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London Luton Airport Expansion

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5.02 Appendix 18.5 Sensitivity Tests

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5.02 ENVIRONMENTAL STATEMENT APPENDIX 18.5 SENSITIVITY TESTS

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1 INTRODUCTION

1.1.1 This appendix to **Chapter 18** Traffic and Transportation of the Environmental Statement (ES) **[TR020001/APP/5.01]** presents the results of the three sensitivity tests that have been undertaken to examine the effect of the following changes that could occur:

a. Air passenger growth is slower than predicted for the Core Planning Case which is reported in **Chapter 18 [TR020001/APP/5.01]**.

b. Air passenger growth is faster than predicted for the Core Planning Case which is reported in **Chapter 18 [TR020001/APP/5.01]**.

c. No widening of the M1 southbound carriageway between Junctions 10 and 9 introduced before 2043.

1.1.2 The CBLTM-LTN model, also known as the Strategic Model, has been re-run for alternative years in order to provide traffic flow predictions for a review of any changes to identified significant environmental effects that might occur should the three air passenger throughputs (21.5 mppa, 27 mppa, and 32 mppa) be achieved at an earlier or later date than assumed in the Core Planning Case.

1.1.3 For the 'Do Minimum' scenarios growth has been applied to the non-airport related trip matrices and the assumption of an air passenger throughput of 18 mppa retained. The predicted flows for the 'Do Something' scenarios have been obtained by combining the previously determined trip matrices for the three levels of passenger throughput that have been added to the matrices used in the 'Do Minimum' scenario.

1.1.4 The highway interventions that form part of the Proposed Development are linked to the passenger throughput rather than a specific date; thus, if the increase in traffic associated with a higher throughput traffic warrants any of the interventions earlier than expected, they will be provided at that time. Accordingly, the 'Do Something' runs of the CBTLM-LTN incorporate the highway works that are described in opening paragraphs of the Operational Effects sections of **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** for each assessment phase.

1.1.5 For the assessment of slow and fast growth in air passenger demand it is not possible to consider any potential changes to the effects for public transport. In the absence of valid baseline data for rail use, as identified in **Section 2.2** of **Appendix 18.1** of the ES **[TR020001/APP/5.02]**, the assessment has been based on the change in the relationship between airport related passenger demand on the rail service stopping at Luton Airport Parkway Station.

1.1.6 The sensitivity tests do not include a review of the 'hazardous loads' for either the construction or operation of the Proposed Development. Those assessments are based on the number of movements of vehicles transporting these materials and is not dependent on the flow on the highway. The sensitivity tests have also not considered the movements of construction traffic. The original assessment for the Core Planning Case has had to use proxy years for the baseline flows, therefore there is a degree of approximation in this element

of the assessment but in the light of the results that are reported in **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** where the increases on the public highway are so low, the changes in the base flows are not of a level that would change any of the conclusions for each assessment phase.

1.1.7 The assessment of driver delay for the Core Planning Case has been based on output from the VISSIM model. These models have not been re-run for the sensitivity tests therefore revised junction levels of service have not been calculated. The assessment of the Core Planning Case found that there were no significant effects associated with driver delay.

1.1.8 The following text sets out the reason that the absence of junction delay information of the slow and fast scenarios does not diminish the validity of the conclusions.

1.1.9 In the assessment of driver delay the greatest degree of environmental effect was ‘minor’ and that occurred at only one junction which was New Airport Way and Airport Way. This was a beneficial effect and only occurred during assessment Phase 2a. There were no adverse effects of that scale.

1.1.10 The assessment that follows for both the slow and fast growth demonstrates that the changes that occur are small and in only a very few instances have resulted in a change in the level of effect. Furthermore, where this occurs it is usually borderline when the combination of magnitude of impact and sensitivity are applied to the matrix in **Table 4.2** of **Appendix 18.1** of this ES **[TR020001/APP/5.02]**. It is considered that these small changes indicate that there would be no change to the assessment of driver delay.

1.1.11 The sections describing the effects of a change in the rate of growth of air passengers include a table of traffic flows on specific links that show the ‘flows for ‘Do minimum’ and ‘Do Something’ for the scenario that is being described and equivalent flows for the Core Planning Case. The links have been chosen as they lie on routes which have been identified in the Strategic Model as being used by airport related traffic and also where there has been particular interest by the highway authorities. The twelve links are listed below:

a. M1 between Junctions 9 and 10
b. M1 between Junctions 10 and 11
c. A1081 New Airport Way between A505 Airport Way and Percival Way
d. A1081 New Airport Way between Capability Green Estate and B653
e. A505 Stopsley Way between Hitchin Road and Ashcroft Road
f. A505 Hitchin Road between Ashcroft Road and Lothair Road
g. Ashcroft Road between Wigmore Lane and A505 Hitchin Road
h. A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane
i. A1081 Luton Road between A1081 London Road and West Hyde Road
j. Lower Harpenden Road between Westfield Road and West Hyde Road
k. B651 High Street (Whitwell) between Hitchin Road and Horn Hill

l. B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane

1.1.12 The assumptions that have been made for the test of no widening on the M1 are set out in the introduction to **Section 4**.

2 SLOWER GROWTH

2.1 Introduction

2.1.1 The three delayed dates are set out below:

a. 21.5 mppa – throughput assumed to be reached in 2030 rather than 2027 assumed in Core Planning growth.

b. 27 mppa – throughput assumed to be reached in 2046 rather than 2039 assumed in Core Planning growth.

c. 32 mppa - throughput assumed to be reached in 2049 rather than 2043 assumed in Core Planning growth.

2.1.2 The principal consequence of slow growth in terms of the assessment is that the background flows, effectively the 'Do Minimum scenario' will be greater with the additional growth in non-airport that occurred in the intervening years. In the various sections detailing the three assessment years a table of selected flows is provided to give an idea of the change in background flows.

2.2 21.5 mppa (Assessment Phase 1)

Introduction

2.2.1 In this test the date at which the throughput of 21.5 mppa would be reached has been delayed by three years.

2.2.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 2.1**.

Table 2.1: Comparison of flows for Core Planning Case and assessment Phase 1 slow growth

Road Section	Core Planning (2027)			Slow Growth (2030)		
	Do Minimum	Do Something	Increase	Do Minimum'	Do Something	Increase
M1 between Junctions 9 and 10	163,118	165,155	1.2%	167,986	169,032	0.6%
M1 between Junctions 10 and 11	156,106	157,357	0.8%	161,091	161,633	0.3%
A1081 New Airport Way between A505 Airport Way and Percival Way	27,741	29,054	4.7%	27,863	27,116	-2.7%
A1081 New Airport Way between Capability Green Estate and B653	56,165	61,435	9.4%	57,321	60,560	5.7%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	36,349	36,695	1.0%	37,196	37,245	0.1%

Road Section	Core Planning (2027)			Slow Growth (2030)		
	Do Minimum	Do Something	Increase	Do Minimum'	Do Something	Increase
A505 Hitchin Road between Ashcroft Road and Lothair Road	31,113	31,490	1.2%	32,145	32,184	0.1%
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,521	13,482	-0.3%	13,463	13,616	1.1%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	26,473	26,765	1.1%	27,032	27,138	0.4%
A1081 Luton Road between A1081 London Road and West Hyde Road	20,609	20,619	0.0%	21,141	21,039	-0.5%
Lower Harpenden Road between Westfield Road and West Hyde Road	13,885	14,063	1.3%	14,453	14,570	0.8%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	3,637	3,962	8.9%	3,819	4,071	6.6%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	4,784	4,875	1.9%	5,020	5,040	0.4%

