JUBB EXTENSION REPORT to the

JUBB Supplementary Report to East Grinstead and Surrounds November 2014 Survey and Review of Traffic Conditions.

Headline Summary Report V3 March 2015. A22 Junctions 6 day Survey.

23rd March 2015 see MSDC planning application file Ref DM/15/0429

Providing

A22 JUNCTION CAPACITY MODELLING REPORTS Including the Impact of Planning Application DM/15/0429 at Hill Place Farm East Grinstead.

Section 2 Detailed and Consolidated Information and Findings Report

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Section 2 Detailed and Consolidated Information and Findings Report

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1.0 MODELLING METHODOLOGY AND DOCUMENTATION.

- 1.1. This report extends the scope of the Jubb "Supplementary Report to East Grinstead and Surrounds of Traffic Conditions Headline Summary Report V3, March 2015 (A22 Junctions 6 day Survey)" by evaluating the results from 'Capacity Modelling' of the acutely congested A22* Felbridge, Imberhorne and Lingfield junctions. *Quote WSCC Transport Plan 2011-2016 February 2011 page 62.
- 1.2. The modelling approach adopted by Jubb is compliant with the Transport Assessment requirements stipulated in 'MSDC Validation Criteria for planning applications, *local requirements* June 2015 Transport Assessment for residential development of 50 or more units '. This references, for guidance, West Sussex County Council Transport Assessment Methodology [June 2007] see Section 10.5.
- 1.3. Jubb have developed the LINSIG and ARCADY traffic models for these junctions, LINSIG Imberhorne and Felbridge Junctions, ARCADY Lingfield Junction, for the critical network peak hours and provides a quantitative assessment of existing and forecast network conditions [2019, 2021] for the two Jubb surveys.

BASE TRAFFIC MODEL

- 1.4. Signal Staging plans and junction layouts have been abstracted from the transport assessments submitted in support of the neighbouring committed developments [as defined for Lingfield Road Mini -Roundabout; Felbridge A22/A264 Junction; Imberhorne Lane/A264 Junction as below] to establish a calibrated traffic model for the identified junctions These were subsequently validated taking into account the observed exit blocking to replicate the lost capacity and thus the observed queueing length recorded Jubb Survey March 2015.
- 1.5. The calibration and validation of the baseline traffic model has been carried out in compliance with Transport for London (TfL) Guidance on Traffic modelling, which is defined as:
 - Calibration " a model which has correct geometric and signal timing inputs but does not contain flows or signal timing adjustments for demand –dependency or exit blocking"
 - Validation "a calibrated model but taking into account any measured demand dependency and exit blocking to allow degree of saturation within 5% of observed values and average queue length at the start of green approximately equal to observed values"

1.6. The modelling approach for each junction is summarised below:

• Lingfield Road Mini-Roundabout

The geometry input for this 3-arm mini roundabout was measured from an OS Map with amendments made to account for the road markings and capacity constraints observed onsite.

To validate the skeleton model, adjustment to the capacity intercept have been applied to simulate the unbalanced lane usage and thus replicate the recorded queueing length of the March 2015 6-days survey profile.

Approaches		March Survey Queue(pcu)	Year 2015 Base Model ARCADY Queue(pcu)		
	AM	PM	AM	PM	
The A22 North	160	136	161	134	

Table 1.1 Lingfield Road RA - Observed Queue vs Modelled Queue

Felbridge A22 / A264 Junction

The geometric and signal timing inputs were abstracted from the Transport Statement submitted in support of a residential development at Crawley Hill (Ref:13/04364). The skeleton model was accepted by Surrey County Council as a calibrated base.

In order to reflect the exit blocking as observed along the A22 London Road towards East Grinstead Town Centre during the March 2015 in car video surveys, Underutilised Green Time (UGT) were also applied. UGT accounts for both waste green time due to exit blocking during which traffic is stationary and subsaturated flow during which traffic is slow moving due to downstream queuing and congestion.

This is in line with LINSIG best practice and in compliance with the recommended validation approach stated in TfL's guidance on Traffic Modelling.

Approaches		March Survey Queue(pcu)	Year 2015 Base Model LINSIG Queue(pcu)		
	AM	PM	AM	PM	
The A264	140	122	135	125	
The A22 North	54	36	50	32	
The A22 South	49	63	50	53	

Table 1.2 Felbridge Junction - Observed Queue vs Modelled Queue

• Imberhorne Ln/ A264 Junction

A similar approach was also adopted in establishing a validated LINSIG model for the Imberhorne Ln/A264 Junction with the geometric input and 2010 turning counts obtained from the supporting TA for Bridge Park Retail Development.

The signal staging plan has been measured onsite with Underutilised Green Time applied to replicate the observed queuing length due to exit blocking back from downstream.

Approaches		March Survey Queue(pcu)	Year 2015 Base Model LINSIG Queue(pcu)		
	AM	PM	AM	PM	
Imberhorne Ln	92	52	84	52	
The A22 North	57	55	68	45	
The A22 South	191	125	190	126	

Table 1.3 Imberhorne Junction - Observed Queue vs Modelled Queue

BASELINE TRAFFIC DATA

- 1.7. In order to establish a baseline traffic condition, historical turning movements have been abstracted from the Atkins Stage 3 East Grinstead Traffic Management Study and Transport Assessment submitted in support of the neighbouring committed developments as follows:
 - Lingfield Road Mini-Roundabout 2011 turning counts were abstracted from Atkins Stage 3 East Grinstead Traffic Management Study.
 - **Felbridge A22 / A264 Junction** -2013 turning movements were also taken from the supporting TA for the Crawley Hill Development.
 - Imberhorne Ln/ A264 Junction 2010 traffic counts were obtained from the supporting TA for Bridge Park Retail Development.
- 1.8. Local growth factors for East Grinstead have been established using TEMPRO 6.2 and NTM 2009 for Urban –All Roads to lift up the survey data to a year 2015 baseline condition.

Period	AM	PM
Year 2010 - Year 2015	1.0269	1.0287
Year 2011 - Year 2015	1.0234	1.0246
Year 2013 - Year 2015	1.0115	1.0121

Table 1.4 Base Year -Traffic Growth

1.9. An assessment year of 2019 and 2021 is also proposed to be consistent with Atkins Stage 3 Study and the neighbouring development:

Period	AM	PM
Year 2015 - Year 2019	1.0595	1.0608
Year 2015 - Year 2021	1.0867	1.0889

Table 1.5 Future Year -Traffic Growth

COMMITTED DEVELOPMENT TRAFFIC

1.10. It is understood that approximately EG 485 residential dwellings with planning consent to be built out within 5 years from April 2015(* with a total of 560 dwelling approved and committed). To understand the significance of associated development impact, vehicle trip rates and distribution that were adopted within Atkins Stage 3 Report have been employed to establish the anticipated development traffic along the study network.

* Mid Sussex District Council -May 2015 Table 1 - Assessment findings: Commitments Sites within the planning process

EG Committed		Traffic Generation					
		IN	OUT	IN	OUT		
Vehicle Trip	Rates	0.15	0.41	0.39	0.22		
485 Dwelli	73	199	189	107			
Direction	%	Traffic Distribution					
A264W	36%	26	72	68	39		
A264E	8%	6	16	15	9		
A22N	19%	14	39	37	21		
A22S	19%	14	37	36	20		
B2110	7%	5 13 12 7					
Lingfield Rd	4%	3 9 8 5					
Imberhorne Ln	7%	5	13	13	7		

Table 1.6 EG Committed Development Traffic

- 1.11. It is understood an outline planning permission was recently granted to a 500 home development at Copthorne Village (CV) to the west of the M23 Junction 10. The submitted TA in support of this outline application indicated that a 2-way flow level of 69 vehicle movements will travel to/from East Grinstead direction along the A264 Copthorne Road via Turners Hill Roundabout during the weekday AM peak whereas 25 vehicles is predicted for PM Peak.
- 1.12. The percentage increase as result of these committed developments (EG 485 dwellings + CV) along the A22 corridor at the Felbridge, Imberhorne and Lingfield

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Junctions during both AM and PM peak are summarised as table 2.1 in Section 2 with traffic flow presented in **Section 3 Traffic Diagrams – Committed Developments**.

