

**EAST GRINSTEAD AND SURROUNDS
2016 SURVEY AND REVIEW OF TRAFFIC ONDITIONS.**

SECTION 2 DETAILED AND CONSOLIDATED INFORMATION AND FINDINGS

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Section 2 Detailed and Consolidated Information and Findings

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1.0 THE A22 KEY JUNCTIONS

1.1 MODELLING METHODOLOGY AND DOCUMENTATION.

- 1.1.1. This section extends the scope of the Jubb “East Grinstead and Surrounds 2016 Survey and Review of Traffic Conditions” 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.
- 1.1.2. 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] and also NPPG 2014.
- 1.1.3. Jubb have developed the LINSIG and ARCADY traffic models for these junctions, LINSIG at Imberhorne and Felbridge Junctions, ARCADY for the Lingfield Junction, for the critical network peak hour and provides a quantitative assessment of existing and forecast network conditions [2021] using the Jubb 2016 surveys data.

BASE TRAFFIC MODEL

- 1.1.4. Signal Staging plans and junction layouts have been abstracted from the transport studies 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 in the Jubb 2016 Survey.
- 1.1.5. The calibration and validation of the baseline traffic model has been carried out in compliance with Transport for London (TfL) Guidance on Traffic modelling.
- 1.1.6. The modelling approach for each junction is summarised below:
- **J1 - Felbridge A22 / A264 Junction**
The geometric input was abstracted from the Transport Statement submitted in support of a residential development at Crawley Hill. The skeleton model was accepted by Surrey County Council as a calibrated base. The signal staging/timing plan used in the Vectos’ report “Modelling of A22 Key Junctions” has been adopted for robustness and allows better comparison for modelling outputs.

In order to reflect the exit blocking as observed along the A22 London Road towards East Grinstead Town Centre during both the February and June 2016 in car video surveys, Underutilised Green Time has also been applied. UGT accounts for both waste green time due to exit blocking during which traffic is stationary and sub-saturated 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.

- **J2 - 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 obtained from the supporting TA for Bridge Park Retail Development.

The signal staging plan, adopted in Vectos A22 Modelling Report was applied as a base with Underutilised Green Time applied to replicate the observed queuing length due to exit blocking back from downstream.

- **J3 - 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.

Adjustment to the capacity intercept was subsequently applied to London Road (N) to simulate the unbalanced lane usage and thus replicate the recorded queueing length of both the February and June 2016 survey.

BASELINE TRAFFIC DATA

1.1.7. In order to examine the current operational efficiency of the adjoining highway and thus establish a baseline position, classified junction turning counts were carried out at the above key junctions during the peak periods on a both the 23rd February and 7th June 2016.

1.1.8. The collated traffic data was subsequently elaborated in 15-minutes increments to project every accumulated hour between 07:00-09:30 and 16:00 – 18:30. Peak spreading was evident during both surveys with a consistent level of traffic recorded during a 90-120 minute period.

Time Period	Feb-16				Jun-16			
	J1	J2	J3	Total	J1	J2	J3	Total
07:00-08:00	2485	2454	2296	7235	2456	2438	2185	7079
07:15-08:15	2552	2519	2373	7444	2562	2510	2223	7295
07:30-08:30	2494	2492	2366	7352	2569	2573	2333	7475
07:45-08:45	2446	2457	2319	7223	2514	2505	2320	7338
08:00-09:00	2347	2364	2281	6992	2388	2406	2284	7079
08:15-09:15	2305	2314	2205	6824	2334	2399	2295	7027
08:30-09:30	2231	2249	2141	6620	2264	2295	2260	6819
16:00-17:00	2322	2354	2337	7013	2436	2431	2311	7178
16:15-17:15	2362	2385	2397	7144	2520	2505	2261	7287
16:30-17:30	2386	2380	2390	7156	2578	2540	2231	7349
16:45-17:45	2425	2404	2352	7182	2602	2571	2221	7393
17:00-18:00	2522	2505	2327	7353	2608	2577	2234	7418
17:15-18:15	2498	2479	2258	7234	2533	2534	2278	7346
17:30-18:30	2447	2439	2225	7110	2429	2445	2259	7133

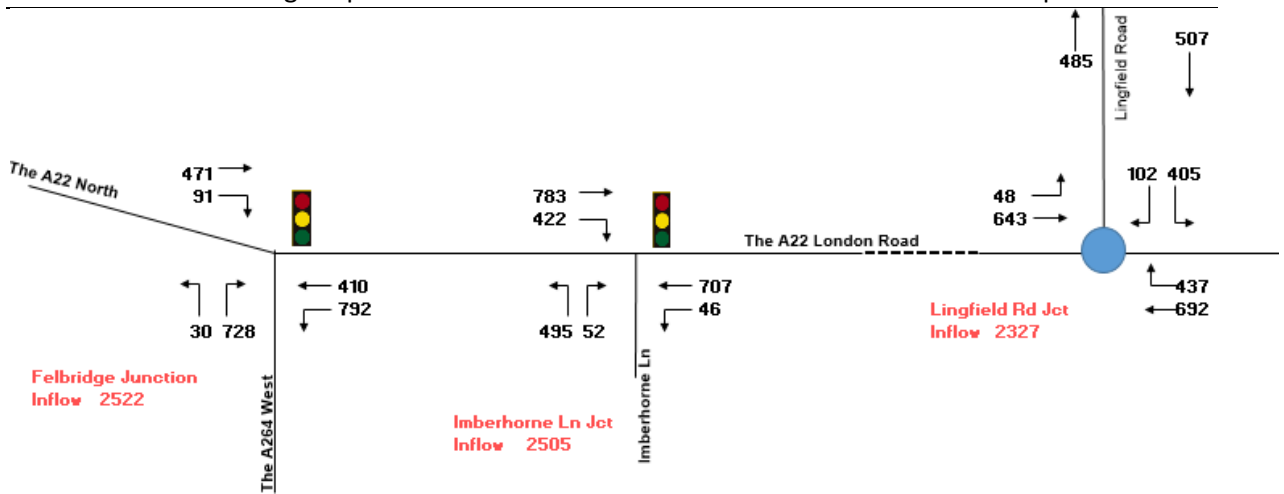
Table 1.1 2016 Turning Movements Count Accumulation Analysis

1.1.9. The 2016 surveys reveal that a uniform AM Peak across the study network was observed as 07:15 – 08:15 and 07:30 – 08:30 respectively for the February and June Survey whereas different PM peaks were encountered with a combined network peak of 17:00-18:00 identified for both surveys.

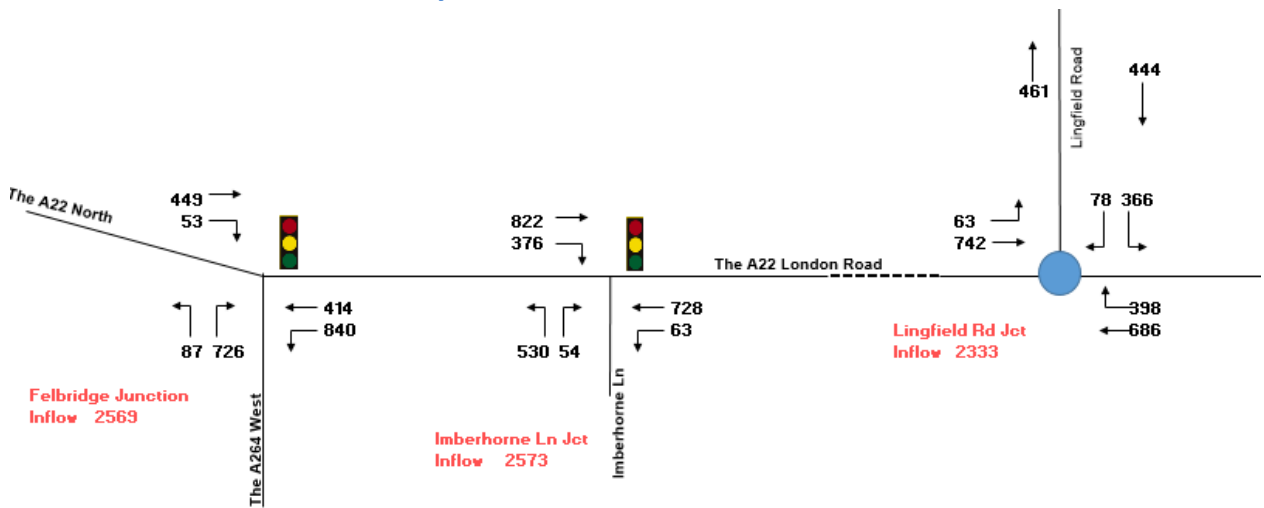
a. Year 2016 February Survey AM Peak 07:15 – 08:15



b. Year 2016 February Survey PM Peak 17:00 – 18:00



c. Year 2016 June Survey AM Peak 07:30 – 08:30



d. Year 2016 June Survey PM Peak 17:00 – 18:00



1.1.10. As can be seen above, a consistent flow level was collated between the February and June surveys with a fluctuation of less than 5% observed across the study highway network. In view of this, an average representation of the obtained turning movements has been adopted as the baseline condition to inform a robust case assessment.

COMMITTED (APPROVED AND ALLOCATED) DEVELOPMENT TRAFFIC

1.1.11. A total of 664 housing units, that are either allocated or benefit from planning consent, are considered as committed developments for the purposes of the A22 Modelling. These include 472 dwellings identified within MSDC Housing Land Supply as at 1st April 2016 and a further 192 homes allocated within East Grinstead Neighbourhood Plan.

Committed/Allocated Unbuilt Unit	Houses	Flats
Total – 664 units	289	375
MSDC – 472 units	217	255
EGNP – 192 units	72	120

Table 1.2 Committed Development

1.1.12. To understand the significance of the associated development impact, vehicle trip rates and distribution as adopted within Atkins Stage 3 Report and in support of neighbouring schemes 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		AM Peak		PM Peak	
		IN	OUT	IN	OUT
Vehicle Trip Rates	Houses	0.15	0.41	0.39	0.22
	Flats	0.075	0.232	0.19	0.112
Traffic Generation	Houses	43	118	113	64
	Flats	28	87	71	42
	Total	71	205	184	106
Direction	%	Traffic Distribution			
A264W	36%	26	74	67	38
A264E	8%	6	17	15	9
A22N	19%	14	40	36	20
A22S	19%	13	39	35	20
B2110	7%	5	13	12	7
Lingfield Rd	4%	3	9	8	5
Imberhorne Ln	7%	5	14	12	7

Table 1.3 EG Committed and Allocated Development Traffic

1.1.13. It is understood that 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 Duke’s Head Roundabout during the weekday AM peak whereas 25 vehicles is predicted for PM Peak. These traffic movements have subsequently distributed directionally based upon the 2016 turning movements collected at the junctions along the A22 corridor.

1.1.14. The percentage increase as a result of these committed developments (EG 664 dwellings + CV) along the A22 corridor at the Felbridge, Imberhorne and Lingfield Junctions during both AM and PM peak are summarised as table 2.1 in Section 2 with traffic flow presented in **Section 1.3 Traffic Diagrams – Allocated and Committed Developments**.

BACKGROUND TRAFFIC GROWTH

1.1.15. Growth adjustments for Car Drivers have been established using TEMPRO 6.2 for East Grinstead zonal area to reflect the rising traffic demand resulting from greater wealth, increased working population, increased employment potential, and increased car ownership amongst other factors.

1.1.16. It is understood that some of the identified committed developments are already included within TEMPRO as part of economic and social forecasting. In view of this, to avoid any double counting, the adopted planning assumptions were corrected in line with DfT Tempro User Guidance to allow a nil growth in future housing provision. The derived factors were then adjusted to account for National Transport Model (NTM 2009) to derive local traffic growth (Urban – Principal) to create a base flow for Year 2021.

Period	Growth Rate	
	AM	PM
Year 2016 to Year 2021	1.0485	1.0497

Table 1.4 Background Traffic Growth

HILL PLACE FARM DEVELOPMENT

1.1.17. 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.

1.1.18. The supporting study on the A22 corridor submitted by Vectos in August 2016 indicated that the impact on the A22 corridor amounts to 77 vehicles in the AM peak

and 69 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 subsequently abstracted from the Modelling Report developed by Vectos with associated traffic diagrams included within **Section 1.3 Traffic Diagrams – Hill Place Farm Development**.

