Luton Rising

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April 2023

London Luton Airport Expansion

Planning Inspectorate Scheme Ref: TR020001

Volume 7 Other Documents

7.03 Design and Access Statement

Volume I

Application Document Ref: TR020001/APP/7.03

APFP Regulation: 5(2)(q)

The Planning Act 2008

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

London Luton Airport Expansion Development Consent Order 202x

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7.03 DESIGN AND ACCESS STATEMENT – VOLUME I

Regulation number:	Regulation 5(2)(q)
Planning Inspectorate Scheme Reference:	TR020001
Document Reference:	TR020001/APP/7.03
Author:	Luton Rising

Version:	**Date**	**Status of Version**
Issue 1	February 2023	Application issue
Revision 1	April 2023	Amended following section 51 advice

EXECUTIVE SUMMARY

This Design and Access Statement (DAS) forms part of the Development Consent Order (DCO) application for the proposed expansion of London Luton Airport (the airport) from 18 million passengers per annum (mppa) to 32 mppa, (hereafter referred to as 'the Proposed Development'). This application is made by London Luton Airport Limited (now trading as Luton Rising), owners of London Luton Airport (the Applicant). Luton Rising is a business and social enterprise owned by a sole shareholder, Luton Borough Council, for community benefit. Luton Rising is at the heart of a movement for positive change in the Luton community.

The Applicant's Vision for London Luton Airport's Sustainable Growth 2020-2050 is to "*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*."

The DAS describes how design of the project has been developed to deliver this vision and be consistent with the Government's Aviation and Planning Policies. In particular, the project has been designed to make best use of the existing runway, minimise the use of Green Belt and impacts on the environment and surrounding communities and achieve a good standard of design.

The DAS explains how the design of the project has been informed by an analysis of the site and surrounding context. This includes consideration of: surrounding neighbourhoods and heritage assets; the Green Belt; topography, landscape and ecology; transport networks and utility infrastructure; and the existing airport and related development including a former landfill area.

Several alternative options for the expansion of the airport were evaluated through a Sift process, reflecting the Airport Commission's Appraisal Framework and the Applicant's Vision. In parallel, three rounds of statutory and non-statutory consultation were undertaken with stakeholders and the public to obtain feedback on the alternative options and emerging proposals. Through this process, a two-terminal solution to the north of the existing runway was selected as the Applicant's preferred option for further development.

The Proposed Development for the expansion of the airport includes: the development of the airfield; refurbishment and development of passenger terminals and piers; support buildings and facilities; proposals for access by public transport, walking, cycling and private vehicles; upgraded and new utility infrastructure; and proposals for replacement open space provision as well as landscape and biodiversity enhancement. Substantial mitigation measures have been embedded within the design of the Proposed Development to avoid, reduce or offset environmental effects.

The DAS describes how the Proposed Development has been designed to meet international standards for aviation infrastructure. It provides a justification for the scale and location of the major elements of the Proposed Development and explains how this work together within the overall masterplan.

The Proposed Development is planned to be constructed in increments over a long build out programme. The design is therefore defined in outline terms only and the Proposed Development would be located within certain parameters, or ‘envelopes’, employing a Rochdale (Design) Envelope approach which has been assessed and informed the Environmental Statement. This provides the flexibility needed to be responsive to the rapidly changing nature of aviation and allows the operator to develop detailed designs that will meet the needs of passengers and airlines as appropriate.

A separate Design Principles document has been submitted as part of the DCO application and future detailed design of the project will be required to be in accordance with the design principles.

The document contents are as follows:

Section 1: Sets out the purpose and role of the DAS;

Section 2: Establishes the context for the design of the Proposed Development in terms of the need case, planning and design policy and the physical context of the site and surrounding area;

Section 3: Sets out the overall vision for the Proposed Development, and the Strategic Objectives and Strategic Design Considerations that have guided the design to ensure delivery of the local, regional and national benefits;

Section 4: Explains the design evolution of the Proposed Development including the sifting of alternative options and the various stages of public consultation and stakeholder engagement that have informed the evolution of the design; and

Section 5: Describes the layout of the proposed expansion of the airport, covering the overall scheme and explaining each of the elements within the overall masterplan and with justification of scale of key infrastructure and their relationship with other elements of the Proposed Development.

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1. INTRODUCTION

1.1 Purpose of the document

1.1.1 This Design and Access Statement (DAS) forms part of the Development Consent Order (DCO) application for the proposed expansion of London Luton Airport (the airport) from 18 million passengers per annum (mppa) to 32 mppa, (hereafter referred to as 'the Proposed Development'). This application is made by London Luton Airport Limited (now trading as Luton Rising), owners of London Luton Airport (the Applicant). Luton Rising is a business and social enterprise owned by a sole shareholder, Luton Borough Council, for community benefit. Luton Rising is at the heart of a movement for positive change in the Luton community.

1.1.2 There is no specific statutory requirement for a DAS to support applications for a DCO under the Planning Act 2008 (as amended). However, it is seen as a document that can be useful to support such applications. In this case the DAS demonstrates how the Applicant has responded to the need for good design, and how the Applicant has developed the Proposed Development to respond to a range of requirements and objectives which are discussed in further detail throughout this DAS.

1.1.3 The DAS sets out the relevant design policies and the site context and explains how these were considered in developing the design of the Proposed Development in conjunction with the future passenger demand that is set out in The Need Case **[TR020001/APP/7.04]**. It outlines the Vision and Strategic Objectives that have guided the design process, including the consideration of alternative options, and how the design has evolved in response to public and stakeholder consultation. For further information on alternatives considered refer to **Chapter 3** of the Environmental Statement **[TR020001/APP/5.01]**. For further information on stakeholder consultation refer to the Consultation Report **[TR020001/APP/6.01]**.

1.1.4 The DAS describes the elements of the Proposed Development in terms of scale, justification and context. This covers the development of the airfield; refurbishment and development of passenger terminals and piers; support buildings and facilities; proposals for access by public transport, active/ sustainable travel modes such as walking and cycling, and private vehicles; upgraded and new utility infrastructure; and proposals for replacement open space provision as well as landscape and biodiversity enhancement.

1.1.5 The DAS forms part of the DCO application and more detailed information on the Proposed Development can be found in a number of other technical documents submitted with the DCO application including: the Draft Development Consent Order **[TR020001/APP/2.01]**; **Chapter 4** of the Environmental Statement **[TR020001/APP/5.01]**; Location Plan **[TR020001/APP/4.01]**; Scheme Layout Plans **[TR020001/APP/4.02]**; Works Plans **[TR020001/APP/4.04]**; and General Arrangement Drawings **[TR020001/APP/4.09]**; and Airport Access Road and DART Long Section Drawings **[TR020001/APP/4.11]**.

1.1.6 A Design Principles **[TR020001/APP/7.09]** document has been prepared to provide stakeholders with assurance of how the future design of the project will be developed in detail following the grant of the DCO. The Design Principles document explains the principles to be followed at the detailed design stage and should be read together with this DAS to have a full understanding of the overall Proposed Development.

1.2 The Applicant

1.2.1 Luton Rising (LR) is, in turn, wholly owned by Luton Borough Council (LBC). Luton Rising (the Applicant) owns the airport. Luton Rising (LR) is wholly owned by Luton Borough Council (LBC). Luton Rising is a business and social enterprise owned by a sole shareholder, Luton Borough Council, for community benefit. Luton Rising is at the heart of a movement for positive change in the Luton community.

1.2.2 In 1998, the Applicant and LBC entered into a Concession Agreement with London Luton Airport Operations Limited (LLAOL) for the management, operation and development of the airport. This agreement, which lasts until 2032, means that LLAOL has complete responsibility for, and control over, the day-to-day running of the airport.

1.3 Structure of the DAS

1.3.1 This document establishes the context, explains the evolution of the design and describes the design of the Proposed Development thus far.

1.3.2 The document contents are as follows:

Section 1: Sets out the purpose and role of the DAS (this section);

Section 2: Establishes the context for the design of the Proposed Development in terms of the need case, planning and design policy and the physical context of the site and surrounding area;

Section 3: Sets out the overall vision for the Proposed Development, and the Strategic Objectives and Strategic Design Considerations that have guided the design to ensure delivery of the local, regional and national benefits;

Section 4: Explains the design evolution of the Proposed Development including the sifting of alternative options and the various stages of public consultation and stakeholder engagement that have informed the evolution of the design; and

Section 5: Describes the layout of the proposed expansion of the airport, covering the overall scheme and explaining each of the elements within the overall masterplan.

2. CONTEXT

2.1 Introduction

2.1.1 This section sets out the context of the Proposed Development. This includes an overview of the need for scheme as it applies to the design of the proposals, relevant design policies and the physical context of the site.

Spatial Extent of the Proposed Development

2.1.2 The land on which the whole Proposed Development will be constructed is the Application Site. For the purposes of Environmental Impact Assessment (EIA) the Proposed Development is split into four distinct geographical components:

a. the Main Application Site;

b. Off-site Car Parks;

c. Off-site Highways Interventions; and

d. Off-site Planting.

2.1.3 The spatial extent of the Proposed Development is shown on Figure 2.1 and Figure 2.2. Existing constraints are shown in Figure 2.3.

Main Application Site

2.1.4 The Main Application Site is adjacent to the existing runway, close to the existing airport infrastructure and is restricted, as far as possible to land zoned for development outside the Green Belt. It is bound to the north by Darley Road, Eaton Green Road and parts of the associated business park. To the west, the boundary follows the eastern extent of the airport car park off Vauxhall Way. The southern extent is defined by the existing airport perimeter and, in some places, the field boundaries just beyond.

2.1.5 The Main Application Site includes the existing airport, the existing business park to the north and north-west of the airport, some of Wigmore Valley Park and arable land to the east. Additional uses include Luton Airport Business Park, located to the west and north-west of the airport. There is one occupied residential property, Winch Hill House.

