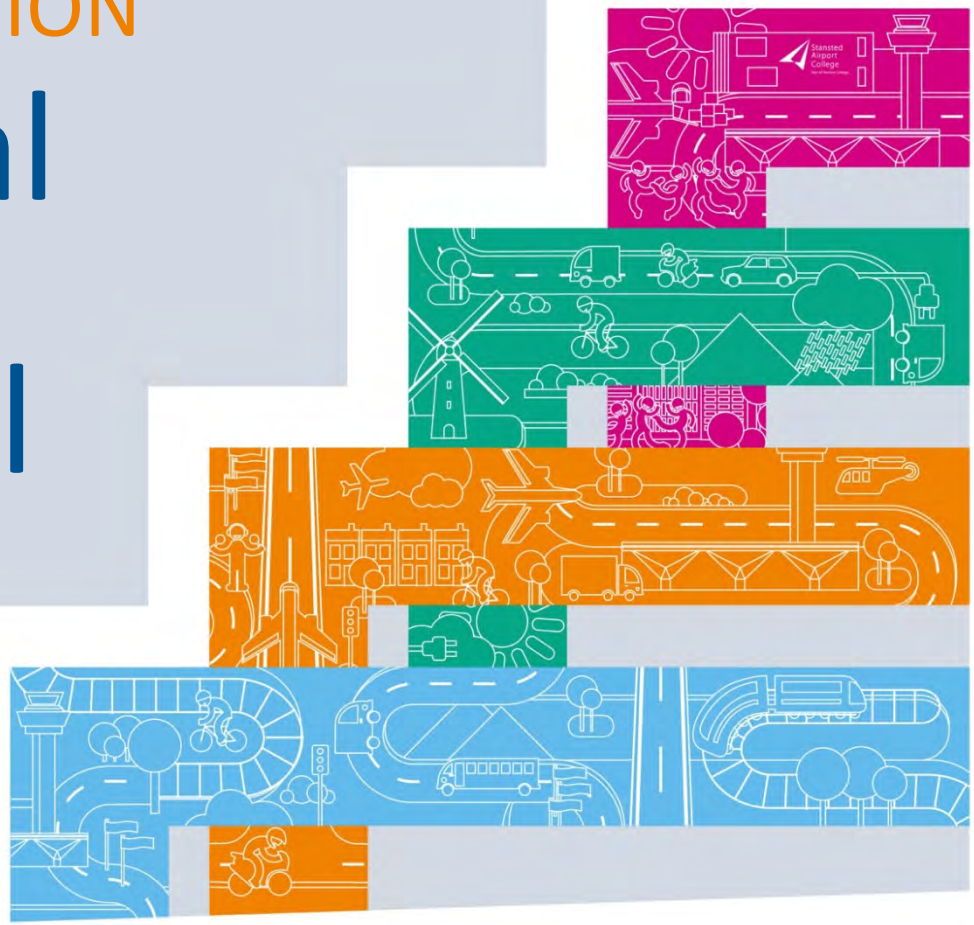
TRANSFORMING LONDON STANSTED AIRPORT

35+ PLANNING APPLICATION

Environmental Statement Non-Technical Summary



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INTRODUCTION

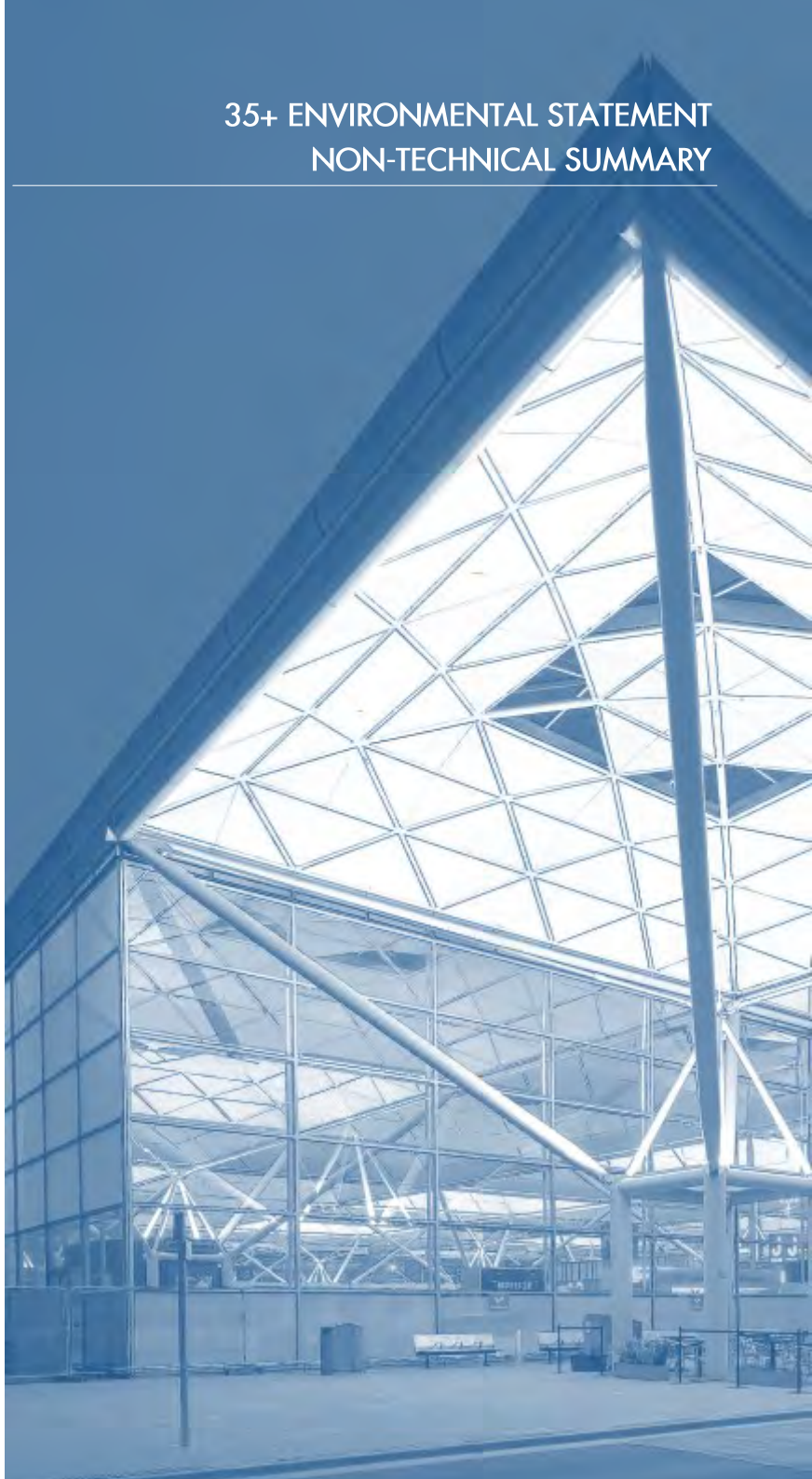
This document is a Non-Technical Summary (NTS) of the Environmental Statement (ES) prepared in conjunction with a planning application by Stansted Airport Limited (STAL) to Uttlesford District Council (UDC), which seeks permission for new airfield infrastructure. This new infrastructure will enable Stansted Airport ('the airport') to make better and more efficient use of its existing runway. In turn, this will enable it to increase its passenger throughput to 43 million passengers per annum (mppa) by 2028 in line with the aspirations set out in the 2015 Stansted Airport Sustainable Development Plan (SDP).

The application seeks permission for an additional rapid access taxiway (RAT) and an additional rapid exit taxiway (RET) to serve the existing runway, together with nine additional aircraft stands. The effect of the proposed works will enable the airport to reach a higher passenger number and therefore STAL is also seeking a change the planning cap on passenger numbers from 35mppa to 43mppa. The current total limit of 274,000 aircraft movements per annum will be retained. However, the different passenger, cargo and 'other' sub-divisions would be replaced with a single combined limit.

The environmental effects of the proposed development, both positive (beneficial) and negative (adverse), have been determined through a formal process of Environmental Impact Assessment (EIA) which was completed over a period of approximately 12 months. The technical, geographic and temporal scope of this EIA was determined in consultation with UDC, statutory bodies and other stakeholders and, ultimately, through the issue of a formal Scoping Opinion by UDC.

The EIA process and its findings are reported in the comprehensive ES which is supplemented by a number of technical appendices. The ES is contained in three separate volumes. These detailed documents can be viewed at the Council's offices and their website.

This NTS provides a summary of the ES.



GROWTH BEYOND 35MPPA

Overview

In 2016 the airport handled approximately 24.3 million passengers and 254,000 tonnes of cargo. In this 'Baseline Year' for the EIA, there were approximately 181,000 aircraft movements, of which around 152,000 were passenger air transport movements (PATMs), 14,000 were cargo air transport movements (CATMs) and 15,000 were other movements, including general aviation (GA) and positioning flights. In 2017, the airport experienced a further 6.6% compound growth to reach a new record of 25.9mppa and 189,921 aircraft movements.

Stansted is forecast to reach its current passenger cap of 35mppa (set by the '25+ planning permission' in 2008) by 2023, and then 43mppa by 2028 (see Figure 1).

Securing planning permission for the proposed development will allow the airport, businesses on site and airlines sufficient lead-in time to plan for the necessary capital investment to accommodate the forecast growth in demand and, ultimately, to allow the airport to make more efficient use of its single runway. This will become increasingly important over the next 10 years, as the demand for air travel locally and across the South East continues to be strong. However, the other major London airports of Heathrow and Gatwick are already effectively full, and it will be at least 2030 before any new runway is available (assuming Heathrow's Third Runway goes ahead).

