

ENVIRONMENT

SUSTAINABLE DEVELOPMENT PLAN 2015



INTRODUCTION

We will make the best use of natural resources and minimise the environmental impact of our operations. We will also continue to integrate environmental management into our business processes to ensure that the best environmental practice is carried out.



The Sustainable Development Plan sets out the high-level strategic objectives for the growth and the future development of East Midlands Airport. The Sustainable Development Plan is supported by four detailed plans that cover:

- Community;
- Economy & Surface Access;
- Environment; and
- Land Use.

The Sustainable Development Plan sets out the vision for East Midlands Airport and the strategic context for the business. It also identifies the areas for growth and economic development as well as some of the key challenges. It reflects the areas where good progress has been made, it develops the environmental and community programmes, and sets a context for an economic growth strategy, one that is strongly linked to the surface access strategy.

The Environment Plan is intended to set a clear and long-term framework to guide the environmental policy and management of the airport to support the operation of an airport capable of handling 10 million of passengers annually and 1.2 million tonnes of cargo and to provide guidance and information to airport users, occupiers, developers, statutory agencies and the local community.

The Sustainable Development Plan documents were published as drafts for public consultation in spring 2014. This was intended to provide an opportunity for a wide range of stakeholders to contribute and make comments. We are grateful to everyone who took time to respond and look at our plans.

The airport is committed to keeping its plans up to date. There will continue to be reports on progress and in line with Government guidance the plans will be reviewed every five years to make sure that they continue to be relevant and up-to-date.

CONTEXT AND FORECASTS



East Midlands Airport opened in 1965. Over the years the range of air services has developed considerably and a number of extensions and improvements have been made to the airport's facilities. Today East Midlands Airport is:

- The 11th largest passenger airport in the UK handling 4,508,000 passengers in 2014;
- The UK's largest pure cargo airport handling 309,000 tonnes in 2014, and the 15th largest cargo airport in Europe; and
- The UK's major air mail hub.

Forecasts of future passenger, cargo and aircraft activity have been prepared. These are used as a guide to the anticipated future scale of the airport and its operations. These forecasts are also used in the modelling of future environmental impacts, in particular aircraft noise.

The airport's previous forecasts were included in a Master Plan that was published in 2006. Since then there have been substantial changes in the global economy and in the aviation industry. This has substantially changed the pace of growth at airports across the UK including at East Midlands. The airport's forecasts have been reviewed as part of the preparation of this Sustainable Development Plan and they show that the airport could achieve a passenger throughput of 10 million passengers a year in the period 2030 – 2040. This represents a combined annual growth rate of 3.4%. The airport's cargo throughput is also forecast to grow, with some 618,000 tonnes by 2035 and 700,000 tonnes by 2040. The airport's cargo will continue to be carried on dedicated freight aircraft.

East Midlands Airport handled 62,852 air transport movements in 2014. This was made up 36,171 passenger aircraft movements and 26,852 cargo aircraft movements. In 2014 there were also 13,866 other aircraft movements that include business and general aviation, training flights and the flying school. An airport of 10 million passengers a year is forecast to generate 70,000 annual passenger air transport movements and around 42,600 cargo air transport movements.

The bulk of the airport's air transport movements take place during the daytime (07:00 – 23:00). In 2014 there were 41,306 daytime (31,654 passenger and 9,652 cargo) movements and 21,546 night (4,517 passenger and 17,029 cargo) movements. The future split of day and night movements is expected to be similar to that of today.

Further details of the airport's traffic and forecasts are included in the Land Use Plan. The forecasts are not intended to be seen as targets, and given their long-term nature they will be reported and updated as part of future reviews of the Sustainable Development Plan.

ENVIRONMENTAL IMPACT



The environmental impacts of the airport's development and operation are many and varied and arise from:

- Development and operation of the airport itself;
- Aircraft movements and maintenance;
- Aircraft support services such as catering, fuelling and cleaning;
- Fleet vehicle operations and maintenance;
- Cargo handling;
- Terminal operations including retail, catering and cleaning;
- Building management such as heating, lighting and toilets within the terminals, offices and hangars;
- Estate management such as anti-icing and grounds maintenance on the airfield, roads and car parks; and
- Passenger and staff travel to and from the airport.

Some of the impacts are directly caused by our own activities, but the majority are caused by the operations of the 90 service partner companies on the site. As the airport operator, wherever it is practical for us to do so, we take responsibility for the total impact of the site. We will work in partnership with all the companies on our site and influence them to control their impacts so that, as an airport, we can achieve the targets within this Environment Plan.

The airport has a proven track record of assessing, understanding and managing its impact upon the environment responsibly. We have adopted the best practice approach to managing the environment promoted by the international environmental management standard ISO14001. East Midlands Airport became the first airport in the United Kingdom to obtain certification to the Standard. The general framework for managing the environment required by the ISO14001 standard is shown below

CLIMATE CHANGE ENVIRONMENTAL MANAGEMENT SYSTEM MODEL FOR THE ISO 14001 INTERNATIONAL STANDARD



OUR APPROACH

ENVIRONMENT POLICY

East Midlands Airport acknowledges its duty to protect the environment. We aim to be a responsible steward of the environment and will seek to continually improve our environmental performance and minimise the environmental impact of our operations.



In order to achieve this, the airport will:

- Develop and grow its business in a managed and sustainable manner;
- Seek to engage the combined skills and energy of all of its employees;
- Engage in a constructive and open dialogue with all stakeholders, including local communities;
- Develop an environmental management system that targets key areas and audits and monitors performance in a challenging and critical way; and
- Comply with the requirements of environmental legislation and other requirements at all times and to prevent pollution wherever possible.

The airport's environmental management system seeks to support and deliver these policy aims. It documents all of the significant environmental aspects that arise from the operation of the airport. In order to maintain certification to the ISO14001 standard, we are required, through six monthly independent audits, to demonstrate continuous improvement in environmental performance.



OUR PERFORMANCE

KEY PERFORMANCE INDICATORS

The airport has identified a number of key areas for attention and key performance indicators that are measurable, sensitive enough to allow changes to be monitored objectively and easily understood.



In line with the policy of open and honest reporting, the performance against all of these indicators will be continue to be included within the annual M.A.G Sustainability Report, the East Midlands Airport Community Investment Report and future Sustainable Development Plan Monitoring Reports.

CLIMATE CHANGE

KEY PERFORMANCE INDICATOR: We will continue to reduce greenhouse gas emissions by increasing efficiency and obtaining our energy from renewable sources.

Building upon our work to date, our priority over the course of this plan will be to drive further efficiency improvements by continuously reducing our energy demand. We believe that generating and purchasing renewable electricity can make an important contribution to reducing our CO₂ emissions and we will seek to increase the on-site generation of renewable energy where it is practical to do so.



KEY PERFORMANCE INDICATORS



WASTE

KEY PERFORMANCE INDICATOR: By 2015 we will achieve 100% waste diversion from landfill.

We will manage our waste along the principles of the waste hierarchy (Reduce waste generation, Re-use, Recycle, Recovery, Disposal), work with our business partners to minimise the production of waste where possible and promote the re-use and recycling of waste materials.

LOCAL AIR QUALITY

KEY PERFORMANCE INDICATOR: The airport will not breach any local air quality limit.

Air pollution can pose a risk to human health and National Air Quality Standards have been set for a range of pollutants. We currently monitor particulate matter (PM₁₀), nitrogen dioxide and benzene. Sources of air pollutants include aircraft operations whilst on the ground, operational equipment and vehicles, energy generation and airport related road traffic. We will:

- develop a Surface Access Plan that promotes a modal change away from the private car to more sustainable forms of travel;
- adopt operational practices that seek to minimise the polluting emissions from airport operations;
- undertake regular monitoring for key pollutants, within the wider context of the Air Quality Strategy for England and Wales to contribute to the control of local air quality; and
- make the results of air quality monitoring publicly available.

LANDSCAPE AND ECOLOGY

KEY PERFORMANCE INDICATOR: The area of land under active ecological and landscape management and enhancement will not be reduced.

The airport is a significant landowner. Any development that takes place requires mitigation and compensation measures to be undertaken either in advance, during or immediately following development.

We will further develop our landscape and ecology strategy so that within the constraints imposed by the normal operation of the airport, we will promote the development of rich and varied habitats, to integrate the airport within its rural setting and to promote access to the airport site.

WATER QUALITY

KEY PERFORMANCE INDICATOR: All surface water discharge samples will remain within consented limits

Discharge of pollution into rivers and streams can have potentially harmful consequences to fish and the general river habitat. We have a number of consents that limit the quality of runoff that we can release to the watercourse. We will adopt rigorous programmes of monitoring and control to ensure that all drainage discharges are controlled in accordance with regulatory consents. In addition we will seek to minimise the load placed on the environment by ensuring the sensitive storage and use of chemicals.

OUR PERFORMANCE

KEY PERFORMANCE INDICATORS



NOISE

KEY PERFORMANCE INDICATOR: The night noise contour ($55\text{dB}_{L_{\text{night}}}$) will not exceed an area of 16 sq. km.

By committing to a noise contour area, we seek to establish an enduring noise envelope within which the most serious noise impacts will be contained. This will allow people to plan accordingly and by providing noise mitigation to those within the noise envelope, we will seek to provide support and mitigation to those who are most impacted by aircraft noise.

Whilst actual noise levels can be recorded, their potential to be intrusive and cause disturbance cannot easily be quantified. However the equivalent continuous sound level (L_{Aeq}) is the most common index of aircraft noise exposure. It is a measure of the equivalent continuous sound level. This is used to create a contour area within which a certain sound level is exceeded. When laid over a map of the area surrounding the airport, we can measure the area and the population affected.



OUR PERFORMANCE

PLANNING

In identifying and setting the targets in this Environment Plan, we have taken a number of steps, including reviewing current and emerging legislation, aviation policies, local plans and planning conditions to assess the policy framework within which we must operate.



As part of the Sustainable Development Plan and the Land Use Plan, the airport (and our development partners) will undertake environmental assessment of all major developments in order to effectively understand and mitigate impacts and ensure that we incorporate environmental standards into the design.

Whilst we are driven by improvements in environmental performance, it is essential that we understand the financial implications of our actions. Where possible we have set targets based on absolute totals (eg. tonnes CO₂ produced) rather than on relative measures (eg. CO₂ emissions per passenger). Interim targets will be set internally as part of the business planning process and also within the project management system of an individual scheme.



IMPLEMENTATION

As part of our environmental management system we have a number of procedures designed to control environmental impacts. These will continue to be developed and updated. In addition we have developed a number of detailed policies on individual subjects such as our current energy efficiency programme the Noise Action Plan and the Landscape and Ecology Strategy.



We already use contracts and licences to influence our service partners' behaviour and this will increase. This includes our Ground Handling Licence which includes an element of environmental performance monitoring. We conduct environmental reviews and audits with our service partners to jointly identify any impacts, areas for improvement and areas in which we can work together.

Our design standards are used to ensure that environmental requirements are incorporated into all development and renewal schemes. These are continually reviewed and we work hard to encourage our service partners to adopt these standards.

