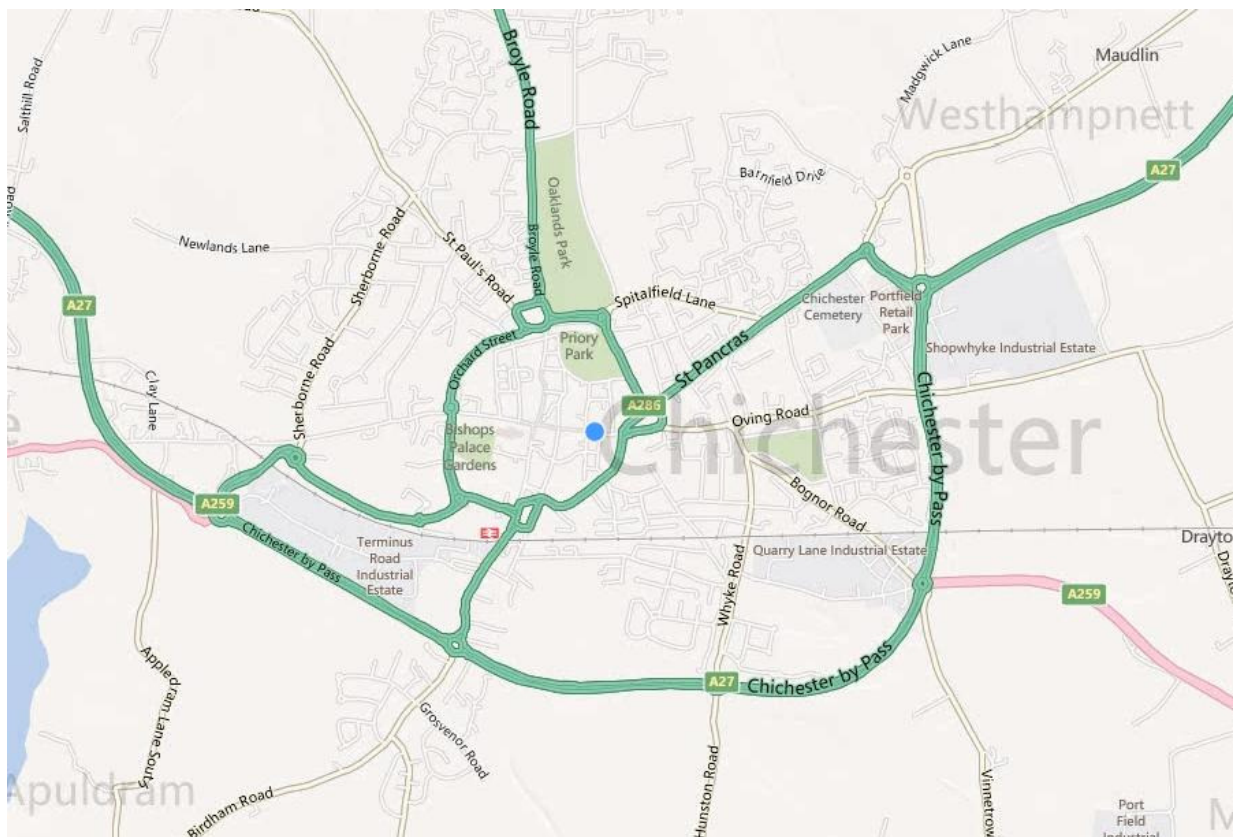


## Chichester District Council - Local Plan

### Chichester Link Road Modelling



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## 1.1 Background

In March 2013 Jacobs produced a report for West Sussex County Council to undertake a transport study of strategic development options for the city and the impact of several sustainable transport measures. This report fed into the preparation of a Local Plan for the area which will guide the future development of the locality up to the forecast year of 2031.

This report was commissioned by a collaborative partnership working between Chichester District Council, West Sussex County Council, the Highways Agency, and several housing developers. Modelling and forecasting of future transport demand was undertaken using the existing Chichester Area Transport Model (CATM) multi modal model constructed in the SATURN modelling suite.

Further details of findings of the report can be found in the “*Chichester District Council - Local Plan: Transport Study of Strategic Development Options and Sustainable Transport Measures*” produced by Jacobs in March 2013.

## 1.2 Purpose of this Report

After completion of the March 2013 report, Jacobs were approached by Vectos, through the Chichester partnership, to update the model and test the construction of a new link road to the west of the city. This required the following scenarios to be tested:

- *An updated Baseline Model (AM & PM):* including re-coding the illustrated area in **Figure 1-a** of Chichester to reflect a 20 mph speed limit on all roads (with the exception of those highlighted) and including the new junction arrangement at Cathedral Way/Fishbourne Road as illustrated in **Figure 1-b**.
- *An updated Baseline Model with New Link Road (AM & PM):* as above however with the new link road to the west of the city.
- *An updated Preferred Approach (Mitigated) Model (AM & PM):* including the same mitigation measures as previously reported in March 2013 and the inclusion of the 20mph zone as illustrated in **Figure 1-a**. No changes to the Cathedral Way/Fishbourne Road junction were made as alternative mitigation measures are already included at this junction.
- *An updated Preferred Approach (Mitigated) Model with New Link Road (AM & PM):* as above however with the link road to the west of the city.

No changes in travel demand were assumed as part of the modelling, therefore the aforementioned new models have been assigned with the original demand matrices reported in March 2013.

This report provides an overview of network performance of the updated models, output traffic flow plots, junction turning movements and summarises the key findings of the modelling undertaken.

### **1.3 Structure of Report**

This report includes the following sections:

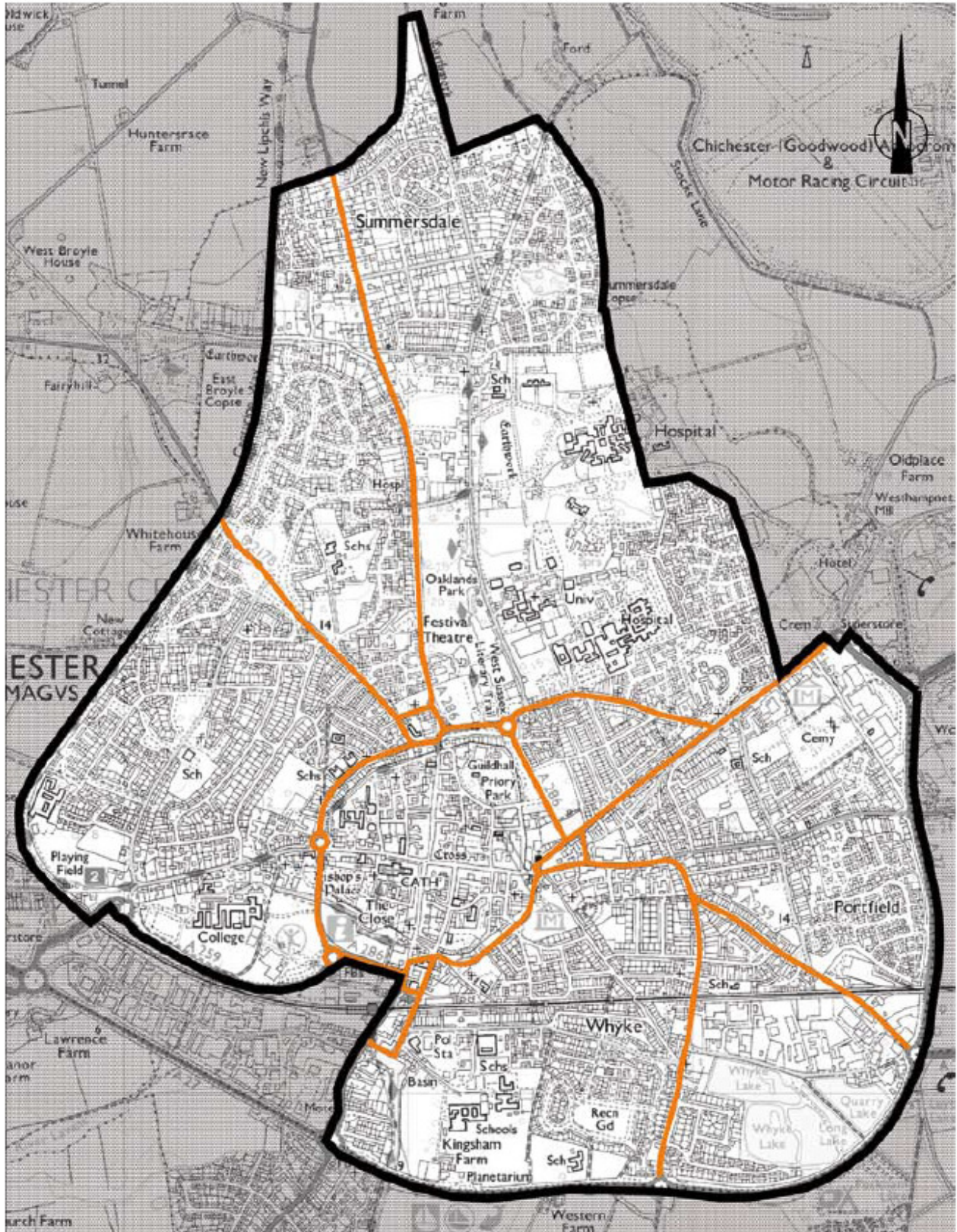
- Introduction;
- Model Background;
- Model Updating Methodology;
- Network Wide Performance Indicators;
- Network Performance on Links:
  - Flow Difference Plots;
  - Journey Times across Chichester.
- Network Performance at Key Junctions:
  - Turning Movements at Junctions;
  - Traffic Queues at Junctions;
- Select Link Analysis;
- Summary of Findings

Several appendices are also included at the rear of the report.

Figure 1-a Proposed Chichester 20mph Zone

KEY

- Area of 20mph zone
- Main roads with existing speed limit remain unchanged





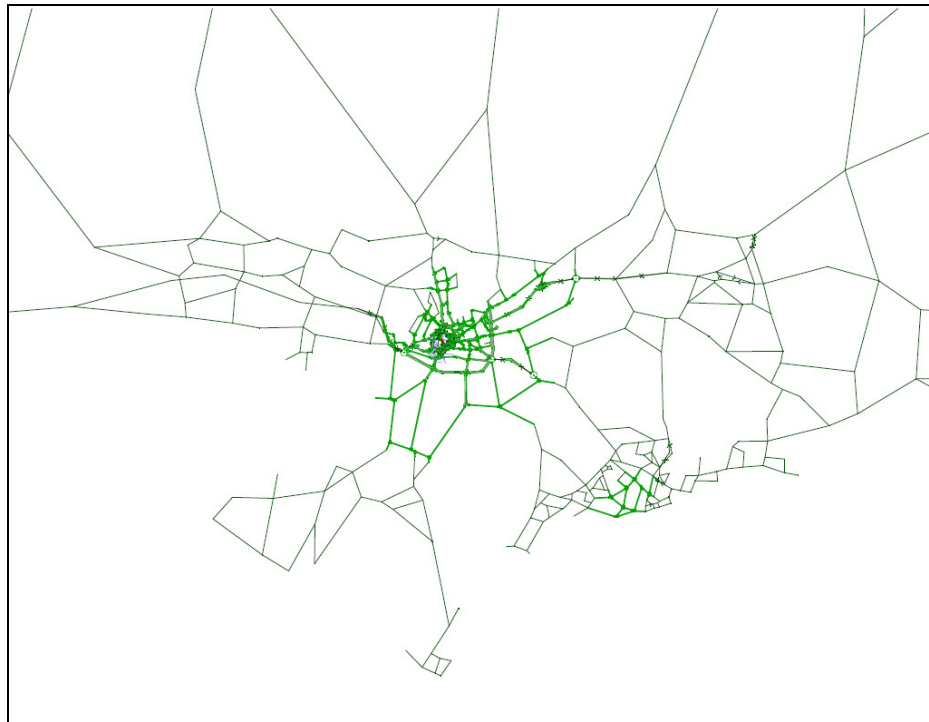


### 2.1 Introduction

This section of the report briefly describes the background to the model and several key parameters which may need to be taken into consideration when reporting the model results.

### 2.2 Modelled Area

The CATM multi modal model covers the area illustrated in Figure 2-a below. The modelled network includes the A27 trunk road skirting the south of the city of Chichester, the key links into and out of the city, as well as several local and access routes, as illustrated in **Figure 2-a** below.



**Figure 2-a CATM Highway Network and Simulation Area**

Surrounding the modelled network is the simulation network which represents the extents of the network.

### 2.3 Time Period Definition

The peak hour assignments are based on the maximum one hour flows within the three hour periods of 0700-1000 for the AM peak and the 1600-1900 period for the PM peak. No average inter-peak period was modelled as part of this work.

## **2.4 Vehicle Class Definition**

The model includes two assignment (user) classes – Light's (UC1) and Heavies (UC2). Light vehicles include cars and LGVs. Buses are represented as fixed route pre-loads within the network.

The model uses a passenger car unit (PCU) factor of 2.0 for Heavy Vehicles and Buses and 1.0 for Light Vehicles.

The model assignment is in units of PCUs and then outputs can be converted back to vehicles using the PCU factors discussed above.

## **2.5 Appropriateness for Use**

As part of the March 2013 report, a full detailed assessment of the calibration and validation of the model was undertaken. As part of this assessment, the highway model was validated to a base year of 2009 using count data on key cordons inside and outside the A27 Chichester Bypass and journey time survey data along the A27.

The modelled turning movements were reviewed against turning movement surveys (from 2003 onwards) and found to be robust. Model preparation made intensive use of available local traffic data. Before scenario testing was completed, model performance on key routes was verified against the most recent traffic flow data.

As outlined in the "*Chichester District Council - Local Plan: Transport Study of Strategic Development Options and Sustainable Transport Measures*" produced by Jacobs in March 2013, it was found that the model was sufficiently accurate to be used for the purposes of development plan testing and therefore is considered robust for the purposes of this report.

### 3.1 Introduction

This section of the report outlines the methodology for updating the existing models, coding the new link road and junctions and output reporting. The last section outlines the network performance indicators to be included in the latter part of this report.

### 3.2 Updating baseline and Preferred Approach models

As outlined in the project brief, the first stage of model testing was to update the 2031 'Baseline' and 'Preferred Approach' models. The following subsections detail the amendments made to produce the final four updated scenarios.

#### 3.2.1 Baseline Model

Using the Baseline model from the March 2013 report as a template, it was first necessary to replicate the reduced 20mph zone as illustrated in **Figure 1-a**. This was undertaken by cordoning the network within the SATURN modelling suite P1X interface and extracting a list of links (made up of A-node to B-nodes). This outlined all links within the cordon that needed to be amended.

A second 'link by link' cordon was produced of the inner-cordon links that were to remain at their 30mph speed limit and these were subtracted from the overall cordon links.

Once a list of identified links was produced, the 'Free Flow Speed (FFS)' on the entire internal cordon links (with the exception of those illustrated in the **Figure 1-a**) were adjusted to 30 kph (18.6mph) within the SATURN network file. This was then run through SATNET, the SATURN network building application and checked for errors.

No changes were made to the input matrices.

#### 3.2.2 Preferred Approach Baseline Model

Using the Preferred Approach model previously developed by Jacobs, free flow link speeds on the internal cordoned network were adjusted to 30kph (18.6mph) as undertaken with the baseline model.

Existing highway mitigation measures developed as part of the Preferred Approach (Mitigated) scenario previously developed were retained in the model.

Again, no changes were made to the input matrices.

### 3.2.3 Baseline model with New Link Road

Using the updated Baseline model constructed as part of this project, an indicative 1.875km link road was coded into the model (see **Figure 3-a** below). This was coded as a single carriageway 30mph link road adjoining the Westgate/Sherborne Road junction and the B2178 Broyles Road. A section of the link road was coded as 20mph between Bishop Luffa School and the Westgate/Sherborne Road junction.



**Figure 3-a** Modelled new Link Road

Preliminary junction arrangements for the new junction at Old Broyle Road/New Link Road/St Paul's Road and the new junction on Westgate were provided by the client and are illustrated in **Figures 3-b** and **3-c** respectively. For comparison, the coded junctions are shown in **Figure 3-d** and **3-e**.

Again, no changes were made to the input matrices.

### 3.2.4 Preferred Approach model with New Link Road

Using the updated preferred approach developed as part of this project, the same 1.875km link road was coded into the model as described in the previous section.

Again, no changes were made to the input matrices.



Figure 3-b Preliminary Design for Old Broyle Road/New Link/St Paul's Road Junction

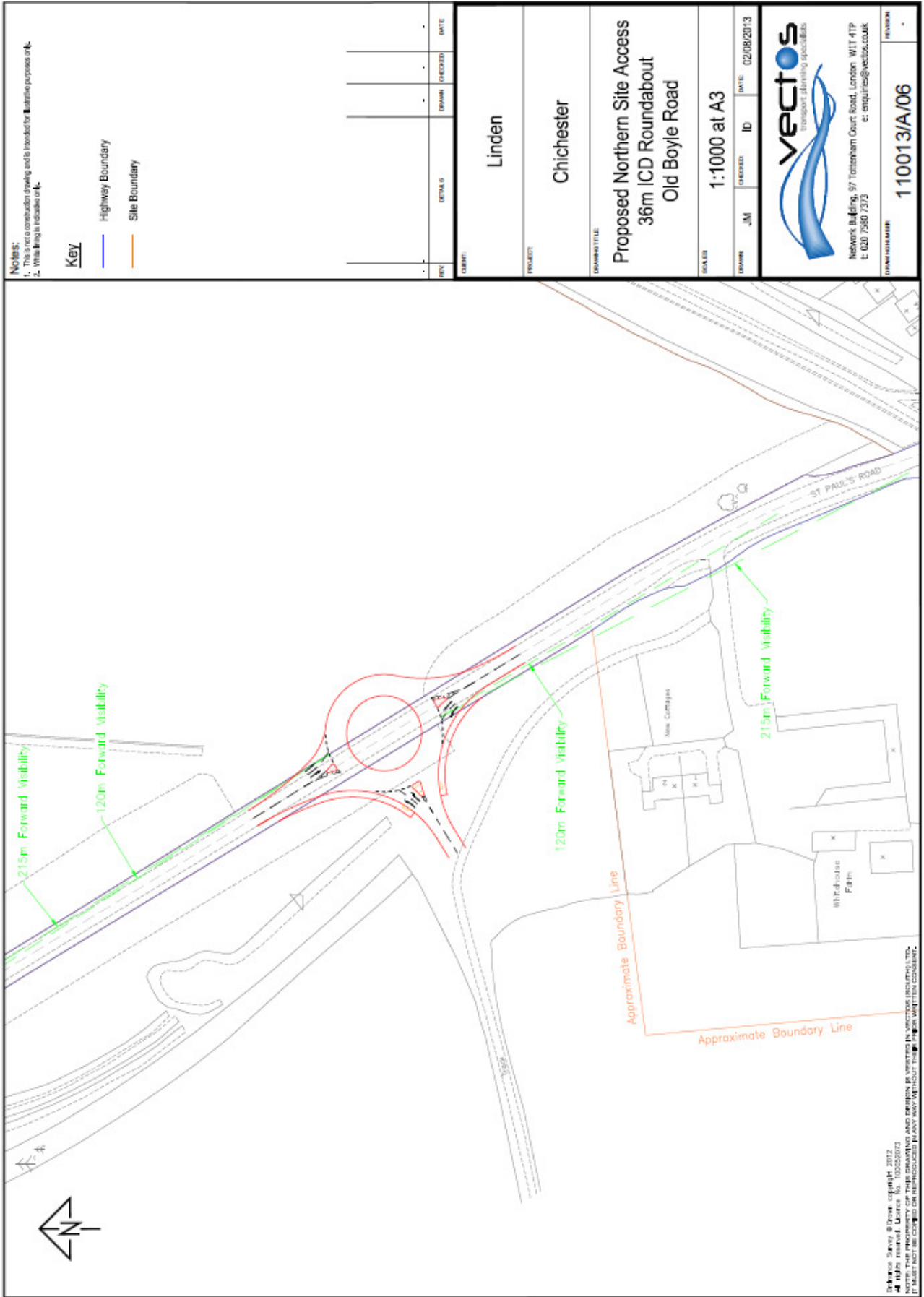
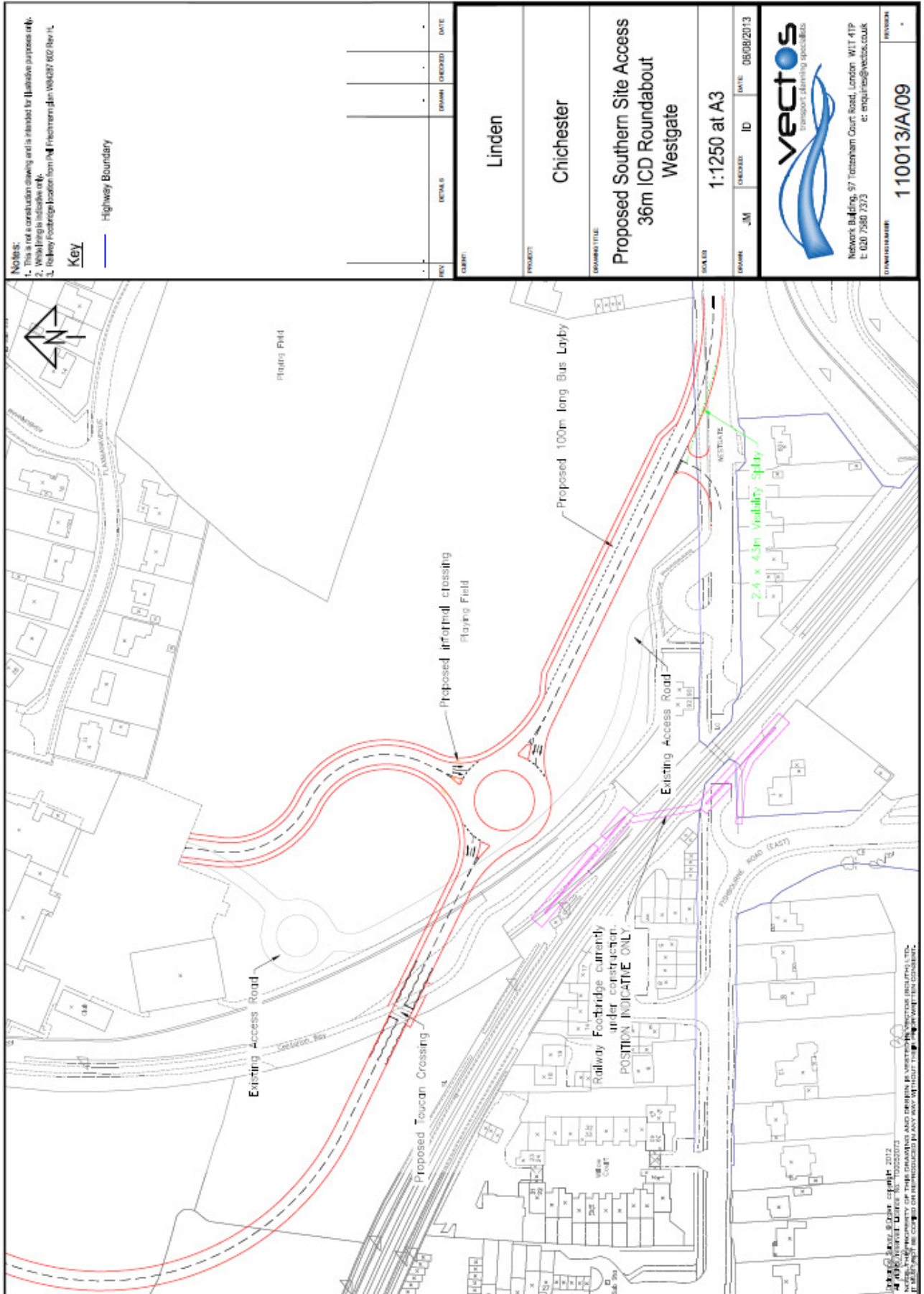
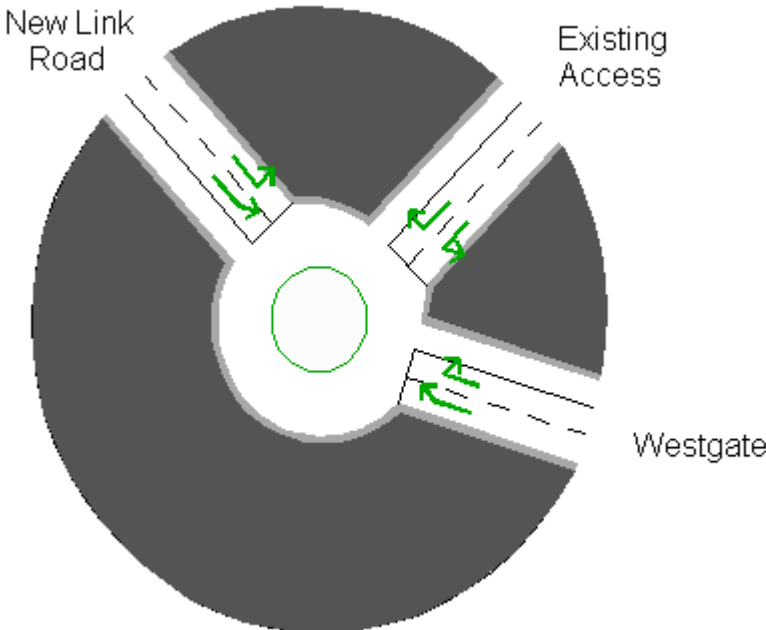


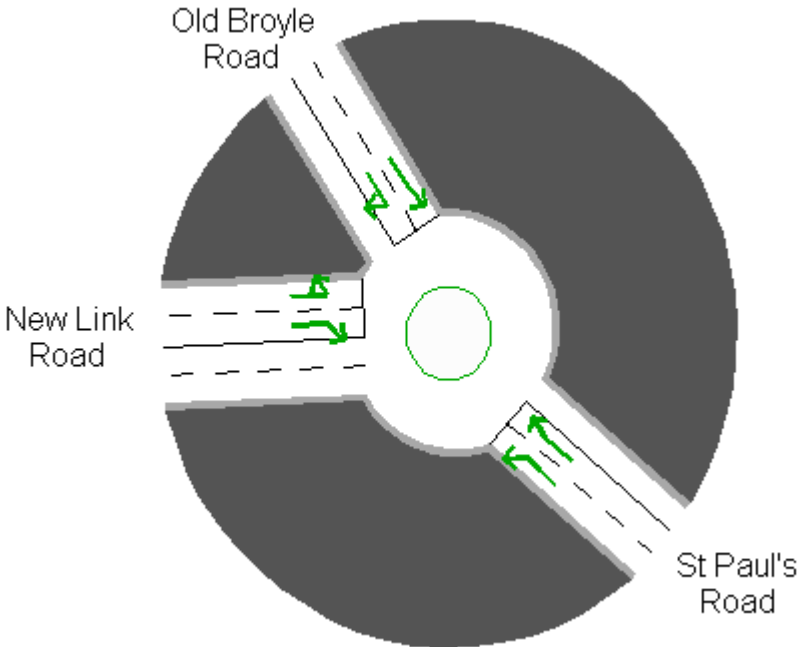
Figure 3-c Preliminary Design for Westgate/Existing Access/New Link Junction



**Figure 3-d Modelled Westgate/Existing Access/New Link Junction**



**Figure 3-e Modelled Westgate/Existing Access/New Link Junction**



### 3.3 Model Performance Indicators

A number of key performance indicators were used to analyse the results of the modelling work, which will be further outlined in the **Sections 4, 5 and 6** which details the results of the modelled scenarios:

- *Network-wide indicators* – overall indicators of performance for the entire modelled network, for each scenario modelled.
- *Traffic flow diagrams* – modelled traffic flows for each link in the network, presented as a bandwidth map, for each scenario modelled.
- *Modelled junction turning counts* – turning flows at several key modelled junctions in the network, for each scenario modelled.

### 4.1 Introduction

This section of the report outlines key network wide statistics for the all scenarios modelled. Key statistics include total number of trips, total travel time, total network delay, average network speed and average fuel consumption. Figures are shown for both light and heavy user classes.

### 4.2 Baseline models

As highlighted in Table 4-a, in the AM peak, between with and without link road scenarios, there is very little difference in headline figures across the model. This comparison indicates that with the link road in place, there is a reduction in total travel time by 1.2 PCU hours, however there is also an increase in total delay time of 0.7 PCU hours, producing a net gain of 0.5 PCU hours across the model.

AM Baseline Scenario								
Global Statistic	Without Link Road		With Link Road		Abs Change		% Change	
					(Link Road vs. baseline)			
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
Number of Trips (PCUs)	42,052	1,630	42,052	1,630	0	0	0.00%	0.00%
Total Travel Time (PCU Hrs)	1,968	104	1,967	104	-1.3	0.1	-0.10%	0.10%
Total Delay Time (PCU Hrs)	347	18	348	18	0.7	0	0.20%	0.00%
Average Speed	27.9	40.1	27.9	40.1	0	0	0.00%	0.00%
Fuel Consmp. Litres/Hr	10973.9		10979		5		0.00%	

**Table 4-a AM Baseline Network wide statistics**

As highlighted in Table 4-b, in the PM peak, between the with and without link road scenarios, there is a greater difference in headline figures across the model as compared to the AM peak. This comparison indicates that with the link road in place, there is a reduction in total travel time by 18.0 PCU hours, with no increase in delay time. Additionally, there is also an increase in average speed of 0.3 kph for light vehicles across the model.

PM Baseline Scenario								
Global Statistic	Without Link Road		With Link Road		Abs Change		% Change	
					(Link Road vs. baseline)			
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
Number of Trips (PCUs)	44,600	850	44,600	850	0	0	0.00%	0.00%
Total Travel Time (PCU Hrs)	2,372	49	2,354	50	-18.2	0.2	-0.80%	0.40%
Total Delay Time (PCU Hrs)	436	8	436	8	0	0	0.00%	0.00%
Average Speed	25	41.9	25.3	41.8	0.3	-0.1	1.20%	-0.20%
Fuel Consmp. Litres/Hr	11844.5		11857.8		13		0.10%	

**Table 4-b PM Baseline with and without link Road Network wide statistics**

### 4.3 Preferred Approach models

Again, the impact of the link road in the AM peak in the updated preferred approach models is negligible, with a decrease in travel time of 7.3 PCU hours across the modelled area. Total delay is increased, as observed in the baseline models, producing an overall net gain of 6.1 PCU hours over the modelled area. Average speeds remain virtually unchanged.

AM Preferred Approach Scenario								
Global Statistic	Without Link Road		With Link Road		Abs Change		% Change	
	(Link Road vs. baseline)							
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
Number of Trips (PCUs)	41,577	1,630	41,577	1,630	0	0	0.00%	0.00%
Total Travel Time (PCU Hrs)	1,983	99	1,975	99	-7.4	0.1	-0.40%	0.10%
Total Delay Time (PCU Hrs)	366	18	367	18	1.3	0	0.40%	0.00%
Average Speed	29	42.7	29.1	42.7	0.1	0	0.30%	0.00%
Fuel Consp. Litres/Hr	11678.8		11691.9		13		0.10%	

**Table 4-c AM Preferred with and without link Road Network wide statistics**

In the PM peak, a smaller reduction of 0.9 PCU hours is noted however total delay is increased by 1.7 PCU hours, leaving a net increase of 0.6 PCU hours over the modelled area. Average speed for light vehicles remains virtually unchanged however there is a 0.3 kph increase in speed for heavy vehicles.

AM Baseline Scenario								
Global Statistic	Without Link Road		With Link Road		Abs Change		% Change	
	(Link Road vs. baseline)							
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
Number of Trips (PCUs)	43,862	1,850	43,862	1,850	0	0	0.00%	0.00%
Total Travel Time (PCU Hrs)	2,231	49	2,230	49	-0.5	-0.4	0.00%	-0.80%
Total Delay Time (PCU Hrs)	413	8	412	8	-1.7	0	-0.40%	0.00%
Average Speed	27.3	42.2	27.4	42.5	0.1	0.3	0.40%	0.70%
Fuel Consp. Litres/Hr	11871.6		11892.7		21		0.20%	

**Table 4-d PM Preferred with and without link Road Network wide statistics**

#### 4.4 Comparison of Baseline and Preferred Approach models

Comparing with and without the link road, it is evident that some benefits are observed across the baseline and preferred scenarios.

	AM				PM			
	Baseline		Preferred		Baseline		Preferred	
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
Total Travel Time (PCU Hrs)	-1.3	0.1	-7.4	0.1	-18.2	0.2	-0.5	-0.4
Total delay time (PCU Hrs)	0.7	0.0	1.3	0.0	0.0	0.0	-1.7	0.0
Average speed	0.0	0.0	0.1	0.0	0.3	-0.1	0.1	0.3

**Table 4-e Network wide difference in key indicators: with and without link road**

Table 4-e highlights the difference in the key indicators with and without link road in place. Whilst there is not a common trend between the scenarios, there is an obvious benefit in travel time across the network in the PM peak baseline scenario.

## 5.1 Introduction

This section of the report highlights the key trends in the traffic flow plots and flow difference plots produced from the model. Traffic flow plots for each modelled scenario are presented in the associated appendix and commentary on flows is provided in the following sections.

Flow difference plots have been produced for the 'with link road' scenario against the updated baseline and preferred approach scenarios. An additional flow difference plot has been produced for the updated baseline against the updated preferred approach scenario.

No traffic flow plots or difference plots have been produced for the 'Baseline with new Link Road' scenario, as this was not requested by the client.

## 5.2 Traffic Flow Plots

### 5.2.1 Baseline Traffic Flows

**Appendix A** illustrates forecast traffic flows for the 2031 Baseline model in both the AM and PM peaks for light and heavy traffic. In the AM peak, as would be expected, the greatest traffic flows are shown along the A27 skirting the south of Chichester.

The A27/A259 Cathedral Way junction is observed having very high traffic flows for both light and heavy vehicles. Indeed, in the Baseline model, this junction acts as the primary access route into the city centre for heavy traffic. In the PM peak, the aforementioned trend is less pronounced, however traffic flows on Sherborne Road and Parklands Road increases above 150 PCUs/Hour, suggesting that in the PM Peak, peak spreading may be occurring, or drivers are opting to use slower, less congested routes over the retained 30mph arterials, unlike the more accented trend modelled in the AM peak.

The section of Westgate (to the west of Sherborne Road) is not modelled in the Baseline scenario, therefore no direct modelled flows can be commented upon for this link.

In both the AM and the PM peaks, traffic flows along Old Broyle Road/St Paul's Road remain relatively high, acting as an arterial route into the city centre that avoids the main A27 trunk road. Unlike with Sherborne Road and Parklands Road, traffic flows in the PM are lower, on some stretches falling below 350 PCUs/Hour.