This application is in line with the Government's suggested policy of encouraging airports to maximise the use of existing capacity, especially runway capacity, as the best way of meeting demand over the next ten years.

Technological advancements in aircraft design, and the way in which aircraft are operated, means that the fleet operating at Stansted will become progressively quieter and more fuel efficient with time; continuing a trend seen over recent years. This, plus the retention of the cap on aircraft movements, will mean that a throughput of 43mppa can be achieved within the noise and environmental limits that are already in place. These were accepted as part of the planning permission to grow to 35mppa.

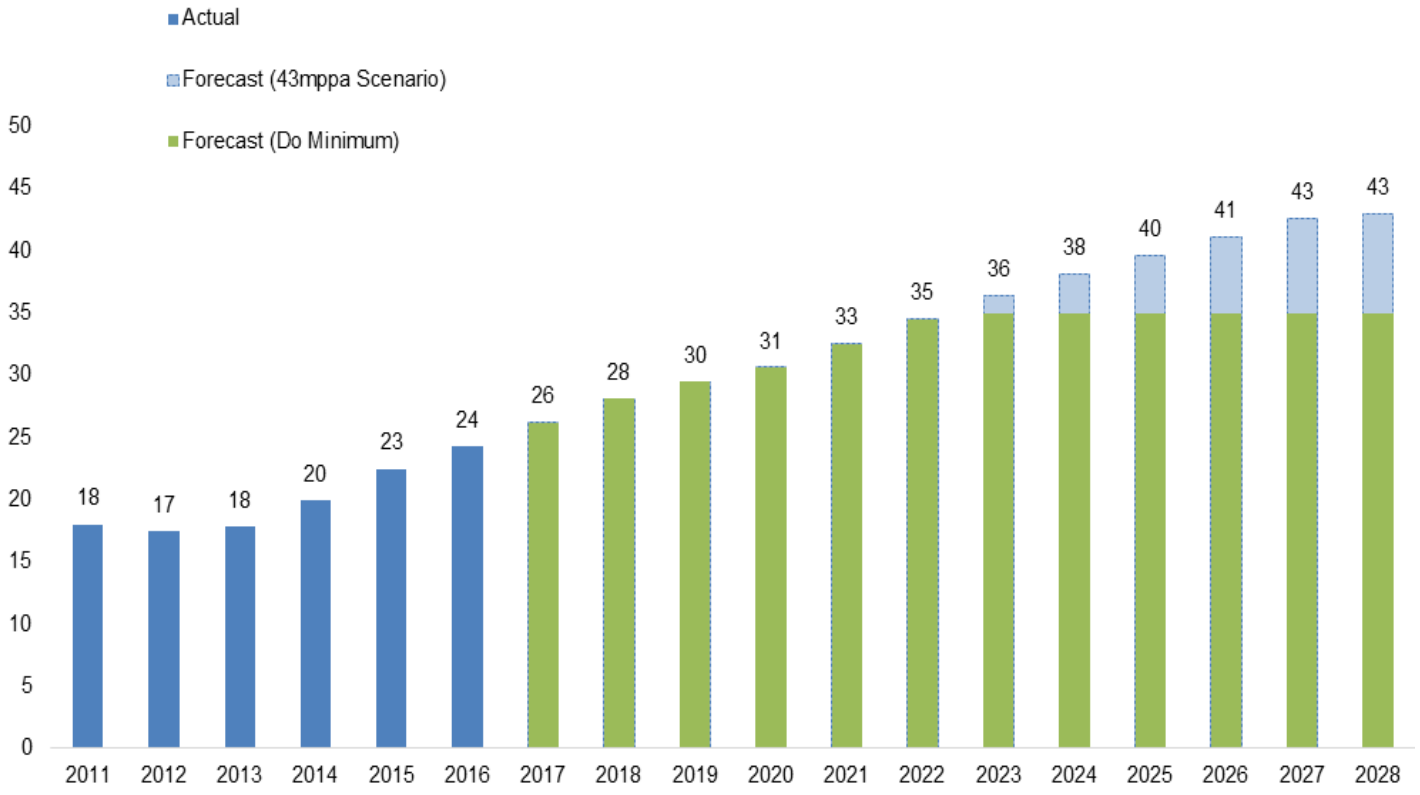


Figure 1: Stansted Passenger Forecast (mppa, constrained)

GROWTH BEYOND 35MPPA

What Does the Proposed Development Include?

The proposed development comprises:

- New airfield infrastructure occupying around 7 hectares (ha) of land within the existing airside operational area of the airport, including:
  - A Rapid Exit Taxiway (RET) linking to the runway from the south-west (known as Mike Romeo RET);
  - A Rapid Access Taxiway (RAT) at the north-eastern end of the runway (known as Runway Tango 22/04 RAT);
  - Six additional aircraft parking stands located in the middle part of the airfield (known as the Yankee Remote Stands); and
  - Three additional aircraft parking stands located to the north of the existing Echo Stands at the north-eastern end of the airfield.

As a consequence of this development, the works will enable the combined airfield operations of 274,000 aircraft movements and a throughput of 43 million terminal passengers, in a 12-month calendar period. This is an 8mppa (23%) increase in the airport's passenger throughput from 35mppa to 43mppa.

The proposed airfield infrastructure will facilitate making better use of the existing runway and enable Stansted to handle the peak demands, especially for overnight aircraft parking, and to provide operational resilience and flexibility.

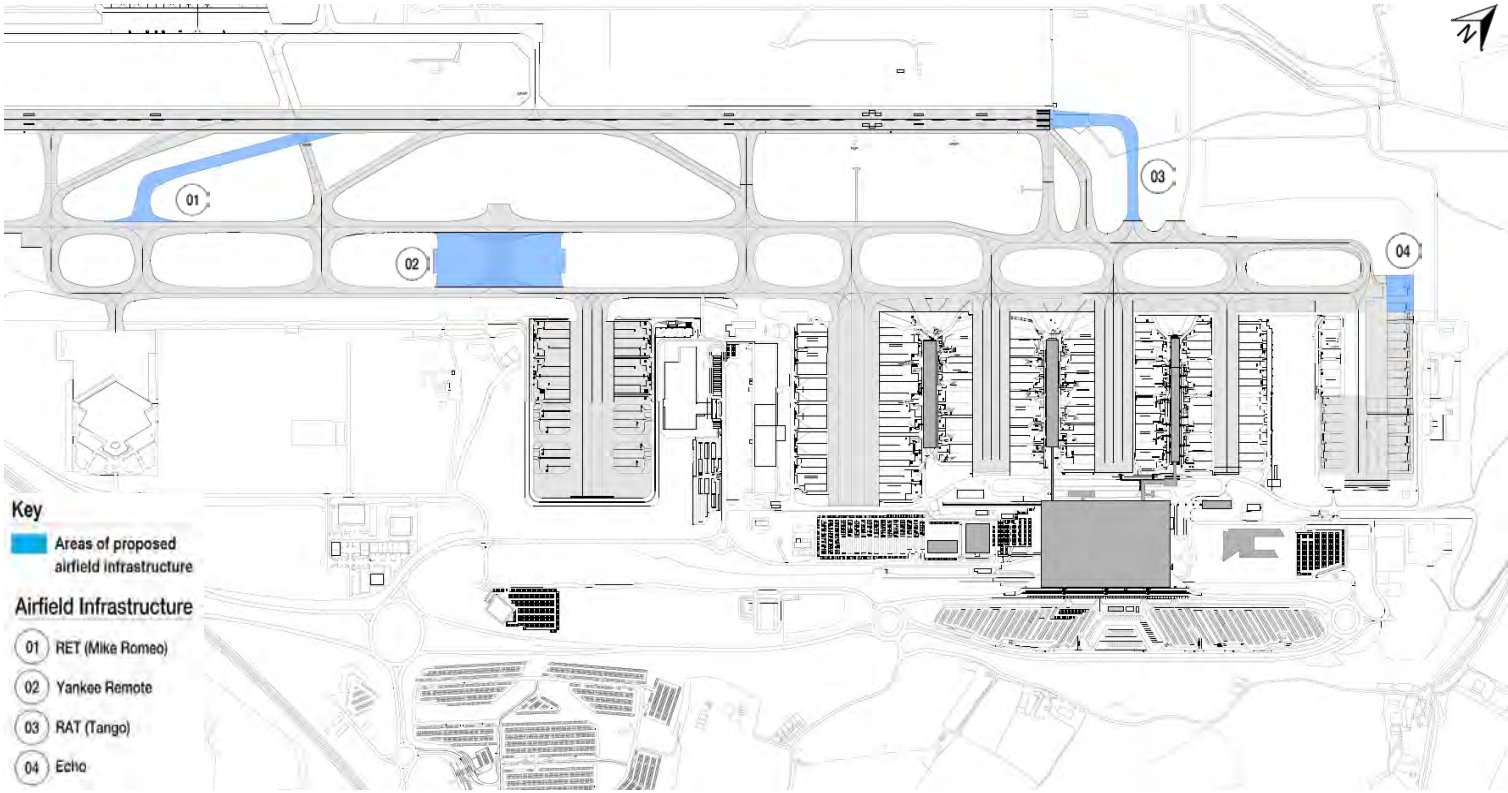


Figure 2: Location of Proposed New Airfield Infrastructure

GROWTH BEYOND 35MPPA

Detailed Forecasts

The growth projections for the airport are based on a set of up-to-date air traffic forecasts that have been prepared by leading independent aviation specialists: ICF Aviation Services Group (ICF). These show that Stansted is likely to reach its current passenger cap of 35mppa by 2023 and reach 43mppa by 2028.