2.2.3 Because the background flows of non-airport traffic will have grown over the three year period and the airport related traffic will not have changed as it is linked to the air passenger throughput, the overall effect will be for the increase in traffic volumes as a result of the Proposed Development will generally be lower. The average increase in traffic along these twelve links for the 'Do Minimum' scenario is 2.7%, which is less than one percent per year. The average increase between the 'Do Minimum' and 'Do Something' flows on these links is 2.6% in 2027 and 1.1% in 2030. These increases are specific to these links and would be likely to change if other links had been chosen. The purpose of calculating this average is to give a general indication of the scale of the change. These figures confirm the logic that was set out in the opening sentence. that the impact of the additional airport traffic is proportionately lower.

Assessment

Severance

2.2.4 The sifting process for the assessment of any environmental effects associated with severance produced no links for further assessment which was the same result as was found for the Core Planning Case, therefore there will be **no significant** effect.

Driver Stress

2.2.5 The analysis of both the flows for both the Core Planning Case and Slow Growth identified one link that required further investigation. Although it was a different road link, the magnitude of impact in each case was 'no change' therefore there would be **no significant** effect and therefore no change in the conclusion.

Pedestrian Delay

2.2.6 Three road links were identified for further analysis, fewer than were identified in the Core Planning Case. Having calculated the delay on these links none were found to experience a change in the pedestrian delay that either increased by or decreased by more than 10 seconds. Therefore, with slow growth there are **no significant** effects.

Pedestrian Fear and Intimidation

2.2.7 The initial review of the changes in the hourly average over an 18-hour day and the total number of HGVs in the same period identified 16 and nine links for further investigation, which for the average hourly flow over an 18-hour period is lower than the figure of 19 for the Core Planning Case. On close inspection the principal reason for the reduction in the number of links is that with the growth of non-airport traffic over the three years between 2027 to 2030 the percentage growth has fallen below the ±30% or ±10% threshold depending on the level of sensitivity. For all of those links that exceeded the threshold there was no change in the magnitude of impact therefore there is **no significant** effect.

Collisions and Safety

2.2.8 None of the junctions had a combined inflow that exceeded the relevant threshold therefore there are **no significant** effects.

Conclusion

2.2.9 The assessment year has moved back by three years; this means that as a general observation the background traffic in the 'Do Minimum' scenario is higher than that used to assess the Core Planning Case and as a consequence the additional airport traffic will be a marginally lower component of traffic on the highway network in the 'Do Something' scenario. Slow growth is shown not to introduce any additional environmental effects when compared with the findings for this level of throughput for the Core Planning Case.

2.3 27 mppa (Assessment Phase 2a)

Introduction

2.3.1 In this test the date at which the throughput of 27 mppa would be reached has been delayed by seven years.

2.3.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 2.2**.

Table 2.2: Comparison of flows for Core Planning Case and assessment Phase 2a slow growth

Road Section	Core Planning (2039)			Slow Growth (2046)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
M1 between Junctions 9 and 10	179,510	182,464	1.6%	185,569	187,817	1.2%
M1 between Junctions 10 and 11	172,495	172,631	0.1%	177,685	182,827	2.9%
A1081 New Airport Way between A505 Airport Way and Percival Way	28,107	31,127	10.7%	28,749	33,919	18.0%
A1081 New Airport Way between Capability Green Estate and B653	59,937	67,156	12.0%	62,072	66,241	6.7%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	39,811	40,775	2.4%	41,332	43,170	4.4%
A505 Hitchin Road between Ashcroft Road and Lothair Road	35,143	35,104	-0.1%	36,603	36,698	0.3%
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,768	15,969	16.0%	13,951	14,459	3.6%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	28,196	28,543	1.2%	28,685	30,913	7.8%
A1081 Luton Road between A1081 London Road and West Hyde Road	22,833	21,564	-5.6%	23,294	23,932	2.7%
Lower Harpenden Road between Westfield Road and West Hyde Road	15,490	15,876	2.5%	16,129	17,487	8.4%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	4,418	4,604	4.2%	4,883	5,431	11.2%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	5,948	6,115	2.8%	6,793	6,552	-3.5%

2.3.3 The average increase in traffic along these twelve links for the ‘Do Minimum’ scenario is 4.5%, which is less than one percent per year. The average increase between the ‘Do Minimum’ and ‘Do Something’ flows on these links is 4.0% in 2039 and 5.3% in 2046.

2.3.4 The increase in the flow between 'Do Minimum' and 'Do Something' expressed as a percent in fourth and seventh columns in **Table 2.2** above can be seen to vary appreciably between the links. In addition to the additional airport traffic on the highway network the increases in the 'Do Something' scenarios reflect not just that traffic but also traffic that may be attracted back to routes where there has been mitigation and also re-routeing in the later year as background traffic flows impact on journey times and route choice.

Assessment

Severance

2.3.5 The sifting process for severance identified three additional links that needed further assessment when compared with the Core Planning Case. The additional links together the 'magnitude of impact' and sensitivity are set out in **Table 2.3** together with the environmental effect that is identified for this combination in **Table 4.2** of **Appendix 18.1** of this ES **[TR020001/APP/5.02]**.

Table 2.3: Details of links that require further assessment for severance

Road Section	Magnitude of Impact	Sensitivity	Effect
Wigmore Lane between Eaton Green Road and Wigmore Park District Centre access	Medium	Medium	Beneficial minor or moderate
Wigmore Lane between Wigmore Park District Centre access and Twyford Drive	Medium	Medium	Beneficial minor or moderate
Crawley Green Road between Ashcroft Road and Lalleford Road.	Low	High	Adverse negligible or minor.

2.3.6 These sections of Wigmore Lane were omitted from further examination in the Core Planning Case because the predicted decrease in traffic was calculated to be 29.96% and the threshold for a road that is not sensitive is 30%. The predicted increase in 2046 is 31.54%, hence it was included in this assessment. The consequence is that with slow growth there are two additional road links that have an environmental effect that is classified as **minor** beneficial. The environmental effects on these two additional links are **not significant**.

2.3.7 When considering whether the environmental effect on Crawley Green Road between Ashcroft Road and Lalleford Road should be adverse negligible or minor it is necessary to review the magnitude of impact. The increase in the traffic flow is 27.8% which lies in the lower half of the range of 27.5% to 30% for a magnitude of 'low'. In the light of the closeness of the increase to the lower level for this band it is considered appropriate to conclude that the environmental effect is classified as **negligible adverse** which is **not significant**.

2.3.8 The level of the environmental effect on the other roads as identified in **Chapter 18** of the ES **[TR020001/APP/5.01]** remain unchanged.

