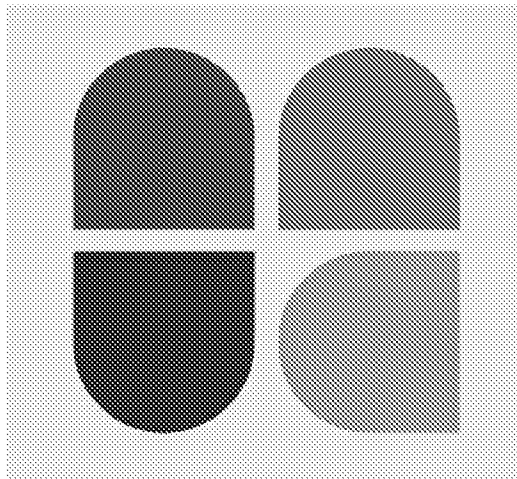




B R I G H T P L A N

HAMPTON PARK, LITTLEHAMPTON

TRAFFIC IMPACT OF ADDITIONAL 100 DWELLINGS ON LOCAL HIGHWAY

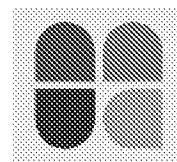
Technical Note Addendum

Prepared on Behalf of

Persimmon Homes

6161

July 2020



DOCUMENT CONTROL

Project: Hampton Park, Littlehampton
Traffic Impact of Additional 100 Dwellings on Local Highway

Document: Technical Note Addendum

Client: Persimmon Homes

Reference: 6161

Document Checking:

Author: EJD

Date: 07/07/2020

Checked by: PMR

Date: 07/07/2020

Approved by: PMR

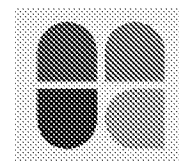
Date: 07/07/2020

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Issue	Date	Status	Issued by
1.	07/07/2020	Draft	EJD
2.	08/07/2020	Final	EJD
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6.			

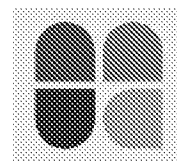
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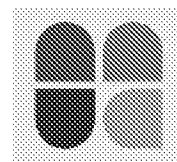
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Appendix K	Flow Diagrams - 2020 Base Flows + Committed Developments + 350 Dwellings
Appendix L	PICADY Report
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Appendix N	LINSIG Report

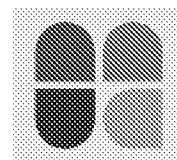


1 INTRODUCTION

1.1.1 This Technical Note Addendum (TNA) has been prepared following WSCC's response to Bright Plan's original Technical Note (May 2020). WSCC's response (attached at **Appendix A**) included a request for amended assessment and queries as shown below:

- i. *"Please provide assessment based on up-to-date TRICS trip rates.*
- ii. *Does the Transport Note contain all committed developments? Please provide more information/detail.*
- iii. *Does the Transport Note consider the WSCC A259 dualling works and associated impact this would bring on the road network (including any junction alterations that could alter traffic flows and/or direction of traffic)?*
- iv. *How does the Fitzalan Link Road fit-into the proposal as it is due to be completed by the 400th dwelling and relies on the delivery of the RBT at the southern-end of the Southern By-Pass (the latter due to be delivered as part of the SBP works)?*
- v. *Also, how would any S106 DoV be revised to reflect any changes? The relevant provisions in the S106 are from page 15 onwards entitled Annex Schedule 10 Highways Part 1. In previous discussions with you, WSCC requested sight of a DRAFT S106 DoV proposal to see how all the obligations would be amended to reflect any trigger changes – please provide.*
- vi. *How will the revised proposal effect any changes proposed for the Toddington Lane railway crossing?"*

1.1.2 Accordingly, this TNA responds to each point sequentially, and provides details of an updated assessment at **Section 3**.



2 RESPONSES

2.1 TRICS Trip Rates

- 2.1.1 WSCC have requested that the trip rates used within assessment are updated. Accordingly, a new review of the TRICS database (version 7.7.1) has been undertaken. To establish the number of the trips generated by the additional 100 dwellings, the parameters identified in **Figure 2.1** have been used to filter the TRICS database.

TRICS (Version 7.7.1)	
Filtering Parameter	Criteria Selected
i. Land use	Residential – Mixed Private Housing (Flats and Houses)
ii. Regions	England (Excluding Greater London)
iii. Number of Dwellings	100 to 788 Units
iv. Date Range	01/01/12 to 23/05/19
v. Count Type	Manual
vi. Selected Days	Weekdays
vii. Selected Locations	Edge of Town

Figure 2.1: TRICS Filtering Parameters

- 2.1.2 The TRICS output is provided at **Appendix B**, whilst a summary of the weekday peak hour and daily trip rates, along with the subsequent vehicle movements associated with the additional dwellings is provided in **Figure 2.2**.

Trip Rate per Dwelling			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0.087	0.290	0.377
PM Peak Hour	0.265	0.132	0.397
TRICS Vehicle Trip Generation (100 Dwellings)			
AM Peak Hour	9	29	38
PM Peak Hour	27	13	40

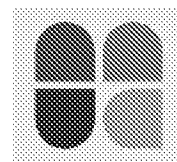
Figure 2.2: Proposed Trip Generation

- 2.1.3 The TRICS assessment suggests that the 100 dwellings would generate 38 vehicle movements during the network's AM peak traffic hour, and 40 during the network's PM peak traffic hour.

2.2 Committed Developments

- 2.2.1 WSCC requested information regarding committed development included within the assessment. A review of local committed developments identified 5 developments as follow:

- Eden Park: LU/45/06, LU/61/06
- Windroos: LU/229/10
- Kingley Gate: LU/355/10
- Morrisons: 271/11



v. Cornfield Close: LU/330/18

2.2.2 A review of the Transport Assessment associated with the Windroos development (LU/229/10) revealed that the development is expected to result in a net reduction in daily vehicle trips, but may result in an increase the vehicle trips during peak hours. The assessment does not provide information regarding the expected increase in these hours. Given the relatively small scale of the development, it is expected that it would result in a marginal increase in vehicle trips on the local road network, which would have a negligible impact on the current assessment. As such, this assessment does not include any additional vehicle trips associated with the Windroos development.

2.2.3 The vehicle trips generations and distributions associated with the remaining developments above have been obtained from each development's application documents and have been incorporated into the revised junction capacity modelling assessment detailed **Section 3** of this report.

2.3 A259 Dualling Works

2.3.1 WSCC commented the following regarding the trip rates used within the assessment:

"Does the Transport Note consider the WSCC A259 dualling works and associated impact this would bring on the road network (including any junction alterations that could alter traffic flows and/or direction of traffic)?"

2.3.2 The assessment currently assesses the network without the dualling works in place, as is the current situation, and as is expected to be the case when the additional dwellings are occupied. This provides a robust approach as the dualling would be expected to improve traffic conditions.

2.4 Fitzalan Link Road Construction

2.4.1 WSCC commented the following regarding the construction of the Fitzalan Link Road and roundabout:

"How does the Fitzalan Link Road fit-into the proposal as it is due to be completed by the 400th dwelling and relies on the delivery of the RBT at the southern-end of the Southern By-Pass (the latter due to be delivered as part of the SBP works)?"

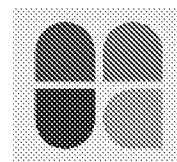
2.4.2 Bright Plan have been advised that the works on the bypass, including the Fitzalan Link, recommenced on the 22nd June and the Fitzalan Link (plus the southern roundabout) will be completed by the 400th occupation.

2.5 S106 Amendments

2.5.1 WSCC commented the following regarding the Section 106 Agreement:

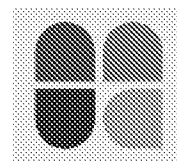
"Also, how would any S106 DoV be revised to reflect any changes? The relevant provisions in the S106 are from page 15 onwards entitled Annex Schedule 10 Highways Part 1. In previous discussions with you, WSCC requested sight of a DRAFT S106 DoV proposal to see how all the obligations would be amended to reflect any trigger changes – please provide."

2.5.2 A planning obligation application is being prepared to amend the S106 Agreement which will change the occupation restriction from 350 units to 450 units. The draft will be issued to WSCC.



2.6 Toddington Lane Railway Crossing

- 2.6.1 WSCC queried how the additional occupied dwellings would affect the Toddington Lane railway crossing.
- 2.6.2 Process of stopping up level crossing is underway and as such the capacity modelling assessments assume that level crossing would be stopped up prior to the occupation of the additional dwellings. This provides a robust assessment as the A284/Mill Lane junction and the Wick roundabout would experience a higher level of trips following the stopping up of the level crossing.
- 2.6.3 Notwithstanding the above, to assess the impact on the level crossing in a scenario where the dwellings to be occupied prior to it being stopping up, an alternative distribution diagram and flow diagram have been prepared with the level crossing in use (using the updated vehicle trips shown in **(Section 2.1)**).
- 2.6.4 To provide a robust view, the alternative distribution diagram assumes all traffic expected to travel on the A259 (east), B2187 (east) and B2187 (south) would travel via the level crossing. It is likely that some drivers would choose to avoid the crossing and as such the number of additional vehicles using the crossing would in reality be lower. The alternative distribution diagram, and corresponding traffic flow diagram is attached at **Appendix C**.
- 2.6.5 The flow diagram demonstrates that the 100 additional dwellings would result in a maximum of 10 additional 2-way vehicle trips through the level crossing in the AM peak hour (1 vehicle every 6 minutes), and a maximum of 11 additional 2-way trips in the PM peak hour (1 vehicle every 5-6 minutes). The additional vehicles using the crossing would have a negligible impact on the crossing.



3 JUNCTION CAPACITY MODELLING

3.1 Assessment Overview

3.1.1 The junction capacity modelling assessments have been updated following the amendment made above. The updated assessments have been undertaken for the following scenarios:

- i. 2020 Base Flows + Committed Developments + 350 Dwellings
- ii. 2020 Base Flows + Committed Developments + 450 Dwellings

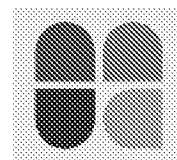
3.2 Flow Diagrams

3.2.1 To determine the vehicle flows for each assessment, a number of flow diagrams have been prepared as follows:

- i. **2016 Base Flows + Kingley Gate** – Mayer Brown's TA Addendum provided flows for a 2016 scenario including trips associated with Kingley Gate (referred to as Courtwick within MB's report). These flows have been displayed diagrammatically at **Appendix D**.
- ii. **2020 Base Flows + Kingley Gate** – the 2016 base flows have been grown to using TEMPro to anticipate the flows in 2020. The TEMPro output is attached at **Appendix E** and the 2020 base flows, including Kingley Gate, are displayed diagrammatically at **Appendix F**.
- iii. **Committed Developments** – where available, traffic flows associated with the committed developments have been obtained from the developments' TAs. Where information was unavailable, the traffic has been distributed following the methodology applied for the application site. The committed development flows are displayed diagrammatically at **Appendix G**.
- iv. **Development Distribution** – trips to/from the site have been assigned to key traffic routes based on typical journey times as calculated using Geographic Information System (GIS) algorithms, using 2011 census data. Full details are provided within Bright Plan's original TN (May 2020). The distribution of residential traffic is represented as a percentage in **Appendix H**.
- v. **Development Flows** – the percentage distribution has been applied to the residential vehicle trips in **Figure 2.2** to establish the number of vehicle trips on the key routes. The flows are displayed diagrammatically at **Appendix I**.
- vi. **2020 Base Flows + Committed Developments + 350 Dwellings** – the 2020 base flows have been summed with the flows associated with 350 dwellings. The resulting flows are displayed diagrammatically at **Appendix J**.
- vii. **2020 Base Flows + Committed Developments + 450 Dwellings** – the 2020 base flows have been summed with the flows associated with 450 dwellings. The resulting flows are displayed diagrammatically at **Appendix K**.

3.3 A284 / Mill Lane

3.3.1 Summaries of the updated modelling results for A284 / Mill Lane junction for AM and PM peak hours are provided in **Figures 3.1** and **3.2** respectively, and the full PICADY report is attached at **Appendix J**.



Modelling Scenario	Stream	Queue (Veh)	RFC
2020 Base + Committed Developments + 350 Dwellings	B - AC (Mill Lane)	5.6	0.88
	C - AB (A284 (S) - Mill Lane)	0.1	0.11
2020 Base + Committed Developments + 450 Dwellings	B - AC (Mill Lane)	10.2	0.97
	C - AB (A284 (S) - Mill Lane)	0.1	0.12
Net Change	B - AC (Mill Lane)	4.6	0.09
	C - AB (A284 (S) - Mill Lane)	0.0	0.01

Figure 3.1: Summary of PICADY Results – AM Peak Hour

- 3.3.2 As shown in **Figure 3.1**, the A284/Mill Lane junction would continue to operate within capacity with the additional 100 dwellings during the AM peak hour, with a maximum RFC of 0.97 on Arm B (Mill Lane). The additional dwellings would result in an increase in the mean maximum queue from 5.6 vehicles to 10.2 vehicles (4.6 PCU Increase). The results demonstrate that the additional dwellings would have a negligible impact on the operation of the junction in the AM peak hour.

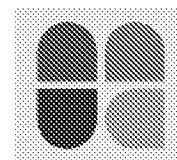
Modelling Scenario	Stream	Queue (Veh)	RFC
2020 Base + Committed Developments + 350 Dwellings	B - AC (Mill Lane)	2.1	0.69
	C - AB (A284 (S) - Mill Lane)	0.4	0.29
2020 Base + Committed Developments + 450 Dwellings	B - AC (Mill Lane)	2.6	0.74
	C - AB (A284 (S) - Mill Lane)	0.5	0.32
Net Change	B - AC (Mill Lane)	0.5	0.05
	C - AB (A284 (S) - Mill Lane)	0.1	0.03

Figure 3.2: Summary of PICADY Results – PM Peak Hour

- 3.3.3 As shown in **Figure 3.2**, the A284/Mill Lane junction would continue to operate within capacity with the additional 100 dwellings during the PM peak hour, with a maximum RFC of 0.74 on Arm B (Mill Lane). The additional dwellings would result in a negligible increase in the mean maximum queue from 2.1 vehicles to 2.6 vehicles (less than 1 vehicle). The results demonstrate that the additional dwellings would have a negligible impact on the operation of the junction in the PM peak hour.

3.4 Wick Roundabout

- 3.4.1 Summaries of the updated modelling results for the Wick roundabout for AM and PM peak hours are provided in **Figures 3.3** and **3.4** respectively, and the full ARCADY report is attached at **Appendix K**.