By including environmental specifications when purchasing goods and services we can also control our impacts.

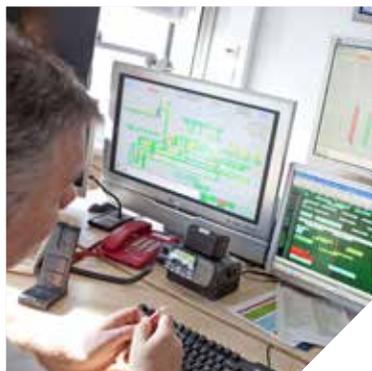
We already have a number of environmental charges and will develop further charges along the polluter pays principle to provide incentives to adopt best environmental practice.

We provide training and awareness materials for all staff on a range of environmental issues such as recycling, energy conservation and green commuting. We provide briefings for staff that are tailored for their job to provide a general context of how airport operations can affect the environment, but also what they can do to control impacts. We communicate with staff across the site through direct correspondence, meetings, user groups and airport newsletters. We also use our Intranet as a resource for all staff on site to access environmental information.

We also routinely communicate with various external groups such as the Independent Consultative Committee (ICC), the Environment Agency and Local Authorities. We engage in regular constructive dialogue with key stakeholders and our local community and with others that have an interest in the airport. Further details of our community programme are included in the Community Plan that is part of the Sustainable Development Plan.

CHECKING AND REVIEW

There are many systems for monitoring environmental impacts. These include computer based systems such as our aircraft noise and track monitoring system. We also operate a building management system that is used to control and log energy usage, to control our drainage diversion systems and record water quality monitoring data. We also take and analyse samples of air and water quality and maintain databases of a range of environmental information.



Alarms operate on automatic systems to alert of any non-compliance against set targets or limits and we compare monitoring results against legislative controls and our own targets and standards. Where non-compliance is identified, appropriate remedial action is taken. For example, the source of water contamination might be investigated and eliminated, building temperatures adjusted to conserve energy or a vehicle removed from the airfield pending repairs to control air emissions.

We undertake regular audits of our own, our service partners' and our contractors' facilities and activities to check compliance with our standards and work with them to seek improvements. Whilst we work in partnership with our service partners, there are occasions where we will take enforcement action such as the use of fines.

Computer models are also used to analyse data to help us understand our environmental impact. These include models of noise data to produce contours within which a set level of noise is exceeded. The noise contours can be laid on a map of the airport and its surroundings to enable us to see which areas are most affected.

As part of our process of continual improvement we regularly review the various databases of information to identify progress towards targets, areas of noncompliance and to provide reports to service partners or our own management. The reporting cycle varies for different issues depending on how the targets have been set. Reports can be informal or formal, internal or external and for feedback or reporting compliance. However, we will publicly report our performance against the main targets in this Environment Plan.

We also meet and report regularly to our regulators and other stakeholders, such as the Environment Agency and local Environmental Health Officers.

Our policies and targets cannot stay static, but must respond to changes in the aviation industry, with legislation and government policy, and with costs. Our environmental policies will therefore be reviewed in line with M.A.G policy and as required by the airport's senior management team.

CLIMATE CHANGE



We will continue to reduce greenhouse gas emissions by increasing efficiency and obtaining energy from renewable sources."



CONTEXT

Aviation is estimated to contribute about 1% to 2% of global greenhouse gas (GHG) emissions. Airports in turn contribute around 5% of those emissions. The forecast growth of air transport and the de-carbonisation other industries mean that aviation's contribution is expected to rise, to around 3% of global emissions by 2050.

Some GHG emissions are within the airport's direct control, for example, our own energy use for heating, cooling and lighting buildings or the from the fuel used in our own vehicles. Whilst other emissions are out of our direct control, we do have influence over their production, for example energy used by tenants and emissions generated by aircraft whilst on the ground.

In recent years we have made major progress towards reducing emissions. Carbon neutral ground operations were achieved in April 2012.

LEGISLATION AND POLICY FRAMEWORK

The Kyoto Protocol formed the basis for climate change legislation resulting in a targeted reduction for the UK of 12.5%. This target was significantly strengthened by the Climate Change Act (2008) which requires CO₂ emission reductions of 80% compared to 1990 levels by 2050 with an interim reduction target of 26% by 2020.

The Government's objective is to ensure that the aviation sector makes a significant and cost-effective contribution towards reducing GHG emissions. Aviation has been included within the European Union (EU) Emissions Trading System from 2012 with flights covered by the scheme subject to an emission cap. Airlines can either reduce their own emissions over time or purchase allowances or credits from other sectors where options for reducing CO₂ emissions are easier and cheaper to deliver. In 2013, significant progress was made by the International Civil Aviation Organisation (ICAO) towards the introduction by 2020 of a global mechanism to address aviation emissions.

M.A.G is a founding member of Sustainable Aviation, which is the first alliance of its type in the world in representing a cross section of the UK aviation industry, including aircraft and engine manufacturers, airlines, airports and air navigation service providers. In 2008, Sustainable Aviation published a Carbon Roadmap, which was reviewed and updated in 2012. The Roadmap demonstrates that it is possible for UK aviation to accommodate significant growth to 2050 without a significant increase in CO₂ emissions and that by participating in market based policy measures it will be possible to reduce absolute emissions by 50%, from 2005 levels. Highlighting the interactions between industry stakeholders and identifying opportunities to deliver emissions reductions, the Roadmap provides the basis for the airport's contribution to reducing GHG emissions within an overall industry approach.

CLIMATE CHANGE



HOW CARBON EMISSIONS ARE MANAGED?

We have significantly reduced our demand for energy and reconsidered how that energy is generated. Where fossil fuels continue to be used, principally for heating of the passenger terminal, account is taken of the effect of the associated emissions by purchasing a carbon off-set. Through a combination of these measures, the commitment made in the 2006 Master Plan to eliminate or off-set the carbon emissions from our operations has and continues to be met.

GREENHOUSE GASES

GHG's are a range of substances which retain heat within the earth's atmosphere and contribute to climate change.

The Kyoto Protocol specifies six gases, which are cumulatively referred to as GHG's:

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrous oxide (NO);
- Hydrofluorocarbons (HFC's);
- Perfluorocarbons (PFC's); and
- Sulphur hexafluoride (SF₆).

Whilst CO₂ is the most widely reported GHG, the climate change impacts of other gases are also very important. GHG emissions can be reported individually for each substance however it is often helpful to consider the impact of emissions relative to those of CO₂. To provide a single measure of GHG emissions, emissions are often reported in terms of 'carbon dioxide equivalent' (CO₂e)

LOW CARBON ENERGY

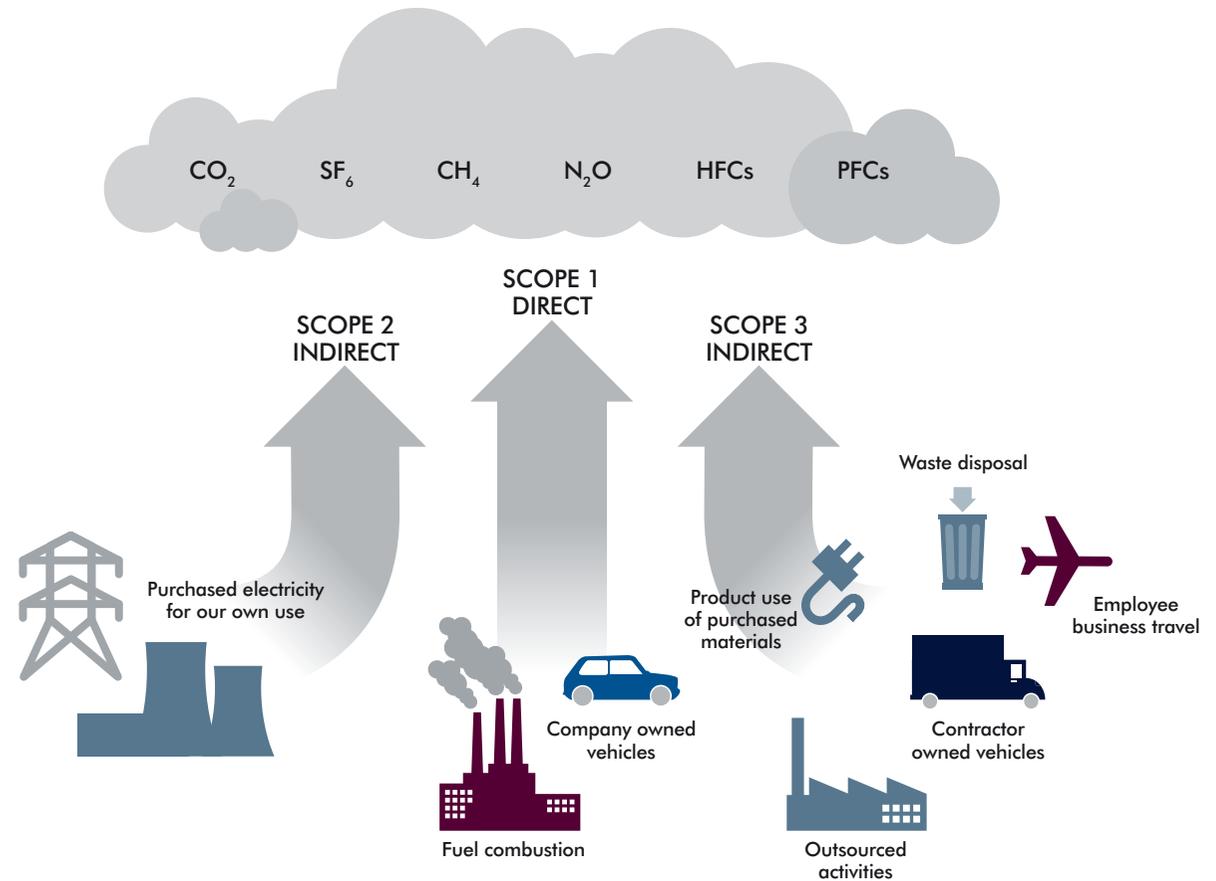
We have successfully delivered a number of projects which generate low carbon energy on the airport site. These include the installation of ground source heat pumps which reduce carbon emissions from heating and cooling the extended passenger terminal 'Pier' by 80% compared to traditional technology. A 26 hectare willow coppice has been planted which will provide renewable fuel for a biomass boiler, providing carbon savings of 460 tonnes CO₂ each year. Additionally, two full sized wind turbines are in operation generating 5% of electricity used by the airport.

CLIMATE CHANGE

ENERGY EFFICIENCY

As well as considering how we source the energy required to operate the airport, we have been working hard to improve energy efficiency. A range of projects have delivered significant reductions in energy demand. These include the introduction of low energy lighting schemes, the installation of motion sensors and improvements to building management systems.

Our priority will be to continue to operate more efficiently and we have set an ambitious energy target to reduce our demand by a further 10% over the course of the next 5 years. We will also actively consider the potential to become more self-sufficient in meeting our energy needs by introducing greater on-site electricity generation, where we believe it is a practical proposition to do so.