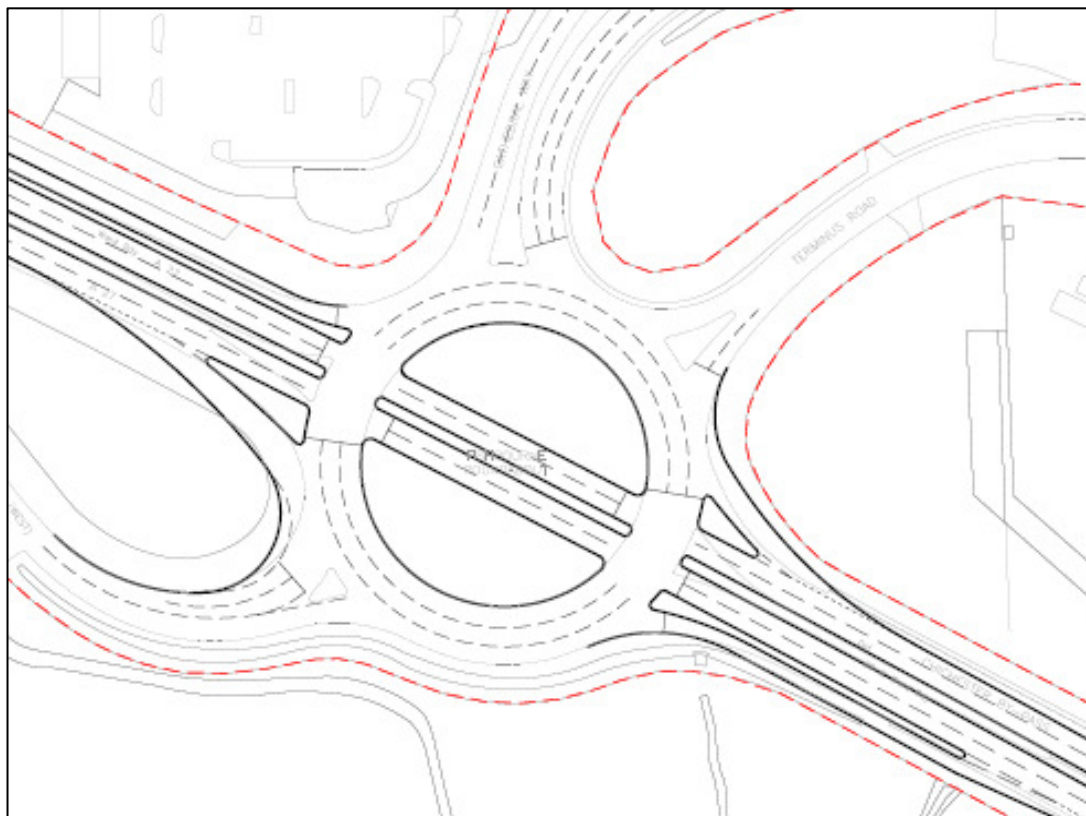
### 5.2.2 Preferred Approach Traffic Flows

**Appendix B** illustrates traffic flows the 2031 Preferred Approach model in the AM and PM peaks for light and heavy traffic. As with the Baseline scenario, traffic movements are broadly similar and the same patterns of movements are evident. Indeed, the same trends in heavy vehicles and traffic movements along Sherborne Road, Parklands Road, Old Broyle Road and St Paul's Road are replicated, suggesting that the mitigation measures implemented in this model act as congestion relieve measures at pinch points on the highway network.



A key mitigation measure as part of this model is the upgrading of the A27/A259 Cathedral Way junction from a standard at-grade roundabout design to a signalised ‘hamburger’ style roundabout configuration. **Figure 5-a** illustrates an outline design of the junction.

**Figure 5-a A27/A259 Cathedral Way outline design**



This new design has the effect of increasing light traffic flows along Terminus Road into the city centre. Heavy traffic also continues to use this route as the main access to the city centre in the AM peak.

### 5.2.3 Preferred Approach with New Link Road Traffic Flows

**Appendix C** illustrates traffic flows the 2031 Preferred Approach model in the AM and PM peaks for light and heavy traffic. Again, as with the Preferred Approach scenario, traffic movements remain broadly similar to the Baseline scenario. As no change has been made to the forecast traffic matrices, the routing of origins to destinations is largely unaffected by the introduction of the new link road, indicating that the introduction of the link road does not offer a more attractive route to travellers between origins and destinations. Rerouting of traffic from Sherborne Road onto the new link road has not occurred – this may be due to the longer distance of the new route over the existing Sherborne Road route and the negotiating of the same number of junctions (depending on the actual route travelled).

In the AM peak less than 150 vehicles were modelled to use the route, however in the PM peak this number increased above 150 vehicles. This is due to the trend seen in the previous flow diagrams of possible route diversions onto slower routes than the main 30mph arterials. Additionally, with the new link road in place, access onto the network from several new zones (holding new development traffic) is made easier.

## 5.3 Flow Difference Plots

### 5.3.1 Change in flows: Baseline vs. Preferred Approach

**Appendix D** illustrates the differences in traffic flows between the Baseline and Preferred Approach models in the AM and PM peaks for both light and heavy vehicles.

Links which are shown in black are those that do not have an equivalent link in either the Baseline or Preferred Approach models, meaning that no direct comparison of link flows between the scenarios can be made. This is particularly evident around the A27/A258 Cathedral Way junction where the new 'hamburger' style roundabout has been modelled in the Preferred Approach scenario.

As the number of trips in the Light (UC1) and Heavy (UC2) traffic matrices has increased from 41,577 PCUs and 1,630 PCUs respectively in the Baseline model to 43,862 PCUs and 1,850 PCUs in the Preferred Approach model, it is unsurprising that traffic flows on most links have increased by a proportionate amount in the difference plot.

Light traffic flows in the AM peak dominantly increased along the A27 to the east of Chichester and from the A27 along the A259 Bognor Road. This difference was also notable in the PM peak period for light vehicles. Interestingly, traffic flow differences on the A259 via Ravenna saw an increase of greater than 250 light PCUs, suggesting that without mitigation this already congested access into the city centre may get significantly worse by 2031.

Traffic flows on the Northbound stretch of Sherborne Road also increase markedly (in excess of 250 PCUs) between the Baseline and Preferred Approach Scenarios, suggesting that this is a key arterial for exiting from the A27 in the PM peak via the A27/A259 Cathedral Way junction.

Traffic flows for heavy vehicles saw a general increase in traffic flows on most links across the model in both the AM and PM peaks. Whilst none of these were greater than 100 PCUs or less than -100 PCUs, further disaggregation may be needed to identify specific increases in heavy traffic movements on certain links.

### 5.3.2 Change in flows: Baseline vs. Preferred Approach with New Link Road Traffic Flows

**Appendix E** illustrates the differences in traffic flows between the Baseline and Preferred Approach with new Link Road models in the AM and PM peaks for both light and heavy vehicles.

Again, links illustrated in black are those that do not have an equivalent between the Baseline and Preferred Approach models.

As with the Baseline and Preferred Approach comparison, traffic flows increase markedly on the A27 to the east of Chichester in both the AM and PM peaks. In the AM peak, an increase of greater than 250 PCUs is modelled on the A259 Via Ravenna, however in the PM peak Sherborne Road is seen to have a significant increase of flow of greater than 250 PCUs, suggesting a tidal movement between the peaks on these two links for accessing the A27 via the A27/Cathedral Way junction.

A similar trend is observed for heavy vehicles across the AM and PM peaks as outlined in the previous section. No links were identified as having an increase of greater than 100 PCUs or decrease of less than -100 PCUs in either peak period.

### **5.3.3 Change in flows: Preferred Approach vs. Preferred Approach with New Link Road Traffic Flows**

**Appendix F** illustrates the differences in traffic flows between the Preferred Approach and Preferred Approach with new Link Road models in the AM and PM peaks for both light and heavy vehicles.

The new Link Road is illustrated in black as this does not have an equivalent between the Preferred Approach and Preferred Approach with new Link Road models.

For light vehicles, no links were identified as having an increase of greater than 100 PCUs or decrease of less than -100 PCUs in either peak period. Similarly for heavy traffic, no links were identified as having an increase of greater than 100 PCUs or decrease of less than -100 PCUs in either peak period.

This would suggest that the introduction of the new Link Road has minimal effect on traffic routing on the model.

## 5.4 Flow on key links

Additional link flows have been extracted from the model for all scenarios, for the AM and PM peak periods. **Table 5-a** highlights flows on several links for the AM peak. This illustrates that across the scenarios, there is a marked increase in flows between the Base and Preferred Approach models, as would be expected due to the increase in development traffic added into the matrices.

Link	Direction	AM Peak					
		Base		Preferred Approach		Preferred Approach with Link Road	
		Lights	Heavies	Lights	Heavies	Lights	Heavies
Terminus Road	EB	126	1	201	1	202	1
	WB	153	3	70	1	72	1
Via Ravenna	EB	1,232	2	1,521	2	1,513	1
	WB	697	61	778	59	745	58
A259 Fishbourne Road West	EB	279	25	415	28	423	28
	WB	374	18	651	31	651	30
A27 (east of Fishbourne Roundabout)	EB	2,391	414	2,471	414	2,469	414
	WB	1,992	231	2,141	253	2,141	252
A27 (West of Fishbourne Roundabout)	EB	1,550	343	2,058	427	2,057	428
	WB	2,211	174	3,036	199	3,027	200
Sherborne Road	NB	68	1	111	1	78	1
	SB	279	1	205	1	163	1
Parklands Road	NB	20	0	49	0	44	0
	SB	294	1	142	0	155	0
Old Broyle Road	NB	122	3	202	3	138	3
	SB	634	1	411	1	375	1
Westgate (west of Roundabout)	EB	N/A	N/A	144	0	138	0
	WB	N/A	N/A	130	0	101	0
Westgate (east of Roundabout)	EB	0	0	109	0	91	0
	WB	0	0	0	0	0	0
St Paul's Road (between Sherborne & Parklands Road)	NWB	222	3	274	2	300	2
	SEB	559	1	433	1	482	1
Salthill Road (north of A27 to B2178 Old Broyle Road)	NB	635	2	531	3	549	3
	SB	86	1	120	1	121	1
A259 Cathedral Way (over railway bridge)	EB	1,680	2	1,777	2	1,777	1
	WB	1,018	60	694	58	702	57

**Table 5-a Flow on key links: AM peak for all scenarios (Lights and Heavies in PCUs)**

Between the Preferred Approach with and without the new Link Road, there is a variation in link flows on several of the key links including:

- An increase in traffic on St Paul's Road (between Sherborne Road and Parkland's Road) of 26 PCUs in the north-west bound direction and 49 PCUs in the south-east bound direction.
- A decrease in traffic along Westgate (west of the roundabout) of 6 PCUs in the east bound direction and 29 PCUs in the west bound direction.
- A decrease in traffic along Sherborne Road of 33 PCUs in the north bound direction and 42 PCUs in the south bound direction.

Changes in flows on the remaining links are negligible, with increases/decreases not exceeding 10% of the Preferred Approach Scenario link flow.

**Table 5-b** below highlights flows on several links for the PM peak. Again, as with the AM peak, it shows that across the scenarios there is a marked increase in flows between the Base and Preferred Approach models.

Link	Direction	PM Peak					
		Base		Preferred Approach		Preferred Approach with Link Road	
		Lights	Heavies	Lights	Heavies	Lights	Heavies
Terminus Road	EB	8	1	65	1	50	1
	WB	170	1	94	1	59	1
Via Ravenna	EB	797	32	650	31	652	33
	WB	1,291	1	1,154	1	1,141	1
A259 Fishbourne Road West	EB	698	22	841	24	809	24
	WB	589	4	192	3	193	3
A27 (east of Fishbourne Roundabout)	EB	2,690	199	2,644	199	2,646	199
	WB	2,172	142	2,056	145	2,056	145
A27 (West of Fishbourne Roundabout)	EB	2,455	108	2,320	101	2,320	101
	WB	2,072	170	2,425	182	2,447	181
Sherborne Road	NB	310	8	301	7	124	5
	SB	97	1	420	1	361	1
Parklands Road	NB	210	0	172	1	180	1
	SB	67	0	65	0	58	0
Old Broyle Road	NB	536	1	307	1	335	1
	SB	31	1	158	11	48	11
Westgate (west of Roundabout)	EB	N/A	N/A	149	0	117	0
	WB	N/A	N/A	119	0	276	0
Westgate (east of Roundabout)	EB	0	0	47	0	8	0
	WB	0	0	0	0	0	0
St Paul's Road (between Sherborne & Parklands Road)	NWB	536	1	616	1	646	1
	SEB	168	7	341	16	424	15
Salthill Road (north of A27 to B2178 Old Broyle Road)	NB	235	1	214	1	193	1
	SB	709	1	415	1	421	1
A259 Cathedral Way (over railway bridge)	EB	813	39	1,102	42	1,153	42
	WB	1,394	1	1,713	1	1,718	1

**Table 5-b Flow on key links: PM peak for all scenarios (Lights and Heavies in PCUs)**

In the PM peak, again a similar trend is noted, with several key links seeing an increase/decrease in flows, including:

- An increase in traffic on St Paul's Road (between Sherborne Road and Parkland's Road) of 30 PCUs in the north-west bound direction and 83 PCUs in the south-east bound direction.
- An increase in two-way traffic flows along Westgate (west of the roundabout) of 125 PCUs, made up of a decrease of 32 PCUs in the east bound direction and an increase of 157 PCUs in the west bound direction.
- A decrease in traffic along Sherborne Road of 177 PCUs in the north bound direction and 59 PCUs in the south bound direction.

Again, changes in flows on the remaining links are negligible, with increases/decreases not exceeding 10% of the Preferred Approach link flow.

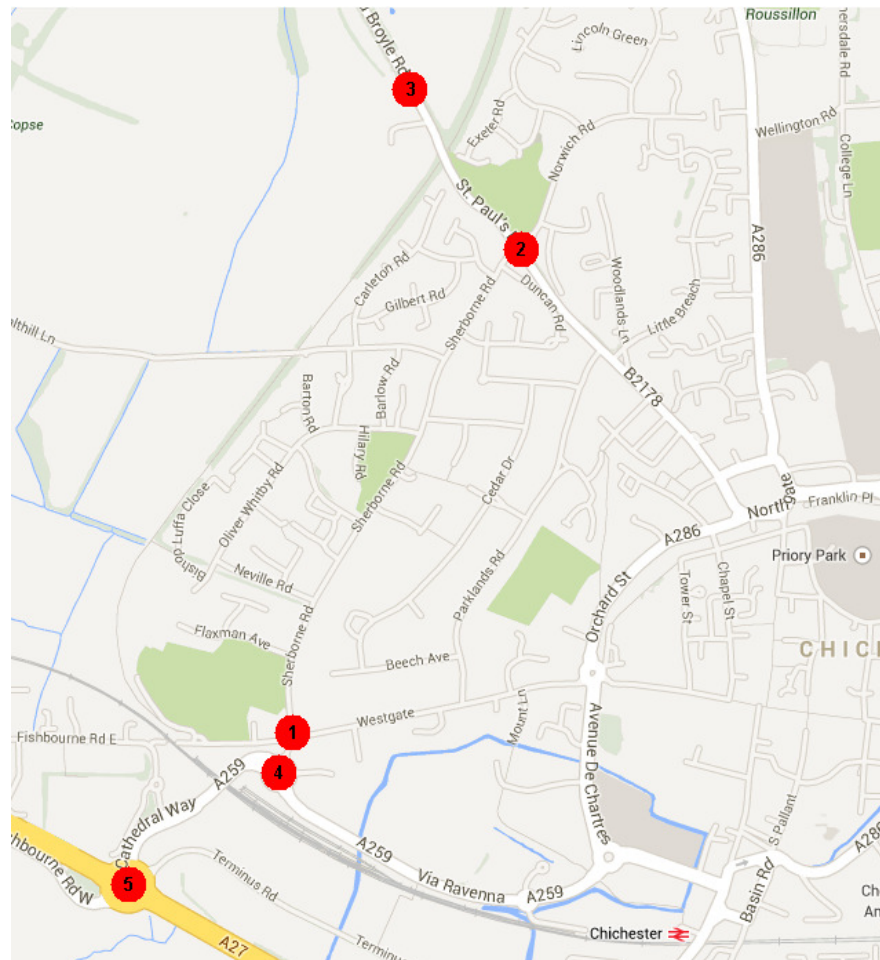
## 5.5 Summary

This section of the report has outlined traffic flows on several key links and more generally across the network. Whilst the capacity issues have not been addressed directly, for instance in relation to the volume of traffic compared to the capacity of the link (V/C ratio), traffic flows have been discussed to give an indicative measure of link performance. Further analysis such as a V/C ratio of links across the network could be undertaken to highlight areas forecast to experience specific congestion problems in 2031.

Flow difference plots have been produced to give an indication of likely rerouting comparing with and without the new link road in place. This has shown that the link road has minimal effect in terms of rerouting, primarily acting as a new access to several zones coded in the model to the west of Chichester city centre. Indeed, it was highlighted in the Baseline and Preferred Approach with new Link Road comparison, that light traffic flows on Sherborne Road were predicted to increase greater than 250 PCUs in the PM peak period. It should be noted however that this may be attributable to the increase in additional development trips included in the Preferred Approach model and the underlying trend of rerouting in the PM models as a result of retaining the same forecast year matrices.

### 6.1 Introduction

This section of the report outlines turning movements at five key junctions surrounding the proposed new link road in all scenarios. Turning movements have been extracted from the model and are presented in appendices, with supporting commentary in the following sections.



**Figure 6-a Key Junction locations**

The five key junction locations are illustrated in **Figure 6-a** above, and discussed in the sections outlined below.

Comparisons have been drawn between the Baseline, Preferred Approach and Preferred Approach with new Link Road scenarios.



### 6.1.1 Westgate Road/Sherborne Road/New Link Road

**Appendix G** illustrates turning movements from this junction for the Baseline, Preferred Approach and Preferred Approach with new Link Road scenarios for the AM and PM peaks. Light and Heavy traffic movements are illustrated as shown in the key provided on the illustration.

In the Baseline scenario model, the link to the west of the junction (currently Westgate, or the start of the new Link Road in the Preferred Approach with New Link Road scenario) is not modelled, so therefore no turning movements have been provided. The primary movements are between the northern and southern arms of the junction (Sherborne Road to Sherborne Road).

In the Preferred Approach model, the eastern arm of Westgate is included as an access to a zone holding new development traffic. The primary movement remains the north-south and vice-versa arm movements, with some additional development traffic emerging from Westgate (West) moving in all directions. In the AM peak the primary movement from Westgate (West) is to Westgate (East). In the PM peak the primary movement is to Sherborne Road (South).

In the Preferred Approach with new Link Road model, a similar trend is observed as the Preferred Model, reflecting the difference in proportional movements from Westgate (West) in the AM and PM.

In all three scenarios, no turning movements are made into or out of the eastern arm of Westgate.

### 6.1.2 Old Broyle Road/St Paul's Road/New Link Road

**Appendix H** illustrates turning movements from this junction for the Baseline, Preferred Approach and Preferred Approach with new Link Road scenarios for the AM and PM peaks. Light and Heavy traffic movements are illustrated as shown in the key provided on the illustration.

In the Baseline scenario model, this junction is not modelled, therefore a link flow diagram is provided. This illustrates that traffic flows on this link are tidal between the AM and PM peaks.

In the Preferred Approach model scenario, this junction is modelled as a standard priority T-junction with development access being the minor arm. Again, flows are tidal between the AM and PM peaks, however this is dampened with the introduction of development traffic exiting and entering the junction in both peak periods.

In the Preferred Approach with new Link Road scenario model, this junction is modelled as a roundabout as illustrated in **Figure 3-c** and **Figure 3-e**. As before, the junction is tidal however again this is dampened by the introduction of development traffic.



### 6.1.3 St Paul's Road/Sherborne Road

**Appendix I** illustrates turning movements from this junction for the Baseline, Preferred Approach and Preferred Approach with new Link Road scenarios for the AM and PM peaks. Light and Heavy traffic movements are illustrated as shown in the key provided on the illustration.

This junction is unaffected across all three scenarios in terms of junction modifications, therefore a direct comparison can be made across all three.

In the AM Baseline scenario model, the primary movements of St Paul's Road (North) and Norwich Road are straight over, into St Paul's Road (South) and Sherborne Road respectively. Traffic flows at St Paul's Road (South) primarily turns left into Sherborne Road, with a reciprocal primary movement from Sherborne Road into St Paul's Road (South). In the PM Baseline model, a different flow priority can be seen, with traffic emerging from Sherborne Road turning into St Paul's Road North and South. The primary movement of traffic from St Paul's Road (South) continues through to St Paul's Road (North) and only a small number of PCUs is noted on both Norwich Road and St Paul's Road (North).

In the Preferred Approach scenario model, a similar trend is noted in both the AM and PM peaks, with the primary movements remaining as described in the Baseline scenario.

In the Preferred Approach with new Link Road scenario model, a slightly different trend is noticeable, with additional traffic from St Paul's Road (north) continuing to St Paul's Road (South) in both the AM and PM peaks. Modelled flows on the remaining three input arms (St Paul's Road (South), Sherborne Road and Norwich Road) remain broadly as previously described.

This would suggest that the introduction of the new Link Road has prioritised the straight ahead movement from St Paul's Road (North) to St Paul's Road (South) in the AM and PM peaks.

### 6.1.4 Cathedral Way/Westgate Link/Chichester College Access/Via Ravenna junction

**Appendix J** illustrates turning movements from this junction for the Baseline, Preferred Approach and Preferred Approach with new Link Road scenarios for the AM and PM peaks. Light and Heavy traffic movements are illustrated as shown in the key provided on the illustration.

Again, this junction is unaffected across all three scenarios in terms of junction modifications, therefore a direct comparison can be made across all three.

In the AM Baseline scenario model, the main movement of traffic travels from Cathedral Way (from the A27/Fishbourne Road Junction) onto the A259 Via Ravenna, with an opposing tidal movement in the PM peak from the A259 Via Ravenna to Cathedral Way. Approximately 50% of traffic from the major movement is seen in the opposing direction and vice-versa in the alternate peak period.

The access to Chichester College is the minor arm of the junction, however sees significant increase in traffic in the PM peak. Movements from Westgate Link are move dispersed, however in the PM peak the primary movement is onto Cathedral Way, again highlighting the tidal nature of this junction.

Traffic movements in the Preferred Approach and Preferred Approach with new Link Road scenarios reflect the trends highlighted in the Baseline model, suggesting that the additional development traffic is distributed proportionately and that the Link Road has minimal effect on re-routing.

### 6.1.5 A27/Fishbourne Road Junction

**Appendix K** illustrates turning movements from this junction for the Baseline, Preferred Approach and Preferred Approach with new Link Road scenarios for the AM and PM peaks. Light and Heavy traffic movements are illustrated as shown in the key provided on the illustration.

As illustrated in **Figure 6-a**, this junction has been modified in the Preferred Approach models to reduce delay by prioritising throughput on the A27 by means of a 'hamburger' style signalised roundabout.

In the Baseline scenario model, the main movements, as would be expected, are the main A27 through routes, with traffic exit and entering from Cathedral Way into Chichester. In the AM peak, the primary movement is from the A27 East to West and vice-versa in the PM peak, again illustrating the tidal nature of the main trunk road.

A more detailed flow diagram is illustrated for the Preferred Approach and Preferred Approach with new Link Road, highlighting the more complex junction arrangement and the prioritisation of the main A27 through route.

Whilst turning flows can give an indication of the priority movements at larger junctions, it is suggested that a more detailed modelling package be used to assess junction movements and priorities with up-to-date turning out information.

## 6.2 Summary

This section of the report has outlined traffic turning movements at five key junctions that may be affected by the introduction of the new Link Road. Whilst no capacity analysis has been undertaken, traffic turning flows have indicated that with the new link road in place, several turning priorities have been affected, including:

- Old Broyle Road/St Paul's Road/New Link Road Junction – the movement of development traffic out of the new link road onto Old Broyle Road/St Paul's Road significantly alters this road and may impact existing capacity issues in the peaks of traffic entering and exiting Chichester city centre. Visibility will have to be considered given the nature and layout of the existing road, with gateway features offering a possible solution.
- Sherborne Road/Westgate/New Link Road Junction – being an existing junction, retrofitting or increased junction capacity may be needed to accommodate the additional development traffic entering and exiting the junction. As a section of the route will be 20mph, additional signing or alternatives may be needed to alert drivers to the change in speed.
- St Paul's Road/Sherborne Road/Norwich Road Junction – traffic joining the junction from St Paul's Road (North) increases between the Baseline and Preferred Approach (both with and without the new Link Road) scenarios increases due to the introduction of new development traffic. Additional capacity may be needed at the junction, however it is advised that this should be ascertained via a junction modelling exercise.

## 7.1 Introduction

This section of the report outlines the findings of a 'Select Link Analysis (SLA)' undertaken on the Preferred Approach scenario model to understand the origins and destinations of traffic using the existing Sherborne Road link. This will highlight traffic travelling between Old Broyle Road and Cathedral Way, indicating the number of trips likely to switch from using Sherborne Road to the new Link Road.

SLA has only been undertaken on the Preferred Approach to highlight if traffic travelling along Sherborne Road is likely to switch to the new Link Road with mitigation measures in place.

Time Period and User Class		NB				SB			
		SLA FLOW	ASSIGNED FLOW			SLA FLOW	ASSIGNED FLOW		
		Demand	Demand	Actual	Queued	Demand	Demand	Actual	Queued
AM	Lights	135.7	124.9	110.1	14.8	213.5	213.5	204.2	9.3
	Heavies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	135.7	124.9	110.2	14.8	213.5	213.5	204.2	9.3
PM	Lights	317.7	334.2	300.6	33.6	494.3	466.9	419.8	47.1
	Heavies	6.3	6.8	6.1	0.7	0.3	0.3	0.2	0.0
	Total	324.0	341.1	306.7	34.3	494.6	467.2	420.1	47.1

**Table 7-a SLA demand and actual flow comparison: Sherborne Road (PCUs)**

**Table 7-a** highlights the difference in demand and actual flow used in the SLA. SLA is calculated through an iterative process, using travel demand from the input matrices. It calculates origins and destinations using 'demand flow', which is slightly different from assigned 'actual flow', output after the model has been assigned. This means that the figures in the analysis are higher than the assigned flows, which also take into account queuing and delay on the network.

## 7.2 AM Analysis

**Figures 7-a & 7-b** illustrate the select link analysis undertaken on Sherborne Road in the AM peak for the Preferred Approach Model.

In the northbound direction a total of 136 PCUs travel along Sherborne Road, with the majority of this traffic originating from the A27 eastbound, east of the A27/Fishbourne Road Roundabout. Only 3 PCUs originate from the east of the A27. The number of PCUs then increases from zones feeding into Cathedral Way. Continuing along the route, of the 136 PCUs using the road, 20 PCUs turn into Old Broyle Road and head north, whilst 51 turn south-east towards the main city centre. The remaining traffic disperses along the B2178 St Paul's Road and through Spitalfield Lane.

In the southbound direction, a total of 213 PCUs travel along Sherborne Road, with 31 PCUs originating from Old Broyle Road. Additional PCUs filter from the north of the main city centre from links adjoining Priory Park. These then disperse into adjoining land uses/zones, with the majority of traffic joining the A27 and heading west (71 PCUS).

Figure 7-a AM northbound Sherborne Road Select Link Analysis: All Traffic (PCUs)

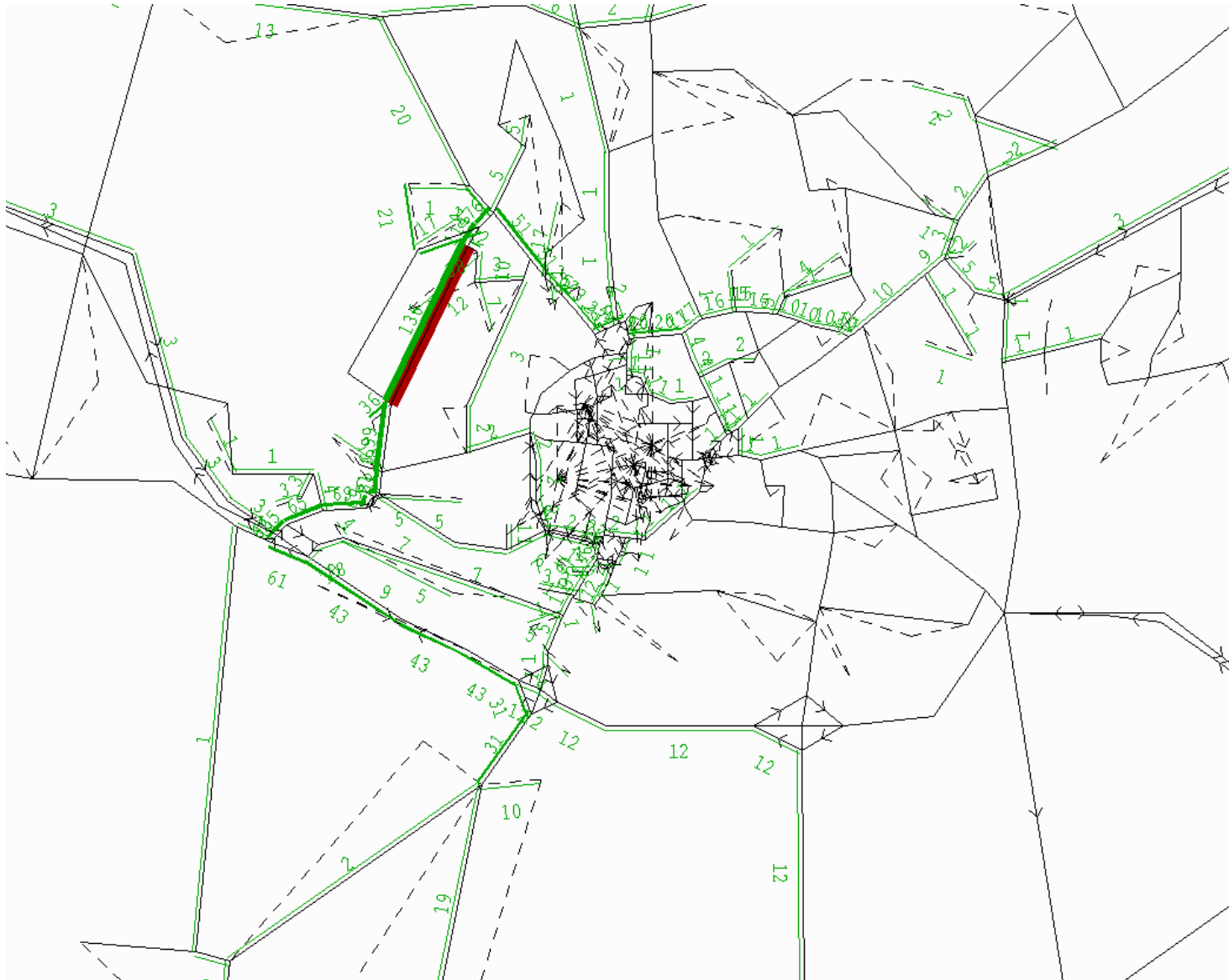


Figure 7-b AM southbound Sherborne Road Select Link Analysis: All Traffic (PCUs)

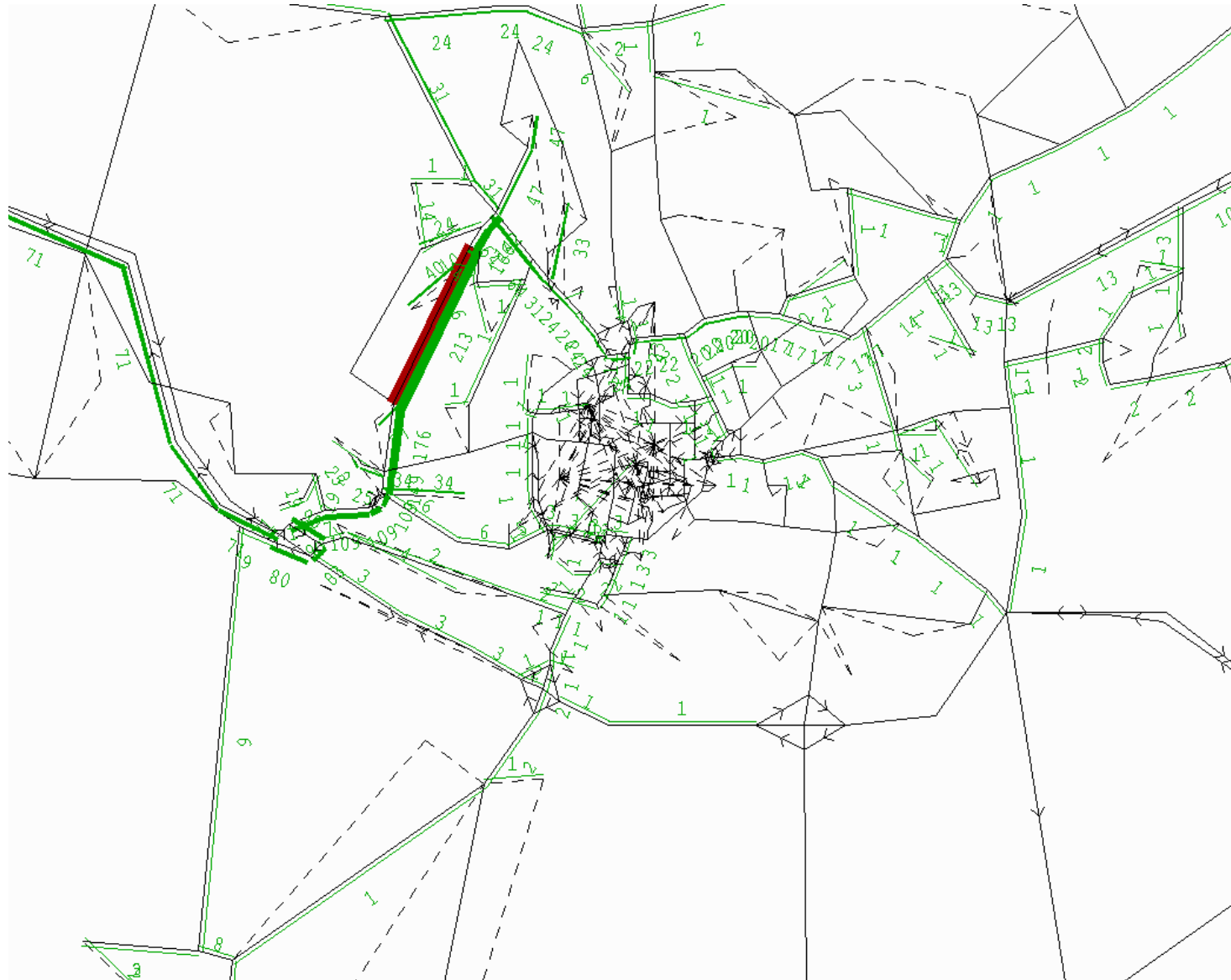


Figure 7-c PM northbound Sherborne Road Select Link Analysis: All Traffic (PCUs)