Atkins Stage 3 Do –Minimum

1.1.19. 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 5107918/TP/PD/101)	<ul style="list-style-type: none"> • Signal optimisation • Widen pedestrian islands to 1.5m • Implement two lanes on A22 southbound exit from the junction
A22 London Rd / Imberhorne Ln	<ul style="list-style-type: none"> • Signal optimisation
A22 London Rd/Lingfield Rd (Drawing 5107918/TP/PD/301)	<ul style="list-style-type: none"> • Proposed WSCC signalisation as per Drawing No. 13823, without advanced stop lines • Proposed dimensions match the proposed WSCC scheme

Table 1.5 Atkins Study Stage 3 – Do Minimum Proposal

1.1.20. 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 2016 model as a base with: <ul style="list-style-type: none"> • Signal Timing optimised to minimise the total junction delay • Lane Markings have been revised in accordance with Drawing 5107918/TP/PD/101
A22 London Rd / Imberhorne Ln	Adopting the calibrated and validated 2016 model as a base with: <ul style="list-style-type: none"> • Signal Timing optimised to minimise the total junction delay
A22 London Rd/Lingfield Rd	A new LINSIG Model was established with: <ul style="list-style-type: none"> • Geometric and signal staging input refined in accordance with Drawing 5107918/TP/PD/301

Table 1.6 Atkins Study Stage 3 – Traffic Modelling

ASSESSMENT SCENARIOS

- 1.1.21. 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 2016 in car video surveys respectively.
- 1.1.22. 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.
- 1.1.23. Future year analysis for 2021 is also proposed to be consistent with the Atkins Stage 3 Corridor Study and in line with the build out rate proposed by Hill Place Farm Development.
- 1.1.24. The proposed testing scenarios are summarised as follows with associated Traffic Diagrams included within **Section 1.3 – Traffic Diagrams**. This is consistent with WSCC guidance on Transport Assessment.
- Baseline Year 2016
 - Existing Condition - Year 2016
 - Committed Dev Impact - Year 2016 + Approved/Allocated EG Committed Development + Copthorne Village

 - Opening/Assessment Year 2021
 - Predicted Do Nothing Traffic - Year 2016 x Growth
 - Assessment Year Do-minimum Traffic - Year 2021 Do Nothing Traffic + Approved/Allocated EG Committed Development + Copthorne Village
 - Assessment Year Total Traffic - Year 2021 Do Nothing Traffic + Approved/Allocated EG Committed Developments + Copthorne Village + Atkins Stage 3 Do Minimum Highway + Hill Place Farm Development

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

1.2.1. Table 1.7 shows the AM and PM impact on by pcu and % increase for 664 EG Dwellings and Copthorne Village West separately and then cumulating total for Felbridge, Imberhorne and Lingfield Junctions.

Junction	AM Peak Traffic (pcu)				
	Total 2016 Vol.	Com Dev Vol.	*EG Dev	**CVW	% Inc.
The A22 / Lingfield Rd	2353	207	160	47	8.8%
The A22 / Imberhorne Ln	2546	237	169	69	9.3%
The A22/ A264 Felbridge Junction	2561	223	154	69	8.7%
Junction	PM Peak Traffic (pcu)				
	Total 2016 Vol.	Com Dev Vol.	*EG Dev	**CVW	% Inc.
The A22 / Lingfield Rd	2281	183	168	15	8.0%
The A22 / Imberhorne Ln	2541	202	177	25	7.9%
The A22/ A264 Felbridge Junction	2565	186	161	25	7.3%

*EG Dev – 485 approved housing development

** Copthorne Village West Development

Table 1.7 Increased Peak Hour Total Junction Inflow by Volume and % Increase above 2016 levels

1.2.2. As can be seen above, the EG 664 Approved/Allocated 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

- 223 pcus at A22/A264 east and by 237 pcus at A22/Imberhorne Lane in the AM Peak of which equivalent to 9% increase over 2016 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 183 to 202 pcu.

1.2.3. Additional vehicle movements at the key junctions along the A22 as result of Hill Place Farm Development have been abstracted from Vectos August 2016 Modelling Report

on A22. The resultant percentage increase as result of the HPF development traffic are summarised as follows:

Junction	Traffic Inflow Increase - pcu	
	AM	PM
Felbridge junction	66	60
Imberhorne junction	66	60
Lingfield junction	74	64
Junction	Traffic Inflow Increase - % (upon 2016 level)	
	AM	PM
Felbridge junction	2.6	2.3
Imberhorne junction	2.6	2.4
Lingfield junction	3.1	2.8

Table 1.8 Hill Place Farm Traffic Impact

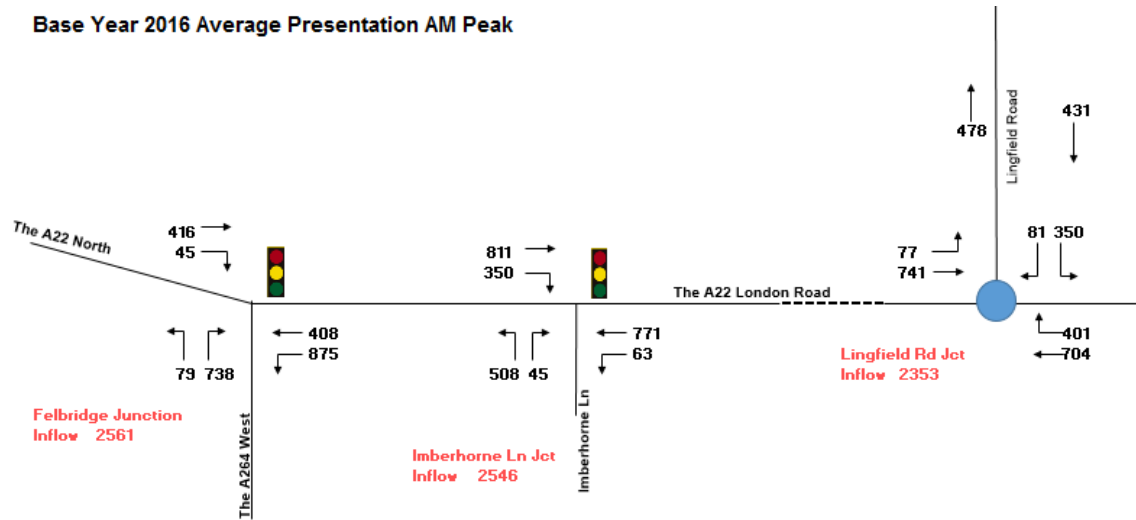
- 1.2.4. HPF will result in an average increase of 2.8% in the total inflow level at each junction reaching 3.1% at the Lingfield junction during the AM upon the 2016 baseline profile. This is in addition to the substantial 8-9% average traffic inflow coming onto each junction from already approved/committed dwellings not built or occupied.
- 1.2.5. Vectos' Modelling Report 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. This is in contradiction to Jubb Modelling Reports which were based upon a total 14 days comprehensive data collection exercise over the last 2 years. It is felt that the Appellant's study underrated the degree of severe congestion experienced along the A22 and thus the true impact of the scheme.

1.3 TRAFFIC DIAGRAMS

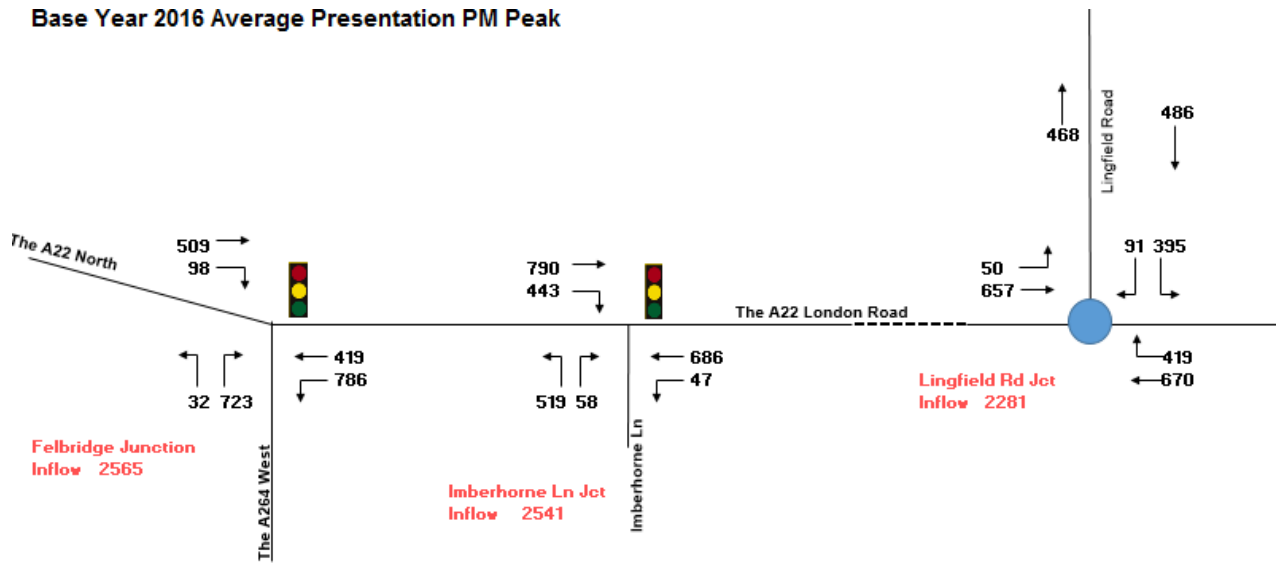
- 1.3.1. As part of the study, traffic diagrams have been produced in accordance with WSCC Transport Assessment Guidance Para.10.5.1 as follows:
- Base Year 2016 Modelled Traffic
 - Committed Development Traffic
 - b1 EG Committed 664 Dwellings Development Traffic
 - b2 Copthorne Village Development Traffic
 - Base Year 2016 Do minimum Traffic = a + b
 - Opening/Assessment year 2021 do-nothing traffic = a + growth
 - Opening/Assessment year 2021 Do minimum Traffic = d + b
 - Proposed Development Traffic – Hill Place Farm Traffic
 - Opening/Assessment year 2021 Total Traffic = e + f

