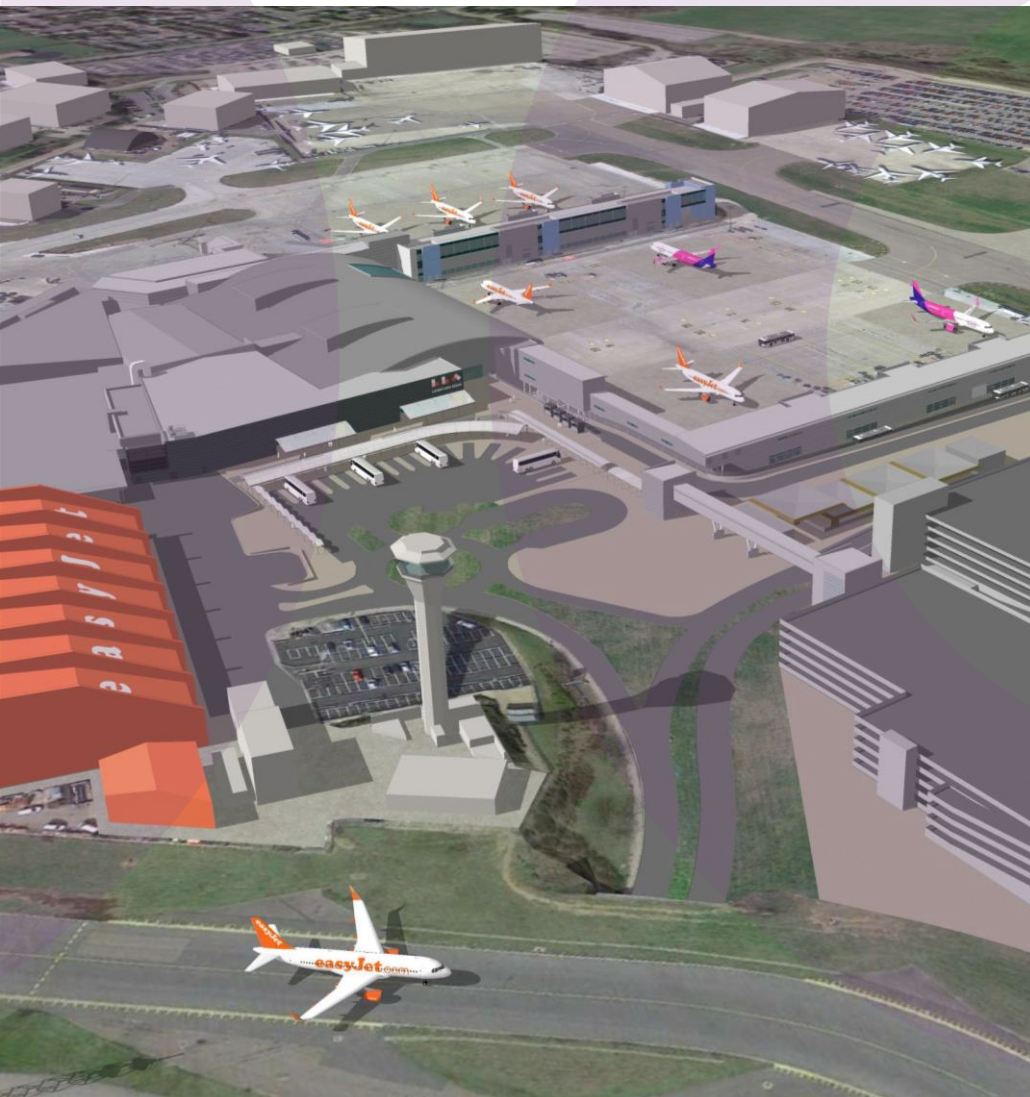


London Luton Airport Operations Limited

## Luton Airport Expansion – 19 mppa

Environmental Impact Assessment  
Volume 1: Non-Technical Summary  
of Environmental Statement Addendum



## Report for

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## Document revisions

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# 1. Introduction

- 1.1.1 In 2014, London Luton Airport Operations Limited (hereafter referred to as the 'Applicant') the operator of London Luton Airport (hereafter referred to as 'LLA') was granted consent for a growth plan that allowed for expansion to 18 million passengers per annum (mppa, this is the number of passengers than fly in or out of the airport each year) at the airport (Luton Borough Council planning reference: 12/01400/FUL), together with associated operational development. This can be described as the '2014 Planning Permission' as it provides the overall baseline and context for subsequent planning consents, and this current application. This consent was granted subject to a number of conditions.
- 1.1.2 Following the grant of the 2014 Planning Permission, an application was submitted in 2015 for variation to a condition related to the noise controls from the 2014 Planning Permission (the "Variation Application"). The Variation Application was accompanied by an Environmental Statement Addendum which described the proposed changes in full and presented an assessment of any new or different likely significant effects on the environment as a result of the Variation Application. This did not affect the assessment or conclusions of a majority of the 2014 Planning Permission because it only related to the variation of operational noise and violation limits. Therefore, the Variation Application only assessed noise and vibration environmental effects. Planning permission was granted for the Variation Application on 13 October 2017 (reference: 15/00950/VARCON) subject to conditions.
- 1.1.3 The Variation Application repeated the description of development and conditions imposed on the 2014 Planning Permission. The Variation Application therefore represents the existing consented position in relation to the development and is referred to in this Non-Technical Summary as the "2014 Planning Permission".
- 1.1.4 The Environmental Statement (ES) in relation to the development consented by the 2014 Planning Permission therefore comprises the November 2012 ES and the July 2015 ES Addendum. They are referred to in this document collectively as the "2012 ES".
- 1.1.5 The 18 mppa cap on passenger numbers imposed by the 2014 Planning Permission reflected the forecasts at that time, which anticipated that LLA would see a steady rise to around 18 mppa by about 2027. According to the London Luton Airport Vision for Sustainable Growth 2020-2050<sup>1</sup>, the latest forecasts for LLA anticipated that the 18 mppa capacity was expected to be fully utilised by 2020. However, LLA reached the 18 mppa cap during 2019<sup>2</sup>, almost a decade earlier than originally forecast in the 2014 Planning Permission.
- 1.1.6 The COVID-19 pandemic has had a devastating effect across the globe, with the transportation industry being one of the worst affected sectors. This has affected the operation of LLA considerably throughout 2020. It is anticipated that LLA would recover relatively swiftly from the temporary COVID-19 implications, having been the second busiest airport in the UK by passenger numbers during the travel restrictions (e.g. May and June 2020) after Heathrow.
- 1.1.7 LLA's passenger recovery forecast is based on industry-wide research and forecast by Airports Council International. The Airports Council International are an industry body representing airports throughout the world, including LLA. Airports Council International carried out a survey on the likely recovery of passenger demand to / from and within Europe in 2020 and 2021. Considering

<sup>1</sup> London Luton Airport Ltd (n.d.). London Luton Airport Vision for Sustainable Growth 2020 – 2050, [online]. Available at: <https://www.llal.org.uk/Documents/vision2020-2050.pdf> [Accessed 11 May 2020].

<sup>2</sup> London Luton Airport Operations Limited, (2019). Carbon footprint report. [online]. Available at: <https://www.london-luton.co.uk/LondonLuton/files/50/50af686c-ffae-49fd-981d-180f588dd5d6.pdf> [Accessed 14 September 2020].

LLA's heavy reliance on Low Cost Carriers (LCCs), the answers from the industry experts support the view that LLA would recover at a faster rate than other major London airports such as Heathrow or Gatwick. The Applicant has further extrapolated those recovery rates beyond December 2021 to the end of 2024. LLAOL expects passenger volumes to recover to 18 mppa by 2023 and could grow beyond 18 mppa in 2024. Therefore, the proposed increase to the existing passenger cap is being sought.

- 1.1.8 The Applicant intends to increase the capacity of LLA from 18 mppa to 19 mppa (hereafter referred to as 'the Proposed Scheme') through the variation of five planning conditions attached to the 2014 Planning Permission. This is proposed to be done by way of an application under Section 73 of the Town and Country Planning Act 1990 to vary conditions associated with the 2014 Planning Permission<sup>3</sup>. The growth to 19 mppa can be accommodated without any new development built within the red line boundary of the airport site (referred to as on-airport infrastructure), therefore, no physical development is included within the Proposed Scheme. The additional passengers would be accommodated through a small increase in the number of air transport movements (ATMs) and the use of larger aircraft.
- 1.1.9 Despite the impacts of COVID-19, which has seen passenger numbers at LLA drop from 18 million in 2019 to 5 million in 2020, these changes are being sought now so LLA is in a good position for the future and can continue to create benefits for the passengers, the supply chain, and the local economy. While it is unlikely passenger numbers will return for several years, LLA must prepare for the future and this application is focused on making sure LLA has the best possible footing to bounce back and help the local and national economy recover.
- 1.1.10 To support this planning application, an Environmental Impact Assessment (EIA) has been undertaken to understand the potential environmental effects that the Proposed Scheme may have on the surrounding environment and community. The EIA process identifies the likely significant environmental effects of a scheme and identifies ways that these effects can be reduced and / or managed. An EIA is required by law for certain specified developments that have the potential to cause likely significant environmental effects. The findings of this process are reported in a document called an Environmental Statement. The Environmental Statement will be in the public domain for anyone to view (see **Volume 2: Environmental Statement**).
- 1.1.11 This Environmental Statement has been prepared in accordance with the *Town and Country Planning (Environmental Impact Assessment) Regulations 2017*<sup>4</sup> (the '2017 EIA Regulations'). It presents an assessment of the likely significant environmental effects of the Proposed Scheme, to enable decision makers, statutory and non-statutory consultees, and members of the public to understand the likely significant effects of the Proposed Scheme on the environment.
- 1.1.12 This Non-Technical Summary sets out a brief summary of the findings reported in full in the Environmental Statement.

<sup>3</sup> An application made under the *Town and Country Planning Act 1990* to remove or vary a condition associated with an existing planning permission.

<sup>4</sup> The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 [online]. Available at: <http://www.legislation.gov.uk/uksi/2017/571/contents/made> [Checked March 2019].



## 2. The Proposed Scheme

### 2.1 Background

- 2.1.1 The airport was opened as Luton Municipal Airport in 1938 by the Borough of Luton, following a period of use by the Royal Air Force (RAF) during World War II. During World War II, the airport was home to 264 Fighter Squadron, as well as being a manufacturing base for both military and civil aircraft.
- 2.1.2 By 1952, civil use of the airport resumed, and in 1969 nearly a fifth of all flights from the UK departed from Luton. Despite financial difficulties during the 1970s, resulting from the liquidation of major tour operators, in 1985 a new international terminal building was opened. This was followed by the airport becoming a limited company in 1987, with Luton Borough Council as sole shareholder. The airport was then re-named LLA in 1990 to mark its position as part of the London airport network.
- 2.1.3 Business continued to increase as new airlines were introduced, and by 1998 passenger numbers had risen to 4.4 mppa. Luton was then the UK's fastest growing airport. In August 1998 the operation, management and development of the airport was formerly transferred from Luton Borough Council to the Applicant. Originally this was for a period of 30 years, however a subsequent extension to this period of operation was granted to 2031.
- 2.1.4 The 2014 Planning Permission provided consent to allow the capacity of LLA to increase to 18 mppa. The 18 mppa cap on passenger numbers imposed by the 2014 Planning Permission reflected the forecasts at that time, which anticipated that LLA would see a steady rise to around 18 mppa by around 2028. It is important to note, that within the decision notice, LBC acknowledged that the on-site infrastructure of the approved scheme at LLA has the potential support operational capacity up to 20 mppa.