OUR OBJECTIVES

CLIMATE CHANGE POLICY

Our first aim is to reduce our own energy and fuel consumption, increasing operational efficiencies and driving down GHG emissions.



Carbon policy will continue to evolve, and we remain committed to the target to meet all our energy needs from renewable sources, or where this is not possible the resulting emissions will be off-set. Whilst working to reduce CO₂ emissions from the airport, we will continue to purchase high-quality carbon offsets to compensate for net Scope 1 and 2 emissions resulting from our operations. As a landlord and business partner, we are also committed to reducing the carbon intensity of our value chain, including our wide-range of customers and extensive supply chain.

REDUCING ENERGY AND FUEL CONSUMPTION

Fuel and energy are essential to our business, but their consumption contributes to Scope 1 and 2 GHG emissions over which we maintain full control. We will continue to focus is on increasing efficiencies, improving and replacing our assets and reducing overall GHG emissions.



IMPROVING EFFICIENCY



BUILDINGS

Large amounts of energy are required to sustain airport operations, and the airport annually consumes more than 20 GWh of electricity and 6 GWh of gas. Having undertaken many projects to improve the efficiency of our buildings and equipment, the focus is increasingly turning to intelligent system controls, optimising the operation of newer, more efficient technology.

Automated metering systems provide accurate metering of tenant energy use. Using this data, we will establish a new baseline against which we will report savings.

Remaining energy demands will continue to be supplied by energy from renewable sources which, where feasible, will be generated on site.

VEHICLES

We operate a fleet of 112 operational vehicles, most of which are fuelled by diesel. An additional company car fleet supports essential business travel. Although operational vehicles and company cars contribute only a small proportion of our overall emissions we are committed to reducing this figure.

We will develop and implement a sustainable vehicle procurement policy to ensure our operational fleet is fit for purpose, whilst being selected with fuel type and consumption in mind.

BUSINESS TRAVEL

We operate as part of a larger group of airports and within an international industry. Business travel is therefore an essential part of our business. Our business travel policy promotes the use of public transport.

NEW BUILD

Constructing new buildings provides a unique opportunity to consider energy efficiency from the design stage and to incorporate energy efficient technologies. The performance of new buildings will be considered through the Building Research Establishments Environmental Assessment Methodology (BREEAM), which has become the industry standard. Although the unique nature of some airport buildings makes it difficult to consider BREEAM, new buildings will target a BREEAM rating of 'Excellent'. Our minimum standard will be 'Very Good'.

PASSENGER AND STAFF SURFACE ACCESS

East Midlands Airport is a major regional employer, 600 colleagues are directly employed by the Airport Company, with more than 6,700 staff working at the airport for our customers and service partners. With staff, and more than 4 million passengers accessing the airport each year, promoting the use of sustainable transport to staff and passengers is a key priority.

Local bus services, national coach routes and the near-by railway station at East Midlands Parkway provide opportunities for staff and passengers to travel directly to the airport using sustainable modes of travel. The Surface Access Plan outlines how we will manage and reduce the impacts of people accessing the airport site.

IMPROVING EFFICIENCY



BUSINESS PARTNERS

Promoting the deployment of best in class equipment and adoption of sustainable working practices by our business partners is particularly important in driving down the GHG emissions of the airport site. Rolling out automated metering technology provides tenants with regular and accurate information about energy consumption, enabling their identification of efficiency opportunities. We will foster collaborative working with the airport's largest energy consumers, aiming to share and deliver best practice.

AIRLINES

Although the Airport Company itself does not operate aircraft, the design and operational decisions that are made about the airfield have an impact on the emissions of our airline customers. Developing an efficient airfield is a significant priority, supported by our work with UK and European air navigation service providers. We have already implemented a wide range of procedures to reduce fuel consumption by aircraft at the airport. Regular meetings with airlines review performance and facilitate continual improvement. We will report aircraft emissions during the landing and take-off cycle.

MONITORING AND REPORTING

For a number of years we have reported the CO₂ emissions arising from our operations. We will continue to report our emissions and further consider the wider implications of the airport's operations.

ANNUAL REPORTING

We will continue to monitor, and report, GHG emissions and will apply the Government's emission factors to our calculations. The Government has published revised environmental reporting guidelines and introduced mandatory reporting of Greenhouse Gas emissions for some businesses. Although the mandatory reporting requirements do not apply to our business, we support the Government's drive to improve environmental reporting. We will, on a voluntary basis, introduce the information expected of quoted companies to our reports.

Our reporting will be structured to reflect the Government's guidelines and will be consistent with the World Resources Institute Greenhouse Gas Protocol.

IMPROVING EFFICIENCY



EXTERNAL VERIFICATION AND ACCREDITATION

In addition to including GHG emissions in our independently verified Corporate Social Responsibility Reports, East Midlands Airport, with other M.A.G Airports, holds the Carbon Trust Standard. Participation in this scheme is particularly important as it validates the significant efforts that have been made to reduce energy consumption and carbon emissions.

We will continue to maintain certification to the Carbon Trust Standard. Additionally, we will gain certification to the Airport Council International Airport Carbon Accreditation scheme, which includes emissions resulting from passenger surface access and aircraft operations during the landing and take-off cycle.



CLIMATE CHANGE

- We will continue to achieve carbon neutral ground operations;
- We will reduce our energy demand by 10% between 2014 and 2019;
- We will continue to report our GHG emissions; and
- We will continue to maintain certification to the Carbon Trust standard.

OUR OBJECTIVES

AIR QUALITY

We will continue to closely monitor local air quality and seek ways to reduce emissions from our operations.



CONTEXT

Air quality continues to be an important issue.

Emissions from road vehicles dominate the air quality scene in the UK. This is evident in villages adjacent to East Midlands Airport where local authority designated Air Quality Management Areas (AQMA's) follow the A6 and other arterial routes. Airport emissions are most significant on the airfield, where the operation of aircraft and ground support vehicles is most intense.

Our long-term monitoring continues to demonstrate that levels of airborne pollutants meet the relevant standards at the perimeter of the airport. In operating a major business, it is important that we take all necessary measures to minimise emissions arising from airport operations and to ensure that local air quality continues to be below the relevant standards. Air quality is a complex subject as different sources produce different quantities of pollutant. Operations are the main source of NO₂ whilst road traffic is the main source of particulates. Most on-site emissions are the result of our service partners' operations and are therefore outside our direct control.

SUSTAINABLE DEVELOPMENT PLAN
ENVIRONMENT



AIR QUALITY



SOURCES AND IMPACTS

A number of different pollutants contribute to local air quality. These are generally produced during combustion processes and include: oxides of nitrogen (NO_x and specifically nitrogen dioxide NO_2); particulate matter (PM_{10}); volatile organic compounds (specifically non-methane VOCs); carbon monoxide (CO), sulphur dioxide (SO_2), lead (Pb); benzene (C_6H_6); 1, 3-butadiene, and; ozone (O_3).

When the levels of these pollutants are high, some people may experience eye irritation, lung irritation and breathing difficulties. These symptoms will be experienced most by people with existing conditions such as lung disease, asthma and heart conditions. Some air pollutants contribute to the formation of ground level ozone, a secondary pollutant that is also harmful to health. In addition, pollutants such as NO_2 and SO_2 react in the atmosphere to form 'acid rain' that can harm natural ecosystems.

The main airport related sources of emissions are:

- Staff and passenger journeys to and from the airport;
- Aircraft engine emissions during taxiing, take-off and landing, auxiliary power unit (APU) operation and engine testing;
- Exhaust emissions from operational vehicles on site, airside and landside;
- Energy generation equipment: diesel generators and boilers;
- Fugitive emissions (evaporation) during fuelling of vehicles and aircraft; and
- Miscellaneous emissions from activities such as aircraft fire training.

In addition, air quality at the airport is affected by emissions from local road traffic, and by other sources. Particulate (PM_{10}) concentrations in the region can even be raised by sources outside the UK. Carbon dioxide (CO_2) is also produced by many of the same sources. CO_2 does not affect local air quality but it is the principal gas causing climate change. The Climate Change chapter should be read in conjunction with this one because it contains supporting information, relevant policies and targets that are not repeated here.

AIR QUALITY



LEGISLATION AND POLICY FRAMEWORK

In order to protect human health, the EU and UK Government have set air quality limits and objectives (concentrations) that must not be exceeded. These are derived originally from the European Air Quality Framework Directive¹, set out in the UK by the Air Quality Strategy (AQS)², and applied in England through the Air Quality Standards Regulations³.

The pollutants and objectives most relevant to airport operations are NO₂ and PM₁₀. Most pollutants have short term (hourly or daily) objectives and also a long term (annual) objective that reflects the scientific assessment of how these pollutants impact on health.

AIR QUALITY STANDARDS REGULATIONS (2010)

Measured as	Concentration
Nitrogen dioxide (NO₂)	
Annual mean (long-term)	40 µgm ⁻³
1 hour mean (short-term)	200 µgm ⁻³ (18 exceedences per year permitted)
Particulate matter (PM₁₀)	
Annual mean (long-term)	40 µgm ⁻³
24 hour mean (short-term)	50 µgm ⁻³ (35 exceedences per year permitted)

It is the responsibility of local authorities to assess air quality and to identify areas where air quality objectives are not being met. AQMAs have been designated by North West Leicestershire District Council in both Castle Donington and Kegworth but neither of these are due to airport operations.



[The Government's] policy on air quality is to seek improved international standards to reduce emissions from aircraft and vehicles and to work with airports and local authorities as appropriate to improve air quality, including encouraging HGV, bus and taxi operators to replace or retrofit with pollution-reducing technology older, more polluting vehicles."

Aviation Policy Framework, 2013

The Government considers air quality and other local environmental impacts within the Aviation Policy Framework⁴. Globally the International Civil Aviation Organization (ICAO) sets emission standards for aircraft engines. ICAO is the United Nations inter-governmental body responsible for worldwide planning, implementation, and coordination of civil aviation. Through the activities responsible for the generation of pollutants, air quality is intrinsically linked to climate change. The range of industry initiatives outlined in the Climate Change chapter also address air quality emissions from the airport.

¹ European Union Air Quality Framework Directive (96/62/EC).

² The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Volume 1 (2007), Department for Environment Food and Rural Affairs (DEFRA).

³ Air Quality Standards Regulations (2010) (as amended).

⁴ Aviation Policy Framework, Department for Transport (DfT), 2013.

AIR QUALITY POLICY



East Midlands Airport has a long history of monitoring and reporting air quality. As a large site, with 90 companies operating, we recognise the need to not only address our own operation, but to work collaboratively with service partners to implement best in class technologies and working practices across the site.

VEHICLE FLEET

The Airport Company operates a fleet of 112 operational vehicles. Increasingly stringent emissions standards set for new vehicles in the EU have seen this fleet become cleaner over the years. The European vehicle emissions standard Euro V was introduced for vehicles certified after 2008. A newer standard, Euro VI applies to vehicles certified from 2014. This standard will deliver an 80% reduction in NO_x emissions and a 50% reduction in particulate emissions. We will continue to seek to operate a modern and clean vehicle fleet.

