Luton Rising

Our airport.
Our community.
Our planet.

February 2023

London Luton Airport Expansion

Planning Inspectorate Scheme Ref: TR020001

Volume 7 Other Documents

7.03 Design and Access Statement

Appendix B - Part 1 of 4 (Chapters B1-B2)

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APFP Regulation: 5(2)(q)

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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7.03 DESIGN AND ACCESS STATEMENT APPENDIX B – PART 1 OF 4 (CHAPTERS B1-B2)

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Contents

Appendix B

B1 Sift Reports

B1.1.1 Appendix B includes the Sift Reports caried out in the early design stages. The reports provide information on the options explored and the assessment criteria they are considered against. The design options are carried out as high-level spatial parameters for the proposed development, configured in relation to the existing airport infrastructure.

B1.1.2 The sift reports are discussed within Section 4 of the Design and Access Statement in relation to the design evolution and the changes leading to the sift report updates

B2 Sift Report 1

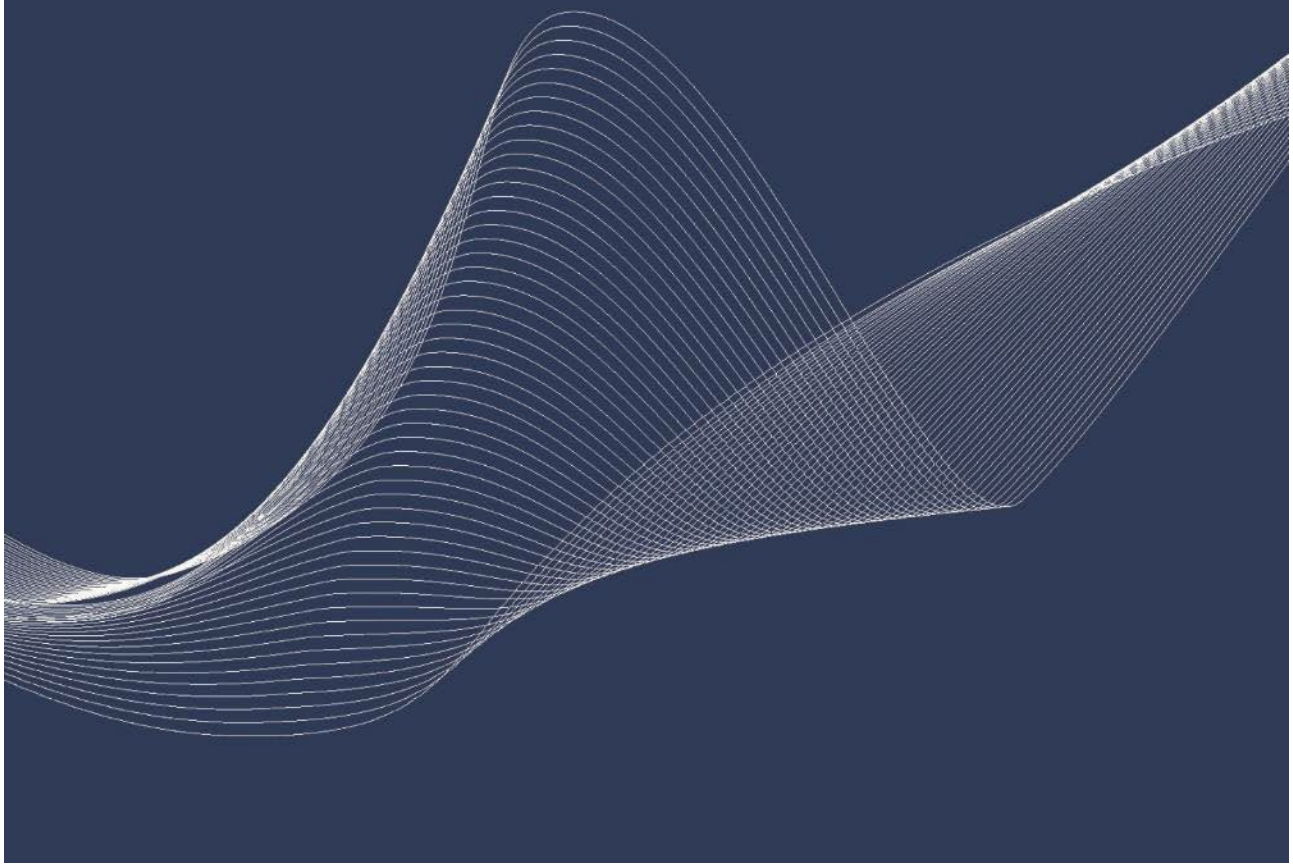
London Luton Airport Ltd
A Luton Council company

Luton Airport Expansion Project

London Luton Airport Limited (LLAL)

February 2019

Sift 1 Report, Final



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Please note this document (February 2019) is the final version of the Sift 1 Report and is an update of the draft report published as part of the Non-statutory Consultation in June 2018. Paragraph 1.2.3 outlines the scope of the changes to the previous draft.

1 INTRODUCTION

1.1 Project overview

1.1.1 The Government's 2003 Aviation White Paper (Ref 1.1) identified London Luton Airport (LTN) as an airport capable of supporting 30 million passengers per annum (mppa). Work undertaken by London Luton Airport Limited (LLAL) and London Luton Airport Operations Limited (LLAOL), who run the concession and have operational control of all day to day activities of the airport, demonstrates that the airport is potentially capable, through careful planning, of handling up to 36-38mppa from its single runway.

1.1.2 In 2017, the Government reaffirmed the importance of the aviation sector as a vehicle for growth and success of the UK economy with its call for evidence document in preparation of a new aviation strategy (Ref 1.2). In 2018, the Government published the outcome of that document, *Beyond the horizon: The future of UK aviation* (April 2018) (Ref 1.3) and the Airports National Policy Statement (NPS) (June 2018) (Ref 1.4). These has been driven by forecasts of rising demand in air travel, the need for an integrated approach to the sector, and the impending departure of the UK from the European Union. The forthcoming Aviation Strategy will consider the need to ensure that the UK has the appropriate capacity for air travel, both for passengers and freight.

1.1.3 In 2014, planning permission was granted to LLAOL to increase the capacity of LTN to 18mppa. It was forecast at the time that this would be achieved by 2026/27 at the earliest. Since then, passenger numbers have increased by around one mppa in each of the last four years. Capacity is therefore now expected to be reached within three years.

1.1.4 Set against this context for growth, LLAL believes that LTN has the potential to become the airport of choice for north London and England's economic heartland, and has prepared a business case to support further growth. There is an opportunity for LTN to play a substantially bigger role in the UK aviation market, notwithstanding the opening of the Heathrow third runway. In order to do this, LTN needs to be able to expand its landside and airside infrastructure to take advantage of the estimated capacity of up to 36-38mppa from its existing single runway.

1.1.5 There is therefore a clear need to plan for LTN's long-term future to ensure the regional economy can enjoy the benefits of this expected growth and it is LLAL's responsibility to deliver this to the best of its ability. LLAL has started to plan for this growth and publicly launched its vision for the airport in December 2017. This is:

"To make the best use of the existing runway at LTN to provide the maximum benefit to the local and sub-regional economy; to deliver good levels of service; and to actively manage environmental impacts at the local and wider levels in line with our commitment to responsible and sustainable development." (Ref 1.5)

1.1.6 LLAL has commissioned a consultant team to prepare a strategy for growth for LTN, including an application for a Development Consent Order (DCO). Under the Planning Act 2008 an increase of airport capacity by 10mppa or more is automatically considered to be a Nationally Significant Infrastructure Project (NSIP) and as such it is mandatory that this is authorised by a DCO.

1.1.7 Part of the preparation for the DCO application involves developing a proposal for the Project having regard to potential impacts on, for example, the environment, community and highways. This includes a process to develop alternative options for the Project taking account of Government Aviation Policy, the vision for LTN and the full range of economic, social, environmental and physical factors relevant to the expansion of the airport.

1.1.8 The option appraisal process draws on inputs from the full range of technical specialists to create plans and drawings showing alternative options for how the different elements of an expanded airport could be configured and developed at LTN. The different elements shown in the options will include the terminal building(s), aprons and taxiways, support facilities such as fuel farms, parking and servicing areas as well as highways, public transit systems and other new, retained or relocated facilities and uses such as commercial development, open space, recreational areas and agricultural land.

1.1.9 The alternative options are 'sifted' using a multi-stage appraisal methodology to identify options that are unlikely to deliver the project vision, those that are more preferred and which should be developed further and ultimately to arrive at a preferred proposal for the Project. This sifting process is described further in **Section 1.2** below.

