

# Technical Note



## Local Plan – Transportation– East of Luton

Project No. 16079-01

6 September 2017

Client **NORTH HERTFORDSHIRE DISTRICT COUNCIL**

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### 1. INTRODUCTION

1.1 North Hertfordshire District Council (NHDC) has requested Markides Associates (MA) to comment on the likely transport implications of the proposed allocation of 2,100 dwelling units in the NHDC Local Plan in the East of Luton (EoL) area, in the light of the latest information in the Luton Borough Council (LBC) Local Plan, including the Main Modifications.

1.2 LBC’s representations to the NHDC local plan (November 2016) state that:

*“NHDC Local Plan Policy SP19 (East of Luton) and supporting text are not considered to be justified, effective or positively prepared in relation to transportation provision. NHDC do not appear to have tested the provision of new local/strategic distributor roads linking the A505, development around Cockernhoe and Century Park. The transport model used to test the NHDC Local Plan is an earlier version of the Luton model and is based on the assumption that are in the Pre-Submission Luton Local Plan rather than the increased capacity of the Luton [sic] in its 2016 SHLAA”.*

1.3 This technical note briefly describes:

- The evidence base presented for the Luton Local Plan in terms of transport;
- The proposed Luton main modification that changes the residential dwellings assumed in the Local Plan;
- The outline proposals and modelling work undertaken on the East of Luton proposals.
- Information provided on current planning applications; and
- The relevant sections of the Inspector’s report on the Luton Local Plan.

### 2. LUTON LOCAL PLAN TRANSPORT EVIDENCE BASE

2.1 The evidence base for the Luton Local Plan is set out in <http://www.luton.gov.uk/Environment/Planning/Regional%20and%20local%20planning/evidence-base/Pages/default.aspx>.

2.2 The key evidence produced related to multi-modal modelling of the Local Plan proposals<sup>1</sup> (using the Central Bedfordshire and Luton Transport Model – CBLTM) and work undertaken on potential junction mitigation. The model years assumed were 2016, 2021 and 2031, and modelling was undertaken for the morning and evening peak hours. The modelling analysis was accompanied by other information including the Local Transport Plan, a Travel Planning Strategy and various other supporting documents.

2.3 A summary of the tests undertaken, which are reported in document TRA001A, is:

- Option A (2016) was a reference case with committed developments only;
- Option B (2021 and 2031) tested future growth in the LBC area;
- Option C added to Option B known proposed development sites in adjacent authority areas. This included additional development North of Luton -4,278 dwellings in 2021/2031 and 5,500 dwellings EoL in 2031. This test included an assumed new eastern link road between the A505 and the airport.;
- Option C mitigation – included any identified junction mitigation schemes; and
- Option C (alternative) – reduced the EoL development to 2,100 in 2031, and removed the new eastern link road between the A505 and the airport. It also did not include any junction mitigation schemes.

2.4 A summary of the additional dwelling unit assumptions modelled is shown in Table 1 below. For comparison, it is estimated that in 2011 there were some 77,000 existing dwellings in Luton. There was no change in employment assumptions in North Herts as modelled, and no change in employment modelled between Option C and Option C (Alternative).

**TABLE 1 LBC MODELLING ASSUMPTIONS- ADDITIONAL DWELLING UNITS**

	2016	2021		2031		
	Option A	Option B	Option C	Option B	Option C	Option C (Alt)
<b>Luton</b>	1,766	3,099	3,099	6,905	6,905	6,905
<b>Central Beds</b>	-	3,270	4,337		11,441	11,441
<b>North Herts</b>	-	-	-	-	5,500	2,100
<b>Total</b>	1,766	6,369	7,436	15,135	23,846	20,446

2.5 In terms of infrastructure the tests included an Airport link to Century Park and an A505 to Airport Bypass.

2.6 The key conclusions from the 2031 tests (which include the EoL assumptions) were:

- There was an increase in network stress from Option B to Option C as demand increases, with the key area of stress being the A6; there are elsewhere mixed outcomes with some areas improving and some experiencing worse conditions; and
- The overall performance of the junction mitigation tests was mixed, with some working while others did not work as successfully as expected, and others were deemed no longer required. The main areas of concern listed in the report did not include any areas in the vicinity of the EoL sites.