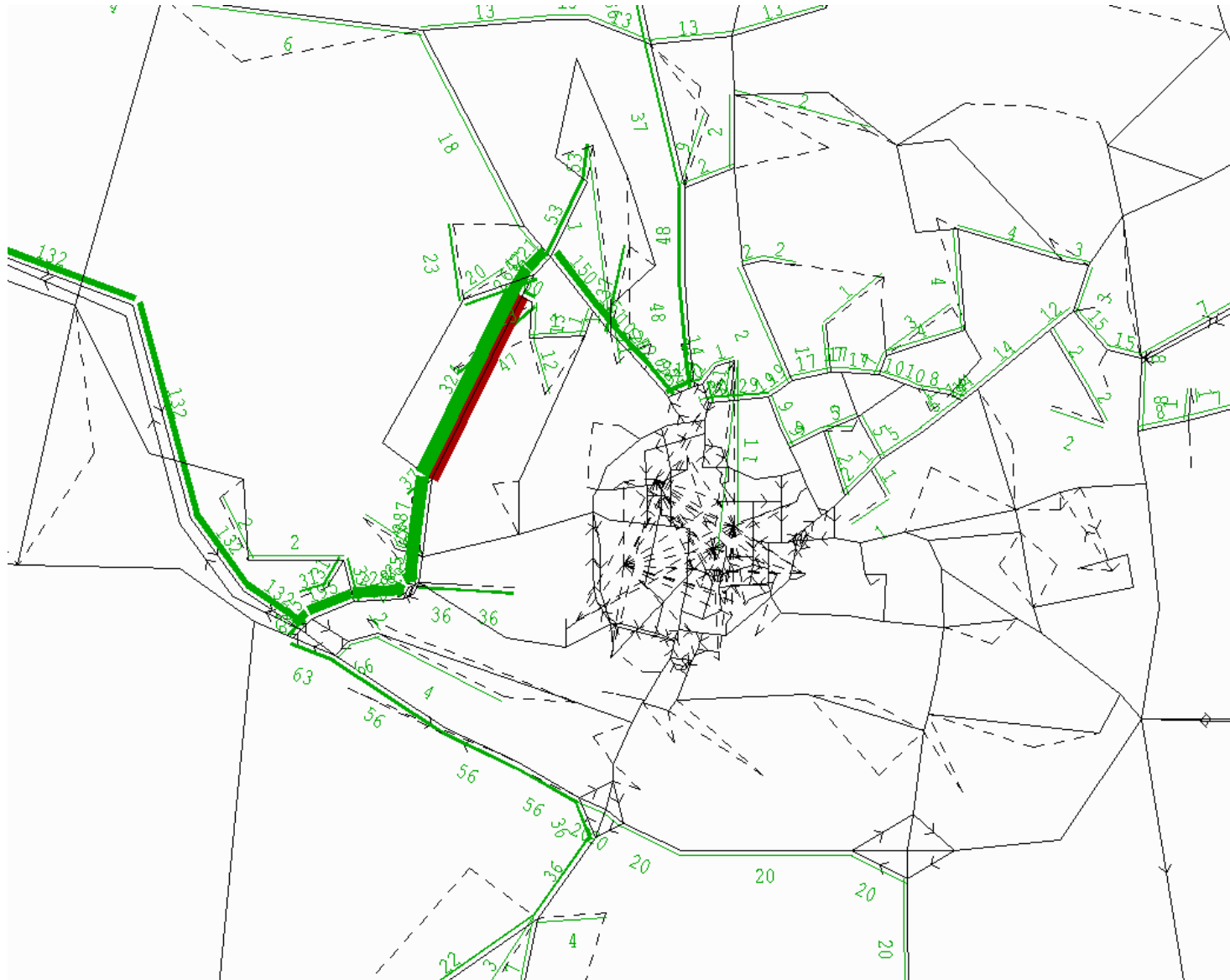
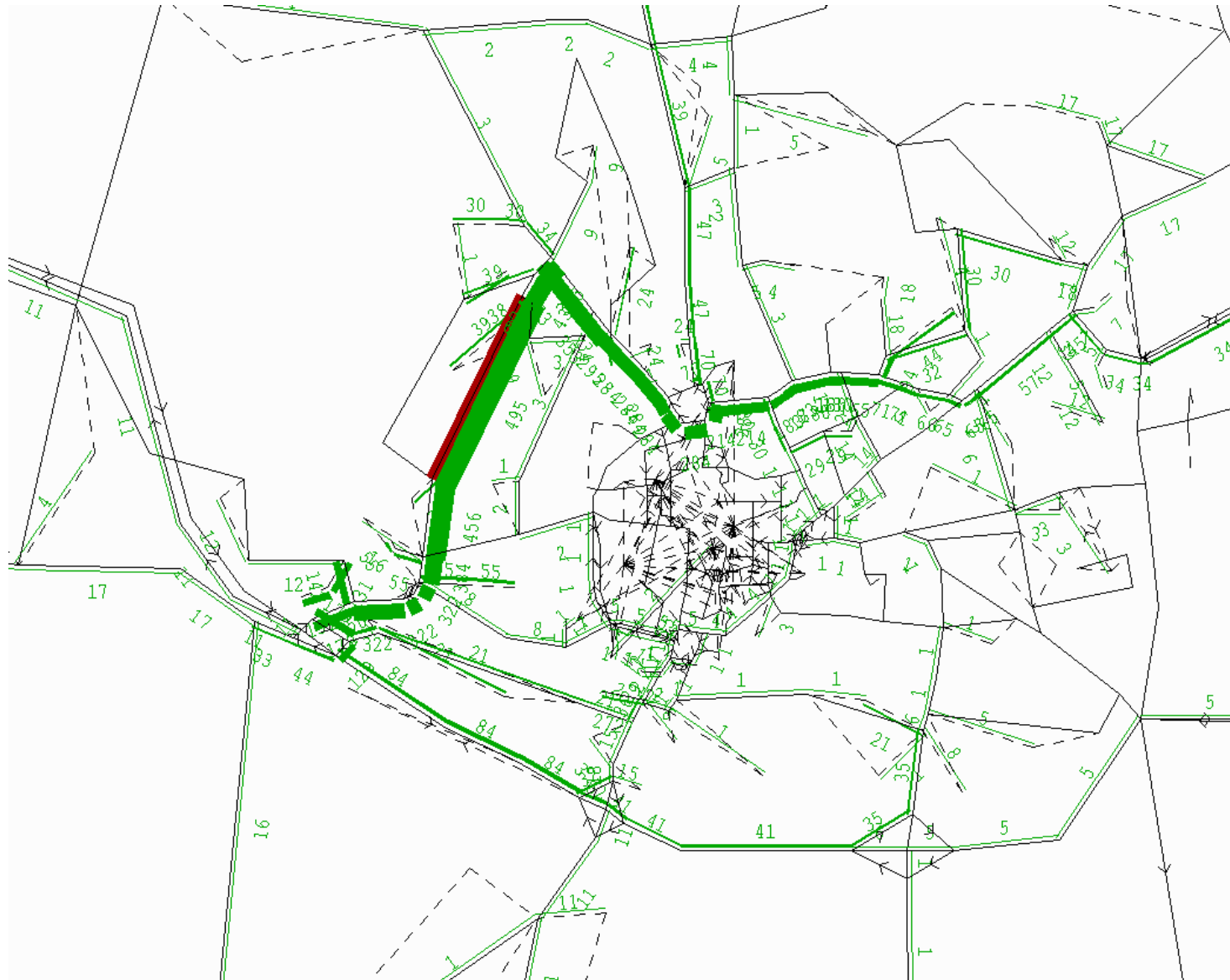


Figure 7-d PM southbound Sherborne Road Select Link Analysis: All Traffic (PCUs)





### 7.3 PM Analysis

**Figures 7-c & 7-d** illustrate northbound and southbound select link analyses for the PM peak of the Preferred Approach scenario models.

In the PM peak a greater volume of traffic is modelled on Sherborne Road, totalling 819 PCUs (324 PCUs northbound and 495 PCUs southbound) compared to 339 PCUs (126 northbound and 213 southbound) in the AM peak.

In the PM peak, the northbound link has similar origins and destinations as the AM southbound movement, highlighting the tidal nature of the link. 132 PCUs originate from the A27 west, with 56 PCUs travelling from the A27 east (from A286 Stockbridge Road and B2145). This flow then disperses along St Paul's Road towards the city centre, along the A286 Broyle Road and Spitalfield Road.

The southbound link sees the greatest flow of 495 PCUs, with the majority of this originating from along Spitalfield Road and St Paul's Road, turning into Sherborne Road. This traffic then disperses along Cathedral Way (and adjoining land uses/zones) onto the A27 east of the A27/Fishbourne Road junction.

### 7.4 Summary

This section of the report has outlined the results of a SLA undertaken on the Preferred Approach model to ascertain how likely it would be that travellers would switch to using the new Link Road. In both the AM and PM models, it was shown that traffic using the existing Sherborne Road link would be unlikely to switch to the new Link Road. This is for several reasons:

- Route analysis shows that the majority of traffic currently using Sherborne Road is tidal in nature, entering and exiting the A27 via the A27/Fishbourne Road junction and dispersing to adjoining land uses/zones. Some of this traffic continues on to the north of the main city centre or along Broyle Road.
- Two way link analysis suggests that through traffic using Sherborne would also be unlikely to switch, as their movements are east-west and vice-versa in the alternate peaks.
- The new link Road does not offer a shorter or faster route than the existing Sherborne Road route

As discussed in other sections of this report, the PM model has a different flow distribution than that of the AM, which leads to an increased flow on Sherborne Road in the PM peak model. However the PM analysis also indicates that with a greater flow, traffic is still unlikely to switch due to the routes illustrated in **Figures 7-a to 7-d**.



This report has outlined the findings of a modelling exercise undertaken on the Chichester Area Transport Model as outlined in the brief as provided by the client. It has produced four new models, for which model outputs have been produced for the updated Baseline, Preferred Approach and Preferred Approach with New Link Road.

### 8.1 Network Wide Effects

Whilst overall network model statistics show that the introduction of the new Link Road has a small effect on overall network performance, link flow analysis has shown that its' introduction does not encourage re-routing.

### 8.2 Key Links

It has been show that a proportion of development traffic that would otherwise use the adjoining junctions (as illustrated in **Figures 3-d** and **3-e**) would use the link road as an access route, however this has been shown to be less than 250 PCUs in both the AM and PM peaks. The introduction of the link road has little impact on the wider network, however the additional development traffic does increase traffic flows on several link roads adjoining the link road such as Sherborne Road (between the Baseline and Preferred Approach models).

### 8.3 Key Junctions

Turning count flows for five junctions adjoining and adjacent to the proposed Link Road have been discussed in relation to the three modelled scenarios. As only link flows have been provided, additional work may be needed to ascertain whether these have sufficient capacity to cope with the additional development traffic proposed in the Preferred Approach. As the Link Road does not encourage re-routing of traffic, it is likely that the additional development traffic will only exacerbate any future capacity issues based upon these projected traffic flows.

Further analysis in terms of junction modelling to ascertain whether sufficient capacity is available may be needed to ensure that these junctions can cope with background traffic growth and the effects of changing priority flows.

### 8.4 Select Link Analysis

Select link analysis of the Preferred Approach AM and PM peak models has shown rerouting of traffic from Sherborne Road to the new Link Road will be unlikely due to the currently travel patterns of drivers using Sherborne Road. Whilst this is the case, sensitivity testing of capacity restraint along Sherborne Road may need to be considered to ascertain if switching may be possible.

## **8.5 Conclusions**

Having undertaken modelling with and without the proposed Link Road, it has been shown that in the forecast year of 2031 the proposed Link Road will likely have a negligible impact on traffic congestion in Chichester. It would seem that its' primary role will be to serve as an access road to proposed new developments to the west of the city and open up additional opportunities for investment.

Whilst it is advised that the outlined 20mph speed limit is retained adjoining access to Bishop Luffa School on safety grounds (as part of the new Link Road), this reduction in free flow speed may affect the route choice of drivers, ultimately preventing rerouting from Sherborne Road. Further investigation may be needed to discount this possibility.

## Appendix A 2031 Baseline Traffic Flows

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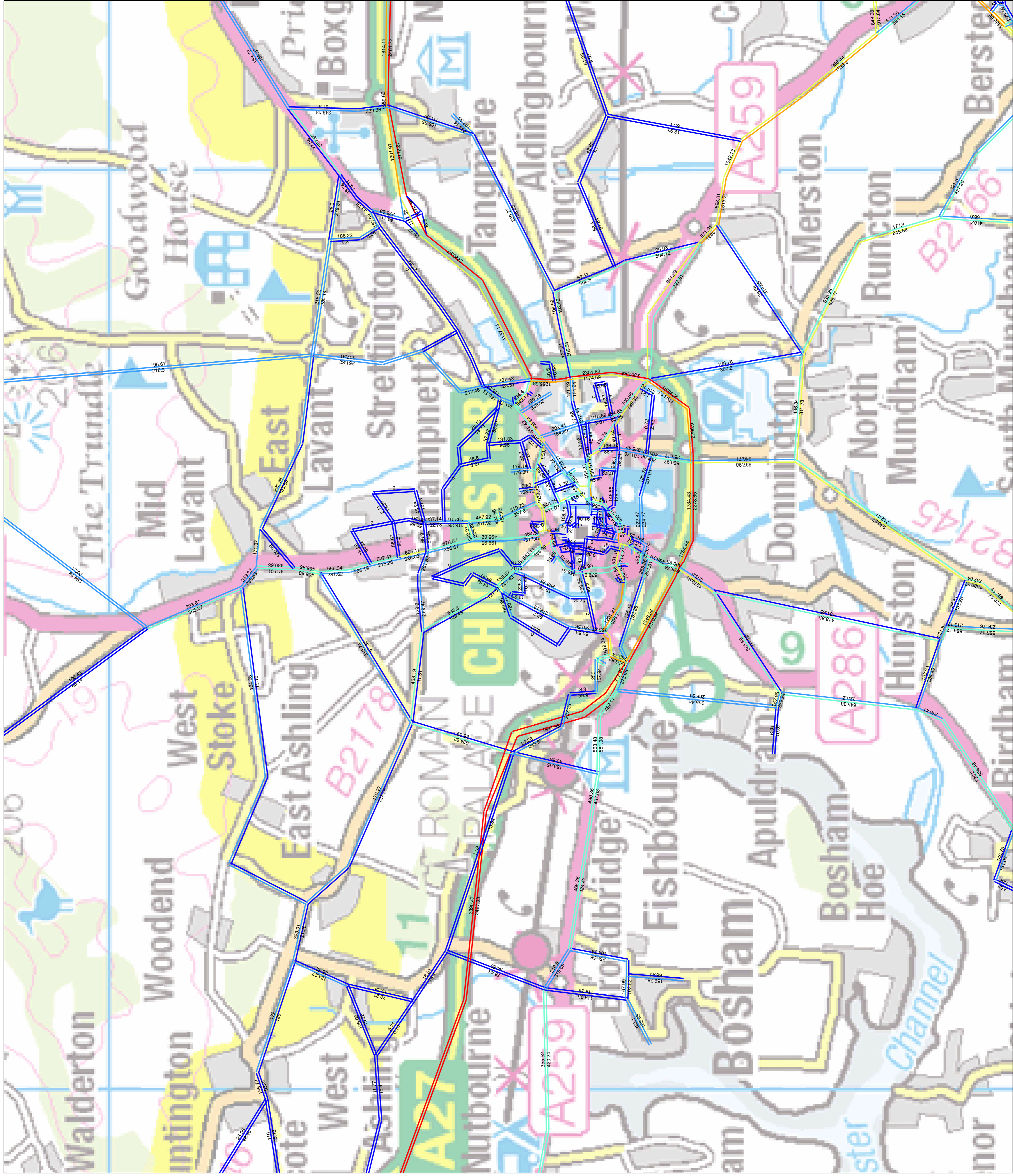
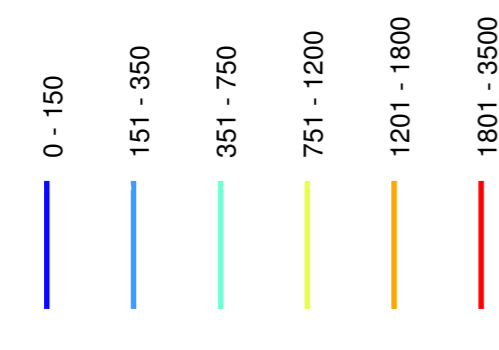




**Legend**

AM Baseline Traffic Flows

Lights PCU (Actual)



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Rev	Date	Purpose of Revision	Drawn	DS	CH	RH
1	Jan 14					

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Client

Vectos

Project

West Chichester Housing Development

Drawing Title

Chichester Link Road Modelling

Drawing Status

Scale

DO NOT SCALE

Jacobs No.

Client No.

Drawing Number

B1858300/002

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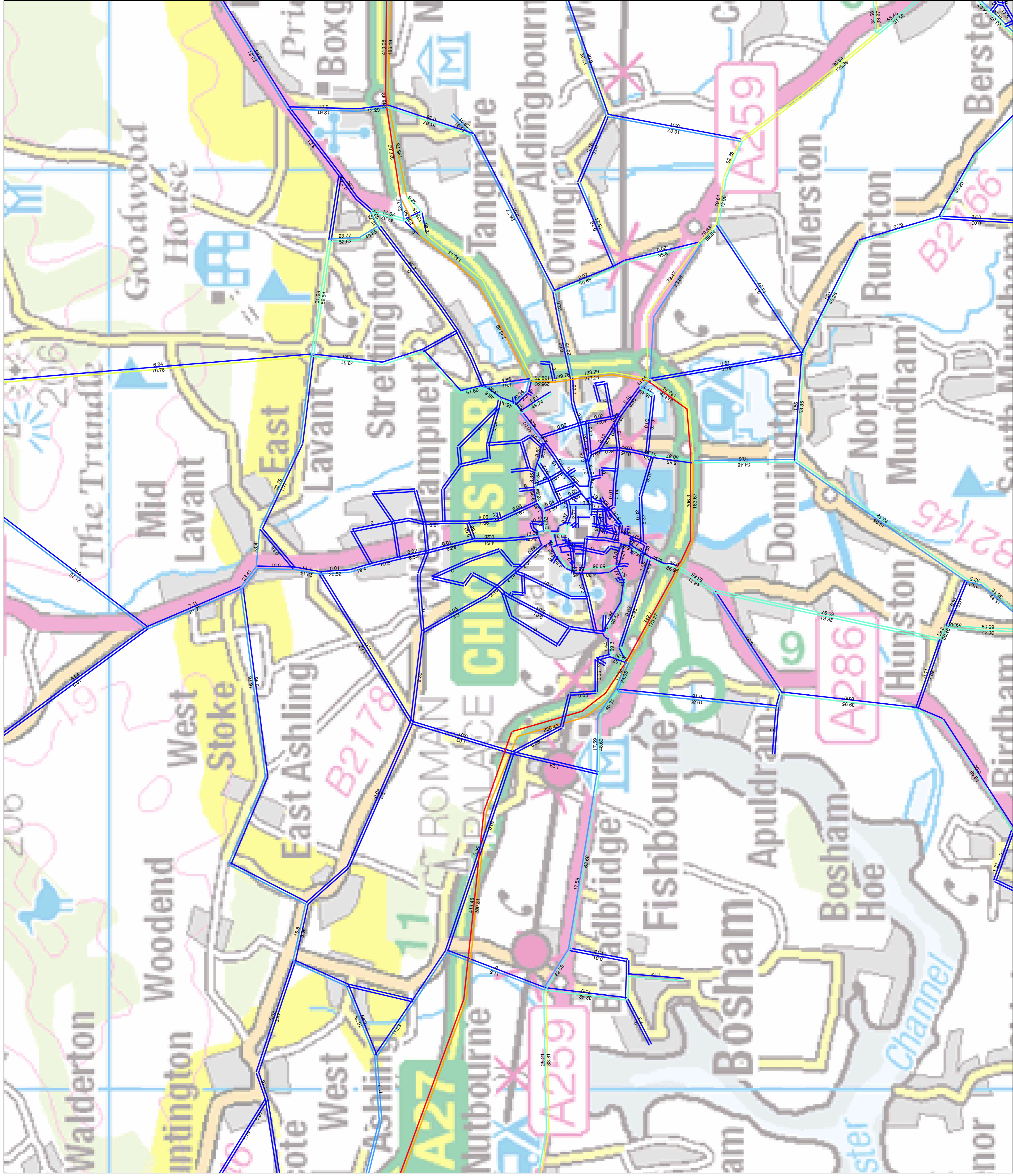
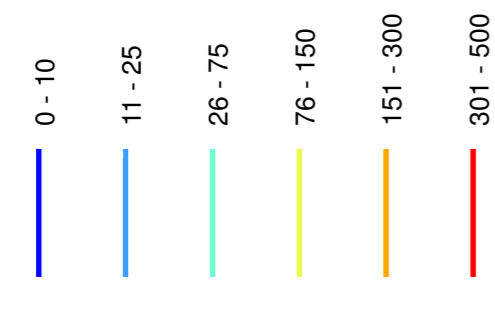




**Legend**

AM Baseline Traffic Flows

Heavies PCU (Actual)



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Client: Vectos

Project: West Chichester Housing Development

Drawing Title: Chichester Link Road Modelling

Drawing Status: DO NOT SCALE

Scale: DO NOT SCALE

Jacobs No.:

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Drawing Number: B1858300/002

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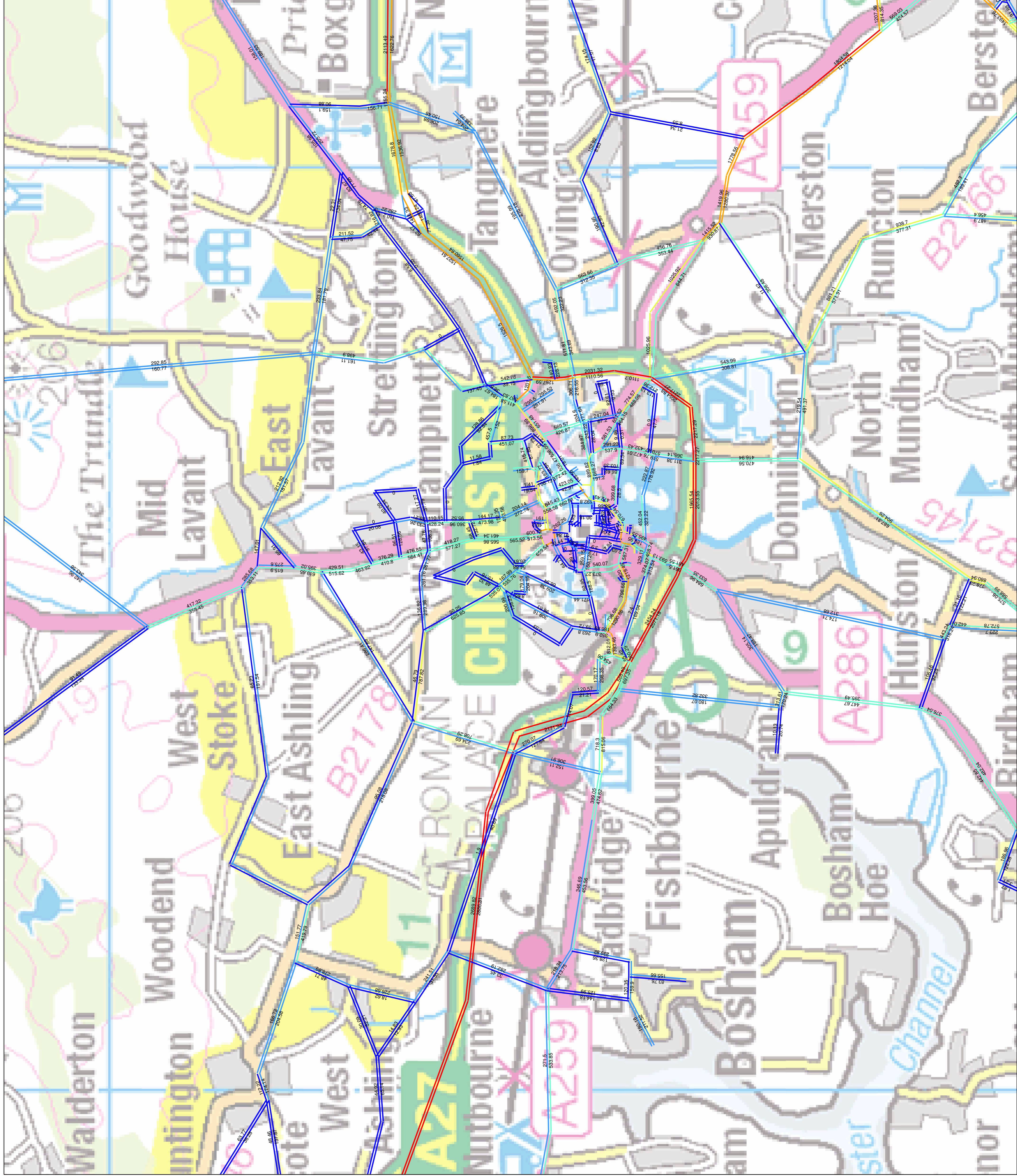
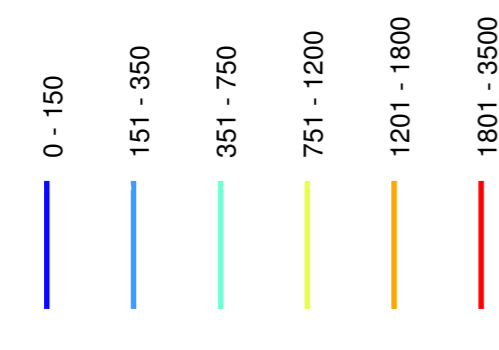




**Legend**

PM Baseline Traffic Flows

Lights PCU (Actual)



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Project	West Chichester Housing Development
Drawing Title	Chichester Link Road Modelling

Drawing Status	
Scale	DO NOT SCALE
Jacobs No.	
Client No.	
Drawing Number	B1858300/002
Rev	1

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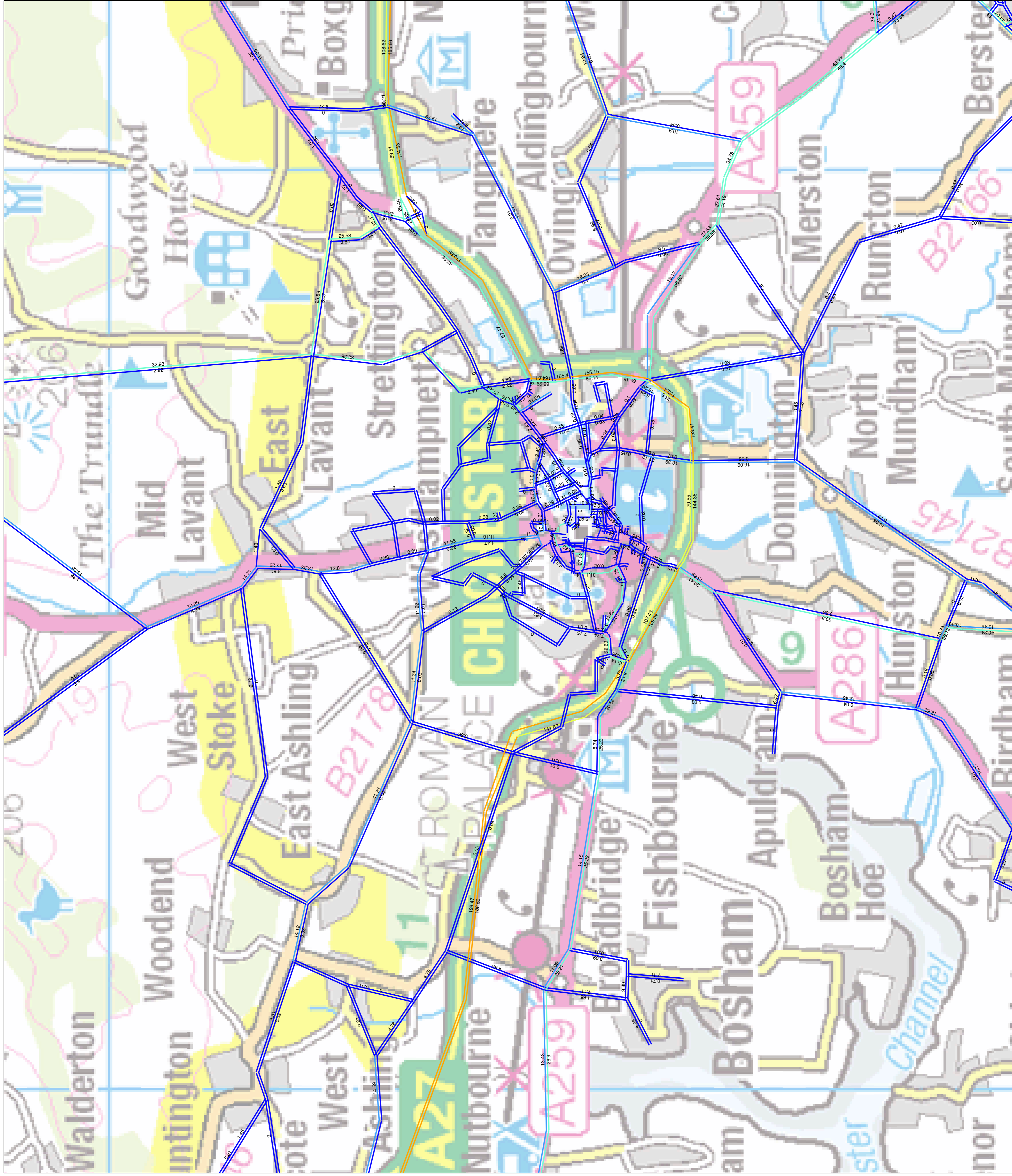
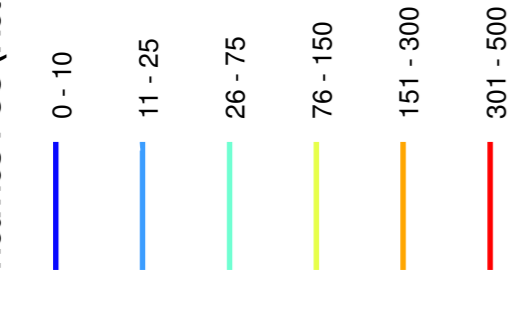




**Legend**

PM Baseline Traffic Flows

Heavies PCU (Actual)



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Client	Vectos	
Project	West Chichester Housing Development	
Drawing Title	Chichester Link Road Modelling	
Drawing Status	DO NOT SCALE	
Scale		
Jacobs No.		
Client No.		
Drawing Number	B1858300/002	
Rev	1	

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## Appendix B 2031 Preferred Approach Traffic Flows

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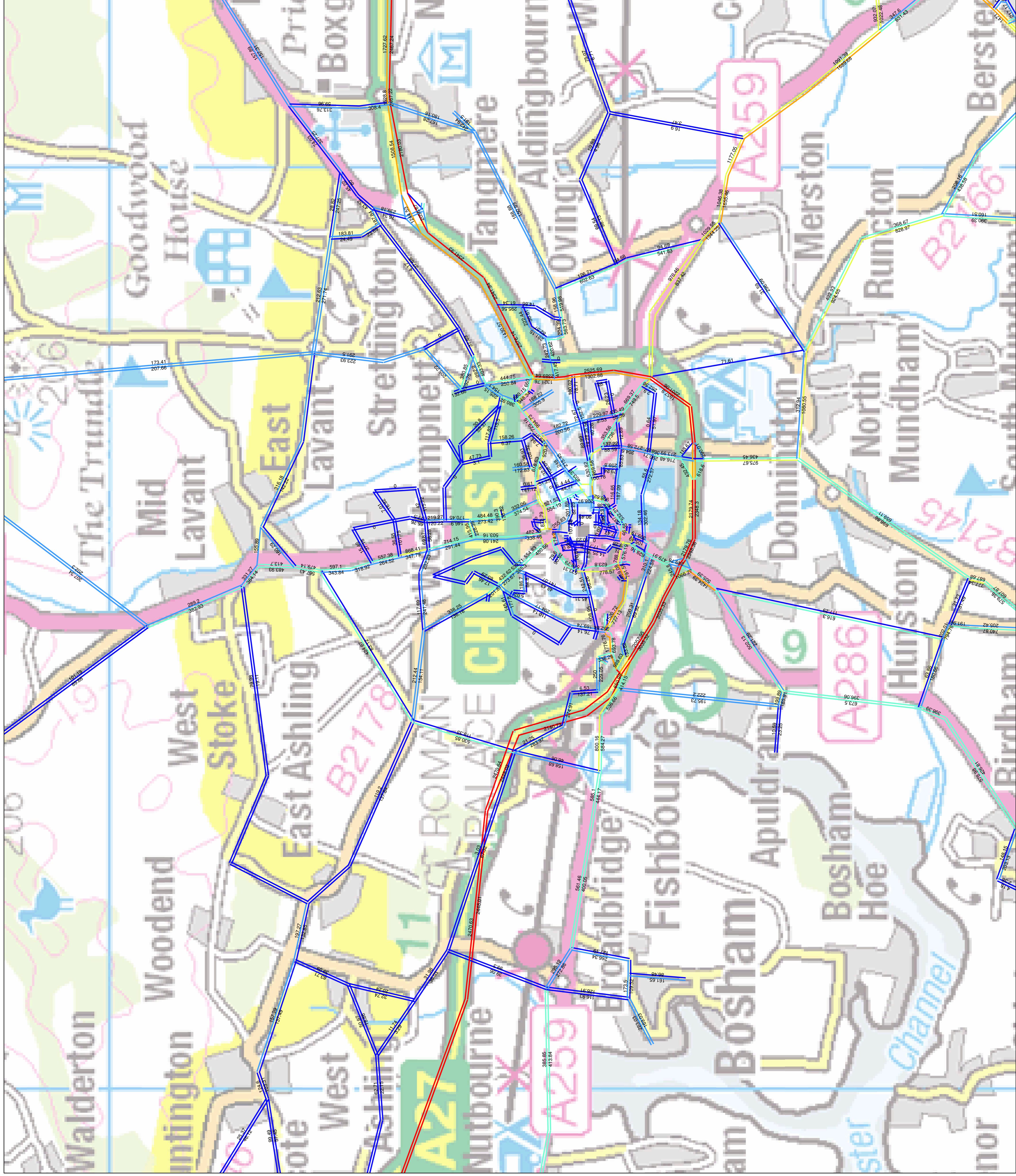
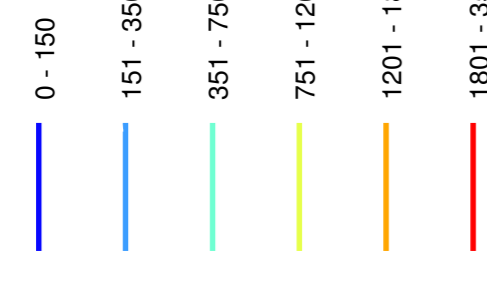




**Legend**

AM Pref App Traffic Flows

Lights PCU (Actual)



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Project: West Chichester Housing Development

