APPENDIX 5.1 – SUMMARY OF TRAFFIC DATA

Description	Average Speed (kph)		Baseline 2019		2030 Without Development		2030 With Development	
	Freeflow	Junction/ Congestion	AADT Traffic Flows	HDV (%)	AADT Traffic Flows	HDV (%)	AADT Traffic Flows	HDV (%)
Woodville Road (east of Stuart Road)	32	15	1,162	8.4%	1,242	8.4%	1,509	6.8%
Asburnham Road (east of Sheridan Road)	32	15	2,102	9.5%	2,247	9.5%	2,460	8.6%
Woodville Road (west of Stuart Road)	32	15	1,009	3.3%	1,079	3.3%	1,292	2.7%
Ashburnham Road (west of Stuart Road)	32	15	2,074	9.7%	2,217	9.7%	2,430	8.8%
Wiggins Lane	32	15	1,338	12.5 %	1,430	12.5 %	1,697	10.4%
Ashburnham Road (east of Ham Close)	32	15	2,274	9.0%	2,431	9.0%	2,698	8.1%
Ham Street (north of Ashburnham Road)	32	15	2,900	7.5%	3,101	7.5%	3,378	6.8%
Ham Street (south of Ashburnham Road)	32	15	1,423	2.4%	1,522	2.4%	1,634	2.2%
Ham Street (north of Wiggins Lane)	32	15	3,500	6.9%	3,741	6.9%	4,163	6.1%
Sandy Lane	32	15	4,336	6.5%	4,636	6.5%	5,058	5.9%
A307 (north of Sandy Lane)	32	15	16,388	5.6%	17,521	5.6%	17,868	5.5%

A307 (south of Sandy Lane)	32	15	13,266	5.0%	14,183	5.0%	14,257	4.9%

APPENDIX 5.2 VERIFICATION AND ADJUSTMENT OF MODELLED CONCENTRATIONS

Nitrogen Dioxide (NO_2)

Most nitrogen dioxide (NO_2) is produced in the atmosphere by reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions. Verification of concentrations predicted by the ADMS model has followed the methodology presented in LAQM.TG (16).

The model has been run to predict annual mean road-NOx concentrations at one nearby monitoring site.

The model output of road-NO_x (i.e. the component of total NOx coming from road traffic) has been compared to the 'measured' road-NO_x (Table 5.3.1). The 'measured' road NO_x has been calculated from the measured NO2 concentrations by using the Defra NO_x to NO_2 calculator available on the UK-AIR website.

Table 5.3.1 Comparison of Modelled and Monitored NO_x Concentrations

Monitoring Location	Total Monitored NO_2	Background NO_2	Monitored Road NO_x	Modelled Road NO_x	Ratio
29	27	18.5	19.8	7.9	2.49

The results in Table 6.3.1 indicate that the ADMS model under-predicted the road NO_x concentrations at the selected monitoring site. An adjustment factor was therefore determined as the ratio between the measured road-NO_x contribution and the modelled road-NO_x contribution forced through zero (2.49). This factor has then been applied to the modelled road-NO_x concentration for each location to provide an adjusted modelled road-NO_x concentration.

The annual mean road-NO_2 concentration was determined using the Defra NO_x:NO_2 spread sheet calculation tool and added to the background NO_2 concentration to produce a total adjusted NO_2 concentration.

Particulate Matter (PM_{10} and $PM_{2.5}$)

There was insufficient roadside monitoring data available against which the modelling could be verified. Consequently, the verification factor determined above for adjusting the road-NO_x contribution has been applied to the predicted road-PM_{10} and road-$PM_{2.5}$ contributions, consistent with guidance provided in LAQM.TG (16).