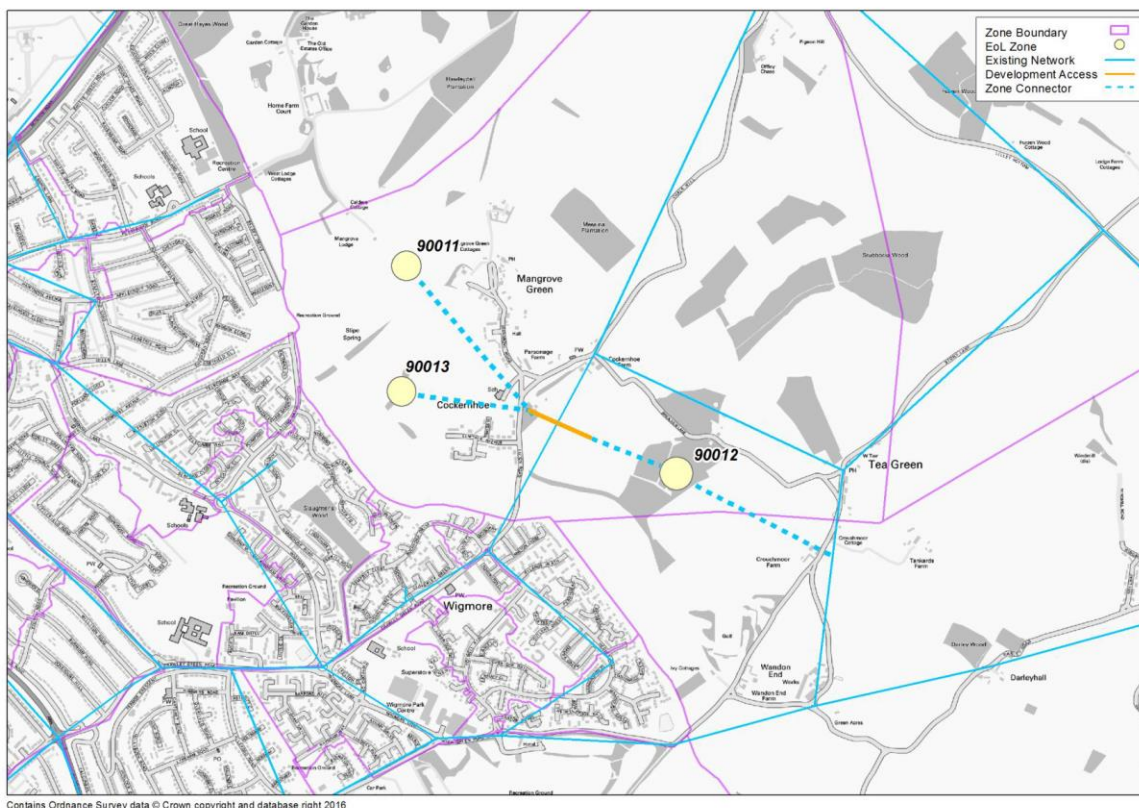
<sup>1</sup> TRA 001A Luton Local Plan 2015 Pre-submission Transport Evidence, Aecom, April 2016

- Option C (Alternative) also produced mixed results, with one notable junction (Leagrave Road/Waller Avenue), which is to the north of Luton town centre) having an increase in congestion.

### 3. NHDC MODELLING OF EOL

- 3.1 NHDC commissioned Aecom to model the EoL development using the CBLTM in a separate test assuming a lower level of development and no 'eastern bypass' of Luton.
- 3.2 The report 'East of Luton Urban Extension Stage 2 – Traffic Modelling Results (North Hertfordshire District Council)' by Aecom dated 24/02/2016 sets out the results of modelling to assess the traffic impact of a potential 2,100 dwelling urban extension to the east of Luton, within North Hertfordshire, on land near Cockernhoe village.
- 3.3 The modelling task utilised the CBLTM. An existing 2031 forecast year scenario from a previous Luton Local Plan test (i.e. Option C – Duty to Cooperate (DtC) scenario) was used as the basis for this modelling task. This Option C test included a total of 23,853 new dwellings in Luton and adjacent areas, including 5,753 in Luton and 5,500 dwellings at EoL. This latter assumption was reduced to 2,100, giving a new total of 20,453 new dwellings. The connections to the network are shown in Figure 1. The EoL scheme will connect primarily to (i) Luton road, leading to Crawley Green Road (ii) Stony Lane leading to Eaton Green Road.