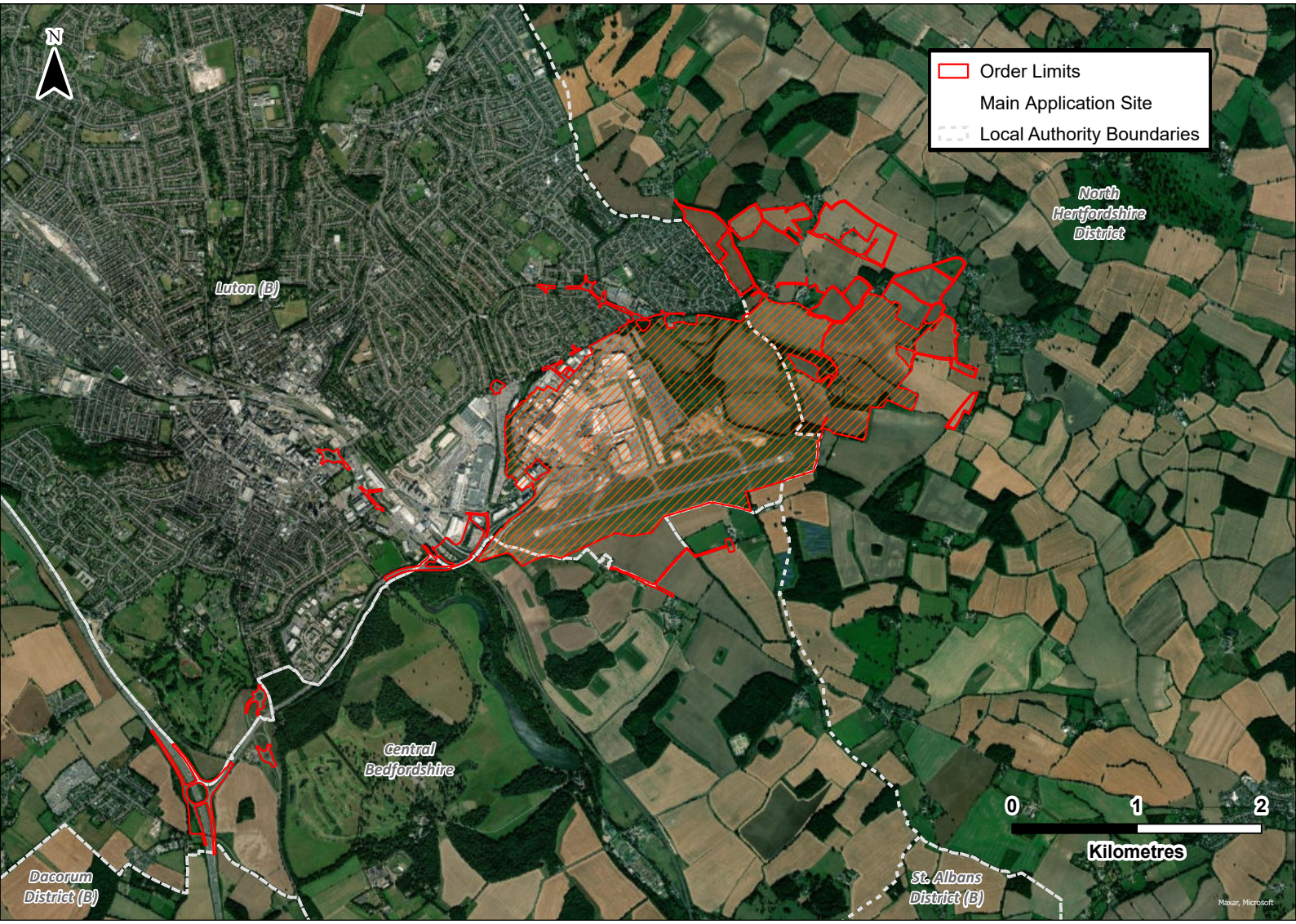


Figure 2.1: Site location plan

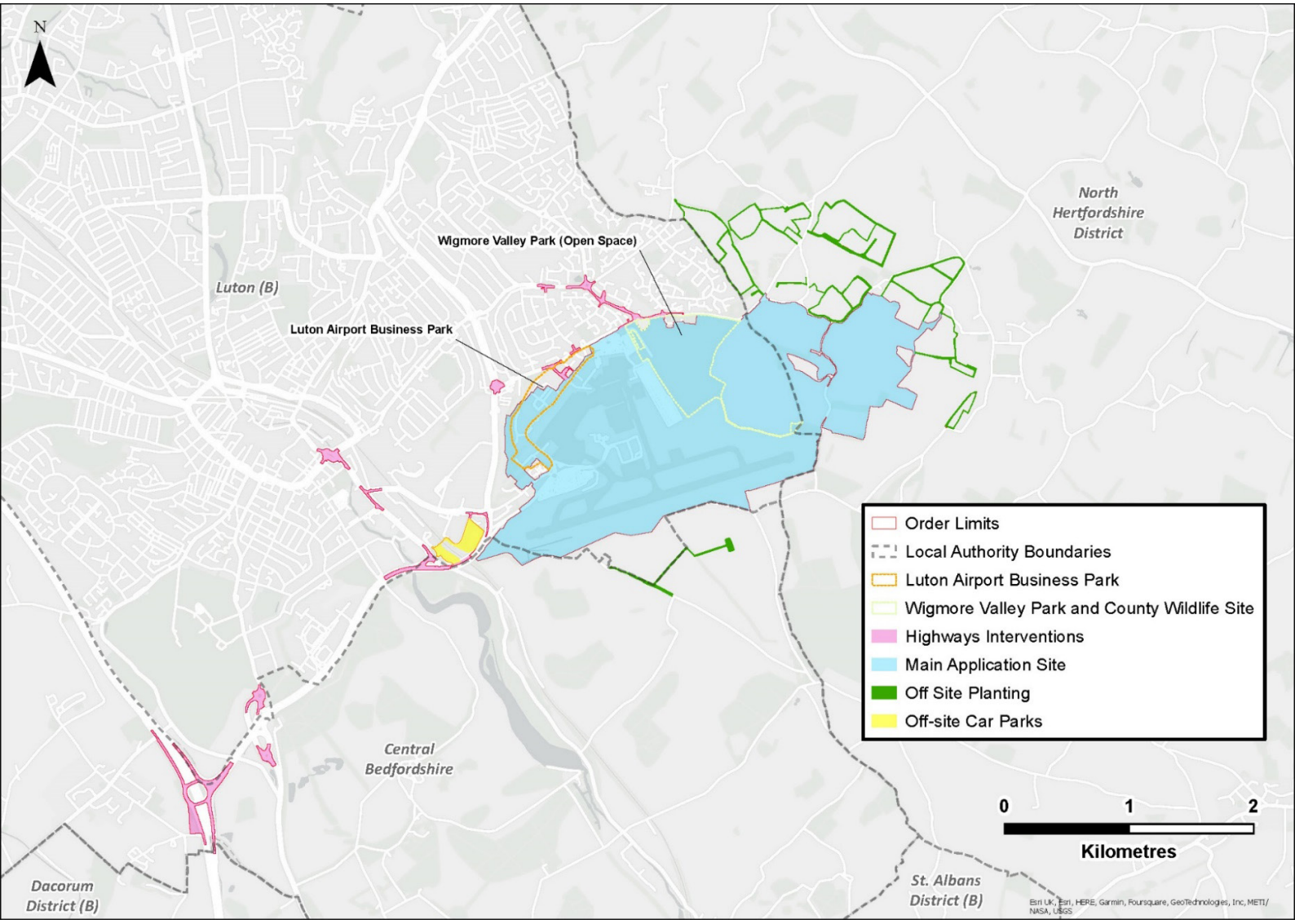


Figure 2.2: Development Areas

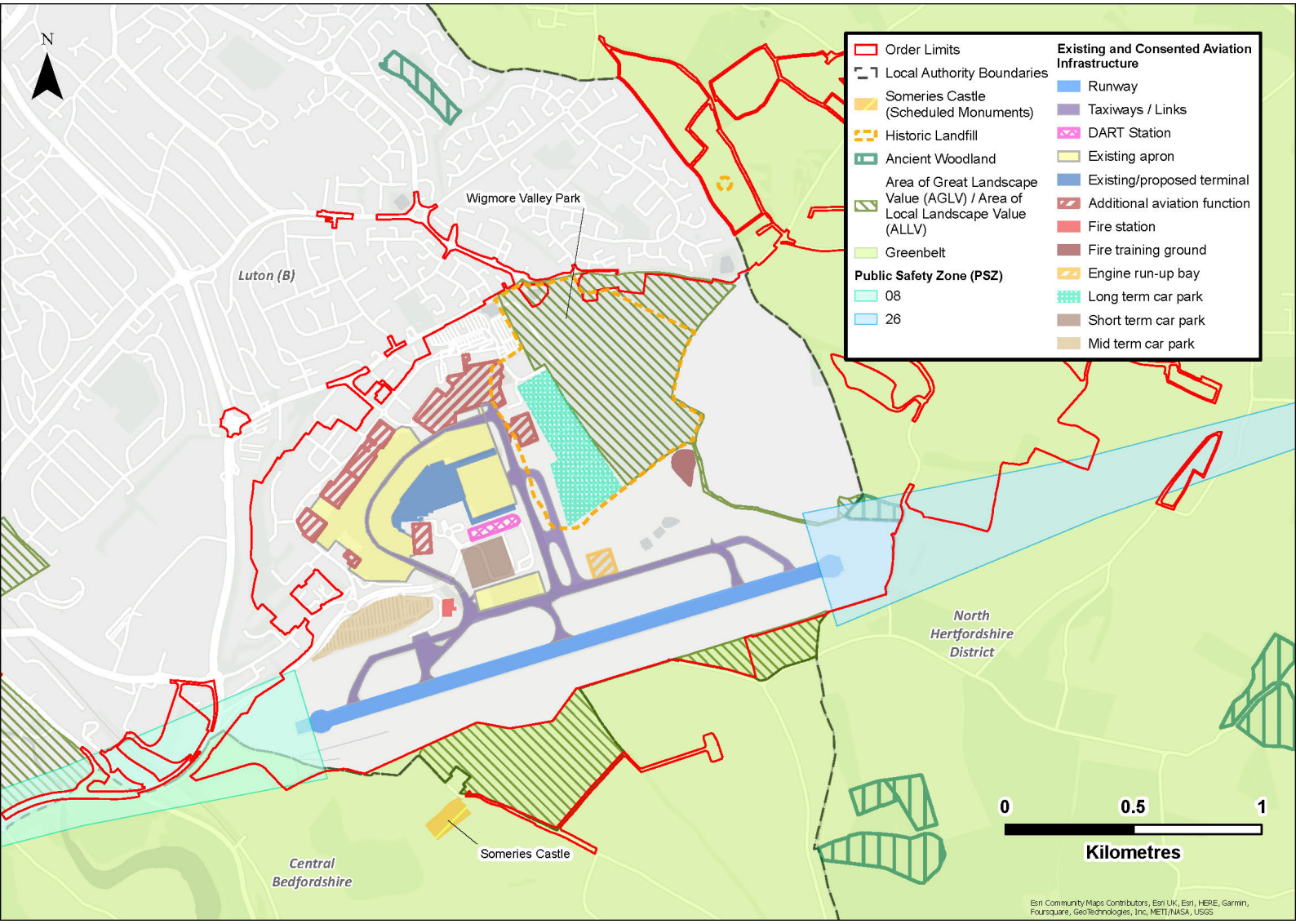


Figure 2.3: Constraints Plan

Off-site car parks

2.1.6 The Applicant owns land adjacent to either side of the Midland Mainline Railway. The sites are 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. Each site contains a border of trees and scrub.

2.1.7 The two sites are available for use as car parking. The site to the North of the Midland Mainline is currently a lorry-trailer park, generally used as parking for Heavy Goods Vehicles. The smaller site is located to the south of Midland Mainline and is a disused area of hardstanding which was previously used as a car park.

2.1.8 Proposed off-site car parks would be under control of the airport operator.

Off-site highways interventions

2.1.9 The Proposed Development includes several sites where highway improvements would be required to facilitate the increased airport capacity. Further information can be found within the Transport Assessment **[TR020001/APP/7.02**].

2.1.10 The off-site highways intervention areas would be restricted, as far as possible, to existing highway boundaries.

Off-site planting

2.1.11 The Proposed Development includes several areas proposed for off-site planting. The boundaries of these areas would follow agricultural field margins both to the north-east and south of the Main Application Site.

2.1.12 Further information on off-site planting can be found in the Landscape and Biodiversity Management Plan (LBMP) provided as Appendix 8.2 in Volume 3 of the ES **[TR020001/APP/5.02].**

2.2 Need Case

2.2.1 The Need Case **[TR020001/APP/7.04]** describes the future passenger demand forecasts and the capacity requirements to accommodate this growth. Key matters that influence the design of the Proposed Development are set out below.

Passenger Forecasts

2.2.2 The passenger forecasts for the airport include consideration of a number of different scenarios for future passenger growth based around faster and slower growth in underlying demand and alternative scenarios for runway capacity delivery in the London airport system.

2.2.3 The timeline for the delivery of the Proposed Development and, hence, the constraining influence of the airport's infrastructure, is then layered onto the unconstrained passenger demand forecasts to enable consideration of the passenger throughput that can be achieved at the airport through the delivery of the Proposed Development. Refer to Figure 2.4.

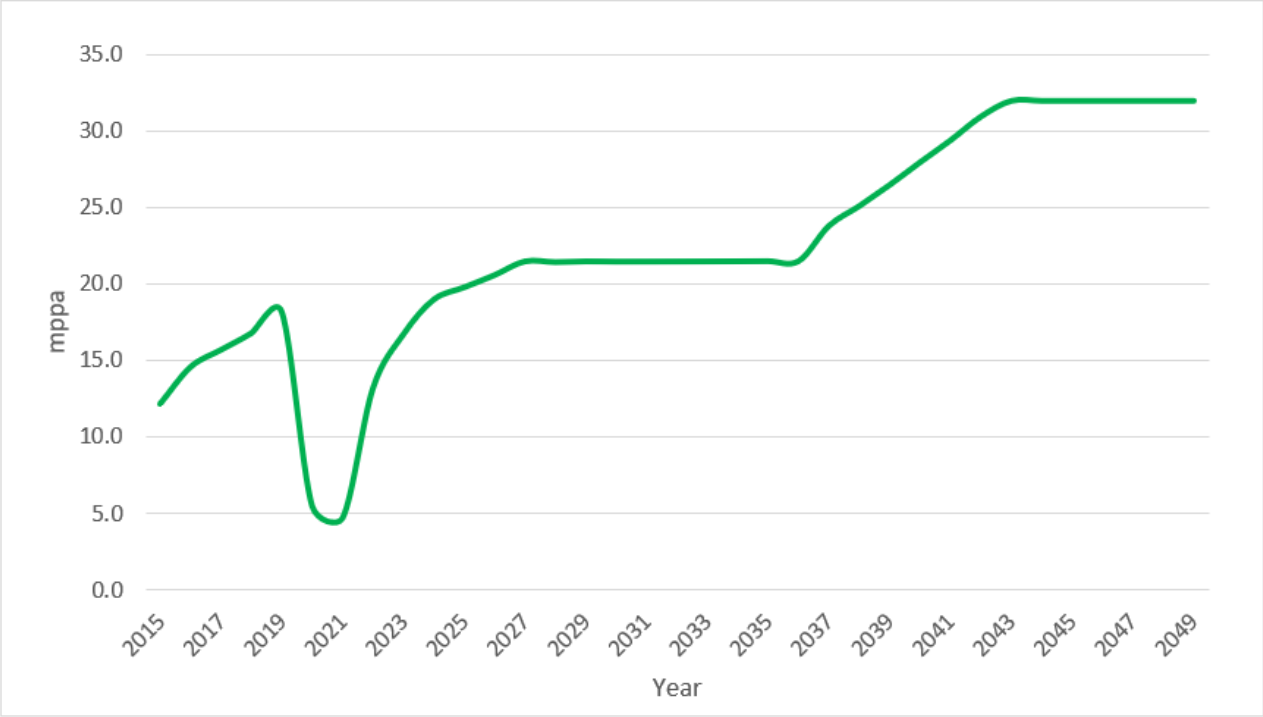


Figure 2.4: Passenger throughput forecasts for London Luton Airport

Airfield

2.2.4 The existing runway is to be retained and not extended in accordance with government policy of making best use of existing runways. The runway can accommodate 50 aircraft movements an hour (subject to sufficient taxiway infrastructure being provided).

Apron

2.2.5 The future requirements for aircraft parking are primarily predicated on Code C aircraft (aircraft typically used for short haul journeys with a maximum wingspan of 36m) with some provision for Code E aircraft (maximum wingspan 65m).

2.2.6 The requirements for Code C aircraft stands for passenger operations is set out in Table 2.1. The number of stands required has been assessed based on the number of passengers expected to be handled on a Code C aircraft stand per annum.

2.2.7 Allowance has also been made for a minimum of two spare stands, over and above those operationally required, to allow a buffer for aircraft as is normal practice when planning apron areas at airports. Prior to the initial stage of the Terminal 2 (T2) development, the Engine Run-up Bay (ERUB) will be used to provide the two-stand buffer requirement until the full area of new apron is completed.

Table 2.1: Future Code C aircraft stand requirements

Annual Passenger Capacity by Assessment Phase	Code C Aircraft Stands Required	
	T1	T2
Assessment Phase 1 - 21.5 mppa	52	
Assessment Phase 2a - 27 mppa	46	18
Assessment Phase 2b: 32 mppa	46	28

2.2.8 Note that assessment phase 1 includes construction of five aircraft parking stands that will be serviced from Terminal 1 (T1) to meet the demand, but these will need to be constructed within the Terminal 2 (T2) apron footprint. Once T2 commences operations these five stands will be serviced from T2.

2.2.9 Code E aircraft will be accommodated by parking across two Code C aircraft stands (a Multiple Aircraft Ramp System (MARS) configuration – refer to Figure 5.11 in Volume II).

Terminals

2.2.10 As set out in Table 2.2, below, the busy hour passenger demand that the airport needs to handle at each assessment phase has been derived from the forecasts.

Table 2.2: Future Total Busy Hour Demand

mppa	Arrivals	Departures
Assessment Phase 1 - 21.5 mppa	3,300	4,200
Assessment Phase 2a - 27 mppa	3,900	4,900
Assessment Phase 2b - 32 mppa	4,350	5,500

2.2.11 The busy hour demand that would need to be accommodated in each terminal is set out in Table 2.3, below.

Table 2.3: Busy Hour Capacity Required by Terminal

Annual Passenger Capacity by Assessment Phase	Busy Hour Terminal Capacity Parameters			
	T1		T2	
	Departures	Arrivals	Departures	Arrivals
Assessment Phase 1 - 21.5 mppa	4,200	3,300		
Assessment Phase 2a - 27 mppa	4,000	3,150	1,950	1,500
Assessment Phase 2b - 32 mppa	4,000	3,150	2,800	2,200

2.2.12 T1 will reach capacity during assessment Phase 1. Therefore, the Proposed Development includes a second Terminal (T2) to provide an overall capacity of 32mppa (assessment Phase 2b).

2.2.13 The development of T2 would respond to demand with an initial build out with an approximate capacity of 7 mppa and 18 stands (Assessment Phase 2a).

Terminal Support facilities

2.2.14 To support passenger access to/from the airport, and to provide a level of service commensurate with the passenger throughput, the expanded airport will require a few other facilities in the vicinity of the T2. These include:

a. airport access road;

e. car parks, including multi-storeys;

f. bus and coach station;

g. a second station for Luton Direct Air-Rail Transit (Luton DART);

h. hotels; and

i. an energy centre and sub-stations.

Other facilities

2.2.15 In addition to the core facilities for aircraft and passengers, the expanded airport will require other operational facilities. These include:

a. an upgraded fuel supply, including provision for sustainable aviation fuels and future zero carbon technologies;

b. additional ground handling accommodation;

c. associated operational support buildings;

d. additional hangar space for aircraft maintenance; and

e. water treatment plant and associated infrastructure.

2.2.16 The following facilities will need to be relocated as a result of displacement due to the development of T2:

a. relocation of engine run-up facilities displaced by the development; and

b. relocation of the fire training ground displaced by the development.

2.3 Design policy context

Overview

2.3.1 The following section provides a summary of the relevant planning policies and guidance at the national and local levels which have informed the design of the Proposed Development. A detailed overview of the planning policy context can be found in the Planning Statement **[TR020001/APP/9.0]**.

Airports National Policy Statement (ANPS)

2.3.2 The Airports NPS (Ref 2.1), published in June 2018, is an important and relevant consideration for applications for new runway capacity upgrades and other airport infrastructure in London and the South East of England.

2.3.3 The ANPS sets out the following criteria for 'good design' for airports infrastructure:

a. "The applicant should include design as an integral consideration from the outset of a proposal." (para 4.29)

b. "Visual appearance should be an important factor in considering the scheme design, as well as functionality, fitness for purpose, sustainability and cost." (para. 4.30)

c. "Applying 'good design' to airports projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, and matched by an appearance that demonstrates good aesthetics as far as possible" (para. 4.30).

d. "A good design should meet the principal objectives of the scheme by eliminating or substantially mitigating the adverse impacts of the development, for example by improving operational conditions. It should also mitigate any existing adverse impacts wherever possible, for example in relation to safety or the environment." (Paragraph 4.31)

e. "A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable, taking into account capital cost, economics and environmental impacts." (Paragraph 4.31)

f. "Scheme design will be an important and relevant consideration in decision making. The Secretary of State will need to be satisfied that projects are sustainable and as aesthetically sensitive, durable, adaptable and resilient as they can reasonably be, having regard to regulatory and other constraints and including accounting for natural hazards such as flooding." (Paragraph 4.32)

g. “The Secretary of State will also need to be satisfied that extant security, customs and immigration measures are maintained or reprovided.” (Paragraph 4.32)

h. “The scheme should take into account, as far as possible, both functionality, including fitness for purpose and sustainability, and aesthetics, including the scheme’s contribution to the quality of the area in which it would be located.” (Paragraph 4.33)

2.3.4 The ANPS also provides guidance on how applicants should approach the design process and explain how the scheme design has evolved. It highlights that:

a. “The applicant will want to consider the role of technology in delivering new airports projects. Professional, independent advice on the design aspects of a proposal should be undertaken to ensure good design principles are embedded into infrastructure proposals.” (Paragraph 4.33)

b. “There may be opportunities for the applicant to demonstrate good design in terms of siting and design measures relative to existing landscape and historical character and function, landscape permeability, landform, and vegetation.” (Paragraph 4.34)

c. “The applicant should be able to demonstrate in its application how the design process was conducted and how the proposed design evolved. Where several different designs were considered, the applicant should set out the reasons why the favoured choice has been selected. The Examining Authority and Secretary of State will consider the ultimate purpose of the infrastructure and bear in mind the operational, safety and security standards which the design must satisfy.” (Paragraph 4.34)

2.3.5 This guidance on design process is important both to the design of the Proposed Development and the content of this DAS.

Beyond The Horizon: The Future of UK Aviation – Making Best Use of Existing Runways

2.3.6 This policy document, which was published in June 2018 alongside the Airports National Policy Statement (ANPS), sets out the specific principles applying to the government’s support for airports making best of their existing runways across the whole of the UK. This policy has been used as a Strategic Objective: Compliance with Government Aviation Policy (see Section 3) for the design.

National Planning Policy Framework (NPPF)

2.3.7 The National Planning Framework (NPPF) (Ref 2.2) strongly emphasises the importance of good design and its supporting documents, the National Design Guide, the National Model Design Code and Guidance Notes for Design Codes, illustrate “how well-designed places” can be achieved.

2.3.8 NPPF Section 12 states “The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities.”

2.3.9 The NPPF sets out several criteria which new developments should satisfy to be permitted. While these criteria apply to all forms of development, they do have relevance to the design of the Proposed Development. The criteria are that new developments should:

a. function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;

b. be visually attractive as a result of good architecture, layout and appropriate and effective landscaping;

c. be sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);

d. establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;

e. optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and

f. create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience (Para 130).