Driver Stress

2.3.9 The consideration of the changes in effects associated with driver stress found that the number of links that required further assessment had reduced to 22, of which five links required further analysis. The effects on the three links that form a continuous section of Eaton Green Road between Frank Lester Way and Wigmore Lane, and the two links on Percival Way between Airport Way and Provost Way were unchanged. The slip road from London Road south of the dual carriageway onto New Airport Way eastbound carriageway does not warrant further examination in this sensitivity test. The findings regarding driver stress is that with slow growth there will be no change in the conclusion that there are **no significant** effects.

Pedestrian Delay

2.3.10 Forty six road links were identified for further analysis, which is fewer than the 50 that were identified in the Core Planning Case. Having calculated the delay on these links none were found to experience a change in the pedestrian delay that either increased or decreased by more than 10 seconds. Therefore, with slow growth there are **no significant** effects.

Pedestrian Fear and Intimidation

2.3.11 The first review of the traffic flow predictions identified 48 links that required further assessment with regard to pedestrian fear and intimidation; that was the same as were required for the Core Planning Case. With the general growth in traffic one of the links associated with the increase in total traffic and identified for the assessment of the Core Planning Case no longer had a magnitude of impact of ‘low’. The remaining links were the four that make up the full length of the Airport Access Road (AAR), for which the environmental effect is classified as **no effect**, and Crawley Green Road between Ashcroft Road and Lalleford Road, which for this sensitivity test retains its classification as **negligible** adverse and **not significant**.

Collisions and Safety

2.3.12 The result of assessing collisions and safety with the revised set of predicted traffic flows was to identify the same junctions as were reported for the Core Planning Case. For the two junctions on Crawley Green Road there was no change in the classification of the environmental effect, and it was thus concluded for those junctions there was **no significant** effect.

2.3.13 At the junction of Eaton Green Road and Frank Lester Way the magnitude of impact increased from low to medium. As this impact only marginally falls into the new classification it was decided that the revised description of the environmental effect at this junction should be **minor** beneficial and **not significant**.

Conclusion

2.3.14 It can be seen from the preceding paragraphs that there are some minor changes in the environmental effects. However, the overall conclusion for slower growth pushing back the achievement of 27 mppa by seven years does not introduce any significant environmental effects.

2.4 32 mppa (Assessment Phase 2b)

Introduction

2.4.1 In this test the date at which the throughput of 32 mppa would be reached has been delayed by six years.

2.4.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 2.4**.

Table 2.4: Comparison of flows for Core Planning Case and assessment Phase 2b slow growth

Road Section	Core Planning (2043)			Slow Growth (2049)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
M1 between Junctions 9 and 10	184,731	187,830	1.7%	187,319	191,365	2.2%
M1 between Junctions 10 and 11	176,357	177,432	0.6%	179,592	185,547	3.3%
A1081 New Airport Way between A505 Airport Way and Percival Way	28,793	35,897	24.7%	29,067	39,783	36.9%
A1081 New Airport Way between Capability Green Estate and B653	61,470	71,702	16.6%	62,650	70,480	12.5%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	41,013	41,364	0.9%	41,957	43,369	3.4%
A505 Hitchin Road between Ashcroft Road and Lothair Road	36,135	36,025	-0.3%	36,987	36,800	-0.5%
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,952	16,129	15.6%	13,927	14,397	3.4%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	28,760	29,309	1.9%	29,005	31,327	8.0%
A1081 Luton Road between A1081 London Road and West Hyde Road	22,733	22,468	-1.2%	23,619	24,159	2.3%

Road Section	Core Planning (2043)			Slow Growth (2049)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
Lower Harpenden Road between Westfield Road and West Hyde Road	15,828	16,396	3.6%	16,467	18,024	9.5%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	4,655	5,194	11.6%	5,030	6,061	20.5%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	6,436	6,538	1.6%	6,946	6,713	-3.3%

2.4.3 The average increase in traffic along these twelve links for the 'Do Minimum' scenario is 2.9%, which is less than one percent per year. The average increase between the 'Do Minimum' and 'Do Something' flows on these links is 6.4% in 2043 and 8.2% in 2049.

Assessment

Severance

2.4.4 The sifting process for severance identified one additional link that needed further assessment when compared with the Core Planning Case. The additional link is the section of Crawley Green Road between Ashcroft Road and Lalleford Road which includes the frontage to the Queen Elizabeth School. Based on a magnitude of impact of 'low' but a sensitivity that is high, the effect could be either negligible or minor. The increase in the volume of traffic between the 'Do Minimum' and 'Do Something' scenarios is predicted to be 27.7% which is the lower end of the range for this level of magnitude. It has therefore been determined that the level of the impact would be **negligible** adverse and **not significant**.

2.4.5 The degrees of the environmental effect on all other links that warranted further investigation for severance are unchanged from the values established for the Core Planning Case.

Driver Stress

2.4.6 The number of links that qualified for further assessment regarding driver stress reduced from 31 to 27 between the Core Planning Case and the Slow Growth. As previously all effects were either 'no effect' or 'negligible', therefore there is no change for this sensitivity test and therefore will be **no significant** effect. A similar conclusion has been drawn for driver delay.

Pedestrian Delay

2.4.7 The number of links that were identified as requiring further assessment reduced from 54 for the Core Planning Case to 52, but the reduction in flow on the section of Windmill Road between its junction with Kimpton Road and Park Viaduct increases from 24.8% to 33.2% which means that the reduced crossing time that results from the introduction of traffic signals at the junction of Windmill Road and Kimpton Road needs to be taken into account. The combination of a magnitude of impact that is 'high' can give an effect that is either 'moderate' or 'major'. Since this is not on a major pedestrian desire line it is considered that the effect would be **moderate** beneficial which is **significant**. On the two other links that were identified for further assessment the effects remain unchanged.

Pedestrian Fear and Intimidation

2.4.8 The first review of the traffic flow predictions identified 53 links that required further assessment with regard to pedestrian fear and intimidation; that was the same as required for the Core Planning Case. The review of these found that there was no change from the situation reported for the Core Planning Case, therefore there would be **no significant** effects associated with the slow growth of air passengers.

Collisions and Safety

2.4.9 Three junctions passed the threshold for further assessment regarding collisions and safety which is one less than for the Core Planning Case. The junction that did not pass the threshold in this sensitivity test is the junction of Crawley Green Road and Wigmore Lane. When considered for the Core Planning Case the increase in traffic was less than half of one percent above the threshold. In the sensitivity test the flows into the junction in the 'do minimum' scenario had risen by 3.6% but in the 'do something' scenario the increase was 2.2%. As a consequence, the junction did not qualify for further assessment. In the Core Planning Case the analysis found that there was **no effect**.

2.4.10 The conclusions for the other three junctions that are reported in **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** remain unchanged in this test.

Conclusion

2.4.11 It can be seen that the delay by six years of a throughput of 32 mppa being achieved has little effect on the classification of the environment effects with the exception of a beneficial **significant** effect being identified for pedestrians crossing Windmill Road at its junction with Kimpton Road; therefore, the conclusion drawn for the Core Planning Case applies equally to slow growth at assessment Phase 2b.