A range of low emission vehicles are now on the market and manufacturers are working on further developments including improvements to electric vehicles and hydrogen powered vehicles. We recognise the work undertaken by the Government's Office for Low Emission Vehicles (OLEV) in supporting the adoption of these alternative technologies which may otherwise be more costly or lack the required support infrastructure. The airport is committed to considering the opportunities presented by the emergence of low emission vehicles.

AIRSIDE VEHICLES AND EQUIPMENT

The majority of airport vehicles are operated by third parties such as airline handling agents. Our vehicle fleet accounts for only 10% of the total airfield vehicle operation. We acknowledge our responsibility to influence those who operate vehicles on the airfield and to work with operators to enable the operation of cleaner fleets. To this end, our in-house motor transport department undertake maintenance work for third parties, ensuring no operator is unable to properly maintain their fleet.

All vehicles operating on the airfield undergo regular inspections as part of the Civil Aviation Authority CAP642 inspection regime. These inspections include an emissions test. Further, ad-hoc, inspections are undertaken by the airfield operations team on a daily basis. The airfield operations team also enforce our vehicle switch off policy, ensuring that stationary vehicles are turned off.

AIRCRAFT

Aircraft exhaust emissions contribute most significantly to NO_x on the airfield. Technological advances are the key to reducing aircraft emissions. ICAO set emission standards that must be satisfied by aircraft and engine manufacturers.

As outlined in the Climate Change chapter, we are committed to working with airlines and air traffic control partners to facilitate a more efficient operation. The Climate Change chapter contains a range of relevant commitments.

OUR OBJECTIVES

AIR QUALITY POLICY



SURFACE ACCESS TO AND FROM THE AIRPORT

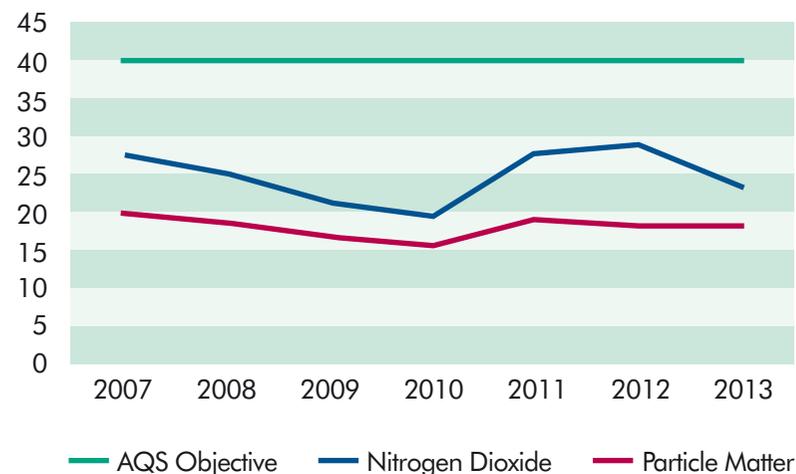
Road transport emissions contribute most significantly to air quality in the UK⁵. Our Surface Access Plan which is part of the Sustainable Development Plan outlines our commitments to promote the use of sustainable transport by airport staff and passengers.

Our work in establishing public transport routes to the airport, and promoting their use by both staff and passengers is particularly important. There is a network of airport bus services, including the Skylink routes to Nottingham, Leicester and Derby, and we will continue to work to develop sustainable transport links not only to and from the airport site, but also to the surrounding areas which without airport links may not benefit from such services.

MONITORING AND REPORTING

Over the years, we have developed our air quality monitoring and modelling capability to more fully understand the impact of airport-related activities on local air quality. This includes annual reporting of monitored air emissions. We maintain a sophisticated air quality monitoring station at the airport, this records concentration of NO₂ and PM₁₀. We have monitored NO₂ since 2000 and PM₁₀ since 2007.

SUSTAINABLE DEVELOPMENT PLAN ENVIRONMENT



AIR QUALITY

- The airport will not breach any local air quality limit; and
- We will continue to operate the air quality monitoring station and will also continue our on-site monitoring of nitrogen dioxide through diffusion tube surveys. Additional pollutants will be monitored as required to assess compliance with legislative standards.

⁵ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Volume 1 (2007), Department for Environment Food and Rural Affairs (DEFRA).

AIRCRAFT NOISE

We have a track record of developing policies and taking action to reduce the environmental impact from our operations. Our long-term aim relating to noise is to 'limit, and reduce where possible, the number of people affected by noise as a result of the airport's operation and development'.



Although other sources of noise include road traffic, the running of ground support equipment or construction activity, the principal source of noise as a result of the airport's operations is aircraft, both in the air and on the ground.

POLICY FRAMEWORK

The legislation and policy framework that controls aircraft noise comes from international agreements, the European Union, and national legislation.

Policy and guidelines are set by a number of organisations including the Civil Aviation Authority (CAA), Airports Council International (ACI), International Civil Aviation Organisation (ICAO) and National Air Traffic Services (NATS). At East Midlands Airport, additional controls have come through voluntary agreements, locally agreed policies and planning conditions agreed with North West Leicestershire District Council, the local planning authority.

As part of its long-term plan for the future of the aviation industry, the UK Government has identified a policy aim of limiting and, wherever possible, reducing, the number of people in the UK that are significantly affected by aircraft noise. In the 2013 Aviation Policy Framework, the Government set out a combination of measures designed to achieve that goal. These measures are:

- Promoting research into and development of new low-noise technologies;
- Putting the 'balanced approach' (the regulatory framework for controlling noise, as agreed by ICAO in 2001) into practice; and
- Putting the Environmental Noise Directive (2002/49/EC) into practice.

THE 'BALANCED APPROACH'

The International Civil Aviation Organisation (ICAO) is the United Nation's body that oversees the worldwide civil aviation industry. The ICAO's regulatory framework aims to strike a balance between the need to reduce aircraft noise around airports and the needs of airlines and aircraft manufacturers. This is called the 'balanced approach'.

AIRCRAFT NOISE



- **REDUCING NOISE AT SOURCE**
Developing quieter aircraft. This is achieved worldwide through there being increasingly strict ICAO noise standards for new aircraft.
- **LAND-USE PLANNING**
Controlling how land can be used and managed to discourage or prevent inappropriate developments around airports.
- **OPERATIONAL PROCEDURES**
Procedures designed to reduce the noise nuisance associated with aircraft.
- **OPERATING RESTRICTIONS**
Measures that limit aircraft access to airports (for example night restrictions or gradually withdrawing the noisier types of aircraft).

NOISE ACTION PLANS

The Environmental Noise (England) Regulations 2006 as amended require airports to produce noise maps and accompanying Noise Action Plans.

The regulations state that the Noise Action Plan must:

- be drawn up for places near the airport that fall within the 55 dB(A) L_{den} contour or the 50 dB(A) L_{night} contour on noise maps;
- be designed to manage noise levels and effects, including reducing noise if necessary; and
- aim to protect quiet areas in first round agglomerations against an increase in noise.

The review of the Noise Action Plan was undertaken in parallel with the consultation of the draft Environment Plan. The Noise Action Plan was published in 2014 and it includes details of all our noise related targets and commitments and it reports the progress that we have made against achieving them. Details and data on aircraft noise at the airport, including noise contours can be found in the Noise Action Plan.

The latest Noise Action Plan is available on our website www.eastmidlandsairport.com/emaweb.nsf/Content/noiseactionplan

AIRCRAFT NOISE



NOISE MAPPING

Under the Environmental Noise (England) Regulations 2006, as amended, noise mapping is carried out every five years for an average day (January to December) for each of the following periods.

- L_{day} – the level in the day, 7am to 7pm;
- $L_{evening}$ – the level in the evening, 7pm to 11pm;
- L_{night} – the level at night, 11pm to 7am; and
- L_{den} – the level over 24 hours.

The L_{den} figures are produced by combining those for L_{day} , $L_{evening}$ and L_{night} . To take account of the fact that noise is considered to be more disturbing at certain times of the day, before the L_{day} , $L_{evening}$ and L_{night} values are combined to produce the L_{den} level, a weighting of 5 decibels is added to the evening values and 10 decibels is added to the night values

BACKGROUND

The airport has had a noise and track monitoring and control programme for over 10 years which seeks to try to keep the aircraft noise impact on local residents to an acceptable minimum. This programme includes noise-related runway charges and operating restrictions to encourage the use of quieter aircraft, regular communication with local communities and schemes to help residents with sound insulation.

Although aircraft operating today are much quieter than they once were, we recognise that for some people, particularly those who live nearest to the airport, noise is and always will be an important issue.

The main noise-related issues are:

AIRCRAFT IN THE AIR

- Noise from departing aircraft;
- Noise from arriving aircraft; and
- The number (and time) of aircraft departing or arriving.

TRACK KEEPING

- The lateral paths followed by departing and (increasingly) by arriving aircraft and the extent to which aircraft are concentrated or dispersed along those paths; and
- The climb or descent profiles adopted by aircraft as they take-off from and approach the airport.

AIRCRAFT ON THE GROUND

- Noise from aircraft taxiing to and from the runway;
- The testing of aircraft engines after maintenance work has been carried out;
- Noise from auxiliary power units which power aircraft while they are on the ground; and
- Reverse thrust which may be needed to slow an aircraft down immediately after landing.

HOW THE AIRPORT MANAGES NOISE



We believe that our noise controls are consistent with the Government's aim to limit and where possible reduce the number of people in the UK that are significantly affected by aircraft noise. For example in 2007, the year after the publication of the last Master Plan, the area of the night-time $57 L_{\text{night}}$ noise contour was 9.5 km², by 2013 this had fallen to 7.4 km². The area of the daytime $57 \text{ dBL}_{\text{Aeq}}$ contour also reduced from 11.2 km² to 8.2 km² over the same period.

In the 2007 Master Plan, a commitment was made to continue to ensure that future growth in operations up to 2016, did not increase the size of the night-time noise contour above that in 1996 (14.6 sq. km.). Whilst this target was always intended to provide a 'back stop', recent performance has clearly been well within this limit.

For this Sustainable Development Plan, a review was carried out of the predictions of future noise impact, with a particular emphasis on night-time operations. Whilst there remains some uncertainty about the rate at which newer and quieter aircraft types will progressively enter service, it is possible to provide greater reassurance to the local community that the airport's future noise impact will be lower than was previously predicted.

This Environment Plan also recognises the Government's desire that airports "...pursue the concept of noise envelopes as a means of giving certainty to local communities about the levels of noise

which can be expected in the future and to give developers certainty on how they can use their airports". The 2010 Noise Action Plan, concluded that there was "merit in adopting a target based on the 55 decibel night noise contour" and that this "...issue will be examined again in future reviews of the Noise Action Plan, particularly when the Master Plan is reviewed and rolled forward". A long term noise envelope has been established to provide greater reassurance to the local community. This is set out in the Noise Action Plan (2014) and this Environment Plan.

