



LAND TO THE WEST OF HATFIELD

Environmental Statement Addendum – Chapter 12: Transport

Arlington Business Parks GP Limited

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12 TRANSPORT

12.1 INTRODUCTION

This Chapter has been prepared by Vectos to assess the potential effect of the Proposed Development on traffic and transportation. Likely significant effects associated with enabling, demolition and construction activities and the completed Development are identified and, where necessary, mitigation measures are outlined.

The purpose of this Chapter Addendum gives an update to the assessment following a change in the future baseline year from 2028 to 2036 following the Local Plan Run 4 (LP4) set out in HCC strategic model. The assessment includes 5 additional links within the study area. This follows the comments received on the ES Chapters from Air Quality and Noise and takes into account the strategic transport modelling undertaken on the wider study area.

The additional strategic links (5 links) have been taken from the '2036 Without Development' and '2036 With Development' scenarios from the HCC strategic COMET model. To establish baseline traffic flows for these links, a negative growth factor has been applied from TEMPRO (v7.2) to determine a 2018 baseline. The methodology is explained in further detail at **Section 12.3**.

As part of the submitted ES Chapter, relevant planning policies and the assessment methodology were set out. These have not changed and as such are not included within this Chapter Addendum. This Addendum sets out the updated baseline and future traffic flows within the study area and provides an assessment of the resultant impacts.

12.2 METHODOLOGY

12.2.1 Introduction

Based on the ES Transport Chapter methodology and as per the IEMA guidance, two broad rules are set out which can be used as a screening process to limit the scale and extent of the assessment:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.

Where the predicted increase in traffic flows is lower than the above thresholds, the IEMA guidelines suggest the significance of the effects can be stated to be negligible (not significant) and further detailed assessments are not warranted. Furthermore, increases in traffic flows below 10% are generally considered to be insignificant in environmental terms given that daily variations in background traffic flows may vary by this amount.

12.2.2 Study Area

Based on the criteria above, the additional links (Links 13-17) have been identified as:

- A414 N Orbital Road;
- Roehyde Way;
- B197 Wellfield Road;
- Birchwood Avenue; and
- A1001 Comet Way (South of A1M J4).

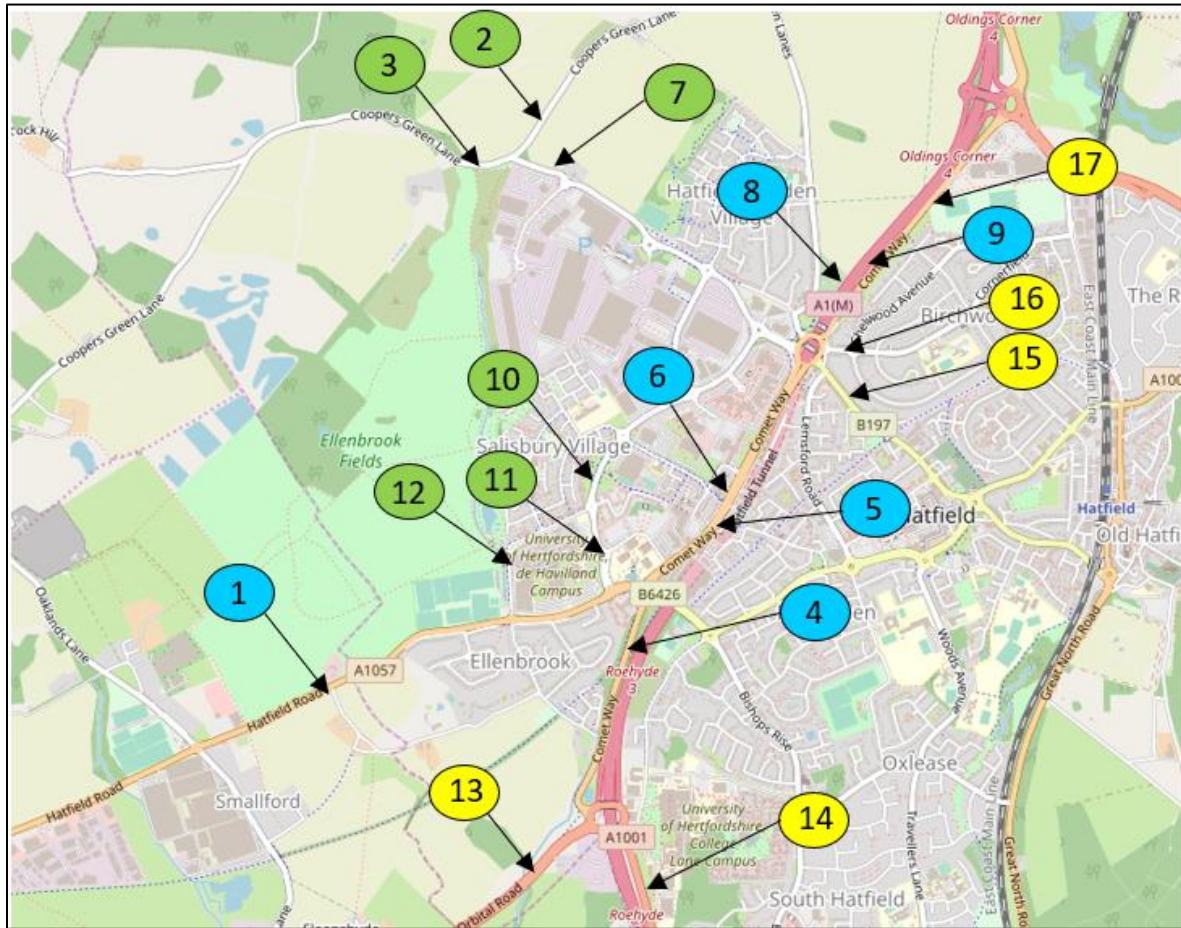
The highway links included within the study area have been updated to include these 5 additional links (link references 13 – 17). The full set of study area links is summarised below in **Table 12.1**.

