Hollins Strategic Land

Proposed Residential Development
Crewe Road, Alsager

A086060

Technical Note 3

April 2015

Issue 2

Document Control

Document:	Technical Note 3
Project:	Proposed Residential Development Crewe Road, Alsager
Client:	Hollins Strategic Land
Job Number:	A086060
File Origin:	J:\2014\A086060 Crewe Road, Alsager (S)\Docs\Reports\TN3\Technical Note 3.docx

Document Checking:

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Review By	A Khan	**Initialled**	AK

Issue	Date	Status	Checked for Issue
1	17.04.15	Issue 1	AK
2	23.04.15	Issue 2	AK

Contents Page

Plans

Plan 1	Site Location
Plan 2	Proposed Site Access Arrangements
Plan 3	Proposed Mitigation Measures to Crewe Road / Sandbach Road / Lawton Road Signal Junction

Figures

Appendices

Appendix A – Scoping Correspondence

Appendix B – Committed Development Flows

Appendix C – Committed WMQ Off-Site Improvements

Appendix D – ARCADY Outputs (Proposed WMQ Roundabout)

Appendix E – LinSig Outputs (CEC Improvements to Crewe Road / Sandbach Road / Lawton Road Junction)

Appendix F – PICADY Outputs (Proposed Site Access Junctions)

Appendix G – LinSig Outputs (Existing Radway Green / Crewe Road / Butterton Lane Junction)

Appendix H – LinSig Outputs (Existing Crewe Road / Sandbach Road / Lawton Road Junction)

Appendix J – LinSig Outputs (WYG Improvements To The Crewe Road/Sandbach Road / Lawton Road Junction)

1. Introduction

1.1 Background

1.1.1 WYG has been appointed by Hollins Strategic Land (HSL) on this project to advise on transport and highway matters.

1.1.2 In May 2014 WYG prepared a Transport Assessment (TA) in support of an outline residential development on land off Crewe Road, Alsager. The outline proposals will deliver up to 70 residential dwellings with vehicular access taken via two new junctions located on Crewe Road.

1.1.3 **Plan 1** shows the location of the site in the context of the surrounding area and the local highway network.

1.1.4 WYG also prepared two Technical Notes (TN1 and TN2) in October 2014 and January 2015 respectively in response to comments raised on the proposals by the Local Highways Authority (LHA) at Cheshire East Council (CEC).

1.1.5 The purpose of this Technical Note (TN3) is to provide revised junction capacity assessments in light of additional committed developments. Additionally, the LHA has requested that the proposed north eastern site access be downsized, as detailed in the LHA consultation response dated 8th October 2014. This TN3 should be read in conjunction with the TA, TN1 and TN2.

1.1.6 Prior to the preparation of this TN3, WYG undertook scoping discussion with the LHA to agree the scope for this TN3. The scoping correspondence is contained in **Appendix A.**

1.2 Agreed Matters

1.2.1 It is noted that the LHA are happy with the following aspects of the TA:

- Proposed south western site access on Crewe Road
- Sustainable accessibility
- Scope of assessment area
- Traffic generation
- Trip distribution and assignment

2. Proposed North Eastern Site Access

2.1.1 The LHA has requested that the proposed north eastern access road width be redesigned from 5.5m to 4.8. This request is contained in the LHA consultation response dated 8th October 2014. The redesigned site access junction is shown on **Plan 2**.

2.1.2 The operational performance of the junction will be assessed in the subsequent section of this report and it will be demonstrated that the junction will operate well within capacity following the delivery of the scheme.

3. Existing Flows and Committed Development Flows

3.1 Background

3.1.1 The LHA has requested that cumulative assessments of the agreed junctions with additional committed developments are assessed.

3.1.2 This section of the report sets out the traffic flows which will be used in the junction capacity assessments detailed in Section 4 of this report.

3.2 Existing Traffic Flows and Background Traffic Growth

3.2.1 Growth in background traffic was derived for the periods between the 2011 surveyed year and the 2014 and 2019 assessment years using TEMPRO local growth factors for Alsager (13UC4). TEMPRO is a program that reports on the National Trip End Model, a tool that is used to estimate future trip productions of geographical areas that occur from such factors such as changes in population, households and employment. The TEMPRO growth factors which have been applied to the survey flows are the same as the TA and have been accepted by the LHA.

3.2.2 As agreed with the LHA, traffic from nine committed developments and one proposed development (Sandbach Road North site) within Alsager has also been included in the subsequent junction capacity assessments. As the TEMPRO factors which have been applied take account of traffic from committed developments within Alsager, the addition of growth using TEMPRO represents a significant double counting of trips. Accordingly the junction assessments can be considered highly robust.

3.2.3 The existing 2011 surveyed flows are shown in **Figure 1**, with the 2014 and 2019 growthed up flows shown in **Figures 2** and **3**.

3.3 Committed Developments Traffic Flows

3.3.1 As requested by CEC, the traffic flows associated with the following 9 committed developments, equating to circa 1226 dwellings have been included in the junction capacity assessments:

1. Hollins Strategic Land / Land South of Crewe Road – 65 residential units (Ref: 12/0893C / 13/1210C)

2. Co-operative Food store Re-development (Ref:10/0741C)
3. Dunnocksfold Road – 95 residential units (Ref: 13/4627C)
4. Twyfords Bathrooms Site – 335 residential units (Ref: 11/4109C)
5. Hall Drive 109 – residential units (Ref: 12/4150C)
6. Land north of Crewe Road / Persimmon Crewe Road – 110 residential units (Ref: 13/3032C – Subject to Section 106 Agreement)
7. Hassall Road – 30 residential units (12/1670C)
8. Close Lane – 132 residential units (13/1305N)
9. White Moss Quarry – 350 residential units plus the other ancillary development (Ref: 13/4132N)

3.3.2 In addition to the committed developments stated above, traffic from the proposed Sandbach Road North site (Ref: 14/3919C) has also been included in the assessments. The development comprises 130 residential dwellings and the application is currently pending. Although this is not a committed development and accordingly it may not be approved, WYG have included traffic from the development within the base flows. Accordingly, a highly robust assessment has been undertaken.

3.3.3 It should be noted that the nine committed developments and the one proposed developments have been agreed with the LHA prior to the preparation of this TN3 (see **Appendix A**).

3.3.4 The traffic flows related to the above committed developments and the Sandbach Road North proposed development has been extracted from the relevant TAs for each application. The TA extracts are contained in **Appendix B**.

3.3.5 The AM and PM committed development traffic flows are illustrated in **Figures 4** to **12**. The traffic flows of the Sandbach Road North development is shown are **Figure 13**.

3.3.6 The total traffic flows for the 10 developments are shown in **Figure 14**.

3.4 Future Year Baseline Traffic Flows

3.4.1 The committed developments flows and the proposed Sandbach Road North development traffic flows shown in **Figure 14** have been added to the 2019 growthed traffic in **Figure 3** to derive the 2019 baseline traffic flows (i.e. 'without' development scenario).

3.4.2 **Figure 15** shows the 2019 baseline traffic flows.

3.5 Future Year Assessment Traffic Flows

3.5.1 The trip distribution is shown on **Figure 16** and has been reproduced from the TA. The LHA has not raised any issues with the distribution contained in the TA.

3.5.2 The proposed residential development forecast trips detailed in the TA are reproduced on **Figure 17**.

3.5.3 The forecast development trips shown on **Figure 17** have been added to the baseline flows shown on **Figure 15** to derive the 2019 assessment traffic flows (i.e. 'with' development scenario).

3.5.4 The 2019 assessment traffic flows are shown in **Figure 18**.

3.6 Committed Off-site Highway Works

3.6.1 Two highway improvement measures are proposed either as part of the White Moss Quarry (WMQ) committed development proposals or as part of CEC's wider proposals for highway improvements within Alsager.

3.6.2 The two mitigation schemes, which are within the agreed assessment study area, and are relevant to the proposals are as follows:

- The B5077 Crewe Road / Radway Green Road / Butterton Lane signalised junction. This will be upgraded to a roundabout junction and will also serve as the primary access to the WMQ development, which will be facilitated by the addition of a fourth arm onto the junction.

- The LHA has prepared an in-house improvement scheme where the B5077 Crewe Road / Sandbach Road / Lawton Road signalised junction will be upgraded to provide additional capacity. The improvement scheme will be funded via developer contributions.

3.6.3 The two improvements schemes relevant to the proposals are contained in **Appendix C**.

4. Junction Capacity Assessments

4.1 Background

4.1.1 The traffic impacts of any development should be considered in the context of the National Planning Policy Framework (NPPF), which promotes the delivery of sustainable development and economic growth. It states in Paragraph 32 that developments should not be refused on transport grounds unless the cumulative residual impacts of development are '*severe*'.

4.1.2 To determine whether the proposals will have 'severe' impacts upon the local highway network, the following two scenarios have been considered in the subsequent junction capacity assessments:

- Assessment Scenario 1- Inclusion of White Moss Quarry (WMQ) committed development traffic and proposed highway works, together with all the other committed development and proposed Sandbach Road North flows.
- Assessment Scenario 2 – As per Assessment Scenario 1 but without the WMQ committed development flows.

4.1.3 The above scenarios have been agreed with the LHA and would provide a robust assessment of the potential impacts of the proposals.

4.2 Assessment Scenario 1

4.2.1 Assessment Scenario 1 assumes that the committed WMQ development will proceed and that the junction improvements works contained in **Appendix C** will be completed by 2019.

4.2.2 Detailed junction capacity assessments have been undertaken at the following junctions:

- The proposed B5077 Crewe Road / Radway Green Road / Butterton Lane / White Moss Quarry roundabout, which is a committed scheme to be delivered as part of the WMQ development.
- The proposed CEC improvements to the B5077 Crewe Road / Sandbach Road / Lawton Road signalised junction, which is a CEC approved scheme to be delivered through developer contributions.
- The two proposed site accesses off the B5077 Crewe Road, as part of the proposed development.

Committed B5077 Crewe Rd/Radway Green Rd/Butterton Ln/White Moss Quarry Roundabout

4.2.3 The proposed B5077 Crewe Road / Radway Green Road / Butterton Lane / White Moss Quarry roundabout, which is part of the WMQ committed scheme, has been assessed in the following junction capacity assessments. The layout of the proposed roundabout is contained in **Appendix C**.

4.2.4 **Figure 17** demonstrates that following the delivery of the proposed development, the two-way traffic flow through the roundabout will increase by 23 and 24 during the AM and PM peak hours respectively. The additional increase of 1 vehicle trip approximately two and half minutes and would be unnoticeable within the context of daily traffic flows within Alsager.

4.2.5 **Table 4.1** summarises the results of the junction capacity assessments for the 2019 'without' and 'with' development scenarios with the full ARCADY 8 outputs contained in **Appendix D**. These results take account of the nine committed developments and the Sandbach Road North proposed development.

Table 4.1 Summary of ARCADY Results

Proposed Crewe Rd/Radway Green Rd/Butterton Ln/White Moss Quarry Roundabout

Approach	AM Peak		PM Peak	
	Max RFC	Queue (PCU)	Max RFC	Queue (PCU)
2019 Baseline Flows ('Without' Development)				
B5077 Crewe Road	0.730	3	0.300	0
Radway Green Road	0.290	0	0.400	1
B5077 Butterton Lane	0.300	0	0.670	2
White Moss Quarry Site Access	0.140	0	0.140	0
2019 Assessment Flows ('With Development')				
B5077 Crewe Road	0.750	3	0.310	0
Radway Green Road	0.290	0	0.410	1
B5077 Butterton Lane	0.310	0	0.680	2
White Moss Quarry Site Access	0.140	0	0.140	0

4.2.6 **Table 4.1** confirms that in the 2019 'without' and 'with' development scenarios, the junction will operate with at least 25% spare capacity during the peak hours. It also demonstrates that there will be no increase in queuing on any arms of the junction following the addition of the proposed development traffic.

Committed Improvements to the B5077 Crewe Rd/Sandbach Rd/Lawton Rd Signalised Junction

4.2.7 The proposed CEC improvements to the Crewe Road / Sandbach Road / Lawton Road signalised junction, which will be delivered through developer contributions from the WMQ development, have been assessed in the following junction capacity assessments. The proposed junction improvements are contained in **Appendix C**.

4.2.8 The development proposals will result in an additional 17 and 20 two vehicle trips through the junction during the AM and PM peak hours respectively (see **Figure 17**). This equates to approximately 1 vehicle movement every 3 minutes and would be unnoticeable during normal peak hour conditions.

4.2.9 **Table 4.2** summarises the results of the detailed junction capacity assessments for the 2019 'without' and 'with' development scenarios. The results include flows from the 9 committed developments and the proposed sandbach north proposed development. The full LinSig output is contained in **Appendix E**.

4.2.10 It should be noted that the LINSIG assessments assume the pedestrian stage will be called every cycle. In reality this is highly unlikely to be the case, therefore the following assessments are very robust.

Table 4.2 Summary of LINSIG Results

CEC Proposed Improvements to the B5077 Crewe Rd/Sandbach Rd/Lawton Rd Signal Junction

Link Description	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
2019 Baseline Flows ('Without' Development)				
B5077 Crewe Road	80.1%	15	86.9%	23
Sandbach Road (N)	82.5%	10	77.1%	9
Lawton Road	82.3%	13	62.4%	11
Sandbach Road (S)	62.9%	5	85.8%	9
2019 Assessment Flows ('With Development')				
B5077 Crewe Road	81.8%	15	88.1%	24
Sandbach Road (N)	82.8%	10	77.7%	9
Lawton Road	83.0%	14	63.1%	11
Sandbach Road (S)	62.4%	5	86.3%	9

4.2.11 **Table 4.2** demonstrates the junction would operate within capacity in the AM and PM peak hours in 2019 following the delivery of the proposed development.

4.2.12 **Table 4.2** also shows that queuing would increase by a maximum of 1 vehicle. This would be on Lawton Road arm in the AM peak hour and on the Crewe Road arm during the PM peak hour. Accordingly, the proposals will have a negligible impact on the operation of the junction during the peak hours.

Proposed Site Accesses

4.2.13 Access to the development will be via two priority controlled junctions on the B5077 Crewe Road. The north eastern access will serve 5 dwellings and the south western access will serve the remaining 65 dwellings. The layout of both junctions is shown on **Plan 2**.

4.2.14 **Tables 4.3** and **4.4** summarises the results of the detailed capacity assessments for the 2019 'with' development scenario for the proposed site access junctions with the PICADY output contained in **Appendix F**.

Table 4:3 Summary of Capacity Assessment - North Eastern Access

Approach	AM Peak		PM Peak	
	Max RFC	Queue (PCU)	Max RFC	Queue (PCU)
2019 Assessment Flows ('With Development')				
Proposed Site Access 1	0.000	0.00	0.000	0.00
B5077 Crewe Road (Eastbound)	0.000	0.00	0.000	0.00

Table 4:4 Summary of Capacity Assessment - South Western Access

Approach	AM Peak		PM Peak	
	Max RFC	Queue (PCU)	Max RFC	Queue (PCU)
2019 Assessment Flows ('With Development')				
Proposed Site Access 2	0.090	0.10	0.060	0.06
B5077 Crewe Road (Eastbound)	0.010	0.01	0.030	0.04

4.2.15 **Table 4.3** and **Table 4.4** confirm that the site access junctions will operate with significant spare capacity during the AM and PM peak hours.

4.3 Assessment Scenario 2

4.3.1 At the request of the LHA, a further assessment scenario has been undertaken where traffic from the committed WMQ development has been excluded from the assessments and the associate highway works are not in place in 2019.

4.3.2 The following junctions have been assessed in this scenario:

- The existing B5077 Crewe Road / Radway Green Road / Butterton Lane signalised junction.
- The existing B5077 Crewe Road / Sandbach Road / Lawton Road signalised junction.

4.3.3 The proposed site accesses junctions have not been assessed in this scenario as it has already been confirmed that the junctions will operate with significant spare capacity in 2019 with the inclusion on the WMQ development traffic. Accordingly, Assessment Scenario 1 provides a more robust assessment of the two proposed accesses.

4.3.4 The revised total committed traffic flows excluding the WMQ development traffic are illustrated in **Figure 19** and the revised baseline ('without' development) flows are shown in **Figure 20** (**Figure 3** + **Figure 19**).

4.3.5 The 2019 assessment flows ('with' development) flows have been derived by adding the development trips shown in **Figure 17** to the 2019 baseline flows shown in **Figure 20**. The revised 2019 assessment traffic flows are shown in **Figure 21**.

Existing B5077 Crewe Rd/Radway Green Rd/Butterton Ln Signal Junction

4.3.6 **Table 4.5** summarises the results of the detailed junction capacity assessments for the 2019 'without' and 'with' development scenarios for the existing junction. The full LinSig output report is contained in **Appendix G**. As detailed previously, the LINSIG assessments assume the pedestrian phase will be called every cycle which in reality is unlikely to be the case. Therefore the following assessments are highly robust.

Table 4:5 Summary of LINSIG Results

Existing B5077 Crewe Rd/Radway Green Rd/Butterton Ln Signal Junction

Link Description	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
2019 Baseline Flows ('Without' Development)				
B5077 Crewe Road	80.3%	16	40.0%	5
Radway Green Lane Left Right	78.0%	5	76.2%	8
B5077 Butterton Lane	80.2%	5	77.7%	14
2019 Assessment Flows ('With Development')				
B5077 Crewe Road Ahead Left	81.6%	17	40.5%	5
Radway Green Lane Left Right	79.0%	5	77.5%	9
B5077 Butterton Lane Ahead Right	84.5%	5	78.7%	14

4.3.7 **Table 4.5** confirms the existing signal junction would operate within capacity in both the AM and PM peak hours in 2019 and that there will be a maximum increase in queue length of only 1 vehicle. This can be considered to be insignificant within the daily fluctuations of traffic flows at the junction.

Existing B5077 Crewe Rd/Sandbach Rd/Lawton Rd Signal Junction

4.3.8 **Table 4.6** summarises the capacity results of the 2019 'without' and 'with' development scenarios. As mentioned above, this includes all the committed developments except for the White Moss Quarry development. The full LinSig output report is contained in **Appendix H**.

Table 4:6 Summary of LinSig Results

Existing B5077 Crewe Rd/Sandbach Rd/Lawton Rd Signal Junction

Link Description	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
2019 Baseline Flows ('Without' Development)				
B5077 Crewe Road	83.3%	14	99.6%	34
Sandbach Road (N)	66.3%	8	46.4%	7
Lawton Road	96.3%	15	80.2%	13
Sandbach Road (S)	92.9%	11	96.2%	18
2019 Assessment Flows ('With Development')				
B5077 Crewe Road	84.6%	15	100.9%	37
Sandbach Road (N)	66.5%	8	46.6%	7
Lawton Road	97.1%	16	80.3%	14
Sandbach Road (S)	93.1%	11	96.4%	18

4.3.9 **Table 4.6** shows that during the AM Peak hour the existing signal junction would operate within capacity and with a maximum queue of only 16 vehicles in 2019 under the 'with' development scenario.

4.3.10 **Table 4.6** also shows that during the 2019 PM peak hour for the 'without' development scenario, the existing junction would operate nearly at the capacity, with the maximum degree of saturation and queue of 99.6% and 34 vehicles respectively on the B5077 Crewe Road. These results take account of all the committed developments except the WMQ development. They also include flows for the proposed Sandbach Road North development.

4.3.11 Following the addition of the proposed development traffic, the existing junction is predicted to operate within the capacity in 2019, with the exception of the B5077 Crewe Road arm of the junction which will operate slightly over capacity with a maximum Degree of Saturation of 100.9% and a maximum queue of 37 vehicles.

4.3.12 The increase in queue of only 3 vehicles is no basis for considering mitigation measures, as this small increase in queue cannot be considered under any circumstances to be '*severe*' and will pass the relevant test of acceptability contained in NPPF. To refuse the scheme based on an increase in queue of 3 vehicles is not justifiable and will not be in line with current guidance.

4.3.13 However, notwithstanding the fact the development will only have a minimal impact on the junction, the developer is offering two alternative mitigation options for the Crewe Road / Sandbach Road / Lawton Road signalised crossroads junction (crossroads), on a without prejudice basis. They are as follows:

- Option 1 – Contribution by way of a Section 106 legal agreement.
- Option 2 – Bespoke junction improvements to be delivered by way of a Section 278 legal agreement.

Option 1 – Section 106 Contribution

4.3.14 The LHA has designed an in-house junction improvement scheme for the crossroads. This is contained in **Appendix C**.

4.3.15 The LHA has confirmed that they have accepted a contribution for the scheme from the developer of the White Moss Quarry scheme. The LHA has confirmed the contribution rate was £975 per dwelling. On this basis the White Moss Quarry scheme is funding the improvements to the sum of circa £341,250 (£975 x 350). Using the same funding rate, HSL are willing to make a contribution towards CEC's proposed junction improvement scheme. The funding would be circa £64,750 (£925 x 70).

4.3.16 Under Option 1, the funding would be made by way of a Section 106 legal agreement.

Option 2: Bespoke Junction Improvements

4.3.17 In order to mitigate the minimal impact the proposed development will have on the junction, a bespoke improvement scheme for the crossroads has been designed, as shown on **Plan 3**.

4.3.18 **Plan 3** shows that an additional lane is provided on Sandbach Road South arm of the junction. This will result in a reduction of green time for traffic flows on Sandbach Road as more green time will be allocated for traffic on the B5077 Crewe Road.

4.3.19 The scheme does not prejudice the wider scheme proposed by CEC for the crossroads (see **Appendix C**). In fact the bespoke scheme essentially delivers a part of wider scheme, proposed by CEC.

4.3.20 The bespoke junction improvements shown on **Plan 3** can be conditioned to be delivered by way of a Section 278 legal agreement.

4.3.21 The proposed bespoke junction improvements shown on **Plan 3,** have been assessed with traffic flows from all the committed developments, excluding the White Moss Quarry scheme but including the Sandbach Road North proposed development. **Table 4.7** summarises the detailed junction capacity results of the 2019 'with' development scenario with the full LinSig outputs contained in **Appendix I**.

Table 4:7 Summary of LinSig Results

Proposed Bespoke Improvements to the B5077 Crewe Rd/Sandbach Rd/Lawton Rd Signal Junction

Link Description	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
2019 Assessment Flows ('With Development')				
B5077 Crewe Road	75.3%	13	84.1%	21
Sandbach Road (N)	85.0%	11	67.1%	8
Lawton Road	82.9%	14	67.0%	12
Sandbach Road (S)	69.7%	5	82.5%	10

4.3.22 **Table 4.7** demonstrates that all arms of the junction will operate within capacity in 2019 following the junction improvements for the 'with' development scenario.

4.4 Potential Impacts Further Afield

4.4.1 In addition to the off-site junctions tested above, consideration has been given to other junctions further afield.

4.4.2 It can be seen from **Figure 17** that the proposed development will only add a maximum of 16 vehicles (two-way) to Lawton Road, just to the east of the Crewe Road/Sandbach Road/Lawton Road junction.

4.4.3 Similarly, **Figure 17** shows that the proposed development will only add a maximum of 9 vehicles (two-way) to Radway Green Road, just to the south of the Crewe Road/Radway Green Road/Butterton Lane junction.

4.4.4 Likewise, **Figure 17** demonstrates that the proposed development will only add a maximum of 15 vehicles (two-way) to Butterton Lane, just to the west of the Crewe Road/Radway Green Road/Butterton Lane junction.

4.4.5 It is clearly evident from the above that the level of increase in traffic further afield would be imperceptible and the impacts cannot be classified as 'severe' in NPPF terms.

5. Summary and Conclusions

5.1 Summary

5.1.1 This Technical Note 3 (TN3) has been prepared in response to comments raised by the LHA on proposals for 70 residential dwelling on land off Crewe Road, Alsager.

5.1.2 The purpose of this TN3 is to provide revised junction capacity assessments which include additional committed developments in Alsager, as agreed with the Local Highway Authority (LHA).

5.1.3 The scope of works for this TN3 was agreed with the LHA and is based on all available evidence.

5.1.4 Furthermore, at the request of the LHA, the proposed north eastern site access road width has been reduced from 5.5m to 4.8m.

5.1.5 Junction capacity assessments for two future scenarios have been carried out using revised traffic flows, which include traffic from 9 committed developments and 1 proposed development, which is yet to be determined. This ensures the assessments are extremely robust.

5.1.6 As well as considering traffic from the 10 committed/proposed developments, traffic growth has also been applied to the surveyed traffic flows, which results in the double counting of traffic. Accordingly, the assessments are highly robust.

5.1.7 The first scenario includes forecast traffic from all the committed developments including the committed White Moss Quarry scheme and proposed highway improvements. The results of the assessments demonstrate that the local highway network would easily be able to accommodate the additional traffic generated by the development proposals and demonstrates that no mitigation would be required under NPPF.

5.1.8 The second scenario is as per the first scenario, except that it excludes forecast traffic from the White Moss Quarry scheme and its associated highway improvements. The results of the assessments demonstrate that the existing Crewe Road/Radway Green Road/Butterton Lane junction would operate within capacity.

5.1.9 Likewise, under the second scenario, the Crewe Road/Sandbach Road/Lawton Road junction would operate within capacity, except for one arm of the junction, which would be the slightly over

capacity in the PM peak hour only. On this arm, the proposed development increases the maximum predicted queue from 34 vehicles to 37 vehicles, a net increase of only 3 vehicles.

5.1.10 It is clearly evident that the impact of the development on the Crewe Road/Sandbach Road/Lawton Road junction is marginal and its impacts cannot be described as 'severe' in NPPF terms.

5.1.11 Notwithstanding the above, the developer is offering two alternative mitigation options at the junction, on a without prejudice basis. This will be either via a contribution towards the proposed junction improvement scheme designed by CEC.

5.1.12 Alternatively, a bespoke junction improvement scheme has been designed, this will not prejudice the CEC scheme and will release additional capacity which will benefit other committed developments in Alsager.

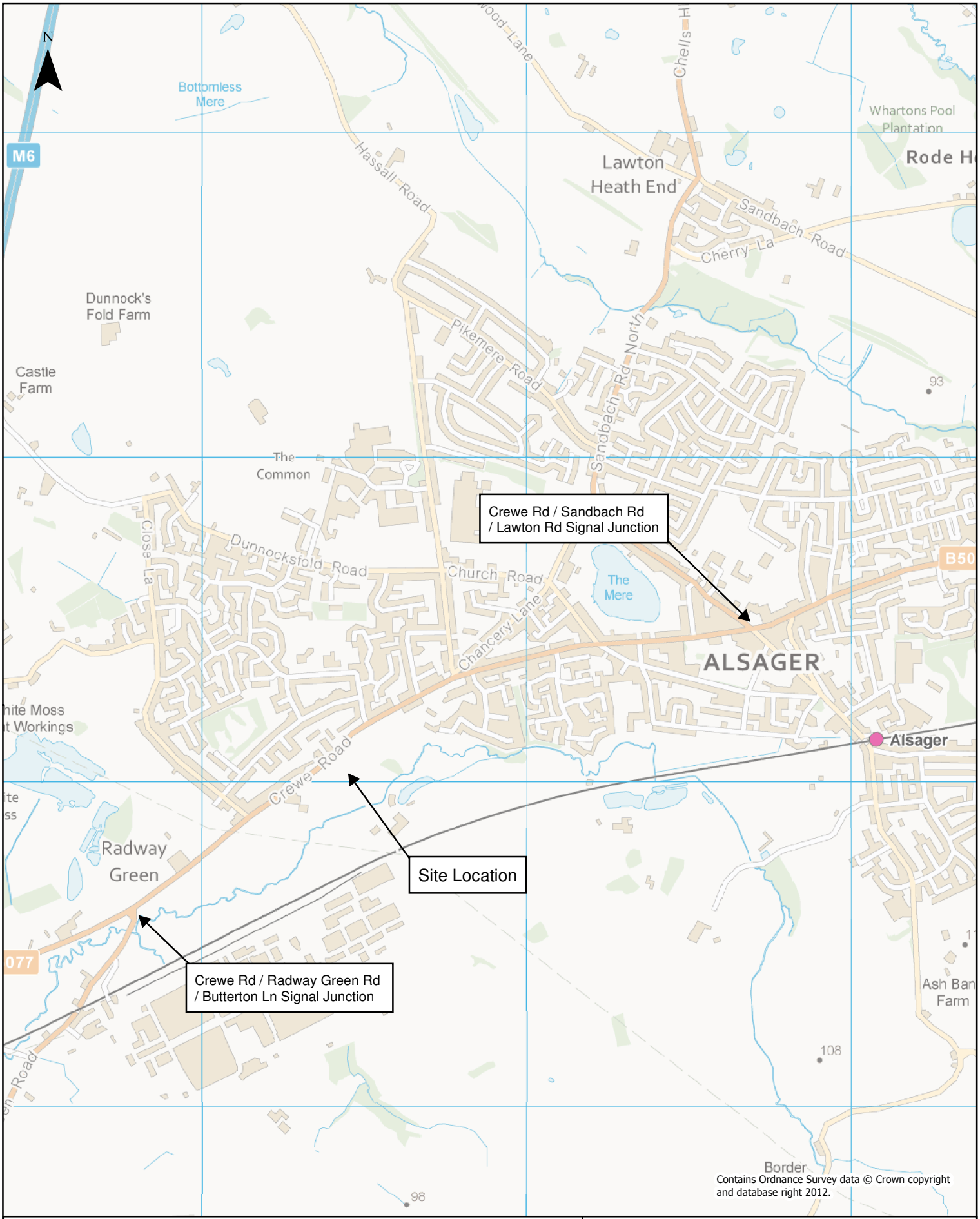
5.1.13 It has also been demonstrated that other off-site junctions, further afield, would not suffer any material impacts, let alone the impacts being severe.

5.2 Conclusions

5.2.1 The junction capacity assessments have demonstrated that the local highway network can accommodate the proposed development traffic.

5.2.2 In view of the above positive findings, it is evident that there are no material reasons for the LHA to raise any further issues on the proposals.

