Luton Rising

Our airport.
Our community.
Our planet.

Statutory Consultation 2022

Preliminary Environmental Information Report

Volume 1: Non-technical Summary

Contents

Tables

Insets

1 INTRODUCTION

1.1 Purpose of this document

1.1.1 This document is the Non-Technical Summary (NTS) of the Preliminary Environmental Information Report (PEIR) published with statutory consultation for the proposed expansion of London Luton Airport ('the airport'), hereafter referred to as the 'Proposed Development'.

1.1.2 The PEIR comprises of the following volumes:

a. Volume 1: Non-Technical Summary (this document);
b. Volume 2: Main Report;
c. Volume 3: Appendices; and
d. Volume 4: Figures.

1.1.3 The purpose of this NTS is to provide a summary of the PEIR in non-technical language in order to report the preliminary conclusions of the Environmental Impact Assessment (EIA) which is being undertaken for the Proposed Development. The PEIR has been prepared so that consultees can develop an informed view of the likely environmental effects associated with the Proposed Development.

1.1.4 This NTS provides:

a. a description of the site and surroundings (**Section 2**);
b. a description of how the proposals have been developed (**Section 3**);
c. a description of the Proposed Development (**Section 4**);
d. a summary of the environmental assessment methodology (**Section 5**); and
e. a summary of preliminary environmental assessment findings, including the likely environmental effects of the Proposed Development and measures proposed to avoid, reduce and manage these effects (**Sections 6-21**).

1.1.5 Each of the sections of this NTS corresponds to a chapter included within Volume 2: Main Report, so that the reader can refer to Volume 2 for further detail, where required.

1.2 Overview of the Proposed Development

1.2.1 London Luton Airport has the potential to become the airport of choice for north of London and for England's Economic Heartland, and consequently bring greater benefits to the local, regional and national economy. In order to do this, the airport needs to be able to expand its infrastructure to take greater advantage of the available capacity offered by its existing single runway.

1.2.2 On 1 December 2021, the local planning authority (Luton Borough Council) resolved to grant permission for the current airport operator (London Luton Airport Operations Limited ('LLAOL')) to grow the airport up to 19 million

passengers per annum (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.

1.2.3 Luton Rising (a trading name of London Luton Airport Limited) (also referred to as the 'Applicant') is preparing an application for development consent for works that would allow the airport to increase the capacity up to 32 mppa. The Proposed Development comprises works to the existing passenger terminal (Terminal 1), provision of a new terminal building and boarding piers (Terminal 2) and associated earthworks, airside and landside facilities, enhancements to the existing surface access network, extension of the Luton Direct Air to Rail Transit (DART), landscaping, and further infrastructure improvements.

1.2.4 A project of this nature and scale is classified as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008. Therefore, the application for development consent will be submitted to the Planning Inspectorate for examination, on behalf of the Secretary of State for the Department for Transport (SoS), and would be subject to approval by the SoS.

1.2.5 Further details of the Proposed Development can be found in **Section 4** of this NTS.

1.3 What is an EIA and a PEIR?

1.3.1 An EIA is a systematic process that examines the likely environmental effects resulting from the future construction and operation and maintenance of a development. In particular, the objective of the EIA is to identify any likely significant effects which may arise from a development and to identify measures to prevent, reduce or offset any adverse effects and to enhance any beneficial effects.

1.3.2 The EIA for the Proposed Development is undertaken pursuant to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The findings of an EIA are presented in an Environmental Statement which can then be used to inform decision makers and the public about the possible environmental implications of a development and help the decision maker (in the case of an application for development consent, the SoS) to determine the application.

1.3.3 The PEIR document published for statutory consultation presents the preliminary findings of the EIA based on information available at this point in time.

1.3.4 The PEIR is prepared to support the consultation process and allow consultees to develop an informed view of the likely significant environmental effects of the Proposed Development. Whilst the primary focus of this document is on significant environmental effects, the preliminary assessment reviews a wider range of impacts and potential effects which are also described within the individual technical assessments.

1.3.5 The final conclusions of the EIA will be presented within an Environmental Statement submitted with the application for development consent.

2 SITE AND SURROUNDINGS

2.1 Overview

2.1.1 The land on which the Proposed Development will be constructed is referred to as the Application Site. For the purposes of the PEIR, the Application Site has been further split into four distinct geographical components:

a. the Main Application Site;
b. Off-site Car Parks;
c. Off-site Highways Interventions;
d. Off-site Planting.

2.1.2 The Main Application Site, Off-site Car Parks, Off-site Highways Interventions boundaries and locations for Off-site Planting are shown in **Inset 2.1**.

2.1.3 Further details on the existing site and surroundings can be found within **Chapter 2** of Volume 2 of the PEIR.

2.2 Main Application Site

2.2.1 The Main Application Site is located approximately 45 kilometres (km) north west of London, to the east of Luton town centre and encompasses approximately 427 hectares (ha). The Main Application Site includes the existing airport, the existing business park to the north and north west of the airport, Wigmore Valley Park and arable land to the east.

2.2.2 The Main Application Site boundary extends across Luton Borough Council and North Hertfordshire District Council administrative boundaries, as can be seen in **Inset 2.1**. Immediately to the south of the existing airport is Central Bedfordshire. The administrative boundaries of North Hertfordshire and Central Bedfordshire also mark the boundary of the Green Belt.

2.2.3 The existing airport is located on a raised platform at the north-eastern end of the Chiltern Hills. The existing airport infrastructure consists of a single runway with associated taxiways, stands and aprons. It has a single commercial passenger terminal, with supporting hangars, maintenance facilities, and airport related offices. The airport and its associated business park also accommodate a range of aircraft and airport production and maintenance businesses. There are also a number of car parks for short-, mid- and long-term stay.

2.2.4 In 2019, the airport operated flights to approximately 90 destinations, with most passengers flying on commercial scheduled and charter services. In 2019, there were around 141,500 aircraft movements (approximately 460 in a typical busy day), of which around 113,100 were by commercial passenger or cargo operations. The majority of flights were to international destinations, while around 8% were domestic flights. Scheduled service operators include easyJet,

Ryanair and Wizz Air. Business and private operators are serviced by facilities operated by Harrods and Signature Flight Support.

2.2.5 Local buses connect the existing airport with Luton town centre. Conventional bus and coach services also operate, connecting the airport with local towns and cities. A shuttle bus operates currently between the Luton Airport Parkway railway station and the existing passenger terminal. Luton Airport Parkway is serviced by both the East Midlands service as well as the extensive Thameslink service, connecting Luton Airport Parkway with London and other major towns and cities. Luton Airport Parkway railway station will be directly connected to the airport via the Luton DART system which is currently under construction. It is expected to be opened in 2022.

2.2.6 Wigmore Valley Park, located to the east of the existing airport, provides an area of public open space and recreational facilities. It comprises an area of former landfill which was operational between 1937 and 1978. The park is also designated as an Area of Local Landscape Value, an Asset of Community Value and parts of the park are designated as a County Wildlife Site (CWS).

2.2.7 The east of the Main Application Site largely comprises arable fields with hedgerow boundaries and scattered trees. Archaeological records suggest historical human activity in this area with a possible Roman building in the field to the east of Wigmore Valley Park.

2.2.8 The Main Application Site is bordered by Darley Road to the north and intersected by Winch Hill Lane, a rural road running through the area of Winch Hill in the east of the Main Application Site. There is a network of Public Rights of Way in this area including the Chiltern Way which follows approximately the alignment of Darley Road. There is a ridge with a band of woodland running approximately north-west to south-east through this area, and Winchhill Wood, a block of ancient woodland, in the south east.

2.2.9 There is one occupied residential property, Winch Hill House, within the Main Application Site boundary. Winch Hill Cottages, isolated barns, and some properties at Wandon End are immediately adjacent to, but outside of the Main Application Site boundary.

2.2.10 Land outside the Main Application Site boundary to the north and west is predominantly residential and mixed industrial, and rural with arable fields to the east and south. The River Lea flows to the south in a valley directly to the west of the existing airport. There are also a number of assets of heritage value in the surrounding area, including Someries Castle, a scheduled monument, approximately 250m south of the Main Application Site, and Luton Hoo Grade II* Listed Registered Park and Garden, approximately 300m south west at its closest point to the airport.

2.3 Off-site Car Parks

2.3.1 The two locations for the proposed Off-site Car Parks, as shown on **Inset 2.1**, are to the south west of the airport, adjacent to either side of the Midland Mainline railway and the Luton DART.

2.3.2 The larger of the two sites is located to the north of the Midland Mainline railway and is currently a trailer park for Heavy Good Vehicles. The smaller site, which is located to the south of the Midland Mainline, is a disused area of hardstanding which was previously used as a car park. The sites are located in a commercial area dominated by existing transport infrastructure; bordered by Parkway Road and the A1081 to the south, New Airport Way and the A1081 to the east, Kimpton Road and industrial units to the north. The Midland Mainline railway and the Luton DART pass between the two sites.

2.3.3 These sites are partially located within the airport's Public Safety Zone, an area at the end of runways within which development is restricted in order to control the number of people on the ground at risk of death or injury in the event of an aircraft accident on take-off or landing. Development of long stay and employee car parking in this zone is permitted.

2.4 Off-site Highways Interventions

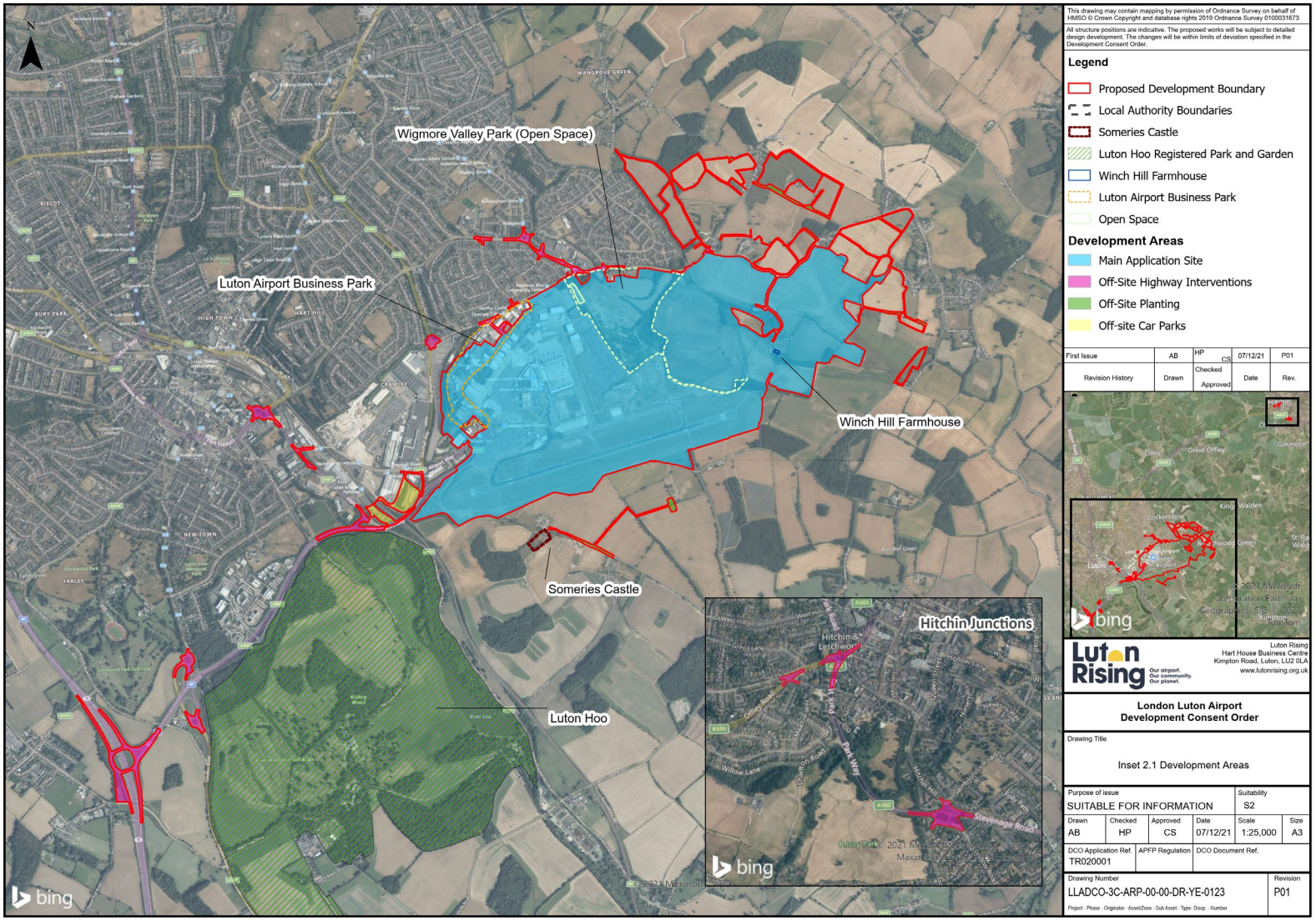
2.4.1 The Proposed Development would include several sites where highway improvements would be required to facilitate an increase in traffic flows forecast to occur with the increased airport capacity, including M1 Junction 10.

2.4.2 The proposed improvements to existing highway infrastructure are located in urban areas, and each location has been subject to previous development and disturbance. The proposed works would be small scale junction and road works, and would be restricted to existing highway boundaries as far as possible. No existing buildings are expected to be directly impacted as result of the proposed highway improvements.

2.5 Off-site Planting

2.5.1 As part of the Proposed Development, areas of off-site planting are proposed. These comprise improvements to existing agricultural field boundaries to the north, east and south of the Main Application Site.