HILL PLACE FARM DEVELOPMENT

- 1.13. The proposed 200 housing scheme is located on the southern fringe of East Grinstead and bordered by the B2110 to the west and the railway line to the east. The site is to the south of an existing residential estate and surrounded by a large rural area.
- 1.14. The supporting study submitted by I Gledhill stated that the impact on A22 corridor amounts to 42 vehicles in the AM peak and 46 vehicles in the PM peak. These increased traffic flows would not be focussed through a single junction but would be dispersed across the network. The distribution of the anticipated development traffic along the A22 corridor is in accordance with the TA developed by Vectos with associated traffic diagrams included within Section 3 Traffic Diagrams Hill Place Farm Development.

Atkins Stage 3 Do –Minimum

1.15. In order to release the capacity of the A22 Corridor and thus deliver an urgently needed highway solution, a package of highway enhancements, "Do minimum options" is proposed as part of the Atkins Stage 3 Study as follows:

Junction	Do Minimum Network Optimisation
Felbridge Junction (Drawing	Signal optimisationWiden pedestrian islands to 1.5m
5107918/TP/PD/101)	•
A22 London Rd / Imberhorne Ln	Signal optimisation
A22 London Rd/Lingfield Rd (Drawing 5107918/TP/PD/301)	 Proposed WSCC signalisation as per Drawing No. 13823, without advanced stop lines Proposed dimensions match the proposed WSCC scheme

Table 1.7 Atkins Study Stage 3 – Do Minimum Proposal

1.16. In order to assess the impact of the proposed highway enhancements, the following adjustment have been made for the each individual junctions:

Junction	Traffic Modelling
Felbridge Junction	Adopting the calibrated and validated 2015 model as a base with: • Signal Timing optimised to minimise the total junction delay • Geometric input have been revised in accordance with Drawing 5107918/TP/PD/101
A22 London Rd / Imberhorne Ln	Adopting the calibrated and validated 2015 model as a base with: • Signal Timing optimised to minimise the total junction delay
A22 London	A new LINSIG Model was established with:
Rd/Lingfield Rd	 Geometric input revised in accordance with Drawing 5107918/TP/PD/301

Table 1.8 Atkins Study Stage 3 - Traffic Modelling

ASSESSMENT SCENARIOS

- 1.17. In order to deliver a robust capacity analysis and thus a systematic impact study, the baseline traffic models have been calibrated and validated in accordance with the queueing delay obtained from the March 2015 traffic surveys respectively.
- 1.18. These validated models were then adopted as a base to predict the impact of the committed and upcoming developments in the area and subsequently the proposed do minimum highway enhancements proposed within Atkins Stage 3 Report.
- 1.19. Future year analysis for 2019 and 2021 are also proposed to be consistent with the Atkins Stage 3 Corridor Study and the Transport Assessment for Hill Place Farm Development.
- 1.20. The proposed testing scenarios are summarised as follows with associated Traffic Diagrams included within Section 3 Traffic Diagrams. This is consistent with WSCC guidance on Transport Assessment.
 - Baseline Year 2015
 - Existing Condition Year 2015 March
 - Committed Dev Impact Year 2015 March + Approved EG Committed
 Development + Copthorne Village

- Opening Year 2019
 - Predicted Do Nothing Traffic Year 2015 March x Growth
 - Opening Year Do-minimum traffic Year 2019 Baseline Condition + Approved
 EG Committed Development + Copthorne Village
 - Opening Year Do-something Year 2019 Baseline Condition + Approved EG
 Committed Development + Copthorne Village + Atkins Stage 3 Do Minimum
 Highway Enhancements + Hill Place Farm Developments
- Assessment Year 2021
 - Predicted Do Nothing Traffic Year 2015 March x Growth
 - Design Year Do-minimum Traffic Year 2021 Baseline Condition + Approved
 EG Committed Development + Copthorne Village
 - Assessment Year Do Minimum Year 2021 Baseline Condition + Approved EG
 Committed Development + Copthorne Village + Atkins Stage 3 Do Minimum
 Highway + Hill Place Farm Developments

2 IMPACT OF APPROVED DEVELOPMENT AND HPF PLANNING APPLICATION ON A22 JUNCTIONS

2.1 Table 2.1 as per Table Section 5 page 11 Headline Summary V3 February 2015 shows the AM and PM impact on by pcu and % increase for 485 EG Dwellings and Copthorne Village West separately and then cumulating total for Felbridge, Imberhorne and Lingfield Junctions.

Table 2.1 Increased Peak Hour Total Traffic Inflow by Junction
- Total Volume and % Increase above 2015 levels

Junction	AM Peak Traffic (pcu)							
	Total 2015 Vol.	Com Dev Vol.	*EG Dev	**CVW	% Inc.			
The A22 / Lingfield Rd	2269	180	139	41	7.9%			
The A22 / Imberhorne Ln	2575	233	164	69	9.0%			
The A22/ A264 Felbridge Junction	2390	220 151		69	7.5%			
Junction	PM Peak Traffic (pcu)							
	Total 215 Vol.	Com Dev Vol.	*EG Dev	**CVW	% Inc.			
The A22 / Lingfield Rd	2406	168	151	17	7.0%			
The A22 / Imberhorne Ln	2484	204	179	25	8.2%			
The A22/ A264	2634	189	164	25	7.2%			

^{*}EG Dev – 485 approved housing development

- 2.2 As can be seen above, the EG 485 Approved Housing Developments together with the traffic inflow from Copthorne Village West will, when built/occupied, have a material additional impact on the key junctions of the Local Highway Network. This is illustrated in Table 2.1 by the total peak hour traffic inflows across all the key junctions increasing by
 - 220 pcus at A22/A264 east and by 233 pcus atA22/Imberhorne Lane in the AM
 Peak of which equivalent to an 8% and 9% increase respectively over 2015
 traffic levels.
 - For PM peak, an increase in excess of 7% in total junction inflow is predicted at the junctions along the A22 corridors ranging from 168 to 204 pcu.

^{**} Copthorne Village West Development

- 2.3 The associated Traffic Flow Diagrams are included within **Section 3** Traffic showing pcus as per appendix 9A/9B in the Headline Summary V3 February 2015.
- 2.4 Based upon the transport study submitted in support of the Hill Place Farm Development, the anticipated additional development impact along the A22 northern corridor will be 42 vehicles in the AM peak and 46 vehicles in the PM peak. These flows have been used in the modelling, however we are of the opinion that actual development related flows may be higher along the A22.
- 2.5 These were subsequently distributed at the three key junction in compliance with the methodology adopted in the Vectos Transport Assessment with the associated traffic diagrams included within **Section 3**.
- 2.6 The resultant percentage increase as result of the HPF development traffic are summarised as follows:

Junction	Traffic Inflow Increase - pcu				
Junction	AM	PM			
Felbridge junction	38	42			
Imberhorne junction	38	42			
Lingfield junction	42	46			
Lunation	Traffic Inflow Increase - % (upon 2015 level)				
Junction	AM	PM			
Felbridge junction	1.7	1.7			
Imberhorne junction	1.5	1.7			
Lingfield junction	1.8	1.7			

