

Technical Note

Project:	Lakenheath Cumulative Traffic Study	Job No:	60445024
Subject:	Lakenheath Cumulative Traffic Study – Study Overview		
Prepared by:	Georgia Ingleson	Date:	6th June 2016
Checked by:	Bevin Carey	Date:	7th June 2016
Approved by:	Nick Anderson	Date:	7th June 2016

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1. Introduction

1.1 This Technical Note provides an overview of three cumulative traffic studies in Lakenheath, which have been undertaken by AECOM on behalf of the local highway authority to assess the impact of proposed developments in Lakenheath. The first study assessed three developments and is attached at **Appendix A**. A second study known as Phase One was undertaken by AECOM again at the request of the local highway authority, which assessed all three developments in the first study with the addition of the Land North Of Station Road development, which is attached at **Appendix B**. A final study, Phase 2 study therefore assesses all developments in the first and Phase 1 studies and includes the addition of four other developments, with one of these developments being assessed in a sensitivity test. This final study is attached at **Appendix C**.

1.2 The developments assessed in each of the three studies are detailed in **Table 1.1** below.

Table 1.1: Developments Assessed in Traffic Studies

Development	Development Summary	First Study	Phase 1 Study	Phase 2 Study	Phase 2 Study Sensitivity Test
Rabbithill Covert, Station Road	Outline application for residential development of up to 81 dwellings, WSDC planning reference 13/0345/OUT	✓	✓	✓	
Land West of Eriswell Road	Outline application for residential development of up to 140 dwellings with associated open space provision, landscaping and infrastructure works, WSDC planning reference 13/0394/OUT	✓	✓	✓	
Land off Briscoe Way	Erection of 67 dwellings (including 20 affordable dwellings) together with 1500 square metres of public open space, WSDC planning reference 13/0660/FUL	✓	✓	✓	
Land North Of Station Road	Hybrid application including a full application of a new vehicular access onto Station Road and entrance to a new primary school and an outline application for up to 375 dwellings, the provision of land for a new primary school, land for ecological mitigation and open space and associated infrastructure, WSDC planning reference 14/2096/HYB		✓	✓	
Land North of Broom Road	Outline application for a residential development of up to 132 dwellings, WSDC planning reference DC/14/2042/OUT			✓	
Land Adjacent to 34 Broom Road	Erection of 120 dwellings together with associated access, landscaping and open space, WSDC planning reference DC/14/2073/FUL			✓	
550 Development at Eriswell	Scoping Opinion for a proposed development on site area over 5 ha including residential dwellings alongside the provision of a primary school, allotments, play space for sports and other green spaces, WSDC planning reference DC/15/1050/EIASCO			✓	
Land East of Eriswell Road	Outline application for a residential development of up to 750 dwellings including a primary school and a health centre (including ancillary shop) with associated open space provision, landscaping and infrastructure works, WSDC planning reference DC/13/0918/OUT				✓
<i>Total Dwellings</i>		288	663	1465	2215

2. Study Area for Highway Network Assessment

2.1 The junctions within the study area most likely to experience a material impact as a result of the addition of cumulative development traffic have been identified and are summarised below.

1. B1112 / Broom Road / Undley Road priority cross-roads;
2. B1112 / Lord's Walk / Earls Field four-arm roundabout;
3. B1112 / Eriswell Road priority 'T' junction;
4. B1112 / A1065 priority cross-roads;
5. B1112 High Street / Highbridge Gravel Drove priority 'T' junction;
6. B1112 Station Road / Briscoe Way priority 'T' junction;
7. B1112 / Wangford Road priority 'T' junction;
8. Wangford Road / A1065 Brandon Road signalised junction;
9. B1112 / Wings Road priority 'T' junction; and
10. B1112 / Mill Road priority 'T' junction.

2.2 Junctions nine and ten were only assessed in the Phase 2 study.

2.3 Two of the junctions assessed, the A1065 Brandon Road / Wangford Road signalised 'T' junction and the A1065 Brandon Road / The Street staggered crossroad junction are located on the edge of the Special Protection Area (SPA). None are located within the SPA.

3. Severity of Impact Without Mitigation

3.1 The severity of impact, without mitigation at the junctions assessed, in all three studies is summarised in Table 1.2 below.