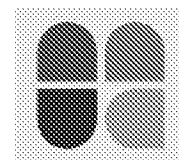
Modelling Scenario	Arm	Queue (Veh)	RFC
2020 Base + Committed Developments + 350 Dwellings	Arm A (A284 North)	1.6	0.62
	Arm B (A259 East)	2.6	0.72
	Arm C (A284 South)	0.6	0.39
	Arm D (A259 West)	1.5	0.60
	Arm E (Hawthorn Rd)	0.2	0.19
2020 Base + Committed Developments + 450 Dwellings	Arm A (A284 North)	1.7	0.64
	Arm B (A259 East)	2.8	0.74
	Arm C (A284 South)	0.7	0.41
	Arm D (A259 West)	1.6	0.62
	Arm E (Hawthorn Rd)	0.2	0.20
Net Change	Arm A (A284 North)	0.1	0.02
	Arm B (A259 East)	0.2	0.02
	Arm C (A284 South)	0.1	0.02
	Arm D (A259 West)	0.1	0.02
	Arm E (Hawthorn Rd)	0.0	0.01

Figure 3.3: Summary of ARCADY Results – Wick Roundabout – AM Peak Hour

3.4.2 As shown in **Figure 3.3**, the Wick roundabout would continue to operate within capacity with the additional 100 dwellings during the AM peak hour, with a maximum Ratio of Flow to Capacity of 0.74 on Arm B (A259 East), equating to a queue of 2.8 vehicles. The additional dwellings would result in a negligible increase in the mean maximum queue (less than 1 vehicle) on all arms. The results demonstrate that the additional dwellings would have a negligible impact on the operation of the roundabout in the AM peak hour.

Modelling Scenario	Arm	Queue (Veh)	RFC
2020 Base + Committed Developments + 350 Dwellings	Arm A (A284 North)	2.6	0.73
	Arm B (A259 East)	3.2	0.77
	Arm C (A284 South)	1.0	0.51
	Arm D (A259 West)	11.4	0.94
	Arm E (Hawthorn Rd)	4.1	0.83
2020 Base + Committed Developments + 450 Dwellings	Arm A (A284 North)	2.7	0.73
	Arm B (A259 East)	3.3	0.77
	Arm C (A284 South)	1.0	0.51
	Arm D (A259 West)	12.2	0.95
	Arm E (Hawthorn Rd)	4.4	0.84
Net Change	Arm A (A284 North)	0.1	0.00
	Arm B (A259 East)	0.1	0.00
	Arm C (A284 South)	0.0	0.00
	Arm D (A259 West)	0.8	0.01
	Arm E (Hawthorn Rd)	0.3	0.01

Figure 3.4: Summary of ARCADY Results – Wick Roundabout – PM Peak Hour



- 3.4.3 As shown in **Figure 3.4**, the Wick roundabout would continue to operate within capacity with the additional 100 dwellings during the PM peak hour, with a maximum Ratio of Flow to Capacity of 0.95 on Arm D (A259 West), equating to a queue of 12.2 vehicles. The additional dwellings would result in a negligible increase in the mean maximum queue (less than 1 vehicle) on all arms. The results demonstrate that the additional dwellings would have a negligible impact on the operation of the roundabout in the PM peak hour.

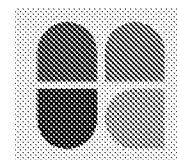
3.5 Body Shop Roundabout

- 3.5.1 Summaries of the modelling results for the Body Shop roundabout for AM and PM peak hours are provided in **Figures 3.5** and **3.6** respectively, and the full LINSIG report is attached at **Appendix L**.

Modelling Scenario	Arm/Movement	Queue (PCUs)	Deg Sat (%)
2020 Base + Committed Developments + 350 Dwellings	Arm (A) Rustington Bypass Left Ahead	1.3	72.4%
	Arm (A) Rustington Bypass Ahead	1.3	72.5%
	Arm (B) Worthing Road Left Ahead	0.6	53.3%
	Arm (C) Horsham Road Left Ahead	1.8	79.1%
	Arm (D) Worthing Road Left Ahead	1.8	78.9%
	Arm (D) Worthing Road Ahead	2.4	83.2%
	Arm (E) Bodyshop Access Left Ahead	0.1	14.0%
2020 Base + Committed Developments + 450 Dwellings	Arm (A) Rustington Bypass Left Ahead	1.3	72.5%
	Arm (A) Rustington Bypass Ahead	1.3	72.7%
	Arm (B) Worthing Road Left Ahead	0.6	53.5%
	Arm (C) Horsham Road Left Ahead	1.9	79.3%
	Arm (D) Worthing Road Left Ahead	1.9	79.2%
	Arm (D) Worthing Road Ahead	2.5	83.6%
	Arm (E) Bodyshop Access Left Ahead	0.1	14.1%
Net Change	Arm (A) Rustington Bypass Left Ahead	0.0	0.1%
	Arm (A) Rustington Bypass Ahead	0.0	0.2%
	Arm (B) Worthing Road Left Ahead	0.0	0.2%
	Arm (C) Horsham Road Left Ahead	0.1	0.2%
	Arm (D) Worthing Road Left Ahead	0.1	0.3%
	Arm (D) Worthing Road Ahead	0.1	0.4%
	Arm (E) Bodyshop Access Left Ahead	0.0	0.1%

Figure 3.5: Summary of LINSIG Results – Body Shop Roundabout – AM Peak Hour

- 3.5.2 As shown in **Figure 3.5**, the Body Shop roundabout would continue to operate within capacity with the additional 100 dwellings during the AM peak hour, with a maximum Degree of Saturation of 79.3% on Arm C (Horsham Road). The additional dwellings would result in a negligible increase in the mean maximum queue (less than 1 PCU) on all arms. The results demonstrate that the additional dwellings would have a negligible impact on the operation of the roundabout in the AM peak hour.



Modelling Scenario	Movement	Queue (PCUs)	Deg Sat (%)
2020 Base + Committed Developments + 350 Dwellings	Arm (A) Rustington Bypass Left Ahead	6.9	95.1%
	Arm (A) Rustington Bypass Ahead	6.9	95.1%
	Arm (B) Worthing Road Left Ahead	1.2	70.5%
	Arm (C) Horsham Road Left Ahead	2.3	82.4%
	Arm (D) Worthing Road Left Ahead	2.8	85.2%
	Arm (D) Worthing Road Ahead	3.9	89.1%
	Arm (E) Bodyshop Access Left Ahead	1.3	73.1%
2020 Base + Committed Developments + 450 Dwellings	Arm (A) Rustington Bypass Left Ahead	7.3	95.5%
	Arm (A) Rustington Bypass Ahead	7.4	95.6%
	Arm (B) Worthing Road Left Ahead	1.2	70.8%
	Arm (C) Horsham Road Left Ahead	2.3	82.7%
	Arm (D) Worthing Road Left Ahead	2.8	85.4%
	Arm (D) Worthing Road Ahead	3.9	89.3%
	Arm (E) Bodyshop Access Left Ahead	1.3	73.5%
Net Change	Arm (A) Rustington Bypass Left Ahead	0.4	0.4%
	Arm (A) Rustington Bypass Ahead	0.5	0.5%
	Arm (B) Worthing Road Left Ahead	0.0	0.3%
	Arm (C) Horsham Road Left Ahead	0.0	0.3%
	Arm (D) Worthing Road Left Ahead	0.0	0.2%
	Arm (D) Worthing Road Ahead	0.0	0.2%
	Arm (E) Bodyshop Access Left Ahead	0.0	0.4%

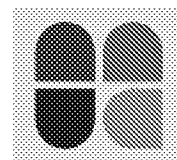
Figure 3.6: Summary of LINSIG Results – Body Shop Roundabout – PM Peak Hour

3.5.3 As shown in **Figure 3.6**, the Body Shop roundabout would continue to operate within capacity with the additional 100 dwellings during the PM peak hour, with a maximum Degree of Saturation of 95.6% on Arm A (A259 East, Rustington Bypass). The additional dwellings would result in a negligible increase in the mean maximum queue (less than 1 vehicle) on all arms. The results demonstrate that the additional dwellings would have a negligible impact on the operation of the roundabout in the PM peak hour.

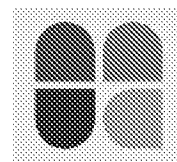
3.6 Summary and Conclusion

3.6.1 All junctions would continue to operate within capacity with additional traffic generated by the additional 100 dwellings above the 350 dwelling limit set out in the S106 agreement. The small increases in queueing at junctions would be temporary as the construction of the Lyminster Bypass would ease congestion on the local road network. Congestion would be eased further following construction of the dualling works on the A259.

3.6.2 It is therefore concluded that the additional 100 dwellings above the 350 dwelling limit set out in the S106 would have a negligible impact on the operation of the local road network. In light of conclusions, the LHA is urged to allow the occupation of a further 100 dwellings prior to the completion of the Lyminster Bypass.



APPENDICES



Appendix A WSCC Correspondence

From: Tim Townsend [REDACTED]
Sent: 03 June 2020 13:19
To: Clark, Robert; 'Michael Eastham'
Cc: 'Lisa Adams'; Ed Dodd; Andrew Howick; Bernadette Gledhill; Laura Floodgate; Steven Shaw; David Lambert; Elaine Munns
Subject: RE: Request to Increase the Occupation Restriction in the s106: Hampton Park, Littlehampton

Dear Rob,

Thank you for sight of your email of 11th May 2020 sent to Michael and found below.

From a WSCC Highways perspective, officers here have been discussing the content of both the Bright Plan Report and the accompanying Planning Statement. However, in order to inform any substantive reply to those documents, we do require further information from you, please, Namely:

- Please provide assessment based on up-to-date TRICS trip rates.
- Does the Transport Note contain all committed developments? Please provide more information/detail.
- Does the Transport Note consider the WSCC A259 dualling works and associated impact this would bring on the road network (including any junction alterations that could alter traffic flows and/or direction of traffic)?
- How does the Fitzalan Link Road fit-into the proposal as it is due to be completed by the 400th dwelling and relies on the delivery of the RBT at the southern-end of the Southern By-Pass (the latter due to be delivered as part of the SBP works)?
- Also, how would any S106 DoV be revised to reflect any changes? The relevant provisions in the S106 are from page 15 onwards entitled Annex Schedule 10 Highways Part 1. In previous discussions with you, WSCC requested sight of a DRAFT S106 DoV proposal to see how all the obligations would be amended to reflect any trigger changes – please provide.
- How will the revised proposal effect any changes proposed for the Toddington Lane railway crossing?

Following your replies to the above and/or depending on what's said in them, other questions and/or queries might arise.

I look forward to hearing from you.

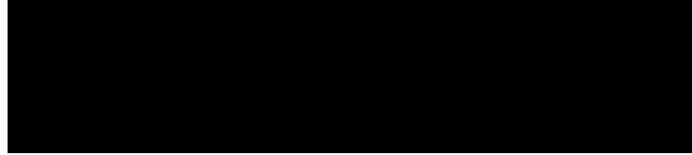
Many thanks,

Tim

Tim Townsend, MCIHT

Principal Planner, County Highways Team – Highways, Transport and Planning

West Sussex County Council, Ground Floor Northleigh, County Hall, Chichester PO19 1RQ



From: Clark, Robert

Sent: 11 May 2020 11:42

To: 'Michael Eastham'

Cc: 'Lisa Adams'; Tim Townsend; 'Ed Dodd'

Subject: Request to Increase the Occupation Restriction in the s106: Hampton Park, Littlehampton

Hi Michael

Please find enclosed the following: (i) Formal request (and justification) to increase the occupation restriction at Hampton Park, Littlehampton, and (ii) the supporting Technical Note by Brightplan assessing the impact of a further 100 units on the local highway network.

I look forward to receiving confirmation that the increase to 450 occupations can be approved.

Kind regards

Rob

Robert Clark

Head of Planning

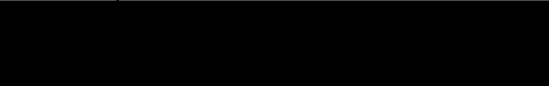
Persimmon Homes Thames Valley

Persimmon House

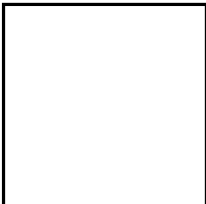
Knoll Road

Camberley

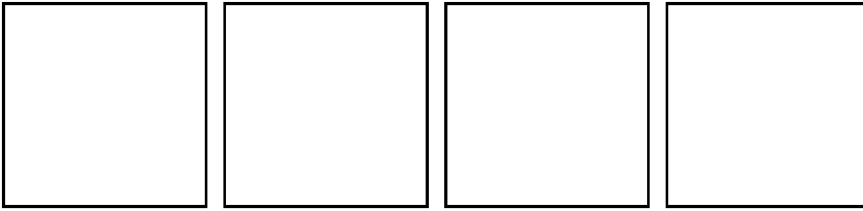
GU15 3TQ



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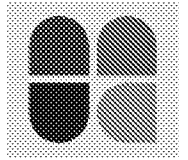
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Appendix B TRICS Output

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : K - MIXED PRIV HOUS (FLATS AND HOUSES)

VEHICLESSelected regions and areas:

02	SOUTH EAST	
	WS WEST SUSSEX	2 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 100 to 618 (units:)
 Range Selected by User: 100 to 788 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 23/05/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	4
--------------	---

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	1
Residential Zone	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

C3

4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

5,001 to 10,000

1 days

10,001 to 15,000

2 days

20,001 to 25,000

1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000

1 days

75,001 to 100,000

1 days

125,001 to 250,000

2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0

2 days

1.1 to 1.5

2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes

2 days

No

2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present

4 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-03-K-01	MIXED HOUSES & FLATS	CAMBRIDGESHIRE
	WEASANHAM LANE		
	WISBECH		
	FENLAND		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	100	
	Survey date: MONDAY	07/09/15	Survey Type: MANUAL
2	DS-03-K-01	MIXED HOUSES & FLATS	DERBYSHIRE
	PRIDE PARKWAY		
	DERBY		
	WILMORTON		
	Edge of Town		
	Industrial Zone		
	Total No of Dwellings:	618	
	Survey date: MONDAY	23/07/18	Survey Type: MANUAL
3	WS-03-K-03	MIXED HOUSES & FLATS	WEST SUSSEX
	LITTLEHAMPTON ROAD		
	WORTHING		
	WEST DURREINGTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	111	
	Survey date: THURSDAY	12/05/16	Survey Type: MANUAL
4	WS-03-K-04	MIXED HOUSES & FLATS	WEST SUSSEX
	HILLS FARM LANE		
	HORSHAM		
	BROADBRIDGE HEATH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	371	
	Survey date: THURSDAY	28/06/18	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)