Table 12.1: Study Area

Link Reference	Road Link	Link Location
1	A1057 St Albans Road W	West of Albatross Way
2	Coopers Green Lane	North of Hatfield Avenue
3	Coopers Green Lane	South of Hatfield Avenue
4	A1001	South of Cavendish Way Roundabout
5	A1001 Southbound	North of Cavendish Way Roundabout
6	A1001 Northbound	North of Cavendish Way Roundabout
7	Hatfield Avenue	Between Coopers Green Lane and Frobisher Way
8	A1(M) Northbound	Between Junction 3 and Junction 4
9	A1(M) Southbound	Between Junction 3 and Junction 4
10	Mosquito Way	Between Albatross Way and Tamblin Way
11	Mosquito Way	Between Albatross Way and Bishop Square
12	Albatross Way	Between proposed site access and Mosquito Way
13	A414 N Orbital Road	West of A1M J3
14	Roehyde Way	South of A1M J3
15	B197 Wellfield Road	East of A1001 Comet Way/Wellfield Rd Roundabout
16	Birchwood Avenue	East of A1001 Comet Way/Wellfield Rd Roundabout
17	A1001 Comet Way	South of A1M J4

A plan showing the updated links described in **Table 12.1** above are shown in **Figure 12.1**.

Figure 12.1 Link Locations



12.2.3 Sensitivity of Receptors

The sensitivity of a road can be defined by the vulnerability of the user groups who may use it e.g. elderly people or children. A sensitive area may be where pedestrian activity is high, for example in the vicinity of a school, or where there is already an existing accident issue. It also takes account of the existing nature of the road i.e. an existing 'A' road is likely to have a lower sensitivity than a minor residential road as it is already used by a larger volume of traffic and therefore small increases would result in a smaller change in the nature of the road.

The definitions of receptor sensitivity are shown in **Table 12.2** below.

Table 12.2: Definitions of Receptor Sensitivity

Sensitivity / Value	Definition
High	<p>The receptor has little ability to absorb changes in traffic flows without fundamentally altering its present character or it is of international or national importance.</p> <p>Receptors of greatest sensitivity to traffic flows will include those where the following are present: schools, colleges, playgrounds, accident clusters, retirement homes, roads without footways that are used by pedestrians.</p>
Medium	<p>The receptor has moderate capacity to absorb change without significantly altering its present character, or is of high importance.</p> <p>Medium traffic flow sensitive receptors include: congested junctions, doctors' surgeries, hospitals, shopping areas with narrow roadside frontage, roads with narrow footways, recreation facilities.</p>
Low	<p>The receptor is tolerant of change without detriment to its character or is of low or local importance.</p> <p>Receptors with low sensitivity to traffic flow will include: places of worship, public open spaces, tourist attractions and residential areas with adequate footway provision.</p>

The sensitivity of each of the receptors within the study area have been based on the assessor's judgment of their sensitivity. It should be noted that the sensitivity of links 1 – 12 has not changed against the submitted ES Chapter, however, the full list of results are shown in **Table 12.3** below for completeness.

Table 12.3: Sensitivity of Receptors

Link Reference	Road Link	Receptor Sensitivity
1	A1057 St Albans Road W	Low
2	Coopers Green Lane	Low
3	Coopers Green Lane	Low
4	A1001	Low
5	A1001 Southbound	Low
6	A1001 Northbound	Low
7	Hatfield Avenue	Low
8	A1(M) Northbound	Low
9	A1(M) Southbound	Low
10	Mosquito Way	High
11	Mosquito Way	High
12	Albatross Way	High
13	A414 N Orbital Road	Low
14	Roehyde Way	Low
15	B197 Wellfield Road	Medium
16	Birchwood Avenue	High
17	A1001 Comet Way	Low

12.2.4 Assessment Scenarios

This ES Chapter Addendum assessed the following scenarios:

- 2018 Baseline Year;
- 2018 Baseline Year + Construction;
- 2036 Future Baseline Year; and
- 2036 Future Baseline Year + Development.

12.2.5 Information Sources

The following information sources have been reviewed in respect to the existing transport conditions of the Site and the surrounding area:

- On-Site Observations;
- Google Maps;
- Department for Transport (DfT) Automatic Traffic Counts (ATCs);
- Manual Classified Counts (MCCs);
- Personal Injury Collision (PIC) Data; and
- HCCs Strategic COMET Model.

12.2.6 Temporal Scope

The temporal scope of effects in relation to transport is described as short, medium, long term or permanent, as shown below:

- Short term: <36 months;
- Medium term: up to 72 months; and
- Long term/Permanent: those associated with the completed development.

12.2.7 Types of Impacts

The following paragraphs cover each of the impacts that are considered in this Chapter Addendum.

12.2.7.1 Severance

Severance is defined as the perceived division that can occur within a community when it becomes separated by a major traffic artery and describes a series of factors that separate people from places and other people. Such division may result from the difficulty of crossing a heavily trafficked road and a physical barrier created by the road itself.

The measurement and prediction of severance is difficult, but relevant factors include road width, traffic flow, vehicle speeds, the presence of crossing facilities and the number of movements across the affected route.

IEMA guidelines refer to the DfT's 'Manual of Environmental Appraisal', which states that *“changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively.”* It is advised that these broad indicators should be used with care and regard paid to specific local conditions.

12.2.7.2 Pedestrian Delay

IEMA guidelines note that changes in the volume, composition and/or speed of traffic may affect the ability and time required for people to cross roads. Typically, increases in traffic levels result in increased pedestrian delay, although increased pedestrian activity itself also contributes. The guidelines do not set any thresholds, recommending instead that assessors use their judgement to determine the significance of the effect.