**FIGURE 1 EOL MODELLING ZONES AND CONNECTIONS**



3.4 Two tests were undertaken

- 2031 Do Minimum – without EoL Development (this was the Option C test); and
- 2031 Do Something – with EoL Development (2,100 dwellings and a 5-FE (FE) secondary school).

3.5 Total trip generation for the EoL site was as shown in Table 2 below. The distribution of trips was assumed from nearby zones in Luton with similar characteristics. The model test was undertaken using only the highway assignment module, and therefore did not consider any potential mode shift, and should therefore be regarded as conservative. The model test did not include any junction mitigation measures.

**TABLE 2 EoL TRIP GENERATION ASSUMED IN MODEL**

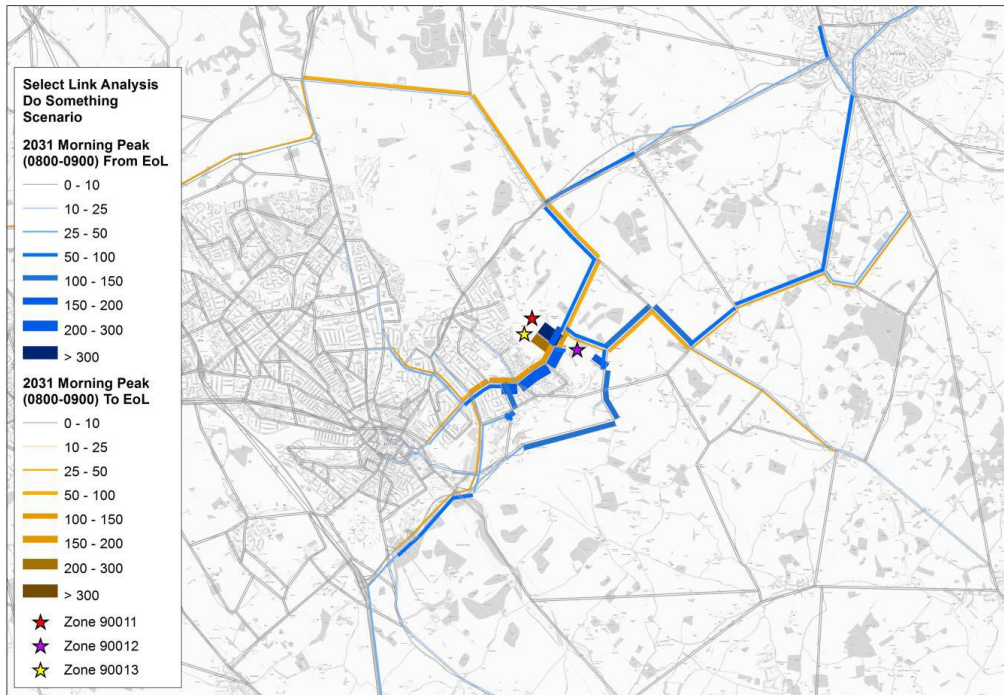
	Am Peak Hour		Pm peak hour	
	In	Out	In	Out
<b>Vehicles</b>	336	578	465	361

3.6 The network statistics show that the EoL Development has a small negative impact on the overall performance of the Luton highway network and that the vehicle delay time and vehicles queued increase by 3-4% to 3-5% respectively, whilst the network speed reduces by 1% to 1.5%. Given that the NHDC Option C increases new dwelling units by some 11% (from 18,353 to 20,453 units) these changes are not considered high.