VEHICLES**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	300	0.064	4	300	0.232	4	300	0.296
08:00 - 09:00	4	300	0.087	4	300	0.290	4	300	0.377
09:00 - 10:00	4	300	0.107	4	300	0.153	4	300	0.260
10:00 - 11:00	4	300	0.111	4	300	0.138	4	300	0.249
11:00 - 12:00	4	300	0.098	4	300	0.105	4	300	0.203
12:00 - 13:00	4	300	0.116	4	300	0.108	4	300	0.224
13:00 - 14:00	4	300	0.122	4	300	0.129	4	300	0.251
14:00 - 15:00	4	300	0.130	4	300	0.138	4	300	0.268
15:00 - 16:00	4	300	0.171	4	300	0.131	4	300	0.302
16:00 - 17:00	4	300	0.197	4	300	0.109	4	300	0.306
17:00 - 18:00	4	300	0.265	4	300	0.132	4	300	0.397
18:00 - 19:00	4	300	0.263	4	300	0.143	4	300	0.406
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.731			1.808			3.539

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

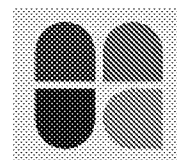
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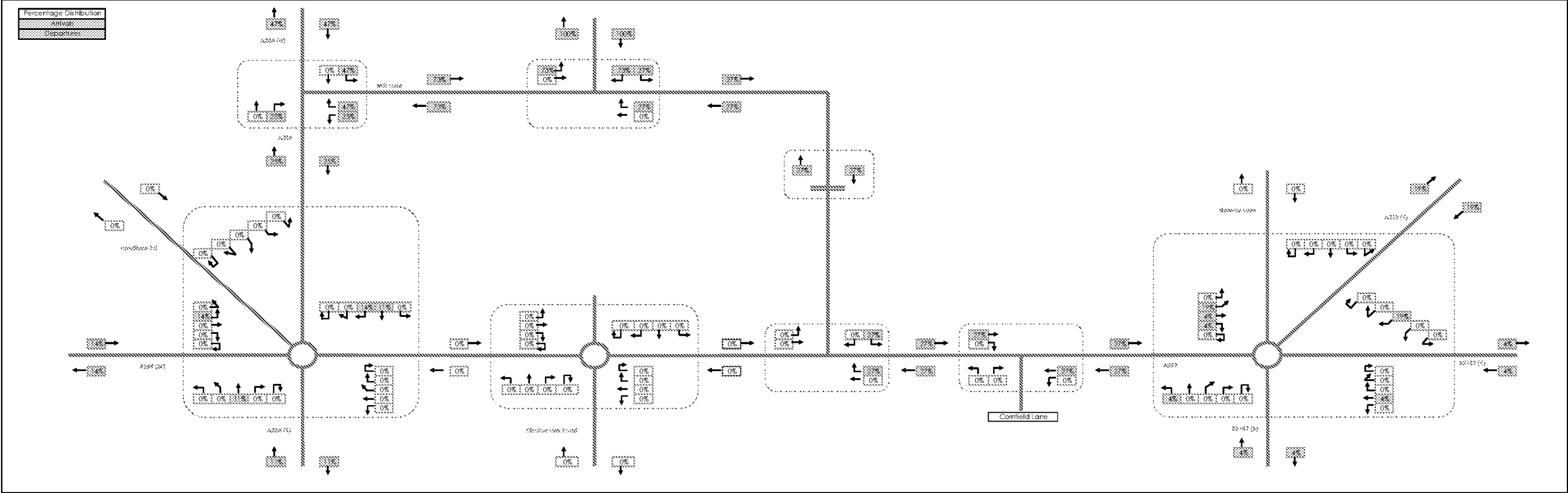
Parameter summary

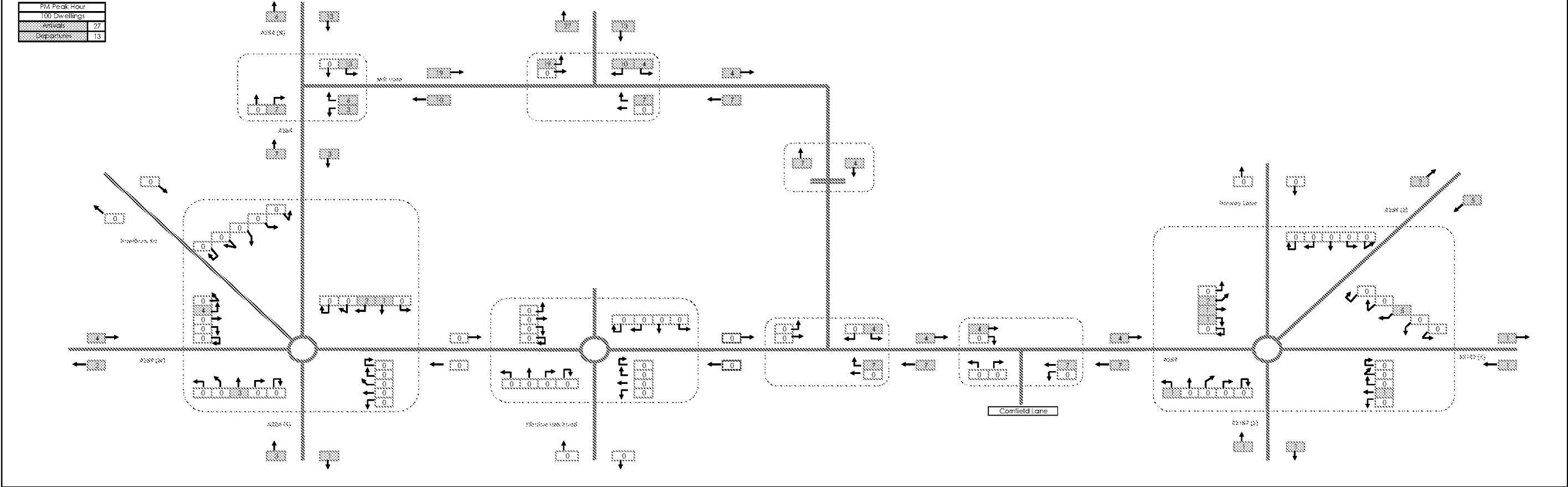
Trip rate parameter range selected:	100 - 618 (units:)
Survey date range:	01/01/12 - 23/05/19
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

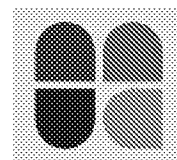
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



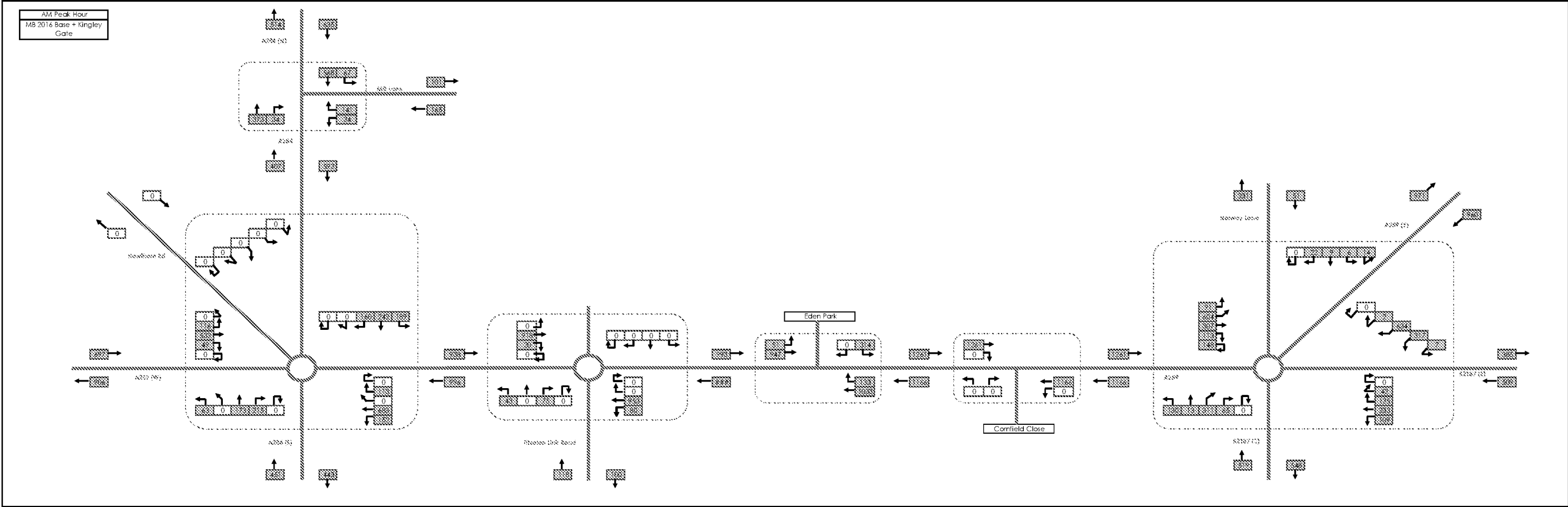
Appendix C Alternative Distribution and Traffic Flow Diagrams

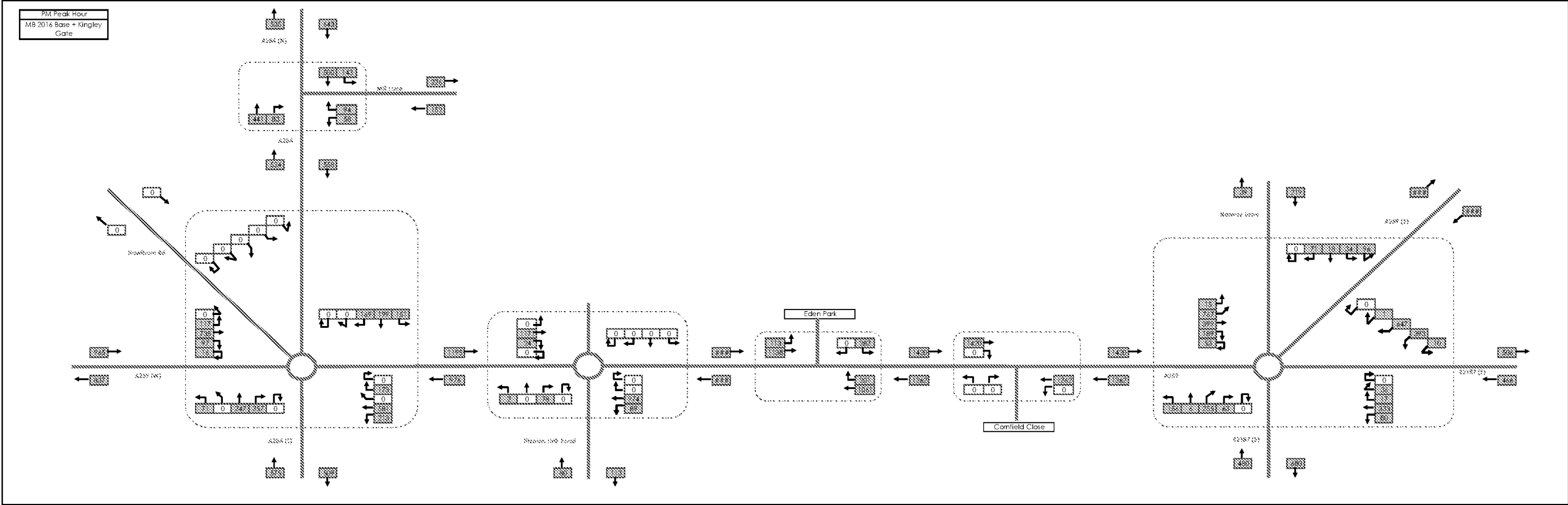


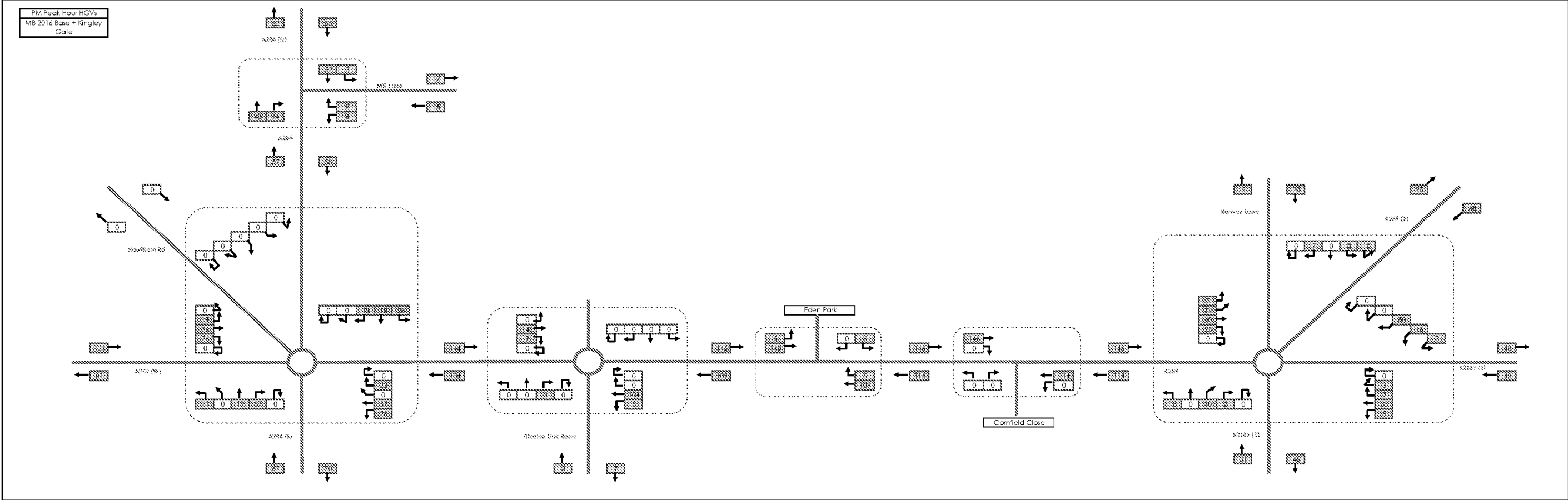


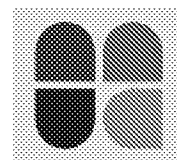


Appendix D Flow Diagram - 2016 Base Flows + Kingley Gate









Appendix E TEMPRO

Base Year 2016

Future Year 2020

AM 1.0397

NTM Traffic Growth Calculations

1. Select NTM Dataset:

NTM Dataset Description	From	To
RTF 2018 Scenario 1 - Reference	2015	2050
NTM AF15 Dataset	2010	2040

2. Select Areas to make up the geographic region:

3. Select area type:

4. Select road type:

5. Select which area it serves:

Calculate the adjusted local growth figure

Results

Level	Area	Local Growth Figure
D12036245	Arun 004	1.0397

PM 1.0355

NTM Traffic Growth Calculations

1. Select NTM Dataset:

NTM Dataset Description	From	To
RTF 2018 Scenario 1 - Reference	2015	2050
NTM AF15 Dataset	2010	2040

2. Select Areas to make up the geographic region:

3. Select area type:

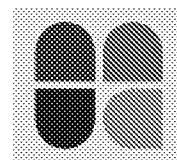
4. Select road type:

5. Select which area it serves:

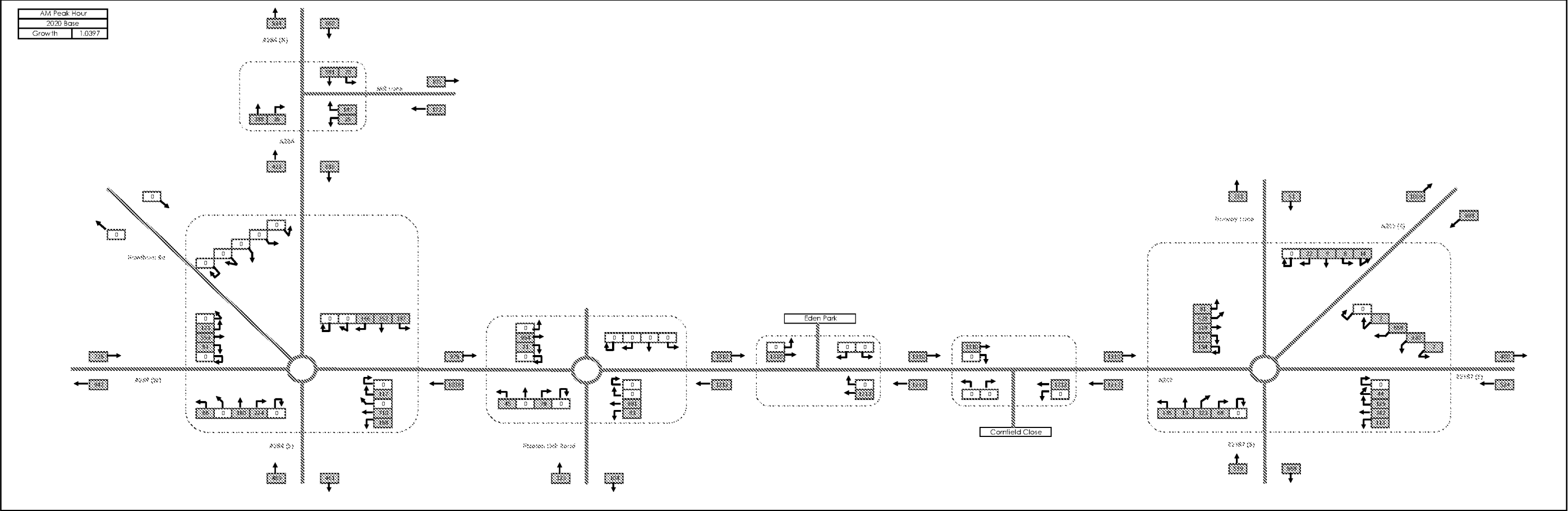
Calculate the adjusted local growth figure

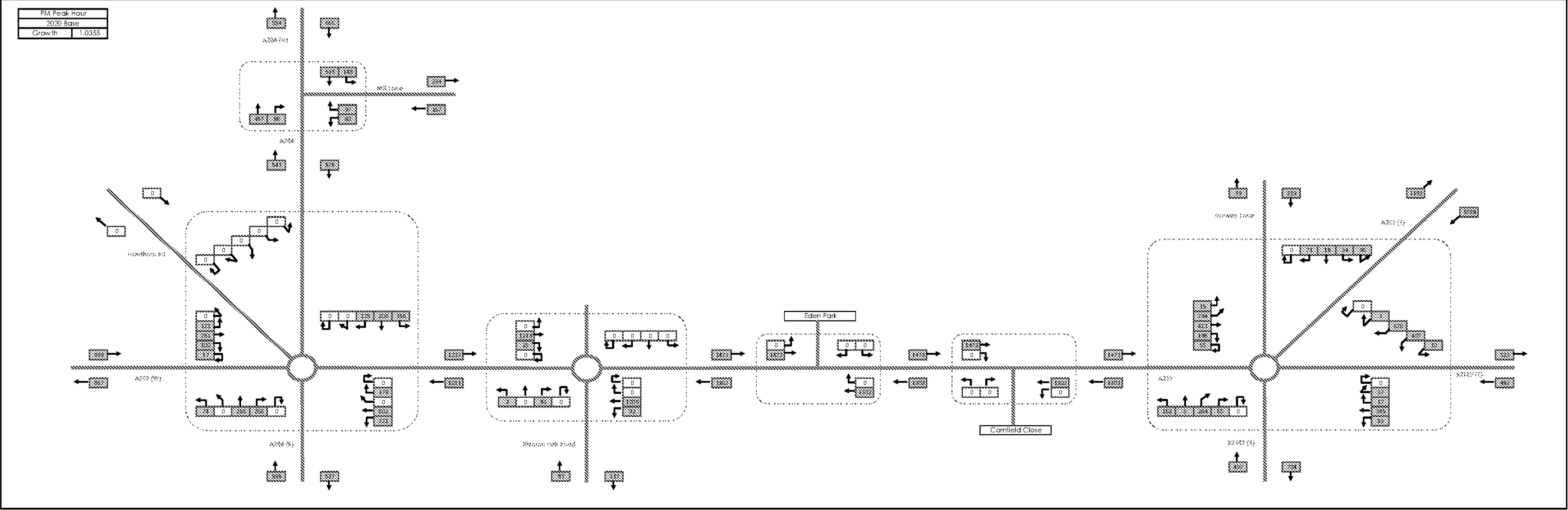
Results

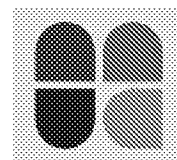
Level	Area	Local Growth Figure
E02006545	Arun 004	1.0355



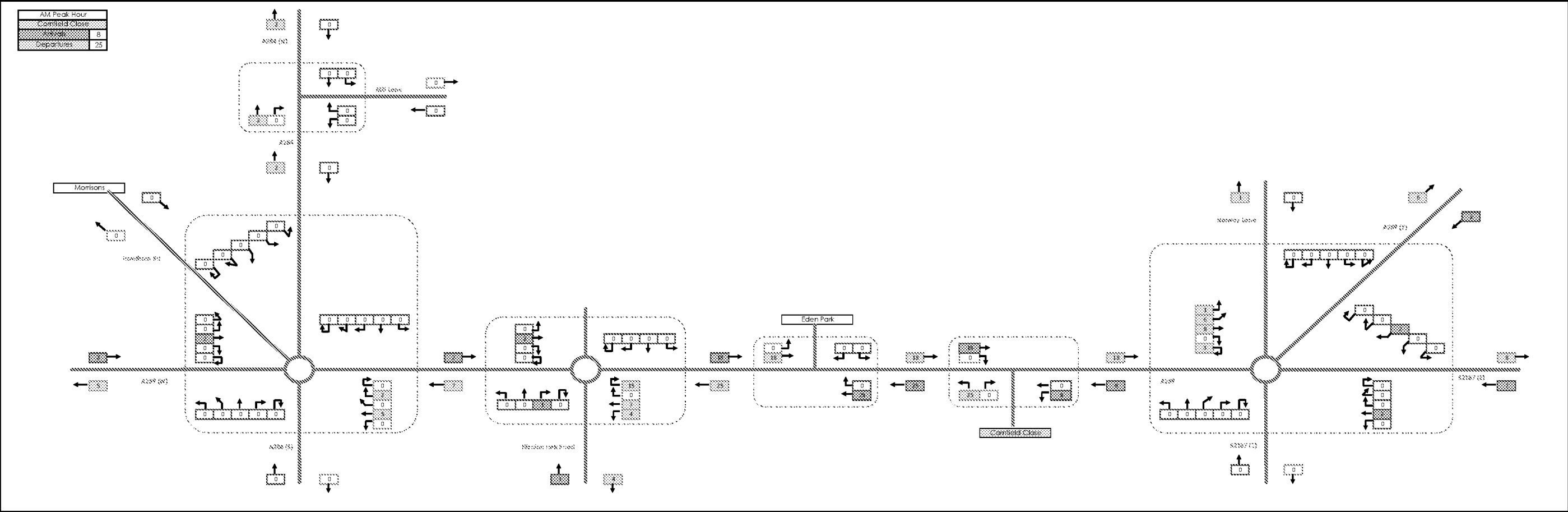
Appendix F Flow Diagrams - 2020 Base Flows + Kingley Gate

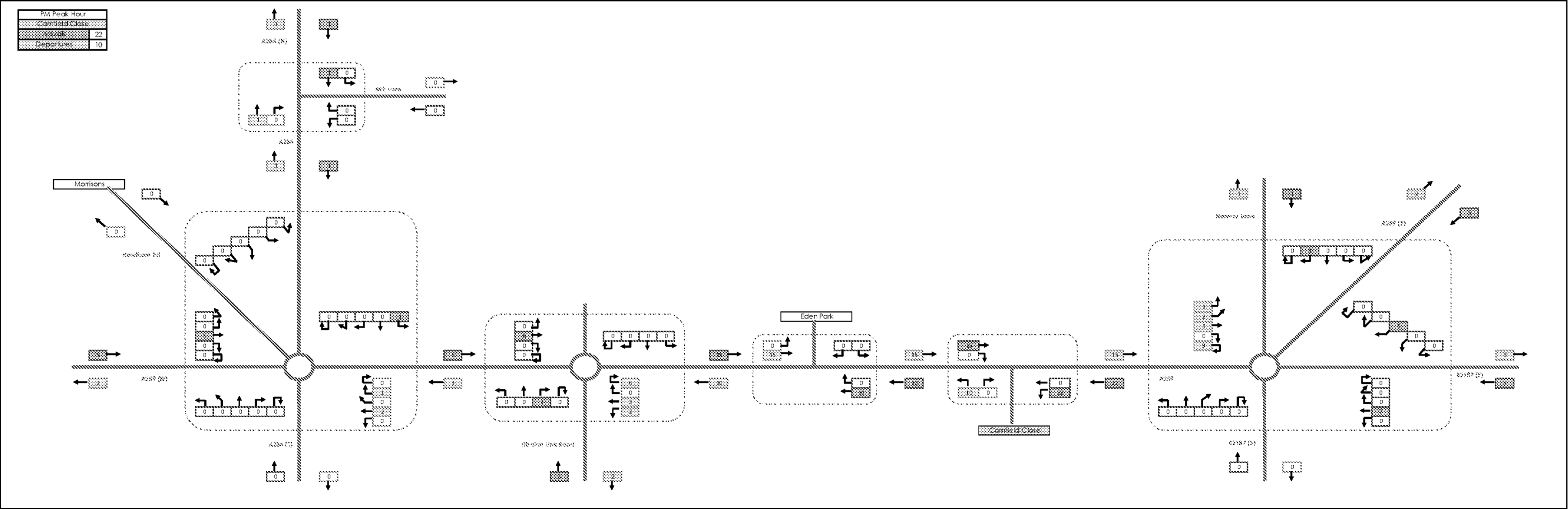


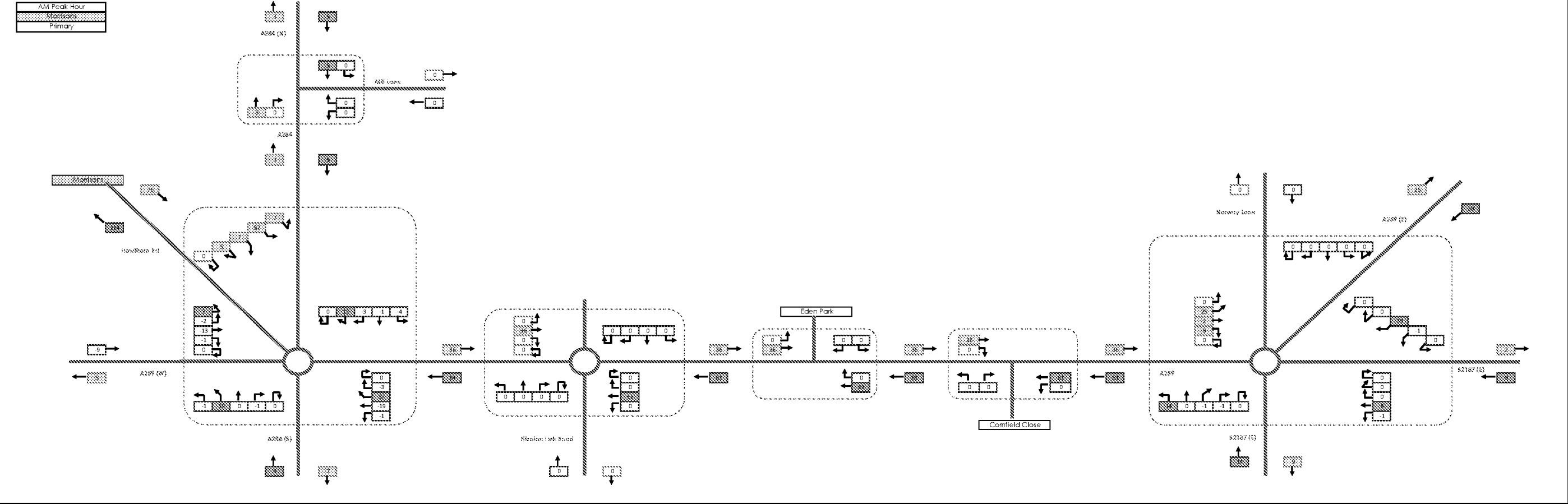


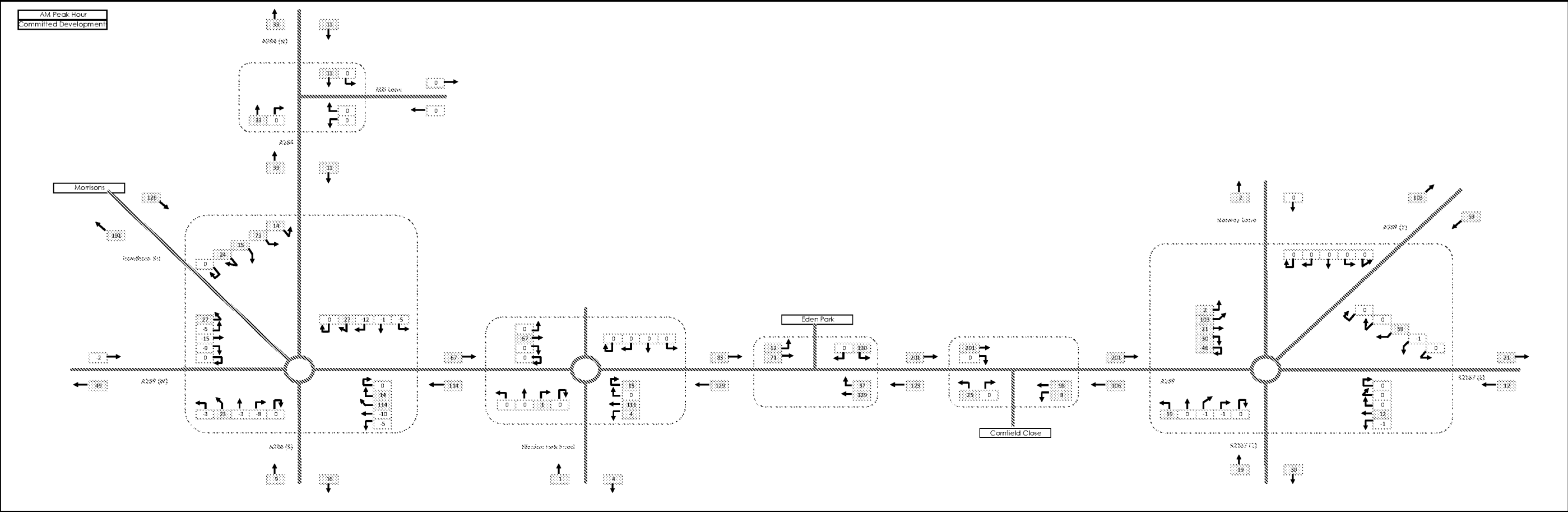


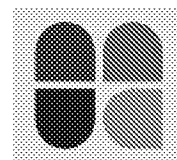
Appendix G Flow Diagrams - Committed Development Flows