National Infrastructure Commission (NIC) Design Principles

2.3.10 The NIC Design Group (Ref 2.3) has identified four design principles to guide the planning and delivery of major infrastructure projects:

a. Climate – to mitigate greenhouse gas emissions and adapt to climate change. Opportunities must be sought during design and construction to enable the decarbonisation of our society and mitigate and offset residual emissions;

b. People – to reflect what society wants and share benefits widely. The range of views of communities affected by the infrastructure must be considered and reflected in the design;

c. Places – to provide a sense of identity and improve our environment. Projects should be inspiring in form and detail, respecting and enhancing local culture and character without being bound by the past. Good design supports local ecology, which is essential to protect and enhance biodiversity; and

d. Value – to achieve multiple benefits and solve problems well. Proposals should be interrogated rigorously so that opportunities to secure economic, environmental and social benefits are identified, pursued and articulated for local and national audiences.

Luton Local Plan

2.3.11 The Luton Local Plan (LLP) (2011–2031) (Ref 2.4), adopted in 2017, includes **Policy LLP6 London Luton Airport Strategic Allocation**, which sets out a series of design requirements for the airport to ensure:

a. appropriate strategic landscaping to be provided both on and off-site, which shall have regard to the potential for significant visual prominence within the wider area of built development at Century Park and which does not increase risk to aviation operations arising from structures, lighting, bird strike or open water and having regard to operational and national security considerations;

b. the height and design of buildings will reflect the site's rural fringe setting, its high visibility from surrounding countryside and its proximity to London Luton Airport;

c. provision is made for sustainable drainage and the disposal of surface water in order to ensure protection of the underlying aquifer and prevent any harm occurring to neighbouring and lower land; and

d. that development proposals, where applicable / appropriate will fully assess the impacts upon heritage assets and their setting and should be designed to avoid harm to the setting of any heritage assets. Proposals will be considered in line with Policy LLP30 (historic environment).

2.3.12 **Policy LLP25 High Quality Design** expects that buildings and spaces will be of high-quality design with distinctive character and be safe and easily accessed by all members of the community. Proposals will need to demonstrate adherence to the best practice principles of urban design.

Green Belt Policy

2.3.13 National and local planning policies relating to Green Belt contained within the Airports National Policy Statement (ANPS), National Planning Policy Framework (NPPF), Luton Local Plan 2011-2031 and North Hertfordshire District Council Local Plan 2011-2031 have also influenced the design of the Proposed Development.

2.3.14 These policies are consistent in that they attach 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. These policies are clear that "inappropriate development" within the Green Belt should not be approved unless very special circumstances can be demonstrated. In line with this policy the Proposed Development has sought to minimise works within the Green Belt.

2.4 Site analysis

2.4.1 This section describes the key features of the existing airport site, together with other developments outside the scope of the Proposed Development but within the Main Application Site (as explained in section 2.1 and shown in Figure 2.2) and other site related factors that influence or constrain the design of the proposed development.

Existing Airport

2.4.2 The existing airport is located approximately 45 kilometres (km) north-west of London, adjacent to the existing southern edge of Luton and approximately 2.5km to the east of Luton town centre.

2.4.3 The existing airport infrastructure consists of a single runway with associated taxiways, stands and aprons. It has a single commercial passenger terminal, cargo handling facilities with supporting hangars, general and business aviation facilities, 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 several car parks for short, mid and long-term stay (see Figure 2.5).

2.4.4 The existing terminal (Terminal 1) building is located centrally within the existing airport site. The airport infrastructure, including the various supporting facilities, the T1 campus buildings, and car parking facilities, are arranged around the main T1 building. The existing terminal has been expanded under the planning permission granted in 2014 for LLAOL to increase the capacity of the airport to 18mppa (see 2.4.7).

2.4.5 The airfield loops around T1 which limits vehicular access. Direct public access routes to Terminal 1 are limited to:

a. vehicular (with limited pedestrian connectivity) via Airport Approach Road, which crosses under the airfield through a short tunnel; and

b. Luton DART, which runs parallel to the Airport Approach Road.

2.4.6 The airport's single 2,162m long runway is connected to the taxiway network via four link taxiways. An additional link is due to be constructed by the operator as part of Project Curium (see 2.4.7). The taxiway links do not provide access to either end of the runway which results in some aircraft having to back-track along the runway which reduces capacity. The relatively short runway is a constraint to use by larger aircraft or those operating a longer route.

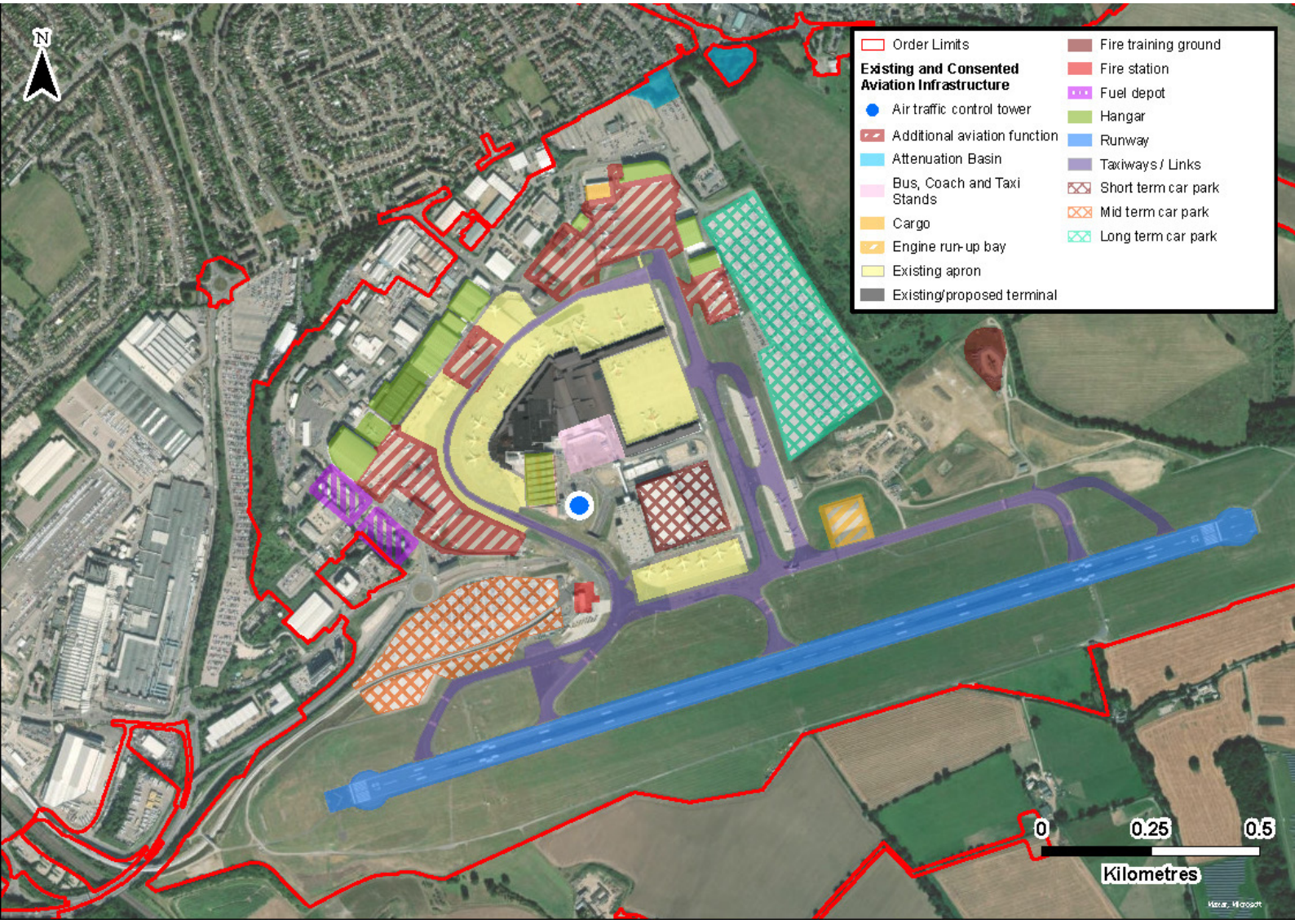


Figure 2.5: Existing Airport Layout

Existing airport related developments

Project Curium

2.4.7 Project Curium involves extensions to the existing passenger terminal, construction of additional aircraft stands and new taxiways, improvements to transport links (including new car parking facilities and remodelling of the bus and coach interchange) to increase the capacity of the airport from 12 mppa to 18 mppa.

2.4.8 Planning permission was granted in 2014 for works to accommodate passenger capacity up to 18 mppa (Luton Borough Council (LBC) ref: 12/01400/FUL). The proposed Curium airport layout is illustrated in Figure 2.6, below.

2.4.9 Works already completed as part of Project Curium include:

a. extension of the Southern Apron for additional aircraft stands (to deliver additional commercial remote stands);

b. reconfiguration of external areas for surface access improvements including works to the Temporary Drop Off Zone (TDOZ) and a new long stay parking deck;

c. Taxiway Foxtrot and new aircraft de-icing facilities;

d. extension and reconfiguration of the passenger terminal; and

a. construction of a new multi-storey car park.

2.4.10 Works underway or remaining include additional apron and taxiway works.

2.4.11 When Project Curium is complete, the Proposed Development consented through the DCO would tie into the final apron and taxiway works.

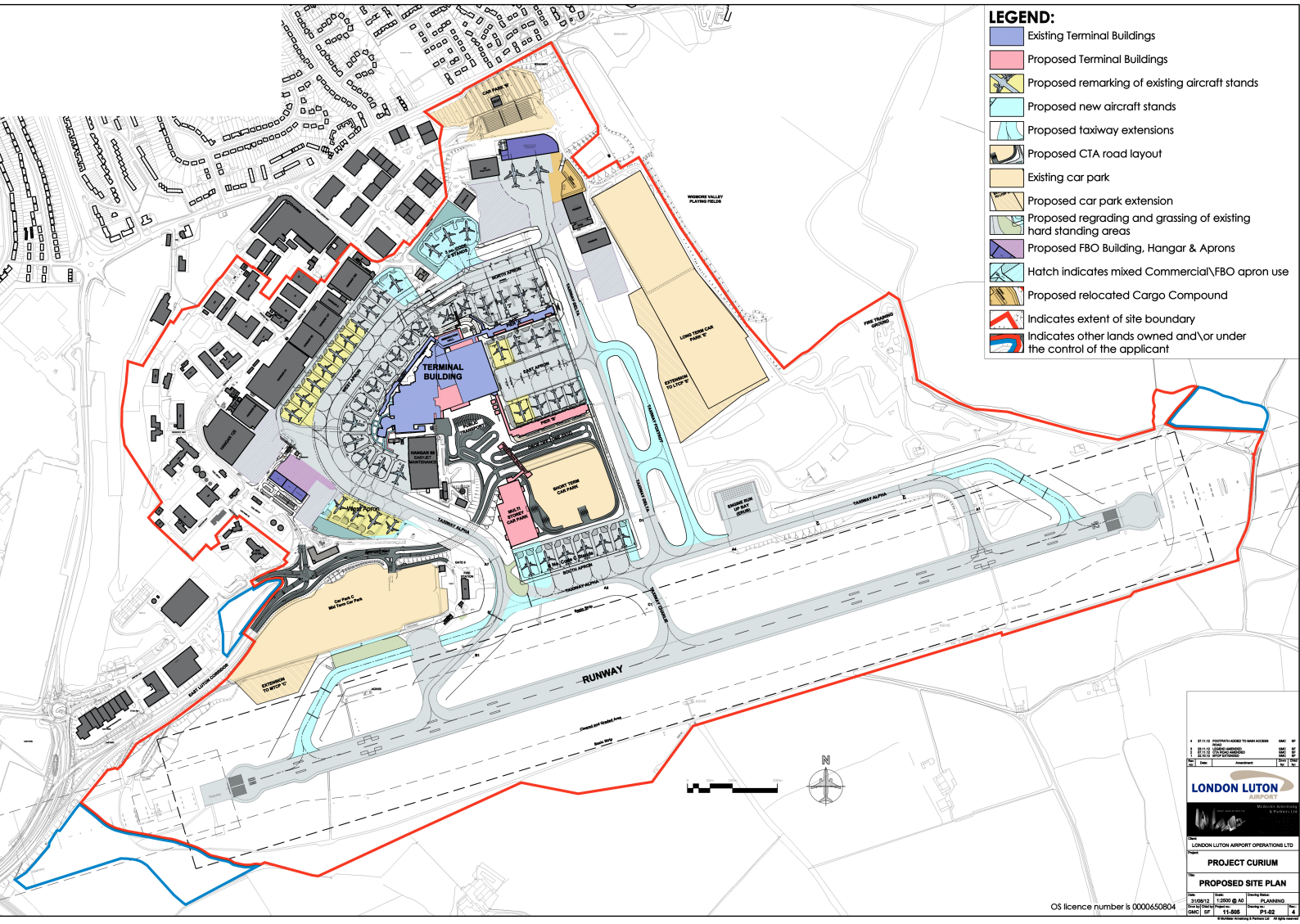


Figure 2.6: Proposed Curium layout

Application to accommodate 19 mppa

2.4.12 On 1 December 2021, the local planning authority (Luton Borough Council) resolved to grant permission (21/00031/VARCON) for the current airport operator (LLAOL) to grow the airport to 19 mppa, from its previous permitted cap of 18 mppa.

Luton DART

2.4.13 Planning permission for Luton DART was granted in 2017 (LBC ref: 17/00283/FUL) for the construction of an approximately 2km long twin track cable-driven system between Luton Airport Parkway railway station and the airport's Central Terminal. Construction for the project started in 2018 and the announcement of an official opening date will be made in early 2023.

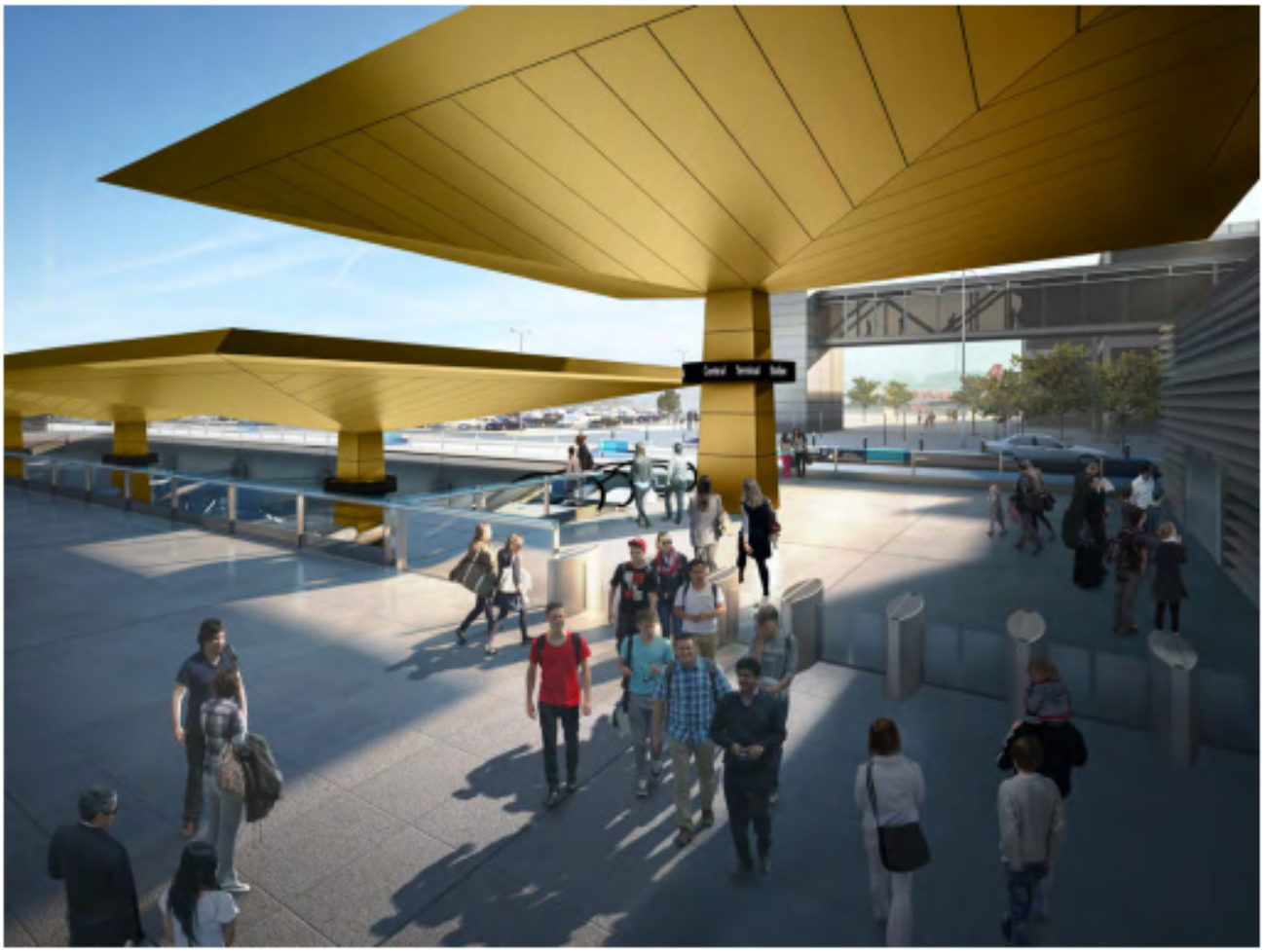


Figure 2.7: Illustrative Image of Luton DART Station

Green Horizons Park

2.4.14 Green Horizons Park is a proposed mixed-use business park to the east of the airport, which includes the construction of a new access road (referred to in planning application (LBC ref: 17/02300/EIA) as Century Park Access Road (CPAR) which is now called Airport Access Road (AAR)) connected to Airport Way to the west of the airport.