Drawing Title: Chichester Link Road Modelling

Chichester Link Road Modelling

Drawing Status: DO NOT SCALE

Scale: DO NOT SCALE

Jacobs No. DO NOT SCALE

Client No. DO NOT SCALE

Drawing Number: B1858300/002

Rev: 1

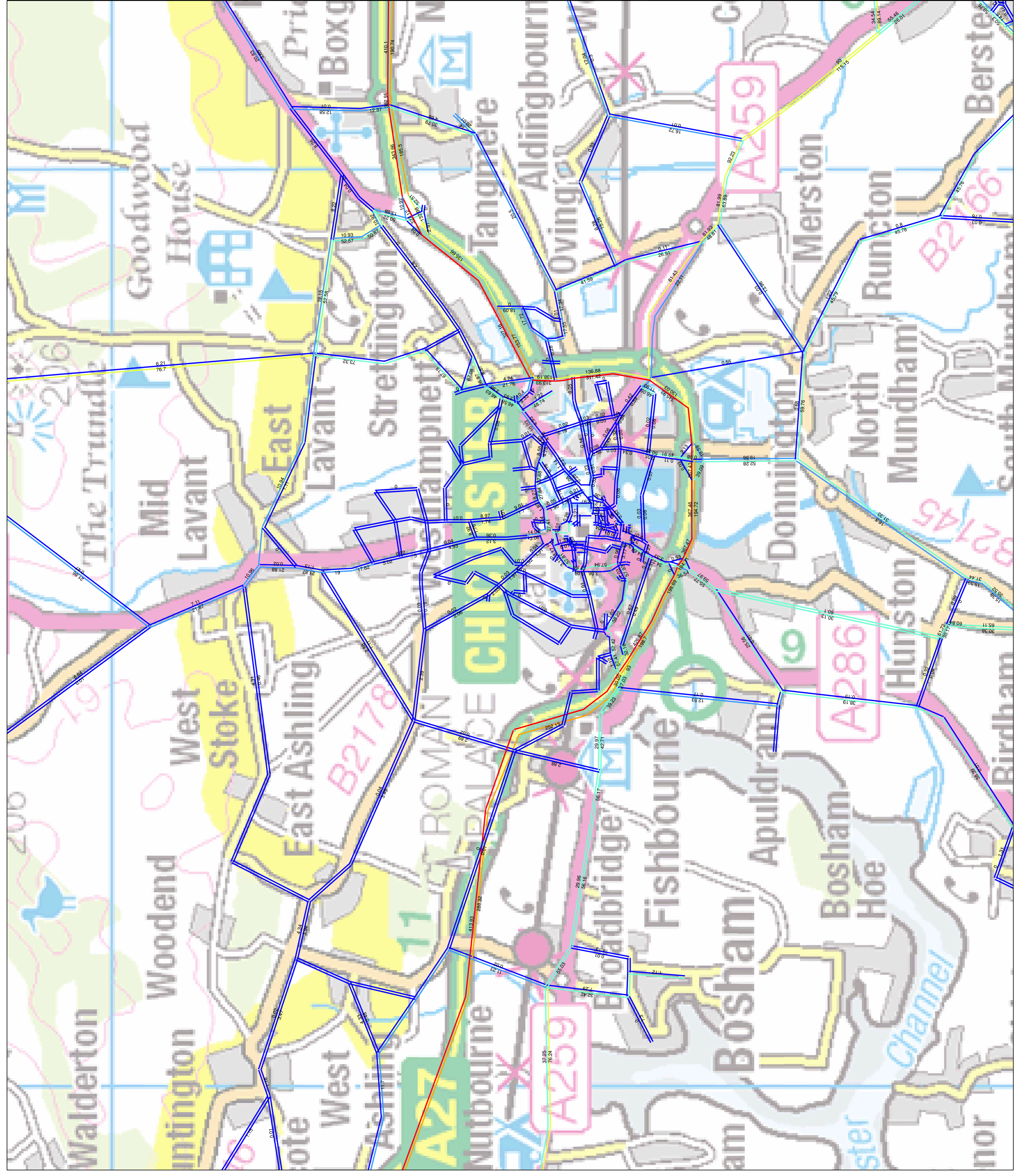
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**Legend**

- AM Pref App Traffic Flows  
 Heavies PCU (Actual)
- 0 - 10
  - 11 - 25
  - 26 - 75
  - 76 - 150
  - 151 - 300
  - 301 - 500



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Project: West Chichester Housing Development

Drawing Title: Chichester Link Road Modelling

Drawing Status	Scale	Jacobs No.	Client No.	Drawing Number	Rev
	DO NOT SCALE			B1858300/002	1

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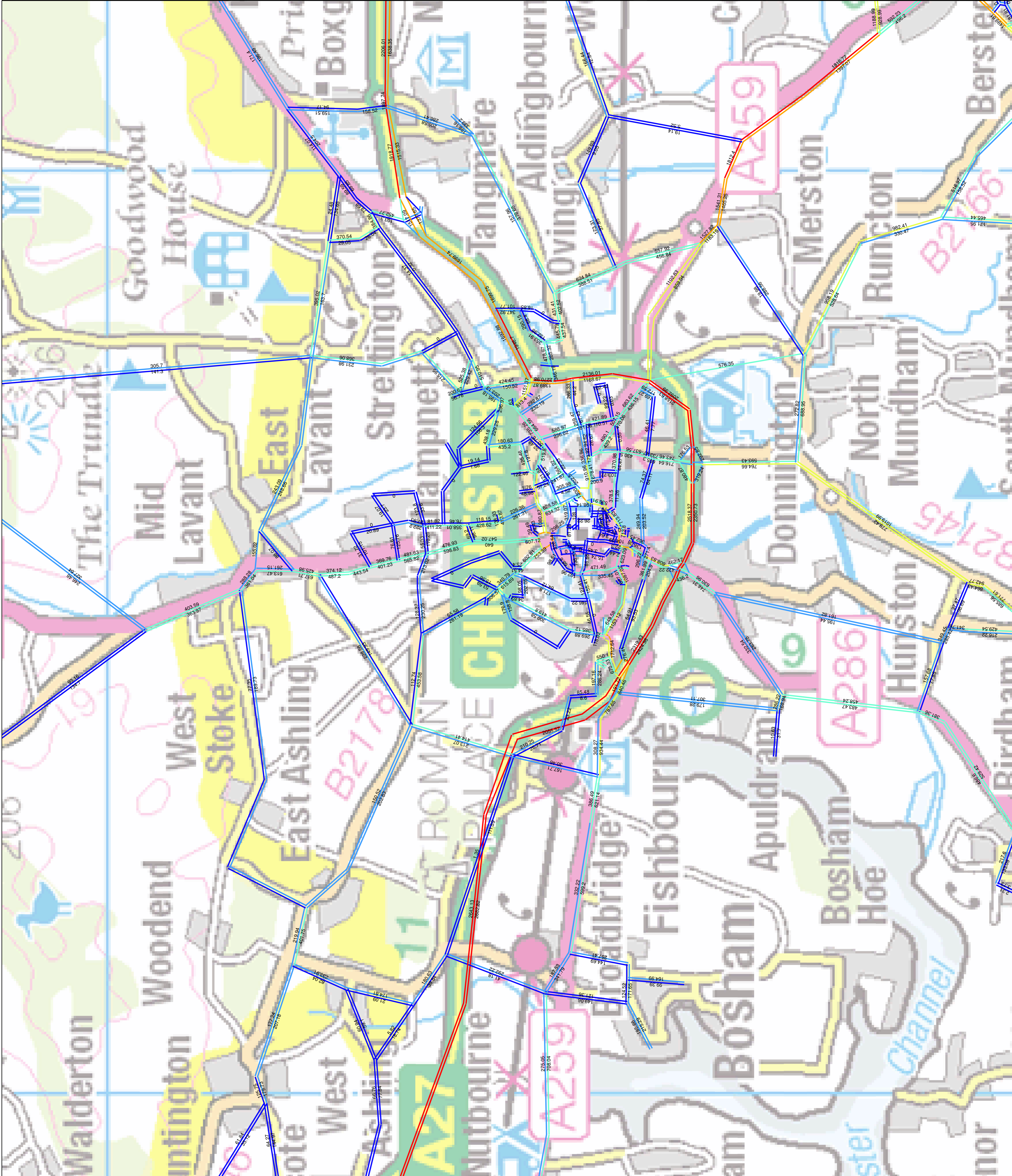
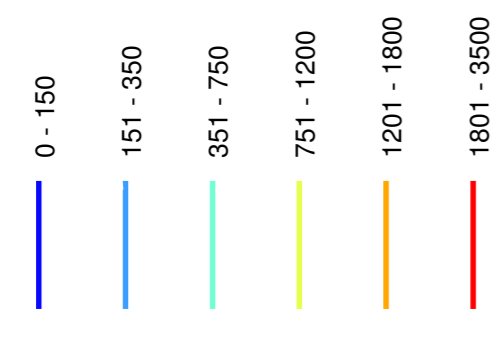




**Legend**

PM Pref App Traffic Flows

Lights PCU (Actual)



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Client	Vectos
Project	West Chichester Housing Development
Drawing Title	Chichester Link Road Modelling

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Scale	DO NOT SCALE
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Client No.	
Drawing Number	B1858300/002
Rev	1

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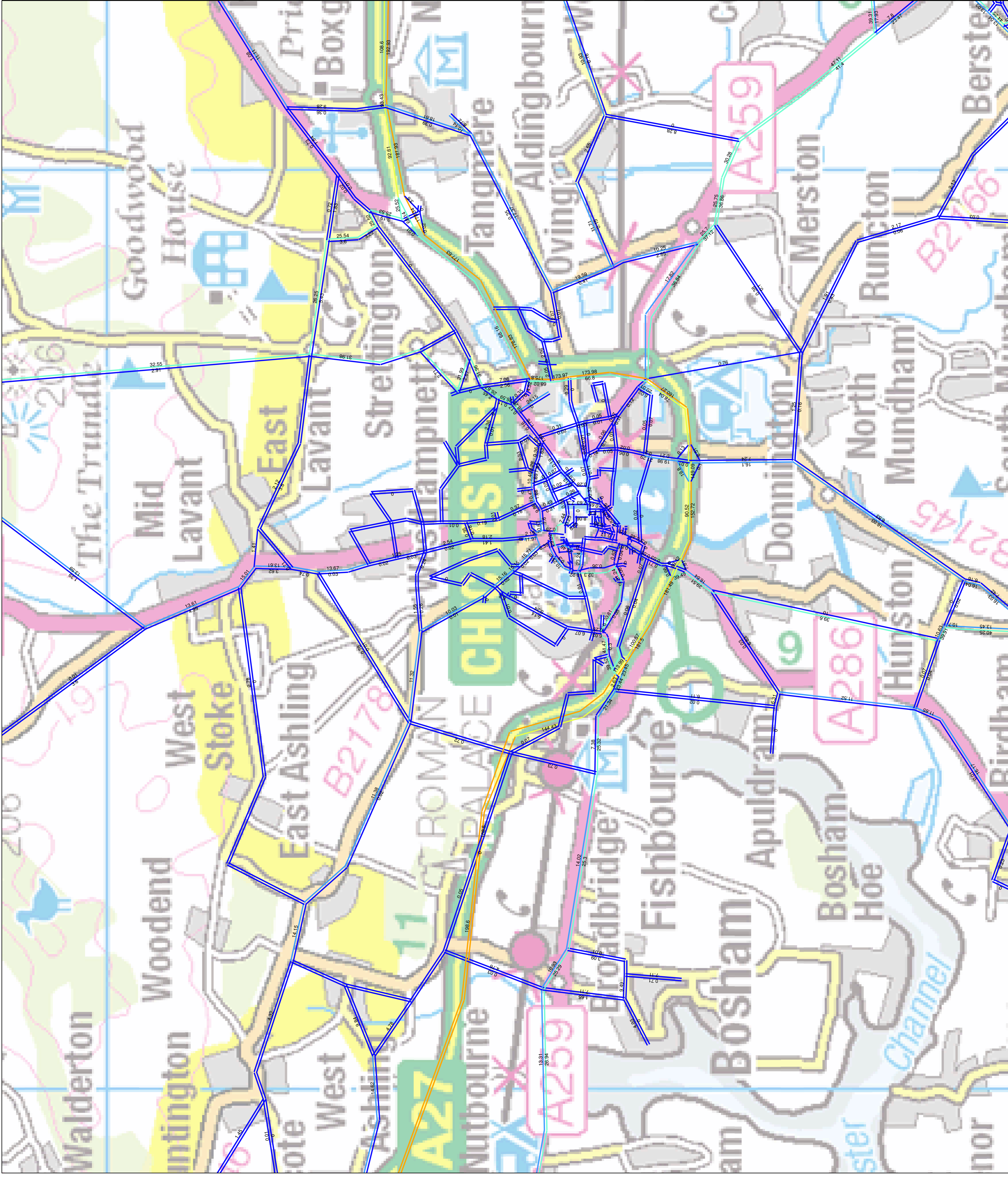
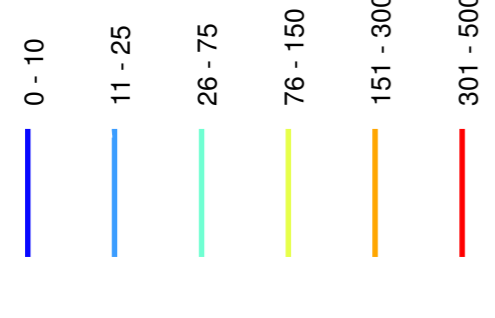




**Legend**

PM Pref App Traffic Flows

Heavies PCU (Actual)



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Drawing Title Chichester Link Road Modelling

Drawing Status

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Jacobs No.

Client No.

Drawing Number B1858300/002

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**Appendix C 2031 New Link Road Traffic Flows**

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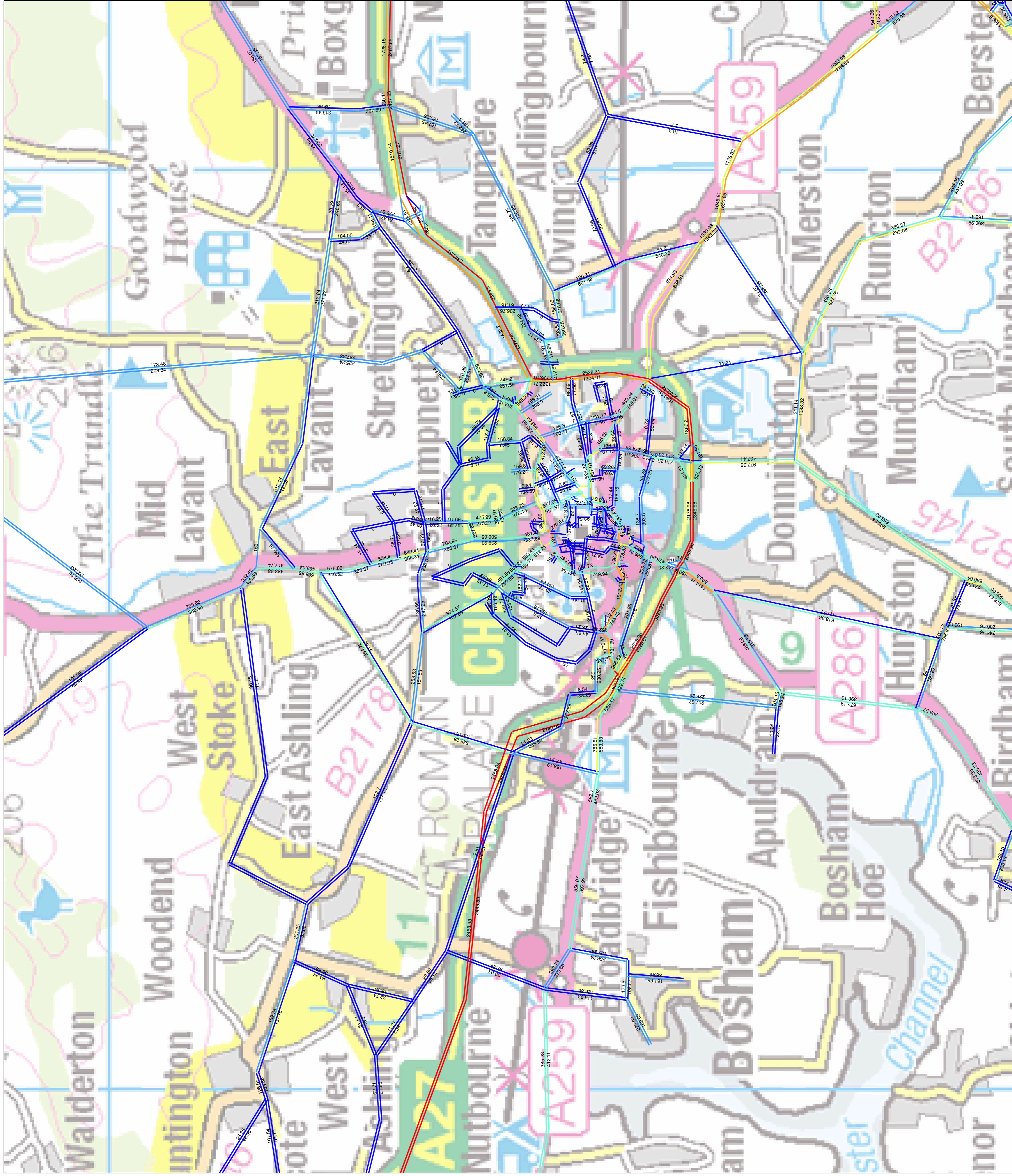


### Legend

AM Pref App & Link Road Traffic Flows

Lights PCU (Actual)

- 0 - 150
- 151 - 350
- 351 - 750
- 751 - 1200
- 1201 - 1800
- 1801 - 3500



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Drawing Title	Chichester Link Road Modelling

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Scale	
Jacobs No.	
Client No.	
Drawing Number	B1858300/002
Rev	1

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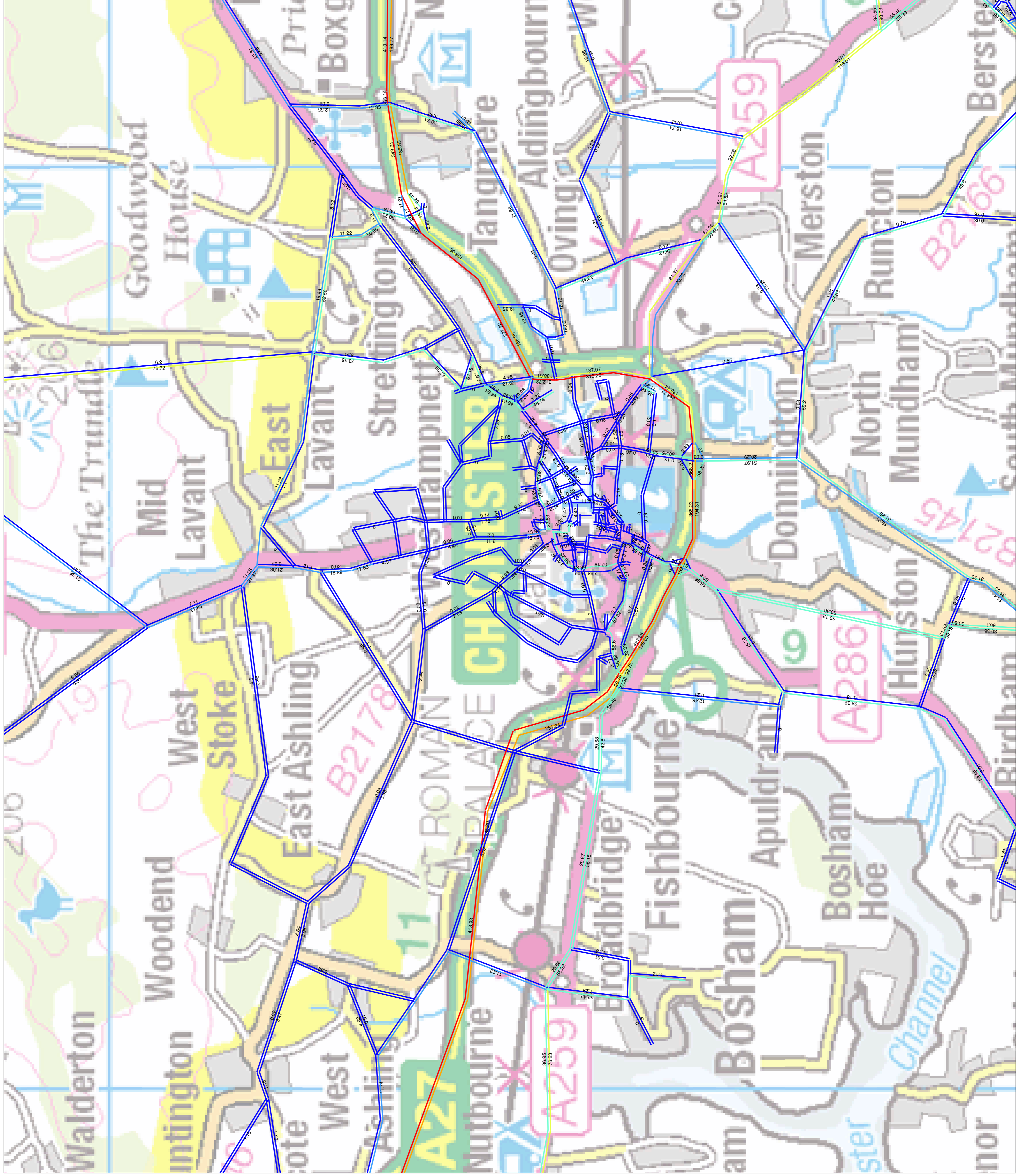
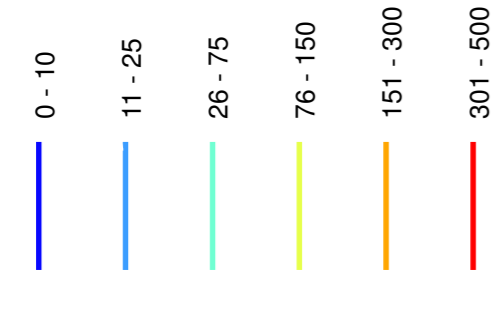




**Legend**

AM Pref App & Link Road Traffic Flows

Heavies PCU (Actual)



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Client	Vectos
Project	West Chichester Housing Development
Drawing Title	Chichester Link Road Modelling

Drawing Status	
Scale	DO NOT SCALE
Jacobs No.	
Client No.	
Drawing Number	B1858300/002
Rev	1

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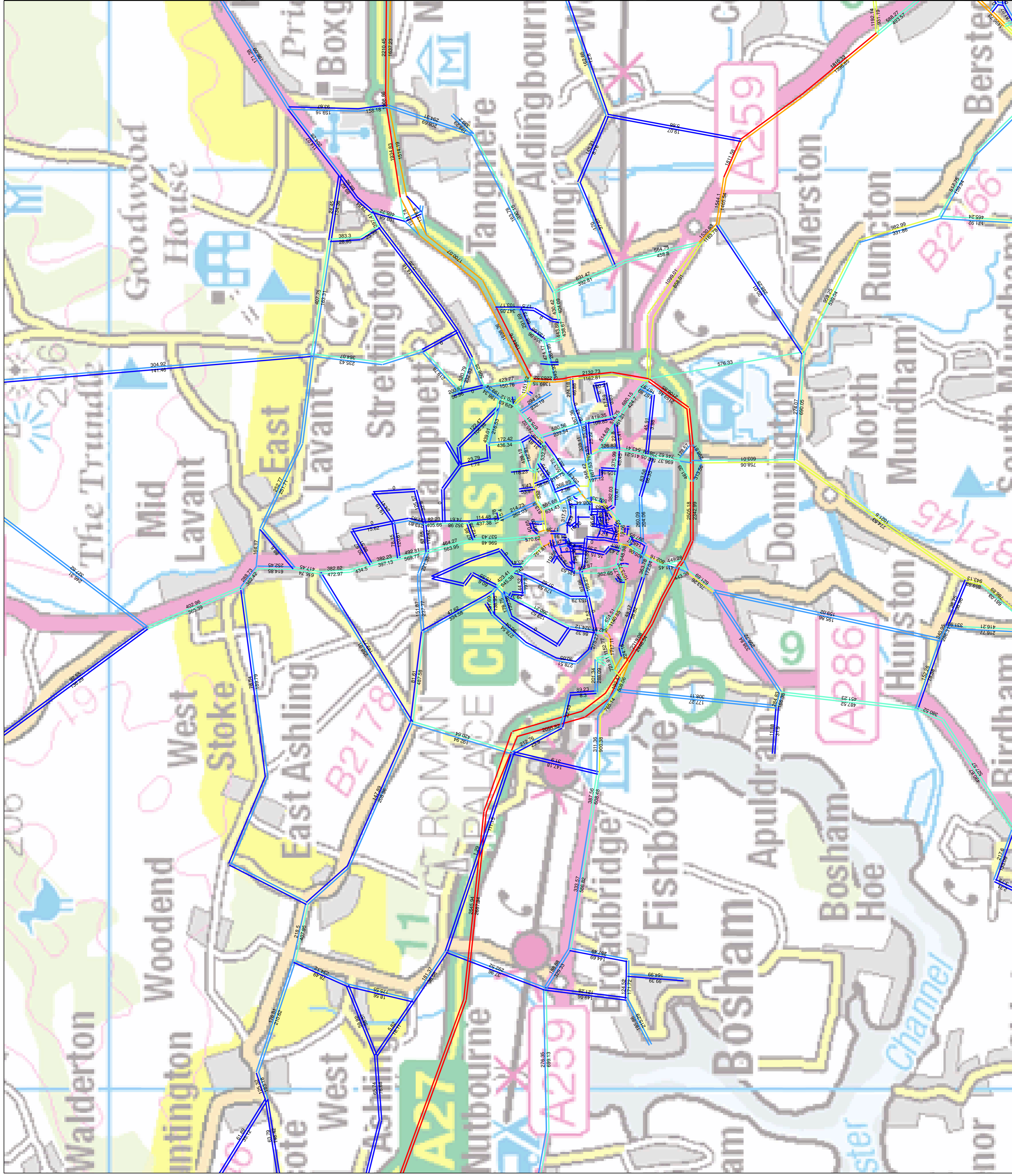


**Legend**

PM Pref App & Link Road Traffic Flows

Lights PCU (Actual)

- 0 - 150
- 151 - 350
- 351 - 750
- 751 - 1200
- 1201 - 1800
- 1801 - 3500



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Client: Vectos

Project: West Chichester Housing Development

Drawing Title: Chichester Link Road Modelling

Chichester Link Road Modelling

Drawing Status: DO NOT SCALE

Scale: DO NOT SCALE

Jacobs No.:

Client No.:

Drawing Number: B1858300/002

Rev: 1

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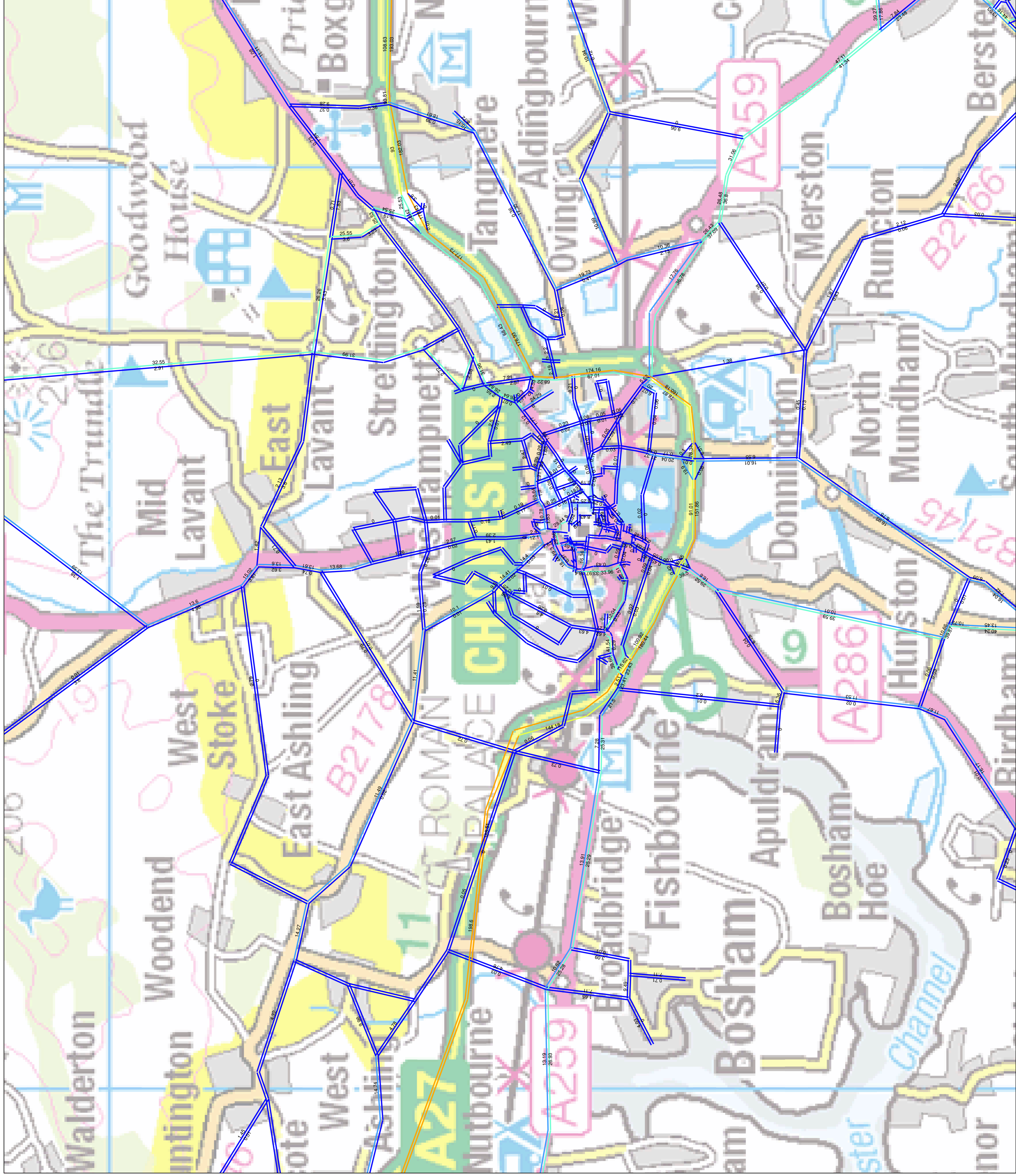
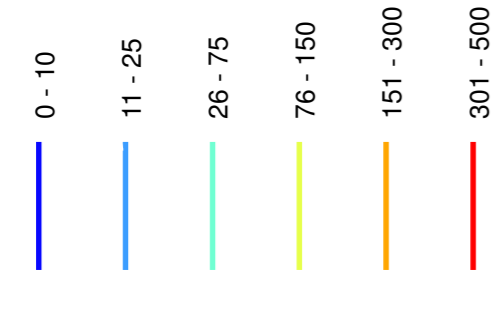




**Legend**

PM Pref App & Link Road Traffic Flows

Heavies PCU (Actual)



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Project	West Chichester Housing Development
Drawing Title	Chichester Link Road Modelling

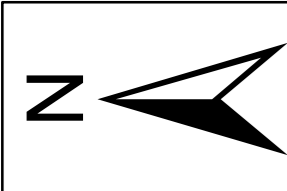
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Jacobs No.	
Client No.	
Drawing Number	B1858300/002
Rev	1

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**Appendix D    Change in Flows: 2031 Baseline vs. Preferred Traffic Flows**

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### Legend

#### AM Baseline vs. Pref App Traffic Flows

- Lights PCU (Actual)
- 2,500 - 250
  - 250 - 100
  - 100 - 0
  - 0.1 Change/No Comparison Available
  - 0 - 100
  - 100 - 250
  - 250 - 2,500

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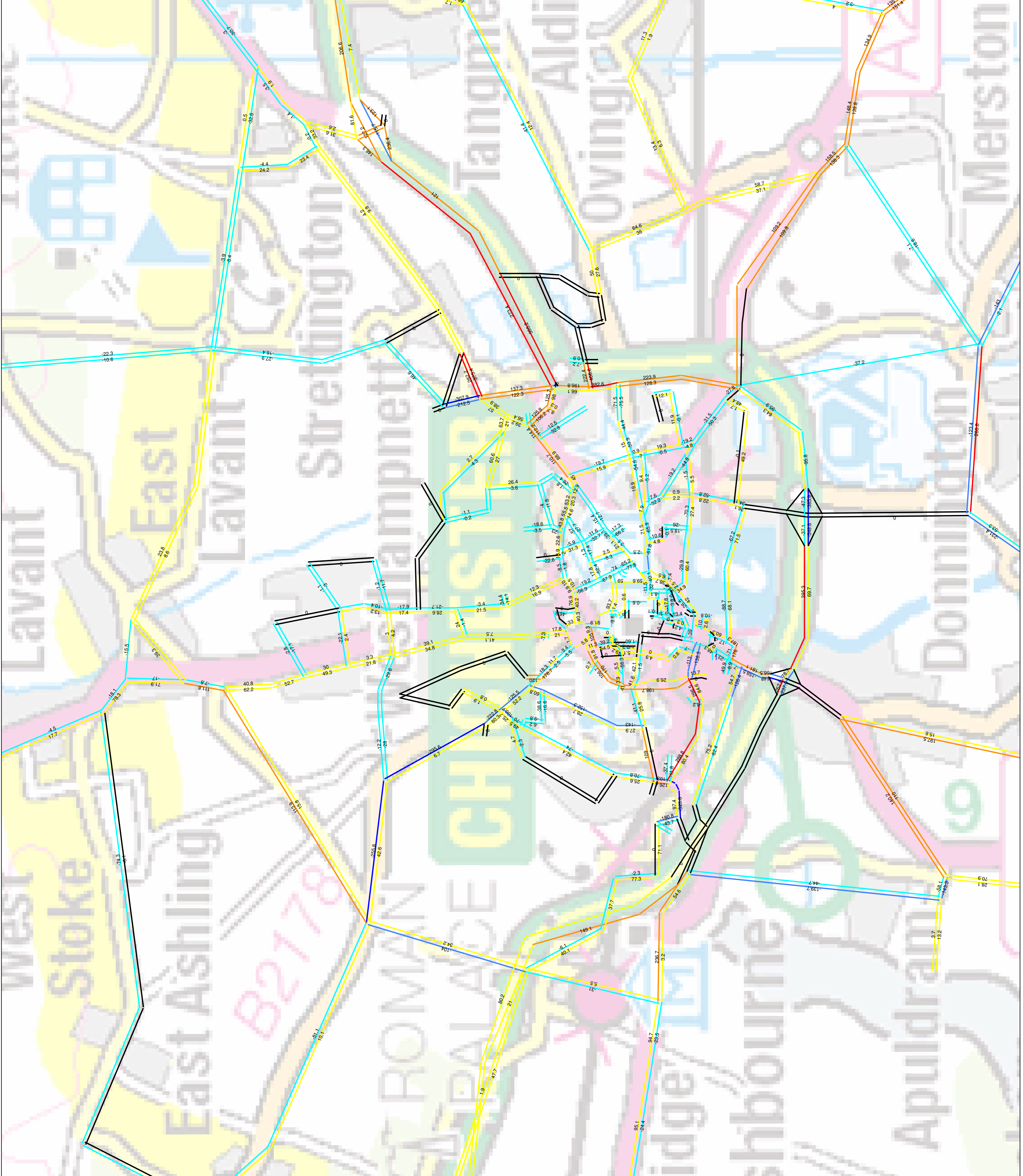
Project: West Chichester Housing Development

Drawing Title: Chichester Link Road Modelling

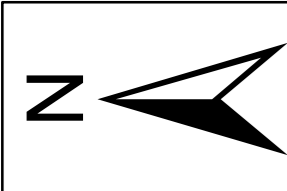
Drawing Status: Scale: DO NOT SCALE

Jacobs No. Client No. Drawing Number: B1858300/002 Rev: 2

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**Legend**

**AM Baseline vs. Pref App Traffic Flows**

Heavies PCU (Actual)

-150 - -75

-75 - -10

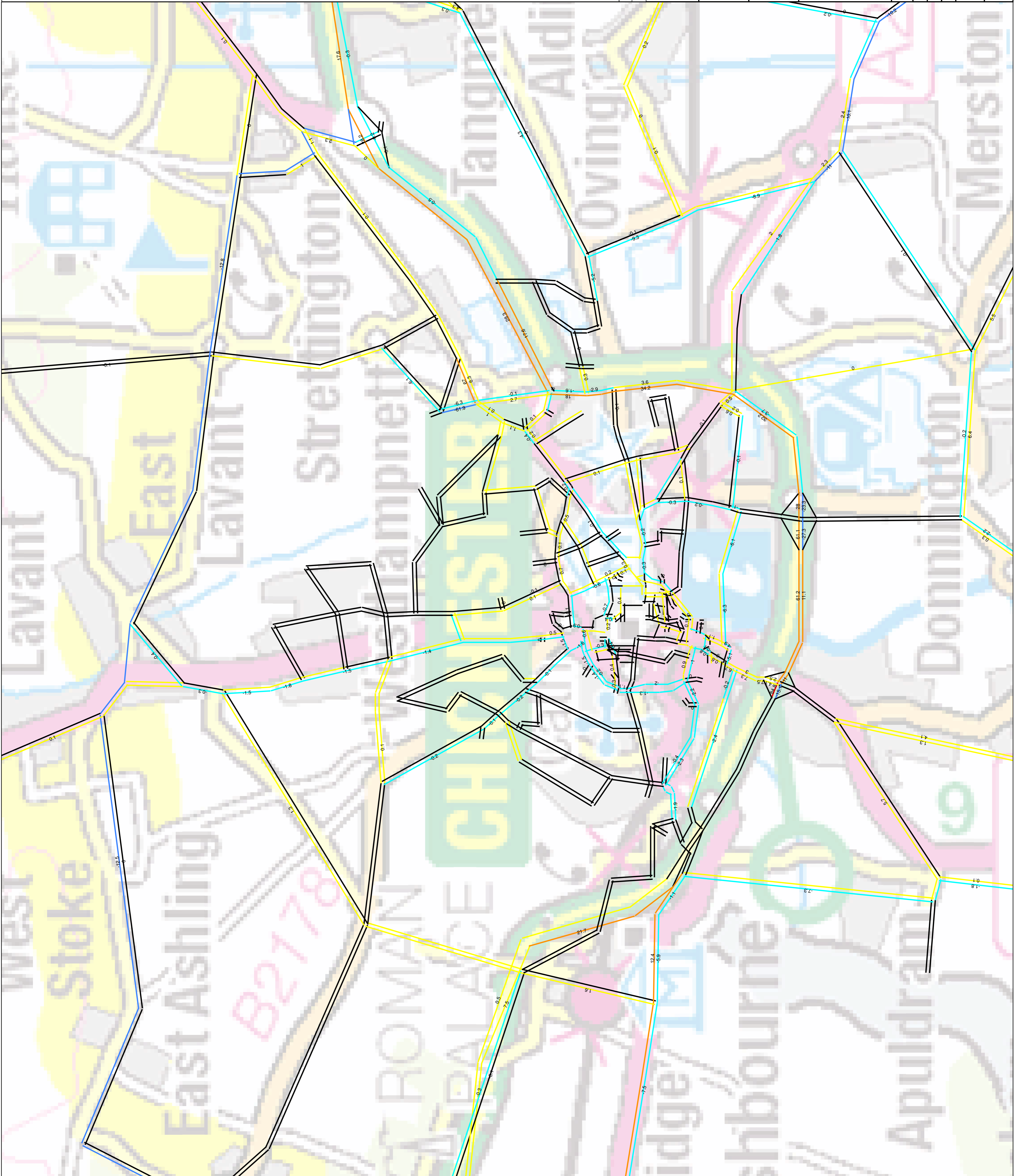
-10 - 0

<0.1 Change/No Comparison Available

0 - 10

10 - 75

75 - 150



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Client  
**Vectos**

Project  
**West Chichester Housing Development**

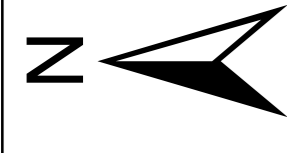
Drawing Title  
**Chichester Link Road Modelling**

Drawing Status	
Scale	DO NOT SCALE
Jacobs No.	
Client No.	

