

Statutory Consultation 2022

Preliminary Environmental Information Report

Volume 3: Appendix 12.1

Draft Greenhouse Gas Management Plan

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1 INTRODUCTION

1.1 Overview

- 1.1.1 Luton Rising (a trading name of London Luton Airport Limited) (“the Applicant”) is proposing to submit an application for a development consent order (DCO) to enable London Luton Airport (the airport) to expand to accommodate 32 million passengers per annum (mppa) (‘the Proposed Development’).
- 1.1.2 On 1 December 2021, the local planning authority (Luton Borough Council) resolved to grant permission for London Luton Airport Operations Limited (LLAOL) to grow the airport up to 19 mppa, from its previous permitted cap of 18 mppa. Since then, the Secretary of State for Levelling up, Housing and Communities has issued a “holding direction” which prevents Luton Borough Council from issuing a final decision while the Secretary of State considers whether he should call-in and decide the 19 mppa planning application. All assessment work to date, has been undertaken using a baseline of 18 mppa. However, in anticipation of LLAOL’s 19 mppa planning application, our preliminary environmental assessments include sensitivity analysis of the implications of the permitted cap increasing, as described in **Chapter 5** of Volume 2 of the Preliminary Environmental Information Report (PEIR). There is no additional infrastructure included as part of these proposals.
- 1.1.3 The Proposed Development will result in increased emissions from construction, airport ground operations, surface access and air transport movements (ATMs). This draft plan summarises the mitigation actions that will allow the Applicant to meet its emissions reduction targets and contribute to the UK’s legally binding target of net zero emissions by 2050.
- 1.1.4 This Draft Greenhouse Gas (GHG) Management Plan accompanies the PEIR) required under the Infrastructure Planning (Environment Impact Assessment) Regulations 2017 (Ref. 1) and forms part of the suite of statutory consultation materials. The project design will continue to evolve, so this Draft GHG Management Plan may be subject to change as assessment work continues. This draft plan will be the basis for the final GHG Management Plan to be submitted with the Environmental Statement (ES) as part of the application for development consent.
- 1.1.5 The GHG Management Plan will be consistent with UK Government decarbonisation target of achieving net zero by 2050 and the proposed ‘Jet Zero’ strategy for aviation. The UK Government has included international aviation and shipping emissions in the Sixth Carbon Budget covering the period 2033-37 (Ref. 2). Policy makers are consulting on an earlier target for UK domestic aviation to reach net zero by 2040 (Ref. 3). This will bring government policy in line with Climate Change Committee advice based on the outputs of its Sixth Carbon Budget Report. Measures to manage and mitigate GHG emissions for the Proposed Development need to take these targets into consideration when putting forward net-zero strategies.

- 1.1.6 Market-based initiatives such as the UK Emissions Trading Scheme, and technological measures including the introduction of sustainable aviation fuels and the use of hybrid and zero-emissions aircraft are likely to have a significant beneficial impact on aviation emissions from the airport, but their use is beyond the control of the Applicant. Likewise, measures introduced under the government's Transport Decarbonisation Plan will have a direct bearing on emissions from surface access travel. It remains the duty of the Secretary of State to achieve the emissions reductions required to remain within the UK Carbon Budgets and to achieve the overall net-zero target for 2050.
- 1.1.7 The relevant climate change policy and legislation relating to the GHG Management Plan is described in **Chapter 12** Greenhouse Gases in Volume 2 of the PEIR.