1.2 Overview of the sift process

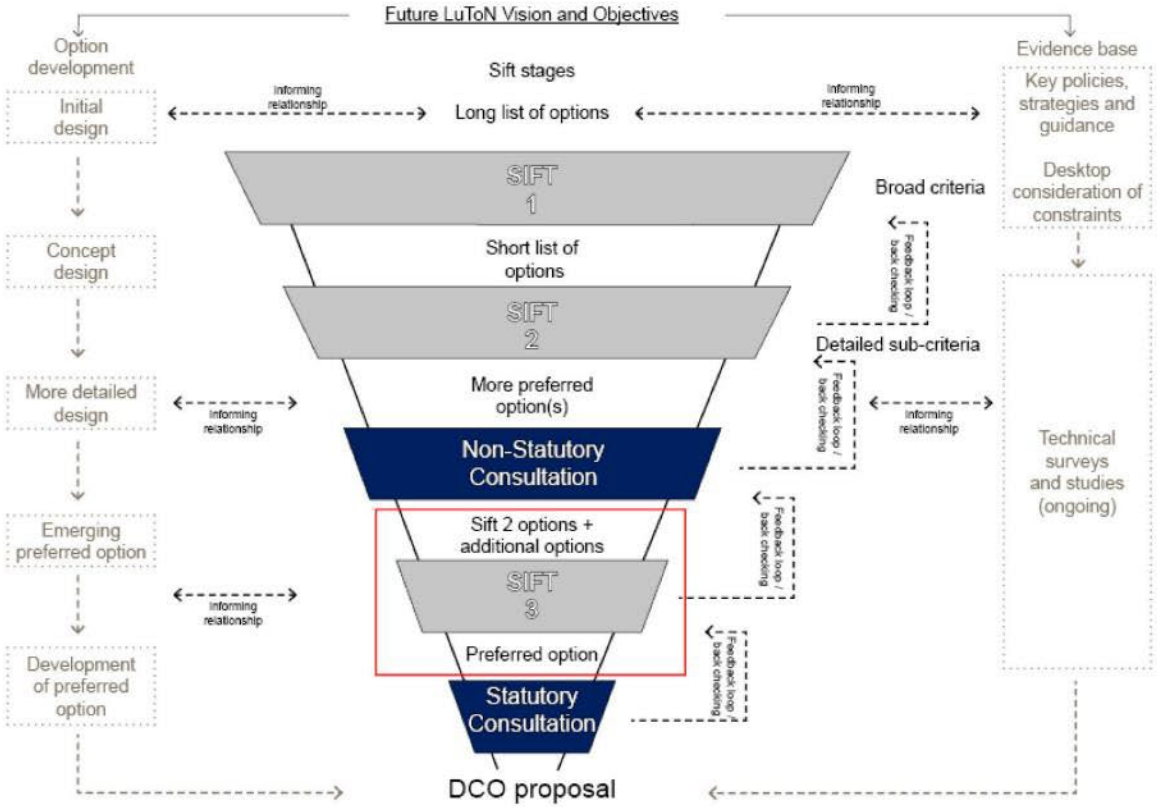
1.2.1 The DCO process will require robust evidence to demonstrate that a range of options and their potential impacts have been considered, assessed, and then either discontinued or refined and progressed. As such, the sift process adopted here is a type of appraisal process which is based on the following key principles:

- There must be a clear rationale for any option and it must be based on a presentation of opportunities and challenges that arise from the options which meet the case for growth at LTN;
- There must be consideration of genuine, discrete options with a range of proposals and configurations;
- There should be a well-documented process with a clear audit trail which identifies how the best performing options were assessed and which ones should be taken forward for further assessment; and
- The sift process should feed in where appropriate to the consultation taking place as part of the DCO application process.

1.2.2 For this Project, a structured, multi-stage process of option sifting has been developed to help identify which options should be taken forward or no longer considered. The process also includes a number of feedback loops to ensure that an element of back-checking is incorporated into the process so that if required, discontinued options can be reconsidered – see **Figure 1.1** overleaf.

1.2.3 This Sift 1 Report (February 2019) represents an updated version of the June 2018 version published as part of the Non-Statutory Consultation. As part of Sift 3, the Sift 1 and 2 appraisals were back-checked to confirm that those appraisals remain valid in the light of consultation feedback and additional information arising from further technical work. This has resulted in some minor changes to scoring compared to the draft Sift report published in June 2018. This Report incorporates those changes and also clearly identifies where such changes have been made to the previous draft. Other minor amendments to the previous draft have been made including updating references (e.g. to policies which have changed since the draft report), typographical changes and minor textual clarifications.

Figure 1.1 Sift components, and the relationship with the wider project (Please note this figure has been updated from the draft version)



1.2.4 We currently see this as a three stage process as follows:

- **Sift 1** - the purpose of the first sift, carried out during the autumn/winter of 2017 was to undertake an initial appraisal of the long list of options to produce a short list of preferred options to recommend to the LLAL Board. Options were considered against a set of high level, qualitative criteria and either recommended for further consideration and design development, or discontinued to avoid abortive work. This stage has been completed and is the subject of this report.
- **Sift 2** – a further round of appraisal was undertaken in the early spring of 2018 for full details of which please see the Sift 2 report.
- **Sift 3** – following non-statutory consultation and consideration of stakeholder and community feedback, alongside additional technical work, it is proposed that a third round of the sift process will be undertaken to identify the preferred option to take forward in the DCO application.

1.3 Purpose of this report

1.3.1 The purpose of this report is to document how the long list of options has been assessed in Sift 1, and how and why any options were discontinued for the purposes of Sift 2.

1.4 Structure of this report

1.4.1 This report is structured as follows:

- **Chapter 1** sets out an overview of the context behind the project, an overview of the sift process and the purpose of this report;
- **Chapter 2** outlines the methodology adopted for Sift 1 including the setting of criteria and the options for testing;
- **Chapter 3** sets out a summary of the key issues considered in the appraisals and describe the options being appraised in Sift 1;
- **Chapter 4** summarises the results of Sift 1; and
- **Chapter 5** provides recommendations for Sift 2.

2 METHODOLOGY

2.1 Introduction

2.1.1 As set out in **Chapter 1**, it is envisaged that the sift process for this project will be in three stages beginning with a long list in Sift 1 moving to a short list in Sift 2, and culminating in the emergence of a single preferred option in Sift 3. This chapter covers how the methodology for Sift 1 was developed, refined and applied.

2.2 Key references

2.2.1 A number of key aviation documents have informed the development of this process. These have included documents setting out the Government's current and emerging policies for aviation including:

- the Aviation Policy Framework, March 2013 (Ref 2.1);
- the call for evidence on a new strategy "Beyond the Horizon: the future of UK aviation", July 2017; and
- the Revised Draft Airports NPS: new runway capacity and infrastructure at airports in the South East of England, October 2017 (Ref 2.2) (subsequently replaced by the final Airports NPS, June 2018).

2.2.2 In addition and of particular relevance to the development of the sift methodology reference has been made to the:

- Airports Commission Appraisal Framework, April 2014 (Ref 2.3);
- Airports Commission Guidance Document 02 - Long Term Capacity Options: Sift Criteria, May 2013 (Ref 2.4); and
- Department of Transport (DfT) WebTAG: TAG unit A5-2 aviation appraisal, December 2015 (Ref 2.5).

2.3 Organisation of the sift process

2.3.1 The design and sift processes are being led by the masterplanning team and supported by professionals in each of the different technical disciplines, to ensure an integrated, multi-disciplinary approach to options development and appraisal. Sift 1 was undertaken in the autumn of 2017.

2.4 Vision and strategic objectives

2.4.1 LLAL's vision statement is:

"To make the best use of the existing runway at LTN to provide the maximum benefit to the local and sub-regional economy; to

deliver good levels of service; and to actively manage environmental impacts at the local and wider levels in line with our commitment to responsible and sustainable development."

2.4.2 As the vision was being developed at the time of Sift 1, strategic objectives were identified using the emerging vision as a starting point, which would enable the vision to be achieved. These objectives directly relate to different elements within the vision statement and headings identified in the Airports Commission Appraisal Framework.

2.4.3 The Airports Commission Appraisal Framework and guidance document on sift criteria sets out the importance of taking an integrated approach to the development of growth options for airports which considers the full range of relevant factors. This includes economic, social, environmental and operational issues and the potential effects of aviation connectivity and infrastructure at a range of spatial levels.

