

Introduction

1. Following the assessment of the three cumulative Transportation Assessments (TAs) for the Pagham residential developments, and due in part to the significant variation between the analysis results from those reports, but also in light of comments about robustness, the recommendation was made that a Sensitivity Analysis of certain junctions be undertaken.
2. The purpose of the Sensitivity Analysis by DBA is in order for Arun District Council (ADC) to be able to inform members on the sensitivity of the impact of the identified sites, and the robustness of conclusions on traffic impact and mitigation. There are a number of issues relating to proposed improvements and absence of improvements that are considered in this report, prior to a final position being stated. The phasing of improvements also needs to be considered by ADC.
3. Notwithstanding this, it is considered by DBA that the traffic impact of the proposed developments on the following junctions is at a level that can be accepted as presented in and according to the conclusions of the Pagham development TAs.
 - a. Pagham Road / Hook Lane priority junction;
 - b. Sefter Road / Hook Lane priority junction;
 - c. Hewarts Lane / Chalcroft Lane / Lower Bognor Road roundabout;
 - d. Pagham Road / Nyetimber Lane priority junction;
 - e. Gossamer Lane / Aldwick Road / Barrack Lane roundabout;
 - f. Nyetimber Lane / Cardinal's Drive / Tabbard Gate roundabout;
 - g. Lower Bognor Road / Aldwick Road / Aldwick Fields roundabout;
 - h. A27 / Bognor Road roundabout; and
 - i. Grosvenor Gardens / Rose Green Road / Carlton Avenue priority junction
4. In relation to the A27 Whyke Hill junction Improvements, in addition to the works proposed (and now agreed) at the Whyke Hill roundabout, it is understood that improvement works also are intended at the Stockbridge junction in association with other identified developments. DBA are content that the mitigation proposed at Whyke Hill will address the impact of Pagham developments provided that works are Whyke Hill and Stockbridge are implemented at the appropriate time. On this basis, the issue for consideration of ADC is in relation to the programme for the A27 junction improvements as it relates to the phasing of the Pagham developments.
5. In light of the above, DBA's Sensitivity Analysis is limited to the following key junctions:
 - j. B2145 / B2166 roundabout;
 - k. B2166 / Vinnetrow Road / Mill Lane roundabout;
 - l. Pagham Road / B2166 Lower Bognor Road priority junction;
 - m. Pagham Road / Sefter Road priority junction; and

- n. Grosvenor Gardens / Rose Green Road / Nyetimber Lane / Gossamer Lane traffic signals

Base Traffic Flows

6. Base data for the design year 2031 has been obtained either from the Chichester Area Traffic Model (CATM), in respect of junction to the north of and including Pagham Road / Lower Bognor Road, or by local traffic turning counts for local junctions south of and including the Pagham Road / Lower Bognor Road junction.
7. There are notable fluctuations in traffic flows on certain movements, as shown in the traffic flow figures contained in Appendix A to this report. Figures 1.1a/b to 1.3a/b show the base data from each of the Pagham TAs in the Weekday AM and PM peaks. Figures 1.4a/b show the average of the peak hour movements, and Figures 1.5a/b show the variation of each TA from the average.
8. There is little variation at the northern junctions, where data was extracted by each consultant from the same source, namely the CATM. At the Pagham Road / Lower Bognor Road junction, there is more significant variation in turning movements (in particular between modelled and survey flows), if somewhat less in total junction flow. For the purposes of this Sensitivity Test, the average of the TAs' CATM flows (2031, No Mitigation, Adjusted, Excluding Pagham sites) was adopted as reasonably robust for assessing the roundabouts. The average of the surveyed base flows (projected to 2031) was adopted for the local junctions, including and south of Pagham Road / Lower Bognor Road.

Committed Development

9. **Pagham Residential development** – Two committed residential sites are identified in the TAs, as follows, and it is noted as not entirely clear whether these are included in TEMPRO growth assessment in relation to the local road network. It is confirmed that these sites are included in the CATM, and therefore committed development traffic (Figures 2.1a/b, Appendix A) is not included in the at the northern junctions.
 - a) P/58/15 – Land at Summer Lane (90 residential units); and
 - b) P/125/14 – 251 Pagham Road (42 residential units)
10. **Barfoots** – In discussions there was some doubt as to whether allowance had been included in the traffic impact assessment of approved proposals for the extension of facilities at Sefter Farm by Barfoots. Reference was made by DBA to application P/76/16/PL, for which the TA of July 2016 submitted indicates expansion proposals totalling some 7,744m² of development space. This is stated likely to result in 30 additional staff being present on site, compared to some 400 existing, an increase of 7.5%. An increase of 2 HGV movements (in and out) also is identified in the PM peak hour. Based on the traffic survey data provided, a 7.5% increase in peak hour car traffic, plus the 2 HGV increase, would result in the trip generation shown on Figures 2.1a/b. The distribution of this traffic is based on that applied for this Sensitivity Analysis (i.e. 75% to and from the north, with all HGVs travelling north).

11. An earlier application for a new greenhouse at Barfoots (P/68/15/PL) provided a Transportation Assessment dated June 2015, which showed (in Appendix 6) an increase of 9 outbound car trips in the PM peak, with an additional 2 HGV trips stated. This increase has also been included in this assessment.
12. **West Bersted** – Another development referred to in discussions is that of the land at West Bersted. It is considered that the West Bersted development would have little impact on the local road junctions adjacent to / on Pagham Road that are of concern in terms of the traffic impact of the Pagham developments sites. At Lower Bognor Road however, and junctions north of that, some impact would be expected. A review of the Systra 'EBR Transport Review' report indicates (4.1.2, and Table 8) that the 2,500 unit housing allocation at West Bersted is not included in the CATM committed development Reference Case scenario, but in the Development Scenarios. However, the Highgate Transport report TA/02/Revision A, which includes the cumulative assessment confirms that the CATM 2031 flows in Appendix 45 include Local Plan and Enterprise Bognor Regis development scenarios. On that basis, it is understood that the West Bersted allocation is included in the northern junction, and no further allowance is included in this Sensitivity Analysis.

Development Trips

13. As already reported, investigation of trip rates confirms that the figures used in the Pagham TAs are reasonable as 'average' rates. For the purposes of robustness, this assessment considers 85th percentile trip rates (as shown in Appendix B), which are circa 20% higher than those applied in the TAs. These sensitivity trip rates are used in this assessment for the purposes of testing the robustness of the conclusions of the combined TAs. The proportional distribution at individual junctions was retained as shown in the respective TAs.
14. Again, in relation to robustness, DBA have questioned the 50% to 55% assignment of development traffic to the north on Pagham Road, and whether this sufficiently reflects the expected travel patterns of new Pagham residents, which is likely not to reflect the existing profile, but more mobile and employment-centred activity. As a result, for the purposes of this Sensitivity Analysis, a more robust distribution of 75% to and from the north was applied to the residential elements of the proposed developments. The sensitivity distribution of residential development trips applied is shown in Figures 4.3a/b to 4.6a/b.
15. Care Home trips were taken from the Highgate TA for Pagham South and are shown, with the sensitivity distribution, on Figures 4.1a/b in Appendix A to this report. It is accepted that Local Centre trips largely would be secondary and their effects would be limited to more local junctions that are not included in this Sensitivity Analysis. The derivation of Primary School trips is set out from Highgate TA Section 6.25 and shown in Table 6.3. This is accepted for the purposes of this assessment and is included in Figures 4.2a/b.

Junction Analysis

16. The Sensitivity Analysis of junction operation is based on the traffic flow figures shown in Appendix A, the totals of which are shown in Figures 1.6a/b. These are presented in Passenger Car Units (PCUs), including committed development, non-residential elements (as appropriate to the junctions in question) and 85th percentile residential development traffic generation.
17. **Pagham Road / Sefter Road junction** – Junction analysis in the TAs for the Pagham application sites has demonstrated that the junction would operate over capacity in the future with development traffic included. Also, due to the balance of flows to and from the side road, which is heavily biased to and from the north, localised widening of the side road would not improve the capacity of the junction.
18. DBA has noted that the existing junction does not comply with the standards for priority junction set out in DMRB, or at least with the qualification of those standards in terms of what traffic flow conditions represent a situation in which visibility standards could be relaxed. This is the context in which junction analysis and traffic impact should be considered.
19. DBA's sensitivity analysis of this junction indicates that, with sensitivity trip rates and distribution, as would be expected, operational conditions in the future design year of 2031 would be further over capacity in the AM peak. The PM is predicted to continue to operate within capacity. Given that the existing priority junction is not capable of meaningful improvement, the option of signalisation of the junction within the existing highway boundary was considered.
20. The analysis confirms that a signalised junction layout would operate within 90% of capacity in 2031 AM and PM peaks, with all committed and proposed development traffic included. The analysis excludes a pedestrian stage as no footways are present at the junction. It is accepted that there are issues with the implementation of signalisation at the junction, however signalisation can be taken as the measure of the requirement to offset the impact of proposed development at the junction, based on the sensitivity analysis.
21. The implications and application of these findings are discussed in the conclusion to this report.
22. **Pagham Road / Lower Bognor Road** – Similar consideration to those at Pagham Road / Sefter Road apply at this junction, and analysis from the Pagham TAs confirms that the junction would operate overcapacity in both 2031 AM and PM peak conditions. The sensitivity analysis, as would be expected, shows this condition would be more onerous if applying a robust approach to trip generation and distribution. It also should be noted however that signalisation of the junction would result in queuing on approaches where no queuing exists at present.
23. Again, the balance of base traffic flows is heavily biased to and from the north, thus, widening of the side road would have no practical benefit in improving capacity at

the junction. Again, signalisation of the junction within the existing highway boundary was analysed.

24. The analysis predicts that a signalised layout (again without pedestrian facilities, for the purposes of testing) would operate under 80% of capacity in the 2031 AM peak with committed and development traffic included. In the PM peak, a maximum Degree of Saturation (DoS) of 118.6% resulted. This value is close to the PM peak base Ratio of Flow to Capacity (RFC) predicted for the existing priority junction with only committed development in 2031 which, according to the sensitivity analysis, has an RFC value of 1.174. However, while comparisons of flow to capacity indicate that signalisation alone would offset development impact, queuing would be significantly worse compared to the base, with a maximum southbound PM peak queue predicted at 169 vehicles for basic signalisation (plus development) compared to 38 vehicles for the existing priority junction in the 2031 committed base situation.
25. Thus, for the signalised layout, physical widening of the Pagham Road southbound approach to Lower Bognor Road was tested. A flaring (widening) of the existing single lane approach to two lanes over a distance of 50m was tested. This test demonstrated the maximum DoS dropping from 118.6% to 99.3%, bringing the junction within capacity, with the maximum queue dropping to 56 vehicles compared to 38 in the committed base condition. It also should be noted however that signalisation of the junction would result in queuing on approaches where no queuing exists at present.
26. The implications and application of these findings are discussed in the conclusion to this report.
27. **Grosvenor Gardens / Rose Green Road signals** – The modelling of this junction as presented in the Pagham TAs was reviewed. It was concluded that the most appropriate means of assessing the junction's operation was for DBA to develop a Linsig traffic signal model from scratch. The model is substantially similar to those utilised by the consultants, permitting a review of the modelling parameters.
28. On review of the models presented, a particular issue noted was the green time applied to the pedestrian stage. This shows a 7-second green time for pedestrians with no preceding inter-green time separating the pedestrian crossing stage from the previous traffic stage. The inter-green following the pedestrian stage is shown as only 2 seconds. It is not known whether these are confirmed timings on the ground, but in any case they are fundamentally substandard according to pedestrian crossing design requirements, as set out in the Design Manual for Roads and Bridges (DMRB).
29. Notwithstanding the above, DBA have modelled both the presented situation (in the Pagham TAs) and a situation with more appropriate inter-green times. Similarly, in respect of signal total cycle time, it is noted that 90 seconds has been applied without variation. This Sensitivity Analysis considers the effect of a longer cycle time (up to maximum 120 second) to assess whether any benefits would result.
30. In the 2031 Committed base scenario, with substandard pedestrian timings, analysis shows the signalised junction operating at 84.7% maximum Degree of Saturation

(DoS) in the AM peak, and 84.5% in the PM peak, with respective Practical Reserve Capacities (PRC) of 6.2% and 6.5%. Adding in the Sensitivity trip generation for the combined Pagham developments results in DoS maximum values of 90.7% in the AM peak (-0.8% PRC) and 89.6% in the PM (0.4% PRC). These results indicate that the proposed development traffic can be accommodated at the junction as existing.

31. DBA's sensitivity test of the signal timings applies a preceding inter-green of 8 seconds, and a following inter-green of 7 seconds to the pedestrian stage at this junction. The result is 2031 committed base results of 91.1% DoS (PRC -1.2%) AM and 90.6% DoS (PRC -0.6%) in the PM. Including sensitivity combined development traffic results in 96.8% DoS (PRC -7.5%) AM peak and 97.5% (-8.3%) PM peak.
32. It is important to note that, if the pedestrian stage is not called, and all of the 90-second cycle is devoted to traffic stages, the maximum DoS values are 74.3% (AM) and 73.8% (PM), with PRCs of 21.1% (AM) and 22.0% (PM). In the absence of actual survey data, it seems likely that the reality would be a pedestrian stage that is called not in every cycle of the lights, but in a proportion of the cycles in the peak hours. This, for practical purposes, the results for future junction operation would lie somewhere between the highest sensitivity results and the no-pedestrian stage values.
33. The implications and application of these findings are discussed in the conclusion to this report.
34. **B2166 / Vinnetrow Road / Mill Lane roundabout** – The sensitivity analysis of this junction confirms the findings of the Pagham TAs in that the existing junction layout would operate over capacity in the future design year in the committed base condition, and the application of development traffic would worsen this condition. It is agreed that physical improvement of the junction is required to offset the impact of the developments. It is noted that this does not mean the junction would operate within capacity in the future, only that the impact of the developments should leave junction operation no worse than the future base condition (No Net Detriment).
35. Applying the sensitivity trip generation and distribution, including the proposed physical improvements, is predicted to result in a maximum RFC of 0.881 in the AM peak (average maximum queue 6.8 vehicles) compared to 0.631 (avg. max. queue 1.7 veh.) in the committed base situation. In the 2031 PM peak, a maximum RFC of 1.069 (max. Q 58.6 veh.) is predicted with developments and improvements, compared to 1.084 (max. Q 54.2) in the base condition. Thus, the proposed improvements would offset cumulative development impact, based on the sensitivity analysis parameters.
36. **B2145/B2166 roundabout** – Analysis confirms that the existing junction layout would operate above practical capacity in the 2031 AM and PM peak periods, with sizeable average maximum queues on its approaches. The Pagham site TAs confirm that physical improvement of the existing junction is required to offset in the impact of the developments, and junction improvements are proposed. Also, in DBA's assessment, the entry angles input into the analysis of the Pagham TAs' proposed junction improvement model were not consistent with the base model, and

therefore were corrected in the sensitivity analysis. This correction is to the overall benefit of junction operation.

37. Sensitivity analysis indicates that the 2031 committed base produces predicted maximum RFC results of 0.961 (Q 14.2 vehicles) in the AM peak, and 0.887 (Q 7.1 veh.) in the PM. Sensitivity analysis of the cumulative development impact predicts maximum RFCs of 1.106 (maximum Q 91.1 vehicles) in the 2031 AM peak with no junction improvement, and 1.110 (Q 81.0) in the PM peak.
38. The Pagham TAs proposed improvement, under sensitivity analysis, is predicted to lower the AM peak RFC to 1.015 (Q 25.5), and the PM peak to 1.007 (Q 29.1). Thus, the proposed improvement at this junction would not completely offset development impact under sensitivity analysis conditions.
39. The sensitivity analysis considered enhanced improvements at this junction and concluded that additional widening is required to offset the impacts of the Pagham developments. On the B2145 southbound arm, widening of the half-road width to 4m back to the adjacent access (north of the roundabout) and increase of the flare length from 15m to 25m achieves the necessary offsetting effect.
40. On the B2166 north-west bound approach, a minor lengthening of the physical flaring by 3m, and increasing entry width to 7.5m would achieve the requisite improvement, and on the B2145 north-eastbound approach, increased flaring would be required, with further widening into the verge.
41. These proposed enhancements would result in a maximum 2031 AM peak RFC of 0.931 (Q 10.5) and a maximum RFC of 0.893 (Q 7.7) in the PM peak, which are comparable to the 2031 committed base values noted above. In all cases, this additional widening identified is within the existing adopted highway verge. An indicative costing exercise indicates that the additional cost of the supplementary road widening identified by the sensitivity analysis would be circa £30,000.

Conclusions and Observations

42. **Pagham Road / Sefter Road priority junction** – Sensitivity analysis shows that signalising the existing junction would offset development traffic impact. It is noted that speed limit is a consideration in this, and that a localised speed limit would need to be introduced to achieve signalisation. There are other urban speed limits along Pagham Road, and there are bus stops and development adjacent to the Pagham Road / Sefter Road junction, along with accesses, 'SLOW' markings, and signs indicating loose surface (although these appear not to be adopted signs). Considering these factors, and considering that street lighting may also be required, an indicative cost for signalisation of some £140,000 would be typical.
43. **Pagham Road / Lower Bognor Road priority junction** – Sensitivity analysis shows that simple signalisation of this junction would not be sufficient to offset development traffic impact, and widening of the southbound approach to two traffic lanes for a distance of 50m would also be required. This presumes that works could be implemented to accommodate the access to The Royal Oak pub car park as

an exit from a signalised arrangement, and the egress from the pub car park as an unsignalised local access to Pagham Road. The cost of these works would be higher, and subject to impact on drainage of any road widening being confirmed. An indicative cost of £250,000 is identified for these works. This approach would require the same considerations as for Pagham Road / Sefter Road in relation to conditions required for signalisation.