1.2 Structure

- 1.2.1 The document is laid out as follows:
- Section 2 – The airport's approach and progress to date;
 - Section 3 – Impacts expected as a result of the Proposed Development;
 - Sections 4 and 5 – GHG Management of the Proposed Development;
 - Section 6 – Next steps

2 THE AIRPORT'S GHG MANAGEMENT PLAN TO DATE

2.1 Existing Carbon Reduction Performance

- 2.1.1 London Luton Airport Operations Ltd (LLAOL) the current operator of the airport) has achieved an approximate 35% reduction in the airport's absolute carbon emissions from 2016-2019 despite a passenger increase of 23% (Ref. 4). LLAOL started calculating its Scope 3 emissions (as described in **Chapter 12**) in 2018 and has seen a decrease of 6% between 2018 and 2019 (Scope 3 data will be published by LLAOL as part of a 2021 sustainability report). LLAOL has implemented several GHG mitigation measures that has helped to manage and reduce GHG emissions for the airport, including those listed in **Table 1**.

Table 1: Existing GHG emission mitigation measures

| Activity | Impact/description | Target date |
|--|---|-------------|
| Level 1 'Mapping' certification within the Airport Carbon Accreditation (ACA) Scheme | Determine the airport's operational boundary and the emissions sources within that boundary which are Scope 1 and 2 sources, as defined by the Greenhouse Gas Protocol Collect Data and calculate the latest annual carbon emissions for those sources <i>Compile a carbon footprint report.</i> (Ref. 5) | 2019 |

| | | |
|---|--|------|
| Install air handling unit upgrades | Reduce energy use by 1.3 million kWh per annum | 2019 |
| Install LED Lighting | Reduce Energy Demand by over 1 million kWh per year | 2019 |
| Upgrade Boilers | Reduce Natural Gas consumption by 16% | 2019 |
| Increase use of Continuous Descent Approach to meet a 91% Compliance Rate | This will reduce GHG emissions during the Landing and Take Off (LTO) cycle | 2019 |

2.2 Short term Carbon Reduction Targets

2.2.1 LLAOL has identified a series of ongoing carbon reduction targets in its Responsible Business Strategy 2020-2025 (published in 2019 in London Luton Airport website). **Table 2** describe the targets LLAOL is committed to in the short term, which include measures to address Scope 3 emissions related to surface access and aviation.

Table 2: Short term carbon reduction targets

| Activity | Description /impact | Target date | Extent of Airport Control |
|--|---|-------------|---------------------------|
| Achieve ACA Level 2 'Reduction' | Provide evidence of effective carbon management procedures including target setting, and demonstrate a reduction in carbon footprint has occurred over the previous years (Ref. 5). | 2022 | Direct Control |
| Generate at least 25% of electricity demand from on-site renewables by 2026 | Increase the proportion of on-site renewable energy generation to reduce operational emissions | 2026 | Direct Control |
| Reduce operational electricity demand (excluding vehicles). | This involves the reduction in electricity demand to less than 2.0 kWh/pax. | 2023 | Influence |
| reduce single occupancy vehicle travel to the Airport by both employees and passengers | A reduction in single occupancy journeys to the airport (employees to 64%, and passengers 47%) | 2022 | Influence |
| Promote and encourage the use of sustainable surface access journeys | Achieve at least 36% of passengers and an increased proportion of staff travelling to and from the airport using sustainable modes of transport. | 2022 | Influence |

| | | | |
|--|--|----------|----------------|
| Wider use of low carbon vehicles for both airside and landside use | Establish a plan of action to encourage the take up of low carbon vehicles both Airside and Landside. | Mid 2021 | Influence |
| Steeper runway approaches | Assess if steeper approaches can be adopted and implemented recommendations. Steeper Runway Approaches can reduce carbon emissions during the LTO phase of flight. | 2023 | Direct Control |

3 IMPACTS EXPECTED AS A RESULT OF THE PROPOSED DEVELOPMENT

3.1.1 The GHG emissions anticipated as result of the Proposed Development are identified in **Chapter 12** in Volume 2 of the PEIR. The GHG emissions impacts, which are summarised below, form the basis for developing mitigation and management measures to avoid or reduce the increased GHG emissions as a result of the Proposed Development.