Drawing Number	Rev
<b>B1858300/002</b>	<b>2</b>

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### Legend

#### PM Baseline vs. Pref App Traffic Flows

Lights PCU (Actual)

- -2,500 - -250
- -250 - -100
- -100 - 0
- -0.1 Change/No Comparison Available
- 0 - 100
- 100 - 250
- 250 - 2,500



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Project: West Chichester Housing Development

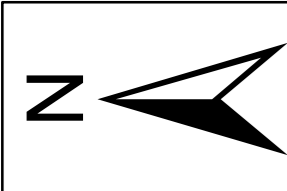
Drawing Title: Chichester Link Road Modelling

Drawing Status: Scale: DO NOT SCALE

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**Legend**

**PM Baseline vs. Pref App Traffic Flows**

Heavies PCU (Actual)

-150 - -75

-75 - -10

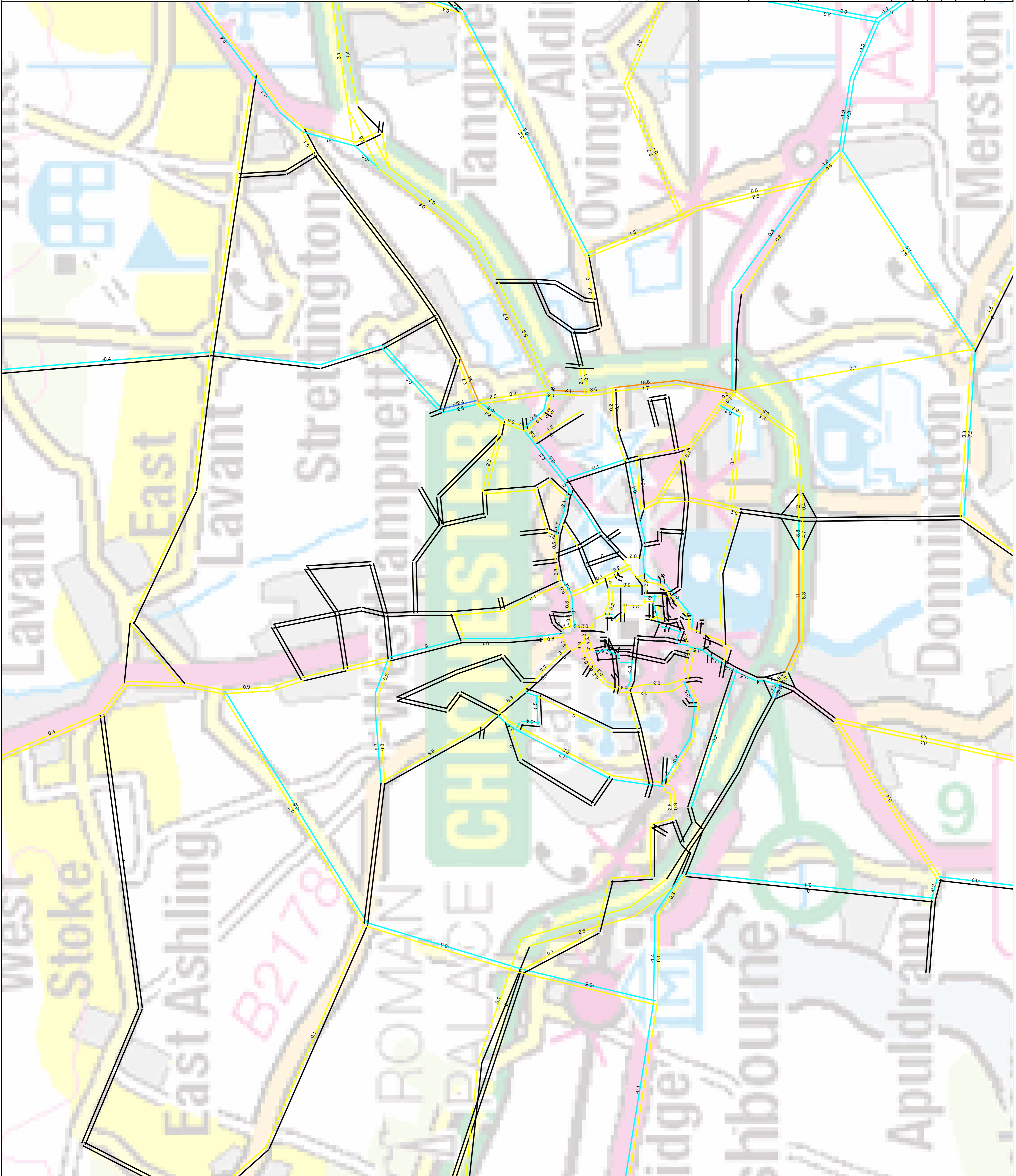
-10 - 0

<0.1 Change/No Comparison Available

0 - 10

10 - 75

75 - 150



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Client: Vectos

Project: West Chichester Housing Development

Drawing Title: Chichester Link Road Modelling

Drawing Status: Scale: DO NOT SCALE

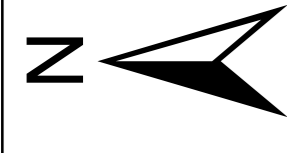
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## **Appendix E    Change in Flows: 2031 Baseline vs. New Link Road**

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### Legend

#### AM Baseline vs. Pref App & Link Road Traffic Flows

Lights PCU (Actual)

- -2,500 - -250
- -250 - -100
- -100 - 0
- <math>-0.1</math> Change/No Comparison Available
- 0 - 100
- 100 - 250
- 250 - 2,500

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Project

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Drawing Title

Chichester Link Road Modelling

Drawing Status

Scale

Jacobs No.

Client No.

Drawing Number

B1858300/002

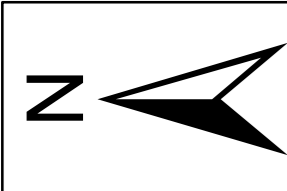
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**Legend**

**AM Baseline vs. Pref App & Link Road Traffic Flows**

Heavies PCU (Actual)

-150 - -75

-75 - -10

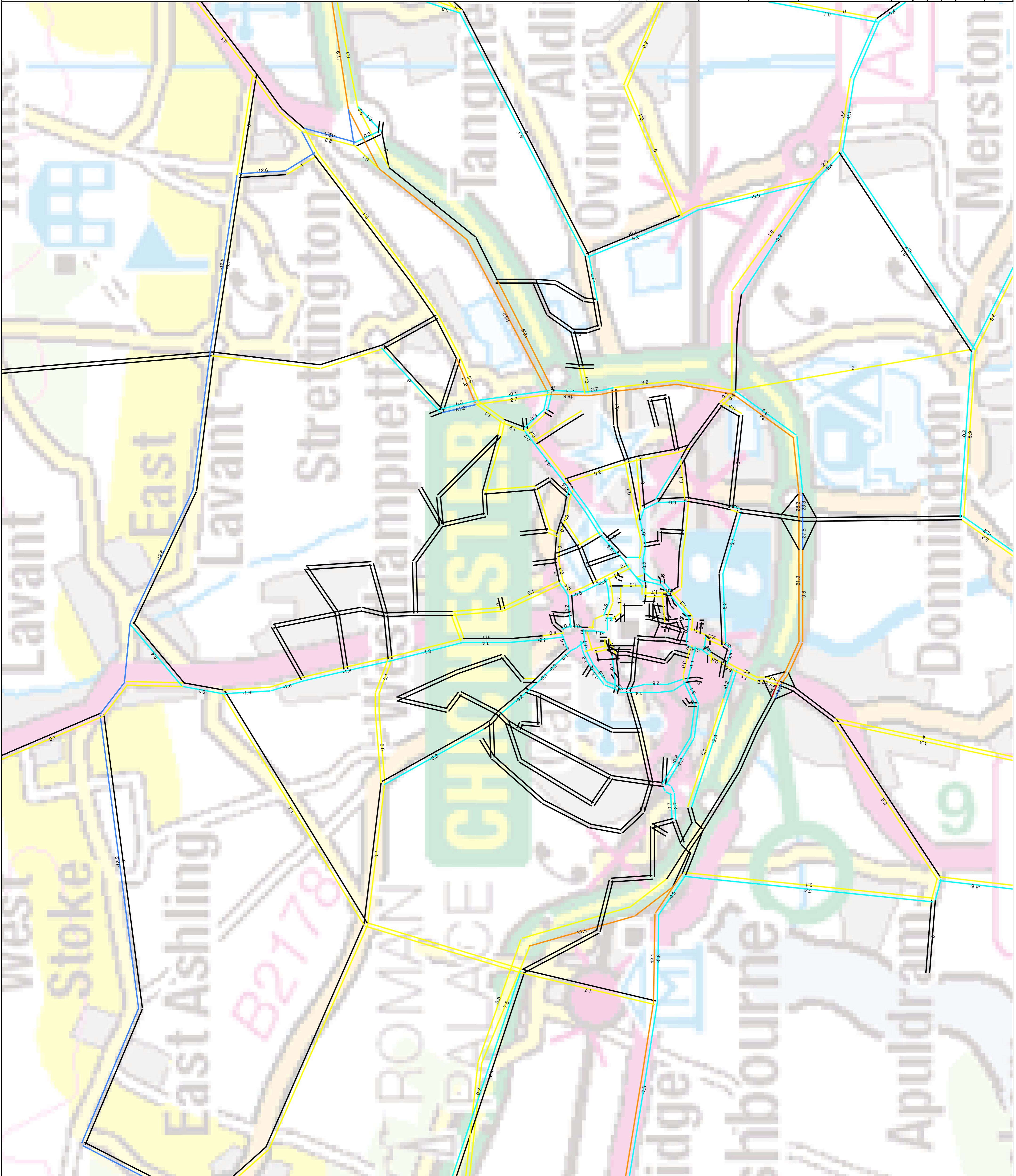
-10 - 0

<0.1 Change/No Comparison Available

0 - 10

10 - 75

75 - 150



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Client

Vectros

Project

West Chichester Housing Development

Drawing Title

Chichester Link Road Modelling

Drawing Status

Scale

Jacobs No.

Client No.

Drawing Number

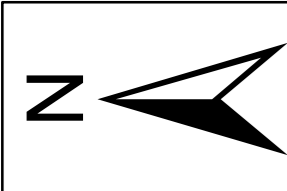
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### Legend

#### PM Baseline vs. Pref App & Link Road Traffic Flows

- Lights PCU (Actual)
- 2,500 - -250
  - 250 - -100
  - 100 - 0
  - 0.1 Change/No Comparison Available
  - 0 - 100
  - 100 - 250
  - 250 - 2,500

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Client: **Vectros**

Project: **West Chichester Housing Development**

Drawing Title: **Chichester Link Road Modelling**

Drawing Status: **DO NOT SCALE**

Scale: **DO NOT SCALE**

Jacobs No. **DO NOT SCALE**

Client No. **DO NOT SCALE**

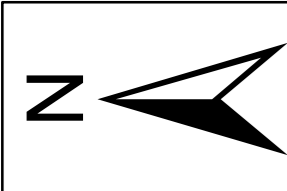


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**Legend**

**PM Baseline vs. Pref App & Link Road Traffic Flows**

Heavies PCU (Actual)

-150 - -75

-75 - -10

-10 - 0

<0.1 Change/No Comparison Available

0 - 10

10 - 75

75 - 150

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**Vectors**

Project  
**West Chichester Housing Development**

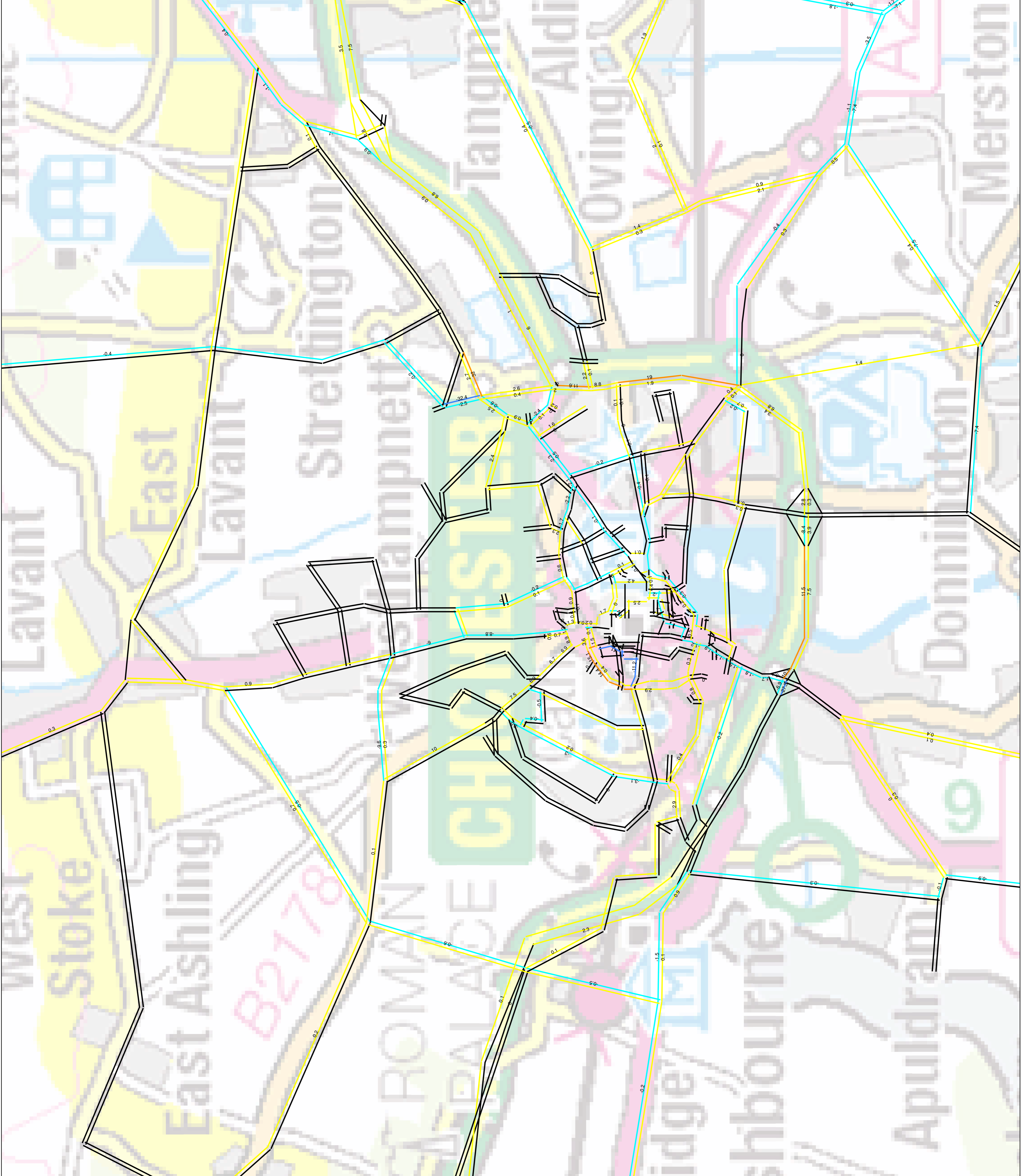
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Jacobs No.  
Client No.  
Drawing Number  
**B1858300/002**

Rev  
**2**

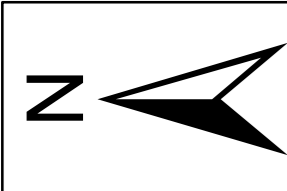
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**Appendix F    Change in Flows: 2031 Preferred Approach vs. New Link Road**

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**Legend**

**AM Pref App vs. Pref App & Link Road Traffic Flows**

- Lights PCU (Actual)
- 2,500 - 250
  - 250 - 100
  - 100 - 0
  - 0.1 Change/No Comparison Available
  - 0 - 100
  - 100 - 250
  - 250 - 2,500

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**Vectors**

Project  
**West Chichester Housing Development**

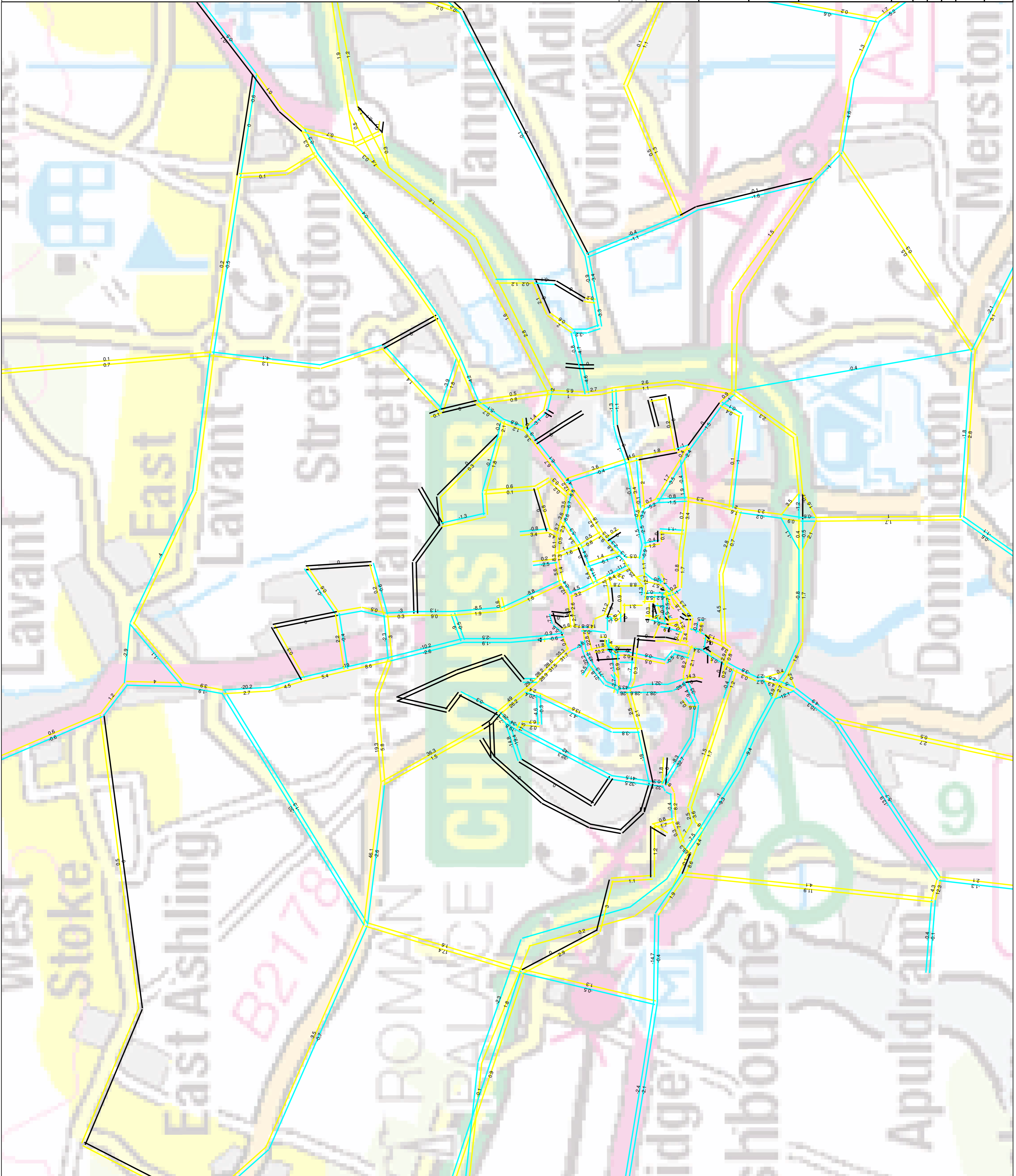
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Drawing Status  
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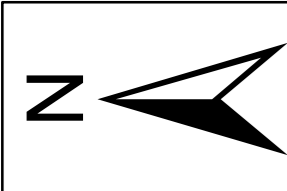
Jacobs No.  
Client No.  
Drawing Number  
**B1858300/002**

Rev  
**2**

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**Legend**

**PM Pref App vs. Pref App & Link Road Traffic Flows**

Heavies PCU (Actual)

-150 -75

-75 -10

-10 -0

<0.1 Change/No Comparison Available

0 -10

10 -75

75 -150

**AM Pref App vs. Pref App & Link Road Traffic Flows**

Diff2

-150 -75

-75 -10

-10 -0

<0.1 Change/No Comparison Available

0 -10

10 -75

75 -150

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Vectors

Project

West Chichester Housing Development

Drawing Title

Chichester Link Road Modelling

Drawing Status

Scale

Jacobs No.

Client No.

Drawing Number

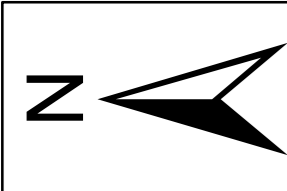
B1858300/002

Rev 2

This drawing is not to be used in whole or part other than for the intended purpose and shall be deemed to be null and void if used for any other purpose. Refer to the contract for full terms and conditions.







### Legend

PM Pref App vs. Pref App & Link Road Traffic Flows

- Dif
- 2,500 - -250
  - 250 - -100
  - 100 - 0
  - 0.1 Change/No Comparison Available
  - 0 - 100
  - 100 - 250
  - 250 - 2,500

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Rev	Jan 14	Date	Purpose of Revision	DS	CH	RH
1			Drawn			
			Check			
			Review			
			Appr.			



Ground Floor, Earl Grey House, 77-85 Grey Street, Newcastle-upon-Tyne, NE1 6EF.  
Tel: +44 (0)191 255 7800 Fax: +44 (0)191 255 7818  
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Client	Vectos
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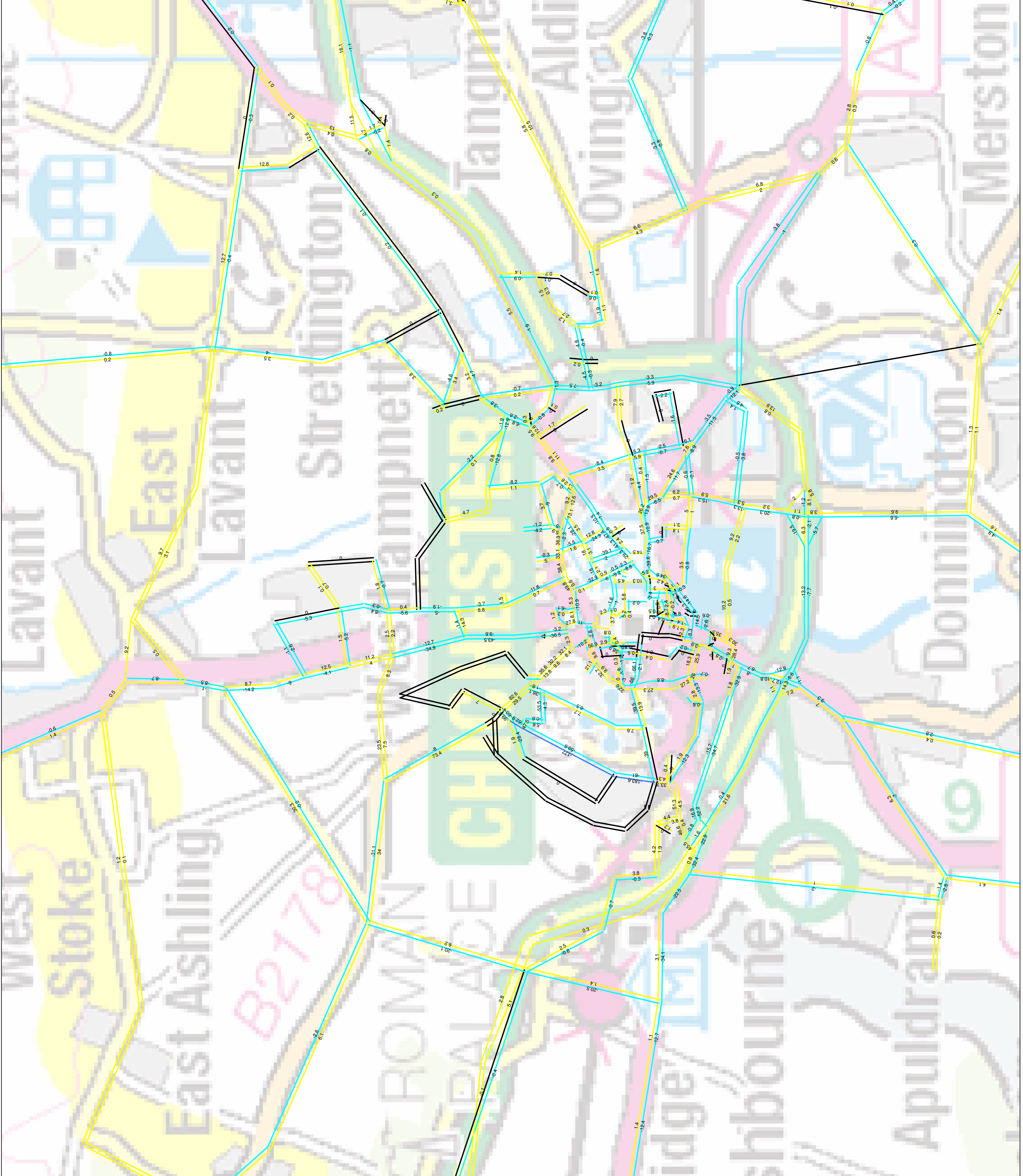
Project	West Chichester Housing Development
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Drawing Title	Chichester Link Road Modelling
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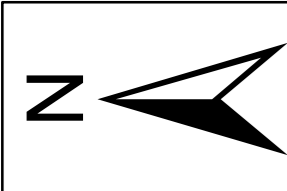
Drawing Status	DO NOT SCALE
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Scale	
Jacobs No.	
Client No.	
Drawing Number	B1858300/002
Rev	2

This drawing is not to be used in whole or part other than for the intended purpose. It is to be used in conjunction with the contract documents. Refer to the contract for full terms and conditions.







**Legend**

**PM Pref App vs. Pref App & Link Road Traffic Flows**

Heavies PCU (Actual)

-150 - -75

-75 - -10

-10 - 0

<0.1 Change/No Comparison Available

0 - 10

10 - 75

75 - 150

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Rev	Date	Purpose of Revision	DS	CH	RH
1	Jan 14				

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 www.jacobs.com

Client: **Vectors**

Project: **West Chichester Housing Development**

Drawing Title: **Chichester Link Road Modelling**

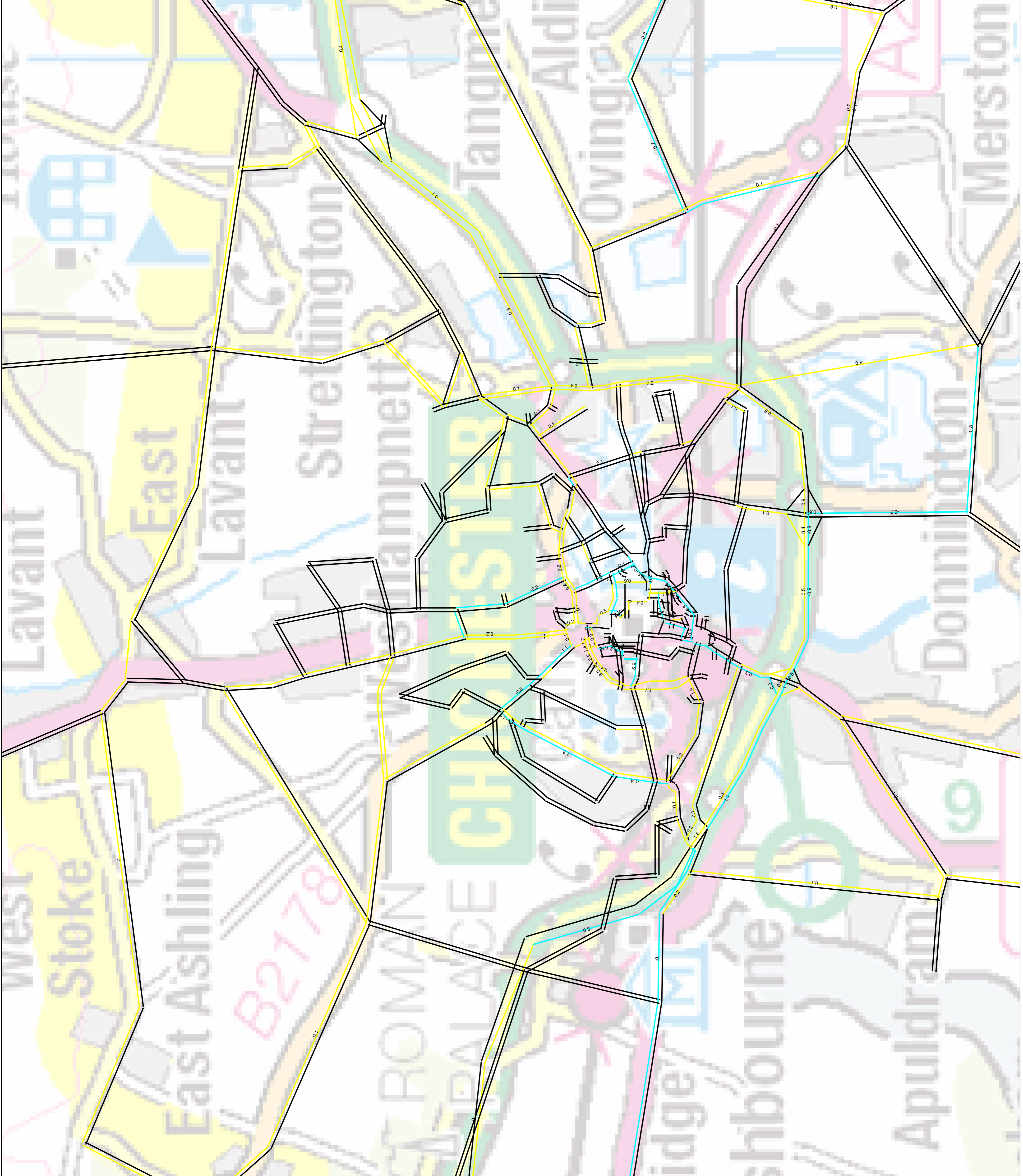
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Scale: **JACOBS No.**

