key employment sites in Solihull.

The ERDF is part of the European Union Structural Fund which is the mechanism for allocation funding to the regions to stimulate economic development.

Other Developments

Red Routes have been implemented on all landside roads at the Passenger Terminal Site to prevent traffic stopping anywhere apart from the designated areas and to manage traffic flow through the Passenger Terminal Site. Birmingham City Council has also proposed a Red Route for the A45 corridor to include highway improvements and traffic management measures.

The Airport Company continues to operate the Travelwise Plus scheme which offers a 25% discount on annual bus and rail tickets for Airport Company staff. In addition a joint promotion with Centro offers discounts to all staff employed at the Airport who join the Centro and Travel West Midlands direct debit schemes.

Improvements to roads close to the Airport have been completed as part of the ANITA scheme. This will improve public transport access to the Airport and NEC. This includes Bus Priority Lanes and a Bus Only link between Vanguard Road and Bickenhill Lane.

The Airport Company have appointed a Transport Specialist to be responsible for surface access into the Airport. Michelle Thurgood will lead the promotion of sustainable transport, but also play a key part in developing and delivering the Airport Surface Access Strategy.

PUBLIC TRANSPORT PROJECT SPENDING

As part of the Section 106 Planning Agreement the Airport Company agreed that it would commit an agreed sum of £3 million to projects relating to and contributing to increasing the Public Transport Modal Share. This sum did not include expenditure relating to the Air-Rail Link replacement. In 2006 the Airport Company confirmed that it had spent £4.2 million on agreed projects up to the end of 2005/6. SMBC has accepted that the Airport Company has complied with and accounted for the 'agreed sum' specified in the Section 106 Planning Agreement.

CAR PARKING

Section 6 of the surface transport schedule states that *any increase in car parking provision should be provided at a rate less than the rate of increase in passenger or employee numbers.*

This is designed to encourage Airport users to leave their cars at home and use public transport when accessing the Airport site. Off-site parking is specifically excluded from the Section 106 Planning Agreement. Table 5 shows how passenger parking provision has changed relative to passenger numbers over the period.

Table 5. Increase in parking provision compared to passenger numbers 1995-2011

Year	Parking Spaces	% Increase since 1995	Passenger Numbers (m)	% Increase since 1995
1995	7010	-	5.33	-
1998	8195	17	6.70	26
2000	8195	17	7.60	43
2001	10603	51	7.80	46
2002	10626	52	8.00	50
2003	11060	53	9.10	70
2004	11855	69	8.80	65

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2005	11855	69	9.40	76
2006	11480	64	9.15	72
2007	11586	65	9.23	73
2008	11124	59	9.63	81
2009	12816	83	9.11	71
2010	12816	83	8.58	71
2011	12816	83	8.62	71

3. HIGHWAYS AND AIRPORT DRAINAGE

AIRPORT DRAINAGE

The Section 106 Planning Agreement states that the Airport Company should provide appropriate drainage measures with each new stage of airport development, Clause 5 of Schedule 3 being:

The Airport Company shall implement in connection with the relevant phases of the development such drainage measures as may be reasonably required by the Council (in consultation with English Nature & The Environment Agency) to protect the River Blythe SSSI and other watercourses in the area of the airport site.'

A map of the airfield showing various aspects of drainage and pollution control measures is included at the back of the report (Map One).

All de-icing material used in the southern end of the runway is collected in holding tanks and discharged to the foul water sewer for treatment at the Severn Trent sewage works in Coleshill.

Any waters discharged to the watercourse must comply with the Consent to Discharge conditions imposed by the Environment Agency who independently sample to ensure compliance with these conditions. Three Total Organic Carbon monitors and two Biochemical Oxygen Demand monitors are installed, along with oil on water monitors. These test the water on a continuous basis, 24 hrs a day. The Airport is confidently complying with the Obligations as a result of this development using these facilities. In line with the other monitors analysing waters on the airport in the event of a problem the "fail safe" option will divert all waters to the polluted water holding tanks.

ENVIRONMENT AGENCY

The Airport Company has other obligations in addition to the Section 106 Planning Agreement, with reference to airport surface water drainage. The Environment Agency (EA) is responsible for the protection of controlled waters from pollution under the Water Resources Act 1991 and Environment Act 1995. The EA has granted Birmingham Airport Consent to Discharge based on the following five water quality parameters, which must not be exceeded

- BOD 15mg/l
- COD 60 mg/l
- suspended solids 45 mg/l
- ammonia cal nitrogen 5 mg/l
- no visible oil

Should the Consent levels be breached, then the EA have significant enforcement powers which can result in polluters being fined, imprisoned, or both.

The surface water discharging into the watercourse is monitored by spot checks by the EA. During 2010, EA Pollution Control Officers made 10 site visits to sample Birmingham Airport's outfalls. All samples were sent for analysis, none of which breached the Consent levels

Whilst visiting the airport, the EA, in partnership with the Environment Protection Unit at Birmingham Airport, observes airport operations and advises the tenants / operators of any concerns identified with regard to pollution and appropriate methods of prevention.

The Agency is in ongoing liaison with the Airport Company to improve and better protect the environment.

ENVIRONMENTAL INSTRUCTIONS

The Airport Company has a responsibility to ensure that airfield operations do not cause pollution to the watercourses that run through the airport. This includes all operations carried out by contractors, airlines, handling agents and other service providers.

An Airport Environment Instruction (AEI) Manual has been issued by the Airport Company to all operating companies. The surface water quality section of this document makes clear to all airport operators their responsibilities and requirements.

As part of the Airport Company's Environmental Management System checks for operators' compliance with the AEIs, the Consent to Discharge and Code of Practice by carrying out Environmental Audits throughout the airport site.

MONITORING

The Section 106 agreement does not require the Airport Company to monitor the quality of water throughout the Airport but this is undertaken voluntarily by Birmingham Airport to try to ensure that the watercourses are not damaged by any airport activities. In addition to the continuous monitors on the airfield drainage system, monthly samples are taken from various locations on the watercourses and site drainage throughout the site. An independent hydrological consultancy produces a water quality report based upon these samples, through an independent laboratory.

CONCLUSION

In conclusion, the Airport Company has been fully compliant with Clause 5 of Schedule Three of the Section 106 in providing drainage measures for new stages of development.

4. NOISE CONTROL

There are a number of Obligations which relate to noise as set out in Schedule 4 of the Section 106 Agreement.

- a sound insulation scheme that is to be paid for and organised by the Airport Company for the benefit of residents living close to the airport.
- the Airport Company should maintain the best equipment available for monitoring the noise from aircraft operations, and make all equipment and data available for scrutiny by the Council.
- control of engine ground running at the airport.
- all noise complaints to be responded to by the Airport Company and the numbers of complaints reported to Solihull MBC.
- a daytime noise limit will be set.

Each of these obligations is explained in more detail below.

SOUND INSULATION SCHEME

Birmingham Airport introduced a sound insulation grant scheme in 1978 for properties falling within the 1996 66 dB LA_{eq(16hr)} contour. The scheme provides sound proofing glazing to domestic properties in areas most affected by noise. The scheme has been open to over 7,600 properties; over 90% of those properties have already benefited with the installation of secondary glazing that significantly reduces the impact of aircraft noise in their homes.

In 2001, Birmingham Airport consulted with local stakeholders and acoustic industry specialist's, to develop a new scheme. The new scheme continues to offer secondary glazing to those properties within the original scheme boundary that have not already taken up the offer of secondary glazing.