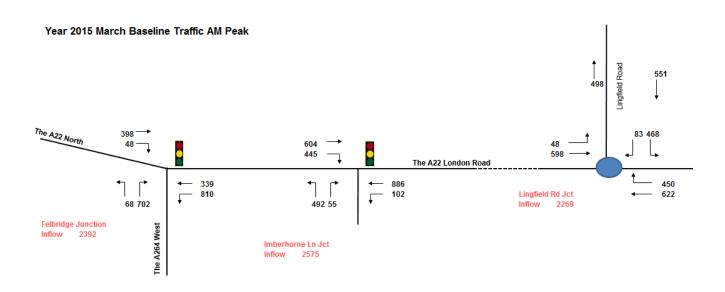
Table 2.2 - Hill Place Farm Traffic Impact

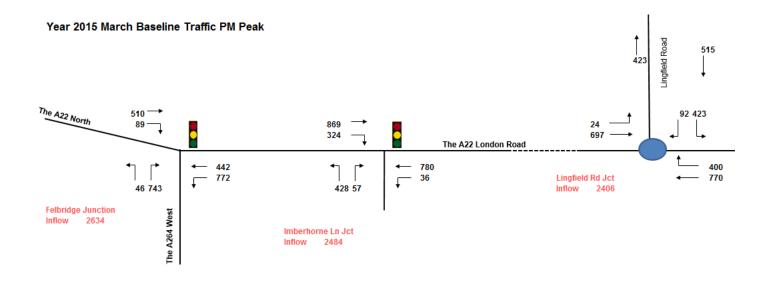
- 2.7 HPF will result in an average increase of 1.7% in the total inflow level at each junction reaching 1.8% at the Lingfield junction during the AM upon the 2015 baseline profile. This is in addition to the substantial 7-8% average traffic inflow coming onto each junction from already approved/committed dwellings not built or occupied.
- 2.8 Vectos suggest that such an increase would be insignificant in comparison to the existing flow level and can be mitigated through the Atkins Stage 3 Do Minimum Highway Enhancement.
- 2.9 However, no junction assessments have been carried out as part of Vectos TA to justify their conclusion, especially when severe congestion already witnessed on the A22. This is contrary to the WSCC's Guidance on Transport Assessment stating in para 10.5.1 "junction capacity tests should be carried out at if an increase of 10 or more vehicles as result of the development proposals is anticipated at a junction already experiencing peak period congestion"

3 TRAFFIC DIAGRAMS

- 3.1 As part of the study, traffic diagrams have been produced in accordance with WSCC Transport Assessment Guidance Para.10.5.1 as follows:
 - a. Base Year 2015 March Modelled Traffic
 - b. Committed Development Traffic
 - b1 EG Committed 485 Dwellings Development Traffic
 - b2 Copthorne Village Development Traffic
 - c. Base Year 2015 March Do minimum Traffic = a + b
 - d. Opening year 2019 do-nothing traffic = a + growth
 - e. Opening Year 2019 Do minimum Traffic = d + b
 - f. Opening Year 2019 Proposed Development Traffic Hill Place Farm Traffic
 - g. Opening Year 2019 Total Traffic = e + f
 - h. Assessment year 2021 do-nothing traffic = a + growth
 - i. Assessment Year 2021 Do minimum Traffic = h + b
 - j. Assessment Year 2021 Total Traffic = i + f
 - k. Sensitivity Test Base Year 2015 Total Traffic = c + f

a. Base Year 2015 March Modelled Traffic

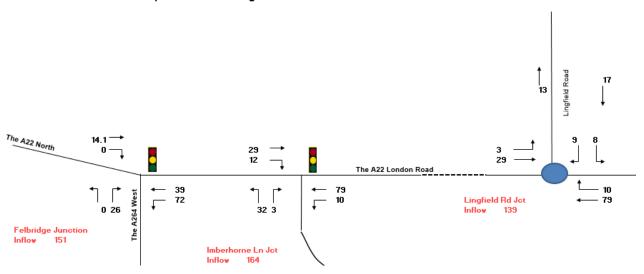


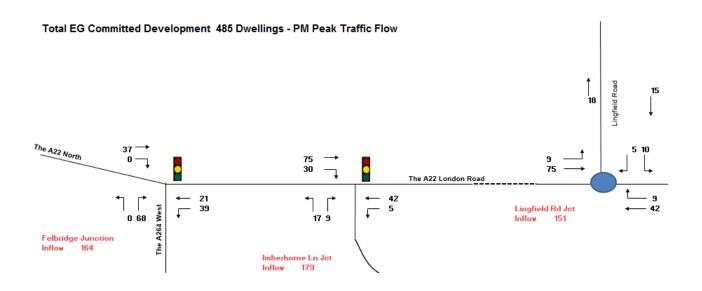


b. Committed Development Traffic

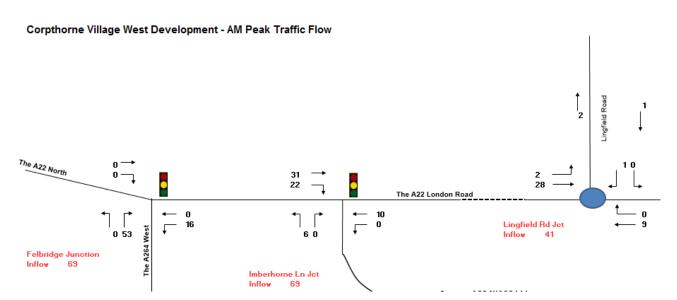
- b1 EG Committed 485 Dwellings Development Traffic

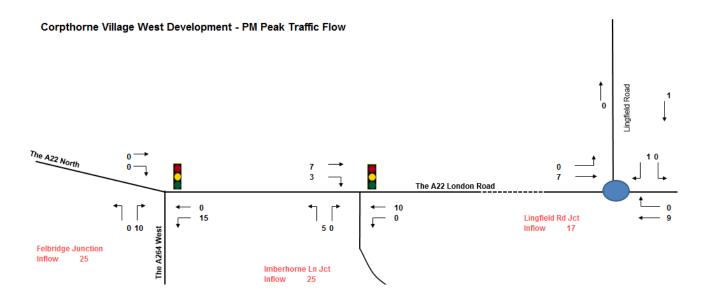
Total EG Committed Development 485 Dwellings - AM Peak Traffic Flow



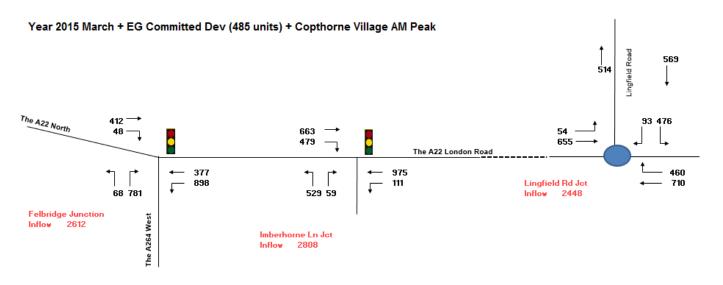


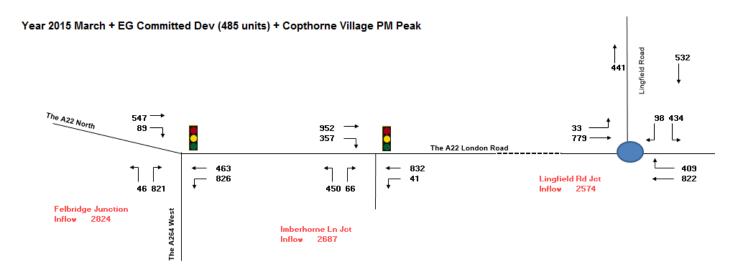
- b2 Copthorne Village Development Traffic