a. Base Year 2016 Modelled Traffic

Base Year 2016 Average Presentation AM Peak

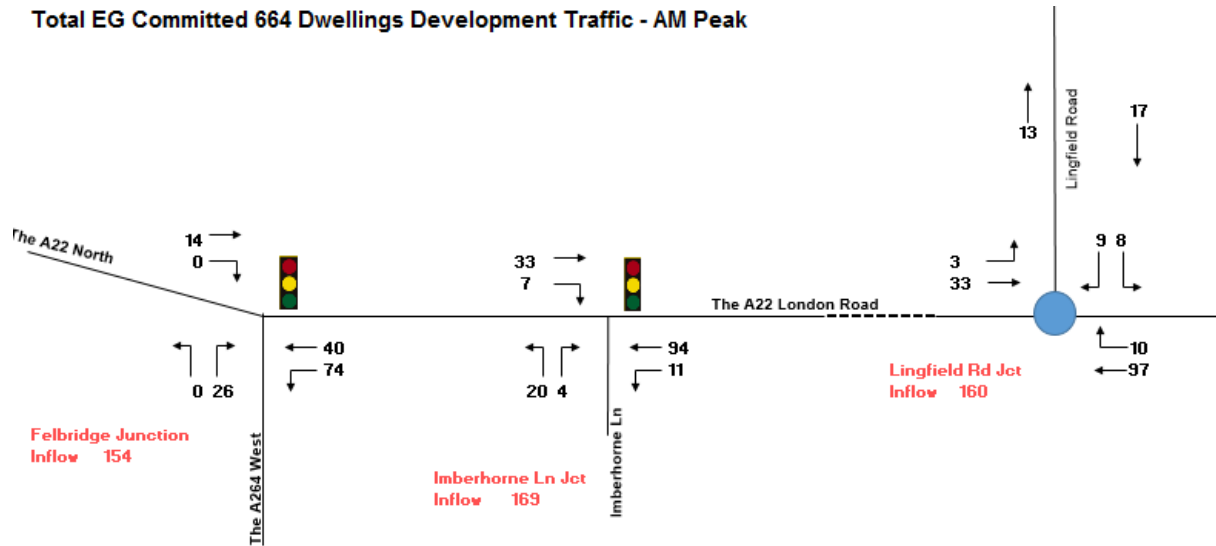


Base Year 2016 Average Presentation PM Peak

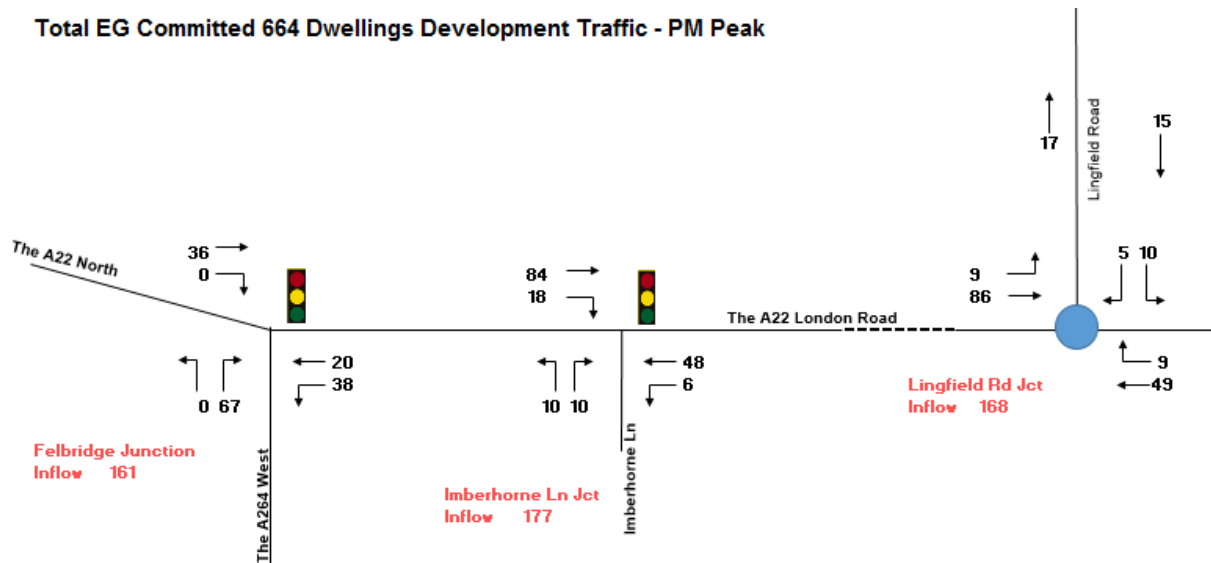


b. Committed Development Traffic
- b1 EG Committed 664 Dwellings Development Traffic