Forecasts of future noise impact have been carried out and have used assumptions on the scale of passenger and cargo traffic growth and the future types of aircraft that are anticipated to be using the airport in the future. Our forecasts show that despite the growth in traffic, the airport's noise contours will be similar to those today. The forecast noise contour areas include a range that is based on two assumptions about the introduction of the next generation of quieter aircraft at the airport. These assumptions are consistent with those made by Sustainable Aviation in the Sustainable Aviation Noise Road Map.

HOW THE AIRPORT MANAGES NOISE



NOISE ENVELOPES

In The Aviation Policy Framework the Government encourages the development and use of 'Noise Envelopes' as a way "...of giving certainty to local communities about the levels of noise which can be expected in the future and to give developers certainty on how they can use their airports."

Subsequent CAA guidance (CAP1129) identifies possible ways in which a noise envelope might be set:

- Restricting inputs – limiting the number of arrivals and departures at an airport;
- Restricting noise exposure – through the use of a noise quota limit or noise contour area; and
- Restricting noise impact – identifying and limiting the number of people likely to be adversely affected by noise.

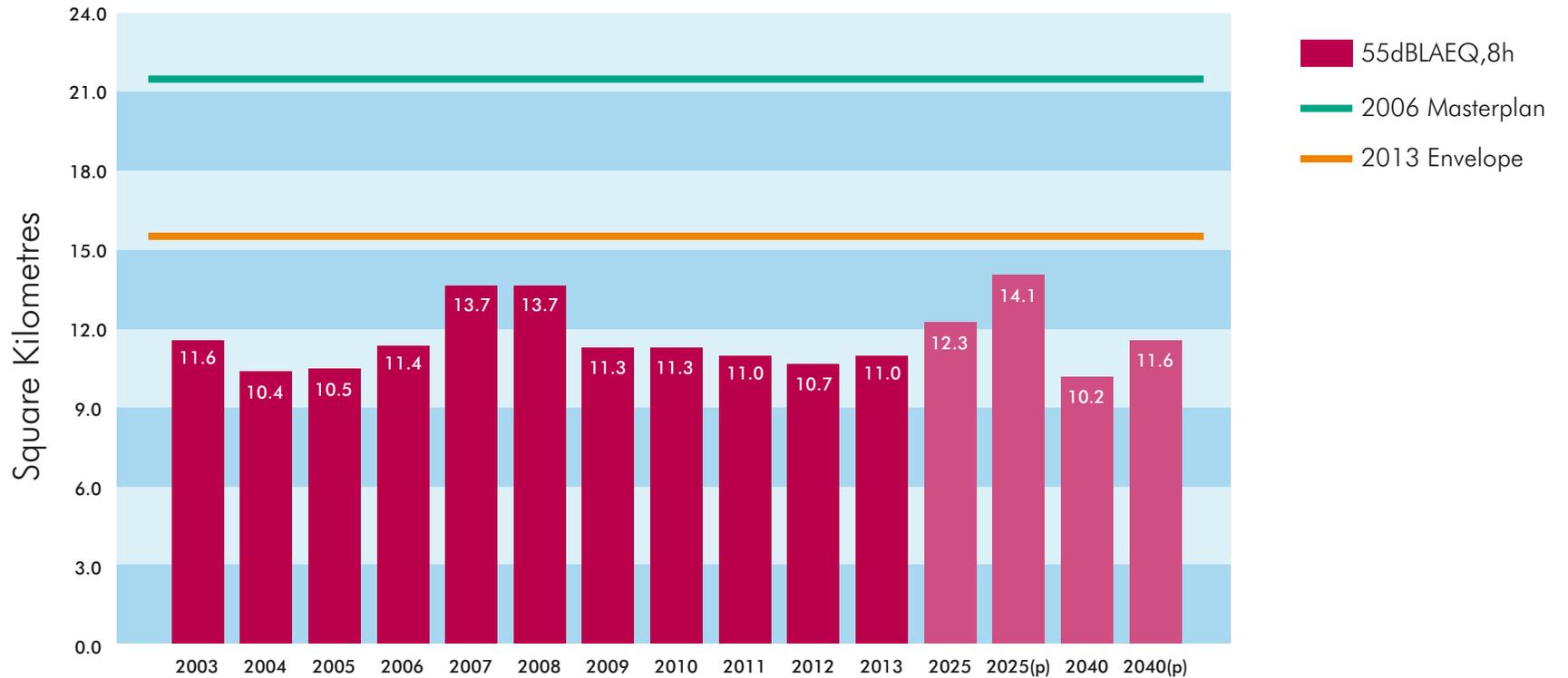


NOISE ENVELOPE

- The airport's 'noise envelope' will be based on the lower 55 decibel night-time noise contour (55dB_{L_{night}}) and measures will be put in place to ensure that this contour does not exceed an area of 16 sq. km. This new noise envelope, which is consistent with the view taken by the local planning authority when determining the planning application to extend the runway (2011), represents an improvement of 27% on the previous limit. The airport will continue to closely monitor and publicly report on performance by publishing annual aircraft noise contours.

HOW THE AIRPORT MANAGES NOISE

In developing our noise strategy, a balanced approach has been followed, as required by the ICAO regulatory framework. Our noise controls are explained in detail in the airport's Noise Action Plan.



DEPARTING AIRCRAFT



CHAPTER 4 OPERATIONS

The continued use of relatively small numbers of noisier aircraft types can have a significant effect on the performance indicators for noise. Often it is these aircraft which also cause the most disturbance in local communities. The 2006 Master Plan set a target that by 2012, all flights would be by quieter aircraft types, achieving at least the requirements of the Chapter 4 standard.

In 2013 83% of flights used Chapter 4 compliant aircraft. We believe it is important to consider how airlines can be better incentivised to help achieve this target. We will continue to work closely with our airline partners to encourage and incentivise the use of Chapter 4 aircraft and we will continue to report on our progress.

ICAO CHAPTER

The ICAO puts aircraft in categories known as 'chapter'. The chapter of an aircraft is based on noise measurements taken at the time of its noise certification, taking account of its size and number of engines. The chapters provide an effective and consistent way of controlling noise, with the most recent (and strict) Chapter 4 standard applying to aircraft certified after 2006. Many Chapter 3 aircraft currently in use already meet the Chapter 4 standard. However, restrictions are now being placed on the use of noisier Chapter 3 aircraft, which have become known as 'marginally compliant Chapter 3'.

A new Chapter 14 noise standard, to be applied to aircraft types entering service after 2017 was agreed in 2013.



CHAPTER 4 OPERATIONS

- We will continue to work towards an annual target of 100% of night flights meeting the requirements of Chapter 4 and will publicly report the progress that has been made; and
- We will review the system of noise-related charging to further encourage the operation of quieter aircraft types.

PREFERRED RUNWAY DIRECTION

Departing aircraft normally take off in to the wind. However, if there are clear benefits to departing in a particular direction, a limited amount of wind from behind may be acceptable. By continuing to specify the preferred runway direction as westerly (that is, aircraft approaching to land from the east and taking off to the west) the airport has been able to reduce the number of easterly operations by a third.

DEPARTING AIRCRAFT



'OFF-TRACK' DEPARTURES

To control aircraft noise on departure, the airport operates a system of what are known as 'noise preferential routes' (NPRs). Reflecting current UK Government policy, the NPRs are designed to concentrate departing aircraft along the lowest possible number of departure routes, and away from more densely populated areas, whenever this is possible. This reduces the number of people that aircraft are flying over. In 2013 just 3% of departures flew 'off-track'. The airport currently has an annual limit of no more than 10% 'off-track' departures. Modern aircraft are able to use their on-board Flight Management Systems, rather than conventional ground based navigational aids, to navigate to an extremely high degree of accuracy. This is known as Precision Area Navigation (P-RNAV).



TRACK-KEEPING

- We will review the width of our NPR's and investigate the use of new operational procedures and technologies to see if changes could bring significant noise benefits to local communities.

TRAINING FLIGHTS

Training flights can be particularly intrusive and the airport places tight controls on their scheduling and on the airlines that are permitted to undertake them.

Currently, training flights need the prior approval of Air Traffic Control. Permission is only given for training flights between 8am and 9pm in the winter and 7am and 8pm in the summer. Training flights will only be permitted by based operators, regular users of the airport or small propeller aircraft. Training is not permitted at weekends or on UK Public Holidays, except by small propeller aircraft.

The airport is mindful of the Government's policy aim to make best use of the airport capacity available in the UK and in particular the increased demands placed on airports in the South East.

Feedback has been received from operators that, due to the stringent nature of the airport's controls they have been compelled to fly to other UK airports to undertake training. As a result it is proposed to review the airport's controls in this area to consider whether there is a case to allow greater flexibility to airlines in some circumstances.



TRAINING FLIGHTS

- We want to better understand how the development of a pre-defined training circuit might potentially further reduce the number of people affected by training activity. A review of the definition and controls that are applied to training aircraft will be undertaken.

DEPARTING AIRCRAFT



GROUND POWER

For a period of time immediately before take-off, shortly after landing and while loading, an aircraft may still need electrical power to maintain on board systems or provide ventilation to the cabin.

To maintain that power while the main engines are turned off, most modern jet aircraft are fitted with an auxiliary power unit (APU). The APU is a small engine. Like all engines, an APU can be noisy, affect air quality and contribute to GHG emissions.

The Sustainable Aviation Departures code of practice sets out a 'ground-power hierarchy' that says that – in the absence of fixed electrical ground power – mobile Ground Power Units (GPUs) should be used in preference to an aircraft APU, delivering significant savings both in cost and emissions. The airport has a restriction on APU run time of 5 minutes after an aircraft arrives on stand and no more than 30 minutes before its departure.



GROUND POWER

- Through the airport's liaison groups we intend to improve our understanding of ground power use, promote the ground power hierarchy and reinforce the policing of our APU restriction.

REDUCED ENGINE TAXI (RET)

Aircraft engines can produce huge amounts of thrust. Thrust is used to fly the aircraft in the air and to taxi the aircraft when it is on the ground. With all of an aircraft's engines running, even at very low power settings, the thrust produced is often more than enough to move the aircraft along the ground.

Because of this 'surplus' of power, in the right conditions an engine can be turned off while the aircraft is taxiing to and from the runway. Some airlines already do this at East Midlands and this has benefits both to local noise, air quality and CO₂ emissions.



REDUCED ENGINE TAXI

- Through our work with our Sustainable Aviation partners and with our own stakeholder groups, we will develop a better understanding of Reduced Engine Taxiing at East Midlands Airport and assess, monitor and promote its use.

OUR OBJECTIVES

DEPARTING AIRCRAFT



CONTINUOUS CLIMB DEPARTURES

The Sustainable Aviation, Departures Code of Practice highlights the potential environmental benefits of avoiding or reducing periods of level flight as an aircraft climbs to its cruising altitude. This is referred to as Continuous Climb Operations (CCO). Whilst CCO is the ideal practice for airlines and air traffic control, local airspace restrictions and traffic conditions can often prevent their use.

