

Statutory Consultation 2022

# **Preliminary Environmental Information Report**

Volume 2: Main Report

**Chapter 18: Traffic and Transport**



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## 18 TRAFFIC AND TRANSPORTATION

### 18.1 Introduction

- 18.1.1 This chapter presents the preliminary assessment of likely significant effects of the Proposed Development on Traffic and Transportation based on the Core Planning Case. This chapter also includes as sensitivity tests qualitative assessments of faster and slower growth assumptions and the results of these are set out in **Table 18.31**. A document with the title '**Getting to and from the airport – our emerging transport strategy**' which as indicated in the title describes the emerging transport strategy but also describes work that has been undertaken to inform that strategy. This document replaces the Surface Access Strategy that formed part of the documentation for the 2019 Statutory Consultation. Where this replacement document is referenced in the chapter it is referred to as '**SAETS**<sup>1</sup>' for simplicity.
- 18.1.2 The EIA Scoping Report set out the proposed scope for the assessment of Traffic and Transportation effects. It describes the assessment of likely significant effects of the Proposed Development on the surrounding surface access network based on an assessment of the interaction between future development related movements and existing patterns of vehicular movement.
- 18.1.3 The Annual Monitoring Report 2020 (Ref. 18.1) prepared by London Luton Airport Operations Limited (LLAOL) includes a table showing the passenger mode share based on statistics collected by the Civil Aviation Authority (CAA) based on its annual survey of departing passengers. The percentages for rail and bus/coach travel are shown in **Table 18.1**.

Table 18.1: Air passenger modes of travel to the airport 2012-2019

Mode	2012	2013	2014	2015	2016	2017	2018	2019
Car and Taxi	67%	68%	71%	69%	68%	67%	67%	62%
Rail	17%	16%	14%	16%	16%	17%	17%	21%
Bus/Coach	16%	16%	15%	15%	16%	16%	16%	17%

- 18.1.4 The figures in the above table exclude passengers travelling by taxi and also figures relating to 2020 as they are greatly affected by the effects of the pandemic.
- 18.1.5 At the time of the 2019 Statutory Consultation the latest data that was available had been presented in the CAA departing passenger survey undertaken in 2017 (Ref. 18.2) and at that time the proportion of air passengers using public transport was 33.2%. A fundamental principle underlying planning for the growth of the airport is that the proportion of passengers travelling to and from the airport by public transport will increase to 40% by 2027 irrespective of whether the airport is expanded and will increase further to 45% by 2039 if the

<sup>1</sup> Surface Access Emerging Transport Strategy.

airport is expanded as described in this ES. As part of the 2022 Statutory Consultation the original 2019 Surface Access Strategy Report (SAS), has been updated to reflect changes in the air passenger forecasts and alterations to the extent of the Proposed Development. The chapter describes measures that will be employed to ensure that public transport usage grows. One consequence of this approach is that while passenger throughput at the airport is predicted to increase by 78% by 2043 when the 'With Development' scenario is compared with the 'Without Development' scenario the number of car and taxi movements will have only increased by 63%.

- 18.1.6 **Table 18.2** shows the build-up of the mode share for public transport with the figure increasing to 40% by 2027. For this assessment it has been assumed that should the airport not expand beyond 18 million passengers per annum (mppa) the mode share for public transport will reach 40% based on existing committed improvements but would not increase further. The assessments that have been undertaken both for this chapter and the **SAETS** will be used for the subsequent Transport Assessment Report (TAR), to be prepared as part of the supporting documents for the application for development consent, and have been based on a public transport mode share of 45% in 2039 and 2043 (**Section 2, SAETS**).

Table 18.2: Future passenger mode of travel to airport

Mode	2027	2039	2043
Public (Rail)	40.0% (23.0%)	45.0% (26.8%)	45.0% (26.8%)
Private	59.7%	54.7%	54.7%
Other	0.3%	0.3%	0.3%
Terminating Passengers (mppa)	21.5	27.0	32.0

- 18.1.7 In tandem with the measures to promote non-car modes of travel for passengers, challenging targets will be set for airport related employees. In 2017 around 74% of employees travelled to work by car (Ref. 18.3) of which 96% drove and just 4% were passengers. The intention is that this will decrease further by the introduction of the Travel Plan that will include a target for new airport related employees.
- 18.1.8 The location of the airport with respect to the local and strategic transport networks is shown in **Figures 18.1** and **18.2** respectively (Volume 4 of this PEIR).
- 18.1.9 The application for development consent for the Proposed Development will be accompanied by a Transport Assessment Report (TAR) and a Framework Travel Plan. The TAR will assess the impact of the Proposed Development upon the operation of the surface access network and considers both the construction and operational aspects taking into account the **SAETS**. Predictions of the distribution of future year trips on the transport networks are



provided by an updated version of the Central Bedfordshire and Luton Traffic Model (CBLTM) which has been amended to provide more detail of the networks around the airport and to extend the area over which the performance of the highway network can be assessed. The modified version of that model is referred to as the CBLTM-LTN; this is also referred to as the Strategic Model. This extent of the highway network that has been included in the CBLTM-LTN has been agreed as appropriate with the four highway authorities (National Highways, Luton Borough Council (LBC), Central Bedfordshire Council (CBC), and Hertfordshire County Council (HCC) as part of the scoping exercise for the TAR.

- 18.1.10 The assessment reported in this chapter considers the impact on the users of the transport network, both motorised and non-motorised, and the environment for those walking alongside or crossing the network.
- 18.1.11 CBLTM-LTN produces future year predicted flows for two scenarios that reflect no expansion of the airport ('Without Development') and the Proposed Development ('With Development'). CBLTM-LTN has produced outputs for the years 2027, 2039, and 2043; these are the years when the passenger throughput reaches the capacity of the terminals provided in assessment Phases 1, 2a, and 2b respectively. For the 'Without Development' scenario it was assumed that the airport would not expand beyond a throughput of 18 mppa and as noted in **paragraph 18.1.6** it has been assumed that the mode share for public transport would not rise above 40%.
- 18.1.12 The 'With Development' scenarios for CBLTM-LTN include off-site highway improvements that have already been assessed as being required to cater for the additional traffic on the network 'Without Development' of the airport and these are described in **Section 18.7**.
- 18.1.13 In addition to CBLTM-LTN a smaller microsimulation model has been constructed using the VISSIM traffic simulation software, and this has been used to determine the nature and scale of the offsite highway works that are required as mitigation to accommodate the additional traffic associated with the Proposed Development.
- 18.1.14 A **SAETS** has been prepared for the 2022 Statutory Consultation. It sets out the proposals for the surface access strategy that will be submitted as part of the DCO application. The report covers the work undertaken on surface access matters and includes a set of mitigation measures based on a multi modal approach to transport.
- 18.1.15 The remainder of this chapter consists of:
  - a. **Section 18.2** Legislation, policy and guidance relevant to the scope and methodology of the Traffic and Transportation preliminary assessment;
  - b. **Section 18.3** Scope of the assessment;
  - c. **Section 18.4** Stakeholder engagement undertaken to inform the preliminary assessment;
  - d. **Section 18.5** Methodology applied to the preliminary assessment;

- e. **Section 18.6** Assumptions and limitations at this stage of work;
- f. **Section 18.7** Baseline conditions;
- g. **Section 18.8** Embedded and good practice mitigation;
- h. **Section 18.9** Preliminary assessment;
- i. **Section 18.10** Additional mitigation;
- j. **Section 18.11** Residual effects;
- k. **Section 18.12** In-combination climate change;
- l. **Section 18.13** Monitoring;
- m. **Section 18.14** Assessment summary; and
- n. **Section 18.15** Completing the assessment - remaining work to complete the EIA for the Environmental Statement.

## 18.2 Legislation, policy and guidance

18.2.1 This section identifies the key legislation, policy, and guidance relevant to the scope and methodology for the Traffic and Transportation assessment which may influence the type of mitigation measures that could be incorporated into the Proposed Development during construction or operation.

18.2.2 **Table 18.3** to **Table 18.5** provide descriptions of the relevant policy and guidance, and where each of these have been addressed in the PEIR.

### Legislation

18.2.3 There are no legislative requirements relevant to the environmental assessment of Traffic and Transport.

### Policy

18.2.4 **Table 18.3** sets out all key policy and describes how and where the PEIR has responded to it. The relevant documents/policies are:

- a. National Planning Policy Framework, 2021 (Ref. 18.4);
- b. Aviation Policy Framework, 2013 (Ref. 18.5);
- c. National Policy Statement for National Networks (Ref. 18.6);
- d. DfT Circular 02/2013, The Strategic Road Network and the delivery of sustainable development (Ref. 18.7)
- e. Luton Local Transport Plan 2011-2026 (Ref. 18.8);
- f. Luton Borough Council Local Plan 2011-2031 (Ref. 18.9); and
- g. Hertfordshire Local Transport Plan (2018-2031) (Ref. 18.10).

Table 18.3: Traffic and Transportation policy

Policy	How and where addressed in PEIR
<p><u>National Planning Policy Framework, 2021</u></p> <p>The National Planning Policy Framework sets out the government’s planning policies for England and how these should be applied.</p> <p>Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:</p> <p>(b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;</p> <p>(c) opportunities to promote walking, cycling and public transport use are identified and pursued;</p> <p>(d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.</p>	<p>Surface transport considerations have been a fundamental consideration in the planning for the potential growth of the airport. The surface access strategy as described in the <b>SAETS</b> revolves around a significantly greater proportion of air passengers travelling to and from the airport by public transport. The investment in the Luton Direct Air-Rail Transit (Luton DART) link between Luton Airport Parkway station and the existing Central Terminal Area will result in a much more convenient connection between the station and the terminal building which in turn will encourage a greater proportion of air passengers to take advantage of the rail services. The Luton DART will be extended to serve the second terminal.</p> <p>In recognition of the fact that there will still be a significant number of air passengers travelling to and from the airport by car Highway Interventions (refer to <b>Chapter 4</b> The Proposed Development in Volume 2 of this PEIR) have been identified in conjunction with the local highway authorities in order to provide mitigation for the increased volumes of traffic on roads in the locality of the airport and the corridor to the M1. The results of the assessment of the environmental aspects (listed in <b>paragraph 18.3.26</b>) of the increased traffic volumes in conjunction with the introduction of the Highway Interventions that have been proposed and are listed in <b>Table 4.1</b> of <b>Chapter 4</b> The Proposed Development in Volume 2 of this PEIR are reported in <b>Section 18.9</b> for both the construction and operational phases of the Proposed Development.</p>
<p><u>Aviation Policy Framework</u></p> <p>Surface access is covered in this document in paragraphs 5.11 to 5.13.</p>	<p>The highway and public transport networks, both existing and future with committed improvements are described in <b>Section 18.7</b> This demonstrates the quality of the access from the airport to the</p>

Policy	How and where addressed in PEIR
<p>The document sets out the requirement that all proposals for airport development should demonstrate how the airport will:</p> <ul style="list-style-type: none"> <li>a. ensure easy and reliable access for passengers;</li> <li>b. increase the use of public transport by passengers to access the airport; and</li> <li>c. minimise congestion and other local impacts.</li> </ul> <p>The document also states that the general position for existing airports is that developers should pay the costs of upgrading or enhancing road, rail or other transport networks or services where there is a need to cope with additional passengers travelling to and from expanded or growing airports.</p>	<p>motorway network and the improvements to rail services that have been introduced recently which when tied into the opening of the Luton DART link will provide a very convenient service for air passengers and employees working at the airport and associated offices.</p> <p>The targets for the increase in use of public transport are described in <b>Section 18.1</b>. A Framework Travel Plan which will support the achievement of those targets is being prepared and tested through a series of workshops attended by representatives of National Highways, Luton Borough Council (LBC), Central Bedfordshire Council (CBC), and Hertfordshire County Council (HCC). The Framework Travel Plan (<b>paragraph 18.8.12</b>) will provide an outline of the comprehensive monitoring process and the expansion of the airport will be subject to a concept known as Green Controlled Growth (<b>paragraph 18.8.13</b>). Traffic models described in <b>Section 18.1</b> demonstrate that the Highway Interventions that have been proposed and are listed in <b>Table 4.1</b> of <b>Chapter 4</b> The Proposed Development in Volume 2 of this PEIR of this PEIR minimise congestion and other local impacts.</p> <p>The Highway Interventions referred to above form part of the Proposed Development and as such will be funded by the Applicant.</p>
<p><u>National Policy Statement for National Networks (NPSNN) (Ref. 18.11)</u></p> <p>This document sets out the need for, and Government’s policies to deliver, development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of nationally significant</p>	<p>There are no elements of the Proposed Development that would be classified as a NSIP on the national road or rail network. However, the NPSNN remains a relevant consideration as works are proposed on the Strategic Road Network at Junction 10 as part of the Proposed Development.</p> <p>This table outlines the relevant local plan policies and directs the reader to the</p>

Policy	How and where addressed in PEIR
<p>infrastructure projects on the road and rail networks.</p> <p>There is a section that outlines in paragraphs 5.203 to 5.205 the general approach that should be taken when undertaking an assessment. The Applicant should have regard to the policies set out in local plans and also consult the relevant highway authority, and local planning authority, as appropriate, on the assessment of transport impacts. Furthermore, applicants should consider reasonable opportunities to support other transport modes in developing infrastructure.</p>	<p>section of this chapter where they are addressed.</p> <p>The meetings that are listed in <b>Table 18.8</b> demonstrate the high level of engagement with the highway authorities whose roads will carry the great majority of the additional traffic related to the Proposed Development.</p> <p>Measures are to be introduced to increase the attractiveness of public transport as a means of travel to and from the airport and to increase the modal share of public transport as described in <b>Section 18.1</b>. This is covered in more detail in the <b>SAETS</b>.</p>
<p><u>DfT Circular 02/2013</u></p> <p>This document sets out the way in which National Highways (formerly the Highways Agency when the document was published) engages with communities and the development industry to deliver sustainable development, whilst safeguarding the primary function and purpose of the strategic road network.</p> <p>The overall forecast demand should be compared to the ability of the existing network to accommodate traffic over a period up to ten years after the date of registration of a planning application or the end of the relevant Local Plan whichever is the greater.</p> <p>National Highways expects the promoters of development to put forward initiatives that manage down the traffic impact of proposals to support the promotion of sustainable transport and the development of accessible sites.</p> <p>The preparation and implementation of a robust travel plan that promotes use</p>	<p>The CBLTM-LTN provides forecast demand that can be compared to the ability of the existing network to accommodate traffic over a period of 21 years from the planned date of the submission of the application for the development consent. This is considerably more than is required in the Circular. The description of the model is provided in <b>paragraphs 18.1.9 to 18.1.13</b>. Highway interventions that are included in the CBLTM-LTN modelled highway network for 2027 and 2039 are summarised in <b>paragraphs 18.9.15 and 18.9.60</b> respectively. A full list of highway interventions is set out in <b>Table 4.1</b> in <b>Chapter 4</b>.</p> <p>Physical measures such as the extension of the Luton DART to serve Terminal 2 (<b>paragraph 18.8.2</b>), additional coach and bus bays (<b>paragraph 18.8.15</b>), and restricted growth in the provision of car parking spaces (<b>paragraph 18.8.18</b>) will be supported by a Travel Plan. A Framework Travel Plan is under development and a series of workshops are taking place (<b>Table 18.8</b>) with National Highways amongst the attendees.</p>

Policy	How and where addressed in PEIR
<p>of sustainable transport modes such as walking, cycling and public transport is an effective means of managing the impact of development on the road network, and reducing the need for major transport infrastructure.</p> <p>Developers must ensure all environmental implications associated with their proposals, are adequately assessed and reported so as to ensure that the mitigation of any impact is compliant with prevailing policies and standards.</p>	<p>The application for development consent will be supported by an ES and as a precursor a preliminary assessment of the environmental implications is set out in <b>Section 18.9</b>.</p>
<p><u>Luton Borough Council Local Plan 2011-2031 (adopted November 2017)</u></p> <p>The current Local Plan includes ‘Policy LLP31 – Sustainable Transport Strategy’. This policy includes as section D an element that relates directly to transport issues associated with the airport. The relevant text is:</p> <p><i>“D. Support for the continued economic success of London Luton Airport as a transport hub (policy LLP6) will be delivered through:</i></p> <ul style="list-style-type: none"> <li>• <i>measures to ensure there is capacity at strategically important junctions; and</i></li> <li>• <i>continued enhancement of sustainable modes of transport via the Airport Surface Access Strategy.”</i></li> </ul>	<p>The transport modelling that has been undertaken together with intensive liaison with the relevant highway authorities has identified those junctions that require improvements. Evidence of the liaison with the highway authorities is presented in <b>Table 18.8</b>.</p> <p>The Airport Surface Access Strategy (ASAS) referred to in this policy is a document produced by LLAOL, the operator of the airport. The version of the document that was current at the time of the adoption of the Local Plan was “Airport Surface Access Strategy 2012-2017” (Ref. 18.12). This has since been superseded by “Airport Surface Access Strategy 2018-2022” (Ref. 18.13) and most recently “Airport Surface Access Strategy 2018-2022, 2019 reissue” (Ref. 18.14).</p> <p>The first ASAS referred to above had an Objective 1 “to increase the proportion of their passengers travelling to and from London Luton airport by public transport to more than 40% by 2017”. The 2018 ASAS set out several targets, one of which was to increase passenger travel by bus and coach from 16% to 17% and another was to increase passenger travel by rail from 16 to 24%. The base levels referred to in the targets were the mode shares</p>



Policy	How and where addressed in PEIR
	<p>identified in the 2016 CAA passenger survey (Ref. 18.15).</p> <p>The application for development consent will promote a target of 45% of air passengers travelling to and from the airport by public transport (<b>paragraph 18.1.6</b>) which is consistent with this policy.</p>
<p><u>Luton Local Transport Plan, 2011-2026</u></p> <p>This document was published in March 2011 and does not include any targets or schemes that are relevant to the consideration of the Proposed Development.</p>	<p>No further consideration has been given to this document.</p>
<p><u>Hertfordshire Local Transport Plan (2018-2031)</u></p> <p>Hertfordshire's Local Transport Plan 2018-2031 (HLTP) was adopted in May 2018. There is recognition that the airport generates traffic movements on the County's roads and also that Hertfordshire County Council (HCC) will work with others to seek to improve public transport connections to the airport.</p> <p>The HLTP considers areas around Hertfordshire that have their own growth strategies which will provide employment and business opportunities for Hertfordshire and drive travel demand; one of these is the airport.</p> <p>The HLTP notes that passenger flows for the airport are particularly heavy on the M1 and Midland Mainline railway. Other key routes that lie within the county are identified as the A1081, A505, A602, and B653.</p> <p>By reference to data published by the Civil Aviation Authority, HCC observes that Stansted is already successful in attracting trips by sustainable modes with 51% using</p>	<p>HCC has been one of the main stakeholders engaged during the preparation of both the 2019 and 2022 versions of the <b>SAETS</b>, as set out in <b>Table 18.8</b>.</p> <p>As noted in <b>paragraph 18.1.4</b>, increasing the public transport mode share for air passengers is a fundamental tenet of the <b>SAETS</b>.</p> <p>To review the potential use of the lower category routes parallel to the A505/A602 corridor by some traffic to avoid congestion at Luton or Hitchin, these roads have been included in the CBLTM-LTN. These roads form part of the COMET model that was added to the CBLTM to provide the comprehensive model to assess the potential impact of the Proposed Development over a wider area than could have been undertaken using the previous version of the model.</p>

Policy	How and where addressed in PEIR
<p>alternatives to the car, in contrast Luton Airport has around 30% using non-car modes and increasing this level is a key priority for them. The HLTP includes the following policy.</p> <p><i>“Policy 11: Airports</i>  <i>The county council, working in partnership with neighbouring local authorities and airport operators, will seek improvements to surface access to Luton and Stansted Airports, and promote and where possible facilitate a modal shift of both airport passengers and employees towards sustainable modes of transport.</i></p> <p><i>The county council is opposed to new runway development at Luton and Stansted Airports”.</i></p> <p>The airport lies within two identified strategic transport corridors, London – Watford – Luton – Milton Keynes and Luton – Stevenage. Regarding the first corridor HLTP notes that the airport generates significant travel demand and that it will work with LBC<sup>2</sup> and airport operators on improving surface access to the airport, and National Highways to ensure effective operation of the M1. For the second corridor the HLTP notes that the primary connections within this strategic movement corridor are the A505 and A602. These routes provide the strategic link between Luton, the airport, the A1(M) and Stevenage, as well as serving the towns of Hitchin, Letchworth and Baldock. In addition to these towns, the airport generates a significant amount of traffic on the corridor. Traffic flows are generally localised between the towns along the corridor. It is noted that there are a number of lower category parallel routes also serve the corridor with some traffic using these to avoid congestion at Luton or Hitchin.</p>	

<sup>2</sup> Luton Borough Council



- 18.2.5 The Central Bedfordshire Local Plan (2015-2035), Adopted July 2021 (Ref. 18.16) and the North Hertfordshire District Local Plan No. 2 (Ref. 18.17) have been reviewed for any policies that are relevant for this assessment of traffic and transport, but none were found.
- 18.2.6 The Airports National Policy Statement (ANPS) (Ref. 18.18) does not have effect in relation to an application for development consent for an airport development not comprised of an application relating to the Heathrow Northwest Runway. Nevertheless, as set out within paragraph 1.41 of the ANPS, the Secretary of State considers that the contents of the ANPS will be both important and relevant considerations in the determination of such an application, particularly where it relates to London or the south east of England.
- 18.2.7 Accordingly, whilst the ANPS does not have effect in relation to the Proposed Development, it will be an important and relevant consideration in the determination of Luton Rising's (a trading name of London Luton Airport Limited) application for development consent. A summary of the relevant provisions for the Traffic and Transportation assessment and how these have been addressed in this PEIR is provided within **Table 18.4**.

Table 18.4: How relevant Traffic and Transportation requirements of ANPS are addressed in the PEIR

ANPS Section	How and where addressed in PEIR
<p><u>Paragraph 5.9</u> Prepare an airport surface access strategy to include the following;</p> <ul style="list-style-type: none"> <li>• Reflect the phasing over the development, implementation, and operational stages;</li> <li>• Reference the role of surface access in relation to air quality and carbon;</li> <li>• Specific targets for maximising the proportion of journeys made to the airport by public transport, cycling or walking;</li> </ul> <p>Actions, policies and defined performance indicators for delivering against targets.</p>	<p>The <b>SAS</b> formed part of the documentation for the 2019 Statutory Consultation and this is replaced by the <b>SAETS</b> in the 2022 Statutory Consultation.</p> <p>The <b>SAETS</b> shows the predicted level of trips by the range of travel modes, which are based on specific targets for maximising the proportion of journeys made by non-car modes. Predicted traffic flows on the highway network in the vicinity of the airport are presented as <b>Tables 1.1 to 1.3</b> in <b>Appendix 18.2</b> (Volume 3 of this PEIR) for the years 2016 (18 mppa), 2027 (21.5 mppa), 2039 (27 mppa) and 2043 (32 mppa). These flows reflect the targets that have been adopted to achieve the mode shift.</p> <p>The <b>SAETS</b> includes a reference to the role of surface access in relation to air quality and carbon. Air quality, which includes emissions from traffic, is covered in <b>Chapter 7</b> Air Quality in Volume 2 of this PEIR and carbon in <b>Chapter 12</b> Greenhouse Gases.</p>

ANPS Section	How and where addressed in PEIR
	The <b>SAETS</b> outlines the approach to determining Key Performance Indices and the way this will be managed in <b>Section 2</b> .
<p><u>Paragraph 5.10</u></p> <p>The assessment should cover the implications of airport expansion on surface access network capacity using the WebTAG methodology stipulated in the Department for Transport guidance. The Applicant should consult Highways England (now National Highways), Network Rail and highway and transport authorities, as appropriate, on the assessment and proposed mitigation measures.</p> <p>The assessment should distinguish between the construction and operational project stages for the development comprised in the application</p>	<p>The transport modelling follows the WebTAG methodology.</p> <p>Engagement that has been undertaken is summarised in <b>Section 18.4</b> of this chapter.</p> <p>Separate assessments for the construction and operational phases are presented in <b>Section 18.9</b> in this chapter.</p>
<p><u>Paragraph 5.13</u></p> <p>The Applicant should have regard to DfT Circular 02/2013, <i>The Strategic Road Network and the delivery of sustainable development</i> (or prevailing policy), and the National Networks NPS.</p>	<p>The DfT Circular has been addressed in <b>Table 18.3</b>.</p> <p>The NPSNN is articulated in the ANPS as being an important and relevant consideration for a Northwest Runway at Heathrow Airport because the scheme would necessitate reconfiguration of the M25 immediately to the west of Heathrow Airport and these changes would qualify as an NSIP in their own right. Although none of the surface access interventions proposed as part of the Proposed Development qualify as an NSIP, NPSNN policies of relevance to the assessment contained in this chapter have been considered. These policies broadly mirror those as outlined in the ANPS and have, therefore, influenced the assessment as set out in the remainder of this table.</p> <p>The NPSNN has been addressed in <b>Table 18.3</b>.</p>
<p><u>Paragraph 5.14</u></p> <p>Where appropriate, the applicant should seek to deliver improvements or mitigation measures that reduce community severance and improve accessibility.</p>	<p>The proposals for surface access as set out in the <b>SAETS</b> and <b>Sections 18.8</b> and <b>18.10</b> of this chapter will improve accessibility to the airport for both air passengers and employees.</p>

ANPS Section	How and where addressed in PEIR
	Severance is considered in <b>Section 18.9</b> in this chapter.

## Guidance

Table 18.5: Traffic and Transportation guidance

Guidance	How and where addressed in PEIR
<p>The ‘Guidelines for the Environmental Assessment of Road Traffic’ (Ref. 18.19) produced by the Institute of Environmental Assessment (IEA), now the Institute of Environmental Management (IEMA) and referred to as the ‘IEMA Guidelines’.</p>	<p>The guidelines provide recommendations for the manner in which a number of transport related effects can be assessed. The document is referred to in <b>Section 1.3</b> of <b>Appendix 18.1</b> Traffic and Transport Methodology in Volume 3 of this PEIR, which describes how the magnitude of impact is assessed in this chapter.</p>
<p><u>Design Manual for Roads and Bridges</u> Since the 2019 PEIR was written, the DMRB has been updated and presented in a new form. The individual documents that together form the DMRB have been arranged according to the technical discipline and the asset lifecycle stage, as represented by the two letters at the start of the new document codes. For this chapter the two letters are LA, representing “sustainability and environment” and “appraisal”.</p>	<p>The new documents do not provide the same level of guidance that was contained in the old documents that have now been withdrawn, which recommended a range of environmental effects that may be considered important when considering traffic associated with a proposed development or new or changed highway infrastructure. In the absence of alternative guidance in the new documents, the withdrawn documents have been used to assist in setting up the parameters to determine the magnitude of impact that are described in <b>Section 1.3</b> of <b>Appendix 18.1</b>.</p> <p>The principal purpose of the relevant guidance in the DMRB is for the appraisal of road schemes. This chapter describes the assessment of the effects of changed traffic patterns on a predominantly existing transport network, with some changes introduced as mitigation measures, therefore it has been necessary to adapt the guidance to make it relevant.</p>

## 18.3 Scope of the assessment

18.3.1 This section describes the scope of the Traffic and Transportation assessment, including how the assessment has responded to the Scoping Opinion. The temporal and spatial scope, the relevant receptors, and matters scoped in and out are identified. A description of engagement undertaken with relevant technical stakeholders to develop and agree this scope is provided in **Section 18.4**.

### Scoping Opinion

18.3.2 The EIA Scoping Report set out the proposed scope and assessment methodologies to be employed in the EIA and is provided in **Appendix 1.1 and 1.2** in Volume 3 of this PEIR.

18.3.3 In response to that Scoping Report, a Scoping Opinion was received from the Planning Inspectorate on 9 May 2019 and is provided in **Appendix 1.3** in Volume 3 of this PEIR.

18.3.4 **Table 18.6** describes the main matters highlighted by the Planning Inspectorate in the Scoping Opinion and how these have been addressed in this PEIR. Final responses to all comments received during Scoping will be provided in an appropriate format in the ES.

Table 18.6: Traffic and Transportation Scoping Opinion comments

Scoping Opinion ID	Scoping Opinion comment	How is this addressed
2.2.6	The ES should provide detailed information on the Off-Site Highways Intervention areas, supported by clear and legible plans and figures.	Off-site Highway Interventions are minor roadworks designed to an outline level only, as appropriate for this stage of design development. A description is provided in <b>Section 4.9</b> and <b>Table 4.1</b> in <b>Chapter 4</b> of this PEIR and drawings are provided in Volume 4 of this PEIR.
2.2.9	The ES should take account of any potential overlap between the expansion proposal and proposed public transport infrastructure links, detailing the outcome of relevant consultations with Network Rail.	The only public transport infrastructure link improvement that forms part of the Proposed Development is the extension of the Luton DART link from Terminal 1 to Terminal 2 ( <b>paragraph 18.8.2</b> ), which is not part of the network managed by Network Rail. The section between Luton Airport Parkway station and airport terminal is currently under construction and due to open in 2022.
3.2.3	The ES should assess the likely significant effects which could arise	The Proposed Development as a whole, including any Off-site Highway

Scoping Opinion ID	Scoping Opinion comment	How is this addressed
	from the Proposed Development as a whole, including any off-site works.	Interventions, is considered in the preliminary assessment in <b>Section 18.9</b> and further assessment will be reported in the ES.
4.2.2	Applicant should ensure that the relationship between the TA and the scope of the traffic and transport assessment is fully explained and justified within the ES. The Applicant should make effort to agree the scope of the assessment with the relevant consultation bodies.	<p>The relationship between the TAR and the traffic flows used to undertake the assessment reported in the PEIR is described in <b>Section 18.1</b>.</p> <p>A Scoping Report for the TAR was issued to National Highways, LBC, Central Bedfordshire Council (CBC), and HCC in October 2018 followed by an amended version in February 2019.</p>
4.2.3	For the avoidance of doubt any such travel plan should extend to workforce travel. The Applicant should make effort agree the scope of the travel plan with relevant consultation bodies. The approach to the assessment should be fully explained and justified within the ES.	<p>A Framework Travel Plan is being prepared that will cover both air passengers and staff based at the airport or offices related to the airport.. The plan is being developed in consultation with stakeholders through a series of workshops. These workshops have been included in <b>Table 18.8</b>. The importance of the Travel Plan in achieving a reduction in the magnitude of the impact of traffic associated with the workforce is recognised in <b>paragraph 18.8.12</b>. During the construction phase a Construction Workforce Travel Plan will be in operation.</p>
4.2.8	The Inspectorate recommends that the assessment takes into account personal injury collision data in respect of any roads falling within the study area and for which CBC and HCC are the highways authority. This data should be presented in the ES, alongside the data for LBC.	<p>For the ES the Personal Injury Collision (PIC) data will be analysed for those junctions that are to be assessed following the IEMA Guidelines (Ref. 18.19). On the basis of the percentage growth on roads reported in <b>Table 1.4</b> of <b>Appendix 18.2</b> (Volume 3 of this PEIR) there will be no links on roads for which CBC or HCC is the highway authority where the IEMA Guidelines (Ref. 18.19) rule of thumb of a change in traffic flow of 30% (refer to <b>paragraph 1.3.1</b> in <b>Appendix 18.1</b>) applies, therefore</p>

Scoping Opinion ID	Scoping Opinion comment	How is this addressed
		there is no prospect of there being a significant effect in those two areas.
4.2.9	The ES should include a description of each scenario used in the assessment demonstrating that the worst-case construction and operational assessment scenarios are identified. The assessment years should be consistent between the traffic and transport and air quality assessments where relevant and effort should be made to be agree the approach with the relevant consultation bodies.	<p>The assessment of the construction phase as described in <b>Section 18.9</b> under the heading 'Construction' covers the periods for each phase when there is predicted to be the greatest level of HGV movements.</p> <p>The assessment reported in this chapter and the Air Quality assessment of transport in <b>Chapter 7</b> Air Quality in Volume 2 of this PEIR are based on the same traffic flows forecasts produced by the CBLTN-LTN model. There is a consistent approach to the scenario years assessed through the PEIR. The rationale for the choice of these years is set out <b>Section 5.4</b> in <b>Chapter 5</b> in Volume 2 of this PEIR.</p> <p>The approach to the assessment of transport matters has been discussed extensively with the relevant highway/transport authorities and the list of meetings that have been held is set out in <b>Table 18.8</b>.</p>
4.2.10	In presenting the approach to the assessment of significance as adapted from DMRB guidance, Table 7.4 of the Scoping Report states that low magnitude impacts on receptors of high sensitivity can be 'minor or moderate' which lack certainty with regards to the	This approach has been used in this PEIR and a reasoned judgement provided in <b>Section 18.9</b> . The assessment will be updated and reported in the ES.