Total EG Committed 664 Dwellings Development Traffic - AM Peak

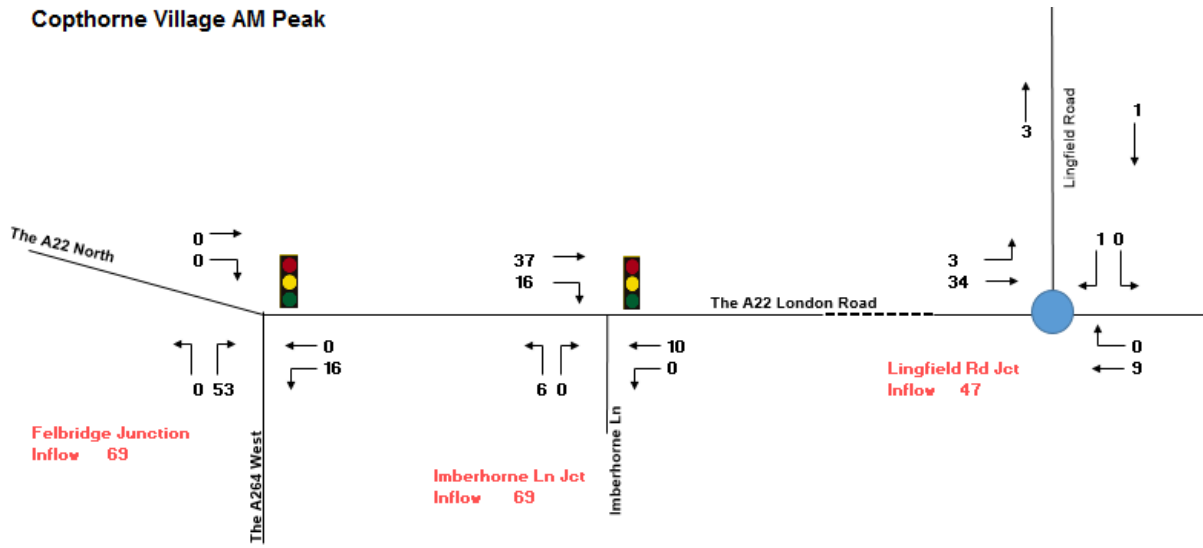


Total EG Committed 664 Dwellings Development Traffic - PM Peak

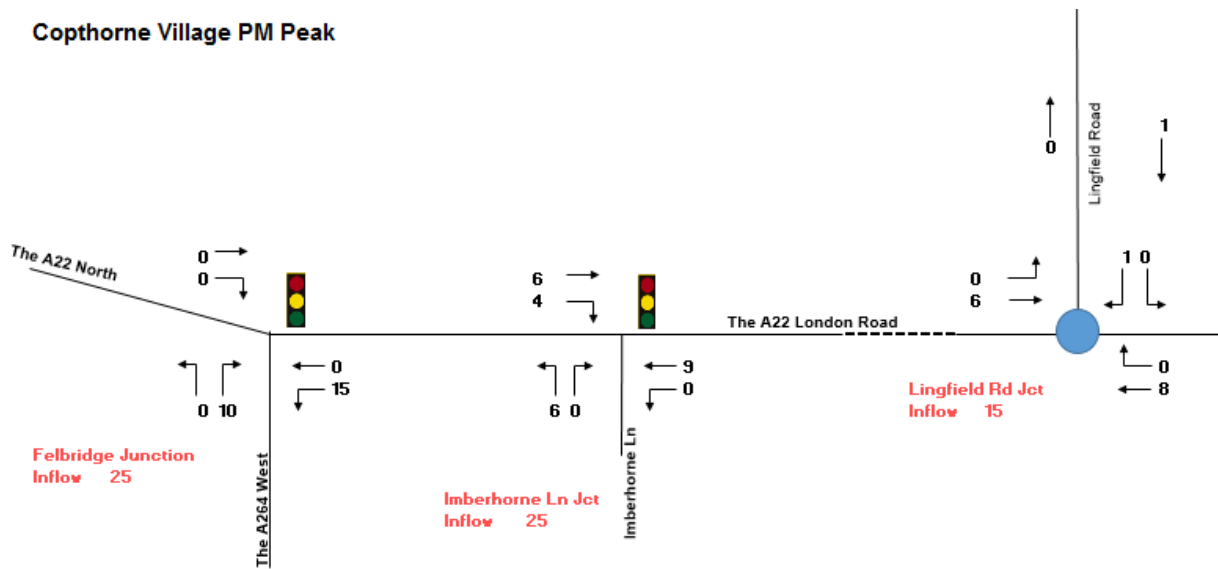


- b2 Copthorne Village West Development Traffic

Copthorne Village AM Peak

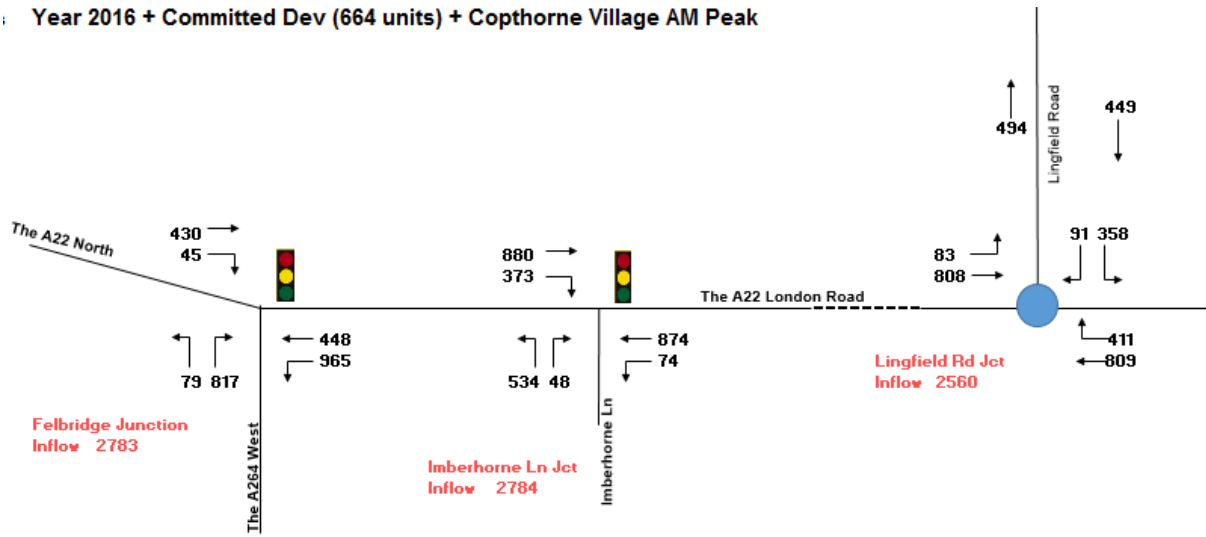


Copthorne Village PM Peak

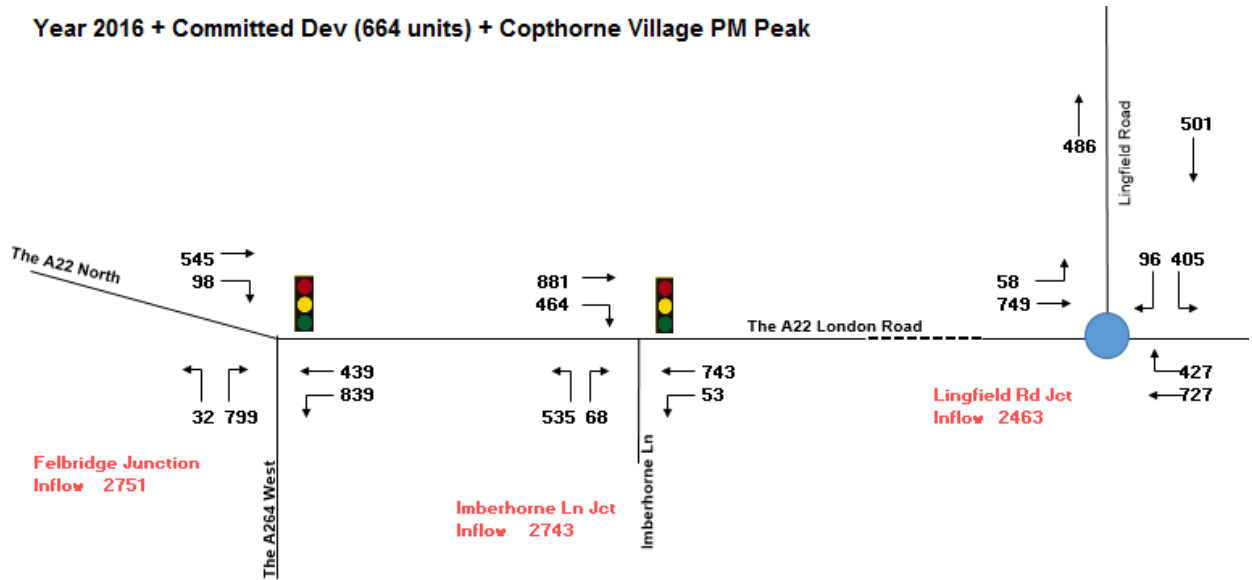


c. Base Year 2016 March Do minimum Traffic = a + b

Year 2016 + Committed Dev (664 units) + Copthorne Village AM Peak

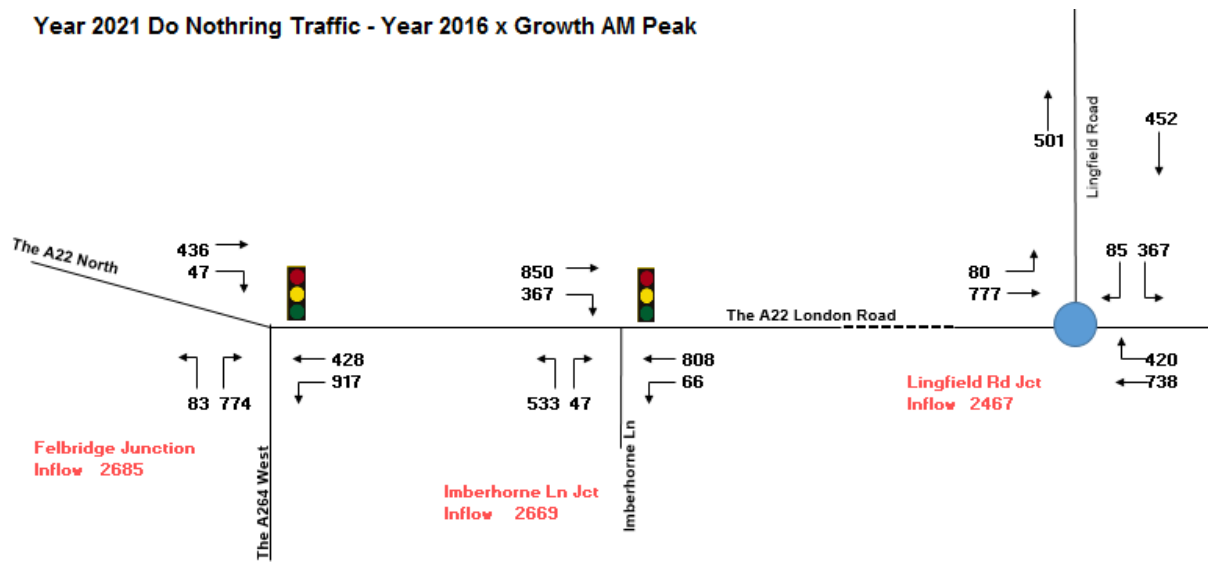


Year 2016 + Committed Dev (664 units) + Copthorne Village PM Peak

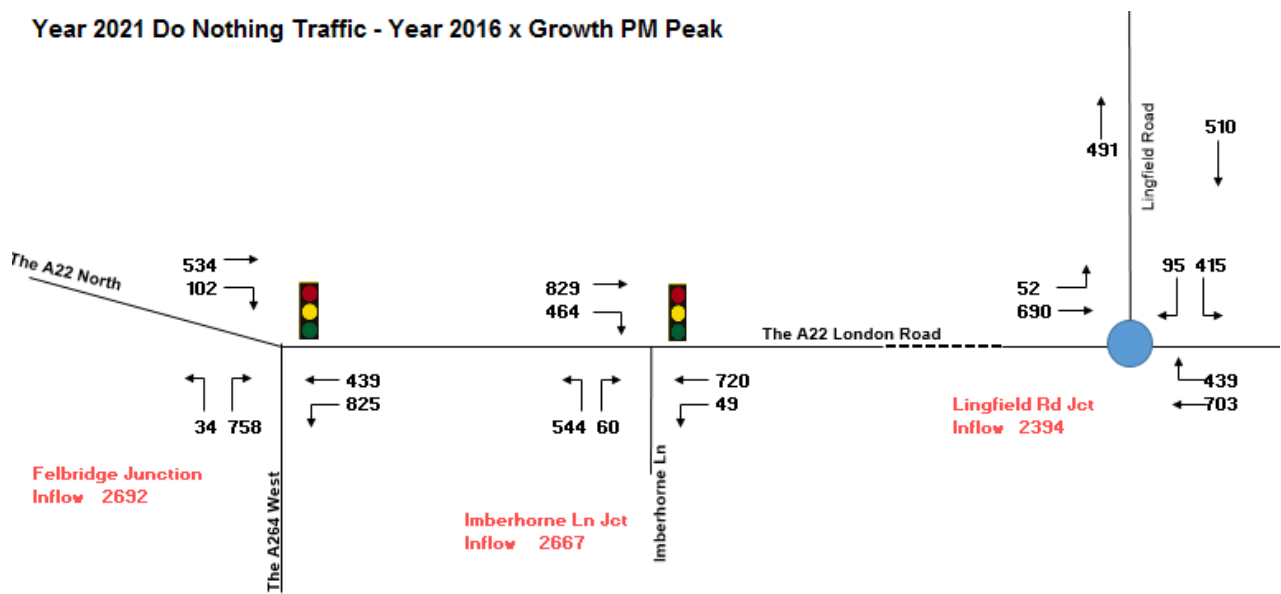


d. Opening/Assessment Year 2021 Total Traffic = a + growth

Year 2021 Do Nothing Traffic - Year 2016 x Growth AM Peak

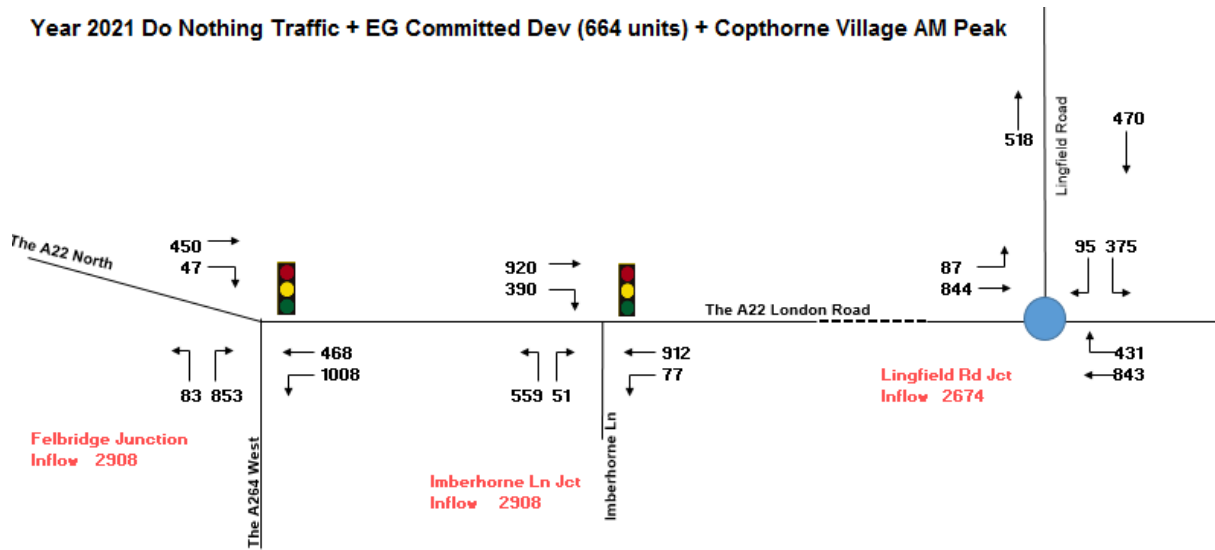


Year 2021 Do Nothing Traffic - Year 2016 x Growth PM Peak

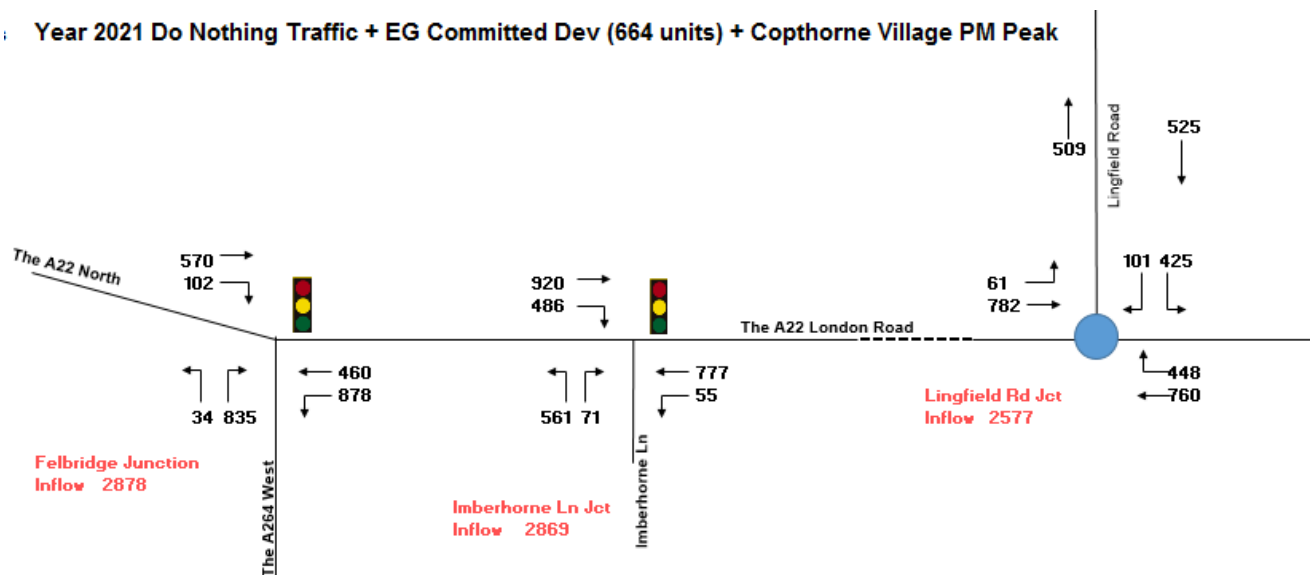


e. Opening/Assessment year 2021 Do minimum Traffic = d + b

Year 2021 Do Nothing Traffic + EG Committed Dev (664 units) + Copthorne Village AM Peak

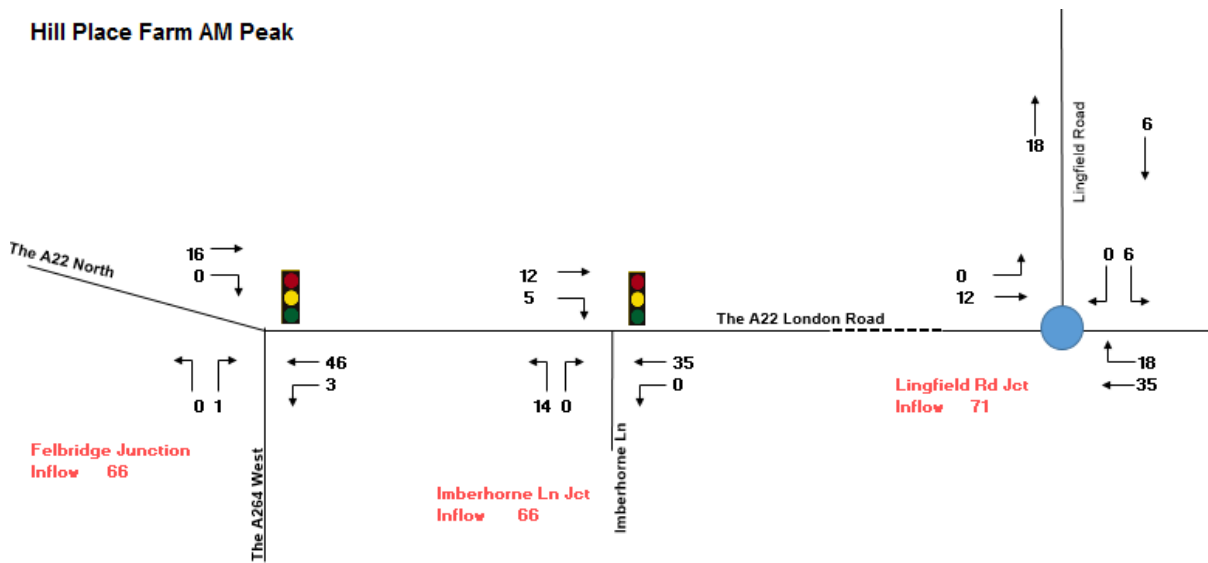


Year 2021 Do Nothing Traffic + EG Committed Dev (664 units) + Copthorne Village PM Peak