Locally, through the newly formed Collaborative Environmental Management Group and the Pilot Liaison Group a programme of work will be developed to identify and introduce more efficient departure procedures including the possibility of 'continuous climb departures' (CCD).



CONTINUOUS CLIMB DEPARTURES

- We will develop an ability to monitor Continuous Climb Departures and report on our performance.

To reduce noise disturbance to local communities at night, aircraft taking off in a westerly direction (Runway 27) are expected to use an 'intersection departure', entering the runway from taxiway Whiskey. This moves the aircraft further from the village of Kegworth, reducing their impact. We will continue to promote and encourage the increased use of intersection departures.



ARRIVING AIRCRAFT



Unlike take-off, where the bulk of the noise is produced by the engines, when an aircraft is on approach, engine noise and airframe contribute equally to the noise level. Airframe noise comes mainly from the aircraft's undercarriage and wings and is proportionate to the aircraft's speed as it passes through the air.

LOW-POWER/LOW-DRAG

Low-power/low-drag is a technique designed to keep airframe noise on approach to a minimum by making sure that the landing flaps are extended and the aircraft's undercarriage is lowered as late as possible. This reduces drag and means that less engine power is needed to compensate for that drag. As a result, noise is considerably reduced, both in terms of level and time. All aircraft approaching East Midlands Airport are expected to use low-power/low-drag procedures.

CONTINUOUS DESCENT APPROACH

Continuous descent approach (CDA) is a procedure designed to further reduce noise levels from landing aircraft. Typically, aircraft land by reducing their altitude in a series of steps towards an airport. For each of these steps there needs to be a burst of engine thrust to level out the aircraft after it has moved to a lower level. This can be noisy and potentially intrusive. With CDA, air traffic controllers give pilots accurate information on the distance to touchdown so they can work out the best possible continuous rate of descent. This means that the aircraft stays as high as possible for longer and reduces the need for periods of engine thrust to keep the aircraft level.

All aircraft approaching East Midlands Airport are expected to use continuous descent procedures. There is a target for CDA compliance of 80% of arriving aircraft. In recent years this target has been achieved by a considerable margin. CDA compliance was 93% in 2013. Through the Pilot Liaison and Collaborative Environmental Management groups we will investigate the potential benefits of publishing a minimum distance for joining the final approach and limiting the use of aircraft visual approaches.



CONTINUOUS DESCENT APPROACHES

- In keeping with industry commitments made in the Sustainable Aviation Noise Road-Map delivery action plan, from 2014 the CDA compliance target at East Midlands Airport will rise to 95%.

NIGHT NOISE



CHARGING

In the Aviation Policy Framework, the Government has encouraged the use of landing charges, as one of a range of options for reducing noise. At East Midlands Airport there is already a system of night-time runway charges that offer airlines an incentive to use the quietest types of aircraft. The 'shoulder' and 'night' noise supplements are based upon the noise classification (QC) of an aircraft and are applied to both arriving and departing flights. However, to support and reinforce the target of 100% Chapter 4 operations we will review our noise related charging mechanisms.



CHARGING

- By 2015/16 the airport will introduce a revised noise charging mechanism that aims to support the target of 100% Chapter 4 operations.

QUOTA COUNT (QC)

The system gives each aircraft a 'quota count' depending on the noise they generate on take-off and when landing (based on the noise levels measured at the time that aircraft was first introduced).

There are seven categories of quota count and these double with each increase of three decibels. Aircraft are given a separate quota (QC) count for arrival and departure ranging from the noisiest QC16 to the quietest QC0.25.

QC 8 AND QC 16 SCHEDULING BAN/SURCHARGE

We restrict the use of aircraft with higher quota counts. Aircraft with quota counts of QC 8 or QC 16 cannot be scheduled to operate between 11pm and 7am and will only be allowed to take-off in exceptional circumstances. These flights are charged at the highest night supplement rate and are also subject to an additional noise surcharge of £5,000 or £10,000 for QC8 or QC16 aircraft respectively. All of the money from these surcharges is donated to the East Midlands Airport Community Fund.

NOISE PENALTY SCHEME

To encourage departing aircraft to be flown in the quietest possible way, for flights that generate noise levels above published limits, the airport issues the airline with a financial penalty. The level of the noise penalty depends on the noise level. The maximum level of noise a departing aircraft is allowed to make depends upon its size. The penalty for going over the maximum noise level is currently £750 plus £150 for each decibel above the limit. All of the money from these penalties is donated to the East Midlands Airport Community Fund.



NOISE PENALTIES

- To ensure that the Noise Penalty Scheme remains relevant and appropriate, annual reviews will be undertaken, beginning in summer 2015.

OUR OBJECTIVES

MONITORING AND REPORTING ON PROGRESS



The airport's noise and track system monitors and reports on noise from aircraft and checks and records the path of every aircraft arriving at, or taking off from the airport. As well as recording individual events, it helps us understand trends, compare performance and provides robust data for noise modelling.

We continually improve our monitoring system to meet best practice. We will continue to develop the ability to monitor and report on aircraft noise and are committed to improving the ways in which that information is shared with others.

Following the improvements to the noise and track systems there will also be a review of the content and format of the reports to ensure they meet the needs of the Independent Consultative Committee and allow us to measure our performance against the targets that we have set ourselves.

The track-keeping performance of arriving and departing aircraft will continue to be made available through the airport's website. The 'Webtrak' facility will be upgraded by 2015.



NOISE MONITORING

- We will upgrade NTMS, our monitoring system, by 2015. We will also take this opportunity to review the number and location of our fixed noise monitoring sites.



EFFECTIVE COMMUNICATION



We believe that no single operational stakeholder can optimise aircraft operations at an airport. The same is true of the resulting environmental impacts. This is why we are committed to meeting regularly with our airlines and air traffic control, to develop our environmental and operational initiatives.

We intend to further develop this collaborative approach by following the Eurocontrol specification for Collaborative Environmental Management.

We also engage with local communities to discuss a range of environmental issues, including aircraft noise. This can be through formal mechanisms such as the Independent Consultative Committee and its sub-committees, but also thorough meetings with local parish councils and face-to-face at our regular Community Outreach events. Further details about our community engagement programme can be found in the Community Plan.

It is increasingly accepted that using L_{Aeq} or L_{den} noise contours are not easily understood by non-experts. To help people understand the noise climate around the airport, from 2015 we will start to publish 'Number Above' contour maps showing the number of times aircraft noise was louder than a given level.

We will also publish the first flight-path maps. These will show the number of flights into and out of the airport and where they flew. They allow people to see which areas are flown over and how frequently this could be expected to happen.

Following the improvements to the noise and track monitoring systems, the ability to record aircraft noise complaints through our website will be introduced by 2015.

The communication of complex technical matters such as those included in a Noise Action Plan can be difficult. The airport will therefore make sure that our revised Noise Action Plan has gained Plain English Campaign's Crystal Mark to show that the text is as clear as possible.



COLLABORATIVE ENVIRONMENTAL MANAGEMENT

- We will establish a Collaborative Environmental Management Working Group at East Midlands Airport. The group will bring together airline, airport and air traffic control representatives with the specific remit to focus on identifying the root causes of common environmental impacts and to evaluate and manage potential solutions.

WATER RESOURCES

Around 120,000 m³ of water is used each year at the airport, mainly for toilet facilities, catering, in the on-site hotels and on aircraft for drinking water and toilets. Currently, almost all of this is 'mains' potable water and is returned to the foul sewer for treatment at Severn Trent Water's wastewater treatment works. Rainwater runoff from the airport is discharged into Diseworth Brook or the River Trent.



There are many potential sources of surface water or groundwater pollution at airports:

- Chemicals used for aircraft and airfield anti-icing and de-icing;
- Detergents used in aircraft and vehicle washing and general cleaning;
- Chemicals and oils from aircraft and vehicle maintenance;
- Silt, chemicals and fuels from construction activities;
- Spillages of fuel and sewage from aircraft and service vehicles;
- Leaks from inappropriate storage of chemicals and fuel; and
- Fire-fighting foam, mainly from training.

The Airport Company control all these sources to make sure that they do not pollute local watercourses around the site, affecting water quality and the aquatic life, including through the provision and maintenance of oil interceptors across the site.

LEGISLATIVE AND POLICY FRAMEWORK

The Environment Agency control the quality of discharges to surface waters or groundwater and can prosecute anyone who "causes or knowingly permits" pollution to occur. We have several environmental permits that permit us to discharge surface water into local watercourses but with very tight limits on its quality. In addition, Severn Trent Water applies limits to the volume and quality of discharges to foul sewer from "trade effluents" such as fire training and aircraft and vehicle washing.

HOW THE AIRPORT MANAGES WATER RESOURCES



Water used within the terminals and maintenance areas is supplied by Severn Trent Water via a private pipe network. Additionally, other parts of the site, including the Pegasus Business Park and the DHL terminal have a direct connection to Severn Trent Water's water main.

Our automatic metering system includes water meters for tenants and sub-meters within areas we control to provide detailed information on consumption, conservation opportunities as well as promoting good practice through effective and accurate billing.

A comprehensive water efficiency programme has been implemented over the last few years including the installation of water saving technology in all terminal and office toilets, and low water technology will be installed as standard in new facilities.

We have two rainwater harvesting /grey water systems in operation on site. Unfortunately retro-fitting such systems into existing buildings is expensive and difficult, and any future schemes are likely to be associated with new developments.

Without action, water consumption will rise in response to growth in passenger numbers. We will continue to look for opportunities to reduce our water use and to encourage tenants to reduce theirs in order to minimise water use on site.



WATER CONSUMPTION

- We will consider the water intensity of new buildings within the Building Research Establishments Environmental Assessment Methodology BREEAM rating. Our target is for all new buildings to be BREEAM excellent and our minimum standard will be very good;
- We will incorporate water saving measures including rain water harvesting in all new buildings where appropriate;
- We will maintain a pro-active leak detection programme to ensure any leaks are quickly found and repaired;
- We will improve our water meter information and billing systems available to our tenants to help them to identify and implement water efficiency measures;
- We will look at how de-regulation of the water industry can deliver environmental improvements; and
- We will continue to publicly report our total water consumption and will look into the use of alternative reporting metrics.

HOW SURFACE WATER QUALITY IS MANAGED?



The main pollution source at the airport is from anti-icing and de-icing chemicals. We have changed to less polluting products and will continue to review what products are available. Runoff from the airfield that is contaminated with winter anti-icing and de-icing chemicals is diverted away from the Diseworth Brook into our containment system and via balancing reservoirs.

It is aerated to help to reduce the pollution loading and is discharged at a controlled rate to the River Trent under an environmental permit with the Environment Agency. Clean runoff is attenuated and is discharged into Diseworth Brook.

We have water quality monitors to help us manage the drainage system effectively, and we supplement this with sampling at all of our outfalls to check compliance with our environmental permits. We also discuss drainage issues and compliance regularly with the Environment Agency and Leicestershire County Council report our compliance annually in the M.A.G Corporate Social Responsibility Report.