Table 1.2: Severity of Impact in the 2020 Future Year 'With-Development' Scenario Without Mitigation

Junctions requiring mitigation	First Study (3 developments)	Phase 1 Study (4 developments)	Phase 2 Study (7 developments)	Phase 2 Study - Sensitivity Test to include an additional development (8 developments)
	Total of 288 dwellings	Total of 663 dwellings	Total of 1465 dwellings	Total of 2215 dwellings
B1112 / Broom Road / Undley Road priority cross-roads	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact
B1112 / Lord's Walk / Earls Field four-arm roundabout	Approaching capacity, mitigation advised	Approaching capacity, mitigation advised	Considered to be severe impact	Considered to be severe impact
B1112 / Eriswell Road priority 'T' junction	Considered to be severe impact	Considered to be severe impact	Considered to be severe impact	Considered to be severe impact
B1112 / A1065 priority cross-roads	Not considered to be severe impact	Not considered to be severe impact	Considered to be severe impact	Considered to be severe impact
B1112 High Street / Highbridge Gravel Drove priority 'T' junction	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact
B1112 Station Road / Briscoe Way priority 'T' junction	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact
B1112 / Wangford Road priority 'T' junction	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact
Wangford Road / A1065 Brandon Road signalised junction	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact
B1112 / Wings Road priority 'T' junction	Not assessed	Not assessed	Not considered to be severe impact	Not considered to be severe impact
B1112 / Mill Road priority 'T' junction	Not assessed	Not assessed	Not considered to be severe impact	Not considered to be severe impact

- 3.2 Where the impact is considered to be severe, mitigation would be required at the junction in order to cater for the increase in dwellings. The impact at the B1112 / Eriswell Road priority 'T' junction is considered to be severe and would therefore require mitigation with the addition of three developments (total of 288 dwellings). At the B1112 / Lord's Walk / Earls Field four-arm roundabout, the junction would be exceeding desirable capacity limits and therefore mitigation is advised.
- 3.3 With four developments (total of 663 dwellings), at the B1112 / Lord's Walk / Earls Field four-arm roundabout, the junction would be exceeding desirable capacity limits and therefore mitigation is advised. The impact at the B1112 / Eriswell Road priority 'T' junction is considered to be severe and would therefore require mitigation with the addition of four developments (total of 663 dwellings).
- 3.4 With seven developments (total of 1465 dwellings), the impact at the Lord's Walk / Earl's Field Roundabout and B1112 / A1065 Junction would be considered severe and therefore with 1465 dwellings, mitigation would be required to mitigate the impacts.

4. First Study – Mitigation

- 4.1 The results indicate that the six of the eight junctions within the study area would continue to operate within capacity with the addition of development traffic associated with 288 dwellings, with the exceptions of the B1112 / Lord's Walk / Earls Field four-arm roundabout and the B1112 / Eriswell Road priority 'T' junction.
- 4.2 At the at the B1112 / Lord's Walk / Earls Field roundabout a mitigation scheme would be required to accommodate three developments (a total of 288 dwellings). Without mitigation, the maximum RFC in the future year 'with-development' scenario at the junction is 0.87 with an associated queue of six vehicles. This is not considered to be severe. Junction capacity assessments at this junction for the proposed arrangements, comprising of lane widening, have been undertaken which indicate that these measures would mitigate the anticipated cumulative development traffic impact (at total of 288 dwellings) at this junction. The mitigation proposed at the Lord's Walk / Earl's Field roundabout could be undertaken within land under the control of the highway authority.
- 4.3 At the B1112 / Eriswell Road priority 'T' junction, a proposed mitigation scheme would be required to accommodate an additional 288 dwellings; therefore signalisation of junction is required. It is important to note that the maximum RFC occurring in the 2015 baseline assessment is 1.22 and thus the junction is already shown to be operating significantly over maximum capacity, which is considered to be a severe impact even within the future year 'without-development' scenario.
- 4.4 Two mitigation schemes have been identified, 'Mitigation Scheme A' was identified within the TA report for Land to the East of Eriswell Road and South of Broom Road, WSDC planning reference 13/0918/OUT. The scheme comprises signalisation of the junction with the provision of two lanes of entry on the Eriswell Road arm. Based on the highway boundary information provided by SCC and a review of the proposed layout for mitigation, the signalisation of the B1112 / Eriswell Road would require the use of third party land on the south-eastern corner of the junction. An alternative arrangement, 'Mitigation Scheme B' includes signalisation of the junction and has been developed with a single entry lane on the Eriswell Road arm. This option excludes the requirement for third party land, and capacity at the junction is reduces.
- 4.5 'Mitigation Scheme A' is the preferred scheme in terms of capacity. Junction capacity assessments indicate that these measures would mitigate the anticipated cumulative development traffic impact at this junction.