In addition, the Airport Company created a Phase II for properties closest to the Airport, which is based on the 2002 63 dB LA_{eq(16hr)} contour. Properties within this boundary for Phase II of the Sound Insulation Scheme are eligible for repeat grants. These grants are a one off opportunity for householders to improve the noise climate in their homes and can be used for High Specification Double Glazing or replacement secondary glazing and acoustic loft insulation. A maximum grant of £3,000 is available to fund these works and since the launch of Phase II over £1.4 million has been invested. Over the past 30 years the Airport has invested over £12 million to insulate more than 7,000 properties with high specification double glazing, secondary glazing, ventilator units and loft insulation.

Birmingham Airport currently makes available, a budget of £200,000 in relation to the Sound Insulation Scheme. Householders in private and council owned properties are to be notified of their eligibility and invited to express interest in the scheme. Details of this new scheme are given below.

- Residents in the 2002 63 dB LA_{eq(16hr)} noise contour will be offered a review of the insulation provided under the old scheme, bringing it up to date.
- The Airport Company will contribute a maximum of £3000 per property for high specification double-glazing and ventilator units, new secondary glazing, and loft insulation or a combination up to the maximum value.

There were 59 properties insulated in 2011 under the Sound Insulation Scheme with a mixture of privately owned and council owned properties. The tender process for the 2012/13 scheme starts in February 2012.

SCHOOLS INSULATION

As stipulated in the Section 106 Agreement, the Airport Company investigated the possibility of noise insulation for schools within the 1998 69dB LA_{eq(16hr)} noise contour. The original investigation focused on Mapledene School. The Airport Company agreed to allocate some funding for the Local Education Authority to spend as deemed appropriate, thereby fulfilling Clause 4 of Schedule 4 relating to noise control.

Each year the Airport Company makes £50,000 available for the insulation of schools against aircraft noise through the replacement of windows and the creation of temporary classrooms and quiet areas.

Since the inception of the S106, the Airport Company has funded school improvement schemes totalling over £800,000. The scheme is aimed to fund improvements to the noise climate within schools falling within the 66 LA_{eq(16hr)} noise contour.

NOISE

Table 6 shows the number of noise concerns received by the Airport Company's Environment Team since the Section 106 Planning Agreement came into force in 1996. The company is required under Clause 10 of Schedule 4 to keep a record of all noise-related complaints and provide written details to SMBC annually. The Airport Company goes beyond this obligation and records all complaints by type and number.

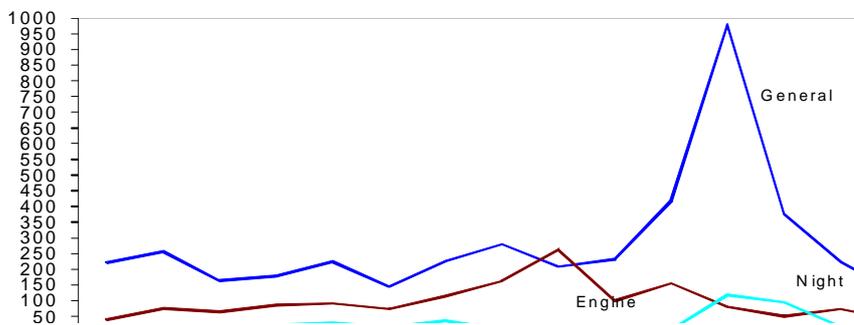
Table 6. Noise concerns since 1996 at Birmingham Airport

Year	General Noise	Night Noise	Engine Ground Runs
1996	222	40	Not recorded separately
1997	256	75	Not recorded separately
1998	163	65	Not recorded separately
1999	179	87	22
2000	225	91	30
2001	145	74	14
2002	227	114	36
2003	280	162	7
2004	209	263	7
2005	232	100	23
2006	419	157	9
2007	978	80	118
2008	374	51	95
2009	223	73	16
2010	127	38	8
2011	150	41	18

General noise complaints have increased this year compared to the previous year, but are significantly lower than previous years. This is in part due to an increase in complaints from residents in Chadwick End. There was an increase in aircraft overflying Chadwick End compared to 2010 but the majority of these were on track. Chadwick End lies beneath controlled airspace and falls partially under the Noise Preferential Route for departures and so will be overflowed by aircraft operating to and from the airport.

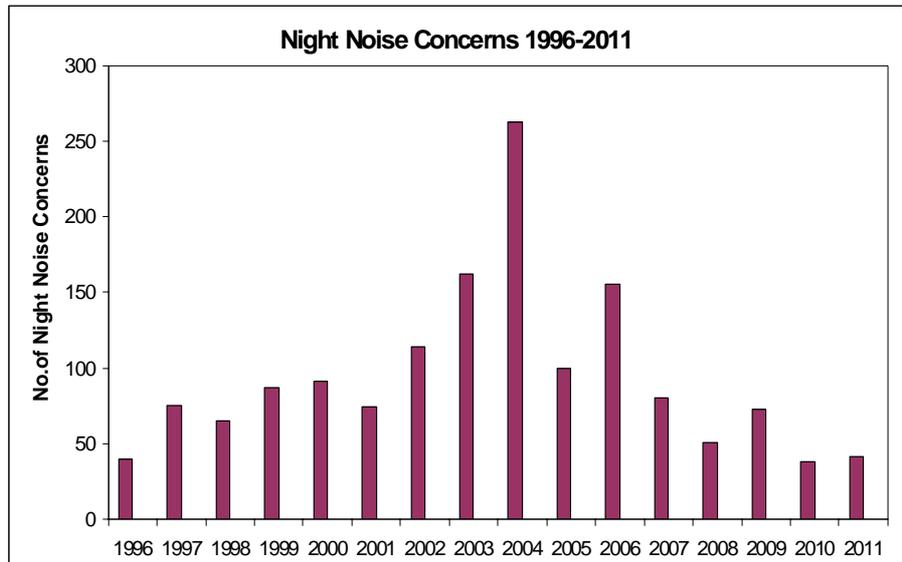
Some of the additional complaints are due to the Instrument Landing System (ILS) being out of operation during its replacement and aircraft using the non-directional beacon approach, which off-sets the track by approximately 5 degrees.

Figure 2. Birmingham Airport noise concerns 1996-2011



The Airport Company's Government and Industry Affairs Team produces an Annual Complaint Report, which seeks, as far as possible, to identify trends.

Figure 3. Night Noise concerns 1996-2011



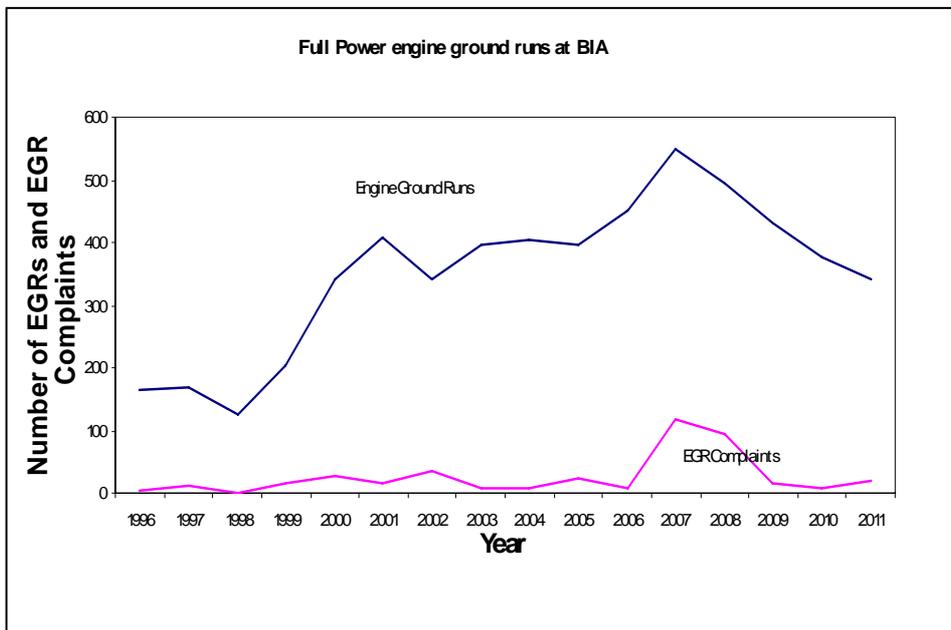
FULL POWER AIRCRAFT ENGINE GROUND RUNNING

Engine ground running is an essential safety aspect of aircraft maintenance. However it is has a noise impact on local communities and as such generates specific complaints.