Plans



Crewe Road, Alsager

Plan 1: Site Location

Scale @ A4 NTS	Project No: A086060

QUAY WEST AT MEDIACITY UK
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TRAFFORD PARK
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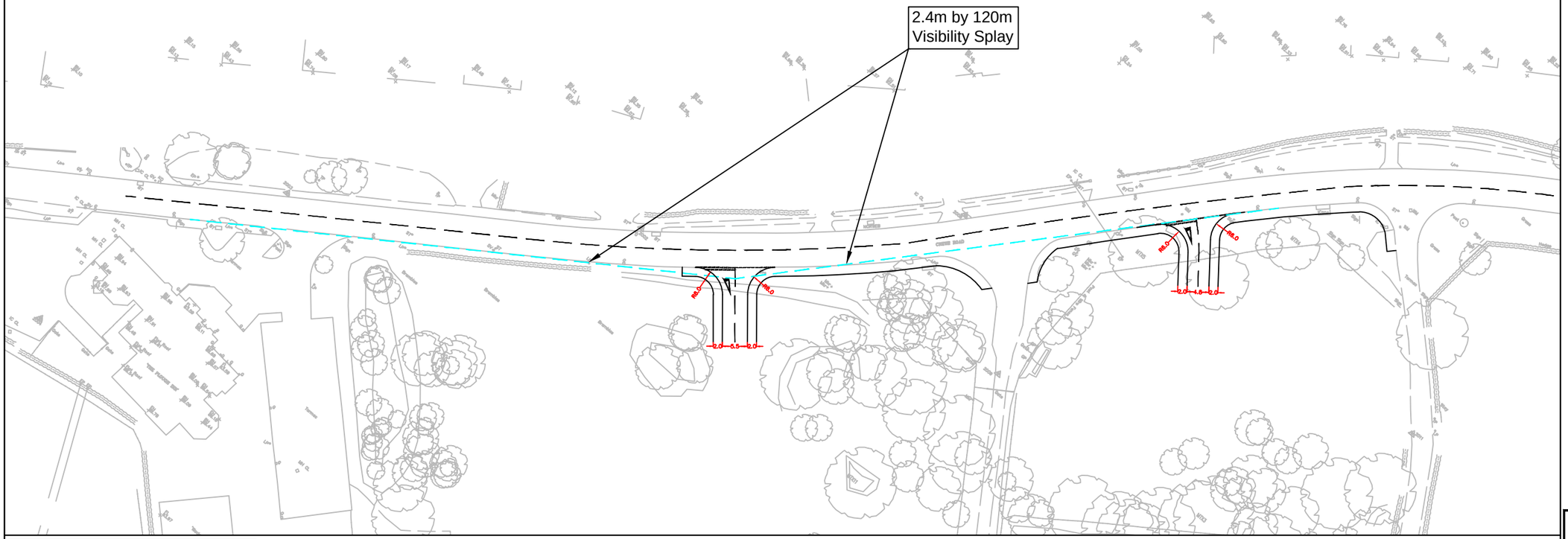
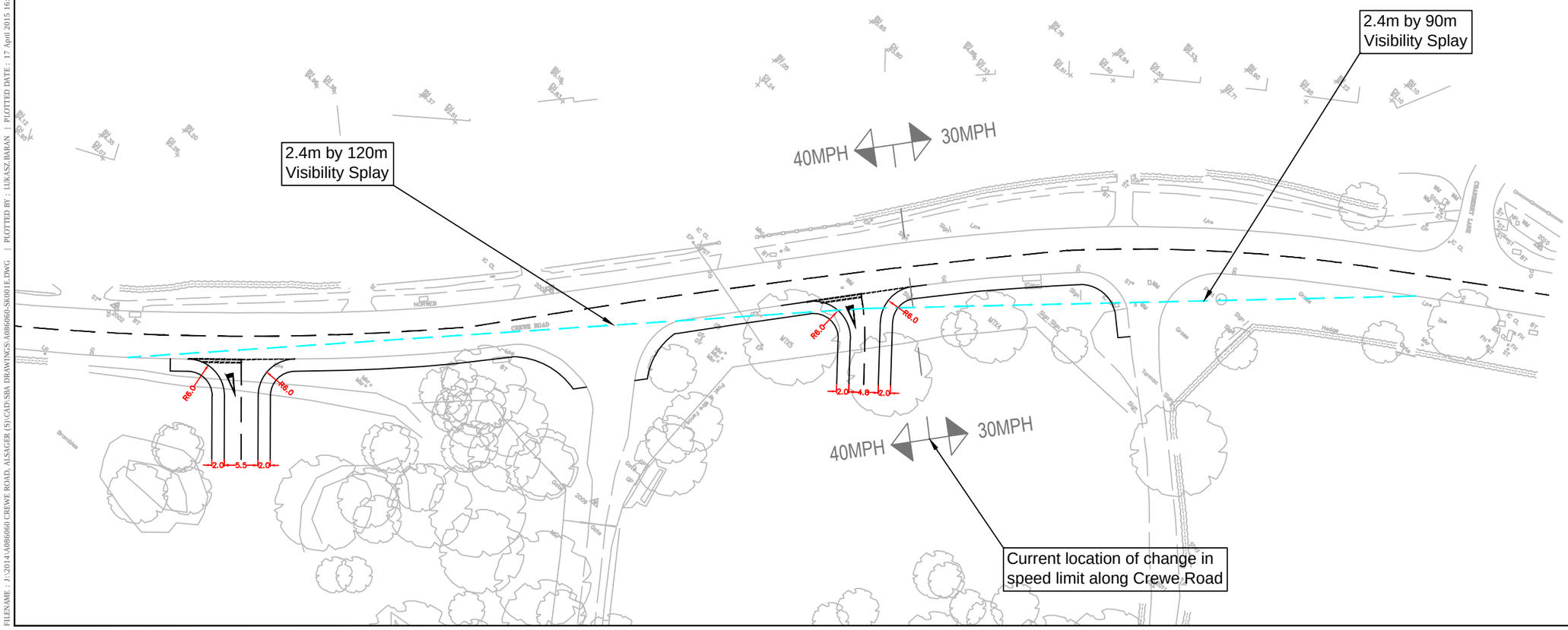
SOUTHERN SITE ACCESS



NORTHERN SITE ACCESS



DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

Plan 2

PRELIMINARY ISSUE

REV	DESCRIPTION	BY	CHK	APP	DATE
E	General Revision	LB	AK	AK	14/04/15
D	Footway extended	AC	AB	AB	16/05/14
C	Footway extended	JED	AB	AB	16/05/14
B	Existing trees added	LB	AB	AB	09/05/14
A	Southern Site Access Location Amended	LB	AB	AB	25/03/14

HOLLINS STRATEGIC LAND LLP

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Project: A08606

CREW ROAD, ALSAGER

Drawing Title:

PROPOSED SITE ACCESS ARRANGEMENTS

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:1000	LB 20/03/14	AB 20/03/14	AB 20/03/14

Project No.	Office	Type	Drawing No.	Revision
A086060	27	C	A086060-SK001	E

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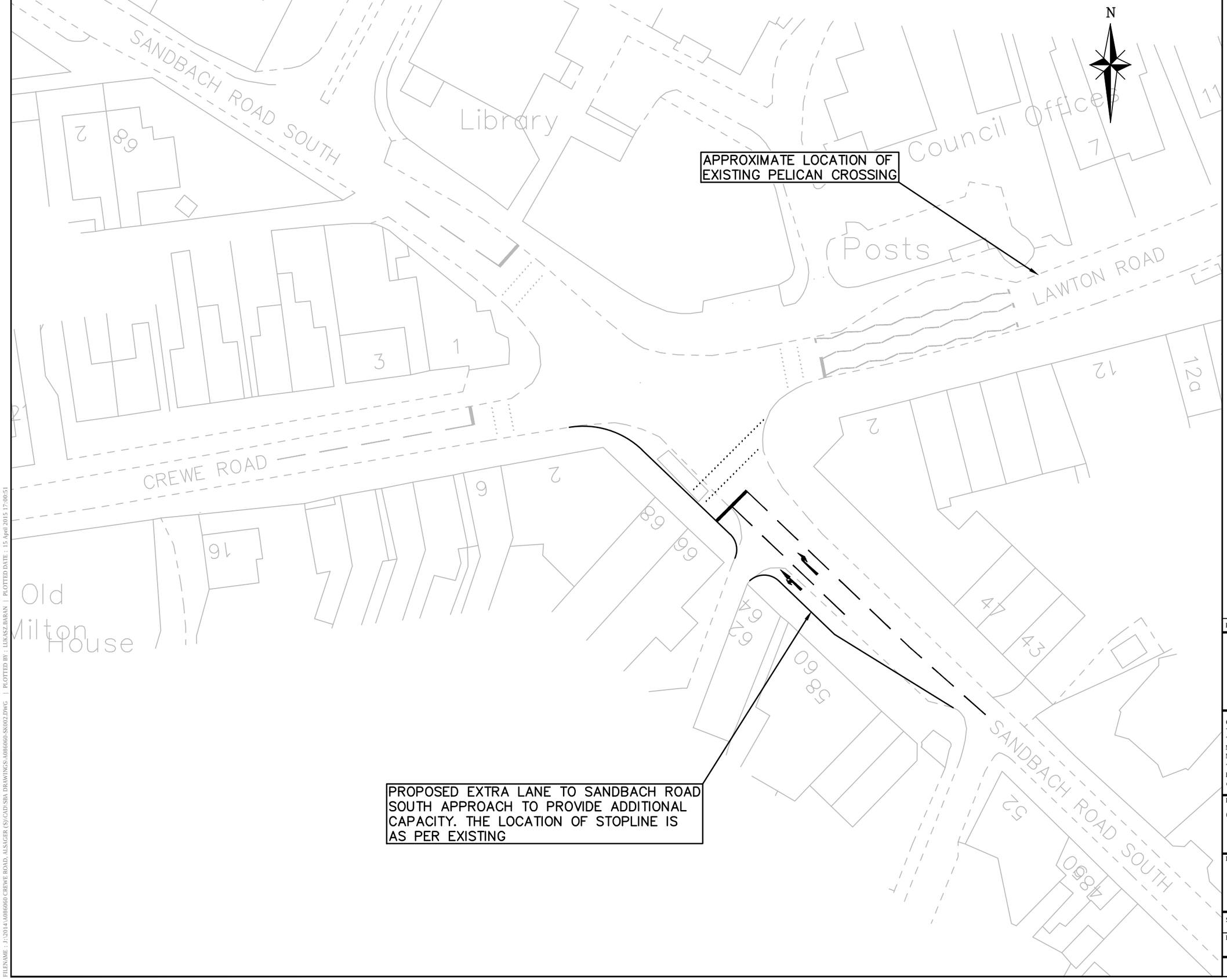

Plan 3

REV	DESCRIPTION	BY	CHK	APP	DATE

QUAY WEST at MediaCity UK
TRAFFORD WHARF ROAD
TRAFFORD PARK
MANCHESTER
M17 1HH
TEL: +44 (0)161 872 3223
FAX: +44 (0)161 872 3193
e-mail: manchester@wyg.com

Project:
CREWE ROAD, ALSAGER

Drawing Title:
PROPOSED MITIGATION MEASURES TO CREWE ROAD / SANDBACH ROAD / LAWTON ROAD SIGNAL JUNCTION

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:500	LB 15/04/15	AK 15/04/15	

Project No.	Office	Type	Drawing No.	Revision
A086060	27	C	A086060-SK002	--

FILENAME : J:\2014\A086060 CREWE ROAD, ALSAGER (SV\CAD\SBA DRAWINGS\A086060-SK002.DWG | PLOTTED BY : LUKASZ BARAN | PLOTTED DATE : 15 April 2015 17:00:51

Figures

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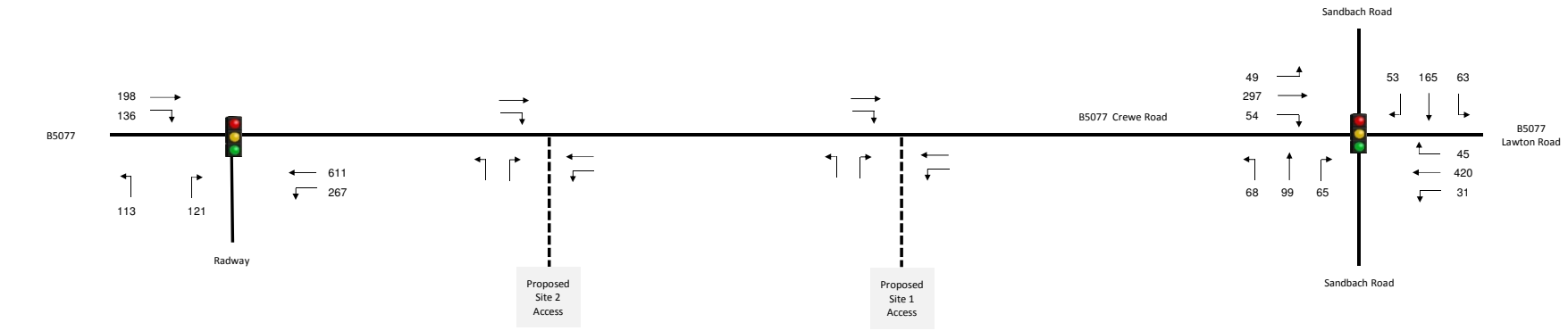

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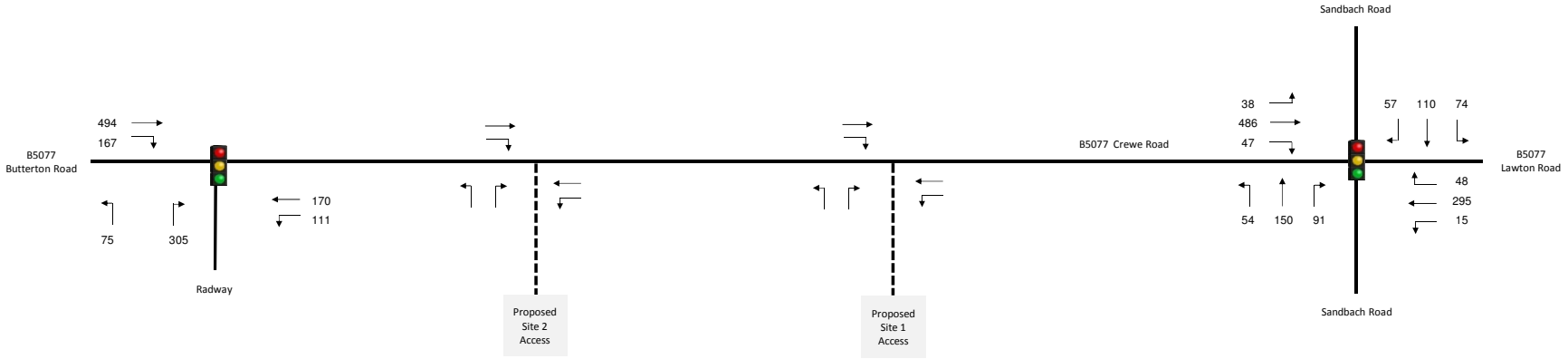


NB: Butterton Road/Radway Lane signal junction is surveyed on 29th November 2011
Sandbach Road/Lawton Road signal junction is surveyed on 29th November 2011

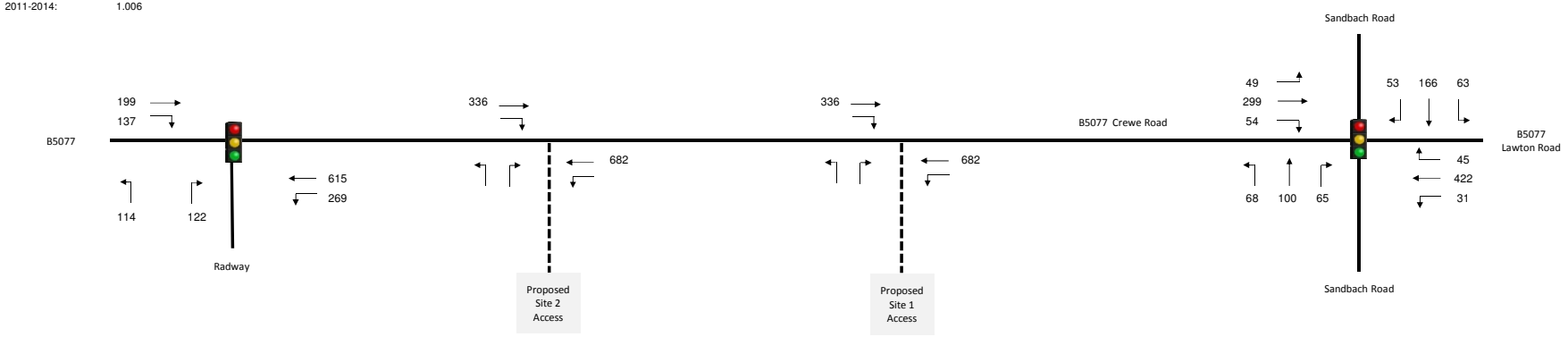
Fig. 1: 2011 Observed Flows

Job no. A086060 Crewe Road, Alsager

AM Peak Period (08:00- 09:00)

Growth Rate Adjusted With Local Tempro Factor

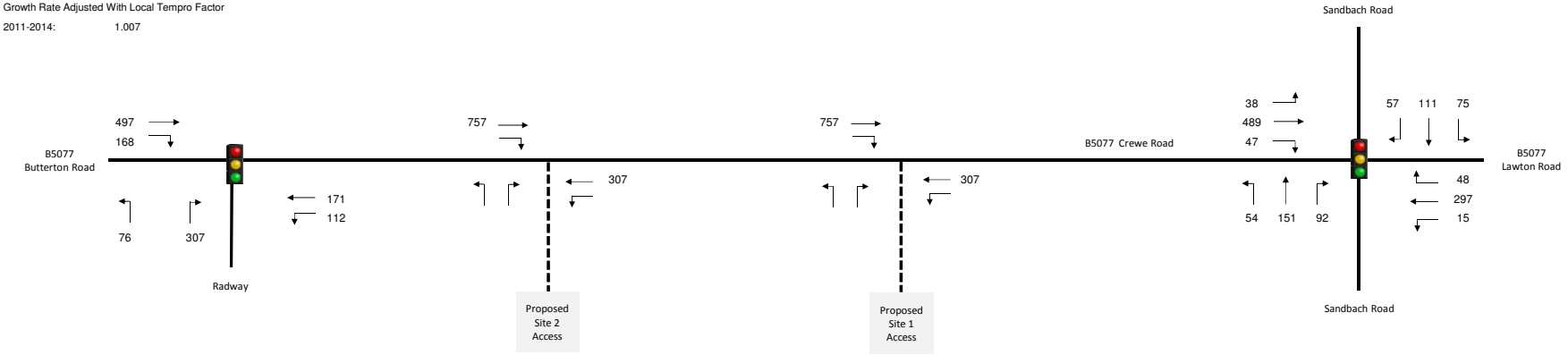
2011-2014: 1.006



PM Peak Period (16:45 - 17:45)

Growth Rate Adjusted With Local Tempro Factor

2011-2014: 1.007



NB: Butterton Road/Radway Lane signal junction is surveyed on 29th November 2011

Sandbach Road/Lawton Road signal junction is surveyed on 29th November 2011

All traffic flow across proposed and committed access frontage is surveyed as ATC between the 20th-21st March 2014

Fig. 2: 2014 Observed Flows Plus Growthed Flows

Job no. A086060 Crewe Road, Alsager

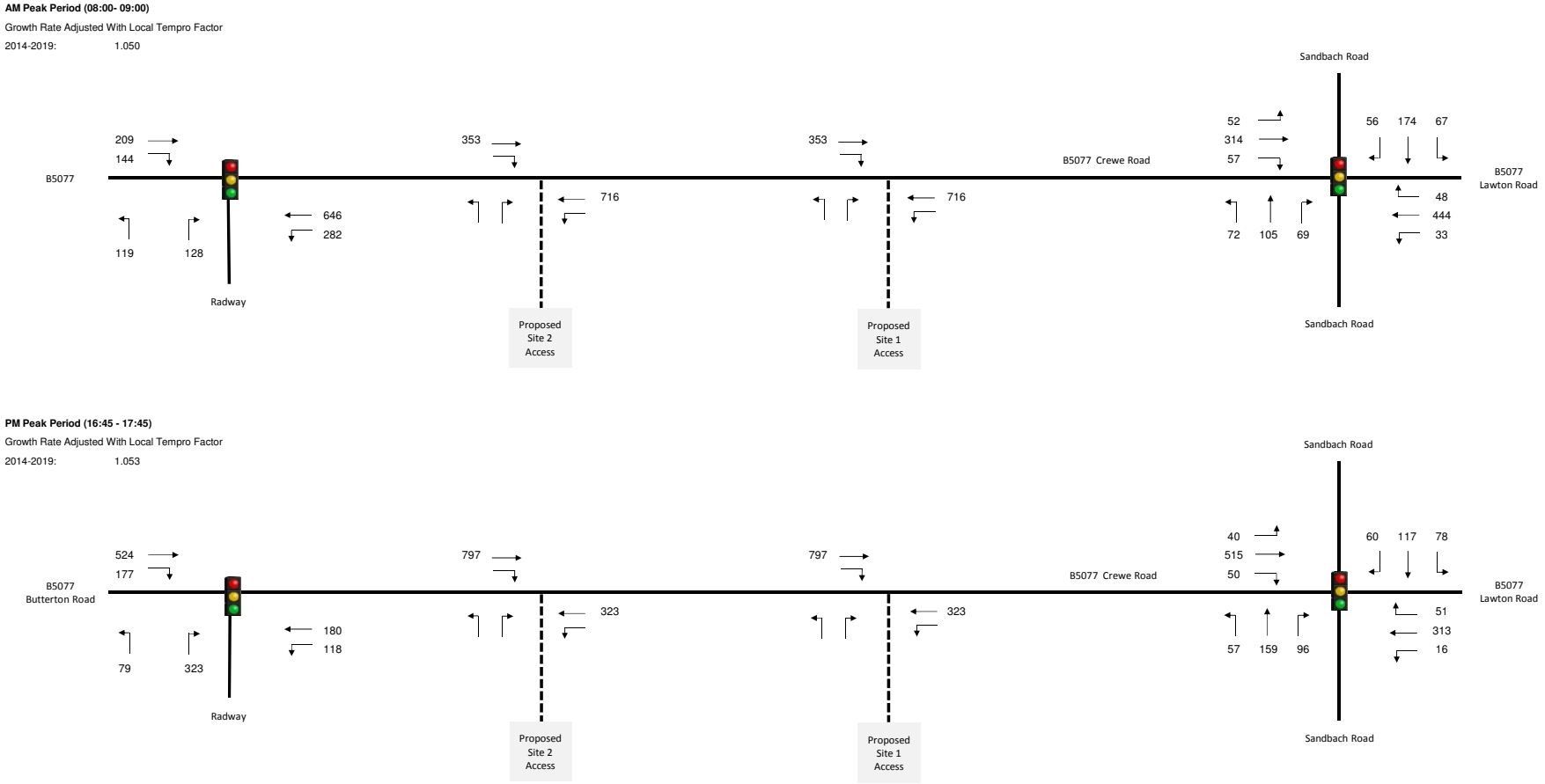


Fig. 3: 2019 Growthed Observed Flows

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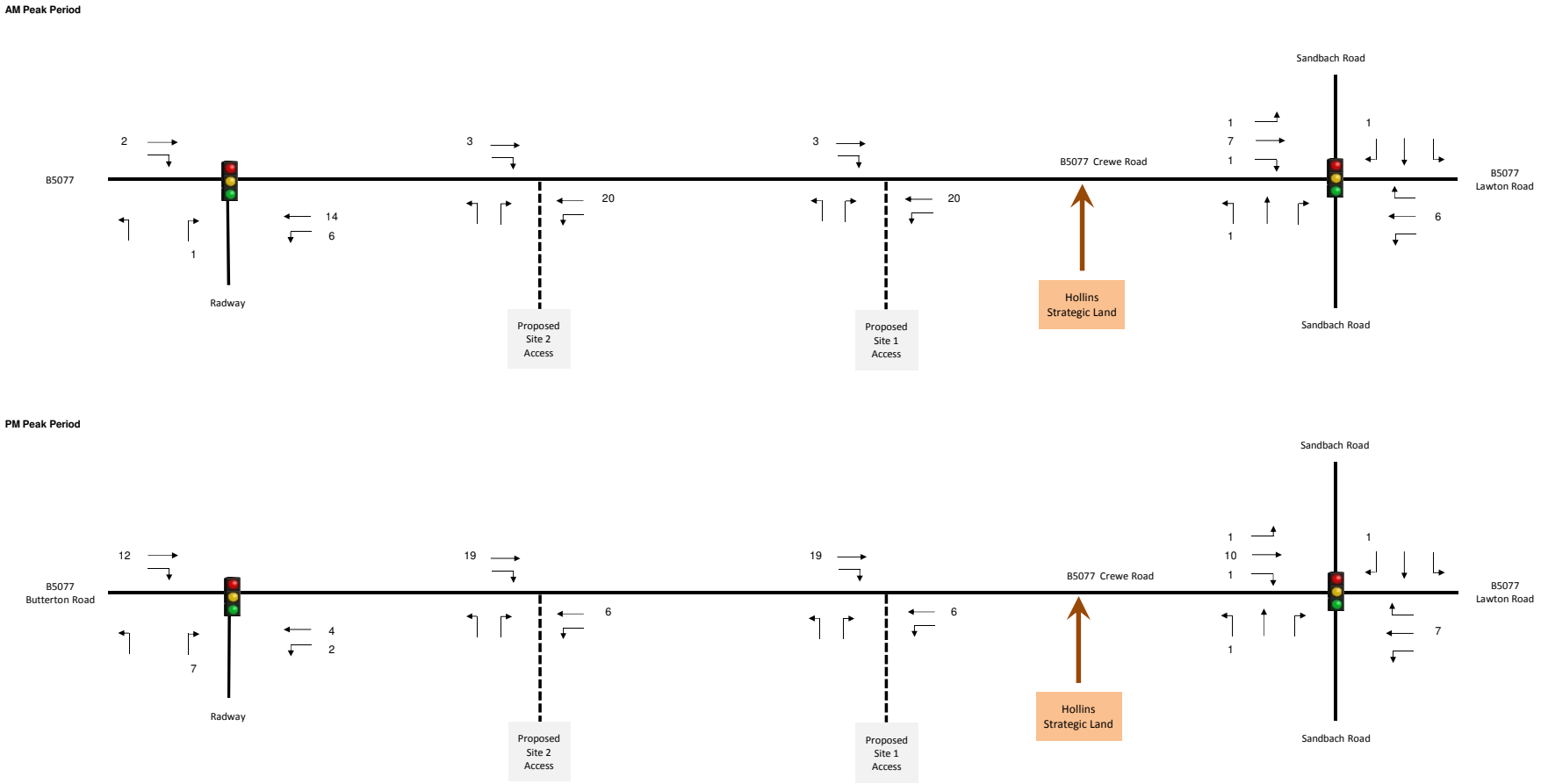

Fig. 4: Committed Development Flows - Hollins Strategic Land (Ref: 12/0893C & 13/1210C)

Job no. A086060 Crewe Road, Alsager

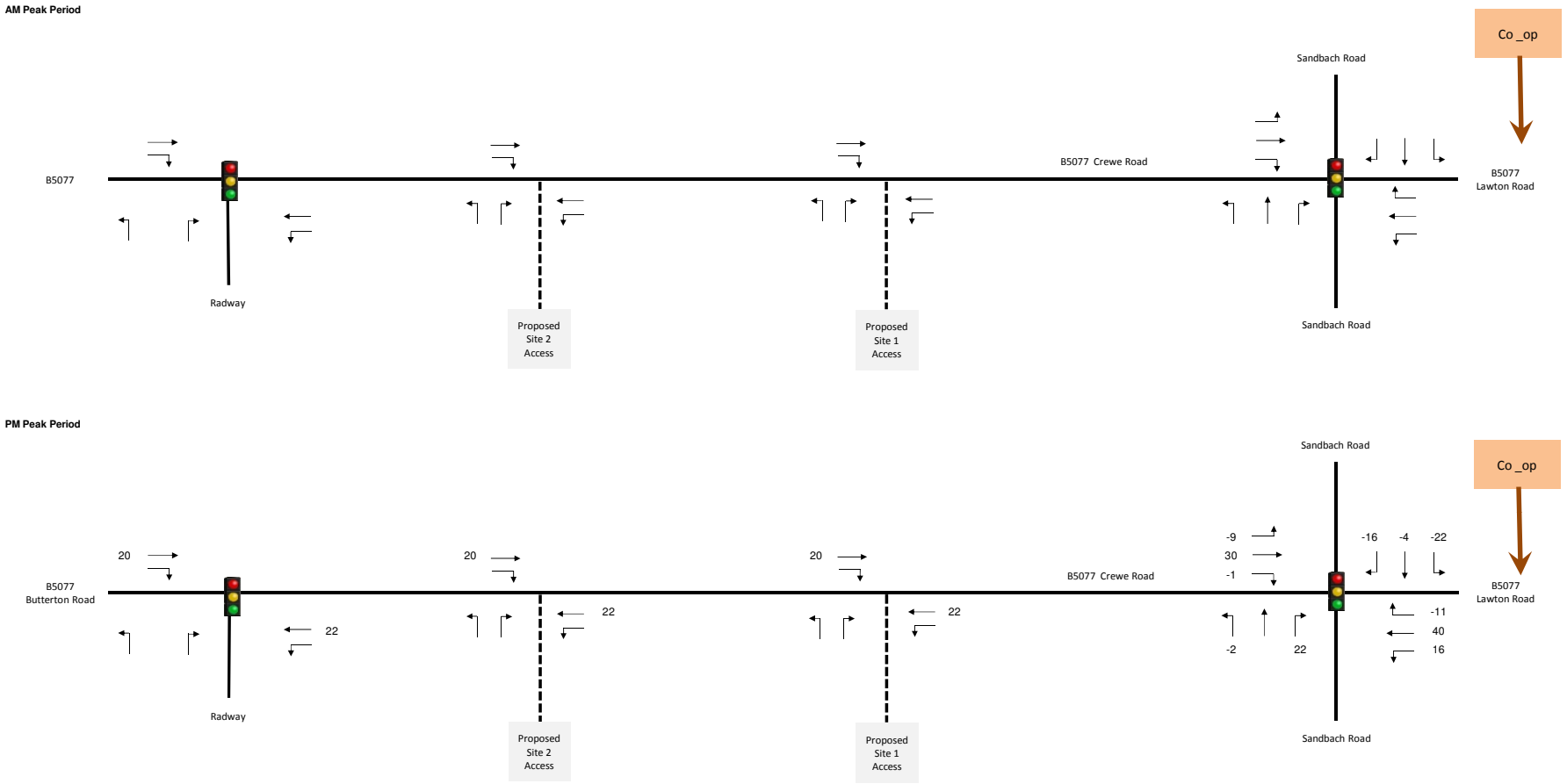

Fig. 5: Committed Development Flows - Co-operative Food store Re-development (Ref:10/0741C)

Job no. A086060 Crewe Road, Alsager

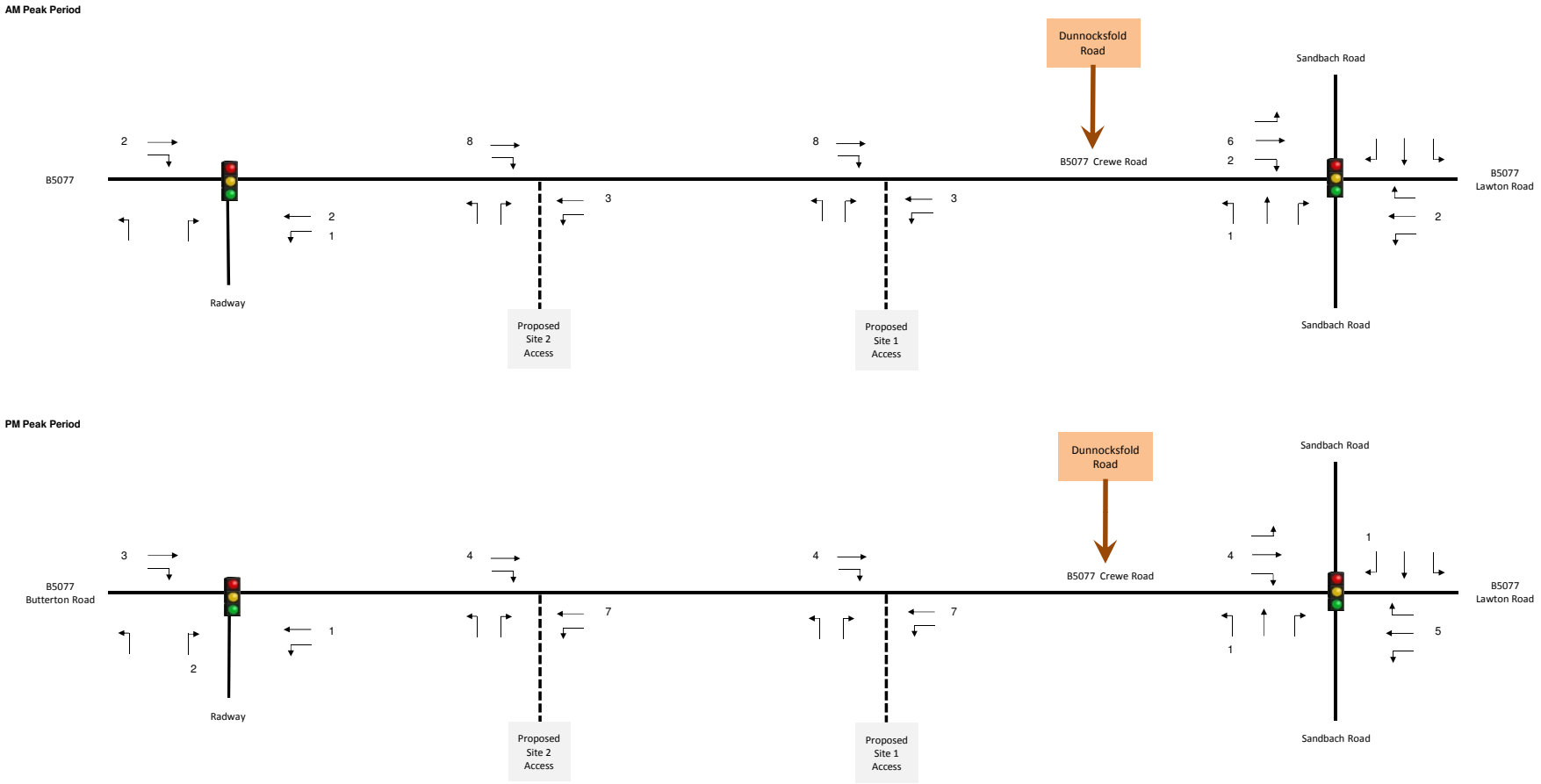

Fig. 6: Committed Development Flows - Dunnocksfold Road (Ref: 13/4627C)