The IEMA guidelines refer to a report published by the Transport Research Laboratory (TRL) as providing a useful approximation for determining pedestrian delay. The TRL research concluded that mean pedestrian delay was found to be 8 seconds at flows of 1,000 vehicles per hour and just below 20 seconds at 2,000 vehicles per hour for various types of crossing condition. This research has been reproduced in DMRB Volume 11, Section 3, Part 8. Figure 1 of Part 8 provides predictive mean pedestrian delay based on empirical data taking into account traffic flow and a range of parameters such as crossing width and vehicle speeds.

A two-way flow of 1,400 vehicles per hour has been adopted as a lower threshold for assessment (equating to a mean 10 second delay for a link with no pedestrian facilities) in the TRL report. Below this flow pedestrian delay is unlikely to be a significant factor. This is a robust starting point for narrowing down the modelled routes within the Study Area and ensuring the routes selected exceed the suggested threshold of analysis in DMRB Volume 11. It should be noted that for controlled forms of pedestrian crossing the pedestrian delays are less.

12.2.7.3 Pedestrian Amenity

IEMA guidelines define pedestrian amenity as the relative pleasantness of a journey and can include fear and intimidation if they are relevant. As with pedestrian delay, amenity is affected by traffic volumes and composition along with pavement width and pedestrian activity. The guidelines suggest tentative thresholds of significance would be where the traffic flow is halved or doubled.

12.2.7.4 Driver Delay

IEMA guidelines note that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system.

A qualitative assessment has been undertaken to establish the impact on driver delay as a result of the Proposed Development. This is based on the traffic generation of the Proposed Development as reported in **Section 12.4**.

12.2.7.5 Accidents and Safety

The IEMA guidelines do not include any definition in relation to accidents and safety, necessitating professional judgement to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents.

12.2.7.6 Public Transport

The IEMA guidelines do not include any definition in relation to public transport. An assessment of the potential effects of the Completed Development on surrounding public transport facilities is included in this Chapter.

12.2.8 Screening Process

Within the IEMA guidance, two broad rules are set out which can be used as a screening process to limit the scale and extent of the assessment:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.

Where the predicted increase in traffic flows is lower than the above thresholds, the IEMA guidelines suggest the significance of the effects can be stated to be negligible (not significant) and further detailed assessments are not warranted. Furthermore, increases in traffic flows below 10% are generally considered to be insignificant in environmental terms given that daily variations in background traffic flows may vary by this amount.

12.2.9 Magnitude of Effect

The criteria that have been used to determine magnitude of change from the baseline conditions as a result of the Proposed Development are set out in **Table 12.4** below. However, the absolute effect is also important e.g. the total flow of traffic or HGVs on a link. This is because an increase of 100% in the traffic flow on a road is likely to lead to an insignificant impact if the existing flows are low.

Table 12.4: Definition of Magnitude of Effect

	Negligible	Low	Medium	High
Severance	Change in total traffic or HGV flows of less than 30%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows of over 90%
Pedestrian Delay	Two-way traffic flow <1,400 vehicles per hour	A judgement based on the road links with two-way traffic flows exceeding 1,400 vehicles per hour in context of the individual characteristics		
Pedestrian Amenity	Change in total traffic or HGV flows <100%	A judgement based on the routes with >100% change, in the context of their individual characteristics		
Driver Delay	A judgement based on quantitative analysis			
Accidents & Safety	A judgement based on quantitative analysis			
Public Transport	A judgement based on quantitative analysis			

12.2.10 Significance Criteria

The significance level attributed to each effect has been assessed based on the magnitude of change due to the Proposed Development and the sensitivity of the affected receptor / resource to change.

Magnitude of change is assessed on a scale of high, medium, low and negligible whilst the sensitivity of the affected receptor / resource is assessed on a scale of high, medium, and low.

The significance of the effect is judged on the relationship of the magnitude of change from the baseline conditions and the sensitivity of the receptor. The criteria for predicting the significance of the effects is summarised in **Table 12.5** below.

Table 12.5: Criteria for Assessing Effect Significance

Sensitivity of Receptor	Magnitude of Change from the Baseline			
	High	Medium	Low	Negligible
High	Substantial	Substantial	Moderate	Negligible
Medium	Substantial	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible

Potential effects are therefore concluded to be of negligible, minor, moderate or substantial significance and can be either beneficial or adverse. Moderate and substantial effects are considered to be significant. Negligible and minor effects are not significant.

12.2.11 Assumptions and Limitations

The following assumptions and limitations are relevant to this Chapter:

- Traffic counts (ATCs and MCCs) are subject to an accuracy of + or – 10%;
- Completed development traffic generation estimates have been based on trip rates derived from the TRICS database. Whilst these are a useful tool for estimating potential

trip generation, various factors mean that they do not provide an entirely accurate representation of future trip numbers; and

- 2018 baseline flow data for Links 13 - 17 have been derived from a negative growth factor taken from TEMPRO (v7.2) which has been applied to the 2036 'Without Development' scenario in the COMET model; and
- AM and PM peak hour traffic flows taken from the 2036 COMET model scenarios for Links 13 – 17 have had proportional growth applied to gain 24-hour flows. These growth factors have been derived from relative proportions of other links within the study area with similar characteristics.

12.3 BASELINE CONDITIONS

12.3.1 Baseline Traffic Flows

A series of MCC and ATC data sources have been used to establish baseline traffic flows on the local highway network for links 1 -12. The ATC survey data was obtained from DfT Traffic counts and HCC traffic data. Where data sources are not from 2018, TEMPRO (v 7.2) growth factors have been derived in order to uplift the data to the 2018 base year.