Clause 11 of Schedule 4 of the Section 106 Planning Agreement obliges the Airport Company to observe certain restrictions on ground running of engines and to follow set procedures designed to minimise noise disturbance. During the night-time there is a ban on full power engine ground running. In the morning shoulder period (0600-0700), Birmingham Airport and the Solihull MBC have agreed a noise-limiting scheme, which is reviewed every two years.

Full power engine ground runs are only permitted after an application form has been sent to and approved by the Airfield Duty Manager (ADM) who then notifies the Environment Team. The number of full power engine ground runs that are approved are reported to SMBC and other interested parties in the quarterly environment monitoring report. Figure 4 shows the total number of full power engine ground runs that occurred between 1996 and 2011. Full power engine ground runs are only permitted at specific locations, Map Two, at the end of the report, shows these locations at Birmingham Airport, with Taxiway Echo being the preferred location.

Figure 4. Total number of Engine Ground Runs (full power) at Birmingham Airport 1996-2011



AIRCRAFT ENGINE GROUND RUNNING IN THE MORNING SHOULDER PERIOD

All full power and idle engine ground runs occurring in the morning shoulder period are monitored by the Environment Team. Since October 26 1999, the Airport Company has been operating under a Section 106 Planning Agreement (Schedule 4, Clause 11b) to consider restrictions on engine ground running between 0600 and 0700. At that time it was felt that the airport's restrictions on ground running were sufficient. Following a noise monitoring exercise a year later, Solihull MBC's noise

consultant recommended the introduction of a quarterly noise level limit, set at 79dB LA_{eq} calculated for a 1 hour period.

There was a review of the engine ground running in the Morning Shoulder Period in 2011 and as specific complaints about this are rare it was decided that the current scheme should remain in place. This has been formally agreed by SMBC's Planning Committee.

IDLE POWER AIRCRAFT ENGINE GROUND RUNNING

The number of idle power engine ground runs are recorded during the morning shoulder period, but are not monitored by Solihull MBC as part of the Section 106. In 1999 noise consultants working for the council concluded that idle power engine ground runs had no significant noise impact.

Engine Ground Running is prohibited during the Night Time Period. However a six month trial took place to allow idle engine ground running during the night time period between January and March 2009, after permission was granted for a temporary Airport Operational Instruction. The Solihull MBC Airport Working Party agreed to a trial for stands 1-45, which could be used for idle ground running during the trial period.

During the trial 60 idle power aircraft runs took place with no resulting complaints registered. The Airport Company conducted two noise studies, one in Elmdon and another in Marston Green, using their portable noise monitor, during the trial period. The studies conclude that no noise events were registered as a result of engine ground running.

In November 2009 SMBC Planning Committee approved Idle Engine Ground Running on all Aircraft Stands (with exception of the 80s stands) during the night period.

NOISE RESTRICTIONS OUTSIDE THE NIGHT PERIOD

The Section 106 Agreement contains a clause which requires that the Airport Company should investigate the possibility of imposing daytime noise level restrictions on aircraft operations. Accordingly, in 2003, Birmingham Airport implemented a daytime noise limit of 92 dB(A) for departing aircraft as measured at noise monitors 1 and 2. This is lower than the limit at London Airports and the same as that in place at Manchester.

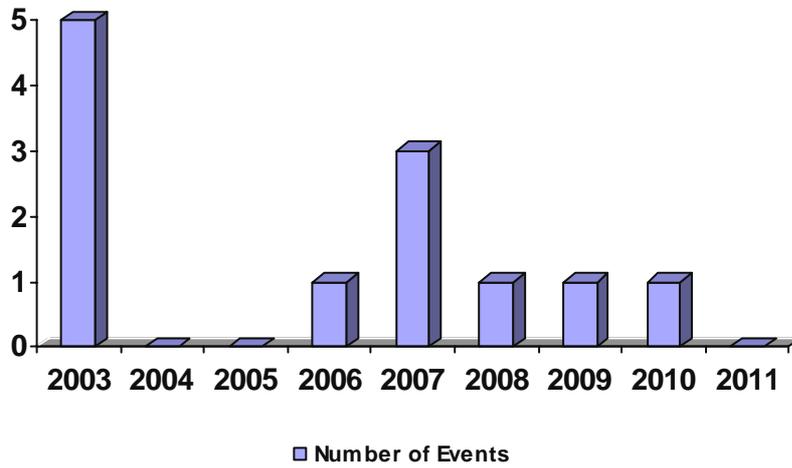
There are seven noise-monitoring terminals situated around the Airport, three to the North, three to the South and one on the airfield itself. Noise Monitoring Terminal 1 is at Bucklands End, Hodge Hill and 2 is at Eastcote Lane, Eastcote.

NMT's one and two are both situated at a point 6.5 km from the start of roll (where an aircraft applies full thrust for the first time as it starts its take-off). The NMTs are positioned at the point at which an aircraft is able to reduce thrust for the first time after take-off.

Currently, a departing aircraft which exceeds 92 dB(A) at either of the centre Noise Monitors between 0601 and 2329 is liable for a surcharge, such that the operators must pay £500 plus an additional £150 per decibel over the limit and the resulting

finances are added to the community fund (see Schedule 8 for details of the fund and grants awarded in 2011).

Figure 5. Daytime noise events >92 dB(A) at Birmingham Airport 2003-2011



5. NIGHT FLYING

Birmingham Airport is bound by the S106 to "*have and maintain a Night Flying Policy which restricts the use of the airport by aircraft taking off or landing during the Night Period and the Shoulder Periods*".

The Night Flying Schedule, which has driven the creation of the Night Flying Policy (NFP), is a complex multi-clause part of the contract between Solihull MBC and the Airport Company but the main points can be summarised as follows.

- The NFP shall be reviewed every two years.
- The NFP shall incorporate a quota system.
- All ATMs will be subject to a quota count (except exempt aircraft).
- The Airport Company will impose surcharges on aircraft breaching an agreed noise level during the night period and will report violations to Solihull MBC.

Birmingham Airports existing Night Flying Policy is amongst the most stringent in the UK and was designed to minimise community disturbance through a range of measures. A summary of the Night Flying Policy restrictions is detailed below.

CURRENT NIGHT FLYING POLICY

The current Night Flying Policy is similar to that of Manchester Airport and the BAA London Airports but in some respects is more stringent due to the annual Air Transport Movement Limit and Quota Limit being lower at Birmingham Airport. Some Airports, such as East Midlands do not have an annual limit for ATM's.

The Night Flying Policy contains a combination of limits which include an Annual Limit for ATM's, an Annual Noise Quota Count and surcharging aircraft which violate the current Night Noise Level. There are also restrictions on ground noise.

Birmingham Airport has had an increase in demand for night activity. This is partly due to the economic situation but there has also been an increasing demand for night time cargo activity. Low cost airlines operate with a more intensive use of aircraft and part of this goes on into the night period. The restrictions contained in the night time policies meant that the Airport was not able to compete with other UK Airports whose night time restrictions were less stringent than those set at Birmingham Airport. However not all freight occurs at night time- there are lots of daytime passenger aircraft which also carry freight.