5. Phase 1 Study – Mitigation

- 5.1 The results of the modelling undertaken for the cumulative impact of the four developments (total of 663 dwellings) illustrates that two junctions would require mitigating, the Lord's Walk / Earl's Field roundabout and the B1112 / Eriswell Road priority 'T' junction.
- 5.2 A review of the results for the existing Lord's Walk / Earl's Field roundabout layout suggest that with the addition of traffic associated with the four developments in the assessment year of 2020, a maximum RFC of 0.93 would occur in the AM peak. This is not considered to be severe.
- 5.3 The results for the existing B1112 / Eriswell Road priority 'T' junction layout suggests that with the addition of traffic associated with the four developments in the assessment year of 2020 a maximum RFC of 1.52 and a queue of 205 vehicles would occur in the AM peak. Although this could be considered to be severe, it is noted

that the maximum RFC occurring in the 2015 baseline assessment is 1.22 and thus the junction is already shown to be operating significantly over maximum capacity.

5.4 Junction capacity assessments indicate that 'Mitigation Scheme A' would accommodate traffic associated with seven developments (total of 1465 dwellings), and would resolve the capacity issues posed by the current junction arrangement, with reduced queuing and delay at the junction in all scenarios

6. Phase 2 Study – Mitigation

6.1 With the addition of traffic associated with the seven developments (total of 1465 dwellings) to the 2020 future year scenario a total of seven of the ten junctions operate within capacity with manageable queuing. In order to accommodate the proposed 1465 dwellings, without 'severe' residual impacts, the following improvements would be required:

- B1112 / Lord's Walk / Earls Field roundabout: A significant junction redesign which would require third party land.
- B1112 / Eriswell Road priority 'T' junction: Provision of a signalised junction incorporating MOVA, with a two lane entry from Eriswell Road but there are issues relating to deliverability. The third party land required is within the ownership of one of the proposed housing sites, but there are other operational difficulties which it may not be possible to address.
- B1112 / A1065 Junction: Advance warning signage from B1112 West to the junction with the A1065 to prevent safety issues arising from lack of advance visibility of queuing vehicles.

6.2 With the addition of traffic associated with eight developments (total of 2215 dwellings), assessed as the sensitivity test, seven of the ten junctions would operate within capacity. The impacts at the B1112 / Eriswell Road junction are considered to be unmanageable and severe even with a proposed improvement schemes. The other junctions which would require substantial mitigation are the B1112 / Lord's Walk / Earls Field roundabout and the B1112 / A1065 junction.

6.3 Table 1.3 below summaries the impact of developments with the proposed mitigation schemes in the 2020 future year 'with-development' scenarios.

Table 1.3: Impact of Developments on Proposed Mitigation Schemes in the Future 2020 'With-Development' Scenario

Junctions requiring mitigation		Original Study (3 developments)	Phase 1 Study (4 developments)	Phase 2 Study (7 developments)	Phase 2 Study - Sensitivity Test (8 developments)
	Notes	Total of 288 dwellings	Total of 663 dwellings	Total of 1465 dwellings	Total of 2215 dwellings
B1112 / Eriswell Road Junction					
Mitigation Scheme – A (from Phase 1 Study)	Requires third party land. There are other operational difficulties which it may not be possible to address.	Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Considered to be severe impact
Mitigation Scheme – B (from Phase 1 Study)	Scheme does not use third party land	Not considered to be severe impact	Not considered to be severe impact	Considered to be severe impact	Considered to be severe impact
Lord's Walk / Earl's Field Roundabout (from Phase 1 Study)		Not considered to be severe impact	Not considered to be severe impact	Not considered to be severe impact	Considered to be severe impact
B1112 / A1065 priority cross-roads					
Advance warning signage		-	-	Not considered to be severe impact	Not considered to be severe impact
Signalisation		-	-	-	Not considered to be severe impact

6.4 At the B1112 / Eriswell Road junction 'Mitigation Scheme A' would accommodate development up to 1465 dwellings, with any additional dwellings creating a severe impact at the junction. 'Mitigation Scheme B' has

reduced capacity than A, and therefore would only accommodate development associated with the 4 developments (total of 663 dwelling) without the impact being severe at the junction. There are a number of constraints and potential issues associated with the delivery of both mitigation options, which require further assessment in order to identify the preferred solution for the junction.

- 6.5 The mitigation scheme proposed at the Lord's Walk / Earl's Field Roundabout could accommodate development up to 1456 dwellings, however to accommodate the full eight developments (total of 2215 dwellings) a junction redesign would be required which would require third party land.
- 6.6 At the B1112 / A1065 priority cross-roads, advance warning signage would be required for 1465 dwellings and junction signalisation for 2215 dwellings, in order to mitigate the severe impacts at the junction.