Links 13 – 17 have been taken from the 'Without Development' scenarios from the COMET model. To determine baseline traffic flows for these links, a negative growth factor has been applied from TEMPRO (v7.2) to determine a 2018 baseline.

The 24-hour 2018 baseline conditions each of the links within the study area are summarised in **Table 12.6**. It should be noted that the 2018 baseline conditions for links 1 – 12 have not changed against the submitted ES Chapter.

Table 12.6: 2018 Baseline Traffic Flows (24 Hour AADT)

Link Ref	Link	Total Vehicles	HGVs
1	A1057	14,665	618
2	Coopers Green Lane	11,525	217
3	Coopers Green Lane	11,491	174
4	A1001	24,275	2,526
5	A1001 Southbound	12,274	1,277
6	A1001 Northbound	13,490	1,404
7	Hatfield Avenue	7,055	203
8	A1(M) Northbound	47,397	6,799
9	A1(M) Southbound	48,651	6,430
10	Mosquito Way	9,495	405
11	Mosquito Way	10,314	386
12	Albatross Way	1,784	198
13	A414 N Orbital Road	43,265	6,187
14	Roehyde Way	21,743	2,282
15	B197 Wellfield Road	18,868	806
16	Birchwood Avenue	10,249	434
17	A1001 Comet Way	16,592	1,668

12.3.2 Future Baseline Traffic Flows

The future baseline conditions for each link within the study area are summarised in **Table 12.7** (AADT), **Table 12.8** (Weekday AM Peak) and **Table 12.9** (Weekday PM Peak). This takes account of the updated future baseline year of 2036, in line with Local Plan Run 4 (LP4).

A growth factor has been taken from TEMPRO (v7.2) to determine the future baseline data for links 1 – 12 against the 2018 baseline data set out in **Table 12.6**. The future baseline data for links 13 – 17 has been taken from the 2036 ‘Without Development’ Scenario within the COMET model. A growth factor has been applied to AM and PM peak hours taken from the COMET model to determine 24-hour flows. This has been calculated using proportional factors from other links within the study area.

Table 12.7: 2036 Future Baseline Traffic Flows (24 Hour AADT)

Link Ref	Link	Total Vehicles	HGVs
1	A1057	17,863	753
2	Coopers Green Lane	14,038	264
3	Coopers Green Lane	13,997	211
4	A1001	29,569	3,077
5	A1001 Southbound	14,951	1,556
6	A1001 Northbound	16,433	1,710
7	Hatfield Avenue	8,593	247
8	A1(M) Northbound	57,735	8,282
9	A1(M) Southbound	59,262	7,832
10	Mosquito Way	11,566	493
11	Mosquito Way	12,564	470
12	Albatross Way	2,173	241
13	A414 N Orbital Road	52,762	7,545
14	Roehyde Way	26,515	2,783
15	B197 Wellfield Road	23,009	983
16	Birchwood Avenue	12,499	529
17	A1001 Comet Way	20,234	2,035

Table 12.8: 2036 Future Baseline Traffic Flows (AM Peak)

Link Ref	Link	Total Vehicles	HGVs
1	A1057	2,010	85
2	Coopers Green Lane	923	26
3	Coopers Green Lane	392	9
4	A1001	1,684	169
5	A1001 Southbound	429	43
6	A1001 Northbound	724	73
7	Hatfield Avenue	1,112	41
8	A1(M) Northbound	3,632	417
9	A1(M) Southbound	4,716	601
10	Mosquito Way	971	44
11	Mosquito Way	753	31
12	Albatross Way	205	16
13	A414 N Orbital Road	3,675	422
14	Roehyde Way	1,558	156
15	B197 Wellfield Road	1,967	88
16	Birchwood Avenue	900	40
17	A1001 Comet Way	1,007	101

Table 12.9: 2036 Future Baseline Traffic Flows (PM Peak)

Link Ref	Link	Total Vehicles	HGVs
1	A1057	1,641	69
2	Coopers Green Lane	980	7
3	Coopers Green Lane	675	3
4	A1001	1,858	105
5	A1001 Southbound	387	22
6	A1001 Northbound	875	50
7	Hatfield Avenue	996	18
8	A1(M) Northbound	3,775	367
9	A1(M) Southbound	4,544	327
10	Mosquito Way	867	35
11	Mosquito Way	1,288	44
12	Albatross Way	165	25
13	A414 N Orbital Road	4,108	399
14	Roehyde Way	1,618	92
15	B197 Wellfield Road	1,691	68
16	Birchwood Avenue	1,087	44
17	A1001 Comet Way	1,417	80

12.4 ASSESSMENT OF EFFECTS

12.4.1 Construction Effects

The number of construction-related vehicle trips has been calculated based on information provided from other residential sites. The estimated construction vehicle trips are summarised below in **Table 12.10**.

It should be noted however, that this assessment represents an approximation of the required construction movements, and a detailed Construction Management Method Statement will be completed before commencement of work, detailing a more specific estimation of vehicles that will require access to the Site.

Table 12.10: Predicted Construction Traffic (Two-Way Movements)

	24 Hour AADT	AM Peak	PM Peak
Light Vehicles	150	45	45
HGVs	60	12	12
Total Vehicles	210	57	57

It should be noted that the construction process will be split over four phases as follows:

- Delivery of Infrastructure and Phase 1 homes: 2020 – 2021;
- Delivery of Phase 2 homes: 2022 – 2023;
- Delivery of Phase 3 homes: 2024 – 2025; and
- Delivery of Phase 4 homes: 2026 – 2027.

The effects of each Phase separately are therefore considered to be temporary long term (> 72 months).

The additional vehicle movements on each link within the study area over the 24 hour period as a result of the construction phases are summarised in **Table 12.11**. This assessment has been undertaken on the baseline of 2018 as this is the most robust assessment.