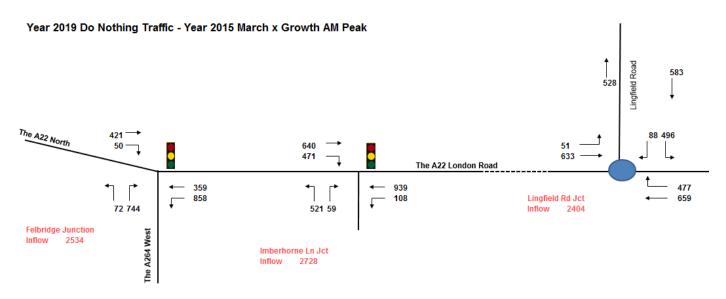


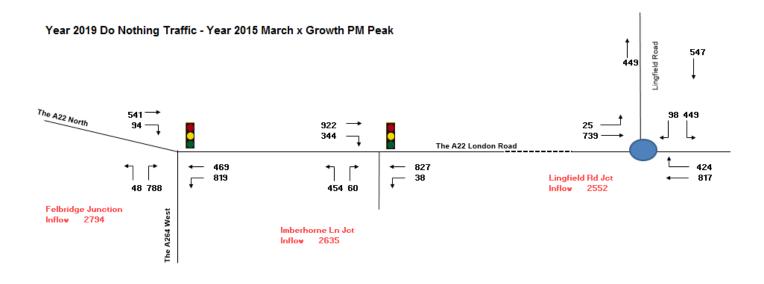
c. Base Year 2015 March Do minimum Traffic = a + b



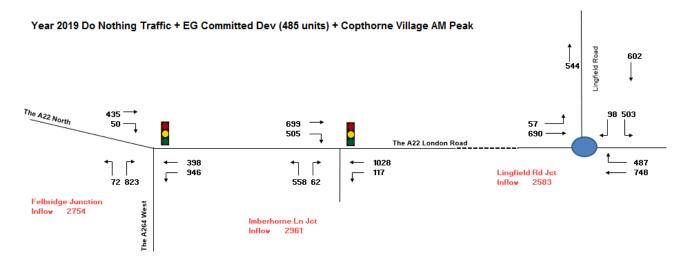


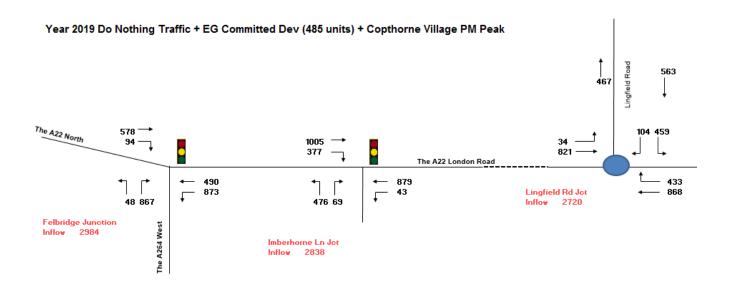
d. Opening year 2019 do-nothing traffic = a + growth



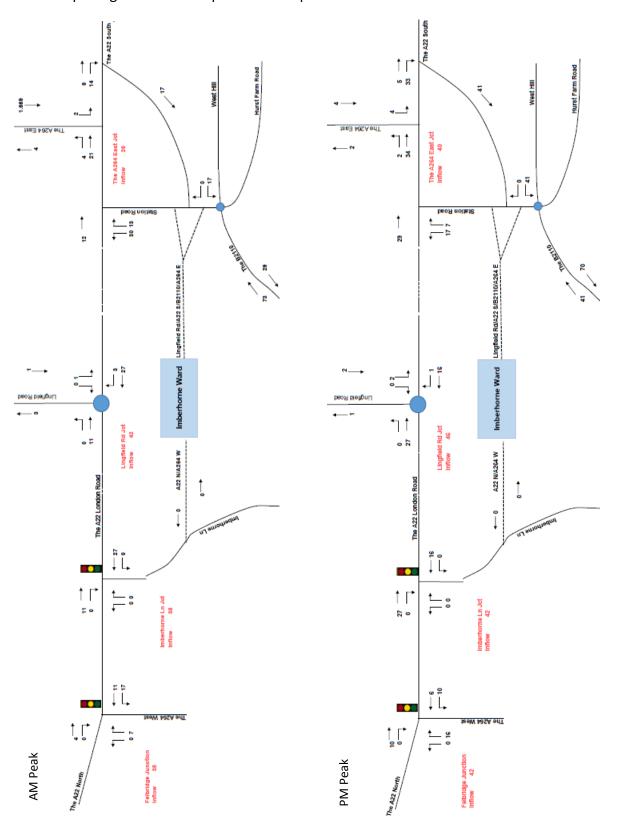


e. Opening Year 2019 Do minimum Traffic = d + b

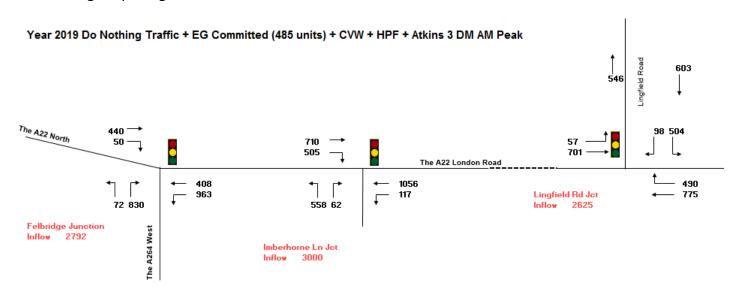


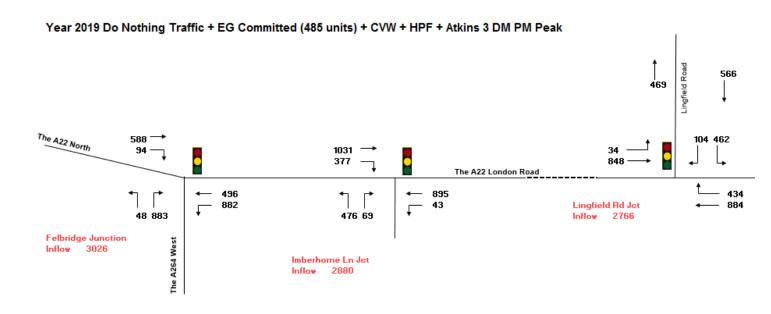


f. Opening Year 2019 Proposed Development Traffic – Hill Place Farm Traffic

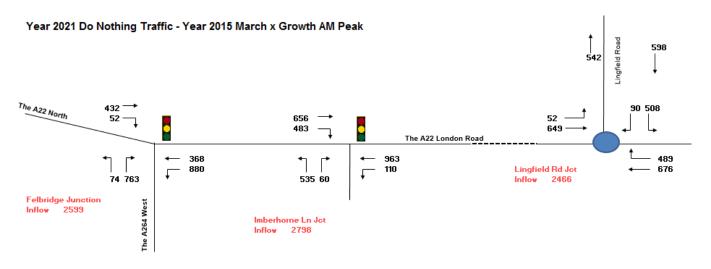


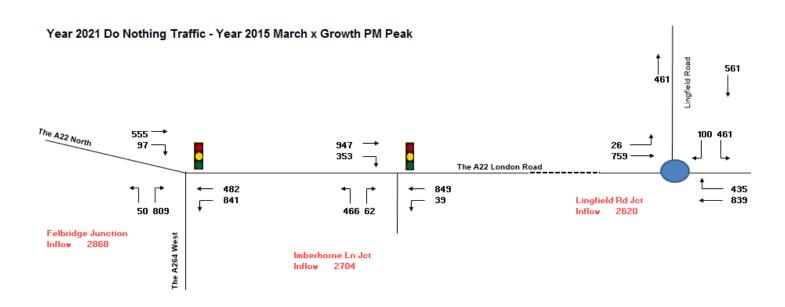
g. Opening Year 2019 Total Traffic = e + f