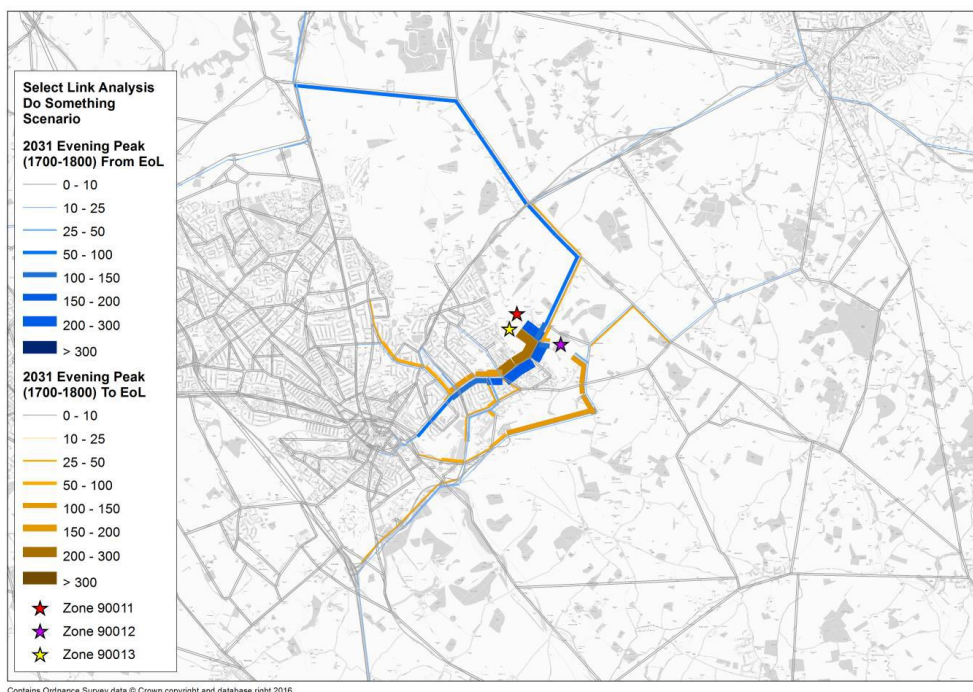
3.7 For the morning and evening peak hours select link analysis (see Figures 2 and 3) indicate that most of the trips to/from the EoL development trips travel eastward from or westward into Luton. A very small proportion of trips travel to/from Hitchin/North Hertfordshire, primarily educational trips in the morning peak hour, and hardly any in the evening peak hour.

3.8 The select links show that in the morning peak hour, EoL flows reaching Vauxhall Way are low, in the region of 100-150 trips each way, with the evening peak hour volumes being in the order of 150-200 vehicles each way. In both peak hours there is limited use of Lilley Bottom in a north/south direction (50-100 vehicles per hour each way) and other routes to and from North Hertfordshire. Overall the impact is regarded as low and dissipates quickly further away from the development.