### 2.2 Site location and the surrounding area

- 2.2.1 LLA is located approximately 45 km north of London, situated to the south-east of Luton, directly adjacent to the A1081 to the west and Percival Way to the north. The redline boundary is wholly within the local authority administrative area of Luton Borough Council. Outside of the redline boundary, LLA owns land in Central Bedfordshire and North Hertfordshire.
- 2.2.2 LLA itself is approximately 245 ha and is predominantly level on a raised chalk plateau at the northern end of the Chiltern Hills, an Area of Outstanding Natural Beauty (AONB), and its highest point is approximately halfway along the runway. At the runway edges, the local topography steeply drops beyond the western extent, and at the eastern extent of the Site. The general topography of the area to the south and east of Luton consists of a series of generally parallel ridges and valleys that run from north-west to south-east.
- 2.2.3 To the south and east, the airport is bound by agricultural land. The southern boundary of LLA closely follows the boundary between Luton Borough Council and the district of Central Bedfordshire, while the easterly boundary follows the county boundaries between the counties of Hertfordshire and Bedfordshire.
- 2.2.4 Further afield, the landscape is characterised by arable farmland and moderately sized villages or smaller clusters of residential properties. The arable farmland also contains pockets of priority habitat, namely deciduous woodland, ancient, replanted woodland, and semi-natural woodland

located to the south and east of LLA. There are several listed buildings, and two registered parks and gardens within 2 km of the airport. There is one scheduled monument, Someries Castle, located 0.75 km to the south-west of LLA. The nearest ecological designated site is Gallery Warden Hills Site of Special Scientific Interest (SSSI), located 5 km north of LLA.

## 2.3 Scheme description

- 2.3.1 The Proposed Scheme seeks the variation of five conditions attached to the 2014 Planning Permission. The proposed variations to Condition 8 (passenger throughput cap) and Condition 10 (noise contours) have the potential to alter the parameters of LLA and so have the potential to cause impacts on the environment. Condition 8 and Condition 10 are assessed within the Environmental Statement and are described in turn below with a justification for its variation.
- 2.3.2 The Proposed Scheme includes variations to Condition 22 (car park management), Condition 24 (travel plan), and Condition 28 (approved plans and documents, this includes an updated car parking management plan and updated travel plan). These will not alter the parameters of LLA nor have impacts on the environment as such, and so these variations are not assessed within the Environmental Statement and are not described further in this Non-Technical Summary. These documents / plans may present embedded mitigation measures put forward as part of the Proposed Scheme, where embedded mitigation measures have been stated, these have been incorporated into the Environmental Statement.
- 2.3.3 There are no physical or infrastructure changes associated with the proposed variation to Conditions 8 and 10 that would seek to change the external appearance, height, scale, mass, or layout of elements associated with the 2014 Planning Permission.

### Proposed variation to Condition 8 (passenger throughput cap)

- 2.3.4 LLA has experienced unprecedented levels of growth in passenger numbers which are considerably above those predicted at the time of the 2014 Planning Permission, reflecting the success of LLA as a destination. The passenger level of LLA reached the 18 mppa cap in 2019<sup>5</sup>, nine years earlier than originally anticipated in the 2014 Planning Permission. The passenger growth rate at LLA have increased by more than 1 mppa each year since 2017.
- 2.3.5 The Applicant wishes to vary Condition 8 and raise the passenger cap from 18 mppa to 19 mppa. This would ensure that the number of passengers going through LLA could continue to grow over the short to medium term (this growth would be prevented by the existing cap).
- 2.3.6 It is proposed that variation to Condition 8 is as follows (variations to the existing condition are noted in **red bold text**, with the text to be replaced shown as ~~strikethrough~~):

*"At no time shall the commercial passenger throughput of the airport exceed **18 19** million passengers in any twelve-month period. From the date of this permission the applicant shall every quarter report in writing to the Local Planning Authority the moving annual total numbers of passengers through the airport (arrivals plus departures). The report shall be made no later than 28 days after the end of each quarter to which the data relates.*

**Reason:** *To ensure growth of the airport can continue, and not be restricted by the existing cap."*

<sup>5</sup> There has been a decline in passenger number at LLA during 2020 due to the COVID pandemic and it is predicted that the passenger levels will not return to 2019 levels until 2023. The impact of COVID has been factored into the analysis.

## Proposed variation to Condition 10 (noise contours)

- 2.3.7 The Applicant is also seeking to vary the wording of Condition 10 such that it provides for a less restrictive daytime noise contour and night-time noise contour than that as currently set out. The existing Condition 10 noise contour were set on the basis of noise modelling carried out for the 2014 Planning Permission. However:
- since the time of this modelling, LLA has experienced unprecedented levels of growth in passenger numbers, which are considerably above those predicted in the 2014 Planning Permission, reflecting the success of LLA as a destination, and
  - in addition to the above, the original noise modelling took into account the fleet modernisation information that was available at that time. It was anticipated that the aircraft fleet using LLA would be modernised and therefore become quieter over time.
- 2.3.8 The original noise modelling (in the 2014 Planning Permission) only took into account the effects of modernisation with respect to the assessment in 2028, by which time it was assumed that the resident airlines would have acquired all of the ordered new generation aircraft (NEO and MAX aircraft). As such, little or no headroom was included for unforeseen circumstances outside of the control of the operator of LLA. There are a number of reasons why forecasting fleet modernisation is difficult to predict, including:
- the speed of manufacture;
  - whether an Operator (an airline) chooses to base or use aircraft at LLA, instead of at another airport in its network;
  - whether an aircraft is permitted to fly;
  - the financial situation of an operator and whether they order as many as forecasted; and
  - the likelihood of manufacturers producing re-engined aircraft.
- 2.3.9 It is acknowledged that the expected reductions in noise levels have not been forthcoming to the extent envisaged, and it is taking longer than anticipated to achieve the mandated noise levels, resulting in breaches of the existing Condition 10. This has been due to the delay in fleet modernisation and from the grounding of Boeing 737Max aircraft due to safety concerns. This has meant that there are lower numbers of new generation aircraft at LLA, compared to the initial assumptions made as part of the 2028 forecast in the noise modelling for the 2014 Planning Permission.
- 2.3.10 The proposed variation to Condition 10 seeks to increase the area enclosed by the contours for daytime and night-time noise. The proposed variation is driven by the occasional breaches during the summer 2017 night-time contour, summer 2018 night-time contour, summer 2019 night-time contour, and the summer 2019 daytime contour.
- 2.3.11 The proposed Amendments will enable the area enclosed by the daytime and night-time noise contours to increase for the period up to the end of 2027. At the end of 2027, Condition 10 will be required to reduce the area of the noise contours for daytime and night-time noise as it is anticipated that newer, quieter aircraft fleet mix would be introduced. In addition, improvements in noise reduction facilitated by new aircraft will bring forward opportunities to reduce the areas covered by the noise contours.
- 2.3.12 It is proposed that variation to Condition 10 is as follows (variations to the existing condition are noted in **red bold text**, with the text to be replaced shown as ~~striketrough~~):



*~~"The development shall be operated in accordance with the Noise report approved on 2 March 2015 (ref: 14/01519/DOC), including providing details of forecast aircraft movements and consequential noise contours as set out in that report.~~*

*The area enclosed by the 57dB(A) Leq16hr (0700-2300) contour shall not exceed ~~19.4 sq km~~ **21.6 sq km** for daytime noise, and the area enclosed by the 48dB(A) Leq8hr (2300-0700) contour shall not exceed ~~37.2 sq km~~ **42.9 sq km** for night-time noise, when calculated by the Federal Aviation Authority Integrated Noise Model version 7.0-d (or as may be updated and amended) **for the period up to the end of 2027. Post 2027 the area enclosed by the 57dB(A) Leq16hr (0700-2300) contour shall not exceed 15.5 sq km for daytime noise, and the area enclosed by the 48dB(A) Leq8hr (2300-0700) contour shall not exceed 35.5 sq km for night time noise.***

*Within ~~five years~~ **12 months** of the commencement of development ~~the date of this permission~~ a strategy shall be submitted to the Local Planning Authority for their approval which defines the methods to be used by LLAOL or any successor or airport operator to reduce the area of the noise contours by 2028 for daytime noise to ~~15.2 sq km~~ **15.5 sq km** for the area exposed to 57dB(A) Leq16hr (0700-2300) and above and for night-time noise to ~~31.6 sq km~~ **35.5 sq km** for the area exposed to 48dB(A) Leq8hr (2300-0700) and above.*

***Forecast aircraft movements and consequential noise contours (Day, Night and Quota Periods) for the forthcoming calendar year shall be reported on the 1st December each year to the LPA, which shall utilise the standard 92 day summer contour."***

**Reason:** To safeguard residential amenity. To accord with the objectives of the Luton Local Plan and the National Planning Policy Framework."

## 2.4 Alternatives considered

- 2.4.1 The only potential alternative to the Proposed Scheme that was considered by the Applicant was to continue to operate at the 18 mppa cap. This is termed the 'do-nothing' (or 'without development') scenario. However, to progress with this alternative would not have delivered the anticipated economic growth. This is because restrictions would have to be placed on airlines to be confident that compliance with conditions attached to the 2014 Planning Permission was achievable. Furthermore, without restrictions on airlines there would be a risk of repeated breaches of Condition 10. As such, the 'doing nothing' was not considered to be a reasonable alternative.
- 2.4.2 Notwithstanding, the assessments presented throughout this ES use the 18 mppa 'do nothing' scenario as the current and future baseline and present the comparative environmental effects of these scenarios against those assessed for the Proposed Scheme.

### 3. The EIA process

- 3.1.1 The 2017 EIA Regulations require certain types of development to undertake an EIA before planning permission can be granted. In the case of LLA, as the 2014 Planning Permission was subject to EIA and this application seeks to vary multiple conditions associated with that permission that could potentially have impacts on the environment, it is considered to be an EIA development and therefore needs to be accompanied by an Environmental Statement.
- 3.1.2 A formal Screening Opinion was sought from Luton Borough Council for the variations associated with the Proposed Scheme. This indicated that the Proposed Scheme met the thresholds for assessment set by the 2017 EIA Regulations and has the potential to have significant effects on the environment, due to the characteristics, location, and potential impact of the development. The issuing of this positive screening opinion means the Proposed Scheme is classed as an EIA development and therefore the environmental effects of the proposal are required to be evaluated through the EIA process and presented in an Environmental Statement.
- 3.1.3 The Environmental Statement documents the findings of the EIA. The scope of this assessment, including the environmental topics to be included, and the baseline information, surveys, and technical assessments required, was agreed with Luton Borough Council through a meeting held between the Council and the Applicant in September 2020.
- 3.1.4 The environmental topics that have been assessed for the Proposed Scheme, are presented in **Table 1**, with the columns indicating which changes are assessed in relation to each topic (by reference to the relevant condition number). Alongside this, the screening exercise identified that the Proposed Scheme was unlikely to cause significant effects in relation to the following aspects of the environment (as compared to the effects associated with the 2014 Planning Permission): Biodiversity; Ground conditions; Historic environment; Landscape and visual; Major accidents and disasters; Socio-economics effects; Waste and resource use, and Water resource and flood risk. As such, these areas have not been assessed within the Environmental Statement.