Client No. **B1858300/002**

Drawing Number **Rev 2**

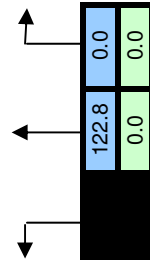
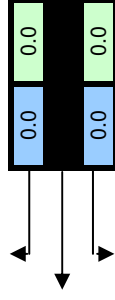
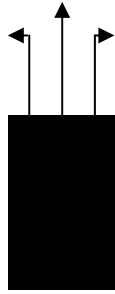
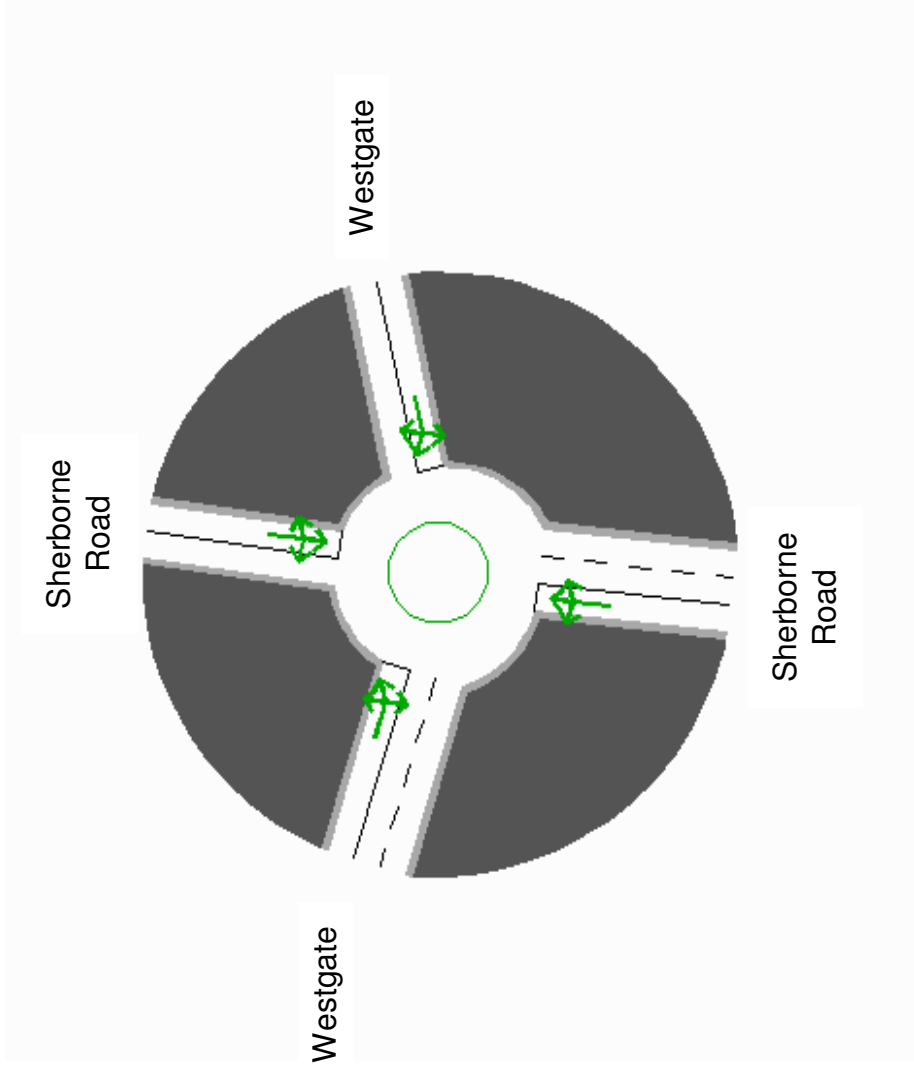
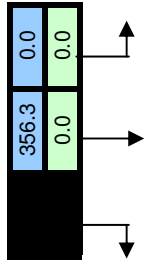
This drawing is not to be used in whole or part other than for the intended purpose as defined on this drawing. Refer to the contract for full terms and conditions



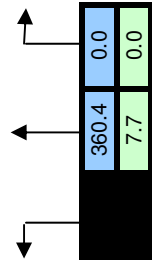
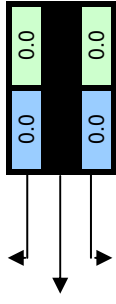
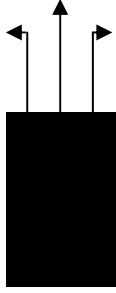
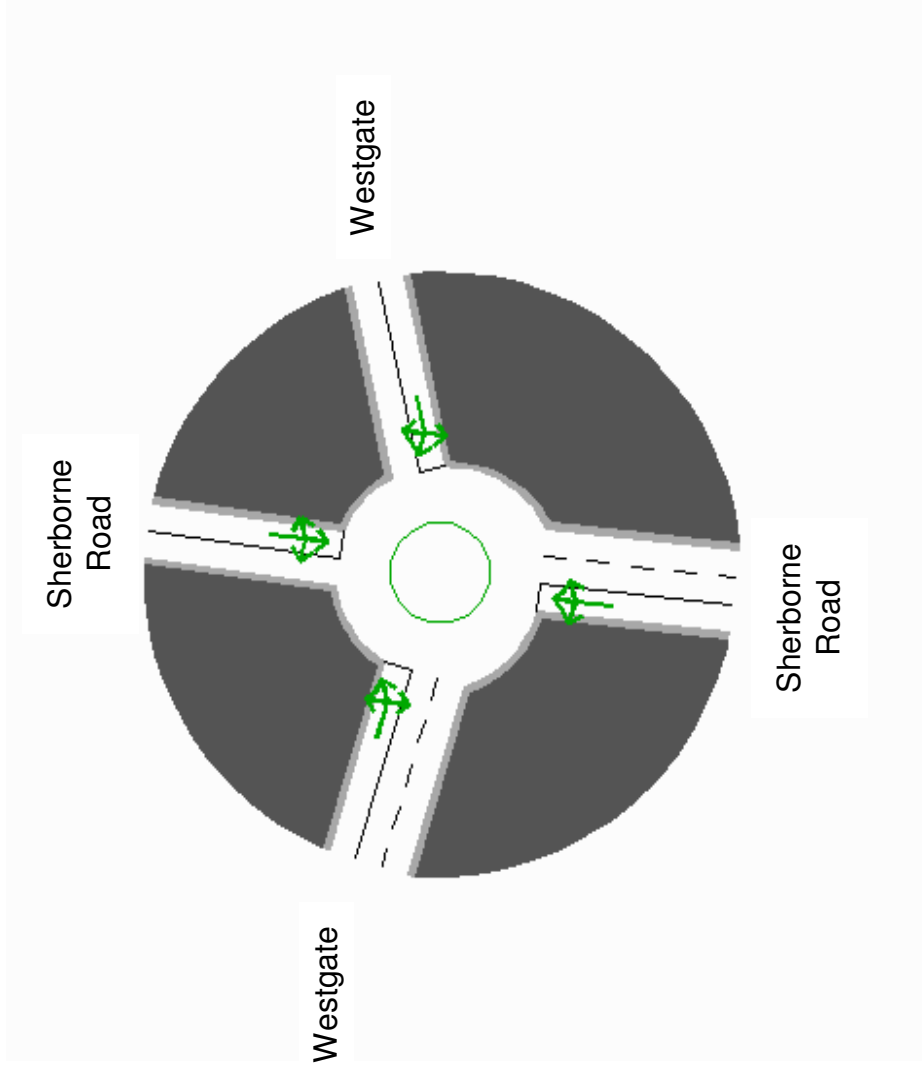
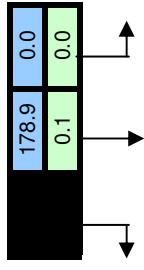
**Appendix G Junction Turning Movements: Westgate Road/Sherborne Road/New Link Road**

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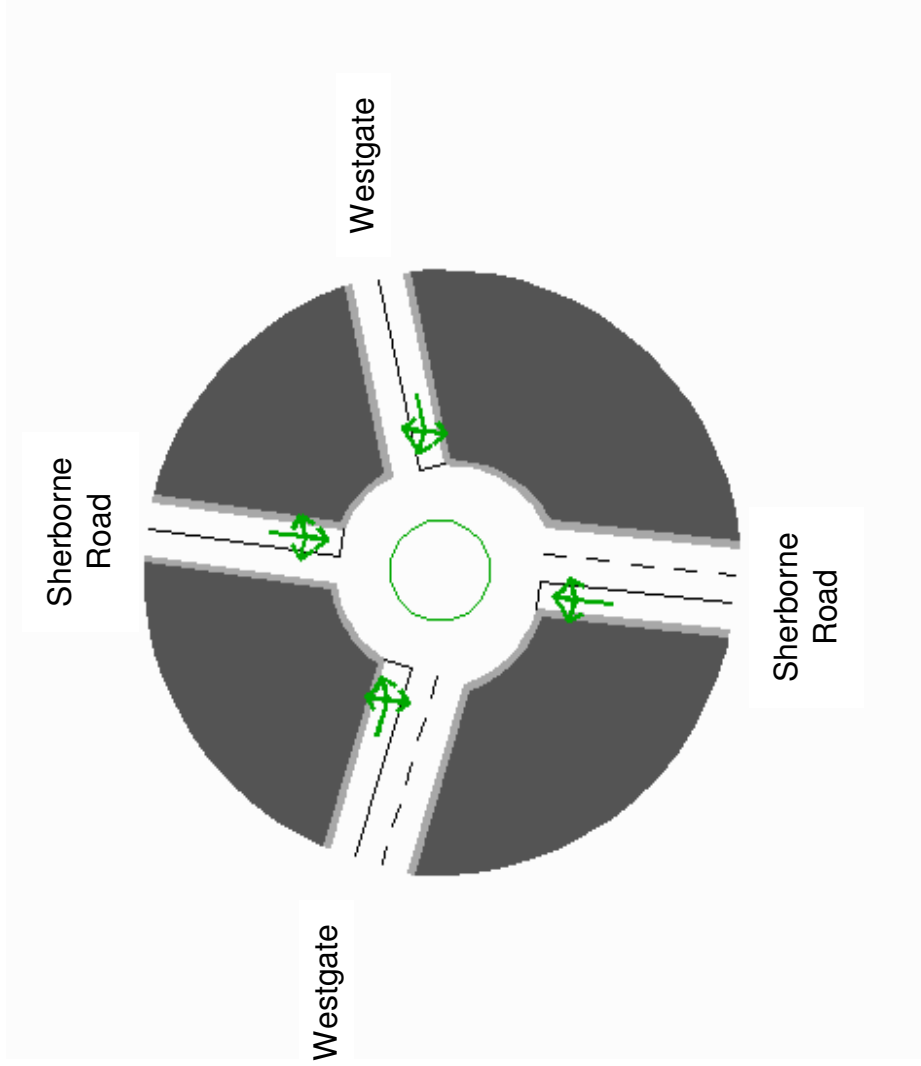


- Light Vehicles (inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles (includes HGVs, Artics and PSVs)
- Not modelled in this scenario



- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)
- Not modelled in this scenario

0.0	352.3	0.0
0.0	0.0	0.0



0.0	0.0	0.0
0.0	0.0	0.5

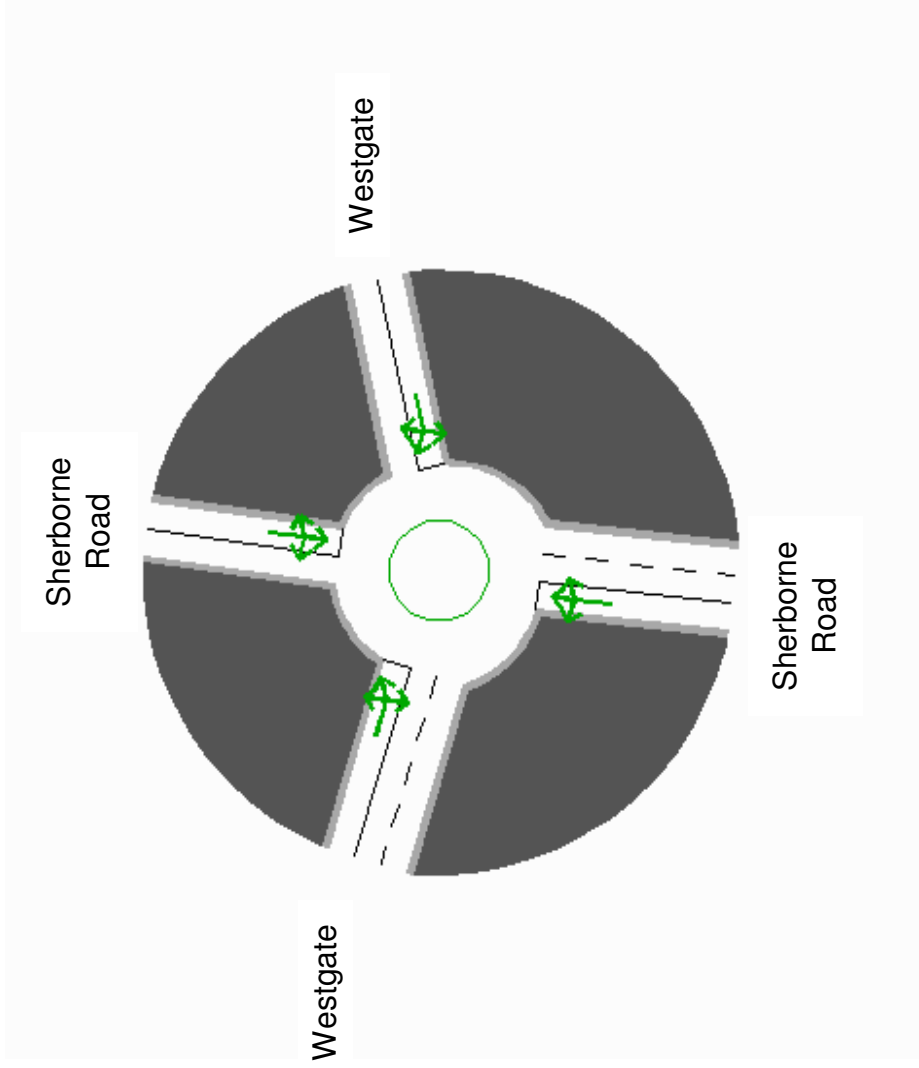
0.0	0.0	0.0
0.0	0.0	0.0

1.0	119.7	0.0
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



0.0	165.0	0.0
0.0	0.1	0.0



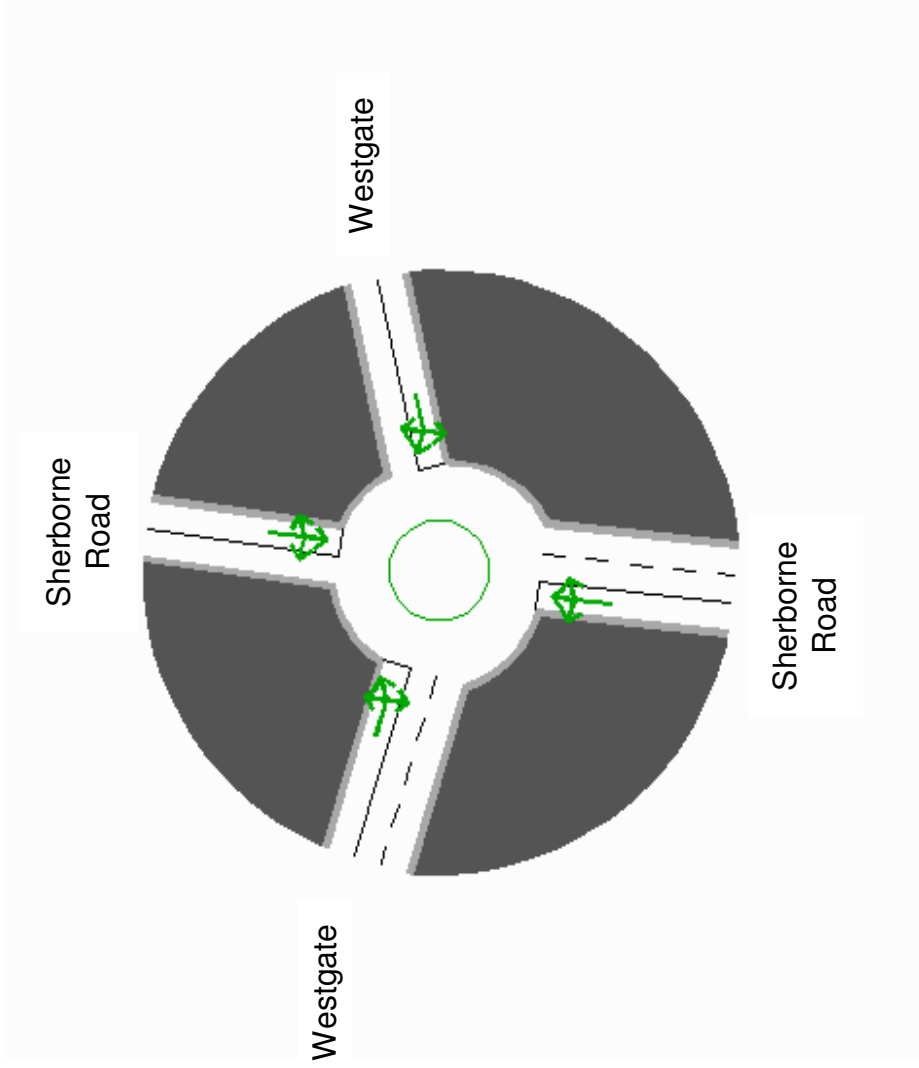
0.0	0.0
0.0	0.0
0.0	0.5

0.0	0.0
0.0	0.0
0.0	0.0

300.0	190.0	0.0
0.0	8.2	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

25.5	224.2	0.0
0.0	0.0	0.0



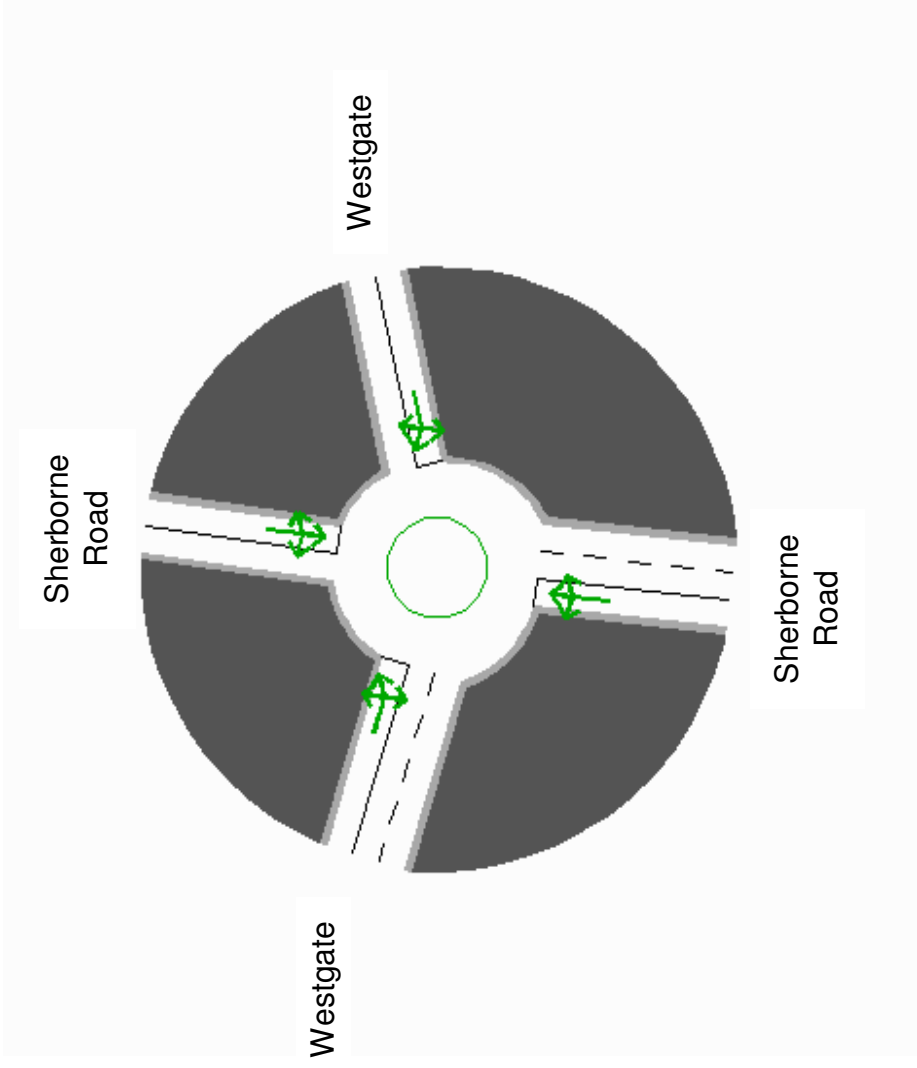
0.0	5.8
0.0	109.6
0.0	28.4

0.0	0.0
0.0	0.0
0.0	0.0

103.0	148.5	0.0
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

46.7	458.0	0.0
0.0	0.2	0.0



0.0	19.9
0.0	47.0
0.0	81.7

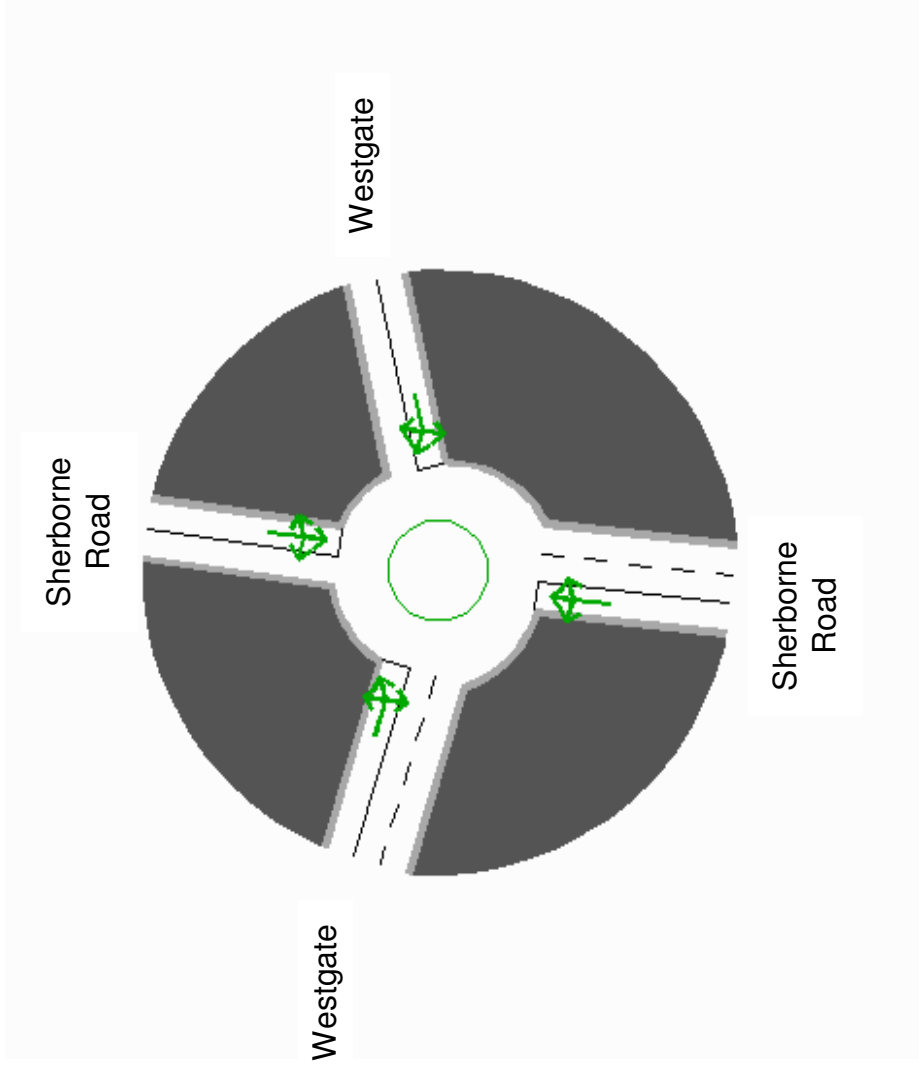
0.0	0.0
0.0	0.0
0.0	0.0

70.0	327.8	0.0
0.0	6.0	0.0

- Light Vehicles  
 (inc. Motorcycles, Cars, and LGVs)  
 - Heavy Vehicles  
 (includes HGVs, Artics and PSVs)



1.5	206.4	0.0
0.0	0.0	0.0



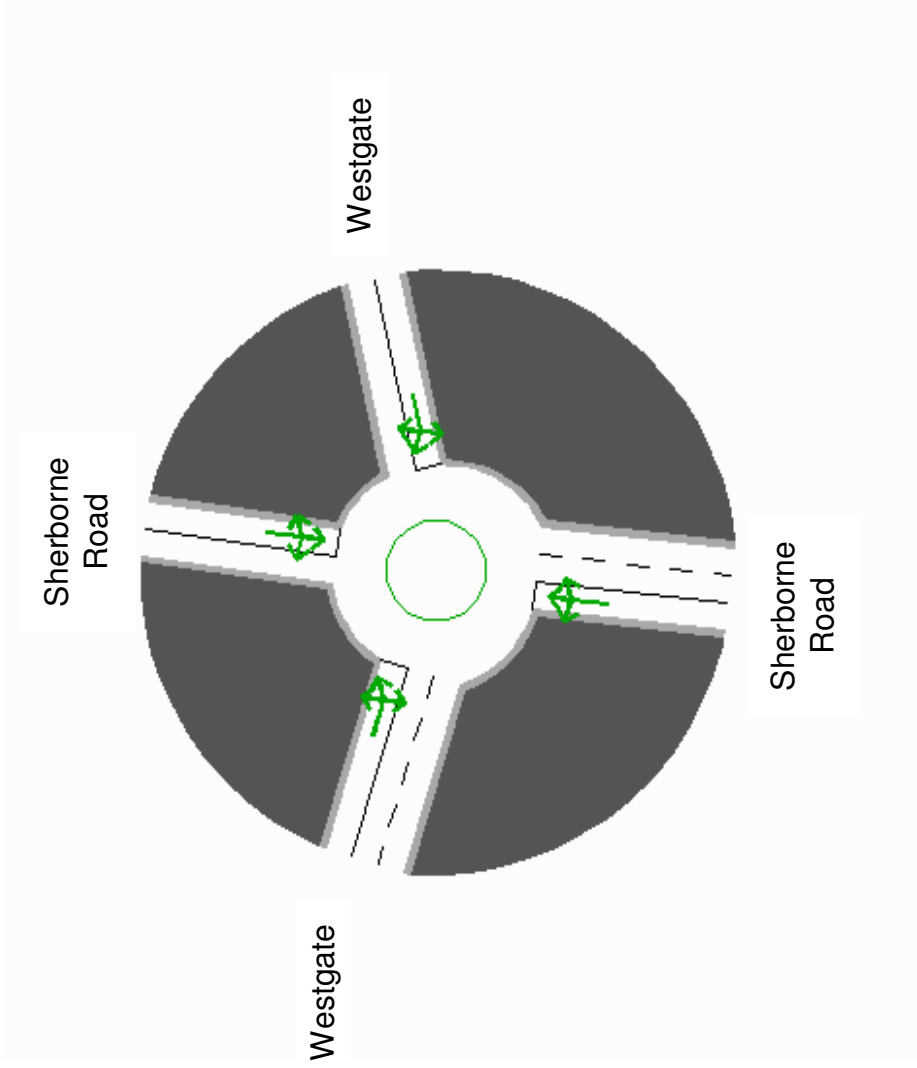
0.0	0.5
0.0	91.6
0.0	45.5

0.0	0.0
0.0	0.0
0.0	0.0

98.4	120.8	0.0
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

1.2	437.0	0.0
0.0	0.3	0.0



0.0	1.9
0.0	7.8
0.0	106.6

0.0	0.0
0.0	0.0
0.0	0.0

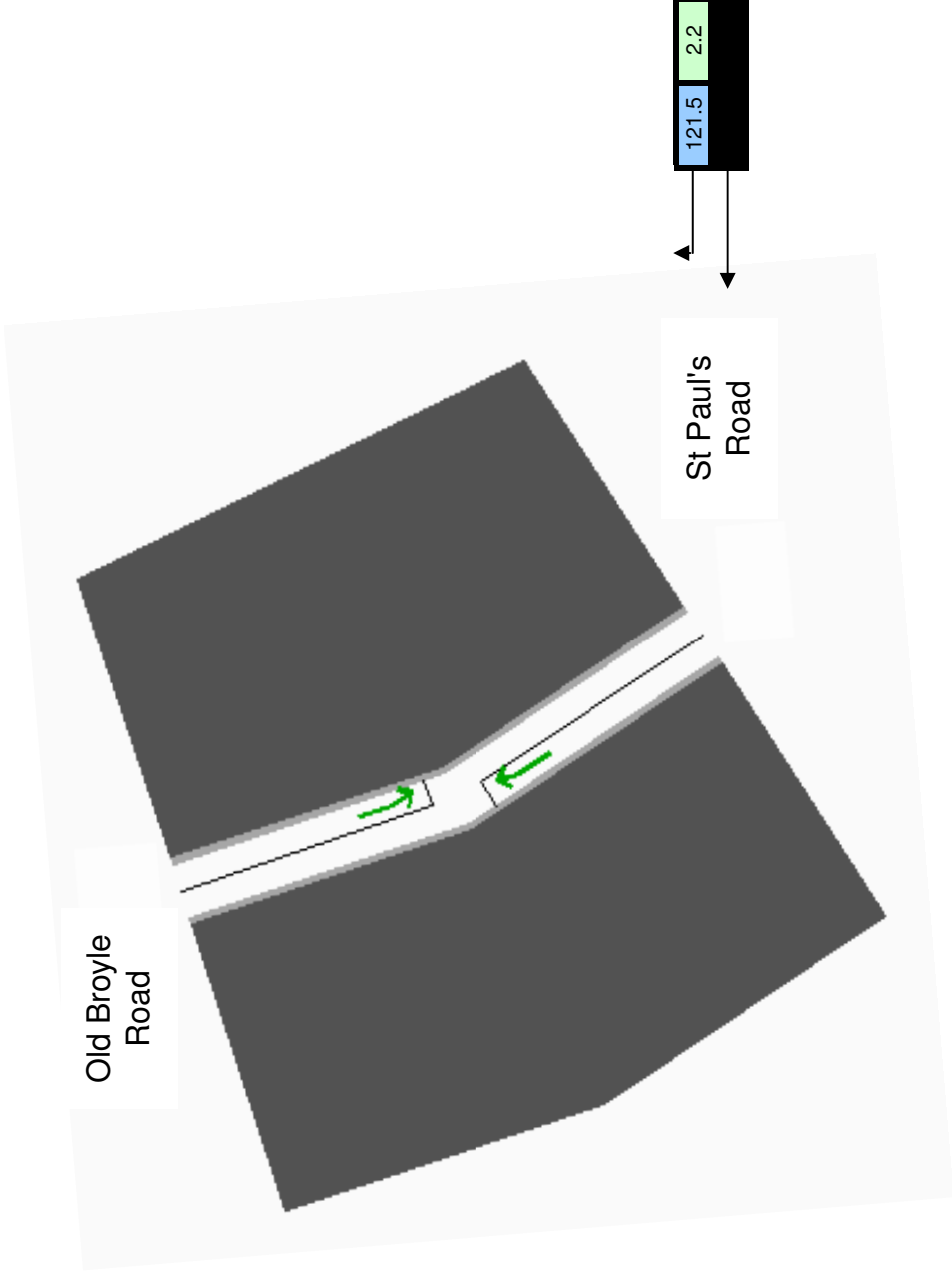
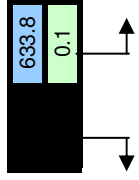
273.5	160.5	0.0
0.0	4.6	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

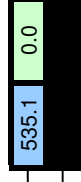
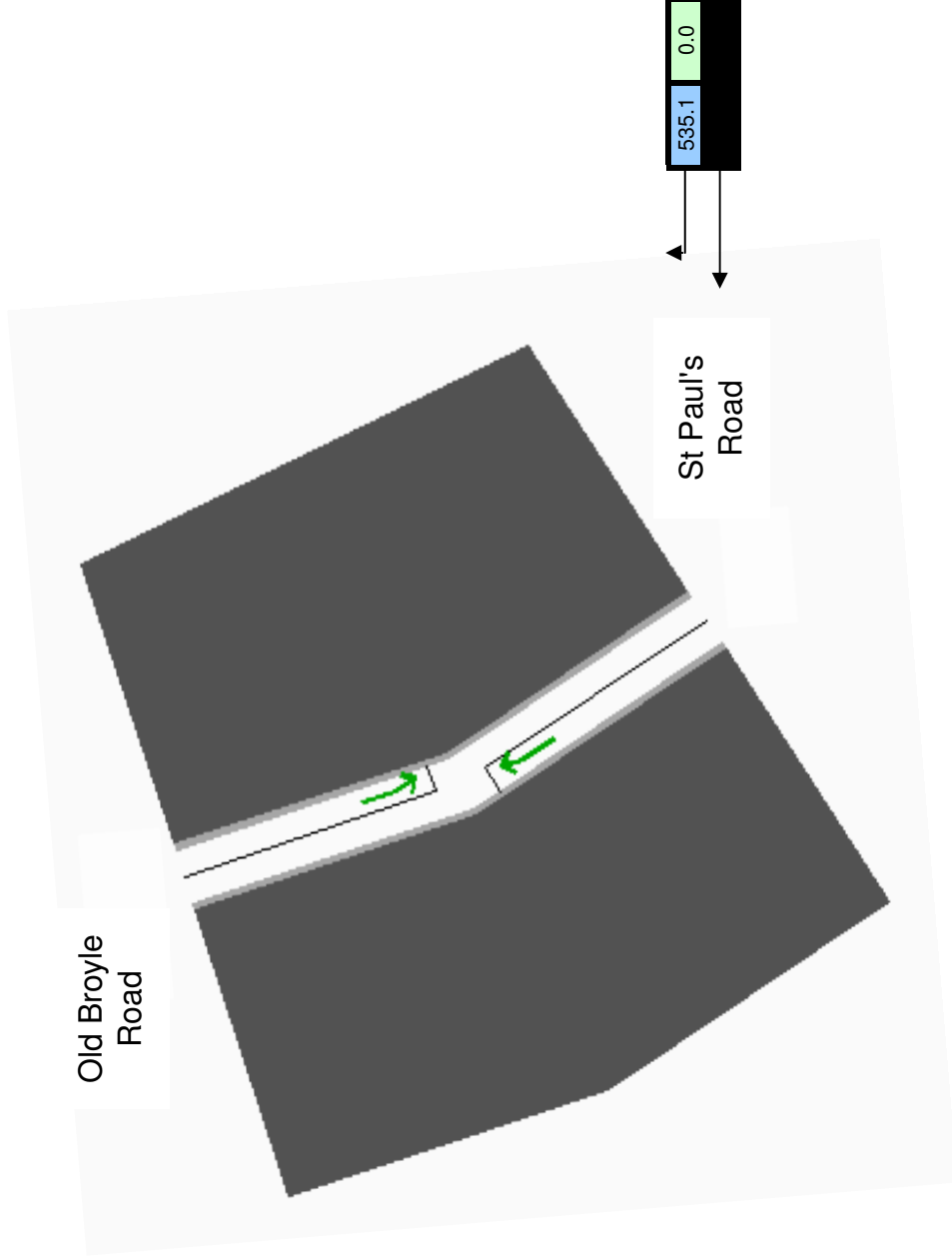
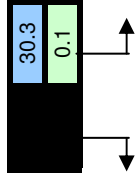
**Appendix H Junction Turning Movements: Old Broyle Road/St Paul's Road/New Link Road**



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- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)
- Not modelled in this scenario

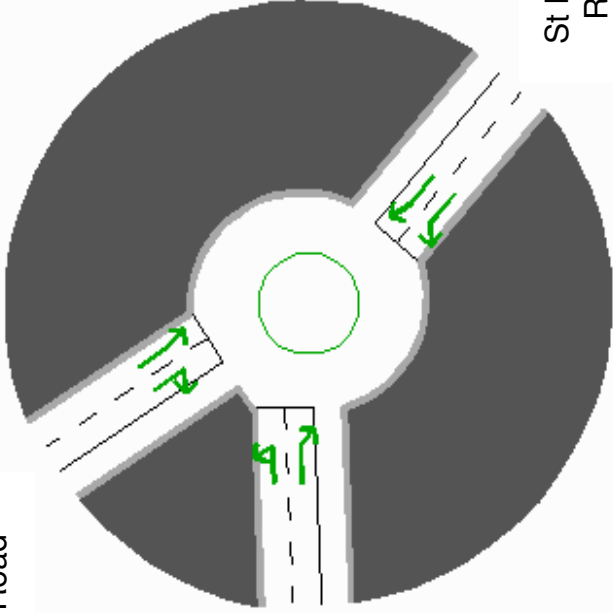


- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)
- Not modelled in this scenario