2.4.15 The proposals for Green Horizons Park were approved in June 2021 and comprise office space, warehousing and industrial space, mixed employment space, a hotel, café space, energy recovery centre, internal access roads, car parking, landscaping and associated engineering works.

2.4.16 However, much of the development consented as Green Horizons Park would be superseded by the Proposed Development within the application for the DCO making provision for managing the integrated implementation of Green Horizons Park and the Proposed Development. Refer to section 5.9 of the Planning Statement **[TR020001/APP/7.01]**.

Site related factors

Surrounding neighbourhoods

2.4.17 The airport is located at the south-east extent of the Luton urban area and bounded by existing residential neighbourhoods to the north. The Wigmore Valley Park, which is located within the Main Application Site, is a designated District Park and area of public open space which is popular for recreation and dog walking for residents of the nearby neighbourhoods.

2.4.18 In line with the Applicant's vision and strategic objectives for the project (see paragraphs 3.2.3 and 3.2.5) it is particularly important that the Proposed Development minimises the potential impacts on these surrounding neighbourhoods. This consideration influenced the design of the Proposed Development from the outset, to minimise and mitigate the environmental impacts including: pollution and noise; visual impacts; and impacts on local traffic and local businesses.

Green Belt

2.4.19 Land to the south and east of the Main Application Site is designated as Green Belt with the Green Belt boundary corresponding to the administrative boundaries between LBC and North Hertfordshire and Central Bedfordshire Councils. National planning policies relating to the protection of the Green Belt are a significant factor influencing the design of the Proposed Development (Figure 2.8).

2.4.20 The Green Belt is another significant constraint that defines the footprint of the expansion of the airport. The initial consideration of alternative options and the development of the preferred option have sought to preserve the openness of the Green Belt and to avoid any conflict with the purposes of the land within it.

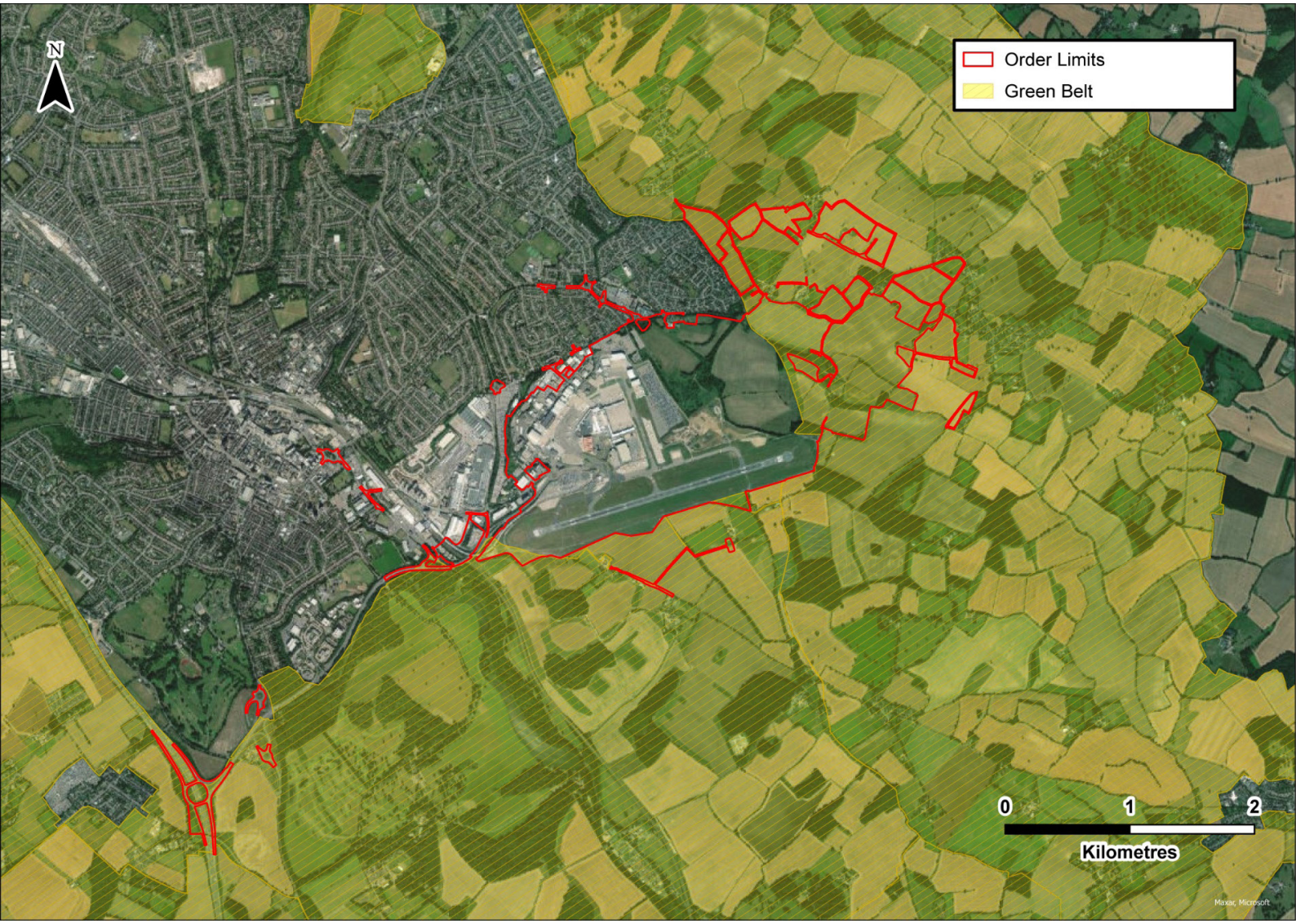


Figure 2.8: Green Belt Plan (Green Belt highlighted in yellow)

Public Safety Zones

2.4.21 Public safety zones (PSZ) are areas at the end of runways. Development within PSZ is restricted to control the number of people on the ground at risk of death or injury should an aircraft accident occur during take-off or landing.

2.4.22 The policy (Ref 2.5) governing the restriction of PSZ development near civil airports is that there should be no increase in the number of people living, working or congregating within the PSZ.

2.4.23 Over time the number of people living, working or congregating in the PSZ should be reduced as circumstances allow.

2.4.24 The Proposed Development would avoid any new infrastructure within the PSZ.

Topography

2.4.25 The topography in the vicinity of the existing airport is highly varied. The airfield is positioned on top of a flat and wide-open dip-slope plateau which has previously been expanded to develop the airport infrastructure. To the east are a series of gently rolling dry valleys and ridgelines with valley low point being 45m lower than the existing airfield. The topography to the west has similar level differences but with steeper gradients.

2.4.26 Significant earthworks will be required to construct an earth platform to support the airport expansion, as the airfield needs to be at similar levels to the existing runway to comply with the relevant international standards and interface with the proposed terminal building. The earthworks strategy aims to make the best use of the Applicant's landholdings immediately adjacent to the existing airport to provide materials to support the proposed infrastructure.

Landfill

2.4.27 The Proposed Development will occupy the area of the former Eaton Green landfill which lies to the east of the existing terminal area. The landfill was not engineered to modern standards therefore any works which disturb the landfill would need to include measures to protect the users of the airport and its neighbours. More detail on the condition of the landfill and the work done to assess it is provided in **Appendix 4.1** in Volume 3 of the ES **[TR020001/APP/5.02]**.

2.4.28 The former landfill is one of the key constraints to the overall footprint of the development as the level of disturbance to the former landfill needs to be minimised to reduce the associated risks. Therefore, the location and the orientation of the Proposed Development would need to be designed to reduce the amount of landfill material that will require excavation, thereby reducing exposure of construction workers and adjacent site users to potential contamination.

Landscape and ecology

2.4.29 The airport is located to the southeast 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 including an area of Ancient Woodland at Winch Hill Wood (see Figure 2.9, Figure 2.10 and Figure 2.11). The Chilterns Area of Outstanding Natural Beauty (AONB) is located approximately 5km west of the airport. The existing airport is a prominent feature in views from much of the surrounding area and is also visible in long distance views from the Chilterns AONB.

2.4.30 The landform within the Main Application Site is distinctly varied, with its western part, which includes the existing airport, positioned on top of a very flat and wide-open dip-slope plateau and its eastern part comprising a series of gently rolling dry valleys and ridgelines.

2.4.31 Wigmore Valley Park (WVP) is a designated District Park and area of public open space, located within the boundary of the Main Application Site, directly east of the airport, as shown on Figure 2.9. It forms part of the Luton Green Infrastructure Network and is an important community resource. It is popular for dog walking and recreation and includes mown open grassland, scrub grassland, woodland, allotments, Wigmore children's play, sport facilities, skate park and Valley Park Pavilion.

2.4.32 Further detail on landscape context of the Main Application Site can be found in **Chapter 14** of Volume 2 of the Environmental Statement (ES) **[TR020001/APP/5.01]**.

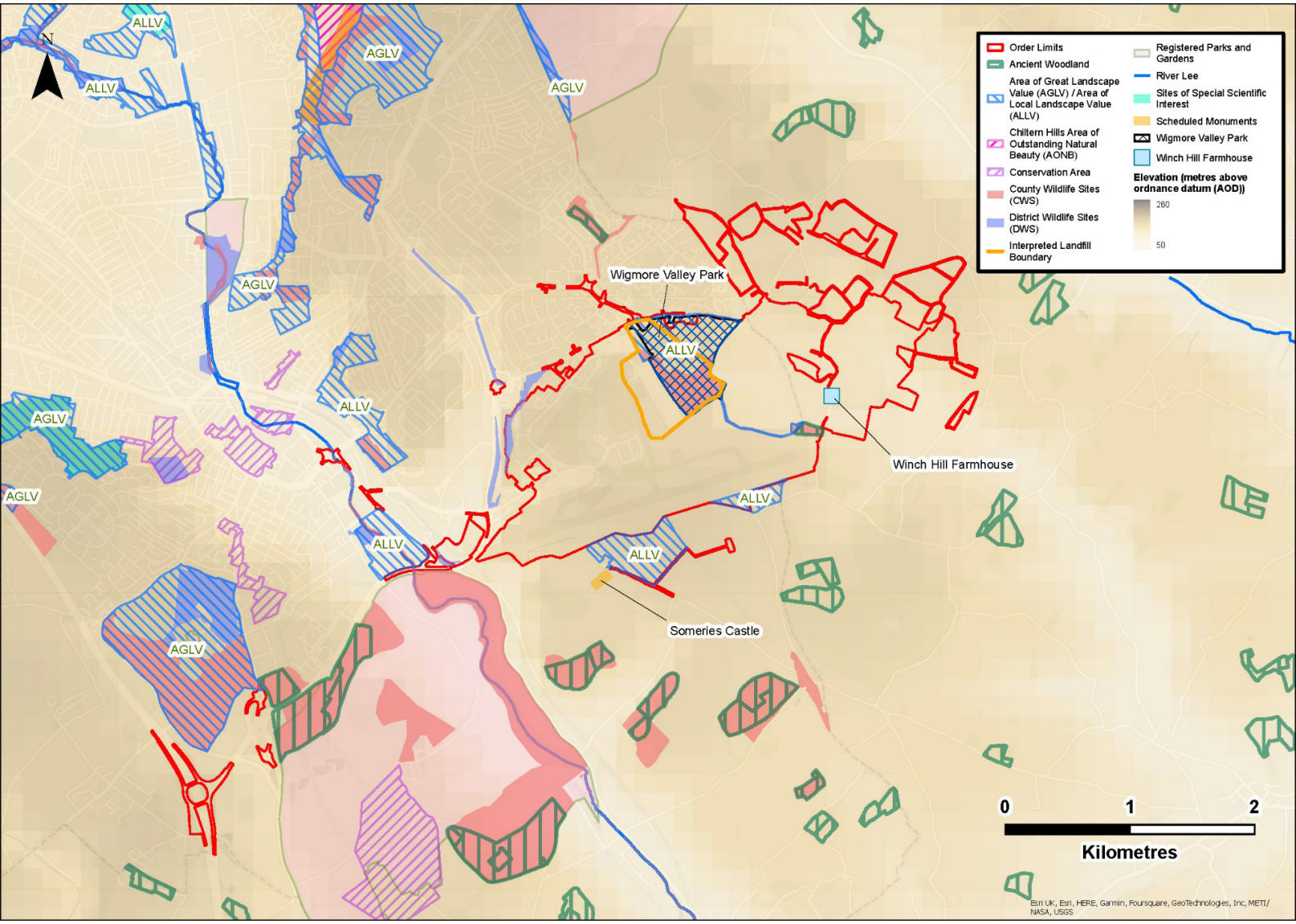


Figure 2.9: Landscape context plan

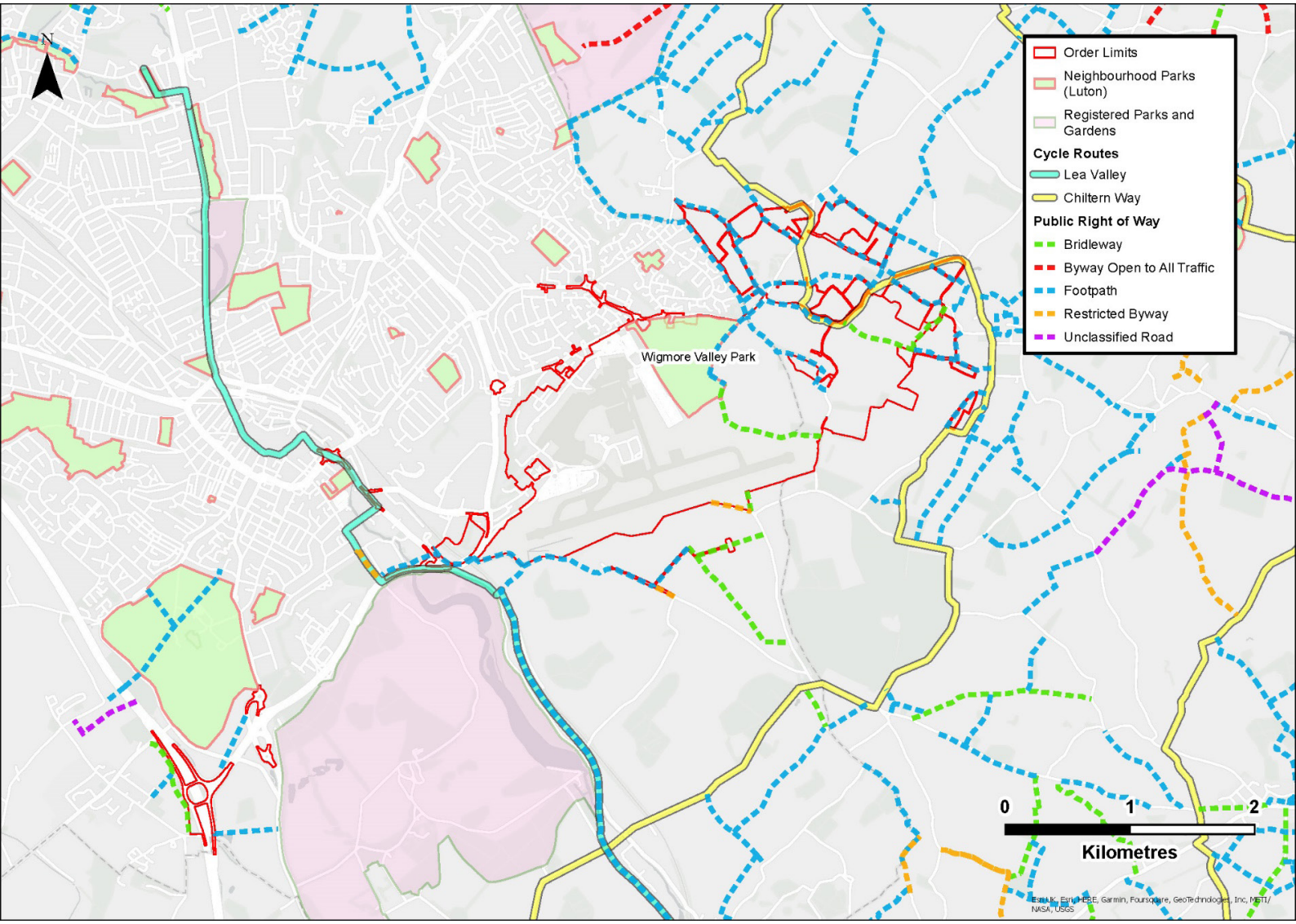


Figure 2.10: Public Rights of Way plan

2.4.33 The Main Application Site, beyond the previously developed land, 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. The Off-site Car Parks currently comprise access roads, temporary buildings, areas of short perennial vegetation, grassland margins and areas of landscaping comprising scrub and trees.