2.4.4 The guidance recommends that the potential impact on the wider urban and regional infrastructure in terms of jobs, local economies and communities is taken into account, as well as the direct and indirect economic benefits for the aviation sector and its users, and noise, air quality and other environmental impacts. It sets out a range of sift criteria headings to be considered when options are being assessed, covering strategic fit, economy, surface access, environment, people, cost, operational viability and deliverability.

2.4.5 Whilst it was acknowledged that the Airports Commission guidance was developed specifically to allow comparison of three shortlisted options at Heathrow and Gatwick, it has been adapted and applied here as a broad framework for the sift process for LTN, ensuring that all the relevant topic areas are considered.

2.4.6 In the case of LTN, the strategic objectives were regrouped and re-ordered from the Airports Commission guidance Phase 1 sift criteria headings and Phase 2 appraisal modules (Ref 2.5), in order to reflect the priorities of LLAL as an organisation. This resulted in the following list of strategic objectives for the Sift 1 process:

Strategic fit:

- O1: Compliance with Government Aviation policy.
- O2: To identify a scheme that is likely to be capable of being consented and secured through a DCO.
- O3: To provide additional capacity and connectivity in line with the assessment of need.

Economic:

- O4: To maximise the potential economic benefits to the regional, sub-regional and local economies.

Social (people):

- O5: To maintain and where possible improve the quality of life for Luton's residents and the wider population.

Sustainability and environment:

- O6: To minimise environmental impacts and, where practicable, to actively mitigate and manage potential environmental effects.

Surface access:

- O7: To maximise the number of passengers and workforce arriving at the airport on public transport.
- O8: To minimise new build highway requirements.
- O9: To minimise impact on the wider highway network.

Deliverability:

- O10: To be technically viable, taking into account the needs of airport users, operators and phasing.

Operational viability:

- O11: To enhance LTN's system efficiency and resilience.

Cost:

- O12: To be affordable, including any public expenditure that may be required and taking account of the needs of airport users and operators (Value for Money).

2.5 Criteria

2.5.1 The vision and strategic objectives provided the framework for developing the Sift 1 criteria, against which the long list of options would be assessed. Given the early stage in the optioneering process, and that quantifiable measures of performance against these criteria were unlikely to be available at the time of Sift 1, these criteria were intended for use in a high level, qualitative appraisal based on professional judgement and appropriate for sifting conceptual options. This approach was intended to allow for more detailed sub-criteria and appraisal to be refined and developed for Sift 2, as more detailed design information becomes available.

2.5.2 **Table 2.1** overleaf sets out the criteria used in Sift 1 to evaluate the long list of options and shows how the criteria relate to the strategic objectives identified above.

Table 2.1: Sift 1 criteria

Strategic objectives	Criteria
Strategic Fit	
O1 To make best use of the existing runway	**S1** Consistent with, and supportive of emerging Government policy and wider objectives
O2 To identify a scheme that is likely to be capable of being consented and secured through a DCO	**S2** Consistent with national town planning policies
O3 To provide additional capacity and connectivity in line with the assessment of need	**S3** Increase capacity both airside and landside
Economic	
O4 To maximise the potential economic benefits to the regional and sub-regional economy	**S4** Deliver economic benefits nationally and regionally **S5** Increase job opportunities for the people of Luton and the surrounding areas
Social (people)	
O5 To maintain and where possible improve the quality of life for Luton's residents and the wider population	**S6** Promote quality of life and minimise adverse impact on communities
Sustainability and Environment	
O6 To minimise environmental impacts and, where practicable, to actively mitigate and manage any potential environmental effects	**S7** Noise impact **S8** Air quality **S9** Natural habitats and biodiversity **S10** Carbon emissions **S11** Surface, groundwater and landfill **S12** Flood risk **S13** Cultural heritage **S14** Landscape and visual impact **S15** Climate change resilience
Surface access	
O7 To maximise the number of travellers and workforce arriving at the airport on public transport **O8** To minimise new build highway requirements **O9** To minimise impact on wider highway network	**S16** Public transport modal share **S17** Requirement for additional highway infrastructure **S18** Impact on wider highway network
Deliverability	
O10 To be technically viable, taking into account of the needs of airport users, operators and phasing	**S19** Technically viable **S20** Land
Operational viability	
O11 To enhance LTN's system efficiency and resilience	**S21** Provide appropriate levels of service (including during construction)
Cost	
O12 To be affordable, including any public expenditure that may be required and taking account of the needs of airport users and operators (Value for Money).	**S22** Estimated cost of the programme including surface access, land purchase and associated infrastructure

2.6 Evaluating the criteria

2.6.1 An evaluation system using seven levels of distinction was developed for use throughout the sift process, to appraise the options at the conceptual design level in Sift 1. The seven level 'red amber green' (RAG) scale, adapted from the DfT's Transport Analysis Guidance (WebTAG), was applied based on the professional judgement of the various technical specialists. The results are documented in **Chapter 3**.

2.6.2 **Table 2.2** below shows the assessment levels and the colour coding assigned to each assessment level.

Table 2.2 Appraisal levels for Sift 1

Appraisal Levels
Large Beneficial
Moderate Beneficial
Slight Beneficial
Neutral
Slight Adverse
Moderate Adverse
Large Adverse

Source: Adapted from WebTAG

2.6.3 Assumptions for the assessment were set out as follows:

- 'families' of options would be tested in Sift 1, rather than every variant or sub-option of an option;
- each family of options would be compared against the base case scenario (i.e., the option of utilising the existing terminal, taking into account the current works already taking place, and the potential for further adjustments to the airport), and where appropriate, against each other to establish relative performance and ensure consistency in the appraisal process;
- each family of options would be assessed assuming a level of reasonable embedded mitigation i.e. measures that could be incorporated into the design with a reasonable degree of certainty; and

- each family of options should be considered equally and in a consistent manner.

2.6.4 Consideration was given to the merits of weighting different sift criteria as part of Sift 1. This was because some strategic objectives generated more sift criteria than others. For example, strategic objective 6 concerned with minimising environmental impacts is broken down into nine separate sift criteria concerned with different types of environmental impact whereas other key strategic objectives concerned with the affordability of the scheme and its operational efficiency and resilience (O11 and O12) each translate into only a single sift criterion.

2.6.5 It was decided not to introduce weighting to make some criteria more important than others because all of the criteria were considered to be equally important to the appraisal process. Moreover, as noted above the sift process takes a qualitative approach to the appraisal process rather than one which uses a quantitative scoring system. This approach is consistent with that taken by the Airports Commission Appraisal Framework which states that:

"The Commission does not intend to specify any weightings in relation to individual modules, but will assess each proposal against the objectives as described in this framework. This will ensure it has access to information across the range of social, environmental and economic impacts and enable it to reach integrated and informed recommendations".

3 OPTIONS FOR APPRAISAL

3.1 Introduction

3.1.1 This chapter sets out a brief overview of the common policy and spatial issues, a narrative of how the options were developed, and a description of the families of options selected for appraisal.

3.2 Summary of policy and spatial issues

3.2.1 There are a range of policy and spatial issues which have informed the appraisal of options for LTN, aside from the complex design requirements of new airside and landside facilities. Whilst the specific requirements of designing an airport have not been covered in this report, they have underpinned the development of the option families as described later in this chapter.

3.2.2 We have summarised below the most relevant spatial issues in relation to the appraisal for the sift process, to provide an overview of the context for the appraisal rationales as set out in the following chapter. It is important to note that all of the spatial issues are interlinked and interdependent, so the role of the sift process is to synthesise these issues for the purposes of appraisal. The main spatial issues are described and illustrated below and on **Figure 3.1** overleaf, but is not intended to be an exhaustive list or diagram.