- a. GHG emissions from land use changes: The loss of soil and vegetation carbon resulting from the clearance of ground vegetation or woodland.
- b. GHG emissions from the following activities during the construction phase:
 - i. the extraction, processing and manufacturing of construction materials;
 - ii. the transportation of materials from factory to site;
 - iii. the energy use in construction activities (i.e., operation of plant etc);
 - iv. The transport and disposal of construction and demolition waste; and
 - v. The surface access for construction staff arising from the Proposed Development.
- c. GHG emissions arising from surface access journeys:
 - i. passenger surface access; and
 - ii. staff surface access.
- d. GHG emissions arising from the operational use of airport buildings and facilities:
 - i. the energy use (including fuel and electricity) of airport buildings, ground support equipment, auxiliary power units, ground power units, and fixed electrical ground power;
 - ii. airport operational vehicles;
 - iii. fire training activities;
 - iv. aircraft engine testing;
 - v. disposal of waste;
 - vi. business travel;
 - vii. the supply of potable water; and
 - viii. the treatment of wastewater.

- e. GHG Emissions arising from air traffic movements:
- i. the aircraft in the LTO phases for flights arriving at and departing from the airport; and
 - ii. The aircraft in Climb-Cruise-Descend (CCD) phase for flights departing from the airport.

4 GHG MANAGEMENT OF THE PROPOSED DEVELOPMENT

4.1.1 This section outlines the embedded measures being implemented to mitigate and manage the GHG emissions from the Proposed Development.

4.2 Land Use Change

4.2.1 The GHG assessment (**Chapter 12**) identified that loss of soil and vegetation as a result of land use change within the Proposed Development will contribute 0.4% to the overall GHG impact. The current GHG assessment only takes account of loss of carbon sink from land clearance through each of the phases of development, and does not include any carbon sequestered from additional planting or land use cover to balance this clearance. The Proposed Development will include a landscaping strategy to mitigate loss of vegetation. This can also have valuable co-benefits in terms of biodiversity net gain and visual amenity.

4.3 Construction

4.3.1 Construction activities will contribute 1.4% to the overall GHG emissions of the Proposed Development. The most notable construction emissions include the embodied carbon in materials, the transport of materials to site, and the use of electricity and fuels in plant and machinery. Other, more marginal, sources of emissions are from worker travel, the water used on site, and waste management and transport. **Table 3** shows measures that will be taken to reduce the carbon impact of the construction process.

Table 3: GHG Management in Construction – embedded

| Source | Description/impact |
|----------------|--|
| Material waste | Contractors will adopt good practice in sustainable procurement and construction waste management to reduce the quantity of waste produced and increase the recycled content of materials. This will include: <ol style="list-style-type: none"> a. agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme; b. implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste; c. attention to material quantity requirements to avoid over-ordering and generation of waste materials; d. reuse of materials onsite wherever feasible; |

| | |
|---------------------|---|
| | <ul style="list-style-type: none"> e. reuse and recycling of materials off-site where reuse on-site is not practical (e.g. through use of off-site waste management infrastructure and resale for direct reuse or reprocessing); f. establishment of a project specific recycled content target e.g. for aggregates; g. contractual requirements to procure and use recycled and more sustainable materials; and h. preparation of a sustainable procurement policy to include waste and resources aims and objectives. |
| Material waste | <p>Measures to reduce waste generated and resource use during construction, including:</p> <ul style="list-style-type: none"> a. designing out waste workshops to identify opportunities to reduce waste and resources, and to identify opportunities to achieve a cut/fill balance during construction; b. recycling of demolition waste on site; c. recycling and use on site of existing landfill material; and d. Setting waste targets in line with the Airports National Planning Policy (ANPS) and good practice. |
| Plant and machinery | <p>The lead contractor will develop and implement a Carbon Efficiency Plan to manage carbon emissions and promote good practice, including:</p> <ul style="list-style-type: none"> a. monitoring of fuel use/compressed air leaks; b. driver/plant use training; c. avoidance of oversizing of generators for plant and temporary buildings; d. nominated individuals with responsibility for site energy management; e. use of renewable/ zero or low carbon fuels for construction vehicles, plant and machinery where reasonably practicable; and f. early connection to grid electricity to reduce use of mobile diesel energy. |
| Worker travel | Promotion of modes of sustainable transport in line with the Construction Workforce Travel. |
| Materials | <p>Specification of materials with lower embodied GHG emissions within contractor contracts (where practical, materials with a higher recycled content, and locally sourced materials) will be used. Where feasible, design for 'end of component' reuse and use offsite manufacture of design elements.</p> <p>The contractor will be required to demonstrate to the Applicant that materials with lower embodied carbon emissions have been specified where feasible.</p> |
| Water | The contractor will set targets to minimise potable water use during construction. |