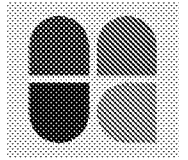




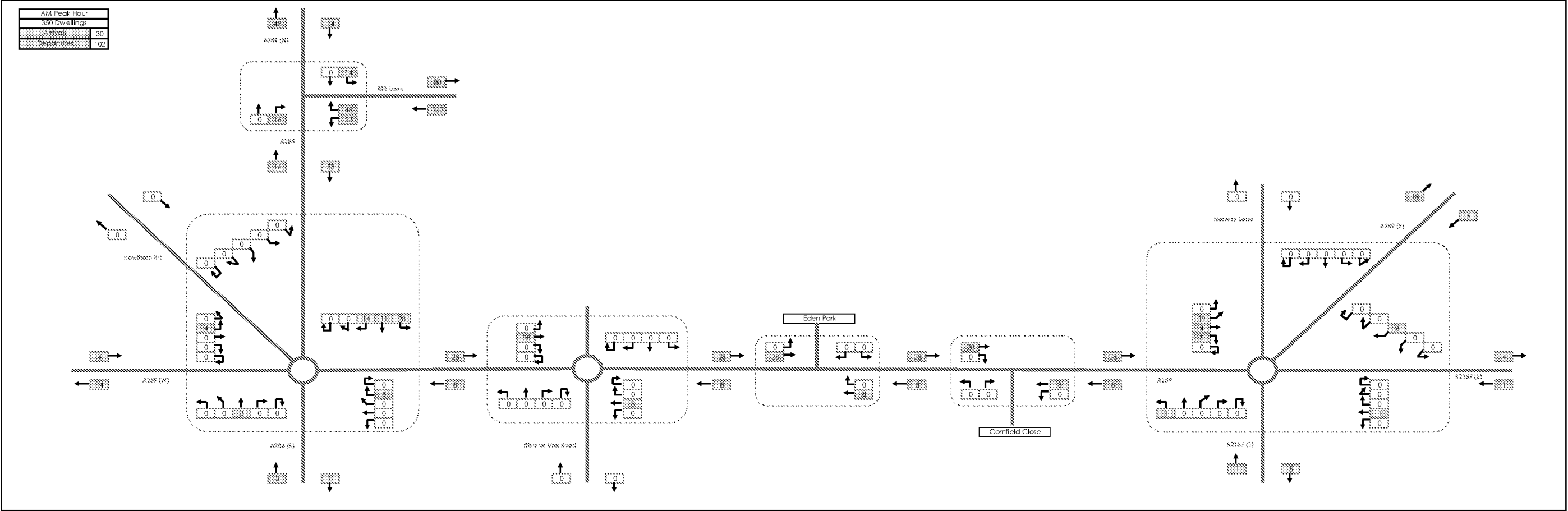


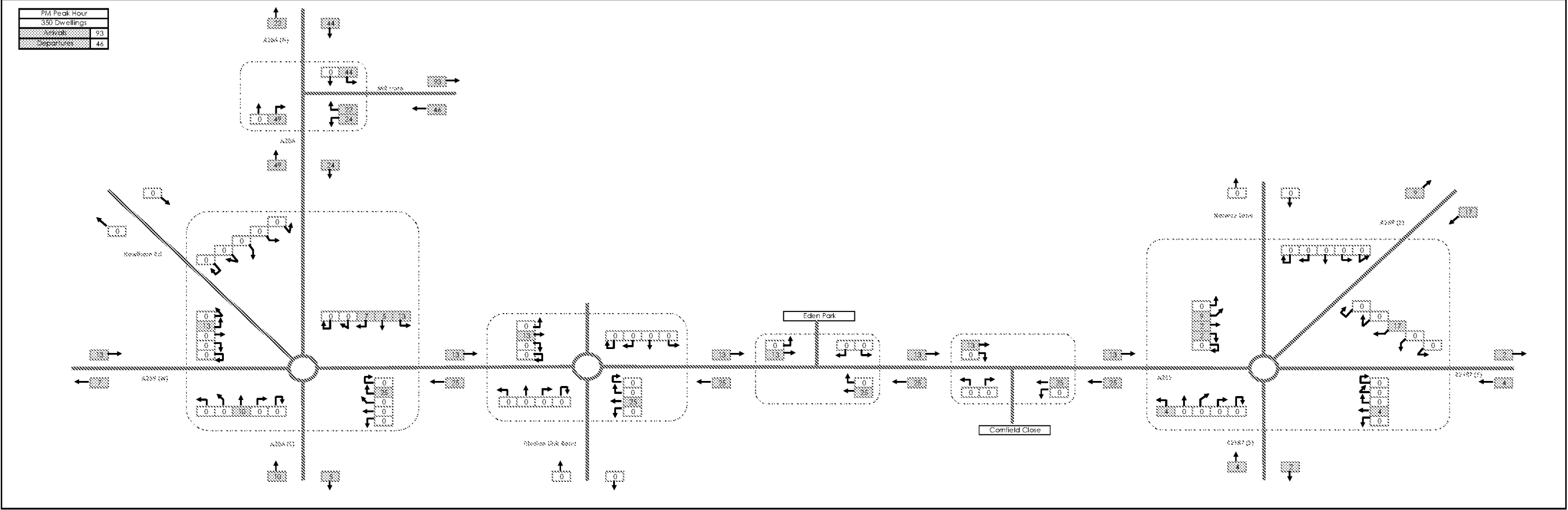


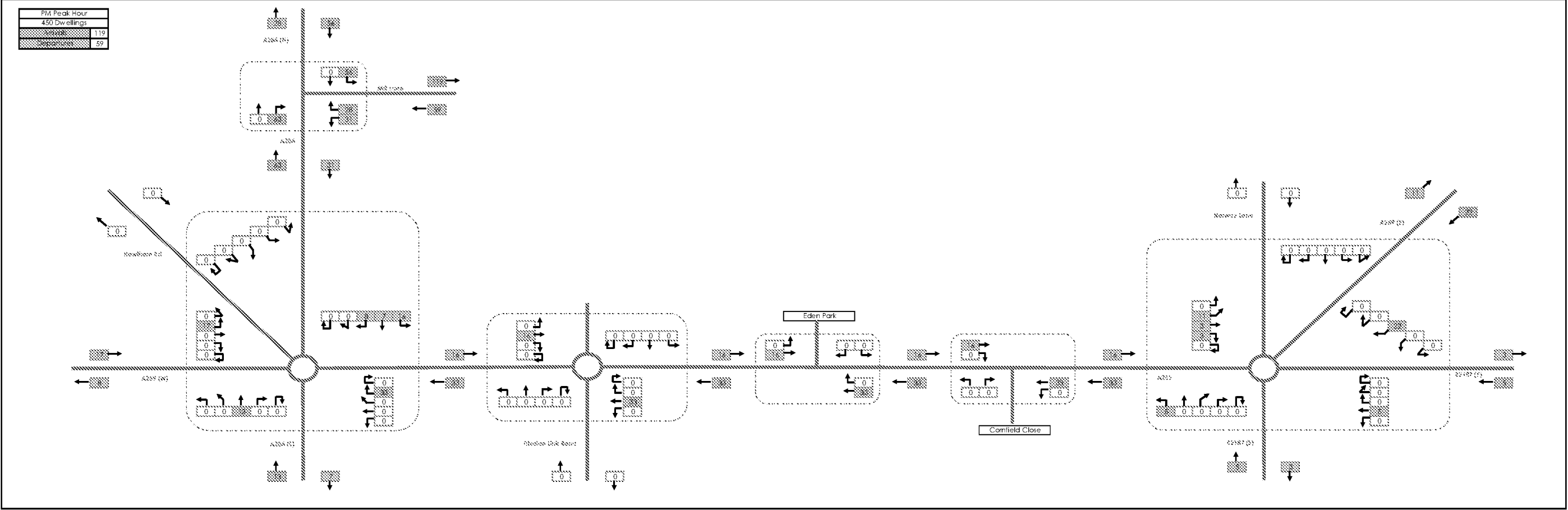
Appendix H Flow Diagrams - Development Distribution

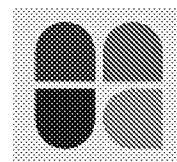


Appendix I Flow Diagrams - Development Flows



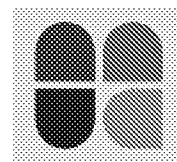




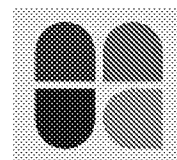


Appendix J Flow Diagrams - 2020 Base Flows + Committed Developments + 350 Dwellings





Appendix K Flow Diagrams - 2020 Base Flows + Committed Developments + 350 Dwellings



Appendix L PICADY Report

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: A284 - Mill Road RTL PICADY 02-07-2020.j9

Path: P:\Planning\2019 Projects (6101-6200)\6161 Hampton Park, Littlehampton\Technical Assessments\Junction Modelling\A284 - Mill Lane\PICADY

Report generation date: 02/07/2020 14:25:07

- »2020 + 350 Dwellings, AM
- »2020 + 350 Dwellings, PM
- »2020 + 450 Dwellings, AM
- »2020 + 450 Dwellings, PM

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
2020 + 350 Dwellings										
Stream B-AC	5.6	72.88	0.88	F	13.74	2.1	35.17	0.69	E	5.39
Stream C-AB	0.1	7.67	0.11	A		0.4	10.03	0.29	B	
2020 + 450 Dwellings										
Stream B-AC	10.2	115.42	0.97	F	23.28	2.6	41.43	0.74	E	6.48
Stream C-AB	0.1	7.70	0.12	A		0.5	10.40	0.32	B	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	23/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BP-RAT-01\RemotePC
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2020 + 350 Dwellings	AM	ONE HOUR	08:00	09:30	15	✓
D2	2020 + 350 Dwellings	PM	ONE HOUR	17:00	18:30	15	✓
D3	2020 + 450 Dwellings	AM	ONE HOUR	08:00	09:30	15	✓
D4	2020 + 450 Dwellings	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2020 + 350 Dwellings, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		13.74	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A284 North		Major
B	Mill Lane		Minor
C	A284 South		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	4.50	100.0	✓	5.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.80	100	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	606	0.096	0.242	0.153	0.346
1	B-C	742	0.099	0.250	-	-
1	C-B	790	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2020 + 350 Dwellings	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	686	100.000
B		ONE HOUR	✓	273	100.000
C		ONE HOUR	✓	472	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A	B	C
	A	0	84	602
	B	195	0	78
	C	421	51	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	8	11
	B	5	0	10
	C	11	8	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.88	72.85	5.6	F	251	376
C-AB	0.11	7.67	0.1	A	47	70
C-A					386	579
AB					77	116
AC					552	829

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	206	51	426	0.483	202	0.0	0.9	15.841	C
C-AB	38	10	591	0.065	38	0.0	0.1	6.512	A
C-A	317	79			317				
AB	63	16			63				
AC	453	113			453				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	245	61	391	0.628	243	0.9	1.6	23.884	C
C-AB	46	11	563	0.081	46	0.1	0.1	6.955	A
C-A	378	95			378				
A-B	76	19			76				
A-C	541	135			541				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	301	75	341	0.881	288	1.6	4.8	56.336	F
C-AB	56	14	526	0.107	56	0.1	0.1	7.664	A
C-A	464	116			464				
A-B	92	23			92				
A-C	663	166			663				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	301	75	341	0.881	297	4.8	5.6	72.846	F
C-AB	56	14	526	0.107	56	0.1	0.1	7.667	A
C-A	464	116			464				
A-B	92	23			92				
A-C	663	166			663				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	245	61	391	0.628	261	5.6	1.8	30.369	D
C-AB	46	11	563	0.081	46	0.1	0.1	6.961	A
C-A	378	95			378				
A-B	76	19			76				
A-C	541	135			541				

09:15 - 09:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	206	51	426	0.483	209	1.8	1.0	16.855	D
C-AB	38	10	591	0.065	38	0.1	0.1	6.519	A
C-A	317	79			317				
A-B	63	16			63				
A-C	453	113			453				

2020 + 350 Dwellings, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2020 + 350 Dwellings	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	741	100.000
B		ONE HOUR	✓	203	100.000
C		ONE HOUR	✓	631	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
From		A	B	C
	A	0	192	549
	B	119	0	84
	C	496	135	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A	B	C
	A	0	2	9
	B	8	0	7
	C	9	10	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.69	35.17	2.1	E	186	279
C-AB	0.29	10.03	0.4	E	124	186
C-A					455	682
A-B					176	264
A-C					504	756

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	153	38	420	0.364	151	0.0	0.6	13.255	E
C-AB	102	25	573	0.177	101	0.0	0.2	7.604	A
C-A	373	93			373				
A-B	145	36			145				
A-C	413	103			413				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	182	46	381	0.479	181	0.6	0.9	17.918	D
C-AB	121	30	546	0.223	121	0.2	0.3	8.478	A
C-A	446	111			446				
A-B	173	43			173				
A-C	494	123			494				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	224	56	325	0.689	219	0.9	2.0	32.836	D
C-AB	149	37	508	0.294	149	0.3	0.4	10.000	B
C-A	545	136			545				
A-B	211	53			211				
A-C	604	151			604				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	224	56	324	0.689	223	2.0	2.1	35.172	E
C-AB	149	37	508	0.294	149	0.4	0.4	10.028	B
C-A	545	136			545				
A-B	211	53			211				
A-C	604	151			604				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	182	46	380	0.480	187	2.1	1.0	19.015	C
C-AB	121	30	546	0.223	122	0.4	0.3	8.510	A
C-A	446	111			446				
A-B	173	43			173				
A-C	494	123			494				

18:15 - 18:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	153	38	420	0.364	154	1.0	0.6	13.640	B
C-AB	102	25	573	0.177	102	0.3	0.2	7.643	A
C-A	373	93			373				
A-B	145	36			145				
A-C	413	103			413				