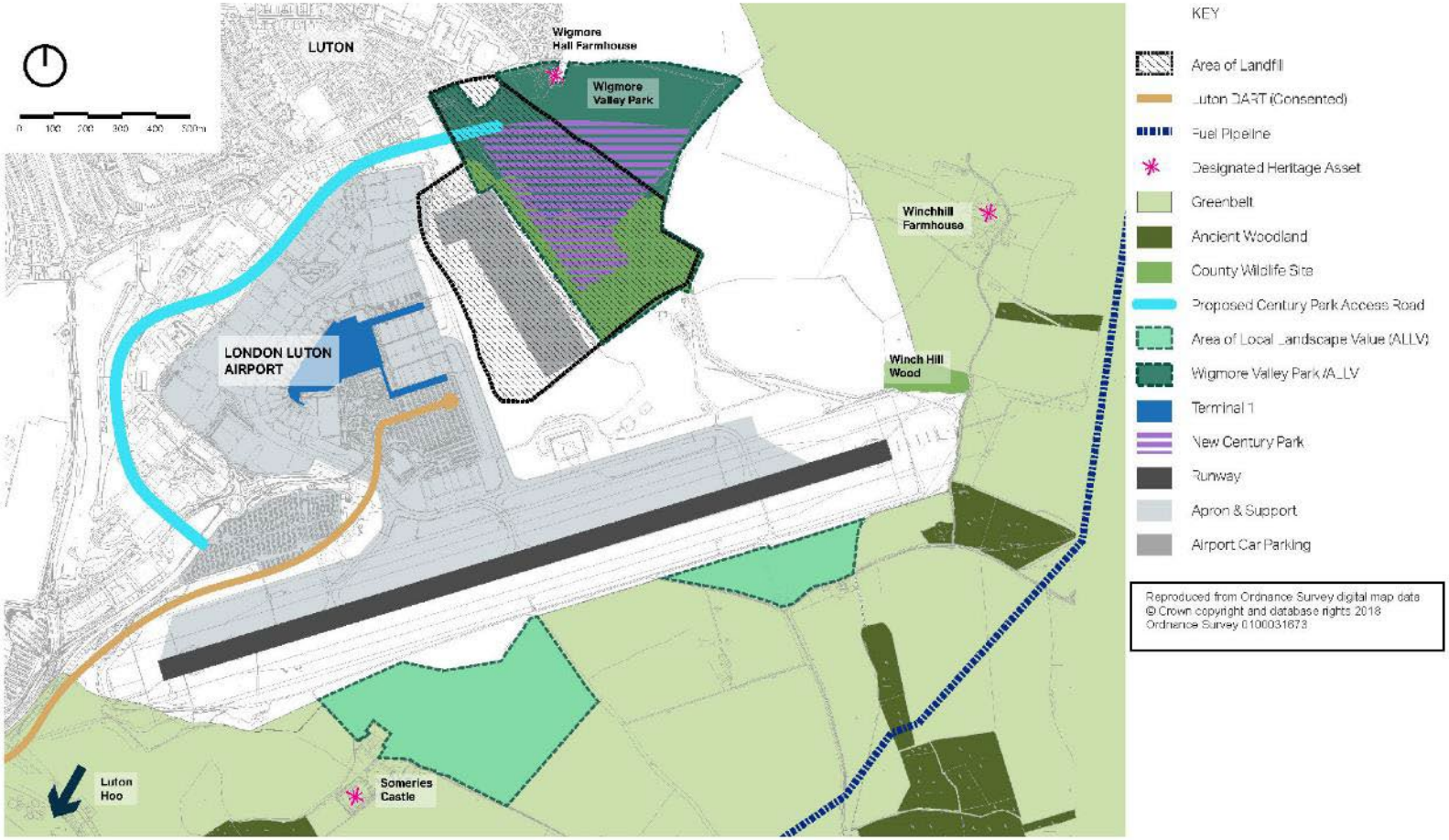
Policy

3.2.3 The issues here relate in particular to our 'Strategic Fit' criteria which focus on fit with Government Aviation policy (S1), national town planning policy (S2) and capacity of options (S3).

3.2.4 In local planning policy terms, the Luton Local Plan 2011-2031 (Ref 3.1) defines a strategic policy boundary for the growth of the Airport (Policy LLP6) which seeks to make provision for the airport, safeguarding its "key sub-regional economic contribution to jobs and wealth creation while setting a clear environment and transport framework with which to regulate future growth" (paragraph 4.5.1).

3.2.5 The Local Plan allocation is broadly contiguous with the start of the Green Belt, which applies to the south and east of the Airport, as shown in **Figure 3.1** overleaf.

Figure 3.1 Illustrative key site issues map



3.2.6 The Government attaches great importance to preserving Green Belts, with the fundamental aim of the policy being that of prevention of urban sprawl from large built up areas and safeguarding the countryside between neighbouring towns. Development of the type envisaged by this Project should not be approved on any Green Belt unless very special circumstances can be demonstrated (paragraph 143 of the National Planning Policy Framework 2018 Ref 3.2).

Economic and social

3.2.7 Issues which relate to economic and social criteria (S4 to S6 inclusive) are closely related to environmental and surface access issues (see below), in terms of the potential impacts on health, wellbeing, access to employment and training opportunities and leisure opportunities. As such, they are not mapped separately on **Figure 3.1**.

Environment

3.2.8 The issues here relate in particular to our sustainability and environment criteria (S7 to S15 inclusive).

3.2.9 There are a wide range of environmental factors which have informed the appraisal of options, including but not limited to the following:

- *Natural habitats* - such the Wigmore Park County Wildlife Site (CWS), Winch Hill Wood CWS and Local Wildlife Site, Ancient Woodland, as shown on **Figure 3.1** and other known habitats such as badger setts and bat roosts (not shown on Figure 3.1);
- *Designated heritage assets* – including Someries Castle (Scheduled Monument); Wigmore Hall Farmhouse and Winchhill Farmhouse (Grade II listed buildings) as shown on **Figure 3.1** and Luton Hoo (Grade 1 listed building)(outside of the area shown on Figure 3.1), as well as areas of high archaeological potential to the north-east of the site. The potential visual impact of development on the setting of these heritage assets and others needs to be carefully considered;
- *Earthworks and landfill* – this is relevant as the impact of building over landfill (piling would be required within landfill) and creating an earthworks platform needs to be considered in terms of costs, and because disturbance to landfill can potentially increase the risk of groundwater pollution. The area of landfill is shown on **Figure 3.1**. A range of earthwork activities will need to be carried out regardless of the chosen option but sourcing the earth required will be the main issue; and

- *Locally and nationally designated landscape areas* – including locally designated Areas of Local Landscape Value (ALLV)(shown on **Figure 3.1**) or Areas of Great Landscape Value (AGLV) and designated Areas of Outstanding Natural Beauty (Chilterns AONB)(both outside of the area shown on Figure 3.1). The landscape and visual impact of development on these areas needs to be considered, as does the effect on open space green infrastructure and the Green Belt. There may also be a number of visual receptors susceptible to change in views and visual amenity.

3.2.10 There are other considerations which are not mapped here such as noise and air quality receptors (proximity to), which were also part of the appraisal process and which will also influence the appraisal of social criteria.

Surface access

3.2.11 The issues here relate in particular to surface access criteria (S16 to S18 inclusive). There are existing surface access issues and there are also proposed projects which need to be taken into consideration during the appraisal as they impact on the options.

3.2.12 In terms of existing surface access, the main priority is to make the best use of existing highways infrastructure, providing improvements to mitigate any identified airport expansion impacts, and to assess the need for new highway links and junctions. Road infrastructure will need to be provided on the site with improvements to some local roads and junctions.

3.2.13 In terms of forthcoming surface access projects, there are two which need to be considered and which are mapped on **Figure 3.1**:

- *Century Park Access Road (CPAR)* – Century Park is an undeveloped site adjacent to and east of LTN that is identified as a major site for employment development with Luton Borough Council's Local Plan. It was acquired by LLAL in 2015. The CPAR is a proposed new road around the airport to support the proposed development at New Century Park.
- *Luton Direct Air-Rail Transit (DART)* – Luton DART will be a new fully-automated transport system, approximately 2.1km in length, to move passengers between Luton Airport Parkway station and the airport terminal. The system is scheduled to become operational by 2021. It is envisaged that this would need to be extended and linked to the new terminal, whichever option is developed, and its alignment interface with proposed airfield and terminal options needs to be considered.

Operational

3.2.14 The issues here relate in particular to our deliverability, operational viability and cost criteria (S19 to S22 inclusive).

3.2.15 LLAL – which is in turn wholly owned by Luton Borough Council - owns LTN. The airport is operated under a concession agreement, until 2031, by LLAOL. The boundaries of the land owned or operated by each entity is an important consideration in the development and appraisal of options as it affects a range of cross-cutting and interdependent issues, including:

- *Deliverability* – where development is proposed on site, or how it might be phased, could impact upon the existing concessionaire and the running of its operations;
- *Land ownership* – if development is proposed on land owned by LLAL, there would be a lower risk and cost to the Project, whereas if land needs to be acquired for development this could have financial and social implications. If development is proposed on land operated by the concessionaire, this could impact upon operational viability;
- *Operational viability* – depending on where development is proposed on site, it could impact on the operational efficiency and resilience of the airport. Construction phases could affect existing levels of service in the airport for some time for example, but new terminal buildings could offer enhanced levels of service in the future. Having more than one terminal building could enhance operational resilience in the event of a major incident, but could impact on efficiency if operations have to be split across multiple buildings; and
- *Cost* – there are a range of costs to consider: firstly, if land needs to be acquired for development, this would impact on the cost and financial viability of the overall Project. Secondly, options need to be operationally and financially attractive to the concessionaire. In addition, construction costs and phasing could ultimately reduce benefits to users and producers, including the airlines.