4.4 Surface Access

4.4.1 Surface access journeys will contribute 6.7% to the overall GHG emissions of the Proposed Development. As the second highest contributor to the overall

GHG emissions of the Proposed Development, it is important that these emissions are mitigated in line with net zero targets. **Table 4** and **Table 5** summarise embedded and additional measures to address emissions from surface access.

Table 4: GHG Management for Surface Access – embedded

| Source | Description/Impact |
|--|--|
| Reduce Car Journey to and from the Airport | The Applicant's surface access strategy document (Getting to and from the airport – our emerging transport strategy provided as part of statutory consultation) describes the medium to long term direction for a shift away from private car use to public transport. Where private cars are used it will incentivise low/zero carbon private transport options e.g. electric vehicles. |
| Transition to zero emissions vehicles | Car parks will include electric vehicle (EV) charging points to facilitate and incentivise the future uptake of Zero Emission Vehicles (ZEVs). |
| Passenger and staff travel | Aim for a minimum of 45% of passengers and an increased proportion of staff using sustainable transport (public transport, walking and cycling) rather than personal vehicles by 2039. |

Table 5: GHG management in surface access – additional

| Source | Description/Impact |
|----------------------------|--|
| Freight transport | Incentivise low emission transportation for freight entering/leaving the airport, for example HGVs using low carbon technologies |
| Freight transport | Encourage all freight vehicles (logistics and cargo) to be Euro VI or better by 2030. |
| Passenger and staff travel | Set surface access journey targets for: <ul style="list-style-type: none"> a. number of EV charging points available to passengers and employees; and b. number of cycle spaces and associated facilities. |
| Passenger and staff travel | Aim to only allow airport access to zero emissions taxi vehicles by 2030. |
| Passenger and staff travel | Seek to implement emissions-based based car parking charges for passengers and staff. |
| Passenger and staff travel | Seek to implement emissions-based charges for drop off and pick up. |
| Passenger and staff travel | All carpark to terminal shuttle buses to be zero emissions by 2029. |
| Passenger and staff travel | Support improvement of access for pedestrians and cyclists to the airport from the local area. |
| Passenger and staff travel | Provide electric vehicle (cars, taxis, buses and coaches) charging infrastructure for both staff and passengers. |
| Passenger and staff travel | Investigate participating in a car sharing service, including for electric cars, and having a number of dedicated bays at the airport for the car sharing service. |

4.5 Ground Operations

4.5.1 Operational GHG emissions, which include heating, electricity, airport operational vehicles, fire training, water and waste, make a relatively small contribution to the overall GHG impact of the Proposed Development. But the airport's ground operations account for all of the Applicant's Scope 1 and 2 emissions (as described in **Chapter 12**), those parts of the overall carbon footprint over which the airport has control. So, in spite of the modest contribution in overall emissions terms, effective GHG management of these ground operations are vital in enabling the airport to achieve its direct emissions reduction targets. **Table 6** and **Table 7** summarise embedded and additional measures to address emissions from ground operations.