Job no. A086060 Crewe Road, Alsager

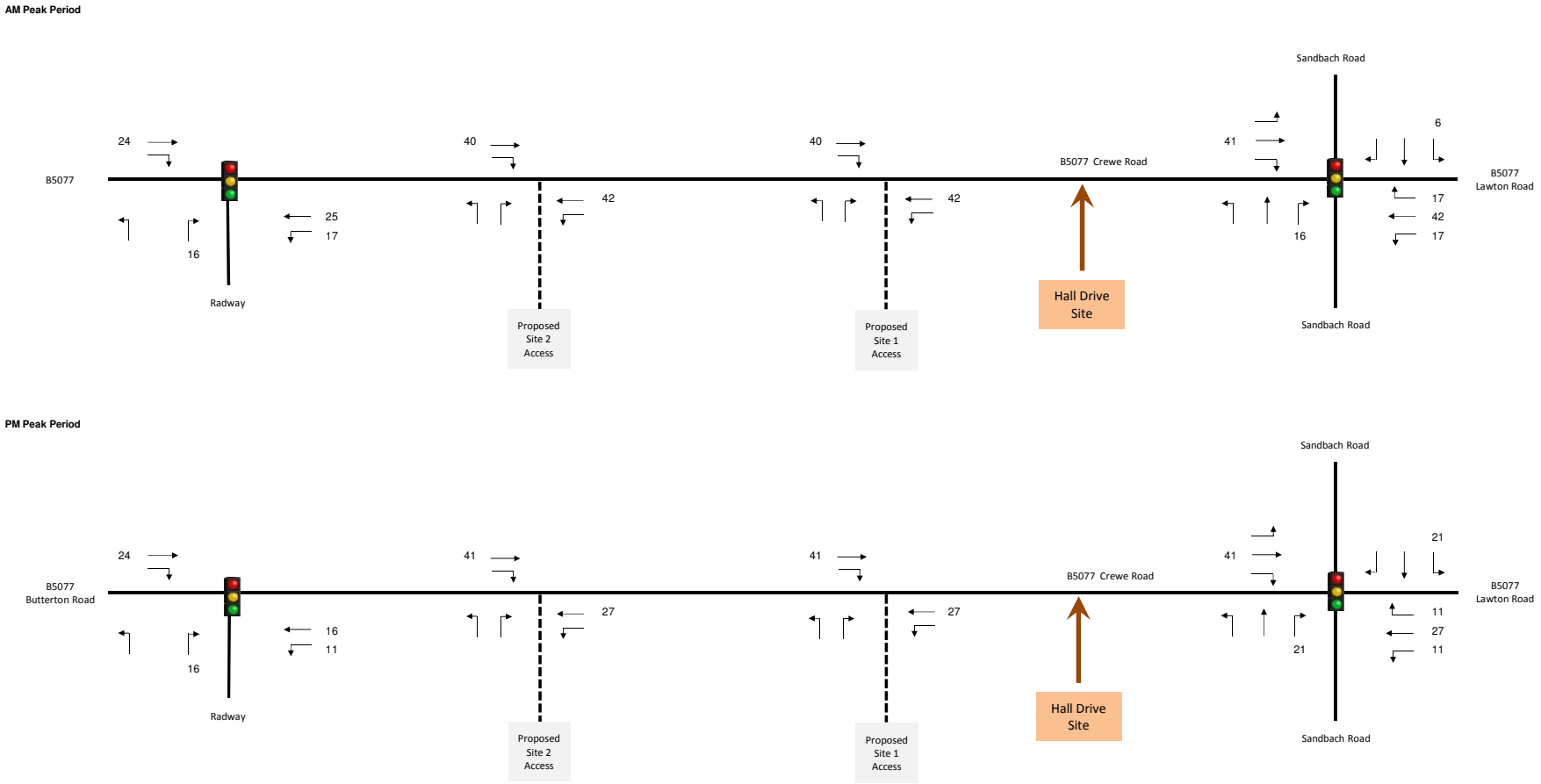

Fig. 7: Committed Development Flows - Twyfords Bathrooms Site (Ref: 11/4109C)

Job no. A086060 Crewe Road, Alsager

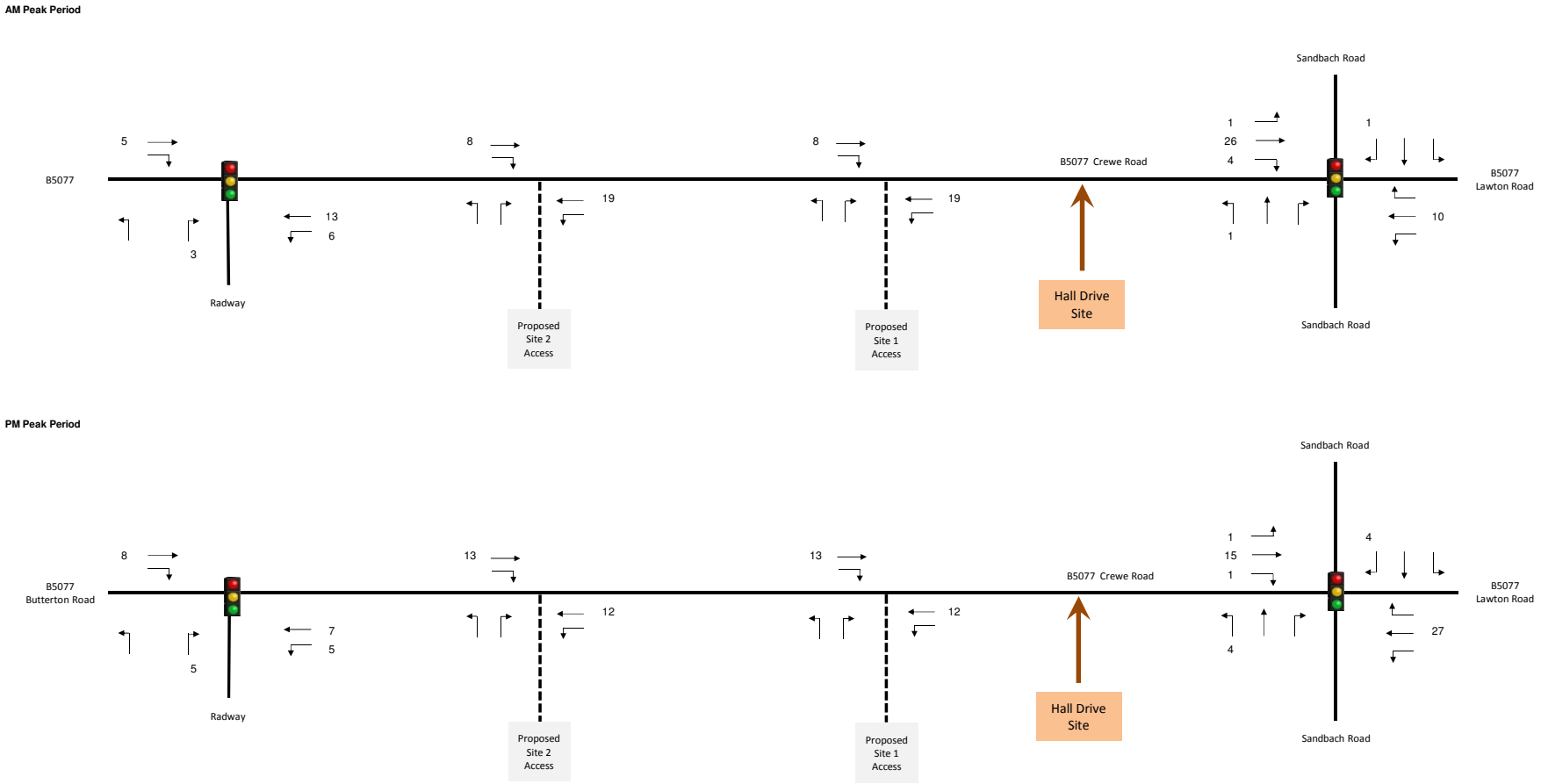

Fig. 8: Committed Development Flows - Hall Drive 109 – residential units (Ref: 12/4150C)

Job no. A086060 Crewe Road, Alsager

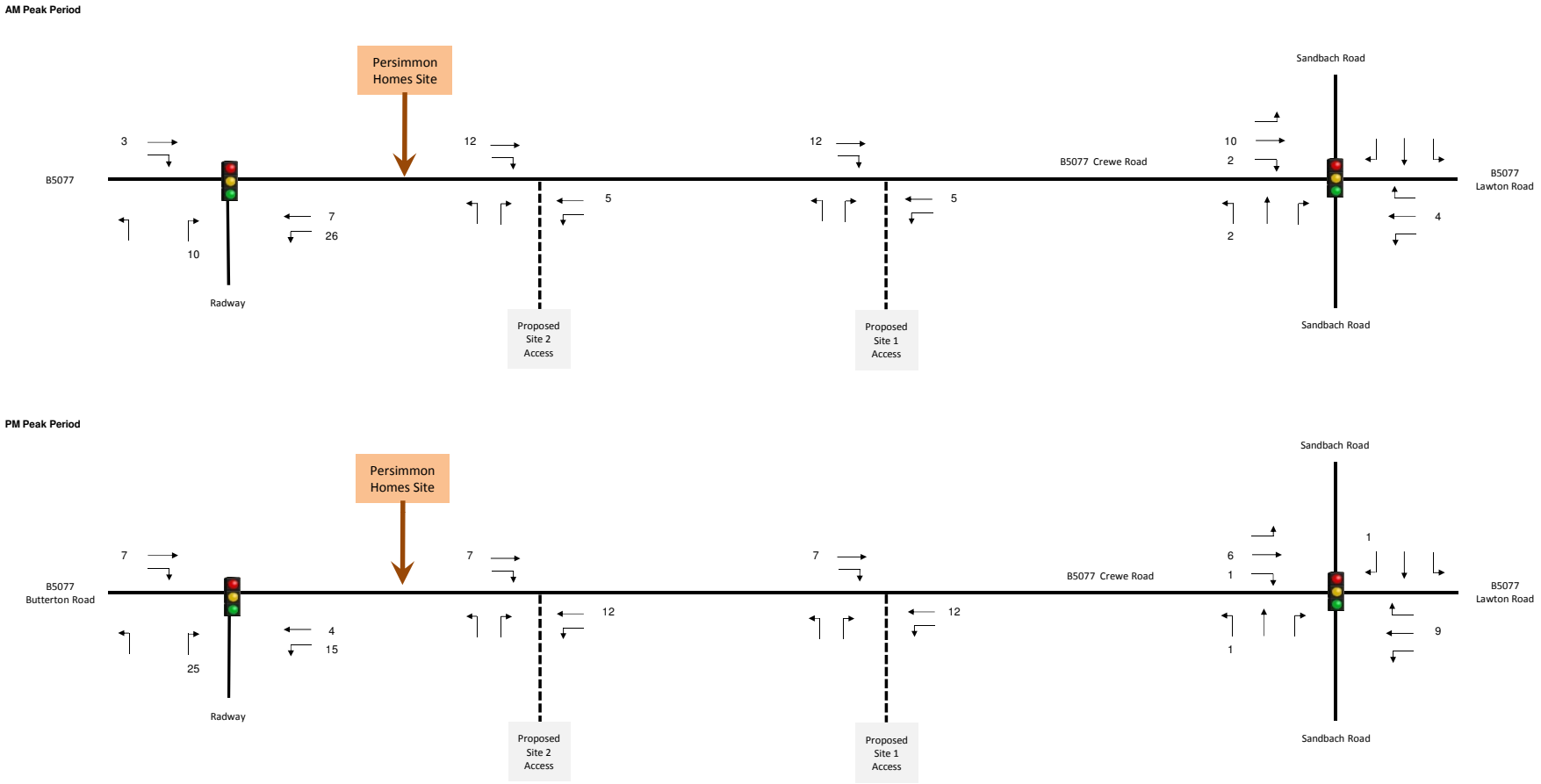

Fig. 9: Committed Development Flows - Land north of Crewe Road / Persimmon Crewe Road (Ref: 13/3032C – Subject to Section 106 Agreement)

Job no. A086060 Crewe Road, Alsager

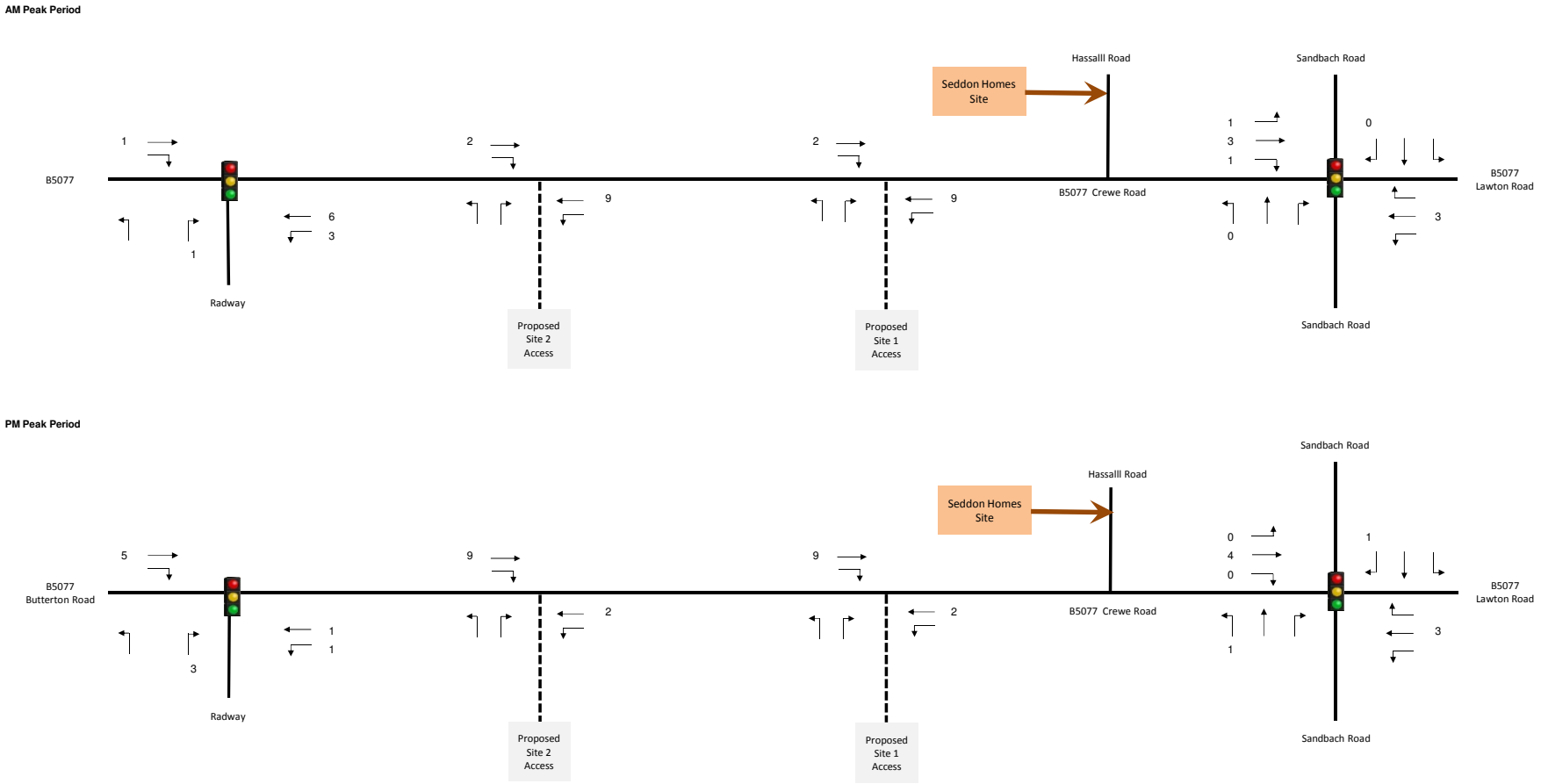

Fig. 10: Committed Development Flows - Hassall Road (12/1670C)

Job no. A086060 Crewe Road, Alsager

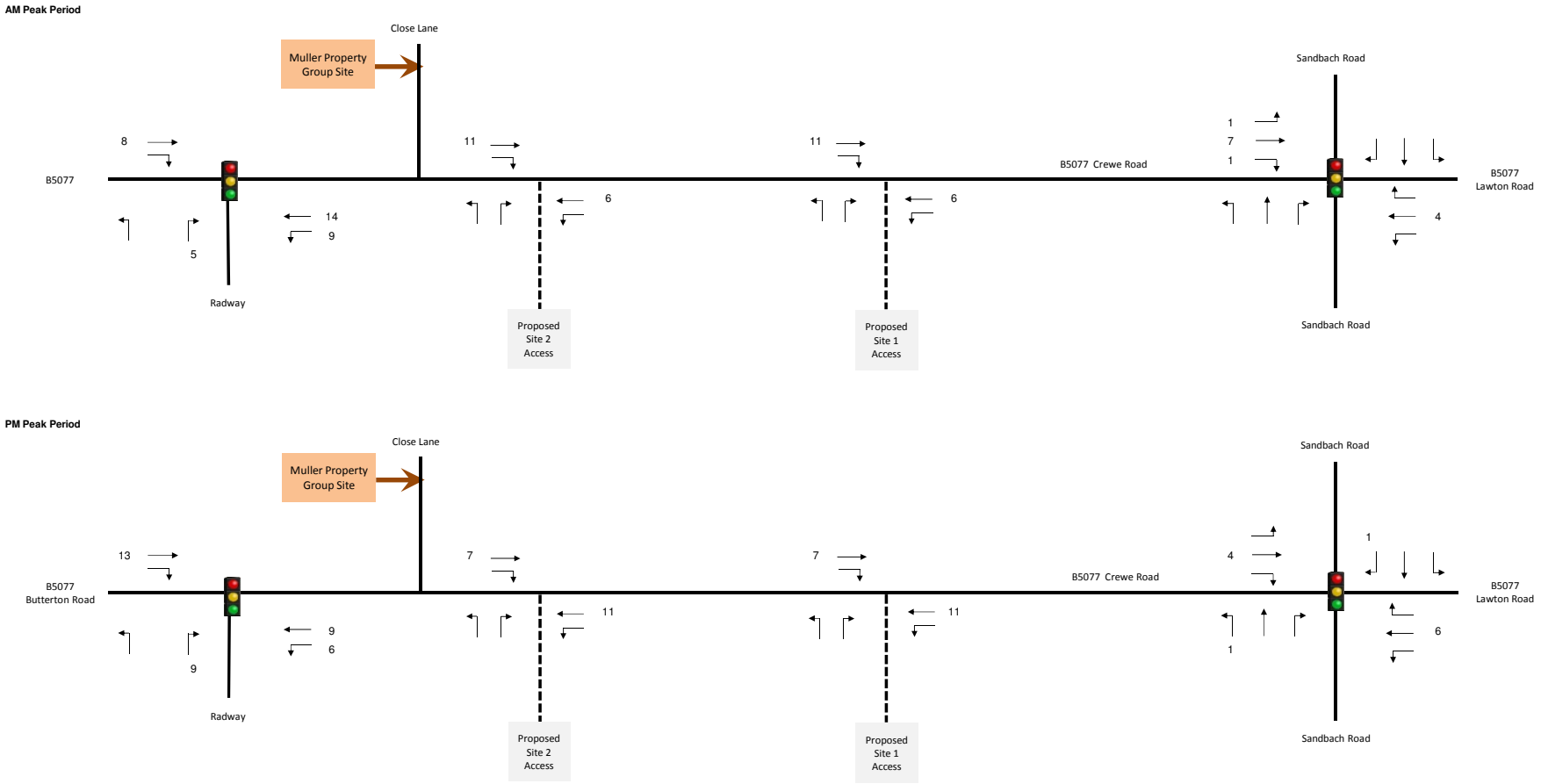

Fig. 11: Committed Development Flows - Close Lane (13/1305N)

Job no. A086060 Crewe Road, Alsager

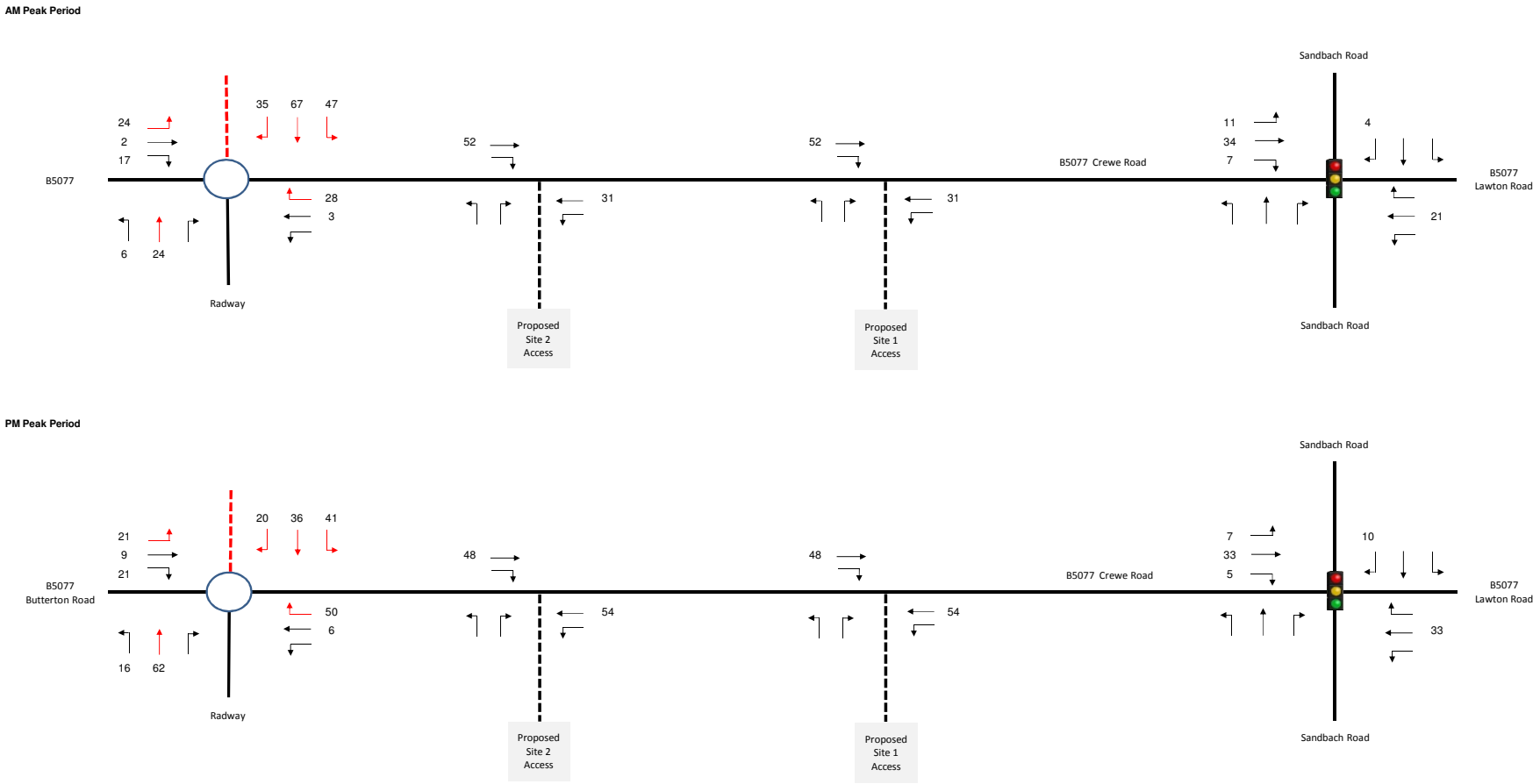

Fig. 12: Committed Development Flows - White Moss Quarry (Ref: 13/4132N)

Job no. A086060 Crewe Road, Alsager

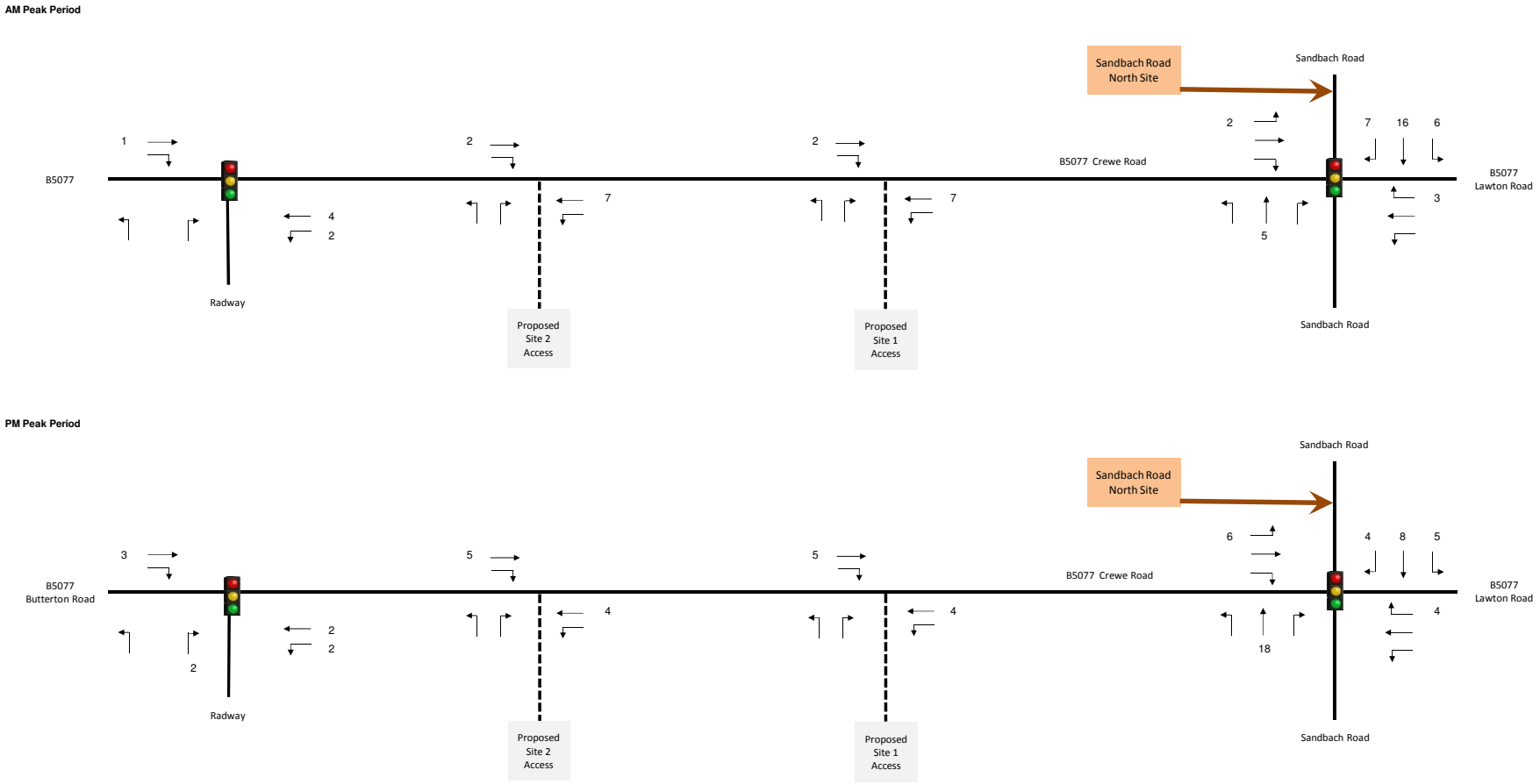

Fig. 13: Proposed Development Flows - Sandbach Road North (Ref: 14/3919C)

Job no. A086060 Crewe Road, Alsager

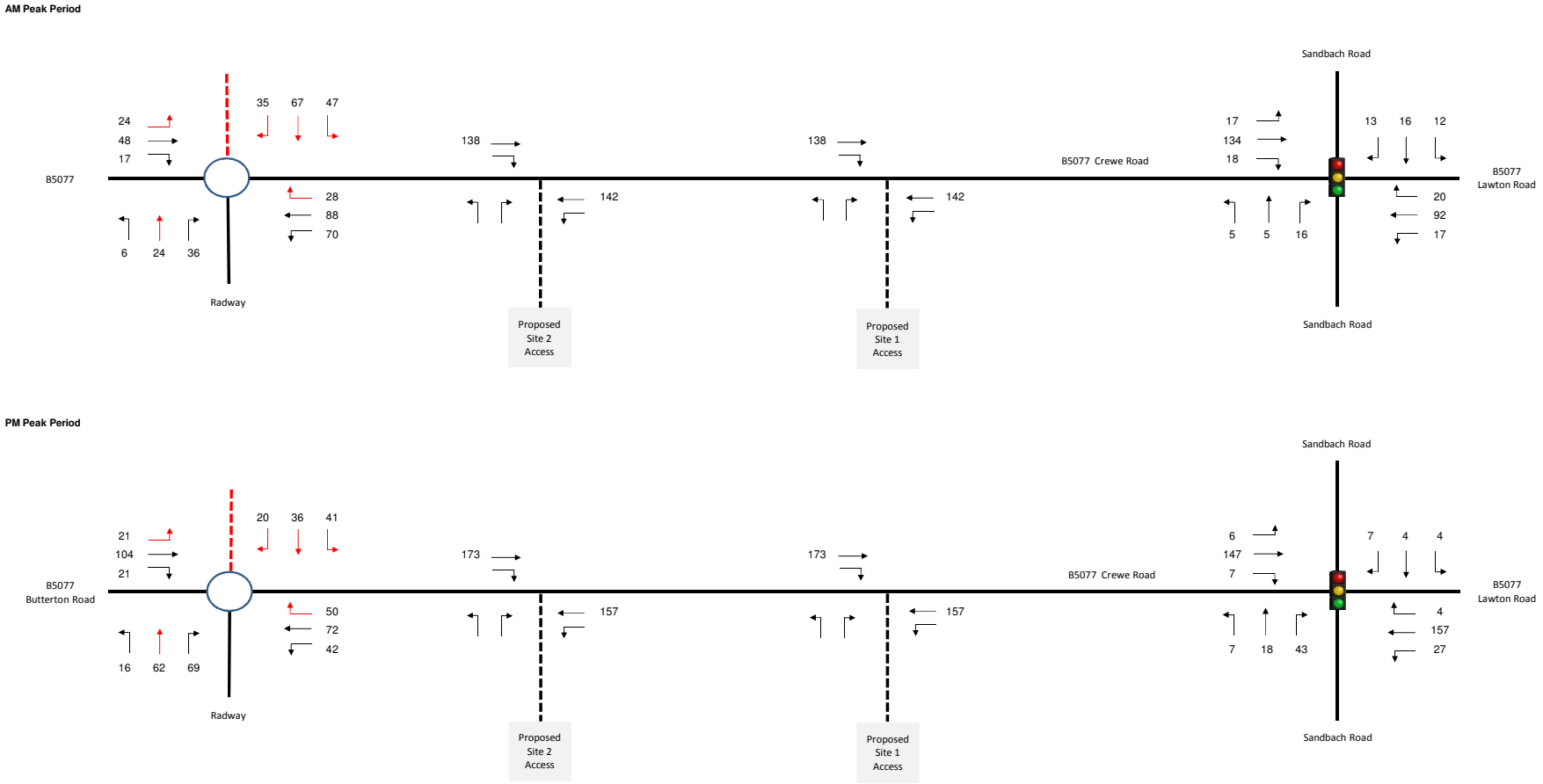

Fig. 14: Total Committed Development Flows (inc. 10 Committed Developments)
- Assessment Scenario 1 (Committed Developments inc. White Moss Quarry Development)

Job no. A086060 Crewe Road, Alsager

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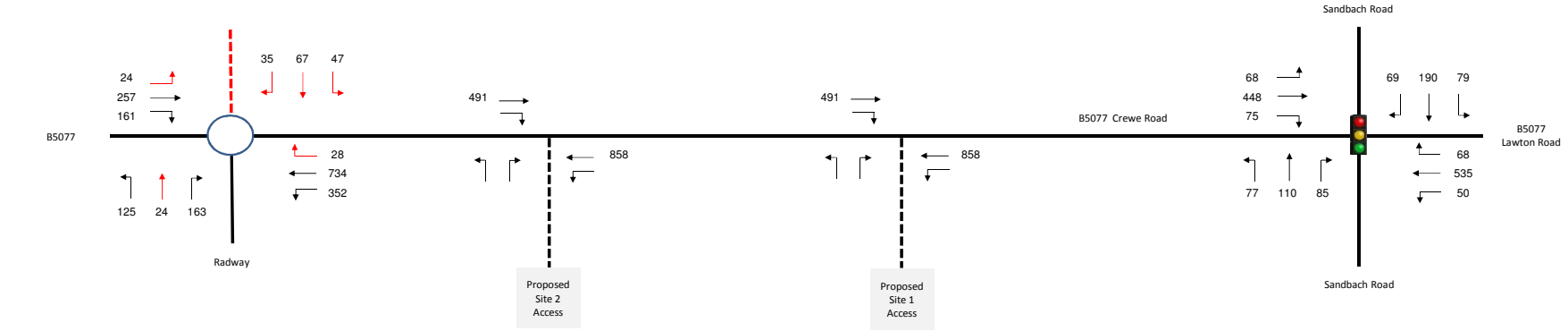


PM Peak Period (16:45 - 17:45)

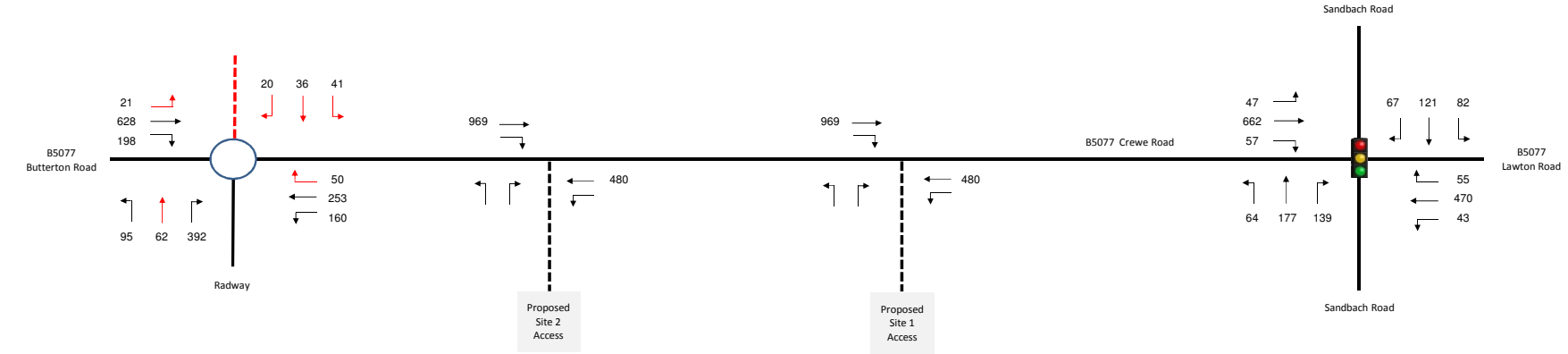


Fig. 15: 2019 Baseline Flows

- Assessment Scenario 1 (Committed Developments inc. White Moss Quarry Development)