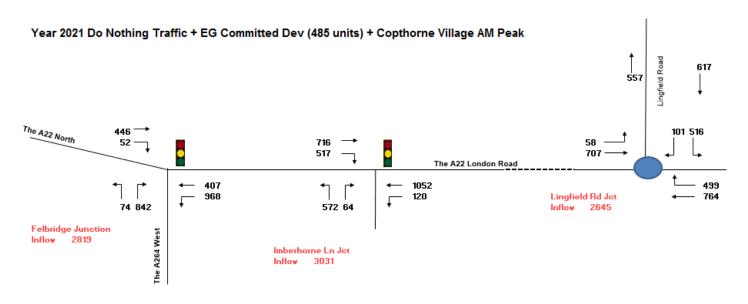


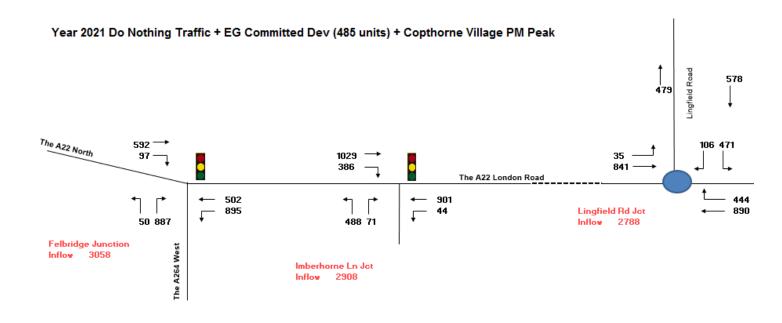
h. Assessment year 2021 do-nothing traffic = a + growth



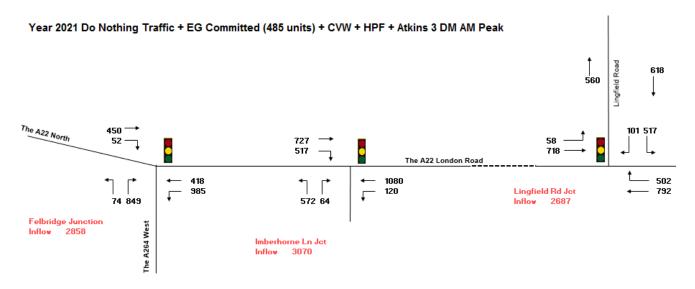


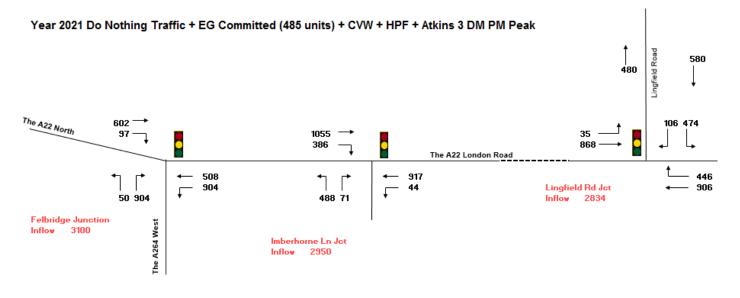
i. Assessment Year 2021 Do minimum Traffic = h + b



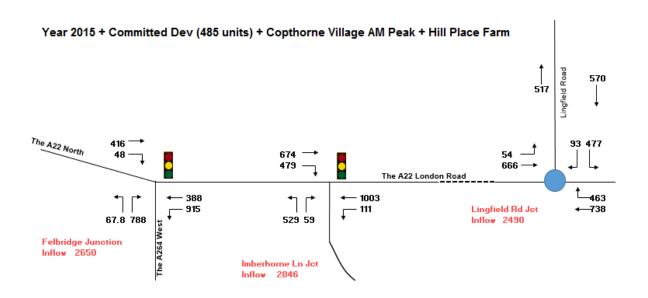


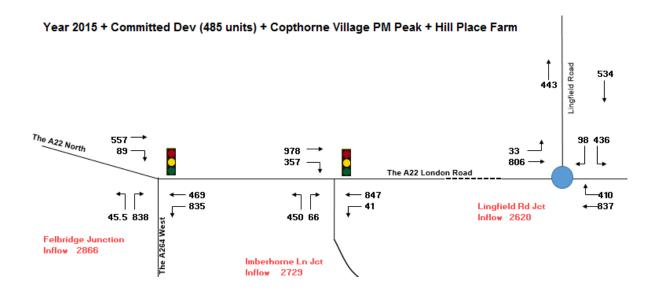
j. Assessment Year 2021 Total Traffic = i + f





k. Sensitivity Test – Base Year 2015 Total Traffic = c + f





4 DETAILED MODELLING RESULTS

4.1 In order to assess the impact of the approved committed developments, the Atkins Stage 3 Do Minimum Highway Enhancements and the proposed Hill Place Farm Development, traffic modelling was carried out at the key junctions for the following scenarios:

		Existing Junction Layout								
Junctions/Network	Baseline Scenarios / Do nothing			Plus Committed Dev of 485 untis + Copthorne Village			Plus Committed Dev of 485 untis + Copthorne Village + Hill Place Farm			
	Year 2015	Opening Year 2019	Assessment Year 2021	Year 2015	Opening Year 2019	Assessment Year 2021	Year 2015	Opening Year 2019	Assessment Year 2021	
Felbridge Junction	Table 1	Table 13	Table 25	Table 4	Table 16	Table 28	Table 43	Table 37	Table 40	
Imberhorne Lane	Table 2	Table 14	Table 26	Table 5	Table 17	Table 29	Table 44	Table 38	Table 41	
Lingfield Rd RA	Table 3	Table 15	Table 27	Table 6	Table 18	Table 30	Table 45	Table 39	Table 42	

	Atkins Stage 3 Do Minimum								
Junctions/Network		mmitted Dev o Copthorne Vi		Plus Committed Dev of 485 untis + Copthorne Village + Hill Place Farm					
	Year 2015	Opening Year 2019	Assessment Year 2021	Year 2015	Opening Year 2019	Assessment Year 2021			
Felbridge Junction	Table 7	Table 19	Table 31	Table 10	Table 22	Table 34			
Imberhorne Lane	Table 8	Table 20	Table 32	Table 11	Table 23	Table 35			
Lingfield Rd RA	Table 9	Table 21	Table 33	Table 12	Table 24	Table 36			

4.2 The detailed modelling results for each individual junctions are summarised below. From these tables a summary have been made to include in Section 1 Headlines Summary Report in Appendix A, B, and D to ease reference to the tables.

4.3 FELBRIDGE JUNCTION

EXISTING LAYOUT TABLES

SURVEY YEAR 2015

			,	Year 2015	5 March			
Table 1	ммQ	DOS%	PRC	Delay (s)	MMQ	DOS%	PRC	Delay (s)
Existing Layout		АМ				F	PM	
A22 Eastbourne Road (N)	50	118.50%		362	32	103.50%		147
A22 London Road (S)	50	106.20%	-54.10%	144	53	104.80%	-47.40%	125
A264 Copthorne Rd	135	138.60%		577	125	132.70%		513

Table 1 Year 2015 Baseline Condition

Table 4	Year	2015 Mar			G Appro		itted Dev	(485	
Table 4	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC							
Existing Layout		AM P	eak			PM I	Peak		
A22 Eastbourne Road (N)	59	122.60%		414.45	53	110.90%		248	
A22 London Road (S)	119	118.10%	-71.20%	307	89	109.80%	-62.70%	198	
A264 Copthorne Rd	183	154.10%		719.5	171	146.40%		652	