Table 6: GHG management in Ground Operations – embedded

| Activity | Description/Impact |
|-----------------------------|---|
| Energy use | Energy use will be primarily electricity and some gas from local networks supplemented by: <ol style="list-style-type: none"> solar photovoltaic cells built where practical over car parking and on roofs over the construction period to 2037; ground source heat pumps; and battery storage for back-up power rather than relying on diesel generators. |
| Energy efficiency | The new terminal building will utilise efficient building design to reduce operation GHG emissions including: <ol style="list-style-type: none"> electric reverse heat pumps for heating and cooling supported with ground source heat pump technology; and storage of heat using water storage facilities. |
| Energy use | The design has the flexibility to allow for battery storage for electricity to be accommodated in the future. |
| Energy efficiency | Terminal 2 (T2) to be designed with Passivhaus principles, where practicable, to reduce the need for mechanical and electrical systems in new buildings. |
| Energy efficiency | Increase airtightness and reduce thermal bridges in T2 design. |
| Energy efficiency | T2 designed with equator-facing glazing to minimise heat gain and maximise daylighting. |
| Energy and water efficiency | Stormwater capture and treatment incorporated into design. |
| Energy and water efficiency | Greywater recovery and re-use incorporated into T2 design. |

Table 7: GHG management in ground operations – additional

| Source | Description/Impact |
|-------------------------|--|
| Energy efficient design | New buildings and assets to be designed to consider whole life carbon including design, construction and operation, including: |

| | |
|-----------------------------------|---|
| | <ul style="list-style-type: none"> a. a requirement for energy efficient, low carbon design in buildings/new assets proposed as part of the application for development consent (including building envelope and building services i.e. HVAC, lighting etc.); and b. building services to be designed to minimise the release of fugitive emissions. |
| Energy efficient design | <p>T2 buildings will be designed to at least 2013 BREEAM 'Excellent' standard with appropriate installations and equipment together with thermally efficient materials and shading.</p> <p>Other new buildings will be designed to BREEAM 'Excellent Status' except where the building typology dictates that it is not practical.</p> |
| Energy/water efficiency targets | <p>To minimise GHG emissions from the operation of airport buildings and assets the setting of targets to:</p> <ul style="list-style-type: none"> a. reduce operational energy demand; b. purchase a percentage of energy from low carbon and renewable energy sources; c. generate a percentage of low carbon/renewable energy on-site; and d. reduce operation water consumption. |
| Airside vehicles | <p>All airside vehicles will be EVs by 2035 (including Ground Support Equipment (GSE), tugs, busses) where electric versions are available for the vehicle type.</p> |
| Third party operational vehicles | <p>All new contracts with Ground Handling Agencies to require electric vehicles or other zero emissions options where this is feasible for the vehicle type.</p> |
| Ground Fleet vehicles | <p>All new and replacement fleet light and medium duty vehicles to be zero carbon (electric, hydrogen or other zero emissions technology)</p> |
| Low/zero emissions infrastructure | <p>Provide infrastructure to facilitate the use of low emission airside equipment, such as electric vehicles; including for example:</p> <ul style="list-style-type: none"> Charging points within GSE compounds; Hydrogen fuelling etc subject to low carbon vehicle strategy established. |
| Water efficient design | <p>Water conservation technologies (aerators, low flush toilets, motion sensors on taps) incorporated into new buildings.</p> |

4.6 Air Traffic Movements

4.6.1 Based on the GHG assessment reported in **Chapter 12** of Volume 2 of the PEIR, ATMs contribute over 90% of the overall GHG emissions of the Proposed Development. Most emissions from ATMs are outside the direct control of the airport. The reduction of ATM emissions will be controlled by Government

measures such as the UK Emissions Trading Scheme ('ETS') and policy, and supported by continued research and development into new low-carbon technology.

- 4.6.2 ATMs are divided into the Landing and Take Off cycle ('LTO') and the Climb Cruise and Decent ('CCD') phases. Airports do have some influence over the LTO cycle, so mitigation measures include reducing fuel consumption while aircraft are on the ground.
- 4.6.3 As an airport owner, the Applicant can encourage, through the operator, the use of more efficient aircraft types, and also emerging technologies such as sustainable aviation fuels (SAFs) that are likely to be implemented over the medium-longer term. **Table 8** and **Table 9** describe embedded and additional measures proposed to address these emissions.