44. An alternative would be the provision of a roundabout in this location. A roundabout could be a more practicable solution to improving junction capacity to mitigate predicted future traffic conditions, bearing in mind that, because of constraints in this location, relaxations from the design standards in DMRB may well be required. The identified indicative sum could accommodate the formation of a roundabout in this location, with relaxations that could be capable of offsetting development traffic impact.
45. **Grosvenor Gardens / Rose Green Road signals** – If the signal timings presented in the Pagham TAs are applied, sensitivity analysis indicates that the proposed development traffic would be accommodated at this junction in the future design year. If timings are applied to the pedestrian stage that take account of current standards and the requirements of pedestrian safety, modelled development impact would be higher. The question of whether combined development traffic would be accommodated with suitable signal timings depends on pedestrian stage call frequency during peak hours. In the absence of specific data, and given the nature of the location, it is considered reasonable that a balance would be struck favouring pedestrian safety. It is concluded therefore that no mitigation works would be required in this location.
46. **B2166 / Vinnetrow Road / Mill Lane roundabout** – The proposed physical improvements to this roundabout junction are considered sufficient to offset the cumulative traffic impact of the Pagham sites on junction capacity.
47. **B2166 / B2145 Roundabout** – The sensitivity analysis identifies that the proposed junction improvements would not entirely offset the impact of the Pagham developments. Relatively modest enhancement of the proposed roundabout approach widening would offset the impact predicted by the sensitivity analysis. The estimated additional cost of this supplementary widening, which is within the adopted highway boundary, would be circa £30,000. The proposed enhanced improvements are illustrated in Figure 1.
48. It is important to note that offsetting junction improvements are intended to achieve No Net Detriment as a result of the impact of development traffic, but that queues and delays still would be expected to increase in future as a result of background traffic growth.

Implications for Improvement Costs and Contributions

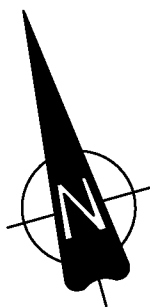
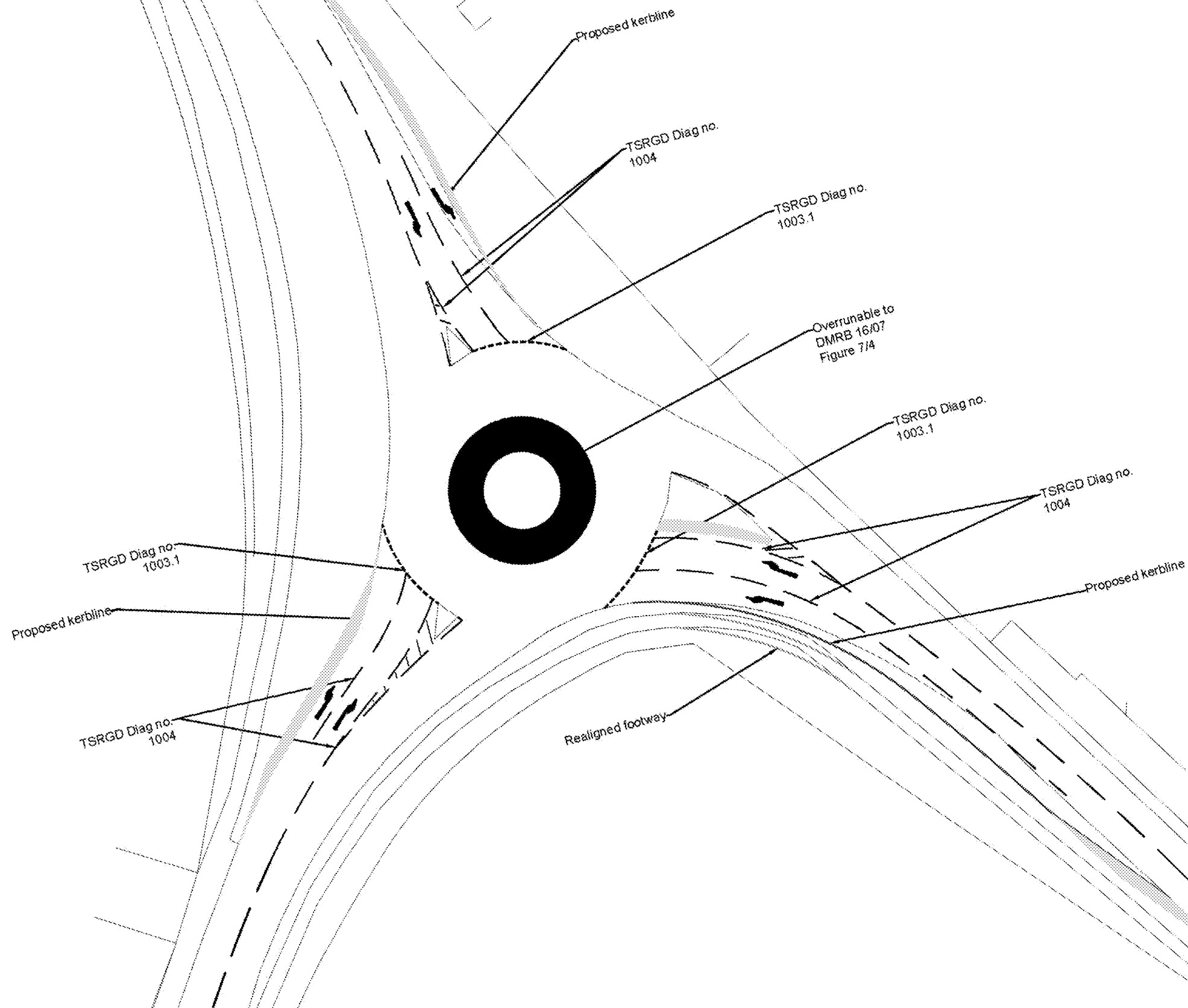
49. The Common Statement of Cumulative Assessments identifies a contribution to Highway England in respect of the additional improvements required to the S27

Whyke Hill junction to offset the impact of the proposed Pagham developments (a total of £342,000). No issue is taken with the approach proposed.

50. A further contribution to WSCC in respect of upgrading of cycleways is identified (£100,000). Again, this is considered reasonable. A balance of £373,000 is identified as being made to WSCC for the purposes of '*sustainable transport measures on the wider highway network*'. This contribution is in lieu of junction improvements at the Pagham Road / Sefter Road and Pagham Road / Lower Bognor Road priority junctions, which have been indicated as unachievable.
51. Following sensitivity assessment, there are potential improvements that could be considered, subject to more detailed discussions with WSCC. At Lower Bognor Road / Sefter Road, signalisation of the existing layout would offset the impact of the development. It is considered that there is a basis for promoting signalisation of the junction, subject to various detailed considerations which would require discussion with WSCC. At Pagham Road / Lower Bognor Road, a signalisation approach still would require road widening to offset the sensitivity impact of the Pagham sites.
52. Further to these items, a sum is identified for the improvement of the Road Green Road / Grosvenor Gardens priority junction (£81,000). The need for and scale of that improvement is accepted. Also, the proposed improvements to the B2166 / Vinnetrov Road roundabout (costed at £23,000) are accepted as offsetting the predicted impact of the Pagham developments.
53. Finally, a sum is identified for the improvement (widening) of all three approaches to the B2145 / B2166 roundabout (£68,000). Under the sensitivity analysis, the proposed improvements are not considered sufficient to totally offset the impact of the proposed developments.
54. The Common Statement of Cumulative Assessments, contained in the TA for each of the applications, identifies works on and contributions to the local highway network totalling £815,000. £342,000 of this sum is allocated against impacts on the A27, leaving a total contribution of £473,000 to the local highway network. Of the £473,000, a sum of £100,000 is allocated to upgrading of bridleways to cycleways, leaving a total of £373,000 allocated to local junction improvements.
55. The sensitivity analysis identifies issues in terms of requirements for supplementary improvements. Following sensitivity assessment, the following indicative sums are considered applicable to the three junctions in question, to deal with the predicted impact of the proposed developments:
- | | | |
|----|-----------------------------|----------|
| 1) | B2145 / B2166 roundabout | £98,000 |
| 2) | Pagham Road / Sefter Road | £140,000 |
| 3) | Pagham Rd / Lower Bognor Rd | £250,000 |
| | Total | £488,000 |
56. In addition to these improvements or sums that are modified by the sensitivity analysis, there are specific agreed junction improvements and costings that are identified in the TAs, as follows:

4)	Rose Green Road widening	£81,000
5)	B2166 / Vinnetrow Rd. widening	£23,000
	Total	£104,000

57. Thus, rather than a total figure for improvement of local junctions of £373,000, as per the Common Statement of Cumulative Assessments, the sensitivity analysis identifies a total figure of £592,000 for local junction improvements, or contributions in lieu, where improvements are not practically achievable.
58. This higher figure in respect of the local network would result in a total contribution of £1,034,000. This figure is some £219,000 (26.8%) higher than the total highways cost of £815,000 identified by the application TAs.



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Notes:

Rev.	Revision details:	By:	Checked:
		Date:	Date:

Client:
ARUN DISTRICT COUNCIL

Project:
PAGHAM

Drawing Title:
**PROPOSED ADDITIONAL
ROAD WIDENING
B2145 / B2166 ROUNDABOUT**

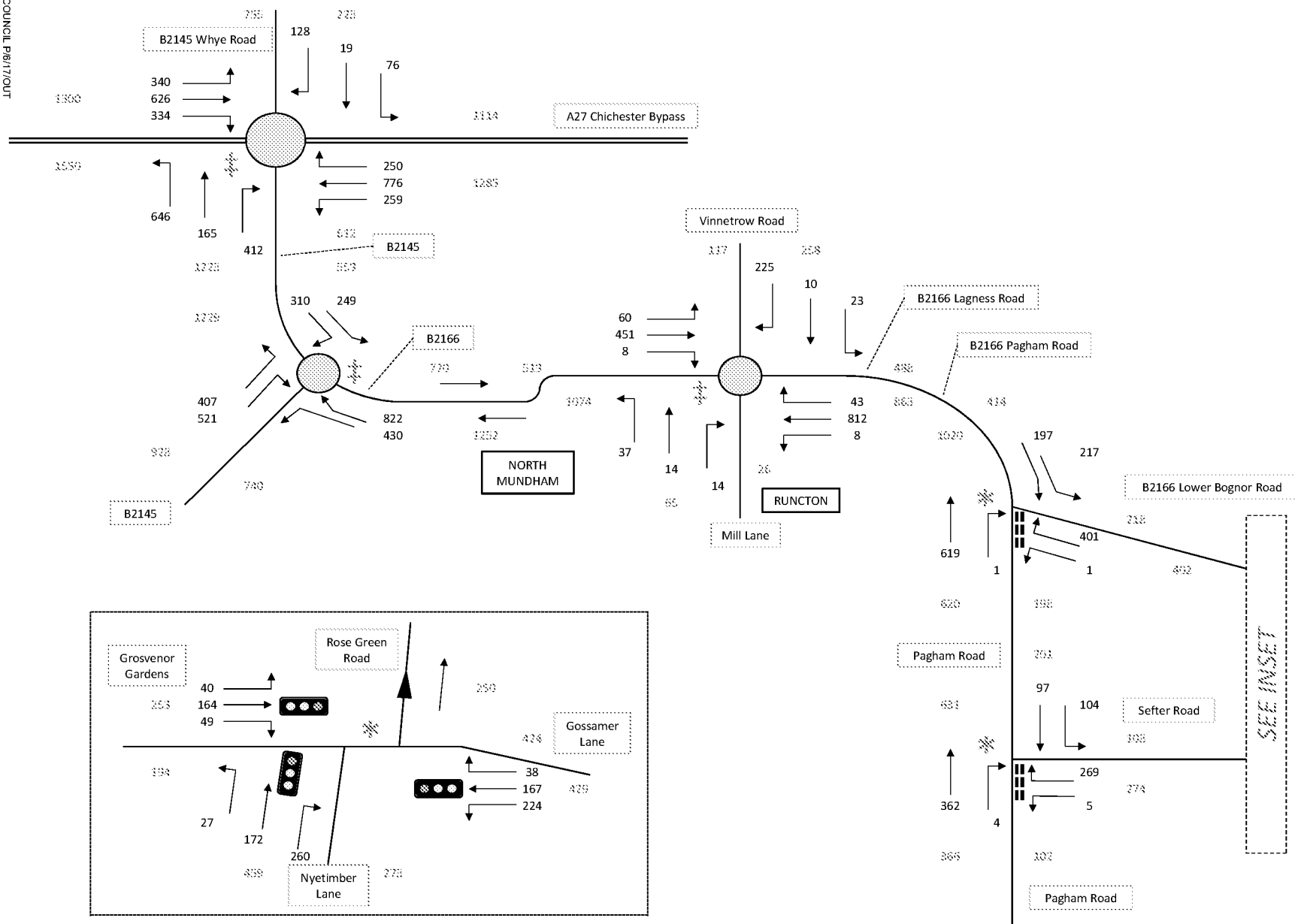
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Appendix A

Traffic Flow Figures

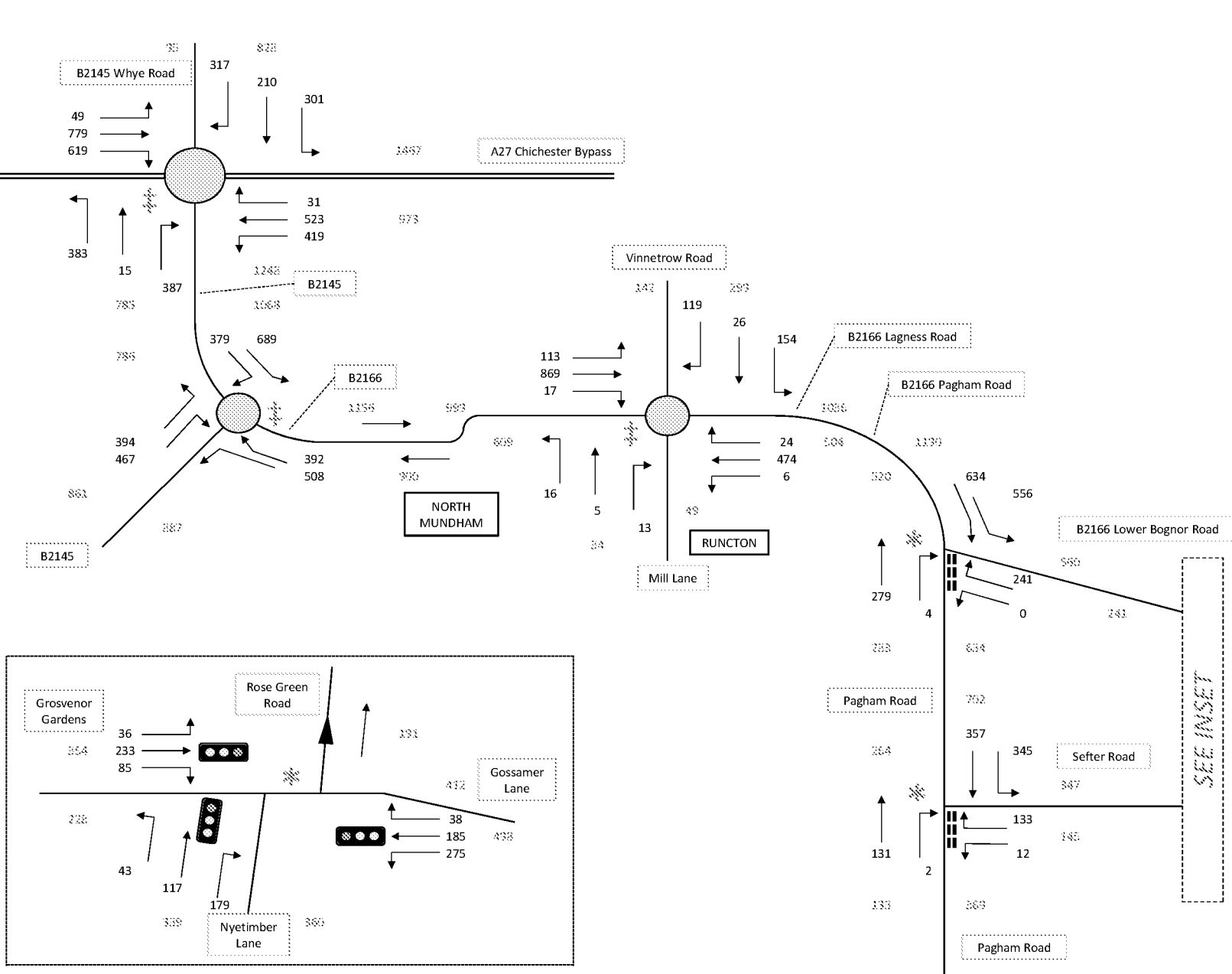


NOTE: Highgate TA contains two data sets for L.Boegner Rd/Pagham Rd junction. Non-LATURN data applied.