2.4.34 The Main Application Site includes three sites locally designated for nature conservation. These are 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.

2.4.35 Ecological surveys and desk-based studies undertaken to date have demonstrated that the Main Application Site and the surrounding area is used by a few 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 (Figure 2.11).

2.4.36 Populations of orchids were identified at the Wigmore Park County Wildlife Site and a range of other notable plants have been identified 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.

2.4.37 Further details are set out in **Chapter 8** of Volume 2 of the ES **[TR020001/APP/5.01].**

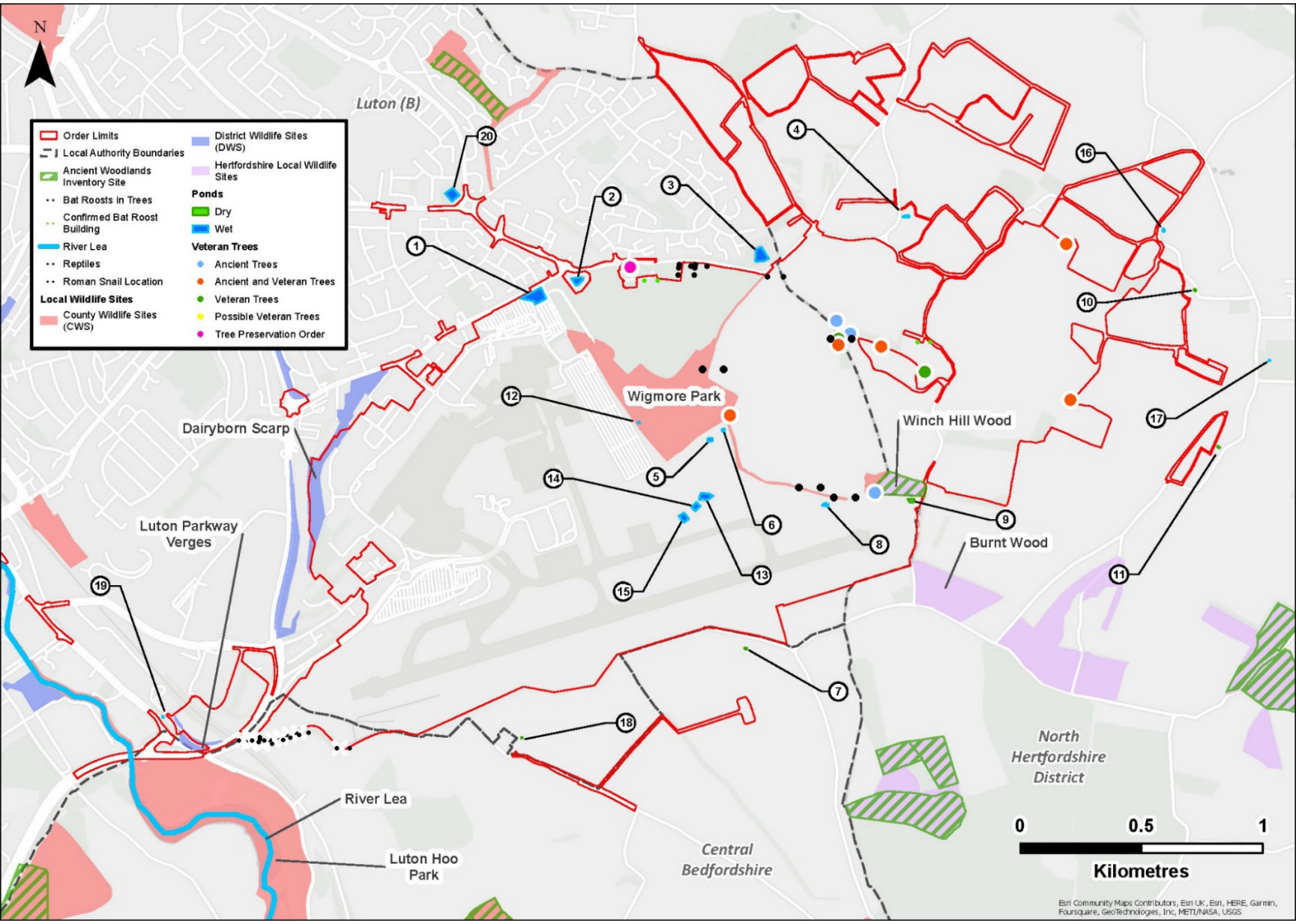


Figure 2.11: Ecological Constraints Plan

2.4.38 The landscape and ecological analysis informed the development of the design, and the Proposed Development has sought to minimise disruption to the existing landscape and ecology where possible.

2.4.39 The Ancient Woodland at Winch Hill Wood needs to be protected 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. The Proposed Development affects a part of the Wigmore Valley Park, and these impacts are mitigated by a new replacement open space. Further information on landscape and ecology can be found in Section 5.28 and Section 5.29.

Transport and access

2.4.40 The airport is well connected to the public transport network. The Midland Mainline railway line passes to the west of the airport. This is serviced by Thameslink and East Midlands trains which connect Luton Airport Parkway railway station, with London to the south, and the East Midlands and Yorkshire to the north. Luton Airport Parkway railway station will be directly connected to the airport via the Luton Direct Air-Rail Transit (Luton DART) system which is currently under construction and expected to be opened in early 2023.

2.4.41 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 currently operates between the Luton Airport Parkway railway station and the existing passenger terminal.

2.4.42 The airport is also well connected to the surrounding highway network. Junction 10 of the M1 motorway is located around 5 km west of the site and offers connections to London and the southeast and the East and West Midlands to the north. The airport is connected to the M1 via the A1081 Airport Way dual carriageway and Kimpton Road connects the airport to the A505 Vauxhall Way which provides access to Hitchin in the east and areas beyond such as Stevenage and Cambridge (Figure 2.12).

2.4.43 There is limited cycle accessibility to the airport. National Cycle Route (NCR) 6 runs along the River Lea Valley to the southwest of the Main Application Site. The route provides a continuous link between London and the Lake District. When the route meets Parkway Road, the access road to Luton Airport Parkway station, cycle lanes are provided on both sides of the carriageway up to the station forecourt.

2.4.44 There is a link for cyclists between Parkway Road (NCR 6) and the roundabout at the northern end of New Airport Way, which is also provided for pedestrians. The link follows the bus and taxi lane link from Parkway Road onto the A1081 and then follows a footway down to Kimpton Road close to its junction with Vauxhall Way.

2.4.45 Further information on the transport and access is provided in the Surface Access Strategy Report **[TR020001/APP/7.12]**.

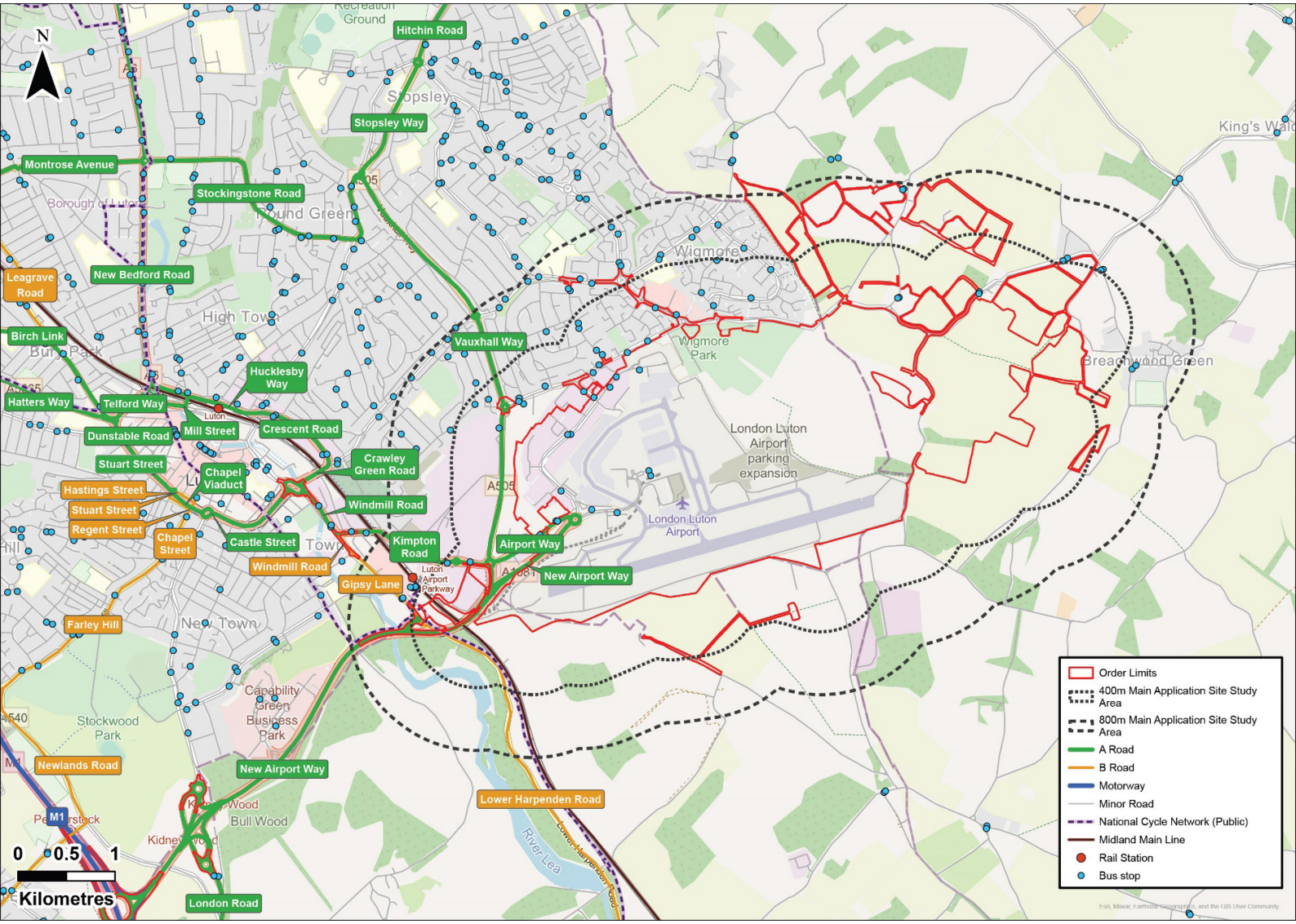


Figure 2.12: Local Transport Network Plan

Heritage

2.4.46 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.

2.4.47 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 (Figure 2.13).

2.4.48 Further information on Heritage can be found in **Chapter 10** of Volume 2 of the ES **[TR020001/APP/5.01]**.

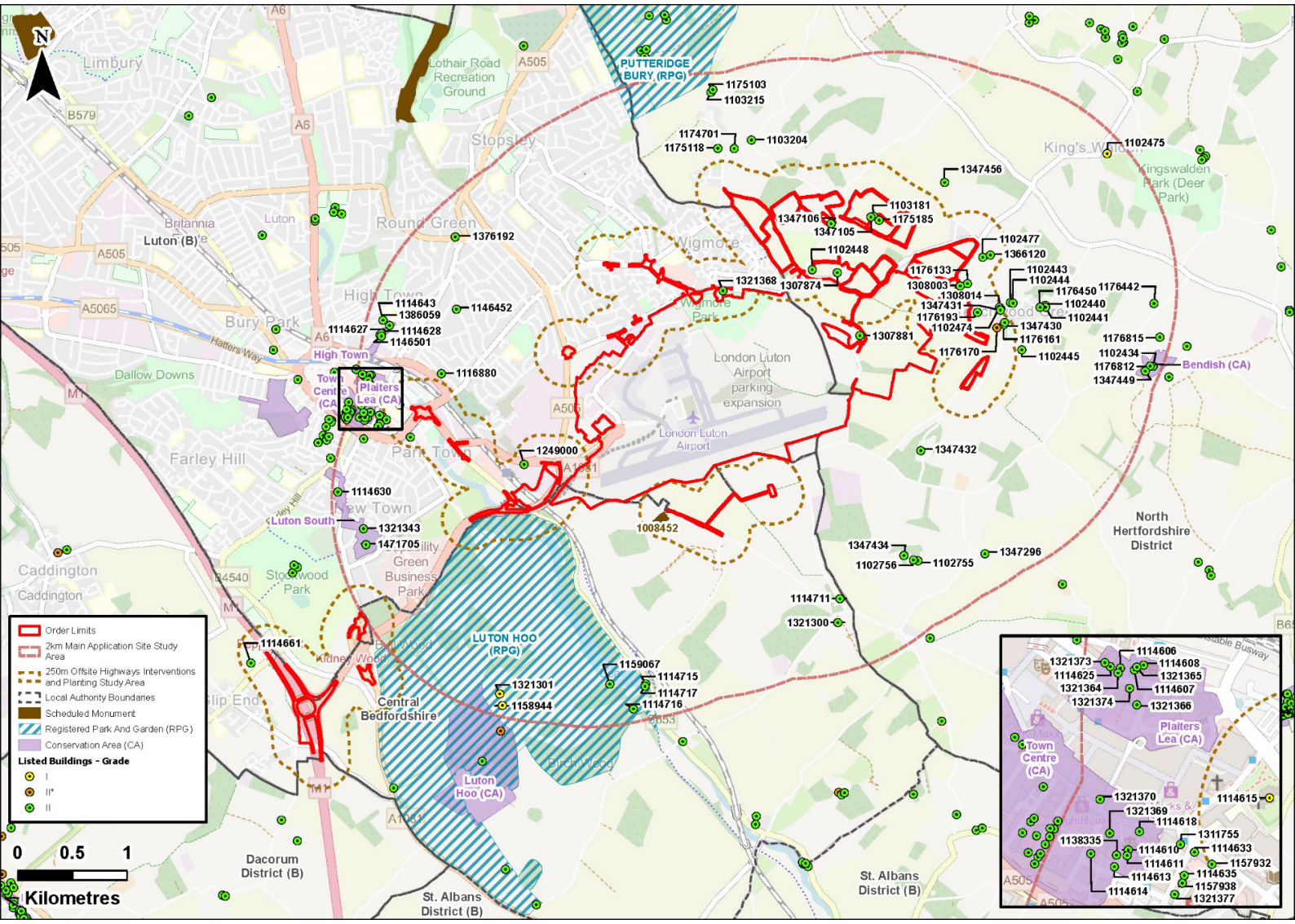


Figure 2.13: Location of Designated Cultural Heritage Assets I

Water resources, flooding and climate resilience

2.4.49 The Main Application Site is located within two river valleys, the River Lea and the River Mimram and within Flood Zone 1. The existing airport sits on a plateau between these two river valleys at an elevation of approximately 160m Above Ordnance Datum (AOD). The east of the Main Application Site is located within the head of the River Mimram valley.

2.4.50 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. The northern and eastern parts of the Main Application Site are also within the total catchment area of a groundwater Source Protection Zone.

2.4.51 The Main Application Site has numerous areas at risk of surface water flooding. Low lying areas identified at high risk to surface water flooding are located to the east of the existing terminal building within land that is currently used for car parking and in the vicinity of the existing soakaways. A surface water flow path (identified as presenting a high risk of surface water flooding) has also been identified along the Airport Approach Road.

2.4.52 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 potable water supply assets are owned and operated by Affinity Water.

2.4.53 Climate change is projected to result in changes to local precipitation patterns and increase the risk of extreme weather events (e.g., flooding) as well as increasing temperatures.

2.4.54 The full report on water resources and flood risk can be found in **Chapter 20** of Volume 2 of the ES and **Chapter 9** for further information on climate change resilience **[TR020001/APP/5.01]**.

Drainage

2.4.55 The airport surface water drainage system currently discharges into a combination of soakaways and infiltration basins, while the foul water system discharges into the Thames Water sewage network.

2.4.56 Expansion of the airport would inevitably increase hard standing and impermeable areas and result in an increase in passenger and airport staff numbers. Consequently, the Proposed Development would result in a significant increase in both surface water and foul water discharge. Thames Water have indicated that both the existing foul and surface drainage systems have limited remaining capacity so there is minimal scope for fully discharging into the statutory undertaker's network(s).

2.4.57 The Proposed Development therefore includes a Water Treatment Plant and significant infrastructure for the storage of polluted surface runoff, attenuation, diversion systems and soakaways.

2.4.58 Further information on drainage can be found in **Appendix 20.4** Drainage Design Statement Volume 3 of the ES **[TR020001/APP/5.01]**.

Utilities/energy demand

2.4.59 Expansion of the airport will place additional demand on electrical and potable water supply.

2.4.60 Consideration of electrical demand will require additional on-site infrastructure, requiring land use to be factored into the design. They will also require points of connection to the suppliers' network which may be a constraint both in terms of available supply and location of new infrastructure.

2.4.61 Connections to the gas supply are not considered a design constraint as it is not proposed to use gas as an energy source for heating buildings.

Conclusion

2.4.62 The Proposed Development that is described in the following sections is designed to take all the site elements and constraints into consideration and followed an approach which sought to minimise the impact of the airport's expansion on the environment, landscape and surrounding neighbourhoods.

2.4.63 Substantial mitigation measures have been embedded within the Proposed Development to avoid, reduce or offset environmental effects. These mitigation measures are explained in the Environmental Statement **[TR020001/APP/5.01]** documents submitted as part of this DCO application.