A benchmarking process carried out to compare the policy to those of other UK airports saw that the restrictions in the NFP were more stringent in respect of the number of ATM's permitted at night than in some airports and that the period deemed as the 'night time period' was also longer than that of any other UK airport with a night ATM limit. This 30 minute difference gave advantages to other Airports by increasing the capacity within the annual limit for ATM's.

After an interim review of the NFP in 2010 a full review of the policy was undertaken in 2011. The consultation process saw meetings with Environment Monitoring Working Group and Airport Working Party as well as outreach meetings in local communities. The 16 week public consultation closed on 16th September 2011. After an analysis of the results responses were assessed and a further meeting held with

Airport Working Party. A further meeting of the AWP took place in November 2011 to consider the proposals before it was submitted formally to SMBC.

The EMWG consists of local councillors, residents associations and NATS.

The proposal was approved by SMBC in January 2012 and the main changes are shown below.

A flexibility of the annual limit of 5% to be based on the last 5 years figures instead of previously being the previous years figure only. This will give a greater flexibility for calculating the limits and help during times of recession when demand is less. Birmingham Airport will continue to operate the lowest Annual Limit for ATM's of any UK airport at this figure.

A reduction in the Night Noise violation to 85 dB(A), in line with the Section 106 agreement for the Runway Extension. This is to encourage airlines to operate quieter aircraft types and to ensure that all aircraft are flown in the best possible way for noise reduction. A surcharge is levied to those aircraft that exceed the limit.

The maximum Quota Count, for scheduled operations, to be reduced to QC2. This limits the noisier aircraft which have a higher QC number,

To remove the seasonal split in ATM's. This was previously split in 76% for Summer and 24% for Winter. This will give greater flexibility between seasons.

The proposals have also changed the night period to bring it in line with other UK airports and that defined by the Civil Aviation Authority which is now 2330-0600 (previously 2300-0600) and exempting Quota Count 0 aircraft.

Minor amendments relate mainly to wording in written instructions to incorporate modern technology. For example wording which may have referred to 'fax document' may now read as 'email'.

All Air Transport Movements will be subject to a quota count with the exception of Exempt Aircraft as defined in publication SUPPLEMENTS TO THE UK AIP SUP: 038/2009

QUOTA USAGE FOR PREVIOUS NIGHT FLYING POLICY YEARS

The Quota Count Limit is based on measurements of the perceived noisiness of aircraft which takes into account the type of noise (tonality) made by the aircraft in question, i.e. propeller noise, a low drone, high-pitched whistle or roaring sound or a combination of all of them.

Aircraft noisiness is measured in EPNdB (effective perceived noise in decibels). EPNdB values are clustered together into groups of 3 decibel increases for the purposes of producing a simple quota count. A rise of 3 EPNdB equates to a two-fold increase in noise energy. This is why the quota count doubles with increasing noisiness of the aircraft.

Table 7. Relationship between EPNdB and aircraft quota count

Noise Classification	Quota Count
>84 EPNdB	0/Exempt
84 – 86.9 EPNdB	0.25
87 – 89.9 EPNdB	0.5
90 – 92.9 EPNdB	1
93 – 95.9 EPNdB	2
96 – 98.9 EPNdB	4
99 – 101.9 EPNdB	8
Greater than 101.9 EPNdB	16

Ref: NATS/CAA Supplements to the United Kingdom AIP SUP: 038/2009 [10]

Table 8 gives a breakdown of the quota usage for the Night Flying Policy year (October – October). There is also provision in the Night Flying Policy that the quota can be reclaimed for aircraft registering less than 74dB(A) at the Noise Monitoring Terminals.

Table 8. Quota utilisation at Birmingham Airport 1997-2011

Year	Season	Night ATM Limit	Unused ATMs %	Night Quota Count	Unused Quota Count %
1997-98	Total	4200	27	5500	No data
1998-99	Total	4200	14	5500	64
1999-00	Summer	4180	31	4000	
	Winter	1320	50		
	Total	5500	34		53
2000-01	Summer	4484	36	4000	
	Winter	1416	62		
	Total	5900	42		54
2001-02	Summer	4727	41	4000	
	Winter	1493	61		
	Total	6220	42		54
2002-03	Summer	1427	38	4000	
	Winter	4519	22		
	Total	5946	26		45

2003-04	Summer	4574	28	4000	
	Winter	1444	20		
	Total	6018	26		46
2004-05	Summer	4435	23	4000	
	Winter	1401	62		
	Total	5836	32		51
2005-06	Summer	4102	20	4000	
	Winter	1295	20		
	Total	5397	20		54
2006-07	Summer	4319	22	4000	
	Winter	1364	34		
	Total	5683	25		50
2007-08	Summer	4128	14	4000	
	Winter	1303	27		
	Total	5431	18		57
2008-09	Summer	3969	24	4000	
	Winter	1253	31		
	Total	5222	26		50
2009-10	Summer	3884	5	4000	
	Winter	1227	0.7		57
	Total	5111	4		
2010-11	Summer	4319	10	4000	
	Winter	1364	14		
	Total	5683	13		61

NUMBER OF VIOLATIONS

Aircraft exceeding the night noise limit will be subject to a surcharge, currently a full runway charge (up to £4000). During the period from October 2010 and October 2011 this was set at 87dB(A) and there were six violations of the Night Flying Policy. Three of these violations were due to military flights and were therefore exempt from penalties, one was not surcharged as it was within the tolerance allowed, one flight was surcharged and the surcharge on the remaining flight was waived on safety grounds. The details are shown in Table 9.

Table 9. Details of the Night Flying Policy violations in the last Night Flying year

Date/Time	Airline	Flight	Aircraft Type	Noise Level	Surcharge
26/1/11 at 0432 hours	Military	Arr	C17	88.8	No
5/2/11 at 0433 hours	Thomson	Arr	B763	88.5	No-waived on safety grounds
15/2/11 at 0316 hours	Military	Arr	C17	89.3	No
23/3/11 at 0558 hours	Continental Airlines	Arr	B752	87	No
9/9/11 at 0116 hours	Military	Arr	C17	91.7	No

12/9/11 at 0218 hours	Thomson	Arr	B752	88.7	Yes
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Since the Section 106 Planning Agreement was implemented in 1996, night noise infringements have decreased consistently. The number of night flights has remained relatively stable and the phasing out of noisier aircraft and the night flying policy surcharge have brought about a reduction in excessively noisy night flights.

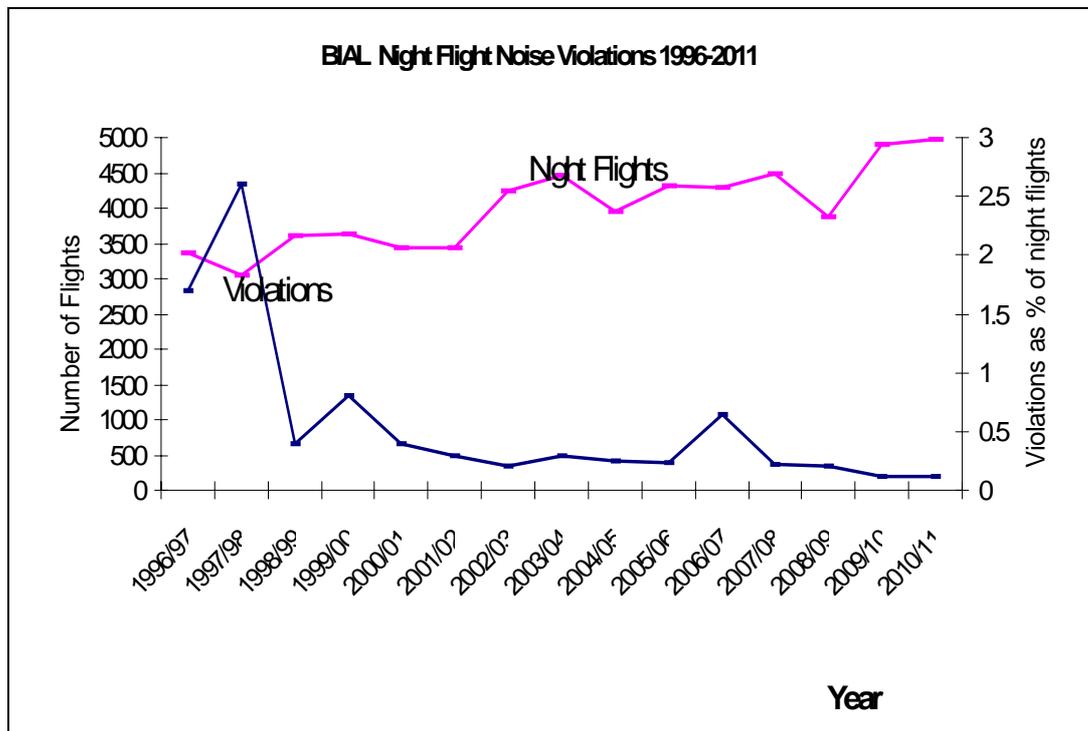
The table below details the night noise picture at Birmingham Airport since 1996 with an additional year 1990/91 included for comparison.