The ICF forecasts also include the predicted changes in the split of passenger and cargo air transport movements (PATMs and CATMs) and other Non-ATM aircraft. The current cap on movements contains limits for certain categories of aircraft, principally passenger, cargo and general aviation. It is proposed to retain the limit of 274,000 aircraft movements per year, but make this a combined total cap. This means there will be no net increase in flights compared to the total permitted under the 2008 planning permission. The predicted uplift in passengers can be accommodated by a greater proportion of PATMs (mainly displacing Non-ATM traffic), combined with changes in aircraft types (the 'fleet mix'), an associated increase in the average numbers of passengers per aircraft (as aircraft will have more seats) and a small increase in load factors (% of available seats occupied) per aircraft movement. These changes will occur through the introduction of new generation aircraft such as the Boeing B737MAX 8.

Cargo volumes are also forecast to increase, by approximately 140,000 tonnes to 390,000 tonnes by 2028 with much more freight carried on passenger aircraft, rising from 6,000 tonnes in 2016 to over 36,000 tonnes in 2028 as a result of more full-service airlines operating at the airport and increased long haul operations. Dedicated CATMs are expected to increase by 2,000 to over 16,000 in the same time frame.

Figure 3: Current Airfield Layout

GROWTH BEYOND 35MPPA

Planning Background and Policy Position

Stansted is within the district of Uttlesford in the county of Essex and primarily serves the East of England, the South East and London. The location of the airport is shown in Figure 4.

Stansted's growth has been in a series of distinct phases. Outline planning permission was granted in May 2003 to expand the passenger terminal; build additional aircraft parking stands, taxiways and other associated facilities and infrastructure. This permission allowed growth from 15mppa to 25mppa and up to 241,000 air transport movements (ATMs) (referred to as the '15+ permission').

In 2006 the previous owners of the airport (BAA) submitted an application to vary the 2003 permission and allow an increased number of passengers and aircraft movements. Following an appeal, planning permission was granted in 2008 for an increase to 35mppa, 264,000 ATMs and 10,000 'other' movements, including GA. This is referred to as the '25+ permission'.

STAL's vision for the future growth of the airport is outlined in its revised masterplan - the Sustainable Development Plan (SDP), which was published in 2015 following extensive public consultation. The 2015 SDP provides the overarching framework to guide sustainable development and growth of the airport up to the capacity of its runway.

The Government considers that if the UK is to continue to grow its domestic and international connectivity, there is a need for existing runway capacity at major airports to be more intensively utilised. National policy is to support the sustainable growth of the UK's aviation industry; recognising the significant economic and social benefits this brings; but also ensuring that environmental issues are fully addressed. It has recently reiterated this position in its 2017 Call for Evidence paper 'Beyond the horizon: The future of aviation in the UK' where it states:

> *"The government agrees with the Airports Commission's recommendation that there is a requirement for more intensive use of existing airport capacity and is minded to be supportive of all airports who wish to make best use of their existing runways including those in the South East".*

Figure 4: Site Location Plan

EIA APPROACH AND METHODOLOGY

Introduction

The EIA has been commissioned by STAL and has been carried out by a range of specialist consultants in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations), the results of which are reported in the ES. The ES in turn provides part of the information that will be used by UDC in its determination of the planning application.

EIA is intended to be an iterative process, which extends from the project inception through to the final design, consenting, construction and operational stages. This ensures that all likely significant environmental effects are either 'designed-out' at the planning stage or mitigated, managed and controlled to acceptable levels.

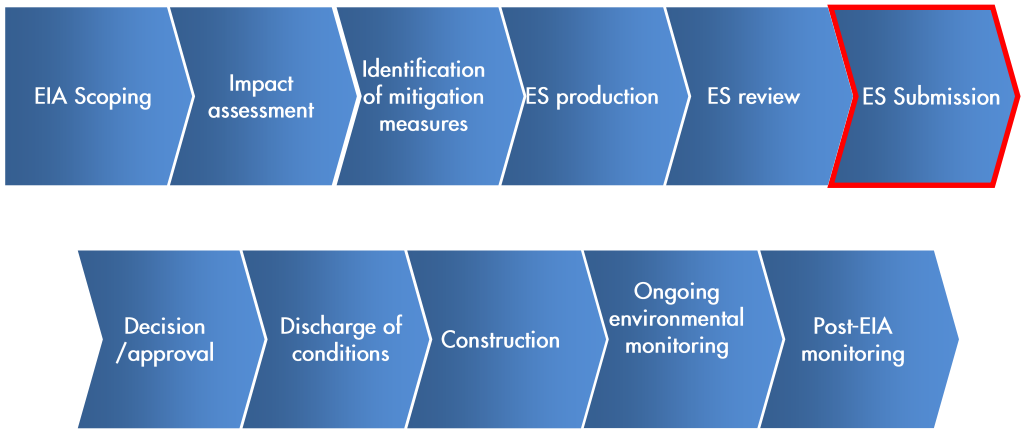


Figure 5: Key Stages of the EIA Process

Establishing the EIA Scope

In accordance with the EIA Regulations, a request for an EIA Scoping Opinion was first made to UDC on the 1st June 2017, supported by a comprehensive Scoping Report which set out the proposed technical scope, assumptions and methodology of the EIA and its supporting studies. This Scoping Report was consulted upon widely by UDC over several months and responses were received from numerous stakeholders including statutory and non-statutory consultees, parish councils and members of the public.

At the time of preparing the Scoping Report, STAL had envisaged that the proposed development would include the replacement of the existing total aircraft movement limit of 274,000 with a new limit of 285,000. This would have allowed for approximately 11,000 (4%) more aircraft movements per annum than is currently permitted. In conjunction with this increase in flights, the airport was also minded to seek permission from UDC to replace the existing 35mppa cap with a new limit of 44.5mppa (i.e. 1.5 million more passengers than the 43mppa limit for which permission is now sought).

STAL undertook extensive consultation through summer 2017, including a series of public events in the towns and villages surrounding the airport between the 6th and 24th July 2017. The feedback from this consultation revealed that the proposed increase in the number of aircraft movements was a key concern to local people. In light of public concerns, STAL have modified its proposals and will now retain the current cap on aircraft movements. This would still allow an increase in passenger throughput; so a new limit on passenger numbers of 43mppa is now proposed. To account for this change, STAL submitted an 'Alteration to the Request for EIA Scoping Opinion' to UDC on 18th October 2017. Retaining the cap on aircraft movements, and the smaller increase in annual passenger numbers, would likely lead to a corresponding reduction in environmental effects. These changes were not considered material to the scope of the EIA. Therefore, it was not considered necessary to revise the Scoping Report at this point.

A formal Scoping Opinion for this revised proposal was issued by the Council on 22nd December 2017. The key topic areas (as shown in Table 1) were agreed to be 'scoped in' to the EIA and, therefore, dedicated chapters of the ES have been prepared for these.

Table 1: Key Topic Areas Included within the ES

Surface Access and Transport	Carbon Emissions
Air Noise	Climate Change
Ground Noise	Public Health and Wellbeing (incorporating a Health Impact Assessment)
Surface Access Noise	Water Resources and Flood Risk
Air Quality	Cumulative Effects
Socio-Economic Impacts	

EIA APPROACH AND METHODOLOGY

The operational effects of the proposed development (i.e. the increase in annual passenger throughput and associated effects) are most relevant and, in particular, changes in surface access traffic, noise (air, ground and surface access noise), air quality, socio-economic conditions and human health. The ES therefore focuses on these topics, but it also contains separate chapters which consider the effects of the proposed development on carbon, climate change, water resources and flood risk.

There is the potential for some temporary construction effects (e.g. noise, dust, HGV traffic etc.) to arise during the 12 months construction of the new airfield infrastructure. Accordingly, such effects are considered within the respective technical chapters of the ES and also within a chapter titled 'Development Programme and Construction Environmental Management'. However, due to the limited extent, location and nature of these construction works, significant environmental effects are not anticipated as long as appropriate environmental controls, which are set out in the ES, are adopted.

The following EIA topics were scoped out of the ES:

- Ecology and Biodiversity;
- Ground Conditions and Contamination;
- Archaeology and Built Heritage;
- Landscape and Visual Impacts; and
- Major Accidents and/or Disasters

Whilst the above were excluded from any detailed assessment (as agreed by UDC's Scoping Opinion), the ES does provide further information on these topics, where relevant.

Assessment Years and Scenarios

In accordance with established practice for EIA, the assessment of environmental effects from the proposed development is based on measuring the difference between how the airport would develop were the existing (2008) 25+ planning permission and associated limits to remain (termed the Do Minimum scenario in the ES) and how it would develop were the new infrastructure and increased passenger limit to be realised (termed the Development Case in the ES). The comparison is done for the same future year i.e. 2028. This is illustrated by the forecasts summary presented in Table 2.

Under the Do Minimum scenario, the existing annual 35mppa passenger cap is retained whilst, under the Development Case, it is assumed that the airport grows to 43mppa by 2028. Therefore, for most environmental topics, the impact assessment is centred on assessing the differences in effects between these two scenarios in the Principal Assessment Year of 2028.