Job no. A086060 Crewe Road, Alsager

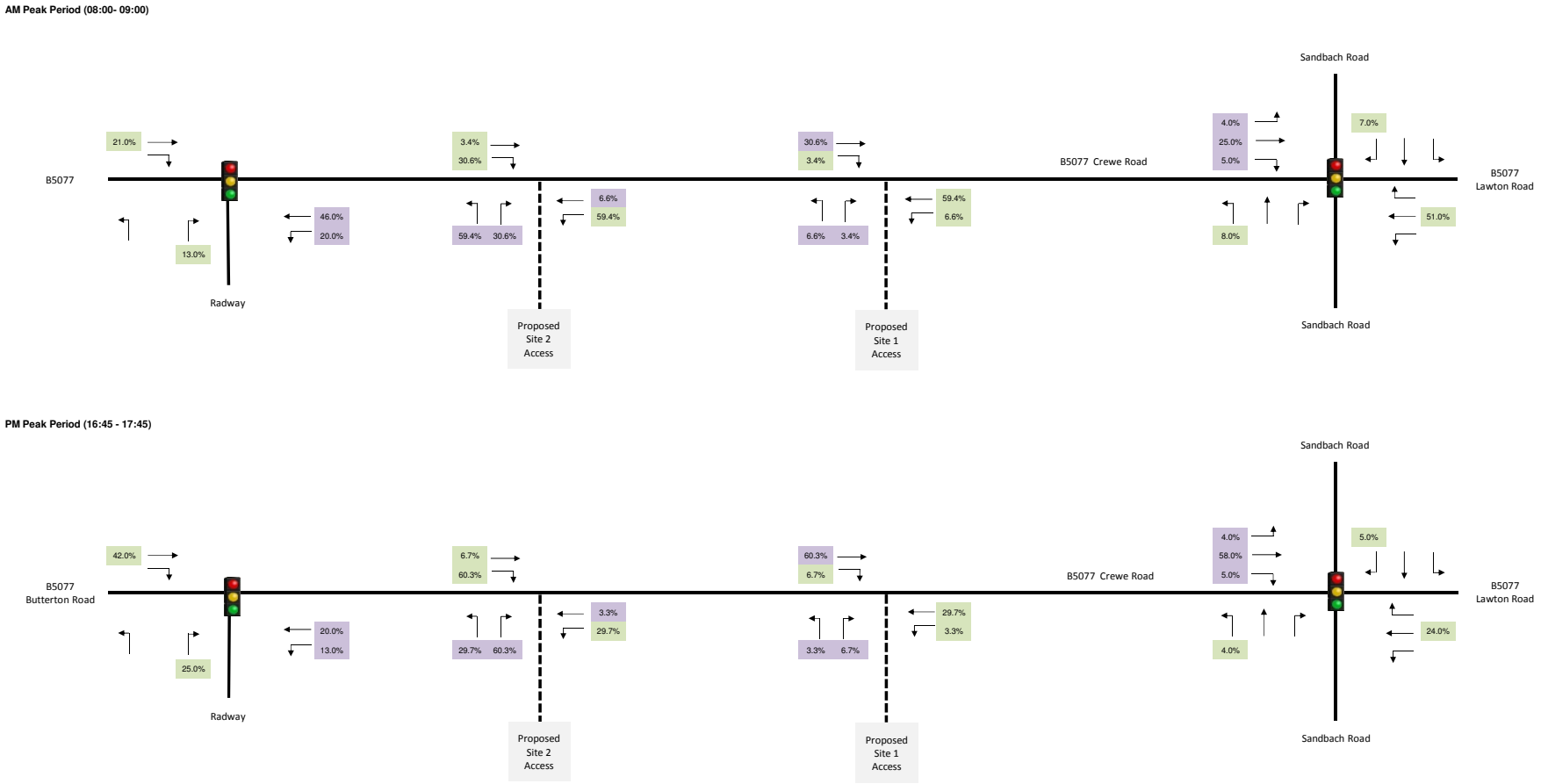


Fig. 16: Trip Distribution - Proposed Residential Development

Job no. A086060 Crewe Road, Alsager

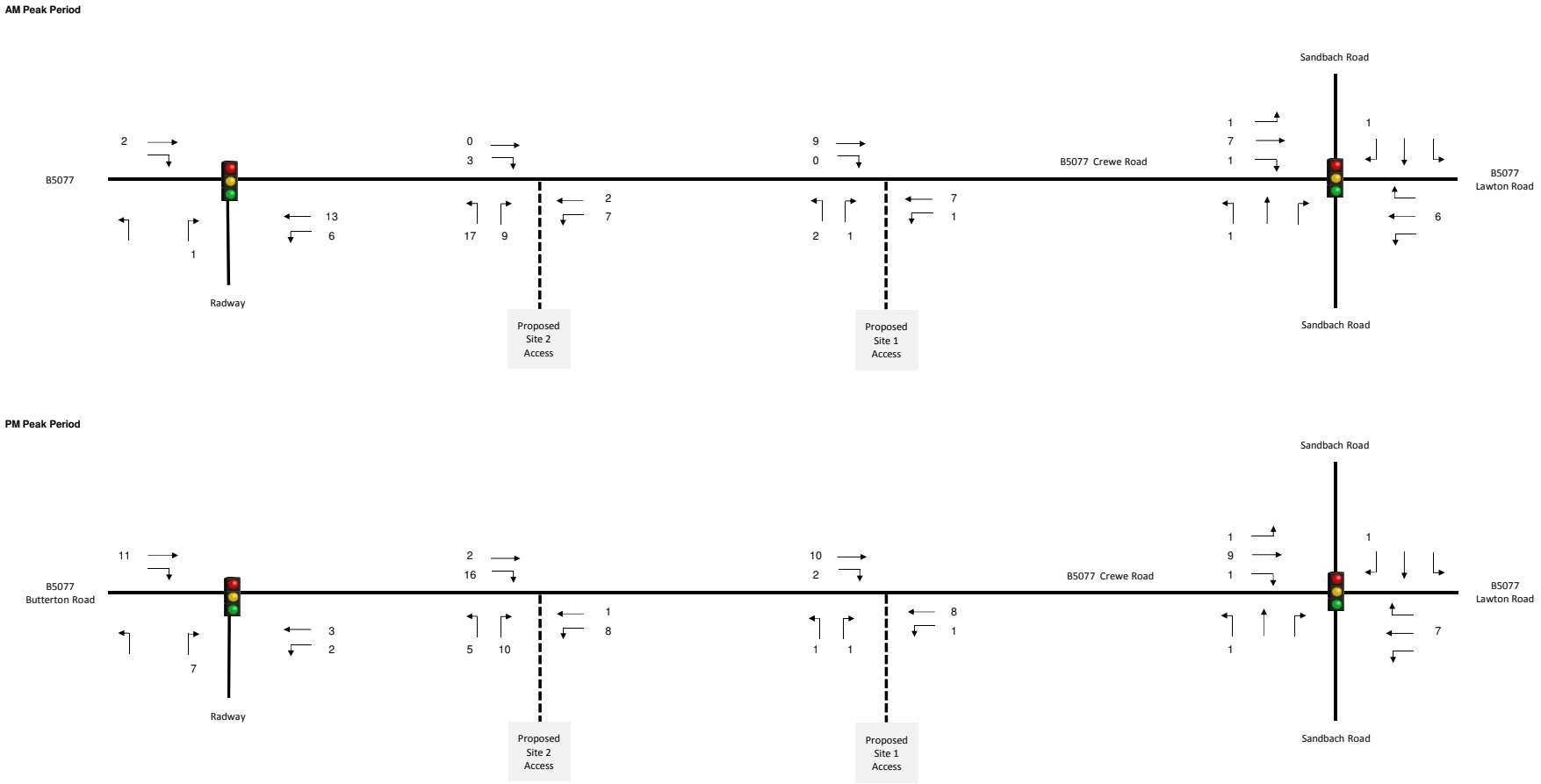


Fig. 17: Trip Generation - Proposed Residential Development

Job no. A086060 Crewe Road, Alsager

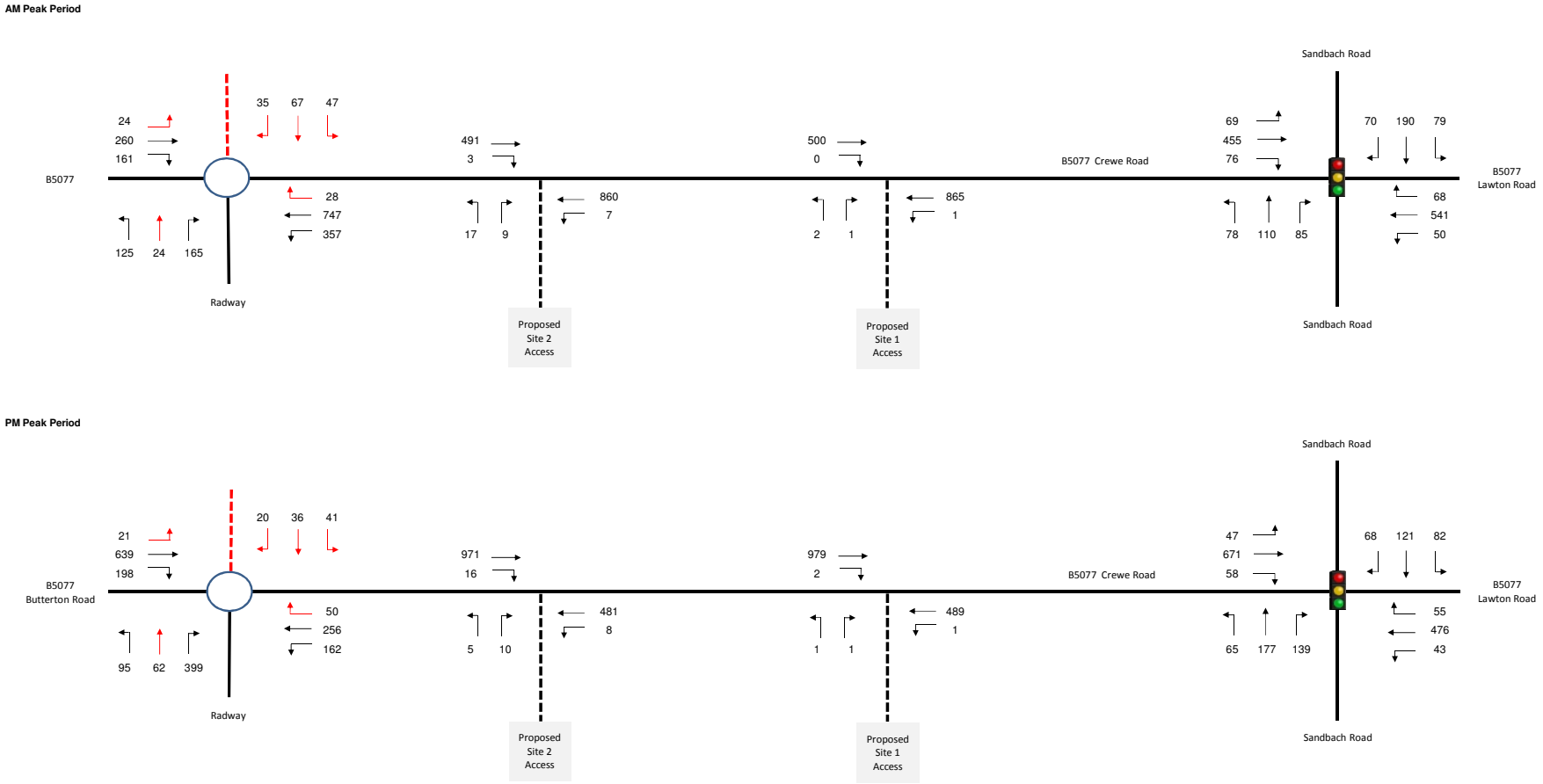


Fig. 18: 2019 Assessment Flows

- Assessment Scenario 1 (Committed Developments inc. White Moss Quarry Development)

Job no. A086060 Crewe Road, Alsager

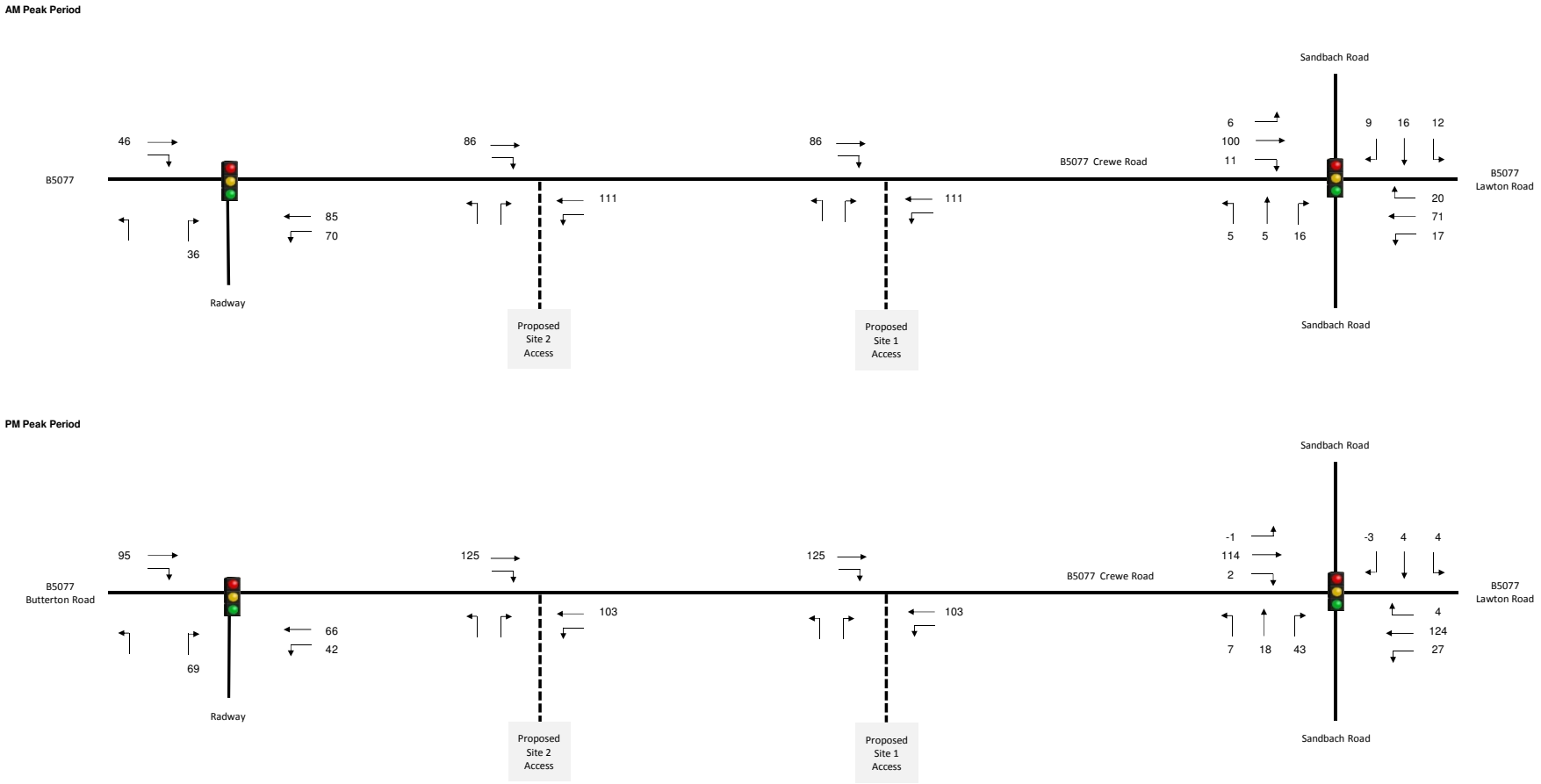


Fig. 19: Total Committed Development Flows (inc. 9 Committed Developments, without White Moss Quarry Development)

Job no. A086060 Crewe Road, Alsager

Appendices

Appendix A – Scoping Correspondence

andrew.carpenter

Subject: FW: 13/3054C - Alsager - Holins Strategic Land - URGENT - PUBLIC INQUIRY

From: JONES, Neil [mailto:Neil.Jones@cheshireeast.gov.uk]
Sent: 14 April 2015 14:21
To: andrew.carpenter
Subject: RE: 13/3054C - Alsager - Holins Strategic Land - URGENT - PUBLIC INQUIRY

Andrew

Thank you for this note, I was going to let you know not to include Sandbach Road North as it was dismissed at appeal but I see you already know.

Otherwise, I would be happy with the technical note.

Regards

Neil Jones
Principal Development Officer
Cheshire East Council
Strategic Highways and Transportation
6th Floor
Delamere House
Delamere Street
Crewe
CW1 2LL

Tel 01270 686350
email neil.jones@cheshireeast.gov.uk
web www.cheshireeast.gov.uk

From: andrew.carpenter [mailto:andrew.carpenter@wyg.com]
Sent: 14 April 2015 12:28
To: JONES, Neil
Cc: Andrew Laing (andrew.laing@hsland.co.uk); Matthew Symons; amjid.khan
Subject: FW: 13/3054C - Alsager - Holins Strategic Land - URGENT - PUBLIC INQUIRY

Neil

Hope your well.

I have tried calling you this morning to discuss the above planning application and the email I sent to you yesterday. However, your colleague Paul Hurdus has advised that you are out of the office until 2pm this afternoon.

As you know, we are currently trying to resolve the issues you have raised regarding the proposed development off Crewe Road and I am currently preparing a Technical Note which needs to be submitted by the end of week. The Technical Note aims to address your comments, accordingly I would be grateful if you could confirm you are happy that the Technical Note is prepared on the basis set out below.

We will address the following in Technical Note 3

- **Eastern Site Access** – As requested, the proposed site access serving the 7-dwelling development will be redesigned to have a road width of 4.8m.

- **Cumulative Impact of Development** – Revised junction capacity assessments will be undertaken at the agreed off-site junctions namely Crewe Road / Butterton Road / Radway Green Road signalised junction and the Crewe Road / Lowton Road / Sandbach Road North / Sandbach Road South signalised junction. These will include the committed / proposed developments specified in my email below and will be undertaken with and without the White Moss Quarry mitigation measures.

  As the traffic flows from a significant number (10) of the committed / proposed developments are included in the assessments, it is inappropriate to apply growth factors to the surveyed flows as this would represent an element of significant double counting of trips within the assessments. Please confirm this approach is acceptable.

  I have already sent an email to you yesterday listing the committed / proposed developments we will consider in the revised assessments. Since then, we have been advised that the Sandbach Road North (ref 12/4872C) development consisting of 155 dwelling has been dismissed at appeal and that a new application of 130 dwellings (ref 14/3919C) at the site has been submitted and is currently pending. Therefore, traffic from the new application will be included in the assessments instead of the 155 dwelling development. Please let me know if we have missed out any committed developments from this list.

- **Potential Mitigation Measures** – If the results of the junction capacity assessments show that there would be 'severe' impact due to the proposed development then we would consider junction improvements.

I would greatly appreciate it if you could confirm you are happy that we prepare the Technical Note on the above basis, by close of play today.

I look forward to receiving your response and if you require any further clarification or information please do not hesitate to contact me.

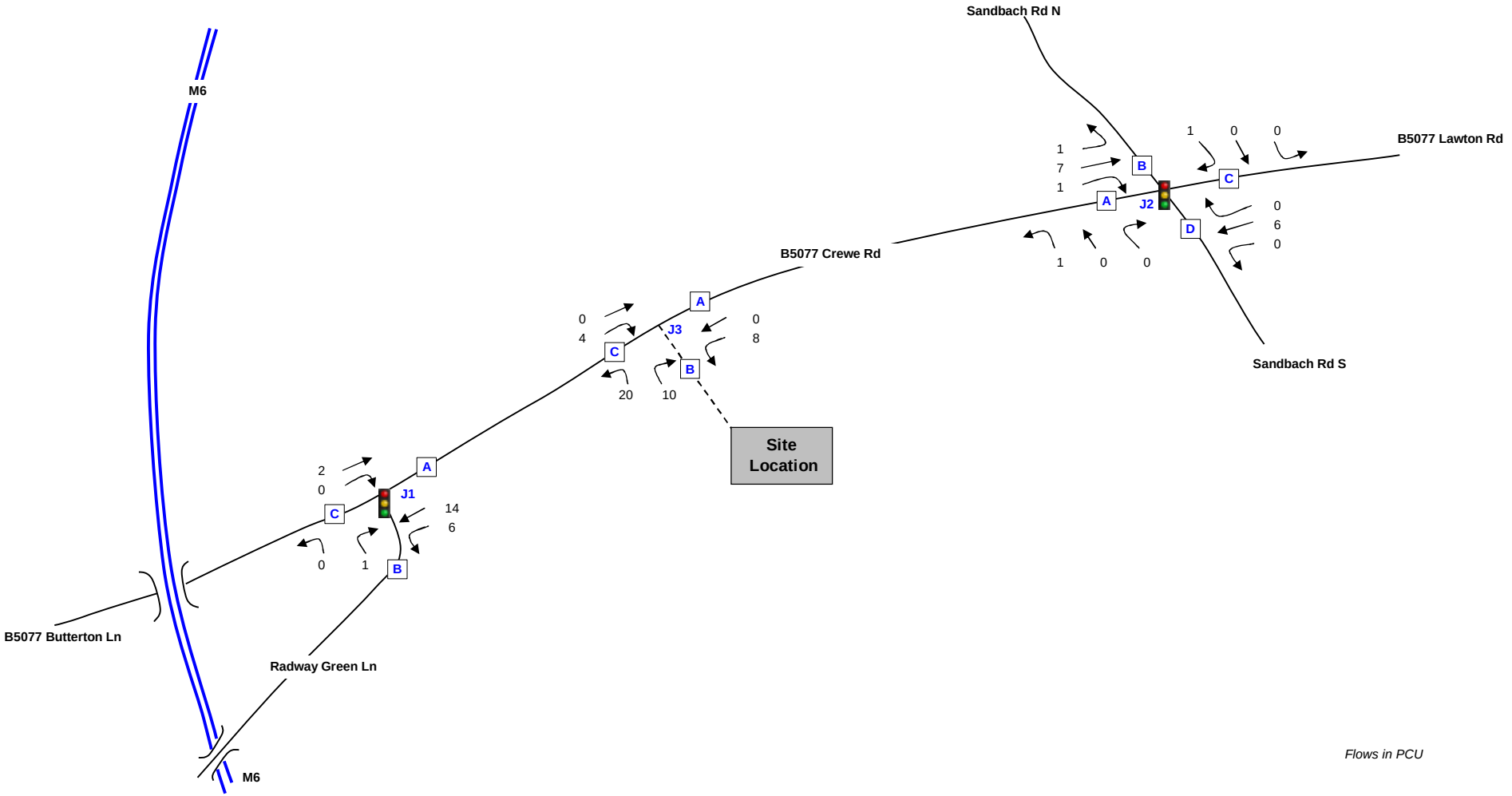
Kind Regards

Andrew Carpenter
Graduate Transport Planner

WYG
Quay West at MediaCityUK, Trafford Wharf Road, Trafford Park, Manchester, M17 1HH
Tel: +44 161 874 8791
Fax: +44 161 872 3193

www.wyg.com

Appendix B – Committed Development Flows

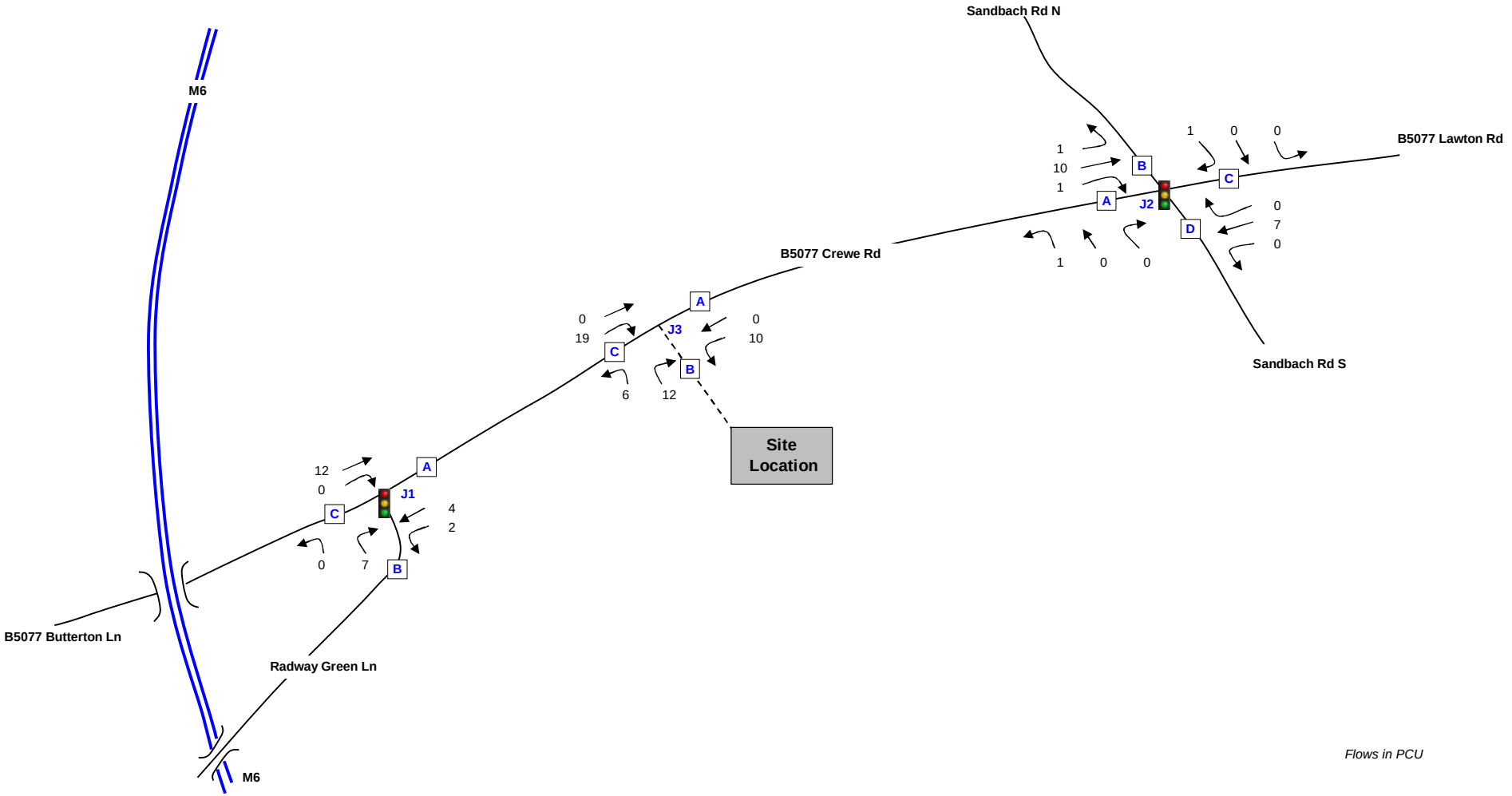


Crewe Road, Alsager

Fig 9: AM Peak Trip Generation

Job No. 9X1504

HASKONING UK LTD.
TRANSPORT UK
ROYAL HASKONING
Enhancing Society
8th Floor, Portland Tower
Portland Street, Manchester M1 3LF
+44(0)161 236 1018
+44(0)161 236 1041
info@manchester.royalhaskoning.com
www.royalhaskoning.com
Telephone:
Fax:
Email:
Internet



Crewe Road, Alsager

Fig 10: PM Peak Trip Generation

Job No. 9X1504

HASKONING UK LTD.
TRANSPORT UK
ROYAL HASKONING
Enhancing Society
8th Floor, Portland Tower
Portland Street, Manchester M1 3LF
+44(0)161 236 1018
+44(0)161 236 1041
info@manchester.royalhaskoning.com
www.royalhaskoning.com
Telephone:
Fax:
Email:
Internet

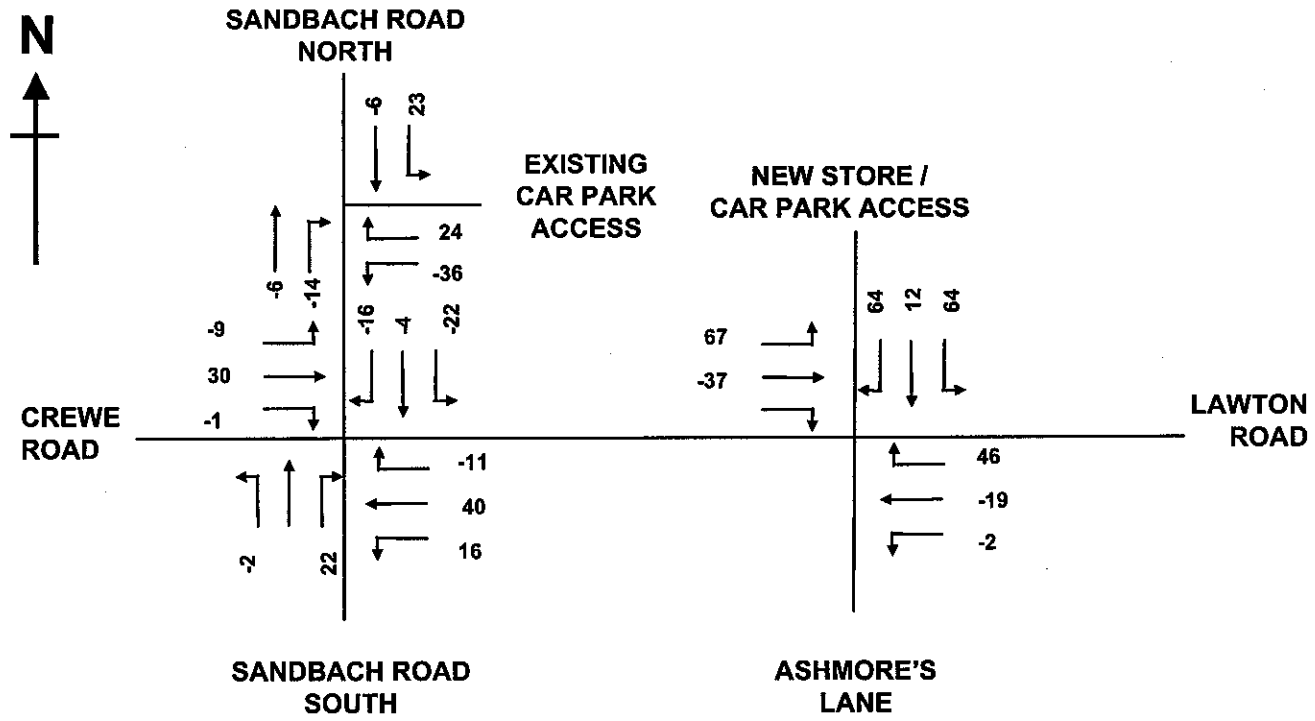


Figure 11a Total Effects of Development. Weekday 17.00 – 18.00

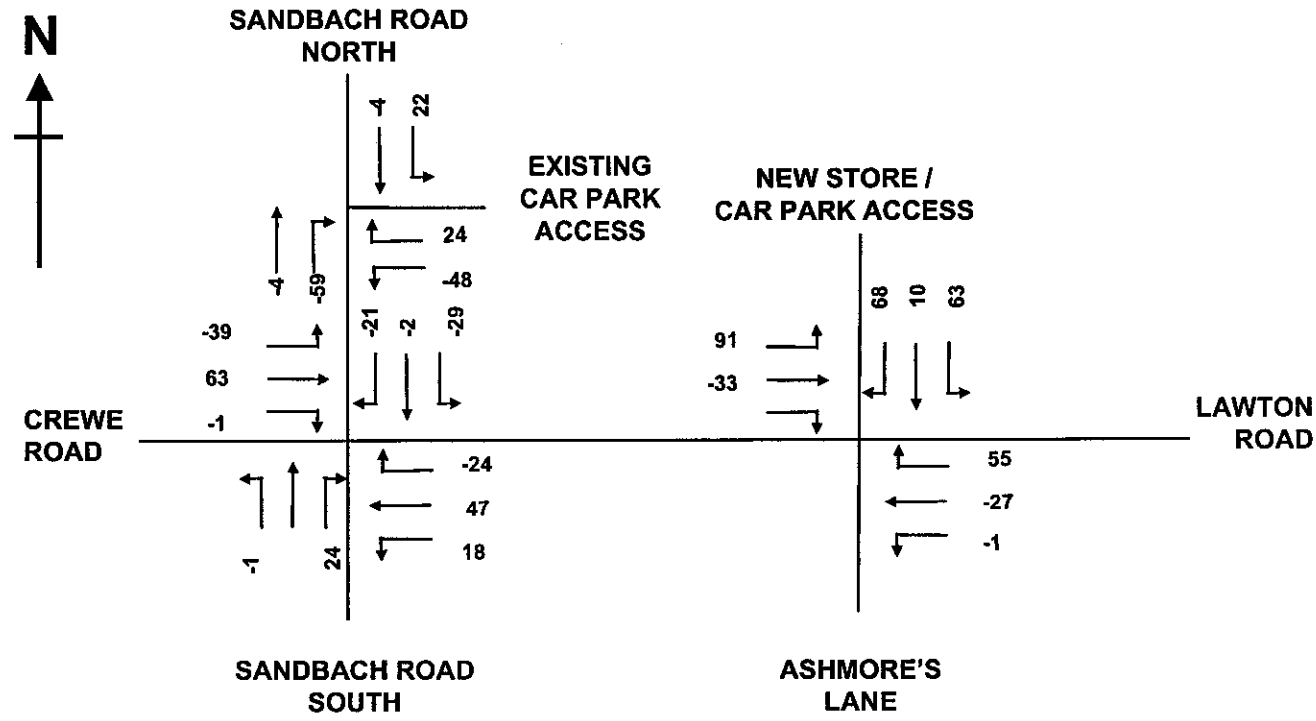
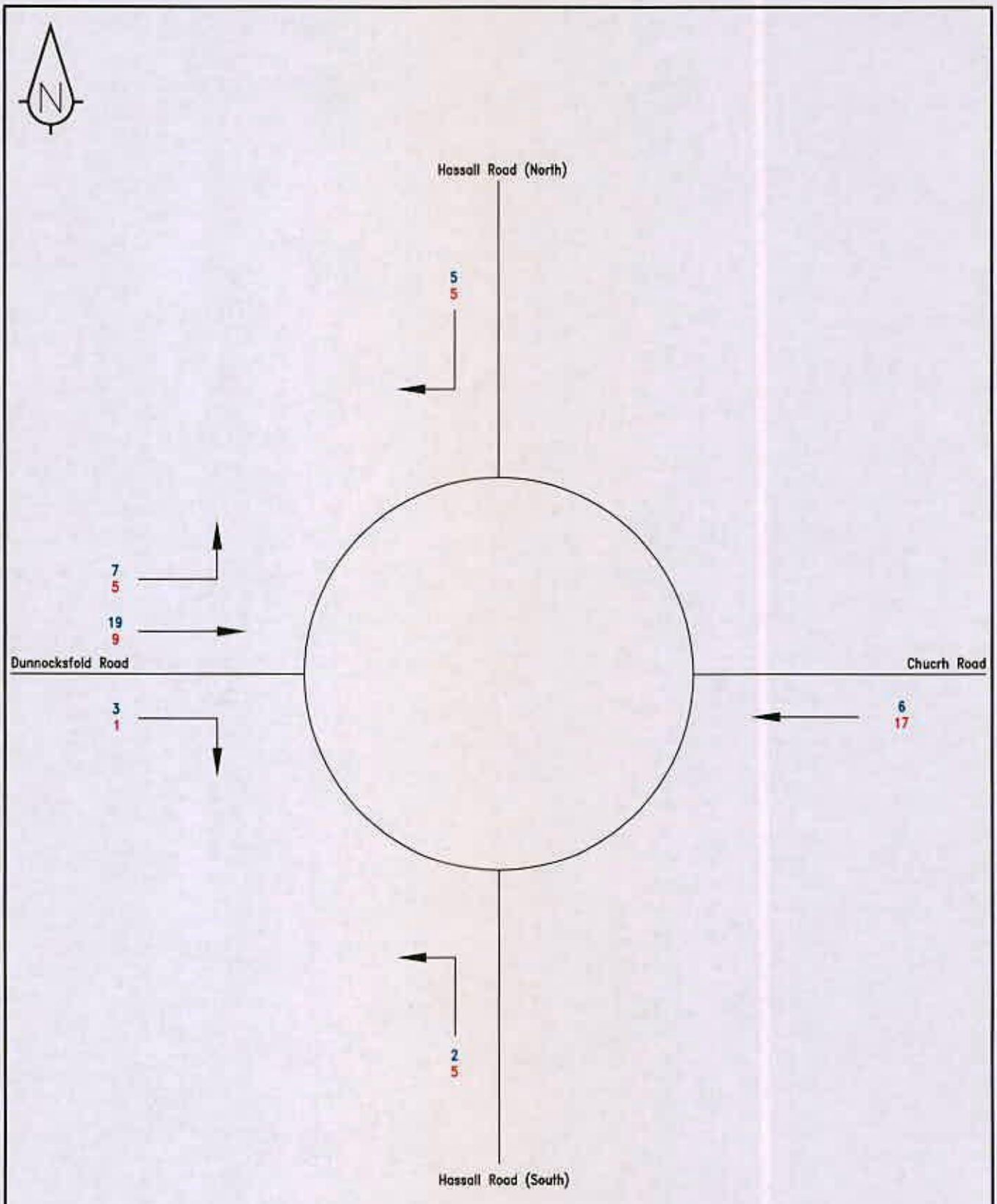