Table 10. Night-time noise violations at Birmingham Airport 1990 and 1996-2011

Year	Total Night Flights	Total Noise Quota	Total Infringements	Infringements (% of night flights)
1990/91	4767	n/a	n/a	n/a
1996/97	3369	n/a	57	1.7
1997/98	3056	n/a	79	2.6
1998/99	3608	2002.5	13	0.4
1999/00	3640	1936	29	0.8
2000/01	3434	1832.5	15	0.4
2001/02	3439	1854.5	9	0.3
2002/03	4234	2166	9	0.2
2003/04	4460	2161.5	15	0.3
2004/05	3947	1957	10	0.25
2005/06	4307	2172.5	10	0.23
2006/07	4283	2174.5	28	0.65
2007/08	4479	2281.5	10	0.22
2008/09	3886	2010	8	0.21
2009/10	4907	1704.5	6	0.12
2010/11	4968	1558	6	0.12

The graph below shows the night noise infringements as a percentage of total night flights at Birmingham Airport since the introduction of the night flying policy in 1996.

Figure 6. Night Noise Violations compared to number of night flights at Birmingham Airport 1996-2011



A Noise Action Plan was developed by Birmingham Airport, with the engagement of the Airport Consultative Committee (ACC), the Environment Monitoring Working Group (sub-group of ACC), Local Authorities (Birmingham City Council and Solihull Metropolitan Borough Council), NATS and airlines.

The Airport's Noise Action Plan is a 5 year strategy setting out a series of actions and targets to assess, manage and where possible improve the noise climate around the Airport. The Noise Action Plan was approved by the Secretary of State for DEFRA on 19th May 2011 and work will commence on progressing the noise actions. The plan can be viewed online at Birmingham Airport's website. A review of this will take place in 2012.

Birmingham Airport reviews its noise contours every two years and produces new noise contours. The 2010 noise contours have identified a reduction in the 2008 contours for both the day and night periods and are the smallest so far demonstrating the improving noise climate at the Airport. Consequently the populations and households affected have also decreased in all contour bands. The contours are independently produced by the CAA's Environmental and Research Consultancy Department. The modelling uses data and flight track radar from the ANOMS system in place at the Airport.

6. AIR QUALITY

Schedule 6 Paragraphs 1 and 2 state that the Airport Company should maintain an air quality monitoring (AQM) station and carry out regular diffusion tube monitoring at the airport. Traditionally a biennial NO₂ diffusion tube survey has also undertaken, the most recent being in 2010.

AIR QUALITY MONITORING DATA

Birmingham arrange for AEA Technology to collect, audit and ratify the data collected from the air quality station and produce independent monthly reports and an annual report.

The objective levels are those published by the Expert Panel on Air Quality Standards (EPAQS) which are designed to protect the health of persons sensitive to air pollution (see table below). These feed into the Government's National Air Quality Standards. (NAQS)

Table 11. UK Expert Panel on Air Quality Standards Pollutant Levels

Band	O ₃	NO ₂	SO ₂	CO	PM _{10- gravimetric}
	8 hour running mean µgm ⁻³	Hourly mean µgm ⁻³	15 minute mean µgm ⁻³	8 hour running mean mgm ⁻³	24 hour running mean µgm ⁻³
Low	0-32	0-95	0-88	0-3.8	0-21
	33-36	96-190	89-176	3.9-7.6	22-42
	67-99	191-286	177-265	7.7-11.5	43-64
Medium	100-126	287-381	266-354	11.6-13.4	-65-74
	127-152	382-476	355-442	13.5-15.4	75-86
	153-179	477-572	443-531	15.5-17.3	87-96
High	180-239	573-635	532-708	17.4-19.2	97-107
	240-299	636- 700	709-886	19.3-21.2	108-118
	300-359	701-763	887-1063	21.3-23.1	119-129
Very High	360+	764+	1064+	23.2+	130+

Table 12. Relationship between EPAQS pollutant levels and human health

Band	Health Effect
Low	Effects unlikely to be felt even by individuals known to be sensitive to air pollutants.
Medium	Mild effects, unlikely to require action, may be noticed amongst sensitive individuals.
High	Significant effects experienced by sensitive individuals, action to avoid polluted areas may be needed.
Very High	The effects listed for high may worsen.

The NAQS levels provide for a certain number of exceedences per year. These are given in the table below.

Table 13. Air quality results for 2011 at sites around Birmingham

Pollutant	Objective	Measured as	NAQS Exceedence Limit	Birmingham Airport*	Tyburn Background**	Tyburn Roadside	Coventry Memorial park
Ozone O ₃	100µgm ⁻³	daily maximum 8 hour running mean	10 per year	26	48	12	67
Nitrogen Dioxide NO ₂	200µgm ⁻³	hourly mean	18 per year	0	4	1	0
Sulphur Dioxide SO ₂	266µgm ⁻³	15 minute mean	35 per year	0	0	0	0
Carbon Monoxide CO	10.0mgm ⁻³	daily maximum 8 hour running mean	-	0.8	0	0	0
Particulate Matter PM ₁₀	50µgm ⁻³	daily mean	35 per year	11	22	18	0

* Ratified data for Birmingham Airport only – all other is unrati ed and cannot be used for direct comparison

Ozone is a transboundary air quality issue. Therefore air quality levels recorded at the Airport Company's Air Quality Monitoring Station are not an indicator of levels generated locally. Ozone is rather a secondary pollutant, being formed through a complex series of chemical reactions at low level, involving nitrogen dioxide and hydrocarbon compounds, and in the presence of energy in the form of sunlight.

The Section 106 Planning Agreement (Schedule 6, Clause 8) requires measures to be undertaken by the Airport Company if air quality falls below a required standard. The table above indicates that ozone alone was in breach of the acceptable limits. However, remedial measures are applicable only if a direct link can be established between the operations of the airport and the air quality problem. Given the nature of the production of ozone, the Airport Company cannot be expected to take any further measures beyond those outlined in their air quality policy [8].

NITROGEN DIOXIDE DIFFUSION TUBE SURVEY

Diffusion tubes are a method of measuring the concentration of nitrogen dioxide in the air. The advantage of this system is the relatively low cost, which allows for many different areas to be measured at the same time and for a pattern of NO₂ distribution to be identified.

Birmingham Airport has undertaken surveys every two years with the latest one being completed in 2010 in conjunction with Birmingham City Council and Solihull Metropolitan Borough Council. The survey was carried out for a period of 13 weeks between July and October 2010 which represents one of the busiest periods for the Airport. Monitoring locations were based upon a combination of urban, rural and residential sample points.