As illustrated in Table 2, the existing 35mppa limit will have been reached by 2023 under both the Do Minimum scenario and the Development Case. For the purposes of the EIA, 2023 is therefore adopted as the Transitional Year of the proposed development. This is the first year during which a divergence will occur between the 'status quo' of retaining the 35mppa limit and the additional growth stimulated by the removal of this cap (i.e. + 1.4mppa and + 6,000 aircraft movements by 2023). However, because these differences are marginal/ inconsequential for most EIA topics, these do not warrant detailed assessment for this Transitional Year, except for air quality and air noise.

Table 2: Summary of Do minimum vs Development Case - Key Statistics

	2023 Transitional Year		2028 Principal Assessment Year	
	Do Minimum Scenario	Development Case	Do Minimum Scenario	Development Case
Total Passengers ('000s)	35,000	36,400	35,000	43,000
Passenger ATMs ('000s)	213	219	212	253
Cargo ATMs ('000s)	14	14	17	16
General Aviation/ Other ('000s)	19	20	20	5
Total Movements ('000s)	247	253	249	274

EIA APPROACH AND METHODOLOGY

Establishing the Baseline

The 'baseline' for each relevant topic of the EIA has been determined and is detailed within the ES. This baseline represents the prevailing environmental conditions which exist at and around the airport. This area of influence (or 'Study Area') varies between topics and is therefore defined in each chapter of the ES, as appropriate.

A wide range of baseline data on the environment has been captured and used to inform the environmental assessments and was obtained from a combination of sources. Whilst some of this information covers the period 2014 to 2017; for the purpose of the EIA, 2016 was adopted as the common 'Baseline Year' because this provides the most up to date record of operational activity at the airport (i.e. passenger numbers, flights etc.) over a full calendar year.

Where relevant, the ES also considers how these baseline conditions may change over time before the proposed development is fully implemented; for example, to account for other planned developments such as the recently approved new Arrivals Building.

What is a Significant Environmental Effect?

The definition of what constitutes a 'significant environmental effect' is explained further in the main ES. However, in general terms:

- Significant negative (adverse) environmental effects are those which either exceed legal limits, guidelines or standards set by the Government and other regulatory bodies to protect the environment and human health and/or those which would result in a pronounced worsening of the natural environment and the living conditions of people, or cause permanent harm to protected species, wildlife, historical and other environmental assets.
- Significant positive (beneficial) environmental effects are those which lead to pronounced enhancements or improvements to the same receptors, including socio-economic effects such as employment and income generation, which will benefit the local and wider community.

Understanding the Assessment Terminology

In order to provide a consistent approach to reporting the outcomes of the various studies, the terminology in Table 3 has been used to describe the relative significance of any adverse and beneficial effects. Those effects which are considered 'significant' are those identified as moderate or major. Table 4 provides a basic matrix-based approach to the categorisation of environmental effects, which are a function of the magnitude or scale of an impact and the sensitivity or importance of the receptor.

Table 3: Significance Criteria

Level of Significance	Description
Major	Very large or large change in environmental or socio-economic conditions, which is irreversible and pronounced. Effects, both adverse and beneficial, which are likely to be important considerations at a national, regional or district level because they contribute to achieving national, regional or local objectives, or could result in exceedance of statutory objectives and/or breaches of legislation. **Major effects are deemed significant in the context of EIA.**
Moderate	Intermediate change in environmental or socio-economic conditions leading to measurable effects, both adverse and beneficial, which are likely to be important considerations at a local or district level. **Moderate effects are deemed significant in the context of EIA.**
Minor	Small change in environmental or socio-economic conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision making process. **Minor effects are not normally deemed significant in the context of EIA.**
Negligible	No discernible change in environmental or socio-economic conditions. An effect that is likely to have a negligible or neutral influence, irrespective of other effects. **Negligible effects are not significant in the context of EIA.**

Table 4: Impact Magnitude Matrix

Sensitivity/value of receptor	Magnitude of effect or impact			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

EIA APPROACH AND METHODOLOGY

Mitigation Measures

The likelihood of significant effects occurring during the construction and operation of the proposed development takes account of the availability and effectiveness of various 'mitigation measures'. These are measures used to avoid, reduce, enhance, or compensate for such effects (i.e. depending on whether they are positive or negative).

If permission is granted, planning conditions and legal agreements may be used to secure the implementation and subsequent monitoring of the mitigation measures, together with other 'reasonable and proportionate' planning controls which may be considered necessary. Moreover, STAL will continue to implement its existing environmental and community investment programmes and initiatives, which are included in the 2015 SDP, and to extend and enhance these to cater for the additional growth which would be allowed if planning permission is granted.

Cumulative Schemes

As required by the EIA Regulations, consideration has been given to the potential for the 'cumulation' of environmental effects of the proposed development when combined with other proposed, committed or reasonably foreseeable developments within the immediate locality.

A total of 15 committed developments were assessed within the ES, with a further five planning applications that are still awaiting determination by UDC also considered. Figure 6 shows the committed developments considered within the ES, and their location.

Many of these developments are likely to be built and fully operational before 2023. They therefore form part of the projected baseline for the EIA, against which the environmental effects of the proposed development have been assessed (e.g. new houses enclosed by the air noise contours).

Alternatives

The EIA Regulations require applicants to consider any 'reasonable alternatives' to their development proposals. In this instance, the design and location of the proposed infrastructure is dictated by a number of factors, including: the fixed position and orientation of the runway and other aircraft manoeuvring areas across the airfield, such as the taxiways and aprons; the space available to site the new RAT and RET and stands; their operational function and interrelationship; and various aviation safety and regulatory requirements. As such, no alternative configuration was identified which could meet these requirements, whilst also accommodating the forecast growth and achieving the overarching objective of making 'better and more efficient use' of the existing runway beyond 2023.

Any lesser (i.e. constrained) development of the airport would be at odds with the Government's policy aim of more intensively utilising existing runway capacity in the South East and elsewhere in the UK. Such an option would not provide the operational improvements and resilience required by the airport, nor would it afford the same economic benefits to the local and wider region. As such, it was concluded that there are only two feasible alternatives - the 'Do Minimum' (without development) scenario and the 'Development Case'. The comparative environmental effects of these alternatives form the basis of the assessments presented in the ES.

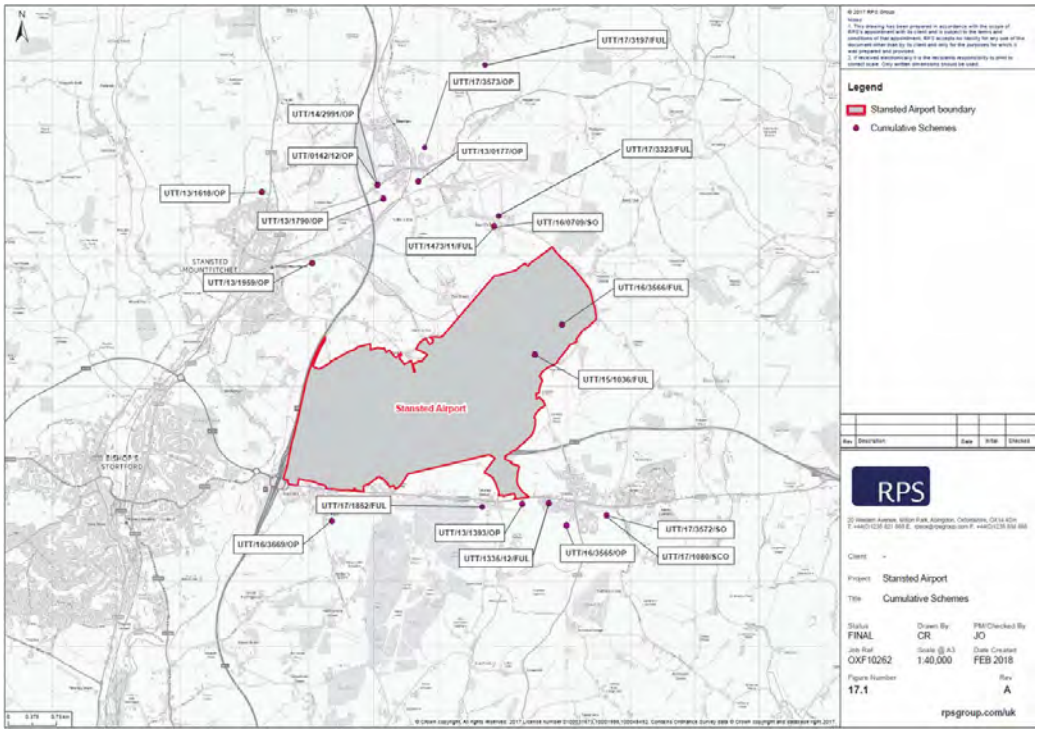


Figure 6: Location of Committed Developments

CONSTRUCTION EFFECTS

Introduction

The potential effects of the construction works for the new airfield infrastructure have been assessed within the ES. Construction works are expected to start in 2021 and be completed by mid-2022 (i.e. in advance of the existing 35mppa cap being reached). The exact timing and duration of the construction works will be confirmed upon appointment of the main contractor. The construction impact on the relevant environmental receptors are summarised below.

Surface Access

The impact of construction vehicles and works on surrounding road networks, road users and pedestrians has been assessed. Construction traffic would access the airport via the M11 motorway and A120. It is not anticipated that any closures would be required to pedestrian or cycle routes during construction.

A total of around 27,700 construction vehicles movements both to and from the site (two-way) are estimated across the 12-month construction programme. The average and peak daily construction traffic flows (two-way) would be in the order of 100 movements and 200 movements respectively. Traffic from Heavy Goods Vehicles (HGV) would be highly unlikely to exceed a peak of around 20 movements per hour at any point of the day. This represents a worst-case assessment, as it considers only the peak operational periods. At other times, construction traffic movements would be less.