It should be noted that construction-related movements along links 1 – 12 have not changed since the submitted ES Chapter, however, they are included in **Table 12.9** for completeness.

Table 12.11: 2018 Base + Construction Traffic Flows (24 Hour AADT)

Link Ref	Link	2018 Base		2018 Base + Construction		Net Change (%)	
		Tot Veh	HGV	Tot Veh	HGV	Tot Veh	HGV
1	A1057	14,665	618	14,675	618	+0.1%	0%
2	Coopers Green Lane	11,525	217	11,548	217	+0.2%	0%
3	Coopers Green Lane	11,491	174	11,514	174	+0.2%	0%
4	A1001	24,275	2,526	24,318	2,556	+0.2%	1.0%
5	A1001 Southbound	12,274	1,277	12,278	1,277	0%	0%
6	A1001 Northbound	13,490	1,404	13,494	1,404	0%	0%
7	Hatfield Avenue	7,055	203	7,079	203	+0.3%	0%
8	A1(M) Northbound	47,397	6,799	47,397	6,799	0%	0%
9	A1(M) Southbound	48,651	6,430	48,651	6,430	0%	0%
10	Mosquito Way	9,495	405	9,513	405	+0.2%	0%
11	Mosquito Way	10,314	386	10,373	416	+0.5%	6.8%
12	Albatross Way	1,784	198	1,871	228	+4.2%	13.2%
13	A414 N Orbital Road	43,265	6,187	43,276	6,187	0.0%	0.0%
14	Roehyde Way	21,743	2,282	21,753	2,282	0.0%	0.0%
15	B197 Wellfield Road	18,868	806	18,875	806	0.0%	0.0%
16	Birchwood Avenue	10,249	434	10,256	434	+0.1%	0.0%
17	A1001 Comet Way	16,592	1,668	16,599	1,668	0.0%	0.0%
12	Albatross Way	43,265	6,187	43,276	6,187	0.0%	0.0%

12.4.1.1 Severance

As the construction-related movements have not changed against the submitted ES Chapter for links 1 - 12, the impacts remain the same. As set out in the ES Chapter, Links 11 and 12 are anticipated to experience an increase in two-way HGV flows over 10%. It was previously concluded that due to the fact that Links 11 and 12 are currently used by very few HGVs, the percentage change in HGV traffic is over 10%, however the actual increase in two-way HGV flows (just 6 HGVs on both links) over the course of the AM and PM peak hours is not deemed to represent a significant increase given that the route provides good pedestrian facilities and the impacts of the construction period will be negligible.

Examining the daily flows for the additional links (13 – 17) none of the links experience an increase in two-way traffic flows of over 10%.

As a result, it is considered that the effect of the construction phase on severance is **Minor Adverse**. This is unchanged from the submitted ES Chapter.

12.4.1.2 Pedestrian Delay

As the construction-related movements have not changed against the submitted ES Chapter for links 1 - 12, the impacts remain the same. As set out in the ES Chapter, the following links will experience traffic flows of over 1,400 vehicles per hour:

- Link 1: A1057;
- Link 4: A1001;

- Link 8: A1(M) Northbound; and
- Link 9: A1(M) Southbound

The submitted ES Chapter concluded that although hourly two-way traffic flows are above 1,400 vehicles on each of the above links, the increases in vehicle flows as a result of the construction phase are considered to be small, especially in the context of the characteristics of each link, which are strategic in nature and all provide good pedestrian facilities. This remains true for the additional links (13 – 17) considered.

Therefore, the overall significance of the effect is therefore deemed to be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.1.3 Pedestrian Amenity

As described in **Table 12.4**, the impact of additional traffic on pedestrian amenity should only be considered where the change in traffic flows or HGV flows is more than 100%. No links are anticipated to experience an increase in traffic flows of 100% or more, and therefore the effect of the construction phase on pedestrian amenity is considered to be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.1.4 Driver Delay

As stated in **Table 12.4**, there are no specific thresholds for whether the magnitude of change is classed as High, Medium, Low or Negligible. Therefore, a judgement-based analysis has been undertaken, as described below.

The increase in traffic on any one link during the construction phase is not considered to be numerically significant, especially given the strategic nature of the study network. It is considered unlikely that the increase in traffic would result in an increase in delay at any one junction, especially when construction traffic is distributed across the network. The effect of the construction phase on driver delay can therefore be classed as a **negligible**. This is unchanged from the submitted ES Chapter.

12.4.1.5 Accidents & Safety

As stated in **Table 12.4**, there is no specific definition regarding the magnitude of change in relation to accidents and safety, and instead it is stated that a judgement will be needed to assess the implications of local circumstances or factors which may increase or decrease the risk of accidents.

The increase in HGV movements on across a 24-hour period is very low. These increases in traffic flows are therefore not considered to be significant enough to result in any increase in collisions. It is therefore concluded that the significance of the effect during the construction phase will be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.1.6 Public Transport

Workers employed during the construction phase will be encouraged to travel to the Site using sustainable modes of travel where possible.

Given the frequency of services that are available, it is not anticipated that any additional trips generated by employees during the construction phase will have a significant impact on the capacity of the local public transport network and may actually result in a benefit due to increased patronage prior

to the Development opening. As a result, the significance of the effect is concluded to be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.1.7 Summary of Effects during Construction

The effects of the Proposed Development during the construction phase are summarised below in **Table 12.12**. It should be noted that these effects are all temporary and long term due to the construction phase lasting more than 72 months.