f. Proposed Development Traffic – Hill Place Farm Traffic

Hill Place Farm AM Peak

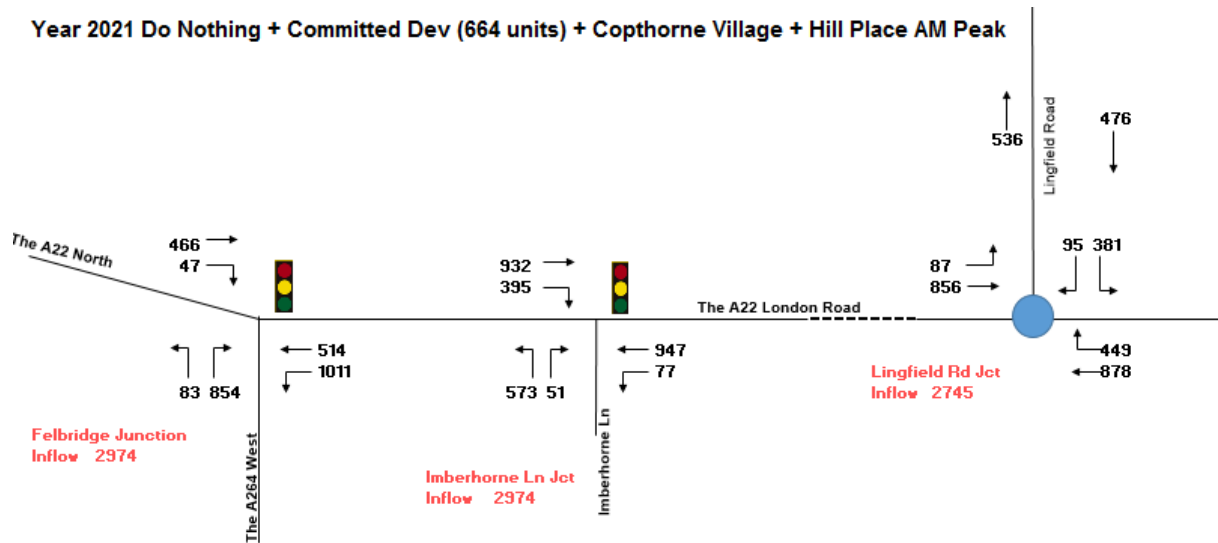


Hill Place Farm PM Peak

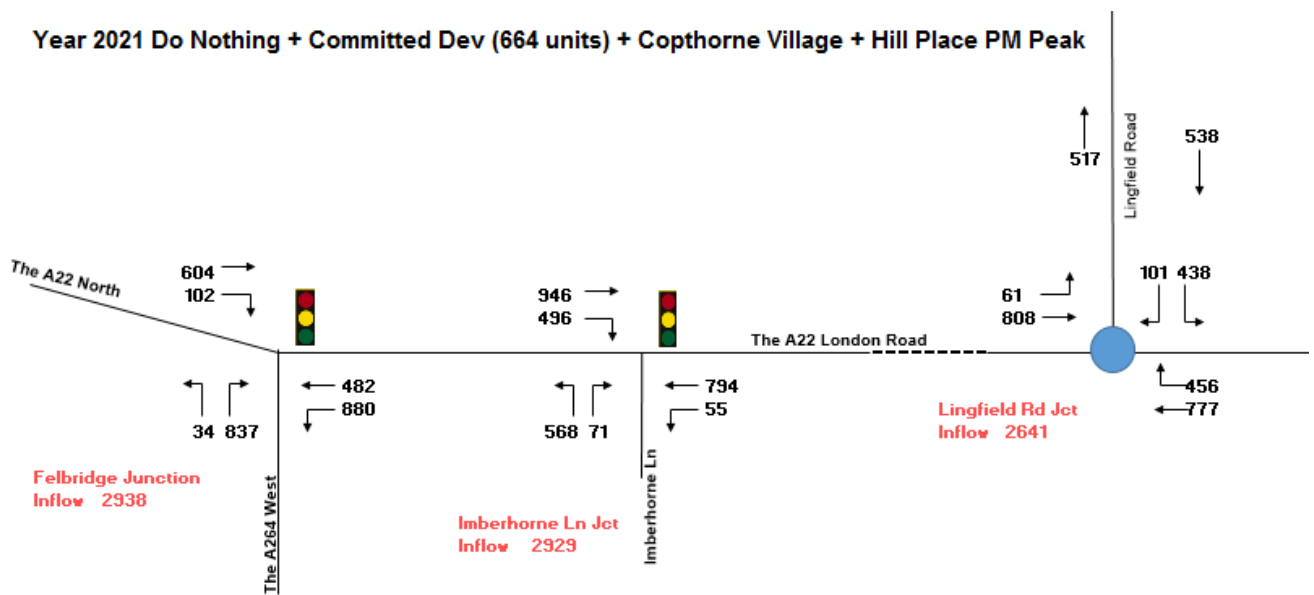


g. Opening/Assessment year 2021 Total Traffic = e + f

Year 2021 Do Nothing + Committed Dev (664 units) + Copthorne Village + Hill Place AM Peak



Year 2021 Do Nothing + Committed Dev (664 units) + Copthorne Village + Hill Place PM Peak



2.0 TURNER’S HILL JUNCTIONS B2110/B2028

BASELINE TRAFFIC

- 2.1. A total of 4 CCTV camera masts, 2 site officers and 2 enumerators were deployed at this location to capture the turning movements and the full extent of the queue length on the 7th and 8th of June. This is in accordance with the best practice in the industry.
- 2.2. The collated traffic data was subsequently elaborated in 15-minutes increments to project every accumulated hour between 07:00-09:30 and 16:00 – 18:30. The recorded peak hour turning movements are consistency on both survey days with identified highway peak as 07:45 – 08:45 and 17:00-18:00. The observed fluctuation can be comfortably accommodated as part of the daily variation.

AM Peak	Tues	Weds	PM Peak	Tues	Weds
07:00-08:00	3505	3398	16:00-17:00	3605	3918
07:15-08:15	3988	3822	16:15-17:15	3720	4018
07:30-08:30	4096	4021	16:30-17:30	3960	4056
07:45-08:45	4106	4129	16:45-17:45	4093	4129
08:00-09:00	4070	4062	17:00-18:00	4148	4158
08:15-09:15	3738	3870	17:15-18:15	4078	4047
08:30-09:30	3470	3570	17:30-18:30	3944	3901

Table 2.1 Turner’s Hill Junctions – Peak Hour Traffic Analysis

- 2.3. Queue surveys were carried out at the Junction to capture the maximum and spot queue during /at every 5 minutes segment.

Mean Maximum Observed Queue	Tue 7th June		Wed 8th June		Average	
	AM	PM	AM	PM	AM	PM
East St	7	6	6	5	7	6
North Street East	5	5	5	5	5	5
Lion Ln	-	-	-	-	-	-
Church Ln	41	66	41	91	41	79
Right Turn into Church Ln	31	12	30	24	31	18

Table 2.2 Observed Mean Maximum Queue

Committed Development Traffic

- 2.4. The MSDC Approved Committed Developments [ACD] take into account at the 1st April 2016 for Turners Hill includes 545 dwellings from Copthorne, 94 units in Crawley Down, and 91 units in Turners Hill. The associated traffic arising from the identified committed developments have been established and distributed at the testing

junction in accordance with the relevant supporting Transport Assessments, the observed turning movements and assumptions based upon best local knowledge.

Highway Enhancements

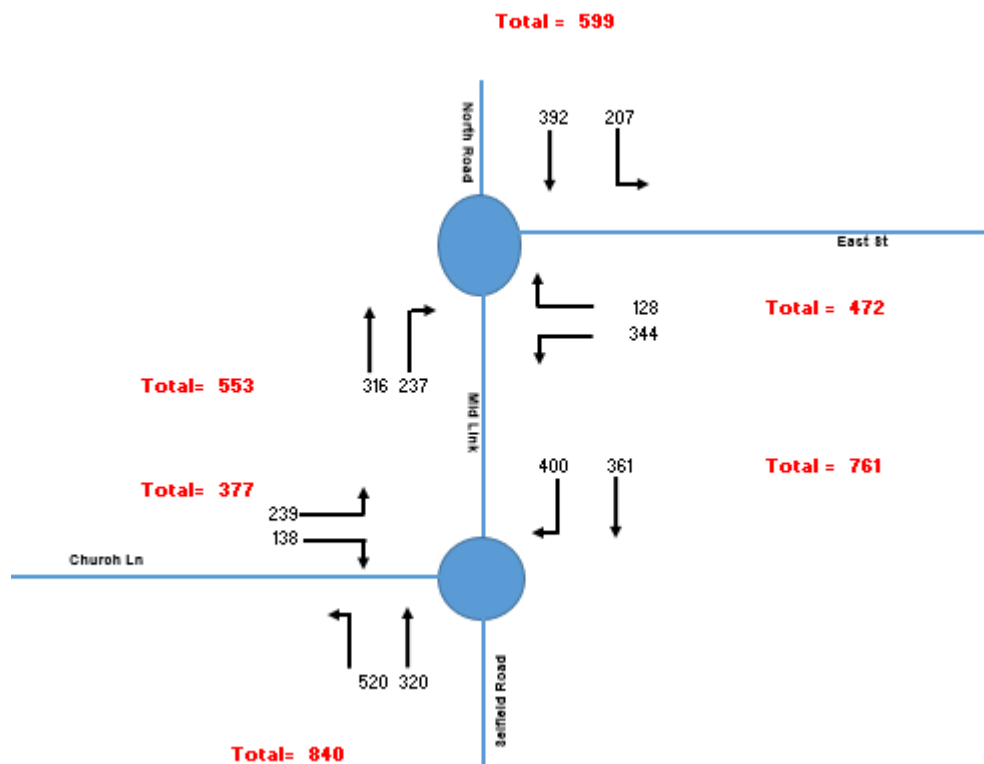
- 2.5. The THNP proposes mitigation by replacing the B2110/B2028 complex priority junction with two mini roundabouts (See drawing on page 7).refers to THNP Section 10 Traffic and Transport pages 33-39.
- 2.6. The proposal makes the crossroads into a 'T Junction by closing a section of road in front of the Crown PH and so increasing the size of the village green. By using a mini-roundabout on Church Road, chicanes on East Street and Lion Lane will allow the area to be a 20mph village zone.



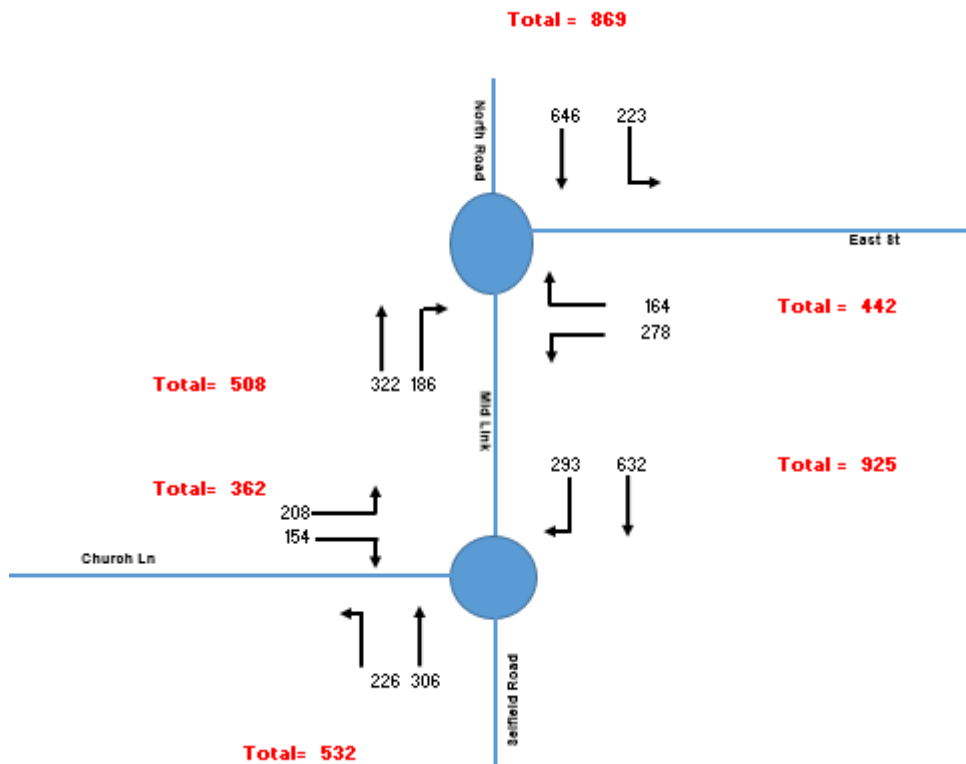
Figure 2.1 Proposed Highway Enhancements at Turner's Hill Junctions

2.7. To model this, the geometric input for the linked roundabout model (ARCADY) submitted in support of the THNP was adopted to assess the operational efficiency of the proposed junction arrangements. The recorded arrival traffic are comparable on both Jubb survey days 7th and 8th June 2016 therefore an average representation is adopted as the input flow. The performance of the proposed highway intervention was subsequently assessed against the following scenarios:

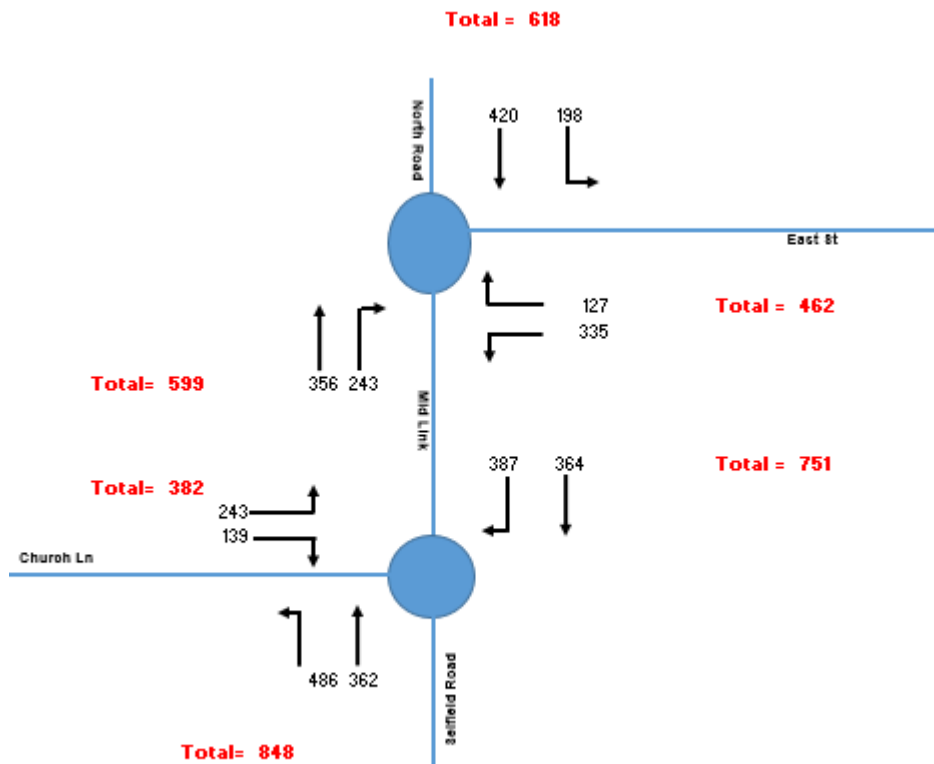
a. Year 2016 7th June Survey AM Peak 07:45 – 08:45



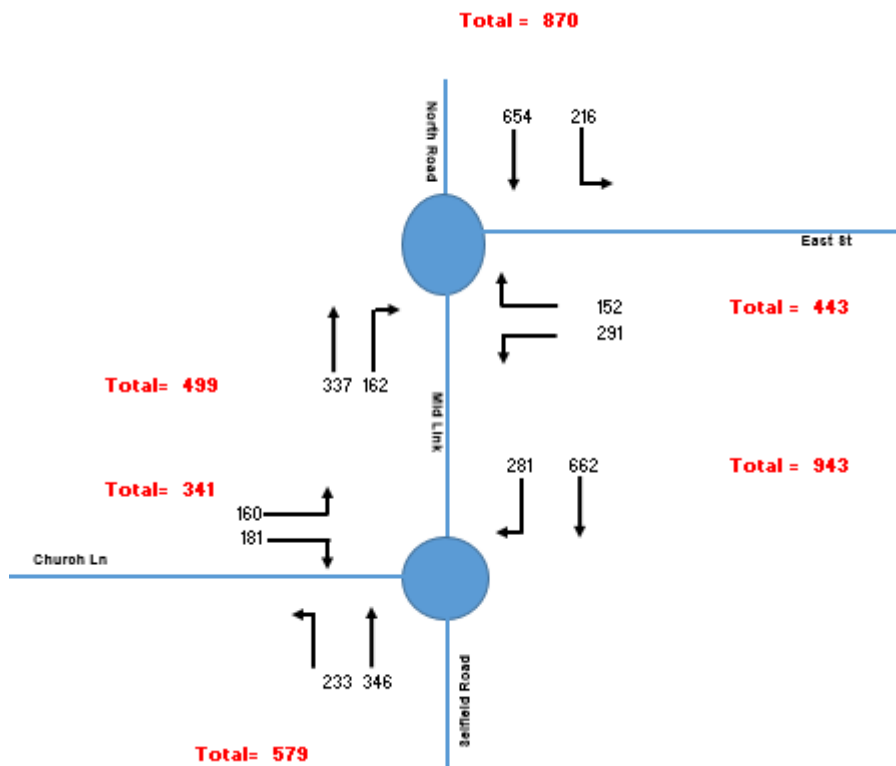
b. Year 2016 7th June Survey PM Peak 17:00 – 18:00



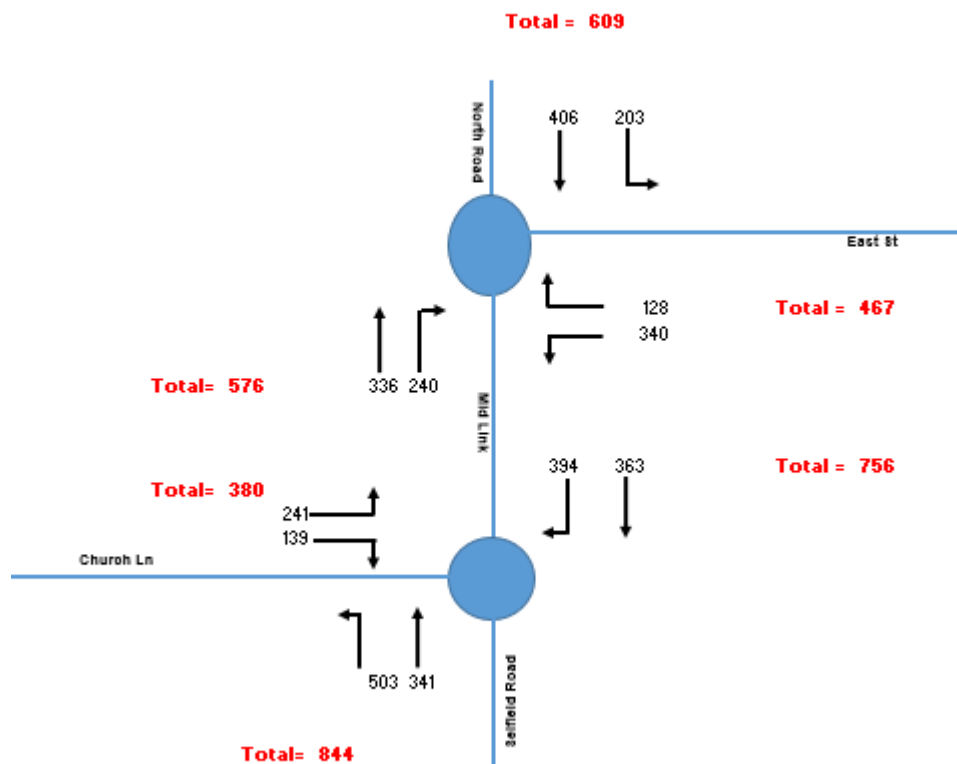
c. Year 2016 8th June Survey AM Peak 07:45 – 08:45



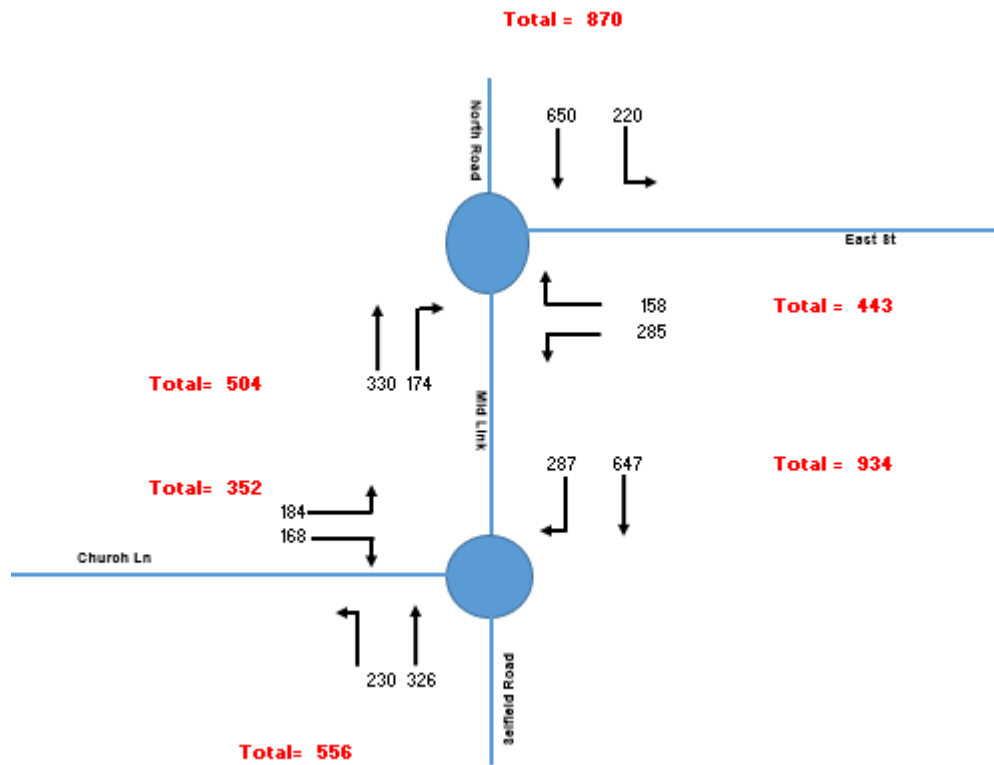
d. Year 2016 8th June Survey PM Peak 17:00 – 18:00