Scoping Opinion ID	Scoping Opinion comment	How is this addressed
	assessment of significant effects. In accordance with DMRB guidance, in these cases 'a single description should be decided upon with reasoned judgement for the level of significance chosen'. Such reasoned judgement should be presented and justified within the ES.	
4.2.11	Highways England has raised concerns about the Applicant's methodology for assessing significance and has recommended an alternative approach. The Inspectorate considers that the scope of the assessment in the ES should be related to the extent of impacts and whether significant effects are likely to occur. The Applicant should make effort to agree its approach with Highways England and other relevant consultation bodies.	National Highways identifies several other major infrastructure projects and refers to different methodologies that were adopted for assessing significance. Consideration has been given to those schemes, but it is noted that circumstances and likely effects from those schemes are likely to be different. In particular with regard to the Bank Station upgrade, Crossrail, Victoria Station upgrade, and HS2, these are projects where the environmental impacts relate to the construction period with minimal operational traffic movements, and for the first three they are located in Central London with all of the additional considerations that arise from the scale of existing movement. The consultant team is aware of the work on Bank, Crossrail and HS2 having been involved in the assessments. Whilst considering the methodology adopted in those other studies not to be transferable to this assessment, the level of analysis that has been carried out has allowed the extent of the impacts to be expanded as requested.
2.4	The SR notes (para. 2.2.18 and paras. 3.4.37 - 3.4.44) that the Proposed Development will require off-site highway improvements but the nature and extent of these is yet to be confirmed. Whilst LLAL	The Off-Site Highway Interventions being proposed as part of the Proposed Development have now been confirmed and are described in <b>Chapter 4</b> The Proposed Development in Volume 2 of this PEIR



Scoping Opinion ID	Scoping Opinion comment	How is this addressed
	appear confident that such interventions will all be within the highway boundary, we consider that this is a further area of uncertainty that needs to be resolved as soon as possible. These changes could themselves have environmental effects that need to be considered in the ES	and drawings included in Volume 4 of this PEIR. These are included in the traffic models and as such are assessed in <b>Section 18.9</b> .

- 18.3.5 Most of the comments submitted by National Highways relate to guidance on the preparation of the TAR. As recognised by National Highways and demonstrated in **Table 18.8**, there are regular meetings with National Highways with the objective of reaching agreement on as many matters as possible prior to the submission of the application for development consent. National Highways has identified that any assessment should consider the operation of the Strategic Road Network, which in this case is the M1, A1(M), and A5. These roads have been included in the traffic model and the traffic predictions for the future year scenarios allow that assessment to be undertaken.
- 18.3.6 Most of the comments made jointly by Aylesbury Vale and Buckinghamshire County Council relate to the preparation of the TA. They expressed a desire to work with Luton Rising to review the current public transport network and to assess the potential of improving links through the county.
- 18.3.7 St Albans City and District Council has requested that both the TA and the ES chapter should include a detailed assessment of the A1081, A5183, and B653 into Luton from within the St Albans City and district area. Consideration of these three routes into Luton from within the St Albans City and District area is considered in the analysis reported in this chapter.
- 18.3.8 St Albans City and District Council also notes that the assessment will be based on a 45% use of public transport which it considers will be dependent on the availability of appropriate and convenient public transport access to the airport, and to that end the ES needs to consider the mitigation measures that will be additional to the introduction of Luton DART for this to be achieved.
- 18.3.9 In addition to the introduction of the Luton DART, measures that are intended to make travel by public transport more attractive, some of which are already committed, will include:
- a. enhancement to bus and coach services, together with improved facilities at Terminal 2, (**paragraph 18.8.15**);
  - b. commencement of Crossrail (Elizabeth line) services through Central London (**paragraph 18.7.50**); and



- c. electrification of the railway between Bedford and Corby and the introduction of the East Midlands Railway (EMR) Connect service (**paragraph 18.7.24**).

- 18.3.10 The response from Welwyn Hatfield requests that the DCO gives very strong consideration to access by means other than the car. This is in line with the Surface Access Strategy that is being developed as part of the surface transport assessment.
- 18.3.11 In the response by Vincent and Gorbing on behalf of the Host Authorities (see Appendix 2 of the Scoping Opinion in **Appendix 1.3**), several roads are referred to in Hertfordshire about which there is concern regarding the impact of the additional traffic. These roads are included in the traffic model and therefore sufficient information will be available to assess the impact and identify whether there is the need for mitigation. A further concern is the potential for rat-running along the rural lanes to the east of the airport. The level of detail of the road network in that area has been established in the expectation that this could be a matter of concern. Consequently, this matter will be considered in detail in the TAR and the effects on any additional traffic on the local roads is considered in this chapter (**Section 18.9**).
- 18.3.12 There are several matters raised regarding the development of the CBLTM and potential mitigation measures that have been listed in the Scoping Report. These are principally concerns relating to the TAR and are being addressed through a series of technical reports and regular meetings with the appropriate authorities.
- 18.3.13 Royal Mail advised that it had an interest in several properties that are in the vicinity of the airport. It wished to be assured that its presence was recognised and that measures would be introduced to ensure that its service would not be disrupted. A particular concern was the need for consultation with local businesses and occupants regarding road closures/diversions during construction. The principles of consultation during the construction period will be set out in a Draft Outline Construction Traffic Management Plan (CTMP) which is **Appendix 18.3** in Volume 3 of this PEIR.

### Spatial scope

- 18.3.14 The following paragraphs describe the spatial scope of this assessment. The scale of the area over which there is some change in the movement of people of the transport network can be seen in **Inset 2.11** in the **Draft Need Case** which shows the airport catchment area obtained from the CAA survey undertaken in 2018 together with the information provided in **Inset 4.8** of that report which is the map of passenger demand growth rates by district. The changes will increase as the various routes to the airport converge closer to the airport. Accordingly, the area for assessment concentrates on the main routes approaching the airport and the local roads around the airport. For rail travel journeys are constrained by the rail network which in this case is the Midlands Mainline running between St Pancras International and Sheffield.

### ***Study area***

- 18.3.15 The extent of the local highway network (study area) for which the effect of the Proposed Development is being assessed is the shaded area shown on **Figure 18.3** (Volume 4 of this PEIR). This area is referred to as the Fully Modelled Area within the CBLTM-LTN and has been agreed as appropriate with the four highway authorities identified in the following section (**paragraph 18.4.1**) as part of the scoping exercise for the TAR.
- 18.3.16 The effect on rail services considers passengers travelling on the services calling at Luton Airport Parkway station and running north and south on both regional and suburban services.

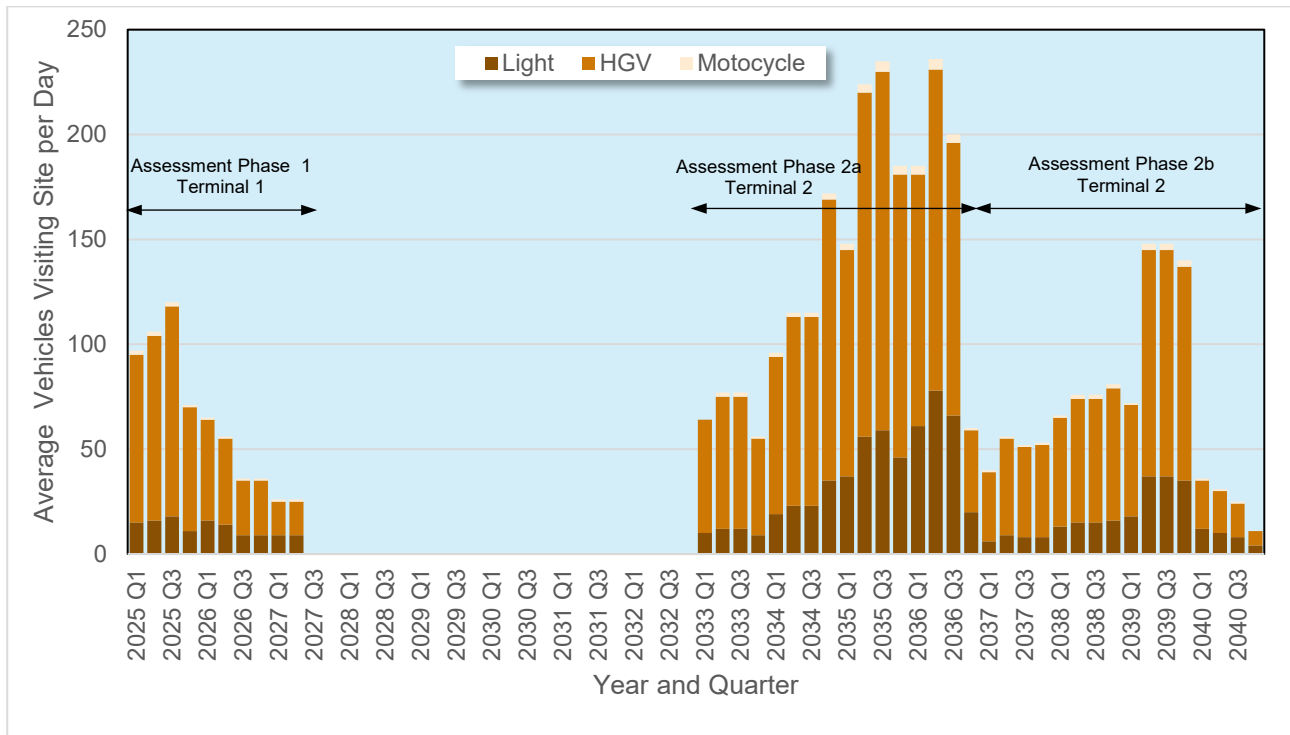
### ***Zone of influence***

- 18.3.17 The analysis of the existing catchment area of the airport based on the origins and destinations in the UK referred to in **paragraph 18.3.14** above, demonstrates that air passengers are drawn from a very large area. However, it is only as they get closer to the airport that the trips by passengers travelling to and from the airport combine to have a potential effect on highway and public transport networks.
- 18.3.18 The zone of influence for the highway network is based on the change in traffic flows. In light of the large catchment area there will be changes in traffic flows over many highway links; however as one moves away from the airport the traffic disperses and the effect on the highway network reduces quickly. The Fully Modelled Area within the CBLTM-LTN, shown in **Figure 18.3** in Volume 4 of this PEIR, covers an area in excess of 1,000 sq. km, which allows this dispersal to be modelled. As referred to in **paragraph 18.1.9**, the extent of this is agreed by the relevant highway authorities to contain those sections of highway that have the potential to be adversely affected by the increase traffic flows. In practice, as a result of the dispersal, the zone of influence will be considerably smaller and concentrated on the major roads in the area.

### ***Temporal Scope***

- 18.3.19 The Proposed Development will be delivered over two key phases, within which construction and operation may take place simultaneously. Three phases are being considered for the purposes of assessment and assessment years for each phase are described in **Chapter 5** Approach to the Assessment in Volume 2 of this PEIR.
- 18.3.20 In order to establish the construction traffic flows that should be used to assess the potential effects during the construction the estimates of the volume of construction traffic that have been prepared for the Construction Method Statement and Programme Report (**Appendix 4.1** in Volume 3 of this PEIR) has been analysed. **Inset 18.1** shows the annual profile of construction traffic as a daily average while **Table 18.7** provides information on average and total activity for the assessment phases.

**Inset 18.1: Total construction vehicles travelling to site by assessment phase**



**Table 18.7: Construction traffic estimates**

Assessment Phase	Duration (Quarters)	Total Vehicles (HGVs)	Average Vehicles per Quarter	Peak Vehicles in a Quarter
Phase 1	10	40,957 (32,109)	4,096	7,802
Phase 2a	16	145,887 (106,309)	9,118	15,333
Phase 2b	16	71,896 (54,199)	4,494	9,687
Overall	42	258,740 (192,618)	6,160	15,333

18.3.21 The graph in **Inset 18.1** shows that for each of the assessment phases, the peak quarters for construction traffic are,

- a. Phase 1 – 2025 Q3;
- b. Phase 2a – 2036 Q2; and
- c. Phase 2b – 2039 Q2 and Q3;

18.3.22 The CBLTM-LTN model has not been run for these years so the following assessments have been undertaken.

- a. Construction traffic for assessment Phase 1 has been tested against the 2027 'Without Development' Scenario flows on the basis that the growth in passenger throughput is restricted until the works are completed.
- b. Construction traffic for assessment Phase 2a has been tested against the 2027 'With Development' Scenario as these reflect the situation with the throughput at 21.5 mppa.
- c. Construction traffic for assessment Phase 2b has been tested against the 2039 'With Development' Scenario flows as these include a passenger throughput of 27 mppa.

18.3.23 The Traffic and Transportation assessment of the operation of the airport considers each assessment phase in turn with incremental effects. The assessment considers the changes in the movement of air passengers on the transport networks reflecting the increases in air passenger movements and the change in travel mode. It also considers increases in employee travel to work trips reflecting the change in workforce and mode of travel that is described in the **SAETS**.

### Receptors

18.3.24 The receptors that are considered in this chapter are grouped as follows:

- a. car drivers;
- b. pedestrians;
- c. other road users;
- d. occupants; and
- e. public transport passengers.

18.3.25 These are standard receptors in an environmental assessment of the effects of additional travel where the effects on air quality and noise are considered separately. **Section 1.4 of Appendix 18.1** (Volume 3 of this PEIR) describes the sensitivity of the receptors and also details those road links that are considered to pass through an area where one or more of the receptors is sensitive to one or more of the effects.

### Matters scoped in

18.3.26 The environmental issues that have been assessed to determine the Traffic and Transportation effects of the Proposed Development (during the construction phase and once the Proposed Development is complete and fully operational) are as follows:

- a. Severance – this is described in the IEMA Guidelines (Ref. 18.19) as the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to

essential facilities. The IEMA Guidelines (Ref. 18.19) recognises that the measurement and prediction of severance is extremely difficult.

- b. Pedestrian delay – this is defined in the IEMA Guidelines (Ref. 18.19) as an issue, which is affected by changes in the volume, composition and/or speed of traffic may affect the ability of people to cross roads. Typically, increases in traffic levels result in increased pedestrian delay, although increased pedestrian activity itself also contributes.
- c. Pedestrian amenity – this is defined in the IEMA Guidelines (Ref. 18.19) as the relative pleasantness of a journey and can include fear and intimidation if they are relevant. As with pedestrian delay, amenity is affected by traffic volumes and composition along with pavement width and pedestrian activity.
- d. Driver stress and delay – this is identified in the IEMA Guidelines (Ref. 18.19) as an issue that can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system. The DMRB Guidelines (Ref. 18.19) identify three main components of driver stress:
  - i. frustration;
  - ii. fear of potential collisions; and
  - iii. uncertainty relating to the route to be followed.
- e. Collisions and safety – these are not defined in the IEMA Guidelines (Ref. 18.19), which suggests that professional judgement will be required to assess the implications of local circumstance, or factors which may increase or decrease the risk of collisions.
- f. Hazardous loads – During construction, the Proposed Development is expected to generate some hazardous material. The consideration of hazardous loads is therefore scoped into the construction stage assessment. Prior to the commissioning of the new fuel farm and its direct connection to the existing fuel main there will be an increase in the number of fuel tankers bringing aviation fuel to the existing fuel depot adjacent to Percival Way. The changes to the volume of fuel tanker trips is considered for all assessment phases.

18.3.27 The methodology used to establish the significance of the effects that have been scoped in is described in **Appendix 18.1** in Volume 3 of this PEIR.

### **Matters scoped out**

18.3.28 No matters have been scoped out of assessment prior to the analysis.

## 18.4 Stakeholder engagement and consultation

- 18.4.1 Engagement in relation to Traffic and Transportation has been undertaken with several prescribed and non-prescribed stakeholders. The principal stakeholders with whom engagement has taken place are the four highway authorities who manage the roads that are expected to experience the highest increases in the volume of traffic carried – National Highways, LBC, HCC, and CBC.
- 18.4.2 The early meetings concentrated on discussions around the content of the Transport Assessment Scoping Report (Ref. 18.20) and the development of the Strategic (CBLTM-LTN) and VISSIM models. On completion of the building of these models the three Model Validation Reports (Refs. 18.21, 22, and 23) were made available and the results were discussed at the meetings that followed. Further meetings were held to present the outputs from the two highway models as the results of the three future year scenarios became available, so that the adequacy of proposed mitigation measures could be discussed. The results from the models were shown in PowerPoint presentations which were then sent to the authorities after the meeting.
- 18.4.3 The **2019 Statutory Consultation Feedback Report** contains a full account of the previous statutory consultation process and issues raised in feedback. Matters raised regarding the scope, method, mitigation or compensation being considered as part of the Traffic and Transportation assessment were then subject to further discussions directly with stakeholders during the regular meetings. The main matters/themes raised during consultation considered relevant to the Traffic and Transportation assessment were:
- a. effect of additional traffic on the local highway network in Luton;
  - b. additional traffic passing through Hitchin;
  - c. scope of highway schemes to mitigate impact on local roads;
  - d. impact on the M1 Junction 10 and motorway carriageway to the south;
  - e. airport traffic using rural roads to the east of the airport;
  - f. additional rat-running on local roads to avoid increased congestion;
  - g. enhancement of the provision of non-car modes of access particularly in areas with low public transport accessibility;
  - h. off-airport car parking on local estate roads;
  - i. congestion around the terminal building where car passengers are dropped off and picked up (Drop Off Zone); and
  - j. lack of capacity on the rail network.
- 18.4.4 **Table 18.8** provides a summary of engagement with relevant stakeholders, undertaken to inform the EIA to date, including the date and time of meetings and a summary of discussions to resolve matters raised.

Table 18.8: Stakeholder engagement relating to Traffic and Transportation

<b>Principal stakeholder and date</b>	<b>Attendees (organisation)</b>	<b>Summary of discussion</b>
Pre 2019 Statutory Consultation		
National Highways 10/05/18 25/06/18 06/07/18 02/11/18 01/02/19 25/06/19 01/08/19 15/11/19	National Highways Jacobs (Development Control adviser to National Highways)	Scope of CBLTM-LTM and VISSIM models. Review of validation of the models. Potential impacts on motorway network. Potential schemes to increase the capacity of the M1. Presentation of the air traffic forecasting model. Initial discussions on contents of Framework Travel Plan.
LBC 21/03/18 01/02/19 28/06/19 15/08/19 01/11/19	LBC (Planning and Economic Growth)	Scope of CBLTM-LTM and VISSIM models. Review of validation of the models. Committed local highway improvements. Initial discussions on contents of Framework Travel Plan.
CBC 18/12/18 14/03/19 22/10/19	CBC (Community Services)	Scope of CBLTM-LTM and VISSIM models. Review of validation of the models. Initial discussions on contents of Framework Travel Plan.
HCC 15/11/18 25/02/19 04/06/19	HCC (Environment and Infrastructure)	Scope of CBLTM-LTM and VISSIM models. Review of validation of the models. Initial discussions on contents of Framework Travel Plan.
Luton Statutory Consultation - Combined Meeting 08/11/19	National Highways LBC (Planning and Economic Growth) CBC (Community Services) HCC (Environment and Infrastructure)	Strategic modelling. Key modal split and rail/coach assumptions. Mitigation measures and Framework Travel Plan. Development consent order progress and timetable.
Express Coach Services 15/04/19 (Telephone)	National Express Coaches	Potential for creating a hub for express coach services at the airport.



<b>Principal stakeholder and date</b>	<b>Attendees (organisation)</b>	<b>Summary of discussion</b>
Local Bus Services 27/02/19	Arriva	Opportunities for upgrading local bus services to encourage their use by employees for journeys to work.
<b>Post 2019 Statutory Consultation</b>		
National Highways 17/01/20 01/10/20 18/12/20	National Highways Jacobs (Development Control adviser to National Highways)	Advising highway authority of the changes to the air passenger forecasts and the revised dates for the assessment. Report the initial findings from re-running of the CBLTM-LTN and VISSIM models.
LBC 23/09/20 14/12/20	LBC (Planning and Economic Growth)	Advising highway authority of the changes to the air passenger forecasts and the revised dates for the assessment. Report the initial findings from re-running of the CBLTM-LTN and VISSIM models.
CBC 05/10/20	CBC (Community Services)	Advising highway authority of the changes to the air passenger forecasts and the revised dates for the assessment.
HCC 30/09/20 17/12/20	HCC (Environment and Infrastructure)	Advising highway authority of the changes to the air passenger forecasts and the revised dates for the assessment. Report the initial findings from re-running of the CBLTM-LTN and VISSIM models.
Travel Plan Workshop 10/11/20	National Highways LBC (Planning and Economic Growth) CBC (Community Services) HCC (Environment and Infrastructure) North Herts District Council (Strategic Infrastructure and Projects)	Identification of measures that could be incorporated into the Framework Travel Plan to discourage travel to and from the airport by car and encourage greater use of public transport and walking and cycling. Monitoring and structure of group that will oversee progress in achieving targets.
<b>Pre 2022 Statutory Consultation</b>		
National Highways 13/08/21 15/10/21	National Highways Jacobs (Development	Presentation of key forecasting assumptions and results of CBLTM-LTN and VISSIM models for 21.5 mppa 2027, and 32 mppa 2043 scenarios.



<b>Principal stakeholder and date</b>	<b>Attendees (organisation)</b>	<b>Summary of discussion</b>
	Control adviser to National Highways)	
National Highways 19/11/21	National Highways Jacobs (Development Control adviser to National Highways)	Presentation of results of CBLTM-LTN and VISSIM models for 27 mppa 2039 and presentation by York Aviation on air movements forecasting methodology and results.
LBC 10/08/21 14/10/21 19/11/21	LBC (Planning and Economic Growth)	Presentation of key forecasting assumptions and results of CBLTM-LTN and VISSIM models for 21.5 mppa 2027, 32 mppa 2043, and 27 mppa 2039 scenarios.
CBC 10/08/21 15/10/21	CBC (Community Services)	Presentation of key forecasting assumptions and results of the CBLTM-LTN and VISSIM models for 21.5 mppa 2027 and 32 mppa 2043 scenarios.
HCC 09/08/21 15/10/21 15/11/21	HCC (Environment and Infrastructure)	Presentation of key forecasting assumptions and results of CBLTM-LTN and VISSIM models for 21.5 mppa 2027, 32 mppa 2043, and 27 mppa 2039 scenarios.
Travel Plan Workshops 13/10/21 17/12/21	National Highways LBC (Planning and Economic Growth) CBC (Community Services) HCC (Environment and Infrastructure) North Herts District Council (Strategic Infrastructure and Projects)	Identification of measures that could be incorporated into the Framework Travel Plan to discourage travel to and from the airport by car and encourage greater use of public transport and walking and cycling.

18.4.5 Stakeholder engagement will continue as the Proposed Development progresses and will include further meetings with the authorities identified above to discuss the results presented in this PEIR and next steps for the ES. Additional workshops will be held to develop the Framework Travel Plan. Contact will also be made with other surrounding local authorities not included in the above table.

## 18.5 Methodology

### Overview

- 18.5.1 This section outlines the methodology employed for assessing the likely significant effects on Traffic and Transportation from the construction and operation of the Proposed Development. A detailed description of the methodology used to calculate the magnitude of impact and the assessment of significance of effects is presented in **Appendix 18.1** (Volume 3 of this PEIR).
- 18.5.2 The scale and extent of the assessment has been defined in accordance with the 'Guidelines for the Environmental Assessment of Road Traffic' produced by the Institute of Environmental Assessment (IEA), now the Institute of Environmental Management (IEMA) and referred to as the 'IEMA Guidelines' (Ref. 18.19). These guidelines recommend that the environmental effects listed in Table 2.1 of the guidelines may be considered important when considering traffic from an individual development. These include:
- a. severance;
  - b. driver delay;
  - c. pedestrian delay;
  - d. pedestrian amenity;
  - e. accidents and safety; and
  - f. hazardous loads.
- 18.5.3 This list was compared with the effects identified in DMRB and expanded for this assessment to cover the following topics:
- a. severance;
  - b. driver stress and delay;
  - c. pedestrian delay;
  - d. pedestrian fear and intimidation;
  - e. accidents and safety; and
  - f. dangerous and hazardous loads.
- 18.5.4 The assessment considers potential impacts on road and transport users, including:
- a. drivers of vehicles;
  - b. passengers in vehicles;
  - c. cyclists;
  - d. pedestrians;
  - e. those living close to the highway network; and
  - f. public transport users.

- 18.5.5 The assessment covers several years to reflect the phased build-up of passenger throughput identifying key infrastructure requirements for each phase. The future year growth is based on passenger demand forecasts. The assessment scenarios are:
- Assessment Phase 1 (2027) – 21.5 mppa;
  - Assessment Phase 2a (2039) – 27 mppa; and
  - Assessment Phase 2b (2043) – 32 mppa.
- 18.5.6 In the light of the scale of the Proposed Development and the nature of the local transport networks it was determined at an early stage that the prediction of future airport related trips should be based on the Central Bedfordshire and Luton Transport model which is a multi-modal model used in assessing the impacts of transport schemes and developments proposed for both Luton and Central Bedfordshire. Within that model the airport was represented by a single zone and was located towards the edge of the detailed model network. Without modification it was clear that the value of the use of the model would be limited.
- 18.5.7 It was agreed with HCC that parts of its COMET model, a similar model used to test transport schemes in that county could be incorporated into the extended CBLTM-LTN model. The team that has undertaken the surface assess study for the Proposed Development has extensive knowledge of transport issues related to the airport, having been involved in assisting with the growth of the airport since the middle of the 1990s. This knowledge, together with desire lines of travel to the airport derived from the 2019 CAA Passenger Survey at the airport, informed the geographical extent of the detailed area in the enlarged model. The area covered by the detailed network is shown on **Figure 18.3** in Volume 4 of this PEIR.
- 18.5.8 The means of travel by air passengers and employees to and from the airport is an important component of the building of the trip matrices used in the models. The strategy with regard to achieving an increased use of public transport has been described in **paragraph 18.1.6** and the broad split between public transport and private modes of travel shown in **Table 18.2**. The detail needs to be more specific for the building of the matrices and modal splits upon which they were based for the 'Without Development' scenario and the three 'With Development' scenarios are set out in **Table 18.9**.