0.3	626.9
0.0	0.0

Old Broyle Road



0.0	0.1
0.0	1.0

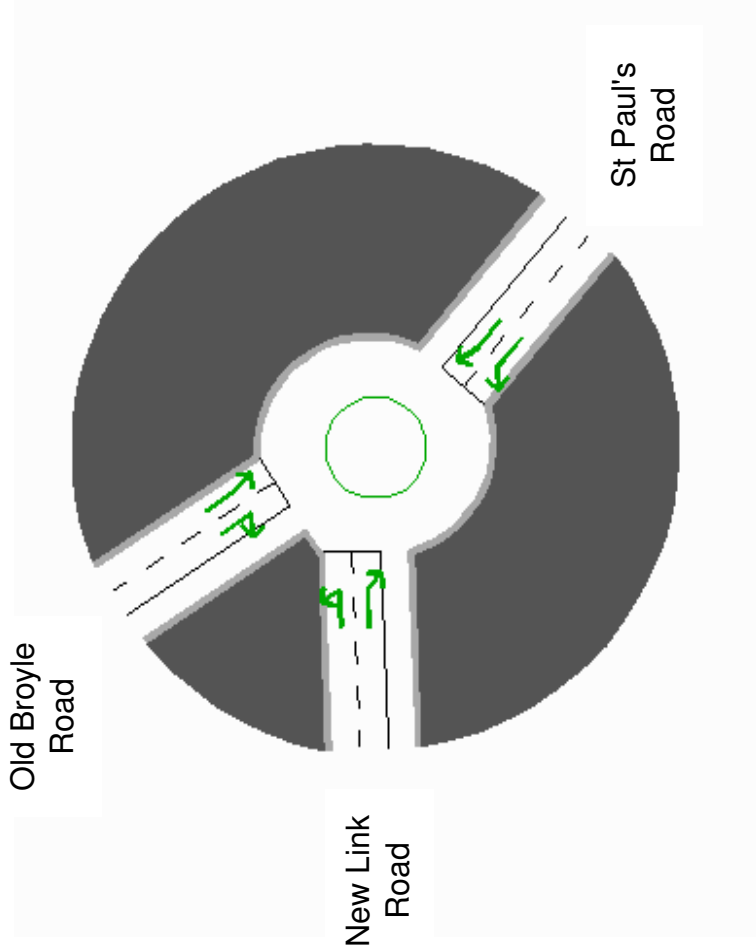
New Link Road

119.7	2.2
0.2	0.0

St Paul's Road

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

0.1	23.4
0.0	0.1

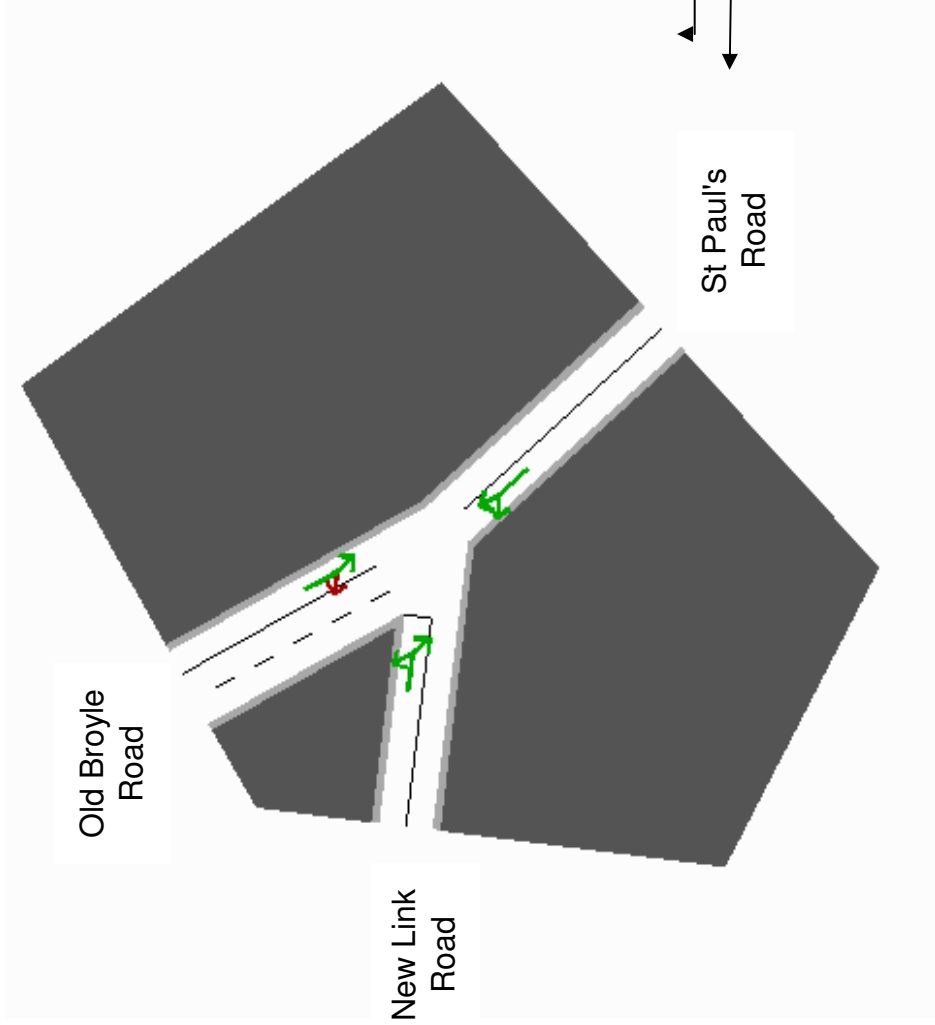


0.0	150.0
0.0	150.6

502.2	0.0
0.4	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

20.7	317.5
0.0	0.0



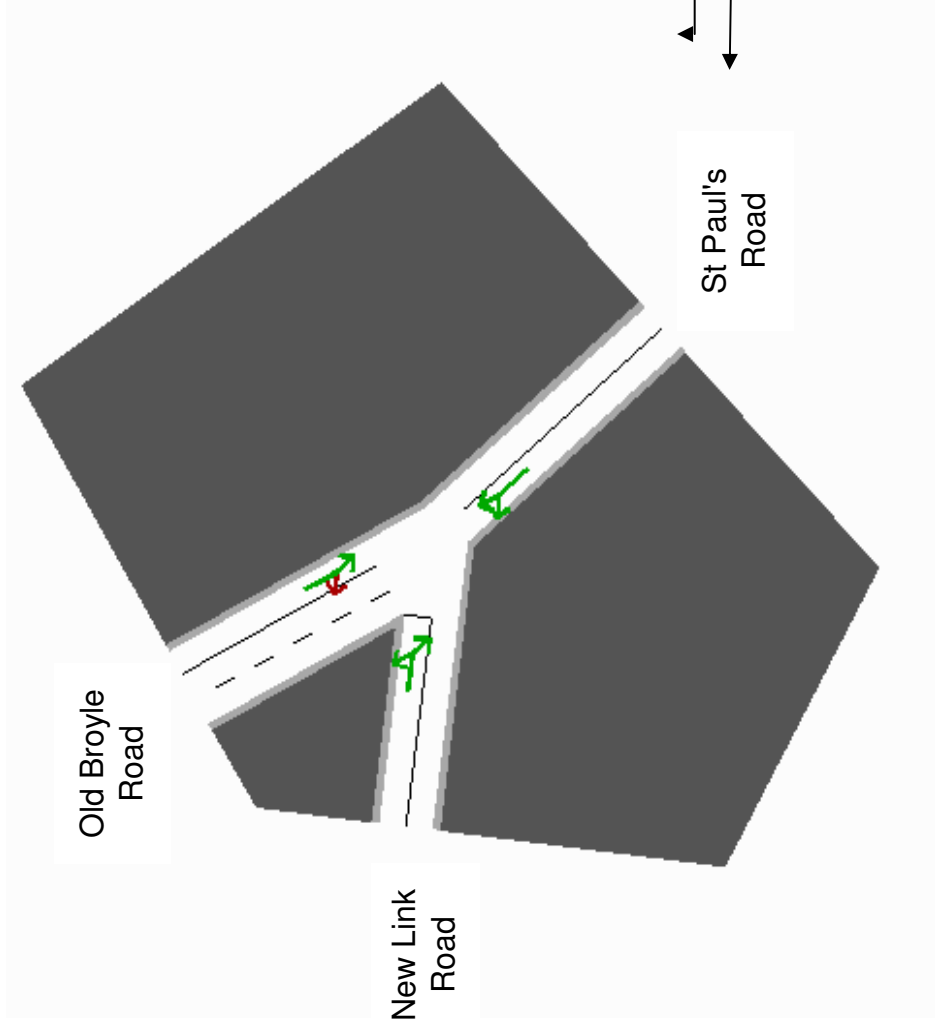
0.0	19.7
0.0	93.5

116.5	2.0
85.3	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



12.7	42.9
0.0	10.0



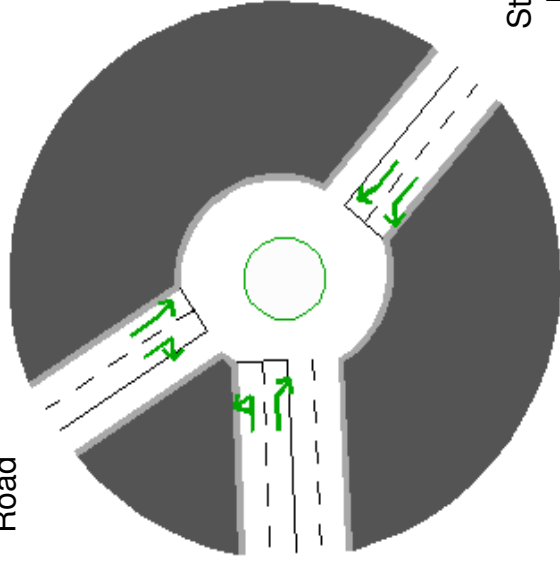
0.0	18.5
0.0	114.6

242.7	0.0
63.9	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

35.4	339.2
0.0	0.0

Old Broyle Road



St Paul's Road

New Link Road

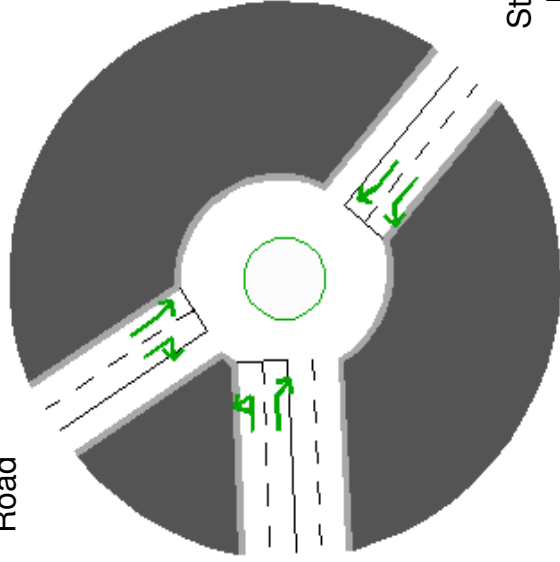
0.0	35.7
0.0	107.4

102.0	2.0
131.1	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

20.9	26.8
0.0	10.1

Old Broyle Road



St Paul's Road

New Link Road

0.0	108.0
0.0	243.7

226.7	0.0
118.1	0.0

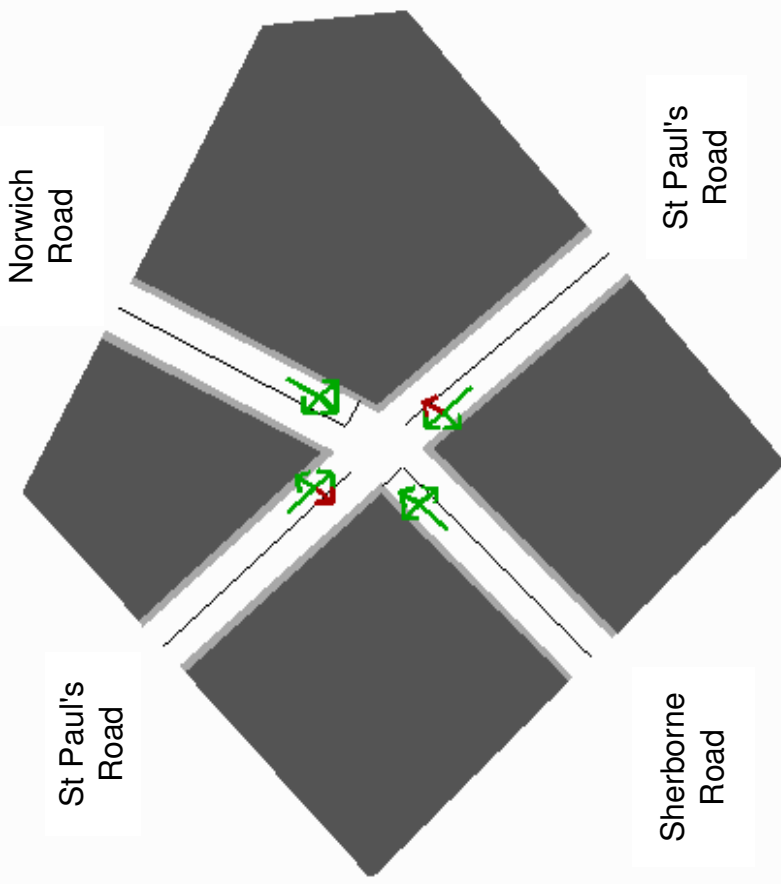
- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



**Appendix I      Junction Turning Movements: St Paul's Road/Sherborne Road**

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4.0	60.5	0.0
0.0	0.0	0.0



0.0	11.1
0.0	441.5
0.0	181.2

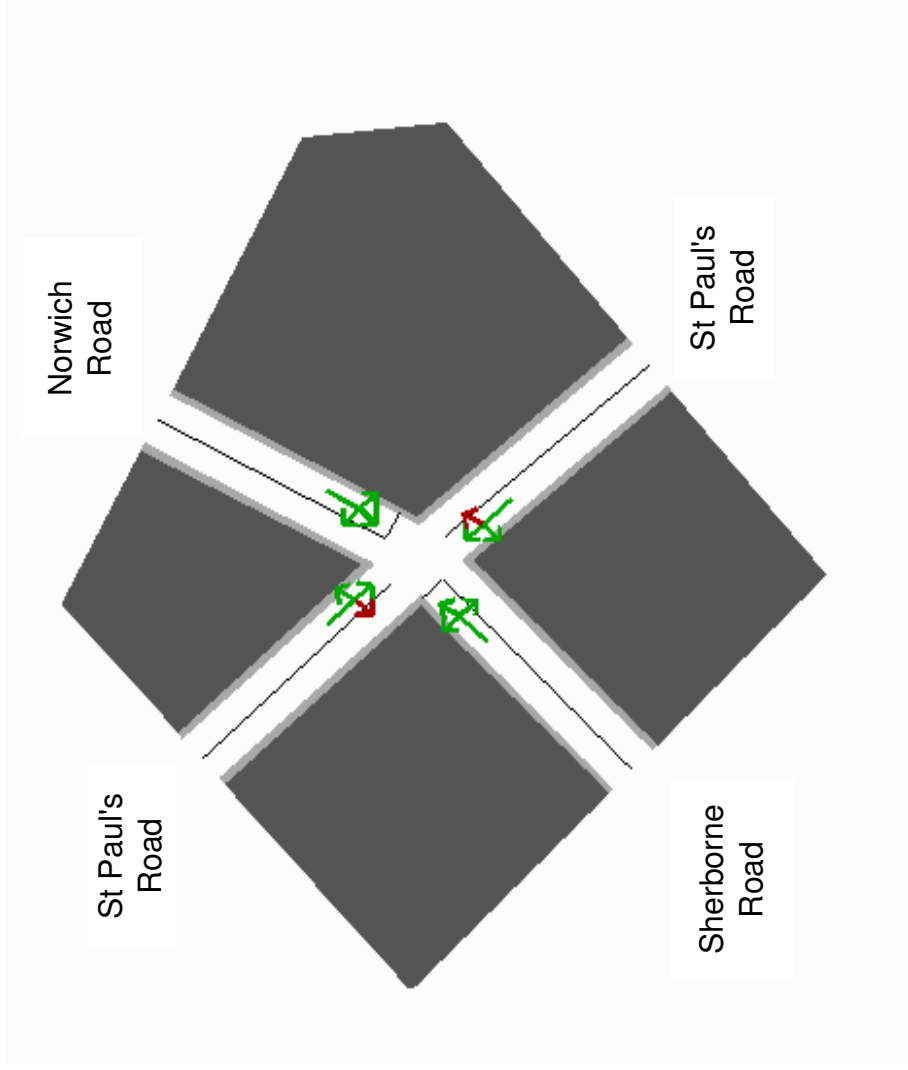
0.0	0.0
52.7	2.1
168.7	0.0

64.9	4.5	116.5
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



9.5	5.6	0.0
0.0	0.0	0.0



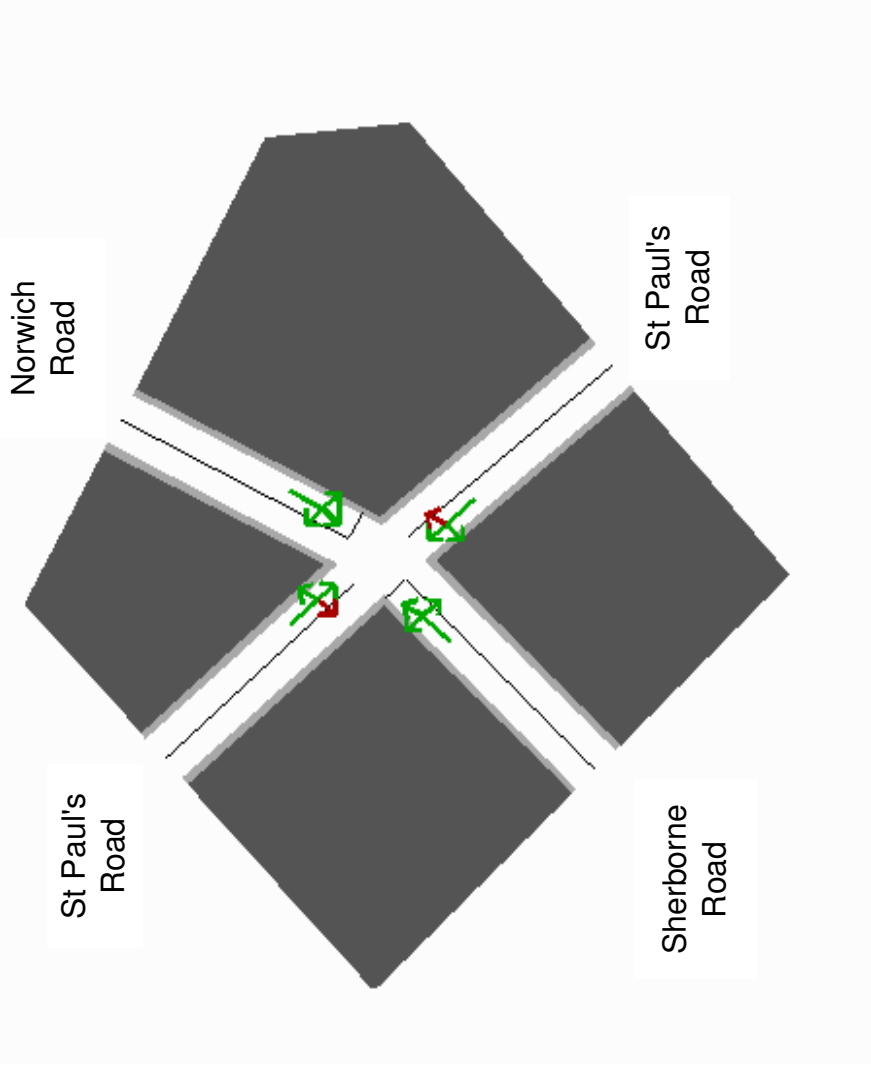
0.0	2.2
0.1	14.7
0.0	13.4

0.0	0.0
400.5	0.0
135.3	0.0

142.2	52.4	174.1
0.0	0.0	7.6

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

4.1	60.1	0.0
0.0	0.0	0.0



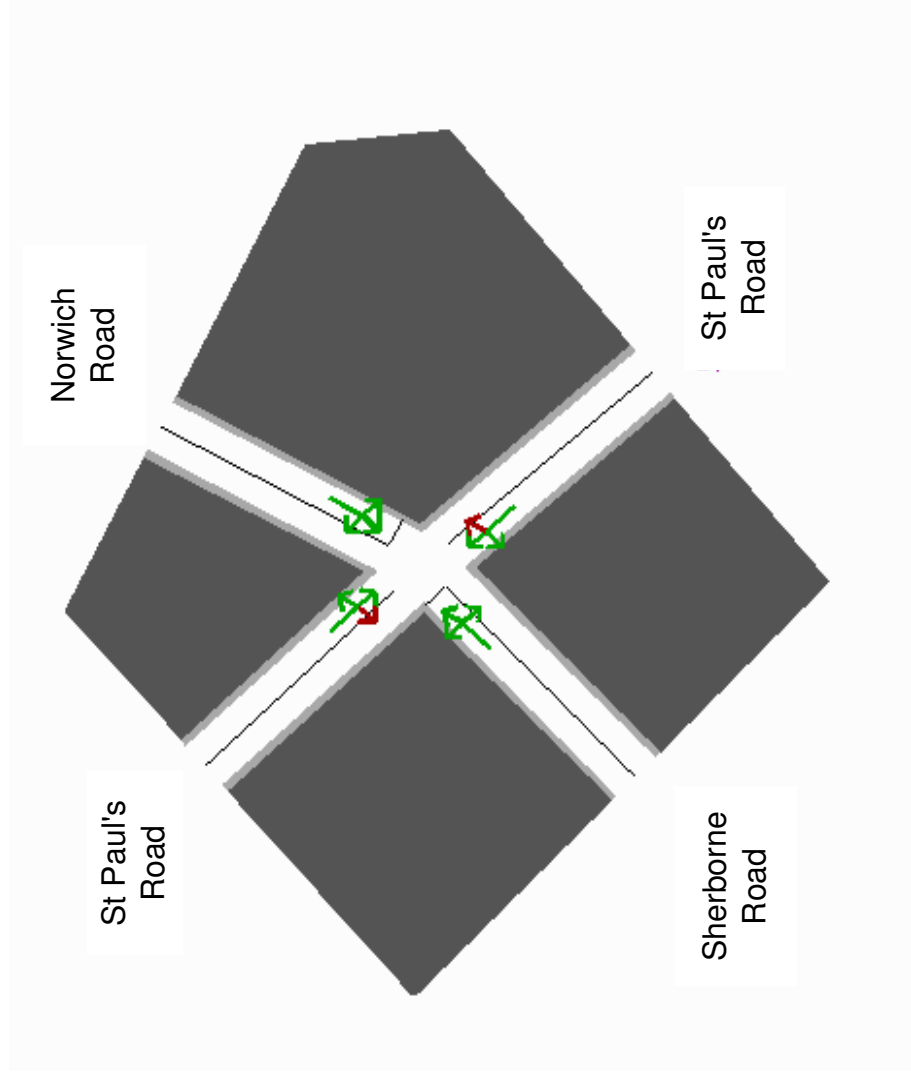
0.0	0.0
50.7	2.2
169.2	0.0

0.0	11.2
0.0	436.9
0.0	179.9

65.2	4.4	119.2
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

8.3	8.0	0.0
0.0	0.0	0.0



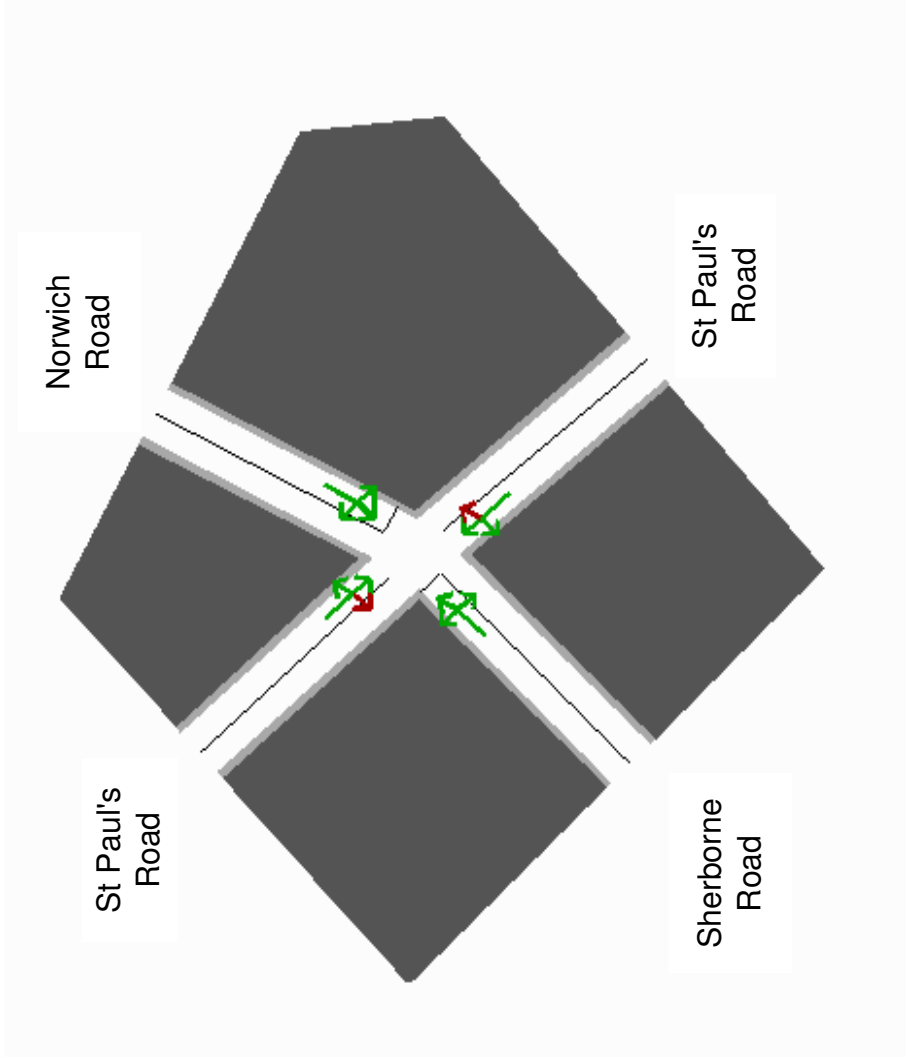
0.0	50.3
0.1	109.7
0.0	14.1

0.0	0.0
375.7	0.0
147.7	0.1

118.8	12.7	155.7
0.0	0.0	8.7

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)