2.4.64 The Figure 2.14 composite site analysis plan highlights the key elements of the existing site. For further information, see the individual plans that are presented or referred to in Section 2 of this document.

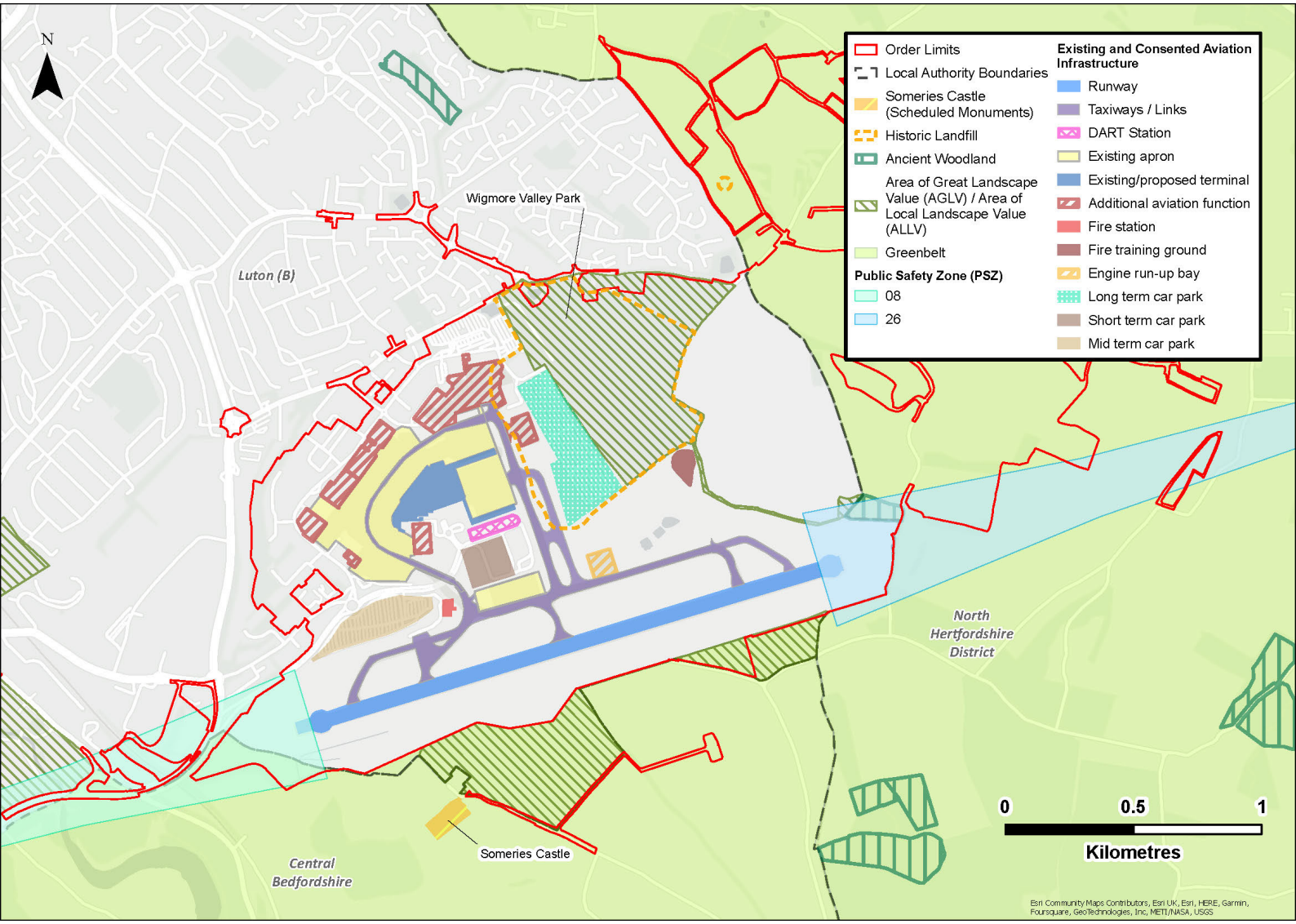


Figure 2.14: Composite Site Analysis Plan

3. DESIGN VISION

3.1 Introduction

3.1.1 This section sets out the vision and strategic objectives that have been developed to guide the design of the Proposed Development. These follow the national and local planning and design polices set out in Section 2 and were further developed through several strategic design considerations to establish a framework within which the design of Proposed Development was developed.

3.2 Design vision and strategic objectives

3.2.1 The Applicant's Vision for London Luton Airport's Sustainable Growth 2020 – 2050 (Vision) 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."

3.2.2 The key driver is therefore to maximise the economic and social benefits to the local and regional areas by making best use of the existing runway at the airport by increasing its capacity while minimising and mitigating impacts through environmentally sensitive solutions and ensuring the economic benefits reach local and sub-regional communities and economies.

3.2.3 A set of strategic objectives for design were identified for the Sift 1 process to enable the Applicant's Vision to be achieved. These objectives directly relate to different elements within the vision statement and headings identified in the Airports Commission Appraisal Framework (Ref 3.1). The strategic objectives for the design are as follows:

3.2.4 **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.

3.2.5 **Economic:**

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

3.2.6 **Social:**

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

3.2.7 **Sustainability and environment:**

O6: To minimise environmental impacts and, where practicable, to actively mitigate and manage potential environmental effects[1].

3.2.8 **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.

3.2.9 **Deliverability:**

O10: To be technically viable, considering the needs of airport users, operators and phasing.

3.2.10 **Operational viability:**

O11: To enhance the airport's system efficiency and resilience.

3.2.11 **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).

3.2.12 These Strategic Objectives provided the framework for the sifting of alternative options for the expansion of the airport and for selecting the preferred option for further design development. This process is described in Section 4 Design Evolution of this report.

3.3 Strategic design considerations

3.3.1 The overarching Vision and Strategic Objectives were then developed into a series of strategic design considerations that are listed below. These specify the key design aims, objectives and requirements that have shaped the Proposed Development and describe the approaches that have been taken to address the key site constraints and opportunities as set out in Section 2.3.

3.3.2 The key strategic considerations explained in this section are listed below:

a. Sustainability and net zero;

b. Landscape;

1 Strategic Objective 06 reflects the approach set out in the Airports Commission Appraisal Framework for the Sift process as described in Section 4 of this document. Our design approach was then developed further to include seeking opportunities to improve or enhance the natural environment where possible as described in Section 3.3 below.

c. Accessibility;

d. Diversity and inclusion;

e. Surface access; and

f. Land Use.

Sustainability and net zero

3.3.3 The Sustainability Statement **[TR020001/APP/7.06]** outlines a comprehensive framework for future development and operation of the airport. The Sustainability Statement is underpinned by five objectives:

a. **Protect and enhance the natural environment:** Securing a positive impact for stakeholders by managing the air quality levels, resources and waste, water quality, and noise and vibration, enhancing the local biodiversity and delivering good land quality;

b. **Deliver climate resilience and business continuity:** Collaborate with the airport operator and relevant stakeholders to make sure appropriate measures are implemented to future-proof assets and enhance business continuity capability, preserving value for customers and stakeholders;

c. **Lead the transition to Carbon Net Zero:** Support LBC in achieving its carbon neutral town target by 2040 through minimising emissions associated with construction activities, committing to airport ground operations being net zero by 2040, achieving carbon neutrality for surface access by 2040, and committing to playing a part in the delivery of the government's ambition of net zero aviation through supply of sustainable aviation fuels (SAFs) and support for electric aircraft. The Net Zero Strategy (NZS) provides further detail on the Applicant's approach;

d. **Become a national hub for green technology, finance and innovation:** Building on existing partnerships and using the airport's geographic location and unique role as a community airport, Luton Rising aims to become a catalyst for sustainable development and enhance the economic attractiveness of Luton and the surrounding area; and

e. **A place to thrive:** Secure a positive impact for stakeholders by enhancing the health and wellbeing of the local communities, fostering diversity and inclusion across Luton Rising's activities and laying the foundations for decades of economic growth. This will lead to job creation and enable the community to thrive.

3.3.4 Further information on sustainability and net zero can be found in the Sustainability Statement (SS) **[TR020001/APP/7.06]**.

Landscape

3.3.5 The Proposed Development aims to protect valued assets of the landscape wherever possible, to mitigate significant adverse environmental impacts and, wherever possible, to introduce positive changes that would help to strengthen

the local landscape character and green infrastructure, improve public access to the countryside, and integrate the airport into its surroundings.

3.3.6 The Proposed Development would increase public open space by at least 10%. It would also upgrade several sections of footpaths to multi-user bridleways and should encourage access to the wider countryside by improving all rights of way within the Applicant's landholdings, either through surfacing, new signage or improved connectivity.

3.3.7 Landscape proposals support the sustainability aspirations of the airport by promoting solutions that:

a. Nurture wildlife;

b. Conserve water and energy;

c. Reduce soil and water pollution;

d. Reduce construction waste; and

e. Decrease surface water run-off.

3.3.8 The proposals also deliver a high-quality of public realm that will improve people's experience of using and working at the airport.

Accessibility

3.3.9 Mobility and accessibility considerations have been factored into the design of the Proposed Development from the outset to ensure that the airport is providing equal access for all potential users. These are further embedded in the Design Principles which govern future detailed design. The Applicant is committed to creating an accessible workplace for all and the accessibility initiatives involve engaging with transport operators and airport employers to ensure public transport is accessible and affordable, and addressing the accessibility and affordability of driving to work for areas not serviced by public transport, with car sharing solutions.

Diversity and inclusion

3.3.10 The provision of a range of job opportunities, including skilled jobs at good wages, and targeting communities that are most in need are the fundamental principles that the airport is seeking to achieve. The Applicant recognises that all employment opportunities should be made accessible to vulnerable groups and that the workplace should remain inclusive for all groups. Further information can be found in the **Employment, Training and Skills Strategy [TR020001/APP/7.05]**.

3.3.11 To support vulnerable and protected groups, the **Equality Impact Assessment [TR020001/APP/7.11]**, sets the commitment for the design to account for protected groups, including lifts, gender neutral toilets, adequate space for prayer rooms and faith and culture aware provision of eating facilities, adequate location of taxi rank, step-free access to bus stops and facilities. Refer to Design Principles **[TR020001/APP/7.09]**.

Surface access

3.3.12 The Surface Access Strategy **[TR020001/APP/7.12]** which forms part of the application for development consent establishes the approach for surface access to the airport to be high quality, efficient and reliable and that it does not give rise to unacceptable congestion or environmental impacts whilst supporting delivery of the wider vision for the airport's expansion.

3.3.13 The Surface Access Strategy Objectives are to:

a. Increase air passenger public transport mode share;

b. Increase employee sustainable travel mode share;

c. Support Luton Borough Council's climate ambitions;

d. Strive to be the best possible neighbour to communities and authorities; and

e. Contribute towards the local economy through multi-modal transport links.

3.3.14 With the completion of the Luton DART rail connection in 2023, the airport will be directly connected to the national rail network for the first time. This will make it easier and quicker to access the airport by public transport and provide a solid foundation for increasing the number of passengers and employees who travel to the airport by public transport. Placing Luton DART at the heart of the Surface Access Strategy is a central part of the Applicant's plans for delivering sustainable growth at the airport.

Land use

3.3.15 The land use strategy of the Proposed Development is listed below.

a. Enhance the existing airport rather than replace it, and make best use of the existing runway to accommodate increasing demand in accordance with aviation policy;

b. Increase capacity for commercial passengers to 32mppa, while also continuing to provide capacity for business aviation and facilities for aircraft maintenance and repair existing cargo operations;

c. Minimise and mitigate environmental impacts, including air quality and noise, in line with the project's commitment to responsible and sustainable development;

d. Enhance and encourage the use of public transport as an alternative to private vehicles;

e. Maintain as much of Wigmore Valley Park public open space as possible, and provide 10% more public open space than before the development;

f. Minimise disruption to the existing airport and local infrastructure; and

g. Minimise environmental impacts, including noise and air quality.

4. DESIGN EVOLUTION

4.1 Introduction

4.1.1 This section sets out the process of establishing the Proposed Development. It outlines how the preferred option was selected over alternatives and what considerations were considered during the design evolution.

4.1.2 In December 2017, the Applicant publicly launched its 'Vision for Sustainable Growth 2020-2050' for the airport. Since then, the principles for the Proposed Development have been developed through an iterative process. Initially, an examination of strategic alternatives, using sifting exercises and informed by Non-Statutory Consultation, was undertaken to identify a preferred strategic option. Subsequently, outline design development was undertaken, including optioneering of key aspects of the design, to define a single preferred option for presentation at Statutory Consultation in 2019. Following the 2019 Statutory Consultation, the design principles of the Proposed Development were reviewed to reflect feedback received from the 2019 Statutory Consultation, including a growing focus on the climate emergency and the impacts of COVID-19.

4.1.3 Table 4.1 provides an overview of the process of scheme development from the Vision to the launch of the 2022 Statutory Consultation and the following sections summarise the design evolution. Further information on the reasonable alternatives considered can be found in **Chapter 3** of Volume 2 of the ES **[TR020001/APP/5.01]** and details of the consultation process can be found in the Consultation Report **[TR020001/APP/6.01]**.

Table 4.1: Design evolution timeline

Year	2017		2018		2019		2020	2021	2022
Design Evolution	LLAL Vision	Sift 1	Sift 2		Sift 3 Design Review		Design Review Back-check of sifts		
Consultation				Non-Statutory Consultation		Statutory Consultation			Statutory Consultation

4.2 Sift 1 (autumn 2017)

Figure 4.1: Options appraised at Sift 1

Option 1c

Option 2

Option 3a

Option 3b

Option 3c

4.3 Sift 2 (winter/spring 2018)

4.3.1 The Sift 2 options (Figure 4.2) were appraised against the sift criteria based on the Strategic Objectives described in Section 3.2. The alternative options considered were as follows:

a. Option 1a – new terminal and apron capacity to the north of the runway, resulting in two-terminals north of the runway;

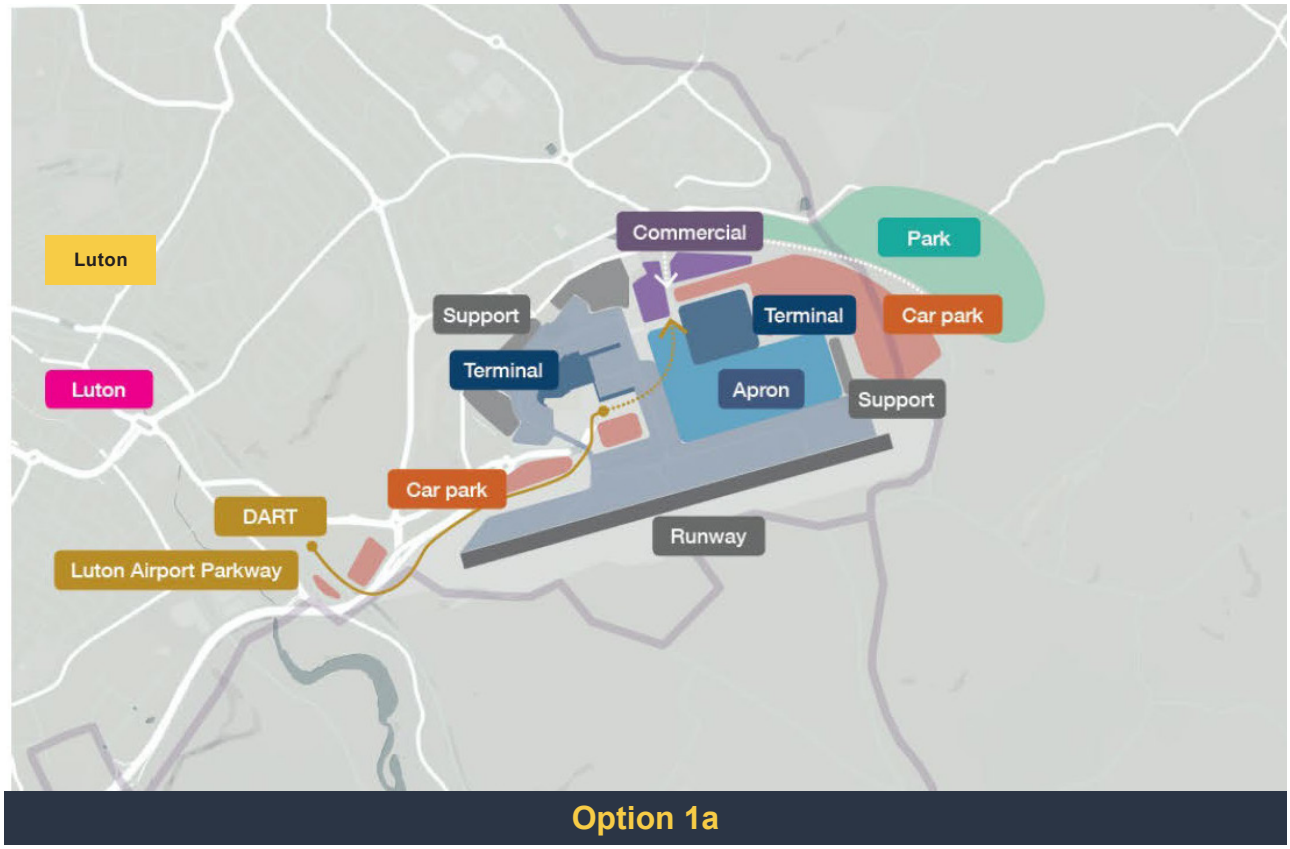
b. Option 1b – a single terminal complex to the west of the site;

c. Option 1c – a single terminal complex to the east of the site; and

d. Option 2 – new terminal and apron capacity to the south of the runway, with two-terminals; one north and one south of the runway.