**FIGURE 1 SELECT LINK PLOTS 2031 DO SOMETHING (MORNING PEAK HOUR)**



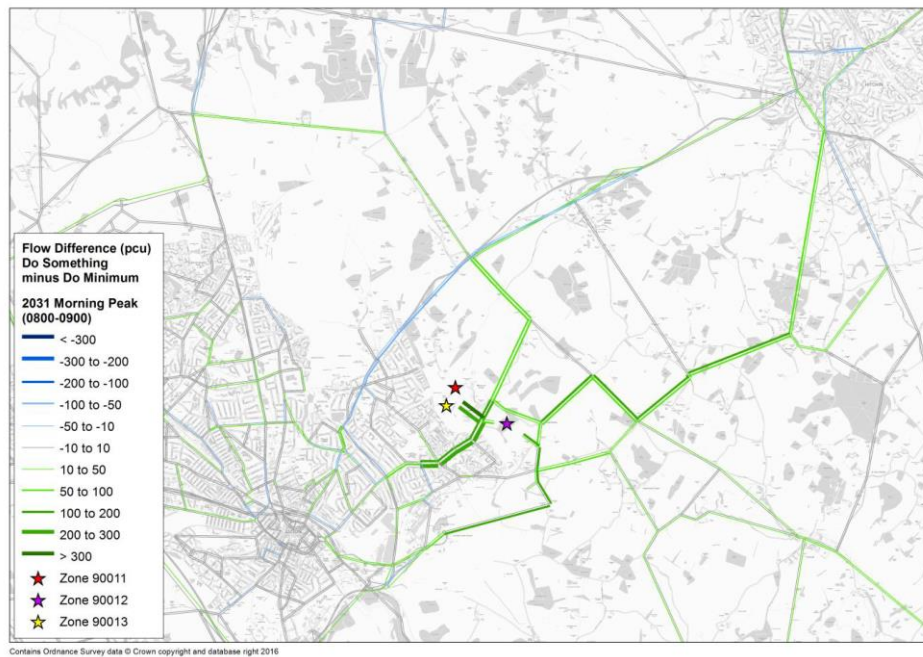
**FIGURE 2 SELECT LINK PLOT 2031 DO SOMETHING (EVENING PEAK HOUR)**



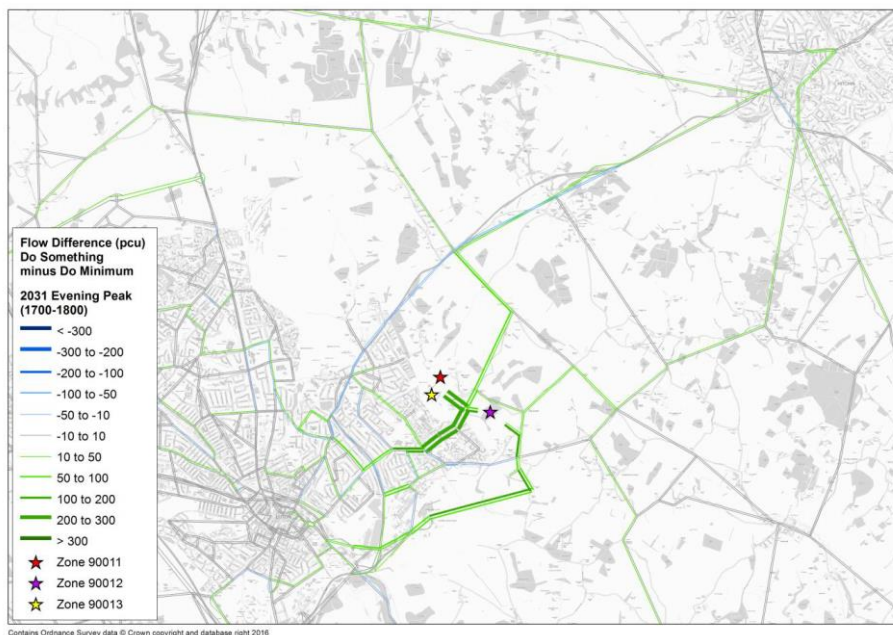
3.9 The flow difference plots (Figures 4 and 5) show that the EoL development increases traffic flows on Luton Road, Eaton Green Road and Stony Lane. As expected, the scale of the traffic flow increase is greatest on the road links adjacent to the EoL Development which gradually

disperse onto the wider road network in Luton and North Hertfordshire. Flow differences between the do-minimum and EoL scenario are very low, in the order of 100 vehicles each way except to the west towards Luton in the close vicinity of the site.

**FIGURE 3 - FLOW DIFFERENCE (2031 DO SOMETHING MINUS DO MINIMUM) (MORNING PEAK HOUR)**



**FIGURE 4 - FLOW DIFFERENCE (2031 DO SOMETHING MINUS DO MINIMUM) (EVENING PEAK HOUR)**



- 3.10 For the 2031 Do Something scenario, the pattern of link stress plots is generally similar to the 2031 Do Minimum scenario. This suggests that the links that are operating at or over capacity in the 2031 Do Minimum scenario will continue to experience high volume over capacity ratios for the 2031 Do Something scenario, however, the additional EoL Development trips are not expected to cause additional congestion spots to materialise.
- 3.11 The modelling suggests that the additional EoL Development trips will cause some increased junction delay at junctions in the vicinity of the development such as on the A505 Vauxhall Way and Hitchin Road.
- 3.12 The junction delay difference plots also show that delay for junctions on the Luton Town Centre Ring Road will increase because of the EoL development trips. However, the flow difference plots show that the difference in link flows for the Luton Town Centre Ring Road links are marginal. These links are operating at / over capacity for the 2031 Do Minimum scenario and the modelling suggests that these junctions are likely to be more sensitive to flow increase.
- 3.13 The conclusion that can be drawn from this modelling test is that:
- Most of the travel generated by the EoL developments will be ‘Luton-facing’ with very little travel to the north, south or east. This also means that there are greater opportunities to encourage modal shift and integrate with public transport, walking and cycling proposals in the rest of Luton;
  - The indications are that the impact of the development is unlikely to be severe, although specific junction mitigations are likely to be required to deal with some congestion issues; and
  - There is no indication that an ‘eastern bypass’ of Luton is needed to enable the development.
- 3.14 The following should be noted as potential limitations of this modelling:
- The EoL assessment was carried out just prior to the Luton model testing (described in section 2 above) being finalised and subsequently reported in April 2016, and that there are therefore some differences between the demand and networks between the EoL tests and those reported in report TRA001A;
  - Only the highway assignment model was used, so no changes in mode of travel were considered – this can therefore be assumed to be a conservative estimate;
  - The modelling assumed Option C land use and highway assumptions, except for the A505-Airport Bypass Eastern Link Road. It includes the proposed road link between the Airport Way and Eaton Green Road which forms part of the Century Park development. If this road link were not to be included, the impact could be greater for Eaton Green Road and the urban network of Luton;
  - The land use assumptions did not include the additional dwelling units within Luton in the Luton Main Modifications (see section 4); and
  - The EoL Development is located at the edge of the simulation network of CBLTM. The representation of the highway network is coarser towards the edge of the simulation network, and as such there is more uncertainty on the assignment and scale of impacts (such as delay) of the additional EoL development traffic.