* 1615 TAGGA Appendices.pdf
(Page 475 + Page 476)

i 161C YAGGA Appendices.pdf
 (Page 940)
 SATURN flows, no mitigation, adjusted
 Reduction for cumulative impact

Figure 1.1a
2031 AM 'Base' - Highgate
(PCUs)

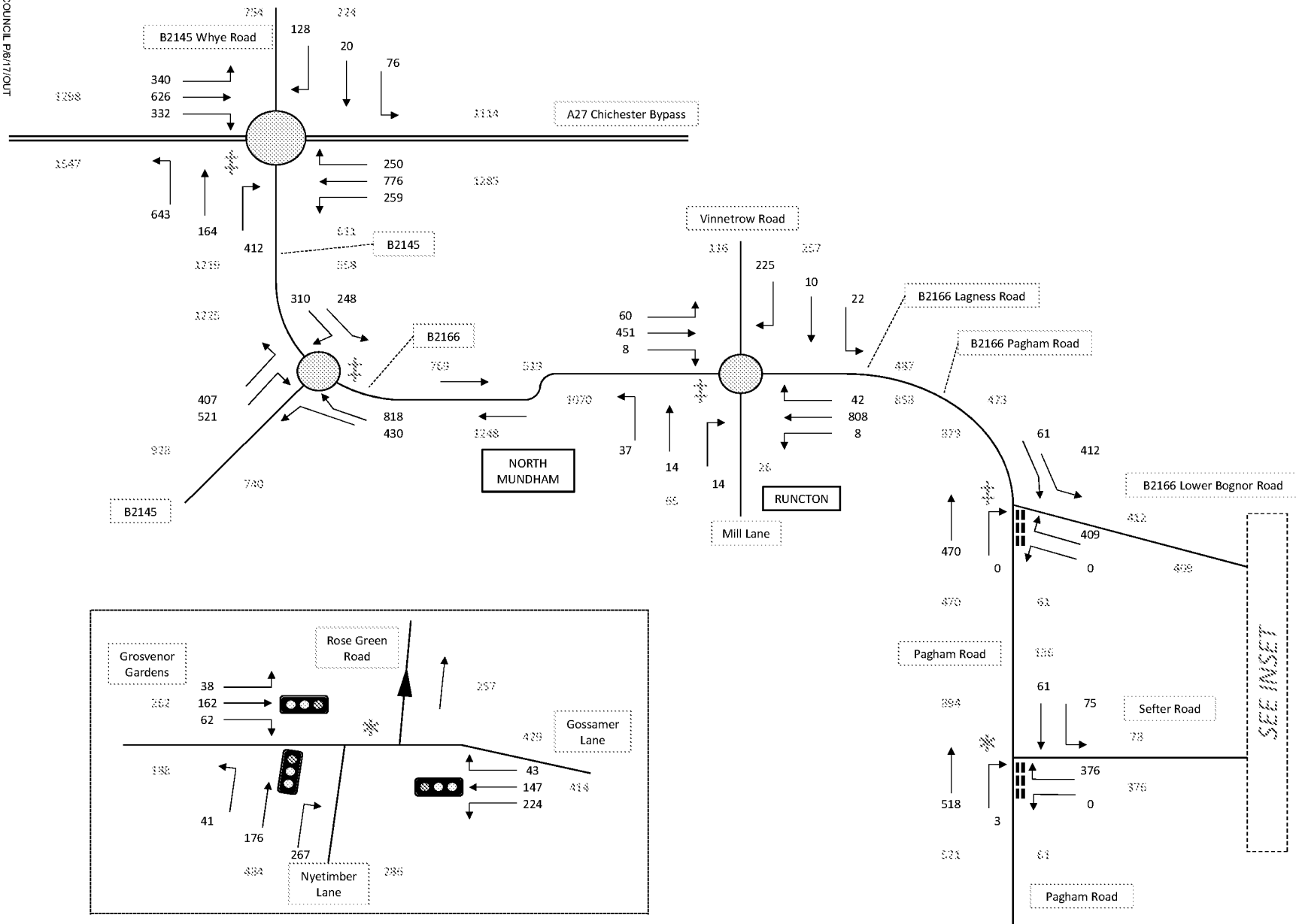


NOTE: Highgate TA contains two data sets for L.Boegner Rd/Pagham Rd junction. Non-LATURN data applied.

* 1615_TAGGA Appendices.pdf
(Page 479 + Page 480)

1 161C YACCA Appendices.pdf
 (Page 941)
 SATURN flows, no mitigation, adjusted
 Reduction for cumulative impact

Figure 1.1b
2031 PM 'Base' - Highgate
(PCUs)

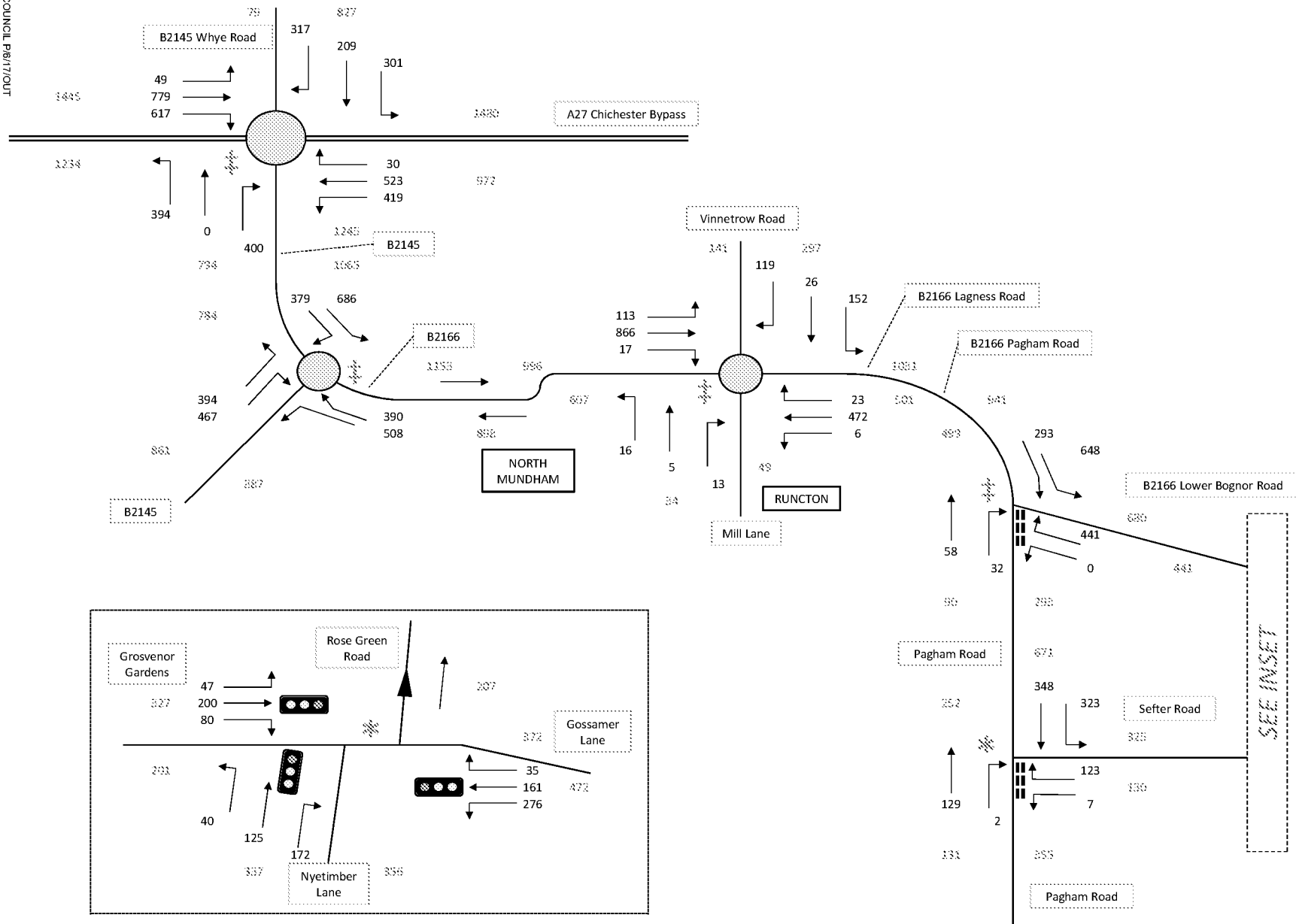


12-018-012 Addendum 1A - Full.pdf
(Page 62, Figure 004)

12-018-012 Addendum 1A - Full.pdf
(Page 76, Figure 018)
SATURN flows, excluding Pagham sites

Figure 1.2a
2031 AM 'Base' - C&A
(PCUs)

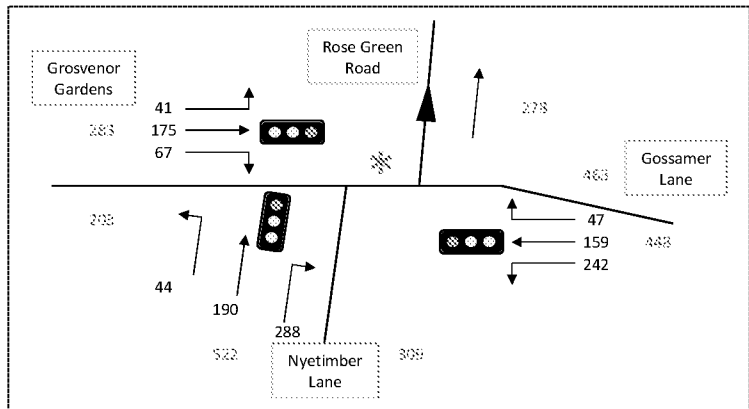




12-018-012 Addendum 1A - Full.pdf
(Page 65, Figure 007)

12-018-012 Addendum 1A - Full.pdf
(Page 77, Figure 019)
SATURN flows, no mitigation, adjusted

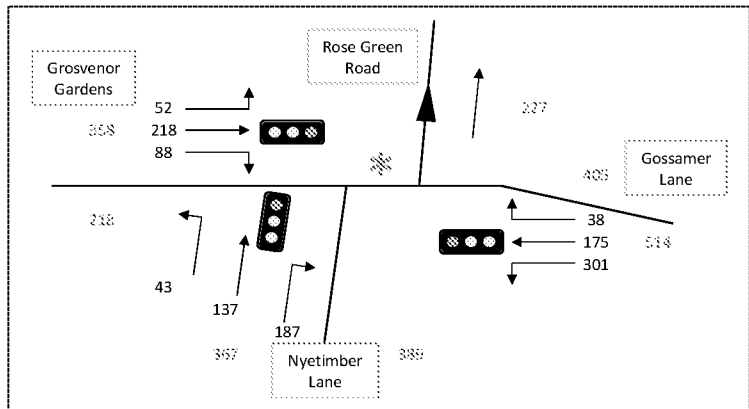
Figure 1.2b
2031 PM 'Base' - C&A
(PCUs)



* Substitute 130617 Supplementary
Transport Assessment Part 2.pdf
(Page 33)

8 IN78840-04a Supplementary Transport
Assessment (reduced).pdf
(Page 107)
SATURN flows, excluding Pagham sites
no mitigation

Figure 1.3a
2031 AM 'Base' - RPS
(PCUs)



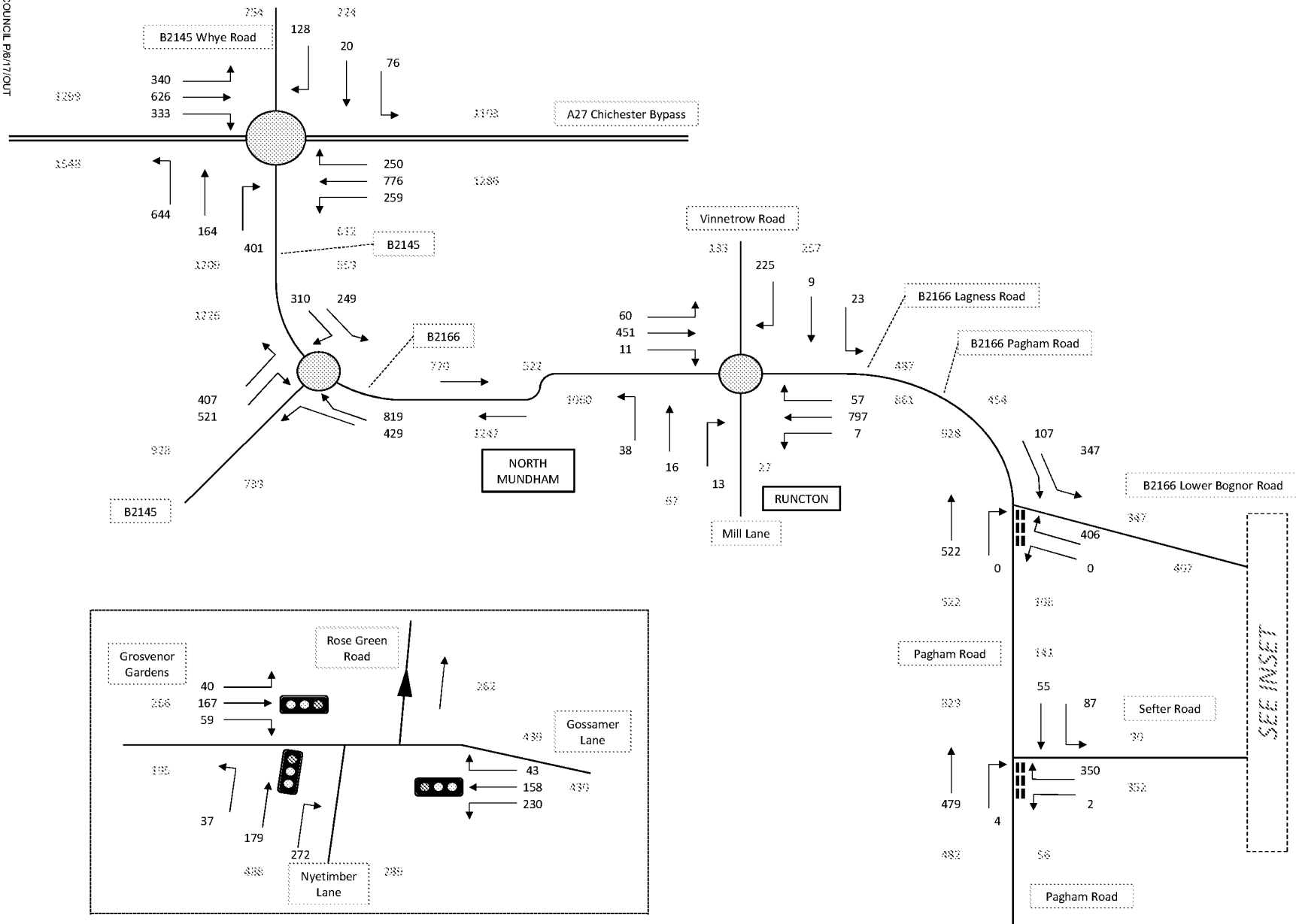
* Substitute 130617 Supplementary
Transport Assessment Part 2.pdf
(Page 37)

* DNV8840-04a Supplementary Transport
Assessment (redwood.pdf)

(Page 108)

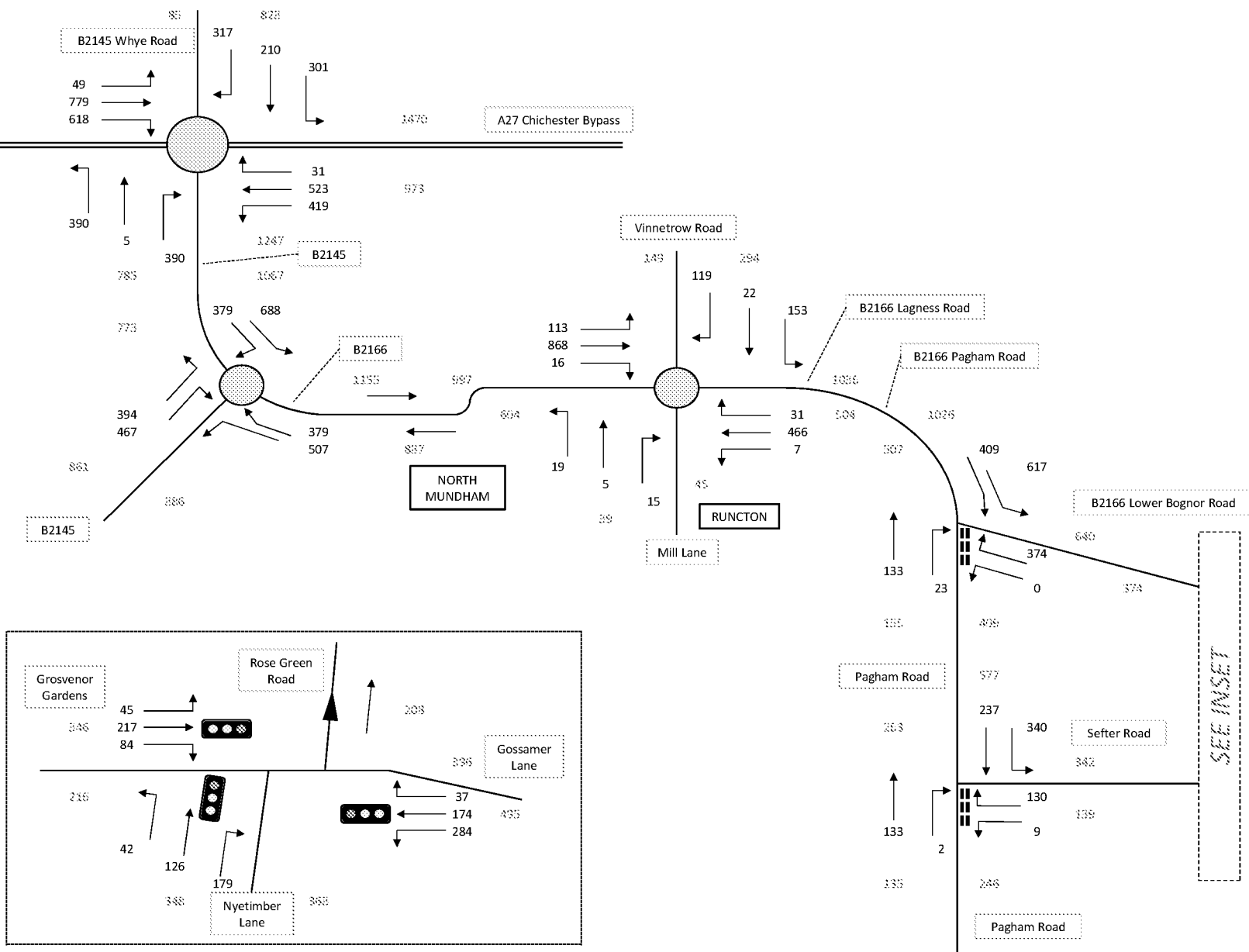
SATURN flows, excluding Pagham sites
no mitigation

Figure 1.3b
2031 PM 'Base' - RPS
(PCUs)