Inset 2.1: Development Areas



3 ALTERNATIVES AND DESIGN EVOLUTION

3.1.1 In December 2017, the Applicant publicly launched its '*Vision for Sustainable Growth 2020-2050*' for the airport (Ref. 1). Since then, the design for the Proposed Development has been developed through an iterative process, referred to as 'sifts', to identify a preferred option. The identification and appraisal of alternative options has been a key part of the EIA process to ensure that environmental considerations are built into the project design at the earliest possible stage.

3.1.2 Several options for the Proposed Development, including a preferred option, were presented at the non-statutory consultation held in summer 2018. Subsequently, feedback from the non-statutory consultation was analysed to inform further design development. Refined proposals were presented at 2019 Statutory Consultation, which ran from 16 October to 16 December 2019.

3.1.3 A number of changes have been made to the Proposed Development since the 2019 Statutory Consultation, in response to feedback received, and as a result of a review of the project proposals. The changes include (but are not limited to):

a. inclusion of a new Airport Access Road and improvements to the Airport Way/Percival Way junction as part of the application for development consent, which changes the development boundary for the application;

b. a range of sustainability design measures, including additional solar energy production and water efficiency measures;

c. improvements to the replacement open space for Wigmore Valley Park to protect more valued existing habitat and landscape features, provide improved enclosure and screening to development at the airport, improve connectivity to the existing parkland areas to be retained, and to reposition it nearer to the community it serves;

d. reducing the size of the platform needed to bring the expanded airport level with the runway, meaning a reduction in earthworks (engineering works involving moving and excavating earth);

e. reconfiguring taxiways, reducing aircraft parking stands, and re-positioning the engine run-up bay with noise barriers;

f. reducing the footprint of the proposed car parking; and

g. a new approach to managing the potential effects of future expansion, called Green Controlled Growth – details about this can be found in the **Draft Green Controlled Growth** document published with this consultation.

3.1.4 Further information on the alternative options considered and design evolution can be found within **Chapter 3** of Volume 2 of the PEIR.

4 THE PROPOSED DEVELOPMENT

4.1 Description of development

4.1.1 The main elements of the Proposed Development comprise the following:

a. extension and remodelling of the existing passenger terminal (Terminal 1) to increase the capacity;

b. new passenger terminal building and boarding piers (Terminal 2);

c. earthworks to create an extension to the current airfield platform, material for these earthworks would be generated on site;

d. airside facilities including new taxiways and aprons, together with relocated engine run-up bay and fire training facility;

e. landside facilities, including buildings which support the operational, energy and servicing needs of the airport;

f. enhancement of the existing surface access network, including a new dual carriageway road accessed via a new junction on the existing New Airport Way (A1081) to the new passenger terminal along with the provision of forecourt and car parking facilities;

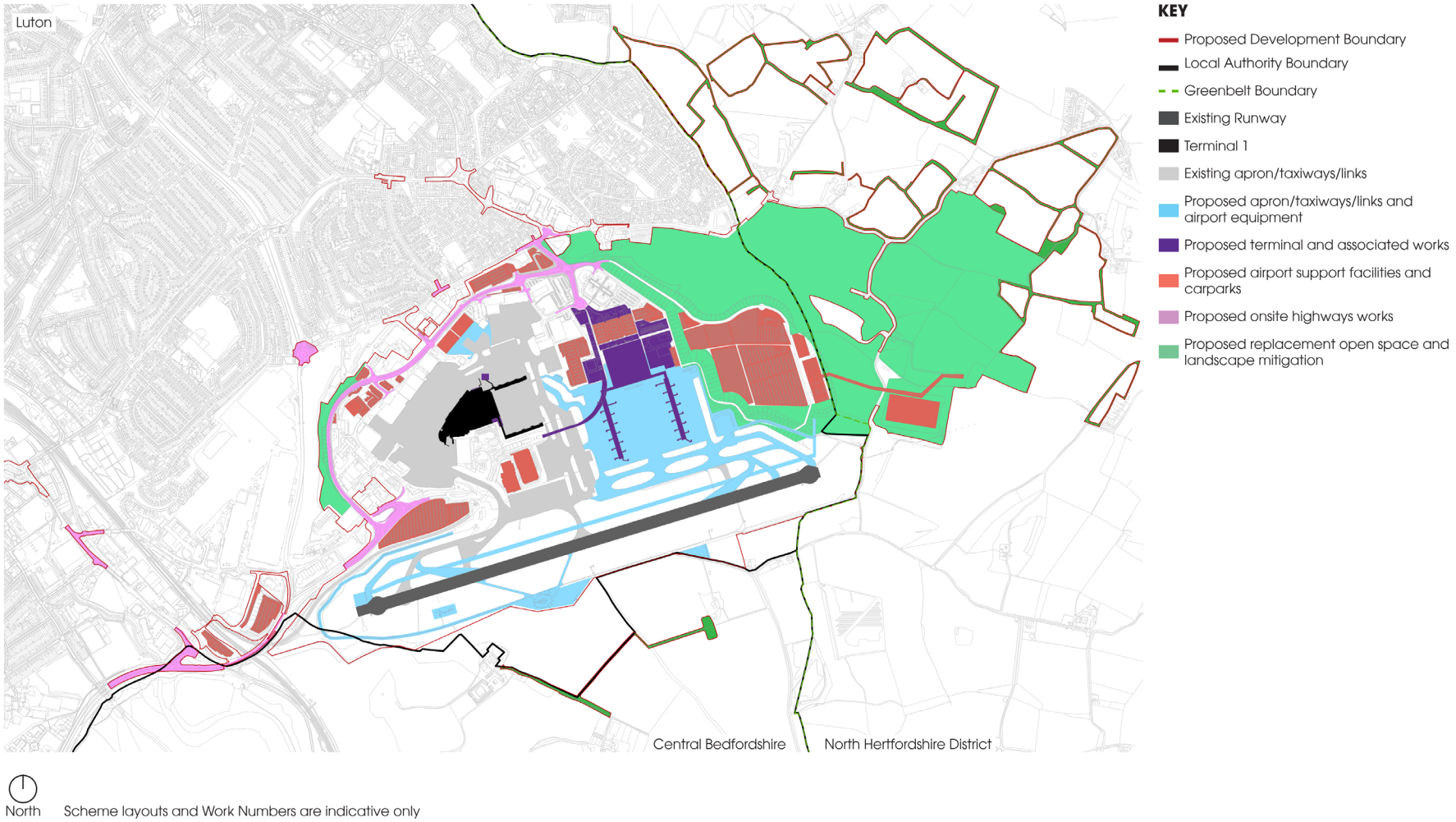
g. extension of the Luton DART with a station serving the new passenger terminal;

h. landscape and ecological improvements, including the replacement of existing open space; and

i. further infrastructure enhancements and initiatives to support the Applicant's goal of a net zero airport operation by 2040, with interventions to support carbon neutrality being delivered sooner including facilities for greater public transport usage, improved thermal efficiency, electric vehicle charging, on-site energy generation and storage, new aircraft fuel pipeline connection and storage facilities and sustainable surface and foul water management installations.

4.1.2 The Proposed Development will increase the current passenger capacity of the airport to 32 mppa. **Inset 4.1** shows the indicative layout of the Proposed Development at 32 mppa capacity.

Inset 4.1 Proposed Development layout at 32 mppa capacity



4.2 Phasing of the Proposed Development

4.2.1 It is recognised that delivery of the Proposed Development will take several years, during which time the airport will remain operational. Additional capacity to meet the forecast growth in demand would be delivered in two phases related to increasing capacity at the existing Terminal 1 (Phase 1), and the construction of the new Terminal 2 (Phase 2). Works during Phase 1 would increase the capacity of the existing Terminal 1 to 21.5 mppa. Upon the opening of Terminal 2, the new terminal would initially be able to accommodate up to 7 mppa, however, it would continue to be expanded until it has the capacity to accommodate up to 12 mppa.

4.2.2 For the purposes of the EIA, the Phases 1 and 2 have been split into three assessment scenarios, on the basis of when different levels of passenger capacity are expected to be reached. These are summarised within **Table 4.1**.

Table 4.1: Proposed Development assessment Phases

Assessment Scenario	Passenger capacity	Construction start year	Construction completion year	Year predicted passenger capacity reached
Phase 1	21.5 mppa	2025	2027	2027
Phase 2a	27 mppa	2033	2036	2039
Phase 2b	32 mppa	2037	2041	2043

4.3 Construction

4.3.1 Construction activities to deliver the Proposed Development will comprise of:

a. enabling works, including demolition of existing structures, where required;
b. construction of new apron and aircraft stands;
c. Terminal 1 enhancement works;
d. earthworks to establish an extended platform and remediation of the affected landfill area;
e. Terminal 2 construction, including extension of the Luton DART;
f. construction of landside and airside infrastructure and buildings;
g. provision of car parking, off-site highways improvements and utilities works; and
h. provision of replacement open space and landscaping.

4.3.2 A Draft Code of Construction Practice (CoCP) has been prepared which sets out measures that would be implemented by the appointed contractor(s) to minimise the effects of these works where reasonably practicable. This is provided as **Appendix 4.2** of Volume 3 the PEIR. In summary, the Draft CoCP sets out the following requirements:

a. environmental management principles: an overview of the environmental management systems (EMS) to be implemented during construction;
b. management approach: the mechanisms by which broader environmental commitments and detailed requirements in local community areas are secured;
c. community relations and stakeholder engagement: an overview of engagement with the local community, including the mechanisms for communications, enquiries and complaints;
d. general requirements, including hours of work, good housekeeping, security; and
e. requirements by environmental topic: an outline of the measures that would be employed to minimise effects from construction activities, as far as reasonably practicable including:
    i. accident and incident prevention and control;
    ii. agricultural land quality;
    iii. air quality;
    iv. biodiversity;
    v. climate change and greenhouse gases;
    vi. cultural heritage;
    vii. health and community;
    viii. landscape and visual;
    ix. noise and vibration;
    x. soils and geology;
    xi. traffic and transport;
    xii. waste and resources; and
    xiii. water environment.

4.3.3 Further information on the design and construction of the Proposed Development is provided within **Chapter 4** of Volume 2 of the PEIR.

5 APPROACH TO THE ASSESSMENT

5.1.1 The preliminary environmental assessment of the Proposed Development, as presented in the PEIR, has been undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, the Planning Act 2008 and relevant guidance.

5.1.2 The scope and methodology of the EIA has been consulted on with the Planning Inspectorate through a process called EIA Scoping. This includes identifying the potential environmental aspects that may be significantly impacted by the Proposed Development and setting out the methodology for the assessment of likely significant effects.

5.1.3 A request for an EIA Scoping Opinion, setting out the proposed scope and methodology of the EIA, was submitted to the Planning Inspectorate on 1 April 2019. In response, a Scoping Opinion was issued by the Planning Inspectorate on 9 May 2019. As a result, the following technical assessments have been scoped into the EIA:

a. Agricultural Land Quality and Farm Holdings (refer to **Chapter 6** of Volume 2 of the PEIR);
b. Air Quality (refer to **Chapter 7** of Volume 2 of the PEIR);
c. Biodiversity (refer to **Chapter 8** of Volume 2 of the PEIR);
d. Climate Change Resilience (refer to **Chapter 9** of Volume 2 of the PEIR);
e. Cultural Heritage (refer to **Chapter 10** of Volume 2 of the PEIR);
f. Economics and Employment (refer to **Chapter 11** of Volume 2 of the PEIR);
g. Greenhouse Gases (refer to **Chapter 12** of Volume 2 of the PEIR);
h. Health and Community (refer to **Chapter 13** of Volume 2 of the PEIR);
i. Landscape and Visual (refer to **Chapter 14** of Volume 2 of the PEIR);
j. Major Accidents and Disasters (refer to **Chapter 15** of Volume 2 of the PEIR);
k. Noise and Vibration (refer to **Chapter 16** of Volume 2 of the PEIR);
l. Soils and Geology (refer to **Chapter 17** of Volume 2 of the PEIR);
m. Traffic and Transport (refer to **Chapter 18** of Volume 2 of the PEIR);
n. Waste and Resources (refer to **Chapter 19** of Volume 2 of the PEIR);
o. Water Resources (refer to **Chapter 20** of Volume 2 of the PEIR); and
p. Cumulative Effects (refer to **Chapter 21** of Volume 2 of the PEIR).

5.1.4 As part of the EIA, the environmental effects of the Proposed Development under each of the above topics have been assessed both during the construction and subsequent operation of the Proposed Development. To retain flexibility in the final design, maximum parameters for the height and extent of proposed new buildings have been defined and used in this assessment to

ensure a reasonable worst case has been assessed. The preliminary conclusions of this assessment are presented in the PEIR.

5.1.5 The EIA assesses environmental effects on resources (such as archaeology) and receptors (such as people). The effects are described in terms of changes to the existing situation (known as the baseline). The significance of environmental effects is then assessed, typically by judging the value and susceptibility of a resource or receptor to change and the predicted magnitude of change resulting from the Proposed Development.

5.1.6 The EIA also identifies measures to avoid or reduce adverse effects, these are known as mitigation measures. Throughout the EIA process, mitigation has been identified to avoid, reduce, and offset adverse effects, where practicable. Finally, the EIA provides a conclusion on the significance of the environmental effects, assuming that the proposed mitigation is implemented.

5.1.7 The subsequent sections of this NTS present the preliminary outcomes of the EIA by describing the proposed mitigation measures, conclusions on likely significant effects following the implementation of mitigation and next steps with regards to completing the technical assessments.

5.1.8 The final conclusions of the EIA will be presented within an ES submitted with the application for development consent. The ES will provide an update of all technical assessments presented within the PEIR to reflect any changes in the design of the Proposed Development, feedback from consultation and engagement with technical stakeholders. **Chapter 5** of Volume 2 of the PEIR provides further information on the environmental assessment methodology.