Table 4 Baseline + EG Approved Committed Dev [485 units] + Copthorne Village

Table 43	Year 2	2015 Base	line + * E0		ved Con HHPF	nmitted De	ev (485 Uı	nits) +
Table 43	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC						
Existing Layout		AM P	eak			PM I	Peak	
A22 Eastbourne Road (N)	61	123.80%		429	59	112.80%		276
A22 London Road (S)	144	121.60%	-72.70%	352	100	111.20%	-66.00%	219
A264 Copthorne Rd	187	155.40%		731	181	149.40%		679

Table 43 Baseline + EG Approved Dev [485 units] + CV + Hill Place

OPENING YEAR 2019

			Yea	ar 2019	Do Noth	ning		
Table 13	ммQ	DOS%	PRC	Delay (s)	MMQ	DOS%	PRC	Delay (s)
Existing Layout		AM				P	M	
A22 Eastbourne Road (N)	64	125.30%		446.4	50	109.80%		232
A22 London Road (S)	82	112.50%	-63.30%	231.2	98	111.20%	-56.30%	219
A264 Copthorne Rd	161	146.90%		657.2	152	140.70%		597

Table 13 Opening Year 2019 Do Nothing – Baseline Condition

Table 16	Year 2	019 Base			proved Committed Dev (485 Units) + property Delay					
Table 10	MMQ	MMQ DOS% PRC Delay MMQ DOS% PRC								
Existing Layout		AM Peak PM Peak								
A22 Eastbourne Road (N)	72	129.50%		494	72	117.10%		335		
A22 London Road (S)	170	124.70%	-80.40%	391	134	116.20%	- 71.80%	291		
A264 Copthorne Rd	209	162.40%		785	198	154.60%	71.5070	724		

Table 16 2019 Baseline + EG Approved Committed Dev [485 units] + CV

Table 37	Year 2	2019 Base	line + * E0		ved Con HHPF	nmitted De	ev (485 Ui	nits) +	
Table 37	MMQ	MMQ DOS% PRC Delay MMQ DOS% PRC							
Existing Layout		AM Peak PM Peak							
A22 Eastbourne Road (N)	75	131.00%		511	78	119.10%		361	
A22 London Road (S)	188	127.80%	-81.90%	429	143	117.60%	-74.90%	311	
A264 Copthorne Rd	213	163.70%		795	207	157.40%		746	

Table 37 2019 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

ASSESSMENT YEAR 2021

			Yea	ar 2021 I	Do Nothi	ng		
Table 25	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Existing Layout	AM					PI	V	
A22 Eastbourne Road (N)	71	128.60%		484	59	112.60%		273
A22 London Road (S)	101	115.30%	-67.40%	270	120	114.36%	-60.50%	264
A264 Copthorne Rd	173	150.70%		691	164	144.40%		633

Table 25 Assessment Year 2021 Do Nothing – Baseline Condition

Table 28	Year 2	2021 Base		G Approv			(485 Ur	its) +		
Table 20	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC								
Existing Layout		AM I	Peak			PM P	eak	(s)		
A22 Eastbourne Road (N)	79	132.70%		530	81	120.00%		373		
A22 London Road (S)	187	127.50%	-84.60%	426	153	119.00%	- 75.70%	330		
A264 Copthorne Rd	220	166.10%		813	210	158.20%	75.7670	752		

Table 28 2021 Baseline + EG Approved Committed Dev [485 units] + CV

Table 40	Year 2021 Baseline + * EG Approved Committed Dev (485 Units) + +HPF									
Table 40	MMQ	MMQ DOS% PRC Delay MMQ DOS% PRC Delay								
Existing Layout		AM F	Peak			PM	Peak			
A22 Eastbourne Road (N)	81	133.90%		543	87	122.20%		401		
A22 London Road (S)	207	131.00%	-86.10%	466	162	120.50%	-79.10%	350		
A264 Copthorne Rd	225	167.50%		822	220	161.20%		776		

Table 40 2021 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

> ATKINS 3 DO MINIMUM HIGHWAY ENHANCEMENTS

Table 7	Year 2015 March Baseline + * EG Approved Committed Dev (485 U + Copthorne Village									
Table /	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC Delay (s)								
Atkins Do Minimum		AM I	Peak			PM	Peak			
A22 Eastbourne Road (N)	17	95.60%		85	19	93.30%		60		
A22 London Road (S)	15	93.30%	-39.90%	30	48	103.00%	-32.10%	98		
A264 Copthorne Rd	114	125.90%		439	94	118.90%		347		

Table 7 2015 Baseline + EG Approved Committed Dev [485 units] + CV

Table 10	Year 2015 Baseline + * EG Approved Committed Dev (485 Units) +HPF									
Table 10	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC Delay (s)								
Atkins Do Minimum		AM Peak PN								
A22 Eastbourne Road (N)	18	96.50%		90	21	94.90%		66		
A22 London Road (S)	19	96.00%	-41.00%	38	55	104.30%	-34.60%	116		
A264 Copthorne Rd	117	126.90%		451	104	121.10%		377		

Table 10 2015 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

Table 19	Year	2019 Bas	eline + *	EG Appro			ev (485 Uni	ts) +
Table 19	MMQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Atkins Do Minimum		AM Peak PM Pea						
A22 Eastbourne Road (N)	18	96.10%		86	18	90.20%		48
A22 London Road (S)	17	94.60%	-51.40%	33	57	104.10%	-50.90%	112
A264 Copthorne Rd	149	136.20%		558	151	135.80%		552

Table 19 2019 Baseline + EG Approved Committed Dev [485 units] +CV

Table 22	Year 2	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) + CV + HPF						
Table 22	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Atkins Do Minimum		AM	Peak			PM I	Peak	
A22 Eastbourne Road (N)	19	97.20%		92	19	91.60%		52
A22 London Road (S)	22	96.90%	-52.50%	41	64	105.40%	-53.00%	131
A264 Copthorne Rd	153	137.20%		568	159	137.70%		572

Table 22 2019 Baseline + EG Approved committed Dev [485 units] + CV + HPF

Table 31	Year	2021 Bas	eline + *		ved Comr ne Village		/ (485 Uni	ts) +
Tubic 31	MMQ	DOS%	DOS%	PRC	Delay (s)			
Atkins Do Minimum		AM I	Peak			PM P	eak	
A22 Eastbourne Road (N)	21	98.50%		101	18	89.80%		47
A22 London Road (S)	22	96.70%	-54.90%	40	64	105.10%	-58.20%	126
A264 Copthorne Rd	161	139.40%		591	172	142.40%		620

Table 31 2021 Baseline + EG Approved Committed Dev [485 units] + CV

Table 34	Year 2	021 Basel	ine + * E0		ed Commi HPF	tted Dev (485 Units	s) + CV
Table 34	MMQ	PRC	Delay (s)					
Atkins Do Minimum		AM I	Peak			PM P	eak	
A22 Eastbourne Road (N)	22	99.40%		108	18	88.90%		44
A22 London Road (S)	30	99.30%	-55.10%	56	63	104.80%	-64.10%	122
A264 Copthorne Rd	162	139.60%		592	188	147.70%		670

Table 34 2021 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

4.4 IMBERHORNE LANE JUNCTION

EXISTING LAYOUT TABLES

SURVEY YEAR 2015

			Year :	2015 Marc	ch - Basel	ine		
Table 2	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Existing Layout		AM Pe	eak			PM I	Peak	
A22 London Road (N)	68	110.80%		214	45	118.30%		126
A22 London Road (S)	190	144.00%	-60.00%	637	126	131.00%	-45.50%	499
Imberhorne Ln	84	131.70%		500	52	118.10%		335