Proposed development

3.2.16 As discussed above, LLAL acquired the adjacent Century Park site in 2015 and has applied for planning permission for New Century Park (shown in outline on **Figure 3.1),** a mixed-use commercial development on Wigmore Valley Park. The scheme will include employment space, new infrastructure (the CPAR as discussed above) and a new public park and amenities in order to mitigate the loss of part of the existing Wigmore Valley Park – which is being used to deliver the commercial development.

3.3 Development of options

3.3.1 The options illustrated in **Section 3.4** have been developed in line with LLAL's vision with a view to maximising the existing airport operations with an aspiration to ultimately increase the airport capacity up to 36-38mppa by 2042.

3.3.2 Before arriving at these options a range of other high level options have been considered and set aside from the sifting process for the reasons described below :

- *Expansion of the existing terminal* - utilisation of the existing terminal through expansion. This is heavily reliant on the condition of the existing asset and the suitability of the terminal for major expansion. Such expansion would require significant reduction in the operational capacity of the airport during construction due to the terminal's location on an island site within the taxiway circuit with consequent disruption to existing operations. This option was therefore discounted as being impractical in terms of increasing capacity up to 36-38 mppa.
- *Remote new terminal* – provision of an additional terminal space in a remote location with a mass transit link to the airfield. This possibility was discounted for reasons of passenger inconvenience and operational impracticality. In particular remote terminals give rise to issues of reliability of passengers arriving in time for departure which is especially important at a low cost airport like LTN where airlines operate on very fast turnaround times. Moreover, security concerns would require a secure transit route from the terminal to the airfield for both passengers and baggage and potentially result in a duplication of security checks at the terminal and at the airfield. On this basis it is not considered in the sifting process.

3.3.3 A range of high level options have been considered in the sifting process:

- Existing runway solutions - a range of solutions which appear to best utilise the existing runway:
  - **Single Terminal** - this looks at the development of a single replacement terminal north of the existing runway developed either from the west to the east or vice versa. The deliverability of these options is heavily reliant on the phasing of construction relative to the growth in passenger numbers and the on-going operational requirements of the airport.
  - **Double Terminal** – utilising the existing terminal building and provision of a new terminal either north or south of the existing runway.

- Extended, realigned and additional runway solutions with a new terminal – These options would involve the provision of both a terminal and either an extended, realigned or new runway to the south of the existing runway.

3.3.4 Based on these fundamentals, **Section 3.4** below further expands on the above basis for each of the option families considered.

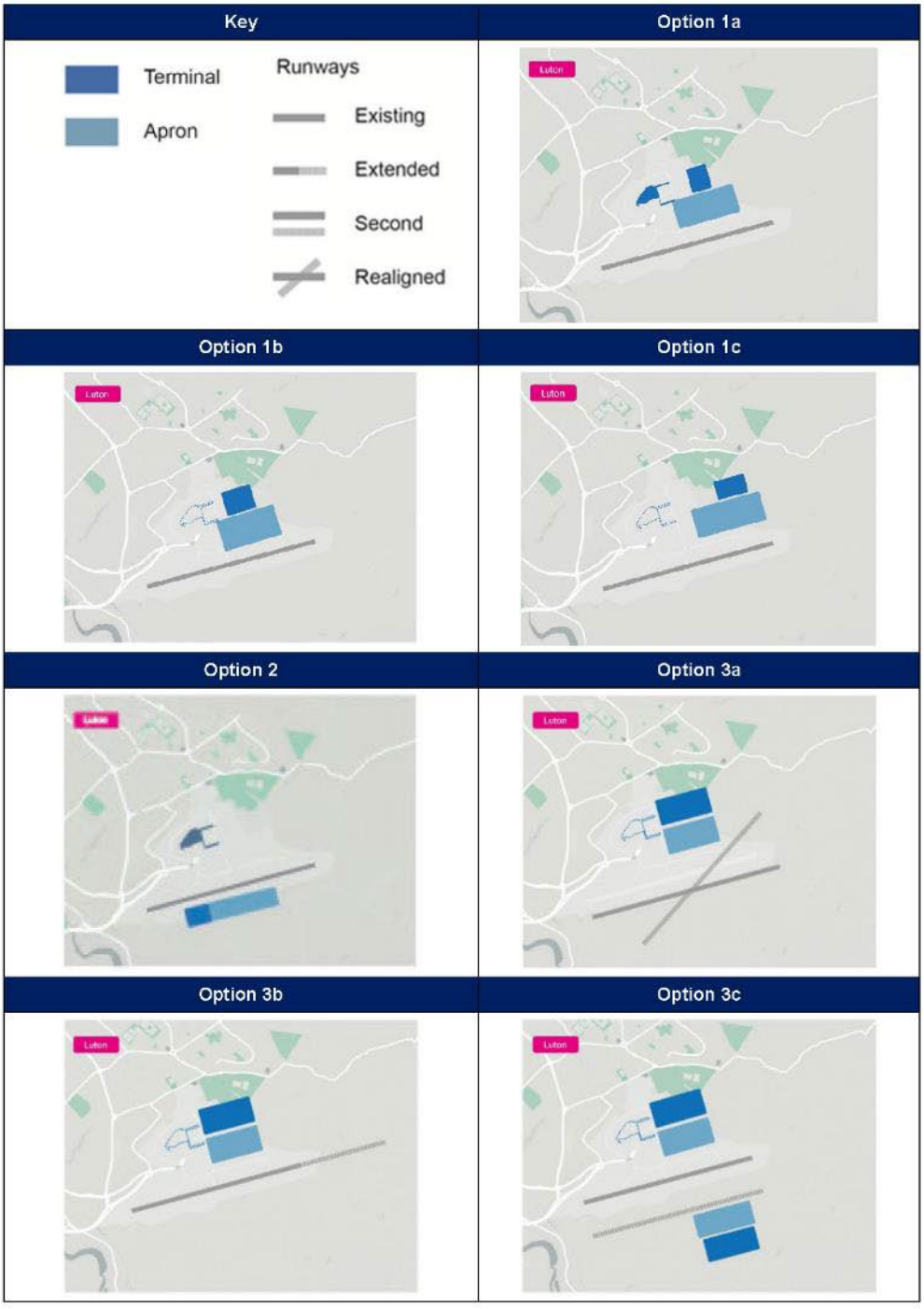
3.4 The option families

3.4.1 A number of options emerged which could be grouped into 'families' of an appropriate level of detail for consideration at Sift 1, with the more detailed options being left for consideration at Sift 2. These are as follows:

- **Option 1a** – a two terminal option, with both terminals north of the runway;
- **Option 1b** – a single terminal complex to the west of the site;
- **Option 1c** – a single terminal complex to the east of the site;
- **Option 2** – a two terminal option, with one terminal north and one terminal south of the runway; and
- **Option 3** – a two terminal option with either a realigned (**3a**) extended (**3b**) or additional runway (**3c**).

3.4.2 These are shown in diagrammatic form in **Table 3.1** overleaf.

Table 3.1: Options for testing in Sift 1



4 APPRAISAL FINDINGS

4.1 Summary of appraisals

4.1.1 The results of the Sift 1 appraisal are set out in **Table 4.1- 4.8**, with the evaluation of options shown grouped by strategic objective headings.

Strategic Fit

Table 4.1 Performance of options against strategic fit criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S1 Consistent with, and supportive of, Government Aviation policy and wider objectives	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Moderate Adverse	Moderate Adverse	Large Adverse
	Consistent with Government Aviation policy in terms of best use of the existing runway. Note that the location of the terminal building(s) is not part of the policy consideration.				Consistent in part with emerging Government policy as it proposes changes to the existing runway.		Not consistent with emerging Government policy as it proposes a second, new runway, and therefore does not make best use of the existing runway.