6 AGRICULTURAL LAND QUALITY AND FARM HOLDINGS

6.1 Context

6.1.1 **Chapter 6** of Volume 2 of the PEIR presents a preliminary assessment of effects on agricultural land quality and farm holdings. The Main Application Site comprises approximately 120ha of agricultural land that would be affected by the Proposed Development, some of which is no longer being farmed. This land is classified as a mixture of Subgrade 3a or Subgrade 3b in line with the Agricultural Land Classification criteria (Ref. 2). Subgrade 3a land forms part of the Best and Most Versatile agricultural land, as defined under the National Planning Policy Framework (Ref. 3).

6.1.2 The agricultural land within the Main Application Site is owned by the Applicant and some of it is currently being farmed by a single farming business under a tenancy agreement. The duration of that tenancy is flexible and allows the Applicant to take possession prior to the start of construction works.

6.1.3 Available soil resource at the Main Application Site is characterised by four main soil types: agricultural soil, agricultural soil (calcareous)[1], parkland soil and woodland soil.

6.2 Mitigation measures

6.2.1 The agricultural land would be managed under a new agricultural tenancy which would retain some areas in agricultural use during Phase 1. All land would be taken out of arable production in Phase 2a to provide new areas of habitat creation. However, the neutral grassland provided as biodiversity mitigation is potentially reversible, i.e. the grassland could be returned to its former agricultural use by future generations, if required.

6.2.2 During construction, the quality and quantity of soil disturbed by the Proposed Development would be maintained by implementing appropriate techniques for stripping, storing and re-use. This approach would be adopted by construction contractors as described in the Outline Soil Management Plan, included as **Appendix 6.6** in Volume 3 of the PEIR.

6.2.3 All the effects on agricultural land quality and farm holdings occur exclusively during the construction phase, hence no mitigation during operation is required.

6.3 Likely significant effects

Construction

6.3.1 During the construction phase, the Proposed Development would result in the permanent change from agricultural to non-agricultural use of approximately 25.1ha of best and most versatile agricultural land in Subgrade 3a. This is considered a significant adverse effect on agricultural land resource. No likely significant effects were identified for agricultural land in Subgrade 3b.

[1] A calcareous soil is soil that is rich in calcium carbonate. Calcareous soils can be nutrient deficient for many plants.

6.3.2 The tenancy of the farming business that currently farms some of the agricultural land within the Main Application Site is due to expire before the start of construction works. Agricultural land that will be retained in use during construction will be managed under an extended existing tenancy or a new agricultural tenancy. Whilst new planting is proposed on field boundaries, with residual rights to retain and maintain the planted vegetation, this would not have any significant adverse effects on the neighbouring farm holdings. Therefore, no significant effects on agricultural businesses have been identified.

6.3.3 The Proposed Development would retain on site and re-use within the landscape approximately 43,250m³ of topsoil and 70,550m³ of the highest quality soils. This soil resource would be managed in line with the Outline Soil Management Plan. Approximately 146,500m³ of topsoil and 119,200m³ of subsoil would be surplus to future requirements and not retained for landscape purposes. The loss of this soil resource during construction has been identified as a significant effect.

Operation

6.3.4 No likely significant effects on agricultural land quality, farm holdings and soil resources during the operational life of the Proposed Development have been identified.

6.4 Completing the assessment

6.4.1 The assessment of effects on agricultural land and farming circumstances will be updated to reflect any changes in the design of the Proposed Development.

7 AIR QUALITY

7.1 Context

7.1.1 **Chapter 7** of Volume 2 of the PEIR provides a preliminary assessment of the effects of the Proposed Development on air quality. An air quality monitoring programme has been implemented and continues to measure a range of potential pollutants wider than that monitored by any other major airport in the UK. Monitoring has been, and continues to be, undertaken at the airport and at nearby residential areas, to supplement monitoring carried out by the airport operator (LLAOL), Luton Borough Council, Central Bedfordshire Council, North Hertfordshire District Council and St Albans City and District Council.

7.1.2 Production of nitrogen oxides (NO_2 and NO_X) by road traffic is a major source of pollution and has led to Air Quality Management Areas being declared in Luton, Hitchin, Dunstable and St Albans. However, monitoring has demonstrated that the concentration of nitrogen oxides at the closest residential areas to the airport and also at homes beneath flightpaths, are below the air quality standards set out in legislation. Concentrations monitored at some of the roads around the airport, in the car parks and on the apron are higher, however these are at locations away from residential properties.

7.1.3 In the future, additional electric road vehicles and newer generation aircraft, which are more efficient, are expected to enter the fleet. Therefore, emissions from these sources are expected to reduce in the future. In line with industry guidance, this reduction in emissions has been accounted for within the assessment of the 2027 scenario. However, vehicle fleets are only predicted up to 2030 and, therefore, the assessments for the 2039 and 2043 scenarios are conservative with respect to vehicle fleet emissions because emissions from 2030 fleets have been used. Aircraft fleet have not included next generation aircraft (expected zero emissions aircraft, beyond the newer generation aircraft assessed), however, this has been considered in a qualitative sensitivity test.

7.2 Mitigation measures

7.2.1 A range of measures to minimise emissions to air are proposed or embedded within the design of the Proposed Development, where appropriate. These include (but are not limited to):

Construction

a. a construction phase Air Quality Management Plan, Construction Traffic Management Plan and Construction Workers Travel Plan would be developed and implemented by the lead contractor, in line with the requirements of the Draft CoCP (refer to **Appendix 4.2** in Volume 3 of the PEIR); and

b. phased working would reduce the magnitude and extent of air quality impacts in comparison to undertaking all works at the same time.

Operation

a. use of the new Airport Access Road to provide routes for road traffic away from sensitive receptors;

b. a direct underground connection to an existing fuel pipeline is proposed which would reduce the number of heavy goods vehicles (HGVs also known as lorries or trucks) delivering aviation fuel to the airport, and the related emissions from those extra HGVs; and

c. a Draft Air Quality Plan setting out measures to minimise emissions during the operational phase has been prepared and is included in **Appendix 7.2** in Volume 3 of the PEIR. These measures include but are not limited to:

   i. providing fixed electrical ground power at the stands so aircraft can minimise the use of their auxiliary engines when on the ground;
   ii. encouraging airlines to use their newest and most efficient aircraft and the take up of sustainable aviation fuels;
   iii. working with the National Air Traffic Service and airlines to reduce hold times in the air and on the ground;
   iv. updating the fleet of ground support equipment that operates on the airport aprons to a low or zero-emission fleet, such as a fleet of electric powered vehicles by 2035;

v. making it easier for passengers and airport employees to travel by public transport to and from the airport, with the aim for 45% of passengers to travel to the airport by 2039;
vi. encouraging the use of low and zero-emission vehicles by providing charging points for electric vehicles to keep pace with the increasing demand by employees and the electric vehicle charging preferences of car driving visitors, taxi companies, and public service vehicles; and
vii. reducing reliance on fixed combustion plant and providing zero emissions plant, where permissible.

7.3 Likely significant effects

Construction dust

7.3.1 During construction, the assessment considered dust from construction and demolition works. The assessment of dust emissions was used to specify appropriate mitigation for inclusion in the Draft CoCP. With these measures in place, no likely significant effects were identified.

Modelling of emissions

7.3.2 The air quality assessment modelled increased emissions from staff and passenger journeys on the local road network; construction traffic; increased emissions from aircraft engines and increased exhaust emission from vehicles operating at the airport, as well as generators and boilers; and other airport activities, such as fire training and engine testing. The assessment modelled changes to air quality in 2027, 2039 and 2043 with and without the Proposed Development. The maximum modelled change to pollutant concentrations was an increase of 3.0µg/m³ in NO_2 concentration values at one receptor location. All predicted concentrations remained below the air quality objectives set out in legislation. No likely significant effects on existing air quality were therefore identified at human receptors. Effects on ecological receptors (such as existing habitats) are reported within **Section 8** of this NTS.

Odour assessment

7.3.3 An odour assessment was undertaken to consider the risk of odour from aircraft emissions and works at the historic landfill. With good practice measures set out within the Draft CoCP and the Draft Air Quality Plan, no likely significant effects were identified.

7.4 Completing the assessment

7.4.1 In order to complete the air quality assessment, the following will be undertaken:

a. further modelling of updated forecast aviation and surface access traffic data will be undertaken of a ‘faster growth’ scenario;

b. an assessment of the ecological sites including consideration of the potential ammonia (NH_3) changes as a result of the Proposed Development;

c. a sensitivity test using terrain data to determine the impacts of the Proposed Development, whilst taking account of the landform around the airport; and

d. contour plots to visualise the total concentrations predicted in each Phase.

8 BIODIVERSITY

8.1 Context

8.1.1 **Chapter 8** of Volume 2 of the PEIR sets out the preliminary assessment of the effects of the Proposed Development on biodiversity.

8.1.2 In addition to previously developed land, the Main Application Site comprises approximately 120ha of arable land, 26ha of managed grassland, 38ha of Wigmore Valley Park, plus areas of woodland, scrub, hedgerows, other pockets of grassland including calcareous grassland, and ponds. Off-site Car Parks comprise access roads, temporary buildings, areas of short perennial vegetation, grassland margins and areas of landscaping comprising scrub and trees.

8.1.3 The Main Application Site includes three sites locally designated for nature conservation, the Wigmore Park County Wildlife Site, Winch Hill Wood County Wildlife Site and Local Wildlife Site and Dairyborn Scarp District Wildlife Site. Winch Hill wood is also designated as ancient woodland.

8.1.4 Ecological surveys and desk based studies undertaken to date have demonstrated that the Main Application Site and the surrounding area is used by a number of protected or notable species, including badgers, bats, brown hares, hedgehogs, slow worms, common toads, common frogs, smooth newts, Roman snails, other invertebrates and a range of birds including barn owl and red kite.

8.1.5 Field surveys have identified populations of orchids at the Wigmore Park County Wildlife Site and other notable plants within the Main Application Site. Botanical surveys have confirmed the presence of wildlife habitats including ancient woodland, broadleaved semi-natural woodland, ancient and veteran trees, species-rich hedgerows, semi-improved neutral grassland and calcareous grassland. Various non-native invasive species have also been identified across the application site, including Japanese knotweed, Japanese rose, and cotoneaster species.

8.2 Mitigation measures

8.2.1 A range of measures to reduce effects on biodiversity are proposed as part of the Proposed Development. These include but are not limited to:

Construction

a. best practice construction environmental management measures to minimise disturbance to habitats and species during construction, as described in the Draft CoCP;

b. detailed mitigation strategies would be developed that outline species specific mitigation measures. Where badger setts or bat roosts would be lost or disturbed by the Proposed Development, a licence from Natural England would be sought, which may require the provision of replacement artificial badger setts and artificial bat roosts;

c. where possible, the Proposed Development has been designed to avoid or reduce adverse effects on valued ecological features and deliver benefits for biodiversity in accordance with policy and best practice. Overall, the Proposed Development would deliver a minimum of 10% biodiversity net gain through the extensive landscaping and habitat creation proposals incorporated within the Proposed Development and the management of retained and proposed habitat areas;

d. the landscape design includes large areas of habitat creation on and off site to partially mitigate the loss of habitats from construction and contribute to the project's target of achieving a net gain in biodiversity. Much of the habitat creation would be provided within a large area of replacement open space that would be designed to mitigate for the loss of Wigmore Park County Wildlife Site and its habitats;

e. existing vegetation, including woodland and hedgerow belts on the boundaries of the Main Application Site, would be retained wherever possible and a 15m buffer zone maintained around areas of ancient woodland and veteran trees to avoid damage to roots;

f. orchids would be moved from the Wigmore Park County Wildlife Site to new sites within the large area of replacement open space and habitat creation and protected from recreational pressure;

g. new habitat features would be provided in the form of deadwood in open areas for insects, and artificial bat roosting and bird nesting boxes on buildings and retained trees;

h. habitat creation measures for barn owl and red kite would be provided at a safe distance from the airport, to avoid increasing the risk of bird strike. Such measures would include the creation of grassland, hedgerows and woodland. Opportunities would also be sought to provide barn owl nesting boxes within the wider landscape at a safe distance from the Proposed Development, and to provide alternative barn owl nesting opportunities to those lost to construction; and

i. in addition to the mitigation measures detailed above, potential enhancement measures are also being explored, such as enhancement of species-poor/defunct hedgerows and woodland creation to improve connectivity with the wider landscape.

Operation

a. a Draft Landscape and Biodiversity Management Plan (see **Appendix 8.2** in Volume 3 of the PEIR) has been developed to set out requirements for establishing, managing and monitoring areas of habitat created;

b. the Proposed Development would use directional lighting to avoid light spill onto retained and adjacent habitats to minimise disturbance of nocturnal species, such as bats and badgers; and

c. opportunities will be sought to implement sensitive management of retained veteran trees within the wider landscape, this may include measures such as thinning of young trees around veteran trees to reduce stresses upon the tree. Opportunities will also be explored to undertake 'veteranisation' of mature trees within the Applicant's ownership.

8.3 Likely significant effects

Construction

8.3.1 The Proposed Development would result in direct physical effects on biodiversity due to construction on currently undeveloped land and indirect effects due to disturbance during construction. For instance, the construction of the Proposed Development would result in the direct loss of 15.38ha, which is almost 100% of Wigmore Park County Wildlife Site, and in the loss of approximately 2.18ha (29%) of the Dairyborn Scarp District Wildlife Site. Winch Hill Wood County Wildlife Site, Local Wildlife Site and ancient woodland would be retained, with the exception of minor tree removal on the perimeter of the site for arboriculture reasons only. These sites would also be subject to indirect effects as a result of construction disturbance.