2020 + 450 Dwellings, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		23.28	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2020 + 450 Dwellings	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	690	100.000
B		ONE HOUR	✓	302	100.000
C		ONE HOUR	✓	477	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	88	602
	B	208	0	94
	C	421	56	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	8	11
	B	5	0	9
	C	11	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.37	115.42	10.2	F	277	416
C-AB	0.12	7.70	0.1	A	51	77
C-A					386	579
A-B					81	121
A-C					552	829

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	227	57	429	0.530	223	0.0	1.1	17.145	C
C-AB	42	11	595	0.071	42	0.0	0.1	6.500	A
C-A	317	79			317				
A-B	66	17			66				
A-C	453	113			453				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	271	68	394	0.690	268	1.1	2.0	27.759	D
C-AB	50	13	568	0.089	50	0.1	0.1	6.957	A
C-A	378	95			378				
A-B	79	20			79				
A-C	541	135			541				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	333	83	344	0.967	310	2.0	7.7	77.645	F
C-AB	62	15	529	0.116	62	0.1	0.1	7.692	A
C-A	464	116			464				
A-B	97	24			97				
A-C	663	166			663				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	333	83	344	0.967	323	7.7	10.2	115.424	F
C-AB	62	15	529	0.116	62	0.1	0.1	7.697	A
C-A	464	116			464				
A-B	97	24			97				
A-C	663	166			663				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	271	68	393	0.690	302	10.2	2.5	48.110	E
C-AB	50	13	568	0.089	50	0.1	0.1	6.961	A
C-A	378	95			378				
A-B	79	20			79				
A-C	541	135			541				

09:15 - 09:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	227	57	429	0.530	233	2.5	1.2	18.793	C
C-AB	42	11	595	0.071	42	0.1	0.1	6.510	A
C-A	317	79			317				
A-B	66	17			66				
A-C	453	113			453				

2020 + 450 Dwellings, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2020 + 450 Dwellings	PM	ONE HOUR	17:00	18:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	753	100.000
B		ONE HOUR	✓	216	100.000
C		ONE HOUR	✓	645	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A	B	C
From	A	0	204	549
	B	125	0	91
	C	496	149	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
From	A	0	1	9
	B	7	0	7
	C	9	9	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.74	41.43	2.6	E	198	297
C-AB	0.32	10.40	0.5	B	137	206
C-A					455	682
A-B					187	281
A-C					504	756

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	163	41	421	0.386	160	0.0	0.6	13.692	E
C-AB	112	28	577	0.195	111	0.0	0.2	7.716	A
C-A	373	93			373				
A-B	154	38			154				
A-C	413	103			413				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	194	49	380	0.510	193	0.6	1.0	19.010	D
C-AB	134	34	549	0.244	134	0.2	0.3	8.669	A
C-A	446	111			446				
A-B	183	46			183				
A-C	494	123			494				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	238	59	323	0.737	232	1.0	2.4	37.586	E
C-AB	165	41	511	0.323	164	0.3	0.5	10.361	B
C-A	545	136			545				
A-B	225	56			225				
A-C	604	151			604				

17:45 - 18:00

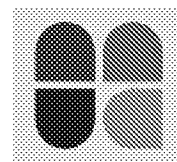
Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	238	59	322	0.738	237	2.4	2.6	41.429	E
C-AB	165	41	511	0.323	165	0.5	0.5	10.396	B
C-A	545	136			545				
A-B	225	56			225				
A-C	604	151			604				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	194	49	380	0.511	200	2.6	1.1	20.619	C
C-AB	134	34	549	0.244	135	0.5	0.3	8.710	A
C-A	446	111			446				
A-B	183	46			183				
A-C	494	123			494				

18:15 - 18:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	163	41	420	0.387	164	1.1	0.6	14.157	B
C-AB	112	28	577	0.195	113	0.3	0.2	7.759	A
C-A	373	93			373				
A-B	154	38			154				
A-C	413	103			413				



Appendix M ARCADY Report

Junctions 9									
ARCADY 9 - Roundabout Module									
Version: 9.5.0.6896									
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Filename: Wick Roundabout ARCADY 02-07-2020.j9

Path: P:\Planning\2019 Projects (6101-6200)\6161 Hampton Park, Littlehampton\Technical Assessments\Junction Modelling\Wick Roundabout ARCADY 22-04-2020_Junctions 9 Report

Report generation date: 02/07/2020 14:16:09

- »2020 Baseline + 350 Dwellings, AM
- »2020 Baseline + 350 Dwellings, PM
- »2020 Baseline + 450 Dwellings, AM
- »2020 Baseline + 450 Dwellings, PM

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	2020 Baseline + 350 Dwellings									
Arm A	1.6	8.03	0.62	A	6.93	2.6	14.64	0.73	B	20.56
Arm B	2.6	7.65	0.72	A		3.2	9.26	0.77	A	
Arm C	0.6	4.40	0.39	A		1.0	5.42	0.51	A	
Arm D	1.5	6.66	0.60	A		11.4	33.53	0.94	E	
Arm E	0.2	6.02	0.19	A		4.1	41.04	0.83	E	
	2020 Baseline + 450 Dwellings									
Arm A	1.7	8.33	0.64	A	7.32	2.7	15.02	0.73	B	21.61
Arm B	2.8	8.10	0.74	A		3.3	9.46	0.77	A	
Arm C	0.7	4.56	0.41	A		1.0	5.48	0.51	A	
Arm D	1.6	7.19	0.62	A		12.2	42.08	0.95	E	
Arm E	0.2	6.37	0.20	A		4.4	43.94	0.84	E	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	Wick Roundabout
Location	
Site number	
Date	24/03/2020
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	BP-RAT-01\RemotePC
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2020 Baseline + 350 Dwellings	AM	ONE HOUR	08:00	09:30	15
D2	2020 Baseline + 350 Dwellings	PM	ONE HOUR	17:00	18:30	15
D3	2020 Baseline + 450 Dwellings	AM	ONE HOUR	08:00	09:30	15
D4	2020 Baseline + 450 Dwellings	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2020 Baseline + 350 Dwellings, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	6.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Lymminster Road	
B	Worthing Road	
C	A284 Wick Street	
D	A259	
E	Hawthorn Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	5.00	9.00	10.0	30.0	55.5	31.3	
B	4.50	9.50	26.0	35.0	55.5	32.5	
C	5.00	9.50	26.0	105.0	55.5	15.0	
D	4.50	8.00	28.0	22.5	55.5	37.5	
E	5.00	6.00	2.0	20.0	55.5	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.652	2071
B	0.699	2330
C	0.772	2612
D	0.644	2077
E	0.559	1603

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2020 Baseline + 350 Dwellings	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	677	100.000
B		✓	1107	100.000
C		✓	482	100.000
D		✓	727	100.000
E		✓	126	100.000

Origin-Destination Data

Demand (Veh/hr)

	To					
	A	B	C	D	E	
From	A	0	219	262	169	27
	B	140	0	153	700	114
	C	180	216	0	63	23
	D	120	538	42	0	27
	E	14	73	15	24	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
	A	B	C	D	E	
From	A	0	16	8	13	0
	B	14	0	16	10	0
	C	6	16	0	22	0
	D	16	13	41	0	0
	E	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.62	8.03	1.6	A
B	0.72	7.65	2.6	A
C	0.39	4.40	0.6	A
D	0.60	6.66	1.5	A
E	0.19	6.02	0.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	681	1404	0.363	507	0.6	4.005	A
B	833	404	1822	0.457	830	0.8	3.617	A
C	363	880	1659	0.219	362	0.3	2.772	A
D	547	525	1492	0.367	545	0.6	3.792	A
E	95	927	1013	0.094	94	0.1	3.917	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	609	815	1315	0.463	607	0.9	5.077	A
B	995	484	1766	0.563	993	1.3	4.649	A
C	433	1054	1529	0.283	433	0.4	3.283	A
D	654	628	1428	0.458	653	0.8	4.635	A
E	113	1110	897	0.126	113	0.1	4.592	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	745	997	1195	0.624	742	1.6	7.899	A
B	1219	591	1691	0.721	1214	2.5	7.474	A
C	531	1287	1352	0.392	530	0.6	4.370	A
D	800	769	1342	0.597	798	1.5	6.588	A
E	139	1357	739	0.188	138	0.2	5.990	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	745	1000	1193	0.625	745	1.6	8.034	A
B	1219	593	1689	0.722	1219	2.6	7.646	A
C	531	1292	1349	0.394	531	0.6	4.401	A
D	800	771	1341	0.597	800	1.5	6.660	A
E	139	1361	737	0.188	139	0.2	6.019	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	609	819	1313	0.464	612	0.9	5.156	A
B	995	487	1764	0.564	1000	1.3	4.743	A
C	433	1061	1523	0.284	434	0.4	3.308	A
D	654	631	1426	0.458	656	0.9	4.688	A
E	113	1115	893	0.127	114	0.1	4.620	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	685	1402	0.364	511	0.6	4.048	A
B	833	407	1820	0.458	835	0.9	3.664	A
C	363	886	1655	0.219	363	0.3	2.787	A
D	547	528	1490	0.367	548	0.6	3.825	A
E	95	932	1010	0.094	95	0.1	3.938	A

2020 Baseline + 350 Dwellings, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	20.56	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2020 Baseline + 350 Dwellings	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	589	100.000
B		✓	1161	100.000
C		✓	619	100.000
D		✓	1007	100.000
E		✓	348	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
From		A	B	C	D	E
	A	0	175	210	165	39
	B	200	0	208	557	196
	C	260	246	0	68	45
	D	123	732	80	17	55
	E	37	210	48	53	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		A	B	C	D	E
From	A	0	16	9	8	0
	B	11	0	13	10	0
	C	7	15	0	16	0
	D	15	10	32	0	0
	E	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.73	14.64	2.6	E
B	0.77	9.26	3.2	A
C	0.51	5.42	1.0	A
D	0.94	39.53	11.4	E
E	0.83	41.04	4.1	E

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	443	1037	1205	0.368	441	0.6	4.695	A
B	874	458	1816	0.481	870	0.9	3.795	A
C	466	920	1668	0.279	464	0.4	2.987	A
D	758	740	1396	0.543	753	1.2	5.568	A
E	262	1242	825	0.318	260	0.5	6.352	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	529	1241	1073	0.494	528	1.0	6.589	A
B	1044	548	1753	0.596	1042	1.5	5.048	A
C	556	1100	1532	0.363	556	0.6	3.684	A
D	905	885	1305	0.694	901	2.2	8.821	A
E	313	1486	672	0.465	311	0.9	9.928	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	649	1492	909	0.713	643	2.4	13.257	B
B	1278	664	1671	0.765	1272	3.1	8.857	A
C	682	1341	1352	0.504	680	1.0	5.341	A
D	1109	1081	1183	0.937	1079	9.6	28.846	D
E	383	1795	479	0.801	373	3.4	31.533	D

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	649	1518	892	0.727	648	2.6	14.639	E
B	1278	672	1666	0.767	1278	3.2	9.256	A
C	682	1350	1346	0.506	681	1.0	5.418	A
D	1109	1085	1181	0.933	1101	11.4	38.528	E
E	383	1819	464	0.826	380	4.1	41.040	E

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	529	1288	1043	0.508	536	1.0	7.181	A
B	1044	562	1743	0.599	1051	1.5	5.247	A
C	556	1113	1523	0.365	558	0.6	3.740	A
D	905	891	1302	0.695	941	2.4	10.948	B
E	313	1527	646	0.484	325	1.0	11.641	B

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	443	1049	1198	0.370	445	0.6	4.794	A
B	874	463	1812	0.482	876	0.9	3.855	A
C	466	927	1663	0.280	467	0.4	3.014	A
D	758	744	1393	0.544	763	1.2	5.756	A
E	262	1254	818	0.320	264	0.5	6.524	A

2020 Baseline + 450 Dwellings, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	7.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2020 Baseline + 450 Dwellings	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	692	100.000
B		✓	1132	100.000
C		✓	492	100.000
D		✓	739	100.000
E		✓	126	100.000

Origin-Destination Data

Demand (Veh/hr)

	To					
	A	B	C	D	E	
From	A	0	227	265	173	27
	B	165	0	153	700	114
	C	190	216	0	63	23
	D	132	538	42	0	27
	E	14	73	15	24	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		A	B	C	D	E
From	A	0	16	8	13	0
	B	14	0	16	10	0
	C	6	16	0	22	0
	D	16	13	41	0	0
	E	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.64	8.33	1.7	A
B	0.74	8.10	2.8	A
C	0.41	4.56	0.7	A
D	0.62	7.19	1.6	A
E	0.20	6.37	0.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	521	681	1405	0.371	519	0.6	4.051	A
B	852	409	1825	0.467	849	0.9	3.672	A
C	370	902	1649	0.225	369	0.3	2.809	A
D	556	551	1473	0.378	554	0.6	3.907	A
E	95	962	991	0.096	94	0.1	4.015	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	622	815	1316	0.473	621	0.9	5.171	A
B	1018	490	1769	0.575	1016	1.3	4.771	A
C	442	1079	1516	0.292	442	0.4	3.350	A
D	664	660	1406	0.472	663	0.9	4.839	A
E	113	1152	870	0.130	113	0.1	4.755	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	762	997	1195	0.637	759	1.7	8.177	A
B	1246	599	1692	0.737	1241	2.7	7.887	A
C	542	1319	1336	0.406	541	0.7	4.523	A
D	814	807	1316	0.618	811	1.6	7.089	A
E	139	1408	707	0.196	138	0.2	6.332	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	762	1000	1194	0.638	762	1.7	8.333	A
B	1246	601	1690	0.737	1246	2.8	8.098	A
C	542	1324	1331	0.407	542	0.7	4.558	A
D	814	809	1314	0.619	814	1.6	7.185	A
E	139	1412	704	0.197	139	0.2	6.370	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	622	819	1313	0.474	625	0.9	5.261	A
B	1018	493	1766	0.576	1023	1.4	4.880	A
C	442	1087	1510	0.293	443	0.4	3.380	A
D	664	663	1404	0.473	667	0.9	4.902	A
E	113	1158	866	0.131	114	0.2	4.788	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	521	685	1402	0.372	522	0.6	4.098	A
B	852	412	1823	0.467	854	0.9	3.720	A
C	370	908	1645	0.225	371	0.3	2.828	A
D	556	554	1471	0.378	558	0.6	3.947	A
E	95	968	987	0.096	95	0.1	4.038	A

2020 Baseline + 450 Dwellings, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	21.61	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2020 Baseline + 450 Dwellings	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	596	100.000
B		✓	1169	100.000
C		✓	622	100.000
D		✓	1011	100.000
E		✓	348	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
From		A	B	C	D	E
	A	0	179	212	166	39
	B	208	0	208	557	196
	C	263	246	0	68	45
	D	127	732	80	17	55
	E	37	210	48	53	0