4.3.2 Option 2, which represents a new terminal building and all associated infrastructure south of the existing runway, was discontinued due to the entirety of land required to deliver all buildings and infrastructure being within the Green Belt.

4.3.3 Option 1a performed better against the majority of the sift criteria than the other options and was considered the preferred option at this stage and presented as such during the subsequent consultation. This was because the option performed most strongly in relation to the Sift criteria relating to strategic fit, economic benefits, deliverability (within the context of the current concession, attractiveness to future concessionaires and not requiring additional land beyond current the Applicant's holdings), operational viability and cost-benefit.



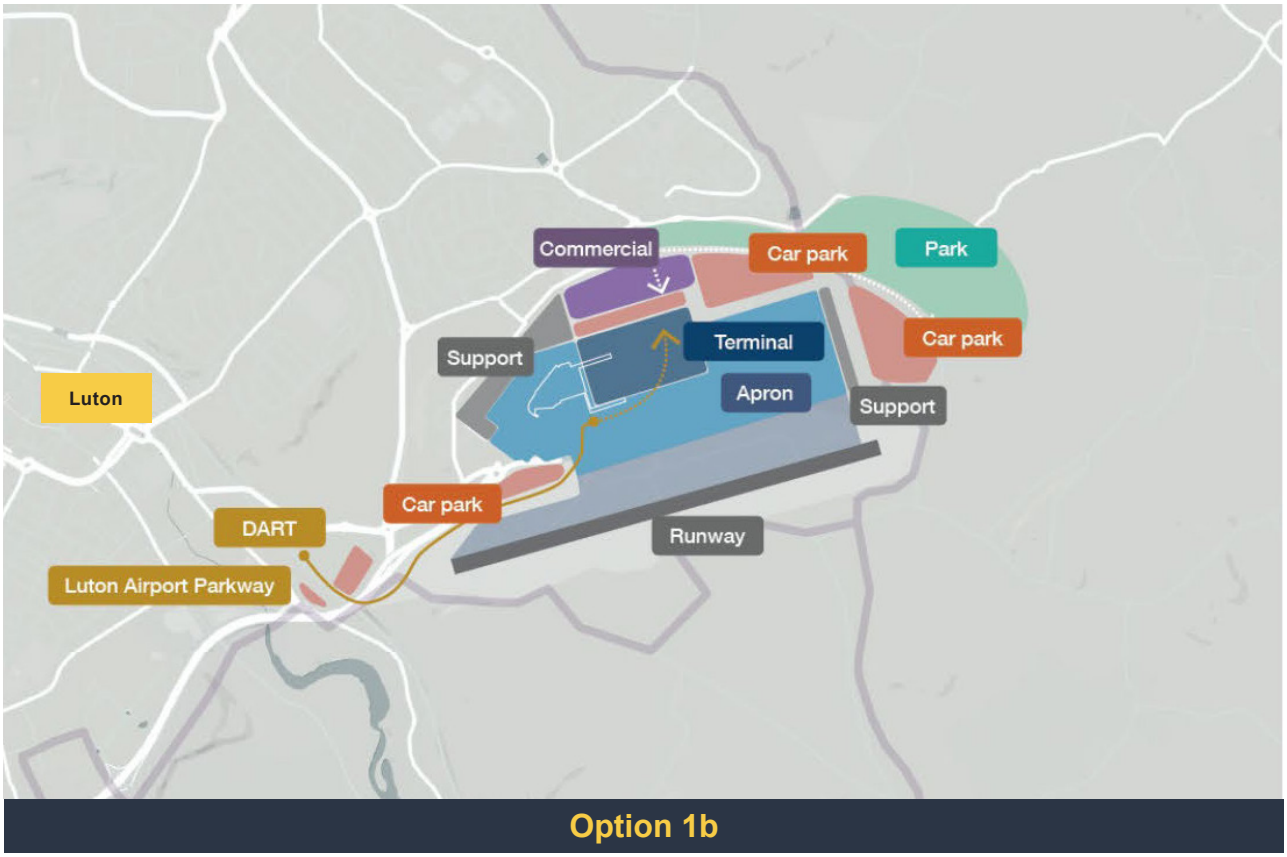


Figure 4.2: Options appraised at Sift 2

Option 1c

Option 2

4.4 2018 Non-Statutory Consultation

4.4.1 The initial Proposed Development, presented as part of the 2018 consultation, can be seen below (Figure 4.3).

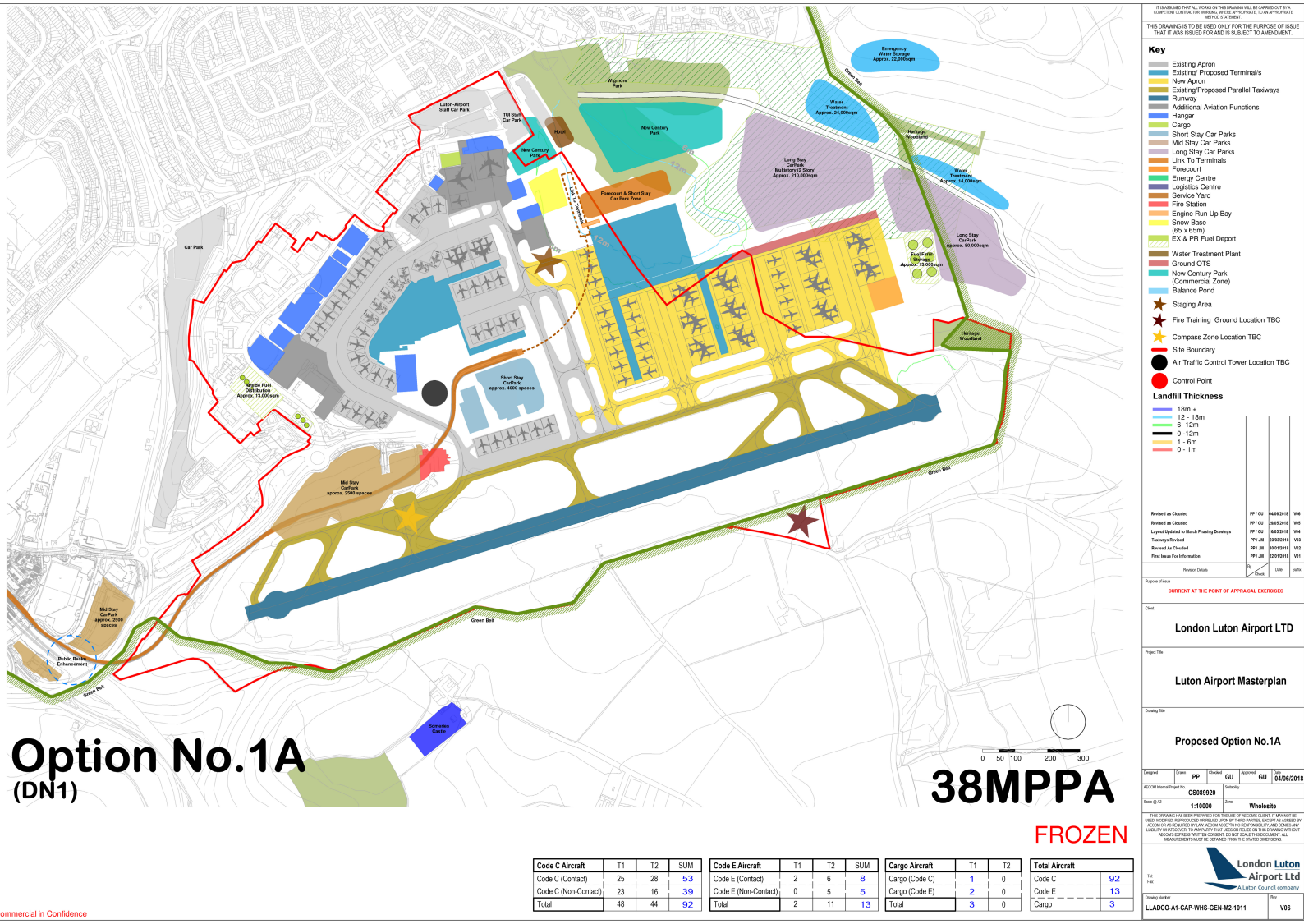


Figure 4.3: Masterplan presented as part of the 2018 consultation

4.4.2 The feedback received in response to this consultation led to the development and revision of options, which contributed to the finalisation of the initial Proposed Development plans. This included:

a. Development of a sub-option which accommodated expansion and a second terminal north of the existing runway, whilst retaining Wigmore Valley Park in its current location.

b. Revision of option layouts to achieve a target maximum capacity of 32 mppa, as opposed to the 36-38 mppa originally proposed.

4.4.3 Following consideration of the consultation responses, and a range of other factors, the Applicant adopted the options proposing two terminals north of the existing runway, with an increase to 32 mppa, as the preferred option. This was then developed further and presented in the statutory consultation in 2019.

4.5 Sift 3 (autumn 2018)

4.5.1 Following Sift 2, ongoing scheme development, additional information and consideration of views expressed during consultation led to two further main changes for the options under consideration at Sift 3. These are as explained above in relation to the sub-option retaining the existing Wigmore Valley Park and reducing the target maximum capacity in all options to 32mppa.

a. The options (Figure 4.4) considered at Sift 3 were therefore as follows:

b. Option 1a – two-terminals north of the runway, scaled back to a 32mppa scheme;

c. Option 1b – a single terminal complex to the west of the site, scaled back to a 32mppa scheme;

d. Option 1c – a single terminal complex to the east of the site, scaled back to a 32mppa scheme;

e. Option 1d – a new scheme that retained Wigmore Valley Park in its entirety with a new terminal building further east and within North Hertfordshire; and

4.5.2 Option 2 – two-terminals, one north and one south of the runway, scaled back to a 32mppa scheme.

4.5.3 Option 1a remained the preferred option which performed the strongest against the majority of the sift criteria, based on available information. The other four options – 1b, 1c, 1d and 2 – were recommended to be discontinued at this stage.

4.5.4 Options 1d and 2 were highly recommended to be discontinued as both options involved development in the North Hertfordshire and Central Bedfordshire Green Belt and outside of the LLP6 Strategic Allocation boundary. Option 1d also performed poorly in relation to noise impacts, land ownership and landscape and visual impact considerations amongst others.

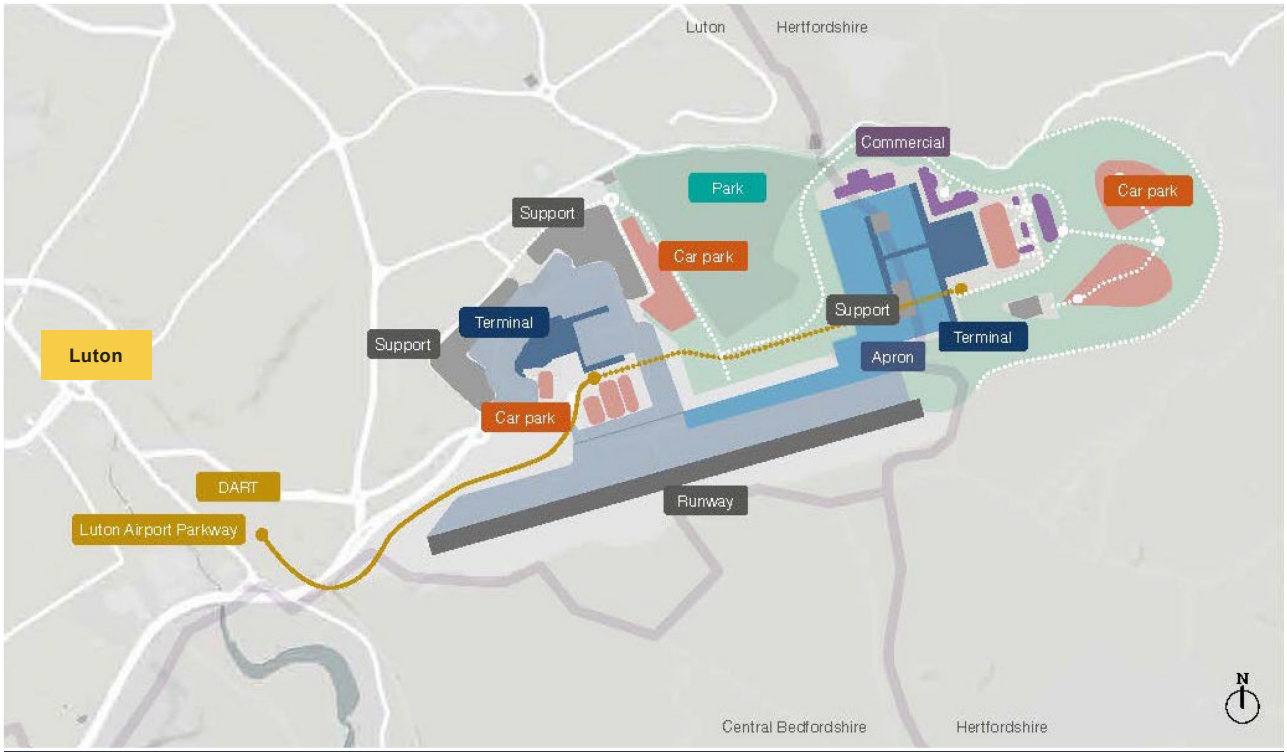
4.5.5 Both single terminal options, 1b and 1c, performed significantly less well than 1a in overall terms. Whilst they were considered capable of delivering some degree of beneficial impacts in relation to strategic fit, economic, social, deliverability, operational viability and cost-benefits, they also delivered significant adverse impacts in relation to surface access and landfill criteria compared to other options. landfilcriteria compared to other options

Option 1a

Option 1b

Figure 4.4: Options appraised at Sift 3

Option 1c



Option 1d


Luton
Hertfordshire
Support
Commercial
Park
Car park
Terminal
Luton
Runway
DART
Apron
Luton Airport Parkway
Support
Terminal
Car park
Central Bedfordshire
Hertfordshire
N

Option 2

4.6 2019 Statutory Consultation

4.6.1 The Proposed Development presented as part of the 2019 consultation took into consideration the comments raised in response to the 2018 consultation. This can be seen in Figure 4.5.

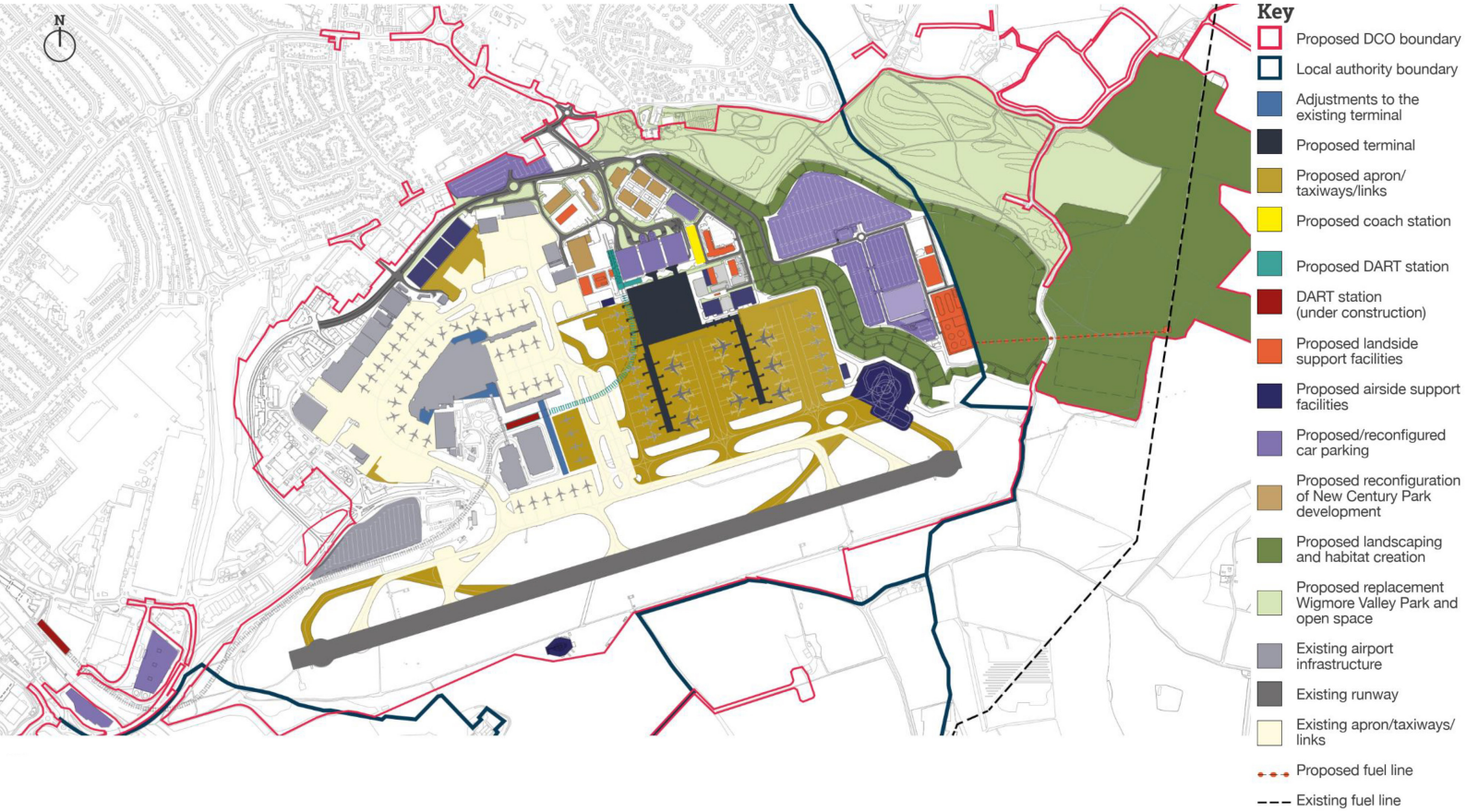


Figure 4.5: Masterplan presented as part of the 2019 consultation

4.7 Preferred option

4.7.1 At the end of Sift 3, a 32mppa Option 1a, with two terminals north of the existing runway, was adopted by the Applicant as the preferred option based on performance against the majority of the sift criteria and information available at the time, and as such, was developed further to take forward to statutory consultation in late 2019.