8.3.2 With substantial habitat replacement provided by the Proposed Development, resulting in a minimum of 10% biodiversity net gain, and mitigation in place, as described above, these effects are not likely to be significant after habitats provided have matured.

Operation

8.3.3 Disturbance from the operation of the Proposed Development may displace protected species from using habitats adjacent to the airport. In addition, effects may occur due to changes to the quantity and direction of surface water run-off. However, with mitigation in place, as described above, these effects are not likely to be significant.

8.3.4 The air quality assessment of ecological sites found a temporary significant effect on Winch Hill Wood, as a result of nitrogen deposition and the resulting effect on species richness. However, with the management of the woodland to improve its condition, as set out within the Draft Landscape and Biodiversity Management Plan, this effect would reduce to not significant in the long term.

8.3.5 Furthermore, the provision of habitats as part of the landscaping proposals is considered to provide a long-term benefits due to the net increase of habitats.

8.4 Completing the assessment

8.4.1 To complete the assessment, the ecological baseline will continue to be reviewed and updated, with further ecological surveys to be completed to supplement the baseline information, where required.

8.4.2 Further assessment of air quality effects from the Proposed Development upon designated nature conservation sites that are sensitive to changes in air pollution will be undertaken.

9 CLIMATE CHANGE RESILIENCE

9.1 Context

9.1.1 **Chapter 9** of Volume 2 of the PEIR presents the preliminary climate change assessment, which considers the resilience of the Proposed Development to climate change and whether the effects of the Proposed Development on receptors in the surrounding environment would be different when considering the impacts of climate change.

9.1.2 The UK climate projections (Ref. 4) outline that with climate change the UK will experience the following changes:

a. the annual number of heatwaves is expected to increase;
b. the annual number of frost days is expected to decrease;
c. the number of dry spells (defined as ten or more consecutive days without precipitation) is expected to increase; and
d. the number of days with heavy rain (precipitation higher than 25mm/day) is expected to increase.

9.2 Mitigation measures

9.2.1 A range of measures is proposed in response to the predicted effects of climate change. These include, but are not limited to the following:

Construction

a. the Draft CoCP requires contractors to monitor and plan for severe weathers events and to register on the Environment Agency's flood warning service in areas of flood risk;
b. the lead contractors' environmental management system would consider all measures deemed necessary and appropriate to manage the impact of severe weather events and would, as a minimum, cover training of personnel and prevention and monitoring arrangements; and
c. as far as reasonably practicable, contractors would also be required to use construction materials with superior properties that offer increased tolerance to fluctuating temperatures, heavy precipitation and other

impacts due to extreme weather events such as increased and more severe storm events.

Operation

a. with regards to climate change resilience, adaptive capacity to climate change would be included in the design of buildings, surface access routes, taxiways, aprons and other airside and airfield assets in line with appropriate design guidance, where available. For example;
    i. the drainage strategy of the Proposed Development will be designed to accommodate an increase in surface water flows due to climate change;
    ii. measures to reduce water demand are built into the Proposed Development, for example rainwater harvesting from the roofs would allow greywater storage and re-use where practicable and appropriate;
    iii. landscape strategy will take into consideration climate change in the selection of appropriate species for planting and habitat creation and provide adequate monitoring post-planting; and
    iv. assets would be maintained regularly to detect deterioration and damage caused by extreme weather events such as storms through maintenance and monitoring.

9.2.2 In addition, mitigation described for other topic assessments also accounts for the effects of climate change, specifically mitigation set out for air quality (**Section 7.2**), biodiversity (**Section 8.2**), health and community (**Section 13.2**), landscape and visual effects (**Section 14.2**), soils and geology (**Section 17.2**), and water resources (**Section 20.2**).

9.3 Likely significant effects

Construction

9.3.1 The preliminary assessment has considered how hazards related to climate change, such as extreme weather events, could impact construction. The assessment identified no likely significant effects with the proposed embedded and best practice mitigation measures in place.

9.3.2 In addition, the assessment considered whether with climate change, construction effects identified by other topic assessments could become worse. When the proposed measures are put in place to mitigate for the projected changes in climate, no likely significant effects were identified.

Operation

9.3.3 The preliminary assessment has considered how climate change hazards, such as extreme weather events, increased temperature variability, precipitation and drought, could impact the design and operation of the Proposed Development. The assessment concluded that with the proposed mitigation in place, no significant effects are likely.

9.3.4 The assessment also considered whether with climate change, operational effects identified by other topic assessments could become worse. With appropriate mitigation in place, as described above, no likely significant effects were identified.

Completing the assessment

9.3.5 The climate change resilience assessment will be reviewed and updated to reflect any amendments to the design as its development continues. Further engagement with stakeholders will be undertaken to discuss and inform the climate change resilience assessment for the ES.

9.3.6 In addition, the in-combination climate change impact assessment will be updated, to consider any changes to the effects determined by other topic assessments within the context of climate change.

10 CULTURAL HERITAGE

10.1 Context

10.1.1 **Chapter 10** of Volume 2 of the PEIR presents a preliminary assessment of the effects of the Proposed Development on cultural heritage.

10.1.2 Luton and the surrounding area show evidence of human occupation since the Palaeolithic era, concentrating in river valleys, upland areas and around water bodies. The area remained largely in agricultural use until the 20th century, preserving archaeological remains, including Iron Age and Romano-British settlements. The airport was established in the 1930s and, over the course of its development, several assets of heritage value have been retained, including some related to the airport itself, such as a World War II pillbox (part of the old airfield battle headquarters) and the London Luton Airport Fire Station.

10.1.3 There are a variety of designated and non-designated heritage assets within 2km of the Main Application Site, including one scheduled monument (Someries Castle) approximately 250m to south of the Main Application Site, three registered parks and gardens (including Luton Hoo), six conservation areas and 217 listed buildings.

10.1.4 Archaeological evaluation works to the east of the existing airport have been undertaken in order to better understand the potential for archaeology within the Main Application Site. The earliest feature found within the Main Application Site included a pit containing Neolithic pottery. A series of interconnecting ditches were also found, marking an enclosure where Iron Age and Roman settlement-related remains are located. Previous archaeological monitoring identified quantities of Roman pottery and building material which may represent another possible Roman building to the east of Winch Hill Farm. Further archaeological trial trenching will be carried out in this area to better understand the extent and character of the archaeological remains. These features indicate that the Main Application Site was in domestic and agricultural use in the late Iron Age to Roman Age.

10.2 Mitigation measures

10.2.1 The Proposed Development design seeks to enhance the historic landscape by including provision for the planting of hedgerows and hedgerow trees that are in keeping with the historic landscape character of the area. In addition, effects on the identified Iron Age and Roman settlement within the Main Application Site have been avoided through changes to the extent of earthworks required for the Proposed Development.

10.2.2 A programme of archaeological evaluation and recording of buried archaeology within the Main Application Site boundary is proposed for the preservation by record of potential buried archaeology. A description of the proposed mitigation strategy is provided within the Draft Cultural Heritage Management Plan (see **Appendix 10.6** in Volume 3 of the PEIR).

10.2.3 Measures outlined in Sections 14.2 Landscape and Visual and 16.2 Noise and Vibration also mitigate effects on the setting of heritage assets.

10.3 Likely significant effects

Construction

10.3.1 During construction, the Proposed Development could result in direct physical impacts on heritage and archaeological assets, due to ground disturbance and excavation works. A significant adverse effect due to physical impacts on cropmarks which may relate to late prehistoric or Roman activity has been identified. Direct impacts on the buried archaeological resource would be addressed by a programme of archaeological mitigation, such as prior recording of the archaeological resource.

10.3.2 Construction can result in indirect effects due to construction noise and visual intrusion detracting from the setting of heritage assets. The construction of the Proposed Development was assessed to have a likely significant effect on the setting of the Luton Hoo Grade II* Registered Park and Garden, Wandon End House and Wandon End Farmhouse Grade II listed buildings, albeit these effects would be temporary and only last during the construction phase.

Operation

10.3.3 During operation, effects due to changes in the setting arising from the presence of the Proposed Development and an increase in noise were identified.

10.3.4 It is anticipated that the setting of the Luton Hoo Grade II* Registered Park and Garden and associated assets would experience a significant adverse effect due to the Proposed Development. In addition to the airport being visible from Luton Hoo, a small part of the Registered Park and Garden would also experience a noticeable change in air noise levels. The increase in noise levels combined with the introduction of new built form would give rise to a significant effect.

10.4 Completing the assessment

10.4.1 The assessment of likely significant effects on cultural heritage will continue to be updated, as necessary, based on the final Proposed Development design, ongoing consultation, and the findings of other assessment topics that influence the assessment of effects on heritage assets.

10.4.2 Further archaeological surveys (archaeological trial trenching) to the east of the existing airport are proposed. In addition, stakeholder engagement will continue as the Proposed Development progresses in order to discuss the assessment findings and develop mitigation proposals.

11 ECONOMICS AND EMPLOYMENT

11.1 Context

11.1.1 **Chapter 11** of Volume 2 of the PEIR presents the preliminary assessment of effects associated with economics and employment. The airport's total economic footprint in the UK in 2019 was estimated to be around 28,400 jobs and £1.8 billion in Gross Domestic Product (GDP). This included direct, as well as indirect and induced employment and economic activity associated with the supply chain and employee expenditure.

11.1.2 It is estimated that in 2019 the airport supported 10,920 direct jobs; these included jobs supported by airlines, head office functions of aviation-related companies, airport operations, airline support services, shops, hotels and restaurants. The majority of employees lived in Bedfordshire, where the airport is located, particularly in Luton.

11.2 Mitigation measures

11.2.1 A range of measures relating to economics and employment are proposed to enhance the benefits of the Proposed Development. These include:

Construction

a. the design and construction strategy for the Proposed Development has sought to minimise disruption to existing local businesses and minimise adverse effects on airport or other employment;

b. an Employment and Training Strategy (ETS) is being developed in liaison with key stakeholders and a draft version has been published with this consultation. The ETS proposes actions and initiatives with a vision to create quality careers and make the airport an inclusive and aspirational place to work. These proposals include establishing an employment and skills hub at the airport as a one-stop shop for engagement with local education institutions and training providers, explore the creation of an onsite training centre for construction and operational phases, encouraging hiring of apprentices and trainees through procurement and working together with airport employers, enhancing outreach with local community groups and schools, and

facilitating research and innovation related to the future of sustainable aviation and construction;

c. work would be undertaken with existing education bodies and employers in advance of construction to determine future skills requirements and gaps to help develop training programmes; and

d. as part of their selection criteria, contractors' ability to deliver social value would be considered (i.e. whether the contracts could deliver wider social, economic and environmental benefits).

Operation

11.2.2 For the operational phase a similar approach would be adopted. However, much of the employment growth would be drawn by existing operators rather than contractors. A number of these have bespoke training programmes – such as easyJet Academy.

11.2.3 It is anticipated that an Employment Charter for employers would be developed to work towards a set of agreed objectives that would include a focus on local employment and training initiatives.

11.3 Likely significant effects

Construction

11.3.1 The construction of the Proposed Development would generate new jobs from direct employment at the construction site, and also in industries supporting the construction works, such as those supplying construction materials and services. It is estimated that over the construction period a total equivalent of 620 Full Time Equivalent (FTE) jobs would be directly created. In addition, approximately 310 FTE jobs would be created as a result of additional demand for goods and services through the construction industry supply chain, and through expenditure in the local economy by construction workers. This is equivalent to an additional £429 million in Gross Value Added (GVA) generated across the construction period. While the construction of the Proposed Development may displace some workers from existing businesses, overall it is estimated to bring significant economic benefits to Luton and the surrounding three counties of Bedfordshire, Buckinghamshire and Hertfordshire. There will also be no significant effects on the local housing market during the construction phase due to additional demand for housing from new workers.

Operation

11.3.2 During operation, the Proposed Development would generate jobs to support airport operations, airlines and other companies serving the airport and additional employment in supply chains.

11.3.3 When comparing the employment growth and GDP by 2043 with existing employment and GDP in 2019, the total number of new jobs would be approximately 4,800 in Luton and an additional £755m in GDP, 6,600 in the Three Counties with £1bn in GDP, and a total of 12,100 across the UK equating to additional £1.6bn in GDP.

11.3.4 This would provide a significant beneficial effect to the UK economy.

11.3.5 The airport also supports economic activity by providing connectivity to the passengers that use it. For passengers travelling on business, the connectivity offered by the airport means that they are able to interact more effectively with global markets. The growth of the airport and the connectivity it offers would also enable more visitors to come to the UK. These visitors would support GDP and employment via an expenditure injection into the economy. The expansion of the airport also has the potential to generate additional tax revenue for Government through the Air Passenger Duty paid by passengers. These impacts would result in further significant beneficial effects to the UK economy. There will also be no significant effects on the local housing market during the operational phase due to additional demand for housing from new workers.

11.4 Completing the assessment

11.4.1 To complete the assessment, further engagement with technical stakeholders will be undertaken. In addition, any updates to the design of the Proposed Development will be assessed.

12 GREENHOUSE GASES

12.1 Context

12.1.1 **Chapter 12** of Volume 2 of the PEIR presents the preliminary assessment of greenhouse gas (GHG) emissions from the Proposed Development. In June 2019, the UK Government set a legally binding target of net zero carbon emissions by 2050 (Ref. 5). Transport Decarbonisation Plan (Ref. 6), published in July 2021, sets out the Government's commitments and actions to further decarbonise the full transport system in the UK before 2050. The Jet Zero Consultation (Ref. 7) was published alongside the Transport Decarbonisation Plan to seek views on the Government's proposed approach and principles to reach net zero aviation by 2050.