3 FASTER GROWTH

3.1 Introduction

3.1.1 For the sensitivity tests for faster growth there are three which consider the passenger throughputs considered for the Core Planning Case being achieved earlier and one for a throughput of 23 mppa being achieved by 2027. The four tests are set out below:

a. 21.5 mppa – throughput assumed to be reached in 2026 rather than 2027 assumed in Core Planning growth.

b. 23 mppa – throughput assumed to reached in 2027.

c. 27 mppa – throughput assumed to be reached in 2038 rather than 2039 assumed in Core Planning growth.

d. 32 mppa - throughput assumed to be reached in 2042 rather than 2043 assumed in Core Planning growth.

3.2 21.5 mppa (Assessment Phase 1)

Introduction

3.2.1 In this test, the date at which the throughput of 21.5 mppa would be reached is one year earlier.

3.2.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 3.1**.

Table 3.1: Comparison of flows for Core Planning Case and assessment Phase 1 fast growth (21.5 mppa)

Road Section	Fast Growth (2026)			Core Planning (2027)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
M1 between Junctions 9 and 10	161,679	164,610	1.8%	163,118	165,155	1.2%
M1 between Junctions 10 and 11	154,665	158,450	2.4%	156,106	157,357	0.8%
A1081 New Airport Way between A505 Airport Way and Percival Way	27,722	33,994	22.6%	27,741	29,054	4.7%
A1081 New Airport Way between Capability Green Estate and B653	55,767	58,290	4.5%	56,165	61,435	9.4%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	36,068	36,529	1.3%	36,349	36,695	1.0%

Road Section	Fast Growth (2026)			Core Planning (2027)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
A505 Hitchin Road between Ashcroft Road and Lothair Road	30,768	30,877	0.4%	31,113	31,490	1.2%
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,491	13,847	2.6%	13,521	13,482	-0.3%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	26,213	26,695	1.8%	26,473	26,765	1.1%
A1081 Luton Road between A1081 London Road and West Hyde Road	20,441	20,740	1.5%	20,609	20,619	0.0%
Lower Harpenden Road between Westfield Road and West Hyde Road	13,761	14,490	5.3%	13,885	14,063	1.3%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	3,611	4,449	23.2%	3,637	3,962	8.9%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	4,731	4,142	-12.5%	4,784	4,875	1.9%

3.2.3 The average increase in traffic along these twelve links for the 'Do Minimum' scenario between 2026 and 2027 is 0.8%. The average increase in traffic along these with the air passenger throughput reaching 21.5 mppa by 2026 is 4.6% which is higher than the average increase of 2.6% in the Core Planning Case. This is a result of the lower background flows when the assessment is undertaken for an earlier date.

Assessment

Severance

3.2.4 The sifting process for the assessment of any environmental effects associated with severance produced no links for further assessment which was the same result as was found for the Core Planning Case, therefore there will be **no significant** effect.

Driver Stress

3.2.5 When compared with the Core Planning Case, the first sift produced only one road link required further consideration. The magnitude of impact was 'no change' therefore there would be **no significant** effect.

Pedestrian Delay

3.2.6 Eight road links were identified for further analysis, the same number as were identified in the Core Planning Case. Having calculated the delay on these links none were found to experience a change in the pedestrian delay that either increased by or decreased by more than 10 seconds. Therefore, with fast growth there are **no significant** effects.

Pedestrian Fear and Intimidation

3.2.7 The initial review of the changes in the hourly average over an 18-hour day and the total number of HGVs in the same period identified 18 and ten links for further investigation, which is only marginally higher than the figures of 18 and nine for the Core Planning Case. For all of those links that exceeded the threshold there was no change in the 'magnitude of impact' therefore there is **no significant** effect.

Collisions and Safety

3.2.8 None of the junctions had a combined inflow that exceeded the relevant threshold therefore there are **no significant** effects.

Conclusion

3.2.9 Although, in general, the additional airport related traffic associated with the increase in throughput of airport passengers from 18 mppa to 21.5 mppa represents a higher proportion of traffic on roads in the vicinity of the airport it does not change the findings reported in **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** that there would be no significant effects.

3.3 23 mppa (Assessment Phase 1)

Introduction

3.3.1 In this test, the date remains the same as in the Core Planning Case but the consequence of faster growth is a higher throughput in 2027.

3.3.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **Paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 3.2**.

Table 3.2: Comparison of flows for Core Planning Case and assessment Phase 1 fast growth (23 mppa)

Road Section	Fast Growth (2027 – 23 mppa)			Core Planning (2027)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
M1 between Junctions 9 and 10	163,118	165,155	1.2%	163,118	163,390	0.2%
M1 between Junctions 10 and 11	156,106	157,357	0.8%	156,106	156,101	0.0%

Road Section	Fast Growth (2027 – 23 mppa)			Core Planning (2027)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
A1081 New Airport Way between A505 Airport Way and Percival Way	27,741	29,054	4.7%	27,741	26,959	-2.8%
A1081 New Airport Way between Capability Green Estate and B653	56,165	61,435	9.4%	56,165	59,175	5.4%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	36,349	36,695	1.0%	36,349	36,375	0.1%
A505 Hitchin Road between Ashcroft Road and Lothair Road	31,113	31,490	1.2%	31,113	31,178	0.2%
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,521	13,482	-0.3%	13,521	13,592	0.5%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	26,473	26,765	1.1%	26,473	26,527	0.2%
A1081 Luton Road between A1081 London Road and West Hyde Road	20,609	20,619	0.0%	20,609	20,605	0.0%
Lower Harpenden Road between Westfield Road and West Hyde Road	13,885	14,063	1.3%	13,885	13,953	0.5%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	3,637	3,962	8.9%	3,637	3,888	6.9%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	4,784	4,875	1.9%	4,784	4,811	0.6%

3.3.3 The average increase in traffic between the 'Do Minimum' and 'Do Something' scenarios along these road links with the air passenger throughput reaching 23 mppa by 2027 is 2.6% which is higher than the average increase of 1.0% in the Core Planning Case.

Assessment

Severance

3.3.4 The sifting process for the assessment of any environmental effects associated with severance produced no links for further assessment which was the same

result as was found for the Core Planning Case, therefore there will be **no significant** effect.

Driver Stress

3.3.5 Two road links were identified for further assessment, as opposed to one for the Core Planning Case but for both road links the magnitude of impact was 'no change' therefore there would be **no significant** effect.

Pedestrian Delay

3.3.6 Thirteen road links were identified for further analysis, which is five more than were identified in the Core Planning Case. Having calculated the delay on these road links none were found to experience a change in the pedestrian delay that either increased by or decreased by more than 10 seconds. Therefore, with fast growth that takes the throughput to 23 mppa in 2027 there are **no significant** effects.

Pedestrian Fear and Intimidation

3.3.7 There is a small increase in the number of road links that required further investigation with three occurring in the category related to the change in the hourly average flow over an 18-hour period and two related to the increase in HGVs over the same period. In all cases the magnitude of impact was classified as 'no change' therefore there would be no resultant environmental effect which means that there will be no change from the conclusion drawn for the Core Planning Case that there are **no significant** effects.

Collisions and Safety

3.3.8 None of the junctions had a combined inflow that exceeded the relevant threshold therefore there are **no significant** effects.

Conclusions

3.3.9 Although, in general, the additional airport related traffic associated with the increase in throughput of airport passengers from 18 mppa to 23 mppa in 2027 represents a higher proportion of traffic on roads in the vicinity of the airport it does not change the findings reported in **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** that there would be no significant effects.