We consider water runoff when designing and constructing new facilities and wherever possible we incorporate sustainable technologies. For example, recent car park developments have incorporated sustainable drainage systems to attenuate flow and we have implemented improvements to the drainage management system to maximise capacity within the balancing ponds to capture contaminated surface water.

Future runway, taxiway and apron developments will increase the volume of potentially contaminated runoff that will need to be contained. New buildings, roads and car parks will also increase the volume of clean runoff. As part of the planning of these developments, we will need to include the use of sustainable drainage techniques and also undertake a wider review of the capacity of all our drainage systems, and increase capacity where appropriate. This will also consider the potential for any impact of the airport's discharge on watercourses downstream of the airport. We will continue to work with Leicestershire County Council and the Environment Agency in relation to the airport's surface water discharges to local watercourses.

As part of the Environmental Management System, we audit our own and our tenants' facilities and operations to check that pollution risks are controlled, including from bulk storage tanks. We have introduced a more targeted methodology for application of herbicides and pesticides used as part of airfield grassland management to reduce the amount of chemical used.

The airport has robust spill response procedures and has recently improved resilience by implementing an automatic shut-down system to prevent the release of any spillage by capturing large spills in our balancing ponds. We also test our response to a major spillage of aviation fuel as part of our emergency planning process.

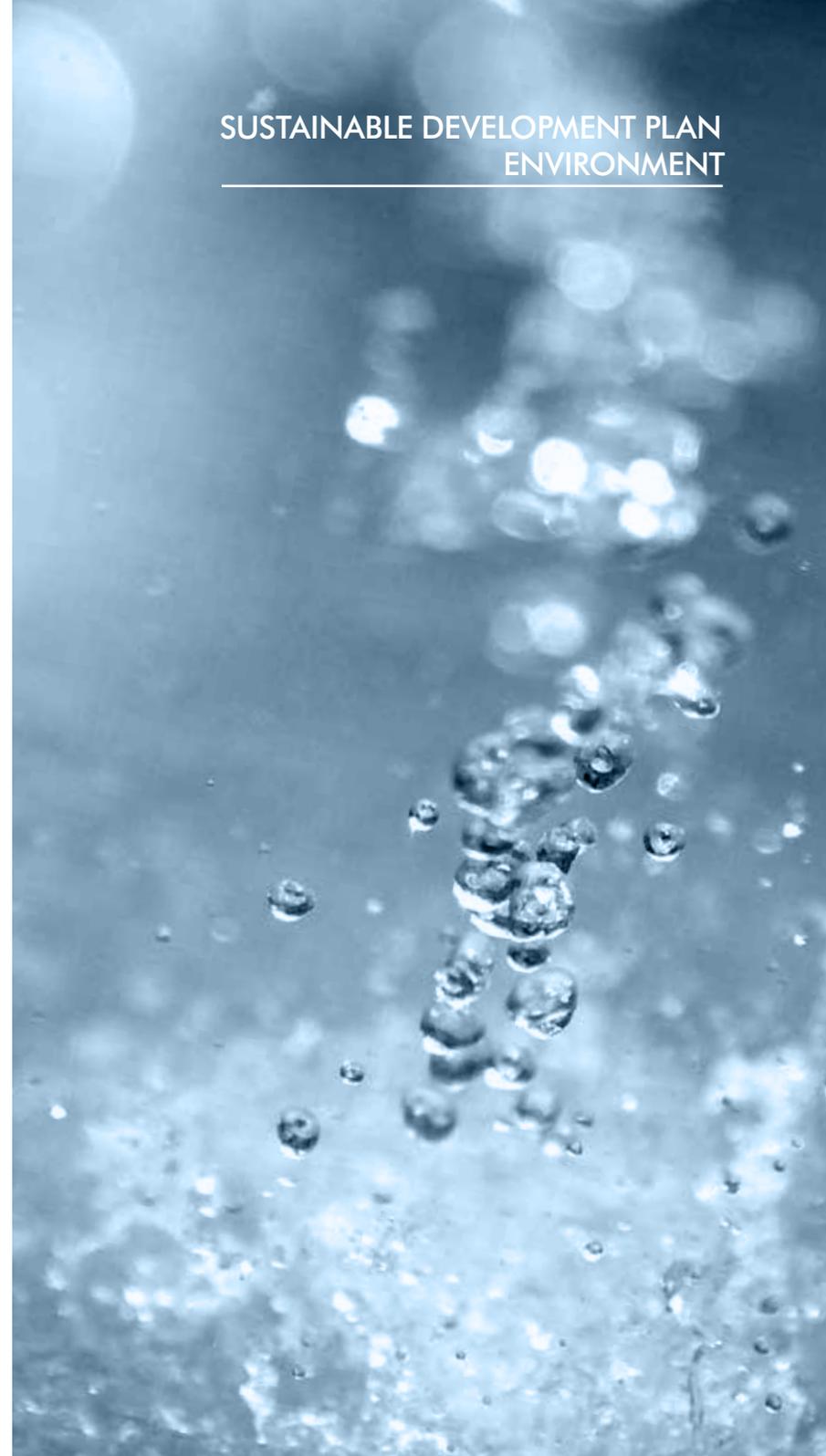
OUR OBJECTIVES

HOW SURFACE WATER QUALITY IS MANAGED?



SURFACE WATER DRAINAGE

- We will manage our drainage system effectively to ensure compliance with environmental permits and to make sure we have capacity for the future;
- We will improve our water quality monitoring systems where appropriate to ensure we continue to comply with the requirements of our environmental permits;
- We will ensure that adequate attenuation of runoff will be provided on all new developments;
- We will undertake a review of drainage capacity which will include a consideration of the proposed future developments and the impacts of climate change and implement improvements to the existing system or develop additional storage capacity if required; and
- We will continue to report our surface water compliance within the M.A.G Corporate Social Responsibility Report and in future Sustainable Development Plan Monitoring Reports.



WASTE MANAGEMENT



Airports are often compared to small towns in terms of the range of businesses and activities that operate on the site. Waste is generated from the following activities:

- Aircraft cleaning and catering;
- Terminal cleaning;
- Office cleaning;
- Terminal retail and catering;
- Maintenance activities; and
- Cargo handling.

The types of waste include packaging, food, newspapers, pallets, metals and green waste. Additionally hazardous, clinical, liquid and construction wastes are generated on the site. The Airport Company manages the waste contract for its own waste and that of many companies on site including airlines, although some retail and catering companies and cargo operators have their own contracts.

LEGISLATIVE AND POLICY FRAMEWORK

Waste and recycling are regulated by a wide range of EU Directives and UK regulations aimed at reducing waste, reducing reliance on landfill for disposal and ensuring that there is an audit trail to ensure waste is handled and recycled or recovered in a responsible manner. Additionally, changes in legislation and the introduction of the Landfill Tax have made waste disposal more expensive with the aim of providing financial incentives to increase recycling and recovery.

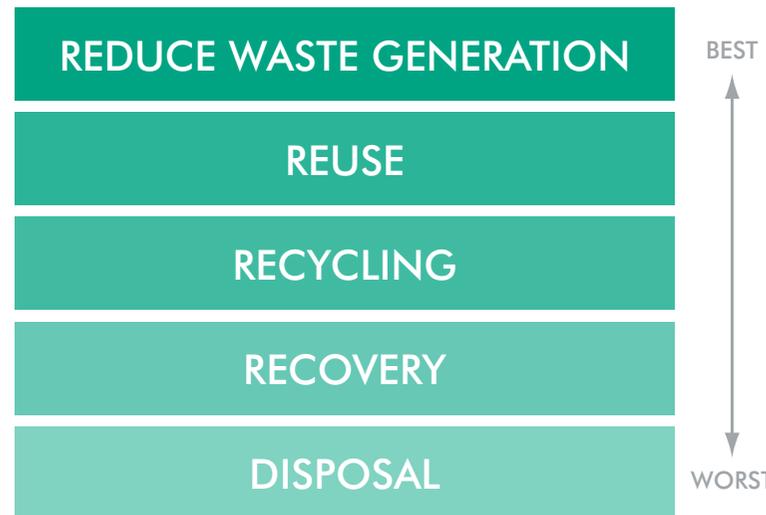
Aircraft cleaning waste is subject to additional controls to prevent the spread of animal diseases. Any cleaning waste from outside the EU that contains certain food items or ingredients is considered "Category 1 International Catering Waste" (Cat 1 ICW). There are tight controls on the storage, transport and disposal of this type of waste, which must be disposed of directly to a specifically licensed landfill or incinerator. Any recycling or recovery of this waste must be undertaken within the controls set by the legislation and DEFRA's guidance.

HOW WASTE IS MANAGED



We manage waste along the principles of the waste hierarchy and will continue to do so in the future, but with an additional focus on reducing and recovering costs and increasing landfill diversion.

Our target is to not send any waste to landfill by 2015/16. However, this is currently the only option for Cat 1 ICW, as there is not a suitably licenced incinerator in the area. We will continue to look for alternatives for this waste to allow us to achieve our target.



REDUCE

We try to eliminate waste generation in the first place. As electronic communications improve, the amount of paper being used across the site has fallen significantly. We recharge our tenants based on the weight of waste they generate. This provides them with a financial incentive to reduce waste.



WASTE REDUCTION

- We will achieve 100% (excluding Cat 1 ICW) waste diversion from landfill, and continue to explore alternative ways of disposing of Cat 1 ICW;
- We will continue to work with our contractors to identify and use alternative disposal options for Cat 1 ICW wastes; and
- We will continue to develop our charges for waste that incentivise waste reduction and recycling.

REUSE

We are reusing aggregate produced during airfield maintenance works on maintaining perimeter tracks. This also reduces the number of vehicle movements required to bring construction materials onto site. We also donate old uniform to Leicestershire, Derbyshire and Rutland Air Ambulance service, and look for opportunities to reuse materials within the site.



REUSE

- We will seek to reuse material from construction projects on the airport site; and
- We will continue to support charities by donating items that they can use or sell, and reuse materials on-site where possible.

HOW WASTE IS MANAGED



RECYCLE

We have a comprehensive recycling programme, with recycling bins in the terminal and offices as well as separate collection of other materials.

We have an on-site Materials Recycling Compound where all wastes are taken for processing. The Compound has been significantly improved over recent years to expand the range of materials which can be collected. We have also invested in equipment to bale recyclables and compact waste to reduce costs from transport and enable us to obtain income for some materials especially cardboard, paper and plastic bottles. The site is always manned when it is open. A pay by weight system provides incentives to service partners to reduce waste volumes and to separate waste for recycling.

Mixed residual waste from the terminal and offices is also taken to the Waste Compound where it is sorted to remove and recover recyclable materials.

We support on-board recycling schemes implemented by some airlines, and sort through bags of mixed recyclables collected by cabin crew. Additionally, we are able to sort through aircraft cabin waste from EU flights to recover recyclables, and are working to increase the amount of aircraft cleaning waste that is recycled.