The Airport Company employs air quality consultants AEA Technology to analyse and report on the data obtained during the nitrogen dioxide surveys. To date there have been nine surveys carried out, the results of which are given below.

Table 14. NO₂ survey results 1994-2010

	NO ₂ concentrations (ug/m3)								
	1994	1996	1998	2000	2002	2004	2006	2008	2010
Birmingham Airport Sites Mean	40	46	34	42	45	33	34	38	37
BCC Sites Mean	30	34	22	27	31	23	27	22	25
SMBC Sites Mean	30	32	24	25	27	24	28	25	25
Survey Mean	34	39	28	33	36	27	30	28	29

The latest survey showed very similar levels compared to previous years.

More information about nitrogen dioxide surveys at the airport can be obtained directly from the Government and Industry Affairs Team [9]

AIR QUALITY COMPLAINTS

Schedule 6, Clause 6 of the Section 106 Planning Agreement requires the Airport Company to record and report the number of concerns raised by the public relating to air quality, on an annual basis.

Table 15. Concerns relating to air quality at Birmingham Airport since 2000

Year	Year											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	12	16	13	5	11	20	9	15	6	3	5	3

Prior to 2000, air quality concerns were included in a general category, 'pollution'. Air quality does not constitute a major area of concern for complainants at Birmingham Airport.

The Airport Company also investigates what are loosely termed 'oily deposits'. Samples are taken to Birmingham City Laboratories for independent analysis. Since 1996, 46 such investigations have been carried out, none of which has been found to be attributable to aircraft.

Laboratory results have indicated that the deposits ranged from natural algae growth in ponds, through pollen coating on windows to bird excreta containing the remains of consumed blackberries.

All complaints relating to oily deposits, odour and general health concerns are logged and included in the total air quality concerns.

There was only one reported deposit in 2011 which was attributed to algae in a pond and not aircraft operations.

Use of Bio fuels

In October 2011 Birmingham Airport was the first UK airport to operate a biofuel powered flight to promote a wider use of sustainable fuel to reduce CO₂ emissions. This was made up of 50% sustainable aviation fuel and 50% traditional aviation fuel. The service, operated by Thompson, operated a weekly biofuelled aircraft for 6 weeks as a trial and hopes to expand the use of biofuels in its fleet in the near future.

Schedule 7 of the Section 106 Agreement stipulates that Noise Preferential Routes (NPRs) should be used by aircraft departing the airport, the usage of which should be monitored and reported quarterly to Solihull MBC.

NOISE PREFERENTIAL ROUTES

Aircraft departing from Birmingham Airport are required to follow Noise Preferential Routes (NPRs). These are 3km wide corridors (1.5 km either side of the Standard Instrument Departure (SID)). There are five NPRs that are 3 km wide for aircraft departing from Birmingham Airport: three to the north and two to the south. If an aircraft deviates from these NPRs at an altitude less than 3000 feet, then it is considered to be off track. Smaller aircraft less than 5700kg (such as executive jets) are exempt from adhering to NPRs. The NPRs relate only to departing aircraft. Arriving aircraft do not have a specified route to follow before the final approach, where they join the Instrument Landing System. The NPRs are designed to take departing aircraft over the least populated areas wherever practicable and can be flown by any aircraft operating from the Airport.

The departing aircraft use standard instrument departure (SID) procedures when taking off. The direction of aircraft on departure and arrival depends on the wind direction. When the wind is from a northerly direction aircraft will take off over the north-west and arrive from the south-east.

There are many cases where an aircraft can be off track for legitimate reasons, i.e. meteorological conditions or to maintain separation distance for safety reasons. All off-track aircraft are identified and the airline notified of their airlines performance.

In 2006 Birmingham Airport launched 'Operation Pathfinder'. This is a scheme to encourage better track keeping performance amongst those airlines, which operate, from Birmingham. Birmingham Airport has set a voluntary target of 95% of aircraft 'on-track'. The ANOMS system allows the Airport Company to closely monitor the track keeping of departing aircraft and the Airport holds biannual meetings with the airlines to discuss any track keeping issues. During 2011 98.7% of aircraft were "on-track."

More Airlines have now joined the scheme with awards being presented to Airlines showing the best improvement. In 2011 awards were presented by Caroline Spellman MP for Meriden and Secretary of State for Environment, Food and Rural Affairs to companies at the annual Pathfinder Ceremony held at Birmingham Airport.

Currently, there is no provision to surcharge operators whose aircraft are off track. Surcharging at Birmingham Airport relates solely to daytime and night-time noise levels. While the Civil Aviation Act 2006 does allow airports to surcharge airlines based on track keeping performance, the track keeping programme in place at Birmingham has seen continual improvements in performance without the need for fiscal incentives.

CONTINUOUS DESCENT APPROACH

The Continuous Descent Approaches at Birmingham Airport (CDAs), which were launched in 2009, are considered to be the best practice in the UK in terms of performance.

Aircraft are collectively achieving over 90% compliance with the CDA procedure and this will be built into the Operation Pathfinder Programme with the aim to further improve compliance and reduce the noise impact.

CDA allows aircraft to descend on less power making a smooth approach without levelling off rather than using the traditional stepped approach so helping emissions and also creates less noise. When the CDA was started the approaches were conducted from 4000 ft to landing for every ILS approach. This has now changed to 6000 feet. It was expected that initially performance levels to decrease but reports have shown that performance is currently showing a 96% improvement in performance levels,

Continuous Climb Departures are now being considered. At present most departing aircraft from the Airport are given a continuous climb up to 6000 feet. This will change to 8000 feet from 2011. This will help lower aircraft fuel consumption and lower the CO₂ emissions as the highest levels of fuel burn and CO₂ emissions are generated by an aircraft climbing to 10,000 feet. Air Traffic controllers are encouraged to transfer aircraft to the next controlling agency early to help facilitate climbs past the 10,000 feet level.

NATS have re-introduced Eastern Vectors following requests from airlines. This will mean that aircraft will be vectored on the Eastern side of the Airfield when on arrival from the South to Runway 15. This will not only save the airlines a minimum of 5 track miles for each flight but a typical aircraft could save approximately 220kg of CO₂ per flight.

The Airport Company has prepared a report on how the Airport proposes to adapt to Climate Change with its operations and infrastructure. This report was submitted to DEFRA in May 2011 and is available on the DEFRA website. A positive response to the report has been received. The Airport Company has also signed up to the highest level at Sustainable Aviation's Aircraft on the Ground CO₂ Reduction Programme. The Airport Company is committed to reducing ground based emissions.

This is achieved through things such as aircraft taxiing with less than all engines operating- sometimes referred to as Single Engine Taxiing along with other initiatives such as Operation Pathfinder, switching off plane engines during taxiing, reducing holding on the taxiways, reducing flown taxi miles and saving CO₂ by using Continuous Descent Approaches

NUMBER OF ATMs

Although not required by the Section 106 Agreement, the annual number of Air Transport Movements (ATMs) is a useful indicator of the level of operation at Birmingham Airport. The total air traffic movements include cargo, passenger and private/executive movements.