3.4 27 mppa (Assessment Phase 2a)

Introduction

3.4.1 In this test, the date at which the throughput of 27 mppa would be reached is one year earlier.

3.4.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **Paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 3.3**.

Table 3.3: Comparison of flows for Core Planning Case and assessment Phase 2a fast growth

Road Section	Fast Growth (2038)			Core Planning (2039)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
M1 between Junctions 9 and 10	178,632	182,111	1.9%	179,510	182,464	1.6%
M1 between Junctions 10 and 11	171,606	175,492	2.3%	172,495	172,631	0.1%
A1081 New Airport Way between A505 Airport Way and Percival Way	28,058	34,047	21.3%	28,107	31,127	10.7%
A1081 New Airport Way between Capability Green Estate and B653	59,660	65,239	9.4%	59,937	67,156	12.0%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	39,722	41,683	4.9%	39,811	40,775	2.4%
A505 Hitchin Road between Ashcroft Road and Lothair Road	35,008	34,811	-0.6%	35,143	35,104	-0.1%
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,769	14,732	7.0%	13,768	15,969	16.0%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	28,053	29,545	5.3%	28,196	28,543	1.2%
A1081 Luton Road between A1081 London Road and West Hyde Road	22,675	22,367	-1.4%	22,833	21,564	-5.6%
Lower Harpenden Road between Westfield Road and West Hyde Road	15,399	16,613	7.9%	15,490	15,876	2.5%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	4,364	4,768	9.2%	4,418	4,604	4.2%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	5,883	5,716	-2.9%	5,948	6,115	2.8%

3.4.3 The average increase in traffic along these twelve links for the ‘Do Minimum’ scenario is 0.5%. The average increase in traffic along these links with the air passenger throughput reaching 27 mppa by 2038 is 5.4% which is higher than the average increase of 4.0% in the Core Planning Case.

Assessment

Severance

3.4.4 The comparison of the assessment of severance between the fast growth and the Core Planning Case found that the number of links that required further analysis were the same and the outcome in terms of the environmental effect would be the same with fast growth for assessment Phase 2a. The conclusion therefore remains that for this level of passenger throughput there would be **no significant** effects.

Driver Stress

3.4.5 The number of links that qualified for further assessment regarding driver stress is 25 for the Core Planning Case and this increases to 28 for fast growth. The additional three links have been identified as requiring further analysis because relatively small changes in flows between the two years have resulted in the growth in traffic between the 'Do Minimum' and 'Do Something' scenarios just crossing the threshold of 30%.

3.4.6 The three additional links are two on Crawley Green Road between Lalleford Road and Wigmore Lane, and Stony Lane between Durley Road and Brick Kiln Lane. For the links on Crawley Green Road the flows in the 'Do Something' scenario are 29.4% higher that the flows in the 'Do Minimum' scenario in 2039 but the increase based on the 2038 flows is 30.1%. The comparable figures on Stony Lane are 29.7% and 33.7%, but these are based on 'Do Minimum' flows that are less than 300 vehicles. Because the flows on Stony Lane are so low there is no environmental effect. On Crawley Green Road a judgement was required as to whether the effect was negligible or minor. Because the increase in the flow was so close to the 30% threshold it has been determined that on this section of Crawley Green Road there would be a **negligible** adverse effect which is **not significant**.

3.4.7 It would remain the case that there would be **no significant** environmental effects.

Pedestrian Delay

3.4.8 Fifty one road links were identified for further analysis, which is more than the 50 that were identified in the Core Planning Case. Having calculated the delay on these links none were found to experience a change in the pedestrian delay that either increased or decreased by more than 10 seconds. Therefore, with slow growth there are **no significant** effects.

Pedestrian Fear and Intimidation

3.4.9 The review of the impact of fast growth on pedestrian fear and intimidation found that the result were very similar to that reported in **Chapter 18** of the ES **[TR020001/APP/5.01]**, with the number of links that had an effect of 'no effect or negligible' reducing by one. Therefore, there is no change in the environmental effect, and it remains as **not significant**.

Collisions and Safety

3.4.10 The result of assessing collision and safety with the revised set of predicted traffic flows was to identify the same junctions as were reported for the Core Planning Case. Since the magnitude of impact was unchanged the environment effects were the same as those identified for the Core Planning Case. The conclusion therefore remains that for this level of passenger throughput there would be **no significant** effects.

Conclusions

3.4.11 As described in the preceding paragraphs that there are some minor changes in the environmental effects when considering 'severance' and 'collisions and safety'. However, the overall conclusion for fast growth bringing forward the achievement of 27 mppa by one year does not introduce any significant environmental effects.

3.5 32 mppa (Assessment Phase 2b)

Introduction

3.5.1 In this test, the date at which the throughput of 32 mppa would be reached is one year earlier.

3.5.2 The 'Do Minimum' and 'Do Something' flows for the links identified in **Paragraph 1.1.8** together with the percentage increase between the two scenarios are set out in **Table 3.4**.

Table 3.4: Comparison of flows for Core Planning Case and assessment Phase 2b fast growth

Road Section	Fast Growth (2042)			Core Planning (2043)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
M1 between Junctions 9 and 10	183,547	187,451	2.1%	184,731	187,830	1.7%
M1 between Junctions 10 and 11	175,075	181,567	3.7%	176,357	177,432	0.6%
A1081 New Airport Way between A505 Airport Way and Percival Way	28,755	39,705	38.1%	28,793	35,897	24.7%
A1081 New Airport Way between Capability Green Estate and B653	61,312	69,165	12.8%	61,470	71,702	16.6%
A505 Stopsley Way between Hitchin Road and Ashcroft Road	40,840	42,177	3.3%	41,013	41,364	0.9%
A505 Hitchin Road between Ashcroft Road and Lothair Road	35,956	35,506	-1.3%	36,135	36,025	-0.3%

Road Section	Fast Growth (2042)			Core Planning (2043)		
	Do Minimum	Do Something	Increase	Do Minimum	Do Something	Increase
Ashcroft Road between Wigmore Lane and A505 Hitchin Road	13,921	14,678	5.4%	13,952	16,129	15.6%
A602 Stevenage Road between B656 Hitchin Hill and Blackhorse Lane	28,489	30,326	6.4%	28,760	29,309	1.9%
A1081 Luton Road between A1081 London Road and West Hyde Road	22,555	23,384	3.7%	22,733	22,468	-1.2%
Lower Harpenden Road between Westfield Road and West Hyde Road	15,794	17,396	10.1%	15,828	16,396	3.6%
B651 High Street (Whitwell) between Hitchin Road and Horn Hill	4,579	5,463	19.3%	4,655	5,194	11.6%
B652 High Street (Kimpton) between B651 Hitchin Road and Park Lane	6,330	6,069	-4.1%	6,436	6,538	1.6%

3.5.3 The average increase in traffic along these twelve links for the 'Do Minimum' scenario is 0.7%. The average increase in traffic along these with the air passenger throughput reaching 32 mppa by 2042 is 4.6% which is higher than the average increase of 2.6% in the Core Planning Case.