Over the last ten years we have increased our landfill diversion rate from 19% to 86% through the implementation of a number of initiatives:

- Installation of recycling bins across the terminal;
- Separate collection of plastic bottles and aerosols which must be discarded by passengers due to the ban on liquids being taken through airport security and on to flights;
- Central waste management contract with a single contractor responsible for on-site management and recycling and disposal of all non-hazardous and several hazardous waste streams;
- Implementation of pay by weight billing systems for aircraft cleaning and other companies using our Materials Recycling Compound to recover costs and to incentivise waste minimisation and recycling;
- Introduction of baling and compaction equipment to reduce transport movements associate with waste; and
- Supporting airlines' on-board recycling programmes as part of a Sustainable Aviation workstream.

Non-recyclable mixed waste goes off-site to a recovery plant where additional materials are removed for recycling with the residue sent to an energy-from-waste plant in Nottingham. This also helps towards the landfill diversion target. We will continue to require our residual waste to go for recycling and recovery.

OUR OBJECTIVES

HOW WASTE IS MANAGED



RECYCLING

- We will facilitate collections from additional tenants on site, to provide them with a comprehensive recycling service.
- We will expand our work with airlines and aircraft cleaning companies to increase recycling of aircraft cabin waste from destinations outside the EU.
- We will work with tenants to encourage them to reduce waste and recycle more.

LEGISLATIVE COMPLIANCE

The airport holds an environmental permit and exemptions for the Materials Recycling Compound, and make sure that all waste is transported off-site in accordance with Duty of Care and Hazardous Waste requirements. We will continue to comply with all relevant waste legislation and maintain our environmental permits and exemptions.

MONITORING AND REPORTING

We have been tracking our performance on recycling and waste management for many years, and report it in the M.A.G Corporate Social Responsibility Report. We will continue to report our performance on recycling and waste management for many years, and report it in the M.A.G Corporate Social Responsibility Report. We will include waste within our Scope 3 carbon reporting.



OUR OBJECTIVES

LANDSCAPE AND ECOLOGY

To minimise any adverse our effects on nature conservation, landscape, archaeological resources and cultural heritage and, where possible, to create new features and enhance the ecological and landscape value of the area.



BACKGROUND

Landscape and ecology play a major part in delivering the Sustainable Development Plan, so that, within the constraints imposed by the normal operation of the airport, we will promote the development of rich and varied habitats, to integrate the airport within its rural setting and to promote access to the airport site.

The airport lies within the 'Melbourne Parklands' a broad regional designation that is defined by an underlying geology of sandstone, mudstone and coal measures giving rise to a large scale, gently undulating landform. The area is characterised by large parklands associated with country houses, mixed farming with occasional areas of unimproved pasture, medium size interlocking plantation woodlands of mixed species composition and densely scattered hedgerow trees and dense lines of watercourse trees. The area around the airport itself forms part of the 'Langley Lowlands' Character Area which is defined by a rolling landform dissected by minor watercourses. Agriculture is a mix of pasture and arable with fields being medium to large in scale and enclosed by well-kept hedgerows. There are many hedgerow trees which add to the wooded character of the landscape. Woodland is present as small game covers although there are larger blocks of ancient woodland.



LANDSCAPE AND ECOLOGY



POLICY FRAMEWORK

The Government published the first Natural Environment White Paper for 20 years in 2011 — The Natural Choice: Securing the Value of Nature — which shifted the emphasis from piecemeal conservation action towards a more integrated landscape-scale approach. It also acts on information found in a report on England’s wildlife sites called ‘Making Space for Nature’ by Professor John Lawton

The White Paper aims to improve the quality of the natural environment across England, halt the decline in habitats and species, and strengthen the connection between people and nature. Government believe that the actions contained in the Natural Environment White Paper will create a radical shift on how we view our natural assets by incorporating the natural environment into economic planning and ensuring there are opportunities for businesses that are good for nature and good for a strong green economy.

At a local level one of the Strategic Objectives contained within the 2013 draft of the North West Leicestershire Core Strategy relating to the operation and development of the airport is to “protect and enhance landscape character and the quality of the natural environment. Other local planning policies are described in the Land Use Plan.

LANDSCAPE STRATEGY

The approach to managing our landscape is contained within our Landscape Strategy. Implementation of the Landscape Strategy is well advanced and considerable emphasis has been given to nature conservation and bio-diversity issues. In addressing landscape matters our intentions are to ensure that we respect the unique character of, and contribute to, the ‘Langley Lowlands’ and the broader ‘Melbourne Parklands’.

It is our intention to further develop the Landscape Strategy, within the constraints imposed by the normal operation of the airport, to promote the development of rich and varied habitats, and to integrate the airport within its rural setting and to promote sustainable access to the airport site.

LANDSCAPE AND ECOLOGY



LANDSCAPE

The airport is generally screened from views from the surrounding countryside as a result of works that have been undertaken to strengthen existing planting with new planting. This has resulted in a strong visual screen in keeping with the undulating nature of the surrounding countryside.

Particular attention has also been paid to the landscape treatment of the main gateways, transport corridors and sections of the airport perimeter that are closest to residential areas. The aims are to:

- Minimise the visual impact of the airport in the surrounding countryside and on people living in closest proximity;
- Enhance the overall appearance and image of the airport;
- Provide a framework which allows visitors and staff to use the airport with maximum ease and efficiency;
- Provide a framework within which all new development can be located in a co-ordinated way; and
- Ensure that the landscape in and around the airport is designed so as not to prejudice aircraft safety.

We use native plantings on the periphery of the airport. Our plantings are designed not only to screen and soften the appearance of the Airport but also to prevent inappropriate vantage points for plane spotters and the disturbance that can be caused to local residents.

We will continue to ensure that the airport remains screened where this is achievable. As developments take place, associated landscaping or ecological mitigation will be undertaken to meet the aims contained in the Landscape Strategy.

Around the passenger terminal complex we plant and maintain bold formal arrangements to encourage efficient movement along the internal roads. These are supplemented with ornamental shrub species to provide colour, form and shape. The landscape team ensure that our landscape areas are managed to the highest possible standards particularly in regard to the safety and security of all airport users.

Importantly we encourage public access for the enjoyment of our landscapes and as such have developed a 10km perimeter nature and art trail linking all of the footpaths, bridleways and lanes that terminate at the airport. Varying between a rough mown path, a stone surfaced path and a more formal tarmac footpath the trail provides an interesting and varied route around East Midlands Airport. Picnic tables have been placed at vantage points around the trail, which provides views across open countryside, particularly to the north across the Trent Valley.

OUR OBJECTIVES

LANDSCAPE AND ECOLOGY



We also recognise the important role that art within the landscape can play in imparting a sense of place and we currently have five pieces of artwork along the Trail.

- A series of stepping stones were created and designed with input from local primary school children, by Castle Donington local artist Graeme Mitcheson.
- **'DOG TOOTH VIOLET SEED'** was designed by pupils at Diseworth Primary School after a series of workshops with local artist Sarah Fiander, who then carved the final sculpture from a giant piece of oak.
- **'VALENTINES TREE'** was developed through sessions led by James Swain with a Castle Donington Youth Group, and fabricated by Derby based blacksmith Andy McCallum.
- **'TRAIL OF LIFE'** was created by a Derby based ceramics artist, with help from a number of local community groups who created mosaic designs for display on the sculpture.
- **'SKY LADDER'** was created by Doncaster based sculptor Daniel Jones with input from the Princes Trust Coalville Team of 16-24 year olds. Sky Ladder is made from oak and steel and depicts a plane in flight.

We will continue to work with local artists to engage with our local communities to create art to reflect their location and further enhance the sense of place.

The agricultural land that we own is mainly managed as arable farming or short rotation biomass production.

SUSTAINABLE DEVELOPMENT PLAN ENVIRONMENT



LANDSCAPE AND ECOLOGY



ECOLOGY

There are no Sites of Special Scientific Interest (SSSI) on the airport site. The only protected area is a nature conservation site comprising of diverse wood and scrubland of Parish level significance, located at the northern perimeter. This is being enhanced by the airport as part of the Landscape Strategy. There are six Sites of Special Scientific Interest within five kilometres of the airport and a National Nature Reserve at Calke Abbey, approximately 8km from the airport.

Locally, there are a broad and diverse range of habitats around the airport which whilst not of national or even local importance are interesting in their own right supporting a range of fauna from invertebrates, through small to large mammals and small or large birds. We have already sought to provide habitats including:

- The introduction of bat boxes;
- The introduction of a little owl box;
- The introduction of boxes for hibernating hedgehogs; and
- The introduction of further new 'damp scrapes' to provide a habitat that is attractive for smooth newts.

We intend to continue to survey our land to identify its biodiversity so that we can continue to manage our habitats sympathetically and further improve them for species which may be in decline elsewhere. We will further develop the biodiversity on site by continuing to work with local wildlife groups including the local Wildlife Trusts and the Derby and Derbyshire Groundwork Trust.

SPECTATOR FACILITIES

There remains a continuing demand for facilities to accommodate visitors and spectators who are attracted to the airport site. The airport is a significant visitor attraction and viewing facilities are provided at the East Midlands Aeropark which is located in the north-west corner of the airport site close to the village of Castle Donington. Providing viewing facilities helps remove pressure from the central terminal complex and from the local road network. The Aeropark has been developed by the Aeropark Volunteer Association to provide a wider range of attractions for the Airport's visitors and spectators. These include several static aircraft exhibits, the highlight of which is a BAe Nimrod R1. As part of the Land Use Plan, there is a commitment to retain the Aeropark within its existing location.

An additional facility for visitors to the airport, and one of the key initiatives of the landscape strategy, is the Airport Trail.

AIRCRAFT SAFETY

The airport is required by the Civil Aviation Authority to ensure that the airspace surrounding the airport is safe for use at all times and in particular to consider the potential for 'bird strikes' within 13km of the airport. Large concentrations of birds are most commonly found in areas of open water and waste disposal sites and the airport comments on new developments that may lead to increased bird populations via the planning system. The airport also works with local land owners to ensure that the risk presented by 'bird strikes' does not increase significantly.

The airport will continue to undertake this work by engaging constructively with local stakeholders particularly with the on-going development of the River Trent Valley.

HOW TO CONTACT US

The Sustainable Development Plan is an important document for East Midlands Airport. There are many stakeholders who have an interest in the airport and the views and comments from Government, local authorities, neighbours, the business community and customers are an important part of the planning process. The airport is committed to being open in sharing the vision for East Midlands Airport and the local area. The plan looks to where possible, reflect local views and ideas.

Neighbours, stakeholders and a wide range of organisations in the region were consulted in 2014 to obtain their views. Where possible the comments received have been incorporated in the final set of Sustainable Development Plan documents. We will monitor and report on our progress and we will carry out a full review of the Plan every five years.

To obtain copies of the Sustainable Development Plan and the Noise Action Plan:

Visit: www.eastmidlandsairport.com/developmentplan
www.eastmidlandsairport.com/emaweb.nsf/Content/noiseactionplan

Write: **East Midlands Airport**
Castle Donington
Derby
DE74 2SA

email: developmentplan@eastmidlandsairport.com