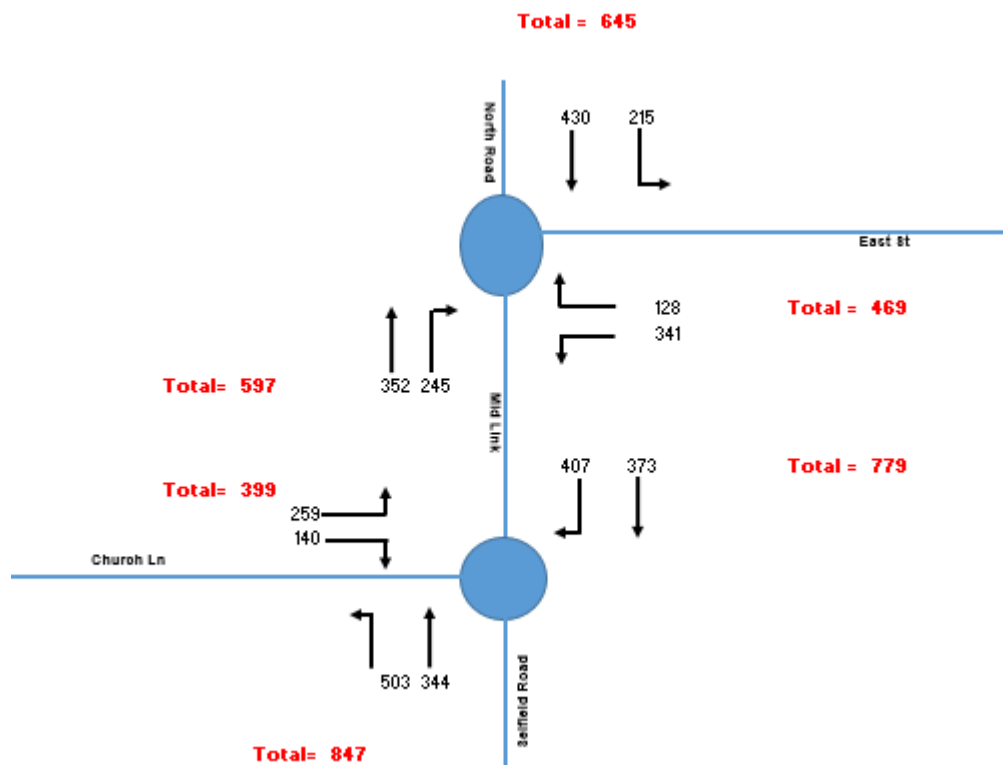
e. Year 2016 Baseline Condition AM Peak



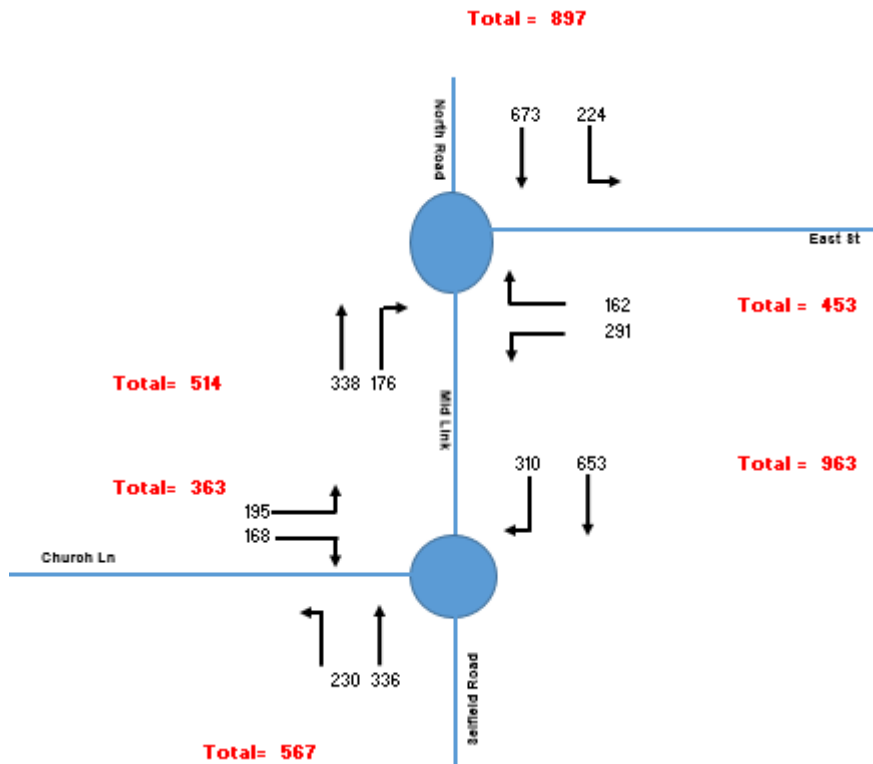
f. Year 2016 Baseline Condition PM Peak



g. Year 2016 Baseline Condition + Committed Development Traffic AM Peak



h. Year 2016 Baseline Condition + Committed Development Traffic PM Peak



3.0 DUKES HEAD ROUNDABOUT A264/B2028 COPTHORNE JUNCTION

Baseline Model

3.1. The geometric input for this 4-arm roundabout have been obtained from the approved Transport Assessment in support of the consented Copthorne Village West Development. The model was then subsequently calibrated and validated against the 2016 queue surveys to replicate the prevailing operational efficiency.

Baseline Traffic

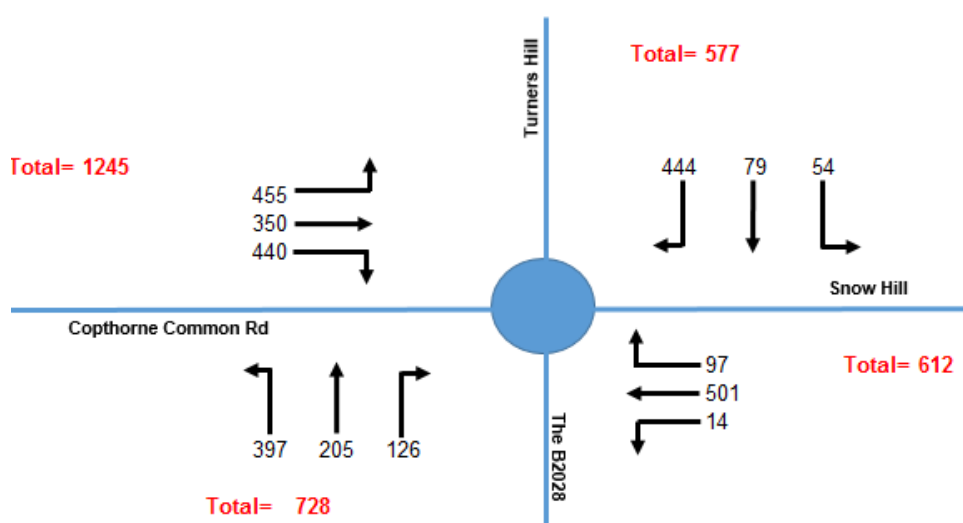
3.2. A total of 4 CCTV camera masts and 2 enumerators were deployed at location to capture the turning movements and the full extent of the queue length on the 7th and 8th June 2016. This in accordance with the best practice in the industry.

3.3. The collated traffic data was subsequently elaborated in 15-minutes increments to project every accumulated hour between 07:00-09:30 and 16:00 – 18:30. Peak spreading was evident during both surveys with the predominant peak demand observed between 07:30 and 08:30 in the AM and 16:45 -17:45 in the PM.

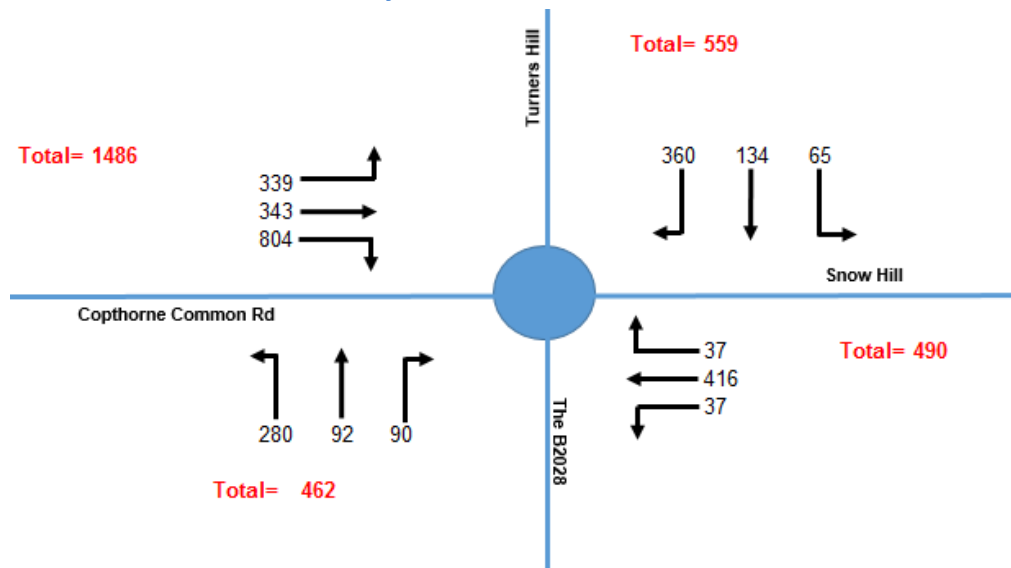
AM Peak	Tues	Weds	PM Peak	Tues	Weds
07:00-08:00	3090	3018	16:00-17:00	2972	2929
07:15-08:15	3154	3106	16:15-17:15	3027	2945
07:30-08:30	3161	3146	16:30-17:30	3020	2955
07:45-08:45	3077	3047	16:45-17:45	3033	2969
08:00-09:00	2853	2884	17:00-18:00	2992	2964
08:15-09:15	2749	2818	17:15-18:15	2936	2916
08:30-09:30	2673	2666	17:30-18:30	2824	2834

Table 3.1 Dukes Head Junction - Peak Hour Traffic Analysis

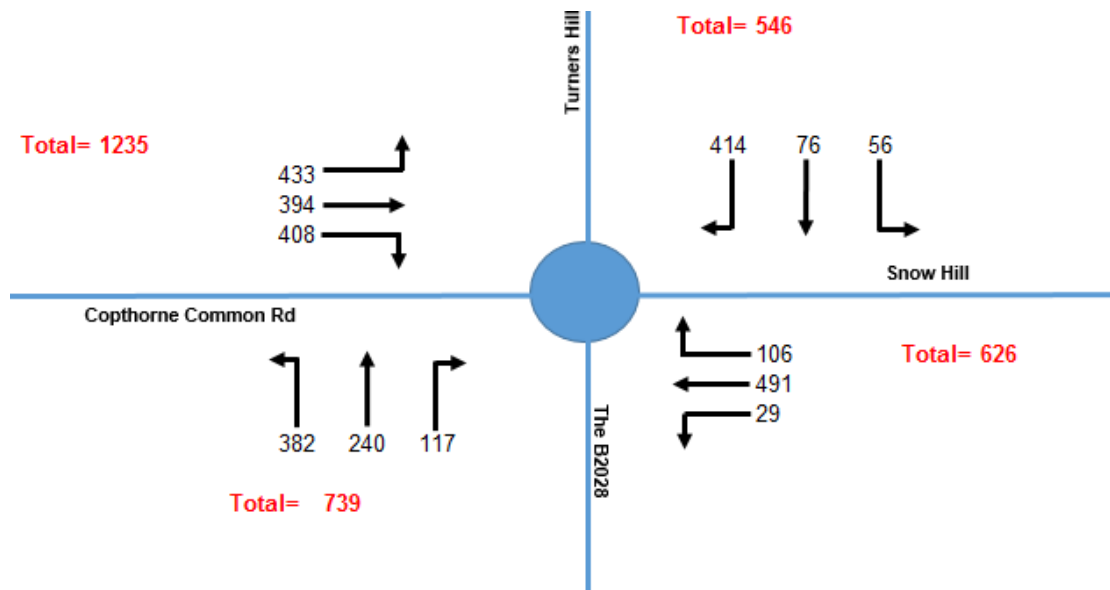
a. Year 2016 7th June Survey AM Peak 07:30 – 08:30



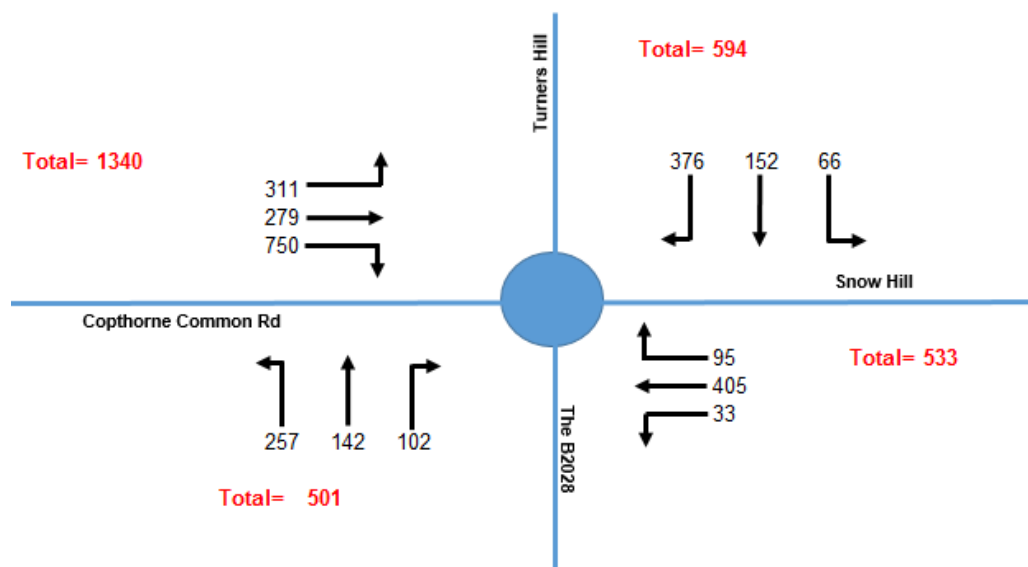
b. Year 2016 7th June Survey PM Peak 16:45– 17:45



c. Year 2016 8th June Survey AM Peak 07:30 – 08:30



d. Year 2016 8th June Survey PM Peak 16:45– 17:45



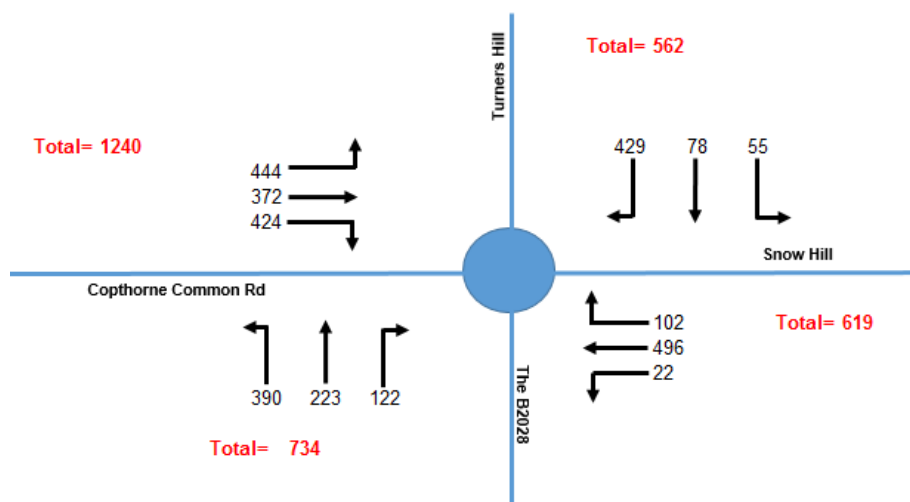
3.4. Queue surveys were carried out at the Junction to capture the maximum and spot queue during /at every 5 minutes segment. This was used to calibrate the derived turning movements and validate the associated junction modelling.