12.1.2 In addition to the assessment of GHG emissions, the PEIR also identifies the impact of the Proposed Development on the UK meeting its five-yearly carbon reduction targets. The sixth carbon budget (Ref. 8), passed into law in June 2021 for years 2033-2037, was the first to align with the net zero target and for the first time incorporated the UK's share of international aviation and shipping emissions.

12.2 Mitigation measures

12.2.1 A range of measures to reduce GHG emissions from the Proposed Development are proposed and have been accounted for in the assessment. These include (but are not limited to):

Construction

a. as set out in the Draft CoCP the lead contractor will develop and implement a Carbon Efficiency Plan to manage carbon emissions from construction activities and promote good practice;

b. mitigation measures will consider both, the embodied and operational carbon associated with construction works, and include the below:
    i. specification of materials with lower embodied GHG emissions within lead contractor' contracts;
    ii. commitments to recycle/reuse demolition waste;
    iii. commitments to reduce water use and disposal;
    iv. use of renewable/zero or low carbon fuels for construction; vehicles, plant and machinery where reasonably practicable; and
c. targets would be set to reduce waste generation and water use during construction.

Operation

a. the Draft Greenhouse Gas Management Plan (refer to **Appendix 12.1** of Volume 3 of the PEIR) sets out measures to reduce GHG emissions from the operation of the Proposed Development, such as:
    i. options for low carbon renewable energy generation;
    ii. options to encourage the future uptake of low and zero carbon fuels for both vehicles using the airport and aircraft in co-operation with the airport operator, e.g. inclusion of electric vehicle charging points in car parks, and inclusion of infrastructure for sustainable aviation fuels, where feasible;
    iii. measures incorporated into the design to utilise efficient building design, reduce energy usage and waste generation during operation.
b. a landscaping strategy for the operation of the Proposed Development to offset any loss of vegetation and deliver new habitats would be implemented (refer to **Appendix 8.2** of Volume 3 of the PEIR); and
c. mitigation proposed to reduce emissions to air and the number of car journeys outlined in **Sections 7.2** and **18.2** of this NTS will also reduce GHG emissions.

12.3 Likely significant effects

Construction

12.3.1 Construction GHG emissions calculated for the Proposed Development were based on data for estimated energy use, types and quantities of construction materials, waste generated during construction, and land use change leading to a loss of carbon stock. The assessment estimated that a total of 1,082,369 tonnes of carbon dioxide equivalent (tCO_2e) would be emitted over the construction phases of the Proposed Development. 50% of these emissions are associated with usage of equipment and vehicles during construction. Other major sources of GHG emissions are land use change and embodied carbon in construction materials, which account for 23% and 20% of total GHG emissions during construction respectively.

Operation

12.3.2 Operational GHG emissions assessment considered emissions over the life cycle of the Proposed Development from key activities identified, including airport operations, surface access journeys and aircraft movements. The assessment of GHG emissions considered the reduction in emissions over time, as more efficient new generation aircraft replace the existing fleet. At maximum capacity in 2043, the Proposed Development was estimated to generate 2,137,386 tCO_2e from its operation, with the majority of these emissions being associated with aircraft movements. This is an additional carbon impact of 1,001,486 tCO_2e compared to the airport's capacity being capped at 18 mppa.

12.3.3 Assessment of impact on the ability of Government to meet its carbon reduction obligations GHG emissions from the construction and operation of the Proposed Development would represent between 2.331% and 3.691% of the Climate Change Committee carbon-cap for aviation emissions for the periods of 2023-2027 and 2028-2032 respectively, and 0.774% of the sixth UK carbon budget for years 2033 - 2037. The preliminary assessment concluded that whilst these emissions would be significant, the Proposed Development would not materially affect the UK's ability to meet its carbon reduction targets, including carbon budgets.

Completing the assessment

12.3.4 The assessment of GHG emissions will continue to be updated to consider design changes and the emerging Government Jet Zero Strategy. Opportunities to further reduce GHG emissions will also be identified, where applicable.

13 HEALTH AND COMMUNITY

13.1 Context

13.1.1 **Chapter 13** of Volume 2 of the PEIR presents a preliminary assessment of likely significant effects of the Proposed Development on population health and community.

13.1.2 The health and community assessment identifies effects on the health of the population and on the lives of people within the local community, arising from direct and indirect impacts on community resources and the environmental, social and economic impacts of the Proposed Development. It brings together the assessment of effects on people living close to, or affected by, the Proposed Development in a single chapter.

13.1.3 The health assessment considers likely effects arising from impacts on environmental, social, or economic factors that influence health and wellbeing ('health determinants'), including: access to open space, recreation, and physical activity; access to services; employment and income; housing; air

quality, neighbourhood quality; aircraft noise; perception and uncertainty; and social capital[2].

13.1.4 The community assessment considers likely effects on community resources, and the resultant effects on the people ('receptors') using those resources, including: residential properties, schools, community facilities, open spaces and Public Rights of Way, and leisure and recreation facilities.

13.2 Mitigation measures

13.2.1 A range of mitigation measures to reduce the effects on health and community from the Proposed Development would be implemented, as set out below:

Construction

13.2.2 As part of the landscape proposals for the Proposed Development, an area of Wigmore Valley Park will be lost and replacement open space of a greater area will be provided to the east of the existing park. The replacement open space would be delivered in Phase 1, prior to any direct impacts on the existing park. The replacement open space would retain the existing main entrance to Wigmore Valley Park, adjoining Wigmore Hall and Wigmore Pavilion, and would incorporate several of the enhanced facilities proposed in this area as part of New Century Park (i.e. the improved skate park and play facilities and the refurbished Wigmore Pavilion). Overall, the loss of part of the existing park will be fully mitigated by:

a. the enhancement of existing facilities, such as the upgrading of existing footpaths and new signage;
b. the provision of a larger area of publicly accessible open space; and
c. the continuation of accessibility to the park through the existing main entrance and within the replacement open space through the upgrading of existing rights of way and new surfaced paths which further improve public accessibility.

13.2.3 Further mitigation proposed for the construction of the Proposed Development is set out below:

a. the Applicant will prepare a construction-specific community engagement plan for the construction of the Proposed Development as set out within the Draft CoCP;
b. the lead contractors will make provision to limit adverse health and wellbeing effects relating to the construction of the Proposed Development through implementation of a community engagement strategy to reduce stress and uncertainty associated with the Proposed Development; and
c. measures to minimise dust emissions (e.g. phased working), noise emissions (e.g. limiting the time equipment is used) and visual impacts

[2] Social capital is defined as the networks of relationships among people who live and work in a particular society, enabling that society to function effectively.

(e.g. well designed and maintained temporary hoarding and fencing) and light impacts (e.g. confinement of task lighting and orientation of site floodlights away from dwellings) to both local businesses and residents will be implemented as detailed in the Draft CoCP.

13.2.4 We continue to engage with owners and operators of a number of facilities, including Prospect House Day Nursery and Ace Sandwich Bar to identify reasonably practicable measures to help mitigate the likely effects on these facilities. This engagement is focused on finding and agreeing alternative sites which are of a comparable size, quality and accessibility in order to relocate these facilities.

Operation

13.2.5 Mitigation proposed for air quality (see **Section 7.2**), economics and employment (**Section 11.2**), landscape and visual effects (**Section 14.2**), noise and vibration (**Section 16.2**) and traffic and transport (**Section 18.2**) would also apply to reducing adverse effects on health and community, as well as the Preliminary Light Obtrusion Assessment (refer to **Appendix 5.2** in Volume 3 of the PEIR) and the Draft CoCP.

13.3 Likely significant effects

All phases – Health Assessment

13.3.1 Significant adverse effects on mental wellbeing may result from negative perceptions and uncertainty in relation to all phases of the Proposed Development.

Construction effects – Health Assessment

13.3.2 During construction, the local community would experience a significant beneficial effect as a result of construction employment opportunities for local people.

13.3.3 However, significant adverse effects on mental health and wellbeing may also result from the demolition of Prospect House Day Nursery.

Construction effects – Community Assessment

13.3.4 Similarly, the community assessment recognises that during construction, the demolition of Prospect House Day Nursery on Prospect Way would result in a significant adverse effect. If suitable alternative premises are found for the Prospect House Day Nursery, then effects would be reduced to not significant, provided that the alternative facility is of a comparable size, quality, and accessibility. We are continuing engagement with the nursery to find a suitable alternative location.

Operational effects - Health Assessment

13.3.5 During operation, likely significant adverse effects on health and wellbeing have been identified due to an increase in air noise for certain receptors, as described in **Section 16.3** of this NTS.

13.3.6 However, significant beneficial effects on health and wellbeing would also occur from the increase in operational employment opportunities for local people.

Operational effects - Community Assessment

13.3.7 There are no likely significant effects on community resources during operation.

13.4 Completing the assessment

13.4.1 Further assessment of the likely effects on health and community will be undertaken and additional mitigation identified, as technical assessments are further progressed.

13.4.2 The following activities will be undertaken to complete the assessment, the results of which will be presented in the ES:

a. further quantitative assessment of health effects from noise impacts will be presented as part of the ES; and

b. an assessment of change in air quality exposure predicted to occur as a result of the Proposed Development will be presented as part of the ES. The changes in pollutant concentrations where the population would be exposed will be assessed.

14 LANDSCAPE AND VISUAL

14.1 Context

14.1.1 **Chapter 14** of Volume 2 of the PEIR presents the preliminary landscape and visual assessment, considering likely effects of the Proposed Development on the elements that make up the landscape, the specific aesthetic or perceptual qualities of the landscape, character of the landscape and changes in views or visual amenity.

14.1.2 The airport is located to the south east of Luton on an elevated plateau. The surrounding landscape is recognised for its local landscape value, has an extensive network of Public Rights of Way and has several features valued for their amenity, heritage or ecological value. The Chilterns Area of Outstanding Natural Beauty (AONB) is located approximately 3km north and 5km west of the airport. The existing airport is a prominent feature in views from much of the surrounding area and is also visible from long distance views from the Chilterns AONB. Further context of the existing airport in views from the surrounding area can be gained from panoramic photographs included in **Appendix 14.6** in Volume 3 of this PEIR. These have been taken from representative viewpoints in the surrounding area, agreed with the landscape officers of the local authorities.

14.2 Mitigation measures

14.2.1 A range of measures relating to the management of landscape and visual effects are proposed as part of the Proposed Development. These include (but are not limited to):

Construction

a. good practice measures to protect the landscape and visual amenity as set out and explained in the Draft CoCP (refer to **Appendix 4.2** of Volume 3 of this PEIR);

b. works to trees to be carried out in accordance with the draft Arboricultural Impact Assessment contained in **Appendix 14.3** in Volume 3 of this PEIR;

c. the functionality of the Public Rights of Way network would be protected throughout construction, to enable users to continue to exercise their rights whilst also protecting them from construction traffic; and

d. an area at least as large as may be affected by the proposed works would be made available for use by the public ahead of any site clearance activities that would impact existing public open space and construction operations.

Operation

a. the design of the Proposed Development has evolved to avoid impacting on ancient woodland at Winchhill Wood, to retain mature woodland/hedgerow vegetation and coniferous plantation woodland along the ridgeline of Winch Hill, to retain an area of mature woodland to the north of Dairyborn Escarpment, and to retain (in part) hedgerow vegetation on the retained northern part of Wigmore Valley Park;

b. the design of the Proposed Development has evolved to avoid excavation on the ridgeline of Winch Hill or in land occupied by a potential Roman building, located within the field immediately to the south east of Wigmore Valley Park;

c. the replacement open space is an integral part of the Proposed Development, which has been designed to avoid, minimise, replicate and/or replace landscape and visual effects by restoring boundary treatments, providing new screening planting and creating areas of meadow and mown grassland;

d. hedgerow and tree planting is proposed to restore historic field boundaries and provide visual screening;

e. an earth bund would be formed on the south west boundary of the retained part of Wigmore Valley Park using fill material considered unsuitable for constructing the airfield platform;

f. extensive planting of new trees, shrubs and seeding of meadow grassland are proposed to mitigate for the loss of existing vegetation and to provide new habitats and green corridors for wildlife;

g. the visual impact of new buildings and, where feasible, airfield equipment would be reduced through muted surface finishes;

h. a draft Landscape and Biodiversity Management Plan has been prepared (refer to **Appendix 8.2** in Volume 3 of this PEIR) that sets out measures for the management of existing and proposed vegetation; and

i. improvements to Public Rights of Way within the surrounding landscape are proposed, including upgrades of sections and improved signage.

14.3 Likely significant effects

14.3.1 The Proposed Development would impact on the existing landscape character and on peoples' visual amenity during both construction and operation.

14.3.2 The removal of elements of the existing landscape and proposed alterations to landform are likely to result in significant adverse effects on several landscape receptors during construction, impacting elements that make up the existing landscape and defined character areas. It is assessed that there would be a residual significant adverse effect on the landform east of the airport, on the townscape of Hitchin (largely due to the potential to impact on trees as a result of highway interventions) and on several landscape character areas (Luton Borough Landscape Character Area 13 – Wigmore Rural and Hertfordshire Landscape Character Area 200 – Peters Green Plateau). The increase in air transit movements is also assessed to result in a significant adverse effect on the aesthetic and perceptual characteristics of the landscape within the Chilterns AONB.

14.3.3 However, the mitigation measures to be delivered by the Proposed Development would result in a significant beneficial effect on the network of Public Rights of Way east of Luton.

14.3.4 **Inset 14.1** includes an example photomontage of the Proposed Development from Wigmore Valley Park. Further photomontages of the Proposed Development from representative viewpoints in the surrounding area are provided in **Appendix 14.7** in Volume 3 of this PEIR.