Assessment

Severance

3.5.4 The sifting process for severance identified one additional link that needed further assessment when compared with the Core Planning Case. The additional link is the section of Crawley Green Road between Ashcroft Road and Lalleford Road which includes the frontage to the Queen Elizabeth School. Based on a magnitude of impact of 'low' but a sensitivity that is high, the effect could be either negligible or minor. The increase in the volume of traffic between the 'Do Minimum' and 'Do Something' scenarios is predicted to be 27.8% which is the lower end of the range for this level of magnitude. It has therefore been determined that the level of the impact would be **negligible** adverse and **not significant**.

3.5.5 The degrees of the environmental effect on all other links that warranted further investigation for severance are unchanged from the values established for the Core Planning Case.

3.5.6 The scale of environmental effect that was identified for the Core Planning Case on other links remains unchanged with the year of reaching a throughput of 32 mppa moving forward by one year, therefore it remains the case that there would be **no significant** effects.

Driver Stress

3.5.7 The number of links that qualified for further assessment regarding driver stress is reduced by one when compared with the Core Planning Case. As previously determined all effects were either 'no effect' or 'negligible', therefore there is no change for this sensitivity test and the conclusion drawn for the for the Core Planning Case that there are **no significant** effects is unchanged for this level of passenger throughput.

Pedestrian Delay

3.5.8 With regard to pedestrian delay there is no change in the result of the assessment. The predicted effects for the Fast Growth are the same as for the Core Planning Case; there remains **no significant** effect when considering pedestrian delay.

Pedestrian Fear and Intimidation

3.5.9 The first review of the traffic flow predictions identified 54 links that required further assessment with regard to pedestrian fear and intimidation; that was one more than required for the Core Planning Case. The additional road link increased the number for which the effect was 'no effect' or 'negligible' by one. The review of these found that there was no consequential change from the situation reported for the Core Planning Case; therefore there would be **no significant** effects associated with the slow growth of air passengers.

Collisions and Safety

3.5.10 In common with the Core Planning Case four junctions passed the threshold for further assessment regarding collisions and safety. For those four junctions the magnitude of impact was unchanged. The conclusions that are reported in **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** remain unchanged in this test and therefore there would be **no significant** effects associated with the fast growth of air passengers.

Conclusion

3.5.11 It can be seen that the advancement by one year of a throughput of 32 mppa being achieved has little effect on the classification of the environment effects; therefore, the conclusion drawn for the Core Planning Case applies equally to slow growth at assessment Phase 2b.

4 NO WIDENING OF THE M1 SOUTHBOUND CARRIAGEWAY

4.1 Background

4.1.1 In light of the latest Government announcement on pausing all construction of Smart motorway schemes for five years and conducting a review of safety, stakeholders have requested a sensitivity test to remove the additional (fifth) motorway lane that has been assumed for the 2043 'With Development' scenario that is reported in **Chapter 18** of the ES **[TR020001/APP/5.01]**. This sensitivity test has not been applied to 2039 traffic flow predictions on the basis that no widening had been assumed.

4.2 Changes to Highway Network

4.2.1 The CBLTM-LTN has been used to generate a new set of predicted traffic flows for 2043 with no change to the southbound carriageway of the M1 between Junctions 10 and 9. Since the fifth lane was assumed to be in place whether or not the Proposed Development occurred it was necessary to run the model for both the 'Do Minimum' and 'Do Something' scenarios.

4.2.2 In this sensitivity test the 'Do Something' network includes the following works to increase the capacity of the junction, which would have been included as part of the assessment Phase 2a mitigation measures:

a. Northbound off-slip widened to provide three lanes at stopline; and
b. White lining on circulatory carriageway between the northbound off and on-slips to provide five lanes.

4.2.3 The 'Do Something' highway network also includes the construction of the missing section of the AAR. The works include the following:

a. construction of the dual carriageway section of the 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 the 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 the AAR entry arm to Frank Lester Way junction from the east to provide dedicated right turn lane.

4.2.4 For the modelling of the Core Planning Case the improvements to Junction 10 that are described in **Paragraph 4.2.2** are incorporated as part of the widening scheme for the southbound carriageway, thus drivers in both scenarios benefitted from an improved Junction 10. For this sensitivity test this is not the case, since without the additional lane on the motorway there are no changes to layout of the junction assumed for the 'Do Minimum' scenario.

4.3 Review of Revised Model Output

4.3.1 The absence of the additional running lane on the southbound carriageway has the potential to encourage traffic travelling south to seek alternative routes to avoid congestion on this section of the M1. The addition of airport related traffic then has the potential for exacerbating this situation. In order to establish whether there is a change in the flow pattern that could result in different conclusions being drawn with regard to the environmental effects of the Proposed Development consideration has been given to traffic flows across a screen line to the south of New Airport Way (A1081). A screen line is an imaginary line on a map that provides a means of comparing the results of different assignments. In this instance the purpose of the screen line is to investigate the shift in traffic between the roads listed below that occur between the scenarios with and without the widening on the southbound carriageway of the motorway. The location of the screen line has been chosen to include in addition to the M1 south of Junction 10, the two alternative routes that airport related traffic is most likely to divert onto:

a. M1 between Junctions 9 and 10;

b. A1081 Luton Road between West Hyde Road and Half Moon Lane; and

c. B653 Lower Harpenden Road between Hyde Road and Parkway Road.

4.3.2 Four tables setting out the flows across this screen line have been produced. The first, **Table 4.1**, presents the 'Do Minimum' scenario flows for the Core Planning Case (M1 southbound widening) and the sensitivity test (no motorway widening) while the equivalent flows for the 'Do Something' scenario are shown in **Table 4.2**: 2043 'Do Something' scenario screen line flows with and without widening

Road	Section	Direction	With widening	No widening	Change (vehicles)	Change (%)
AM Peak						
M1	Junction 9 to Junction 10	Northbound	7,171	7,146	-25	-0.3%
		Southbound	7,082	6,868	-214	-3.1%
		Two-way	14,253	14,014	-239	-1.7%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,026	1,033	7	0.7%
		Southbound	1,015	1,133	118	10.4%
		Two-way	2,041	2,166	125	5.8%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	881	883	2	0.2%
		Southbound	735	736	1	0.1%
		Two-way	1,616	1,620	4	0.2%
PM Peak						
M1	Junction 9 to Junction 10	Northbound	7,675	7,457	-218	-2.9%
		Southbound	8,007	7,675	-332	-4.3%
		Two-way	15,682	15,131	-551	-3.6%

Road	Section	Direction	With widening	No widening	Change (vehicles)	Change (%)
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	943	977	34	3.5%
		Southbound	1,087	1,199	112	9.3%
		Two-way	2,029	2,176	147	6.8%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	963	965	2	0.2%
		Southbound	757	813	56	6.9%
		Two-way	1,720	1,778	58	3.3%
AADT						
M1	Junction 9 to Junction 10	Northbound	94,226	94,382	156	0.2%
		Southbound	93,604	93,028	-576	-0.6%
		Two-way	187,830	187,410	-420	-0.2%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	11,730	11,670	-60	-0.5%
		Southbound	10,737	10,910	173	1.6%
		Two-way	22,468	22,580	112	0.5%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	8,868	8,836	-32	-0.4%
		Southbound	7,811	7,954	143	1.8%
		Two-way	16,679	16,790	111	0.7%

4.3.3 The percentage changes with the Proposed Development in place are smaller because non-airport related traffic would benefit from the improvements at Junction 10 that would be provided as mitigation for the throughput of 27 mppa.