Vehicle Mix

Heavy Vehicle Percentages

	To					
		A	B	C	D	E
From	A	0	16	9	8	0
	B	11	0	12	10	0
	C	7	15	0	16	0
	D	15	10	32	0	0
	E	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.73	15.02	2.7	C
B	0.77	9.46	3.3	A
C	0.51	5.48	1.0	A
D	0.95	42.08	12.2	E
E	0.84	43.54	4.4	E

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	449	1037	1205	0.372	446	0.6	4.732	A
B	880	460	1817	0.484	876	0.9	3.812	A
C	468	926	1666	0.281	467	0.4	2.997	A
D	761	748	1395	0.546	756	1.2	5.595	A
E	262	1253	820	0.319	260	0.5	6.409	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	536	1241	1073	0.500	534	1.0	6.665	A
B	1051	551	1753	0.599	1049	1.5	5.094	A
C	559	1108	1530	0.366	558	0.6	3.704	A
D	909	895	1304	0.697	905	2.2	8.930	A
E	313	1499	666	0.469	311	0.9	10.091	E

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	656	1490	911	0.720	650	2.4	13.528	B
B	1287	667	1672	0.770	1280	3.2	9.033	A
C	685	1351	1348	0.508	683	1.0	5.400	A
D	1113	1093	1180	0.943	1082	10.1	30.045	D
E	383	1809	472	0.811	372	3.6	33.032	D

17:45 - 18:00

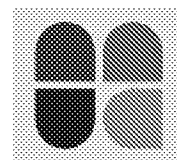
Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	656	1516	894	0.734	655	2.7	15.016	C
B	1287	675	1666	0.772	1287	3.3	9.462	A
C	685	1360	1342	0.510	685	1.0	5.480	A
D	1113	1097	1177	0.945	1105	12.2	42.685	E
E	383	1834	457	0.838	380	4.4	40.942	E

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	536	1291	1040	0.515	542	1.1	7.311	A
B	1051	565	1743	0.603	1058	1.5	5.307	A
C	559	1122	1520	0.368	561	0.6	3.759	A
D	909	901	1300	0.699	948	2.4	11.320	B
E	313	1544	638	0.490	326	1.0	12.021	B

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	449	1049	1197	0.375	451	0.6	4.834	A
B	880	465	1813	0.485	882	1.0	3.876	A
C	468	933	1661	0.282	469	0.4	3.021	A
D	761	752	1392	0.547	766	1.2	5.790	A
E	262	1265	813	0.322	264	0.5	6.588	A



Appendix N LINSIG Report

Basic Results Summary

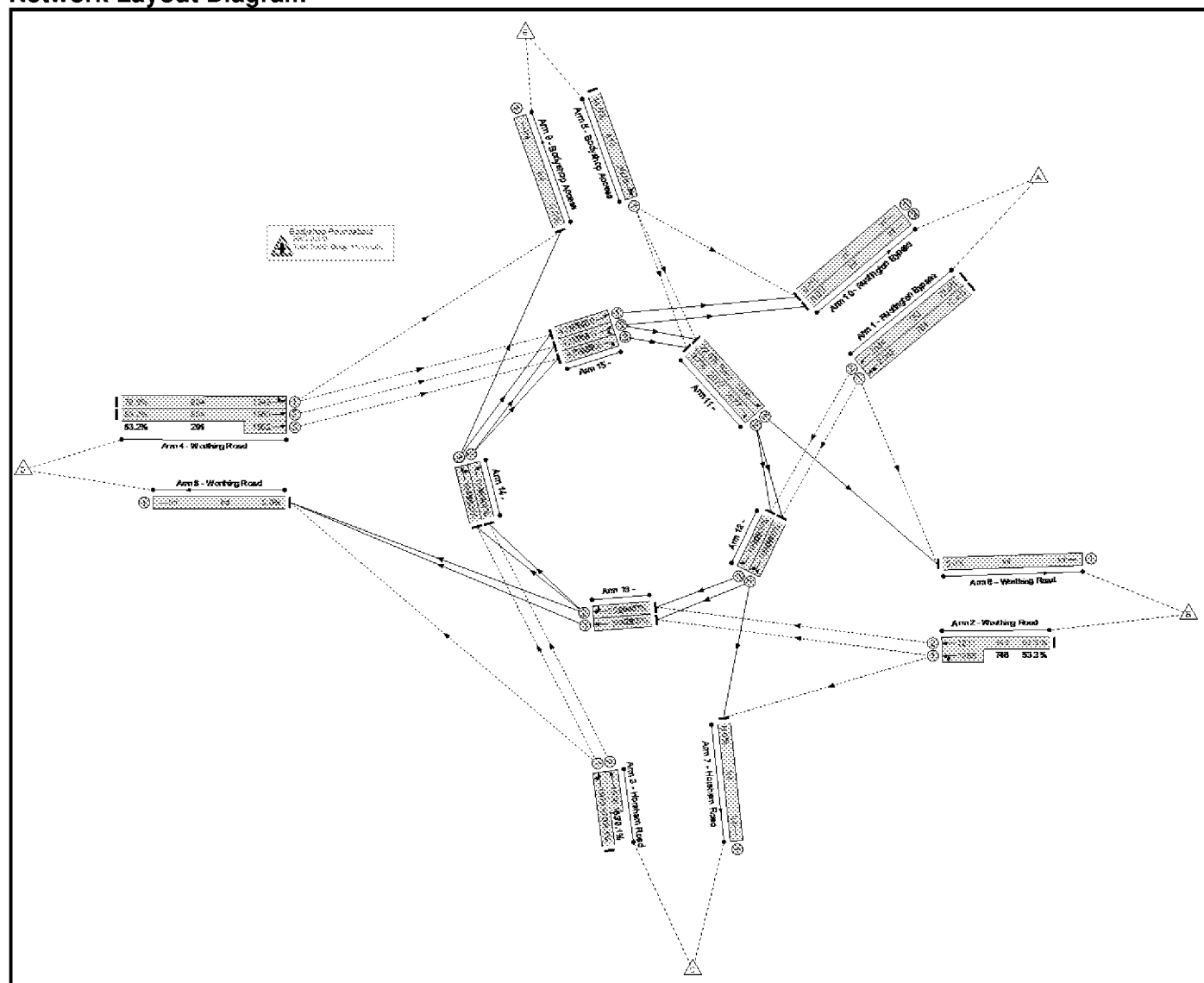
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Body Shop Roundabout LinSig 02-07-2020.lsg3x
Author:	
Company:	
Address:	

Scenario 1: 'Scenario 1' (FG1: 'Am 2020 + 350 Dwellings', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	83.2%	5836	0	0	11.5	-	-
Bodyshop Roundabout	-	-	-		-	-	-	-	-	-	83.2%	5836	0	0	11.5	-	-
1/1	Rustington Bypass Left Ahead	O	-		-	-	-	568	2083	784	72.4%	568	0	0	1.3	8.2	1.3
1/2	Rustington Bypass Ahead	O	-		-	-	-	568	2084	783	72.5%	568	0	0	1.3	8.3	1.3
2/2+2/1	Worthing Road Left Ahead	O	-		-	-	-	582	1911:1986	343+748	53.3 : 53.3%	1164	0	0	0.6	3.5	0.6
3/1+3/2	Horsham Road Left Ahead	O	-		-	-	-	586	1978:1936	578+163	79.1 : 79.1%	1172	0	0	1.8	11.3	1.8
4/1	Worthing Road Left Ahead	O	-		-	-	-	634	1949	804	78.9%	634	0	0	1.8	10.4	1.8
4/2+4/3	Worthing Road Ahead	O	-		-	-	-	836	1950:1902	804+201	83.2 : 83.2%	1672	0	0	2.4	10.4	2.4
5/1	Bodyshop Access Left Ahead	O	-		-	-	-	58	2038	413	14.0%	58	0	0	0.1	5.1	0.1
11/1	Left	U	-		-	-	-	454	1990	1990	22.8%	-	-	-	0.1	1.2	0.1
11/2	Right	U	-		-	-	-	202	2077	2077	9.7%	-	-	-	0.1	1.0	0.1
12/1	Ahead Right	U	-		-	-	-	763	1990	1990	38.3%	-	-	-	0.3	1.5	0.3
12/2	Right	U	-		-	-	-	568	1990	1990	28.5%	-	-	-	0.2	1.3	0.2
13/1	Ahead	U	-		-	-	-	527	1990	1990	26.5%	-	-	-	0.2	1.2	0.2
13/2	Ahead Right	U	-		-	-	-	751	2046	2046	36.7%	-	-	-	0.3	1.4	0.3
14/1	Ahead Right	U	-		-	-	-	457	1943	1943	23.5%	-	-	-	0.2	1.2	0.2
14/2	Right	U	-		-	-	-	136	1846	1846	7.4%	-	-	-	0.0	1.1	0.0
15/1	Ahead	U	-		-	-	-	847	1950	1950	43.4%	-	-	-	0.4	1.6	0.4
15/2	Ahead Right	U	-		-	-	-	805	1917	1917	42.0%	-	-	-	0.4	1.6	0.4

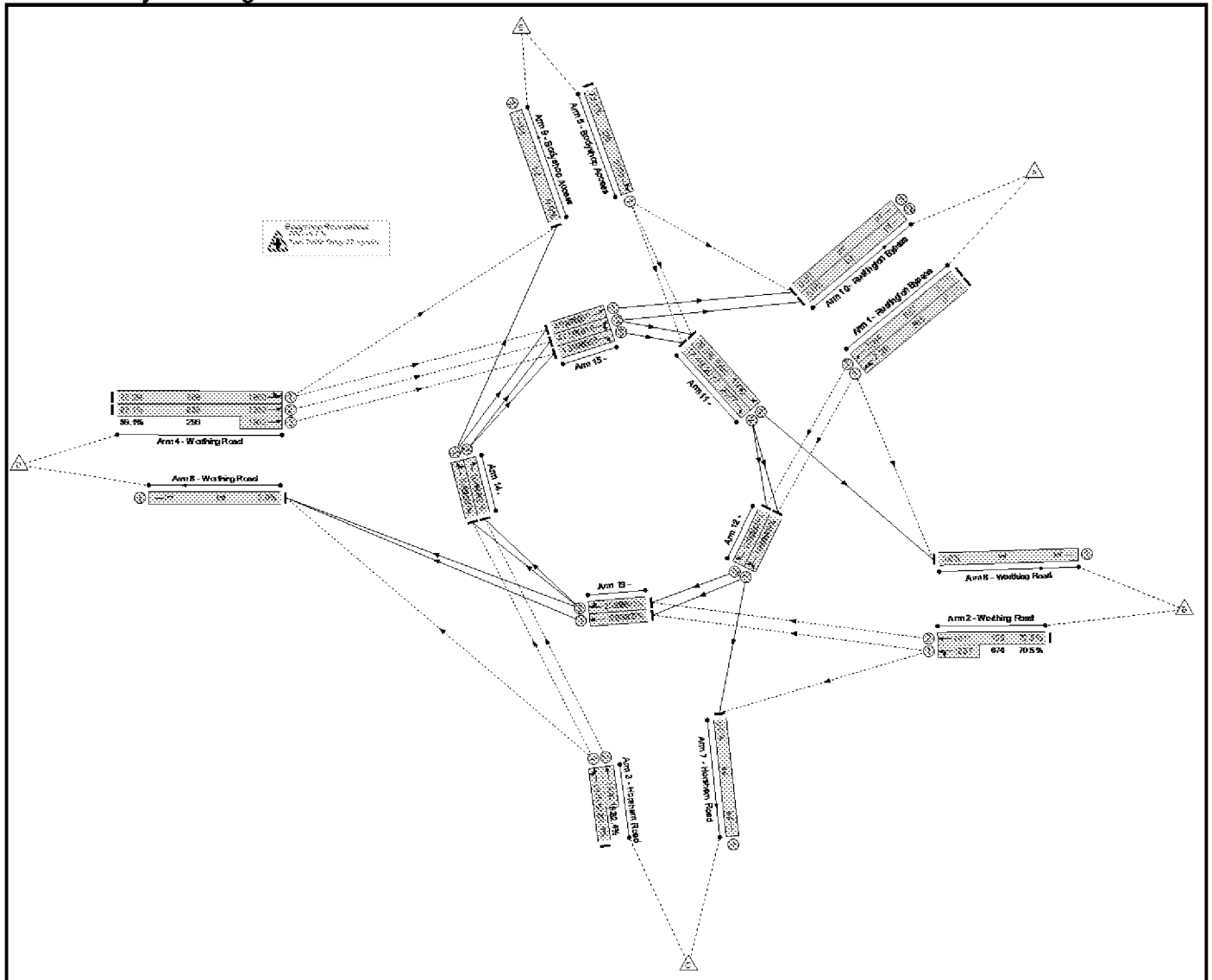
Basic Results Summary

15/3	Right	U	-		-	-	-	167	1965	1965	8.5%	-	-	-	0.0	1.0	0.0
		C1	PRC for Signalled Lanes (%):		0.0		Total Delay for Signalled Lanes (pcuHr):		0.00		Cycle Time (s): 90						
			PRC Over All Lanes (%):		8.2		Total Delay Over All Lanes(pcuHr):		11.50								

Basic Results Summary

Scenario 2: 'Scenario 2' (FG2: 'PM 2020 + 350 Dwellings', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