Average junction flows, based on
Figure 1.1a + 1.2a + 1.3a / 3

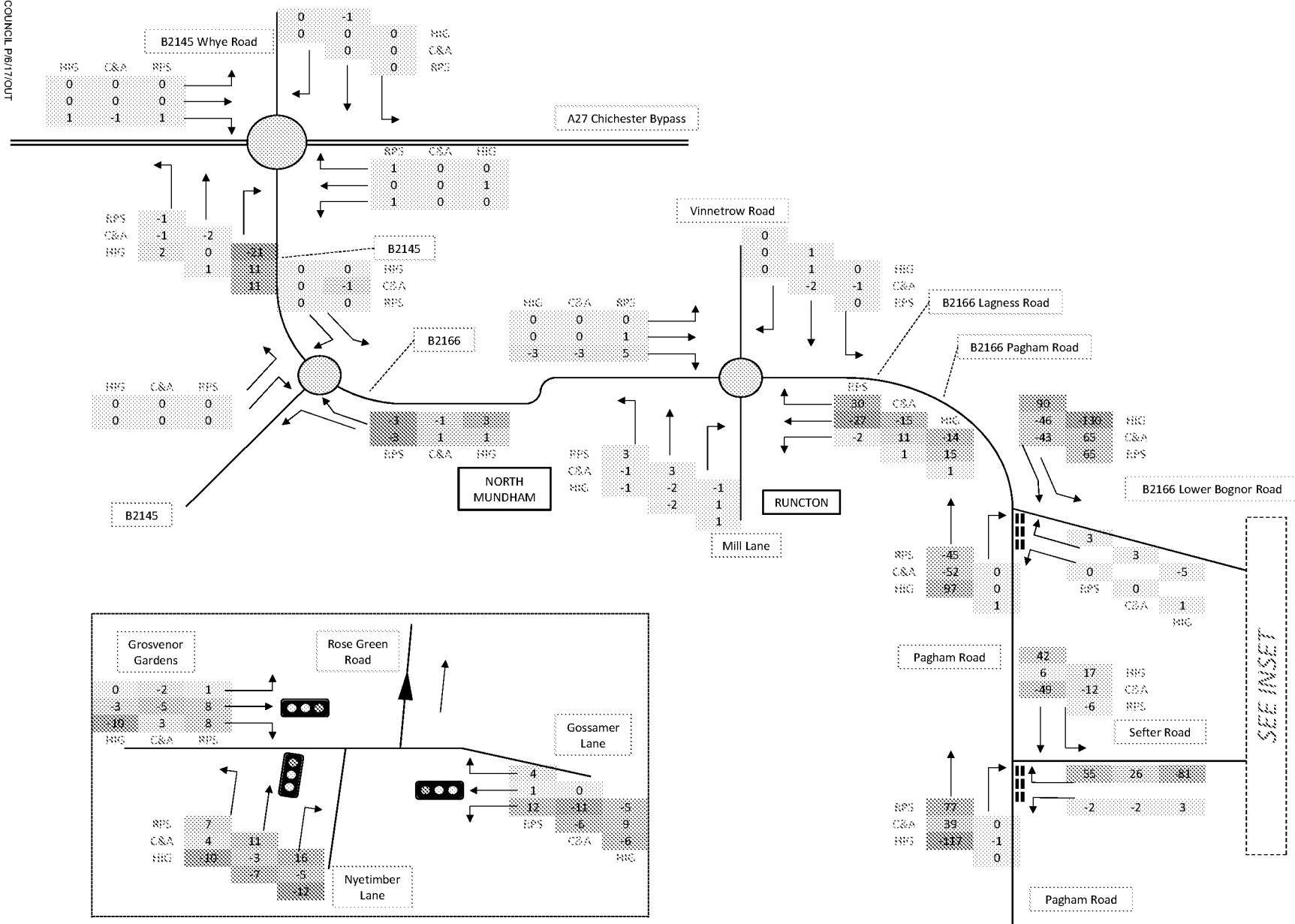
Figure 1.4a
2031 AM 'Base' - AVERAGE
(PCUs)



Average junction flows, based on
Figure (1.3b + 1.2b + 1.3c) / 3

Figure 1.4b

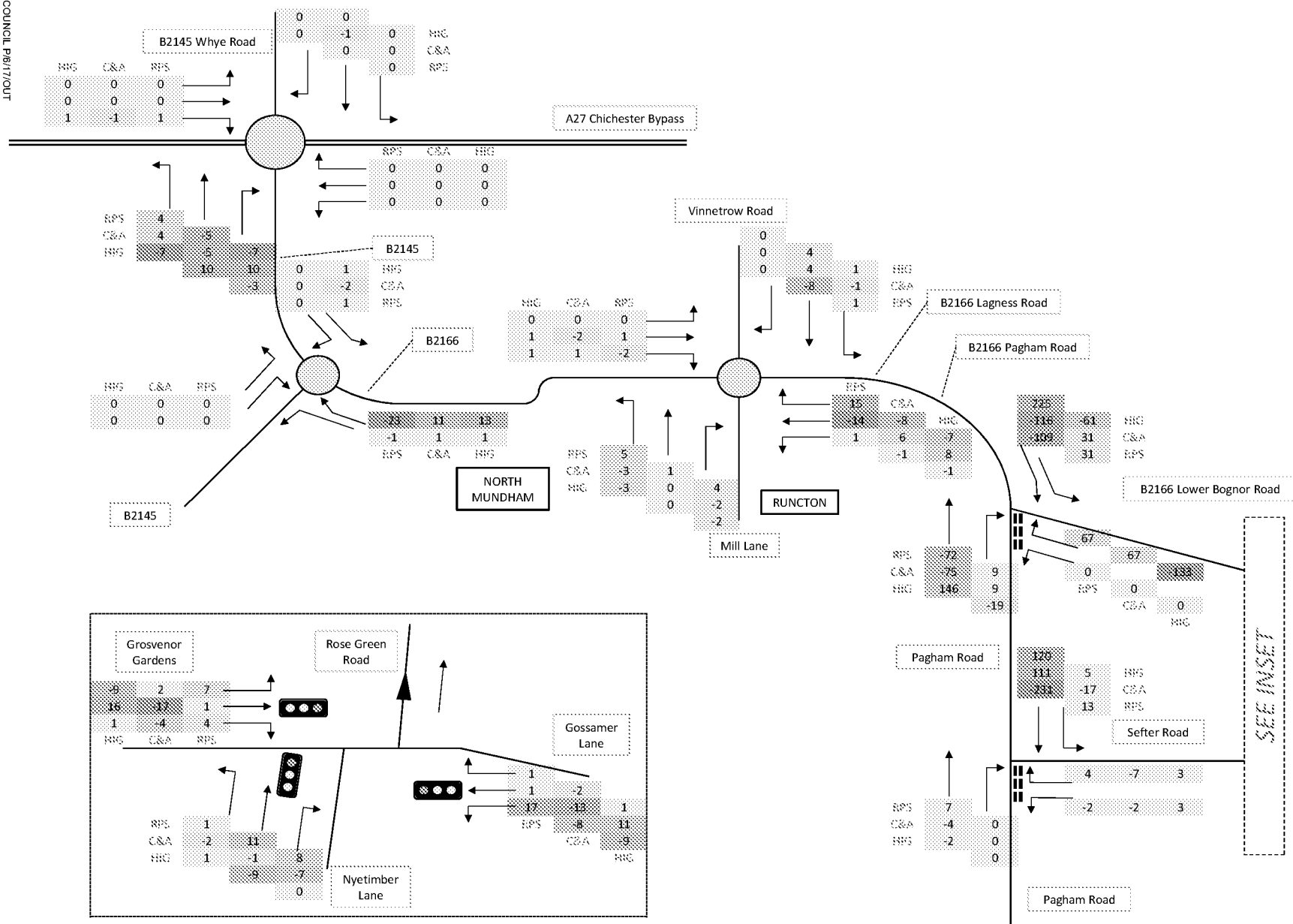
2031 PM 'Base' - AVERAGE
(PCUs)



Variation from Average flow
Figure (3.1a, 1.2a & 1.3a) - 1.4a

Figure 1.5a

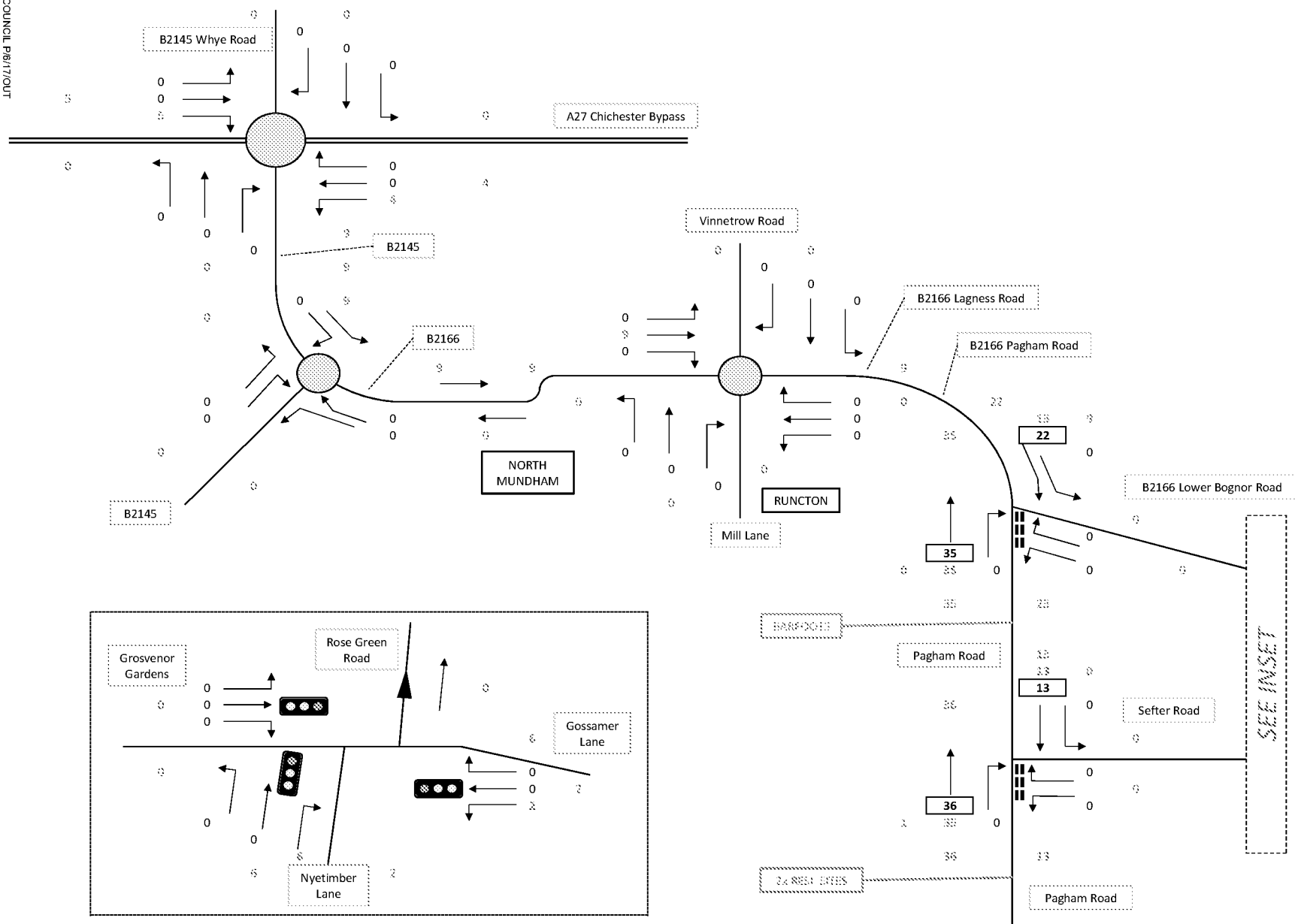
2031 AM 'Base' - VARIANCE
(PCUs)



Variation from Average flow
Figure (3.1b, 1.2b & 1.3b) - 1.6b

Figure 1.5b

2031 PM 'Base' - VARIANCE
(PCUs)



PCUs	in	out
Barfords - Existing (vehicles)		
AM	25	0
PM	0	87

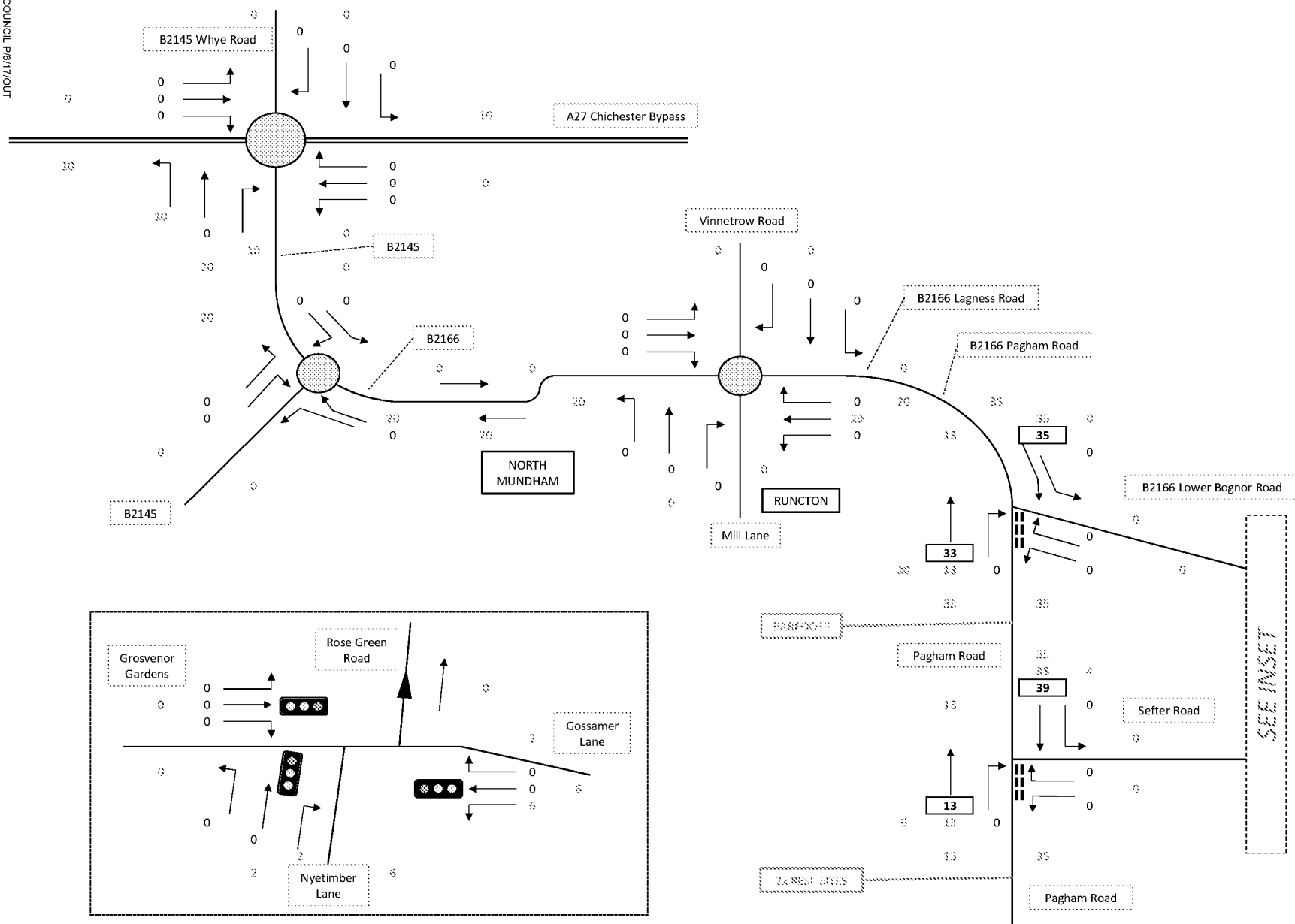
Barfords - P/78/19/21 (+2.5% +2 HGVs)		
AM	6	0
PM	0	11

Barfords - P/68/13/21 (+4 cars +2 HGVs)		
AM	4	0
PM	0	13

Barfords - TOTAL		
AM	10	0
PM	0	24

P/58/15 -- Land at Summer Ln (50 units)
P/131/14 -- 251 Pagham Road (42 units)
16.16 1/10/17 Appendices.pdf
(Page 477)
Adjust to reflect sensitivity distribution
(75% to and from destinations north)

Figure 2.1a
AM Committed development
(PCUs)



PCUs	in	out
Barfords - Existing (vehicles)		
AM	25	0
PM	0	87

Barfords - P/78/16/PL (+2.5% +2 HGVs)		
AM	6	0
PM	0	11

Barfords - P/68/13/PL (+4 cars +2 HGVs)		
AM	4	0
PM	0	13

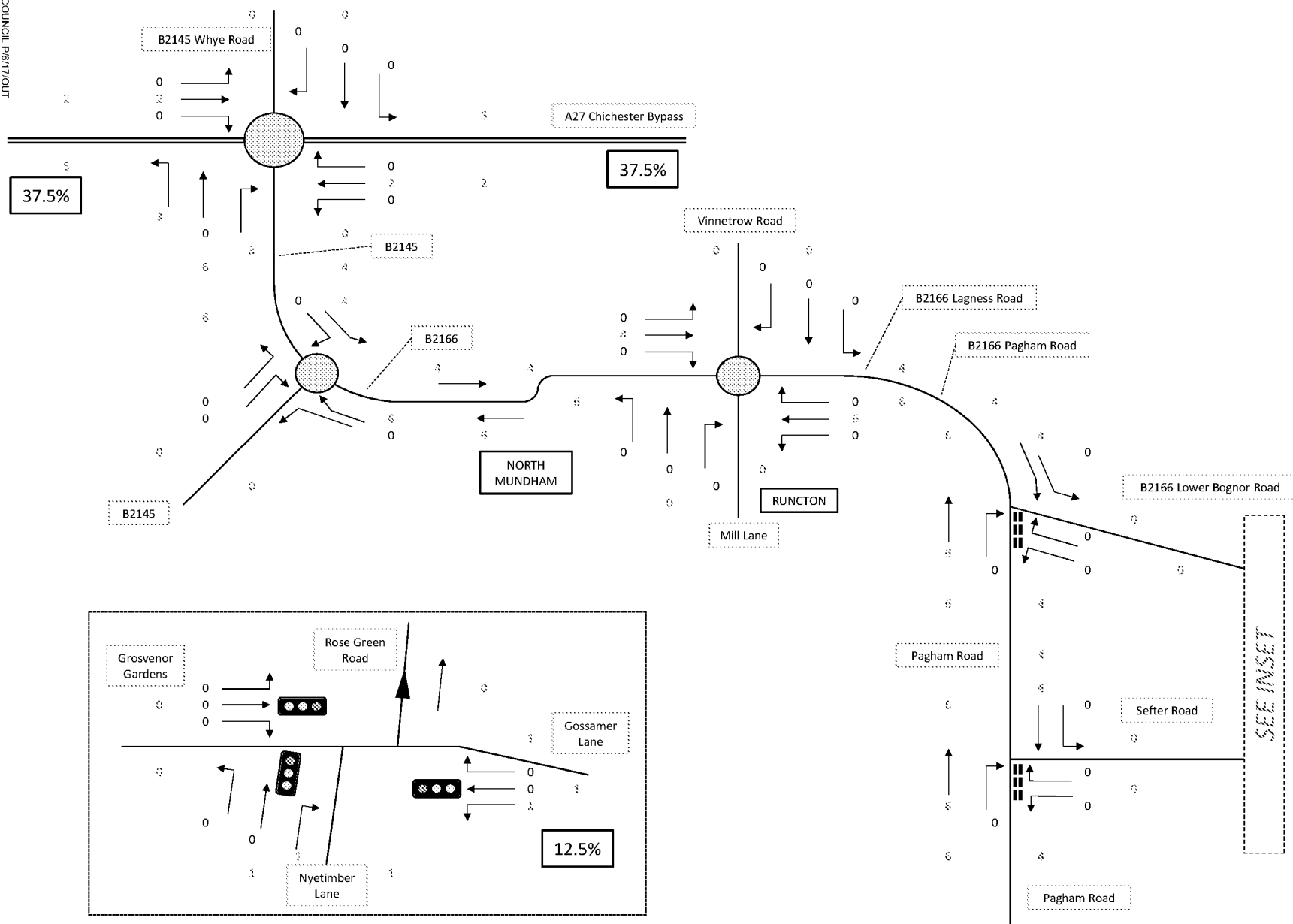
Barfords - TOTAL		
AM	10	0
PM	0	24

P/58/15 - Land at Summer Ln (50 units)
P/131/14 - 251 Pagham Road (42 units)
16/16/16/16A Appendices.pdf
(Page 481)
Adjust to reflect sensitivity distribution
(75% to and from destinations north)