Table 1 Environmental topics to be assessed within the Environmental Statement

Proposed variations		
Environmental topic	Condition 8 passenger throughput cap	Condition 10 noise contours
Air quality	Yes	No
Climate	Yes	No
Human health	Yes	Yes
Noise	Yes	Yes
Transport	Yes	No

- 3.1.5 The Environmental Statement brings together information about any potentially likely significant environmental effects that could result from the Proposed Scheme. This Non-Technical Summary

summarises the key findings of the Environmental Statement. The topics addressed in the Environmental Statement are outlined in **Table 2**.

**Table 2** Topics addressed in the Environmental Statement

Topics in the EIA Regulations	Topics in the Environmental Statement
<b>Population</b>	Human health [ <b>Chapter 9</b> ]
<b>Human health</b>	Air quality [ <b>Chapter 6</b> ], Human health [ <b>Chapter 9</b> ], and Noise [ <b>Chapter 8</b> ]
<b>Biodiversity</b>	Scoped out of the assessment
<b>Land</b>	Scoped out of the assessment
<b>Soil</b>	Scoped out of the assessment
<b>Water</b>	Scoped out of the assessment <sup>6</sup>
<b>Air</b>	Air quality [ <b>Chapter 6</b> ], and Transport [ <b>Chapter 10</b> ]
<b>Climate</b>	Climate [ <b>Chapter 7</b> ]
<b>Material assets</b>	Climate [ <b>Chapter 7</b> ] and Transport [ <b>Chapter 10</b> ] <sup>7</sup>
<b>Cultural heritage</b>	Scoped out of the assessment
<b>Landscape</b>	Scoped out of the assessment
<b>Waste and Resource Use</b>	Scoped out of the assessment <sup>7</sup>
<b>Major Accidents and Disasters</b>	Scoped out of the assessment
<b>Interaction between the above factors</b>	These are discussed within each Chapter where relevant.
<b>Cumulation with other projects</b>	Cumulative Effects [ <b>Chapter 4</b> ]

<sup>6</sup> Information on drainage is provided by the Drainage and water supply infrastructure appraisal document reference: 41431JG22V2.

<sup>7</sup> For information on waste, see the Site Waste Management Plan document reference: 41431BNV2.

## 4. Environmental effects

- 4.1.1 The topics, as detailed in **Table 1**, are required to be assessed and as such are reported in the Environmental Statement. The assessment analyses the significance of the likely effects (positive or negative) of each topic area in relation to people and environmental resources (referred to as receptors) as a result of the construction and operation of the Proposed Scheme. This section provides an overview of the key findings from each of the topics in the Environmental Statement.

### 4.2 Air quality

- 4.2.1 Air quality refers to the concentrations of pollutants in the air that people breathe. Poor air quality is associated with health problems, especially respiratory conditions which affect breathing. It can also affect vegetation and animals. Legally binding limits on key pollutants are set out in European and UK law to protect human health and the environment. These are referred to as Air Quality Objectives (AQOs).
- 4.2.2 The main pollutants of concern for the Proposed Scheme include gases, oxides of nitrogen ( $\text{NO}_x$ ) and nitrogen dioxide ( $\text{NO}_2$ ), and fine particulate matter ( $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ ) in relation to concentrations in air, and nutrient nitrogen and acidity in relation to deposition.

**$\text{NO}_x$ :** A family of gases which can be emitted from cars, trucks, and non-road vehicles as well as industrial sources.

**$\text{NO}_2$ :** A gas which is part of the  $\text{NO}_x$  family.

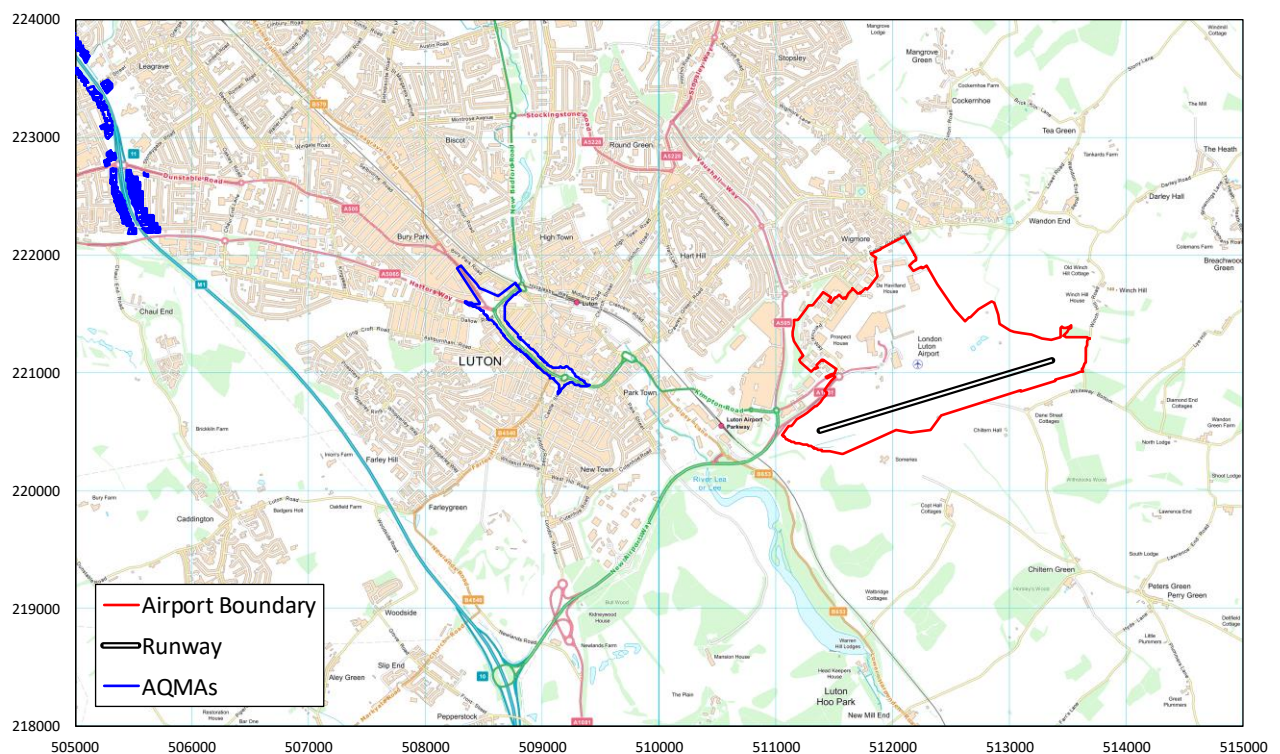
**Particulate Matter:** A mixture of small particles and liquid particles. The particle pollution is made up of a number of components, including acids, organic chemicals, metals and soil or dust particles. Sources include car and lorry engines, wear from brake pads and tyres, and industrial processes. Particles are grouped into two size categories:

- **$\text{PM}_{10}$ :** smaller than 10 micrometres ( $\mu\text{m}$ ) in diameter.
- **$\text{PM}_{2.5}$ :** smaller than 2.5  $\mu\text{m}$  in diameter.

- 4.2.3 There is good evidence to suggest that increased levels of  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  have significant health effects, but concentrations (the amount contained within the air) are within legal limits across most of the country. There is more scientific uncertainty about the health effects of  $\text{NO}_2$ , and concentrations of this pollutant are close to or above the legal limit in some urban areas.  $\text{NO}_x$  is not believed to have impacts on human health, it can however affect the environment. Concentrations of air pollutants are generally decreasing in most places in the UK in response to actions to reduce emissions and improve air quality.
- 4.2.4 The effects of pollutants depend on how long people are exposed to them. For many pollutants, there are separate limits for short-term and long-term exposure. Short-term exposure limits are usually for an hour or a day, and protect against pollution when outdoors for short periods, such as shopping or playing sport. Long-term exposure limits are expressed as annual means (averages), and protect against effects while at home, school, or other places where people spend large amounts of time.

- 4.2.5  $\text{NO}_2$  and  $\text{NO}_x$  are produced by burning fuel; this includes aircraft engines, vehicle engines, road transport, and boilers for heating homes and offices.  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  are produced by the same processes, and also by wear from tyres and brakes on road vehicles and aircraft.
- 4.2.6 Previous studies have shown that more than a few kilometres (km) from an airport, pollutant concentrations are not discernibly higher than if the airport were not there. Therefore, airport-related effects on local air quality have been assessed within a few kilometres of the airport. Aircraft in the air have a limited impact on ground-level pollutant concentrations but have been included in the assessment.
- 4.2.7 Consideration of the principal routes used by airport-related traffic suggests that for air quality purposes, it is sufficient to consider traffic on the A1081, the A505, and selected other roads within a few kilometres of the Site. The M1 between Junctions 9 and 11A have also been considered.
- 4.2.8 As part of their responsibilities under the Environment Act 1995, local authorities prepare annual reports on the air quality within their administrative areas and declare Air Quality Management Areas in locations where there is a risk of an Air Quality Objective being exceeded. Luton Borough Council has declared three Air Quality Management Areas for annual mean  $\text{NO}_2$ , covering part of Luton town centre, approximately 2 km east of the Site, and locations around the M1 near Junction 11, approximately 6 km east of the airport. The declared Air Quality Management Areas are shown in **Figure 4.1**.

Figure 4.1 Airport location in relation to AQMAs



- 4.2.9 Existing concentrations of  $\text{NO}_2$ ,  $\text{NO}_x$ ,  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  around LLA are typical of urban background locations in England and all meet the Air Quality Objectives. At roadside and kerbside locations, concentrations of  $\text{NO}_2$  are higher depending on local traffic conditions, and the exact location of the monitor relative to the road.



- 4.2.10 This assessment makes a number of worst-case assumptions, which means that air quality impacts are likely to be over-estimated. To assess how significant the impacts are the recommendations from the Institute of Air Quality Management and the Environment Agency have been followed.
- 4.2.11 The Proposed Scheme will cause a small increase in NO<sub>2</sub> concentrations at some locations around the airport and close to major roads serving the airport. A contour plot of total annual mean NO<sub>2</sub> for the 19 mppa scenario is shown in **Figure 6.2**, and a contour plot of the increase due to the Proposed Scheme, relative to the 18 mppa scenario, is shown in **Figure 6.3**. However, all concentrations will remain comfortably within all legal limits and any breaches of these limits are predicted to be very unlikely.