Table 8: GHG Management of ATMs – embedded

| Source | Description/Impact |
|---|---|
| Aircraft ground emissions (part of LTO cycle) | Steps to reduce emissions from aircraft during the landing and take-off (LTO) cycle will be considered as part of the developing operational strategy. For example, single/reduced engine taxiing, electric towing, review/minimise use of auxiliary power units (APU), reduce emissions due to aircraft idling and hold. |
| Newer, more efficient aircraft | LLAOL to encourage take up of newer aircraft through operating policy/strategy. |
| SAF infrastructure | Detailed design of infrastructure to continue to enable the uptake of sustainable aviation fuels. |
| Sustainable aviation fuels (SAFs) | LLAOL to encourage the take up of SAFs through operating policy/strategy. |

Table 9: GHG management in ATMs - additional

| Source | Description/Impact |
|-----------------------------|---|
| Ground power infrastructure | Retrofit all existing stands with Fixed Electrical Ground Power (FEGP) or non-diesel Ground Power Units (GPUs) by 2040. |
| CAEP/8 standard aircraft | At least 90% of commercial passenger aircraft to be CAEP/8 standard or better by 2041. |

5 NEXT STEPS

- 5.1.1 Assessments are ongoing and the measures identified above to manage and mitigate GHG emissions from the Proposed Development will be continued to be refined throughout the assessment process. The final agreed measures will be reported in the GHG Management Plan to be submitted as part of the ES.

GLOSSARY AND ABBREVIATIONS

| Term | Definition |
|-------------|---|
| ACA | Airport Carbon Accreditation Scheme |
| ANPS | Airports National Planning Statement |
| ATM | Air Transport Movement |
| APU | Auxiliary Power Unit |
| CAEP | Committee on Aviation Environmental Protection |
| CBC | Central Bedfordshire Council |
| CCC | Committee on Climate Change |
| CCD | Climb Cruise and Descent Phase |
| CORSIA | Carbon Offsetting and Reduction Scheme for International Aviation |
| DfT | Department for Transport |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EMEP | European Monitoring and Evaluation Programme |
| ES | Environment Statement |
| EV | Electric Vehicle |
| FEGP | Fixed Electrical Ground Power |
| GHG | Greenhouse Gases |
| GSE | Ground Support Equipment |
| HGV | Heavy Goods Vehicle |
| HVAC | Heating, Ventilation, and Air Conditioning |
| ICAO | International Civil Aviation Organisation |
| IEMA | Institute of Environmental Management and Assessment |
| IPCC | Intergovernmental Panel on Climate Change |
| LBC | Luton Borough Council |
| LLAOL | London Luton Airport Operations Limited |
| LTO | Landing and Take Off cycle |
| NDC | Nationally Determined Contribution |
| NHDC | North Herefordshire District Council |
| PEIR | Preliminary Environmental Impact Report |
| SAF | Sustainable Aviation Fuels |
| UK ETS | United Kingdom Emissions Trading Scheme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WBCSD | World Business Council for Sustainable Development |
| WRI | World Resources Institute |

REFERENCES

Ref 1 UK Government (2017) The Infrastructure Planning (Environment Impact Assessment) Regulations 2017 [Accessed 27 October 2021]

Ref 2 Climate Change Committee (2020) The UK's Path to Net Zero. Committee on Climate Change [Accessed 27 October 2021]

Ref 3 Department for Transport (2021) Jet zero: our strategy for net zero aviation [Accessed 21 September 2021]

Ref 4 London Luton Airport Operations Limited (2021) London Luton Airport 19 mppa – outline carbon reduction plan [Accessed 18 October 2021]

Ref 5 Airport Carbon Accreditation 92021) 6 Levels of accreditation. Level 1 'Mapping' [Accessed 01 November 2021]