Figure 11b Total Effects of Development. Saturday 12.00 – 13.00

Turner Lowe Associates 22 Guest Road. Manchester. M25 3DL Tel: 0161 798 7898 Fax: 0161 798 6642 E-mail: info@turnerlowe.co.uk	Job Title	Proposed Development Alsager		
	Drawing Title	Total Effects of Development		
Client **Kimberley Developments Plc**	Scale N.T.S.	Date Dec 2009	Doc Sheet No.	
	Drawn By J.L.	Checked	Approved	
	Job No. 090301	Drg. No. Figure 11		Rev.



sanderson associates (consulting engineers) ltd
Highways | Traffic | Transportation | Water

Development Traffic Flows

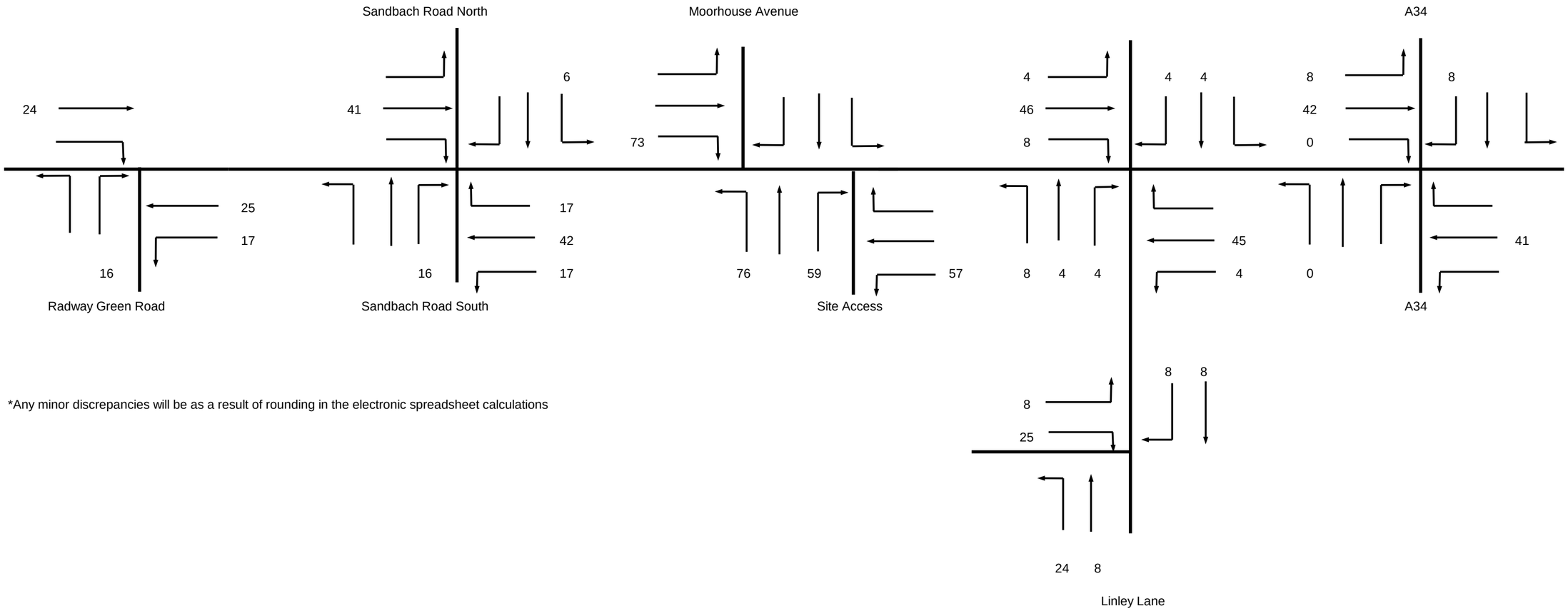
Dunnocksfold Road, Alsager

Drawn	Scale	
AA	NTS	
Checked	Date	
DJC	July 2012	
Approved	Drawing Number	Size
DJC	Figure 7A	A4

PROJECT TITLE: 210248 Twyfords Bathrooms Site, Alsager

SCENARIO: Figure 14: Residential Development Traffic Flows

TIME: Friday AM Peak(0745 - 0845)



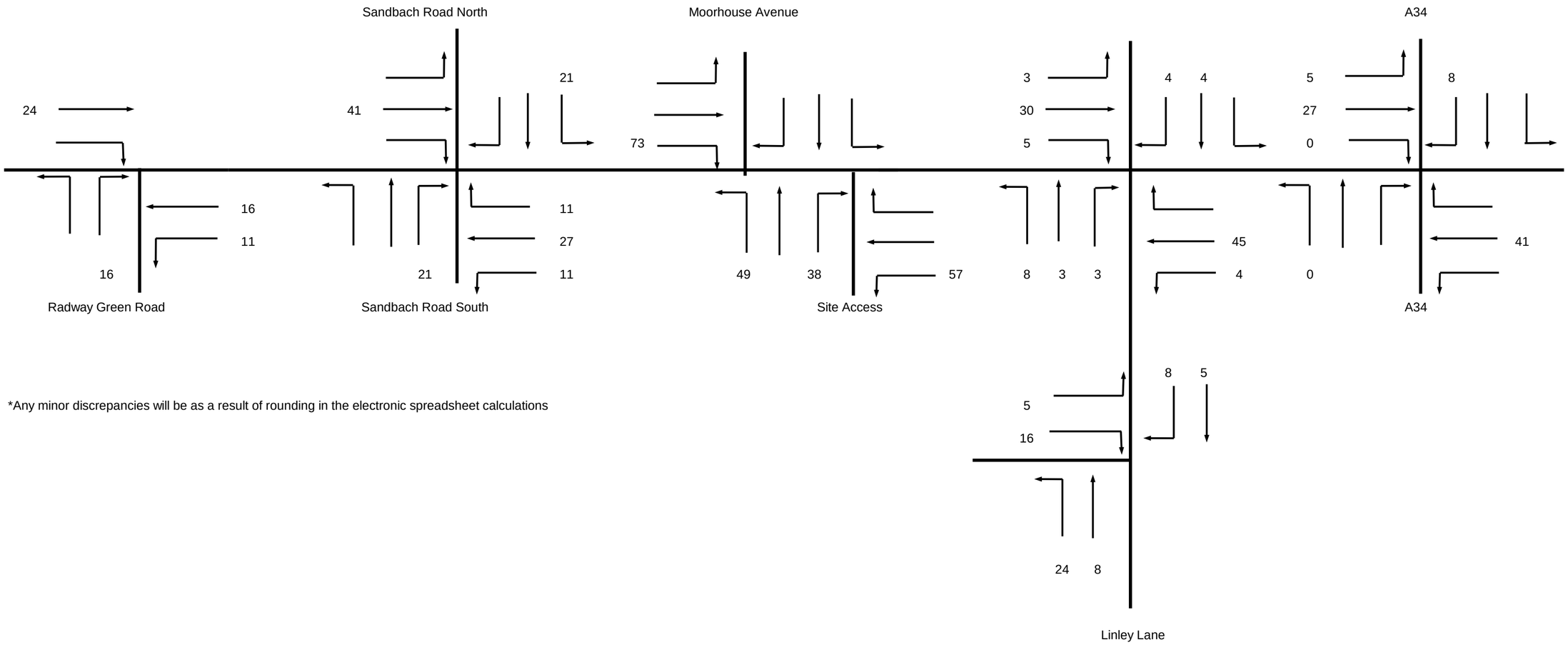
*Any minor discrepancies will be as a result of rounding in the electronic spreadsheet calculations

Waterman Boreham
Transport Planning

PROJECT TITLE: 210248 Twyfords Bathrooms Site, Alsager

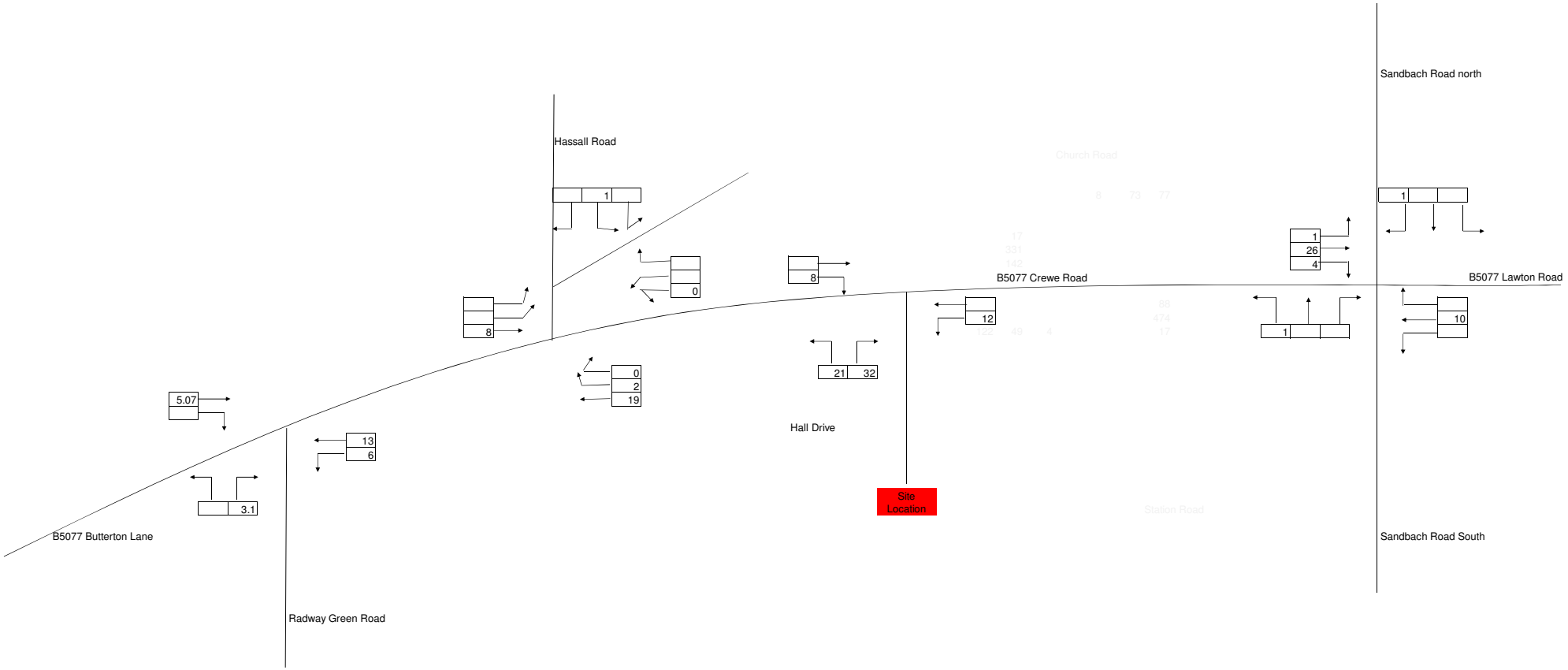
SCENARIO: Figure 15: Residential Development Traffic Flows

TIME: Friday PM Peak(1630 - 1730)



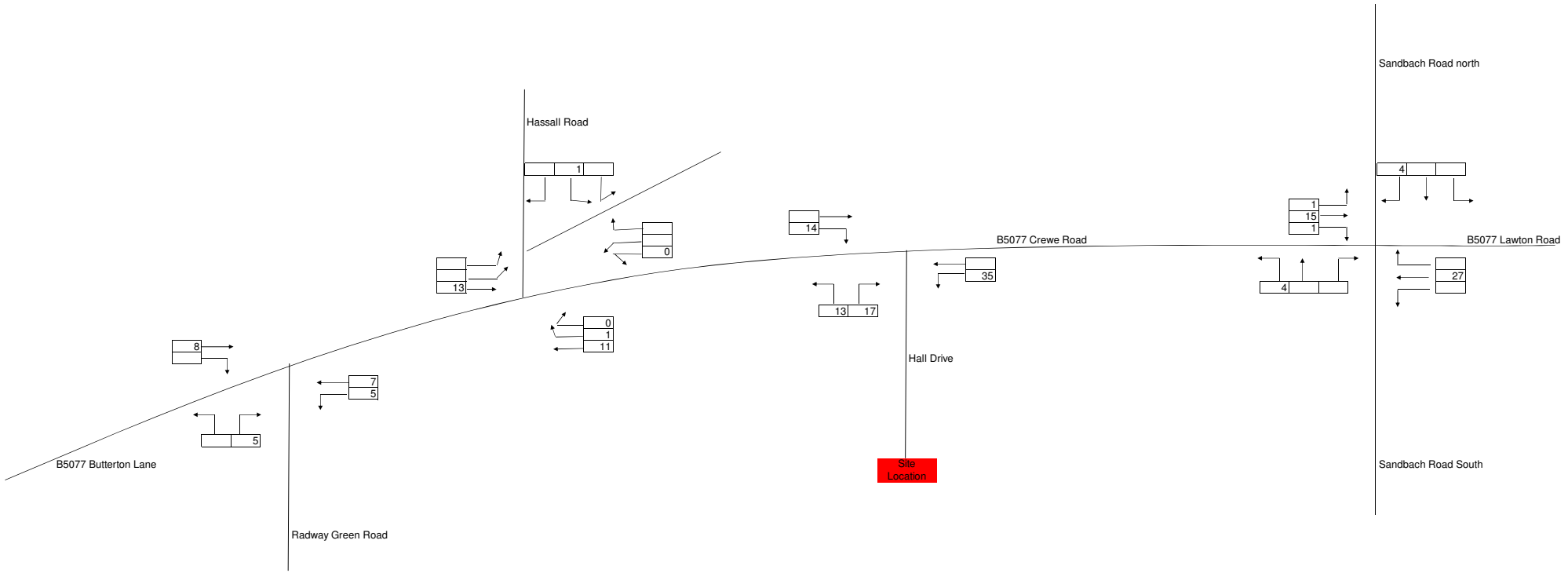
*Any minor discrepancies will be as a result of rounding in the electronic spreadsheet calculations

Waterman Boreham
Transport Planning



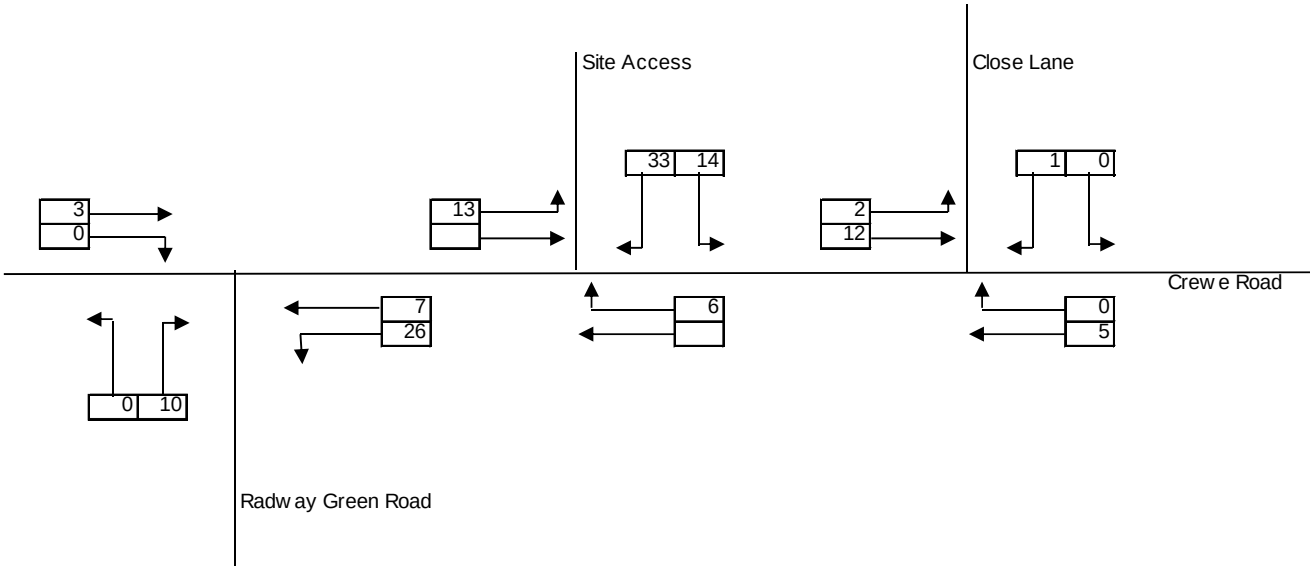
Appendix 10.3	AM Peak Development Flows
JUNE 2013	RESIDENTIAL DEVELOPMENT AT HALL DRIVE, ALSAGER

SCP
Transportation Planning : Infrastructure Design

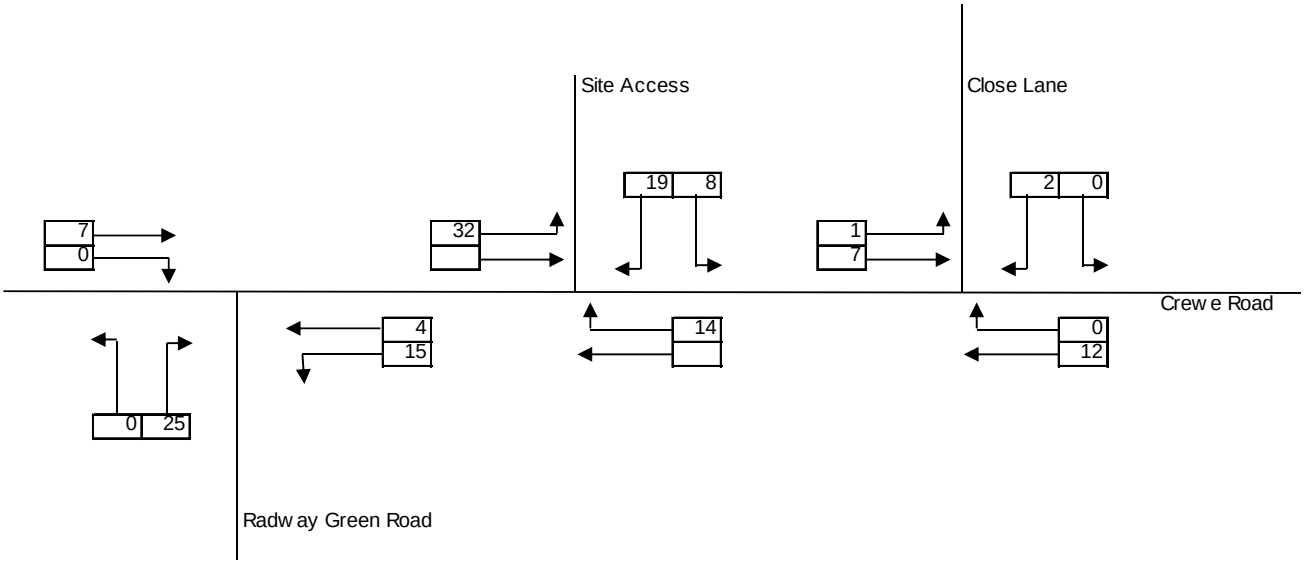


Appendix 10.4	PM Peak Development Flows	S C P
JUNE 2013	RESIDENTIAL DEVELOPMENT AT HALL DRIVE, ALSAGER	

AM PEAK



PM PEAK



S C P Transportation Planning : Infrastructure Design www.scptransport.co.uk	Project Title CREWE ROAD, ALSAGER	Drawing Title PROPOSED DEVELOPMENT TRAFFIC FLOWS	Scale 1:500 @ A4 Date April 2013 Checked	Drawing No. APPENDIX 7 Revision

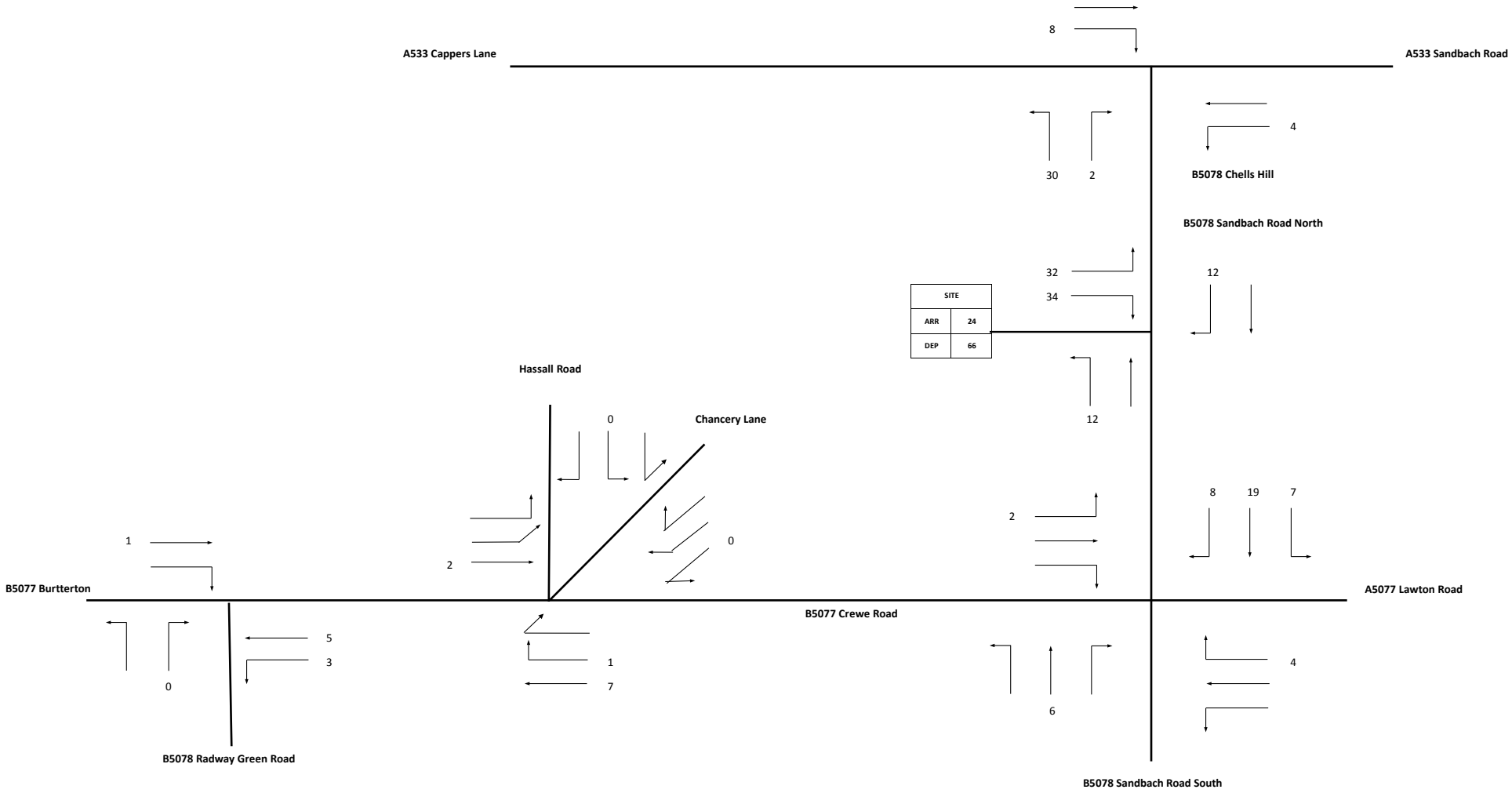


Figure 15 **Weekday AM Peak (0745 to 0845 hours)**
Proposed Development Flows

croft
Transport Solutions
6th Floor, Quay House, Quay Street, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

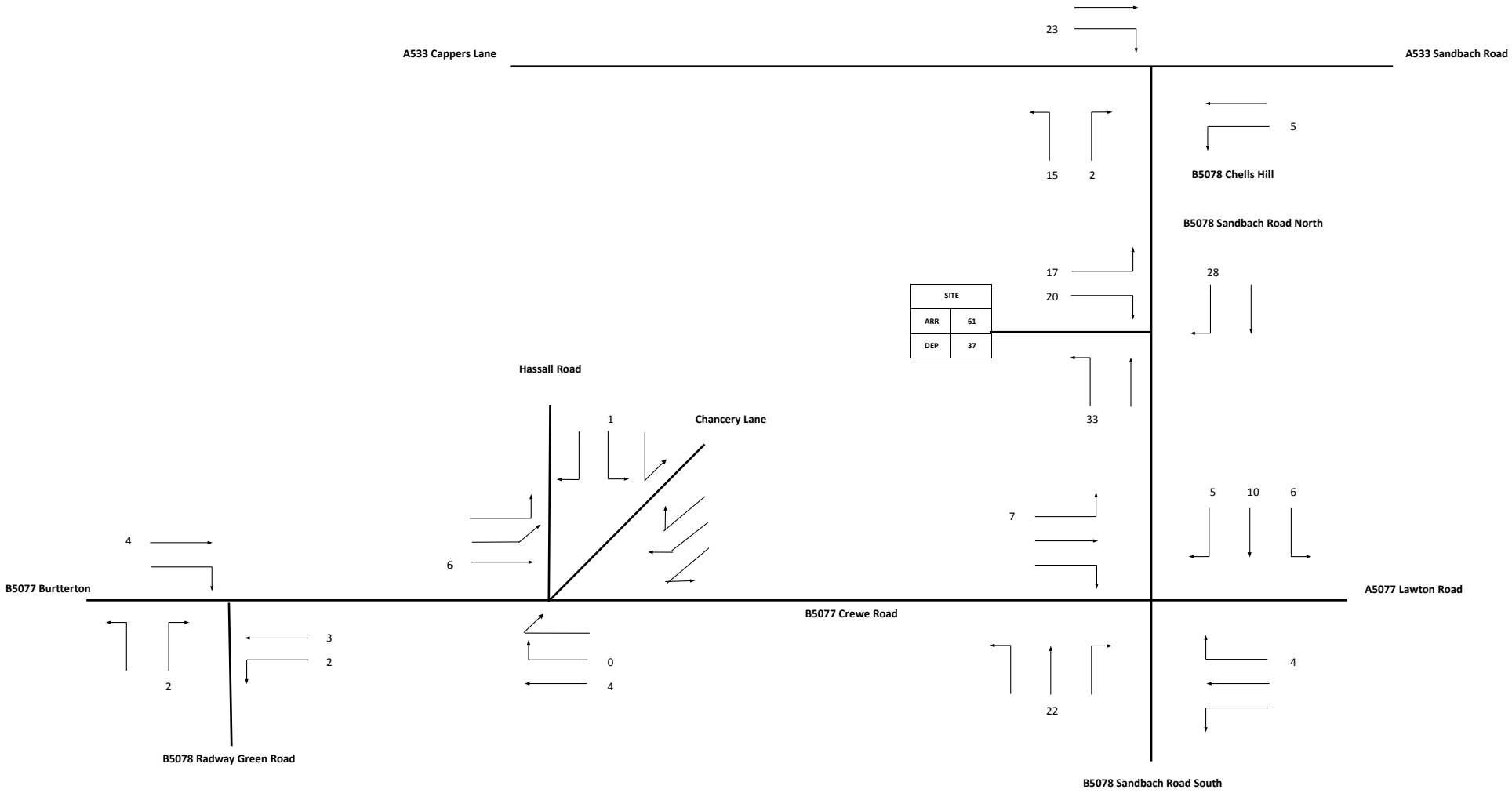


Figure 16 **Weekday PM Peak (1700 to 1800 hours)**
Proposed Development Flows

croft
Transport Solutions
6th Floor, Quay House, Quay Street, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

4.0 APPLICATION PROPOSALS

4.1 The application proposals are illustrated at Appendix 3. The scheme includes a new access designed to accommodate 30 dwellings and allow potential future expansion of the site to the north. The application proposals include a pedestrian link from the application site into existing public open space found to the south of the application site.

4.2 The application proposals also include a route for the PROW known as Alsager FP 3 which passes along the northern boundary of the application site. To accommodate the application proposals there will be a requirement to divert the existing PROW onto the new alignment which would be 2.5m wide. The surfacing for the diverted footpath will need to be agreed with the Highways officer.

4.3 The proposed site access is detailed at Appendix 4 and includes visibility splays of 2.4m x 43m in both directions. The proposed visibility is suitable for the prevailing mandatory speed limit and will be suitable for the application site. It is proposed to provide a short section of footway from the site access on the western side to Hassall Road to link to the existing footway at the northbound bus stop.

4.4 The initial bellmouth is 5.5m wide which will allow all vehicles to pass side by side and 6 m corner radii are proposed. The access will initially have a 2m wide footway on both sides. After the first internal junction within the site the carriageway is reduced to 4.5 m and footways are replaced with a 2 m wide verge on both sides. The layout of the access roads has been designed to minimise vehicle speeds within the residential area.