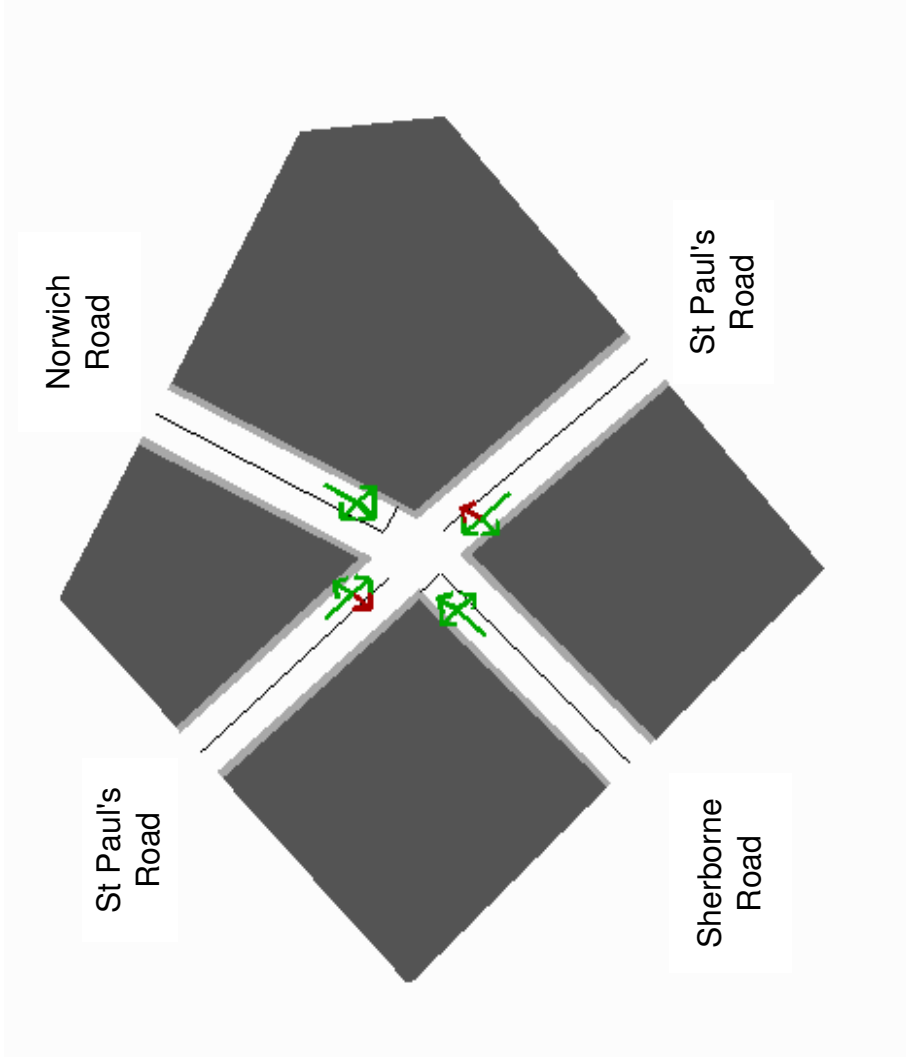
7.9	57.4	0.0
0.0	0.0	0.0

0.0	9.8
0.0	294.1
0.0	107.1

0.0	0.0
128.6	2.0
145.0	0.0

65.4	7.7	138.5
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



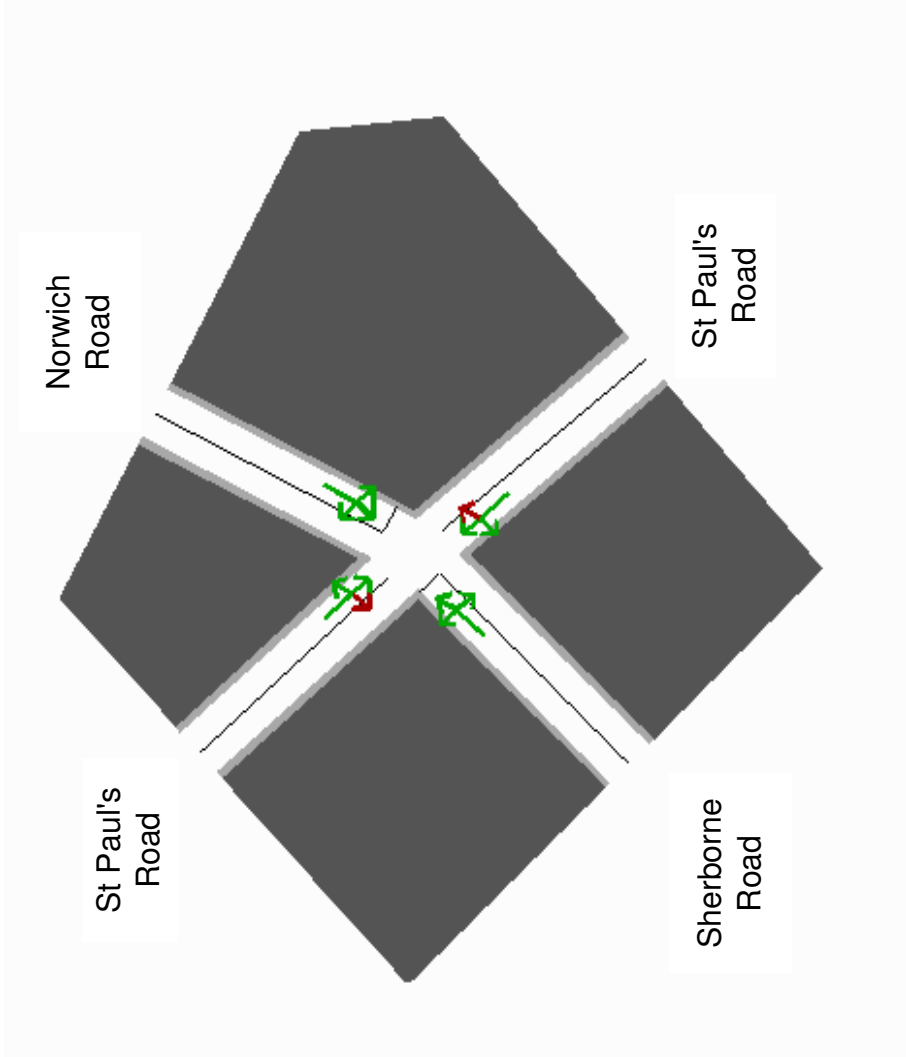
3.4	12.2	0.0
0.0	0.0	0.0

0.0	3.5
9.8	108.7
0.3	45.4

0.0	0.0
244.7	0.0
371.2	0.0

62.8	53.8	248.3
0.0	0.0	6.4

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



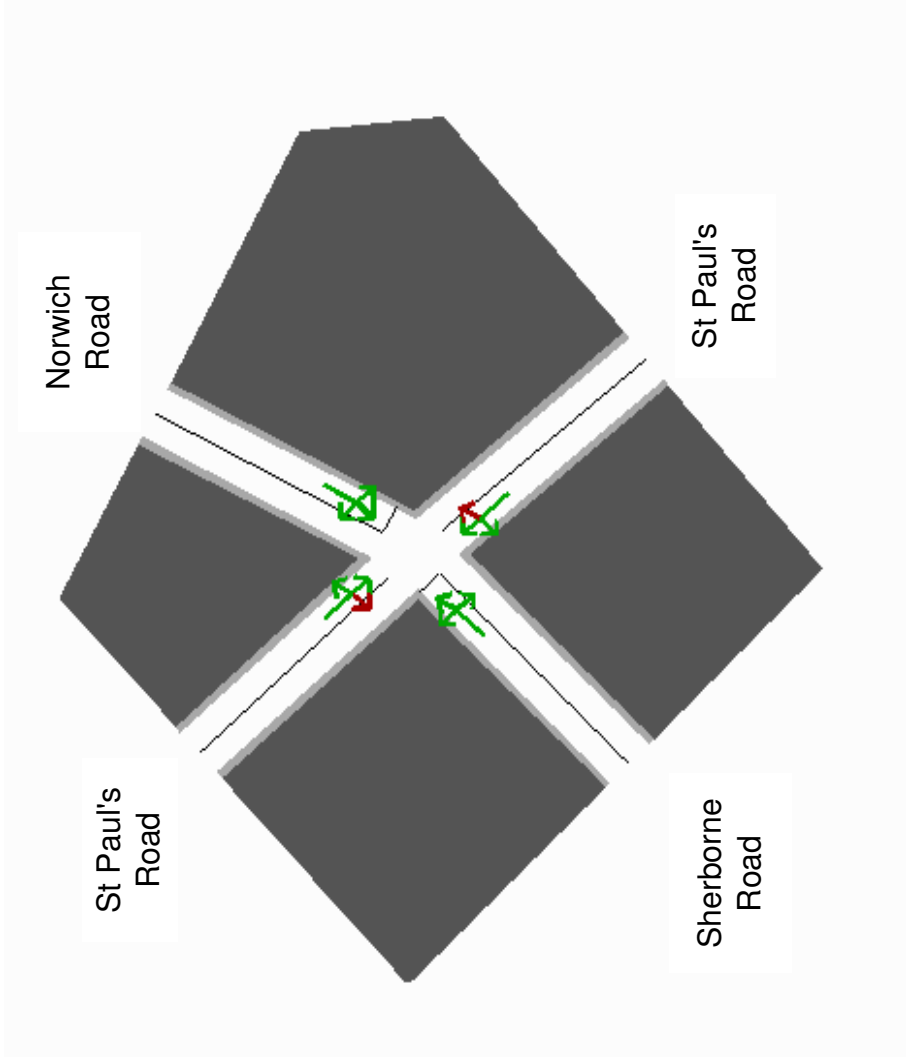
11.7	53.3	0.0
0.0	0.0	0.0

0.0	11.2
0.0	342.1
0.0	93.3

0.0	0.0
163.0	1.9
136.8	0.0

58.6	6.2	139.5
0.0	0.0	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



5.8	9.7	0.0
0.0	0.0	0.0

0.0	44.7
9.2	215.7
0.3	10.8

0.0	0.0
297.5	0.0
347.9	0.0

41.4	15.9	207.8
0.0	0.0	5.1

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

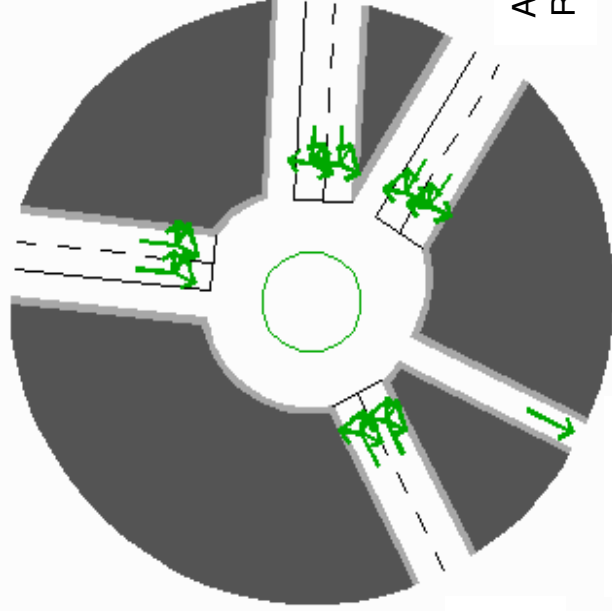


**Appendix J Junction Turning Movements: Cathedral Way/Westgate Link/Chichester College Access/Via Ravenna**

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257.5	76.3	55.4
0.1	0.0	0.0

Westgate Link



Chichester College

6.9	0.0
87.0	0.0
57.5	0.0

Cathedral Way Inbound

0.0	124.7
0.0	271.1
1.4	1105.7

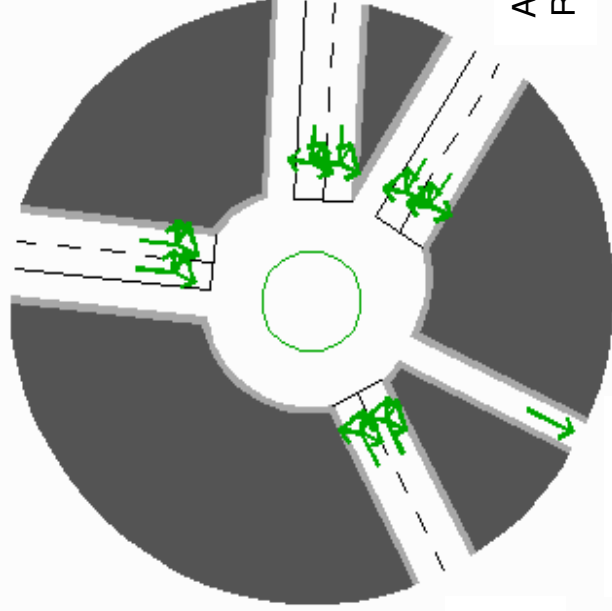
Cathedral Way Outbound

160.7	0.0
17.5	0.0
518.5	60.5

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

162.1	48.9	7.0
0.1	0.0	0.0

Westgate Link



Chichester College

81.3	0.0
250.7	0.0
290.9	0.0

Cathedral Way Inbound

7.7	206.0
0.0	82.1
31.0	469.4

Cathedral Way Outbound

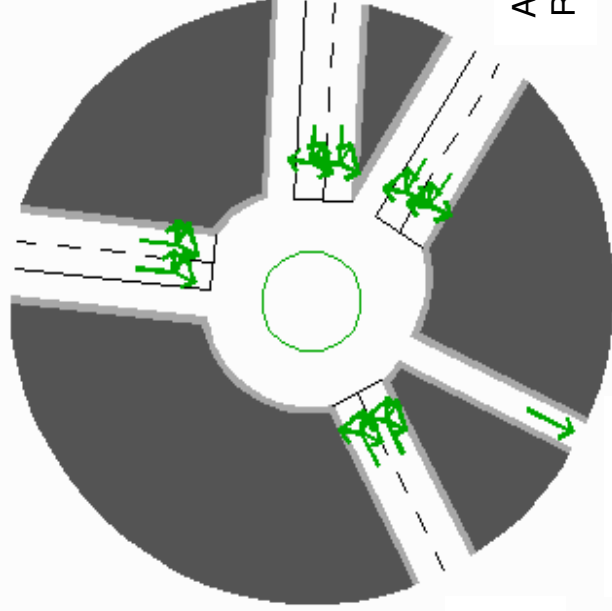
91.0	0.0
107.1	0.0
1092.7	0.0

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



256.2	75.2	54.3
0.0	0.0	0.0

Westgate Link



Chichester College

0.0	123.1
0.0	272.4
1.4	1099.1

Cathedral Way Inbound

6.8	0.0
87.2	0.0
57.4	0.0

159.7	0.0
17.1	0.0
521.5	61.7

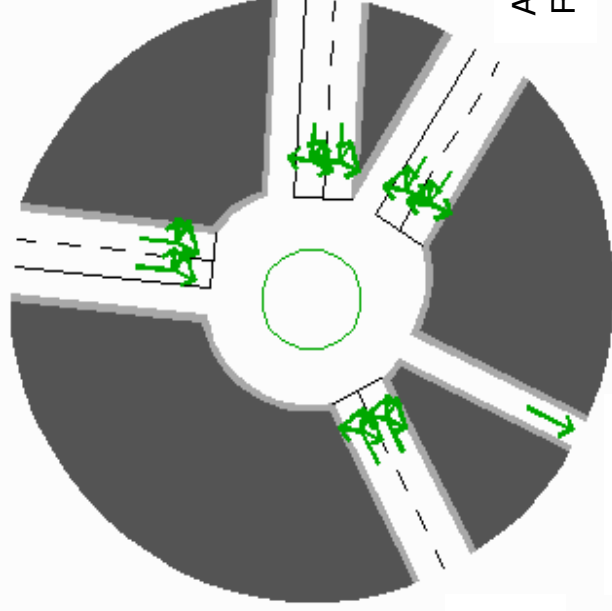
Cathedral Way Outbound

A259 Via Ravenna

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

154.6	38.3	7.1
0.1	0.0	0.0

Westgate Link



Chichester College

8.1	264.3
0.0	80.6
31.9	483.6

Cathedral Way Inbound

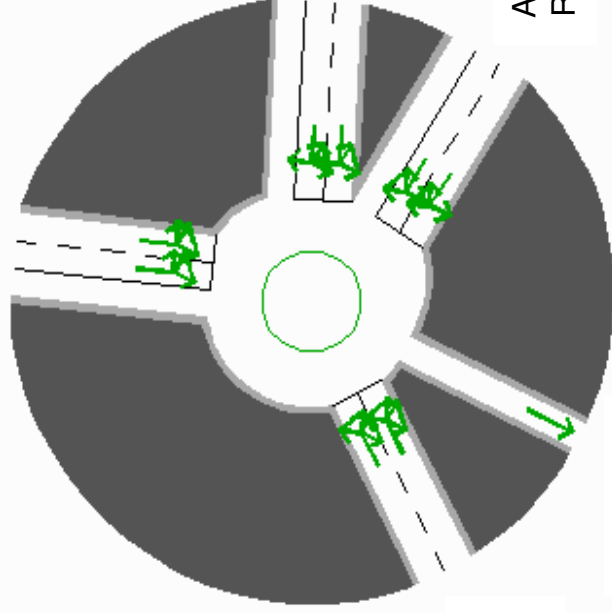
106.9	0.0
236.1	0.0
279.9	0.0

91.1	0.0
149.3	0.0
1081.5	0.1

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

184.4	65.2	32.8
0.0	0.0	0.0

Westgate Link



Chichester College

0.0	158.7
0.0	143.1
1.0	1395.7

Cathedral Way Inbound

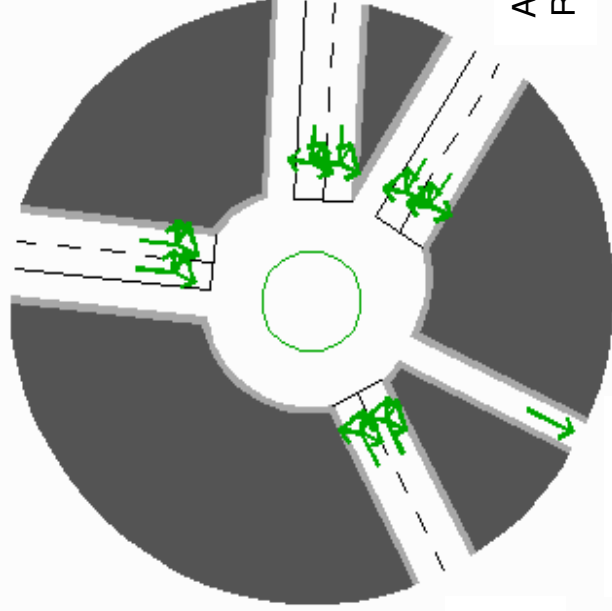
6.8	0.0
63.6	0.0
69.3	0.0

273.2	0.0
111.5	0.0
392.4	58.2

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

463.0	58.8	49.7
0.3	0.0	0.0

Westgate Link



Chichester College

6.5	319.1
0.0	94.2
34.9	491.2

Cathedral Way Inbound

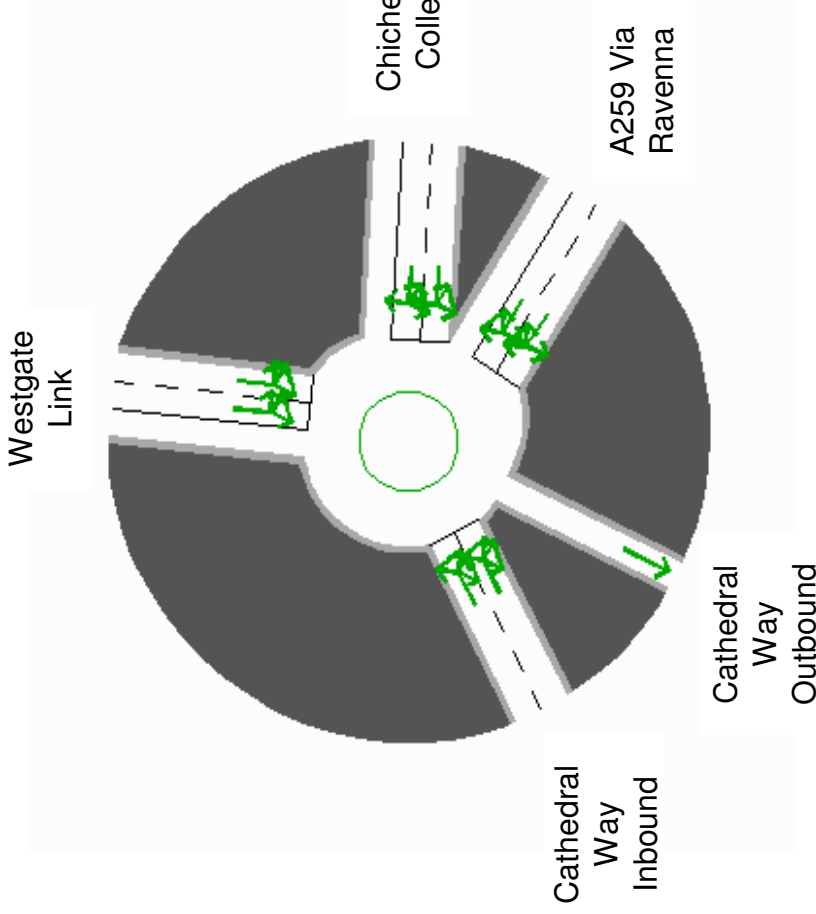
45.2	0.0
309.6	0.0
196.0	0.0

28.2	0.0
87.2	0.0
1037.7	0.1

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)



184.2	65.0	33.2
0.0	0.0	0.0



0.0	161.9
0.0	144.6
0.7	1387.2

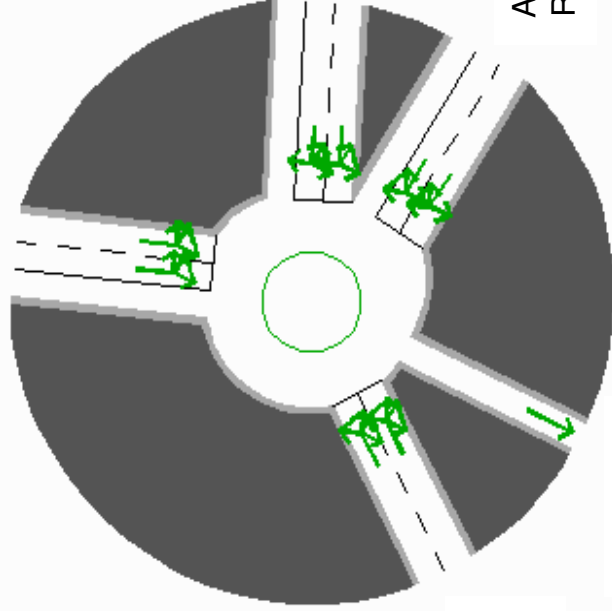
6.8	0.0
63.6	0.0
69.3	0.0

272.9	0.0
75.9	0.0
395.6	57.3

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

473.2	50.8	49.2
0.3	0.0	0.0

Westgate Link



Chichester College

53.6	0.0
294.6	0.0
202.7	0.0

5.0	358.2
0.0	96.5
36.5	500.1

Cathedral Way Inbound

26.4	0.0
77.2	0.0
1037.3	0.0

Cathedral Way Outbound

A259 Via Ravenna

- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

**Appendix K Junction Turning Movements: A27/A257 Fishbourne Road**

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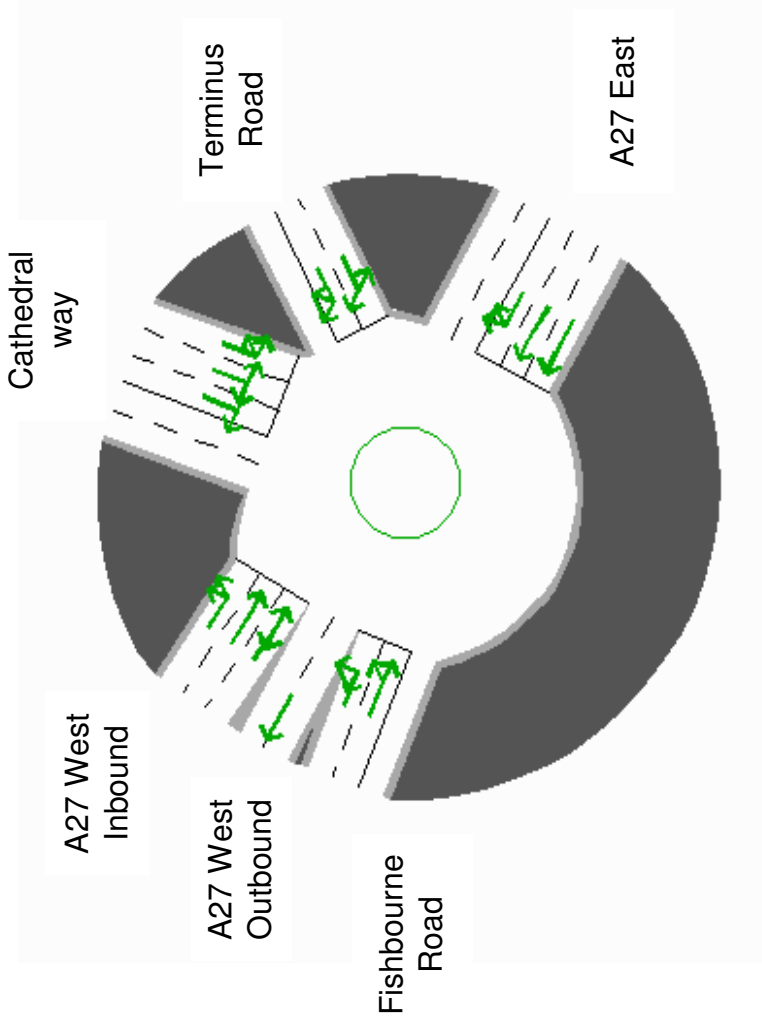
0.2	793.1			
0.5	100.4			
412.7	1451.0			
0.1	46.1			

355.5	99.5	215.0	113.7
38.4	20.9	0.0	0.0

97.7	96.2	30.1	0.1
1.5	31.3	0.2	0.0

0.1	2.7
0.0	73.0
0.2	48.0
17.2	249.5

2.1	0.0
491.4	0.1
1601.2	169.5
116.3	3.7



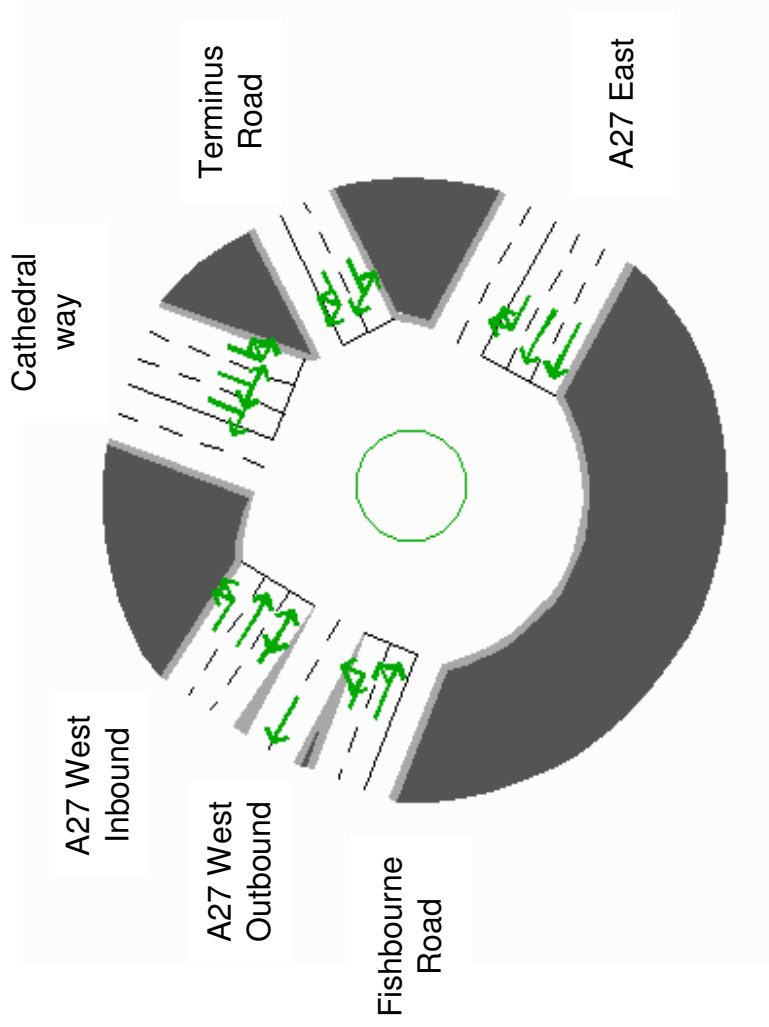
- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

0.2	792.6			
0.6	113.1			
412.8	1438.0			
0.1	44.6			

0.0	1.8			
0.0	73.0			
0.2	54.8			
17.2	240.7			

357.5	99.2	242.9	94.7
39.6	20.8	0.0	0.0

0.6	0.0
500.6	0.0
1604.7	170.0
115.6	3.7



- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

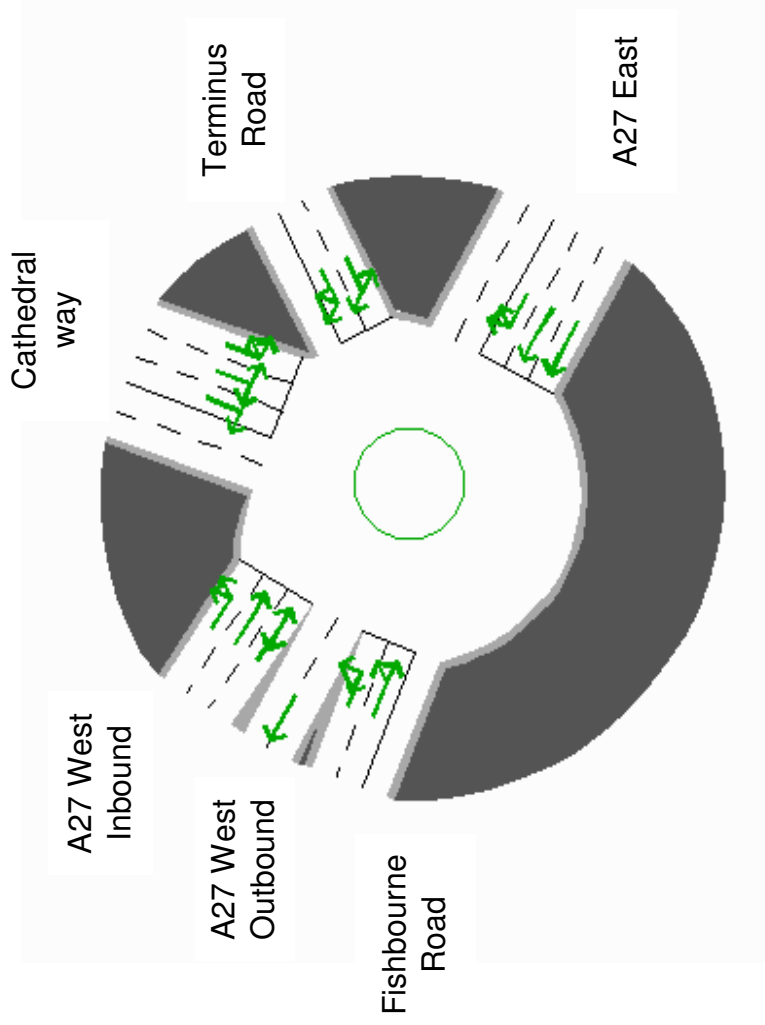
42.0	264.6			
31.7	11.2			
122.4	2103.8			
2.4	310.3			

0.0	171.4		
0.2	60.9		
0.3	19.9		
3.2	336.2		

483.4	112.9	357.2	28.0
0.0	0.0	0.0	0.0

81.2	185.2	85.4	2.7
0.0	0.2	0.0	0.0

0.1	0.0
254.3	0.0
1539.8	149.4
277.0	20.0



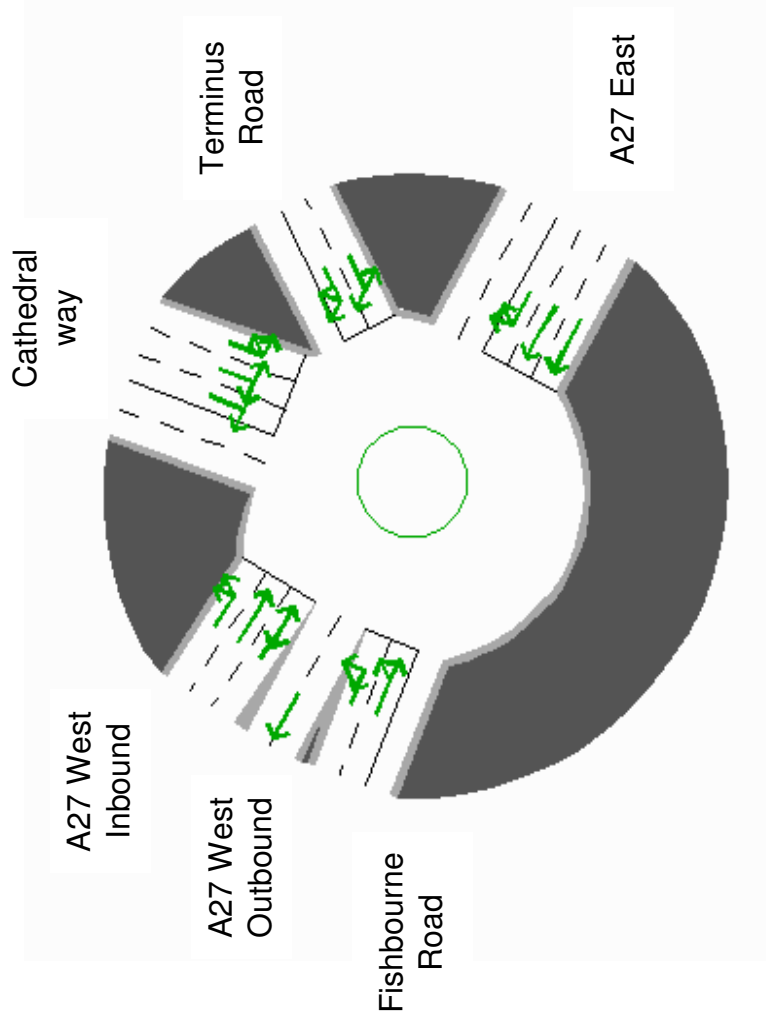
- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

43.4	304.8
31.7	12.0
120.9	2092.2
2.5	282.9

0.1	160.4
0.4	65.5
0.3	13.5
3.2	322.8

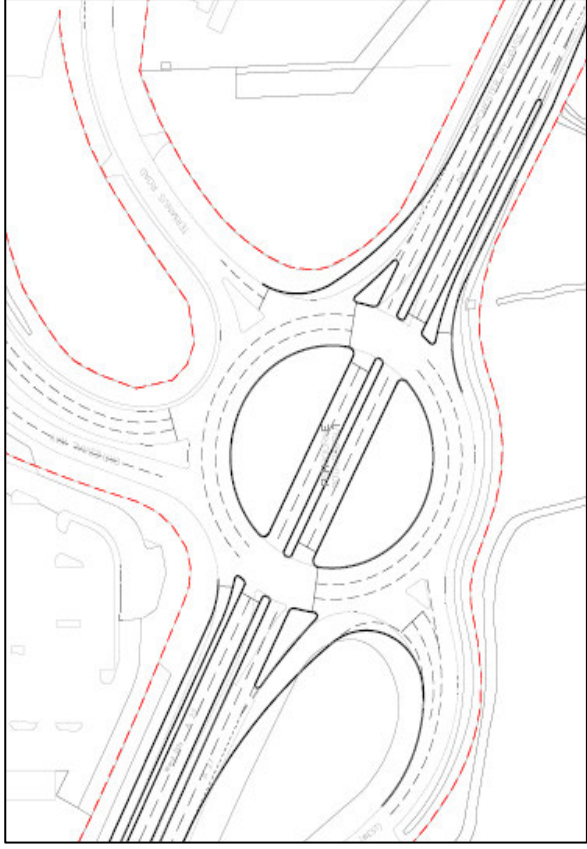
506.4	89.4	379.3	37.3
0.2	0.0	0.0	0.0

0.1	0.0
263.1	0.0
1528.5	148.8
281.3	19.9



- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)





- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

Cathedral way

Terminus Road

A27 East

451.3	57.4
-------	------

1.2	1544.8
26.5	539.3

654.2	335.5
84.0	0.7

32.2	133.8
------	-------

436.3	89.8
352.4	25.5

1999.5	194.5
1035.9	4.2

1738.7	413.6
--------	-------

1946.4	189.4
--------	-------

1033.5	66.0
414.2	27.0

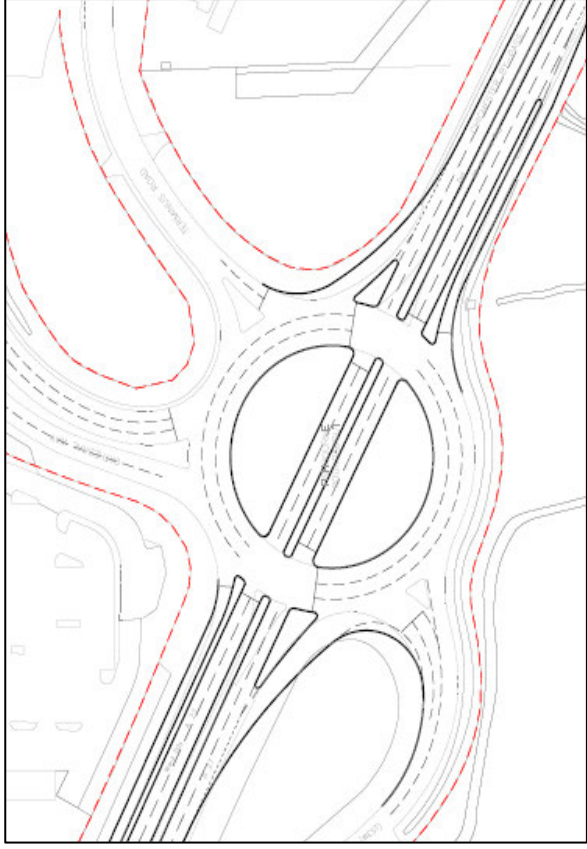
731.9	0.3
1738.7	413.6

218.6	1399.6
66.1	26.9

651.0	30.1
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A27 West

Fishbourne Road



- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

Cathedral way

Terminus Road

A27 East

1175.5	0.3
--------	-----

39.5	675.3
32.8	273.6

505.9	77.3
2137.2	121.3

A27 West

1328.0	123.5
3.9	26.7

0.0	276.4
-----	-------

986.2	606.7
1.9	2.0

2008.2	114.0
--------	-------

1769.1	151.0
--------	-------

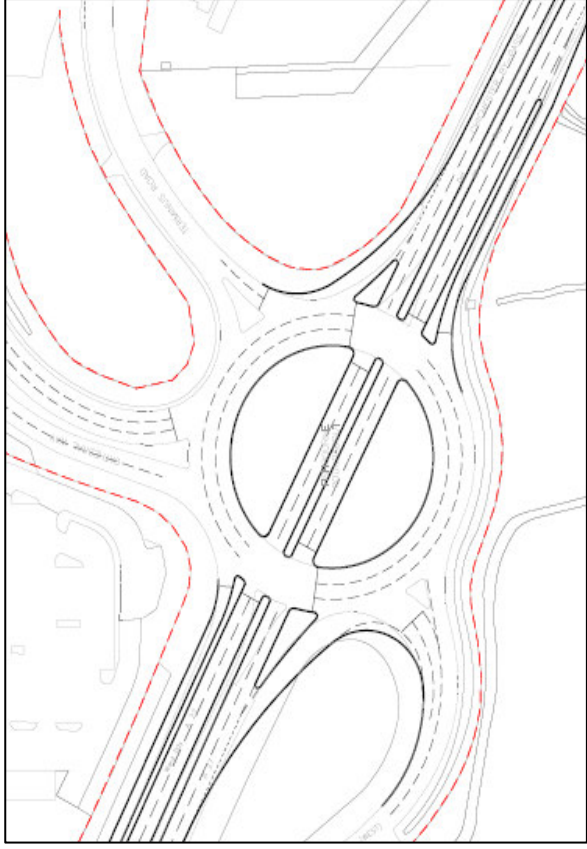
381.5	436.9
0.0	2.1

191.7	2.6
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702.0	0.0
840.5	23.4

1875.7	160.0
549.3	21.5

Fishbourne Road



- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

Cathedral way

Terminus Road

A27 East

458.9	56.6
-------	------

0.8	1550.8	538.6
26.8		

737.2	0.4
1731.2	413.6

A27 West

658.6	338.0
83.4	0.7

32.3	137.4
------	-------

440.9	89.3	355.7
		25.7

1998.9	195.4
1027.1	4.3

1731.2	413.6
--------	-------

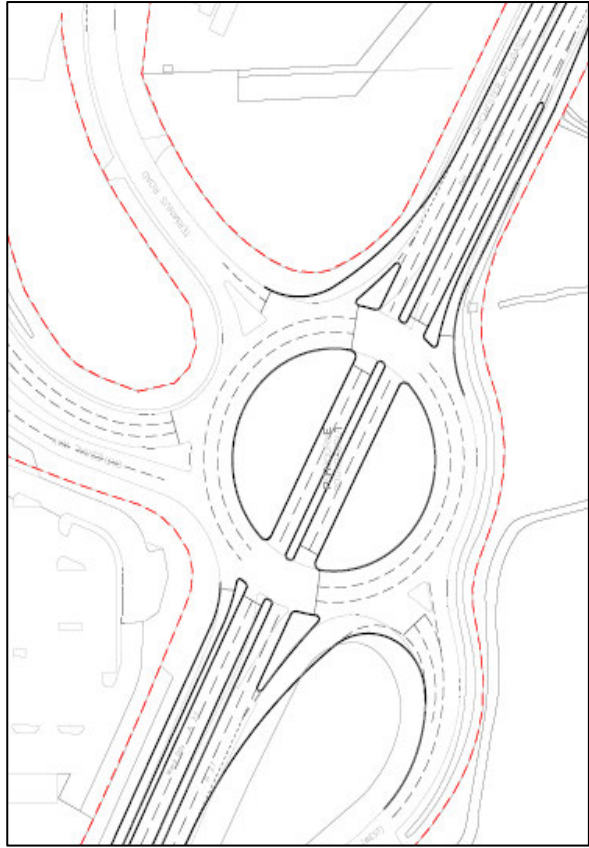
1945.6	190.2
--------	-------

220.6	1398.3	26.9
65.5		

650.9	29.8
-------	------

1029.3	65.3
422.7	27.4

Fishbourne Road



- Light Vehicles  
(inc. Motorcycles, Cars, and LGVs)
- Heavy Vehicles  
(includes HGVs, Artics and PSVs)

Cathedral way

Terminus Road

A27 East

A27 West

Fishbourne Road

1176.0	0.3
--------	-----

39.7	721.9
32.9	272.5

546.8	77.6
2099.1	121.0

1344.2	106.6
3.9	26.8

0.0	224.2
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913.9	1.9
610.8	2.0

1865.8	159.1
580.7	21.3

2006.5	115.6
--------	-------

1769.1	150.9
--------	-------

711.5	0.0
808.1	23.4

381.4	441.6
0.0	2.0

192.5	2.5
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