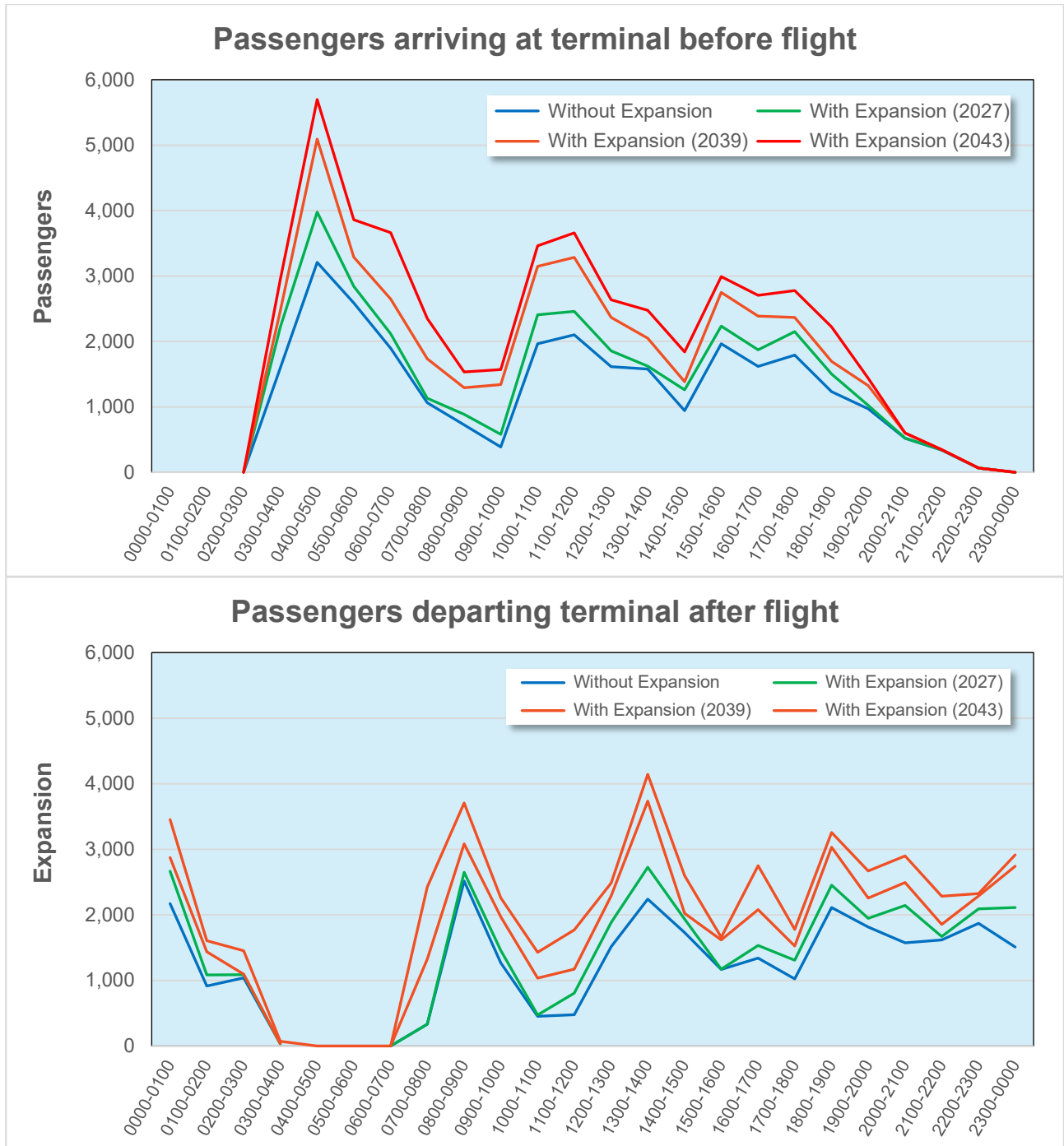
Table 18.9: Assumed mode shares used in CBLTM-LTN

Mode	'Without Development' (All Years)	'With Development' 2027	'With Development' 2039	'With Development' 2043
Bus/coach	18.0%	18.2%	19.3%	21.1%
Rail	9.0%	9.1%	9.4%	9.9%
Taxi	1.0%	1.0%	1.0%	1.0%
Walk/cycle	9.0%	9.0%	9.7%	10.5%
Motorcycle	1.0%	1.0%	1.1%	1.3%

Mode	'Without Development' (All Years)	'With Development' 2027	'With Development' 2039	'With Development' 2043
Private car (on-site car park)	62.0%	61.7%	59.4%	56.1%
Private car (off-site car park)	0.0%	0.0%	0.0%	0.0%
Cars and taxis	63.0%	62.7%	60.4%	57.1%

- 18.5.9 The distribution of trips by time of day has been based on the forecast aircraft movements for October timetables which were prepared specifically as input to the production of the matrices for the CBLTM-LTN. Outbound passengers need to arrive at the terminal building some time in advance of the time of the departure of their flight and for inbound passengers there is a lag between an aircraft arriving on its stand and passengers disembarking, passing through the terminal, and then either boarding a train, bus or coach or getting into a car/taxi. To take this into account, it has been necessary to adjust the profile of aircraft movements to convert the profile of the forecasts of aircraft movements to movement on the local transport network. This process will be described in the TAR. The profiles of air passengers travelling to and from the terminals are shown in **Inset 18.2**. These distributions have been used to develop the matrices for both the highway and public transport components of CBLTM-LTN.
- 18.5.10 In the preliminary assessment reported in **Section 18.9**, the scale of the effects that have been examined are influenced to a high degree by the pattern of aircraft movements at the airport. Because almost all of the flights are short haul, either within the United Kingdom or continental Europe, the aircraft are parked overnight rather than flying. Consequently, unlike London Heathrow Airport there are very few passengers arriving at the airport in the early morning having undertaken an overnight intercontinental flight.
- 18.5.11 The pattern of departures from the airport is one of a high number of departing aircraft leaving in the first few hours of operation, with around 30% of daily departures occurring before 09:00 and this translates to around a third of passengers catching flights arriving at the terminal before 07:00 when the transport networks around the airport are not under pressure. This observation is true for all scenarios. Over the four scenarios between 5% and 6% of air passengers either arrive at or leave the terminal in the morning (08:00 to 09:00) and evening (17:00 to 18:00) peak hours.

Inset 18.2: Profiles of air passenger airside departures and arrivals at the terminal buildings



**Baseline methodology**

18.5.12 The approach to defining future baseline is described in **Section 5.4** of **Chapter 5** Approach to the Assessment Volume 2 of this PEIR. The future baseline considered for Traffic and Transportation is described **Section 18.7** of this chapter.

- 18.5.13 An extensive data collection exercise was undertaken in November 2017 to establish the baseline for both the TA and the EIA assessments. The surveys included:
- a. classified junction turning counts (43 locations);
  - b. automatic traffic counts (45 locations);
  - c. car park entry/exit surveys (five locations);
  - d. car park occupancy (one location); and
  - e. journey time surveys (three routes).
- 18.5.14 The surveys that collected data for the junction turning counts were conducted using video cameras. The survey specification required that the cameras recorded activity at the junctions for the period 05:00 to 20:00 on either a Tuesday, Wednesday, or Thursday. Data for the periods 05:30 to 10:30 and 16:00 to 19:00 was extracted from the recordings. The surveys also observed pedestrian movements at the junctions and queue lengths that were recorded every five minutes.
- 18.5.15 The automatic traffic counts recorded traffic flows over a period of two weeks. The data is fully classified, with average speeds recorded at 15-minute intervals. Data for the M1 was obtained from the WebTRIS<sup>3</sup> database.
- 18.5.16 Surveys were undertaken at the following eight parking areas:
- a. short stay;
  - b. mid-stay;
  - c. long-stay;
  - d. multi-storey;
  - e. drop off zone;
  - f. car hire;
  - g. employee car park; and
  - h. TUI car park.
- 18.5.17 Except for the car hire car park, vehicles entering and leaving were counted over the 24-hour period on either a Tuesday, Wednesday, or Thursday. In addition, the start and end occupancy of the car park or drop-off zone was also recorded. At the car hire car park only the start and end occupancy was recorded as the vehicle movements were captured as part of the junction turning count surveys.
- 18.5.18 Further traffic counts and journey time surveys were undertaken in Autumn 2018 to assist the expansion of the CBLTM to the CBLTM-LTN.
- 18.5.19 Bus company and rail operator websites were reviewed to establish baseline public transport provision, including routes and frequencies.

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<sup>3</sup> National Highways Traffic Information System, a database of traffic flows and speeds at selected locations on the motorway and trunk road network.

## Construction assessment methodology

- 18.5.20 The basis of the construction assessment is the predicted flows of construction vehicles that have been produced for the Construction Method Statement and Programme Report provided as **Appendix 4.1** in Volume 3 to this PEIR.
- 18.5.21 Using professional judgement, the most appropriate route for construction traffic was identified and presented in the 2019 PEIR. There were no objections to this routeing from the highway authorities. Based on that route, predicted traffic volumes have been produced which have then been compared with the predicted flows that have been extracted from the CMLTM-LTN for the appropriate scenarios on those roads. The scenarios are identified in **Section 18.9**.
- 18.5.22 The methodology that has been used is to undertake further assessment of the effect of the changed vehicle movements where the increase/decrease is 30%, or 10% if there is a sensitive receptor along a specific link. For those road links that exceed that threshold for the increase/decrease in the flows an analysis is undertaken to consider the effects of listed in **paragraph 18.5.3** on drivers of vehicles, passengers in vehicles, cyclists, pedestrians, those living close to the highway network. This has established the magnitude of impact which when compared with the sensitivity of that road link gives the significance of the traffic effects and hence whether the effect is significant or not significant. More detailed information on the analysis process is provided in **Appendix 18.1**.
- 18.5.23 The draft Outline CTMP that will be in place prior to commencement of the Proposed Development will secure a routeing agreement for the construction HGVs. It is expected that the great majority of construction HGVs will use only motorways and 'A' roads. In the vicinity of the airport this will be the A1081 and the M1.
- 18.5.24 For the purpose of this assessment, it has been assumed that at the time of peak construction traffic activity all construction HGVs will be limited to the A1081, and the M1. At this stage it is not possible to predict how the traffic will split when it gets to the M1 and, therefore, two alternatives have been considered. The first of these assumes that four fifths of the traffic will either travel to or from a point that will require the traffic to use the M1 to the south of Junction 10 with the remaining construction traffic using the M1 to the north of Junction 10 (Alternative A). The second test has assumed a reversal of these proportions and is referred to as Alternative B.
- 18.5.25 The predicted profile of construction vehicle movements over the period that construction of the Proposed Development will take place is shown in **Inset 18.1**.
- 18.5.26 The higher flows of construction traffic will occur in the interpeak hours with construction traffic discouraged during the normal commuter peak periods through the implementation of the CTMP.



## Operational assessment methodology

- 18.5.27 A detailed description of the methodology used for the assessment of the significance of environmental effects for the operational stage is set out in **Appendix 18.1** (Volume 3 of this PEIR). The assessment is similar to that described for the construction assessment with the exception that the change in traffic flows attributable to the Proposed Development is established by comparing for each link the predicted flows for the 'Without Development' and 'With Development' scenarios.

### *Highway*

- 18.5.28 In **paragraph 1.3.1** of **Appendix 18.1** presents two broad rules of thumb from in the IEMA guidelines (Ref. 18.19) that are as suggested as a means of filtering out road links where the predicted percentage change in traffic flows is at a level where the significance of the effects can be stated to be negligible and further detailed assessments are not warranted.
- 18.5.29 The change in traffic flow along a section of road is the main determinant of the magnitude of the impact.
- 18.5.30 The CBLTM-LTN highway model includes three hourly periods, the definitions of these time periods are:
- a. AM Peak hour between 08:00 and 09:00;
  - b. Interpeak hour (an average hour between 10:00 to 16:00); and
  - c. PM Peak hour between 17:00 and 18:00.
- 18.5.31 To establish the changes, predicted traffic flows for the years 2027, 2039, and 2043 have been extracted from the CBLTM-LTN for both the 'Without Development' and 'With Development' scenarios. The Study Area for the assessment of highway related effects covers an area more than 1,000 sq. km (**Figure 18.3**); it was therefore appropriate to screen the road links for further consideration for those that might be associated with an environmental effect. Information on traffic flows on 252 road links (219 two-way and 33 one-way) has been extracted from the CBLTM-LTN. This initial sift to reduce this selection of the road links for investigation was based on a knowledge of the operation of the local highway network. Once the data was available it was possible to confirm that this initial selection covered all roads where an environmental effect might occur. Data for this assessment has been provided for the following periods.
- a. AM Peak Hour (08:00 to 09:00);
  - b. PM Peak Hour (17:00 to 18:00);
  - c. AM Peak Period (07:00 to 10:00);
  - d. Interpeak Period (10:00 to 16:00);
  - e. PM Peak Period (16:00 to 19:00);
  - f. Off Peak Period (19:00 to 06:00);
  - g. Annual Average Daily Total (AADT);



- h. 24-hour AAWT (weekdays all day); and
- i. 18-hour AAWT (weekdays 06:00 to 24:00).

- 18.5.32 The flows for bullet points 'a' and 'c' have been taken directly from CBLTM-LTN. The interpeak period has been obtained by multiplying the average flow by six, the number of hours in the period. The remaining flows have been established using factors that have been calculated from the automatic traffic counters that were placed around the highway network as described in **paragraphs 18.5.13** and **18.5.15** and the traffic data for the motorways extracted from the WebTRIS database.
- 18.5.33 The links have been separated into seven categories.
- a. M1 and access route to/from the airport (12 two-way, 15 one-way);
  - b. Access route to the A1(M) using the A505 and A602 (28 two-way, three one-way);
  - c. Other 'A' roads (21 two-way);
  - d. Other urban local roads (46 two-way);
  - e. Rural roads to east and north of the airport (28-two-way);
  - f. Rural roads to west and south of the airport (10 two-way); and
  - g. Internal airport roads (14 two-way).
- 18.5.34 The traffic flow data for these selected links is provided in **Appendix 18.2**, Volume 3 of this PEIR. In that appendix, **Tables 1.1** to **1.3** show the AADT, AM Peak and PM Peak flows respectively. The tables also show the change in flow between the 'Without Development' and 'With Development' scenarios. The change is expressed as both a flow in vehicles and as a percentage.
- 18.5.35 For convenience, the percentage increases set out in those tables have been collated in **Table 1.4** of **Appendix 18.2** to show the changes, expressed as percentages, for each of the three periods for the years 2027, 2039, and 2043.

### ***Public Transport***

- 18.5.36 There are no established criteria for consideration of the effects on public transport, therefore it has been necessary to use professional judgement to determine whether effects are significant/or not significant. In the absence of these criteria, the reasoning behind the conclusion is set out in this **Section 18.9**.
- 18.5.37 The profile for air passengers arriving at and departing by train at Luton Airport Parkway station has been developed based on the October timetables which were prepared by York Aviation (reference **paragraph 18.5.9**). This has been compared against projections of future capacity of rail services between St Pancras International and Luton Airport Parkway stations that have been based on the May 2020 timetables.

## 18.6 Assumptions and limitations

18.6.1 This section provides a description of the assumptions and limitations to the Traffic and Transportation assessment.

### Assumptions

18.6.2 The following assumptions have been made in the prediction of future airport related trips:

- a. implementation of the **SAETS** will achieve a public transport modal share of 45% for trips by air passengers;
- b. implementation of the **SAETS** and the Travel Plan will achieve a public transport mode share for new employees of 40%;
- c. increase in airport employees is based on 350 employees per 1 mppa based on future employment data as set out in the **SAETS (Section 6)**;
- d. the assumption of the time gap for passengers arriving at the airport before departure/leaving after arrival time is based on previous similar projects and was made to represent the appearance of passengers onto the road network before their departure flight/after their arrival flight. Details of the time gaps that have been adopted will be presented in the TAR.
- e. An occupancy rate of 1.87 air passengers for taxis and private cars based on the 2017 CAA passenger surveys (Ref. 18.2) at the airport.
- f. Existing fuel farm will be replaced by a new fuel farm with the fuel being delivered by pipeline.
- g. Public transport operators will provide increased capacity in response to the **SAETS**.
- h. East Luton highway improvement schemes to be implemented by LBC and it has been agreed with LBC that they should be included in the 'Without Development' scenarios for modelling purposes for all future assessment years.

18.6.3 A further assumption that has been made in order to assess the effects of the additional trips on the railway network is that the patterns of Thameslink and EMR services will remain unchanged through the assessment years.

### Limitations

18.6.4 There have been no notable limitations regarding methodology or available data in the preparation of this chapter.

### Reasonable Worst Case

18.6.5 **Chapter 5** Approach to the Assessment Volume 2 of this PEIR describes the general approach adopted to ensure that a reasonable worst case is assumed in this assessment including the use of parameters, accounting for uncertainty, and incorporating flexibility in design and demand forecasts.

- 18.6.6 Further relevant assumptions on the reasonable worst case specific to this assessment include:
- a. Mode shift has improved already, before Luton DART is open.
  - b. Additional trips in the 'With Development' scenario include new trips generated by Century Park development, which do not form part of the application for development consent.
- 18.6.7 The mode shift that has occurred before the opening of Luton DART suggests that the assumption of 45% of air passengers travelling by public transport by 2039 could be an underestimate which would mean that the number of car trips has been overestimated which would therefore reduce the impact on the highway network. Because the Century Park development is dependent on the Airport Access Road (AAR) for access, it has not been appropriate to include the traffic associated with that development in the 'Without Development' scenario; however, this does distort the 'With Development' scenario because the changes include the Century Park traffic as well as the additional airport related traffic, thereby exaggerating the increase in traffic on the highway network.

## 18.7 Baseline conditions

### *Existing conditions*

- 18.7.1 The airport is located on the eastern side of Luton, four kilometres from the town centre. Landside access to the terminal is along Airport Way, which passes the mid-stay car park and beneath a taxiway to feed a public transport hub (PTH), drop-off zone, taxi rank, short-stay car park, and some staff car parking near the terminal building. Access to other parts of the airport that includes the long-stay car park, the two general aviation terminals is along Percival Way/President Way. In addition to the connection with New Airport Way, Frank Lester Way provides a connection with Eaton Green Road to the north of the airport.

### **Highway Network**

- 18.7.2 The airport is well located with respect to the strategic highway network as shown in **Figure 18.1** (Volume 4 of this PEIR). The current terminal is 4.6km from Junction 10 of the M1 to which it is connected by the A1081 a dual carriageway road. The section of the M1 between Junction 10 and the crossing of the M25 at Junction 6A to the south has four lanes in each direction. South of Junction 6A the M1 is formed as a dual three lane carriageway. To the north of Junction 10 the M1 has three lanes in each direction with SMART motorway incorporating hard shoulder running when additional capacity is needed.
- 18.7.3 Since 2006 there have been several major improvements to the A1081 with the most recent being the upgrading of the section of Airport Way between Percival Way and the terminal.
- 18.7.4 The section of the A1081 between the grade separated junction serving the Capability Green Business Park and the junction of Airport Way and Percival Way was realigned and dualled as part of the East Luton Corridor project (opened in 2008).
- 18.7.5 When the M1 was first constructed there was a short spur off the M1, constructed to motorway standards that terminated at a roundabout that was designated Junction 10A. The length of the link was approximately  $\frac{3}{4}$ km. There was no direct link to the airport, and airport related traffic had to pass through the built-up area. Over the years the route to the airport has been upgraded so that there is now a direct dual carriageway connection between the airport and the M1 Junction 10. The roundabout that previously formed the western end of the motorway spur was replaced by a grade separated junction with the section of motorway between Junctions 10 and 10A being widened to a three-lane dual carriageway and removed from the motorway network, with the work being completed in 2015. As part of that work, the section of the A1081 between the new grade separated roundabout and the west facing slip roads serving the Capability Green Business Park was also widened to three lanes on each carriageway, although only two lanes are carried through the new junction between its slip roads.
- 18.7.6 The A505 provides a link to the A1 corridor in Hertfordshire. In the vicinity of the airport the A505 runs along Kimpton Way and Vauxhall Way. The link between

the A505 and the airport is provided by Airport Way. Vauxhall Way is a single carriageway road with several roundabout junctions along it. At the northern end of Vauxhall Way, near Round Green, the A505 turns towards the north east. The road is then a dual carriageway which continues for approximately 9km before returning to a single carriageway layout just before entering Hitchin. From Hitchin the most direct route to the A1 corridor is along the A602, which crosses the A1(M) at Junction 8. Once the A602 is clear of Hitchin it becomes a dual carriageway as it forms the Little Wymondley Bypass. The A505 crosses the A1(M) at Junction 9 (Letchworth Gate) and continues across country for 37km before joining the A11 to the west of Pampisford.

- 18.7.7 The B653 to the south of Luton provides a link to Harpenden and an alternative route to the A1(M) at Junction 4. This route is only attractive for car travel to and from a limited area which is confined to Harpenden, villages along the B653 and parts of Welwyn Garden City and Hatfield.
- 18.7.8 The connection with Eaton Green Road, using Frank Lester Way, provides two alternative routes for connection with the A505 at Stopsley Green Roundabout further north. The first follows Lalleford Road, Crawley Green Road and then Ashcroft Road, while the second follows Wigmore Lane passing the ASDA superstore before crossing Crawley Green Road to then join with Ashcroft Road some 300m south east of Stopsley Green. The former is shorter, but Wigmore Lane is the more direct in terms of its characteristics and therefore tends to be the favoured route for employees and others with local knowledge seeking the employment areas at the airport and beyond. The area to the north of the airport is predominantly residential with many of the estate roads having a 20mph speed limit. This includes Lalleford Road and the short length of Crawley Green Road that provides the connection with Ashcroft Road.
- 18.7.9 There is a network of country lanes to the east of the airport that can be used for travel to the A1 corridor. Use of this network will involve using some roads on which passing traffic travelling in the opposite direction requires the use of passing bays.
- 18.7.10 PIC data has been collected from LBC for the following junctions.
- a. A505/Vauxhall Way/Eaton Green Road;
  - b. A505/Vauxhall Way/Crawley Green Road;
  - c. A505/Vauxhall Way/Stopsley Way;
  - d. Vauxhall Way/Airport Way/Kimpton Road;
  - e. A1081/link to Gipsy Lane;
  - f. Gipsy Lane/Link to A1081;
  - g. Windmill Road/Kimpton Road;
  - h. Crawley Green Road/Lalleford Road;
  - i. Crawley Green Road/Wigmore Lane;
  - j. Eaton Green Road/Frank Lester Way;
  - k. Eaton Green Road/Lalleford Road; and

## I. Eaton Green Road/Wigmore Lane.

18.7.11 The data covers the five year period from 1 January 2014 to 31 December 2018. The data has been analysed and a summary of the degree of severity by year for each junction is set out in **Table 18.10**.

Table 18.10: Summary of personal injury collisions, 2014 to 2018

Junction	Severity	2014	2015	2016	2017	2018
A505/Vauxhall Way/Eaton Green Road	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	1	3	0	0	2
	Total	1	3	0	0	2
A505/Vauxhall Way/Crawley Green Road	Fatal	0	0	0	0	0
	Serious	0	0	0	2	0
	Slight	3	2	2	0	1
	Total	3	2	2	2	1
A505/Vauxhall Way/Stopsley Way	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	0	1	1	0	2
	Total	0	1	1	0	2
Vauxhall Way/Airport Way/Kimpton Road	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	0	1	2	2	2
	Total	0	1	2	2	2
A1081/link to Gipsy Lane	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	2	2	1	2	0
	Total	2	2	1	2	0
Gipsy Lane/Link to A1081	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	0	1	0	0	0
	Total	0	1	0	0	0
Windmill Road/Kimpton Road	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	2	3	1	0	0
	Total	2	3	1	0	0
Crawley Green Road/Lalleford Road	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	0	0	1	0	0

Junction	Severity	2014	2015	2016	2017	2018
	Total	0	0	1	0	0
Crawley Green Road/Wigmore Lane	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	1	0	2	1	1
	Total	1	0	2	1	1
Eaton Green Road/Frank Lester Way	Fatal	0	0	0	0	0
	Serious	0	0	1	0	0
	Slight	0	0	0	0	0
	Total	0	0	1	0	0
Eaton Green Road/Lalleford Road	Fatal	0	0	0	0	0
	Serious	0	0	0	0	0
	Slight	2	0	0	1	0
	Total	2	0	0	1	0
Eaton Green Road/Wigmore Lane	Fatal	0	0	0	0	0
	Serious	0	0	0	1	0
	Slight	0	1	0	0	0
	Total	0	1	0	1	0

## Cycle and Pedestrian Networks

- 18.7.12 By the nature of the size of the catchment area for the airport and the need for many air passengers to travel with luggage, cycling and walking are only significant modes for employees.
- 18.7.13 National Cycle Route (NCR) 6 runs along the River Lea Valley to the south west of the airport. The route provides a continuous link between London and the Lake District. Between Harpenden and Luton, the NCR 6 follows an off-road route. 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. NCR 6 runs between Parkway Road and Park Street following a shared footway/cycleway. There are advisory cycle lanes along both sides of Park Street. The route leaves Park Street at Park Square and follows the pedestrianised sections of Georges Street and Manchester Street to pass through the town centre.
- 18.7.14 North of the town centre the route follows the A6, from the gyratory that forms its junction with Telford Way, for a distance of about 2.3km. Between the gyratory and the junction with Stockingstone Road northbound cyclists are served by a mandatory cycle lane and southbound cyclists share the footway with pedestrians. North of the junction with Stockingstone Road there is a segregated cycleway catering for both directions of travel to the east of the carriageway.



- 18.7.15 At the point 2.3km north of the gyratory there is a shared footway/cycleway that provides a link through to Ridley Lane which NCR 6 then runs alongside until it crosses Birdfoot Lane. From there the route is mainly off road until it reaches Dunstable town centre. The route then goes to Leighton Buzzard before heading north towards Milton Keynes and the Midlands.
- 18.7.16 The Chilterns Cycleway is a 170-mile circular cycle route through the Chilterns Area of Outstanding Natural Beauty (AONB). The route is mainly on-road and is signposted throughout. It is closest to the airport on the section between Lilley and Kinsbourne Green that passes through Breachwood Green. The route is on country roads, albeit generally lightly trafficked, and does not provide any specific facilities for cyclists. The purpose of the route is for leisure trips.
- 18.7.17 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. Cyclists must dismount on this section. On the section of the route that runs along the bus and taxi lane link and the A1081, cyclists can use either the carriageway making use of the bus lane or share the footway. At the junction with Vauxhall Road there are dropped kerbs to facilitate the crossing of both Kimpton Road and Vauxhall Way. The crossings incorporate the splitter islands on these two roads so that cyclists or pedestrians have only to concentrate on traffic travelling in one direction at each crossing point.
- 18.7.18 The route then uses the footway on the northern side of Airport Way which is signed for use by both cyclists and pedestrians up to the access to the Holiday Inn hotel. The route then switches to the northern footway alongside Spittlesea Road. At the roundabout where Airport Way meets New Airport Way and Percival Way cyclists and pedestrians can cross Percival Way and the section of Airport Way that leads up to the terminal area at crossing points that make use of the splitter islands. There are signs telling cyclists to dismount on section of Airport Way east of the roundabout.
- 18.7.19 There are mandatory cycle lanes along parts of the dual carriageway section of the A1081, but LBC does not include these in its publicity showing cycle routes in the borough.
- 18.7.20 Except for the route from Parkway Road, described in **paragraphs 18.7.16** and **18.7.17** there are no dedicated pedestrian facilities providing routes to the airport. In all other instances pedestrians will have to use footways adjacent to carriageways where they exist.
- 18.7.21 There are also several Public Rights of Way (PROW) located within the Main Application Site, including:
- a. public bridleway Kings Walden 052, which connects between Coleman's Road (near Breachwood Green) and Eaton Green Road, and partially serves as a section of the Chiltern Way long distance footpath;

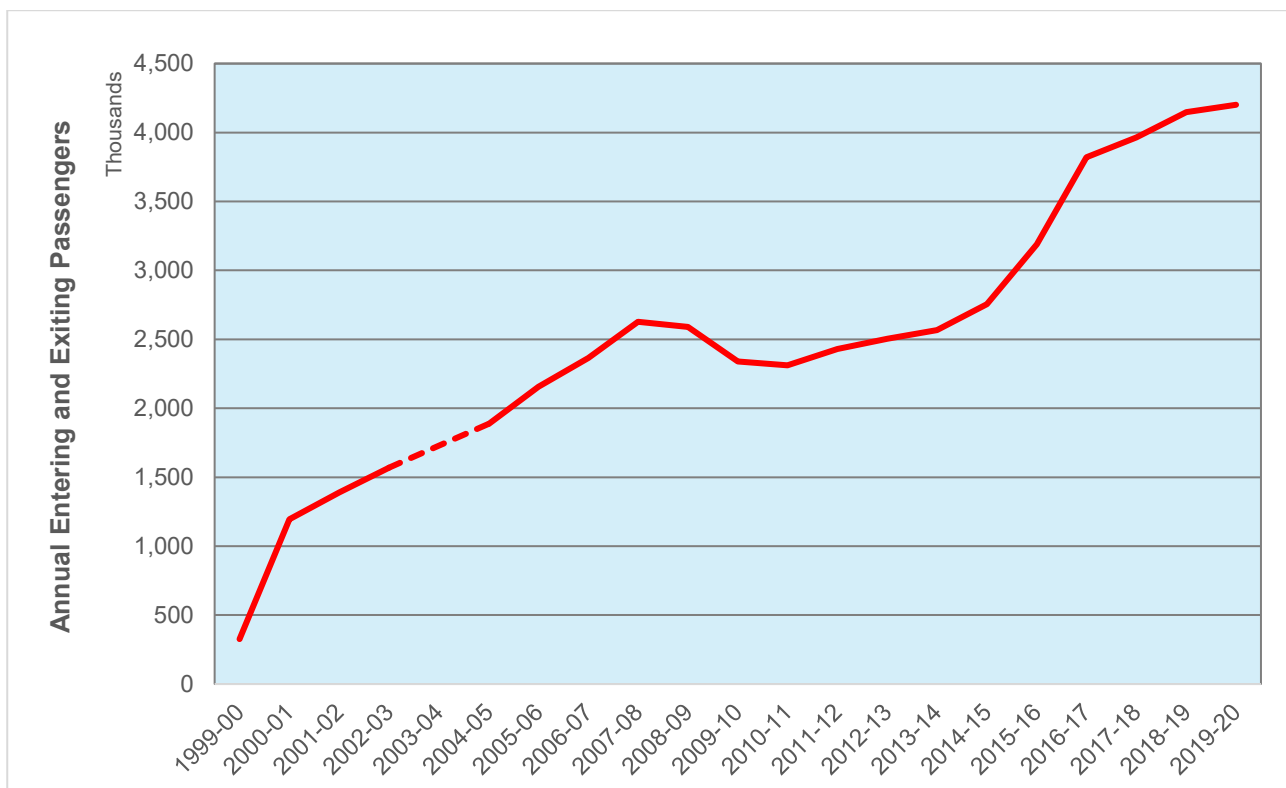
- b. public footpath Kings Walden 041, which borders Darley Road and Eaton Green Road, and also partially serves as a section of the Chiltern Way long distance footpath;
- c. public footpath Kings Walden 043, which crosses the ridgeline of Winch Hill and connects between Eaton Green Road and Winch Hill Road; and
- d. the Main Application Site is also crossed by an unnamed footpath and bridleway that follows the mature hedgerow to the southeast of Wigmore Valley Park and east of the airport between Eaton Green Road and Winch Hill Road.

## Public Transport

### Rail

18.7.22 Unlike the other London airports, the airport is not currently served directly by a rail line. The nearest station is Luton Airport Parkway railway station which is served by Thameslink and EMR. Construction of the Luton DART link to the terminal building from Luton Airport Parkway station is in the latter stages (refer to **paragraphs 18.7.48** and **18.7.49**). The annual throughput of passengers entering and leaving Luton Airport Parkway station is shown in **Inset 18.3**. The data has been obtained from the estimates of station usage prepared for the Office of Rail and Road (ORR) and published on its website (Ref. 18.24).

Inset 18.3: Passenger throughput at Luton Airport Parkway station



18.7.23 The section of broken line in the figure represents the absence of data for the station in the year 2003/04. Since 2004 the change in throughput at the station reflects closely the pattern of passenger throughput at the airport. Luton Airport

Parkway station is on the Midland Mainline (MML) and is served by trains operated by Thameslink and EMR. Information on the number of trains stopping at Luton Airport Parkway station each hour on a weekday has been taken from the Thameslink timetables (Ref. 18.25) for the period 19 May to 10 December 2021<sup>4</sup> and from the EMR timetable for services to and from St Pancras International station (Ref. 18.26) for the period 16 May to 11 December 2021. This is set out in **Table 18.11**.