Figure 6.2 Annual mean NO<sub>2</sub> concentrations, 19 mppa scenario

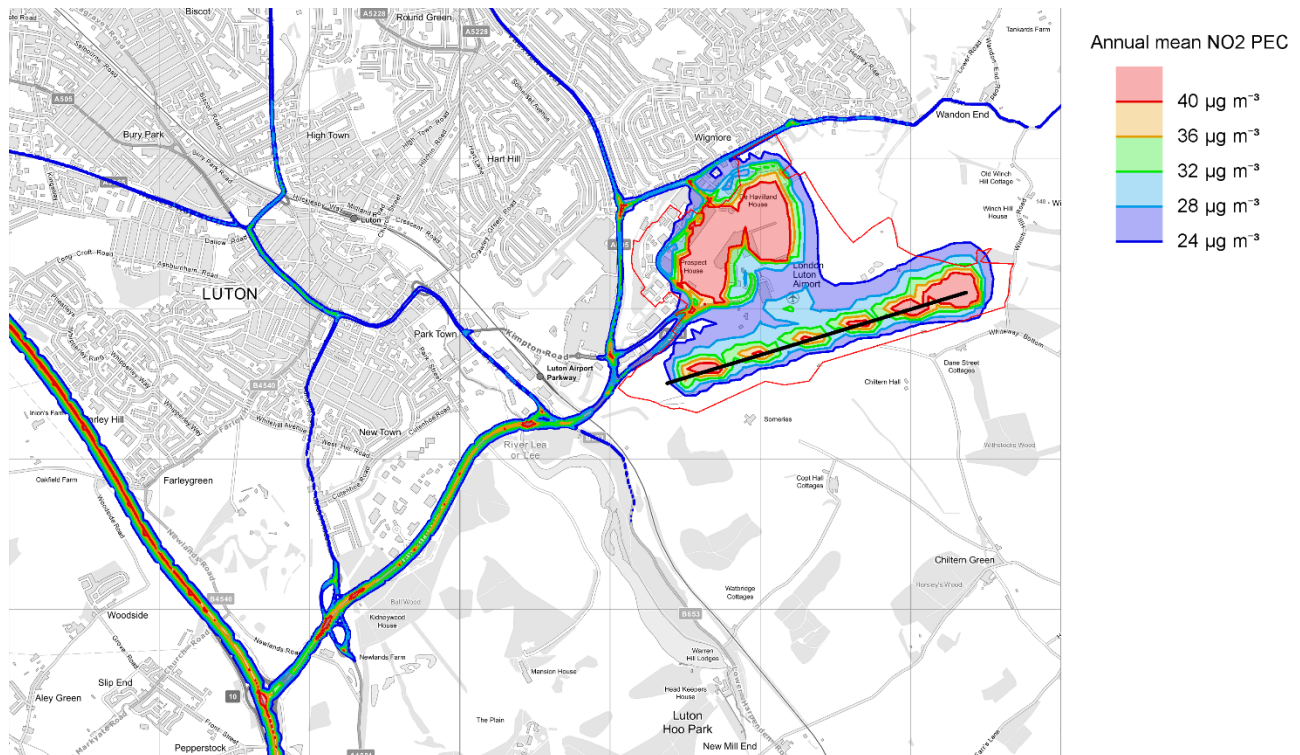
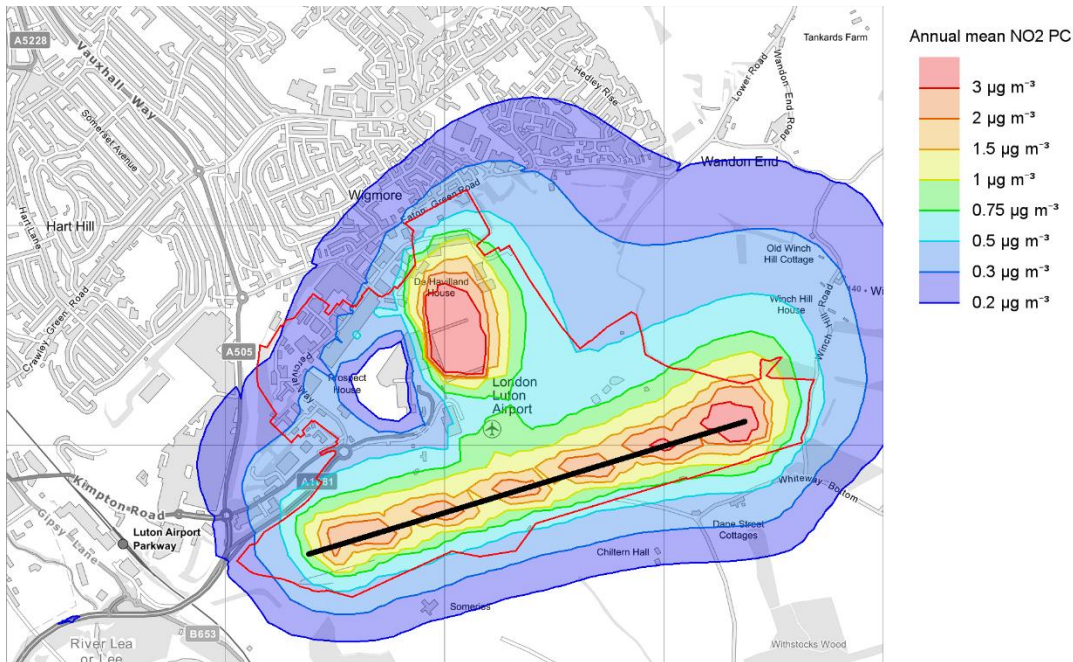




Figure 6.3 Increase in annual mean NO<sub>2</sub> concentrations from 18 mppa to 19 mppa



- 4.2.12 The Proposed Scheme will cause a small increase in PM<sub>2.5</sub> and PM<sub>10</sub> concentrations at some locations. However, all concentrations will remain comfortably within all legal limits and any breaches of these limits are predicted to be very unlikely.
- 4.2.13 Impacts from NO<sub>x</sub>, nitrogen build-up and acid build-up, at all ecological sites are predicted to be insignificant.
- 4.2.14 Overall, the air quality impacts of the Proposed Scheme are very small and are not considered to be significant.

### 4.3 Climate

- 4.3.1 The climate assessment identifies the impact of the increase in Greenhouse Gas (GHG) emissions from the Proposed Scheme on the global climate. It identifies the extent to which the magnitude of emissions from the 'with development' case (representative of a 19 mppa airport) compared to 'without development' case (representative of 18 mppa) affects the ability to meet national budgets and targets for climate change.
- 4.3.2 The core legislation that is of relevance to this assessment is the Climate Change Act 2008, as amended in 2019. The Act now commits the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline ('the UK carbon target'). The UK carbon target is now often referred to as 'net zero'. The Act also requires the Secretary of State to set successive five-year carbon budgets ('the UK carbon budgets') to meet the UK carbon target for 2050.
- 4.3.3 International aviation is not part of the 'net UK carbon account' and so is not included in the UK carbon target or the UK carbon budgets, but the UK carbon budgets are to be set 'having regard to' international aviation. In practice, the successive carbon budgets have been set allowing for 'headroom' for what is sometimes referred to as the 'planning assumption' (also referred to as the 'aviation target'). The 'planning assumption' that has been allowed for in all carbon budgets in the UK to date is 37.5Mt CO<sub>2</sub>e. Thus, the latest (i.e. Fifth) carbon budget for the period to 2028-2030 is set at 1,765 Mt CO<sub>2</sub>e (reflecting – that is excluding – a 'planning assumption' of 37.5Mt CO<sub>2</sub> for

international aviation). This 'planning assumption' reflects the advice of the Committee on Climate Change in its report 'Meeting the UK aviation target – options for reducing emissions to 2050.

- 4.3.4 At a local level there are no binding GHG targets, although the Luton Borough Council Climate change action plan, published in 2019, sets out a commitment that Luton Borough will aim *"for net zero carbon in advance of the national target in 2050"*. Luton Borough Council has an aim for the borough to be carbon neutral by 2040, but the Action Plan *"does not describe how the borough as a whole will reach carbon neutrality"*. As a result, the climate assessment, considers the non-aviation GHG emissions which would result from the amendments to the existing consent in relation to LLA within the context of a 2040 carbon neutral Luton Borough, with an acknowledgement that the policy landscape may evolve significantly.
- 4.3.5 The assessment has therefore made assumptions about the future of the aviation sector. These assumptions. Together with a description of how they relate to this assessment, as set out below:
- 37.5 MtCO<sub>2</sub> from international aviation departing the UK in 2050 is the 'planning assumption' used by the UK Government in setting current UK carbon budgets under the Climate Change Act and it remains the most appropriate value against which to consider the international aviation GHG emissions from the Proposed Scheme.
  - 23 MtCO<sub>2e</sub> from the UK aviation sector represents the 'Balanced Pathway scenario for the aviation sector to contribute towards the UK goal of achieving 'net zero' in 2050, as described by the CCC. It should therefore be adopted as a 'sensitivity test' value against which to consider the aviation GHG emissions from the Proposed Scheme. This CCC Balanced Pathway suggestion is representative of what aviation policy *could* look like in the future to take into account the amended Climate Change Act.
  - Achieving net zero requires increased sustainable fuel use, greenhouse gas removals/offsets and operational improvements, which will be driven by international sector-based mechanisms such as the European Union Emissions Trading Scheme (EU ETS) and Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Robust and CORSIA-eligible offsetting opportunities in the UK, including substantial investment in Carbon Capture and Storage, are required to increase the extent of carbon removal in the UK.
  - National and international-level responses to reducing aviation GHG emissions that have been put in place (e.g. Aviation Strategy, CORSIA) will be effective.
  - All GHG emissions associated with the operation of LLA that are not from international aviation are considered within the context of the UK carbon target for 2050 and UK carbon budget. Aside from domestic aviation, these GHG emissions are also relevant to local carbon targets and plans as set by Luton Borough Council.
- 4.3.6 GHG emission sources have been considered for operational activities associated with the Proposed Scheme. This includes the GHG emissions resulting from activities within the application site (e.g. buildings and airside operations) and activities outside of the application site that are emitted as a direct result of the Proposed Scheme (e.g. aviation emissions and surface access emissions). There are no construction activities associated with the Proposed Scheme.
- 4.3.7 The receptor for each GHG emissions source is the global climate. Given the global impacts of climate change and the globally-recognised requirement to limit GHG emissions to maintain global average temperature increase below 2°C, as laid out in the Paris Agreement, the receptor is considered highly sensitive to emissions. GHG emissions to the receptor are considered direct and negative, and the effects on the receptor are permanent.
- 4.3.8 Given the only receptor for GHG emissions is the global climate, the study area of the emissions from the Proposed Scheme is effectively the Earth system.

4.3.9 2019 baseline emissions are presented in **Table 4.1**. These emissions represent the most up-to-date information available for GHG emissions at LLA.

**Table 4.1 GHG emissions/year for the 2019 baseline**

Source	Activity	2019 (baseline) (ktCO <sub>2</sub> e / yr*)
<b>Aviation</b>	International aviation	1,033.83 ktCO <sub>2</sub> / yr
	Domestic aviation	41.86 ktCO <sub>2</sub> / yr
<b>Surface access</b>	Passengers	396.06
	Employees	9.69
<b>Airport buildings and ground operations</b>	Grid electricity	10.10
	Gas usage	1.5
	Diesel (heating)	0.10
	Diesel (power)	0.10
	Diesel (vehicles LLAOL)	1.08
	Diesel (vehicles third party)	0.67
	Refrigerants	0.27
<b>Total</b>		<b>1,495.26</b>

\* emissions are quoted in units ktCO<sub>2</sub>e / yr unless otherwise stated for aviation emissions which are reported in ktCO<sub>2</sub>/yr.

4.3.10 The most up-to-date statistics for aviation emissions from the UK as a whole are from 2018. International aviation emissions are 36.3 MtCO<sub>2</sub>, and total aviation emissions are 36.7 MtCO<sub>2</sub>.

4.3.11 The 'without development' case is representative of an 18 mppa airport and therefore is used to define the future baseline. The assessment has been based on a comparison of the future baseline with the 'with development' case (i.e. the proposed 19 mppa airport).