Traffic flows to/from the airport are currently around 30,000 vehicles a day, and so the impact on traffic from ~200 construction vehicles per day is expected to be of **negligible** significance.

Given the low number of construction vehicles, a **negligible** effect is also expected on pedestrians, cyclists and public transport during the construction phase

A Construction Environmental Management Plan (CEMP) and the accompanying Construction Traffic Management Plan (CTMP) will set out 'best practice' construction traffic mitigation measures. These will be agreed with the relevant authorities in advance of the works.

Ground Noise

Construction works undertaken during the day would not be expected to result in any significant disturbance to nearby residential communities. There is the potential for night-time works to give rise to some slight increases in noise levels. However, it is expected that potential impacts can be controlled through the implementation of effective mitigation, such as avoiding use of the noisiest equipment at night, the use of temporary hoardings around the work sites, working with local residents, and ensuring adherence to best practice.

Air Quality

It is not anticipated that the scale and type of works associated with construction will result in any adverse air quality effects at any sensitive receptors in the study area.

Dust from construction activities would not be expected to cause operational difficulties on the airfield or result in any off-site complaints.

As such, the effects of the construction of the proposed development are assessed to be **negligible**.

Socio-Economic Effects

The construction of the new stands and taxiway links to the runway will cost in the order of £48 million. In total, the proposed development will create a total of almost 300 construction jobs and support Gross Value Added (GVA) of £23.4 million over the 12 month construction period between 2021 and 2022. However, given the scale of forecast construction employment, in a regional context this is predicted to be **negligible**.

Carbon

Construction will contribute an estimated 0.021 million tonnes of Carbon Dioxide Equivalent (MtCO2e). This includes carbon emissions associated with the production of concrete and steel used, and fuel use by construction plant and equipment on site.

The construction work is equivalent to 0.5% of Stansted's projected total annual emissions and 0.09% of all UK annual construction emissions for 2022, reinforcing the small carbon contribution of the proposed scheme. This would fall well within the UK's 3rd carbon budget (2018 to 2022) of 2,544 MtCO2e proposed by the Committee on Climate Change. As the impact is approximately 0.001% of the total allocated budget, the effect would be **negligible**.

Public Health and Wellbeing

Potential construction impacts on health are exposure to air pollutants; impacts from construction traffic; construction workforce; and construction employment. However, given the minor scale of construction works, and the distance to sensitive off-site receptors, no potential for significant effects related on public health and wellbeing have been identified. As such, the effect would be **negligible.**

SURFACE ACCESS AND TRANSPORT

Assessment Methodology

This chapter of the ES considers the impacts of the proposed development on the airport's surface access network and surrounding environment. This includes additional vehicular traffic and associated highways impacts, the increased use of public transport walking and cycling.

The impact assessments in this chapter and the accompanying Transport Assessment (TA) were completed through the use of a sophisticated forecasting model (TEMPro). The model predicts trip generation and the growth in traffic on the surrounding road network. This data was then also used to inform the air quality and traffic noise assessments reported in separate chapters of the ES.

Operational Phase Effects

Effects on Roads

As shown in Figure 7, only modest differences in vehicular traffic are expected between the 2028 Do Minimum scenario and the 2028 Development Case. The impact of the proposed development is limited to less than 3% on most local roads and no more than 9% on the trunk roads. It is only greater than 10% on Thremhall Avenue and the short link between Thremhall Avenue and the A120 East.

The proposed development will have a **minor adverse** impact on the operation of Junction 8 of the M11 motorway when compared against the 2028 Do Minimum (35mppa) scenario. This junction is already subject to peak hour congestion, and hence a lower impact criterion has been adopted in the assessment.

When compared to the 2028 Do Minimum (35mppa) scenario, a **negligible to minor negative** impact (> 10% change in traffic) has been determined at the three link roads/junctions assessed in the ES. The highest increase is at Thremhall Avenue, with an approximate 17.8% increase in peak hour traffic. A largely **negligible** impact was assessed on driver delay for these roads, with a **minor negative** increase in driver delay forecast for Junction 8 of the M11 motorway.

Negligible impacts were assessed for the risk of accidents and road safety because of the minimal change predicted in collision risk for the links and junctions of the identified roads.

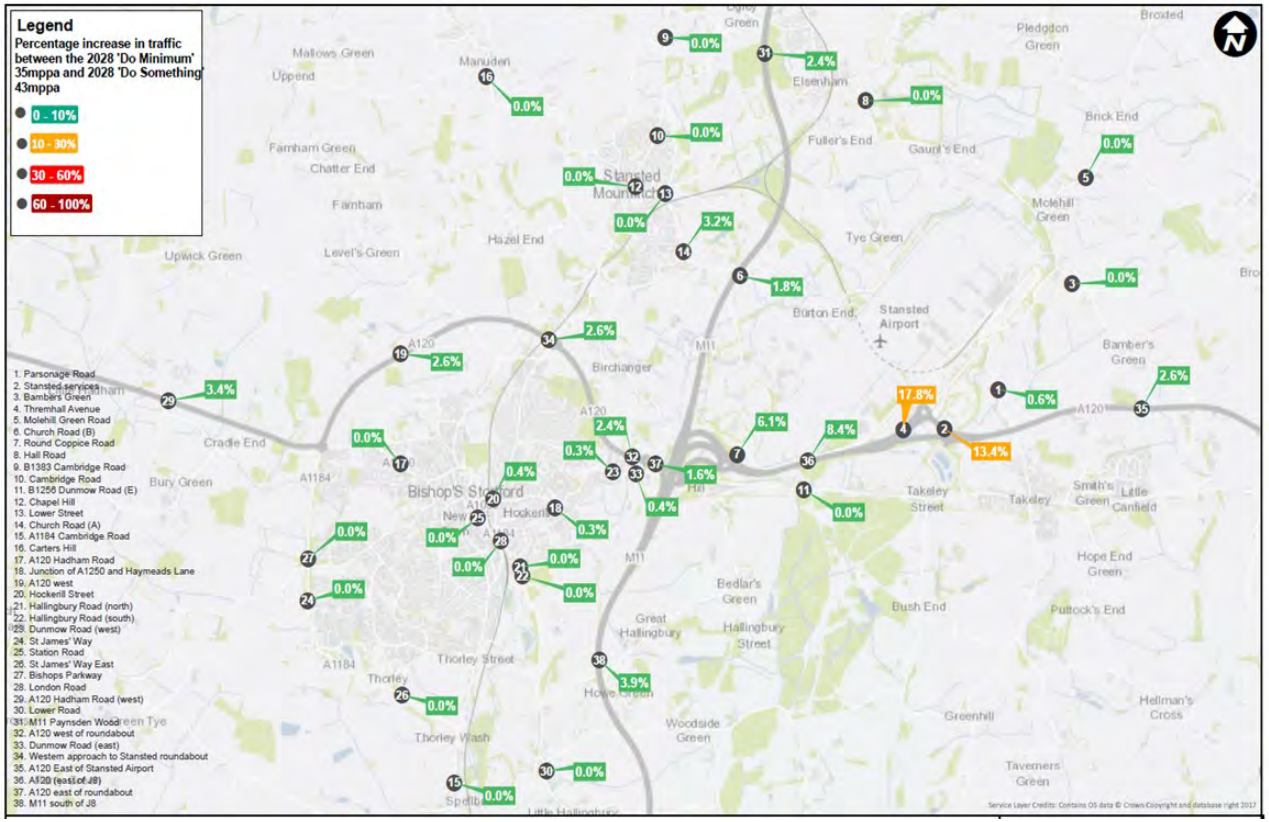


Figure 7: Traffic Growth between 2028 'Do Minimum' (35mppa) and 2029 'Development Case' (43mppa)

SURFACE ACCESS AND TRANSPORT

Effects on Rail Services

On the Stansted Express, the increase in 'seating demand to capacity' ratio between the 2028 Do Minimum (35mppa) scenario and the 2028 Development Case (43mppa) is below 8% in both directions for all time periods. Given that services operate within capacity, the effects of the proposed development on Stansted Express rail services is judged to be of **minor** negative significance.

Abellio Greater Anglia (AGA) services between Stansted and Cambridge operate hourly outside of the peak periods and, therefore, do not attract commuters like the London Liverpool Street services. In accordance with the service distribution assumptions, just 4% of passengers and 12% of all employees who travel by rail are expected to use this service. This equates to an additional 177 daily arrivals and 177 daily departures at the airport in the 2028 Development Case (43mppa) which will have a **negligible** effect on this service.

Increased use is also expected on CrossCountry trains; although it is anticipated that added demand will largely be offset by the provision of additional train capacity already planned by the train operator. The continued growth of the airport up to 2028 is likely to provide a stimulus for further capacity increases on this service. The effects of the proposed development on CrossCountry rail services are therefore judged to be of **minor** negative significance.

Effects on Bus and Coach Services

Given the level of service currently provided by bus and coach operators, and the commitments made by them to continue to meet passenger demand, it is concluded that the change in demand between the 2028 Do Minimum (35mppa) and 2028 Development Case (43mppa) scenarios will have a **minor negative** significance.

Walking and Cycling

Given the relatively low walk and cycle mode share, the forecast increases in these trips between the 2028 Do Minimum scenario (35mppa) and the 2028 Development Case (43mppa) are predicted to be **negligible**. Any improvements to infrastructure and quality of access will occur gradually over time through the implementation of the walking and cycling strategy measures adopted by STAL and the local authorities.