Table 16. Total air traffic movements at Birmingham Airport 1996-2011

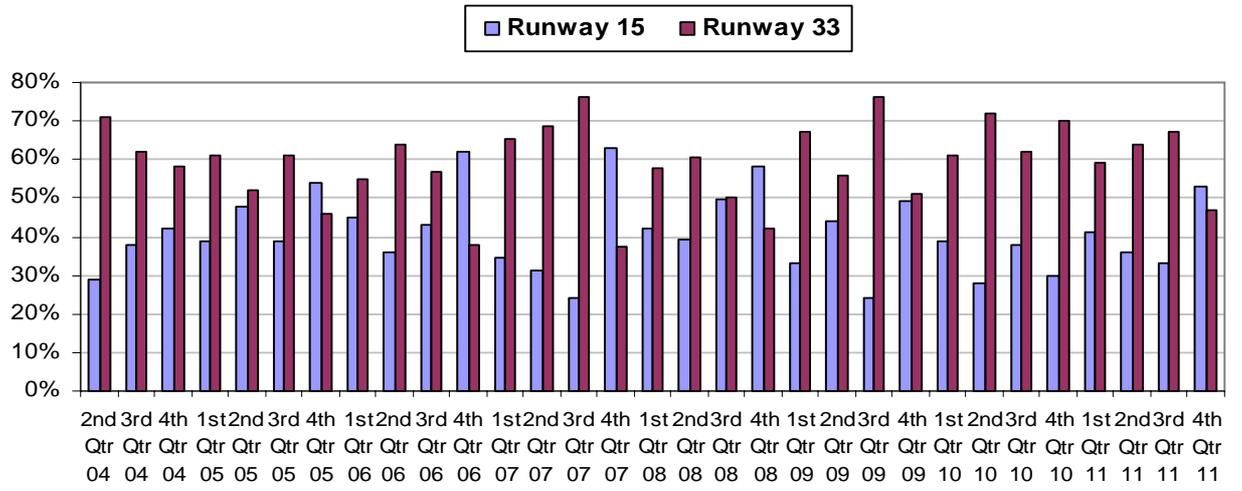
Year	Total Aircraft Movements
1996	96,266
1997	100,726
1998	108,852
1999	118,431
2000	126,633
2001	125,209
2002	125,083
2003	128,740
2004	120,799
2005	123,192
2006	119,532
2007	114,717
2008	112,470
2009	101,627
2010	96,668
2011	93,974

RUNWAY USAGE

The runways at Birmingham Airport are named after the points of the compass to which they most closely approximate. This is standard throughout the aviation industry. Hence Runway 33 follows a 330° orientation (0° or 360° being north) and Runway 15, being the opposite end of the same length of tarmac, is at an orientation of 150°.

Although not a specific requirement of the Section 106 Agreement, the pattern of air traffic using the runway at Birmingham Airport does have an impact on how local people are affected by airport operations. Wind direction and meteorological conditions determine runway usage.

Figure 7. Runway usage at Birmingham Airport



8. COMMUNITY BENEFITS & ENVIRONMENTAL IMPROVEMENTS

This Schedule of the Section 106 Agreement states that the Airport Company should set up and administer a Community Trust Fund (CTF).

The purpose of the CTF is to invest in a range of local projects, which benefit the community and environment. The CTF was established in 1998 and is a registered charity. The trustees comprise two representatives of Solihull MBC, two from Birmingham City Council, three from the Airport Consultative Committee and two from the Airport Company. All administration costs are met by Birmingham Airport.

COMMUNITY TRUST FUND

The Community Trust Fund is a registered charity run by Trustees. The income raised consists of an annual £50,000 investment from the Airport Company, and the revenue raised from the surcharges imposed for violations of the daytime noise limit and that given in the night flying policy. This money is then invested in projects that benefit those areas affected by the Airport.

Over the year of 2011 The Community Trust Fund awards amounted to a total spend of £54,067. This sum has been distributed among the projects listed in the table below. Any revenue in the CTF that has not been spent in previous years is carried over to the next financial year.

Since the inception of the Community Trust Fund in 1998 over £1 million has been awarded to projects benefiting the local community.

Table 17. Annual Community Trust Fund awards 1998-2010

Year	Total Awarded (£)
1998	98,156
1999	83,993
2000	153,139
2001	103,751
2002	97,670
2003	90,212
2004	72,868
2005	65,444
2006	51,175
2007	53,027
2008	67,349
2009	49,994
2010	52,40
2011	54,067

A new learning facility at Birmingham Airport is to open in the space formerly used for the Aviation Experience. It is to be a dedicated unit for exclusive use by primary and secondary students aimed at making science and technology more attractive. It has been made possible through a partnership between Birmingham Airport, education and business partners and has been supported by Small Heath School.

There is no charge to use the facilities but visits must be pre booked and is available to groups throughout the region. The flight school visits will be self run by the accompanying teachers using the facility. A range of education materials is supplied along with computers , whiteboards and web based resources. The facilities can cater for children from nursery age to post 16.

The Airport has also given a contribution to send a group of people on a fundraising and educational trip to Cyprus where they raised money for a local hospice and talked to children of British Military Personnel based in Cyprus.

Support has been given to Sheldon Heath Academy through the Business in the Community Education programmed. 34 school and education groups has visited the Airport as part of the education support programme.

To raise awareness of the Community Trust Fund the Airport attended a funding fair in Washwood Heath.

The following table indicates the monies awarded for the year.

Table 18. Community Trust Fund awards for the financial year 2011

Project	Area	Awarded	Purchase
St Stephen's Church Centre	Elmdon Heath	2,000	Kitchen refurbishment
Hampton in Arden Bowls Club	Hampton in Arden	820.00	Seating and fencing
St Giles Church	Sheldon	3,000	Stonework repairs
Little Aston Tennis Club	Sutton Coldfield	1,500	Fencing
237 th Birmingham Scout Group	Castle Bromwich	1,500	Solar PV system
Berkswell Cof E Primary School	Berkswell	500.00	Gardening Equipment
155 th Birmingham Scout Group	Tile Cross/Kingshurst	1,000	Camping Equipment
Marston Greenagers Club	Marston Green	684.00	IT equipment/portable PA
Hampton Parochial Council	Hampton In Arden	2,500	Church Organ Repairs
Forest Oak School	Smiths Wood	459.62	Outdoor Education equipment
Greville Arms Bowling Club	Solihull	2,331.60	Lawn sprinkler system
ASD friendship group	Coleshill	910.00	Special needs toys
Orchestra of the Swan	Shard End/Kitts Green	300.00	Community performances
Seeds of Hope	Kingshurst	2,500	Church Hall floor repairs
Solihull amateur boxing club	Solihull	1,850	Boxing Ring
Community Enviro Trust	Castle Vale/Pype Hayes	1,000	Tools and protective equipment
Bosworth community Project	Chelmsley Wood	1020.00	Lap top computers
Changes UK	Kitts Green	600.00	Storage sheds and gardening equipment
Astral Advisory Centre	Castle Vale	2533.34	Sporting Equipment
The Base	Hampton in Arden	1089.00	Outdoor Play Equipment
Foden Bowling Club	Hodge Hill	1,000	Ground Improvements
Ulverley Hawks FC	Olton	500.00	Training aids and line

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			marker
St Mary and St Margarets Church	Castle Bromwich	2,000	Kitchen Equipment
Focus stay and play	Pype Hayes	1,000	Play Equipment
New Firs Gymnastics Club	Bromford	1,938.00	Gymnastics Equipment
Marston Green Residents Ass	Marston Green	890.00	Laser printer
Hallmoor School	Kitts Green	2,000	Grant towards new mini bus
Stanville Primary School	Sheldon	2,000	Ground Works
Shirestone Primary School	Tile Cross	2,000	Gardening project ground works
Brueton Parkrun	Solihull	1341.60	Race clock
Ward End Unity Cricket Club	Hodge Hill	1095.00	Sight Screens
St Thomas Church	Garretts Green	3,000	Car Park resurfacing work
Prince of Wales Cricket Club	Sutton Coldfield	2205.00	Bowling machine
Kingshurst Caterpillars	Kingshurst	1,000	Outdoor play area
The Pump	Kitts Green	1,000	Catering training
Birches Green Allotment Ass	Pype Hayes	2,000	Fencing
Brownfield Rd Allotment Ass	Shard End	1,000	Construction of raised beds

CONCLUSION

The aviation market still proves to be very tough and is a challenging time for all airports in the continuing economic climate. A growth has been seen in the long haul scheduled market however and the Airport are continuously meeting with Airlines with a view to develop new routes and destinations and to attract new airlines.