Figure 2.1b
PM Committed development
(PCUs)

Pagham South VA - Highgate
1616 VA02A August 2017 TEXT.pdf
(Page 35, pdf page 57)

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DBA



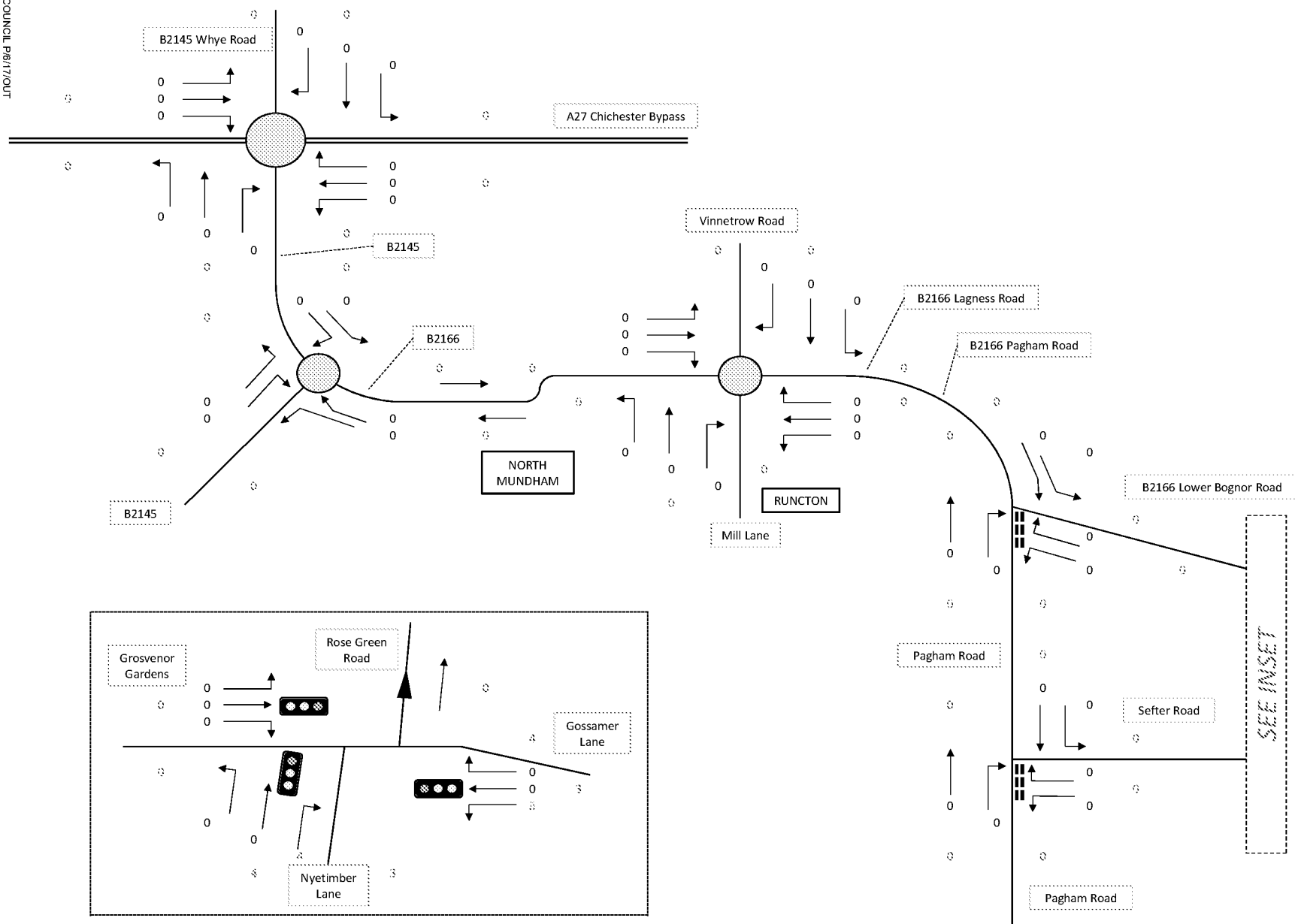
PCUs	in	out
Care Home - 70 beds		
AM	5	3
PM	5	8

Pagham South TA - Highgate
1616 TA02A August 2017 TEXT.pdf
(Page 35, pdf page 57)

Figure 4.1b - Care Home
PM development trips
(PCUs)

Pagham South IA - Highgate
 1016 TA02A August 2017 TEXT.pdf
 (Page 39, pdf page 61)
 1016 TA02A Appendices.pdf
 (Page 334)

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DBA
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Tel: 212 692 1000 Fax: 212 692 1001



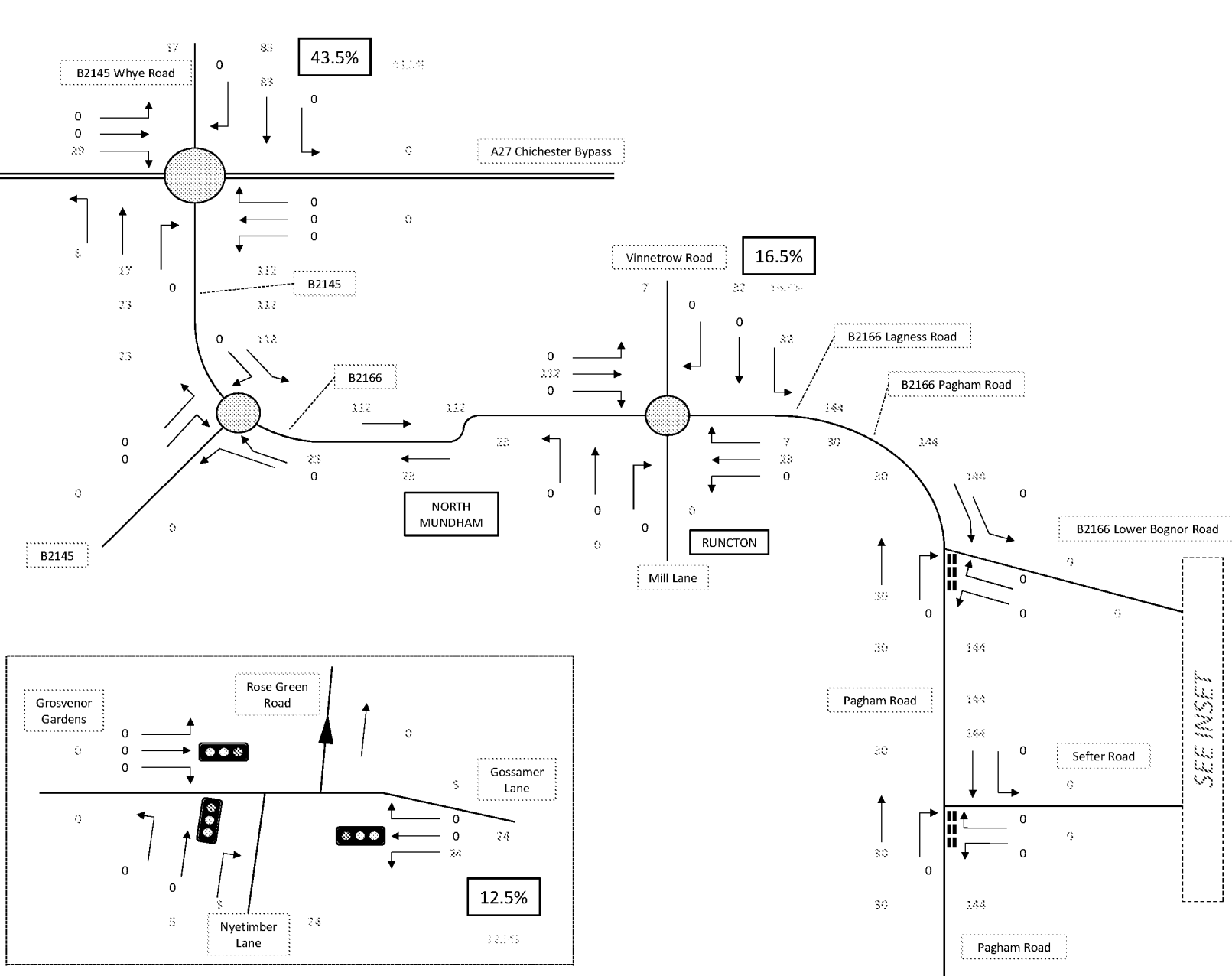
PCUs	in	out
Primary School		
AM	20	20
PM	15	16

Pagham South TA - Highgate
 16.16 TA02A August 2017 TEXT.pdf
 (Page 39, pdf page 61)
 16.16 TA02A Appendix.pdf
 (Page 334)

Figure 4.2b - Primary School
 PM development trips
 (PCUs)

Pougham South VA - Highgate
 1616 VAQZA Appendices.pdf
 (Page 326)

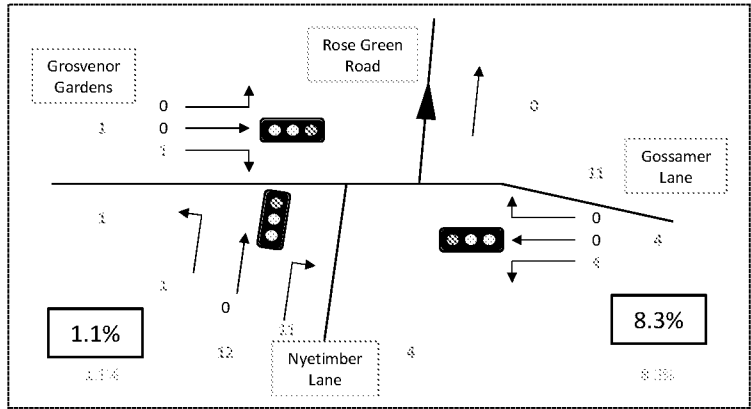
Douglas Baillie Associates
DBA
1001 Commercial Boulevard, Suite 1000, Jacksonville, FL 32202
904.241.1111



PCUs	in	out	
Payham South -		400	units
APC	0.103	0.26	0.293
PM	0.479	0.099	0.578
APC	85	124	209
PM	192	40	231

Page 326

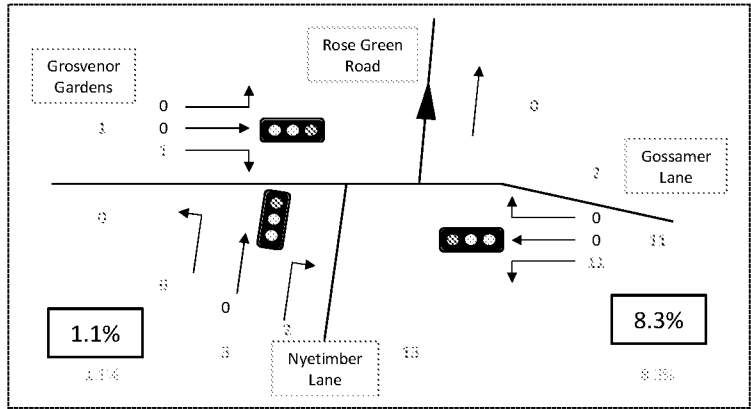
Figure 4.3b - Pagham South
PM residential trips (85th %ile)
(PCUs)



PCUs	in	out	
North-Satter Rd	280	units	
AM	0.163	0.460	0.623
PM	0.479	0.206	0.576
AM	46	129	174
PM	138	20	158

Land North of Sefton Rd. - C&A
12-013-012 Addendum 1A - FULL.pdf
(Page 59)

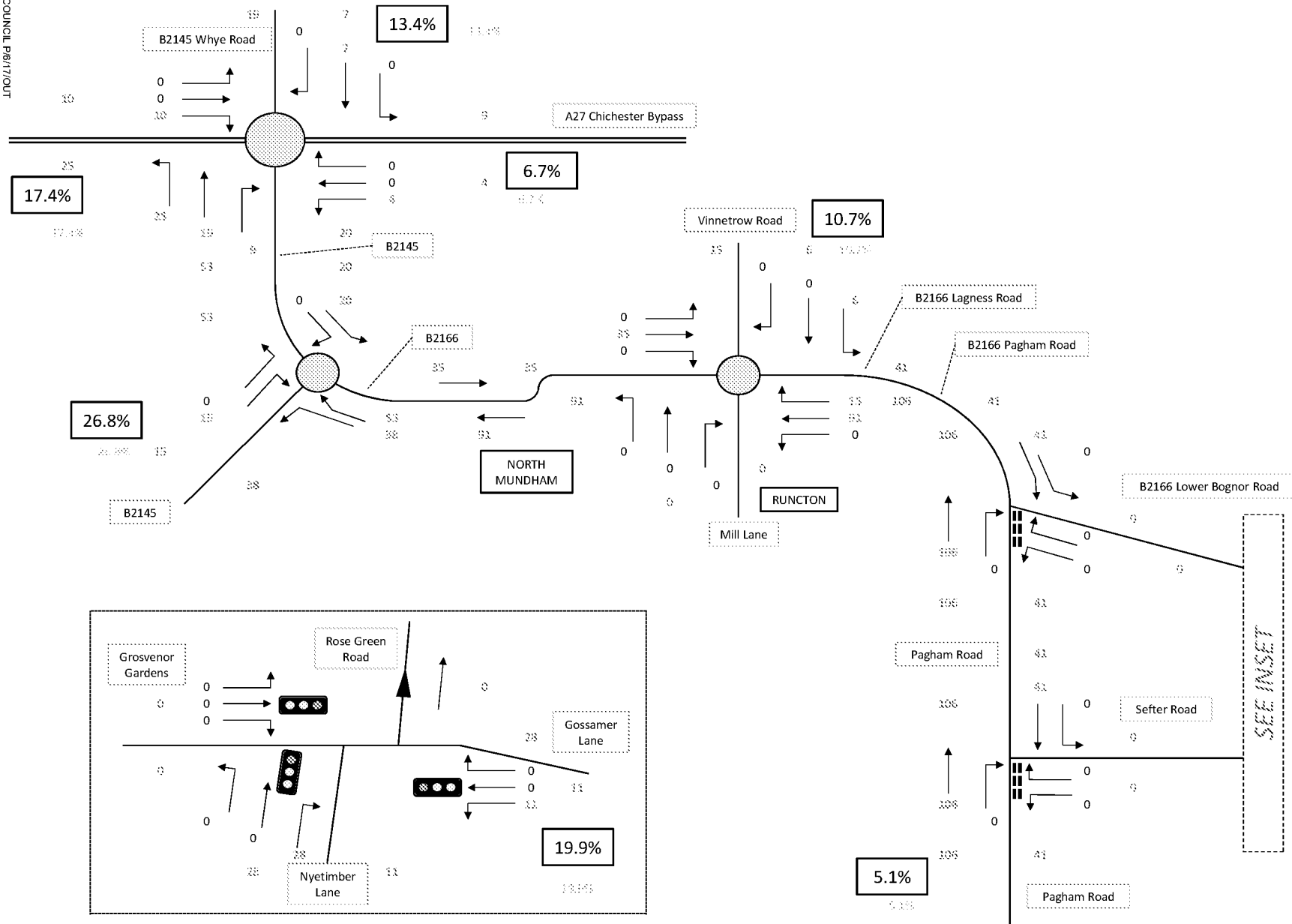
Figure 4.4a - Nth of Sefter Road
AM residential trips (85th%_{tile})
(PCUs)



PCUs	in	out	
North Hester Rd	280	units	
AM	0.003	0.00	0.003
PM	0.479	0.099	0.578
AM	46	129	174
PM	134	28	162

12-0113-012 Addendum 1A - Full.pdf
(Page 59)

Figure 4.4b - Nth of Sefter Road
PM residential trips (85th %ile)
(PCUs)