- 18.7.24 Following electrification of the line between Bedford and Corby, EMR introduced a new half-hourly service named EMR Connect. The trains run non-stop between Luton Airport Parkway and St Pancras International stations. The average travel time is around 24 minutes. To the north the trains call at Luton, Bedford, Wellingborough, and Corby. Any passenger wishing to travel toward the East Midlands can change at Kettering.
- 18.7.25 The core of the Thameslink service is a combination of trains operating a regional service between Bedford and Brighton (2 trains per hour) and Bedford and Gatwick Airport (2 trains per hour). Between Luton Airport Parkway station and St Pancras International station the trains additionally call at Harpenden and St Albans with some trains also calling at West Hampstead station. The journey time for trains travelling towards Luton is on average 30 or 33 minutes depending on whether the service stops at West Hampstead station. In the opposite direction the corresponding average times are 33 and 35 minutes. At St Pancras International and other stations in London served by Thameslink services there is the opportunity to connect with the London Underground and services on the Southeastern network that provides commuter and regional services in South East London and Kent, and also serves parts of East Sussex. The available connections are listed below:
- a. St Pancras International - Metropolitan, Circle, Hammersmith and City, Northern (Bank branch), Piccadilly, and Victoria lines;
  - b. Farringdon - Metropolitan, Circle, and Hammersmith and City lines;
  - c. Blackfriars - Circle and District lines; and
  - d. London Bridge - Northern (Bank branch) and Jubilee lines, Southeastern rail services terminating at Canon Street and Charing Cross, and Southern services terminating at London Bridge.
- 18.7.26 The other part of the Thameslink service is a suburban stopping service running between Luton and Rainham (2 trains per hour), with some peak period trains going to Orpington. These trains call at all stations between Luton Airport Parkway station and St Pancras International except for Hendon, Cricklewood, and Kentish Town.

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<sup>4</sup> Revised timetables have been introduced on 26 July 2021 and 6 September 2021 with the aim of providing a reliable service while staffing levels were being severely affected by the pandemic.

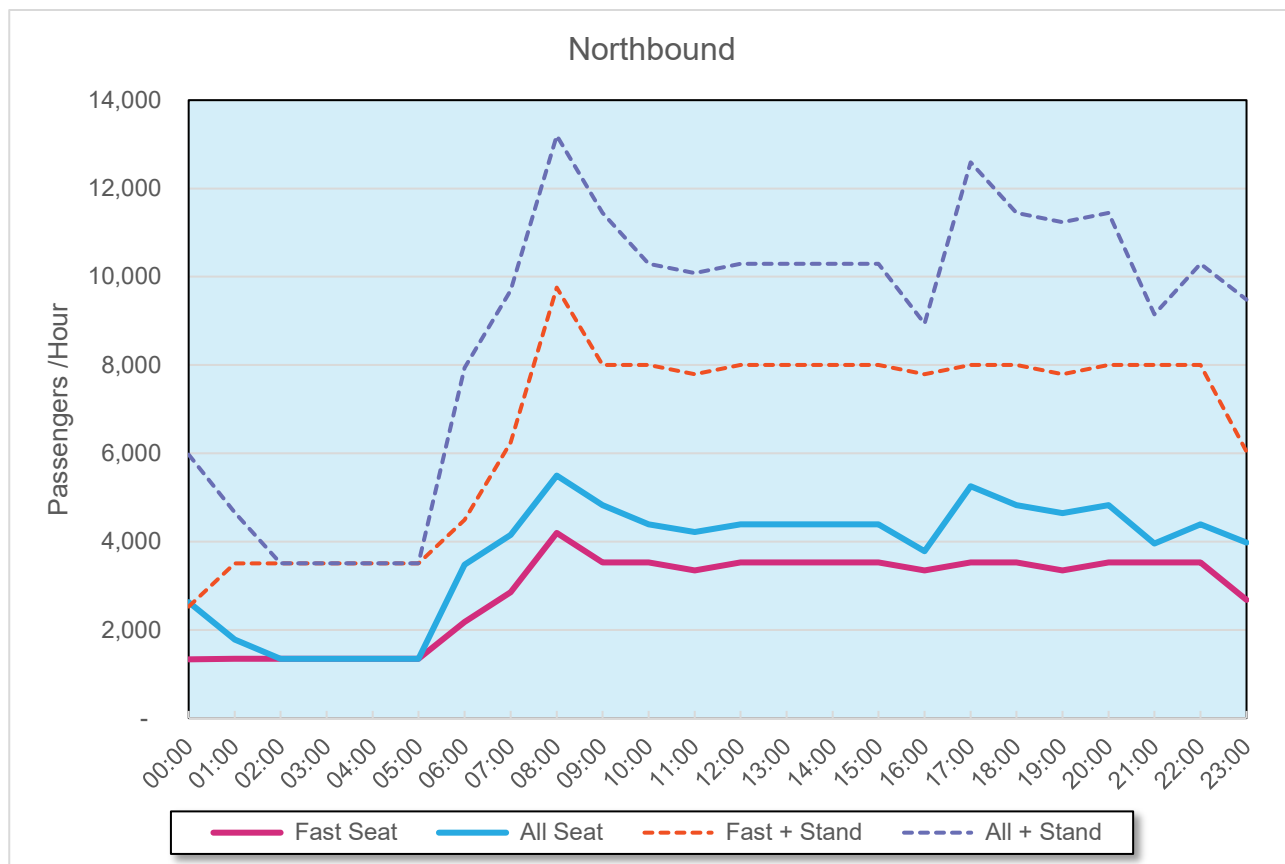
Table 18.11: Hourly arrivals/departures Luton Airport Parkway station

Time	Southbound				Northbound			
	Thameslink		EMR		Thameslink		EMR	
	Regional	Suburban	Connect	Intercity	Regional	Suburban	Connect	Intercity
00:00	2	0	0	0	1	3	1	1
01:00	1	0	0	0	2	1	0	0
02:00	2	0	0	0	1	0	0	0
03:00	2	0	0	0	1	0	0	0
04:00	2	2	0	0	1	0	0	0
05:00	2	2	1	0	2	0	0	0
06:00	2	4	2	1	2	3	2	0
07:00	4	3	2	0	3	3	2	0
08:00	3	4	2	0	5	3	2	0
09:00	4	2	2	0	4	3	2	0
10:00	3	3	2	0	4	2	2	0
11:00	4	2	2	0	4	2	2	0
12:00	4	2	2	0	4	2	2	0
13:00	4	2	2	0	4	2	2	0
14:00	4	2	2	0	4	2	2	0
15:00	4	2	2	0	4	2	2	0
16:00	4	2	1	0	4	1	2	0
17:00	4	3	2	0	4	4	2	0
18:00	4	2	3	0	4	3	2	0
19:00	4	2	2	0	4	3	2	0
20:00	4	2	2	0	4	3	2	0
21:00	4	2	1	0	4	1	2	0
22:00	4	2	1	0	4	2	2	0
23:00	2	0	1	1	3	3	1	1

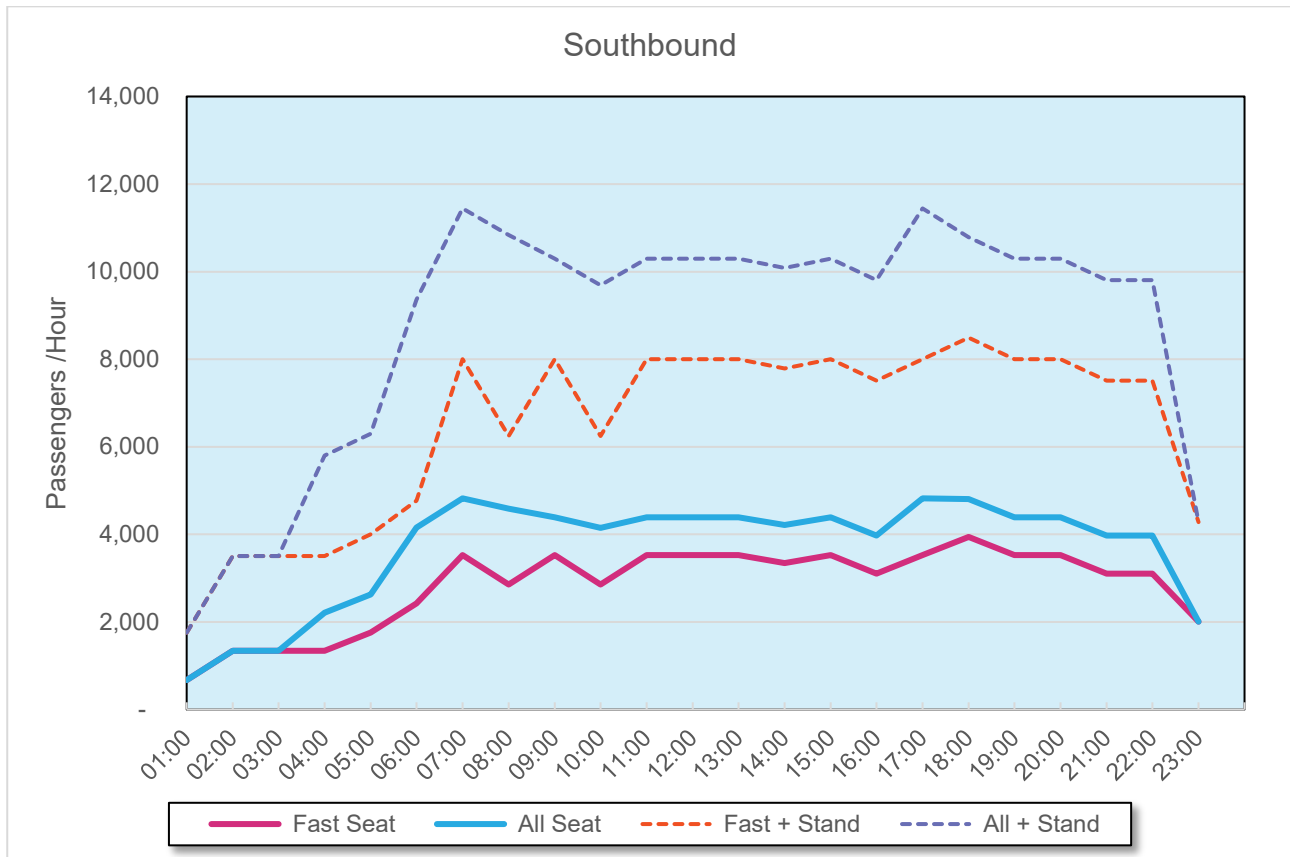
18.7.27 With the incorporation of the services from Peterborough and Cambridge into the Thameslink network in 2018, the area which is served by Thameslink services with a single change of train without a change of platform has expanded; consequently, the area within which public transport is a realistic option for journeys to and from the airport has increased. The Class 700 electric multiple unit (EMU) trains that provide all services on the Thameslink service have been designed to be able to provide a metro-style service of up to 24 trains per hour running across Central London, between Blackfriars and St Pancras. In order to do this the number of seats per carriage has been reduced, corridors widened, and more standing room provided which help to reduce the dwell time needed for passengers to board and alight.

18.7.28 **Insets 18.4** and **18.5** show the capacity of the train services that pass through Luton Airport Parkway station for both directions. Four levels of capacity are shown. The first is the number of seats provide on the EMR services and the Thameslink regional service which provide the most attractive service to the great majority of air passengers travelling towards or from London ('Fast Seat'). The second capacity shows all seats available which includes the Thameslink metro service ('All Seat'). The third and fourth are the corresponding capacities with standing passengers included ('Fast + Stand' and 'All + Stand').

Inset 18.4: Capacity of northbound rail service by hour of day



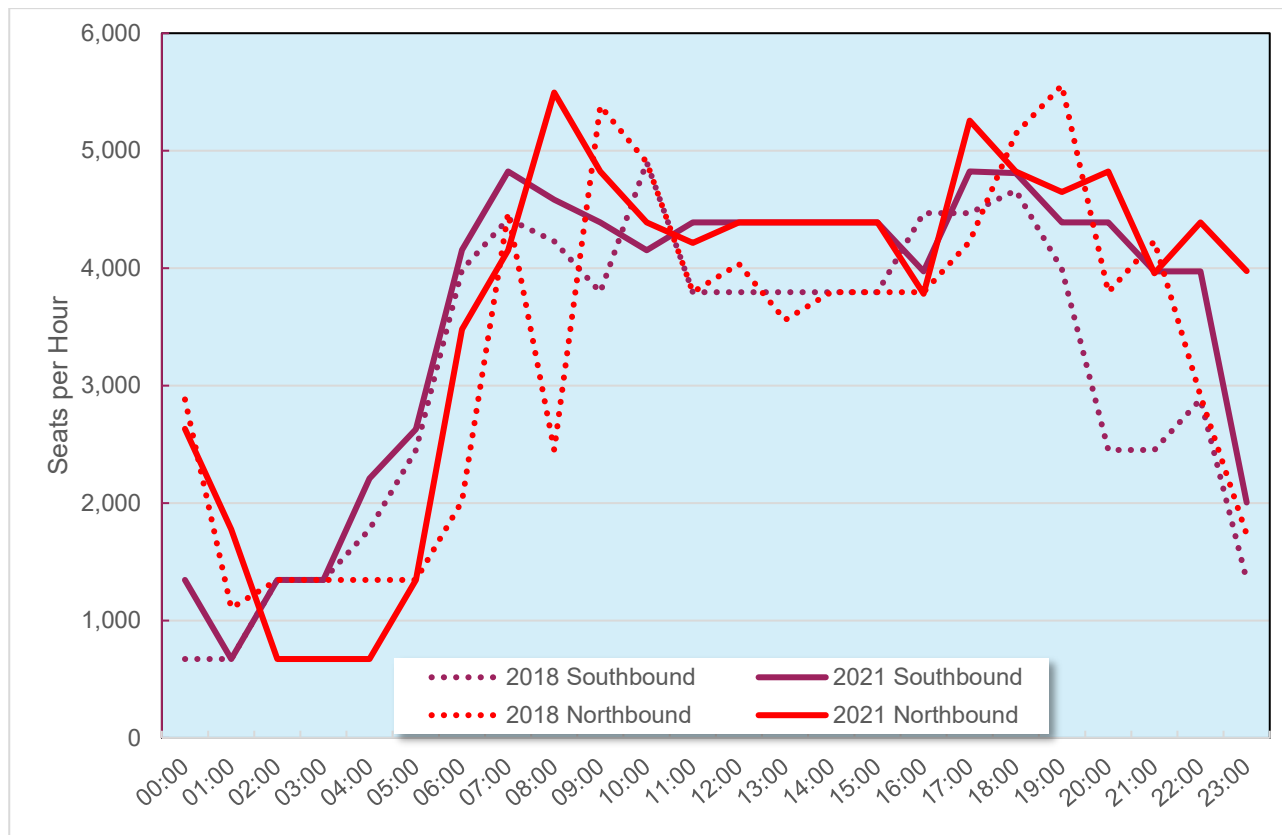
Inset 18.5: Capacity of southbound rail service by hour of day



18.7.29 Although the EMR Connect service provides the shortest journey time to and from St Pancras International a significant proportion of these passengers are travelling by train south of that station and for those passengers it is likely to be more convenient to travel on the Thameslink regional service rather than change trains. Following the opening of the Elizabeth line (refer to **paragraph 18.7.50**) overall journey times are likely to be shorter if travelling on Thameslink trains when also using the Elizabeth line.

18.7.30 The revisions to the rail timetable that have taken place since 2018 have resulted in the provision of an additional 19,000 seats on the route between Luton Airport Parkway and St Pancras International stations (both directions combined) which is an increase of 12%. The profile of all seat provision over the course of a weekday is shown on **Inset 18.6** for both the 2018 and 2021 timetables to demonstrate the differences.

### Inset 18.6: Seating capacity of trains serving Luton Airport Parkway station (2018 and 2021)



- 18.7.31 Currently there is a shuttle bus service that transfers passengers between Luton Airport Parkway station and the terminal. The reliability and journey time of the bus service can be affected by traffic congestion, which is difficult to predict in advance. These issues can lead to stressful and delayed journeys to the airport which in turn reduces the attractiveness of travel to and from the airport by these rail services.
- 18.7.32 A contactless payment travel system has been introduced at Luton Airport Parkway station. This will also be extended to include the Luton DART service when it becomes operational.
- 18.7.33 An additional consideration when considering measures that will encourage greater use of public transport and consequently lower car use is the predicted change in the pattern of passenger demand.

#### **Bus and Coach Services**

- 18.7.34 The airport PTH, located adjacent to the terminal, is arranged to cater for the wide variety of services that the airport operations demand with 17 bus/coach stands allocated to specific services. Bus and coach operations are a prominent feature of the hub to serve the need for interchange with this important mode. Alongside coach and bus services, the dedicated PTH accommodates the regular rail-air shuttle and shuttle buses linking with the airport's long, medium and peripheral staff car parks and the car hire facility.



- 18.7.35 Coach and local bus services are summarised in **Table 18.12** and **Table 18.13** respectively following the relevant descriptive text of these services. These details have been taken from timetables before the pandemic as they show more clearly the typical level of bus and coach services as the airport approached its limit of the passenger throughput set by planning conditions.
- 18.7.36 Both Green Line Coaches service 757 and National Express service A1 provide an express coach link between the airport and Victoria Coach Station in Central London. National Express Service A2 provides an alternative service between the airport and Paddington station. These services are operated in association with easyBus to offer an attractive high frequency, low cost express bus service between Central London and the airport.
- 18.7.37 Other National Express routes serve destinations across the UK including major cities and airports. Direct services to and from the airport include Service 707 to Northampton, Service 737 to High Wycombe and Oxford, Service 767 to Leicester and Nottingham, Service 777 to Coventry, Birmingham and Wolverhampton and Service 787 to Cambridge. Many of these call at the Milton Keynes Coachway. Regular direct services are also provided to Stansted, Heathrow and Gatwick Airports, while Stagecoach Route 99 operates an hourly express service seven days per week between the airport and Milton Keynes. The range and frequency of these coach services is shown in **Table 18.12**.

Table 18.12: Coach services at the airport

Service	Operator	Route	Daily Services (one-way weekday)
A1	National Express (in association with easyBus)	London (Victoria) – Luton Airport	47
A2	National Express (in association with easyBus)	London (Paddington) – Luton Airport	36
99	Stagecoach	Milton Keynes – Luton Airport	16
230	National Express	Gatwick Airport – Heathrow Airport – Luton Airport – Leicester – Nottingham – Sheffield – Leeds – Bradford	9
240	National Express	Heathrow Airport – Luton Airport – Leicester – Nottingham – Derby	6
422	National Express	London (Victoria) – Luton Airport – Birmingham – Wolverhampton – Manchester – Burnley	1
707	National Express	Gatwick Airport – Heathrow Airport – Luton Airport – Milton Keynes – Northampton	8
737	National Express	Stansted Airport – Luton Airport – Oxford	8

Service	Operator	Route	Daily Services (one-way weekday)
757	Green Line Coaches (in association with easyBus)	London (Victoria) – Luton Airport	42
777	National Express	Stansted Airport – Luton Airport – Milton Keynes – Birmingham	9
787	National Express	Heathrow Airport – Luton Airport – Cambridge	9
920	National Express	London (Victoria) – Luton Airport – Birmingham – Manchester – Carlisle – Dumfries – Belfast	1

- 18.7.38 The majority of local bus services are operated by Arriva. The most frequent service is guided bus service A that runs to Luton Station, and Dunstable. The service operates every day and 24 hours each day. On weekdays and Saturday, the service operates with a frequency of four buses per hour between 07:00 and 19:00, reducing to three buses during the evening and two buses per hour through most of the night. On Sundays the daytime service operates with a frequency of three buses per hour.
- 18.7.39 Centrebus service 17/17A is a circular route that operates between Luton town centre, Stopsley, and Wigmore. It runs along the section of Eaton Green Road between its junctions with Lalleford Road and Colwell Rise, also travelling along both of those roads.
- 18.7.40 Centrebus also provide services from Luton town centre that provide access to Slip End, Markyate, Hemel Hempstead, Harpenden, and Hatfield by interchanging with a route that travels between the airport and Luton town centre. A summary of bus services in the vicinity of the airport is provided in **Table 18.13**.

Table 18.13: Bus services in the vicinity of the airport

Service	Operator	Route	Weekday Daytime Frequency	Saturday Daytime Frequency	Sunday Daytime Frequency
A	Arriva	Dunstable – Luton Airport	Every 7 minutes	Every 7/8 minutes	Every 10 minutes
100	Arriva	Luton – Stevenage	2 services per hour	Every 40 minutes	Every 2 hours
757	Arriva	Luton – London	2 services per hour	2 services per hour	2 services per hour
17/17A	Centrebus	Luton town centre – Wigmore	Every 30 minutes	Every 30 minutes	No service

## Future baseline

- 18.7.41 In the absence of the Proposed Development, there is likely to be a change to the future baseline conditions as a result of other factors and developments in proximity to the airport. These changes will be both physical, such as changes to the layout of a road, and changes in use, that is variations in car trips, passengers on public transport etc. These are the conditions that will prevail for the 'Without Development' scenario. The 'Without Development' scenario is used, where appropriate, as a comparator for the assessed case, to show the effect of the Proposed Development against an appropriate reference point. The approach to defining future baseline and the developments identified for consideration are described in **Section 5.4** of **Chapter 5** Approach to the Assessment in Volume 2 of this PEIR.

### *Highway Network*

- 18.7.42 A package of schemes was recently identified in the East Luton Study (Ref. 18.27) (carried out on behalf of LBC). These schemes were designed to address traffic pressures arising from planned growth in housing and employment identified in the Luton Borough Local Plan (Ref. 18.8) and growth in neighbouring districts.
- 18.7.43 A series of proposed East Luton highway improvements were identified from these studies. **Table 18.14** below summarises the junction locations where highway improvements were planned as part of the East Luton package of works. The first scheme in the table, the upgrade of the junction of Stopsley Way and Vauxhall Way has been implemented and is now fully operational. The other East Luton improvements, as tabulated below, will be delivered by LBC and will not form part of the application for development consent. The timetable for the implementation of these other schemes has not been finalised but it was agreed with officers of LBC that for the purpose of this assessment they should be assumed to be in place by 2027. This does not represent a commitment by LBC to have them in place by that date but in terms of modelling the impact of the Proposed Development, it becomes easier to identify any problems related to the added car trips if the local highway network is not heavily congested. In turn this makes it easier to identify any mitigation measures that might be necessary to support the Proposed Development.

Table 18.14: East Luton highway improvements – non airport expansion related

Location	Summary of Improvements
A505 Stopsley Way/A505 Vauxhall Way	Upgrade from roundabout to signal controlled junction and amendments to the junction with Birchen Grove (implemented)
Hitchin Road/Ramridge Road	Upgrade from a roundabout to a signal-controlled junction
A505 Vauxhall Way/Crawley Green Road	Upgrade from a roundabout to a signal-controlled junction

Location	Summary of Improvements
Frank Lester Way/Eaton Green Road	Upgrade from a roundabout to a signal-controlled junction with Frank Lester Way one way
A505 Vauxhall Way/Eaton Green Road	Improvements to the roundabout with signal introduction
Windmill Road/Manor Road/St Mary's Roundabout/Crawley Green Road	White line measures
A1081 New Airport Way/Kimpton Road/Vauxhall Way	Upgrade roundabout to signal controlled junction
A1081 New Airport Way/B653/Gipsy Lane	Improvements to existing roundabout
Windmill Road/Kimpton Road	Upgrade to mini roundabout
Vauxhall Way Corridor	Dualling from Stopsley Way to Airport Way/Kimpton Rd

18.7.44 From the transport modelling work undertaken, which includes M1 Junction 10, it is evident that:

- a. in the design year of 2039, in the 'Without Development' scenario, some form of motorway capacity improvement would be helpful in accommodating forecast background growth in the peak periods; and
- b. there is a need to consider the inclusion of such an improvement in the transport modelling to ensure that solutions for M1 Junction 10 and Airport Way are reasonably future proofed.

18.7.45 As such, and for modelling purposes only, it was deemed sensible to assume that the section of the M1 motorway between junctions 9 and 10 operates with an improved capacity that includes hard shoulder running. It is considered that hard shoulder running is the most likely scheme to improve motorway capacity should any scheme be considered by National Highways in the future.

18.7.46 This does not imply that there is an approved scheme for widening of the M1, or that hard shoulder running, or any other capacity improvement is programmed to be delivered. However, it was considered prudent to evaluate a scenario that allows more traffic to flow through M1 Junction 10 at peak times to assess a more robust, future-proofed set of potential schemes.

18.7.47 Discussions are ongoing with National Highways and the Applicant will continue to work towards an agreement on the form of transport network solutions to be provided as part of the Proposed Development as mitigation that will enable its support of the Proposed Development.

### ***Public Transport***

18.7.48 It has been recognised that public transport improvements are required and that a substantial shift to public transport is a key component of any future transport strategy together with the introduction of traffic management measures. To enhance the attractiveness of rail as a means of travelling to the airport, the

Applicant and LBC have invested in the Luton DART, a fully automated driverless Mass Passenger Transit (MPT) rail system, which will transport passengers between Luton Airport Parkway railway station and the airport terminal building, a distance of 2.1km. Construction of the Luton DART commenced in April 2018 and its services are scheduled to commence operations in 2022.

- 18.7.49 The MPT vehicles will be automatically operated with the journey from start to finish expected to take four minutes. It is anticipated that the MPT system will comprise either two or three carriages per vehicle, each carriage with a carrying capacity of 75 people. The capacity per vehicle is expected to be in the range of 150-225 people, with the MPT able to carry 1,958 people in one direction during any peak period. The system will operate 24 hours a day, seven days a week. At the busiest periods there will be five minutes between vehicles (morning peak would be from 04:00-10:00 and evening peak from 17:00-24:00). The contactless payment travel system in place at Luton Airport Parkway station will be extended to include the Luton DART service when it becomes operational.
- 18.7.50 There will be an interchange with the Elizabeth line at Farringdon station. Crossrail Ltd has advised that the Elizabeth line through Central London will open as soon as practically possible in the first half of 2022. The Elizabeth line will provide many London Boroughs with a greatly improved connection to Thameslink services, and consequently onward to the airport, by reducing journey times to/from Barking and Dagenham, City of London, Ealing, Greenwich, Havering, Hillingdon, Newham, Redbridge, Tower Hamlets, and Westminster. The anticipated impact will be to encourage an increasing proportion of air passengers currently travelling by car and taxi when accessing the airport from Greater London to switch to rail.
- 18.7.51 East West Rail is a major infrastructure project which is proposed to deliver a much-needed connection to overcome the lack of east-west transport options between Oxford and Cambridge and the communities between them.
- 18.7.52 A consultation on the proposed routes for the extension between Bedford and Cambridge took place between March and June of 2021. According to the consultation document (Ref. 18.28), the East West Rail services will be introduced in three 'Connection Stages':
- a. Connection Stage 1 - Oxford to Milton Keynes. The aim is to start services by 2025. In the November 2020 spending review the government committed to investment for the Bicester-Bletchley section (under construction).
  - b. Connection Stage 2 - Oxford to Bedford. New proposals were included as part of the March-June 2021 consultation.. Trains would operate at a typical frequency of four/five per hour (detailed planning).
  - c. Connection Stage 3 - Oxford to Cambridge. The options for this section of route are being refined with the objective to go to statutory consultation in 2022. Trains would operate at a typical frequency of four per hour (detailed planning).

- 18.7.53 The line when built will share a new Bedford station with EMR and Thameslink services where there would be a convenient interchange for people to travel onward to the airport.
- 18.7.54 The South Central Hertfordshire Growth and Transport Plan (Ref. 18,29) that is being developed by HCC recognised, *inter alia*, there are good north-south public transport connections, in particular railways, but there are more limited fast and frequent public transport connections running east-west in that part of the county (Hertfordshire). Accordingly, one of the measures that was put out to consultation in early 2020 was Package 16 – Luton – Wheathampstead - Hatfield and Welwyn Garden City Corridor (Ref.18.29). The overarching aim of the package is:

*“To facilitate new and existing public transport connections between Luton, Hatfield and Welwyn Garden City, alongside improvements to interurban cycling infrastructure and selective highway upgrades in order to improve reliability on the corridor.”*

## 18.8 Embedded and good practice mitigation measures

18.8.1 This section describes the embedded and good practice mitigation for Traffic and Transportation that has been incorporated into the Proposed Development design or assumed to be in place before undertaking the assessment. A definition of these classifications of mitigation and how they are considered in the EIA is provided in **Chapter 5** Approach to the Assessment in Volume 2 of this PEIR.

### Embedded

18.8.2 The following embedded mitigation measures are included.

- a. Extension of the Luton DART system to serve the new terminal, which is required to maintain the benefits in modal shift that are predicted to occur following its completion and which form an important part of the **SAETS**.
- b. Proposed Off-Site Highway Intervention works listed in **Table 4.1** in **Chapter 4** to reduce the adverse impact of the additional traffic on other road users. Outline design drawings showing the proposed interventions are provided in **Figures 4.1** to **4.3** in Volume 4 of this PEIR. These interventions are included in the 'With Development' modelling scenarios.

18.8.3 In addition to the Off-Site Highway Improvements referred to above there are major highway works proposed within the airport to provide adequate access to the new terminal and cater for the growth in road traffic within the airport perimeter.

18.8.4 In March LBC resolved that the planning application for New Century Park and the dual carriageway Century Park Access Road (CPAR) be granted subject to referral to the Secretary of State and the satisfactory completion of a Section 106 Agreement. This access road would result in substantial changes to the internal airport highway network and links between the internal network and the external highway network.

18.8.5 At the time that the 2019 Statutory Consultation was undertaken it had been the intention that the western section of this new road between New Airport Way and Frank Lester Way be constructed as part of the New Century Park development but that the eastern section would be incorporated into the DCO in order to accommodate design changes to facilitate access to Terminal 2.

18.8.6 The application for development consent now includes the full length of the new road, previously referred to as CPAR, providing access to the east of the airport but now to be called the AAR. AAR will start at a new junction on New Airport Way which will be controlled by traffic signals. It will pass over Airport Way, with no direct connection, and provide an alternative route to Percival Way, the eastern end of which will be closed, and a new link provided for traffic to transfer to AAR. Percival Way will continue to provide access to the existing buildings that front onto it. The junction of AAR with the link to Percival Way will have a fourth arm that connects to the northern section of Provost Way. This junction will be traffic signal controlled.



- 18.8.7 AAR will meet Frank Lester Way at a new traffic signal junction that will replace the existing roundabout junction. AAR will continue eastwards along the line of President Way for just over 200 metres before taking a more northerly route to a new roundabout that will provide access to car parking to the north, providing some 1,200 spaces and the section of President Way that presently provides the route to the long-stay car park. From this roundabout AAR continues for a further 200 metres to a four-arm traffic signal junction whose other arms are the access to the new terminal building, the Eaton Green link road and the access to the new long stay car park. Footways will be provided along both sides of AAR east of its junction with the road providing the link to Percival Way.
- 18.8.8 As part of the introduction of AAR, there will be changes to Percival Way and Frank Lester Way. The roundabout at the junction of Airport Way, New Airport Way, and Percival Way will be replaced by a new arrangement that will be controlled by traffic signals. Percival Way will no longer feed into this junction and will be diverted onto the line of Spittlesea Road which presently provides access to the Ibis Hotel and operates one-way (southbound). Frank Lester Way will be one-way northbound only.
- 18.8.9 The construction of AAR will extend over assessment Phases 2a and 2b. During assessment Phase 2a, the section of AAR from New Airport Way to the link connection with Percival Way will be provided together with the section to the east of the junction with Frank Lester Way. The link will be constructed as a dual carriageway and its junction with AAR will be a roundabout and with Percival Way it will be a small roundabout. The junction of Percival Way and Provost Way will be closed and access to the section of Provost Way south of AAR will be off the new link.
- 18.8.10 During assessment Phase 2b, the section of AAR between the link to Percival Way and the junction with Frank Lester Way will be constructed, the link to Percival Way reduced to a single carriageway, and the roundabout junction on AAR converted to a traffic signal-controlled junction. The roundabout on Percival Way will be removed and replaced by a priority junction. To the east of this junction Percival Way will be a cul-de-sac providing access to land along its frontage. Frank Lester Way will be converted to one-way operation northbound and the roundabout at its junction with Eaton Green Road replaced by traffic signals.