Mitigation

A comprehensive surface access strategy for passengers and staff is set out within the 2015 SDP. This includes a wide range of initiatives to improve public transport services and to promote increased use of sustainable modes, along with targeted improvements to the highway network. Some of these are existing commitments from the S106 agreement and the 2008 Unilateral Undertaking.

The use of a CEMP and CTMP is proposed to manage any potential delays to the highways network during the construction phase. This will include measures to enhance safety, implement travel plans for staff, and manage the timing and routing of deliveries, particularly in peak travel times.

The cumulative impact of additional traffic arising from the airport, other development in the area and background traffic growth is predicted to require further improvements to Junction 8 of the M11 motorway. These will be necessary to minimise excessive delays caused by congestion, particularly during peak commuter hours. Potential works that would mitigate the impact of airport growth have been identified. However, it is likely that a more extensive scheme will be brought forward by the highway authorities before 2028 and a financial contribution towards such a scheme, procured through a new S106 Agreement with UDC, may be appropriate.

SURFACE ACCESS AND TRANSPORT

Table 5: Summary of Proposed Surface Access Mitigation Measures

Receptor	Potential Effects Identified	Proposed Mitigation Measures
Construction		
Highway Network	Minor Negative - short term (slight increase in delay to other traffic on construction routes)	Construction Environmental Management Plan/ Construction Traffic Management Plan
Pedestrians	Negligible / Short Term	None
Cyclists	Negligible / Short Term	None
Public Transport	Negligible / Short Term	None
Completed Development		
Highway Network	Minor Negative impacts due to increased traffic	Contributions to offsite highway improvements to include M11, Junction 8
Pedestrians	Negligible	None
Cyclists	Negligible	None
Public Transport – Rail	Minor Negative impact due to reduced capacity/demand ratio	No infrastructure mitigation required Continued commitment to Travel Plan initiatives, improved wayfinding and working with Train Operating Companies (TOCs) through the Stansted Area Transport Forum (SATF).
Public Transport – Bus/Coach	Minor Negative impact due to reduced capacity/demand ratio	Increased coach capacity- potential additional routes introduced to reflect demand

AIR NOISE

Introduction

The assessment of the effects of the proposed development on 'air noise' (that produced by aircraft during departure and on arrival at the airport) within the ES and its associated appendices, focuses on the difference in air noise effects between the Development Case and Do Minimum scenario in the Principal Assessment Year of 2028, but also considers intervening years in order to account for changes in air noise over time.

Noise from aircraft operations in flight is considered at the local level to be among the most, if not the single most, significant of the environmental impacts associated with airports. Aircraft noise is described in a number of ways and several metrics are used in this assessment to quantify the levels existing, and forecast to exist, in the local community.

With regards to air noise, Stansted Airport is already closely regulated in accordance with national and international regulations and standards which include, amongst others: a requirement to produce strategic noise maps and to implement a Noise Action Plan; night flight restrictions (set by Government) which limit the number and type of aircraft flying at night (over the 6.5-hour period between 23:30 and 06:00) based on a fixed annual Noise Quota; a Noise Monitoring and Track Keeping System (NMTKS); Noise Abatement Procedures (NAP); Continuous Descent Approach (CDA) flight procedures; and, the use of Noise Preferential Routes (NPRs) or Standard Instrument Departure Routes (SIDS) for each mode of runway use.

With regard to controlling noise at source, environmental certification standards for aircraft have been adopted by the Council of the International Civil Aviation Organisation (ICAO). Progressively more stringent standards for noise emissions from new civil aircraft are identified in various chapters of Annex 16 (Environmental Protection) to the convention of International Civil Aviation. Each relevant chapter sets maximum permissible noise levels for different aircraft during landing (approach noise level) and take-off (flyover and side line noise levels). The most recently adopted standards, Chapter 14, apply to new aircraft entering service after 31st December 2017. These are set at 7 dB lower in aggregate than Chapter 4 limits which apply to all new aircraft entering service after 2006. In turn, Chapter 4 limits are 10 dB lower than Chapter 3 limits, which are the highest levels of noise now permitted by aircraft operating at UK civil airports. These new generation/ Chapter 14 aircraft types, which are just coming into service but are not yet operating at the airport, include the Airbus A319, A320 and A321 neo (New Engine Option) and the Boeing B737-MAX family.

Assessment Methodology

A comprehensive range of noise metrics have been analysed, in accordance with guidance from the UK Civil Aviation Authority (CAA), and including those recommended by current UK policy and EU Directives as well as emerging metrics. These are described in Table 6.

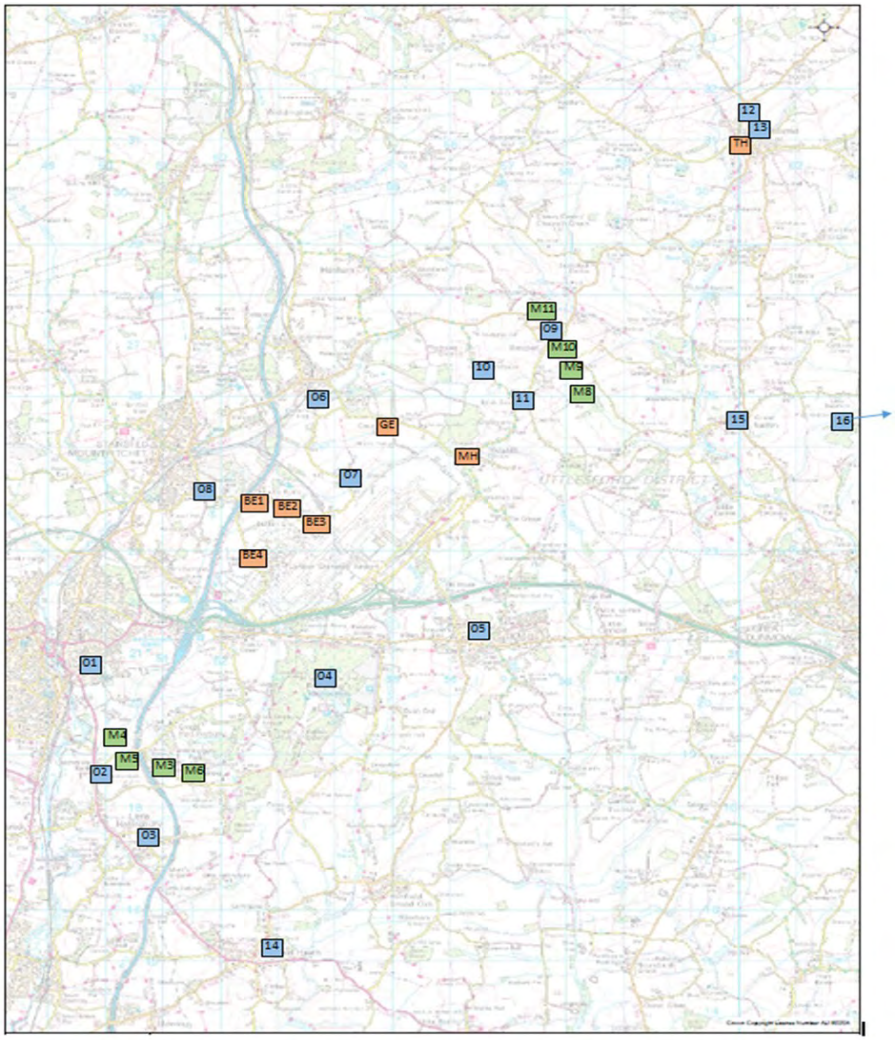


Figure 8: Air Noise Monitoring Locations

AIR NOISE

It should be noted that these metrics are given different weight (importance) in assessing the likely scale of noise impacts. In particular, $L_{Aeq,T}$ is the primary metric and the most useful in assessing community effects. When averaged over a 16-hour day (07:00 to 23:00) and aggregated over the busy 3-month summer period (mid-June to mid-September), this measure of aircraft noise has been found in the UK to offer the best correlation with community annoyance. It, and the corresponding average over the 8-hour night time period (23:00 to 07:00), are therefore given most weight in assessing the scale of impacts arising from the proposed development.

The Noise Policy Statement for England (NPSE) sets the principles for the effective management of noise. It includes some established World Health Organisation (WHO) concepts for the evaluation of noise. These are the No Observed Effect Level (NOEL), the Lowest Observed Adverse Effect level (LOAEL) and the Significant Observed Adverse Effect Level (SOAEL). The air noise effects of the proposed development have therefore also be assessed with reference to these health based criteria,

Community noise contours, noise footprints and schedules of community noise levels have been generated for all relevant assessment years including: 2016 (Baseline Year), 2023 (Transitional Year), 2024 (the 'Worst Case Noise Year') and 2028 (Principal Assessment Year) for both the Development Case and the Do Minimum scenario. For the sake of comparison, contours have also been prepared and assessed for the '2008 25+ planning permission case'. This replicates the operating conditions which were assessed for the 2006 planning application and accompanying ES, which was subsequently used to set a maximum 57dB $L_{Aeq,16h}$ noise contour for the airport (33.9km^2) as a condition of the 2008 planning permission.

Baseline Noise Survey Data

Baseline noise data to inform the air noise assessment have been obtained from the airport's Noise Monitoring and Track Keeping System (NMTKS) which includes eight fixed noise monitors, and two separate mobile monitors, together with:

- Attended measurements, carried out over short time intervals between April and August 2017; and
- Unattended measurements carried out over matters of days, between December 2016 and August 2017.