4.3.12 To represent projected market and policy trends, improvement factors for carbon emission reductions in the future have been embedded into the GHG assessment. The climate assessment has therefore been based on a range of scenarios to reflect the uncertainties in projections:

- **Upper emission scenario:** This scenario assumes a relatively small amount of GHG emissions reductions in the areas listed above, and thus represents a conservative projection;
- **Central emission scenario:** This scenario aligns with current or anticipated policy and market trends in the majority of areas listed above. In some cases, a central point between the upper and lower scenario is used; and
- **Lower emission scenario:** this scenario assumes more substantial improvements in GHG emissions reductions in the areas listed above, and thus represents an optimistic projection.

4.3.13

As a representation of the future baseline, emissions from the 'without development' central emission scenario are shown in **Table 4.2**. Given the above it should be noted that the future baseline is variable under different emission scenarios and the relevant assessment has been used for comparison with the 'with development' case.

**Table 4.2 GHG emissions/year for the 18 mppa future baseline in the 'without development' case for the central emission scenario.**

Source	Activity	2024 (ktCO <sub>2</sub> e / yr*)	2028 (ktCO <sub>2</sub> e / yr*)	2032 (ktCO <sub>2</sub> e / yr*)	2040 (ktCO <sub>2</sub> e / yr*)	2050 (ktCO <sub>2</sub> e / yr*)
<b>Aviation</b>	International aviation	992.96 ktCO <sub>2</sub> /yr	941.00 ktCO <sub>2</sub> /yr	871.36 ktCO <sub>2</sub> /yr	863.38 ktCO <sub>2</sub> /yr	723.69 ktCO <sub>2</sub> /yr
	Domestic aviation	38.51 ktCO <sub>2</sub> /yr	37.57 ktCO <sub>2</sub> /yr	34.61 ktCO <sub>2</sub> /yr	34.29 ktCO <sub>2</sub> /yr	28.74 ktCO <sub>2</sub> /yr
<b>Surface access</b>	Passengers	279.55	251.80	224.69	137.78	71.21
	Employees	8.57	7.73	6.95	4.30	2.28
<b>Airport buildings and ground operations</b>	Grid electricity	8.22	4.38	4.01	3.21	3.21
	Gas usage	1.50	1.50	1.50	1.50	1.50
	Diesel (heating)	0.10	0.10	0.10	0.10	0.10
	Diesel (power)	0.10	0.10	0.10	0.10	0.10
	Diesel (vehicles LLAOL)	1.08	1.08	1.08	1.08	1.08
	Diesel (vehicles third party)	0.67	0.67	0.67	0.67	0.67
	Refrigerants	0.27	0.27	0.27	0.27	0.27
<b>Total</b>		1,331.53	1,246.20	1,145.34	1,046.67	832.84

\* emissions are quoted in units ktCO<sub>2</sub>e/yr unless otherwise stated for aviation emissions which are reported in ktCO<sub>2</sub>/yr.

A location-based approach has been used to calculate GHG emissions according to the GHG Protocol.

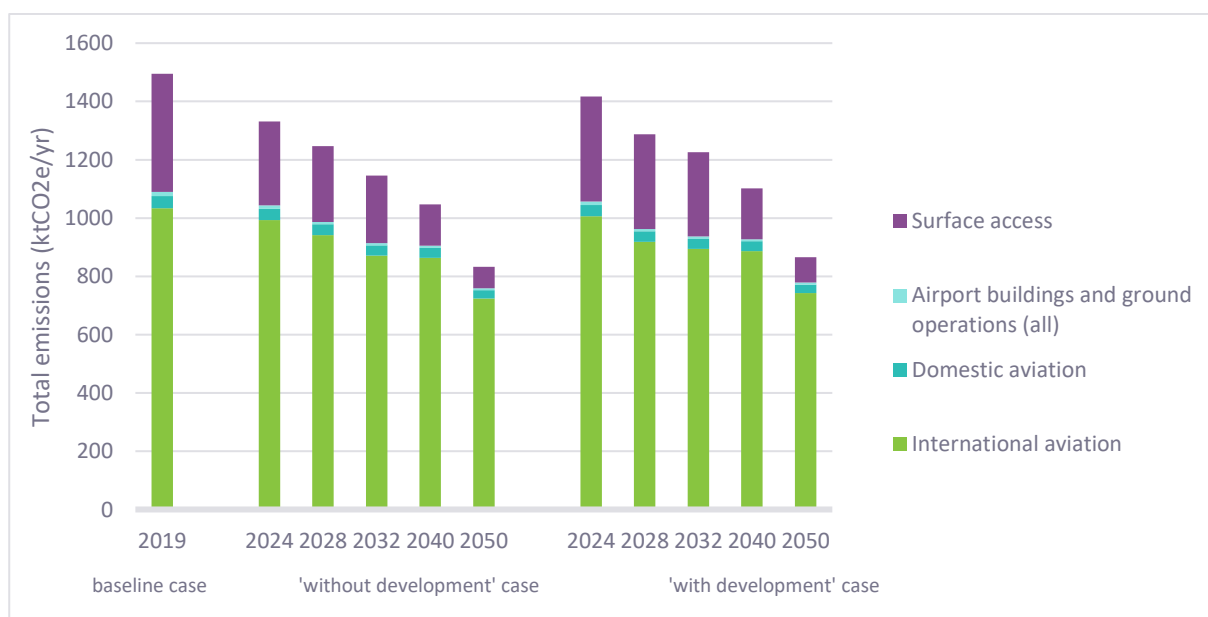
Aviation forecasts are provided up to 2032 and are then assumed to remain constant. Surface access targets are included up to 2024 and then are assumed to remain constant.

4.3.14

Current Institute of Environmental Management and Assessment (IEMA) principles and guidance states that due to the combined environmental effect that they have, any GHG emissions (either positive or negative) from a project might be considered to be significant. Therefore, the assessment methodology aims to determine the relative scale of the impact of the Proposed Scheme on global climate change by considering the sensitivity (or value) of the receptor, its impacts, and the magnitude of that impact on relevant carbon budgets and targets at a national and local level.

- 4.3.15 The only receptor for the climate assessment is the global climate. The global climate is the largest inter-related cumulative environmental effect, so the receptor can be considered highly sensitive. To identify the relative magnitude of GHG emissions of a single project on the receptor (i.e. the global climate), an approach for contextualisation has been used.
- 4.3.16 The magnitude of the Proposed Scheme has been evaluated against the following two criteria:
- **The extent to which the scheme materially affects the ability of the UK to meet the aviation 'planning assumption':** The scale of international aviation GHG emissions in the 'with development' case is contextualised within the current UK 'planning assumption' for international aviation of 37.5 MtCO. The Committee on Climate Change 'Balanced Pathway' value for GHG emissions from the aviation sector of 23 MtCO<sub>2</sub>e, which is not current Government policy, is also considered as a sensitivity assessment.
  - **The extent to which the scheme affects the ability of the UK to meet its target and budgets:** The scale of the GHG emissions from all sources except international aviation in the 'with development' case is contextualised within their overall impact on the UK Government's UK carbon target of 'net zero' in 2050 and UK carbon budgets. The scale of the GHG emissions from all sources except aviation in the 'with development' case is also considered within context of local objectives for reducing GHG emissions. Therefore, the extent to which the scheme affects the ability of Luton Borough Council to meet its climate change objectives for a carbon neutral borough by 2040 is taken into account. However, as the local objectives are not yet part of local planning policy, they are not given the same weight as the national Net Zero target and the associated budgets.
- 4.3.17 Projected GHG emissions for the baseline case, 'without development' and 'with development' cases for the assessment years 2024, 2028, 2032, 2040, and 2050 in three future scenarios (upper emission, central emission, and lower emission scenarios) have been calculated.
- 4.3.18 A breakdown of total projected GHG emissions by source for the central emission scenario are shown in **Figure 4.4**. This illustrates the overall GHGs associated with LLA in the 2019 baseline, 'without development' and 'with development' cases.

Figure 4.4 Total GHG emissions for the 2019 baseline, the 'without development' and 'with development' cases for the central scenario.



Note: Aviation emissions are by convention reported as CO<sub>2</sub> emissions<sup>8</sup>. This reflects the uncertainties associated with non-CO<sub>2</sub> emissions. All other emissions sources are reported in CO<sub>2e</sub> which is defined as the sum of all GHG emissions multiplied by their global warming potential. For aviation, since only CO<sub>2</sub> is reported with a global warming potential of one, 1 tonne of CO<sub>2</sub> is equal to 1 tonne of CO<sub>2e</sub> and hence no conversion is needed to sum together these emission sources.

Note: a location-based approach has been used to determine emissions from electricity procurement.

- 4.3.19 Relative to the 2019 baseline, total GHG emissions in the 'with development' case decrease in all future scenarios.
- 4.3.20 In 2050, total GHG emissions in the 'with development' case are below 2019 baseline values in all scenarios. In 2050, total GHG emissions from the 'with development' case are 373.3 – 740.6 ktCO<sub>2e</sub>/yr lower than the 2019 baseline case, representing a 25 – 50% reduction in total GHG emissions relative to the 2019 baseline.
- 4.3.21 GHG emissions in the 'with development' case peak in the 2024 assessment year in all future scenarios. This is primarily due to fact that passenger forecasts for the Proposed Scheme are assumed to be constant beyond 2024 while efficiency improvements continue. At their peak in 2024, total GHG emissions associated with the 'with development' case are 69.8 – 95 ktCO<sub>2e</sub>/yr lower compared to the 2019 baseline, dependent on the future scenario considered.
- 4.3.22 The findings of the assessment of projected GHG emissions associated with the Proposed Scheme against the key tests can be summarised as follows:
- for international aviation emissions, the 'with development' case represents 1.85 – 2.18% of the planning assumption of 37.5 MtCO<sub>2</sub>/yr in 2050. This is less than LLA's share of actual baseline international aviation GHG emissions from flights departing the UK in 2019 (2.82%). The GHG emissions associated with the Proposed Scheme itself are 0.05 – 0.06% of the 37.5 MtCO<sub>2</sub>/yr planning assumption in 2050.
  - for all other GHG emissions, residual emissions associated with the Proposed Scheme (i.e. the increase in emissions between the 'with development' and 'without development' case), once offsetting commitments have been considered, are 1.99-52.64 ktCO<sub>2e</sub>/yr.
- 4.3.23 The adoption of the mitigation measures to reduce airport building and ground operation emissions, and the Travel Plan to reduce surface access emissions, would enable the GHG emissions associated with the Proposed Scheme to be mitigated wherever practicable. A further commitment has been made to produce a Carbon Reduction Plan, which will set out the ambition and actions required for ensuring LLA's Scope 1 and 2 emissions are in-line with the UK net zero 2050 target, and how it will influence Scope 3 emissions. Commitments have also been made to annually report GHG emissions through annual carbon footprinting, which will be publicly available.
- 4.3.24 Therefore, the Proposed Scheme:
- is very unlikely to materially affect the ability of the UK Government to meet the 37.5 MtCO<sub>2</sub>/yr 'planning assumption' for UK international aviation GHG emissions in 2050;
  - is unlikely to materially affect the ability of the UK Government to meet its carbon targets for net zero in 2050, on the basis that a Carbon Reduction Plan is produced;
  - is unlikely to materially affect the ability of Luton Borough Council to meet its carbon neutral borough by 2040 aim, on the basis that a Carbon Reduction Plan is produced; and

<sup>8</sup> ICAO (2010), ICAO Environment Report, Chapter 1, Aviation's Contribution to Climate Change [online]. Available at: [https://www.icao.int/environmental-protection/Documents/EnvironmentReport-2010/ICAO\\_EnvReport10-Ch1\\_en.pdf](https://www.icao.int/environmental-protection/Documents/EnvironmentReport-2010/ICAO_EnvReport10-Ch1_en.pdf) [Accessed 21 October 2020].