Table 12.12: Summary of Effects during Construction

Description of Effect	Significance of Effect	
	Submitted ES Chapter	ES Chapter Addendum
Severance	Minor Adverse (Temporary)	Minor Adverse (Temporary)
Pedestrian Delay	Negligible (Temporary)	Negligible (Temporary)
Pedestrian Amenity	Negligible (Temporary)	Negligible (Temporary)
Driver Delay	Negligible (Temporary)	Negligible (Temporary)
Accidents & Safety	Negligible (Temporary)	Negligible (Temporary)
Public Transport	Negligible (Temporary)	Negligible (Temporary)

These effects remain unchanged from the submitted ES Chapter.

12.4.2 Operational Phase Effects

The additional vehicle movements on each link as a result of the Completed Development are summarised in **Table 12.13** (AADT), **Table 12.14** (Weekday AM Peak) and **Table 12.15** (Weekday PM Peak).

Following this, the transport and access effects of the Proposed Development have been assessed in relation to the key effects such as severance, pedestrian delay etc. It should be noted that the effects of the Development will be Permanent.

The 2036 future baseline year has been assessed as set out previously, with the below tables taking into consideration of the additional 5 links within the study area.

Table 12.13: 2036 Future Base + Development Traffic Flows (24 Hour AADT)

Link Ref	Link	2036 Future Base		2036 Future Base + Development		Net Change (%)	
		Tot Veh	HGV	Tot Veh	HGV	Tot Veh	HGV
1	A1057	17,863	753	18,161	753	+1.7%	0.0%
2	Coopers Green Lane	14,038	264	14,695	264	+4.7%	0.0%
3	Coopers Green Lane	13,997	211	14,654	211	+4.7%	0.0%
4	A1001	29,569	3,077	30,817	3,098	+4.2%	+0.7%
5	A1001 Southbound	14,951	1,556	15,071	1,556	+0.8%	0.0%
6	A1001 Northbound	16,433	1,710	16,521	1,710	+0.5%	0.0%
7	Hatfield Avenue	8,593	247	9,295	247	+8.2%	0.0%
8	A1(M) Northbound	57,735	8,282	57,735	8,282	0.0%	0.0%
9	A1(M) Southbound	59,262	7,832	59,262	7,832	0.0%	0.0%
10	Mosquito Way	11,566	493	12,099	493	+4.6%	0.0%
11	Mosquito Way	12,564	470	14,265	491	+13.5%	+4.5%
12	Albatross Way	2,173	241	4,682	262	+115.4%	+8.8%
13	A414 N Orbital Road	52,762	7,545	56,777	8,083	+7.6%	+7.1%
14	Roehyde Way	26,515	2,783	26,118	2,742	-1.5%	-1.5%
15	B197 Wellfield Road	23,009	983	23,338	997	+1.4%	+1.4%
16	Birchwood Avenue	12,499	529	12,619	534	+1.0%	+0.9%
17	A1001 Comet Way	20,234	2,035	20,751	2,103	+2.6%	+3.4%

Based on Table 12.13 above, on Link 13 there is an increase of circa 4,000 vehicles. However only 793 of these vehicles relate to development traffic and the remainder are as a result of redistribution of background traffic within the COMET model run. Therefore it can be seen that while the overall change is over 4,000 vehicles per day, the change just as a result of the development is significantly less (circa 20% of the total). As a result, it can be determined that the significant majority of the change on that link relates to traffic reassignment from other links in the network.

Table 12.14: 2036 Future Base + Development Traffic Flows (AM Peak)

Link Ref	Link	2036 Future Base		2036 Future Base + Development		Net Change (%)	
		Tot Veh	HGV	Tot Veh	HGV	Tot Veh	HGV
1	A1057	2,010	85	2,017	85	+0.3%	+0.3%
2	Coopers Green Lane	923	26	840	24	-9.0%	-9.0%
3	Coopers Green Lane	392	9	391	9	-0.2%	-0.2%
4	A1001	1,684	169	1,740	175	+3.3%	+3.3%
5	A1001 Southbound	429	43	443	44	+3.2%	+3.2%
6	A1001 Northbound	724	73	745	75	+2.9%	+2.9%
7	Hatfield Avenue	1,112	41	1,073	40	-3.5%	-3.5%
8	A1(M) Northbound	3,632	417	3,628	417	-0.1%	-0.1%
9	A1(M) Southbound	4,716	601	4,729	602	+0.3%	+0.3%
10	Mosquito Way	971	44	961	43	-1.1%	-1.1%
11	Mosquito Way	753	31	871	36	+15.7%	+15.7%
12	Albatross Way	205	16	240	19	+17.2%	+17.2%
13	A414 N Orbital Road	3,675	422	3,695	424	+0.5%	+0.5%
14	Roehyde Way	1,558	156	1,527	153	-2.0%	-2.0%
15	B197 Wellfield Road	1,967	88	1,998	90	+1.6%	+1.6%
16	Birchwood Avenue	900	40	902	41	+0.3%	+0.3%
17	A1001 Comet Way	1,007	101	1,089	109	+8.1%	+8.1%

Table 12.15: 2036 Future Base + Development Traffic Flows (PM Peak)

Link Ref	Link	2036 Future Base		2036 Future Base + Development		Net Change (%)	
		Tot Veh	HGV	Tot Veh	HGV	Tot Veh	HGV
1	A1057	1,641	69	1,787	75	+8.9%	+8.9%
2	Coopers Green Lane	980	7	858	6	-12.5%	-12.5%
3	Coopers Green Lane	675	3	611	3	-9.4%	-9.4%
4	A1001	1,858	105	1,889	107	+1.7%	+1.7%
5	A1001 Southbound	387	22	385	22	-0.5%	-0.5%
6	A1001 Northbound	875	50	776	44	-11.4%	-11.4%
7	Hatfield Avenue	996	18	1,093	20	+9.8%	+9.8%
8	A1(M) Northbound	3,775	367	3,687	358	-2.3%	-2.3%
9	A1(M) Southbound	4,544	327	4,973	358	+9.5%	+9.5%
10	Mosquito Way	867	35	965	39	+11.3%	+11.3%
11	Mosquito Way	1,288	44	877	30	-31.9%	-31.9%
12	Albatross Way	165	25	334	51	+102.6%	+102.6%
13	A414 N Orbital Road	4,108	399	4,681	455	+0.5%	+0.5%
14	Roehyde Way	1,618	92	1,587	90	-2.0%	-2.0%
15	B197 Wellfield Road	1,691	68	1,727	70	+1.6%	+1.6%
16	Birchwood Avenue	1,087	44	1,109	45	+0.3%	+0.3%
17	A1001 Comet Way	1,417	80	1,416	80	+8.1%	+8.1%