4.3.4 . The purpose of these tables is to demonstrate the changes that occur as a result of the widening. **Table 4.3** and **Table 4.4** present the 'Do Minimum' and 'Do Something' scenario flows for the sensitivity run and the Core Planning Case respectively.

4.3.5 The tables each present three sets of predicted traffic flows across the screen line – AM Peak, PM Peak, and Annual Average Daily Traffic (AADT). Flows are provided by direction and two-way. For the purpose of the ES the two-way flows are the more important as it is the two-way flow that is used to determine whether there is a need for further assessment. None of the three links are sensitive therefore the criterion for further investigation is a change in the flow of ±30%.

4.3.6 In addition to the predicted flows without and with widening, **Table 4.1** also shows the change in the flow and expresses this as a percentage of the flow without widening.

Table 4.1: 2043 'Do Minimum' scenario screen line flows with and without widening

Road	Section	Direction	With widening	No widening	Change (vehicles)	Change (%)
AM Peak						

Road	Section	Direction	With widening	No widening	Change (vehicles)	Change (%)
M1	Junction 9 to Junction 10	Northbound	7,005	6,981	-24	-0.3%
		Southbound	7,011	6,764	-247	-3.7%
		Two-way	14,016	13,745	-271	-2.0%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,039	1,032	-7	-0.7%
		Southbound	978	1,121	143	12.8%
		Two-way	2,017	2,153	136	6.3%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	807	808	1	0.1%
		Southbound	814	821	7	0.9%
		Two-way	1,620	1,629	9	0.6%
PM Peak						
M1	Junction 9 to Junction 10	Northbound	7,628	7,453	-175	-2.3%
		Southbound	7,849	7,030	-819	-11.7%
		Two-way	15,477	14,483	-994	-6.9%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,047	1,012	-35	-3.5%
		Southbound	1,000	1,415	415	29.3%
		Two-way	2,047	2,428	381	15.7%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	865	866	1	0.1%
		Southbound	733	845	112	13.3%
		Two-way	1,598	1,711	113	6.6%
AADT						
M1	Junction 9 to Junction 10	Northbound	92,806	93,045	239	0.3%
		Southbound	91,926	90,076	-1,850	-2.1%
		Two-way	184,731	183,121	-1,610	-0.9%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	12,253	12,073	-180	-1.5%
		Southbound	10,479	11,522	1,043	9.1%
		Two-way	22,733	23,594	861	3.6%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	8,106	8,072	-34	-0.4%
		Southbound	7,878	8,170	292	3.6%
		Two-way	15,984	16,242	258	1.6%

4.3.7 When considering the AADT flows the omission of the widening of the southbound lane decreases the two-way flow on this section of the M1 by less than one percent. There is a predicted increase in two-way flows on the A1081 Luton Road of 3.6% and on the B653 Lower Harpenden Road of 1.6%. In terms of percentage change the greatest impact is during the PM peak when the two-way flow on the M1 decreases by 6.9% whiles the flows on the A1081 and B656 ride by 15.7% and 6.6% respectively.

Table 4.2: 2043 'Do Something' scenario screen line flows with and without widening

Road	Section	Direction	With widening	No widening	Change (vehicles)	Change (%)
AM Peak						
M1	Junction 9 to Junction 10	Northbound	7,171	7,146	-25	-0.3%
		Southbound	7,082	6,868	-214	-3.1%
		Two-way	14,253	14,014	-239	-1.7%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,026	1,033	7	0.7%
		Southbound	1,015	1,133	118	10.4%
		Two-way	2,041	2,166	125	5.8%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	881	883	2	0.2%
		Southbound	735	736	1	0.1%
		Two-way	1,616	1,620	4	0.2%
PM Peak						
M1	Junction 9 to Junction 10	Northbound	7,675	7,457	-218	-2.9%
		Southbound	8,007	7,675	-332	-4.3%
		Two-way	15,682	15,131	-551	-3.6%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	943	977	34	3.5%
		Southbound	1,087	1,199	112	9.3%
		Two-way	2,029	2,176	147	6.8%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	963	965	2	0.2%
		Southbound	757	813	56	6.9%
		Two-way	1,720	1,778	58	3.3%
AADT						
M1	Junction 9 to Junction 10	Northbound	94,226	94,382	156	0.2%
		Southbound	93,604	93,028	-576	-0.6%
		Two-way	187,830	187,410	-420	-0.2%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	11,730	11,670	-60	-0.5%
		Southbound	10,737	10,910	173	1.6%
		Two-way	22,468	22,580	112	0.5%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	8,868	8,836	-32	-0.4%
		Southbound	7,811	7,954	143	1.8%
		Two-way	16,679	16,790	111	0.7%

4.3.8 The percentage changes with the Proposed Development in place are smaller because non-airport related traffic would benefit from the improvements at Junction 10 that would be provided as mitigation for the throughput of 27 mppa.

4.3.9 The flows shown in **Table 4.3** are taken from the run of the Strategic Model with the widening of the M1 excluded. In addition to the flows for the 'Do Minimum'

and 'Do Something' scenarios the table also shows the change in the flow and that change expresses as a percentage of the 'Do Minimum' scenario flow.

Table 4.3: 2043 Screen line flows - no widening

Road	Section	Direction	Do Minimum	Do Something	Change (vehicles)	Change (%)
AM Peak						
M1	Junction 9 to Junction 10	Northbound	6,981	7,146	165	2.4%
		Southbound	6,764	6,868	104	1.5%
		Two-way	13,745	14,014	269	2.0%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,032	1,033	1	0.1%
		Southbound	1,121	1,133	13	1.1%
		Two-way	2,153	2,166	14	0.6%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	808	883	75	9.3%
		Southbound	821	736	-85	-10.3%
		Two-way	1,629	1,620	-10	-0.6%
PM Peak						
M1	Junction 9 to Junction 10	Northbound	7,453	7,457	3	0.0%
		Southbound	7,030	7,675	645	9.2%
		Two-way	14,483	15,131	648	4.5%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,012	977	-35	-3.5%
		Southbound	1,415	1,199	-216	-15.3%
		Two-way	2,428	2,176	-252	-10.4%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	866	965	99	11.5%
		Southbound	845	813	-32	-3.8%
		Two-way	1,711	1,778	67	3.9%
AADT						
M1	Junction 9 to Junction 10	Northbound	93,045	94,382	1,338	1.4%
		Southbound	90,076	93,028	2,952	3.3%
		Two-way	183,121	187,410	4,290	2.3%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	12,073	11,670	-402	-3.3%
		Southbound	11,522	10,910	-612	-5.3%
		Two-way	23,594	22,580	-1,014	-4.3%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	8,072	8,836	765	9.5%
		Southbound	8,170	7,954	-216	-2.6%
		Two-way	16,242	16,790	549	3.4%

4.3.10 The highest two-way increase is 4.5% which occurs on the M1 in the evening peak and the greatest fall in traffic flow of 10.4% occurs on London Road during the same period. These changes have been attributed to the increased capacity at Junction 10 resulting from the mitigation measures implemented for assessment Phase 2a as described in **Paragraph 4.2.1** rather than the

additional airport related traffic alone. In the southbound direction the flow on the southbound carriageway of the M1 increases by 9.2% whereas as the southbound traffic on London Road falls by 15.3%.