Table 2 Year 2015 March Baseline Condition

Table 5	Year 2	2015 March	Baseline	+ * EG A	pproved CV	Committed	l Dev (485	Units) +
i able 5	MMQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Existing Layout		AM F	Peak			PM	Peak	
A22 London Road (N)	113	119.30%		326	105	130.40%		282
A22 London Road (S)	246	158.30%	- 75.90%	761	158	140.10%	-55.70%	597
Imberhorne Ln	105	141.30%	73.90%	599	83	134.70%		532

Table 5 Baseline + EG Approved Committed Dev [485 units] + Copthorne Village

Table 44	Year 2015 Baseline + * EG Approved Committed Dev (485 Units) + CV +HPF									
Table 44	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC								
Existing Layout		AM P	eak			PM I	Peak			
A22 London Road (N)	121	120.50%		342	88.6	130.40%		231		
A22 London Road (S)	262	162.40%	-80.40%	792	167	142.90%	58.70%	624		
Imberhorne Ln	105	141.30%		599	83	134.70%		532		

Table 44 Baseline + EG Approved Dev [485 units] + CV + Hill Place Farm [HPF]

OPENING YEAR 2019

			Yea	ır 2019 D	o Nothing	J						
Table 14	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)				
Existing Layout		AM Pe	eak			РМ Г	Peak					
A22 London Road (N)	99	117.30%		301	79	125.60%		217				
A22 London Road (S)	223	152.60%	-69.60%	714	153	138.80%	-54.30%	584				
Imberhorne Ln	104	141.20%		598	67	124.60%		416				

Table 14 Opening Year 2019 Do Nothing – Baseline Condition

Table 17	Year	2019 Base	itted Dev ((485 Units)) +				
Table 17	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC D							
Existing Layout		AM P	eak			PM P	eak		
A22 London Road (N)	154	125.70%		406	142	137.70%		364	
A22 London Road (S)	279	166.90%	-85.50%	826	186	148.00%	-64.40%	673	
Imberhorne Ln	122	148.50%		666	97	141.10%		597	

Table 17 Baseline + EG Approved Committed Dev [485 units] + CV

Table 38	Year 2	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) + CV +HPF							
Table 36	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC							
Existing Layout		AM P	eak			PM I	Peak		
A22 London Road (N)	162	127.00%		420	128	137.70%		319	
A22 London Road (S)	295	171.00%	-90.00%	854	195	150.70%	-67.50%	697	
Imberhorne Ln	122	148.50%		666	97	141.10%		597	

Table 38 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

ASSESSMENT YEAR 2021

	Year 2021 Do Nothing									
Table 26	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)		
Existing Layout		AM F	Peak			PM I	Peak			
A22 London Road (N)	118	120.30%		339	95	128.90%		255		
A22 London Road (S)	238	156.40%	-73.80%	746	166	142.50%	-58.40%	621		
Imberhorne Ln	110	143.60%		622	75	128.50%		464		

Table 26 Assessment Year 2021Do Nothing – Baseline Condition

Table 29	Year 2021 Baseline + * EG Approved Committed Dev (485 Units) + Copthorne Village									
Table 29	ммQ	MMQ DOS% PRC Delay MMQ DOS% PRC								
Existing Layout		AM	Peak			PM F	Peak			
A22 London Road (N)	173	128.70%		441	159	141.00%		399		
A22 London Road (S)	295	170.80%	-89.80%	853	199	151.70%	-68.50%	705		
Imberhorne Ln	132	153.20%		707	105	145.10%		635		

Table 29 Baseline + EG Approved Committed Dev [485 units] + CV

T-11- 44	Year 202	21 Baseline	+ * EG A	oproved Co	mmitted	Dev (485	Units) + (Delay (s)	
Table 41	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	•	
Existing Layout		AM F	Peak			PM I	Peak		
A22 London Road (N)	183	130.00%		456	145	141.00%		354	
A22 London Road (S)	311	174.90%	-94.40%	880	208	154.40%	-74.60%	728	
Imberhorne Ln	132	153.20%		707	105	145.10%		635	

Table 41 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

> ATKINS 3 DO MINIMUM HIGHWAY ENHANCEMENTS

Table 8	Year 2015 March Baseline + * EG Approved Committed Dev (485 Units) + CV							
i able o	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Atkins Do Minimum		AM	Peak			PM	Peak	
A22 London Road (N)	32	100.90%		77	20	102.90%		43
A22 London Road (S)	291	180.10%	-100.20%	915	170	145.00%	-73.60%	648
Imberhorne Ln	105	141.30%		596	110	156.20%		728

Table 8 2015 Baseline + EG Approved Committed Dev [485 units] + CV

Table 11	Year 2015 Baseline + * EG Approved Committed Dev (485 Units) + CV +HPF							
Table 11	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)
Atkins Do Minimum		AM	Peak			PM I	Peak	
A22 London Road (N)	25	98.20%		53	19	102.90%		39
A22 London Road (S)	318	191.40%	-112.70%	980	180	147.90%	-73.60%	674
Imberhorne Ln	105	141.30%		595	110	156.20%		728

Table 11 2015 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

Table 20	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) + Copthorne Village								
Table 20	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)	
Atkins Do Minimum		AM	Peak			PM	Peak		
A22 London Road (N)	27	98.80%		56	22	103.30%		44	
A22 London Road (S)	348	204.00%	-126.70%	1045	209	158.70%	-81.60%	766	
Imberhorne Ln	122	148.50%		660	124	163.40%		782	

Table 20 2019 Baseline + EG Approved Committed Dev [485 units] +CV

Table 23	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) + CV +HPF							
Table 23	MMQ	DOS%	PRC	Delay (s)	ммо	DOS%	PRC	Delay (s)
Atkins Do Minimum		AM F	Peak			PM	Peak	
A22 London Road (N)	29	99.80%		64	21	103.30%		40
A22 London Road (S)	364	209.00%	- 132.20%	1068	219	161.60%	-81.60%	789
Imberhorne Ln	122	148.50%	13212070	660	124	163.40%		782

Table 23 2019 Baseline + EG Approved committed Dev [485 units] + CV + HPF

Table 32	Year	2021 Base	line + * EG Co		ed Comn Village		(485 Unit	ts) +
Table 32	MMQ	DOS%	PRC	Delay (s)	MMQ	DOS%	PRC	Delay (s)
Atkins Do Minimum		AM F	Peak			PM F	Peak	
A22 London Road (N)	35	101.10%		78	16	100.70%		26
A22 London Road (S)	363	208.80%	-132.00%	1067	234	168.80%	-87.60%	841
Imberhorne Ln	132	153.20%		701	133	168.10%		815

Table 32 2021 Baseline + EG Approved Committed Dev [485 units] + CV

Table 35	Year 2021 Baseline + * EG Approved Committed Dev (485 Units) + CV + HPF							
Table 35	MMQ	MMQ DOS% PRC Delay MMQ DOS% PRC						
Atkins Do Minimum		AM I	Peak			PM	Peak	
A22 London Road (N)	27	98.60%		54	16	100.70%		25
A22 London Road (S)	390	222.10%	- 146.70%	1124	244	171.80%	-90.90%	862
Imberhorne Ln	132	153.20%	140.70%	700	133	168.10%		815

Table 35 2021 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

4.5 LINGFIELD JUNCTION

EXISTING LAYOUT TABLES

SURVEY YEAR 2015

		Y	ear 201	5 March -	Baseline	Conditio	n	
Table 3	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)
Existing Layout		AM I	Peak			PM F	Peak	
Lingfield Rd	18.1	123.78	0.98		37.56	265.24	1.05	
A22 London Road (S)	179.14	637.82	1.2	630.68	278.51	988.47	1.31	755.47
A22 London Road (N)	160.74	1051.19	1.33		134.11	727.53	1.22	