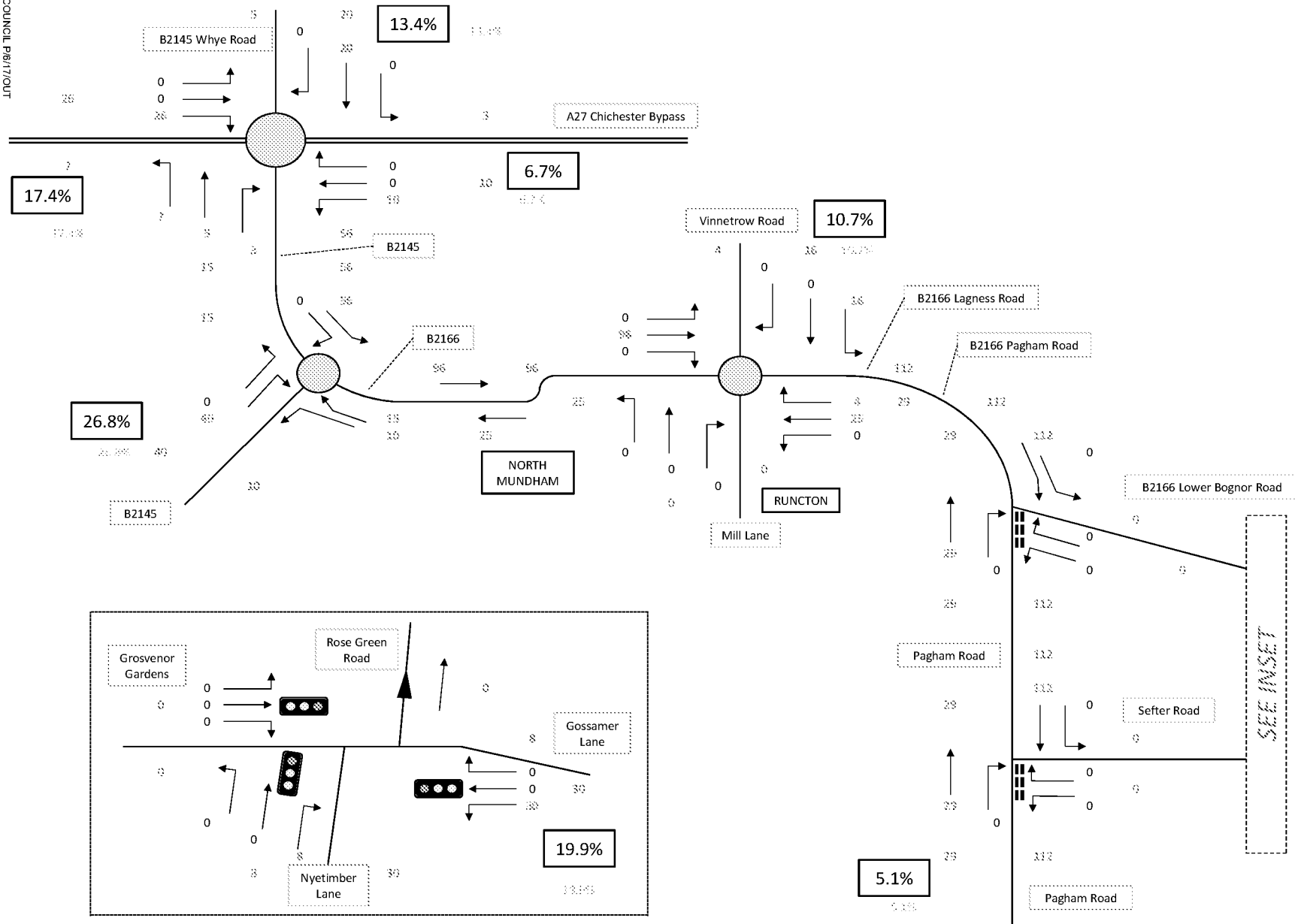
PCUs	in	out	
Carriageway	80	80	
AM	0.071	0.045	0.116
PM	0.071	0.045	0.116
AM	6	4	9
PM	6	4	9

PCUs	in	out	
Carriageway	80	80	
AM	0.163	0.460	0.623
PM	0.163	0.460	0.623
AM	49	138	187
PM	49	138	187

Land West of Hook Lane - TOTAL			
AM	55	142	196
PM	55	142	196

Land West of Hook Lane - RPS
 RPS40-04a Supplementary Transport
 Assessment (reduced).pdf
 (Page 52)

Figure 4.5a - West of Hook Lane
 AM residential trips (85th percentile)
 (PCUs)



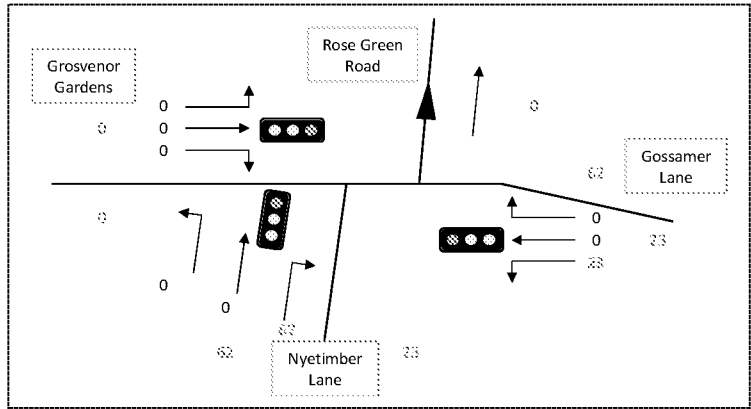
PCUs	in	out	
Carriageway	80	80	
PM	0.071	0.115	0.186
AM	6	9	15
PM	6	9	15

West Hook Ln	800	units	
PM	0.479	0.099	0.578
AM	144	30	173
PM	144	30	173

Land West of Hook Lane - TOTAL			
PM	149	39	188
PM	149	39	188

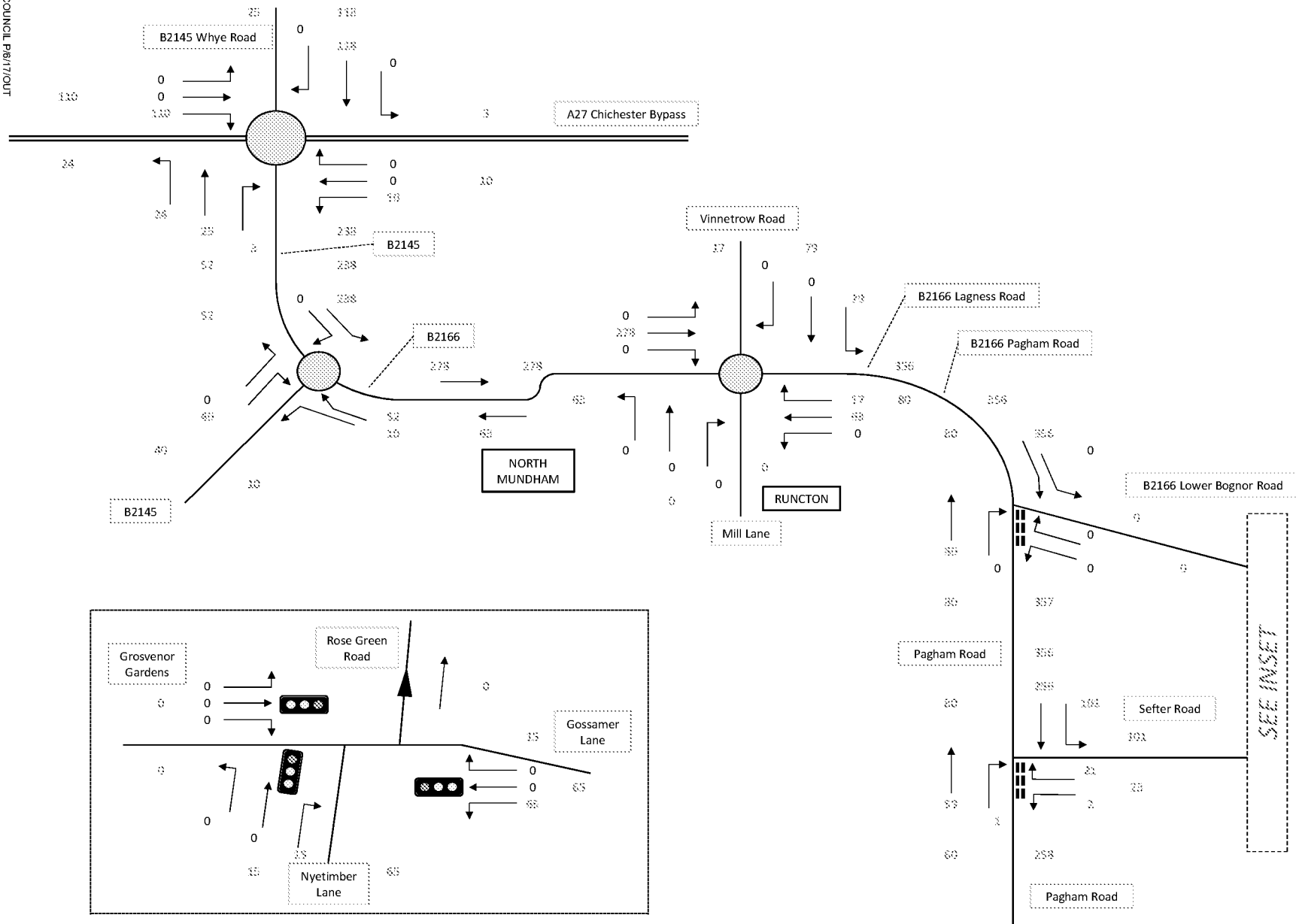
Land West of Hook Lane - RPS
 RPS840-04a Supplementary Transport
 Assessment (reduced).pdf
 (Page 53)

Figure 4.5b - West of Hook Lane
 PM residential trips (85th percentile)
 (PCUs)



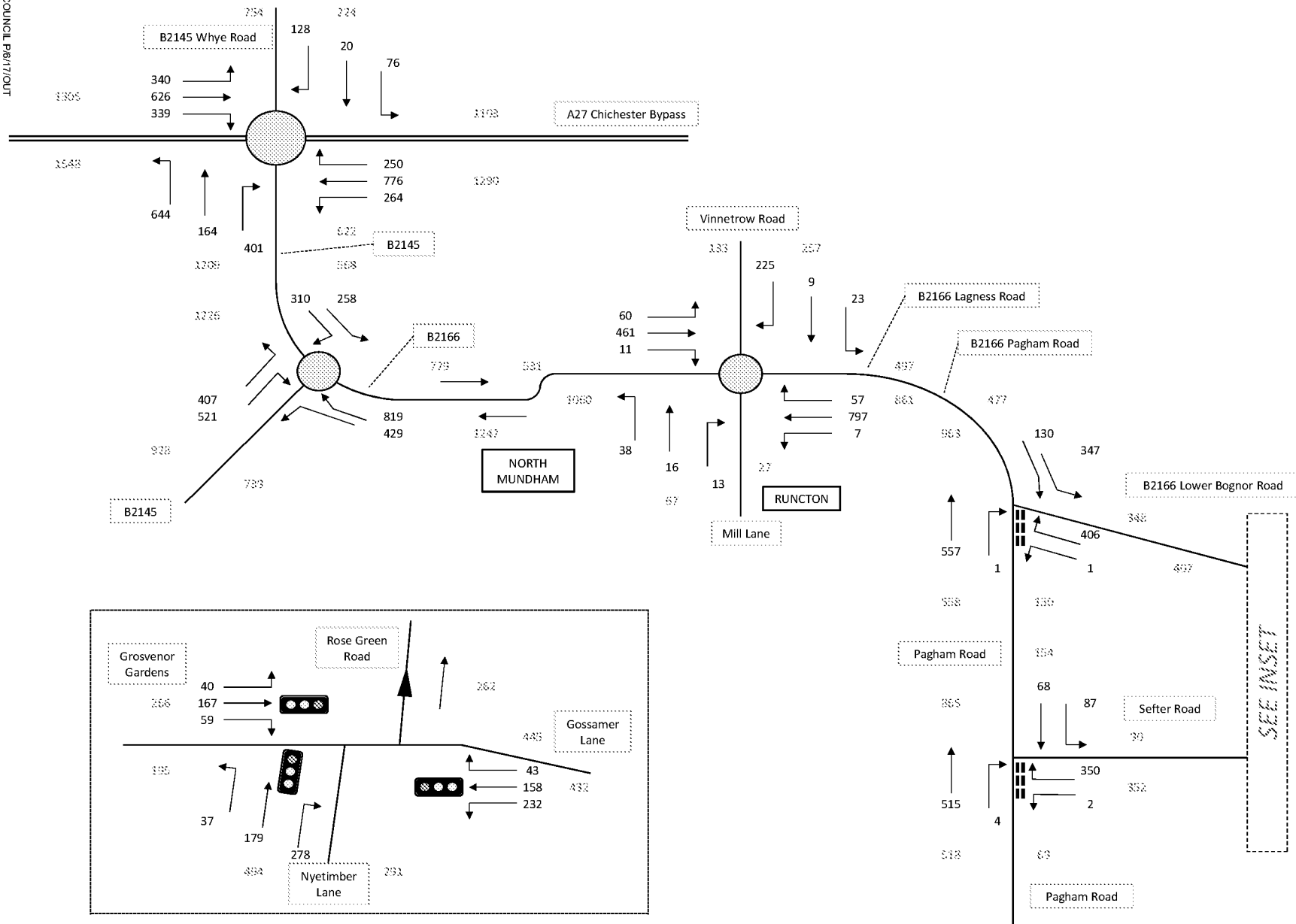
Cumulative development traffic
Figure 4.1a + 4.2a + 4.3a + 4.4a + 4.5a

Figure 4.6a - Cumulative Dev.
AM residential trips (85th file)
(PCUs)



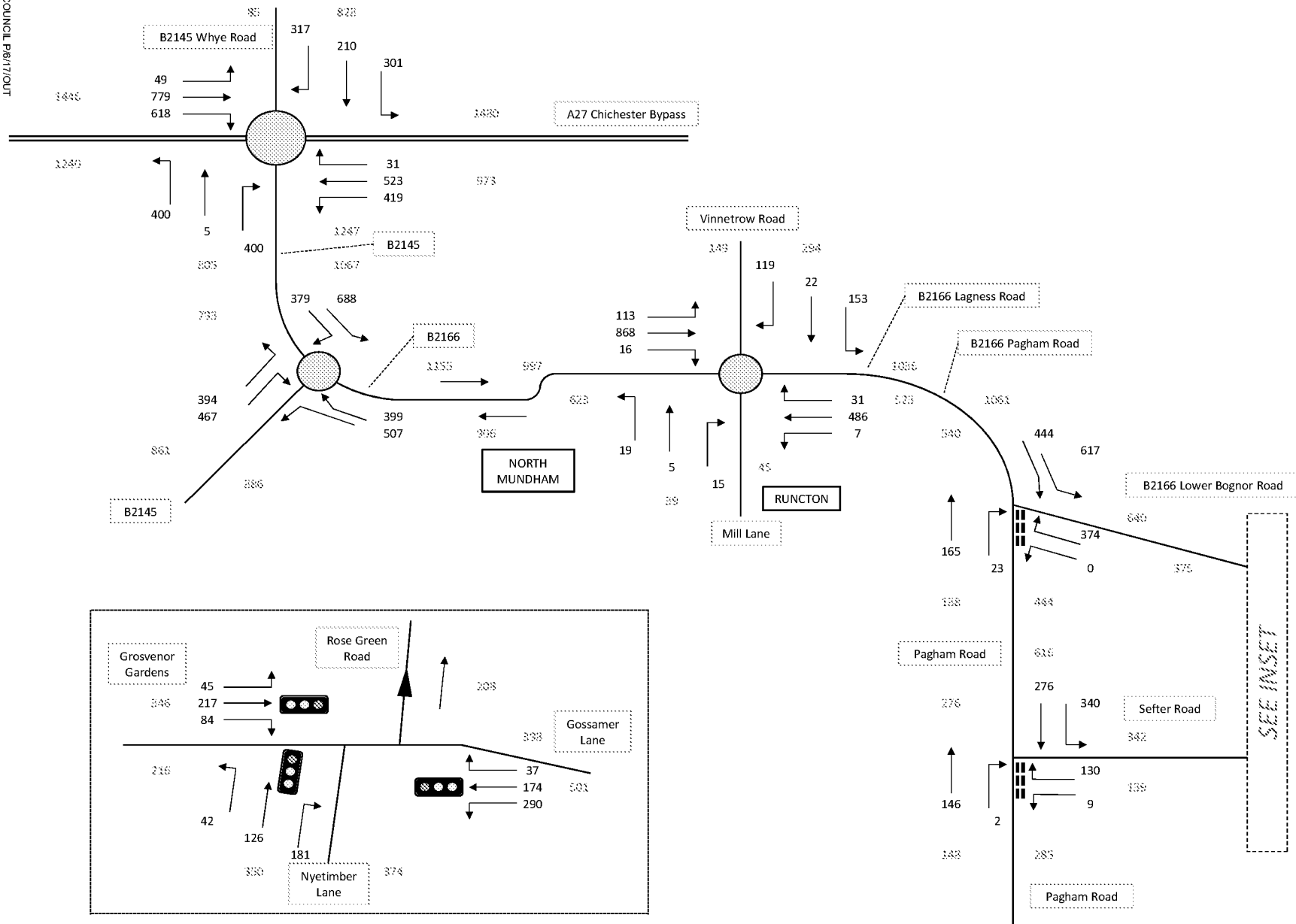
Cumulative development traffic
Figure 4.1b +4.2b +4.3b +4.4b +4.5b

Figure 4.6b - Cumulative Dev.
PM residential trips (85thile)
(PCUs)