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S2 Consistent with national town planning policies	Moderate Beneficial	Moderate Beneficial	Moderate Beneficial	Moderate Adverse	Moderate Adverse	Moderate Adverse	Large Adverse
	Compliant with national town planning policies and no inappropriate development within the Green Belt.			Requires terminal, other large structures and access road to be built within the Green Belt to the south, although this would be less than a second runway with its associated infrastructure and structures.	Some encroachment of the Green Belt to the east and south. Land to the east is within the North Hertfordshire Green Belt and this parcel is considered to make a significant contribution to two purposes of the Green Belt – checking the unrestricted sprawl from Luton and preventing encroachment into the countryside from Luton.		Large scale inappropriate development in the Green Belt, as a result of the construction of a new runway, associated infrastructure and structures. Increased operations (e.g. more planes landing/taking off) further impacting the openness of the greenbelt. Alternative options are currently available north of the runway.
S3 Increase capacity both airside and landside	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Slight Beneficial
	All are presumed capable of providing the same capacity at this early stage in the design process.						Whilst increasing capacity, this option would be building capacity ahead of need and demand. This would result in spare runway capacity and provide less immediate benefits for the investment cost.

Economic

4.1.2 For the purposes of Sift 1, economic benefits are assumed to be proportional to the capacity and throughput at the airport. Benefits are divided into three categories: user benefits (passengers); producer benefits (airlines, airport operator(s)); and wider connectivity benefits (trade, tourism, inward investment) due to increased air connectivity provided.

Table 4.2 Performance of options against economic criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S4 Increase economic opportunities for the regional and sub-regional economies	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Moderate Beneficial
	At the regional and sub-regional level, these options would rate the same as they all make best use of the existing runway and producer benefits would be higher than for option 3c. Whilst the second runway in option 3c would be capable of delivering additional capacity and therefore user benefits compared to these options, the additional capacity provided in options 1a, 1b, 1c and 2 remains significant and they are therefore appraised as large beneficial.				This option would also allow best use of the runway, like option 1b, 1c, 1a and option 2.	It would increase the attractiveness of LTN to more airlines (current and future) and potentially generate greater connectivity benefits due to a wider route network.	Option 3c is likely to deliver additional capacity ahead of demand. Whilst there are additional user benefits, this is likely to be balanced by lower overall producer benefits due to the additional costs involved.
S5 Increase job opportunities for the local economy and surrounding area	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial
	All of these options would increase the capacity and therefore attractiveness of LTN and support a sizeable increase in jobs at the airport and in the supply chain. At this stage it is not possible to differentiate between single and double terminal options but should have more jobs in the latter.			Local access to employment within Luton may be more difficult with a terminal south of the runway due to fewer public transport links/services. However, the benefits would still be significant enough to warrant a large beneficial rating.	Increased attractiveness of the airport would in turn increase job opportunities in and around the airport.		Over the longer term, this option would generate a significant number of jobs in the area.

Social (people)

4.1.3 At Sift 1, the appraisal of this particular criterion focused on: the anticipated employment and training opportunities offered by the development proposals in terms of effect on health; potential noise and air quality impacts on the amenity of residential communities; as well as access to community facilities and leisure opportunities. In the context of airport development projects such as this, access to employment and training opportunities, as well as impacts on residential amenity, are considered important factors in determining levels of health in the local communities, whether beneficial or adverse.

Table 4.3 Performance of options against social criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S6 Promote quality of life and minimise adverse impacts on communities	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Moderate Beneficial	Slight Beneficial	Slight Beneficial
	At this stage, the impact on residential amenity appraised under S7 (Noise Impact) and S8 (Air Quality) is considered to be outweighed by the positive impacts on health, wellbeing and quality of life resulting from the increased access to employment opportunities which warrants a Slight Beneficial appraisal level. More detailed sub-criteria in Sift 2 may identify more differences between the north and south options than is possible at this stage in the optioneering process.				More jobs are likely to be created in this option with more of a positive impact on the health and therefore the quality of life for local people who are impacted by the current alignment.	Delivering 36-38mppa in these options is likely to result in more negative impacts in terms of residential amenity, but access to employment and leisure opportunities would be enhanced. On balance, this results in a Slight Beneficial appraisal level.	

Sustainability and environment

4.1.4 Due to the limited information available at the time, the appraisal below has been based on qualitative impact descriptions.

4.1.5 For criterion S10 Carbon emissions, the largest greenhouse gas impacts caused by the expansion project would increase in line with the increased air traffic movements (ATM). As all options predict the same increases in ATM, they are all appraised as Large Adverse under S10, with differentiating factors between the options outlined in Table 4.4. This represents a different approach to that taken in the draft version of the Sift 1 report, which previously excluded ATM, and has been amended below. Paragraph 4.3.2 of the Sift 3 Report explains the basis for this change.

4.1.6 For criterion S15 Climate Change Resilience, it should be noted that the significant increase in ATM (both international and domestic) has the potential to be affected by the greater probability of extreme weather events in the future leading to a higher exposure and resulting in a greater vulnerability to extreme weather events which may cause delays and disruptions. This applies to all options. In addition, ATM will also be more vulnerable to delays/disruptions caused by extreme weather events at other airports.

Table 4.4 Performance of options against sustainability and environment criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Moderate Adverse	Large Adverse	Large Adverse
S7 Noise impact	As these options double the capacity of LTN from the currently consented 18mppa to 36-38mppa, the impact of airborne aircraft noise (approaches and departures), ground activities and off-site changes in road traffic flows are likely to be greater compared to current conditions.				The impact would depend on the new flight paths. If the runway is not aligned in the direction of Stevenage, then no aircraft overflying Stevenage would be a benefit with the trade-off being new settlements would be overflown. Any benefits for Stevenage would have to be considered along with disbenefits for other areas and shifting impacts from one area to another could be more significant than retaining existing flight paths.	Please see appraisal for options 1a-2.	

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S8 Air quality	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse	Slight Adverse	Slight Adverse
	Additional road traffic and flights may cause an adverse impact on receptors in the vicinity of the airport and may adversely affect the town centre Air Quality Management Area (AQMA).			These options would have a more dispersed impact on air quality. Air quality is normally driven by surface access rather than air traffic movement. The spread of airport activity and therefore emissions to the south is likely to decrease impacts on current and future receptors in the vicinity of the airport.			
S9 Natural habitats and biodiversity	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Adverse	Moderate Adverse	Slight Adverse	Slight Adverse
	Appraisal Level reflects the potential impact of these options on: loss of Wigmore Park County Wildlife Site (CWS); and impact on two known bat roosts, a main badger sett and an area of coppiced woodland.			Less perceived direct impact compared with option 1a, 1b and 1c on bat roosts, badger setts and coppiced woodland. Only partial loss of Wigmore Park CWS.	Considered worse than second runway option (3c) due to loss of Wigmore Park CWS, impact on two known bat roosts, a main badger sett and area of coppiced woodland.	Infrastructure to the south would infringe on the Green Belt.	Infrastructure to the south would impact agricultural land but not Wigmore Park CWS, known species or woodland.

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
S10 Carbon Emissions	Construction on the landfill site and the need to construct an earthworks platform could potentially increase emissions due to increased earthworks. The differentiator between this option, 1b and 1c are: the access roads, fuel for earthworks, construction footprint, and vehicle movements which are greater here as it has two terminals and therefore some split operations. However, as all options predict the same increases in ATM, they are all appraised as Large Adverse.	Similar to option 1a although with lower vehicle movements as these options only have one terminal building. However, as all options predict the same increases in ATM, they are all appraised as Large Adverse.		Increased emissions due to: impacts of construction materials (due to large development footprint, southern link road and additional Luton DART link); and increased area for construction site (increased number of vehicle movements and potentially less efficient distribution of plant and equipment). However, as all options predict the same increases in ATM, they are all appraised as Large Adverse.	If the runway is realigned, as in this option, all other infrastructure such as the taxiways would also need to be moved, resulting in increased emissions from the impact of construction materials and increased area for construction. However, as all options predict the same increases in ATM, they are all appraised as Large Adverse.	Please see appraisal for option 2.	

S11 Surface, groundwater and landfill	Moderate Adverse	Moderate Adverse	Moderate Adverse	Moderate Adverse	Large Adverse	Moderate Adverse	Moderate Adverse
	These options will require relocation of existing central soakaway. Some increase in airside hardstanding area will require mitigation in new drainage strategy and small disturbances to landfill material increases risk of groundwater pollution would be anticipated. Lack of sufficient information to differentiate further at this stage between these options.				This option would require greater disturbance to the landfill than the other options with a consequent increase in the risk of groundwater pollution.	Please see appraisal for options 1a-2.	
S12 Flood risk	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse	Slight Adverse	Slight Adverse
	Option 1a and 1b are likely to have identical areas of apron and therefore the same level of flood risk. Option 1b and 1c will require increased earthworks which are likely to increase flood risk to the neighbouring New Century Park development as well as downstream in North Hertfordshire.			May increase flood risk to nearby areas, but considered lower risk than option 1a, 1b and 1c. Flood risk to the development will be limited due to local topography.	Potential flood risk in the future but only a slight increase from the existing risk. Additional impermeable surface would impact drainage systems.		
S13 Cultural heritage	Slight Adverse	Slight Adverse	Slight Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
	Potential visual impact of development on the setting of existing designated heritage assets, Someries Castle (Scheduled Monument) and Wigmore Hall (Grade II listed building). Development could also have potential direct impacts on non-designated assets such as a late Iron Age/Romano British occupation site.			Proposed footprint of the development in these options would be adjacent to Someries Castle, directly impacting the visual setting of this Scheduled Monument. Remodelling of the landscape around Someries Castle could impact upon the setting of Luton Hoo (Grade I listed building) to the southwest of the airport.			