## 4. LUTON LOCAL PLAN MAIN MODIFICATIONS

- 4.1 In April 2017 LBC issued Main Modifications to their submitted local plan. Main Modification MM02 Para 2.26, states *'For clarification. 8,500 dwellings will be provided within the borough to meet and will contribute towards meeting the full objectively assessed need for market and affordable housing requirements through allocations, development at High Town, regeneration of the town centre (Power Court) and former employment area (Napier Park). Neighbouring local authorities need to help meet Luton's unmet market and affordable housing needs in accordance with the 'Duty to Cooperate'.*
- 4.2 This modification represents an uplift from the previous local plan proposals modelled in the pre-submission transport evidence of 6,905 dwellings, i.e. an uplift of 1,595 dwellings. Most of these dwellings are situated in or close to the centre of Luton.
- 4.3 We are not aware of any new transportation evidence being provided by LBC in relation to this modification, which implies that it is not regarded as being of a scale, or having an impact, sufficient to require additional analysis. It is also noted that proposal MM02 is not considered to be a policy that potentially alter the findings of earlier stages of the Sustainability Appraisal/Strategic Environmental Assessment<sup>2</sup>.
- 4.4 It appears unlikely that the scale of this main modification will change the outcomes of the NHDC EoL modelling test described above and the conclusions from it. This is because:
- The additional main modification LBC dwellings are a relatively small addition to the modelled number of new dwellings – circa 1,600 dwellings on 20,453 assumed for the NHDC test, or 8%. This additional allocation is only some 1.9% of the total Luton housing stock, estimated at 82,600 in 2017<sup>3</sup>. The fact that further modelling was not provided by LBC of this change supports this view; and
  - The additional LBC dwellings are all located close to or in the town centre, where the opportunities for mode shift are highest, and any traffic is expected to have a very limited effect on the network of direct relevance to the EoL development.

## 5. INSPECTORS REPORT ON THE LUTON LOCAL PLAN

- 5.1 The Inspectors Report on the Luton Local Plan was published in August 2017<sup>4</sup>. Paragraphs 203 to 207 relate to the transport impacts of the Local Plan. The report acknowledged that the modelling was not as per the final scheme, with particular reference to the additional allocation of units within Luton in the Main Modifications.
- 5.2 However, the overall conclusion was that the effects on the strategic road network have been adequately assessed at this stage and sufficient measures are in place to help mitigate adverse effects. Given the requirement for an early review, the changes advanced through

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<sup>2</sup> SA/SEA for the Luton Local Plan Date March 2017, Technical Note Addendum, Urban Edge Environmental Consulting. Document ED110

<sup>3</sup> <https://www.luton.gov.uk/Environment/Lists/LutonDocuments/PDF/Planning/Census/Luton%20Household%20Projections%202010-2031.pdf>

<sup>4</sup> <http://www.luton.gov.uk/Environment/Lists/LutonDocuments/PDF/Local%20Plan/Luton-Local-Plan-final-Inspectors-report.pdf>



the main modifications to this report, including in relation to the strategic allocations, do not justify any further modelling work at this stage and before the Plan can be found sound.

- 5.3 The Inspector also noted that ‘. development in and around dense urban areas inevitably has the potential to increase traffic congestion, regardless of what mitigation is put in place. While this has an economic cost, and is frustrating and inconvenient to those who use the roads, it is not a sufficient reason in this case to avoid meeting housing or employment needs.’

## 6. CURRENT PLANNING APPLICATIONS

- 6.1 There are two ‘live’ planning applications on sites in the draft East of Luton planning allocation areas. These are:

- 17/00830/1 – Bloor Homes: outline planning application for up to 1450 dwellings
- 16/02014/1 – The Crown Estate: outline planning application for up to 660 dwellings

- 6.2 The transport assessments submitted with these applications are summarised below.