4.7.2 Since the 2019 statutory consultation, several changes have been made to the Proposed Development, due to a range of factors including Brexit, Covid-19 and responses to the consultation. The key changes to the fully built-out scheme are:

a. inclusion of AAR – The AAR, is included as part of the application. Uncertainty as to if and when this road could be delivered through Luton Rising's New Century Park (now Green Horizons Park) planning permission, because of the changed economic situation caused by the Covid-19 pandemic, led to the decision to include a slightly modified version of the road within the application proposals. This provides the certainty required that the road

can be delivered ahead of time. This is important as it will be relied upon for access to the expansion area east of the existing airport.

b. provision of new sustainability design measures;

c. reduction in total car park footprint;

d. reduction in the size of the airfield platform and landside remediation works, along with an updated remediation strategy;

e. improvements to the Proposed Development layout including reconfigured taxiways, reducing the number of stands within the landfill boundary, reducing the size of the engine run-up bay and a new access track to the relocated Fire Training Ground;

f. updated phasing of development including later construction start and end dates; and

g. further development of a new approach to managing the potential effects of future expansion called Green Controlled Growth.

4.7.3 As a result of the above changes, it was considered prudent to undertake a back check of the previous sift exercises to understand whether these design changes would have altered the earlier findings or shortlisting of options. This exercise was carried out in late 2021 and confirmed that even considering changes to some criteria, Option 1a remained the preferred option.

4.8 2022 Statutory Consultation

4.8.1 The masterplan presented during the 2022 consultation was developed from the initial proposals presented in 2019, considering a range of factors including Brexit, Covid-19 and responses to the consultation. This can be seen in Figure 4.6.

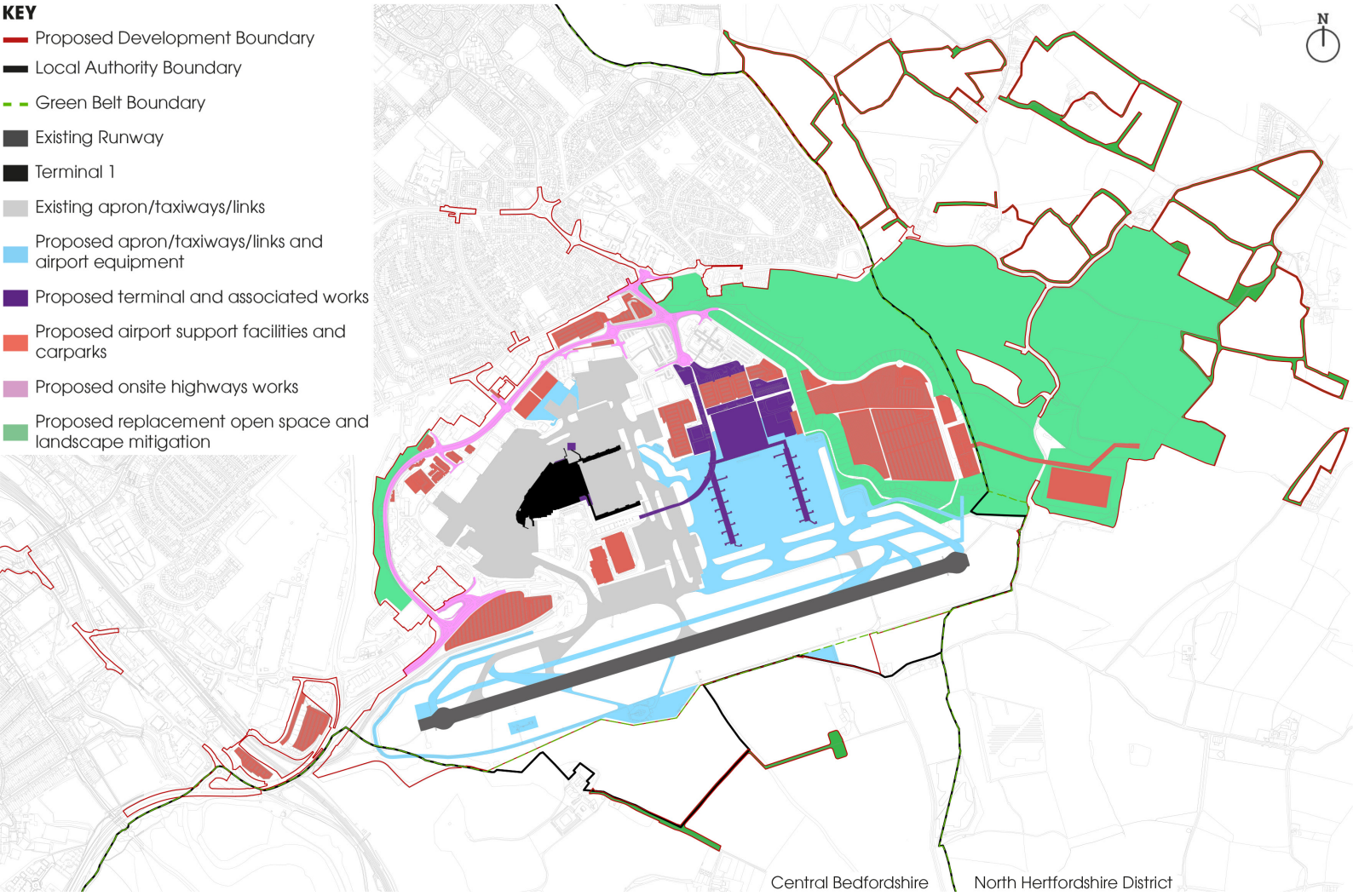


Figure 4.6: Masterplan presented as part of the 2022 consultation

4.8.2 The feedback received in response to the 2022 consultation led to the finalisation of the proposals to be submitted as part of the application for development consent. Changes have been made to the proposals for both Assessment Phase 1 and Assessment Phase 2a. The changes made in response to the comments include:

Assessment Phase 1

a. Removal of the T1 bussing lounge on Stand 61;

b. Extensions to the T1 baggage hall at mezzanine level;

c. Extension of the T1 departure lounge;

d. Addition of the T1 South Pier and canopy;

e. Construction of the Surface Movement Radar (SMR) moved from Assessment Phase 2a to Phase 1, to address issues related to blind spots associated with Terminal 2;

f. Construction of an additional 33Kv substation. This will be constructed within the proposed surface carpark (P9) which will result in the loss of approximately 120 parking spaces;

g. Additional car parking spaces to be provided in the proposed P7 car park; and

h. Drainage review.

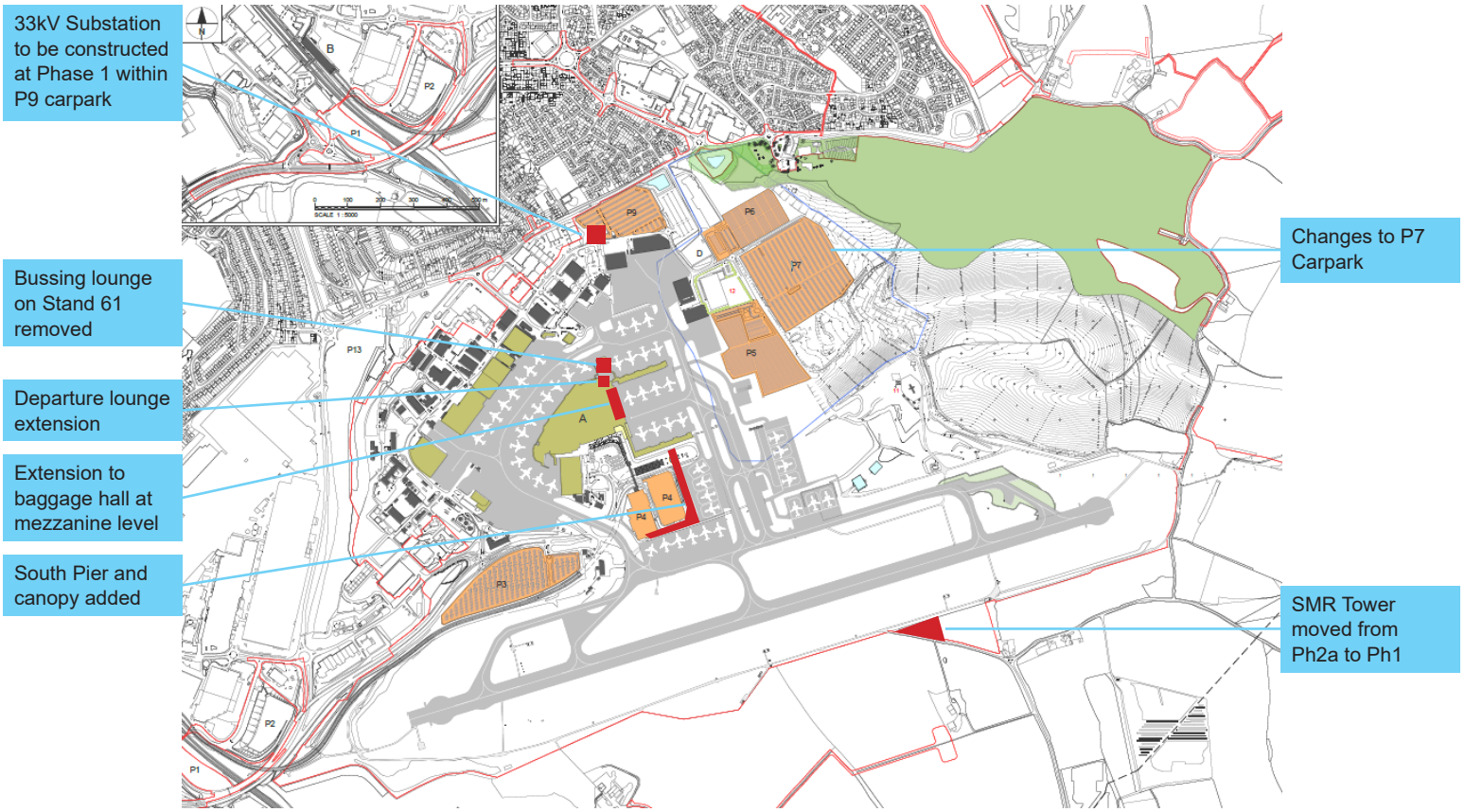


Figure 4.7: Proposed changes to Assessment Phase 1

Assessment Phase 2a

a. Changes to the footprint of the P9 decked car park at Assessment Phase 2a due to the construction of the 33kV substation in Assessment Phase 1.

b. Increased size of the Fuel Storage Facility (FSF) following sensitivity testing, and the provision of a larger area for fuel tanker trucks.

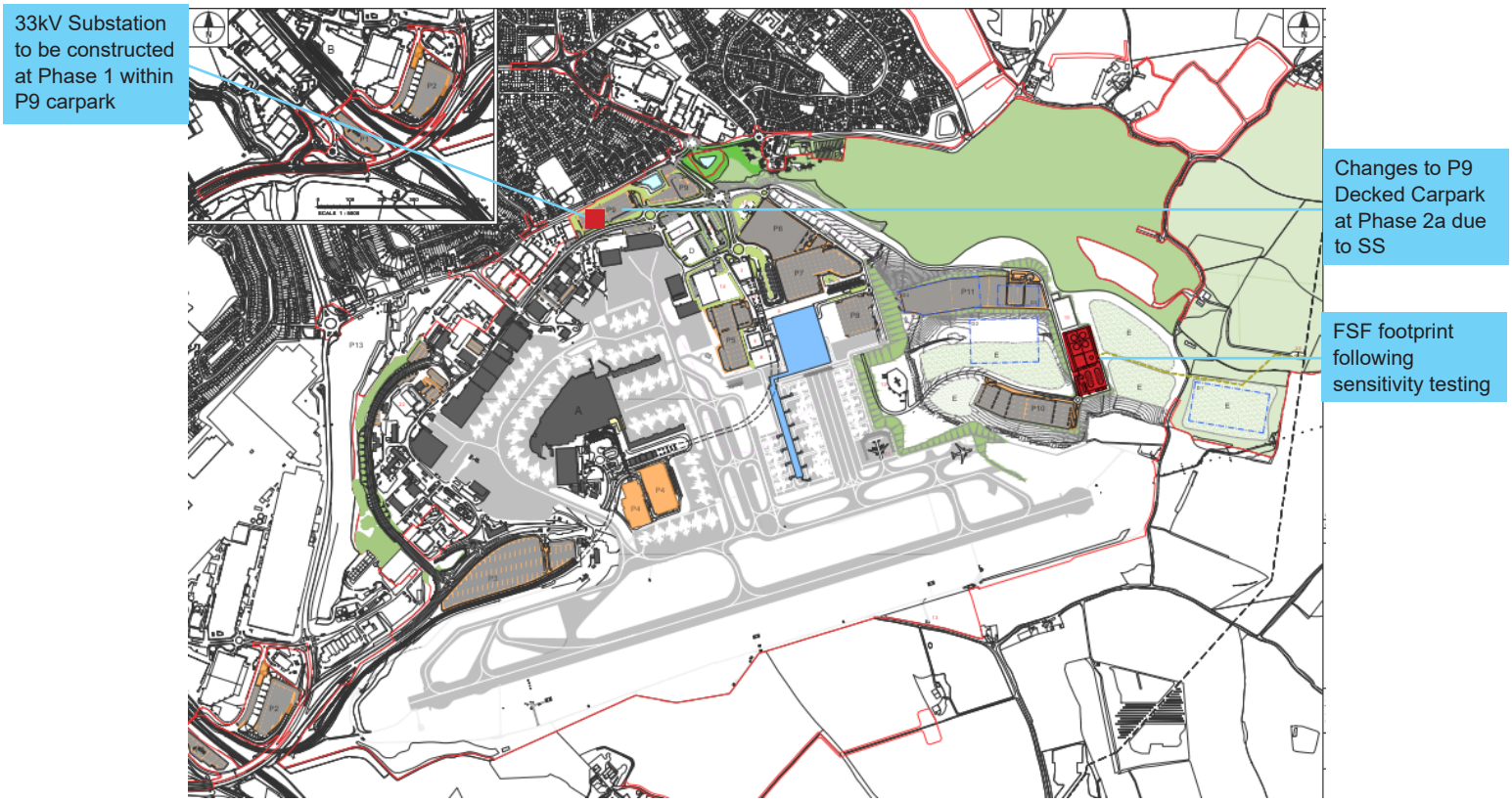


Figure 4.8: Proposed changes to Assessment Phase 2a

Final Proposed Development Design

4.8.3 Following the feedback from the 2022 public consultation the refinements listed above were incorporated into the scheme design before final validation against the Vision, Strategic Objectives and Strategic Design Considerations and other technical requirements. This enabled the scheme design to be ‘frozen’ for the relevant assessment work to take place. The final Proposed Development design developed through this process of design evolution is described in the next section.

GLOSSARY AND ABBREVIATIONS

Term	Definition
CAA	Civil Aviation Authority
DCO	Development Consent Order
LLAL	London Luton Airport Limited
LLAOL	London Luton Airport Operations Limited
mppa	million passengers per annum

REFERENCES

1 - Ref 2.1 Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England (2018). Department for Transport. Online.

2 - Ref 2.2 National Planning Policy Framework (2021), MHCLG. Online.

3 - Ref 2.3 Design Principles for National Infrastructure (2020), NIC Design Group. Online.

4 - Ref 2.4 Luton Local Plan (2011-2031) (2017), Luton Borough Council. Online.

5 - Ref 2.5 Department for Transport, Policy Paper Control of Development in Airport Public Safety Zones, updated 8 October 2021.