- is consistent with the National Planning Policy Framework (NPPF) requirement for developments to 'support the transition to a low carbon future in a changing climate', on the basis that a Carbon Reduction Plan is produced.

4.3.25 The Proposed Scheme is considered to have a **low GHG emissions magnitude**, and the overall effect of projected GHGs associated with the Proposed Scheme on the global climate is considered **minor adverse**, and therefore **not significant** based on the commitment for further mitigations.

4.3.26 A sensitivity assessment for a lower international aviation GHG emissions 'headroom' has been carried out, in which the 2050 GHG emissions from LLA would still represent a reduced share of total UK emissions than in the 2019 baseline.

## 4.4 Noise

4.4.1 The assessment of noise considers the effects on occupiers of residential properties within the vicinity of the airport and changes in the noise environment of local communities.

4.4.2 This assessment is for airborne aircraft 'in-air' noise only, which is principally from aircraft arriving and landing and from aircraft taking-off and departing. 'In-air' aircraft noise that is considered in this assessment includes noise that occurs when, aircraft are on the runway:

- for start of take-off roll (SoR);
- after landing;
- when aircraft are rolling down the runway; and
- when aircraft are using reverse thrust for braking.

4.4.3 Road traffic noise effects (noise from increased traffic from the rise in passengers) and aviation ground noise (noise from aircraft taxiing) are not considered within this report as they have already been considered within the screening report and have been shown not to have a likely significant effect. There are no construction works or operational building services plant to assess as there are no infrastructure requirements associated with the Proposed Scheme.

4.4.4 The key assessment year is the future year of 2028, which corresponds to the future year identified within the 2012 ES for the 2014 Planning Permission. However, there are years prior to this that also need assessment for three reasons:

- i. the variation to Condition 10 presents a new area limit for the daytime and night-time assessment, which is based on the widest area, predicted to be in 2021 with 18 mppa;
- ii. as modernization reduces the noise effect from the airport operations, the 2028 year would not be the worst-case scenario. To ensure that environmental measures required to minimise significant noise effects encompass the worst-case effect from the Proposed Scheme, interim years between 2021 and 2028 were also assessed. The worst-case year has been identified as 2022. Additional years of 2023 and 2024 have been included as information to show how noise decreases, supporting the conclusion that 2022 is the worst-case year for significant effect, and
- iii. 2024 has also been assessed because this is the first year where 19 mppa is predicted to be reached.

4.4.5 To undertake the assessment of the key year of 2028, the predicted noise contours for the Proposed Scheme are compared to the baseline condition. As the proposal is to vary a condition of the 2014 Planning Permission, it is considered relevant to use the baseline of 12.5 mppa in 2028, as

was assumed for the 2012 ES (as updated with runway operation and population numbers). By undertaking this comparison, it is possible to analyse the effect as would have been identified in 2012 with this different condition (given necessary adjustments for the latest knowledge). For years prior to 2028 which encompass both the change to the Condition 10 and worst-case year, it is more appropriate to compare with what it is permissible currently, i.e. what is the actual effect that could be experienced at residences, assuming what is permissible with the existing Condition 10 contour area.

4.4.6

For the purposes of this assessment, three non-variation scenarios are considered for comparison:

- the extent of the existing Condition 10 for 2021 to 2027 inclusive, which provides a noise limit for airport 'in-air' operation;
- the extent of the existing Condition 10 for 2028 onwards, which provides a future noise limit for airport in-air operation; and
- the 'without Proposed Scheme' 2028 scenario of 12.5 mppa as assessed in the 2014 Planning Permission's ES but updated to take into account the latest knowledge of fleet mix and runway split.

There are four '**Effect Levels**' relevant to the assessment of noise; the three of concern within this assessment are:

- **LOAEL: Lowest Observed Adverse Effect Level** – this is the level above which adverse effects on health and quality of life can be detected;
- **SOAEL: Significant Observed Adverse Effect Level** – this is the level above which significant adverse effects on health and quality of life occur; and
- **UAEL – Unacceptable Adverse Effect Level** – this is the level above which extensive and regular changes in behaviour and/or an inability to mitigate the effect of noise leading to psychological stress or physical effects occurs.

4.4.7

Aircraft noise effects have been assessed by calculating and comparing predicted aircraft noise levels for the airport operating to the extent of the proposed variations against a selection of baseline scenarios. The primary means of assessing aviation noise is by using the daytime (07:00 - 23:00)  $L_{Aeq, 16hr}$  and night-time (23:00 - 07:00)  $L_{Aeq, 8hr}$  metrics. The 'Number above' contours outline the extent of the area exposed to a certain  $L_{Amax}$  noise level a certain number of times per day. An 'N65, 200 contour' outlines the area exposed to at least 65 dB  $L_{Amax}$  at least 200 times per day.

4.4.8

The noise assessment considers the impact of the Proposed Scheme from the initial 2021 forecast with 18 mppa, upon which the amendment to Condition 10 is based. The assessment years 2022, 2023, and 2024 are also assessed, which is the first year of increased throughput to 19 mppa. A future year of 2028 is also assessed to understand the long-term effects of the Proposed Scheme in line with the original methodology within the 2014 Planning Permission. Aviation noise described using the  $L_{Aeq}$  metric has been assessed using the following scenarios:

- comparison of the 'with Proposed Scheme' scenarios: 2021, 2022, and 2023 18 mppa scenarios with the existing Condition 10 limits for 2021 - 2027 showing the short-term change in noise levels prior to the 19 mppa being realised;
- comparison of the 'with Proposed Scheme' 19 mppa 2024 scenario with the existing Condition 10 limits for 2021 - 2027 showing the short-term change in noise levels for the first year of the 19 mppa being realised;

- comparison of the 2028 19 mppa scenario with the 2028 baseline ('without Proposed Scheme') 12.5 mppa scenario as would have been expected for the 2014 Planning Permission's ES; and
- comparison of the 2028 19 mppa scenario with the Condition 10 limits for 2028 onwards for long-term effects.

### Environmental measures embedded into the Proposed Scheme

- 4.4.9 To ensure that noise levels decrease year on year the following commitments will be made as part of the Proposed Scheme:
- For Summer 2021 and all subsequent seasons, no night-time slots (22:00 to 05:59 GMT) will be allocated to aircraft with a quota count (QC) value greater than 1;
  - No further daytime slots will be allocated to aircraft with a QC value greater than 1 (06:00 to 21:59 GMT) between 1st June and 30th September;
  - No further night slots to be allocated to series flights (22:00-05:59 GMT) between 1st June and 30th September;
  - No new slot applications with an aircraft QC value greater than 0.5 will be permitted between 22:00 and 05:59 GMT;
  - Only scheduled arriving aircraft will be accepted between 04:45 and 06:00 GMT. All other arriving aircraft must land after 06:00 GMT, arrivals earlier than the scheduled arrival time will not be accepted; and
  - No re-scheduling of existing allocated slots from the day time (06:00 to 21:59 GMT) into the night-time (22:00 to 05:59 GMT) 1st June – 30th September.

### Residential LAeq noise contour assessment

#### Assessment scenarios (2021 18 mppa, 2022 18 mppa, 2023 18 mppa, or 2024 19 mppa) noise levels compared with the existing Condition 10

- 4.4.10 When comparing all of the assessment scenarios (2021 18 mppa, 2022 18 mppa, 2023 18 mppa, or 2024 19 mppa) daytime noise levels with the limits imposed by the existing Condition 10, the results show that there are no significant increases of more than 3 dB between the LOAEL (51 dB) and SOAEL (63 dB). Further, there are no increases of 1 dB or more for any dwellings experiencing noise above SOAEL. On this basis, the effect of the Proposed Scheme during day time of 2021 **would not be significant**.
- 4.4.11 When comparing all of the assessment scenarios (2021 18 mppa, 2022 18 mppa, 2023 18 mppa, or 2024 19 mppa) night-time noise levels with the existing Condition 10 limits, the results show that there are no increases of more than 3 dB between the LOAEL (45 dB) and SOAEL (55 dB). For most of the assessment scenarios, there are increases of 1 - 1.9 dB for: 144 dwellings (2021 18 mppa), 1,877 dwellings (2022 18 mppa), 1,877 dwellings (2023 18 mppa), 1,470 dwellings (2024 19 mppa), experiencing noise above SOAEL. On this basis, the effect of the Proposed Scheme during night-time of 2021, 2022, and 2023 **would be significant**.

## 2028 19 mppa scenario noise levels comparison with the future position in 2028 as it is projected to be if the existing Condition 10 limits were retained

- 4.4.12 When comparing the 2028 19 mppa noise levels with the future position in 2028 as it is projected to be if the existing Condition 10 limits were retained, the results show that there are no increases of more than 3 dB between the LOAEL (51 dB) and SOAEL (63 dB) daytime or LOAEL (45 dB) and SOAEL (55 dB) night-time. In addition, there are no increases of 1 dB or more for any dwellings experiencing noise above SOAEL. On this basis, the effect of the Proposed Scheme during **day time or night-time** of 2028 **would not be significant**.

## 2028 19 mppa daytime and night-time noise levels with the 12.5 mppa future baseline for 2028 as assessed in the Environmental Statement for the 2014 Planning Permission

- 4.4.13 When comparing the 2028 19 mppa daytime and night-time noise levels with the existing Condition 10, the results show that there are no significant increases of more than 3 dB between the LOAEL (51 dB) and SOAEL (63 dB) daytime or LOAEL (45 dB) and SOAEL (55 dB) night-time. Further, there are no increases of 1 dB or more for any dwellings experiencing noise above SOAEL. On this basis, the effect of the Proposed Scheme during **daytime or night-time** of 2028 **would not be significant**.

## L<sub>Amax</sub> assessment

### Residential receptors

- 4.4.14 The data shows the number of dwellings within noise contours above L<sub>Amax</sub> 80 dB for a variety of aircraft. The data shows that the older A320ceo, B737-800 and A321ceo are notably louder than the more recent aircraft; A320neo, A321neo, and B737Max.
- 4.4.15 The results show that whilst the air traffic movements are predicted to increase with the Proposed Scheme, the proportion of the loudest aircraft is predicted to decrease in comparison with the new quieter aircraft. It should also be noted that the total increase in air traffic movements is very small, equating to an average of two additional flights during the night-time in the 92-day summer period. The absolute L<sub>Amax</sub> level will reduce for a significant number of ATMs.

### Non-residential receptors

- 4.4.16 The results show that the 80 dB level is only exceeded at two locations; Park Town (Luton), and Slip End. In both cases, the exceedance is a result of the A321 departing. Despite a general increase in flights it is likely that these occurrences of L<sub>Amax</sub> events over 80 dB(A) would decrease. Therefore, effects on non-residential receptors are considered **negligible**.

## Conclusion

- 4.4.17 The results show more dwellings would be predicted to experience noise above the LOAEL, SOAEL, and level identified with the onset of significant annoyance for most scenarios from the Proposed Scheme. The exception to this is less residents are predicted to experience noise above SOAEL during the night-time when compared with the 12.5 mppa 2028 future baseline updated scenario.
- 4.4.18 The worst case-year for the number of residences above SOAEL is 2022, when 724 additional dwellings would be predicted to experience noise above SOAEL during night-time with the Proposed Scheme in comparison with the existing Condition 10 limits. The number of additional dwellings above the night-time SOAEL remains constant until 2023 and then decreases thereafter.