4.5 The anticipated level of traffic generation associated with the application proposals has been assessed using the TRICS database. Multi modal trip rates have been used and the data is detailed at Appendix 5 and the trip rates and anticipated vehicle movements are summarised below:

Vehicle trip rates and Anticipated Vehicle Trips	**AM Peak**		**PM Peak**	
	Arrivals	**Departures**	**Arrivals**	**Departures**
Trip Rate per Dwelling	0.154	0.444	0.429	0.235
Application site (30 dwellings)	5 vph	13 vph	13 vph	7 vph

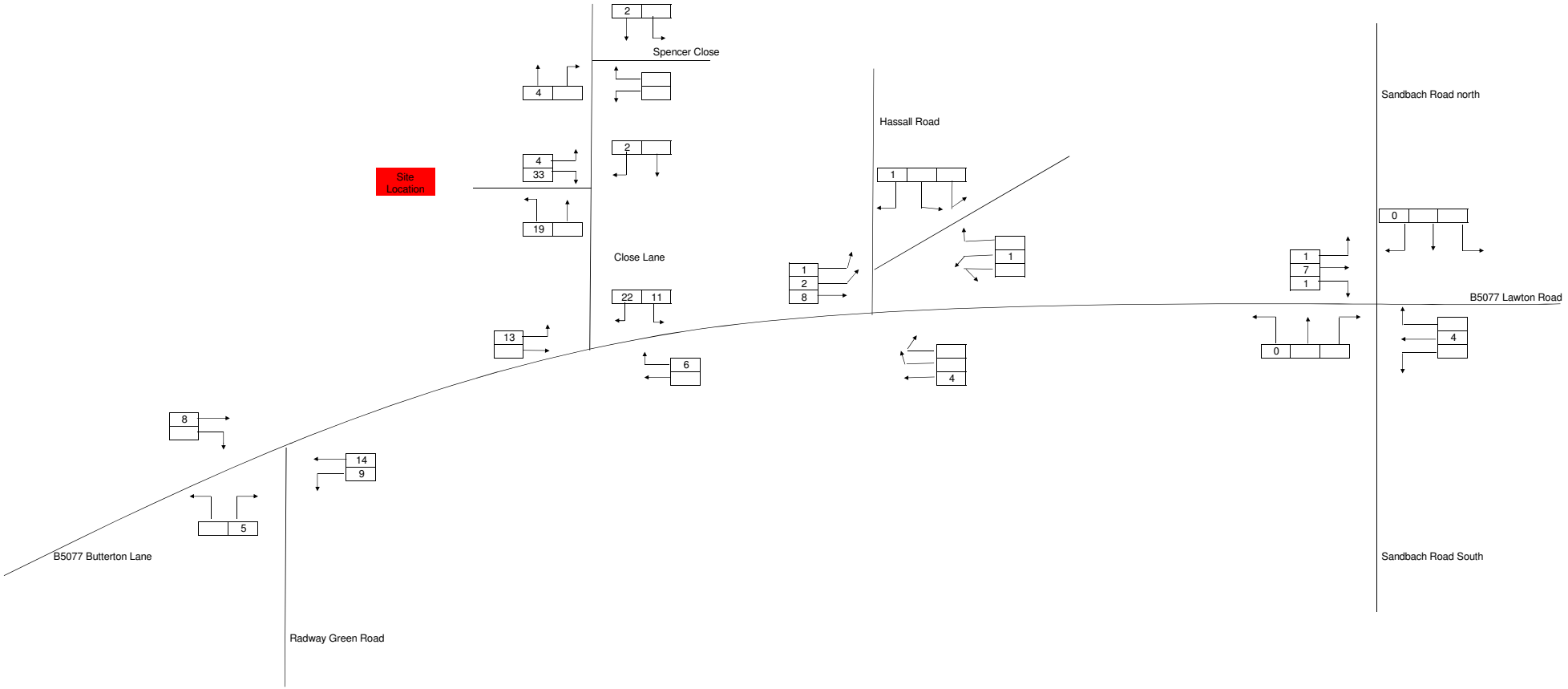


Figure 22	AM PEAK DEVELOPMENT TRIPS	SCP Transportation Planning : Infrastructure Design www.scptransport.co.uk
March 2013	RESIDENTIAL DEVELOPMENT, CLOSE LANE, ALSAGER	

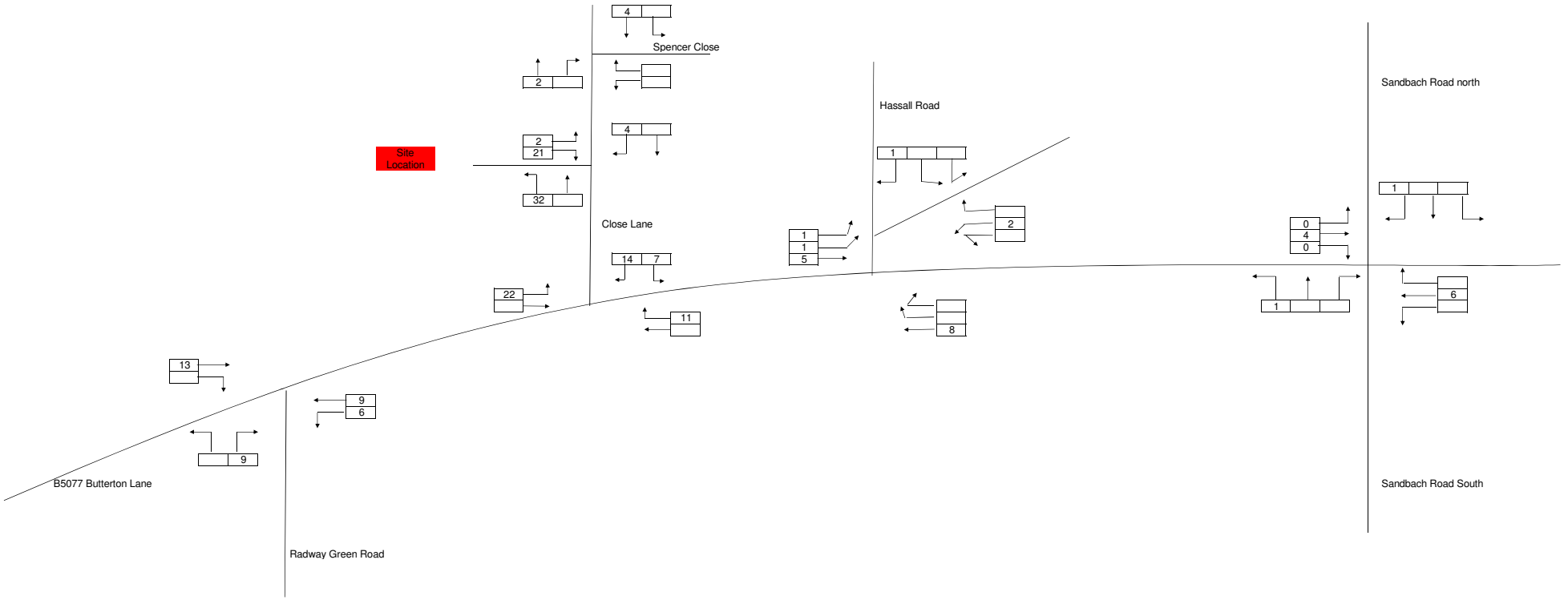
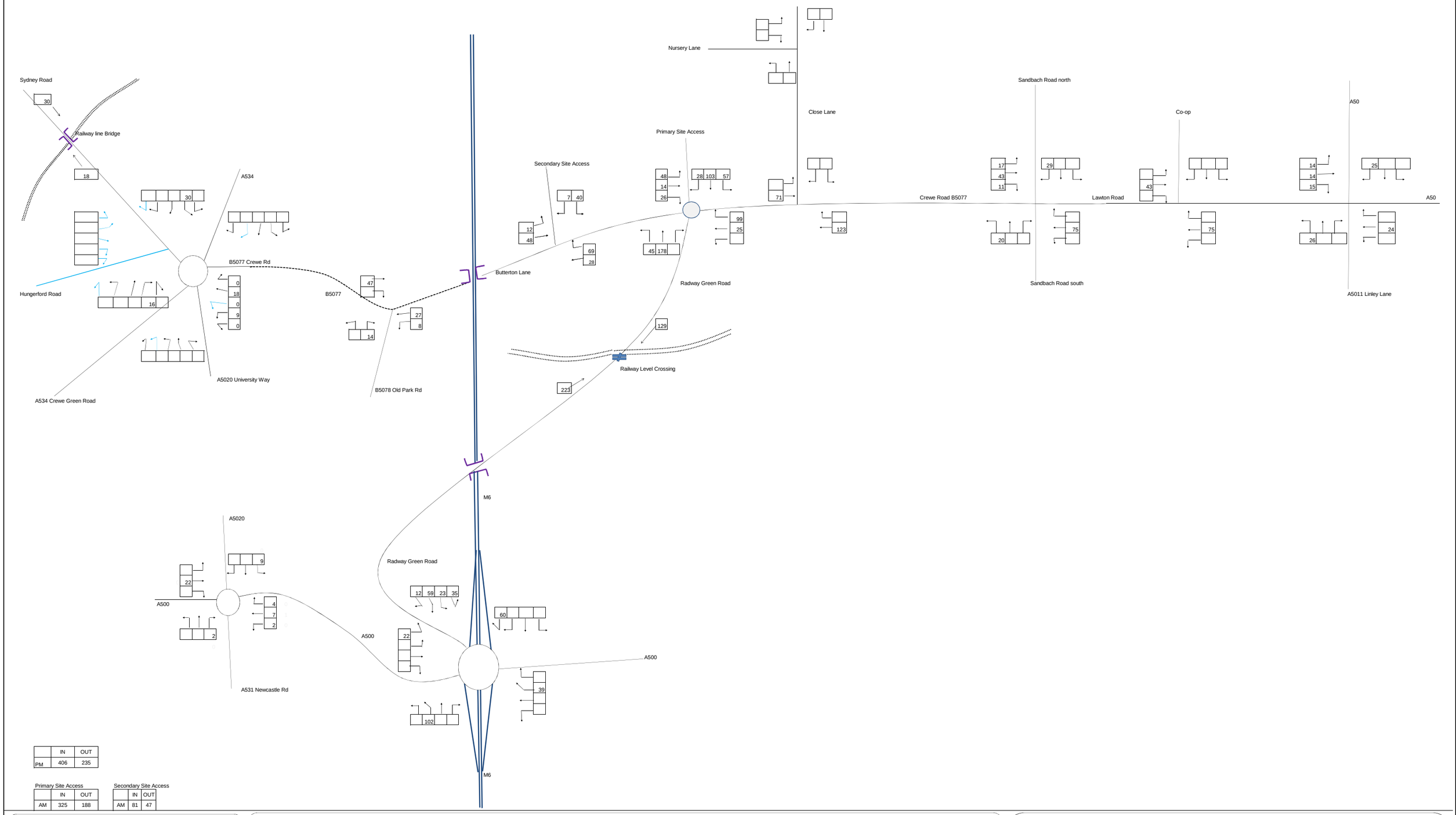


Figure 23	PM PEAK DEVELOPMENT TRIPS	SCP Transportation Planning : Infrastructure Design www.scptransport.co.uk
March 2013	RESIDENTIAL DEVELOPMENT, CLOSE LANE, ALSAGER	



	IN	OUT
PM	406	235

Primary Site Access

	IN	OUT
AM	325	188

Secondary Site Access

	IN	OUT
AM	81	47

FIGURE 28

PROPOSED RESIDENTIAL DEVELOPMENT TRAFFIC ASSIGNMENT : PM

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

S|C|P

Transportation Planning : Infrastructure Design

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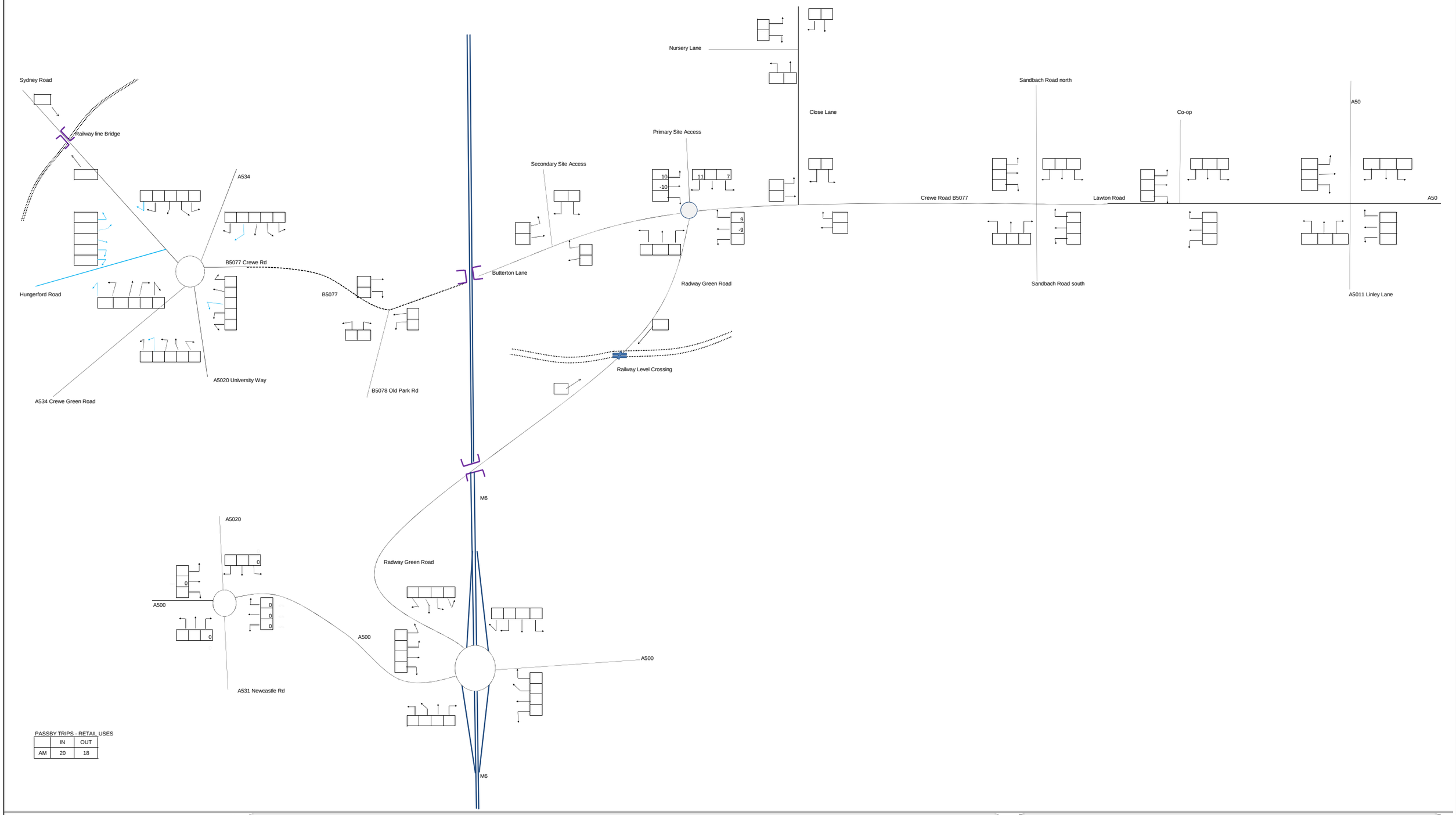
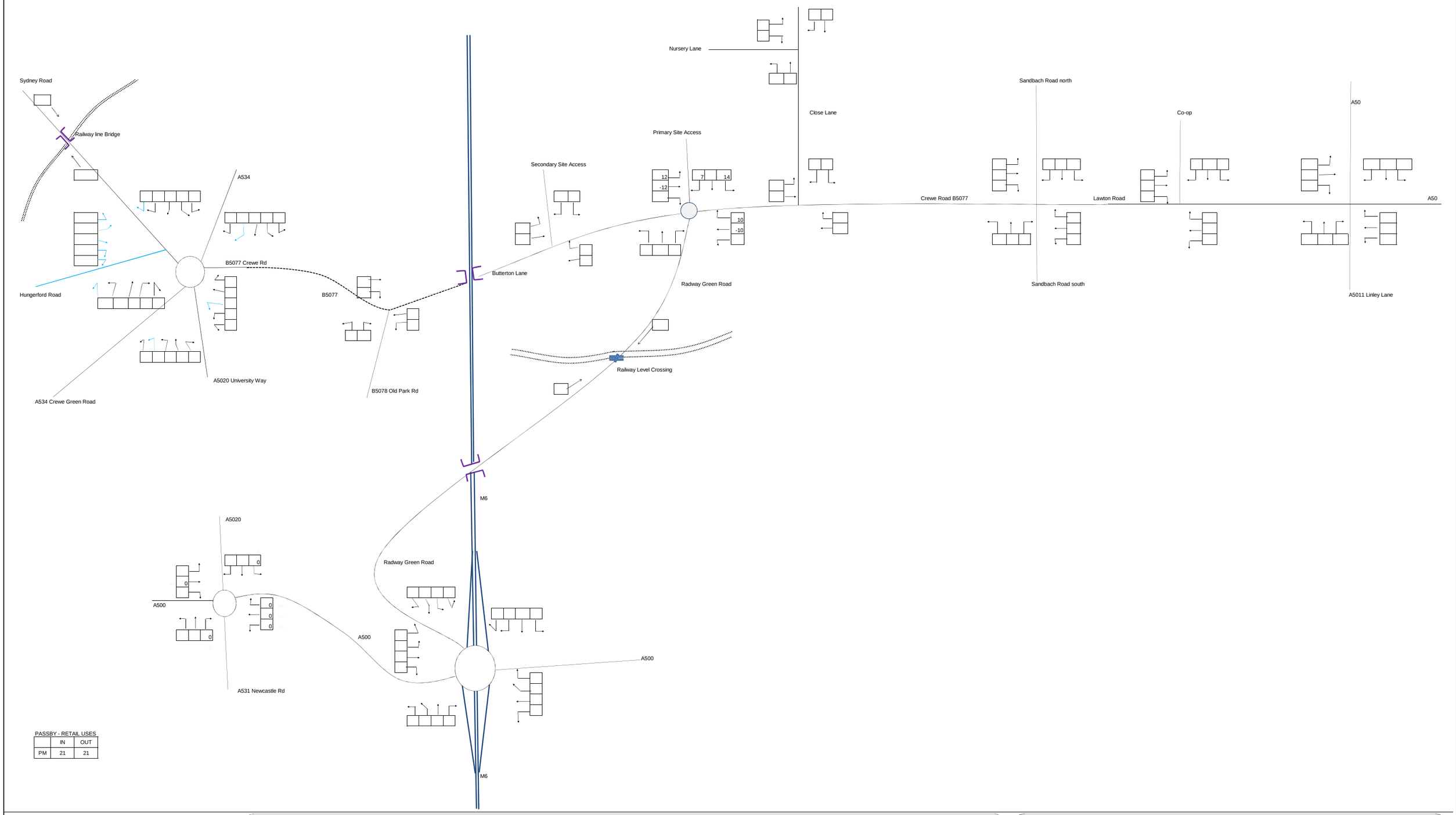


PASSBY TRIPS - RETAIL USES

	IN	OUT
AM	20	18

FIGURE 29	PROPOSED RETAIL USES PASS-BY TRIP ASSIGNMENT : AM PEAK	S|C|P Transportation Planning : Infrastructure Design www.scptransport.co.uk
JUNE 2013	PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER	



PASSBY - RETAIL USES

	IN	OUT
PM	21	21

FIGURE 30

PROPOSED RETAIL USES PASS-BY TRIP ASSIGNMENT : PM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

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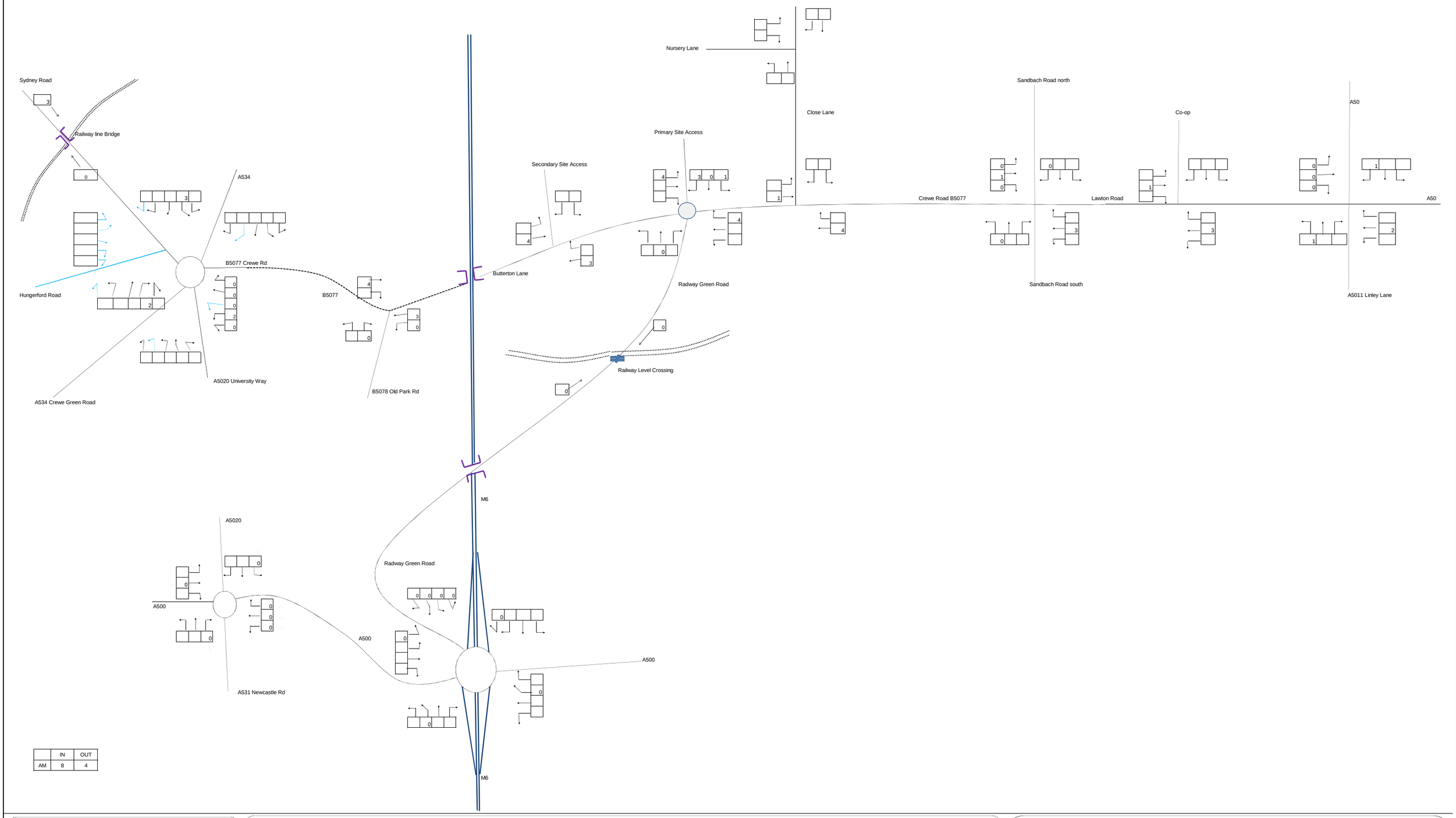
Transportation Planning : Infrastructure Design

www.scptransport.co.uk



	IN	OUT
AM	8	4

FIGURE 31

MEDICAL CENTRE USE TRAFFIC ASSIGNMENT : AM PEAK

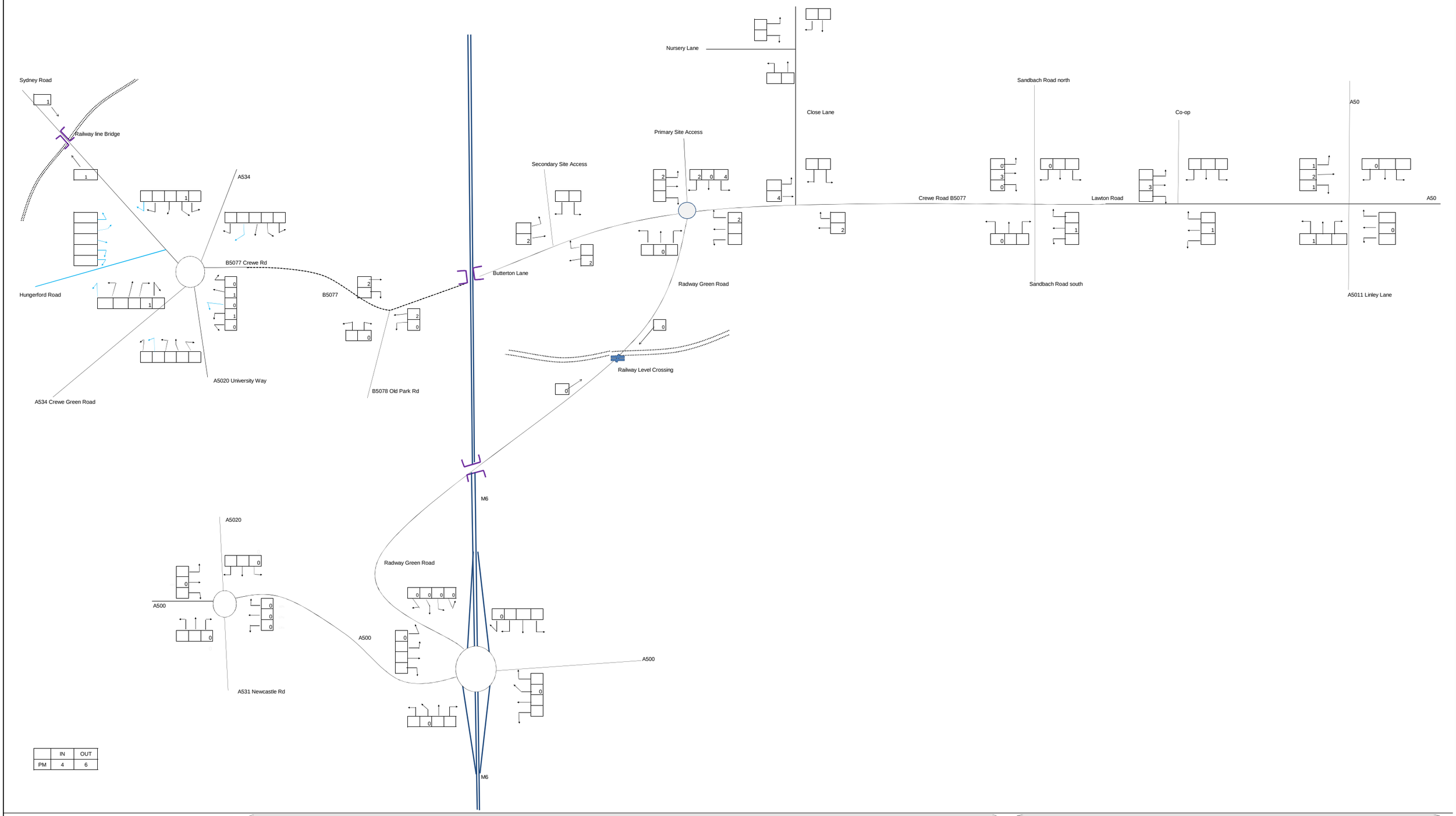
JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

S|C|P

Transportation Planning : Infrastructure Design

www.scptransport.co.uk



	IN	OUT
PM	4	6

FIGURE 32

MEDICAL CENTRE USE TRAFFIC ASSIGNMENT : PM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

S|C|P

Transportation Planning : Infrastructure Design

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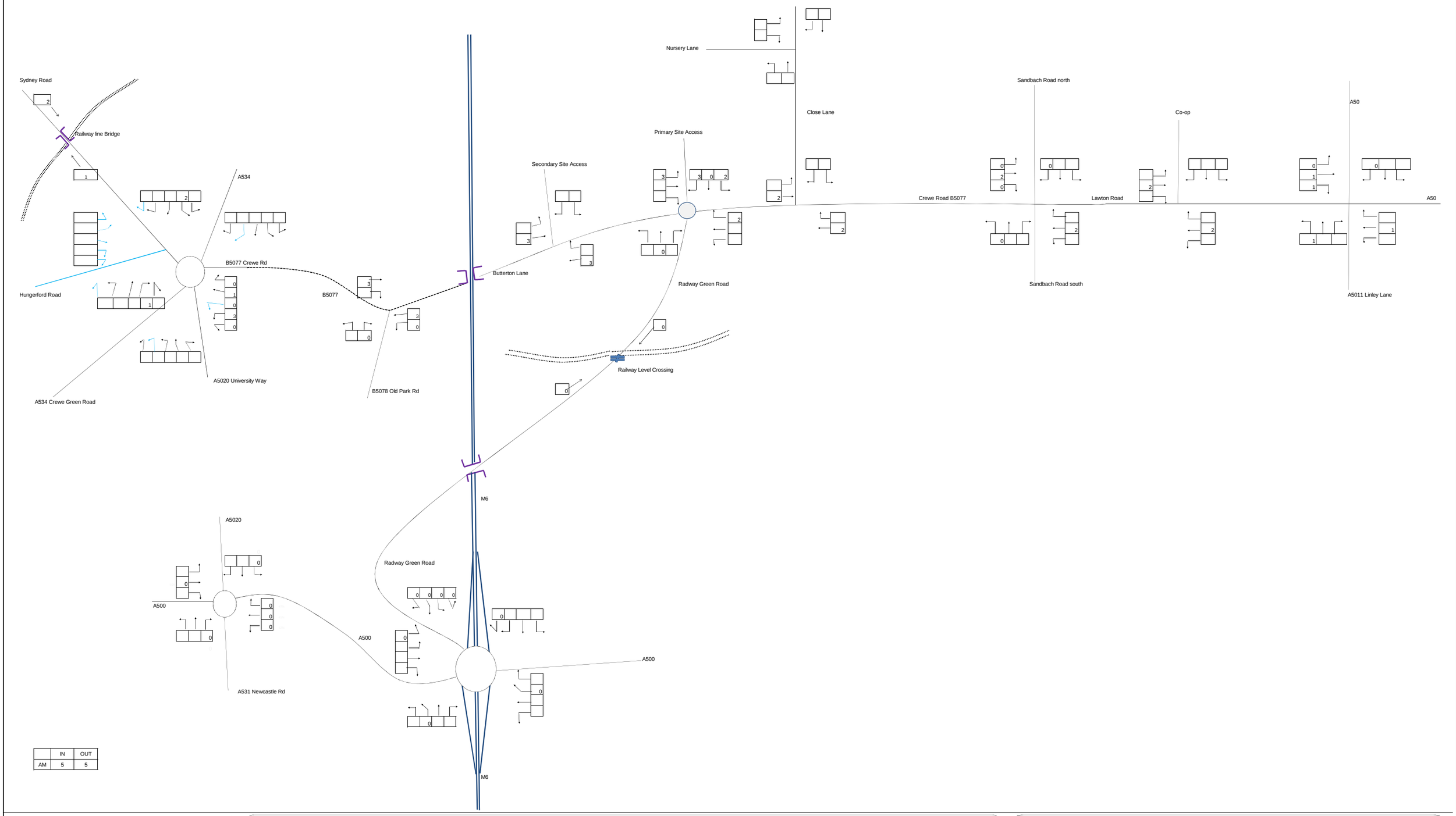

	IN	OUT
AM	5	5

FIGURE 33

NURSERY USE TRAFFIC ASSIGNMENT : AM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

S|C|P

Transportation Planning : Infrastructure Design

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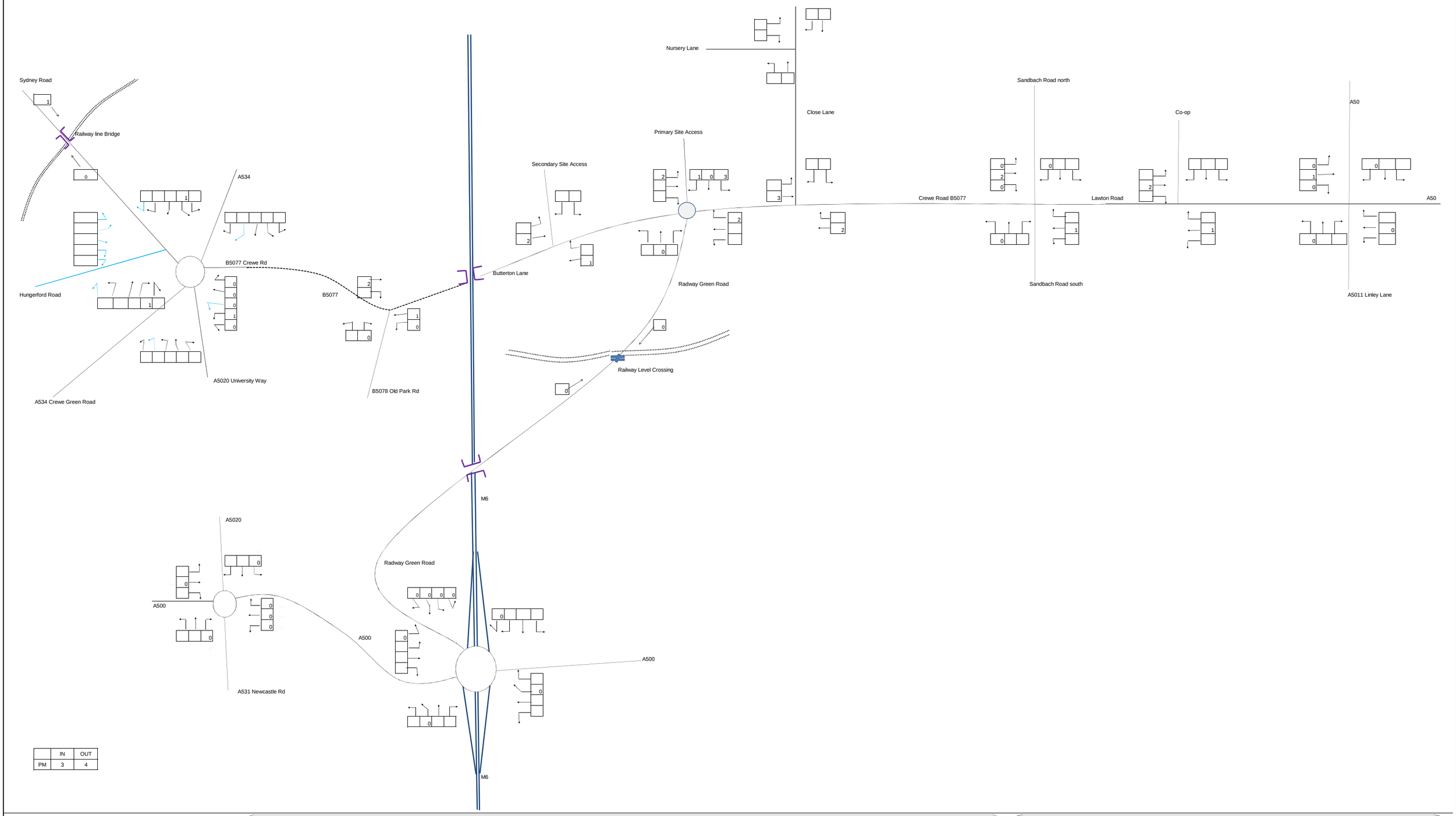