14.3.5 It is assessed that the Proposed Development would result in people experiencing a significant adverse effect to their visual amenity during construction when visiting Wigmore Valley Park, Wigmore Hall Conference Centre, Raynham Way Recreation Ground and Community Centre, the car park east of Vauxhall Way, the area of greenspace next to Polzeath Close, South Wigmore, Darleyhall, the Lea Valley Cycle Route near Park Street, and when moving along Eaton Green Road, Winch Hill Road, Kimpton Road and Airport Way, New Airport and several nearby Public Rights of Way.

14.3.6 It is assessed that people would continue to experience significant adverse effects at the year of maximum passenger capacity in 2043, when using Wigmore Valley Park, Raynham Way Recreation Ground and Community Centre, the car park east of Vauxhall Way, the Lea Valley Cycle Route near Park Street, and when moving along several nearby Public Rights of Way to the south east of Wigmore Valley Park and to the east of the existing airfield.

14.3.7 Once the landscape mitigation delivered by the Proposed Development has matured, the effects experienced by the users of Wigmore Hall Conference Centre, the car park east of Vauxhall Way and users of Public Rights of Way to the south east of Wigmore Valley Park and to the east of the existing would be reduced to not significant. All other significant adverse effects on visual amenity are considered to remain.

14.4 Completing the assessment

14.4.1 Further assessment of the likely landscape and visual effects will be undertaken, including the preparation of further photomontages of the Proposed Development.

Inset 14.1 Example verified view of the Proposed Development from Wigmore Valley Park

Representative Viewpoint 13 : Wigmore Valley Park

Illustrative visual representation based on winter viewpoint photography.
Refer to Appendix 14.6 in Volume 3 of this PEIR for corresponding viewpoint information

Existing View

Illustrative Block Form of Max. Parameters (Viewing Distance 300mm)

15 MAJOR ACCIDENTS AND DISASTERS

15.1 Context

15.1.1 **Chapter 15** of Volume 2 of the PEIR presents the preliminary assessment of Major Accidents and Disasters (MA&D), which considers the vulnerability of the Proposed Development to MA&D hazards and assesses the potential for the Proposed Development to cause significant environmental effects as a result of a major accident.

15.1.2 For example, natural hazards relevant to the Proposed Development include meteorological hazards (such as extreme weather events), geological hazards (e.g. ground collapse) and space weather (e.g. solar flares).

15.1.3 Relevant existing major accident hazard sources include but are not limited to: aircraft accidents, accidents associated with cargo handling and transportation centres, and to fuel storage facilities, former landfill, potential for unexploded ordnance within the Main Application Site, and the existing fuel pipeline which crosses the eastern boundary of the Main Application Site.

15.2 Mitigation measures

15.2.1 Measures to mitigate MA&D risks to and from the Proposed Development include but are not limited to:

Construction

a. a detailed construction phasing plan is to be developed by the construction contractor which would consider the interaction of the works with airport operations and existing safety, environmental, emergency systems;

b. construction contractors would be required to set up and implement accredited safety and environmental management systems, including safe systems of work. These would identify all relevant legislation that must be complied with. Regular audits would be undertaken to monitor compliance against these management systems; and

c. Draft CoCP sets out requirements to minimise the risk of environmental pollution, including requirements for emergency preparedness and pollution incident response.

Operation

a. the drainage strategy of the Proposed Development has been developed to accommodate 1 in 100 year rainfall events, including an allowance of 40% for increase in rainfall with climate change and incorporates pollution prevention measures (see **Section 20.2**);

b. slopes within the earthworks design have been specified at a gradient which would mitigate the risk of slope failure that could result in a landslide;

c. to mitigate the risks associated with construction over the historic landfill site, piled foundations and ground gas protection would be embedded into the design of new structures (see **Section 17.2**);

d. the highway design of the Proposed Development has been developed to the standards set within the Design Manual for Roads and Bridges. Road Safety Audits would be carried out to inform further design development;

e. the layout of the Proposed Development has been developed in consultation with the airport's fire safety and emergency resilience officers. A fire hydrant system will be provided during Phase 2 to connect to all new aircraft stands, and the existing number of emergency water tanks around the runway will be retained. A three minute response time across the airport for the onsite rescue and firefighting service has been maintained by the Proposed Development's design;

f. the design of the proposed fuel storage facility would incorporate measures to mitigate the risk of fire and explosion;

g. the Proposed Development includes a direct connection between the fuel storage facility and the existing fuel pipeline to the east of the Main Application Site. This will provide the opportunity for fuel to be delivered to site via pipeline, potentially eliminating the need for fuel to be transported to the airport via road, and therefore, removing hazardous loads from the public road network;

h. uninterruptible power sources have been incorporated within the design, which would provide emergency power for critical infrastructure, if mains power fails;

i. design of the Proposed Development has been developed not to attract birds in order to minimise the risk of bird strike;

j. the Proposed Development will provide facilities for the on-site police service and rendezvous points for emergency services. An isolation bay has been incorporated within the airfield design, where aircraft can be directed, if required, in case of a threat or for disease control;

k. the Proposed Development has been designed in compliance with relevant health and safety legislation, standards and guidance, including with regards to fire safety. In line with legal requirements, a fire risk assessment will be undertaken, and a fire plan and evacuation strategy will be implemented on site;

l. the Proposed Development would operate under the Civil Aviation Authority Aerodrome Certificate and in compliance with UK aviation law and relevant guidance;

m. the on-site rescue and firefighting service would remain the first-responders for any incident within the airport boundary and the on-site Luton Airport Policing Unit would continue to police the airport;

n. the proposed fuel farm would be operated under a Control of Major Accidents Hazards and Hazardous Substances Consent in compliance with relevant legislative requirements; and

o. the Public Safety Zone, where planning restrictions apply, would be maintained to minimise the number of people and properties at risk in case of an accident occurring during aircraft landing or take-off.

15.3 Likely significant effects

15.3.1 The preliminary assessment identified 30 potential MA&D hazards relevant to the Proposed Development during both construction and operation, such as extreme weather events, fire, explosion, major leaks and spillages and aircraft accidents.

15.3.2 In addition, the potential for construction activities to disturb the normal operation of the existing airport was considered. During operation, the Proposed Development would introduce additional aircraft movements, and therefore, the potential for an increased risk of aircraft accidents was considered.

15.3.3 Mitigation outlined above is considered to mitigate all MA&D risks to be as low as reasonably practicable. Therefore, the residual risks of MA&D are not likely to be significant.

15.4 Completing the assessment

15.4.1 To complete the assessment of MA&D, further engagement with technical stakeholders on the risk assessment and proposed mitigation will be undertaken. In addition, any changes to the design of the Proposed Development will be assessed.

16 NOISE AND VIBRATION

16.1 Context

16.1.1 **Chapter 16** of Volume 2 of the PEIR presents a preliminary assessment of the effects of the Proposed Development due to noise and vibration. Noise associated with the airport is primarily caused by departing and arriving aircraft (referred to as air noise). Assessments of noise and vibration have also been undertaken for construction works and during the operation of the Proposed Development, for example during taxiing and engine running aircraft on the ground, operation of Luton DART and road traffic noise.

16.1.2 To inform the assessment, baseline sound surveys were undertaken at locations surrounding the Proposed Development during the period from 2018 to 2021. This allowed the identification of the nature and character of noise currently experienced by receptors, such as residential properties.

16.1.3 The preliminary assessment identified likely worst-case noise and vibration assessment scenarios during both construction and operation. During operation, this was identified to occur in 2043, when the full capacity of the Proposed Development (32 mppa) is reached. Modelled air noise also accounted for an expected reduction in noise levels, as airlines upgrade their aircraft over time with newer generation aircraft, which are quieter and more efficient.

16.1.4 The UK is also undergoing a redesign of airspace, which is being undertaken concurrently with, but separate to, the Proposed Development. This is expected to allow aircraft from the airport to climb more quickly due to the lifting of constraints imposed on aircraft from neighbouring airports, and therefore would reduce air noise experienced by the surrounding area. Details on how airspace may change at the airport in future are not yet available so any noise benefits that may occur as a result of airspace changes have not been accounted for within the modelling for this PEIR.

16.2 Mitigation measures

16.2.1 There are a range of measures already in place that address the noise impact of the airport, including the London Luton Airport Noise Action Plan (LLNAP) 2019-2023. These measures include operational procedures and operational limits to minimise noise from the airport and a noise insulation scheme for properties significantly affected by noise from the airport.

16.2.2 To mitigate the effects of the Proposed Development, a range of additional measures are proposed. These include:

Construction

a. the Draft CoCP sets out measures to minimise noise and vibration from construction activities, including the requirement for contractors to use quieter machinery and equipment and construction methods which are not inherently noisy. The measures include, but are not limited to, the following:
    i. construction noise and vibration mitigation measures which demonstrate that best practicable means have been adopted;
    ii. noise and vibration trigger levels against which monitoring would be undertaken;
    iii. details of works notifications to nearby properties; and
    iv. details of a complaints procedure.

Operation

a. mitigation measures in line with the International Civil Aviation Organisation Balanced Approach to Aircraft Noise Management (Ref. 9 and Ref. 10) would be adopted to reduce aircraft noise, as far as reasonably practicable. The four key principles of the approach are as set out below; further details of the proposed operational noise management measures are outlined in the Draft Operational Noise Management Plan (see **Appendix 16.2** in Volume 3 of the PEIR):
    i. reduction of noise at source – reduction of aircraft noise at source relates to improvements in aircraft technology to reduce aircraft noise;
    ii. use of land use planning and management – preventing new noise sensitive development in areas affected by adverse levels of aircraft noise;

iii. noise reducing operational procedures – operational procedures such as continuous descents, continuous climb operations and late release of landing gear can help reduce aircraft noise;
iv. operating restrictions – limits on aircraft movements during specific periods.

b. a 'noise envelope' would be adopted through Green Controlled Growth, which is a framework of legally binding and enforceable limits and controls to manage air noise. Noise contour area limits will be set along with thresholds, at which action should be taken to ensure limits are not exceeded. In addition, the existing restrictions on the airport of 9,650 aircraft movements during the night quota period (from 23:30 and 06:00) are proposed to be maintained to limit night-time aircraft noise levels. The noise envelope would give certainty to local communities about the amount of noise which can be expected in the future and to give the airport operator and airlines certainty on how they can use the airport. The noise envelope will also allow the noise benefits of new aircraft technology to be shared between the airport and affected communities;

c. properties identified as experiencing a likely significant noise effect due to the Proposed Development and which meet the qualifying criteria would be eligible for noise insulation, such as double or secondary glazing, acoustic thermal insulation and installation of suitable ventilation systems. An existing noise insulation scheme is already offered by the airport operator, however as part of the Proposed Development, the existing noise insulation scheme would be updated. Homeowners would be able to apply to the scheme, following which an initial assessment would be undertaken to confirm the property is eligible and to identify the work that needs to be undertaken. Once this is identified, a pre-approved contractor would undertake the works; and

d. the Proposed Development has been designed to reduce aircraft ground noise by providing additional taxiways and improving the use of airfield layout to reduce aircraft taxi time and queueing. An engine run-up bay for engine testing has been located within a specially designed facility with noise screening and further locations for noise barriers to reduce the impact of aircraft ground noise are being reviewed.

16.3 Likely significant effects

Construction

16.3.1 For the assessment of noise effects, the concepts of Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL), as defined in the Noise Policy Statement for England, are used. LOAEL is defined as '*the level above which adverse effects on health and quality of life can be detected*'. SOAEL is defined as '*the level above which significant adverse effects on health and quality of life occur*'.

16.3.2 Noise predictions for construction works and construction traffic movements indicate that SOAEL is unlikely to be exceeded at any of the receptors potentially affected. Furthermore, the assessment of vibration from construction

works and traffic indicates that disturbance from vibration is unlikely to occur. Therefore, the assessment concludes that the effects during construction are temporary and not likely to be significant.

Operation

16.3.3 For air noise assessment three scenarios are identified to demonstrate how noise will change in future as a result of the Proposed Development:

a. in 2019, representing the existing air noise from the airport. It is acknowledged that the existing planning permission noise contour limits were exceeded in 2019; however, noise contours for 2019 are provided for context to show how noise will change from the last year of normal operation; and

b. 2043 is identified as the worst-case year i.e. where Proposed Development noise contours cover the largest area and the difference between the following scenarios is the greatest:

   i. without the Proposed Development coming forward (i.e. with the airport operating at the current consented capacity but accounting for a reduction in air noise resulting from the ongoing upgrade of aircraft fleet); and
   ii. with the increased air traffic as a result of the Proposed Development (see **Inset 16.1**).

16.3.4 Comparison of the existing air noise modelled for 2019 and the predicted air noise in 2043 shows that overall, even with the Proposed Development, there will be a reduction in the number of people who would experience significant noise effects due to air noise. In total, 600 fewer people will be exposed to noise exceeding the SOAEL threshold during the daytime and 2,300 fewer people during the night-time period. This is due to quieter and more efficient aircraft that will be phased into the fleet.

16.3.5 If the 2043 noise contours with the Proposed Development are compared against the 2043 noise contours without the Proposed Development works coming forward, the difference in noise would be between 1 and 3 dB higher when compared to the scenario without the Proposed Development. It is estimated that 1,100 people will be exposed to significant noise effects during the daytime and 800 people during the night-time period. Households likely to experience significant effects as a result of the difference in air noise are currently eligible for a contribution to insulation under the current noise insulation scheme. Under the draft compensation scheme that would be part of the application for development consent, these properties would qualify for a full sound insulation package for habitable rooms.

16.3.6 With respect to aircraft ground noise, residential properties adjacent to the airport are expected to experience a minor change in noise levels. However, these changes are not likely to be significant.