- 4.4.19 No dwellings are predicted to be within the noise contour for UAEL for either daytime or night-time in any scenario.

### Consideration of optional mitigation

- 4.4.20 As part of the proposals, the Applicant will increase contributions to the Noise Insulation Fund with an increased budget of £400,000 in 2021, £900,000 in 2022, £700,000 in 2023. This will cover the costs of noise insulating additional dwellings above the night-time SOAEL as a result of the Proposed Scheme based on an average acceptance rate (i.e. the pick-up of residents offered noise insulation in the past). Based on the acceptance rate, the enhanced Noise Insulation Fund would cover additional dwellings above SOAEL by the end of 2022.
- 4.4.21 The significant effect as defined by the  $L_{Amax}$  assessment will be temporary and will not persist past 2027, beyond which the difference between the noise from the variation to the conditions and the existing conditions would not be significant.

## 4.5 Human health

- 4.5.1 The topic chapter on health has assessed the people surrounding LLA to understand how different areas could be affected by the Proposed Scheme. It also notes where certain populations may experience effects more strongly due to the Proposed Scheme than other populations. Broadly, people living in the Luton Borough Council area have significantly worse health compared to the England average, with higher levels of death, illness and deprivation, and higher levels of health status and life expectancy.
- 4.5.2 The assessment considers how current conditions near LLA, alongside aspects such as traffic conditions and flights will change, both with the Proposed Scheme and also in its absence. To do this, the assessment has accounted for local health priorities, local plans, scientific literature, and health protection measures. The assessment also identifies the likely significant effects of the proposed variation to Condition 10, which increases the noise contours until 2027.
- 4.5.3 Aircraft air noise occurs principally from aircraft arriving and landing, and from aircraft departing and taking-off. It is also produced by aircraft on the ground, and this occurs when aircraft are on the runway for start of take-off roll, after landing when aircraft are rolling down the runway, and if aircraft are using reverse thrust for braking.
- 4.5.4 A range of environmental mitigation and enhancement measures have been embedded into the Proposed Scheme. This is outlined in the Noise summary above, which focuses on the following five broad approaches to reducing and minimising the impact of noise:
- operational procedures;
  - operational restrictions;
  - quieter aircraft;
  - land-use planning and mitigation; and
  - working with the local community and industry.
- 4.5.5 The key assessment year is the future year of 2028, which corresponds to the future year identified within the 2012 ES for the 2014 Planning Permission. However, there are years prior to this that also need assessment for three reasons:
- i. the variation to Condition 10 presents a new area limit for the daytime and night-time assessment, which is based on the widest area, predicted to be in 2021 with 18 mppa;

- ii. as modernization reduces the noise effect from the airport operations, the 2028 year would not be the worst-case scenario. To ensure that environmental measures required to minimise significant noise effects encompass the worst-case effect from the Proposed Scheme, interim years between 2021 and 2028 were also assessed. The worst-case year has been identified as 2022. Additional years of 2023 and 2024 have been included as information to show how noise decreases, supporting the conclusion that 2022 is the worst-case year for significant effect; and
- iii. 2024 has also been assessed because this is the first year where 19 mppa is predicted to be reached.

4.5.6 To undertake the assessment of the key year of 2028, the predicted noise contours for the Proposed Scheme are compared to the baseline condition. As the proposal is to vary a condition of the 2014 Planning Permission, it is considered relevant to use the baseline of 12.5 mppa in 2028, as was assumed for the 2012 ES (as updated with runway operation and population numbers). By undertaking this comparison, it is possible to analyse the effect as would have been identified in 2012 with this different condition (given necessary adjustments for the latest knowledge). For years prior to 2028 which encompass both the change to the Condition 10 and worst-case year, it is more appropriate to compare with what it is permissible currently, i.e. what is the actual effect that could be experienced at residences, assuming what is permissible with the existing Condition 10 contour area.

4.5.7 In summary, three non-variation scenarios are considered as a baseline for comparison:

- the extent of the existing Condition 10 for 2021 to 2027 inclusive, which provides a noise limit for airport 'in-air' operation;
- the extent of the existing Condition 10 for 2028 onwards, which provides a future noise limit for airport in-air operation; and
- the 'without Proposed Scheme' 2028 scenario of 12.5 mppa as assessed in the 2014 Planning Permission's ES but updated to take into account the latest knowledge of fleet mix and runway split.

4.5.8 The temporal scope of the assessment covers the following scenarios:

- comparison of 2021 18 mppa scenario, with the existing Condition 10 limits for 2021-2027 showing the short-term change in noise levels prior to the change in Condition 8;
- comparison of 2022 18 mppa scenario, with the existing Condition 10 limits for 2021-2027 showing the short-term change in noise levels prior to the change in Condition 8;
- comparison of the 2028 19 mppa scenario, with the future baseline ('do nothing') scenario of 2028 (12.5 mppa) for long-term effects as would have been expected from the 2014 Planning Permission; and
- comparison of the 2028 19 mppa scenario, with the Condition 10 limits for 2028 onwards for long-term effects.

#### Significance of 2021 and 2022 18 mppa scenario compared with existing Condition 10 short term health effects

4.5.9 While the individual noise increase is small across the whole affected population, the residents' sensitivity is judged to be low to high during the day-time and medium to high during the night-time. The change in magnitude is judged to be low to medium adverse due to the existing baseline conditions of London Borough Council. Residents are expected to be significantly affected by an



increase in noise between 51 - 68 dB LAeq 16hr (daytime), and 45 - 62 dB LAeq 8hr (night-time) through both an increase in noise exposure indoors (including with windows open and closed) as well as outdoors (amenity value of public open and recreational green spaces). LLA will provide noise insulation to reduce noise exposure indoors though this insulation will not reduce the noise exposure indoors with windows open and noise exposure outdoors. Therefore, the short term health effect for the residents is judged to be **potentially significant**.

- 4.5.10 The workers and visitors sensitivity is judged to be low and the change in magnitude is judged to be low adverse for workers and visitors because they have a specific reason to be in the area with immediate short-term benefits which make it easier for them to adapt to, or not discern, small increases in noise. Workers and visitors are expected not to be significantly affected by an increase in noise between 51 - 68 dB LAeq 16hr (daytime), or an increase in noise between 45 - 62 dB LAeq 8hr (night-time) associated with the Proposed Scheme. Therefore, the short term health effect for workers and visitors is judged to be **not significant**.
- 4.5.11 Users of non-residential noise sensitive facilities (schools, nursing homes, and hospitals) are judged to have high sensitivity. A majority of the non-residential noise sensitive facilities are estimated to experience an increase of less than 1 dB. There would be changes of 1 dB or more above the noise assessment criteria at Caddington, Park Town, Breachwood Green, St Pauls Walden, Slip End, and Stevenage Station. The magnitude of change at these locations is judged to be medium – high adverse. Therefore, the short term health effect for non-residential noise-sensitive receptors is judged to be **significant**.
- 4.5.12 Public open spaces and recreational green spaces have a medium to high sensitivity. Taking into account that the estimated increase in noise for the majority of these spaces is between 1 - 3 dB, the magnitude of change is judged to be low to medium adverse. When taking into account children and older people and those with pre-existing health conditions and disabilities who may use these spaces. When taking children and older people into account, public open spaces, and recreational green spaces nearer to the airport could experience a magnitude of change that is medium adverse. Therefore, the short term health effect for public open spaces and recreational green spaces is judged to be **potentially significant**.

#### Significance of 2028 19 mppa scenario compared to 12.5 mppa revised baseline and future Condition 10 long term health effects

- 4.5.13 While the individual noise increase is small across the whole affected population, the residents' sensitivity is judged to be low to high during the day-time and medium to high during the night-time. The change in magnitude is judged to be low to medium adverse due to the existing baseline conditions of London Borough Council. Residents are expected to be significantly affected by an increase in noise between 51 - 68 dB LAeq 16hr (daytime), and 45 - 62 dB LAeq 8hr (night-time) both through an increase in noise exposure indoors (including with windows open and closed) as well as outdoors (amenity value of public open and recreational green spaces). LLA will provide noise insulation to reduce noise exposure indoors though this insulation will not reduce the noise exposure indoors with windows open and noise exposure outdoors. Therefore, the long term health effect for the residents is judged to be **significant**.
- 4.5.14 The workers and visitors sensitivity is judged to be low and the change in magnitude is judged to be low adverse for workers and visitors because they have a specific reason to be in the area with immediate short-term benefits which make it easier for them to adapt to, or not discern, small increases in noise. Workers and visitors are not expected to be significantly affected by an increase in noise between 51 - 68 dB LAeq 16hr (daytime), or an increase in noise between 45 - 62 dB LAeq 8hr (night-time) as a result of the Proposed Scheme. Therefore, the long term health effect for workers and visitors is judged to be **not significant**.

- 4.5.15 Users of non-residential noise sensitive facilities (schools, nursing homes, and hospitals) are judged to have high sensitivity. All of the non-residential noise sensitive facilities are estimated to experience an increase of less than 1 dB. The magnitude of change is judged to be low adverse. Therefore, the short term health effect for non-residential noise-sensitive receptors is judged to be **not significant**.
- 4.5.16 Public open spaces and recreational green spaces have a medium to high sensitivity. Taking into account that the estimated increase in noise for the majority of these spaces is between 1 - 3 dB, the magnitude of change is judged to be low to medium adverse. When taking into account children and older people and those with pre-existing health conditions and disabilities who may use these spaces. When taking children and older people into account, public open spaces, and recreational green spaces nearer to the airport could experience a magnitude of change that is medium adverse. Therefore, the short term health effect for public open spaces and recreational green spaces is judged to be **significant**.

## Conclusion

- 4.5.17 Overall, while at the individual-level the change in noise exposure is estimated to be small and not result in individual-level measurable health effects, at the population level, the health effects are measurable because of the larger size of the exposed population subject to small changes in noise exposure.
- 4.5.18 The health effects related to the change in noise exposure linked to the Proposed Scheme is judged overall, to have significant adverse health effect at the population level in the assessment years 2021, 2022, and 2028.
- 4.5.19 Measures to mitigate some or most of these effects for residents who are exposed to noise at or above the daytime and night-time SOAEL levels will be provided. This is expected to minimise the increase in noise when windows and patio doors are closed and therefore the potential adverse health effects. They will not be able to mitigate the increase in noise indoors when windows and patio doors are open.