S14 Landscape and visual impact	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
	Landscape and visual impacts are different for each of these options but substantial in relation to Wigmore Rural Locally designated Areas of Local Landscape Value (ALLV) and Wigmore Valley Park District Park. Notable impacts to Rights of Way (RoW). Potential impact on Ancient Woodland, Historic Hedgerow and a County Wildlife Site.			Similar to the impacts of the other three options, but also substantial impacts on the Hyde Area of Great Landscape Value (AGLV), Someries Farm and Dane Street ALLV, and designated RoWs.			
S15 Climate change resilience	**Option 1a**	**Option 1b**	**Option 1c**	**Option 2**	**Option 3a**	**Option 3b**	**Option 3c**
	Slight Adverse	Slight Adverse	Slight Adverse	Moderate Adverse	Moderate Adverse	Moderate Adverse	Moderate Adverse
	These options use the former landfill (rather than greenbelt land) which would result in less risk of flash flooding. However, the use of former landfill is associated with a risk of leaching. Increase in apron/taxiway/road access for option 1c and option 1a (over existing airport and option 1b) may be subject to the impacts of heat damage/flash flooding and disruption from increased storm risk.			These options create a new terminal on the south side of the runway, therefore resulting in land take of greenbelt land. This has the effect of increasing the risk associated with climate change by increasing the level of flood risk/risk from flash flooding from impermeable surfaces.			

Surface access

4.1.7 As part of the back-checking undertaken to finalise Sift 1, sift criterion S18: Impact on wider highway network has been amended. As noted at paragraph 4.4.2 of the Sift 3 Report, options 3a (realigned runway) and 3b (extended runway) were originally appraised as Moderate Adverse but should be Large Adverse as they, like options 1a, 1b and 1c also propose more/larger terminal buildings north of the existing runway, potentially creating a larger impact on the existing highway network. This is reflected in **Table 4.5**.

Table 4.5 Performance of options against surface access criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S16 Public transport modal share	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial
	All options allow flexibility to improve public transport modal share through the Luton DART and improved bus services to 40% as a minimum benefit. However, at present, there is no guarantee of rail improvements, hence the decision to rate Slight Beneficial instead of Moderate Beneficial.			LLAL has control over the Luton DART and bus services, but bus/coach services may be marginally less attractive due to the need to serve two terminals. No control over improvements to National Rail line. On balance, this option is rated as Slight Beneficial as it is likely to increase public transport modal share, as with 1a, 1b and 1c.	Both options allow flexibility to improve public transport modal share through the Luton DART and improved bus services to 40% as a minimum benefit. However, at present, there is no guarantee of rail improvements, hence the decision to rate Slight Beneficial instead of Moderate Beneficial. From a Surface Access point of view, extending or re-aligning the runway does not have a direct impact.		Similar issues as to option 2. On balance, this option is rated as Slight Beneficial as it is likely to increase public transport modal share, as with 1a, 1b and 1c. From a Surface Access point of view, a second runway does not have a direct impact.

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S17 Requirement for additional highway infrastructure	Slight Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
	This option, with two terminal buildings, avoids the concentration of traffic flows associated with options 1b and 1c. However, it would require some additional highway infrastructure to access and service both terminal buildings.	If all airport infrastructure is proposed in one location or one terminal building, the Century Park Access Road (CPAR) and Airport Way may struggle to meet capacity demands. Options where passengers converge in one location in this way are considered to rate Large Adverse due to this potential impact.		This option is considered to have a Large Adverse impact due to the need for a significant amount of new highway infrastructure south of the existing runway.	Please see appraisal for options 1b and 1c.		Please see appraisal for option 2.
S18 Impact on wider highway network	Large Adverse	Large Adverse	Large Adverse	Moderate Adverse	Large Adverse	Large Adverse	Moderate Adverse
	These options propose more/larger terminal buildings north of the existing runway, potentially creating a larger impact on the existing highway network, therefore rating Large Adverse.			This option would have a more dispersed impact on the immediately surrounding area, with traffic splitting further away from the airport, hence a Moderate Adverse appraisal level.	Please see appraisal for options 1a, 1b and 1c.		There is insufficient information at this stage to assess whether this option performs better or worse than option 2 which also proposes a terminal building south of the existing runway, hence this option is also assessed as Moderate Adverse.

Deliverability

Table 4.6 Performance of options against deliverability criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S19 Financially and technically viable	Neutral	Large Adverse	Neutral	Neutral	Large Adverse	Large Adverse	Large Adverse
	Considered deliverable in the context of minimising disruption to the existing operations. Development of this option would be capable of being phased to meet demand and is technically viable.	Considerable operational challenges as to how it could be achieved within the life of the existing concession, given the need to re-configure the existing terminal area before 2031. Likely to require large compensation payments.	Please see appraisal for option 1a.		This option is technically viable and could bring 1.4mppa additional passenger growth by allowing more long haul services; however it is likely to need a disproportionate amount of earthworks, with a significant cost implication.	Given the need to keep the airport open during building works there are significant buildability and operational challenges for the commensurate benefits.	Considered to be building ahead of demand.
S20 Land	Neutral	Neutral	Neutral	Moderate Adverse	Large Adverse	Moderate Adverse	Large Adverse
	As LLAL own the land required in these options, they are considered to be more straightforward to develop, hence a Neutral appraisal level.			Compulsory land acquisition would be required for this option so it is rated as Moderate Adverse.	This option would require a significant amount of land outside LLAL holdings and impact on the Green Belt.	If developed on land within LLAL ownership, permission may still be required with regard to how the land is used.	This option would require a significant amount of land outside LLAL holdings and impact on the Green Belt.

Operational viability

Table 4.7 Performance of options against operational viability criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
	Neutral	Large Adverse	Neutral	Moderate Adverse	Large Adverse	Slight Adverse	Large Beneficial
S21 Provide appropriate levels of service	Neutral in increasing operational resilience. Whilst there are shortcoming in terms of level of service in the existing building, the new terminal would be designed to the required level of service and having two terminals in operation would increase operational resilience.	Negative impact on existing operations and available capacity during reconstruction works in the west so unlikely to improve operational efficiency and resilience in the short to medium term. Levels of service would be adversely impacted in the short term.	Neutral in increasing operational resilience as would provide new facilities designed to meet the required standards. The expanded terminal will be designed to provide the required level of service and with operational resilience built in.	Whilst a new terminal would be designed to the required level of service and two terminals would provide a degree of resilience, the operational complexities of operating with two terminals either side of the runway and the splitting of traffic would result in lower operational efficiency.	This option would be likely to require airport closures during construction, resulting in reduced levels of service.	Restrictions to service levels during some parts of the day due to construction, resulting in reduced levels of service.	Able to accommodate a significant increase in levels of service for passengers with minimal disruption to existing operations. Construction of the second runway could take place whilst the existing runway remained open so ensuring that the level of service requirements are met.

Cost

Table 4.8 Performance of options against cost criteria

	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
S22 Estimated cost	Slight Adverse	Slight Adverse	Slight Adverse	Moderate Adverse	Large Adverse	Moderate Adverse	Large Adverse
	Slight Adverse due to the scale and cost of earthworks required.			This is considered more expensive than option 1a, 1b and 1c because of the additional land required south of the runway, but savings could be made in terms of the earthworks costs.	This is considered to have a greater negative impact than options 1a, b, c, 2 or 3b as it requires a new runway to be built, therefore not making the best use of the existing runway.	Appraised as Moderate Adverse compared to option 3a and 3b as it adds to the existing runway (rather than entirely replacing or adding a new one).	Large Adverse due to substantial costs involved with providing a second runway and second terminal building south of both runways.

4.2 Overall commentary on the performance of the options

4.2.1 **Table 4.9** provides an overview showing the appraisal levels for each option against all of the sift criteria, taking into account finalised results from the back-checking process undertaken during Sift 3 (which includes revised appraisal levels under criteria S10 and S18, as described above).