12.4.2.1 Severance

Examining the daily flows and peak hour flows presented in the table above, there are only three links which are anticipated to experience an increase in two-way traffic flows of over 10% (if classed as a sensitive link) or 30% for links with low sensitivity.

It is anticipated that total vehicle flows on Link 10 will increase by 11.3% in the PM peak based on the 2036 baseline year. The effect of the Completed Development on severance for Link 10 is therefore judged to be Minor Adverse.

Link 11 will increase by 13.5% across a 24 hour period and 15.7% in the AM peak based on the 2036 baseline year. The effect of the Completed Development on severance for Link 11 is therefore judged to be Minor Adverse.

Link 12 will increase by 115.4% across a 24 hour period, 17.2% in the AM peak, and 102.6% in the PM peak, based on the 2036 future baseline year. This is slightly lower than the increase expressed in the 2028 future baseline year in the submitted ES Chapter which predicted a 122.7% increase across a 24 hour period, 113.2% increase in the AM peak, and 136.8% increase in the PM peak. This is to be expected given that the 2036 future baseline presents higher traffic flows as a basis for net change. The increase on Link 12 still represent a substantial magnitude of effect and would therefore represent a Substantial Adverse effect, based on the criteria included in **Table 12.5**. It should be noted however, that this link is approximately 7.3m in width with segregated footways and cycleways and has been designed to accommodate high volumes of traffic. The link is currently lightly trafficked in the context of surrounding roads and therefore although the percentage change in traffic flows is over 100%, the actual change in vehicle numbers is not considered to be significant in the context of the link characteristics.

Given that no links other than Link 12 experience an increase in traffic flows of over 30%, it is considered that the overall effect of the Completed Development on the study area is **Minor Adverse**. This is unchanged from the submitted ES Chapter.

12.4.2.2 Pedestrian Delay

As described in **Table 12.4**, the impact of additional traffic on pedestrian delay should only be considered where traffic flows exceed 1,400 vehicles per hour, in the context of individual characteristics.

The following links will experience traffic flows of 1,400 vehicles per hour in the 2036 future baseline + development scenario are:

- Link 1: A1057
- Link 4: A1001
- Link 8: A1(M) Northbound
- Link 9: A1(M) Southbound
- Link 13: A414 N Orbital Road
- Link 14: Roehyde Way
- Link 15: B197 Wellfield Road
- Link 17: A1001 Comet Way

Although hourly two-way traffic flows are above 1,400 vehicles on each of the above links, the increases in vehicle flows as a result of the Completed Development are considered to be low in the context of the existing traffic flows and the characteristics of each link. All links are strategic in nature and provide adequate pedestrian facilities. As a result, the effect of the Completed Development on pedestrian delay on the links within the study area is considered to be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.2.3 Pedestrian Amenity

As described in **Table 12.4**, the impact of additional traffic on pedestrian amenity should only be considered where the change in traffic flows or HGV flows is more than 100%.

Only Link 12 is anticipated to experience an increase in traffic of more than 100%. Current traffic flows on this link are low, despite the link having been designed to accommodate high volumes of traffic. As a result, although the proportional increase in traffic is high, the actual increase in traffic is not considered to be significant. Good pedestrian facilities are provided in the form of a dedicated footway that is segregated from the carriageway by a grass verge. The effect of the Completed Development on pedestrian amenity for Link 12 is therefore considered to be Moderate Adverse and negligible on the remaining links.

The overall effect on pedestrian amenity can be classed as **Minor Adverse**. This is unchanged from the submitted ES Chapter.

12.4.2.4 Driver Delay

As stated in **Table 12.4**, there are no specific thresholds for whether the magnitude of change is classed as High, Medium, Low or Negligible. Therefore, a judgement based analysis has been undertaken, as described below.

As per the submitted ES Chapter, the increases in traffic on all links, with the exception of Link 12, are all below 30% and are therefore classed as experiencing a negligible magnitude of change. Link 12 is anticipated to experience an increase in traffic flows of over 100% which would be classed as a substantial magnitude of change. However, current traffic flows on this link are low, despite the link having been designed to accommodate high volumes of traffic. As a result, although the proportional increase in traffic is high, the actual increase in traffic is not considered to be significant and it is judged that the link and the associated junctions have capacity to accommodate the predicted increase vehicles without resulting in a significant delay to drivers. The effect of the Completed Development on Link 12 is therefore judged to be Minor Adverse.

The effect of the Completed Development on driver delay across the study area, given that the remaining links will not experience significant increases in traffic is classed as a **negligible**. This is unchanged from the submitted ES Chapter.

12.4.2.5 Accidents & Safety

As stated in **Table 12.4**, there is no specific definition regarding the magnitude of change in relation to accidents and safety, and instead it is stated that a judgement will be needed to assess the implications of local circumstances or factors which may increase or decrease the risk of accidents.