## 4.6 Transport

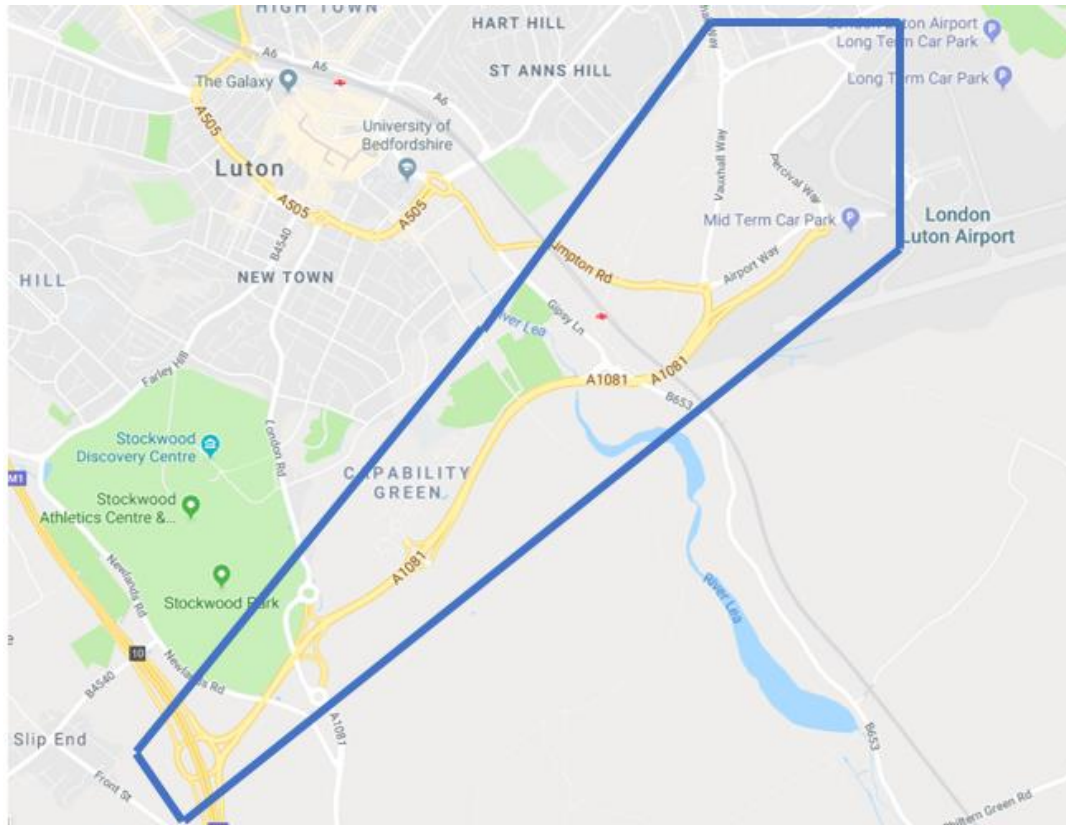
- 4.6.1 The transport chapter of the ES considers the effects of the Proposed Scheme in terms of the effects in relation to traffic together with other transport means and access such as pedestrians and cyclists.
- 4.6.2 To carry out an assessment of the transport related impacts of an increase in passenger numbers as a result of the Proposed Scheme, three main documents have been prepared to support the Proposed Scheme. These are a Transport Assessment, a Travel Plan, and a Car Parking Management Plan.
- 4.6.3 The Travel Assessment follows on from the 2014 Planning Permission to allow capacity at LLA to increase to 18 mppa by 2026/27. The Travel Plan was developed with the objective of reviewing the latest Airport Surface Access Strategy Report<sup>9</sup> and updating objectives, targets and measures based on a policy appraisal and site assessment. This assessment has been translated into a concrete action plan to be monitored periodically. The Car Parking Management Plan was produced to set out what available parking supply will be available to the airport for 19 mppa and how the existing car parks would be managed to operate at this increased capacity. No capacity increases in car

<sup>9</sup> London Luton Airport, Airport Surface Access Strategy Report (ASAS) 2018 -2022 (2019). Available [online] at: <https://www.london-luton.co.uk/corporate/lla-publications/surface-access-strategy> [Accessed 23 November 2020].

parking are proposed from the Proposed Scheme beyond what is already consented within the 2014 Planning Permission.

- 4.6.4 Data on passenger flows, passenger forecasts, and staff travel has been gathered along with data on car park information, and target and action plan were obtained from the existing latest LLA Airport Surface Access Strategy<sup>10</sup>. This has fed into an understanding of current traffic flows and junction operations. No survey work was carried out for the transport analysis as all information had already been recorded and collected in 2019.

Figure 4.4 Transport study area



- 4.6.5 Luton Airport has good connections to the existing strategic network. The A505 connects the Central Terminal Area with the A1081, which provides a direct route to the M1 Junction 10 to the south-west, approximately 4 km from the Site (**Figure 4.4**). The A505 additionally extends to the east and into Luton town centre and beyond to the M1 Junction 11. Access into the airport by road can be gained via Airport Way and Airport Approach Road. These roads pass by the Short-Term Car Park, Mid-Term Car Parks, Holiday Inn, the Ibis, and directly into the Central Terminal Area, which has associated public transport facilities, drop-off/pick-up zones, taxi bays, and Priority Parking.
- 4.6.6 The rail network spatial scope focused on the nearest railway station to the airport, Luton Airport Parkway Railway Station, situated 1.6 km to the south-west of the Site. The introduction of the Direct Air-Rail Transit in 2021, which was not accounted for in the future forecast, is likely to cause a reduction in the number of staff and passengers using private car mode of travel.

<sup>10</sup> Hertfordshire County Council (2018). Hertfordshire's Local Transport Plan 2018 – 2031. Available [online] at: <https://www.hertfordshire.gov.uk/media-library/documents/about-the-council/consultations/ltpt4-local-transport-plan-4-complete.pdf> [Accessed 23 November 2020].

- 4.6.7 The bus/coach network spatial scope focused on both Luton Airport and Luton Airport Parkway Bus Station. All services provided to both of these areas were included in the transport analysis.
- 4.6.8 Even though cycle use by passengers to the airport is not usually feasible, it has been identified as a viable option for staff residing in nearby areas or as part of a multi-modal journey. To the south-west, National Cycle Route 6 connects the Airport to destinations such as Central Luton, Limbury, Marsh Farm, Houghton Regis, and Harpenden, as well as further afield to Leicester, Northampton, Milton Keynes, St Albans, and Watford. Additional to national cycle routes, localised cycle provisions can be found along Airport Way, around Luton Parkway Rail Station, and along the A1081.
- 4.6.9 The forecast 2024 traffic volumes resulting from the increase in passenger numbers were estimated based on actual (2019) and forecast (2024) aircraft schedules. These estimates show a worse-case minor increase in traffic flows of 3.7% in the morning peak and 3.2% in afternoon peak between the 2019 18 mppa and 2024 19 mppa scenarios. Based on our assessment of the network and discussions held with Highways England and Luton Borough Council, it was established that this level of traffic flow increase on the operation of the network is judged to be **not significant**.
- 4.6.10 Passenger data shows a continuous increase in public transport modal share, and, as such, the volumes of car borne traffic are likely to be significantly less going forward. This is further made likely by the introduction of the Direct Air-Rail Transit, which is expected to come into operation in 2021. This is likely to result in a higher volume of rail patronage than that adopted in the analysis in the Environmental Statement chapter.
- 4.6.11 Car parking facilities available to the Airport, in combination with controlled capacity and pricing, to be monitored through the new targets and action plan established in the latest Travel Plan, are expected to be sufficient for Proposed Scheme.
- 4.6.12 No specific environmental measures have been implemented as part of the transport network analysis. However, the airport has already achieved several of the targets set in the Airport Surface Access Strategy Report ahead of schedule and continues to push further with new targets for 2024. These measures will encourage passengers to use public transport as an alternative to private and single occupancy vehicles.

## 4.7 Cumulative effects

- 4.7.1 This assessment considers whether any of the individual effects of the Proposed Scheme would combine to create a cumulative effect greater than the sum of the individual effects. The cumulative effects assessment process considers this in two ways:
- **Intra-project effects:** typically, these effects occur when different activities associated with a project act upon the same environmental receptor. In determining such effects, consideration would be given to the sensitivity of the receptor and the magnitude of environmental change. Consideration is given to both the interaction of significant effects and the interaction of different impacts from project activities even if individually they are not significant; and
  - **Inter-project effects:** typically, consideration will be given to whether there is the potential for the effects of a scheme and effects of other 'major' developments to combine and result in a significant environmental effect.
- 4.7.2 The proposed variation to Condition 8 and Condition 10 intends to change the noise environment and the passenger throughput cap. Consideration has therefore been given to the potential inter-project and intra-project effects that could arise from a change in the noise environment, and where the increased passenger throughput could have subsequent air quality, climate, noise,

health, and transport effects. All other cumulative effects as assessed within 2012 ES remain valid, since there are no further material changes as a result of the Amendments that would alter the assessment previously undertaken.

### Inter-project effects

- 4.7.3 Typically, for each environmental topic that is dealt with in this Environmental Statement Addendum, an assessment is undertaken of how the environmental effects resulting from the Proposed Scheme, could combine with the same topic-related effects generated by other developments to affect a common receptor. To do this, it is important to first identify which other developments need to be included in the cumulative effect's assessment under each environmental topic assessment.
- 4.7.4 Cumulative effects have been assessed where there are additional developments located within the noise contour limits, which have been granted consent between the baseline assessment year assessed within the 2012 ES (i.e. 2011) and 2020. Additionally, the assessment has taken account of the growth in traffic on the highway network that could arise from other developments.
- 4.7.5 A search of the planning portal confirmed that a total of 6,571 dwellings have been given consent within the noise contours limit since 2011. Assuming an average occupancy of 2.7 persons per house, based on census data for the area, this indicates that approximately 17,742 additional residents now live within the study area for the proposed variation to Condition 10.
- 4.7.6 The assessments for noise and health have calculated the population growth in the area for the purposes of noise modelling. This has identified a population increase since 2011 (the baseline assessment year) that has been attributed to each noise contour. This population growth calculation has assumed a higher population growth than identified above and as such, the assessment of cumulative schemes has been based on the population growth calculation rather than the 2014 Planning Permission and planning permissions granted since the 2012 ES. **No likely significant inter-project effects** are predicted to occur from the Proposed Scheme together with 'other developments'.

### Intra-project effects

- 4.7.7 The second type of cumulative effects assessment involves assessing whether any of the individual environmental topic effects resulting from the Proposed Scheme, which are not significant in their own right, could combine to create effects that are significant.
- 4.7.8 The potential for inter-related effects has been identified at receptors that could experience noise and health effects, and these are reported in health and noise assessments. The air quality, climate, and transport assessments have identified that no likely significant effects would occur. There are, therefore, unlikely to be any likely significant intra-project effects involving interactions with these aspects. Additionally, all other effects as assessed within the 2014 Planning Permission 2012 ES remain valid since there are no material changes to the application that would impact upon the previous assessment undertaken. **No likely significant intra-project effects** are predicted to occur from the Proposed Scheme.

## 5. Further information

### 5.1 What will happen next?

- 5.1.1 Environmental Statement has been submitted to LBC who will make a decision on the planning application in consultation with various stakeholders. These will include government bodies, agencies, and the general public.
- 5.1.2 Feedback from the consultees will be taken into consideration by LBC as they make their decision on the planning application.

### 5.2 What if I would like further information?

- 5.2.1 The Environmental Statement and application documents are available to view and download for free via the LBC Planning Portal and Luton Airport's Consultation website (<http://www.luton19mppa.info/>). Hard copies will not be made available due to the it not being reasonably practicable to do so connected to the effects of the COVID-19 pandemic, this follows the May 2020 and December 2020 Temporary Amendments to the 2017 EIA Regulations<sup>11</sup>.

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<sup>11</sup> Town and Country Planning (Development Management Procedure, Listed Buildings and Environmental Impact Assessment) (England) (Coronavirus) (Amendment) Regulations 2020 [online]. Available at: <https://www.legislation.gov.uk/uksi/2020/505/made> [Accessed 08 January 2021].