Mean Maximum Observed Queue	Tue 7th June		Wed 8th June		Average	
	AM	PM	AM	PM	AM	PM
Turner Hill North	7	21	7	24	7	23
Snow Hill	18	22	10	26	14	24
The B2028	21	6	18	10	20	8
Copthorne Common	13	8	12	9	13	9

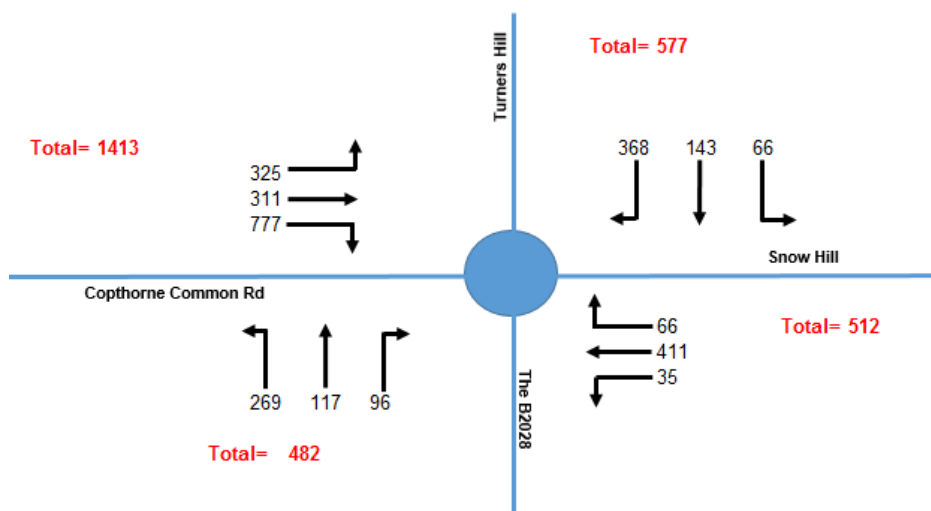
Table 3.2 Observed Mean Maximum Queue

3.5. As can be seen above, the recorded peak hour turning movements and MMQ are consistent on both survey days and the observed fluctuations can be comfortably accommodated as part of the daily variation. In view of this, to deliver a robust impact study the average representation of the survey results are adopted for the purposes of junction modelling.

e. Year 2016 June Survey Average AM Peak 07:30 – 08:30



f. Year 2016 June Survey Average PM Peak 16:45– 17:45

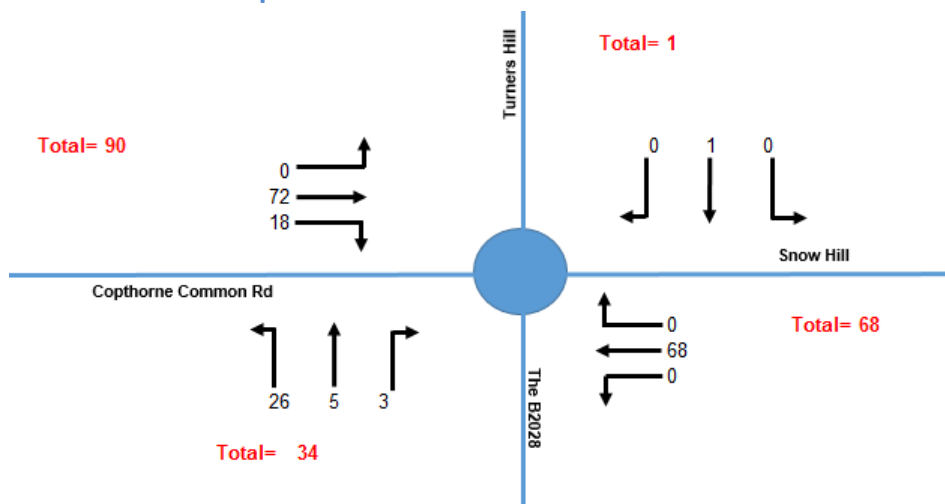


COMMITTED DEVELOPMENT TRAFFIC

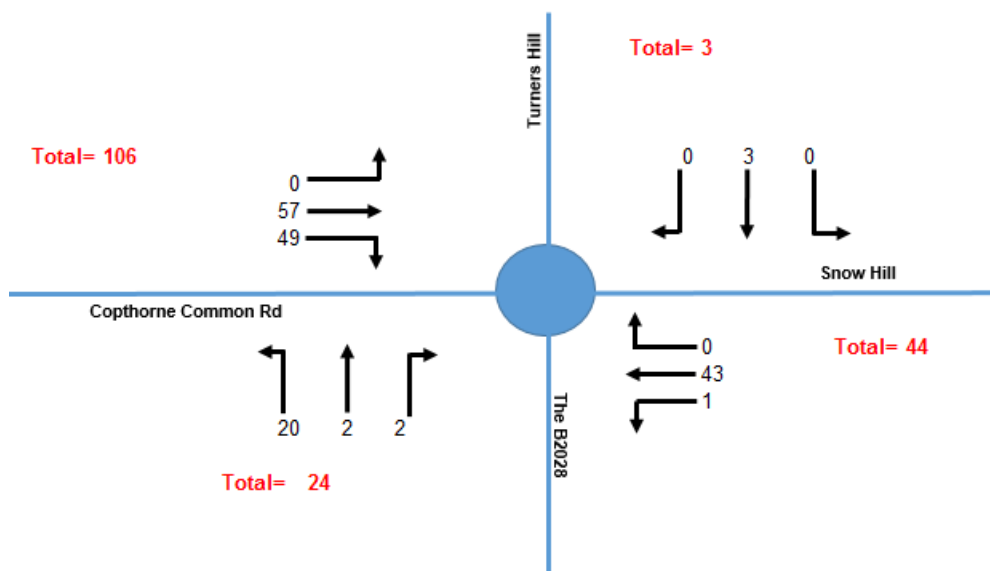
3.6. The MSDC Approved Committed Developments [ACD] take into account at the 1st April 2016 in Table M for Copthorne includes Copthorne Village West [Ref 13/04127] 500 dwellings and 45 other units, 94 units in Crawley Down, 91 units in Turners Hill while East Grinstead's 664 units include 472 ACD with the addition of 192 units in the East Grinstead Neighbourhood Plan going through examination.

3.7. The associated traffic arising from the identified committed developments have been established and distributed at the testing junction in accordance with the relevant supporting Transport Assessments, the observed turning movements and assumptions based upon best local knowledge.

g. Committed Development Traffic AM Peak



h. Committed Development Traffic PM Peak



Highway Enhancements

- 3.8. It is understood that junction improvements by means of entry widening are proposed as part of the consented Land West of Copthorne Village Residential Scheme (Ref 13/04127) to release the capacity at this location.
- 3.9. In view of this to assess the effect of this highway intervention, the validated baseline ARCADY model was subsequently adjusted to incorporate the envisaged enhancements with the geometric input obtained from the original TA accompanying the Copthorne Village West scheme.

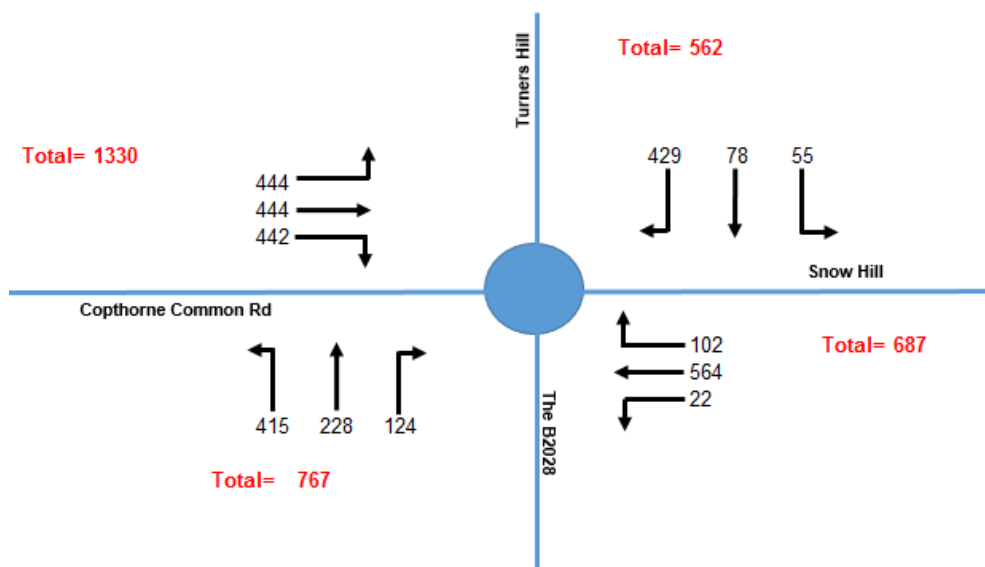


Figure 3.1 Proposed Highway Improvements

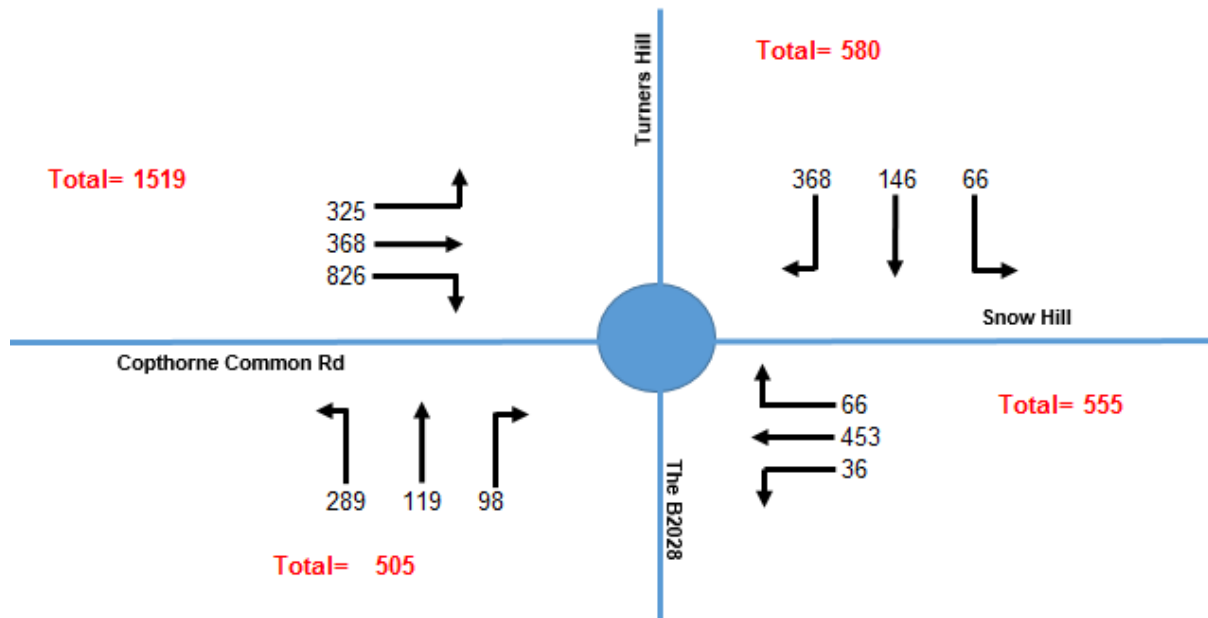
Assessment Scenarios

3.10. For purpose of this study, the proposed testing scenarios are summarised as follows:

- i. **Year 2016 Baseline Condition + Committed Development Traffic AM Peak**



j. Year 2016 Baseline Condition + Committed Development Traffic PM Peak



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