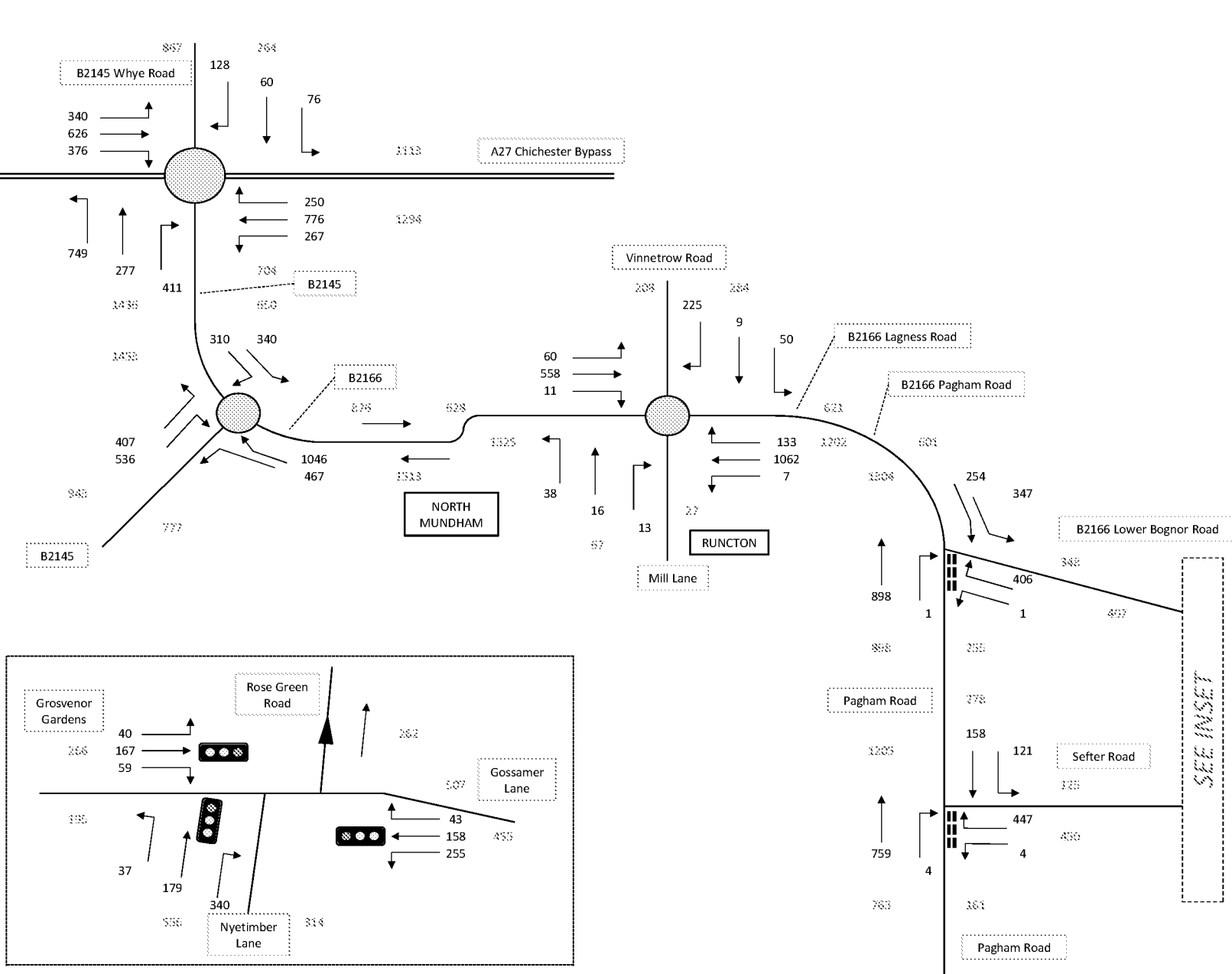
2031 base committed
Figure 3.4a+2.1a

Figure 5.1a - 2031 Committed
AM peak hour
(PCUs)



2031 base committed
Figure 5.1b - 2.1b

Figure 5.1b - 2031 Committed
PM peak hour
(PCUs)



2021 - committed + development
Figure 4 to 4.1a

Figure 6.1a - 2031 +Com +Dev
AM peak hour
(PCUs)

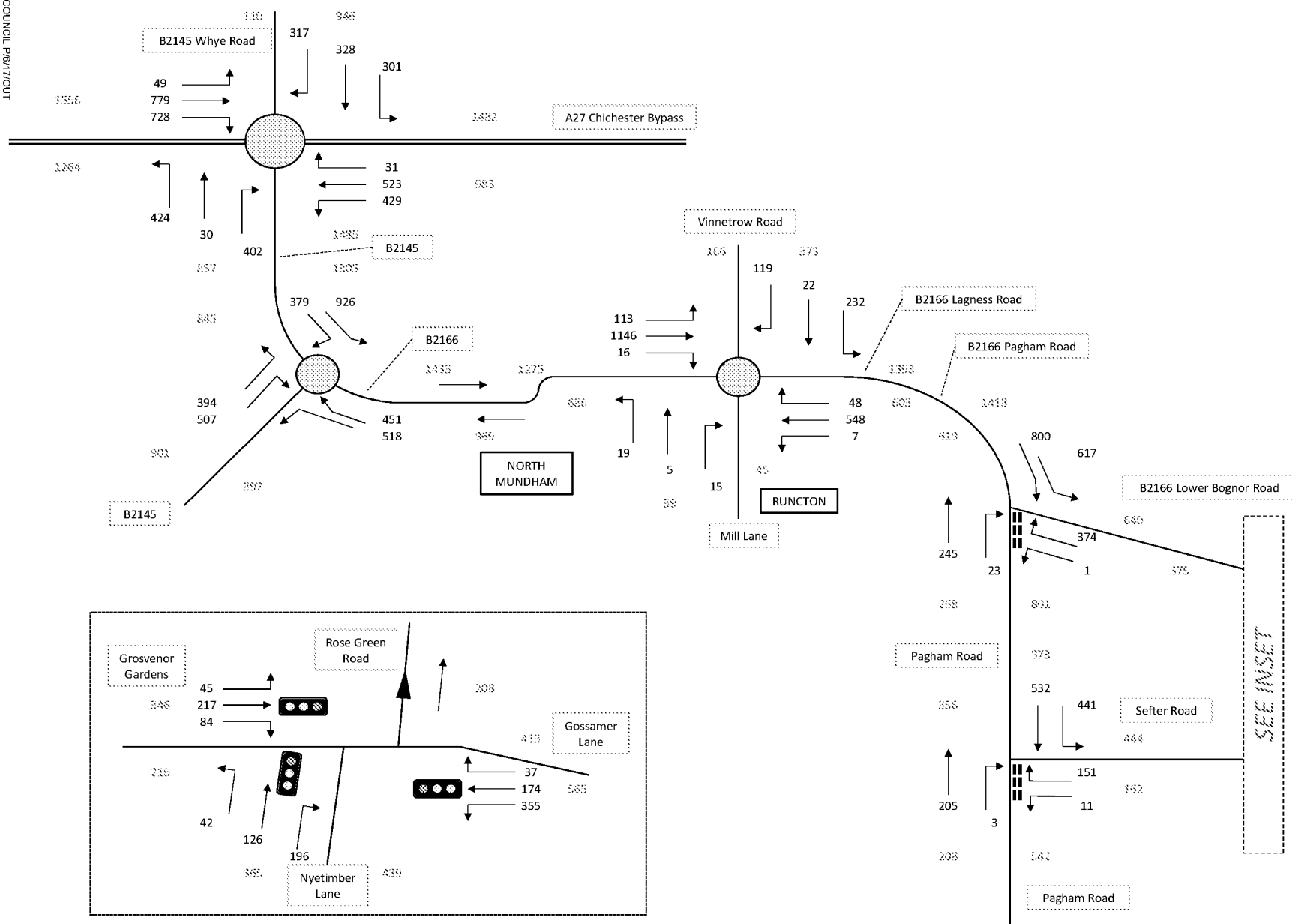
2031 + committed + development
Figure 4 6b + 4.1b

Figure 6.1b - 2031 +Com +Dev
PM peak hour
(PCUs)

Appendix B

TRICS Database output

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLESSelected regions and areas:

02 SOUTH EAST	
HC HAMPSHIRE	1 days
WS WEST SUSSEX	2 days
03 SOUTH WEST	
DV DEVON	2 days
06 WEST MIDLANDS	
SH SHROPSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	3 days

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

Secondary 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: Number of dwellings
 Actual Range: 52 to 805 (units:)
 Range Selected by User: 50 to 805 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/09 to 28/03/17

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
Tuesday	2 days
Thursday	3 days
Friday	2 days

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

Selected survey types:

Manual count	9 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:

Suburban Area (PPS6 Out of Centre)	5
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:

Residential Zone	8
No Sub Category	1

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

9 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:

1,001 to 5,000

2 days

5,001 to 10,000

3 days

10,001 to 15,000

4 days

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

Population within 5 miles:

5,001 to 25,000

3 days

25,001 to 50,000

2 days

75,001 to 100,000

4 days

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

Car ownership within 5 miles:

1.1 to 1.5

9 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

3 days

No

6 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

9 days

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

LIST OF SITES relevant to selection parameters

1	DV-03-A-02	HOUSES & BUNGALOWS	DEVON
	MILLHEAD ROAD		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	116	
	Survey date: FRIDAY	25/09/15	Survey Type: MANUAL
2	DV-03-A-03	TERRACED & SEMI DETACHED	DEVON
	LOWER BRAND LANE		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	70	
	Survey date: MONDAY	28/09/15	Survey Type: MANUAL
3	HC-03-A-18	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY		
	LIPHOOK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	62	
	Survey date: TUESDAY	29/11/16	Survey Type: MANUAL
4	NY-03-A-06	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE
	HORSEFAIR		
	BOROUGHBRIDGE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	115	
	Survey date: FRIDAY	14/10/11	Survey Type: MANUAL
5	NY-03-A-09	MIXED HOUSING	NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE		
	NORTHALLERTON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	52	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
6	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD		
	RIPON		
	Edge of Town		
	No Sub Category		
	Total Number of dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
7	SH-03-A-05	SEMI-DETACHED/TERRACED	SHROPSHIRE
	SANDCROFT		
	SUTTON HILL		
	TELFORD		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	BROADBRIDGE HEATH		
	HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
9	WS-03-A-06	MIXED HOUSES	WEST SUSSEX
	ELLIS ROAD		
	S BROADBRIDGE HEATH		
	WEST HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	805	
	Survey date: THURSDAY	02/03/17	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.

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLES

Ranking Type: **TOTALS** Time Range: 08:00-09:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **8** DV-03-A-02 Tot: 0.344

85th Percentile = No. **2** WS-03-A-06 Tot: 0.623

Median Values

Arrivals: 0.096

Departures: 0.400

Totals: 0.496

Mean Values

Arrivals: 0.128

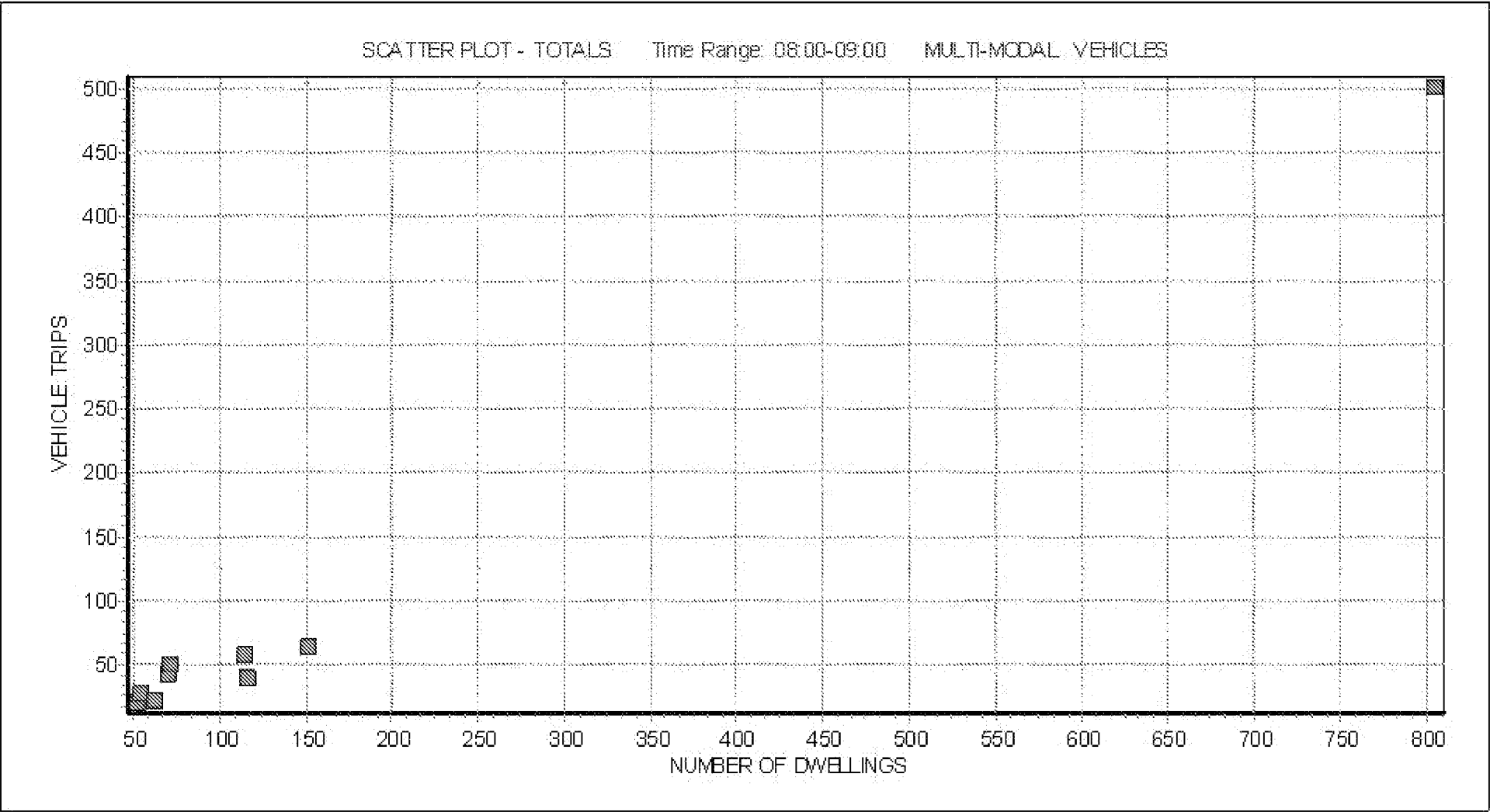
Departures: 0.363

Totals: 0.491

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.183	0.521	0.704	0.83
2	WS-03-A-06	MIXED HOUSES	WEST HORSHAM	WEST SUSSEX	805	Thu	02/03/17	0.163	0.460	0.623	2.14
3	DV-03-A-03	TERRACED & SEM	HONITON	DEVON	70	Mon	28/09/15	0.086	0.529	0.615	1.66
4	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.130	0.370	0.500	1.17
5	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.096	0.400	0.496	3.50
6	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.139	0.278	0.417	2.28
7	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.173	0.212	0.385	2.60
8	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.103	0.241	0.344	2.25
9	HC-03-A-18	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	62	Tue	29/11/16	0.081	0.258	0.339	2.19

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.



This graph is a visual representation of the correlation between the selected trip rate calculation parameter and the rank order trip rates generated by each individual survey day in the selected set. The range of the trip rate parameter is shown along the x axis, with the level of trips shown on the y axis. The selected time range used to create the rank order list from which the graph is derived is displayed at the top of the graph (unless the peak period irrespective of time range has been selected). A line of best fit is sometimes displayed in the graph, should it be selected for inclusion by the user.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLESSelected regions and areas:

02 SOUTH EAST	
HC HAMPSHIRE	1 days
WS WEST SUSSEX	2 days
03 SOUTH WEST	
DV DEVON	2 days
06 WEST MIDLANDS	
SH SHROPSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	3 days

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

Secondary 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: Number of dwellings
 Actual Range: 52 to 805 (units:)
 Range Selected by User: 50 to 805 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/09 to 28/03/17

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
Tuesday	2 days
Thursday	3 days
Friday	2 days

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

Selected survey types:

Manual count	9 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:

Suburban Area (PPS6 Out of Centre)	5
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:

Residential Zone	8
No Sub Category	1

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

9 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:

1,001 to 5,000

2 days

5,001 to 10,000

3 days

10,001 to 15,000

4 days

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

Population within 5 miles:

5,001 to 25,000

3 days

25,001 to 50,000

2 days

75,001 to 100,000

4 days

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

Car ownership within 5 miles:

1.1 to 1.5

9 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

3 days

No

6 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

9 days

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

LIST OF SITES relevant to selection parameters

1	DV-03-A-02	HOUSES & BUNGALOWS	DEVON
	MILLHEAD ROAD		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	116	
	Survey date: FRIDAY	25/09/15	Survey Type: MANUAL
2	DV-03-A-03	TERRACED & SEMI DETACHED	DEVON
	LOWER BRAND LANE		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	70	
	Survey date: MONDAY	28/09/15	Survey Type: MANUAL
3	HC-03-A-18	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY		
	LIPHOOK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	62	
	Survey date: TUESDAY	29/11/16	Survey Type: MANUAL
4	NY-03-A-06	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE
	HORSEFAIR		
	BOROUGHBRIDGE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	115	
	Survey date: FRIDAY	14/10/11	Survey Type: MANUAL
5	NY-03-A-09	MIXED HOUSING	NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE		
	NORTHALLERTON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	52	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
6	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD		
	RIPON		
	Edge of Town		
	No Sub Category		
	Total Number of dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
7	SH-03-A-05	SEMI-DETACHED/TERRACED	SHROPSHIRE
	SANDCROFT		
	SUTTON HILL		
	TELFORD		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	BROADBRIDGE HEATH		
	HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
9	WS-03-A-06	MIXED HOUSES	WEST SUSSEX
	ELLIS ROAD		
	S BROADBRIDGE HEATH		
	WEST HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	805	
	Survey date: THURSDAY	02/03/17	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.