Table 6: Air Noise Metrics

Metric	Description	Note
$L_{Aeq,16h}$:	16-hour daytime L_{Aeq} value for the period 07h00 to 23h00 based on summer operations during the 92 day period from mid-June to mid-September; plotted from 51 to 72 dB in 3 dB increments	Primary metric for assessing community effects
$L_{Aeq,8h}$	the 8-hour night-time L_{Aeq} value for the period 23h00 to 07h00 based on summer operations during the 92 day period from mid-June to mid-September; plotted from 45 to 66 dB in 3 dB increments	Primary metric for assessing community effects
L_{den}	24 hour L_{Aeq} value with 5dB penalty applied to evening operation (19h00 – 23h00) and 10dB penalty applied to night operations (23h00 – 07h00) based on annual operations; plotted from 55 to 70 dB in 5 dB increments	Health impact assessment metric
L_{night}	8-hour night-time L_{Aeq} value for the period 23h00 to 07h00 based on annual operations; plotted from 45 to 60 dB in 5 dB increments	Health impact assessment metric
N65	number of aircraft noise events exceeding 65dB during the period 07h00 – 23h00 based on summer operations during the 92 day period from mid-June to mid-September; plotted at aircraft movement values of 25, 50, 100 and 200	Supplementary metric for assessing community effects
N60	number of aircraft noise events exceeding 60dB during the period 23h00 – 07h00 based on summer operations during the 92 day period from mid-June to mid-September; plotted at aircraft movement values of 25, 50, 100 and 200	Supplementary metric for assessing community effects
SEL footprints (80dBA and 90dBA)	single event noise exposure for the most frequent aircraft types operating in the night-time period(s)	Additional metric for assessing community effects
Number of 'Highly Annoyed' People	using the percentage highly annoyed set out in Table 25 of SoNA 2014: Aircraft (CAP 1506)	Additional metric for assessing community effects
Difference Contours	plotted over the range -3 dB +3 dB, in increments of 1dB	Additional metric for differentiating between assessment cases
Diurnal Variation	change in operations and implications for noise levels throughout the day	Additional metric for assessing community effects

AIR NOISE

Noise Modelling

All noise contours have been generated using the most up to date version of the Environmental Research and Consultancy Department (ERCD) ANCON noise model. The ERCD is a specialist body within the UK CAA with national and international expertise on the assessment aircraft noise.

Aircraft noise modelling considers the total number of aircraft movements over a given period, either a full year or the busy 92 day summer period, and then aggregates the information to develop a typical day of operations. The number of movements by each aircraft type is identified, separated into departures and arrivals and also allocated to different times; daytime 07:00 to 23:00, night time 23:00 to 07:00 and quota night period 23:30 to 06:00. For historic or baseline contours, actual recorded movements are used.

Each aircraft type has specific noise characteristics for both take-off and landing, which are based on the noise certification data supplied for every manufactured commercial aircraft. The noise model then accounts for the actual departure or arrival profiles in determining the levels of noise generated on the ground by any given movement. For average noise contours, the effect of each individual movement is aggregated to determine a period average (daytime or night time) noise level for the typical day, allowing for the fact that on both departures and arrivals occur at each end of the runway depending on the weather, as aircraft generally land and take off into the prevailing wind. The split or 'operations mode' has been determined by historic data on the runway use, which averages 73% south westerly (designated 22) and 27% north easterly (designated 04).

The air noise assessment methodology, including the noise thresholds and significance criteria applied, are further detailed within the ES Chapter. This also describes the sensitive receptors (e.g. houses, schools, hospitals, places of worship and community facilities) in proximity to the airport and established flight paths which have been considered.

The potential impact of air noise has been assessed for all aircraft movements (passenger, cargo and general aviation/ other flights), taking into account the forecast increase in the aircraft movements over time (within the combined limit of 274,000) and the influence of quieter new generation aircraft being introduced to the fleet.

Operational Phase Effects

In 2028 Development Case, air noise levels are expected to fall from those experienced in 2023, despite there being 16% more aircraft movements. This is due to the higher percentage of operations by new generation, quieter aircraft, which are between 3 dB and 5 dB quieter than current aircraft. For this reason, noise levels in the 2028 Development Case (43mppa) are lower than both the 2023 Do Minimum (35mppa) and the 2023 Development Case (36mppa). Moreover, the 2028 Development Case 57 dB $_{LAeq,16h}$ contour covers an area of 28.7 km^2, which is well below (around 15%) the current consented envelope limit of 33.9km^2.

The difference in daytime $_{LAeq,16h}$ noise levels in 2028 with and without the development are shown in Figure 9. The contours extend down to the 51 dB $_{LAeq,16h}$ contour, although the usual comparison is made for the 57 $_{LAeq,16h}$ contour (the onset of community annoyance).

The number of people likely to be 'highly annoyed' by aircraft noise is expected to increase for all assessment cases compared to the 2016 Baseline Year. The highest number is anticipated to occur in the 2023 Development Case which, although handling a similar number of aircraft movements as in 2028 Do Minimum case, is expected to generate a higher impact because the full benefits of the introduction of new generation aircraft will not yet have been seen by this time.

In the 2028 Development Case, the number of people 'highly annoyed' is just less than 30% higher than that predicted for the 2028 Do Minimum scenarios. This reflects the greater extent of the contours at all levels, although it should be borne in mind that this difference is associated with a change in noise levels of less than 1 dB, which is imperceptible and therefore negligible. Furthermore, in the 2028 Development Case, the number of people 'highly annoyed' is predicted to be approximately 7% lower than that foreseen for the 2008 25+ planning permission case. This change therefore represents a **negligible** effect.

The difference in night-time $_{LAeq,8h}$ noise levels in 2028 with and without the development are shown in Figure 10. These contours extend as low as the 45 dB $_{LAeq,8h}$ contour and indicate that noise changes attributable to the development are at levels not perceptible to the human ear (i.e. within the range -1 to +1 dB). Therefore, in contrast to the predicted daytime noise level changes, some areas are forecast to experience small reductions in noise level while others will experience small increases. The reason for this is the displacement of night-time GA operations by scheduled passenger operations and an attendant shift in the use of the various SIDs. However, these very small changes are not within a range that is perceptible under normal circumstance and can therefore be considered **negligible.**

A summary of the key air noise impacts from the proposed development is provided in Table 7, whilst the ES chapter and its associated appendices provides more detailed assessment using the different noise metrics described above. No significant adverse air noise effects are identified by these analyses.

Mitigation

The ES described in more detail the controls that are currently imposed at the airport as part of the overall noise management strategy, including measures applied in order to minimise the impact of aircraft noise in the local community. These measures will be retained and implemented in a manner which ensures that future noise levels do not exceed the limits indicated in the air noise assessment presented in the ES.

As set out above, no noise impacts of significance are predicted as a result of the proposed development. However, there will be an increase in flights from the current level of 181,000 movements (2016) whether the existing passenger cap (35mppa) is increased or not. STAL believes it is important that its management and mitigation of noise keeps pace with this increase, and reflects the best practices adopted at other UK airports. In consequence, a number of control and mitigation measures are proposed to be enhanced or newly adopted in order to ensure that this commitment is fulfilled. These are summarised below:

Night Noise Surcharges

Thirty percent of air transport movements during the night quota period are by cargo aircraft, and these are also the noisiest aircraft. At present, charges levied by STAL for CATMs do not distinguish between daytime and night-time operations. However, a scheme is to be introduced which will impose surcharges on operations taking place at any time during the night period (23:00 to 07:00) which will have the aims of:

- Ensuring that those movements generating the highest noise levels during the most sensitive hours pay the highest price, responding to the 'polluter pays' principle;
- Encouraging the displacement of non-essential night time movements to less sensitive daytime hours; and
- Raising additional monies that can be used to fund an enhanced sound insulation scheme, again ensuring that those creating the greatest disturbance make the largest contribution.

Noise Penalty Limits

In order to incentivise the best operational practices, and the maximum noise reduction, it is proposed to tighten the current noise penalty limits for different times of the day. The practical effect of these proposed changes is to set a single limit for the entirety of the 8 hour night period which is 3 dB lower than the existing core night time limit, and 5 dB lower than the existing day and night shoulder period limits. The daytime noise limit is similarly proposed to be reduced by 5 dB. These are significant reductions in the limits.

The fining structure is proposed to remain in line with current practice (up to £1000 per violation) and all monies collected will be given to local community projects through the Stansted Airport Community Trust Fund.

Table 7: Summary of Air Noise Impacts

Year	Daytime (07h00 to 23h00)		Night-time (23h00 to 07h00)	
	Level difference	Impact	Level difference	Impact
2028	0.5 to 0.6 dB	NEGLIGIBLE	0.1 to 0.2 dB	NEGLIGIBLE
2023	-0.3 to 0.4 dB	NEGLIGIBLE	0. 1 to 0.3 dB	NEGLIGIBLE

Sound Insulation Grant Scheme

The existing sound insulation grant scheme (SIGS) is proposed to be significantly enhanced, whereby:

- For any property qualifying for sound insulation enhancement, the full costs of the works (up to a reasonable limit) will be borne by STAL;
- It is proposed to institute a three-stage qualification process for mitigation and enhanced sound insulation under the terms of the new scheme. This will apply different noise exposure metrics and thresholds (e.g. 57 dB $_{LAeq,16h}$, N65 200 overflight events, 90 dB SEL footprint (night), and 55 dB $_{LAeq,16h}$ daytime ground noise) which will trigger the installation of enhanced or replacement glazing, insulation and ventilation systems to eligible properties; and
- Where there are clusters of buildings that do not strictly qualify but which are adjoining, adjacent or in very close proximity to other buildings that do, the scheme boundary will be extended to treat such properties in an appropriate manner.