Table 4.9: Overall appraisal levels for each option at Sift 1

Strategic objective	Sift criterion	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
O1: To make best use of the existing runway	S1: Consistent with, and supportive of emerging Government policy and wider objectives	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Moderate Adverse	Moderate Adverse	Large Adverse
O2: To identify a scheme that is likely to be capable of being consented and secured through a DCO	S2: Consistent with national town planning policies	Moderate Beneficial	Moderate Beneficial	Moderate Beneficial	Moderate Adverse	Moderate Adverse	Moderate Adverse	Large Adverse
O3: To provide additional capacity and connectivity in line with the assessment of need	S3: Increase capacity both airside and landside	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Slight Beneficial
O4: To maximise the potential economic benefits to the regional, sub-regional and local economies	S4: Deliver economic benefits nationally and regionally	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Moderate Beneficial
	S5: Increase job opportunities for the people of Luton and the surrounding areas	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial	Large Beneficial
O5: To maintain and where possible improve the quality of life for Luton's residents and the wider population	S6: Promote quality of life and minimise adverse impact on communities	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Moderate Beneficial	Slight Beneficial	Slight Beneficial
O6: To minimise environmental impacts and, where practicable,	S7: Noise impact	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Moderate Adverse	Large Adverse	Large Adverse

Strategic objective	Sift criterion	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
to actively mitigate and manage any potential environmental effects	S8: Air quality	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse	Slight Adverse	Slight Adverse
	S9: Natural habitats and biodiversity	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Adverse	Moderate Adverse	Slight Adverse	Slight Adverse
	S10: Carbon emissions	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
	S11: Surface, groundwater and landfill	Moderate Adverse	Moderate Adverse	Moderate Adverse	Moderate Adverse	Large Adverse	Moderate Adverse	Moderate Adverse
	S12: Flood risk	Moderate Adverse	Moderate Adverse	Moderate Adverse	Slight Adverse	Slight Adverse	Slight Adverse	Slight Adverse
	S13: Cultural heritage	Slight Adverse	Slight Adverse	Slight Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
	S14: Landscape and visual impact	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
	S15: Climate change resilience	Slight Adverse	Slight Adverse	Slight Adverse	Moderate Adverse	Moderate Adverse	Moderate Adverse	Moderate Adverse
O7: To maximise the number of passengers and workforce arriving at the airport on public transport	S16: Public transport modal share	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial	Slight Beneficial
O8: To minimise new build highway requirements	S17: Requirement for additional highway infrastructure	Slight Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse	Large Adverse
O9: To minimise impact on the wider highway network	S18: Impact on wider highway network	Large Adverse	Large Adverse	Large Adverse	Moderate Adverse	Large Adverse	Large Adverse	Moderate Adverse
O10: To be technically viable, taking account of the needs of airport users, operators and phasing	S19: Technically viable	Neutral	Large Adverse	Neutral	Neutral	Large Adverse	Large Adverse	Large Adverse
	S20: Land	Neutral	Neutral	Neutral	Moderate Adverse	Large Adverse	Moderate Adverse	Large Adverse

Strategic objective	Sift criterion	Option 1a	Option 1b	Option 1c	Option 2	Option 3a	Option 3b	Option 3c
O11: To enhance LTN's system efficiency and resilience	S21: Provide appropriate levels of service (including during construction)	Neutral	Large Adverse	Neutral	Moderate Adverse	Large Adverse	Slight Adverse	Large Beneficial
O12: To be affordable including any public expenditure that may be required and taking account of the needs of airport users and operators (Value for Money)	S22: Estimated cost of the programme including surface access, land purchase and associated infrastructure	Slight Adverse	Slight Adverse	Slight Adverse	Moderate Adverse	Large Adverse	Moderate Adverse	Large Adverse

4.2.2 It can be seen that option 3 which included sub-options of a realigned, an extended and a second runway, performed significantly less well against the Strategic Fit criteria (S1, S2 and S3) than the other options. In particular this option was assessed as 'Large Adverse' in terms of consistency with emerging Government policy for aviation, national planning policy and in terms of deliverability and cost.

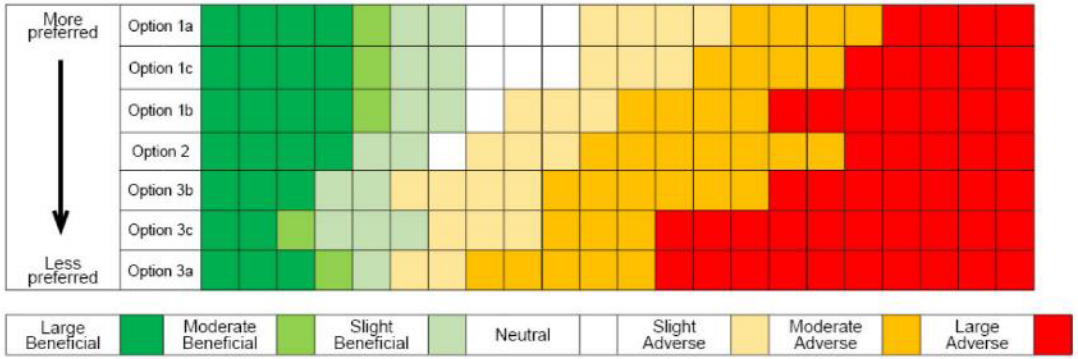
4.2.3 All option 3 sub-options also performed very poorly on deliverability in relation to financial and technical viability on account of delivering capacity ahead of demand (second runway) and large amount of earthworks required. The latter also increases the estimated cost of the project, as does the fact that the second runway and realigned runway sub-options both require acquiring land outside of LLAL ownership.

4.2.4 The other options were appraised as performing well in terms of supporting emerging Government policy for aviation, increasing airside and landside capacity and in delivering economic and social benefits. The assessment against the other strategic criteria was more mixed with options 1a and 1c performing better overall at this initial stage.

4.2.5 All options were appraised as having adverse environmental impacts at this stage, on the basis of the limited information available at the time in relation to potential mitigation strategies. The performance of the options against the environmental factors was therefore not considered a differentiator at this stage. Note that some appraisals have changed in Sift 2 as further detail on mitigation measures was available for each option and therefore informed those appraisals.

4.2.6 **Figure 4.1** below ranks the options from most preferred to least preferred based on the relative distribution of appraisal levels.

Figure 4.1: Frequency of appraisal levels for each option family at Sift 1 (please note this has changed from the draft report, reflecting the revised scores under criteria s10 and s18 as described above)



4.2.7 It can be seen in **Figure 4.1** that options 3a and 3c show nearly three times the number of Large Adverse appraisal levels when compared with option 1a and performing substantially less well overall when compared to the other options, supporting the commentary above.

5 RECOMMENDATIONS

5.1.1 The Sift 1 assessment has identified option 3, which included options of a realigned (3a) extended (3b) or second (3c) runway, as being highly unlikely to be successful given its poor performance in relation to: fit with existing policies; deliverability; land required; costs; and environmental criteria (archaeological and cultural heritage). In line with the purpose of Sift 1, this indicates that this option should be discontinued so as to prevent extensive abortive work that does not align with the overall project vision and objectives.

5.1.2 The other options are assessed as being aligned with the project vision and objectives and were therefore developed further as options for more detailed assessment in Sift 2.

5.1.3 With regard to the sift process, the next steps were to further develop and refine the objectives and criteria as part of Sift 2. However, this only sought to formalise the approach taken in Sift 1 which has already included consideration of the issues concerned. As such, this refinement in Sift 2 did not change the assessment undertaken at Sift 1.

ABBREVIATIONS USED

ALLV	Area of Local Landscape Value
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Areas
ATM	Air traffic movements
CWS	County Wildlife Site
CPAR	Century Park Access Road
DART	Direct Air-Rail Transit
DCO	Development Consent Order
DfT	Department for Transport
LLAL	London Luton Airport Ltd
LLAOL	London Luton Airport Operations Ltd
LTN	London Luton Airport
MPPA	Million passengers per annum
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
RAG	Red Amber Green

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Ref 1.3 Department for Transport (April 2018) Beyond the Horizon, The future of UK Aviation: Next steps towards an aviation strategy

Ref 1.4 Department for Transport (June 2018) Airports National Policy Statement

Ref 1.5 London Luton Airport ltd (December 2017) London Luton Airport Vision for Sustainable Growth 2020-2050

Ref 2.1 Department for Transport (March 2013) Aviation Policy Framework.

Ref 2.2 Department for Transport (October 2017) Revised Draft Airports National Policy Statement

Ref 2.3 Department for Transport (April 2014) Airports Commission: Appraisal Framework.

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