### **17/00830/1 – Bloor Homes: outline planning application for up to 1450 dwellings<sup>5</sup>**

- 6.3 The development is the proposed Stubbocks Walk residential-led mixed use development on land within North Hertfordshire District Council (NHDC) to the east of Wigmore, Luton. The proposed site comprises up to 1,400 dwellings, an ‘all through school’ comprising 2 forms of entry primary education and 4 forms of entry secondary education, a mixed use local centre, a stand-alone 2-form primary school, community facilities and sports pitches.

- 6.4 The application area forms part of a wider proposed East of Luton allocation site as identified in the Proposed Submission Draft Local Plan 2011-2031 – North Hertfordshire, which will deliver a total of 2,100 dwelling units – this overall level was also tested in the TA.

- 6.5 Agreement was reached with the Local Highway Authority, Hertfordshire County Council, on all transport matters. The agreed transport strategy/package included:

- ‘Relief road’ road removing through traffic for Cockernhoe and running north-south to the east of Cockernhoe through the site including a roundabout forming a primary access to the site;
- East to west link road through the site connecting Luton Road to Darley Road;
- New roundabout on Darley Road forming a primary access to the site;
- New site access roundabout on east to west link from Luton Road priority junction (the western/central site roundabout);
- Re-aligned section of Chalk Hill forming a secondary access to the site;
- New bus service providing 30 minute or better frequency on weekdays and Saturday linking the site, Wigmore Local Centre, Luton Parkway Station, Luton town centre and with close access to Luton Airport;
- Financial contribution to existing local bus service to Hitchin;

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<sup>5</sup> Stubbocks Walk, Proposed Residential Development Final Transport Assessment, 27th October 2016, David Tucker and Associates

- Extensive footway/cycleway enhancements along Crawley Green Road and Eaton Green Road to enhance access to education and employment land uses;
  - Localised improvement to Chalk Hill carriageway and visibility enhancements at the Chalk Hill/ Lilley Bottom junction; and
  - Site-wide Travel Plan.
- 6.6 A target for a 10% reduction of the car driver modal share for commuting and business trips from the development has been established in the travel plan. In addition, there are targets for mode share for education trips.
- 6.7 The proposed vehicular access strategy provides access to the north and south of the site via Luton Road and Darley Road respectively.
- 6.8 Table 3 below shows the total trip generation in the peak hours – this takes into account the mode share targets described above. The TA also noted that improved public transport links and cycling infrastructure between the Wigmore Area and Luton Airport, surrounding employment, including the future Napier Park development, and Luton Airport Parkway will be of benefit to existing residents and will facilitate wider modal shift. This shift is supported by Travel Plan measures being implemented by the Airport and the future travel plan strategy supporting the Napier Park development proposals
- 6.9 A future assessment year of 10 years following submission of the application was assumed for 2026. This equates to the anticipated period over which the scheme will be fully built out. In addition, a future year of 2031 has been tested which is consistent with North Hertfordshire’s Local Plan period. Temporo growth was used to factor background traffic levels to these assessment years.

**TABLE 3 STUBBOCKS WALK EOL TRIP GENERATION ASSUMED**

Application for 1,400 homes			
Peak period	In	Out	Total
Am Peak	278	423	701
Pm Peak	416	311	727
Assumed development of 2,100 homes			
Peak Period	In	Out	Total
Am Peak	337	620	958
Pm Peak	615	435	1051

- 6.10 The results of the junction assessments are described in Table 4:

**TABLE 4 STUBBOCKS WALK JUNCTION ASSESSMENT SUMMARY**

<b>Junction</b>	<b>Assessment conclusion</b>	<b>Improvements proposed</b>	<b>Post-improvement assessment – 1,400 units</b>	<b>Post-improvement assessment – 2,100 units</b>
Site access roundabout onto Luton Road		New junction for development	Within capacity 2026 and 2031	Within capacity 2026 and 2031
Site access roundabout onto Darley Road		New junction for development	Within capacity 2026 and 2031	Within capacity 2026 and 2031
Eaton Green Road/Wigmore Lane roundabout junction	Operates with minimum delay for all test scenarios, however in the 2026 and 2031 base scenario delays increase on the Eaton Green Road southern approach.	Minor widening and additional flaring	Within capacity except for Eaton Green Road (south) in 2026/31 pm peak, but improved on 2026/31 base with no development.	Within capacity except for Eaton Green Road (south) in 2026/31 pm peak, but improved or similar operation to 2026/31 base with no development.
Crawley Green Road/Wigmore Lane roundabout junction	Operates within capacity during the base 2016, 2026 and 2031 scenarios. The development traffic in 2026 and 2031 increases delay on the Wigmore Lane northern approach in the morning peak and similarly on the southern and western approaches in the afternoon peak, but not significant and dissipates quickly	None	N/A	Queues increase on the Crawley Green Road western approach and Wigmore Lane southern approach in the PM peak period. Mitigation of minor widening on these approach roads is proposed, queues improve on 2031 base with no development.
Crawley Green Road/A505 Vauxhall Way roundabout junction	RFC values above 0.85 for both the base and the base with development test scenarios during the PM peak period,	Improved roundabout	Exceeds capacity in 2026/2031, but improvements in operation compared to 2026 and 2031 base cases with no development	Exceeds capacity in 2026/2031, but improvements or similar operation compared to 2026 and 2031 base cases with no development