### Good Practice

- 18.8.11 There are three key Plans that are considered good practice mitigation that will be produced, and therefore considered in place; these are:
- Framework Travel Plan (for the airport operations);
  - Construction Traffic Management Plan; and
  - Construction Workers Travel Plan.
- 18.8.12 The requirement for a Travel Plan to be associated with the operation of a new development is common practice. For the Proposed Development it is a very important element in the **SAETS** as it will set out targets for travel by non-car modes and describe the measures, both “carrot and stick” that will assist in the

achievement of those targets. Accordingly, the implementation of the Travel Plan would reduce the magnitude of impacts on the highway network.

- 18.8.13 It is intended to introduce a concept called Green Controlled Growth (GCG) as part of the application for development consent. which will be closely integrated with the Framework Travel Plan. Through the GCG Framework, the Applicant is proposing a series of clearly specified 'limits' for key environmental topics. These limits would be legally enshrined as part of the DCO. It is proposed that GCG focuses on four key environmental topics which are directly linked to the ongoing level of activity at the airport and, therefore, have the potential to change the level of impact on local communities as increasing numbers of flights and passengers use the airport over time. One of these topics is surface access. The GCG Framework is introduced in **Section 7** of the **SAETS** and is set out in full detail in the **Draft Green Controlled Growth** document published for consultation.
- 18.8.14 A bus/coach strategy will be introduced that will be based on working in close cooperation with the local authorities that neighbour the airport, bus/coach service providers and airlines to promote the introduction of:
- a. increased frequencies on historic routes;
  - b. expansion of bus and coach routes (including terminals within London);
  - c. integrated ticketing and ticket purchasing facilities;
  - d. better vehicles, including on-board wi-fi connectivity;
  - e. promoting route planning facilities for smart technology; and
  - f. real time timetable information at bus stops.
- 18.8.15 Although not explicitly modelled, measures will be introduced to make travel by coach and bus more attractive. The Proposed Development would involve the expansion of the existing bus/coach facilities at Terminal 1 and the provision of new facilities at Terminal 2 that would together provide approximately 40 bus/coach bays in total. This will be a marked improvement in provision when compared with the 18 bays at present and would bring the airport into line with the provision at Stansted Airport (40 operational + 20 lay-over bays) which in 2018 and 2019 had an air passenger throughput in excess of 26 mppa with over half of those passengers travelling to and from that airport by public transport (Ref. 18.30).
- 18.8.16 These measures have the potential to significantly increase the volume of air passenger journeys by bus and coach.
- 18.8.17 Employees could further benefit from the introduction of dedicated bus travel cards (possibly subsidised) or carnets for those travelling less frequently and this is being explored as part of the development of the Framework Travel Plan. Furthermore, demand responsive services may also be considered along those routes where demand warrants it and shift patterns would benefit from it.
- 18.8.18 As part of the strategy to reduce travel by car and encourage use of public transport, parking provision will not be increased on a pro rata basis. Prior to the start of the construction of Luton DART which reduced the capacity of the

medium stay car park there were a total of 10,550 car parking spaces available for use by air passengers; these include short, medium, and long stay parking. Construction Phase 1 will increase the parking provision by 1,550 spaces and Construction Phase 2 will add a further 3,900. Thus by 2043 while the air passenger throughput will have increased by 95% over 2018 levels the provision of parking spaces will have only increased by 52%.

- 18.8.19 The Draft Outline CTMP sets out the measures that are to be undertaken by the lead contractor to minimise the impact of construction traffic on the highway network. It will cover vehicle routing, procedures to encourage road safety, minimisation of vehicle movements, monitoring and liaison with key stakeholders. Based on the framework document the lead contractors will be required to prepare a detailed CTMP that will be agreed with the relevant highway authorities and will ensure that there are measures in place to minimise the impact of construction traffic.
- 18.8.20 The Draft Outline CTMP will be supported by a Construction Workforce Travel Plan that will set out the approach and commitment to sustainability along with the measures that are envisaged to be appropriate at this specific site to encourage responsible transport choices.
- 18.8.21 In addition to the above measures, as part of the design of the new highway layout within the airport there will be a traffic signing strategy so that the drivers of the vehicles have a clear indication of the route to their destination.

## 18.9 Preliminary assessment

18.9.1 This section presents the results of the preliminary assessment of likely significant effects with the embedded and good practice mitigation measures, described in the previous section, in place. The predicted airport related trips upon which the assessment described in this section are based have been derived from the Core Planning Case. As previously described in **paragraph 18.1.1**, sensitivity tests in the form of qualitative assessments are presented in **Table 18.31** for faster and slower growth assumptions.

18.9.2 A summary of the assessment of effects is provided on **Table 18.32** in **Section 18.14**. Significant effects are discussed in further detail in this section.

### Phase 1

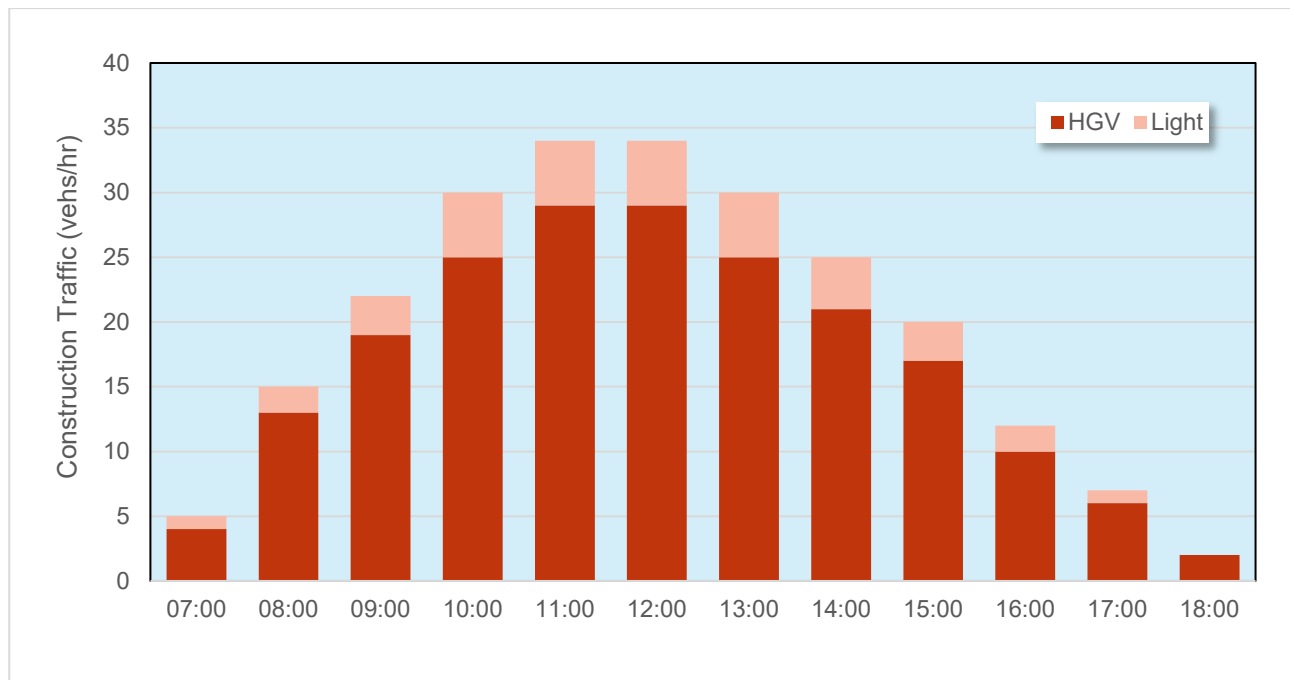
#### *Construction effects*

18.9.3 The volume of construction traffic is presented in **Section 9.16** of **Appendix 4.1** Construction Method Statement and Programme Report. This shows that the greatest level of construction vehicle activity during this phase occurs in 2025. Further analysis of the data has identified Q3 in that year as the busiest quarter.

18.9.4 **Figure 73** in that report shows a typical vehicle profile over the course of the peak day. For 2025 Q3 that would be 236 movements. It is estimated that HGV movements would be 85% of this traffic. This volume of construction traffic has been overlaid on the predicted flows for the 2027 'Without Development' scenario which is based on a throughput at the airport of 18 mppa. The information provided is the profile of vehicles entering the construction compounds. In order to generate two-way flows, it has been assumed that vehicles stay for an average period of one hour. A review of this assumption has found that the conclusion of this assessment is not sensitive to this period.

18.9.5 The distribution through the day of this peak level of two-way construction traffic is shown in **Inset 18.7**. As can be seen from the graph the magnitude of the increase in traffic will be greatest during the inter-peak period (10:00 to 16:00). 73% of the construction movements occur during this period, with the average hourly flow of 24 vehicles being appreciably greater than the average flows of 15 and seven vehicles during the morning and evening peak periods respectively. In addition, the background flows against which the construction traffic is assessed will be lower in the inter-peak period which would give higher proportional increases.

### Inset 18.7: Typical distribution of construction traffic movements during busiest quarter (Phase 1)



- 18.9.6 A CTMP will be in place and this will secure a routing agreement for the construction HGVs.
- 18.9.7 It is expected that the great majority of construction HGVs use only motorways and 'A' roads. In the vicinity of the airport this will be the A1081 and the M1. For the purpose of this assessment, it has been assumed that at the time of peak construction traffic activity all construction HGVs will be limited to the A1081, and the M1.
- 18.9.8 **Table 18.15** shows the inter-peak period traffic flows for the 2027 'Without Development' scenario together with the predicted peak construction vehicle flows during that period. The table also sets out the increase in traffic as a percentage. This is the period when construction traffic is likely to be its highest proportion of all traffic on these roads.
- 18.9.9 At this stage it is not possible to predict how the traffic will split when it gets to the M1 therefore two alternatives have been considered. The first of these assumes that four fifths of the traffic will either depart to or arrive from a point that will require the traffic to use the M1 to the south of Junction 10 with the remaining construction traffic using the M1 to the north of Junction 10 (Alternative A). The second test has assumed a reversal of these proportions and is referred to as Alternative B.

Table 18.15: Peak Phase 1 construction traffic on highway network

Road Link	2027 'Without Development' Flow (Inter peak)	Alternative A		Alternative B	
		Construct-ion Traffic Flow	Increase (%)	Construct-ion Traffic Flow	Increase (%)
President Way between Car Rental and Frank Lester Way	3,738	172	4.6%	172	4.6%
Percival Way between Frank Lester Way and Prospect Way	3,223	172	5.3%	172	5.3%
Percival Way between Airport Way and Prospect Way	3,699	172	4.7%	172	4.7%
A1081 New Airport Way between A505 Airport Way and Percival Way	10,640	172	1.6%	172	1.6%
A1081 New Airport Way between link to Lower Harpenden Road and Airport Way	18,204	172	0.9%	172	0.9%
A1081 New Airport Way between Capability Green Estate and link to Lower Harpenden Road	21,401	172	0.8%	172	0.8%
A1081 New Airport Way between Capability Green Estate slip roads	18,044	172	1.0%	172	1.0%
A1081 New Airport Way between A1081 London Road and Capability Green Estate	22,174	172	0.8%	172	0.8%
A1081 New Airport Way between London Road slip roads	17,627	172	1.0%	172	1.0%
A1081 New Airport Way between M1 Jct. 10 and A1081 London Road	19,358	172	0.9%	172	0.9%
M1 southbound on-slip road	14,581	69	0.5%	17	0.1%
M1 northbound off-slip road	11,669	69	0.6%	17	0.1%
Junction 10 Roundabout (western circulating carriageway)	22,237	86	0.4%	86	0.4%
Junction 10 Roundabout (northern overbridge)	11,683	69	0.6%	17	0.1%

Road Link	2027 'Without Development' Flow (Inter peak)	Alternative A		Alternative B	
		Construct-ion Traffic Flow	Increase (%)	Construct-ion Traffic Flow	Increase (%)
M1 Between Jct. 9 and Jct. 10	67,914	138	0.2%	34	0.1%
M1 Between Jct. 7 and Jct. 9	68,952	138	0.2%	34	0.0%
Junction 10 Roundabout (southern overbridge)	10,566	17	0.2%	69	0.7%
M1 northbound on-slip road	10,555	17	0.2%	69	0.7%
M1 southbound off-slip road	10,394	17	0.2%	69	0.7%
M1 Between Jct. 10 and Jct. 11	66,801	34	0.1%	138	0.2%
M1 Between Jct. 11 and Jct. 11A	61,880	34	0.1%	138	0.2%

- 18.9.10 As noted in the previous paragraph the two alternatives cover 80% of the construction traffic travelling in one or other direction. From the figures it can be seen that even if all construction traffic travelled on the M1 either to the north or south of Junction 10, the increase in traffic flows on the M1 would still be very small.
- 18.9.11 The figures in **Table 18.15** show that on the A1081 and the M1 the increase in traffic is less than 2% and following the IEMA Guidelines (Ref. 18.19), any adverse effect is highly unlikely. The highest increase is predicted to be around 4½% to 5½% which occurs on internal airport roads.
- 18.9.12 Since none of the roads on which the construction traffic travels have been identified as having any sensitive receptors nearby, the IEMA Guidelines (Ref. 18.19) threshold of 30% applies, therefore there are **no significant effects** and no further assessment on those road links is required for this phase.

### Hazardous and Dangerous Loads

- 18.9.13 The nature of the construction work associated with assessment Phase 1 should not require the carriage any hazardous material and as a consequence there will be **no significant effects** and no further assessment on those road links is required for this phase.

### Operational effects

- 18.9.14 In 2027 it has been assumed that the proportion of air passengers travelling by public transport will be the same for both 'Without Development' and 'With Development' scenarios. Nevertheless, it will be higher than in the base year because the public transport accessibility by train will have improved with the opening of Luton DART and the greater frequency and increased capacity of



fast trains services between Luton Airport Parkway station and Central London. The 19% increase in passengers for the 'With Development' scenario will be reflected in a similar rise in air passenger related vehicles. The increase in the number of employees, around 11%, is lower than the rise in passenger throughput and this is reflected in the employee traffic numbers. The associated increase in vehicle trips by airport employees is around 11%

- 18.9.15 The highway network in this phase has only minor differences between the two scenarios which can be summarised as follows.
- a. A1081 New Airport Way/Percival Way: Remodelling of junction and introduction of traffic signal control;
  - b. M1 Junction 10: White lining amendments and widening to provide four circulatory lanes, allowing two northbound lanes onto M1 and three eastbound lanes onto A1081 from M1. Kerb realignment and marking to allow three lanes on northern overbridge merge into two before segregated left turn lane joins from M1 southbound;
  - c. New Airport Way/Gypsy Lane: Closure of bus only right turn lane and widening of approaches to traffic signals to increase number of approach lanes. Minor kerb realignment on roundabout;
  - d. A505 Vauxhall Way/Eaton Green Road: Signalisation of Vauxhall Way entry arms;
  - e. Kimpton Road/Windmill Road: Removal of existing roundabout and replacement with traffic signals;
  - f. Windmill Road/Osborne Road: Minor kerb realignment to increase junction capacity.
  - g. A1081/London Road (north): Partial signalisation of roundabout and kerb realignment to increase capacity; and
  - h. Eaton Green Road: Mini roundabout replaced by three arm signalised junction.
- 18.9.16 Taking into consideration the forecast flows from the CBLTM-LTN, just under three quarters of air passengers travelling to and from the airport by car over the course of a day use the M1. Those travelling south of Junction 10 account for 44% of all trips and those on the section to the north is 29%. This is a small increase on the 'Without Development' scenario. A further 4.5% use the A1(M).
- 18.9.17 An arc drawn from an area to the north east of the airport round to the southwest of the airport which encompasses the A505 east of Offley to the A1081 south of the junction with Newlands Road covers 18½% of the air passenger traffic. This percentage is little different whether or not Proposed Development is in place. For the 'With Development' scenario the M1 and A505 west of Offley together carry 82% of the air passenger traffic.
- 18.9.18 During discussions since the 2019 Statutory Consultation HCC has expressed a particular interest in conditions on the B653 Lower Harpenden Road. The forecast flows from CBLTM-LTN for daily traffic flows show only a 1% increase in traffic between the 'Without Development' and 'With Development' scenarios

on the section of the road that passes under New Airport Way. The forecasts show that airport related traffic, both air passengers and staff, represent 8% of the total traffic on this section of the B653 for the 'Without Development' scenario increasing to 9% of the total traffic for the 'With Development' scenario.

## Severance

- 18.9.19 Using the criteria for the assessment of the effect of severance set out in **Appendix 18.1**, there were no road links that were identified as requiring further investigation. Therefore, there will be **no significant effects** due to severance.

## Driver Stress and Delay

### *Driver Stress*

- 18.9.20 On the basis of the guidance set out in **Section 1.3 of Appendix 18.1**, the first sift of the changes in the level of driver stress identified two road links that required further consideration. Consideration of those road links found that for both the magnitude of impact was 'no change' therefore there is **no significant effect**.

### *Driver Delay*

- 18.9.21 The effect of driver delay has been assessed at 22 of the 24 junctions that are listed in **Section 1.3 of Appendix 18.1**. The two that have not been assessed only exist when the AAR has been built. **Table 18.16** shows the magnitude of impact on those links that were identified for further assessment on the basis of the guidance set out in **Section 1.3 of Appendix 18.1**.
- 18.9.22 The only junction that warrants further consideration is the meeting of New Airport Way, Airport Way and Percival Way. For the 'With Development' scenario this junction is remodelled, and traffic signal control is introduced. Considering first the evening peak, a magnitude of impact of 'medium' combined with a sensitivity for drivers and other road users of 'medium' can result in an environmental effect that is either minor or moderate beneficial (c.f. **Table 1.19 in Appendix 18.1**); however, in the morning peak there is an adverse effect, albeit smaller with a magnitude of impact of 'low'. It is therefore considered more appropriate that the level of the effect is **minor** adverse and **not significant** rather than moderate.

Table 18.16: Magnitude of impact for driver delay (2027)

Road Link	AM Peak			Magnitude of Impact	PM Peak			Magnitude of Impact
	DM <sup>1</sup> LOS	DS <sup>2</sup> LOS	Add'n. Delay (secs)		DM LOS	DS LOS	Add'n. Delay (secs)	
A1081 New Airport Way/Percival Way	A <sup>3</sup>	C	26	Low	F	C	-50	Medium

## Notes

- 1) DM (Do-Minimum) is the 'Without Development' scenario.
- 2) DS (Do-Something) is the 'With Development' scenario.
- 3) These are the LOS values identified in **Table 1.5** of **Appendix 18.1** (Volume 3 of this PEIR)

### Pedestrian Delay

- 18.9.23 The first review of the morning and evening peak hour flows identified 19 road links where the change in flow between the 'Without Development' and 'With Development' scenarios is  $\pm 30\%$ , or  $\pm 10\%$  where the pedestrian sensitivity is 'high'. Having calculated the average pedestrian delay for both scenarios in both peaks there are no road links that are identified for further investigation.
- 18.9.24 The conclusion that has been drawn from this part of the assessment is that there are **no significant effects** associated with pedestrian delay.

### Pedestrian Fear and Intimidation

- 18.9.25 The assessment of this category of potential effect requires consideration of both changes in hourly average over an 18-hour day of all vehicles and the change in HGVS over the same period. The initial review of the changes identified 19 road links for the average flow of all vehicles and 10 road links for the total 16-hour HGV flows that required further assessment on the basis of the change in flow.
- 18.9.26 When considering those road links that had been identified at the first level, it was found that the degree of hazard did not change on any of them, therefore there are **no significant effects** associated with pedestrian fear and intimidation at the Phase 1 level of throughput at the airport.

### Collisions and Safety

- 18.9.27 The predicted annual PIC rates for 2027 together with the calculated rate for 2016 are presented in **Table 18.29** together with the changes between the 'Without Development' and 'With Development' for both the predicted PIC rates and junction traffic flows for the junction that was identified for further assessment.

Table 18.17: Review of change in PICS (2027)

Junction Name	2016 DM <sup>1</sup> Rate (PICs/Year)	2027 DM Rate (PICs/Year)	2027 DS <sup>2</sup> Rate (PICs/Year)	Change in 2027 PIC Rate	Change in Flow Thru' Jct.	Magnitude of Impact
A505 Kimpton Road/ Windmill Road	1.52	3.38	0.40	-88.1%	-10.8%	Very Low

## Notes

- 1) DM (Do-Minimum) is the 'Without Development' scenario.
- 2) DS (Do-Something) is the 'With Development' scenario.

18.9.28 The level of magnitude of impact of 'low' for this junction when combined with the scale of sensitivity of 'medium' results in a **minor** adverse effect that is **not significant**.

### Hazardous and Dangerous Loads

- 18.9.29 Aviation fuel is transported to the airport by road tanker and stored in the fuel farm that is located adjacent to Percival Way, 100m from its junction with Airport Way. It is then transferred when required to the aircraft using a bowser.
- 18.9.30 As part of assessment Phase 2a a new fuel farm would be constructed to the east of the airport with the capacity to supply the expanded airport. Fuel would be delivered using a dedicated pipeline connection to an existing fuel main. Fuel would be distributed to aircraft on the new apron by a hydrant system, while aircraft using the existing apron will continue to be served by bowsers bringing fuel from the existing fuel farm. The existing fuel farm will be retained but fuel would be transferred from the new fuel farm rather than being brought in from a fuel storage facility away from the airport, such as the Buncefield Oil Depot in Hemel Hempstead. This would have the benefit of removing fuel tankers from the wider highway network. However, until then there will be an increase in tanker activity. Until the new system is operational there will be a requirement for additional tanker movements to serve the additional flights.
- 18.9.31 The increased probability of a major hazard incident during the intervening period has been calculated as recommended by the guidance provided in the 1993 IEMA Guidelines (Ref. 18.19) where the probability of a major hazard incident is equated to the probability of a personal injury collision, categorised as fatal or serious (KSI), and involving a tanker occurring has been calculated as described below.
- 18.9.32 Thirty-eight tankers are required to deliver the volume of aviation fuel that is required to serve a throughput of 18 mppa, which is 76 movements per day. It has been assumed that the tankers would be bringing fuel in from the Buncefield Oil Depot which is a distance of 16.9km. A collision rate of 44 KSI per billion vehicle kilometres has been obtained from Department for Transport statistics (Ref. 18.31). The period over which the assessment for this phase has been undertaken is fifteen years which covers the period from the start of the Phase 1 construction to the opening of Terminal 2. Assuming the current ratio of

tankers to passenger throughput there will be approximately 34,000 additional deliveries of fuel in this period.

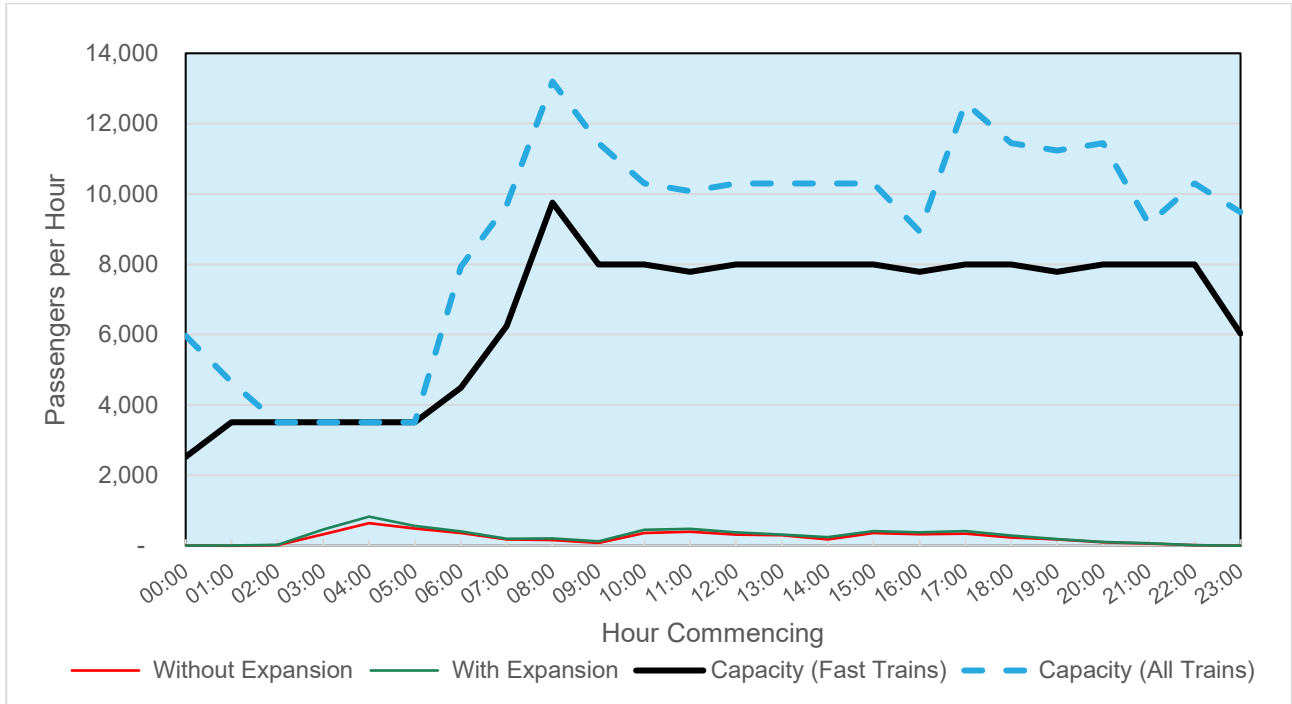
- 18.9.33 The probability of a tanker, laden with fuel, being involved in a KSI collision on any one trip while carrying fuel is calculated to be  $6.3 \times 10^{-8}$ . When this probability is applied to the total distance travelled by the tankers while fully laden over the fifteen-year period, the risk of a KSI collision occurring for the 'Without Development' scenario is 0.021 and for the 'With Development' scenario it rises to 0.025, an increase of 16%. A further consideration is the standard of the highway along the route that is being followed by the tanker. For over 90% of its journey, the tanker is traveling on roads that are dual carriageway and for over 60% the road is a motorway. It should be noted that this is not a detailed risk assessment as it does not take into account other factors that could affect the result such as the quality of the driver training and the use of KSI collisions as a proxy for a major hazard incident; its purpose is to guide the professional judgement that has been used to establish the significance of any effect.
- 18.9.34 It is considered that the additional tankers travelling along the route to the existing fuel farm the magnitude of impact is 'very low' which when combined with a 'high' sensitivity for other drivers along the motorway section of the route that is travelled there will be a **negligible** adverse effect, which is **not significant**.

## Public Transport Users

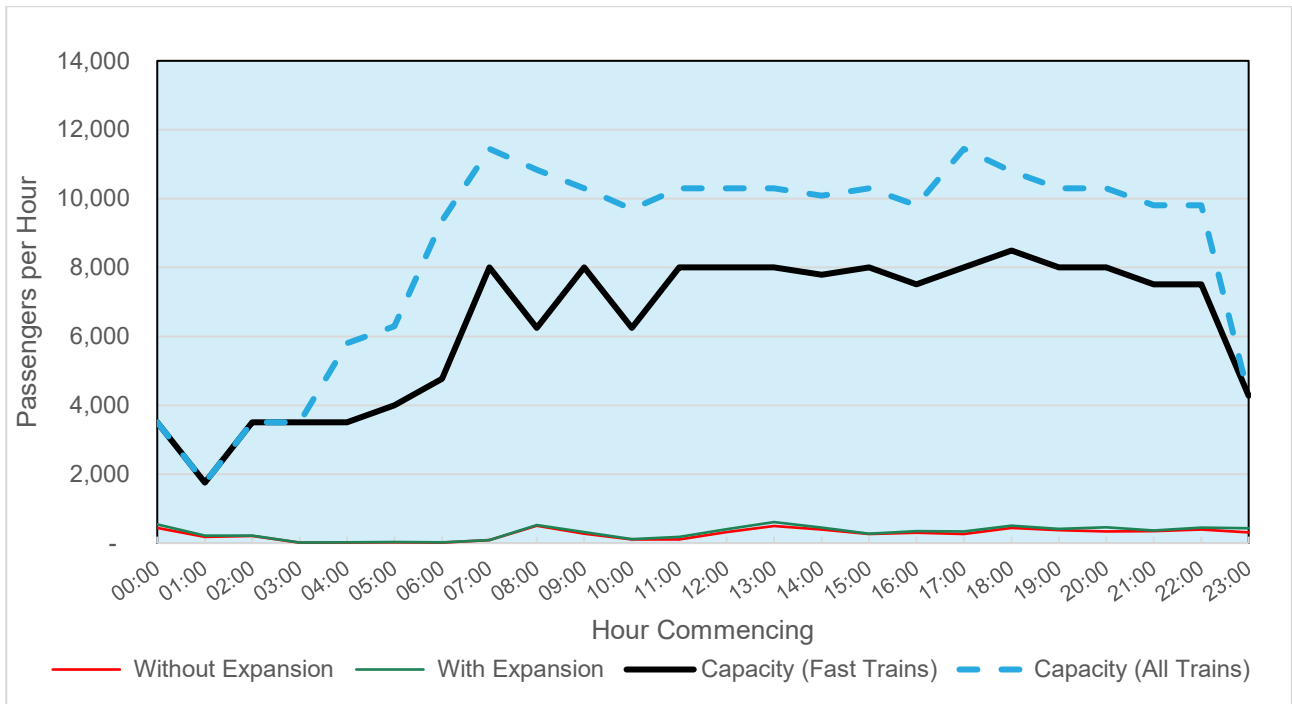
### *Rail*

- 18.9.35 Using the methodology described in **Appendix 18.1** predictions for travel by train south of Luton Airport Parkway station have been prepared for both air passengers and employees. A comparison between the airport related rail passengers in both the 'With' and 'Without Development' scenarios are shown below in **Insets 18.8** and **18.9**. These insets also show the capacity available in terms of the number of seats. Two values are presented for the capacity. The first is the combined number of seats on the EMR Connect and Thameslink Regional services, referred to as 'fast trains' in the following text, on the basis that those services will be the most attractive to airport related travellers, and the second shows the addition to that value of the seats on the Thameslink Metro service. In these two insets the lines that are labelled as 'Without Expansion' and 'With Expansion' show the loadings for the 'Without Development' and 'With Development' scenarios respectively.
- 18.9.36 The first stage of the detailed analysis of the impact of the additional trips on the railway network has concentrated on services running to the south of Luton Airport Parkway station because the additional loadings are approximately four times greater than those on services to the north of the station. In addition, the existing loadings on trains is lower.