Operation Pathfinder continues to show very good results for the number of aircraft classed as on track. The Airport Company meet on a regular basis with Airlines to encourage Airlines to improve year on year and an award ceremony is held annually for those who achieve high standards of track keeping. This scope has recently evolved to incorporate initiatives to reduce CO₂ emissions from airlines.

The Airport visited a number of community venues throughout the area in 2011 to discuss any environmental issues and concerns. The meetings were open for anyone to attend and were staffed by members of the Airport Staff.

2011 sees Birmingham Airport continuing to comply with all Obligations within the Section 106 Planning Agreement.

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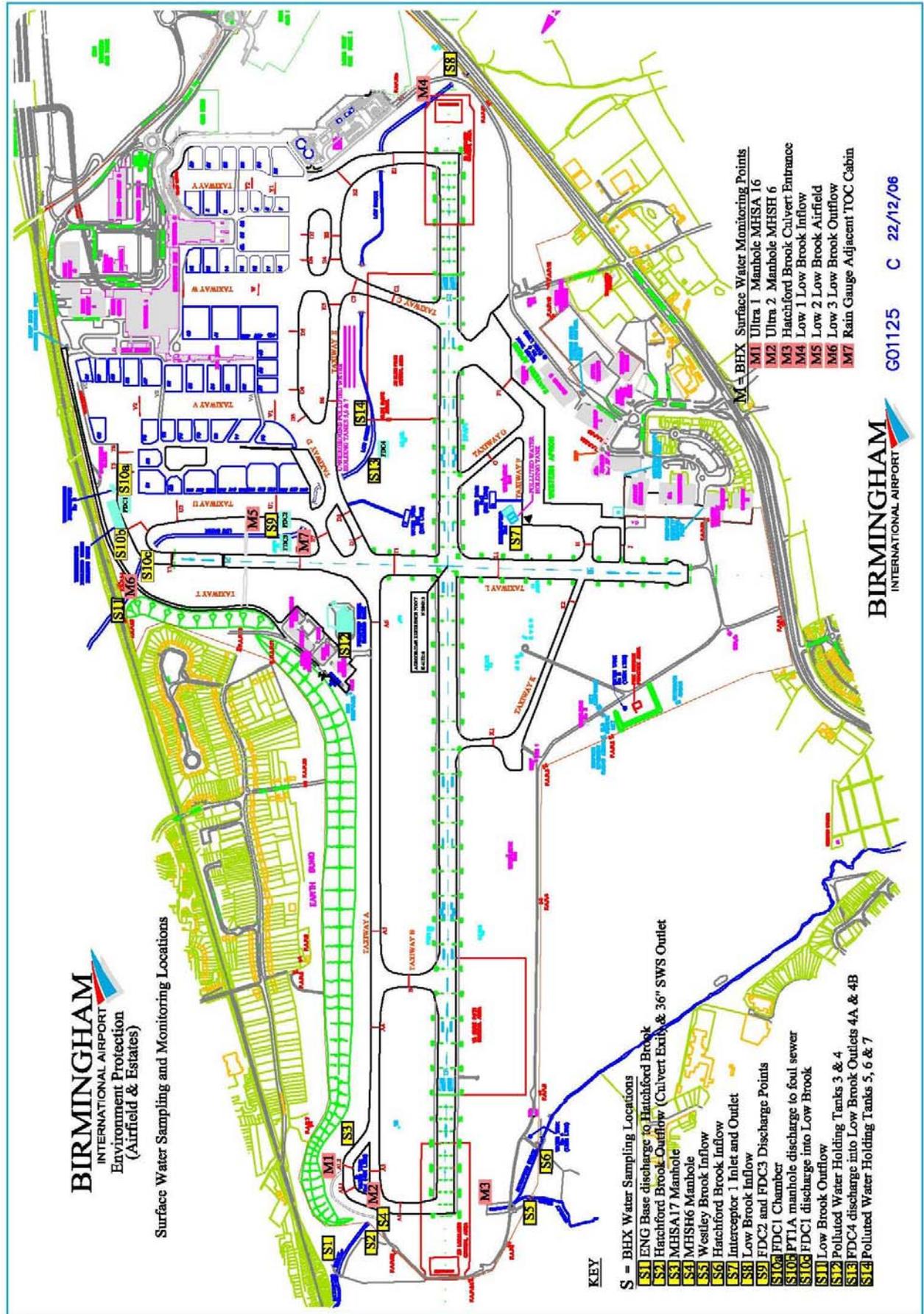
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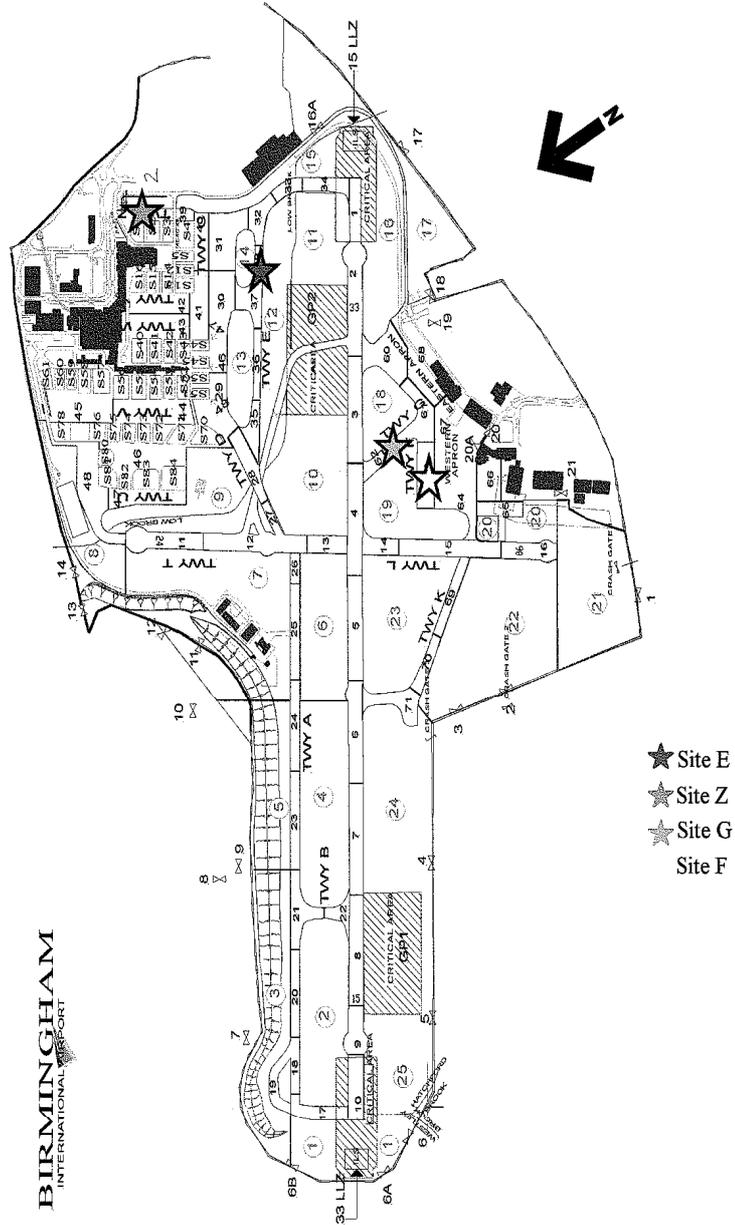
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Map 1

ENGINE GROUND RUNNING LOCATION PLAN



Map Two