16.3.7 Minor increases in road traffic are expected on most major routes but not to the extent that they would result in significant adverse effects in terms of road traffic noise exposure. Potential significant adverse effects are possible for residents

in the vicinity of Tea Green and Cockernhoe as a result of increased traffic on Stony Lane and Chalk Hill, although absolute road traffic noise levels are expected to remain relatively low. Further modelling and assessment of these effects will be undertaken to develop appropriate mitigation.

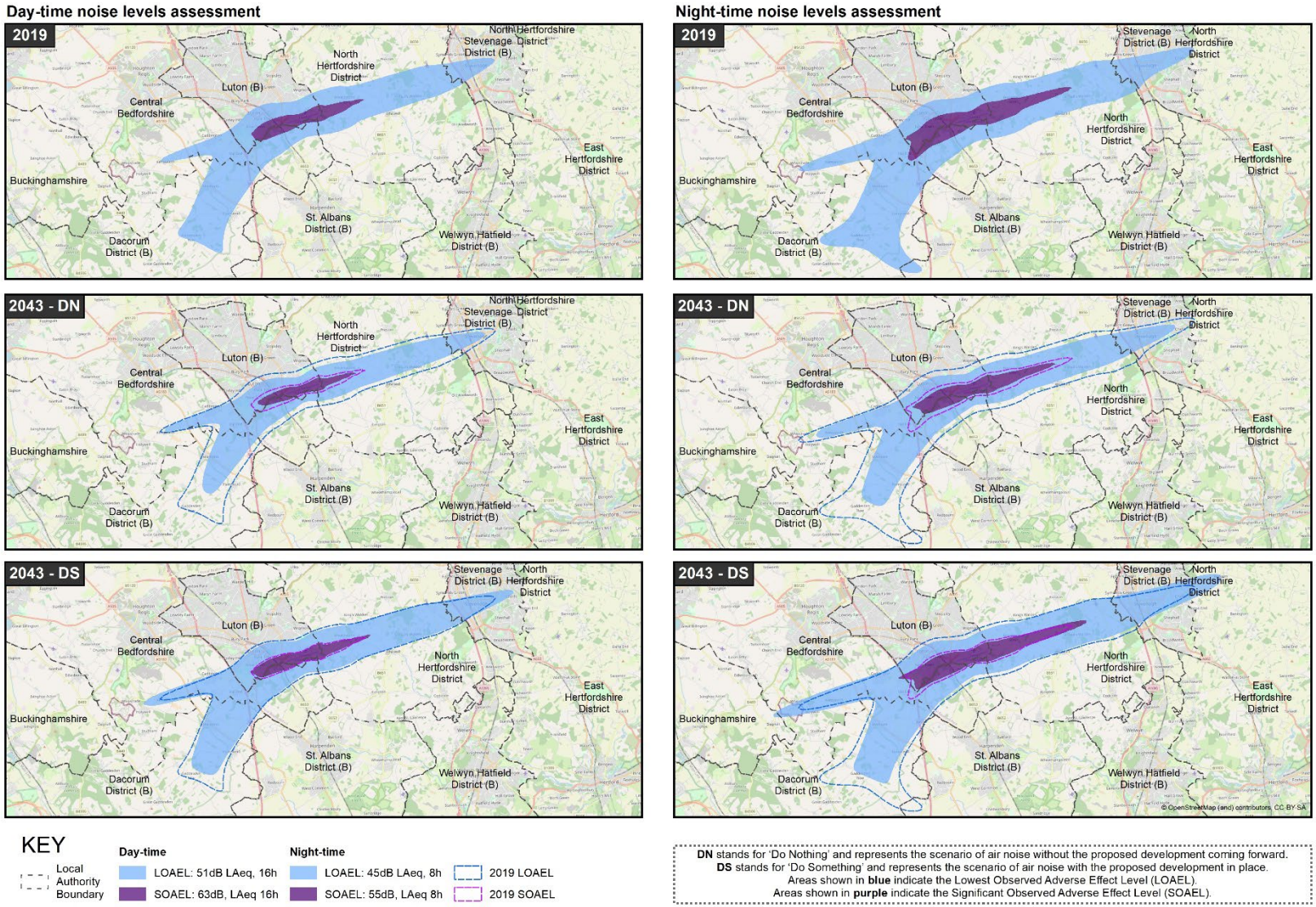
16.4 Completing the assessment

16.4.1 The assessment will be updated to reflect any amendments to the design of the Proposed Development. The air noise assessment will be updated with terrain data and to provide additional information that will consider how noise from increased aircraft movements will affect communities.

16.4.2 Sensitivity testing of potential reductions in noise that may be provided through airspace design will be undertaken based on the best available information at the time of assessment.

16.4.3 Further modelling of road traffic noise will also be undertaken to identify the need for further mitigation.

Inset 16.1 Day-time (left) and night-time (right) noise assessment.



17 SOILS AND GEOLOGY

17.1 Context

17.1.1 **Chapter 17** of Volume 2 of the PEIR presents the preliminary assessment of effects on land quality with respect to soils and geology.

17.1.2 The geology of the Main Application Site comprises made ground, Dry Valley, Head Deposits and Clay with Flint overlying Chalk bedrock. The Wigmore Valley Park area and parts of the existing airport of the Main Application Site also comprise the former Eaton Green landfill. The former landfill was operated by Luton Borough Council between 1937 and 1978, although other records show it was still in use in the 1990s.

17.1.3 An extensive ground investigation has been completed to characterise the material within the former landfill and understand the risk of contamination. Preliminary findings indicate the former landfill contains a variety of contaminants, including heavy metals, chlorinated solvents and inorganic compounds, and presents a source of landfill gases. At present in its current state, the contamination levels are not to the extent that they would pose a significant pollution risk to human health or the water environment.

17.1.4 On the basis of a desktop review of historical mapping, previous site reports, relevant geological maps, regulatory body records, ground investigation data and site walkovers, other potential on-site and off-site contaminative sources have also been identified. Beside the former landfill, these include, car parking areas, a former scrap yard, airport activities, motor works and other industrial uses within the site and the surrounding area and areas of likely made ground. These potential sources are associated with contaminants such as hydrocarbons, heavy metals, asbestos containing materials and ground gases. The airport also had a significant role in World War II and the Main Application Site is, therefore, associated with the risk of unexploded ordnance (UXO).

17.2 Mitigation measures

17.2.1 Construction of the Proposed Development will disturb the landfill and therefore, a range of measures to minimise risks associated with land contamination and ground gases are proposed. Whilst these measures would be implemented during construction, they would also minimise risks during operation. The proposed measures include:

a. measures proposed to be implemented by the construction contractors to manage risks associated with contamination and potential UXO are set out within the Draft CoCP. These include good construction site practices, site briefings, and compliance with legislation;

b. a remediation strategy has been prepared (refer to **Appendix 17.5** of Volume 3 of the PEIR), setting out details of how remediation would be undertaken and the remediation objectives to be achieved. Prior to the start of construction, the remediation contractor would apply to the Environment Agency for an environmental permit to reuse material from the former landfill; and

c. a number of measures have been embedded within the design to minimise risks associated with ground contamination, ground gas and settlement during construction on the former landfill which will minimise risks during the operational period. For example:
    i. the location, orientation and depth of excavation into the landfill for the development platforms[3] has been designed to reduce the amount of landfill material that will require excavation;
    ii. all buildings present within the area of the former landfill would have ground gas management measures, to prevent migration of gases into structures;
    iii. a perimeter ground gas control system would be installed to prevent off-site migration of ground gases to adjacent land uses;
    iv. the geotechnical design will take into account issues associated with building on the former landfill, including ground stability, settlement and integrity, to ensure they do not impact the Proposed Development. Measures being considered to address these issues include use of ground improvement techniques, surcharging and flexible pavement;
    v. service connections would be modified to accommodate the likelihood of future settlement of the landfill and reduce the risk of damage to services; and
    vi. a material cover system is proposed across the area of the former landfill to prevent contact of people with contamination.

17.2.2 Additional measures proposed to protect and retain the existing soil resource and minimise waste and material use are summarised within **Sections 6.2** (agricultural land quality and farm holdings) and **19.2** (waste and resources) of this NTS respectively.

17.3 Likely significant effects

Construction

17.3.1 A preliminary assessment of risks to human health from existing ground contamination sources has been completed. During construction, with mitigation in place as described above, these risks are not likely to be significant. Furthermore, the Proposed Development would provide a beneficial effect to adjacent site users and properties by removing some contaminated soils and replacing these with treated materials which do not present a risk to human health, or the environment.

Operation

17.3.2 A preliminary assessment of risks to human health during the operation of the Proposed Development has been undertaken, considering the risk of contact with contaminated materials and the migration of ground gas into buildings.

[3] Areas where earthworks have been completed to create suitable ground conditions on which to construct the Proposed Development.

With mitigation embedded within the design, as described above, the potential risks can be managed effectively, and no significant effects are likely.

17.4 Completing the assessment

17.4.1 Further engagement with the Environment Agency and local authorities will be undertaken to complete the assessment, the results of which will be presented in the ES. This will include discussion of the detailed risk assessments and remediation strategy to agree the conclusions and remediation objectives, obtain agreement to a proposed gas and groundwater monitoring programme which will add to the baseline data and agree in principle the environmental permitting principles for the reuse of landfill materials.

18 TRAFFIC AND TRANSPORT

18.1 Context

18.1.1 **Chapter 18** of Volume 2 of the PEIR presents the preliminary assessment of environmental effects from traffic and transport. Vehicular access to airport and its car parks is currently along Airport Way and along Percival Way/President Way. National Cycle Route (NCR) 6 runs along the River Lea Valley to the south west of the Main Application Site; the route provides a continuous link between London and the Lake District. There are also several Public Rights of Way located within the Main Application Site.

18.1.2 Separately to the Proposed Development, a package of highway improvement schemes has been identified in the East Luton Study (on behalf of Luton Borough Council) (Ref. 11) to address traffic pressures arising from planned growth in housing and employment identified in the Luton Local Plan (Ref. 12) and growth in the neighbouring districts. As agreed with Luton Borough Council, these schemes have been assumed to be completed by 2027 in the PEIR. Furthermore, in discussion with National Highways, it is expected that improvements to M1 capacity between Junctions 9 and 10 would be made (e.g. in the form of a hard shoulder running) to address capacity issues arising from planned growth.

18.1.3 The airport Public Transport Hub, located adjacent to the existing terminal, caters for a wide variety of services to support airport operations with 17 bus/coach stands allocated to specific services. Local buses operated by Arriva and Centrebus connect the existing airport with Luton town centre, Stevenage and Dunstable. Conventional coach services are also operated by National Express, Stagecoach and Greenline Coaches, connecting the airport with London and other London airports, Milton Keynes, Oxford, Birmingham, Manchester and other cities and towns across the UK.

18.1.4 Unlike other London airports, London Luton Airport is not yet served directly by a rail line. The nearest station is Luton Airport Parkway railway station from which a shuttle bus to the airport is currently operated. The rail service at Luton Airport Parkway station has improved recently with the introduction of the East Midlands Rail Connect service, in addition to the Thameslink services. This service runs between Corby and St Pancras International stations with a 30

minute frequency and is operated by electric multiple unit trains. Luton DART, connecting Luton Airport Parkway and Terminal 1, is scheduled to open in 2022.

18.2 Mitigation measures

18.2.1 A range of mitigation measures relating to traffic and transport are proposed. These include:

Construction

a. an Outline Construction Traffic Management Plan has been prepared (refer to **Appendix 18.3** in Volume 3 of the PEIR) which sets out measures that would be undertaken by the contractors to minimise the impact of construction traffic on the highway network; and

b. a Construction Workers Travel Plan will be produced to support the application for development consent, which will set out measures to encourage responsible transport choices by construction workers.

Operation

a. a Framework Travel Plan (for airport employees) will be produced to support the application for development consent, which will set out targets for travel by non-car modes and describe the measures to achieve set targets;

b. a bus/coach strategy will be developed and discussed with bus and coach operators, aimed at increasing the frequency of service, introducing new routes, integrated ticketing, ticket purchasing facilities and better vehicles;

c. the Luton DART system will be extended to serve the new terminal; and

d. various Highway Intervention works are included in the Proposed Development to reduce the adverse impact of the additional traffic on local road users.

18.3 Likely significant effects

Construction

18.3.1 During construction, the assessment considered the potential impacts on road and public transport users, as a result of any additional traffic generated by the construction works. Over the construction period, the level of construction traffic would vary considerably. An estimated 231 vehicles are predicted to visit the Main Application Site on a daily basis during the busiest quarter of the construction period (in Quarter 2, 2036). An estimated 66% of this traffic would be heavy goods vehicles. It is proposed that construction traffic would mostly be routed to the Main Application Site via President Way, Airport Access Road (once constructed), the A1081 and M1. With mitigation in place, as set out in the Outline Construction Traffic Management Plan, the effects of construction traffic on these routes are not likely to be significant.

Operation

18.3.2 During operation, the preliminary assessment considered the potential impacts of the forecast operational traffic flows. Modelling of future traffic flows demonstrated that even without the Proposed Development, traffic within the surrounding area is forecast to increase in the future, which could lead to greater congestion, causing delays and a reduction in average journey speeds.

18.3.3 During operation, the majority of additional traffic is forecast to be focussed on the A1081 between the airport and M1 Junction 10, and then on the M1 itself to the north and south of Luton. In addition to this, there are forecast to be changes to traffic on local routes to the north, south and east of the airport with the Proposed Development in operation. Only between 5% and 6% of air passengers either arrive at or leave the airport in the morning (08:00 to 09:00) and evening (17:00 to 18:00) peak hours due to the airport's flight schedule. Hence, the majority of the traffic associated with the operation of the airport does not coincide with peak traffic during the day. With mitigation in place, the changes in traffic flows were not determined likely to result in significant effects.