**Inset 18.8: Comparison of airport related loadings and capacity on rail service south of Luton Airport Parkway station (northbound 2027)**



**Inset 18.9: Comparison of airport related loadings and capacity on rail service south of Luton Airport Parkway station (southbound 2027)**



18.9.37 The diagrams in both insets show that the additional number of people travelling on the rail services is low.

18.9.38 The factor most relevant to the comfort and convenience of rail passengers is the amount of capacity that the additional passengers take up. **Table 18.18**

below sets out the number of additional passengers by hour and direction and then provides the percentage increase in the use of the trains in the 'Without Development' scenario and also expresses that increase as a percentage of the capacity of the fast trains.

Table 18.18: Additional passenger on MML south of Luton Airport Parkway station (2017)

Time	Northbound			Southbound		
	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)
00:00	2	67.8%	0.1%	101	23.0%	2.9%
01:00	1	67.8%	0.0%	33	18.5%	1.9%
02:00	10	67.8%	0.3%	10	5.1%	0.3%
03:00	137	42.6%	3.9%	2	14.8%	0.1%
04:00	186	29.0%	5.3%	4	33.9%	0.1%
05:00	69	14.0%	2.0%	7	33.9%	0.2%
06:00	54	15.0%	1.2%	5	33.9%	0.1%
07:00	17	9.7%	0.3%	4	5.1%	0.1%
08:00	46	29.2%	0.5%	23	4.6%	0.4%
09:00	41	49.5%	0.5%	42	15.3%	0.5%
10:00	88	24.2%	1.1%	10	9.6%	0.2%
11:00	82	20.5%	1.1%	70	65.1%	0.9%
12:00	62	19.6%	0.8%	80	25.0%	1.0%
13:00	21	7.1%	0.3%	114	23.1%	1.4%
14:00	65	36.0%	0.8%	58	14.8%	0.7%
15:00	57	15.7%	0.7%	12	4.6%	0.1%
16:00	56	17.5%	0.7%	44	14.7%	0.6%
17:00	71	20.6%	0.9%	71	27.1%	0.9%
18:00	55	22.9%	0.7%	64	14.7%	0.8%
19:00	13	7.2%	0.2%	33	8.8%	0.4%
20:00	5	5.5%	0.1%	120	35.9%	1.5%
21:00	4	6.6%	0.1%	20	5.8%	0.3%
22:00	3	20.5%	0.0%	52	13.2%	0.7%
23:00	0	67.8%	0.0%	122	39.7%	2.9%

18.9.39 During the morning peak period (07:00 to 10:00) the increase in passengers in the southbound direction is 9%. The corresponding figure for northbound travel during the evening peak period (16:00 to 19:00) is 20%. The corresponding ratio of passengers to capacity is 0.3% and 0.8%. The higher proportions of additional passengers to capacity occurs at times, such as the early hours of the morning, when other demand will be low.



- 18.9.40 When the ratio of passengers to capacity is compared with the magnitude shown in **Table 1.16** of **Appendix 18.1** the highest level is 'very low' which occurs for only one hour in each direction. When combined with a degree of sensitivity of rail passengers of 'medium', there will be **minor** adverse effect, which is not **significant**.
- 18.9.41 On the basis of the findings for services south of Luton Airport Parkway station, it can be concluded that for loadings that are only one quarter of those already assessed, there will be **no significant effect** on services to the north of the station.

### ***Coach and Buses***

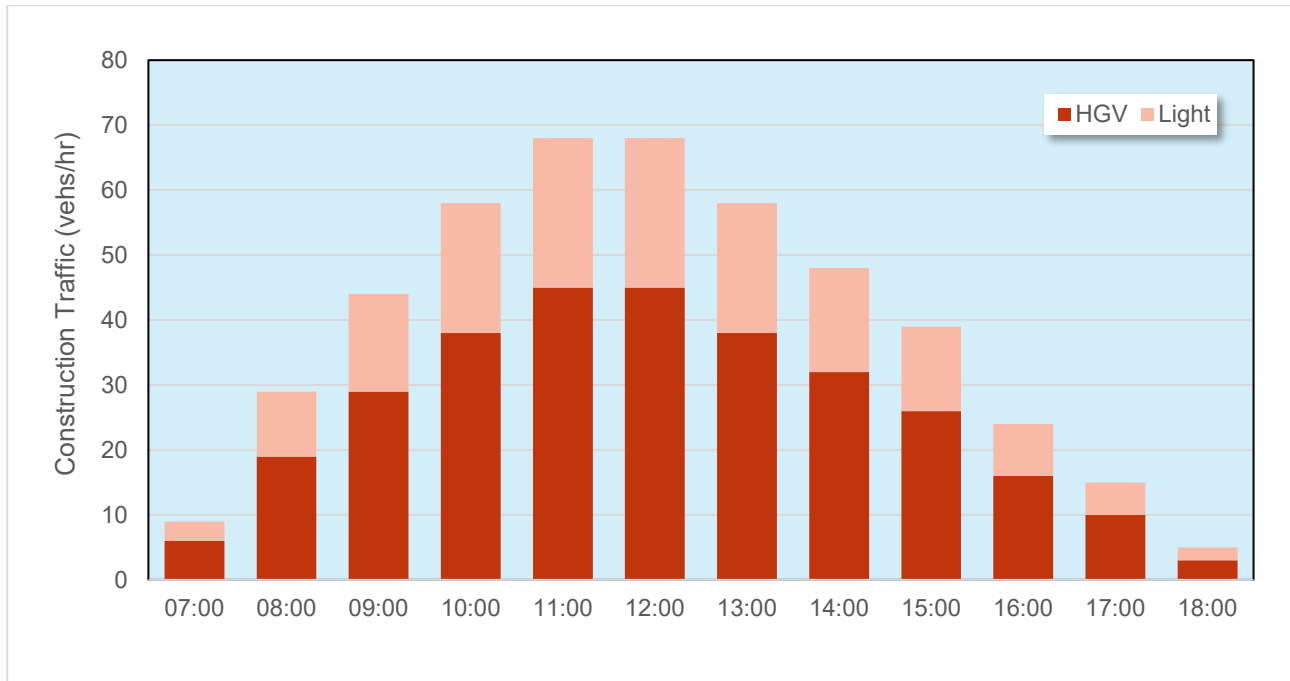
- 18.9.42 It is predicted that the number of journeys by coach or bus will be 18% higher for the 'With Development' scenario than the 'Without Development' scenario. Since there will be no increase in the number of bays in the Central Terminal Area (CTA) there is the potential for there to be an adverse impact. As stated in **Section 1.3** of **Appendix 18.1** there is no detailed data on coach and bus loadings. An estimate of the average loading on coaches can be made on the basis of the number of coaches that call at the CTA identified in **Table 18.12** which is approximately 190 in each direction. If the same service frequency was to occur when the throughput of air passengers was 21.5 mppa the average would increase from around 22 passengers per coach, for the 'Without Development' scenario, to 26 passengers per coach, which is an occupancy of around one half. Three quarters of these services are dedicated routes between London and the airport and would therefore carry very few if any other passengers. This would indicate that there is the capacity available to cater for the additional passengers and therefore it is considered that there will be **no significant effect**.

## **Phase 2a**

### ***Construction effects***

- 18.9.43 Based on the construction programme, the busiest quarter for construction traffic in this assessment phase is 2036 Q2 when it is predicted that 15,333 vehicles will visit the Application Site. This equates to an average daily rate of 231 vehicles of which 66% would be HGVs. This is also the busiest quarter within the full construction programme.
- 18.9.44 The effect of this traffic has been assessed against the 2027 'With Development' forecast flows to reflect the level of air passenger movements predicted to be associated with Terminal 1 when at capacity.
- 18.9.45 The provisional construction programme shows the AAR being completed in this period; therefore, construction traffic could be routed along it. However, for the purpose of this assessment it has been assumed that construction traffic will use the existing roads within the airport as that will be the case for nearly all of this phase of construction.
- 18.9.46 The distribution through the day of the peak level of traffic construction traffic is shown in **Inset 18.10**.

**Inset 18.10: Typical distribution of construction traffic movements during busiest quarter (Phase 2a)**



- 18.9.47 As referred to in **paragraph 18.9.6**, a CTMP will be in place and this will secure a routing agreement for the construction HGVs. Any lessons learnt from construction of Phase 1 will be incorporated into the CTMP.
- 18.9.48 The approach to the uncertainty of the direction travelled on the M1 (**paragraph 18.9.7**) has also been used for this phase.
- 18.9.49 **Table 18.19** shows the inter-peak period traffic flows for the 2027 With Development scenario together with the predicted peak construction flows during that period. The table also sets out the increase in traffic as a percentage.

**Table 18.19: Peak Phase 2a construction traffic on highway network**

Road Link	2027 'With Development' (Inter peak)	Alternative A		Alternative B	
		Construction Traffic Flow	Increase (%)	Construction Traffic Flow	Increase (%)
President Way between Car Rental and Frank Lester Way	4,409	337	7.6%	337	7.6%
Percival Way between Frank Lester Way and Prospect Way	2,698	337	12.5%	337	12.5%
Percival Way between Airport Way and Prospect Way	2,966	337	11.4%	337	11.4%

Road Link	2027 'With Development' (Inter peak)	Alternative A		Alternative B	
		Construct-ion Traffic Flow	Increase (%)	Construct-ion Traffic Flow	Increase (%)
A1081 New Airport Way between A505 Airport Way and Percival Way	10,651	337	3.2%	337	3.2%
A1081 New Airport Way between link to Lower Harpenden Road and Airport Way	19,932	337	1.7%	337	1.7%
A1081 New Airport Way between Capability Green Estate and link to Lower Harpenden Road	22,892	337	1.5%	337	1.5%
A1081 New Airport Way between Capability Green Estate slip roads	19,506	337	1.7%	337	1.7%
A1081 New Airport Way between A1081 London Road and Capability Green Estate	23,620	337	1.4%	337	1.4%
A1081 New Airport Way between London Road slip roads	19,023	337	1.8%	337	1.8%
A1081 New Airport Way between M1 Jct. 10 and A1081 London Road	24,644	337	1.4%	337	1.4%
M1 southbound on-slip road	7,568	135	1.8%	34	0.4%
M1 northbound off-slip road	6,132	135	2.2%	34	0.6%
Junction 10 Roundabout (western circulating carriageway)	11,582	169	1.5%	169	1.5%
Junction 10 Roundabout (northern overbridge)	6,139	135	2.2%	34	0.5%
M1 Between Jct. 9 and Jct. 10	67,210	270	0.4%	67	0.1%
M1 Between Jct. 7 and Jct. 9	68,051	270	0.4%	67	0.1%
Junction 10 Roundabout (southern overbridge)	5,449	34	0.6%	135	2.5%
M1 northbound on-slip road	5,443	34	0.6%	135	2.5%
M1 southbound off-slip road	5,487	34	0.6%	135	2.5%

Road Link	2027 'With Development' (Inter peak)	Alternative A		Alternative B	
		Construction Traffic Flow	Increase (%)	Construction Traffic Flow	Increase (%)
M1 Between Jct. 10 and Jct. 11	64,440	67	0.1%	270	0.4%
M1 Between Jct. 11 and Jct. 11A	59,812	67	0.1%	270	0.5%

- 18.9.50 As noted previously, the two scenarios cover 80% of the construction HGVs travelling in one or other direction. From the figures it can be seen that even if all construction traffic travelled on the M1 either to the north or south of Junction 10, the increase in traffic flows on the M1 would still be very small.
- 18.9.51 The figures in **Table 18.19** show that on the A1081 and the M1 the increase in traffic is less than 4%, and following the IEMA 1993 Guidelines (Ref. 18.19), any adverse effect is highly unlikely. The highest increase is predicted to be around 12.5% which occurs on internal airport roads.
- 18.9.52 Since none of the roads on which the construction traffic travels have been identified as having any sensitive receptors nearby, the IEMA 1993 Guidelines (Ref. 18.19) thresholds of 30% applies, therefore no further assessment of effects on those road links is required for this phase, and it can be concluded that there will be **no significant effect**.

### Hazardous and Dangerous Loads

- 18.9.53 The potential need to remove hazardous material from the site during the construction for this assessment period has been identified. The materials concerned are contaminated waste from the landfill site and asbestos from some of the buildings that will be demolished. The volume of contaminated waste material from the landfill site in this assessment phase will be in the order of 18,500m<sup>2</sup>. No information is available on the volume of asbestos that may need to be removed from site.
- 18.9.54 The removal of 18,500m<sup>2</sup> of waste material would generate approximately 1,650 round trips. The material would be taken to a conveniently located licensed site that accepts the material. Assuming that the site that accepts the waste is within 50km, the vehicle-kilometres involved in the export of this material could be up to 82,500. Using the HGV driver casualty (fatal or serious (KSI)) rate per of 6.0 per billion kilometres quoted in **paragraph 1.3.37** of **Appendix 18.1** the probability of an HGV carrying hazardous material, being involved in a KSI collision on any one trip while carrying the material is calculated to be  $3.0 \times 10^{-7}$ ; a probability of less than one in three million. When this probability is applied to the total distance travelled by the HGV, while loaded, the risk of a KSI collision occurring is 0.0005. The volume of asbestos will be very much lower and therefore the overall probably will still be less than 0.001.
- 18.9.55 On the basis of this calculation, using a robust estimate of material, it is considered that the magnitude of impact is 'very low' for this construction which

even if combined with a 'high' sensitivity for other drivers when travelling along sections of the motorway network there will be a **negligible** adverse effect, which is **not significant**.

### ***Operational effects***

- 18.9.56 For the modelling of the impact of the additional traffic associated with the Proposed Development it has been assumed that the proportion of airport passengers using public transport will rise to 45%, taking into account the various changes in public transport provision identified in **Section 18.7** that will be taking place between the present time and 2039 in addition to the greater number of air passengers who will be living closer to the rail corridor through London and the connections to the Thameslink route. This will be supported by measures that form part of the Proposed Development such as improved bus and coach facilities (refer to **paragraph 18.8.15**) and an increase in the car parking spaces for air passengers that is proportionately lower than the growth in passenger throughput at the airport.
- 18.9.57 Predictions from CBLTM-LTN are that the increase in number of car and taxi movements associated with air passengers in the 'With Development' scenario will be 37% greater than in the 'Without Development' scenario, whereas the equivalent increase in air passengers is 50%. Employee numbers are predicted to rise by 29% but the increase in vehicle trips will be lower as the target to increase the number of new employees using public transport translates into an increase in employee car trips of 24%.
- 18.9.58 A considerable volume of highway construction is associated with this assessment phase, most notably AAR. In this phase the full route will not be completed with the section between Provost Way and Frank Lester Way omitted. A temporary dual-carriageway link will be provided to give a connection back onto Percival Way.
- 18.9.59 A new traffic signal-controlled junction will be created with New Airport Way and near to Terminal 2, the latter providing connections to the terminal, a new long stay car park and a new dual carriageway link to Eaton Green Road. At the northern end of the link to Eaton Green Road a new traffic signal-controlled junction will be constructed and the existing roundabout at the junction of Eaton Green Road and Wigmore Lane will be reconfigured and converted to traffic signal control.
- 18.9.60 Other works that have been considered in this assessment phase include:
- a. M1 Junction 10: Northbound off-slip widened to provide three lanes at stopline. White lining on circulatory carriageway between the northbound off and on-slips to provide five lanes;
  - b. Wigmore Lane: Replacement of roundabouts at the junctions with Crawley Green Road, Twyford Drive, and access to Wigmore Park District Centre with signalised junctions. Widening of road between Eaton Green Road and Crawley Green Road;

- c. Frank Lester Way: Conversion to one-way working (northbound and the removal of the roundabout at the junction with Eaton Green Road and its replacement with a signalised junction;
- d. Vauxhall Way/Kimpton Road: Extension of two lane approach on New Airport Way and provision of dedicated left turn lane into Kimpton Road;
- e. A1081/London Road (south): Partial signalisation of roundabout (PM peak operation only) and adjustment to circulatory carriageway road markings;
- f. Windmill Rd/St. Mary's Rd/Crawley Green Road Gyratory: Widening of circulatory carriageway to provide up to four lanes. Widening on St Mary's Road approach to provide additional entry lane. Widening to Windmill Road to provide two entry and exit lanes; and
- g. Crawley Green Road/Lalleford Way: Removal of existing mini roundabout and replacement with traffic signals.

- 18.9.61 Taking into consideration the forecast flows from the Strategic Model for 2039, just under three quarters of air passengers travelling to and from the airport by car over the course of a day use the M1. Those travelling south of Junction 10 account for 45% of all trips and those on the section to the north is 29%. This is only a small increase in terms of the proportion on the 'Without Development' scenario. A further 5% use the A1(M) which is a very small fall from the proportion in the 'Without Development' scenario.
- 18.9.62 An arc drawn from an area to the north east of the airport round to the southwest of the airport which encompasses the A505 east of Offley to the A1081 south of the junction with Newlands Road covers 19% of the air passenger traffic. This percentage is little different whether or not the Proposed Development is in place. For the 'With Development' scenario the M1 and A505 west of Offley carry 82% of the air passenger traffic.
- 18.9.63 The forecast flows from CBLTM-LTN for daily traffic flows on the B653 show a four percent increase in traffic between the 'Without Development' and 'With Development' scenarios. The forecasts show that airport related traffic, both air passengers and staff, represents 8% of the total traffic on this section of the B653 for the 'Without Development' scenario and 9% for the 'With Development' scenario.

## Severance

- 18.9.64 Using the criteria for the assessment of the effect of severance set out **Appendix 18.1**, the following 15 road links were identified as requiring further investigation. Those road links where the traffic flow increase together with the magnitude of impact associated with that increase are set out below.
- a. High:
    - i. Airport Way between A505 Vauxhall Way and Percival Way;

- ii. President Way between Car Rental and Frank Lester Way<sup>5</sup> (AAR in DS);
- b. Medium:
  - i. AAR between A1081 New Airport Way and Provost Way;
  - ii. Eaton Green Road link;
- c. Low:
  - i. AAR between Provost Way and Frank Lester Way;
  - ii. Wigmore Lane between Sowerby Avenue and Green Lane.

18.9.65 Those road links where the traffic flow decreased are listed below.

- a. High:
  - i. Eaton Green Road between Frank Lester Way and Lalleford Road;
  - ii. Eaton Green Road between Lalleford Road and Eaton Green Road Link from the AAR;
  - iii. Percival Way between Airport Way and Prospect Way;
  - iv. Percival Way between Prospect Way and Provost Way;
- b. Medium:
  - i. Eaton Green Road between Brendon Avenue and Mistletoe Hill;
  - ii. Eaton Green Road between Mistletoe Hill and Frank Lester Way;
  - iii. Wigmore Lane between Eaton Green Road and Wigmore Park District Centre access;
  - iv. Wigmore Lane between Wigmore Park District Centre access and Twyford Drive.

18.9.66 The details of the flows in the 'With Development' and 'Without Development' scenarios and the sensitivity of occupants for these links is set out in **Table 18.20** below.

Table 18.20: Details of road links for further assessment for severance (2039)

Road Link	'Without Development' AADT Flow (vehs)	With Development AADT Flow (vehs)	Change (vehs)	Change (%)	Magnitude of Impact	Sensitivity
Airport Way between A505 Vauxhall Way and London Luton Roundabout	4,278	8,456	4,178	98%	High	Very Low
President Way between Car Rental and Frank Lester Way (AAR in 'With Development')	10,076	16,191	6,115	61%	High	Low

<sup>5</sup> This road link is President Way in the 'Without Development' scenario and follows a similar alignment on this section to the AAR, therefore those who might experience severance in this phase are similar for the two scenarios.



Road Link	'Without Development AADT Flow (vehs)	With Development AADT Flow (vehs)	Change (vehs)	Change (%)	Magnitude of Impact	Sensitivity
AAR between A1081 New Airport Way and Provost Way	-	15,404	15,404	n/a	Medium	Low
Eaton Green Road link	-	8,842	8,842	n/a	Medium	Low
AAR between Provost Way and Frank Lester Way	11,422	15,307	3,885	n/a	Low	Low
Wigmore Lane between Sowerby Avenue and Green Lane	11,911	15,197	3,286	n/a	Low	Medium
Eaton Green Road between Frank Lester Way and Lalleford Road	13,981	4,523	(9,458)	-68%	High	Low
Eaton Green Road between Lalleford Road and Eaton Green Road Link (AAR)	13,422	4,231	(9,191)	-68%	High	Low
Percival Way between Airport Way and Prospect Way	13,198	1,133	(12,065)	-91%	High	Low
Percival Way between Prospect Way and Provost Way	11,422	1,125	(10,297)	-90%	High	Low
Eaton Green Road between Brendon Avenue and Mistletoe Hill	18,432	11,382	(7,051)	-38%	Medium	Medium
Eaton Green Road between Mistletoe Hill and Frank Lester Way	14,737	6,887	(7,851)	-53%	Medium	Medium
Wigmore Lane between Eaton Green Road and Wigmore Park District Centre access	10,365	6,999	(3,366)	-32%	Medium	Medium
Wigmore Lane between Wigmore Park District Centre	10,365	6,998	(3,366)	-32%	Medium	Medium

Road Link	'Without Development AADT Flow (vehs)	With Development AADT Flow (vehs)	Change (vehs)	Change (%)	Magnitude of Impact	Sensitivity
access and Twyford Drive						

- 18.9.67 Considering first those road links where there is an increase in the volume of traffic, the volume on Airport Way between A505 Vauxhall Way and London Luton Roundabout increases from a low level of daily traffic flow of just over 4,000 vehicles per day to around 8,500 vehicles per day. When the level of magnitude is combined with the level of sensitivity, the conclusion is that there will be **no significant effects**.
- 18.9.68 The other link where the magnitude of impact is 'high' is the section of road that is President Way between its junction with Frank Lester Way and the entrance to the car rental car park. With the Proposed Development this road is dualled and becomes part of AAR, but most of this section follows the same alignment. The combination of magnitude of impact and occupant sensitivity result in **no significant effects**.
- 18.9.69 There are two links that have a magnitude of impact that is 'low'. For there to be a significant effect the sensitivity of the occupants would have to be 'very high' which is not the case, therefore there will be **no significant effects**.
- 18.9.70 The eight road links where the magnitude of impact for the reduction in flow is rated either 'high' or 'medium' can be combined together to form three continuous sections of road. These are Percival Way between its junction with New Airport Way and the point to the east of its junction with Provost Way, the second is Eaton Green Road between its junctions with Brendan Avenue and the location of the new junction with the link to the AAR. Both roads benefit from the transfer of traffic onto the AAR, and the third is Wigmore Lane between its junctions with Eaton Green Road and Twyford Drive.
- 18.9.71 The sensitivity of occupants along Percival Way has been set at 'low' because the nature of properties along this road and the topography of the area mean that there does not presently exist any demand for movement across the road and this is most unlikely to change in the future. This combination results **no significant effect**.
- 18.9.72 Four links combine to form a continuous section of Eaton Green Road between Brendan Avenue and which benefits from traffic transferring to AAR and the new junction with the link from the AAR. The sensitivity of occupants along Eaton Green Road has been set at 'low' because there will be a lack of demand for movement across this road, compared to other roads in this residential area to the north of the airport. For the section of Eaton Green Road to the west of Frank Lester Way the combination of the magnitude of impact and the sensitivity of occupants means that there will be **no significant effect**. To the east of the junction where the reduction in traffic volume is greater, over 9,000 vehicles per day and which is just under 70% lower, the classification of the effect could be either 'moderate' or 'major'. For this section of Eaton Green Road, the combination of magnitude of impact and the sensitivity of occupants

requires a judgement to be made whether the effect is 'minor' or 'moderate'. Because the threshold for the magnitude of severity being classified as 'high' is a change of 60% it is considered that the lower option of **minor** for the classification of the effect is more appropriate, and therefore there is **no significant effect**.

- 18.9.73 The third road is Wigmore Lane which on both links has a classification of 'medium' for both the magnitude of impact and sensitivity of occupants. For this section of Wigmore Lane, the combination of magnitude of impact and the sensitivity of occupants requires a judgement to be made whether the effect is 'minor' or 'moderate'. The threshold for the magnitude of severity being classified as 'medium' is a change of 30% in a built up area. It can be seen in **Table 18.20** that the change in traffic flow is 32%, and as a consequence it is considered that the lower option of **minor** for the classification of the effect is more appropriate, and therefore there is **no significant effect**.

## Driver Stress and Delay

### Driver Stress

- 18.9.74 The first sift of the changes in the level of driver stress identified 24 road links that required further consideration. On 20 of those links there is no change in the level of driver stress on the basis of the assessment methodology presented in **Appendix 18.1** (Volume 3 of the PEIR). The changes in driver stress on the remaining four road links are set out in **Table 18.21**. The driver stress on AAR has been set as 'low' (refer to **Section 1.4** of **Appendix 18.1**). The advice in the withdrawn DMRB (Ref. 18.32) that is set out in **Section 1.3** of **Appendix 18.1** is that for new roads designed to DfT standards, the appropriate level of driver stress is 'low' or 'moderate'. It also notes that fear is highest when speeds, flows and the proportion of heavy vehicles are all high. Since speeds will be restricted by an appropriate speed limit, the flows are not considered high for the class of road, and the proportion of HGVs is less than 5%, the level of sensitivity of 'low' has been adopted.

Table 18.21: Road links assessed for change in driver stress (2039)

Road Link	Level of Driver Stress		Magnitude of Impact of Change	Driver Sensitivity	Effect
	Without Development	With Development			
Slip road from A1081 London Road to A1081 New Airport Way WB	Moderate	High	Low	Medium	Negligible or Minor
Eaton Green Road between Frank Lester Way and Lalleford Road	High	Moderate	Very Low	Medium	No effect or Negligible

Road Link	Level of Driver Stress		Magnitude of Impact of Change	Driver Sensitivity	Effect
	Without Development	With Development			
Eaton Green Road between Lalleford Road and Eaton Green Road Link (AAR)	High	Moderate	Very Low	Medium	No effect or Negligible
Eaton Green Road between Eaton Green Road Link (AAR) and Wigmore Lane	High	Moderate	Very Low	Medium	No effect or Negligible

18.9.75 There will either be no effect or a **negligible** effect, which is **not significant**.

#### ***Driver Delay***

18.9.76 The initial sift of the junctions identified nine for further analysis. The changes in delay at these junctions together with the Level of Service (LOS) value for the 'Without Development' and 'With Development' scenarios, are set out in **Table 18.22** for those junctions where the magnitude of impact is greater than 'no change'. The table also shows the change in the average delay and the magnitude of impact that has been derived for each peak hour. For two of the junctions on the AAR there are no values for the LOS in the 'Without Development' scenario as the road would not exist. There are values for the LOS in the 'Without Development' and 'With Development' scenarios for the junctions of the AAR with Frank Lester Way and Eaton Green Road as the construction of the AAR will result in modification to two existing junctions.

Table 18.22: Magnitude of impact for driver delay (2039)

Road Link	AM Peak			PM Peak			Magnitude of Impact
	With-out Dev. LOS	With Dev. LOS	Add'n. Delay (secs)	With out Dev. LOS	With Dev. LOS	Add'n. Delay (secs)	
Wigmore Lane/Wigmore Hall Shopping Centre	A	B	10	A	C	15	Very Low
Crawley Green Road/Lalleford Road	A	A	5	A	C	19	Very Low

Road Link	AM Peak			PM Peak			Magnitude of Impact
	With-out Dev. LOS	With Dev. LOS	Add'n. Delay (secs)	With out Dev. LOS	With Dev. LOS	Add'n. Delay (secs)	
Eaton Green Road/Wigmore Lane	A	C	28	A	D	31	Low
Eaton Green Road/Lalleford Road	B	C	9	A	D	31	Very Low
A505 Vauxhall Way/Airport Way	C	D	7	F	C	-51	Very Low
President Way (AAR in DS)/Frank Lester Way	A	B	4	E	A	-31	Very Low
AAR/Eaton Green Road Link/T2 Access Road		C	28		C	22	Low
A1081 New Airport Way/Airport Way	A	A	1	F	A	-65	Medium
A1081 New Airport Way/AAR		B	18		B	14	Very Low

18.9.77 In the light of the lower flows at the junction of New Airport Way and Airport Way and the smaller time saving the effect has been classified as **minor**; accordingly, there is **no significant effect**.

### Pedestrian Delay

18.9.78 The first review of the morning and evening peak hour flows identified 31 road links where the change in flow between the 'Without Development' and 'With Development' scenarios is  $\pm 30\%$ , or  $\pm 10\%$  where the pedestrian sensitivity is 'high'. Having calculated the average pedestrian delay for both scenarios in both peaks for those road links there are no road links that has been identified for further investigation.

18.9.79 The conclusion that has been drawn is that there are **no significant effects** associated with pedestrian delay.

### Pedestrian Fear and Intimidation

18.9.80 The assessment of this category of potential effect requires consideration of both changes in hourly average over an 18-hour day of all vehicles and the change in HGVs over the same period. The initial review of the changes identified 36 road links for the average flow of all vehicles and 38 road links for

the total 16-hour HGV flows that required further assessment on the basis of the change in flow.

- 18.9.81 When considering those road links that had been identified at the first level, it was found that the degree of hazard did not change on 30 road links for changes in the flow of all traffic and on all road links for the change of HGV flows. There are six road links where there is a change for which the magnitude of impact is classified as 'low'. Four of these links make up the new AAR for which a pedestrian sensitivity was given a level of 'low' for the section to the east of its junction with Prospect Way and 'very low' for the section to the west. Assigning the value shown in **Table 1.3** in **Appendix 18.1** in Volume 3 of this PEIR there is **no significant effect**.
- 18.9.82 The two other links have a high level of sensitivity and are on sections of Crawley Green Road and St Mary's Road. The combination of this level of magnitude of impact and the pedestrian sensitivity identifies that there is **no significant effect**.

### Collision and Safety

- 18.9.83 The predicted annual PIC rates for 2039 together with the calculated rate for 2016 are presented in **Table 18.23** for those junctions where the magnitude of change has been assessed to be 'low' or higher. The table also includes the details on the changes between the 'Without Development' and 'With Development' for both the predicted PIC rates and junction traffic flows.