	IN	OUT
PM	3	4

FIGURE 34

NURSERY USE TRAFFIC ASSIGNMENT : AM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

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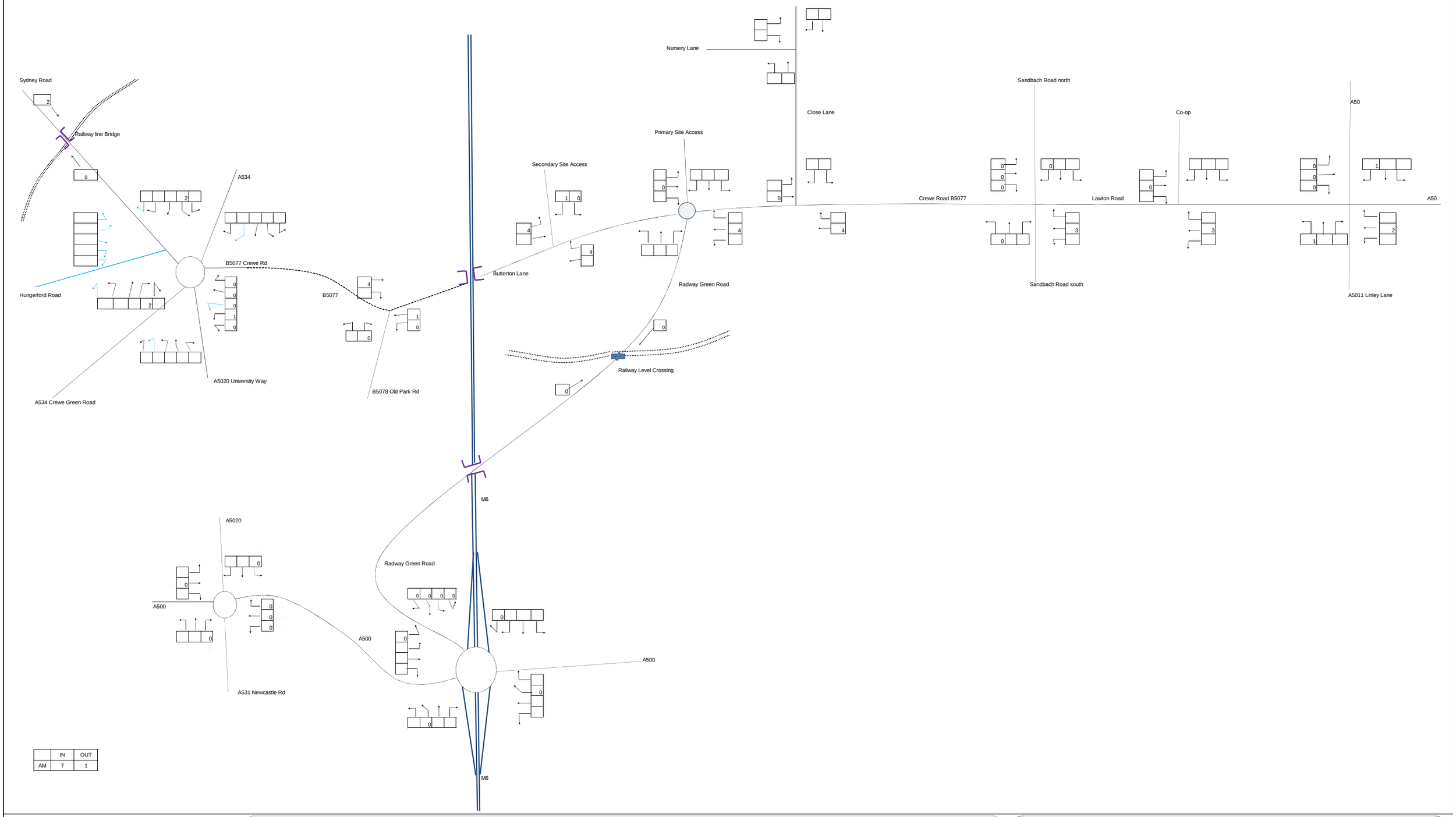

	IN	OUT
AM	7	1

FIGURE 35

GARDEN CENTRE TRAFFIC ASSIGNMENT : AM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

S|C|P

Transportation Planning : Infrastructure Design

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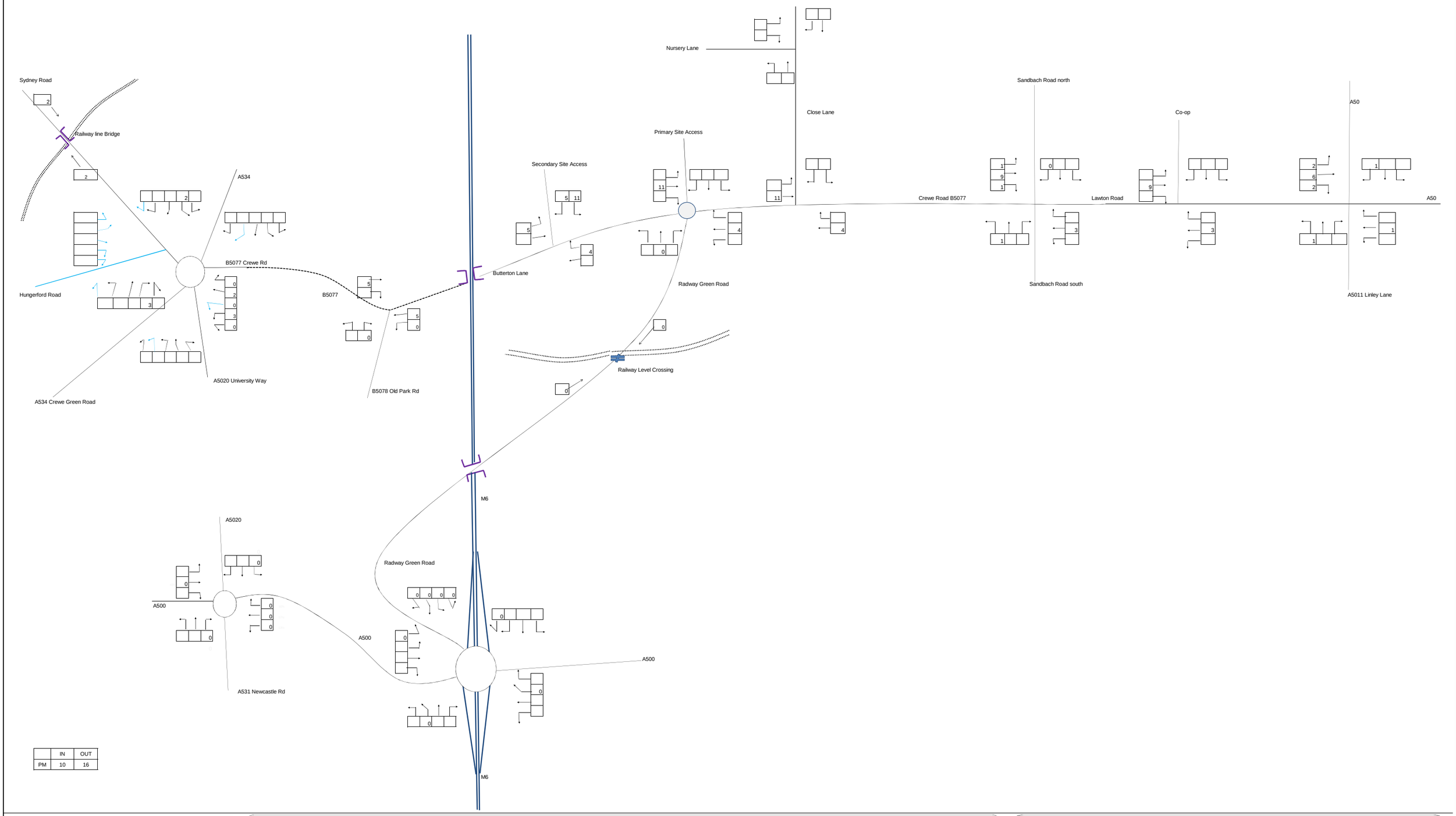

	IN	OUT
PM	10	16

FIGURE 36

GARDEN CENTRE TRAFFIC ASSIGNMENT : PM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

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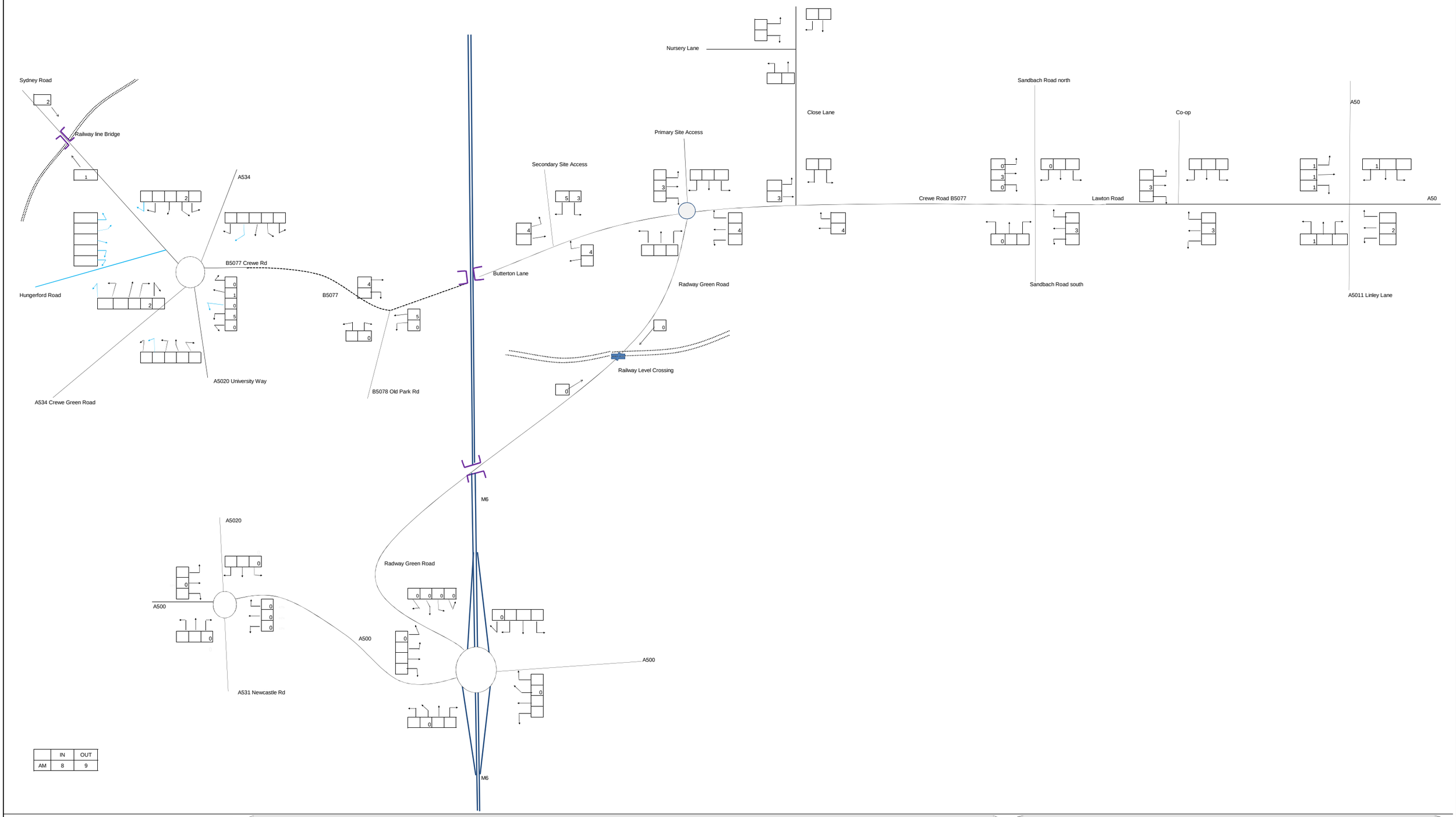

	IN	OUT
AM	8	9

FIGURE 37

CARE HOME TRAFFIC ASSIGNMENT : AM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

S|C|P

Transportation Planning : Infrastructure Design

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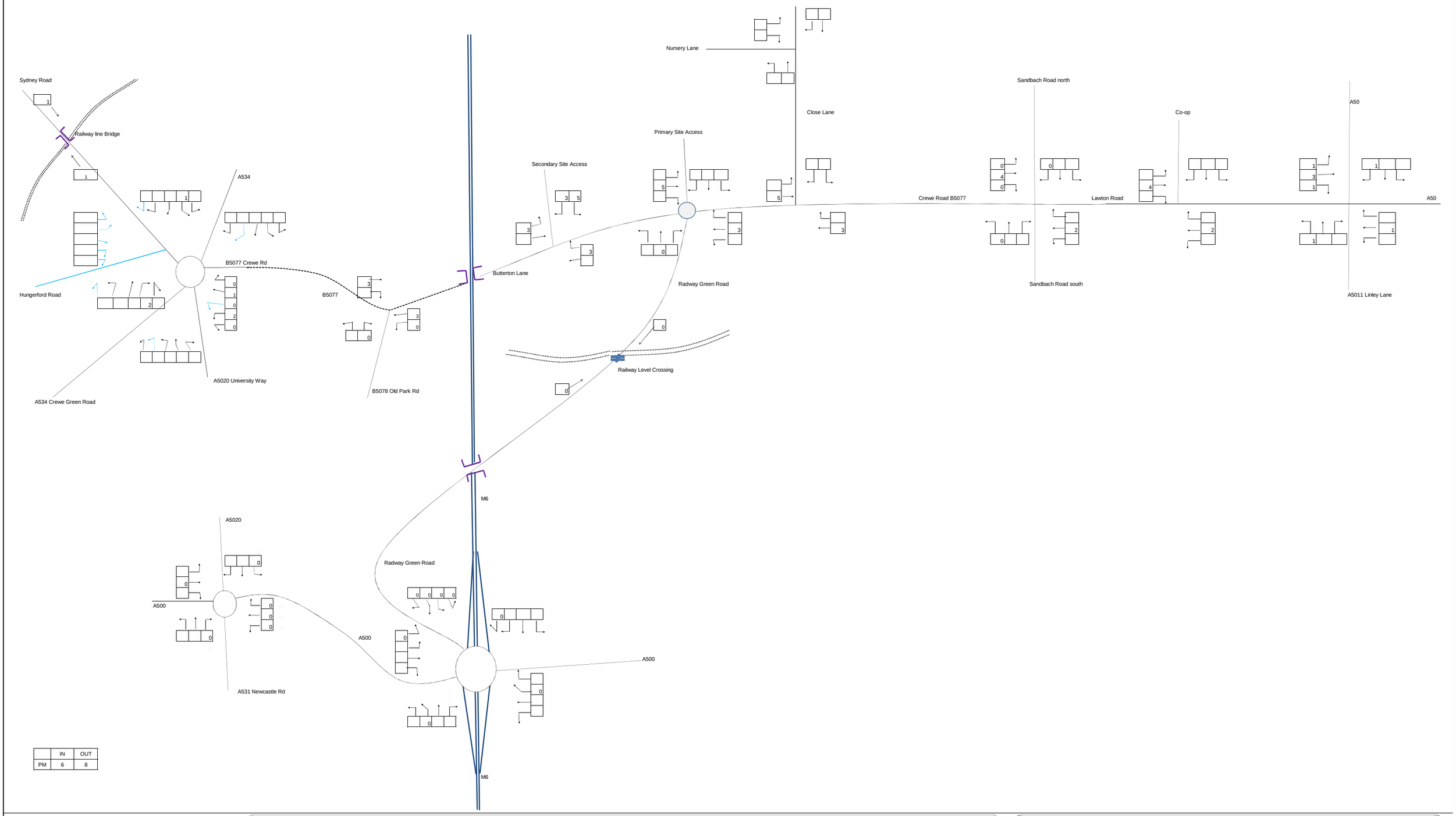

	IN	OUT
PM	6	8

FIGURE 38

CARE HOME TRAFFIC ASSIGNMENT : AM PEAK

JUNE 2013

PROPOSED RESIDENTIAL DEVELOPMENT, WHITEMOSS QUARRY, ALSAGER

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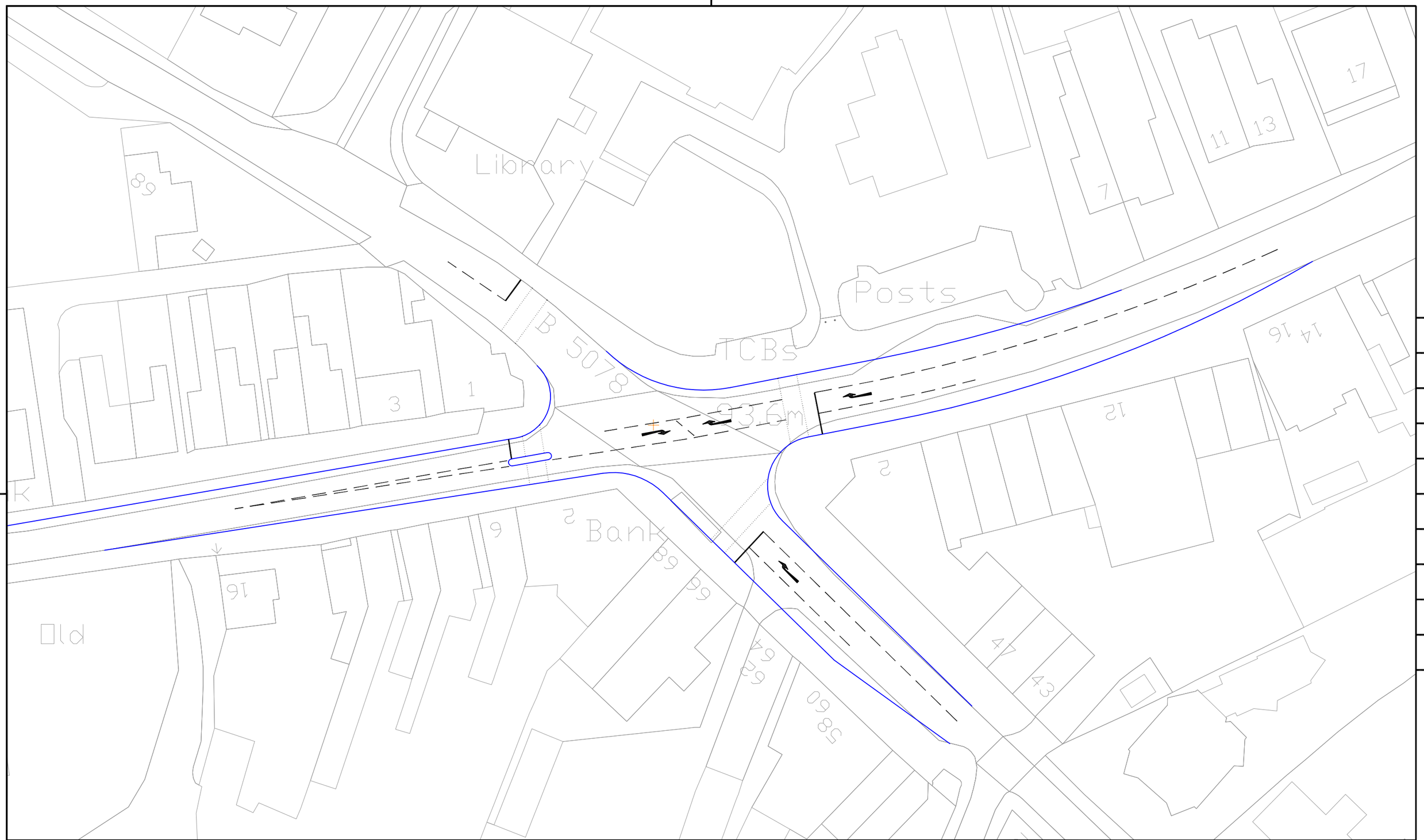
Appendix C – Committed WMQ off-site Improvements



Cheshire East Council

Cheshire East Council - Environmental Services
Floor 6 Delamere House, Delamere St. Crewe CW1 2LL

Project:

Sandbach Road Junction
Alsager

Potential Junction Improvements

Contact Name:
Tel: 01270 68 Fax No: 01270 68

Drawn by:

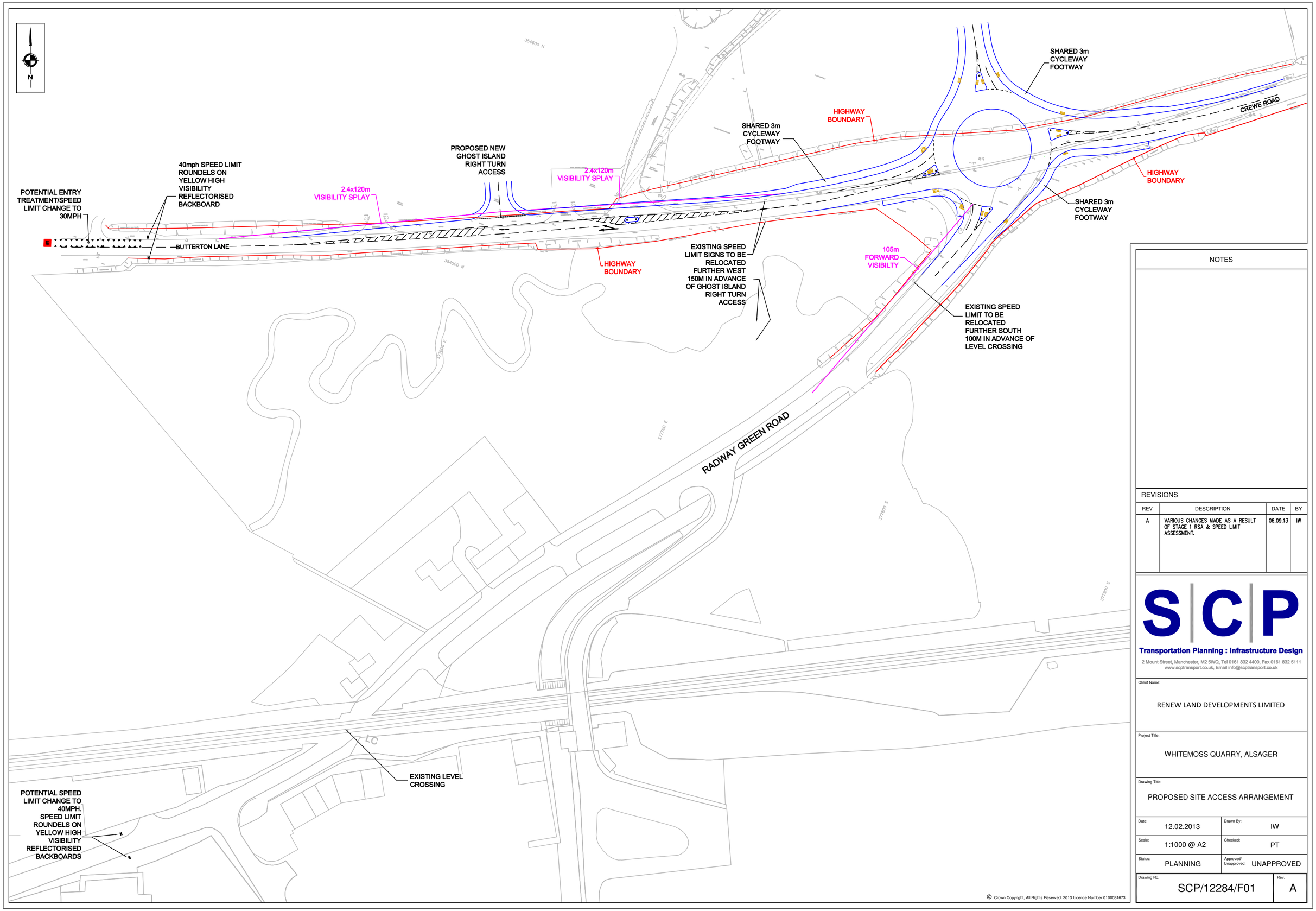
Checked by:

Date: 14/05/2013

Scales at A3:1:500 | Sheet 1 of 1

Drawing No: | Phase/Rev: A

AutoCAD File Ref: O:\East\LTP_East\Local Infrastructure Plans\4. Alsager\Alsager Junction Improvements.dwg May 14, 2013 - 9:55am



NOTES

REVISIONS

REV	DESCRIPTION	DATE	BY
A	VARIOUS CHANGES MADE AS A RESULT OF STAGE 1 RSA & SPEED LIMIT ASSESSMENT.	06.09.13	IW

S|C|P
Transportation Planning : Infrastructure Design
2 Mount Street, Manchester, M2 5WQ, Tel 0161 832 4400, Fax 0161 832 5111
www.scptransport.co.uk, Email info@scptransport.co.uk

Client Name:
RENEW LAND DEVELOPMENTS LIMITED

Project Title:
WHITEMOSS QUARRY, ALSAGER

Drawing Title:
PROPOSED SITE ACCESS ARRANGEMENT

Date: 12.02.2013	Drawn By: IW
Scale: 1:1000 @ A2	Checked: PT
Status: PLANNING	Approved/ Unapproved: UNAPPROVED

Drawing No. SCP/12284/F01 Rev. A

Appendix D – ARCADY Outputs

(Proposed WMQ Roundabout)

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: (new file)
Path:
Report generation date: 16/04/2015 16:18:51

Summary of junction performance

	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
	Proposed White moss Quarry Roundabout - 2019 Assessment			
Crewe Road	2.88	0.75	0.44	0.31
Radway Green Road	0.42	0.29	0.69	0.41
Butterton Lane	0.44	0.31	2.09	0.68
White Moss Quarry Site Access	0.16	0.14	0.17	0.14
	Proposed White moss Quarry Roundabout - 2019 Base			
Crewe Road	2.71	0.73	0.44	0.30
Radway Green Road	0.41	0.29	0.67	0.40
Butterton Lane	0.44	0.30	1.99	0.67
White Moss Quarry Site Access	0.16	0.14	0.16	0.14

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D3 - 2019 Base, AM " model duration: 07:45 - 09:15
"D4 - 2019 Base, PM" model duration: 16:30 - 18:00
"D7 - 2019 Assessment, AM" model duration: 07:45 - 09:15
"D8 - 2019 Assessment, PM" model duration: 16:30 - 18:00

Run using Junctions 8.0.1.305 at 16/04/2015 16:18:50

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	09/09/2014
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	

Enumerator	WYG\steven.ho
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (min)	Queue Threshold (PCU)
5.75			N/A	1.00	0.60	20.00

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	PCU	PCU	perHour	min	-Min	perMin

Proposed White moss Quarry Roundabout - 2019 Base, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed White moss Quarry Roundabout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Base, AM	2019 Base	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (min)	Junction LOS
(untitled)	Roundabout	1,2,3,4				0.10	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description
Crewe Road	Crewe Road	
Radway Green Road	Radway Green Road	
Butterton Lane	Butterton Lane	
White Moss Quarry Site Access	White Moss Quarry Site Access	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Crewe Road	0.00	99999.00		0.00
Radway Green Road	0.00	99999.00		0.00
Butterton Lane	0.00	99999.00		0.00
White Moss Quarry Site Access	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Crewe Road	3.60	7.60	25.00	22.00	45.00	36.00	
Radway Green Road	4.50	8.00	10.00	13.00	45.00	45.00	
Butterton Lane	3.75	6.60	26.00	22.00	45.00	36.00	
White Moss Quarry Site Access	3.65	6.30	13.40	24.00	45.00	42.00	

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

Pedestrian Crossings

Name	Crossing Type
Crewe Road	None
Radway Green Road	None
Butterton Lane	None
White Moss Quarry Site Access	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Crewe Road		(calculated)	(calculated)	0.654	1861.400
Radway Green Road		(calculated)	(calculated)	0.608	1717.655
Butterton Lane		(calculated)	(calculated)	0.632	1746.479
White Moss Quarry Site Access		(calculated)	(calculated)	0.587	1544.195

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry

		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
Crewe Road	ONE HOUR	✓	1114.00	100.000
Radway Green Road	ONE HOUR	✓	312.00	100.000
Butterton Lane	ONE HOUR	✓	442.00	100.000
White Moss Quarry Site Access	ONE HOUR	✓	149.00	100.000

Direct/Resultant Flows

Direct Flows Data

Time Segment	Name	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
07:45-08:00	**Crewe Road**	838.68	838.68	N/A	N/A
07:45-08:00	**Radway Green Road**	234.89	234.89	N/A	N/A
07:45-08:00	**Butterton Lane**	332.76	332.76	N/A	N/A
07:45-08:00	**White Moss Quarry Site Access**	112.18	112.18	N/A	N/A
08:00-08:15	**Crewe Road**	1001.46	1001.46	N/A	N/A
08:00-08:15	**Radway Green Road**	280.48	280.48	N/A	N/A
08:00-08:15	**Butterton Lane**	397.35	397.35	N/A	N/A
08:00-08:15	**White Moss Quarry Site Access**	133.95	133.95	N/A	N/A
08:15-08:30	**Crewe Road**	1226.54	1226.54	N/A	N/A
08:15-08:30	**Radway Green Road**	343.52	343.52	N/A	N/A
08:15-08:30	**Butterton Lane**	486.65	486.65	N/A	N/A
08:15-08:30	**White Moss Quarry Site Access**	164.05	164.05	N/A	N/A
08:30-08:45	**Crewe Road**	1226.54	1226.54	N/A	N/A
08:30-08:45	**Radway Green Road**	343.52	343.52	N/A	N/A
08:30-08:45	**Butterton Lane**	486.65	486.65	N/A	N/A
08:30-08:45	**White Moss Quarry Site Access**	164.05	164.05	N/A	N/A
08:45-09:00	**Crewe Road**	1001.46	1001.46	N/A	N/A
08:45-09:00	**Radway Green Road**	280.48	280.48	N/A	N/A
08:45-09:00	**Butterton Lane**	397.35	397.35	N/A	N/A
08:45-09:00	**White Moss Quarry Site Access**	133.95	133.95	N/A	N/A
09:00-09:15	**Crewe Road**	838.68	838.68	N/A	N/A
09:00-09:15	**Radway Green Road**	234.89	234.89	N/A	N/A
09:00-09:15	**Butterton Lane**	332.76	332.76	N/A	N/A

09:00-09:15	White Moss Quarry Site Access	112.18	112.18	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	352.000	734.000	28.000
	2	163.000	0.000	125.000	24.000
	3	257.000	161.000	0.000	24.000
	4	47.000	67.000	35.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.32	0.66	0.03
	2	0.52	0.00	0.40	0.08
	3	0.58	0.36	0.00	0.05
	4	0.32	0.45	0.23	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay	Max Queue	Max LOS	Average Demand	Total Junction	Total Queueing	Average Queueing	Rate Of Queueing	Inclusive Total Queueing	Inclusive Average

		(min)	(PCU)		(PCU/hr)	Arrivals (PCU)	Delay (PCU-min)	Delay (min)	Delay (PCU-min/min)	Delay (PCU-min)	Queueing Delay (min)
Crewe Road	0.73	0.13	2.71	A	1022.23	1533.34	148.91	0.10	1.65	148.92	0.10
Radway Green Road	0.29	0.07	0.41	A	286.30	429.44	26.76	0.06	0.30	26.76	0.06
Butterton Lane	0.30	0.05	0.44	A	405.59	608.38	30.31	0.05	0.34	30.31	0.05
White Moss Quarry Site Access	0.14	0.06	0.16	A	136.73	205.09	11.35	0.06	0.13	11.35	0.06

Main Results for each time segment

Main results: (07:45-08:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	838.68	209.67	834.96	350.44	197.37	0.00	1732.22	1333.81	0.484	0.00	0.93	0.067	A
Radway Green Road	234.89	58.72	234.05	434.94	597.39	0.00	1354.40	1094.29	0.173	0.00	0.21	0.054	A
Butterton Lane	332.76	83.19	331.75	670.17	161.27	0.00	1644.55	1310.74	0.202	0.00	0.25	0.046	A
White Moss Quarry Site Access	112.18	28.04	111.79	57.00	436.01	0.00	1288.04	480.11	0.087	0.00	0.10	0.051	A