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Ranking Type: **TOTALS** Time Range: 16:00-17:00
WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

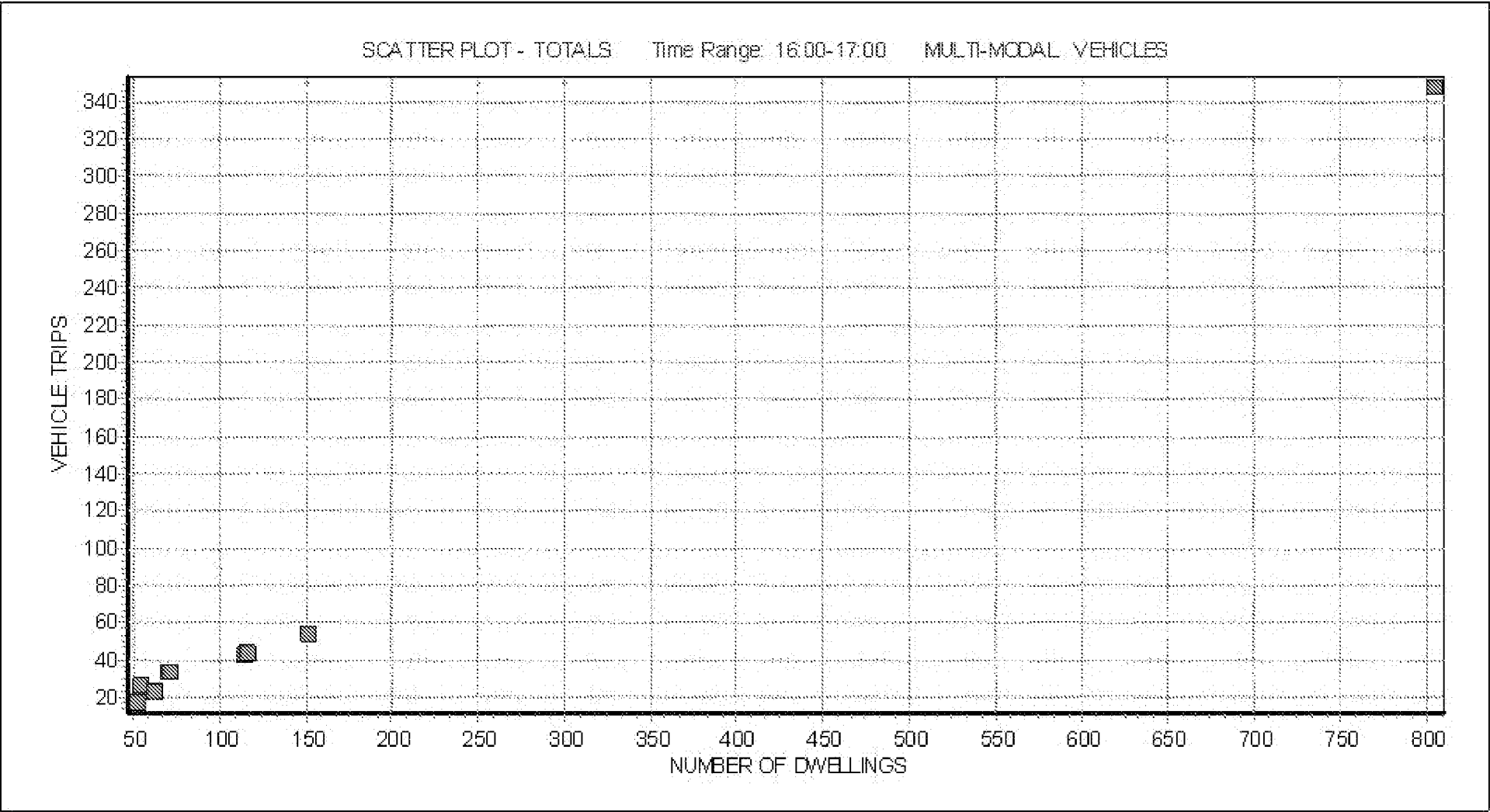
15th Percentile = No. **8** WS-03-A-04 Tot: 0.358
85th Percentile = No. **2** NY-03-A-10 Tot: 0.479

Median Values		Mean Values	
Arrivals:	0.198	Arrivals:	0.249
Departures:	0.181	Departures:	0.159
Totals:	0.379	Totals:	0.408

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.333	0.148	0.481	1.17
2	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.310	0.169	0.479	0.83
3	DV-03-A-03	TERRACED & SEM	HONITON	DEVON	70	Mon	28/09/15	0.286	0.186	0.472	1.66
4	WS-03-A-06	MIXED HOUSES	WEST HORSHAM	WEST SUSSEX	805	Thu	02/03/17	0.271	0.161	0.432	2.14
5	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.198	0.181	0.379	2.25
6	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.252	0.122	0.374	3.50
7	HC-03-A-18	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	62	Tue	29/11/16	0.210	0.161	0.371	2.19
8	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.212	0.146	0.358	2.28
9	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.173	0.154	0.327	2.60

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.



This graph is a visual representation of the correlation between the selected trip rate calculation parameter and the rank order trip rates generated by each individual survey day in the selected set. The range of the trip rate parameter is shown along the x axis, with the level of trips shown on the y axis. The selected time range used to create the rank order list from which the graph is derived is displayed at the top of the graph (unless the peak period irrespective of time range has been selected). A line of best fit is sometimes displayed in the graph, should it be selected for inclusion by the user.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLESSelected regions and areas:

02 SOUTH EAST	
HC HAMPSHIRE	1 days
WS WEST SUSSEX	2 days
03 SOUTH WEST	
DV DEVON	2 days
06 WEST MIDLANDS	
SH SHROPSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	3 days

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

Secondary 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: Number of dwellings
 Actual Range: 52 to 805 (units:)
 Range Selected by User: 50 to 805 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/09 to 28/03/17

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
Tuesday	2 days
Thursday	3 days
Friday	2 days

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

Selected survey types:

Manual count	9 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:

Suburban Area (PPS6 Out of Centre)	5
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:

Residential Zone	8
No Sub Category	1

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

9 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:

1,001 to 5,000

2 days

5,001 to 10,000

3 days

10,001 to 15,000

4 days

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

Population within 5 miles:

5,001 to 25,000

3 days

25,001 to 50,000

2 days

75,001 to 100,000

4 days

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

Car ownership within 5 miles:

1.1 to 1.5

9 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

3 days

No

6 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

9 days

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

LIST OF SITES relevant to selection parameters

1	DV-03-A-02	HOUSES & BUNGALOWS	DEVON
	MILLHEAD ROAD		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	116	
	Survey date: FRIDAY	25/09/15	Survey Type: MANUAL
2	DV-03-A-03	TERRACED & SEMI DETACHED	DEVON
	LOWER BRAND LANE		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	70	
	Survey date: MONDAY	28/09/15	Survey Type: MANUAL
3	HC-03-A-18	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY		
	LIPHOOK		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	62	
	Survey date: TUESDAY	29/11/16	Survey Type: MANUAL
4	NY-03-A-06	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE
	HORSEFAIR		
	BOROUGHBRIDGE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	115	
	Survey date: FRIDAY	14/10/11	Survey Type: MANUAL
5	NY-03-A-09	MIXED HOUSING	NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE		
	NORTHALLERTON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	52	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
6	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD		
	RIPON		
	Edge of Town		
	No Sub Category		
	Total Number of dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
7	SH-03-A-05	SEMI-DETACHED/TERRACED	SHROPSHIRE
	SANDCROFT		
	SUTTON HILL		
	TELFORD		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	BROADBRIDGE HEATH		
	HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
9	WS-03-A-06	MIXED HOUSES	WEST SUSSEX
	ELLIS ROAD		
	S BROADBRIDGE HEATH		
	WEST HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	805	
	Survey date: THURSDAY	02/03/17	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.

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Ranking Type: **TOTALS** Time Range: 17:00-18:00
WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

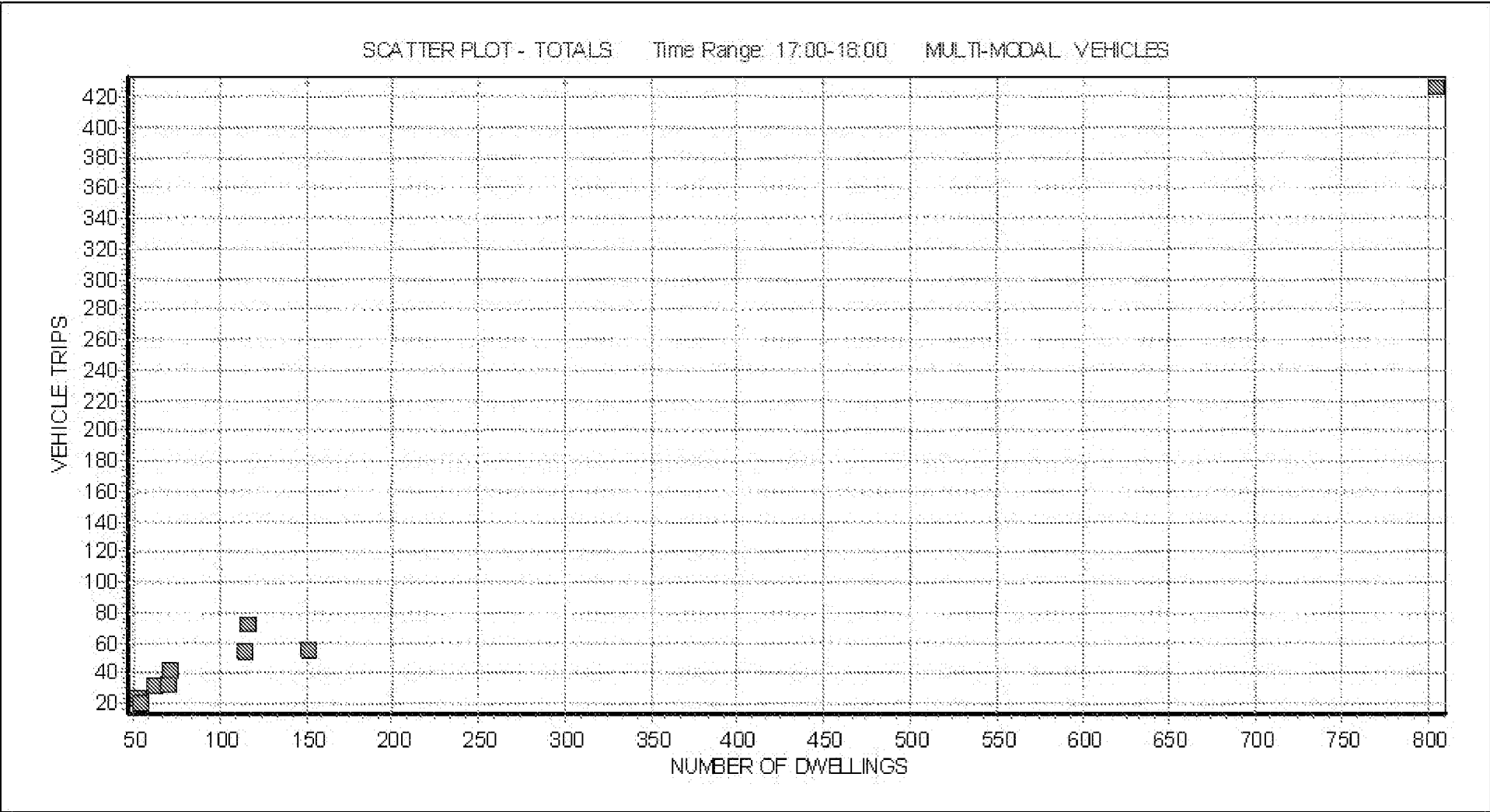
15th Percentile = No. **8** WS-03-A-04 Tot: 0.371
85th Percentile = No. **2** NY-03-A-10 Tot: 0.578

Median Values		Mean Values	
Arrivals:	0.371	Arrivals:	0.335
Departures:	0.100	Departures:	0.151
Totals:	0.471	Totals:	0.486

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.388	0.233	0.621	2.25
2	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.479	0.099	0.578	0.83
3	WS-03-A-06	MIXED HOUSES	WEST HORSHAM	WEST SUSSEX	805	Thu	02/03/17	0.364	0.166	0.530	2.14
4	HC-03-A-18	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	62	Tue	29/11/16	0.355	0.145	0.500	2.19
5	DV-03-A-03	TERRACED & SEM	HONITON	DEVON	70	Mon	28/09/15	0.371	0.100	0.471	1.66
6	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.296	0.174	0.470	3.50
7	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.269	0.192	0.461	2.60
8	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.252	0.119	0.371	2.28
9	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.241	0.130	0.371	1.17

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Appendix C

Junction Analysis Results

		Sensitivity Analysis								Pagham South (Highgate Transportation)								Land North of Sefter Road (C&A Consulting)								Land West of Hook Lane (RPS)									
		2023 + Uncommitted Devs. Existing layout		2031 Add Devs Existing layout		2031 Add Devs Proposed layout		2031 Add Devs Haghighat layout		2031		2031 +Dev		2031 +All Devs		Mitigation		2031		2031 +Dev		2031 +All Devs		Mitigation		2031 +Com		2031 +Dev		2031 +All Devs		Mitigation			
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM				
Pagham Road / Sefter Road (PJ)	16	0.840 4.8	0.323 0.5	3.256 5.1	0.580 1.0	Refer to DSA Report				0.680 2.0	0.410 1.0	-	-	0.890 6.0	0.560 1.0	X X	X X	11	0.890 6.4	0.320 0.5	1.040 18.9	0.400 0.7	1.150 35.3	0.450 0.8	10.980 9.8	10.880 9.7	1	1.140 34.0	0.440 1.0	-	-	1.310 66.0	0.540 1.0	?	?
Pagham Road / Hook Lane (PJ)	8	-	-	-	-	-	-	-	-	0.280 1.0	0.410 1.0	-	-	0.400 1.0	0.490 1.0	-	-	12	0.440 0.8	0.390 0.6	0.440 0.8	0.390 0.7	0.490 0.9	0.470 0.9	-	-	2	0.480 2.0	0.430 1.0	-	-	0.500 1.0	0.470 1.0	-	-
Sefter Road / Hook Lane (PJ)	19	-	-	-	-	-	-	-	-	?	?	-	-	?	?	-	-	13	0.380 0.6	0.380 0.8	0.380 0.6	0.390 0.9	0.570 1.3	0.500 1.0	-	-	3	0.420 1.0	0.380 1.0	-	-	0.580 1.0	0.460 1.0	-	-
Rose Green Rd / Grosvenor Gds / Carlton Ave (PJ)	17	-	-	-	-	-	-	-	-	0.980 13.0	1.100 33.0	-	-	1.090 30.0	1.240 65.0	0.970 8.8	0.970 12.8	14	0.930 8.5	1.030 19.5	0.970 11.6	1.090 30.6	1.040 20.3	1.180 51.0	0.890 8.8	0.880 9.8	8	0.990 12.0	1.020 16.0	-	-	1.020 15.0	1.090 24.0	0.990 8.8	0.880 8.8
R.Green Rd / Gros.Gds. / Goss Ln. / Nytbr.Ln. (TS)	9	Refer to DSA Report				Refer to DSA Report				85.0% 11	90.0% 14	-	-	88.0% 15	92.0% 19	?	?	18	86.9% 11.9	84.9% 10.9	86.9% 11.9	85.5% 11.5	88.7% 15.3	87.5% 15.5	?	?	5	104.4% 31.0	95.8% 17.0	-	-	115.6% 52.0	111.2% 48.0	91.1% 37.8	88.7% 37.8
Hewarts Ln. / Chalcraft Ln. / L.Bogner Road (RB)	75	-	-	-	-	-	-	-	-	?	?	-	-	?	?	?	?	17	0.520 1.1	0.590 2.5	0.550 1.2	0.720 2.6	0.580 1.4	0.730 2.7	-	-									
B2145 / B2166 (RB)	4	0.981 14.2	0.987 7.1	1.105 55.5	1.110 81.8	1.813 23.5	3.097 29.1	0.893 60.9	0.893 7.7	0.930 12.0	0.900 9.0	-	-	1.040 45.0	1.000 25.0	0.880 37.8	0.880 15.8	18	0.960 14.3	0.890 7.6	0.990 18.8	0.920 9.6	1.050 36.2	0.990 21.5	0.880 18.5	0.880 14.7	10	0.940 11.0	0.910 9.0	-	-	1.070 42.0	1.010 28.0	CAT, No Mit 1.000 23	0.950 8.8
B2166 / Vinnetrow Road / Mill Lane (RB)	12	0.633 1.7	1.084 54.2	0.981 8.8	1.198 279.2	0.881 6.8	1.359 58.5	-	-	0.650 2.0	0.810 4.0	-	-	0.790 4.0	0.910 9.0	0.790 8.8	0.770 7.8	19	0.630 1.7	1.080 51.2	0.670 2.0	1.120 69.7	0.760 3.2	1.220 126.2	0.910 11.2	0.880 12.8	5	0.620 2.0	0.870 6.0	-	-	0.950 15.0	0.750 3.0	CATM +Mit Max SE 0.890 15.8	0.790 8.8
A27 Whyke Hill Roundabout	21	-	-	-	-	-	-	-	-	Refer to RPS TA.				Refer to RPS TA.				110				11				HE model, results for B2145 approach, Max SE									
A27 / Bogner Road (RB)	18	-	-	-	-	-	-	-	-	0.650 2.0	0.500 1.0	-	-	0.670 2.0	0.520 1.0	-	-	111	0.590 1.6	0.520 1.2	0.600 1.6	0.520 1.2	0.610 1.7	0.520 1.2	-	-	12	0.560 1.0	0.580 2.0	-	-	0.780 4.0	0.610 2.0	-	-
Pagham Road / Lower Bogner Road (PJ)	116	1.038 27.9	1.174 17.5	1.426 78.5	1.359 113.2	Refer to DSA Report				1.040 20.0	1.210 51.0	-	-	1.190 43.0	1.430 86.0	1.030 18.1	1.190 46.8	112	1.030 18.1	1.190 46.8	1.060 23.5	1.240 56	1.170 40.6	1.410 84.1	1.030 18.1	1.090 46.8	8	0.940 9.0	1.120 35.0	-	-	1.100 29.0	1.340 71.0	1.030 18.1	1.090 46.8
Pagham Road / Nyetimber Lane	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	0.590 1.6	0.520 1.2	0.600 1.6	0.520 1.2	0.610 1.7	0.520 1.2	-	-		0.340 1.0	0.370 1.0	-	-	0.410 1.0	0.470 1.0	-	-
Gossamer Ln. / Aldwick Rd. / Barrack Ln. (RB)	15	-	-	-	-	-	-	-	-	?	?	-	-	?	?	?	?	6	X ?	X ?	-	-	?	?	?	?		0.280 0.0	0.630 2.0	-	-	0.340 1.0	0.600 2.0	-	-
B2166 L.Bogner Road / Aldwick Road (RB)	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		?	?															
Nyetimber Ln. / Cardinal's Dr. / Tabard Gate (RB)	118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		?	?															