Table 18.23: Review of change in PICS (2039)

Junction Name	2016 Without Dev. Rate (PICs/Year)	2039 With Dev. Rate (PICs/Year)	2039 With Dev. Rate (PICs/Year)	Change in 2039 PIC Rate	Change in Flow Thru' Jct.	Magnitude of Impact
Eaton Green Road/Frank Lester Way	0.63	1.05	0.15	-85.4%	-63.1%	Medium
Eaton Green Road/Lalleford Road	0.12	0.18	0.07	-58.8%	-60.4%	Low

- 18.9.84 Using the criteria set out in **Table 1.19** of **Appendix 18.1** for the junction of Eaton Green Road with Frank Lester Way, the magnitude of impact of 'medium' together with a sensitivity of medium produces an effect that can be either 'minor' or 'moderate'. The magnitude of impact for the junction with Frank Lester Way is close to the next level in the matrix that is shown in **Table 1.19** of **Appendix 18.1**; therefore, it has been determined that the environmental effect is **moderate** beneficial, which is **significant**. The effect at the junction of Eaton Green Road and Lalleford Road is **minor** beneficial, which is **not significant**.

### Hazardous and Dangerous Loads

- 18.9.85 The introduction of the new fuel farm and the removal of fuel tankers from the wider highway network will be beneficial. Using the methodology described in

the sub-section starting at **paragraph 18.9.29**. The nature of the Proposed Development is such that with the exception of aviation fuel there is unlikely to be any other hazardous or dangerous loads brought to or taken from the Proposed Development when fully operational.

18.9.86 The probability of a tanker, laden with fuel, being involved in a KSI collision on any one trip while carrying fuel is calculated to be  $1.01 \times 10^{-7}$ . When this probability is applied to the total distance travelled by the tankers while fully laden over a thirty-year period from the opening of Terminal 2 if the Proposed Development did not take place, the risk of a KSI collision occurring is calculated to be 0.042.

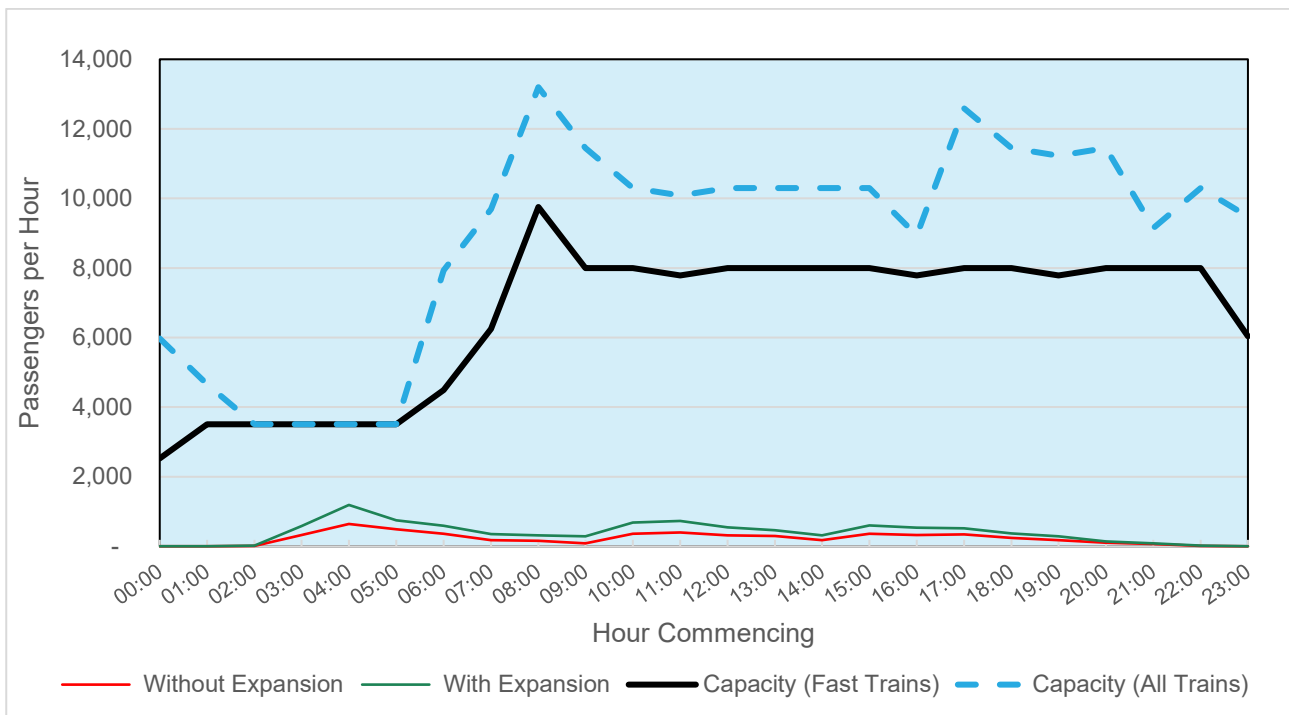
18.9.87 It is considered that the removal of the tankers from the route into the airport is beneficial but that the magnitude of the reduction in the impact is 'low' which when combined with a 'high' sensitivity for other drivers along the motorway section of the route that is travelled there will be only a **minor** beneficial effect which is **not significant**.

### Public Transport Users

#### Rail

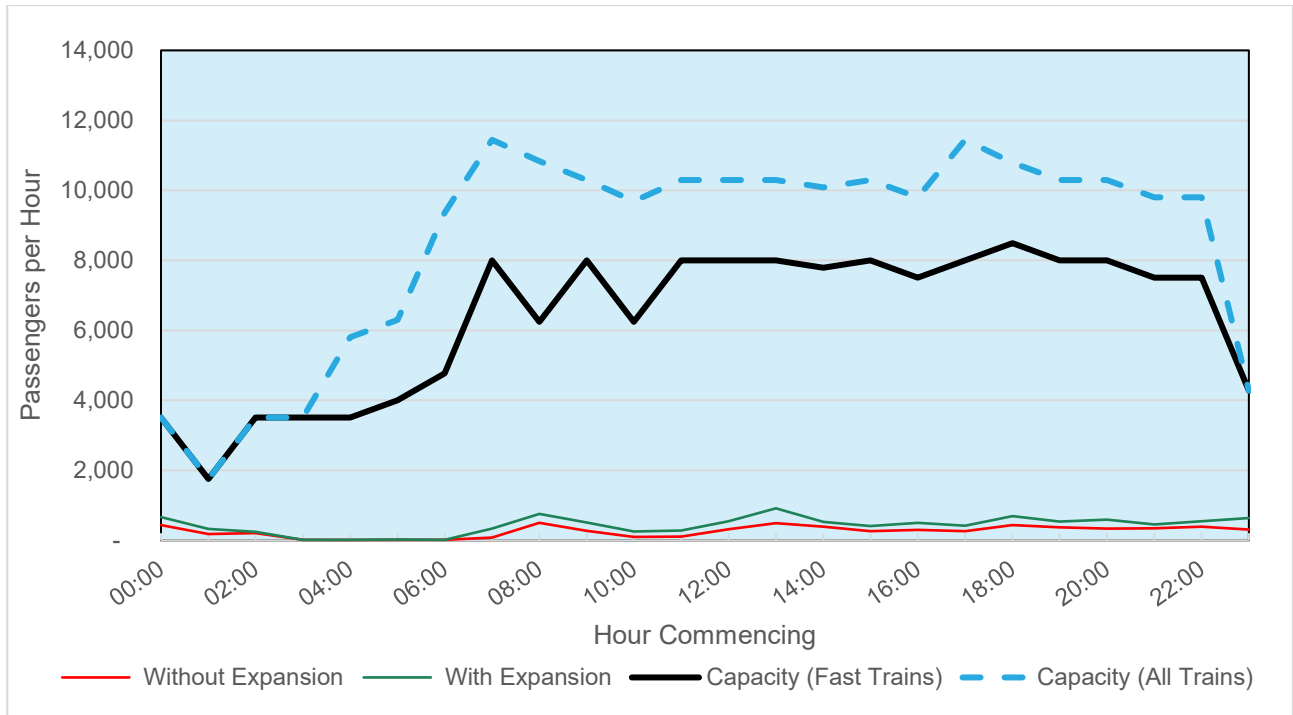
18.9.88 The equivalent figures and table to those prepared for Phase 1 are presented below for this assessment phase. In these two insets the lines that are labelled as 'Without Expansion' and 'With Expansion' show the loadings for the 'Without Development' and 'With Development' scenarios respectively.

Inset 18.11: Comparison of airport related loadings and capacity on rail service south of Luton Airport Parkway station (northbound 2039)





**Inset 18.12: Comparison of airport related loadings and capacity on rail service south of Luton Airport Parkway station (southbound 2039)**



**Table 18.24: Additional passengers on MML south of Luton Airport Parkway station (2039)**

Time	Northbound			Southbound		
	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)
00:00	2	67.8%	0.1%	227	51.6%	6.5%
01:00	1	67.8%	0.0%	144	80.2%	8.2%
02:00	10	67.8%	0.3%	44	21.8%	1.3%
03:00	261	81.1%	7.4%	3	22.8%	0.1%
04:00	547	85.2%	15.6%	4	33.9%	0.1%
05:00	253	51.3%	7.2%	7	33.9%	0.2%
06:00	232	64.8%	5.2%	5	33.9%	0.1%
07:00	173	96.3%	2.8%	260	322.1%	3.3%
08:00	155	98.4%	1.6%	255	50.9%	4.1%
09:00	207	251.2%	2.6%	235	86.4%	2.9%
10:00	320	88.2%	4.0%	150	146.6%	2.4%
11:00	332	83.3%	4.3%	175	163.1%	2.2%
12:00	229	72.6%	2.9%	227	71.1%	2.8%
13:00	162	54.4%	2.0%	422	85.4%	5.3%
14:00	132	73.2%	1.6%	136	34.8%	1.7%

Time	Northbound			Southbound		
	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)
15:00	237	65.3%	3.0%	147	56.5%	1.8%
16:00	212	65.8%	2.7%	202	67.8%	2.7%
17:00	172	50.1%	2.1%	153	58.4%	1.9%
18:00	134	56.1%	1.7%	254	57.9%	3.0%
19:00	109	61.3%	1.4%	160	42.6%	2.0%
20:00	38	38.5%	0.5%	262	78.4%	3.3%
21:00	15	23.6%	0.2%	111	32.4%	1.5%
22:00	5	35.1%	0.1%	158	40.2%	2.1%
23:00	0	67.8%	0.0%	326	106.0%	7.6%

- 18.9.89 During the morning peak period (07:00 to 10:00) the increase in passengers in the southbound direction is 93%. The corresponding figure for northbound travel during the evening peak period (16:00 to 19:00) is 57%. The corresponding use of capacity is 3.4% and 2.2%.
- 18.9.90 When the ratio of passengers to capacity is compared with the magnitude shown in **Table 1.6** of **Appendix 18.1** the highest level is 'low' which occurs for two hours northbound and four hours southbound. When combined with a degree of sensitivity of rail passengers of 'medium', there will be a **minor** adverse effect, which is **not significant** effect.
- 18.9.91 On the basis of the findings for services south of Luton Airport Parkway station, it can be concluded that for loadings that are only one quarter of those already assessed, there will be **no significant effect** on services to the north of the station.

### ***Coach and Bus***

- 18.9.92 The prediction of travel by coach and bus in 2039 with Terminal 2 operational gives an increase of 57% when compared with the 'Without Development' scenario. Coach and local bus service operators have the flexibility to respond quickly to increases in and changes to the pattern of passenger demand. To enable the operators to do this, it is necessary to provide the facilities at the airport that facilitate this. In 2039 the number of coach and bus bays will have increased to 40 which is more than double the provision presently provided and the number in the 'Without Development' scenario. With measures that will be in place to encourage travel by public transport the likelihood is that the frequency of coach services will increase to match demand and additional services introduced to satisfy demand along routes where the provision of a service is not currently viable. It is concluded that there will be **no significant effect** on coach and local bus services.

## Phase 2b

18.9.93 With the completion of AAR, the number of road links that have been included in the assessment is 176.

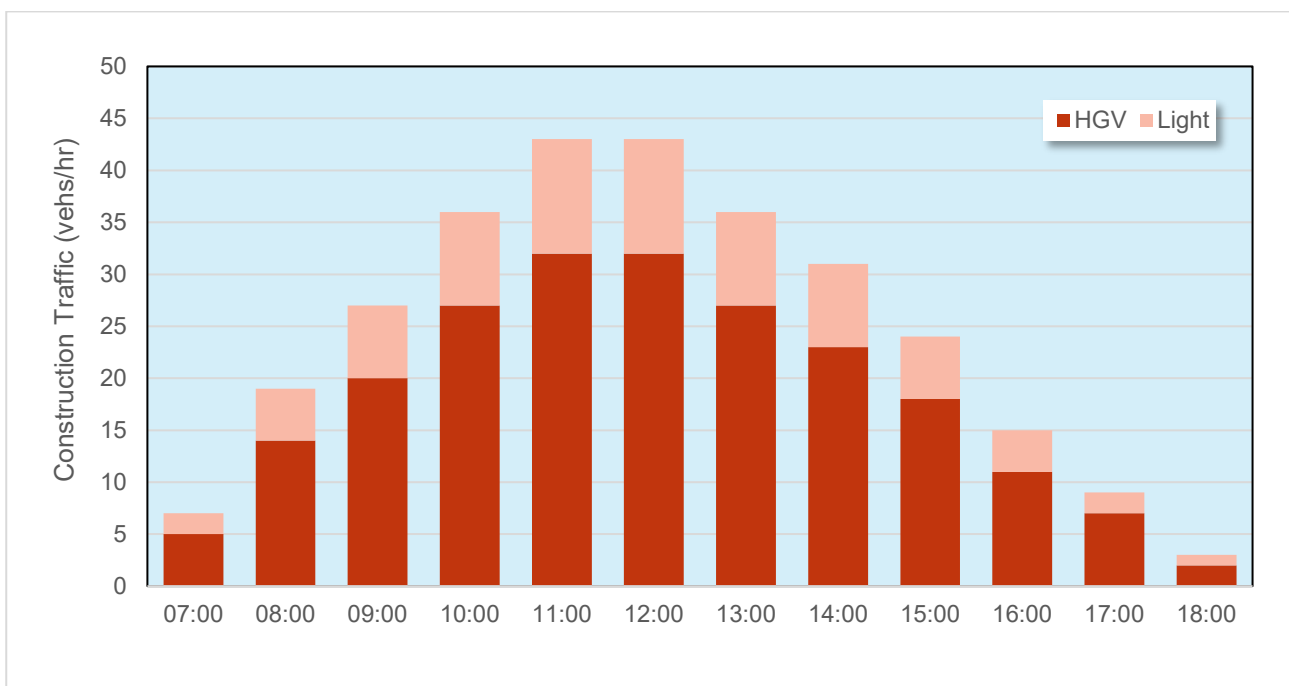
### *Construction effects*

18.9.94 Based on the construction programme, there are two quarters that have the highest volume of construction traffic in this phase; these are 2036 Q2 and Q3 when it is predicted that 9,987 vehicles will visit the Application Site in each quarter. This equates to an average daily rate of 148 vehicles of which 74% would be HGVs.

18.9.95 The effect of this traffic has been assessed against the 2039 'With Development' forecast flows.

18.9.96 The distribution through the day of the peak level of construction traffic is shown in **Inset 18.13**.

Inset 18.13: Typical distribution of construction traffic movements during busiest quarter (Phase 2b)



18.9.97 The approach to the uncertainty of the direction travelled on the M1 (**paragraph 18.9.7**) has also been used for this phase.

18.9.98 **Table 18.25** shows the inter-peak period traffic flows for the 2039 'With Development' scenario together with the predicted peak construction flows during that period. The table also sets out the increase in traffic as a percentage.

Table 18.25: Peak Phase 2b construction traffic on highway network

Road Link	2039 'With Development' (Inter peak)	Alternative A		Alternative B	
		Construct-ion Traffic Flow	Increase (%)	Construct-ion Traffic Flow	Increase (%)
AAR between President Way and Eaton Green Road link	5,234	212	4.0%	212	4.0%
AAR between Provost Way and Frank Lester Way	5,509	212	3.8%	212	3.8%
AAR between A1081 and Provost Way	5,416	212	3.9%	212	3.9%
A1081 New Airport Way between A505 Airport Way and Percival Way	12,512	212	1.7%	212	1.7%
A1081 New Airport Way between link to Lower Harpenden Road and Airport Way	23,075	212	0.9%	212	0.9%
A1081 New Airport Way between Capability Green Estate and link to Lower Harpenden Road	26,455	212	0.8%	212	0.8%
A1081 New Airport Way between Capability Green Estate slip roads	22,847	212	0.9%	212	0.9%
A1081 New Airport Way between A1081 London Road and Capability Green Estate	27,259	212	0.8%	212	0.8%
A1081 New Airport Way between London Road slip roads	22,218	212	1.0%	212	1.0%
A1081 New Airport Way between M1 Jct. 10 and A1081 London Road	28,175	212	0.8%	212	0.8%
M1 southbound on-slip road	17,426	85	0.5%	21	0.1%
M1 northbound off-slip road	36,132	85	0.2%	21	0.1%
Junction 10 Roundabout (western circulating carriageway)	13,259	106	0.8%	106	0.8%
Junction 10 Roundabout (northern overbridge)	7,229	85	1.2%	21	0.3%

Road Link	2039 'With Development' (Inter peak)	Alternative A		Alternative B	
		Construction Traffic Flow	Increase (%)	Construction Traffic Flow	Increase (%)
M1 Between Jct. 9 and Jct. 10	75,977	169	0.2%	42	0.1%
M1 Between Jct. 7 and Jct. 9	76,600	169	0.2%	42	0.1%
Junction 10 Roundabout (southern overbridge)	6,041	21	0.4%	85	1.4%
M1 northbound on-slip road	6,030	21	0.4%	85	1.4%
M1 southbound off-slip road	6,191	21	0.3%	85	1.4%
M1 Between Jct. 10 and Jct. 11	72,270	42	0.1%	169	0.2%
M1 Between Jct. 11 and Jct. 11A	67,965	42	0.1%	169	0.2%

- 18.9.99 As noted previously, the two scenarios cover 80% of the construction vehicles travelling in one or other direction. From the figures it can be seen that even if all construction traffic travelled on the M1 either to the north or south of Junction 10, the increase in traffic flows on the M1 would still be very small.
- 18.9.100 The figures in **Table 18.19** show that on the A1081 and the M1 the increase in traffic is less than two percent, and following the IEMA Guidelines (Ref. 18.19), any adverse effect is highly unlikely. The highest increase is predicted to be around 4% which occurs on AAR to the east of Frank Lester Way.
- 18.9.101 Since none of the roads on which the construction traffic travels have been identified as having any sensitive receptors nearby, the IEMA Guidelines (Ref. 18.19) thresholds of 30% applies, therefore no further assessment of effects on those road links is required for this phase, as there will be **no significant effect**.

### Hazardous and Dangerous Loads

- 18.9.102 The current estimate is that the construction work associated with assessment Phase 2b would require 410 HGV round trips to remove 3,700m<sup>2</sup> of contaminated material from the landfill site. This is 25% of the volume that was considered for assessment Phase 2a and based on the conclusions for that phase it is considered that there will be **no significant effects** associated with the Phase 2b assessment period.

### Operational effects

- 18.9.103 For the modelling of the impact of the additional traffic associated with the Proposed Development it has been assumed that the proportion of airport passengers using public transport will remain at 45%. Predictions from CBLTM-LTN show an increase of traffic entering and leaving the airport increasing by

45% over the 'Without Development' scenario while the increase in air passengers is 78%. Employee numbers are predicted to rise by 45% but the increase in vehicle trips will be lower as the target to increase the number of new employees using public transport translates into an increase in employee car trips of only 31%.

- 18.9.104 The main highway improvement associated with this assessment phase is the construction of the missing section of AAR. The works include the following:
- a. construction of the dual carriageway section of AAR between its junctions with Provost Way and Frank Lester Way;
  - b. replacement of the ARR/Provost Way roundabout by a traffic signal controlled four arm junction;
  - c. realignment of link between AAR and Percival Way and reduction to single carriageway and removal of roundabout at southern end;
  - d. closure of Percival Way east of Provost Way as a through route, with provision provided to access building fronting the road; and
  - e. widening of AAR entry arm to Frank Lester Way junction from the east to provide dedicated right turn lane.
- 18.9.105 Taking into consideration the forecast flows from the CBLTM-LTN for 2043, just under three quarters of air passengers travelling to and from the airport by car over the course of a day use the M1. Those travelling south of Junction 10 account for 45% of all trips and those on the section to the north is 28%. This is only a small increase in terms of the proportion on the 'Without Development' scenario. A further 5% use the A1(M) which is a fall from the 6% in the 'Without Development' scenario.
- 18.9.106 An arc drawn from an area to the north east of the airport round to the southwest of the airport which encompasses the A505 east of Offley to the A1081 south of the junction with Newlands Road covers 19% of the air passenger traffic. This percentage is little different whether or not the airport expansion is in place. For the 'With Development' scenario the M1 and A505 west of Offley carry 82% of the air passenger traffic.
- 18.9.107 The forecast flows from CBLTM-LTN for daily traffic flows on the B653 show a 7% increase in traffic between the 'Without Development' and 'With Development' scenarios. The forecasts show that airport related traffic, both air passengers and staff, represents 7% of the total traffic on this section of the B653 for the 'Without Development' scenario and 10% for the 'With Development' scenario.

### Severance

- 18.9.108 Using the criteria for the assessment of the effect of severance set out **Appendix 18.1**, the following 16 road links were identified as requiring further investigation. Those road links where the traffic flow increase together with the magnitude of impact associated with that increase are set out below.
- a. High:

- i. Airport Way between A505 Vauxhall Way and Percival Way;
  - ii. AAR between A1081 New Airport Way and Provost Way;
  - iii. AAR between Provost Way and Frank Lester Way;
  - iv. AAR between Car Rental and Frank Lester Way<sup>6</sup> (President Way AAR in DS);
  - v. AAR Link between President Way and Eaton Green Road link;
- b. Medium:
- i. Access road to Terminal 2 from AAR;
  - ii. Eaton Green Road link;
- c. Low:
- i. Wigmore Lane between Sowerby Avenue and Green Lane;
  - ii. Crawley Green Rd between Ashcroft Road and Lalleford Road; and
  - iii. Crawley Green Road between Rochford Drive and Hedley Rise.

18.9.109 Those road links where the traffic flow decreased are listed below.

- a. High:
- i. Eaton Green Road between Frank Lester Way and Lalleford Road;
  - ii. Eaton Green Road between Lalleford Road and Eaton Green Road Link from the AAR;
  - iii. Percival Way between Airport Way and Prospect Way;
  - iv. Percival Way between Prospect Way and Frank Lester Way;
- b. Medium:
- i. Eaton Green Road between Brendon Avenue and Mistletoe Hill; and
  - ii. Eaton Green Road between Mistletoe Hill and Frank Lester Way.

18.9.110 The details of the flows 'With Development' and 'Without Development' scenarios, and the sensitivity of occupants for these links is set out in **Table 18.26** below.

Table 18.26: Details of road links for further assessment for severance (2043)

Road Link	'Without Development' AADT Flow (vehs)	'With Development' AADT Flow (vehs)	Change (vehs)	Change (%)	Magnitude of Impact	Sensitivity
Airport Way between A505 Vauxhall Way and London Luton Roundabout	4,066	9,696	5,630	138%	High	Very Low

<sup>6</sup> This road link is President Way in the 'Without Development' scenario and follows a similar alignment on this section to the AAR, therefore those who might experience severance in this phase are similar for the two scenarios.



Road Link	'Without Development AADT Flow (vehs)	With Development AADT Flow (vehs)	Change (vehs)	Change (%)	Magnitude of Impact	Sensitivity
AAR between A1081 New Airport Way and Provost Way	-	21,295	21,295	n/a	High	Low
AAR between Provost Way and Frank Lester Way	-	21,312	21,312	n/a	High	Low
President Way between Car Rental and Frank Lester Way (AAR in DS)	10,082	23,068	12,986	129%	High	Low
AAR between President Way and Eaton Green Road link	-	23,068	23,068	n/a	High	Low
Access road to Terminal 2 from AAR	-	11,767	11,767	n/a	Medium	Low
Eaton Green Road link	-	12,317	12,317	n/a	Medium	Low
Wigmore Lane between Sowerby Avenue and Green Lane	11,938	15,535	3,597	30%	Low	Medium
Crawley Green Rd between Ashcroft Road and Lalleford Road	11,110	14,387	3,277	29%	Low	High
Crawley Green Road between Rochford Drive and Hedley Rise	8,331	10,674	2,343	28%	Low	High
Eaton Green Road between Frank Lester Way and Lalleford Road	14,515	4,086	(10,428)	-72%	High	Low
Eaton Green Road between Lalleford Road and Eaton Green Road Link (AAR)	13,909	3,930	(9,979)	-72%	High	Low
Percival Way between Airport Way and Prospect Way	13,322	1,411	(11,911)	-89%	High	Low

Road Link	'Without Development AADT Flow (vehs)	With Development AADT Flow (vehs)	Change (vehs)	Change (%)	Magnitude of Impact	Sensitivity
Percival Way between Prospect Way and Frank Lester Way	11,536	1,041	(10,495)	-91%	High	Low
Eaton Green Road between Brendon Avenue and Mistletoe Hill	18,767	11,642	(7,125)	-38%	Medium	Medium
Eaton Green Road between Mistletoe Hill and Frank Lester Way	14,967	6,951	(8,016)	-54%	Medium	Medium

- 18.9.111 Where the traffic volume increases and the magnitude of impact for severance is classified as 'high', it can be seen that four of the road links (bullet points a.ii to a.v above) cover the full length of the AAR from New Airport Way to the roundabout that provides access to Terminal 2 and the link onto Eaton Green Road. When the combination of the magnitude of severity and the sensitivity of occupants is described in **Section 1.4** and **Table 1.17** of **Appendix 18.1** the significance is 'minor or moderate' which requires professional judgement to be used to ascertain whether there is a significant effect or not. At this stage the classification of the magnitude of severity being 'high' has been established solely on the basis of the flow along AAR. However, if one considers the guidance that had been included in DMRB volume 11.3.8 (Ref. 18.33) that is referenced in **paragraph 1.3.4** of **Appendix 18.1** (Volume 3 of this PEIR) it can be seen that in terms of the impediments to movement listed these will be closer to the situation associated with a slight magnitude of impact. Accordingly, the conclusion that has been drawn is that the effect is **minor** adverse and **not significant** because the road is new, much of the frontage development does not generate pedestrian movement, and there are controlled pedestrian crossing facilities.
- 18.9.112 The other occurrence is Airport Way which increases from a low level of daily traffic flow of just over four thousand vehicles per day to around nine and a half thousand vehicles per day. When the level of magnitude of 'high' is combined with the level of sensitivity of 'very low', the conclusion is that for this road link experiencing an increase in traffic there will be **no significant effect**.
- 18.9.113 Apart from the two sections of Wigmore Lane where the reduction in flow between the two scenarios drops to 25%, and is therefore below the threshold, the other six road links have the same level of magnitude of impact and the observations written in **paragraphs 18.9.71** and **18.9.72** apply for this phase. The decrease in the traffic flows on the section of Eaton Green Road to the east of Frank Lester Way is more than predicted for 2039 but is still in the lower half of the range for the classification of the magnitude of impact and therefore the conclusions that were drawn in those paragraphs that there will be **no significant effects** equally applies to Phase 2b.

## Driver Stress and Delay

### Driver Stress

18.9.114 The first sift of the changes in the level of driver stress identified 27 road links that required further consideration. On 25 of those links there is no change in the level of driver stress. The change in driver stress on the remaining two road links are set out in **Table 18.27**.

Table 18.27: Road links assessed for change in driver stress (2043)

Road Link	Level of Driver Stress		Magnitude of Impact of Change	Driver Sensitivity	Effect
	Without Dev.	With Dev.			
Eaton Green Road between Frank Lester Way and Lalleford Road	High	Moderate	Very Low	Medium	No effect or Negligible
Eaton Green Road between Lalleford Road and Eaton Green Road Link (AAR)	High	Moderate	Very Low	Medium	No effect or Negligible

18.9.115 The level of the effect on all of the above links in the table is such that there will be **no significant effect**.

### Driver Delay

18.9.116 The initial sift of the junctions identified twelve for further analysis. The changes in delay at these junctions together with the LOS value for the 'Without Development' and 'With Development' scenarios, are set out in **Table 18.28** for those junctions where the magnitude of impact is greater than 'no change'. The table also shows the change in the average delay and the magnitude of impact that has been derived for each peak hour. For two of the junctions on the AAR there are no values for the LOS in the 'Without Development' scenario as the road would not exist. There are values for the LOS in the 'Without Development' and 'With Development' scenarios for the junctions of the AAR with Frank Lester Way and Eaton Green Road as the construction of the AAR will result in modification to two existing junctions.

Table 18.28: Magnitude of impact for driver delay (2043)

Road Link	AM Peak			PM Peak			Magnitude of Impact
	With-out Dev. LOS	With Dev. LOS	Add'n. Delay (secs)	With-out Dev. LOS	With Dev. LOS	Add'n. Delay (secs)	
Wigmore Lane/Wigmore Hall Shopping Centre	A	B	11	A	C	26	Very Low
Crawley Green Road/Lalleford Road	A	B	15	A	B	12	Very Low
Eaton Green Road/Wigmore Lane	A	C	30	A	D	36	Low
AAR/Eaton Green Road Link/T2 Access Road		C	35		C	31	Low
A1081 New Airport Way/Airport Access Road		B	15		B	16	Very Low

18.9.117 Using **Table 1.19** in **Appendix 18.1** to establish the level of effects when the magnitude of impact and level of driver stress are considered together the outcome is that there are **no significant effects**.

### Pedestrian Delay

18.9.118 The first review of the morning and evening peak hour flows identified 41 road links where the change in flow between the 'Without Development' and 'With Development' scenarios is  $\pm 30\%$ , or  $\pm 10\%$  where the pedestrian sensitivity is 'high'. Having calculated the average pedestrian delay for both scenarios in both peaks for those road links there two road links that has been identified for further investigation. The first road link is the link section of AAR between Provost Way and Frank Lester Way. The calculated average pedestrian delay is 13 seconds in the morning peak and 15 seconds in the evening peak. This is a new section of road and in the 'Without Development' scenario the equivalent crossing would be of Percival Way between the same two roads. The equivalent calculated delays for that scenario are seven and eight seconds. Pedestrians would therefore experience a delay of less than the ten second threshold described in **paragraph 1.3.21** of **Appendix 18.1**, with the consequence that there are no links where the threshold of ten seconds is exceeded.