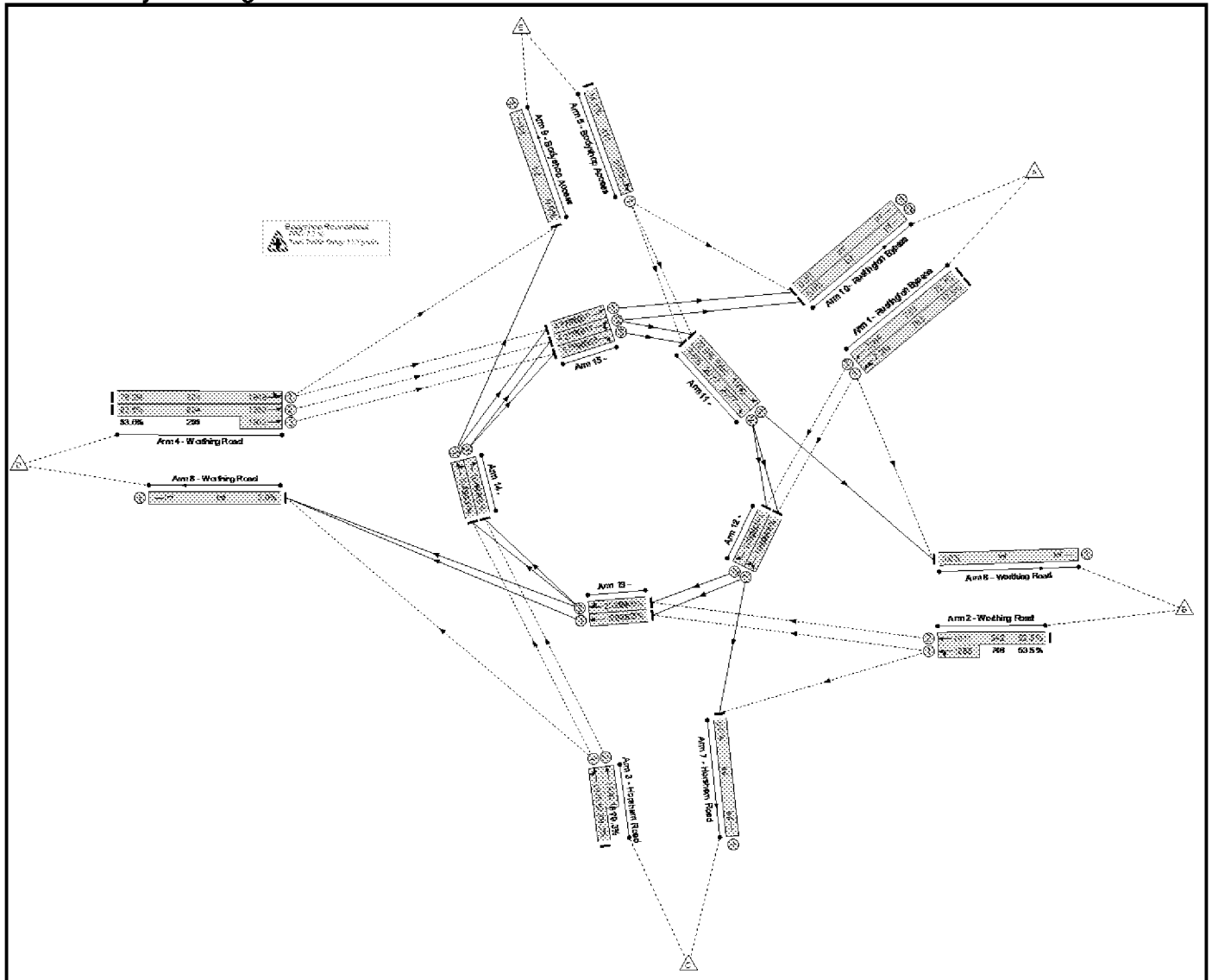
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	95.1%	6590	0	0	27.9	-	-
Bodyshop Roundabout	-	-	-		-	-	-	-	-	-	95.1%	6590	0	0	27.9	-	-
1/1	Rustington Bypass Left Ahead	O	-		-	-	-	655	2082	688	95.1%	655	0	0	6.9	38.1	6.9
1/2	Rustington Bypass Ahead	O	-		-	-	-	653	2084	687	95.1%	653	0	0	6.9	38.0	6.9
2/2+2/1	Worthing Road Left Ahead	O	-		-	-	-	549	1911:1997	105+674	70.5 : 70.5%	1098	0	0	1.2	7.8	1.2
3/1+3/2	Horsham Road Left Ahead	O	-		-	-	-	564	1975:1936	532+153	82.4 : 82.4%	1128	0	0	2.3	14.4	2.3
4/1	Worthing Road Left Ahead	O	-		-	-	-	740	1950	869	85.2%	740	0	0	2.8	13.4	2.8
4/2+4/3	Worthing Road Ahead	O	-		-	-	-	1038	1950:1902	869+296	89.1 : 89.1%	2076	0	0	3.9	13.4	3.9
5/1	Bodyshop Access Left Ahead	O	-		-	-	-	240	2032	328	73.1%	240	0	0	1.3	19.8	1.3
11/1	Left	U	-		-	-	-	588	1990	1990	29.5%	-	-	-	0.2	1.3	0.2
11/2	Right	U	-		-	-	-	361	2077	2077	17.4%	-	-	-	0.1	1.0	0.1
12/1	Ahead Right	U	-		-	-	-	988	1990	1990	49.6%	-	-	-	0.5	1.8	0.5
12/2	Right	U	-		-	-	-	669	1990	1990	33.6%	-	-	-	0.3	1.4	0.3
13/1	Ahead	U	-		-	-	-	675	1990	1990	33.9%	-	-	-	0.3	1.4	0.3
13/2	Ahead Right	U	-		-	-	-	743	2059	2059	36.1%	-	-	-	0.3	1.4	0.3
14/1	Ahead Right	U	-		-	-	-	264	1959	1959	13.5%	-	-	-	0.1	1.1	0.1
14/2	Right	U	-		-	-	-	133	1846	1846	7.2%	-	-	-	0.0	1.1	0.0
15/1	Ahead	U	-		-	-	-	964	1950	1950	49.4%	-	-	-	0.5	1.8	0.5
15/2	Ahead Right	U	-		-	-	-	907	1916	1916	47.3%	-	-	-	0.4	1.8	0.4

Basic Results Summary

15/3	Right	U	-		-	-	-	264	1965	1965	13.4%	-	-	-	0.1	1.1	0.1
		C1	PRC for Signalled Lanes (%):		0.0		Total Delay for Signalled Lanes (pcuHr):		0.00		Cycle Time (s):		90				
			PRC Over All Lanes (%):		-5.7		Total Delay Over All Lanes(pcuHr):		27.92								

Network Layout Diagram



Basic Results Summary

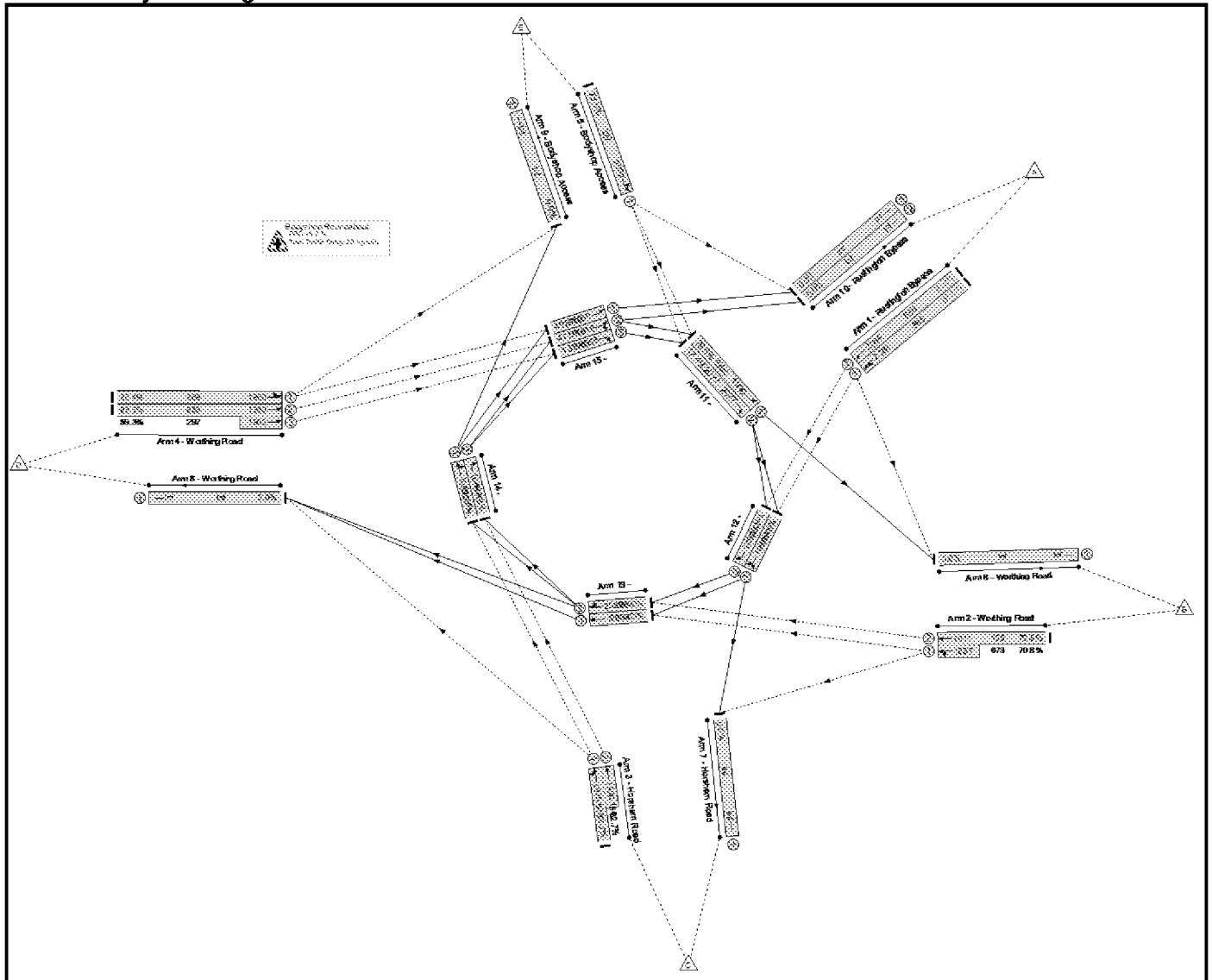
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	83.6%	5850	0	0	11.7	-	-
Bodyshop Roundabout	-	-	-		-	-	-	-	-	-	83.6%	5850	0	0	11.7	-	-
1/1	Rustington Bypass Left Ahead	O	-		-	-	-	568	2083	783	72.5%	568	0	0	1.3	8.3	1.3
1/2	Rustington Bypass Ahead	O	-		-	-	-	569	2084	783	72.7%	569	0	0	1.3	8.3	1.3
2/2+2/1	Worthing Road Left Ahead	O	-		-	-	-	583	1911:1986	342+748	53.5 : 53.5%	1166	0	0	0.6	3.5	0.6
3/1+3/2	Horsham Road Left Ahead	O	-		-	-	-	586	1978:1936	577+161	79.3 : 79.3%	1172	0	0	1.9	11.5	1.9
4/1	Worthing Road Left Ahead	O	-		-	-	-	637	1949	804	79.2%	637	0	0	1.9	10.5	1.9
4/2+4/3	Worthing Road Ahead	O	-		-	-	-	840	1950:1902	804+201	83.6 : 83.6%	1680	0	0	2.5	10.6	2.5
5/1	Bodyshop Access Left Ahead	O	-		-	-	-	58	2038	411	14.1%	58	0	0	0.1	5.1	0.1
11/1	Left	U	-		-	-	-	455	1990	1990	22.9%	-	-	-	0.1	1.2	0.1
11/2	Right	U	-		-	-	-	203	2077	2077	9.8%	-	-	-	0.1	1.0	0.1
12/1	Ahead Right	U	-		-	-	-	764	1990	1990	38.4%	-	-	-	0.3	1.5	0.3
12/2	Right	U	-		-	-	-	569	1990	1990	28.6%	-	-	-	0.2	1.3	0.2
13/1	Ahead	U	-		-	-	-	528	1990	1990	26.5%	-	-	-	0.2	1.2	0.2
13/2	Ahead Right	U	-		-	-	-	752	2046	2046	36.8%	-	-	-	0.3	1.4	0.3
14/1	Ahead Right	U	-		-	-	-	458	1943	1943	23.6%	-	-	-	0.2	1.2	0.2
14/2	Right	U	-		-	-	-	135	1846	1846	7.3%	-	-	-	0.0	1.1	0.0
15/1	Ahead	U	-		-	-	-	851	1950	1950	43.6%	-	-	-	0.4	1.6	0.4
15/2	Ahead Right	U	-		-	-	-	807	1917	1917	42.1%	-	-	-	0.4	1.6	0.4

Basic Results Summary

15/3	Right	U	-		-	-	-	168	1965	1965	8.5%	-	-	-	0.0	1.0	0.0
		C1	PRC for Signalled Lanes (%):		0.0		Total Delay for Signalled Lanes (pcuHr):		0.00		Cycle Time (s): 90						
			PRC Over All Lanes (%):		7.7		Total Delay Over All Lanes(pcuHr):		11.66								

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	95.6%	6607	0	0	28.9	-	-
Bodyshop Roundabout	-	-	-		-	-	-	-	-	-	95.6%	6607	0	0	28.9	-	-
1/1	Rustington Bypass Left Ahead	O	-		-	-	-	657	2082	688	95.5%	657	0	0	7.3	39.8	7.3
1/2	Rustington Bypass Ahead	O	-		-	-	-	656	2084	686	95.8%	656	0	0	7.4	40.4	7.4
2/2+2/1	Worthing Road Left Ahead	O	-		-	-	-	550	1911:1997	105+673	70.8 : 70.8%	1100	0	0	1.2	7.8	1.2
3/1+3/2	Horsham Road Left Ahead	O	-		-	-	-	565	1975:1936	530+154	82.7 : 82.7%	1130	0	0	2.3	14.6	2.3
4/1	Worthing Road Left Ahead	O	-		-	-	-	742	1950	869	85.4%	742	0	0	2.8	13.6	2.8
4/2+4/3	Worthing Road Ahead	O	-		-	-	-	1041	1950:1902	869+297	89.3 : 89.3%	2082	0	0	3.9	13.6	3.9
5/1	Bodyshop Access Left Ahead	O	-		-	-	-	240	2032	327	73.5%	240	0	0	1.3	20.2	1.3
11/1	Left	U	-		-	-	-	589	1990	1990	29.6%	-	-	-	0.2	1.3	0.2
11/2	Right	U	-		-	-	-	362	2077	2077	17.4%	-	-	-	0.1	1.0	0.1
12/1	Ahead Right	U	-		-	-	-	991	1990	1990	49.8%	-	-	-	0.5	1.8	0.5
12/2	Right	U	-		-	-	-	672	1990	1990	33.8%	-	-	-	0.3	1.4	0.3
13/1	Ahead	U	-		-	-	-	678	1990	1990	34.1%	-	-	-	0.3	1.4	0.3
13/2	Ahead Right	U	-		-	-	-	746	2059	2059	36.2%	-	-	-	0.3	1.4	0.3
14/1	Ahead Right	U	-		-	-	-	263	1959	1959	13.4%	-	-	-	0.1	1.1	0.1
14/2	Right	U	-		-	-	-	134	1846	1846	7.3%	-	-	-	0.0	1.1	0.0
15/1	Ahead	U	-		-	-	-	965	1950	1950	49.5%	-	-	-	0.5	1.8	0.5
15/2	Ahead Right	U	-		-	-	-	910	1916	1916	47.5%	-	-	-	0.5	1.8	0.5

Basic Results Summary

15/3	Right	U	-		-	-	-	265	1965	1965	13.5%	-	-	-	0.1	1.1	0.1
		C1	PRC for Signalled Lanes (%):		0.0		Total Delay for Signalled Lanes (pcuHr):		0.00		Cycle Time (s): 90						
			PRC Over All Lanes (%):		-6.3		Total Delay Over All Lanes(pcuHr):		28.93								