The increase in total vehicle and HGV movements on any one link across a 24 hour period is not considered to be significant in the context of the link characteristics. These increases in traffic flows are therefore not considered to be significant enough to result in any increase in collisions. It is therefore concluded that the significance of the effect of the Completed Development will be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.2.6 Public Transport

Future residents will be encouraged to travel sustainably where possible. As described in the original ES Chapter, a range of local bus services are accessible within the vicinity of the Site. It is also proposed that at least one bus service will be diverted through the site in order to serve future residents.

Given the frequency services that are available it is not anticipated that any additional trips generated by the Completed Development will have a significant impact on the capacity of the local public transport network and may actually result in a benefit due to increased. As a result, the significance of the effect is concluded to be **negligible**. This is unchanged from the submitted ES Chapter.

12.4.2.7 Summary of Effects of the Completed Development

The effects of the Completed Development are summarised below in **Table 12.16**. It should be noted that these effects are all permanent.

Table 12.16: Summary of the Completed Development

Description of Effect	Significance of Effect	
	Submitted ES Chapter	ES Chapter Addendum
Severance	Minor Adverse	Minor Adverse
Pedestrian Delay	Negligible	Negligible
Pedestrian Amenity	Minor Adverse	Minor Adverse
Driver Delay	Negligible	Negligible
Accidents & Safety	Negligible	Negligible
Public Transport	Negligible	Negligible

These effects remain unchanged from the submitted ES Chapter.

12.4.3 Cumulative Effects

The cumulative impacts of the Completed Development have been assessed within the overall impact assessment, as this included background traffic growth and traffic associated with a range of committed developments.

As such the cumulative impacts of the development are as set out within the operational effects section of this report, will result in a negligible cumulative impact on pedestrian delay, driver delay, accidents and safety and public transport, and a minor adverse impact on severance and pedestrian amenity.

12.5 MITIGATION

As both the constructional and operational traffic associated with the Proposed Development do not present any changes in impact levels against the submitted ES Chapter, the mitigation measures set out in the original ES Chapter remain the same, as set out below.

During construction:

- Construction Traffic Management Plan (CTMP).

During operation:

- Residential Travel Plan;
- School Travel Plan;
- Parking Strategy;
- Bus Strategy;
- Pedestrian facilities; and
- Cycle facilities

12.6 RESIDUAL EFFECTS

12.6.1 During Construction

The residual effects of the Proposed Development during the construction phase, following mitigation outlined previously, are unchanged from those presented in **Table 12.12**. It should be noted that these residual effects are Temporary. The residual effects are summarised below in **Table 12.17** and the residual effects are unchanged compared to the submitted ES Transport Chapter.

Table 12.17: Summary of Residual Effects during Construction

Description of Effect	Significance of Effect
Severance	Minor Adverse (Temporary) (not significant)
Pedestrian Delay	Negligible (Temporary) (not significant)
Pedestrian Amenity	Negligible (Temporary) (not significant)
Driver Delay	Negligible (Temporary) (not significant)
Accidents & Safety	Negligible (Temporary) (not significant)
Public Transport	Negligible (Temporary) (not significant)

12.6.2 During Operation

The residual effects of the Proposed Development during the construction phase, following mitigation outlined previously, are unchanged from those presented in **Table 12.16**. It should be noted that these residual effects are Permanent. The residual effects are summarised below in **Table 12.18** and the residual effects are unchanged compared to the submitted ES Transport Chapter.

Table 12.18: Summary of Residual Effects of the Completed Development

Description of Effect	Significance of Effect
Severance	Minor Adverse (not significant)
Pedestrian Delay	Negligible (not significant)
Pedestrian Amenity	Minor Adverse (not significant)
Driver Delay	Negligible (Permanent) (not significant)
Accidents & Safety	Negligible (Permanent) (not significant)
Public Transport	Negligible (Permanent) (not significant)

12.7 SUMMARY OF EFFECTS

The potential transport impacts associated with the updated baseline and future baseline data, and 5 additional links within the study area have been assessed using established methodologies set out in the IEMA Guidelines, as covered in the original ES Chapter.

A summary of the effects during the construction phase and during operation is presented in **Table 12.19** and it is noted that the effects are unchanged compared to the submitted ES Transport Chapter..

Table 12.19: Summary of Effects

Description of Effect	Effect	Mitigation	Residual Effect
During Construction (Temporary)			
Severance	Minor Adverse (not significant)	CTMP	Minor Adverse (not significant)
Pedestrian Delay	Negligible (not significant)		Negligible (not significant)
Pedestrian Amenity	Negligible (not significant)		Negligible (not significant)
Driver Delay	Negligible (not significant)		Negligible (not significant)
Accidents & Safety	Negligible (not significant)		Negligible (not significant)
Public Transport	Negligible (not significant)		Negligible (not significant)
During Operation (Permanent)			
Severance	Minor Adverse (not significant)	Cycle parking, diversion of bus services, pedestrian and cycle links, Travel Plans	Minor Adverse (not significant)
Pedestrian Delay	Negligible (not significant)		Negligible (not significant)
Pedestrian Amenity	Minor Adverse (not significant)		Minor Adverse (not significant)
Driver Delay	Negligible (not significant)		Negligible (not significant)
Accidents & Safety	Negligible (not significant)		Negligible (not significant)
Public Transport	Negligible (not significant)		Negligible (not significant)

12.8 CONCLUSIONS

In conclusion, this ES Chapter Addendum provides an update to the submitted ES Chapter to include updated baseline and future baseline data to take account of a 2036 future base year, as set out in the Local Transport Run 4 (LP4), and to include the addition of 5 new links within the study area following the comments received on the ES Chapters from Air Quality and Noise.

In conclusion, this assessment demonstrates that during the construction and operational phases of the Development the residual effect will not be significant in relation to severance, pedestrian delay, pedestrian amenity, driver delay, accidents and safety, and public transport and this is unchanged compared to the submitted ES Transport Chapter.