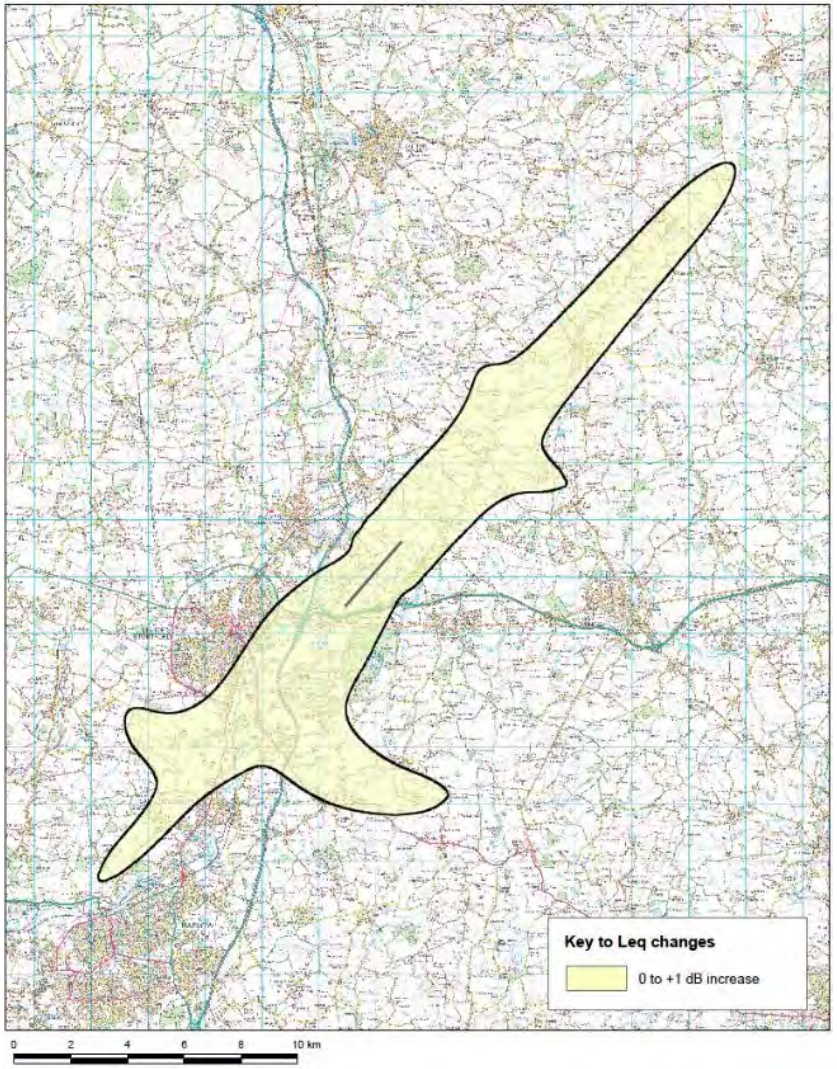


Figure 9: Air Noise Contours 2028 Development Case vs Do Minimum, Summer Day LAeq

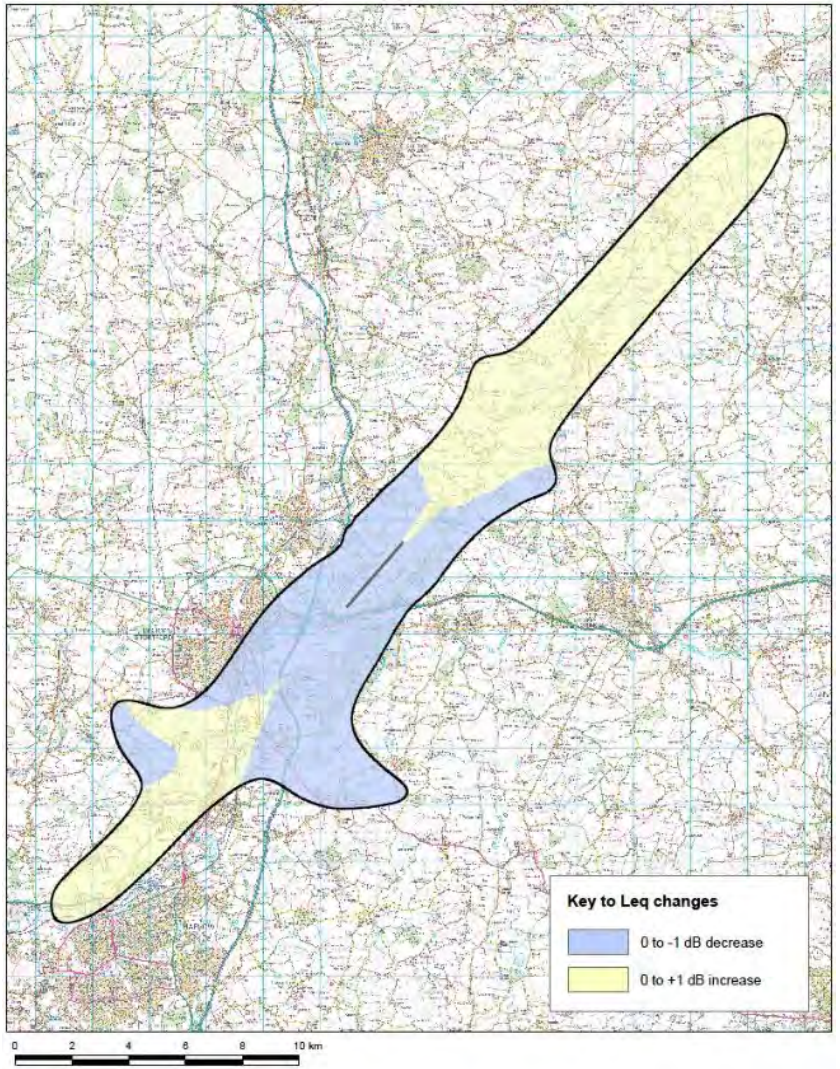


Figure 10: Air Noise Contours 2028 Development Case vs Do Minimum, Summer Night LAeq

GROUND NOISE

Assessment Methodology

This chapter considers the impact of ground noise associated with the proposed development. The principal sources of ground noise are:

- Aircraft taxiing or holding at any point between the parking stand and either the start of roll for departure or exiting the runway on arrival. This includes engine start-up and shut down when parked on the stand;
- Aircraft auxiliary power units (APUs) for supplying cabin air and electrical power, and other aircraft services, mainly when the main engines are not operating; and
- Mobile ground power units (GPUs) which supply the required electrical power for aircraft and other equipment such as PCA units which supply pre-conditioned air during turnarounds when fixed electrical ground power (FEGP) is not available.

The area around the airport is predominantly rural and other than airborne aircraft noise, the noise environment is typically dominated by road traffic noise from the busy M11 motorway and the A120. Aircraft ground noise is audible at locations close to the airport, the level and frequency of which depends on the proximity of the receptors to the airport, and the amount of screening in place due to buildings and local terrain. The noise from ground operations will typically be audible as a relatively steady background noise. At greater distances away from the airport, only noise from aircraft in flight will be audible.

The assessment considers how much higher, or lower, the ground noise levels are forecast to be in both the daytime and night-time in the Development Case compared to the Do Minimum scenario. This comparison has been made for 2028, and also the Transitional Year of 2023.

However, any change in noise level needs to be considered in the context of the absolute levels of aircraft noise. For this reason, the forecast ground noise levels are also compared to:

- The background noise levels (e.g. from road traffic) in the absence of noise due to ground activities at the airport; and.
- Threshold levels that reflect the onset of community annoyance to aircraft ground noise, using World Health Organisation (WHO) guidelines, relevant British Standards and ground noise assessments at other airports.
- Further details of aircraft noise levels and assessment/ significance criteria used are provided within Chapter 8 (Ground Noise) of the ES.

Operational Phase Effects

At all assessed locations, with the exception of Molehill Green, the proposed development is forecast to give rise to **no adverse effects** due to daytime ground noise in either 2023 or 2028.

At Molehill Green, the forecast increase in noise levels in 2028 is predicted to exceed the 'no impact threshold' by the smallest of margins: 0.1 dB. However, because ground noise at this location is also forecast to exceed the existing background noise level, again by the very small margin of only 1 dB, a **minor adverse** effect is determined for this one location.

During the sensitive night time period, all assessed locations are forecast to experience **no adverse effects** in either 2023 or 2028. This is because there will be virtually no additional flights at night due to the strict night time controls imposed by the Government. In addition, the proposed development will stimulate a greater uptake of new generation, lower noise, aircraft which will replace the current generation of aircraft.

Mitigation and Residual Effects

There is a significant amount of physical mitigation already in place due to topographical features, bunds and buildings. In addition, there are a wide range of noise management controls. These include time limits on the operation of noise generating equipment and preferential use of low noise devices, such as GPUs, instead of much noisier APUs.

As no ground noise impacts of significance are predicted, no specific additional mitigation is required. However, as described in the previous section of this NTS, a SIGS is available to people in the community exposed to aircraft noise levels above certain limits. The scheme includes properties located within 600m of the airport boundary; reflecting their exposure to ground noise. These properties will benefit from the proposed enhancements to the SIGS, night surcharges and new noise penalty limits.