Junction	Assessment conclusion	Improvements proposed	Post-improvement assessment – 1,400 units	Post-improvement assessment – 2,100 units
Eaton Green Road/Airport Way/Vauxhall Way/Harrowden Road roundabout junction	RFC values over 0.85 experienced during the AM/PM peak periods for 2026 base and 2031 + 100% development traffic on Eaton Green Road (east) and Vauxhall Way (south) approaches. However maximum queues low and for short duration.	None	N/A	modelling shows an increase in queuing on the Eaton Green Road eastern approach during both peak periods, maximum of 14 vehicles in the PM peak. Queue dissipates within the modelled period.
M1 junction 10	No junction test, but flows low in relation total flow, and recent junction improvement	None	N/A	
M1 junction 10A	No junction test, but flows low in relation total flow, and recent junction improvement	None	N/A	

- 6.11 The TA conclusion was that the transport strategy and overall mitigation package is appropriate to support proposals for 1,400 and 2,100 dwellings with associated education and community uses.
- 6.12 The TA was reviewed by Aecom on behalf of Highways England, and while several comments were made, there was general agreement on the methodology and outcomes, with the main exception being the need for an individual capacity assessment of M1 J10 due to the number of predicted additional development trips at this junction. Clarification was also sought on the status of the proposed 1,400 dwelling development in relation to a separate application for residential development on a similar but slightly different site.

## **16/02014/1 – The Crown Estate: outline planning application for up to 660 dwellings**

- 6.13 The information on this development was taken from the report 'Land to the West of Cockernhoe, Transport Assessment Non-Technical Summary, prepared by Vectos in April 2016, and Chapter 14 of the Environmental Statement for the same development prepared by Wardell Armstrong.
- 6.14 This assessment used the trip generation data applied within an earlier David Tucker Associates TA for Bloor Homes, and assumed the same mitigation at junctions. The proposals also included:
- Access to the site is proposed from a new roundabout junction on Luton Road to the south-east of the site.
  - Comprehensive network of pedestrian and cycle routes provided across the site, with links with existing walking and cycling facilities in the local area;
  - an off-road cycle way along Luton Road/Crawley Green Road and Wigmore Lane and a strategic walking/cycling route to Luton Airport.
  - a new bus service linking the town centre, rail stations, Wigmore Lane local centre and Luton Airport to the Proposed Development
- 6.15 The conclusion was that the development with proposed mitigations will result in a residual minor adverse effect in relation to pedestrian delay, accidents and safety, traffic and transport, severance, pedestrian amenity and driver delay that is not significant.
- 6.16 Luton Council, in written comments dated 22<sup>nd</sup> September 2016, expressed concerns about the capacity of roads within Luton, in particular the network to the eastern side of Luton. They urged the developer to consider this scheme in the light of other potential development in the area and the growth of Luton including new employment land being provided near to the airport (Century Park). To accommodate all this growth, there will likely be a need for new local/ strategic distributor roads linking the AS, development around Cockernhoe and Century Park. They noted that there may be opportunity for this scheme to contribute to the delivery of such infrastructure.

## **7. CONCLUSION**

- 7.1 The evidence available demonstrates in our view that any proposed allocation east of Luton within North Hertfordshire, with suitable mitigation as tested in the relevant Transport Assessments, will not have the severe residual cumulative impacts that NPPF para 32 requires if development is to be prevented. Given that the tested mitigations did not include a new eastern relief road of Luton, this would also appear not to be required to facilitate the development of the allocation.