- 18.9.119 The other road link is the section of AAR between the roundabout that provides access to the car parking area to the north of the road and the junction with the link to Eaton Green Road. As a new section of highway this is new delay that would be experienced by pedestrians. The delay in each peak period is 15 seconds. Because this is only five seconds above the threshold and the sensitivity for pedestrians is 'low', a magnitude of impact of 'low' has been allocated, which results in a **minor** adverse effect.
- 18.9.120 The conclusion that has been drawn from this part of the assessment is that there are **no significant effects** associated with pedestrian delay.

### **Pedestrian Fear and Intimidation**

- 18.9.121 The assessment of this category of potential effect requires consideration of both changes in hourly average over an 18-hour day of all vehicles and the change in HGVS over the same period. The initial review of the changes identified 41 road links for the average flow of all vehicles and 42 road links for the total 16-hour HGV flows that required further assessment on the basis of the change in flow.
- 18.9.122 When considering those road links that had been identified at the first level, it was found that the degree of hazard did not change on 33 road links for changes in the flow of all traffic and on all road links for the change of HGV flows. There are four road links where there is a change in the magnitude of impact that is classified as 'medium' and four road links where there is a change the magnitude of impact that is classified as 'low'. The first four links are those that make up the new AAR for which a pedestrian sensitivity was given a level of 'low' for the section to the east of its junction with Prospect Way and 'very low' for the section to the west. Assigning the value shown in **Table 1.19** in **Appendix 18.1** of this PEIR none of these changes resulted in a significant effect. When considering the four road links that experience a magnitude of impact of rates as 'low' the sensitivity of the receptor has to be 'very high' for there to be the possibility of a significant effect, which is not the case for any of these links. Two of the links when combined for the section of Crawley Green Road between its junctions with Wigmore Lane and Rochford Drive. This section of highway has one school, one church, and a medical practice along its frontage, and this has influenced the scale of the effect that is reported in **Table 18.32**.

### **Collisions and Safety**

- 18.9.123 The predicted annual PIC rates for 2043 together with the calculated rate for 2016 are presented in **Table 18.29** for those junctions where the magnitude of change has been assessed to be 'low' or higher. The table also includes the details on the changes between the 'Without Development' and 'With Development' for both the predicted PIC rates and junction traffic flows.

Table 18.29: Review of change in PICS (2043)

Junction Name	2016 Without Dev. Rate (PICs/Year)	2039 With Dev. Rate (PICs/Year)	2039 With Dev. Rate (PICs/Year)	Change in 2043 PIC Rate	Change in Flow Thru' Jct.	Magnitude of Impact
A505 Kimpton Road/Windmill Road	1.52	5.07	0.48	-90.5%	-10.2%	Low
Eaton Green Road/Frank Lester Way	0.63	1.09	0.15	-86.2%	-64.9%	Medium
Eaton Green Road/Lalleford Road	0.12	0.19	0.07	-64.2%	-70.6%	Medium

18.9.124 All of the changes at these three junctions are beneficial. Using the criteria set out in **Table 1.19** of **Appendix 18.1** the junction of A505 Kimpton Road and Windmill Road the combination of magnitude and scale of sensitivity results in **no significant effect**. For the junctions of Eaton Green Road with Frank Lester Way and Lalleford Road, the magnitude of impact of 'medium' together with a sensitivity of medium produces an effect that can be either 'minor' or 'moderate'. The magnitude of impact for the junction with Frank Lester Way is close to next level in the matrix that is shown in **Table 1.19** of **Appendix 18.1**, it has been determined that there will be a **moderate** beneficial effect, which is **significant**. It is considered that for the junction with Lalleford Road the values that determine the magnitude of impact to both be in the lower end of the range for the classification that has been assigned the effect has been determined to be **minor** beneficial effect, which is **not significant**.

### Hazardous and Dangerous Loads

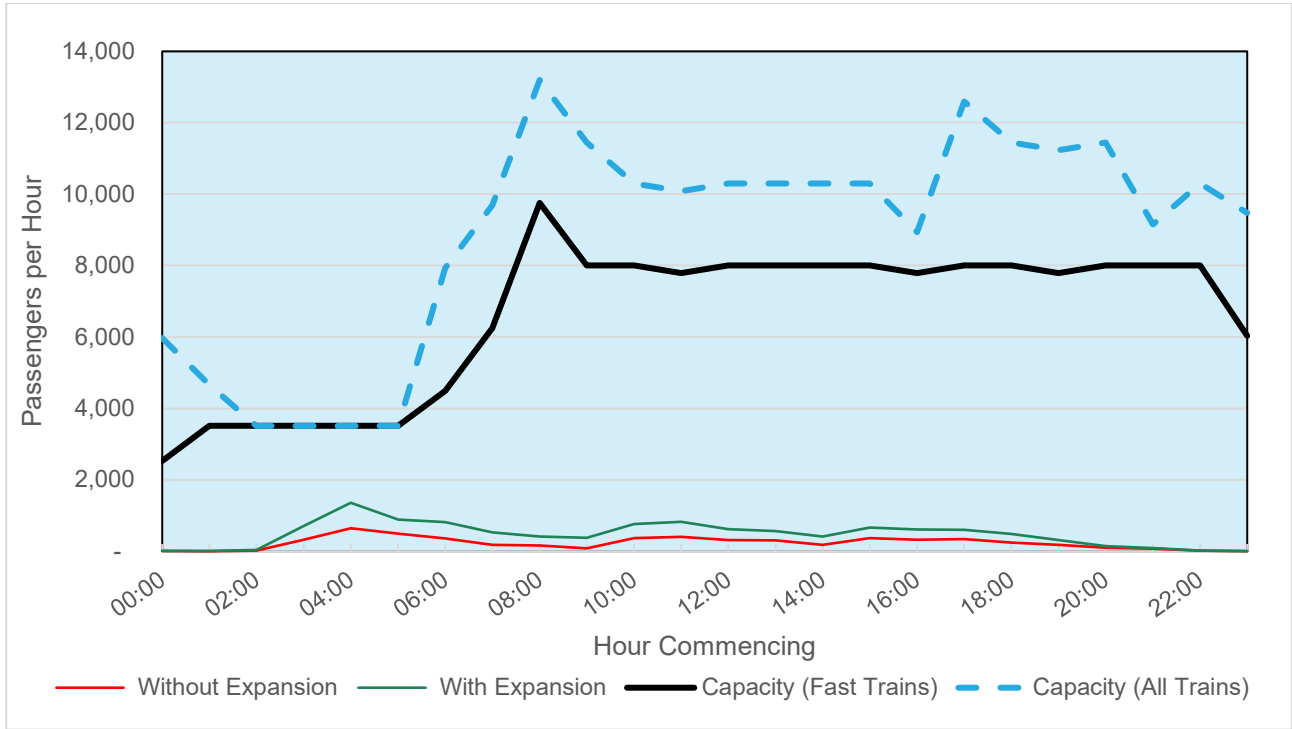
18.9.125 The assessment of this environmental effect has been described for Phase 2a in **paragraphs 18.9.85** to **18.9.87**. The considerations that applied in that assessment similarly apply to Phase 2b and therefore the conclusion is the same - there will remain a **minor** beneficial effect, which is not significant.

### Public Transport Users

#### *Rail*

18.9.126 The equivalent figures and table to those prepared for Phases 1 and 2a are presented below for this phase. In these two insets the lines that are labelled as 'Without Expansion' and 'With Expansion' show the loadings for the 'Without Development' and 'With Development' scenarios respectively.

**Inset 18.14: Comparison of airport related loadings and capacity on rail service south of Luton Airport Parkway station (northbound 2043)**



**Inset 18.15: Comparison of airport related loadings and capacity on rail service south of Luton Airport Parkway station (southbound 2043)**

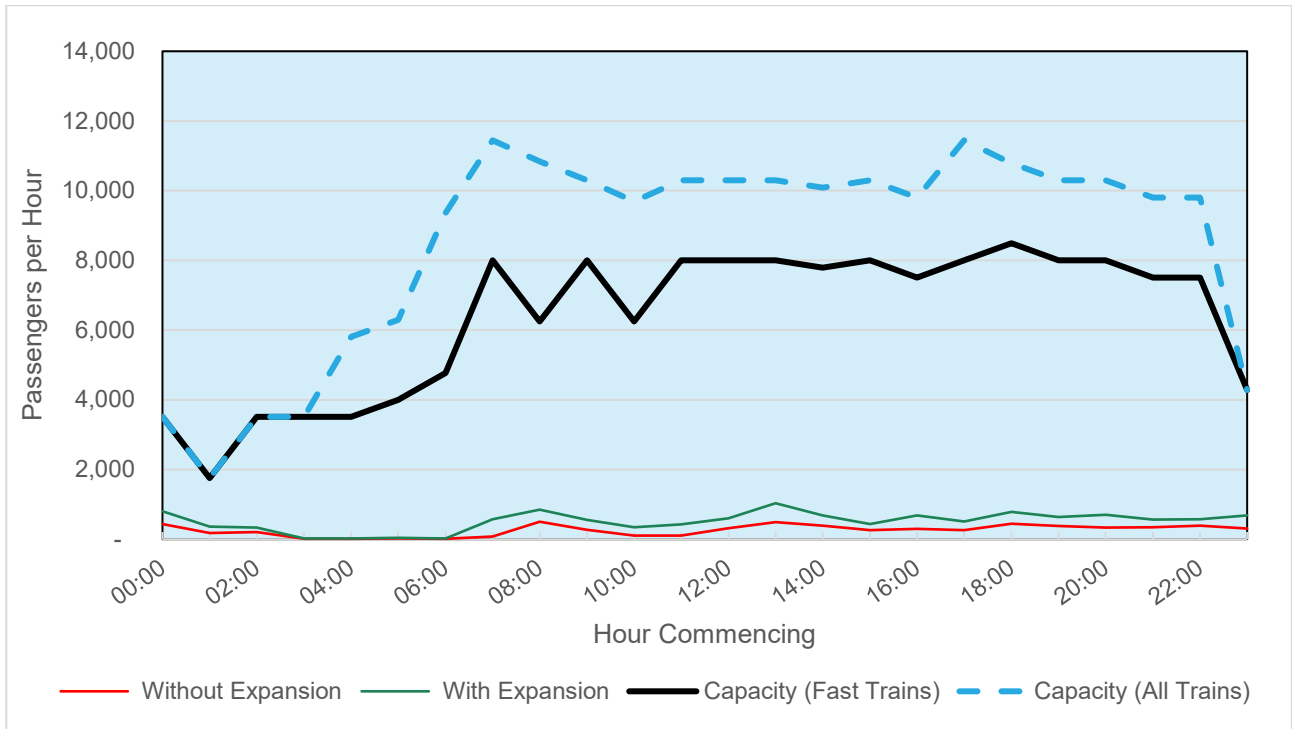




Table 18.30: Additional passengers on MML south of Luton Airport Parkway station (2043)

Time	Northbound			Southbound		
	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)	Additional Passengers	Increase in Airport Passengers	Proportion of Capacity (fast trains)
00:00	3	123.6%	0.1%	363	82.7%	10.4%
01:00	2	123.6%	0.1%	183	101.6%	10.4%
02:00	18	123.6%	0.5%	125	61.2%	3.6%
03:00	384	119.1%	10.9%	13	106.7%	0.4%
04:00	714	111.3%	20.4%	10	78.3%	0.3%
05:00	392	79.6%	11.2%	16	78.3%	0.4%
06:00	457	127.7%	10.2%	11	78.3%	0.2%
07:00	342	190.0%	5.5%	493	610.5%	6.2%
08:00	252	160.0%	2.6%	350	69.8%	5.6%
09:00	291	353.6%	3.6%	278	102.3%	3.5%
10:00	394	108.7%	4.9%	245	239.8%	3.9%
11:00	424	106.6%	5.4%	316	295.0%	4.0%
12:00	301	95.5%	3.8%	282	88.4%	3.5%
13:00	262	87.8%	3.3%	539	109.1%	6.7%
14:00	233	129.5%	2.9%	289	73.8%	3.7%
15:00	295	81.4%	3.7%	170	65.4%	2.1%
16:00	282	87.5%	3.6%	386	129.6%	5.1%
17:00	256	74.8%	3.2%	250	95.4%	3.1%
18:00	244	102.4%	3.0%	341	77.7%	4.0%
19:00	135	76.0%	1.7%	262	69.8%	3.3%
20:00	43	43.0%	0.5%	365	109.4%	4.6%
21:00	18	27.7%	0.2%	219	63.9%	2.9%
22:00	6	45.9%	0.1%	178	45.3%	2.4%
23:00	1	123.6%	0.0%	371	120.6%	8.7%

18.9.127 It can be seen from **Inset 18.15** that the additional passengers travelling towards the airport from the south between 04:00 and 05:00 take the overall airport related passengers to a high proportion of capacity available. This is a time when there will be little other demand for travel in this direction. There is a high percentage increase in the number of rail passengers travelling towards the airport between 09:00 and 10:00. When this is considered in greater detail it can be seen that there is not a big rise in the actual number of passengers, but rather that it mirrors the aircraft movement forecasts in the 'Without Development' scenario where there is a low level of departing flights at the time that generates trips on the transport network.

- 18.9.128 During the morning peak period (07:00 to 10:00) the increase in passengers in the southbound direction is 139%. The corresponding figure for northbound travel during the evening peak period (16:00 to 19:00) is 87%. The corresponding use of capacity is 5.0% and 3.3%.
- 18.9.129 When the ratio of passengers to capacity for northbound travel is compared with the ranges of magnitude shown in **Table 1.16** of **Appendix 18.1** a magnitude of impact of 'medium' is predicted to occur for one hour (04:00 to 05:00) and a level of 'low' is experienced for one third of the day. The distribution of level of magnitude of impact is predicted to occur for southbound travel but the incidence of 'medium' occurs between 16:00 and 17:00.
- 18.9.130 The combination of a 'medium' level of magnitude of impact and a receptor sensitivity of 'medium' could result in effect that is either 'minor' or 'moderate' therefore it is necessary to give greater consideration to the values in order to determine into which of these categories the effect should fall.
- 18.9.131 In the northbound direction the ratio of passengers to capacity that gives a magnitude of impact of 'medium' is 20.4%. For the time period this comes in a range of above 20% to 50%, therefore this is close to the lower level of this magnitude. In the southbound direction at the ratio is 5.1% and the range for 'medium' at this time is above 5% to 10%. Since the level of medium only occurs for one hour in each direction and in both cases the value is very much at the low end of the range it is considered that the effect is **minor** adverse, which is **not significant**.
- 18.9.132 On the basis of the findings for services south of Luton Airport Parkway station, it can be concluded that for loadings that are only one quarter of those already assessed, there will be **no significant effect** on services to the north of the station.

### ***Coach and Bus***

- 18.9.133 The prediction of travel by coach and bus in 2043 gives an increase of 87% when compared with the 'Without Development' scenario. The ratio of bays to the air passenger throughput in the 'Without Development' scenario is one bay per one mppa. This increases to 1.25 bays per one mppa for the 'With Development' scenario. This demonstrates that the provision of facilities still remains better With Development, therefore it is concluded that there will be **no significant effect** on coach and local bus services.

### **Sensitivity Analysis**

- 18.9.134 There are certain known scenarios or risks that may occur that could influence the conclusions of the core assessment. These scenarios and the general approach to considering them in this assessment are described in **Section 5.4** of **Chapter 5** Approach to the Assessment in Volume 2 of this PEIR.
- 18.9.135 **Table 18.31** provides a qualitative assessment of any likely changes to the conclusions of the assessment reported in this chapter, in the event that that scenario or risk is realised.

Table 18.31: Qualitative Sensitivity Analysis

Sensitivity scenario	Potential impact and change	Likely effect
1. LLAOL 19 mppa application granted	The additional surface access trips associated with the 1 mppa increase would increase the baseline for the 'Without Development' scenario thereby reducing the effect in assessment phases 2a and 2b.	There would be a slight reduction in the magnitude of impact when comparing the 'With Development' and 'Without Development' scenarios, but the conclusions on significance of effect would remain unchanged.
2. Faster growth scenario	<p><u>Construction - All receptors</u> There were no significant effects for any of the assessment phases. On the basis that the duration of construction would be unchanged, and the only change would be an earlier start date, the volume of construction traffic would be the same. The traffic flows in the 'Without Development' scenarios would be slightly lower because there would have been a shorter period over which non-airport traffic growth would have occurred, and as a result the construction traffic would produce a marginally greater percentage increase in traffic on the roads for the 'With Development' scenarios. However the percentage increases set out in <b>Table 18.15</b>, <b>Table 18.19</b> and <b>Table 18.25</b> are such that the relationship would not change enough for the conclusion that there was no significant effect during construction to change.</p> <p><u>Operational – All receptors</u> Faster growth would bring forward the need for the off-site mitigation measures.</p>	The conclusions on the significance of effects would remain unchanged.
3. Slower growth scenario	<p><u>Construction - All receptors</u> The converse to that described above for the faster growth would apply as the construction traffic would produce a smaller percentage increase in traffic flows.</p>	The conclusions on the significance of effects would remain unchanged.

Sensitivity scenario	Potential impact and change	Likely effect
	<p><u>Operational – All receptors</u></p> <p>In general, a slower growth in air passenger throughput will delay the time at which the effects set out in <b>Table 18.32</b> will occur. It is not considered that it would change the magnitude of any of the effects.</p>	

## 18.10 Additional mitigation

- 18.10.1 Early investigation of the likely impacts of the Proposed Development together with a depth of experience of previous work on the earlier planning applications that have allowed the airport to grow to a throughput of 18 mppa have made it possible to identify and then incorporate a considerable scale of mitigation measures into the design together with the introduction of measures in the **SAETS**. This, when supported by the Framework Travel Plan, has resulted in this assessment concluding that no additional mitigation is required. This has been assisted by close liaison with LBC and National Highways who are the responsible authorities for the roads that will carry the majority of the additional traffic.

## 18.11 Residual effects

### Phase 1

#### *Construction effects*

- 18.11.1 No additional mitigation has been proposed with respect to construction Traffic and Transportation effects. As such the effects would be as reported in **Section 18.9**.

#### *Operational effects*

- 18.11.2 No additional mitigation has been proposed with respect to operational Traffic and Transportation effects. As such the effects would be as reported in **Section 18.9**.

### Phase 2a

#### *Construction effects*

- 18.11.3 No additional mitigation has been proposed with respect to construction Traffic and Transportation effects. As such the effects would be as reported in **Section 18.9**.

#### *Operational effects*

- 18.11.4 No additional mitigation has been proposed with respect to operational Traffic and Transportation effects. As such the effects would be as reported in **Section 18.9**.

### Phase 2b

#### *Construction effects*

- 18.11.5 No additional mitigation has been proposed with respect to construction Traffic and Transportation effects. As such the effects would be as reported in **Section 18.9**.

#### *Operational effects*

- 18.11.6 No additional mitigation has been proposed with respect to operational Traffic and Transportation effects. As such the effects would be as reported in **Section 18.9**.

## 18.12 In-combination climate change effects

18.12.1 The effects that have been considered in this chapter have been reviewed in the light of advice provided relating to in-combination climate change impacts and it has been determined that the assessment findings would not alter as a result of climate change.

## 18.13 Monitoring

### Construction monitoring

18.13.1 It will be a requirement that the appointed lead contractors undertake regular reviews of the effectiveness of the **CTMP** to ensure that the requirements are being achieved and any revisions undertaken.

18.13.2 It will also be a requirement that a list of indicators is agreed to monitor site targets. These monitors may include: -

- a. total numbers of vehicle movement in set time periods – i.e. day, week, month;
- b. type of vehicle movement – i.e. waste, plant, material deliveries;
- c. distance travelled; and
- d. effectiveness of logistic management.

18.13.3 The results of this monitoring exercise should be combined with the results of the monitoring of the Construction Workers Travel Plan to gain an overview of the construction traffic impact of the Proposed Development.

### Operational monitoring

18.13.4 The application for development consent will be accompanied by a Framework Travel Plan that will provide a strong commitment to measures considered to be necessary to achieve the targets set out therein. A number of workshops have taken place to agree the content, measures, and commitments that it will include. The stakeholders who are involved in this process are identified in **Table 18.8**.

18.13.5 A critical part of the Framework Travel Plan will be a comprehensive programme of monitoring, that will also include measures that will need to be taken if progress to any of the critical targets is not deemed to be satisfactory. A more detailed description of the monitoring process that will be proposed for adoption will be described in the ES which will be prepared after these discussions have concluded.

## **18.14 Preliminary assessment summary**

18.14.1 **Table 18.32** provides a summary of the identified impacts, mitigation and likely effects of the Proposed Development on Traffic and Transportation.



Table 18.32: Traffic and Transportation preliminary assessment summary

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
<b>Construction</b>						
Screening shows that no impact identified requires further assessment as they are below the thresholds in the IEMA Guidelines and therefore not likely to be significant.	Draft CoCP CTMP	n/a	n/a	n/a	n/a	Not significant
<b>Operation</b>						
Severance Phase 2a and 2b): Airport Way between Vauxhall Way and A0181 New Airport Way	Aspects of infrastructure incorporated into the Proposed Development that mitigate impacts on traffic and transport include:	High	Occupant: Very Low	Minor Adverse, not significant	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Severance Phase 2a): President Way between Car Rental and Frank Lester Way (AAR in 'With Development'.	a. Luton DART extension; b. highway interventions; c. Framework Travel Plan; and d. bus and coach station.	High	Occupant: Low	Minor Adverse, not significant (reported as complete AAR for 2043)	None required	Effect unchanged
Severance Phase 2a): AAR between A1081 New Airport Way and Provost Way		Medium	Occupant: Low	Minor Adverse, not significant (reported as complete AAR for 2043)	None required	Effect unchanged
Severance (Phase 2b): Airport Access Road from New Airport Way to eastern end.		High	Occupant: Low	Minor Adverse, not significant	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Severance (Phase 2a and 2b): Percival Way between Airport Way and Provost Way		High	Occupant: Low	Minor Beneficial, not significant	None required	Effect unchanged
Severance (Phases 2a and 2b): Eaton Green Road between Frank Lester Way and Eaton Green Road Link		High	Occupant: Low	Minor Beneficial, not significant	None required	Effect unchanged
Severance (Phases 2a and 2b): Eaton Green Road between Frank Lester Way and Brendan Avenue		High	Occupant: Low	Minor Beneficial, not significant	None required	Effect unchanged

Impact	Embedded/ Good Practice Mitigation	Magnitude	Receptor Sensitivity	Description of effect and significance	Additional Mitigation	Residual Effect
Severance (Phase 2a): Wigmore Lane between Eaton Green Road and Twyford Drive		Medium	Occupant: Medium	Minor Beneficial, not significant (temporary)	None required	Effect unchanged
Severance (Phases 2a and 2b): Wigmore Lane between Sowerby Avenue and Green Lane		Low	Occupant: Medium	Minor Adverse, not significant	None required	Effect unchanged

Impact	Embedded/ Good Practice Mitigation	Magnitude	Receptor Sensitivity	Description of effect and significance	Additional Mitigation	Residual Effect
Driver Stress (Phase 2a): Slip road from A1081 London Road to A1081 New Airport Way WB	Aspects of infrastructure incorporated into the Proposed Development that mitigate impacts on traffic and transport include: <ul style="list-style-type: none"> <li>a. Luton DART extension;</li> <li>b. highway interventions;</li> <li>c. Framework Travel Plan; and,</li> <li>d. bus and coach station.</li> </ul>	Low	Driver: Medium	Minor Adverse, not significant	None required	Effect unchanged
Driver Delay (Phases 2a and 2b): A1081 New Airport Way/Airport Way	Aspects of infrastructure incorporated into the Proposed Development that mitigate impacts on	Low	Driver: Medium	Minor Adverse, not significant	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Driver Delay (Phases 2a and 2b): AAR/Eaton Green Road Link/Terminal 2 Access Road	traffic and transport include: a. Luton DART extension; b. highway interventions; c. Framework Travel Plan; and	Low	Driver: Medium	Minor Adverse, not significant	None required	Effect unchanged
Driver Delay (Phase 2a): A1081 New Airport Way/Airport Way	d. bus and coach station.	Medium	Driver: Medium	Minor Adverse, not significant (temporary)	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Pedestrian Delay (Phase 2b): of AAR between the roundabout that provides access to the car parking area to the north and the junction with the link to Eaton Green Road	Aspects of infrastructure incorporated into the Proposed Development that mitigate impacts on traffic and transport include: <ul style="list-style-type: none"> <li>a. Luton DART extension;</li> <li>b. highway interventions;</li> <li>c. Framework Travel Plan; and</li> <li>d. bus and coach station.</li> </ul>	Low	Pedestrian: Medium	Minor Adverse, not significant	None required	Effect unchanged
Pedestrian Fear and Intimidation (Phase 2b): St Mary's Road between Park Viaduct and Church Street	Aspects of infrastructure incorporated into the Proposed Development that mitigate impacts on traffic and transport include:	Low	Pedestrian: High	Minor Adverse, not significant	None required	Effect unchanged



Impact	Embedded/ Good Practice Mitigation	Magnitude	Receptor Sensitivity	Description of effect and significance	Additional Mitigation	Residual Effect
Pedestrian Fear and Intimidation (Phase 2b): AAR between Prospect Way and Eaton Green Road Link	a. Luton DART extension; b. highway interventions; c. Framework Travel Plan; and d. bus and coach station.	Medium	Pedestrian: Low	Minor Adverse, not significant	None required	Effect unchanged
Pedestrian Fear and Intimidation (Phase 2a and 2b): Crawley Green Road between Wigmore Lane and Rochford Drive		Low	Pedestrian: High	Minor Adverse, not significant	None required	Effect unchanged
Collisions and Safety (Phase 2b): A505 Kimpton Road/Windmill Road	Aspects of infrastructure incorporated into the Proposed Development that mitigate impacts on	Low	Driver and other road user: Medium	Minor Beneficial, not significant	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Collisions and Safety (Phases 2a and 2b): Eaton Green Road/Frank Lester Way	traffic and transport include: a. Luton DART extension; b. highway interventions;	Medium	Driver and other road user: Medium	Moderate Beneficial, significant	None required	Effect unchanged
Collisions and Safety (Phases 2a and 2b): Eaton Green Road/Lalleford Road	c. Framework Travel Plan; and d. bus and coach station.	Medium	Driver and other road user: Medium	Minor Beneficial, not significant	None required	Effect unchanged
Hazardous and Dangerous Loads (Phase 2a and 2b): Fuel tanker route to airport along M1	None required	Low	Drivers: High	Minor Beneficial, not significant	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Rail (Phase 2a): MML south of Luton Airport Parkway station (northbound direction)	None required	Low	Rail passengers: Medium	Minor Adverse, not significant	None required	Effect unchanged
Rail (Phase 2a): MML south of Luton Airport Parkway station (southbound direction)		Low	Rail passengers: Medium	Minor Adverse, not significant	None required	Effect unchanged
Rail (Phase 2b): MML south of Luton Airport Parkway station (northbound direction)		Medium	Rail passengers: Medium	Minor Adverse, not significant	None required	Effect unchanged

<b>Impact</b>	<b>Embedded/ Good Practice Mitigation</b>	<b>Magnitude</b>	<b>Receptor Sensitivity</b>	<b>Description of effect and significance</b>	<b>Additional Mitigation</b>	<b>Residual Effect</b>
Rail (Phase 2b): MML south of Luton Airport Parkway station (southbound direction)		Medium	Rail passengers: Medium	Minor Adverse, not significant	None required	Effect unchanged

## **18.15 Completing the assessment**

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

- a. incorporate the agreed monitoring that will form part of the Framework Travel Plan into the chapter in the ES;
- b. further assessment of the impact on rail passengers to consider sections of the route south of Luton Airport Parkway station; and
- c. assessment of PIC data at the M1 Junction 10.

## COMPETENT EXPERTS

<b>Topic</b>	<b>Role</b>	<b>Company</b>	<b>Qualifications/competencies/experience of author</b>
Traffic and Transportation	Author	AECOM	<p>BSc(Eng) Experience Transport Planning/Traffic Engineering – 48 years Environmental Assessments – 31 years Chartered Engineer (CEng) Member of the Institution of Civil Engineers (MICE) Member of the Chartered Institute of Highways and Transportation (MCIHT)r</p>
	Technical Reviewer	Arup	<p>MSc(Eng) Transport and Traffic Planning Post Graduate Diploma in Traffic Engineering and Planning HND Civil Engineering Studies Experience Transport Planning/Traffic Engineering, Master Planning, Transport Modelling – 33 years Environmental Assessments – 25 years Fellow of the Chartered Institution of Highways and Transportation Member of the Chartered Institute of Logistics and Transport</p>

## GLOSSARY AND ABBREVIATIONS

Term	Definition
AADT	Annual Average Daily Traffic - the average daily flow over the full year and includes traffic volumes at the weekend in the calculation
AAR	Airport Access Road
AAWT	Annual Average Weekday Traffic – as for AADT but excluding traffic at the weekend
ANPS	Airports National Policy Statement
ASAS	Airport Surface Access Strategy prepared by the Airport Operator
BCC	Buckinghamshire County Council
CAA	Civil Aviation Authority
CBC	Central Bedfordshire Council
CBLTM	Central Bedfordshire and Luton Traffic Model
CBLTM-LTN	Expanded version of the CBLTM developed to assess the impact of the Proposed Development
CoCP	Construction Code of Practice
COMET	Hertfordshire County Model of Transport
CPAR	Century Park Access Road
CTA	Central Terminal Area
CTMP	Construction Traffic Management Plan
DART	Direct Air-Rail Transit – a new rail link providing a direct connection between Luton Airport Parkway station and the airport terminal
DCO	Development Consent Order
DfT	Department for Transport
DM	Do Minimum – Used in table headings to denote ‘Without Expansion’ scenario.
DMU	Diesel Multiple Unit
DS	Do Something – Used in table headings to denote ‘With Expansion’ scenario.
EIA	Environmental Impact Assessment
EMR	East Midlands Railway
EMU	Electric multiple unit train
ES	Environmental Statement
Hazardous load	The transport of substances that could harm human health or the environment.
HCC	Hertfordshire County Council



HGV	Heavy goods vehicle
IEMA	The Institute of Environmental Management and Assessment
LBC	Luton Borough Council
LLAOL	London Luton Airport Operations Limited
LOS	Level of Service - a quantitative stratification, developed in the United States, of a performance measure or measures that represent quality of service along a highway link or at a junction.
LTP	Local Transport Plan
MPPA	Million passengers per annum
MPT	Mass Passenger Transit
NPSNN	National Planning Statement for National Networks
PROW	Public right of way
PTH	Public transport hub
SAETS	Getting to and from the airport – our emerging transport strategy
TA	Transport Assessment
TfL	Transport for London
VISSIM	Verkehr In Städten - SIMulationsmodell (Traffic in cities - simulation model) – microsimulation traffic modelling software
WebTRIS	National Highways Traffic Information System containing traffic flow and journey time data from 1,500 roadside inductive loops on the strategic highway network

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