4.3.11 The equivalent flows for the Core Planning Case that is reported in **Section 18.9** of **Chapter 18** of the ES **[TR020001/APP/5.01]** are set out below in **Table 4.4**. It is noticeable that when comparing the change in flow on the southbound carriageway of the M1 during the PM peak and AADT, the change is considerably higher without the widening but with the assessment Phase 2a mitigation works in place. The relevant increases with the widening in place are 142 and 1,482 vehicles compared with 645 and 2,952 vehicles if the widening does not take place.

Table 4.4: 2043 Screen line flows - with widening

Road	Section	Direction	Do Minimum	Do Something	Change (vehicles)	Change (%)
AM Peak						
M1	Junction 9 to Junction 10	Northbound	7,005	7,171	166	2.4%
		Southbound	7,011	7,082	71	1.0%
		Two-way	14,016	14,253	237	1.7%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,039	1,026	-13	-1.3%
		Southbound	978	1,015	38	3.9%
		Two-way	2,017	2,041	24	1.2%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	807	881	75	9.2%
		Southbound	814	735	-79	-9.7%
		Two-way	1,620	1,616	-5	-0.3%
PM Peak						
M1	Junction 9 to Junction 10	Northbound	7,628	7,675	48	0.6%
		Southbound	7,849	8,007	158	2.0%
		Two-way	15,477	15,682	205	1.3%
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	1,047	943	-105	-10.0%
		Southbound	1,000	1,087	87	8.7%
		Two-way	2,047	2,029	-18	-0.9%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	865	963	98	11.3%
		Southbound	733	757	24	3.3%
		Two-way	1,598	1,720	122	7.6%
AADT						
M1	Junction 9 to Junction 10	Northbound	92,806	94,226	1,421	1.5%
		Southbound	91,926	93,604	1,678	1.8%
		Two-way	184,731	187,830	3,099	1.7%

Road	Section	Direction	Do Minimum	Do Something	Change (vehicles)	Change (%)
A1081 London Road	West Hyde Road to Half Moon Lane	Northbound	12,253	11,730	-523	-4.3%
		Southbound	10,479	10,737	258	2.5%
		Two-way	22,733	22,468	-265	-1.2%
B653 Lower Harpenden Road	West Hyde Road to Parkway Road	Northbound	8,106	8,868	762	9.4%
		Southbound	7,878	7,811	-67	-0.9%
		Two-way	15,984	16,679	695	4.3%

4.3.12 It is possible that with the additional airport related traffic there might be an increase in traffic using the A505/A602 to connect with the A1(M). In order to check whether this route needs to be considered in this sensitivity test the predicted flows for the runs of the model without M1 widening and for the Core Planning Case have been set out in **Table 4.5**.

4.3.13 **Table 4.5** also includes the equivalent flows for the short section of the A1081 between the M1 and the grade separated interchange with London Road. The purpose of reviewing the change on this section reflects the increase in non-airport related traffic and the need to check whether the increase necessitates further assessment of the environmental effects.

Table 4.5: Traffic flows on the A602 Little Wymondley Bypass and A1081 New Airport Way

Road	Section	M1 Widening	Do Minimum	Do Something	Change (vehicles)	Change (%)
AM Peak						
A602	A1(M) to Stevenage Road	With widening	2,591	2,644	52	2.0%
		Without widening	2,584	2,635	52	2.0%
		Change in flow without widening	-0.3%	-0.3%		
A1081	M1 to A1081 London Road	With widening	6,056	6,545	489	8.1%
		Without widening	5,754	6,382	628	10.9%
		Change in flow without widening	-5.0%	-2.5%		
PM Peak						
A602	A1(M) to Stevenage Road	With widening	3,041	3,053	13	0.4%
		Without widening	3,029	3,044	15	0.5%
		Change in flow without widening	-0.4%	-0.3%		
A1081	M1 to A1081 London Road	With widening	6,813	7,150	337	4.9%
		Without widening	5,726	7,077	1,351	23.6%

Road	Section	M1 Widening	Do Minimum	Do Something	Change (vehicles)	Change (%)
		Change in flow without widening	-16.0%	-1.0%		
AADT						
A602	A1(M) to Stevenage Road	With widening	35,807	36,048	241	0.7%
		Without widening	35,732	35,981	249	0.7%
		Change in flow without widening	-0.2%	-0.2%		
A1081	M1 to A1081 London Road	With widening	68,941	76,678	7,737	11.2%
		Without widening	66,180	76,389	10,209	15.4%
		Change in flow without widening	-4.0%	-0.4%		

4.3.14 The figures for the change in flow in **Table 4.5** show that the absence of widening on the M1 has little effect on the volume of traffic on the A602 and this demonstrates that the absence of the widening does not result in more traffic using the A505/A602 corridor to access the Strategic Road Network (SRN). Furthermore, the proportional increase in traffic flows is well below the level at which additional assessment is required and this applies whether or not the Proposed Development takes place.

4.3.15 **Table 4.5** shows that during the PM peak there is a much greater increase in traffic on the section of A1081 between the M1 and London Road than is predicted for the Core Planning Case. The effect of changes at Junction 10, described in **Paragraphs 4.2.2** and **4.2.4**, can be seen in the flow in the Do Minimum' scenario which is about 1,100 vehicles lower when there is no widening which demonstrates that without the assessment Phase 2a mitigation works the Junction is acting as a constriction on the flow of traffic.

4.3.16 The flows in **Table 4.5** show that without the fifth lane on the southbound carriageway the flows on the A1081 are depressed in the 'Do Minimum' scenario for each of the time periods. These figures demonstrate that the mitigation measures that are proposed for assessment Phase 2a, as well as offsetting any impact from the airport related traffic, also encourage other traffic to remain on the more appropriate roads for access to the SRN.

4.3.17 This section of the A1081 is not considered to have any sensitive receptors therefore the increases in traffic do not require any further assessment.

4.4 Conclusion

4.4.1 This review has demonstrated that the changes in the pattern of traffic that would result from there being no widening on the southbound carriageway of the M1 between Junctions 10 and 9 does not justify any further assessment of the environmental effects therefore there will be **no significant** environmental effects.

4.4.2 In addition, the provision of the improvements at Junction 10 that form part of the Proposed Development will reduce the diversion away from this stretch of the M1 for non-airport related traffic.

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
CBLTM-LTN	Expanded version of the CBLTM developed to assess the impact of the Proposed Development
ES	Environmental Statement
Highway Interventions	Junction and road improvement works included in the Proposed Development for which consent is being sought as part of the application for development consent
MPPA	Million passengers per annum
Strategic Road Network	The Strategic Road Network comprises approximately 4,300 miles of motorways and major 'trunk' A roads in England, and it is managed by Highways England
the airport	London Luton Airport
VISSIM	Verkehr In Städten - SIMulationsmodell (Traffic in cities - simulation model) – microsimulation traffic modelling software