18.3.4 A significant beneficial effect on the users of Eaton Green Road/Frank Lester Way was also identified due to a reduced risk of road traffic collisions and improved road safety.

18.4 Completing the assessment

18.4.1 Following the receipt of personal injury collision data for M1, further assessment of effects on highway safety will be undertaken. Additional assessment of effects on rail passengers will also be completed, specifically to consider sections of the route south of Luton Airport Parkway station. Agreed monitoring that will form part of the Framework Travel Plan will be incorporated into the ES.

19 WASTE AND RESOURCES

19.1 Context

19.1.1 **Chapter 19** of Volume 2 of the PEIR presents a preliminary assessment of potential effects on waste infrastructure (specifically landfill capacity) and the national demand for resources.

19.1.2 In 2019, the airport generated a total of 2,471 tonnes of non-hazardous operational Commercial and Industrial (C&I) waste and 21 tonnes of hazardous waste. 60% of airport operational non-hazardous waste was sent to recycling facilities, with the remaining 40% sent to an energy recovery facility. No non-hazardous C&I waste was sent directly to landfill.

19.2 Mitigation measures

19.2.1 A range of proposed measures intended to minimise waste and resource use are embedded as part of the Proposed Development. These include:

Construction

a. Draft CoCP sets out good practice measures for minimising waste during construction, using materials with recycled content and adopting sustainable procurement practices;

b. construction waste would be managed in line with a Site Waste Management Plan (an Outline Site Waste Management Plan has been included within **Appendix 19.1** of Volume 3 of the PEIR). Reuse of non-landfill material (i.e. soils and demolition waste) would be managed in line with a Materials Management Plan, prepared by the contractor; and

c. a number of measures to minimise waste by design have been identified and designers and contractors would be required to continue to identify opportunities to design out waste. For example, demolition waste would be reused on-site, where possible, cut and fill balance would be optimised to minimise the amount of excavated material imported or exported. Landfill material would undergo treatment with hazardous material removed and other material reengineered to allow it to be reused elsewhere within the Proposed Development.

Operation

a. for operation, the design of the Proposed Development would provide adequate internal and external waste storage to allow waste segregation to facilitate recycling.

19.3 Likely significant effects

Construction

19.3.1 The preliminary assessment estimated the amount of waste likely to be produced and resource use required during the construction of the Proposed Development.

19.3.2 Given the current maximum estimated construction waste quantities by phase arising from the Proposed Development (234,300m^3 (Phase 2b) of inert and 56,922m^3 (Phase 2b) of non-hazardous waste, and 2,400m^3 (Phase 2a) of hazardous waste), the proposed measures to minimise waste and waste recovery, and the landfill capacity in the study area, no likely significant effects on the capacity of waste infrastructure, specifically landfill capacity, were identified.

19.3.3 The quantity of materials required for the construction of the Proposed Development represent less than 1% of the overall national demand for construction materials, when considered over the construction programme, and therefore no likely significant effects were identified.

Operation

19.3.4 The preliminary assessment concluded that during operation non-hazardous waste generation is predicted to increase to 4,393 tonnes by 2043 (which is 20,919m^3) due to the increase in passenger numbers through the airport, but

the current rate of waste diverted from landfill (100%) is expected to be maintained. As such, the operation of the Proposed Development is not likely to have a significant effect on the existing waste management infrastructure, specifically landfill capacity.

19.3.5 Quantities and types of material resources required for the operation of the Proposed Development are currently unknown, however within the context of national demand, these are not likely to be significant.

19.4 Completing the assessment

19.4.1 Further assessment of baseline waste management infrastructure capacity and estimates of waste and resource use associated with the Proposed Development will be undertaken. In addition, further mitigation measures will be considered and presented, as appropriate. These will also be presented within the Outline Site Waste Management Plan for construction to be submitted with the application for development consent.

20 WATER RESOURCES

20.1 Context

20.1.1 **Chapter 20** of Volume 2 of the PEIR presents a preliminary assessment of the effects of the Proposed Development on surface water and groundwater resources and the existing drainage network.

20.1.2 The Main Application Site spans two river valleys: the River Lea, which is located approximately 450m to the south west, and the River Mimram, approximately 3.5km to the east. The Proposed Development is also located within an area at low risk of flooding from rivers (within Environment Agency's Flood Zone 1[4]). However, the Environment Agency long-term flood risk map shows a number of areas of at risk of surface water flooding across the Main Application Site, likely to be associated with the impermeable surfaces of existing structures and hardstanding.

20.1.3 The Main Application Site is underlain by Chalk bedrock, which provides a high level of groundwater storage, and is therefore, classified as a Principal Aquifer[5]. Northern and eastern parts of the Main Application Site are also within the total catchment area of a groundwater Source Protection Zone[6]. However, groundwater quality in the vicinity of Luton has been known to be poor due to pollution related to the surrounding area's industrial heritage.

[4] Flood Zone 1 is defined by the Environment Agency as land having a less than 1 in 1,000 annual probability of river or sea flooding.
[5] A Principal Aquifer comprises layers of rock that have high intergranular and/or fracture permeability and can provide a high level of water storage. It may support water supply and/or river base flow on a strategic scale.
[6] Environment Agency have defined Source Protection Zones for groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show an area at risk of contamination from any activities that might cause pollution in the area.

20.1.4 The airport currently manages surface water via a combination of discharges to public sewers and by soaking into the ground. There are two Thames Water surface water drainage ponds located on Eaton Green Road adjacent to the site boundary. Foul water is currently discharged to the public foul water network owned and operated by Thames Water. This is collected via the airport's own private foul water pipe network operated by Veolia Water. The public water supply assets are owned and operated by Affinity Water.

20.2 Mitigation measures

20.2.1 A range of mitigation measures are proposed to avoid and reduce the effects of the Proposed Development on water resources. Measures summarised in **Section 17.2** of this NTS also mitigate the risk of contamination of water resources. Further mitigation includes:

Construction

a. the Draft CoCP sets out proposed measures to be implemented by the construction contractors to protect surface water and groundwater resources. These include undertaking monitoring of groundwater and leachate from the former landfill, preparing a construction surface water management strategy, implementing good practice measures to minimise the risk of pollution, and preparing a pollution incident plan; and

b. works within watercourses will be avoided.

Operation

a. the drainage strategy for the Main Application Site has been designed to accommodate an increase in surface water flows during heavy rainfall events, including an allowance for increase in rainfall with climate change;

b. the drainage strategy incorporates measures to prevent the pollution of water resources. Run-off from the Main Application Site would pass through hydrocarbon separators, located within the system at locations where there is a risk of hydrocarbons being present (airport aprons, taxi ways, runways and car parks). Permeable paving is being proposed for areas of car parking and bunding is proposed for the new fuel storage area. Real-time monitoring of contaminant concentrations is proposed with shut off valves to divert runoff to a storage tank, if trigger levels are exceeded, and from there into a treatment facility;

c. a new Water Treatment Plant is proposed to treat sewage, from the new terminal and other facilities in the Proposed Development, including aircraft, and contaminated surface water runoff from the aprons, runways and taxiways. Sewage would be collected from within the Main Application Site via a new dedicated foul drainage system and combined with surface water runoff prior to treatment. Clean and treated effluent would be discharged into the ground under an Environmental Permit regulated by the Environment Agency;

d. the new fire training ground would be served by an isolated drainage system, with contaminated run off tankered off-site;

e. measures to maximise water reuse, such as greywater reuse and rainwater harvesting are also being considered; and

f. the works at each Highway Intervention will be designed in line with accepted highway design standards to ensure no unacceptable increase in flood risk or potentially significant effect on local water quality occurs.

20.3 Likely significant effects

Construction

20.3.1 An assessment of potential effects on the identified surface water and groundwater resources and the existing drainage network during construction has been undertaken. With appropriate mitigation in place, as described above, no likely significant adverse effects have been identified. The excavation, processing and treatment of the former landfill material prior to reuse would remove potential sources of contaminants and is expected to result in a significant beneficial effect, as it improves the overall environmental conditions at the Main Application Site.

Operation

20.3.2 An assessment of potential effects on water resources during operation has been undertaken. With measures embedded within the design to attenuate and treat surface water runoff, as described above, no likely significant adverse effects were identified. The installation of a capping layer over the former landfill will minimise surface water infiltration into the underlying waste and prevent the generation of landfill leachate. This, together with the treatment of the controlled discharge of surface water, would result in a significant beneficial effect by reducing the risk of existing contamination polluting groundwater and the River Mimram, which is groundwater fed.

20.4 Completing the assessment

20.4.1 Further modelling and assessment of groundwater will be undertaken to inform the ES. In addition, a Water Cycle Strategy will be developed to accommodate the increase in passenger numbers as a result of the Proposed Development, and associated increase in water demand. The Water Cycle Strategy will propose options to minimise water use and maximise water reuse by employing techniques such as rainwater harvesting. All further work will be informed by ongoing engagement with the local lead flood authorities, Environment Agency, Affinity Water and Thames Water.

21 IN-COMBINATION AND CUMULATIVE EFFECTS

21.1 In-combination Effects

21.1.1 An in-combination effect can occur when a single receptor or resource is impacted by a number of environmental impacts (e.g. a residential property is affected by both noise and air quality impacts). **Chapter 21** of Volume 2 of the PEIR presents the preliminary in-combination effects assessment.

21.1.2 During construction, the measures included within the Draft CoCP (refer to **Appendix 4.2** of Volume 3 of the PEIR) would be sufficient to ensure that the overall in-combination effect would not increase the degree of effects beyond that determined by individual topics. Furthermore, any in-combination effects felt would be minor, temporary and localised in nature.

21.1.3 During operation, combined effects from noise and visual disturbance may arise on properties in close proximity to the Main Application Site. However, the combination of these impacts is not expected to result in a greater effect than defined within the individual technical assessments.

21.1.4 As such no significant in-combination effects have been identified during construction or operation of the Proposed Development.

21.2 Cumulative Effects Assessment

21.2.1 Cumulative effects occur when the effects of the Proposed Development combine with those from other reasonably foreseeable projects, plans or programmes yet to be built. **Chapter 21** of Volume 2 of the PEIR presents the preliminary cumulative effects assessment.

21.2.2 A four stage approach for undertaking a cumulative effects assessment has been adopted for the Proposed Development in accordance with the Planning Inspectorate's Advice Note 17 (Ref. 13):

a. Stage 1: Establish the project's zone of influence and identify a long list of 'other development';
b. Stage 2: Identify a shortlist of 'other development' for cumulative effects assessment;
c. Stage 3: Information gathering; and
d. Stage 4: Assessment.

21.2.3 **Appendix 21.2** in Volume 3 of the PEIR provides the short-list of other developments considered in the cumulative effects assessment. No additional significant effects further to those associated with the Proposed Development were identified.

21.3 Completing the assessment

21.3.1 The in-combination and cumulative effects assessments will be updated for the ES. If any significant effects are identified, appropriate mitigation will be sought. Mitigation and how it will be secured will be clearly described in the ES.

22 HOW TO RESPOND TO THE CONSULTATION

22.1.1 If you have any questions about the Proposed Development or the consultation or would like to request printed or digital copies of consultation documents, please get in touch with us on the details below.

a. Email: futureluton@lutonrising.org.uk
b. Leave us a voicemail: 0800 538 5203

22.1.2 You can respond to the consultation in the following ways.

a. Respond online at: www.lutonrising.org.uk
b. Email your response to: 2022consultation@lutonrising.org.uk
c. Post us your response (no stamp required): FREEPOST FUTURE LUTON 2022

22.1.3 Our deadline for accepting feedback to our statutory consultation is 23:59 on Monday 4 April 2022.

22.1.4 While all the feedback received by the deadline will be recorded and considered, we will not be able to respond to individual comments.

GLOSSARY AND ABBREVIATIONS

Term	Definition
AONB	Area of Outstanding Natural Beauty
CoCP	Code of Construction Practice
C&I	Commercial and Industrial waste
DART	Direct Air to Rail Transit
dB	Decibel
FTE	Full Time Equivalent
GHG	Greenhouse Gases
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETS	Employment and Training Strategy
GDP	Gross Domestic Product
GVA	Gross Value Added
ha	hectare
LLAOL	London Luton Airport Operations Limited (the airport operator)
LOAEL	Lowest Observed Adverse Effect Level
MA&D	Major Accidents and Disasters
mppa	Million passengers per annum
NSIP	Nationally Significant Infrastructure Project
NTS	Non-Technical Summary (this report)
PEIR	Preliminary Environmental Information Report
SOAEL	Significant Observed Adverse Effect Level
UXO	Unexploded Ordnance

REFERENCES

Ref 1 London Luton Airport Limited (2017) London Luton Airport Vision for Sustainable Growth 2020-2050. LLAL, Luton.
Ref 2 Natural England (1988) Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (ALC011).
Ref 3 MHLG (2021) National Planning Policy Framework.
Ref 4 Met Office (2021) UK Climate Projections User Interface
Ref 5 HM Government (2019) Climate Change Act 2008 (2050 Target Amendment)
Ref 6 Department for Transport (2021) Transport Decarbonisation Plan, Decarbonising Transport: a better, greener Britain
Ref 7 Department for Transport (2021) Jet zero: our strategy for net zero aviation
Ref 8 UK Government (2021) The Carbon Budget Order 2021
Ref 9 International Civil Aviation Organization (2001), *Assembly Resolutions in Force*.
Ref 10 Regulation (EU) No 598/2014 of the European Parliament and of the Council of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC.
Ref 11 Arup; (2018); East Luton Study Report
Ref 12 LBC (2017) Luton Local Plan 2011-2031.
Ref 13 Planning Inspectorate (August 2019) Advice note seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects. Version 2.