Table 3 Year 2015 Baseline Condition

	Year 2	015 Marc		ine + * EG s) + Coptl			itted D	ev (485
Table 6	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)
Existing Layout	AM Peak							
Existing Layout		AM	Реак			PM P	eak	
Lingfield Rd	31.52	202.32	1.03		52.09	357.01	eak 1.09	
	31.52 280.12			905.1	52.09 340.89			1018.99

Table 6 Baseline + EG Approved Committed Dev [485 units] + Copthorne Village

	Year 2	015 Base	eline + *	EG Appro + CV -		mitted De	ev (48	5 Units)
Table 45	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)
Existing Layout		АМ	Peak					
Lingfield Rd	34	216	1.03		55	378	1.1	
A22 London Road (S)	311	1103	1.35	972	358	1271	1.4	1100
A22 London Road (N)	216	1353	1.42		246	1304	1.41	

Table 45 Baseline + EG Approved Committed Dev [485 units] + Copthorne Village + HPF

OPENING YEAR 2019

			,	Year 2019	Do Not	:hing		
Table 15	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)
Existing Layout		AM	Peak			PN	1 Peak	
Lingfield Rd	37	228	1.04		65	437	1.12	
A22 London Road (S)	243	243	1.27	830.55	350	1239	1.39	980.03
A22 London Road (N)	198	198	1.40		176	949	1.29	

Table 15 Opening Year 2019 Do Nothing - Baseline Condition

	Year 2	019 Bas	eline +	* EG Appr + Coptho			Dev (48	5 Units)
Table 18	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)
Existing Layout		AM I	Peak			PM	Peak	
Lingfield Rd	56	337	1.08		80	535	1.15	
1001 1 0 1(0)	245	1226	1 20	4445.50	411	1.450	1.46	1244.02
A22 London Road (S)	345	1226	1.39	1115.53	411	1458	1.46	1244.93

Table 18 2019 Baseline + EG Approved Committed Dev [485 units] + CV

	Year 20	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) +HPF								
Table 39	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)		
Existing Layout		AM	1 Peak							
Lingfield Rd	58.71	354.2	1.09		84.48	563.95	1.16	1328		
A22 London Road (S)	374.68	1329.35	1.42	1184	428.4	1518.52	1.48			
A22 London Road (N)	255.23	1601.29	1.5		288.93	1531.42	1.48			

Table 39 2019 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

ASSESSMENT YEAR 2021

	Year 2021 Do Nothing										
Table 27	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)			
Existing Layout		AM I	Peak		PM Peak						
Lingfield Rd	47	289	1.06		78	517	1.15				
A22 London Road (S)	272	964	1.3	923.53	382	1353	1.43	1085.86			
A22 London Road (N)	215	1399	1.44		197	1058	1.33				

Table 27 Assessment Year 2021 Do Nothing - Baseline Condition

	Year 2021 Baseline + * EG Approved Committed Dev (485 Units) + Copthorne Village									
Table 30	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)		
Existing Layout		А	M Peak		PM Peak					
Lingfield Rd	70	415	1.11		93	618	1.18			
A22 London Road (S)	373	1326	1.42	1214.22	444	1572	1.5	1351.79		
A22 London Road (N)	265	1675	1.53		282	1499	1.47			

Table 30 2021 Baseline + EG Approved Committed Dev [485 units] + CV

	Year	2021 Ba	seline +	ine + * EG Approved Committed Dev (485 Units) + CV +HPF								
Table 42	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	Junction Delay (s)				
Existing Layout		АМ	Peak		PM Peak							
Lingfield Rd	72.91	433.42	1.12		97.48	646.65	1.19					
A22 London Road (S)	403.91	1432.93	1.45	1184	462.06	1636.78	1.52	1437				
A22 London Road (N)	272.35	1708.65	1.54		310.16	1644.07	1.52					

Table 42 2021 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

> ATKINS 3 DO MINIMUM HIGHWAY IMPROVEMENTS

Table 9	Year 2015 March Baseline + * EG Approved Committed Dev (485 Units) + Copthorne Village								
rubic 5	ммQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)	
Atkins Do Minimum		AM	Peak		PM Peak				
Lingfield Rd	14.7	87.80%		50	15	90.60%	-5.30%	60	
A22 London Road (S)	27.1	91.30%	1 500/	28	33	94.80%		36	
A22 London Road (N) Left	0.7	6.30%	-1.50%	14	1	3.50%		12	
A22 London Road N) Ahead	13.7	69.10%		24	17	75.30%		23	

Table 9 2015 Baseline + EG Approved Committed Dev [485 units] + CV

Table 12	Year 2015 Baseline + * EG Approved Committed Dev (485 Units) + CV + HPF								
145.0 ==	MMQ	DOS%	PRC	Delay (s)	MMQ	DOS%	PRC	Delay (s)	
Atkins Do Minimum		AM	Peak		PM Peak				
Lingfield Rd	15	88.00%		50	17	93.90%		71	
A22 London Road (S)	32	94.20%	-4.70%	34	38	96.90%	-7.70%	45	
A22 London Road (N) Left	1	6.30%	-4.70%	14	0.4	3.40%	-7.70%	12	
A22 London Road N) Ahead	14	70.20%		24	17	76.60%		23	

Table 12 2015 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

Table 21	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) + Copthorne Village								
Tuble 21	MMQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)	
Atkins Do Minimum		AM	l Peak		PM Peak				
Lingfield Rd	18	92.80%		61	27	102.10%	-13.40%	132	
A22 London Road (S)	45	99.50%	-10.60%	63	57	101.80%		86	
A22 London Road (N) Left	1	6.60%	-10.60%	14	1	3.50%		11	
A22 London Road N) Ahead	15	72.80%		25	17	76.20%		22	

Table 21 2019 Baseline + EG Approved Committed Dev [485 units] +CV

Table 24	Year 2019 Baseline + * EG Approved Committed Dev (485 Units) + CV +HPF									
	ммQ	DOS%	PRC	Delay (s)	MMQ	DOS%	PRC	Delay (s)		
Atkins Do Minimum		AM Peak				PM Peak				
Lingfield Rd	28	101.50%		121	28	102.70%	-17.50%	139		
A22 London Road (S)	46	99.50%	-12.70%	62	78	105.70%		142		
A22 London Road (N) Left	1	6.20%	-12.70%	13	1	3.50%		11		
A22 London Road N) Ahead	14	69.30%		22	19	79.00%		24		

Table 24 2019 Baseline + EG Approved committed Dev [485 units] + CV + HPF

Table 33	Year 2021 Baseline + * EG Approved Committed Dev (485 Units) + Copthorne Village								
Tuble 33	MMQ	DOS%	PRC	Delay (s)	MMQ	DOS%	PRC	Delay (s)	
Atkins Do Minimum		AM	Peak		PM Peak				
Lingfield Rd	27	100.80%		112	26	101.40%	-19.60%	123	
A22 London Road (S)	56	101.90%	12 200/	89	89	107.60%		170	
A22 London Road (N) Left	1	6.40%	-13.20%	13	1	3.60%		12	
A22 London Road N) Ahead	15	71.30%		23	19	79.60%		25	

Table 33 2021 Baseline + EG Approved Committed Dev [485 units] + CV

Table 36	Year 2021 Baseline + * EG Approved Committed Dev (485 Units) + CV +HPF								
	MMQ	DOS%	PRC	Delay (s)	ммQ	DOS%	PRC	Delay (s)	
Atkins Do Minimum	AM Peak				PM Peak				
Lingfield Rd	23	98.10%		88	43	109.60%	-22.70%	229	
A22 London Road (S)	73	105.00%	16 700/	132	105	110.40%		211	
A22 London Road (N) Left	1	6.60%	-16.70%	14	1	3.50%		11	
A22 London Road N) Ahead	16	74.00%		25	19	79.20%		23	

Table 36 2021 Baseline + EG Approved Committed Dev [485 units] + CV + HPF

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