Main results: (08:00-08:15)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1001.46	250.37	999.58	419.48	236.26	0.00	1706.77	1333.82	0.587	0.93	1.40	0.085	A
Radway Green Road	280.48	70.12	280.20	520.67	715.17	0.00	1282.77	1094.29	0.219	0.21	0.28	0.060	A
Butterton Lane	397.35	99.34	397.07	802.31	193.07	0.00	1624.45	1310.74	0.245	0.25	0.32	0.049	A
White Moss Quarry Site Access	133.95	33.49	133.84	68.24	521.90	0.00	1237.59	480.11	0.108	0.10	0.12	0.054	A

Main results: (08:15-08:30)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1226.54	306.63	1221.47	513.60	289.29	0.00	1672.06	1333.83	0.734	1.40	2.67	0.132	A
Radway Green Road	343.52	85.88	343.01	636.75	874.01	0.00	1186.19	1094.29	0.290	0.28	0.40	0.071	A
Butterton Lane	486.65	121.66	486.20	980.73	236.29	0.00	1597.13	1310.75	0.305	0.32	0.44	0.054	A
White Moss Quarry Site Access	164.05	41.01	163.89	83.49	639.00	0.00	1168.80	480.11	0.140	0.12	0.16	0.060	A

Main results: (08:30-08:45)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1226.54	306.63	1226.37	514.17	289.57	0.00	1671.88	1333.83	0.734	2.67	2.71	0.135	A
Radway Green Road	343.52	85.88	343.51	638.54	877.40	0.00	1184.13	1094.29	0.290	0.40	0.41	0.071	A
Butterton Lane	486.65	121.66	486.65	984.20	236.71	0.00	1596.87	1310.75	0.305	0.44	0.44	0.054	A
White Moss Quarry Site Access	164.05	41.01	164.05	83.67	639.68	0.00	1168.39	480.11	0.140	0.16	0.16	0.060	A

Main results: (08:45-09:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1001.46	250.37	1006.54	420.40	236.71	0.00	1706.48	1333.82	0.587	2.71	1.44	0.086	A
Radway Green Road	280.48	70.12	280.98	523.25	720.00	0.00	1279.84	1094.29	0.219	0.41	0.28	0.060	A
Butterton Lane	397.35	99.34	397.80	807.27	193.71	0.00	1624.05	1310.74	0.245	0.44	0.33	0.049	A
White Moss Quarry Site Access	133.95	33.49	134.11	68.51	522.99	0.00	1236.95	480.11	0.108	0.16	0.12	0.054	A

Main results: (09:00-09:15)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	838.68	209.67	840.65	351.93	198.17	0.00	1731.70	1333.81	0.484	1.44	0.95	0.067	A
Radway Green Road	234.89	58.72	235.17	437.43	601.40	0.00	1351.96	1094.29	0.174	0.28	0.21	0.054	A
Butterton Lane	332.76	83.19	333.04	674.49	162.08	0.00	1644.03	1310.74	0.202	0.33	0.25	0.046	A
White Moss Quarry Site Access	112.18	28.04	112.28	57.30	437.82	0.00	1286.98	480.11	0.087	0.12	0.10	0.051	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	13.53	0.90	0.067	A	A
Radway Green Road	3.07	0.20	0.054	A	A
Butterton Lane	3.73	0.25	0.046	A	A
White Moss Quarry Site Access	1.40	0.09	0.051	A	A

Queueing Delay results: (08:00-08:15)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	20.35	1.36	0.085	A	A
Radway Green Road	4.11	0.27	0.060	A	A

Butterton Lane	4.77	0.32	0.049	A	A
White Moss Quarry Site Access	1.79	0.12	0.054	A	A

Queueing Delay results: (08:15-08:30)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	37.58	2.51	0.132	A	A
Radway Green Road	5.96	0.40	0.071	A	A
Butterton Lane	6.44	0.43	0.054	A	A
White Moss Quarry Site Access	2.40	0.16	0.060	A	A

Queueing Delay results: (08:30-08:45)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	40.39	2.69	0.135	A	A
Radway Green Road	6.09	0.41	0.071	A	A
Butterton Lane	6.55	0.44	0.054	A	A
White Moss Quarry Site Access	2.44	0.16	0.060	A	A

Queueing Delay results: (08:45-09:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	22.47	1.50	0.086	A	A
Radway Green Road	4.31	0.29	0.060	A	A
Butterton Lane	4.95	0.33	0.049	A	A
White Moss Quarry Site Access	1.85	0.12	0.054	A	A

Queueing Delay results: (09:00-09:15)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	14.58	0.97	0.067	A	A
Radway Green Road	3.21	0.21	0.054	A	A
Butterton Lane	3.87	0.26	0.046	A	A
White Moss Quarry Site Access	1.46	0.10	0.051	A	A

Proposed White moss Quarry Roundabout - 2019 Base, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors

Proposed White moss Quarry Roundabout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Base, PM	2019 Base	PM		ONE HOUR	16:30	18:00	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (min)	Junction LOS
(untitled)	Roundabout	1,2,3,4				0.09	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description
Crewe Road	Crewe Road	
Radway Green Road	Radway Green Road	
Butterton Lane	Butterton Lane	
White Moss Quarry Site Access	White Moss Quarry Site Access	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Crewe Road	0.00	99999.00		0.00
Radway Green Road	0.00	99999.00		0.00
Butterton Lane	0.00	99999.00		0.00
White Moss Quarry Site Access	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Crewe Road	3.60	7.60	25.00	22.00	45.00	36.00	
Radway Green Road	4.50	8.00	10.00	13.00	45.00	45.00	
Butterton Lane	3.75	6.60	26.00	22.00	45.00	36.00	
White Moss Quarry Site Access	3.65	6.30	13.40	24.00	45.00	42.00	

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

Pedestrian Crossings

Name	Crossing Type
Crewe Road	None
Radway Green Road	None
Butterton Lane	None
White Moss Quarry Site Access	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Crewe Road		(calculated)	(calculated)	0.654	1861.400
Radway Green Road		(calculated)	(calculated)	0.608	1717.655
Butterton Lane		(calculated)	(calculated)	0.632	1746.479
White Moss Quarry Site Access		(calculated)	(calculated)	0.587	1544.195

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
Crewe Road	ONE HOUR	✓	463.00	100.000
Radway Green Road	ONE HOUR	✓	549.00	100.000
Butterton Lane	ONE HOUR	✓	847.00	100.000
White Moss Quarry Site Access	ONE HOUR	✓	97.00	100.000

Direct/Resultant Flows

Direct Flows Data

Time Segment	Name	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
16:30-16:45	Crewe Road	348.57	348.57	N/A	N/A
16:30-16:45	Radway Green Road	413.32	413.32	N/A	N/A
16:30-16:45	Butterton Lane	637.67	637.67	N/A	N/A

16:30-16:45	White Moss Quarry Site Access	73.03	73.03	N/A	N/A
16:45-17:00	Crewe Road	416.23	416.23	N/A	N/A
16:45-17:00	Radway Green Road	493.54	493.54	N/A	N/A
16:45-17:00	Butterton Lane	761.44	761.44	N/A	N/A
16:45-17:00	White Moss Quarry Site Access	87.20	87.20	N/A	N/A
17:00-17:15	Crewe Road	509.77	509.77	N/A	N/A
17:00-17:15	Radway Green Road	604.46	604.46	N/A	N/A
17:00-17:15	Butterton Lane	932.56	932.56	N/A	N/A
17:00-17:15	White Moss Quarry Site Access	106.80	106.80	N/A	N/A
17:15-17:30	Crewe Road	509.77	509.77	N/A	N/A
17:15-17:30	Radway Green Road	604.46	604.46	N/A	N/A
17:15-17:30	Butterton Lane	932.56	932.56	N/A	N/A
17:15-17:30	White Moss Quarry Site Access	106.80	106.80	N/A	N/A
17:30-17:45	Crewe Road	416.23	416.23	N/A	N/A
17:30-17:45	Radway Green Road	493.54	493.54	N/A	N/A
17:30-17:45	Butterton Lane	761.44	761.44	N/A	N/A
17:30-17:45	White Moss Quarry Site Access	87.20	87.20	N/A	N/A
17:45-18:00	Crewe Road	348.57	348.57	N/A	N/A
17:45-18:00	Radway Green Road	413.32	413.32	N/A	N/A
17:45-18:00	Butterton Lane	637.67	637.67	N/A	N/A
17:45-18:00	White Moss Quarry Site Access	73.03	73.03	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	160.000	253.000	50.000
	2	392.000	0.000	95.000	62.000
	3	628.000	198.000	0.000	21.000
	4	41.000	36.000	20.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.35	0.55	0.11
	2	0.71	0.00	0.17	0.11
	3	0.74	0.23	0.00	0.02
	4	0.42	0.37	0.21	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (min)
Crewe Road	0.30	0.05	0.44	A	424.86	637.29	30.10	0.05	0.33	30.10	0.05
Radway Green Road	0.40	0.07	0.67	A	503.77	755.66	44.73	0.06	0.50	44.74	0.06
Butterton Lane	0.67	0.13	1.99	A	777.22	1165.83	112.39	0.10	1.25	112.40	0.10
White Moss Quarry Site Access	0.14	0.09	0.16	A	89.01	133.51	10.41	0.08	0.12	10.41	0.08

Main Results for each time segment

Main results: (16:30-16:45)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	348.57	87.14	347.57	795.47	190.36	0.00	1736.81	1514.47	0.201	0.00	0.25	0.043	A
Radway Green Road	413.32	103.33	411.89	295.48	242.45	0.00	1570.22	1055.27	0.263	0.00	0.36	0.052	A
Butterton Lane	637.67	159.42	634.76	276.19	378.15	0.00	1507.47	1091.54	0.423	0.00	0.73	0.069	A

White Moss Quarry Site Access	73.03	18.26	72.72	99.79	913.12	0.00	1007.75	476.18	0.072	0.00	0.08	0.064	A

Main results: (16:45-17:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	416.23	104.06	415.95	952.41	227.95	0.00	1712.21	1514.46	0.243	0.25	0.32	0.046	A
Radway Green Road	493.54	123.38	493.09	353.73	290.16	0.00	1541.21	1055.28	0.320	0.36	0.47	0.057	A
Butterton Lane	761.44	190.36	760.04	330.57	452.68	0.00	1460.36	1091.54	0.521	0.73	1.08	0.085	A
White Moss Quarry Site Access	87.20	21.80	87.09	119.45	1093.27	0.00	901.92	476.18	0.097	0.08	0.11	0.074	A

Main results: (17:00-17:15)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	509.77	127.44	509.32	1164.89	278.70	0.00	1678.99	1514.47	0.304	0.32	0.43	0.051	A
Radway Green Road	604.46	151.12	603.66	432.73	355.28	0.00	1501.61	1055.28	0.403	0.47	0.67	0.067	A
Butterton Lane	932.56	233.14	929.02	404.74	554.20	0.00	1396.19	1091.54	0.668	1.08	1.96	0.127	A
White Moss Quarry Site Access	106.80	26.70	106.57	146.21	1337.02	0.00	758.72	476.18	0.141	0.11	0.16	0.092	A

Main results: (17:15-17:30)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	509.77	127.44	509.77	1168.10	279.63	0.00	1678.38	1514.47	0.304	0.43	0.44	0.051	A
Radway Green Road	604.46	151.12	604.45	433.78	355.63	0.00	1501.41	1055.28	0.403	0.67	0.67	0.067	A
Butterton Lane	932.56	233.14	932.46	405.17	554.91	0.00	1395.75	1091.54	0.668	1.96	1.99	0.129	A
White Moss Quarry Site Access	106.80	26.70	106.79	146.43	1340.94	0.00	756.42	476.18	0.141	0.16	0.16	0.092	A

Main results: (17:30-17:45)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	416.23	104.06	416.68	957.10	229.30	0.00	1711.33	1514.46	0.243	0.44	0.32	0.046	A
Radway Green Road	493.54	123.38	494.33	355.26	290.71	0.00	1540.88	1055.28	0.320	0.67	0.47	0.057	A
Butterton Lane	761.44	190.36	764.97	331.25	453.79	0.00	1459.66	1091.54	0.522	1.99	1.10	0.087	A
White Moss Quarry Site Access	87.20	21.80	87.42	119.79	1098.97	0.00	898.57	476.18	0.097	0.16	0.11	0.074	A

Main results: (17:45-18:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	348.57	87.14	348.85	800.23	191.63	0.00	1735.98	1514.47	0.201	0.32	0.25	0.043	A
Radway Green Road	413.32	103.33	413.78	297.10	243.38	0.00	1569.66	1055.27	0.263	0.47	0.36	0.052	A
Butterton Lane	637.67	159.42	639.12	277.31	379.85	0.00	1506.40	1091.54	0.423	1.10	0.74	0.069	A
White Moss Quarry Site Access	73.03	18.26	73.14	100.25	918.72	0.00	1004.47	476.18	0.073	0.11	0.08	0.064	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:30-16:45)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	3.69	0.25	0.043	A	A
Radway Green Road	5.23	0.35	0.052	A	A
Butterton Lane	10.59	0.71	0.069	A	A
White Moss Quarry Site Access	1.14	0.08	0.064	A	A

Queueing Delay results: (16:45-17:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	4.74	0.32	0.046	A	A
Radway Green Road	6.92	0.46	0.057	A	A
Butterton Lane	15.69	1.05	0.085	A	A
White Moss Quarry Site Access	1.57	0.10	0.074	A	A

Queueing Delay results: (17:00-17:15)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	6.41	0.43	0.051	A	A
Radway Green Road	9.83	0.66	0.067	A	A
Butterton Lane	27.92	1.86	0.127	A	A
White Moss Quarry Site Access	2.39	0.16	0.092	A	A

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	6.52	0.43	0.051	A	A
Radway Green Road	10.06	0.67	0.067	A	A
Butterton Lane	29.67	1.98	0.129	A	A
White Moss Quarry Site Access	2.45	0.16	0.092	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service

Crewe Road	4.91	0.33	0.046	A	A
Radway Green Road	7.24	0.48	0.057	A	A
Butterton Lane	17.16	1.14	0.087	A	A
White Moss Quarry Site Access	1.65	0.11	0.074	A	A

Queueing Delay results: (17:45-18:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	3.83	0.26	0.043	A	A
Radway Green Road	5.47	0.36	0.052	A	A
Butterton Lane	11.37	0.76	0.069	A	A
White Moss Quarry Site Access	1.20	0.08	0.064	A	A

Proposed White moss Quarry Roundabout - 2019 Assessment, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed White moss Quarry Roundabout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Assessment, AM	2019 Assessment	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (min)	Junction LOS
(untitled)	Roundabout	1,2,3,4				0.11	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description
Crewe Road	Crewe Road	
Radway Green Road	Radway Green Road	
Butterton Lane	Butterton Lane	
White Moss Quarry Site Access	White Moss Quarry Site Access	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Crewe Road	0.00	99999.00		0.00
Radway Green Road	0.00	99999.00		0.00
Butterton Lane	0.00	99999.00		0.00
White Moss Quarry Site Access	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Crewe Road	3.60	7.60	25.00	22.00	45.00	36.00	
Radway Green Road	4.50	8.00	10.00	13.00	45.00	45.00	
Butterton Lane	3.75	6.60	26.00	22.00	45.00	36.00	
White Moss Quarry Site Access	3.65	6.30	13.40	24.00	45.00	42.00	

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

Pedestrian Crossings

Name	Crossing Type
Crewe Road	None
Radway Green Road	None
Butterton Lane	None
White Moss Quarry Site Access	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Crewe Road		(calculated)	(calculated)	0.654	1861.400
Radway Green Road		(calculated)	(calculated)	0.608	1717.655
Butterton Lane		(calculated)	(calculated)	0.632	1746.479
White Moss Quarry Site Access		(calculated)	(calculated)	0.587	1544.195

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
Crewe Road	ONE HOUR	✓	1132.00	100.000
Radway Green Road	ONE HOUR	✓	314.00	100.000
Butterton Lane	ONE HOUR	✓	445.00	100.000
White Moss Quarry Site Access	ONE HOUR	✓	149.00	100.000

Direct/Resultant Flows

Direct Flows Data

Time Segment	Name	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
07:45-08:00	Crewe Road	852.23	852.23	N/A	N/A
07:45-08:00	Radway Green Road	236.40	236.40	N/A	N/A
07:45-08:00	Butterton Lane	335.02	335.02	N/A	N/A
07:45-08:00	White Moss Quarry Site Access	112.18	112.18	N/A	N/A
08:00-08:15	Crewe Road	1017.64	1017.64	N/A	N/A
08:00-08:15	Radway Green Road	282.28	282.28	N/A	N/A
08:00-08:15	Butterton Lane	400.05	400.05	N/A	N/A
08:00-08:15	White Moss Quarry Site Access	133.95	133.95	N/A	N/A
08:15-08:30	Crewe Road	1246.36	1246.36	N/A	N/A
08:15-08:30	Radway Green Road	345.72	345.72	N/A	N/A
08:15-08:30	Butterton Lane	489.95	489.95	N/A	N/A
08:15-08:30	White Moss Quarry Site Access	164.05	164.05	N/A	N/A
08:30-08:45	Crewe Road	1246.36	1246.36	N/A	N/A
08:30-08:45	Radway Green Road	345.72	345.72	N/A	N/A
08:30-08:45	Butterton Lane	489.95	489.95	N/A	N/A
08:30-08:45	White Moss Quarry Site Access	164.05	164.05	N/A	N/A
08:45-09:00	Crewe Road	1017.64	1017.64	N/A	N/A
08:45-09:00	Radway Green Road	282.28	282.28	N/A	N/A
08:45-09:00	Butterton Lane	400.05	400.05	N/A	N/A
08:45-09:00	White Moss Quarry Site Access	133.95	133.95	N/A	N/A

09:00-09:15	Crewe Road	852.23	852.23	N/A	N/A
09:00-09:15	Radway Green Road	236.40	236.40	N/A	N/A
09:00-09:15	Butterton Lane	335.02	335.02	N/A	N/A
09:00-09:15	White Moss Quarry Site Access	112.18	112.18	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	357.000	747.000	28.000
	2	165.000	0.000	125.000	24.000
	3	260.000	161.000	0.000	24.000
	4	47.000	67.000	35.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.32	0.66	0.02
	2	0.53	0.00	0.40	0.08
	3	0.58	0.36	0.00	0.05
	4	0.32	0.45	0.23	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (min)
Crewe Road	0.75	0.14	2.88	A	1038.74	1558.11	156.12	0.10	1.73	156.14	0.10
Radway Green Road	0.29	0.07	0.42	A	288.13	432.20	27.20	0.06	0.30	27.21	0.06
Butterton Lane	0.31	0.05	0.44	A	408.34	612.51	30.62	0.05	0.34	30.62	0.05
White Moss Quarry Site Access	0.14	0.06	0.16	A	136.73	205.09	11.38	0.06	0.13	11.38	0.06

Main Results for each time segment

Main results: (07:45-08:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	852.23	213.06	848.39	354.19	197.37	0.00	1732.22	1336.70	0.492	0.00	0.96	0.068	A
Radway Green Road	236.40	59.10	235.55	438.67	607.09	0.00	1348.49	1092.78	0.175	0.00	0.21	0.054	A
Butterton Lane	335.02	83.75	334.00	679.88	162.76	0.00	1643.60	1309.85	0.204	0.00	0.26	0.046	A
White Moss Quarry Site Access	112.18	28.04	111.79	57.00	439.76	0.00	1285.84	478.84	0.087	0.00	0.10	0.051	A

Main results: (08:00-08:15)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1017.64	254.41	1015.66	423.97	236.26	0.00	1706.77	1336.71	0.596	0.96	1.46	0.087	A
Radway Green Road	282.28	70.57	282.00	525.13	726.79	0.00	1275.71	1092.78	0.221	0.21	0.28	0.060	A
Butterton Lane	400.05	100.01	399.76	813.93	194.86	0.00	1623.32	1309.85	0.246	0.26	0.33	0.049	A
White Moss Quarry Site Access	133.95	33.49	133.84	68.24	526.39	0.00	1234.95	478.84	0.108	0.10	0.12	0.054	A

Main results: (08:15-08:30)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1246.36	311.59	1240.87	519.09	289.29	0.00	1672.06	1336.72	0.745	1.46	2.83	0.137	A
Radway Green Road	345.72	86.43	345.20	642.12	888.03	0.00	1177.66	1092.78	0.294	0.28	0.41	0.072	A
Butterton Lane	489.95	122.49	489.49	994.76	238.47	0.00	1595.75	1309.85	0.307	0.33	0.44	0.054	A
White Moss	164.05	41.01	163.88	83.48	644.49	0.00	1165.57	478.84	0.141	0.12	0.16	0.060	A

Quarry Site Access													

Main results: (08:30-08:45)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1246.36	311.59	1246.16	519.67	289.57	0.00	1671.88	1336.72	0.745	2.83	2.88	0.141	A
Radway Green Road	345.72	86.43	345.71	644.03	891.69	0.00	1175.43	1092.78	0.294	0.41	0.42	0.072	A
Butterton Lane	489.95	122.49	489.95	998.49	238.91	0.00	1595.47	1309.85	0.307	0.44	0.44	0.054	A
White Moss Quarry Site Access	164.05	41.01	164.05	83.67	645.19	0.00	1165.16	478.84	0.141	0.16	0.16	0.060	A

Main results: (08:45-09:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	1017.64	254.41	1023.16	424.91	236.71	0.00	1706.48	1336.71	0.596	2.88	1.50	0.088	A
Radway Green Road	282.28	70.57	282.79	527.88	731.99	0.00	1272.55	1092.78	0.222	0.42	0.29	0.061	A
Butterton Lane	400.05	100.01	400.50	819.26	195.52	0.00	1622.90	1309.85	0.247	0.44	0.33	0.049	A
White Moss Quarry Site Access	133.95	33.49	134.11	68.52	527.50	0.00	1234.30	478.84	0.109	0.16	0.12	0.055	A

Main results: (09:00-09:15)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	852.23	213.06	854.31	355.70	198.18	0.00	1731.70	1336.70	0.492	1.50	0.98	0.069	A
Radway Green Road	236.40	59.10	236.69	441.23	611.26	0.00	1345.96	1092.78	0.176	0.29	0.21	0.054	A
Butterton Lane	335.02	83.75	335.31	684.35	163.60	0.00	1643.08	1309.85	0.204	0.33	0.26	0.046	A
White Moss Quarry Site Access	112.18	28.04	112.28	57.31	441.59	0.00	1284.77	478.84	0.087	0.12	0.10	0.051	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	13.94	0.93	0.068	A	A
Radway Green Road	3.11	0.21	0.054	A	A
Butterton Lane	3.76	0.25	0.046	A	A
White Moss Quarry Site Access	1.40	0.09	0.051	A	A

Queueing Delay results: (08:00-08:15)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service

Crewe Road	21.13	1.41	0.087	A	A
Radway Green Road	4.18	0.28	0.060	A	A
Butterton Lane	4.82	0.32	0.049	A	A
White Moss Quarry Site Access	1.80	0.12	0.054	A	A

Queueing Delay results: (08:15-08:30)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	39.70	2.65	0.137	A	A
Radway Green Road	6.07	0.40	0.072	A	A
Butterton Lane	6.51	0.43	0.054	A	A
White Moss Quarry Site Access	2.41	0.16	0.060	A	A

Queueing Delay results: (08:30-08:45)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	42.87	2.86	0.141	A	A
Radway Green Road	6.21	0.41	0.072	A	A
Butterton Lane	6.62	0.44	0.054	A	A
White Moss Quarry Site Access	2.45	0.16	0.060	A	A

Queueing Delay results: (08:45-09:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	23.42	1.56	0.088	A	A
Radway Green Road	4.37	0.29	0.061	A	A
Butterton Lane	5.00	0.33	0.049	A	A
White Moss Quarry Site Access	1.86	0.12	0.055	A	A

Queueing Delay results: (09:00-09:15)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	15.06	1.00	0.069	A	A
Radway Green Road	3.26	0.22	0.054	A	A
Butterton Lane	3.91	0.26	0.046	A	A
White Moss Quarry Site Access	1.46	0.10	0.051	A	A

Proposed White moss Quarry Roundabout - 2019 Assessment, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed White moss Quarry Roundabout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Assessment, PM	2019 Assessment	PM		ONE HOUR	16:30	18:00	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (min)	Junction LOS
(untitled)	Roundabout	1,2,3,4				0.09	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description
Crewe Road	Crewe Road	
Radway Green Road	Radway Green Road	
Butterton Lane	Butterton Lane	
White Moss Quarry Site Access	White Moss Quarry Site Access	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Crewe Road	0.00	99999.00		0.00
Radway Green Road	0.00	99999.00		0.00
Butterton Lane	0.00	99999.00		0.00
White Moss Quarry Site Access	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Crewe Road	3.60	7.60	25.00	22.00	45.00	36.00	
Radway Green Road	4.50	8.00	10.00	13.00	45.00	45.00	

Butterton Lane	3.75	6.60	26.00	22.00	45.00	36.00	
White Moss Quarry Site Access	3.65	6.30	13.40	24.00	45.00	42.00	

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

Pedestrian Crossings

Name	Crossing Type
Crewe Road	None
Radway Green Road	None
Butterton Lane	None
White Moss Quarry Site Access	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Crewe Road		(calculated)	(calculated)	0.654	1861.400
Radway Green Road		(calculated)	(calculated)	0.608	1717.655
Butterton Lane		(calculated)	(calculated)	0.632	1746.479
White Moss Quarry Site Access		(calculated)	(calculated)	0.587	1544.195

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
Crewe Road	ONE HOUR	✓	468.00	100.000
Radway Green Road	ONE HOUR	✓	556.00	100.000
Butterton Lane	ONE HOUR	✓	858.00	100.000
White Moss Quarry Site Access	ONE HOUR	✓	97.00	100.000

Direct/Resultant Flows

Direct Flows Data

Time Segment	Name	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)

16:30-16:45	Crewe Road	352.33	352.33	N/A	N/A
16:30-16:45	Radway Green Road	418.59	418.59	N/A	N/A
16:30-16:45	Butterton Lane	645.95	645.95	N/A	N/A
16:30-16:45	White Moss Quarry Site Access	73.03	73.03	N/A	N/A
16:45-17:00	Crewe Road	420.72	420.72	N/A	N/A
16:45-17:00	Radway Green Road	499.83	499.83	N/A	N/A
16:45-17:00	Butterton Lane	771.32	771.32	N/A	N/A
16:45-17:00	White Moss Quarry Site Access	87.20	87.20	N/A	N/A
17:00-17:15	Crewe Road	515.28	515.28	N/A	N/A
17:00-17:15	Radway Green Road	612.17	612.17	N/A	N/A
17:00-17:15	Butterton Lane	944.68	944.68	N/A	N/A
17:00-17:15	White Moss Quarry Site Access	106.80	106.80	N/A	N/A
17:15-17:30	Crewe Road	515.28	515.28	N/A	N/A
17:15-17:30	Radway Green Road	612.17	612.17	N/A	N/A
17:15-17:30	Butterton Lane	944.68	944.68	N/A	N/A
17:15-17:30	White Moss Quarry Site Access	106.80	106.80	N/A	N/A
17:30-17:45	Crewe Road	420.72	420.72	N/A	N/A
17:30-17:45	Radway Green Road	499.83	499.83	N/A	N/A
17:30-17:45	Butterton Lane	771.32	771.32	N/A	N/A
17:30-17:45	White Moss Quarry Site Access	87.20	87.20	N/A	N/A
17:45-18:00	Crewe Road	352.33	352.33	N/A	N/A
17:45-18:00	Radway Green Road	418.59	418.59	N/A	N/A
17:45-18:00	Butterton Lane	645.95	645.95	N/A	N/A
17:45-18:00	White Moss Quarry Site Access	73.03	73.03	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	162.000	256.000	50.000
	2	399.000	0.000	95.000	62.000
	3	639.000	198.000	0.000	21.000
	4	41.000	36.000	20.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.35	0.55	0.11
	2	0.72	0.00	0.17	0.11

	3	0.74	0.23	0.00	0.02
	4	0.42	0.37	0.21	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (min)
Crewe Road	0.31	0.05	0.44	A	429.44	644.17	30.54	0.05	0.34	30.54	0.05
Radway Green Road	0.41	0.07	0.69	A	510.20	765.29	45.69	0.06	0.51	45.69	0.06
Butterton Lane	0.68	0.13	2.09	A	787.32	1180.97	116.89	0.10	1.30	116.90	0.10
White Moss Quarry Site Access	0.14	0.09	0.17	A	89.01	133.51	10.55	0.08	0.12	10.55	0.08

Main Results for each time segment

Main results: (16:30-16:45)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	352.33	88.08	351.32	808.93	190.35	0.00	1736.82	1517.45	0.203	0.00	0.25	0.043	A

Radway Green Road	418.59	104.65	417.14	296.97	244.70	0.00	1568.86	1054.89	0.267	0.00	0.36	0.052	A
Butterton Lane	645.95	161.49	642.96	278.44	383.40	0.00	1504.15	1091.19	0.429	0.00	0.75	0.069	A
White Moss Quarry Site Access	73.03	18.26	72.71	99.79	926.57	0.00	999.85	474.10	0.073	0.00	0.08	0.065	A

Main results: (16:45-17:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	420.72	105.18	420.44	968.53	227.94	0.00	1712.22	1517.44	0.246	0.25	0.32	0.046	A
Radway Green Road	499.83	124.96	499.37	355.52	292.86	0.00	1539.57	1054.89	0.325	0.36	0.48	0.058	A
Butterton Lane	771.32	192.83	769.86	333.26	458.96	0.00	1456.39	1091.19	0.530	0.75	1.11	0.087	A
White Moss Quarry Site Access	87.20	21.80	87.08	119.45	1109.38	0.00	892.46	474.10	0.098	0.08	0.11	0.075	A

Main results: (17:00-17:15)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	515.28	128.82	514.81	1184.49	278.65	0.00	1679.03	1517.45	0.307	0.32	0.44	0.052	A
Radway Green Road	612.17	153.04	611.34	434.88	358.58	0.00	1499.61	1054.89	0.408	0.48	0.68	0.067	A
Butterton Lane	944.68	236.17	940.89	408.04	561.89	0.00	1391.34	1091.19	0.679	1.11	2.06	0.132	A
White Moss Quarry Site Access	106.80	26.70	106.57	146.20	1356.57	0.00	747.24	474.10	0.143	0.11	0.17	0.094	A

Main results: (17:15-17:30)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	515.28	128.82	515.27	1187.91	279.63	0.00	1678.38	1517.45	0.307	0.44	0.44	0.052	A
Radway Green Road	612.17	153.04	612.16	435.97	358.93	0.00	1499.40	1054.89	0.408	0.68	0.69	0.068	A
Butterton Lane	944.68	236.17	944.56	408.47	562.61	0.00	1390.88	1091.19	0.679	2.06	2.09	0.134	A
White Moss Quarry Site Access	106.80	26.70	106.79	146.43	1360.74	0.00	744.79	474.10	0.143	0.17	0.17	0.094	A

Main results: (17:30-17:45)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	420.72	105.18	421.18	973.50	229.35	0.00	1711.29	1517.44	0.246	0.44	0.33	0.047	A
Radway Green Road	499.83	124.96	500.65	357.11	293.41	0.00	1539.24	1054.89	0.325	0.69	0.48	0.058	A
Butterton Lane	771.32	192.83	775.11	333.96	460.10	0.00	1455.67	1091.19	0.530	2.09	1.14	0.089	A

White Moss Quarry Site Access	87.20	21.80	87.43	119.80	1115.42	0.00	888.91	474.10	0.098	0.17	0.11	0.075	A

Main results: (17:45-18:00)

Name	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (min)	LOS
Crewe Road	352.33	88.08	352.62	813.85	191.65	0.00	1735.97	1517.45	0.203	0.33	0.26	0.043	A
Radway Green Road	418.59	104.65	419.06	298.63	245.64	0.00	1568.28	1054.89	0.267	0.48	0.37	0.052	A
Butterton Lane	645.95	161.49	647.47	279.57	385.13	0.00	1503.06	1091.19	0.430	1.14	0.76	0.070	A
White Moss Quarry Site Access	73.03	18.26	73.15	100.25	932.35	0.00	996.46	474.10	0.073	0.11	0.08	0.065	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:30-16:45)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	3.74	0.25	0.043	A	A
Radway Green Road	5.32	0.35	0.052	A	A
Butterton Lane	10.87	0.72	0.069	A	A
White Moss Quarry Site Access	1.15	0.08	0.065	A	A

Queueing Delay results: (16:45-17:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	4.81	0.32	0.046	A	A
Radway Green Road	7.06	0.47	0.058	A	A
Butterton Lane	16.19	1.08	0.087	A	A
White Moss Quarry Site Access	1.59	0.11	0.075	A	A

Queueing Delay results: (17:00-17:15)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	6.51	0.43	0.052	A	A
Radway Green Road	10.06	0.67	0.067	A	A
Butterton Lane	29.23	1.95	0.132	A	A
White Moss Quarry Site Access	2.43	0.16	0.094	A	A

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	6.62	0.44	0.052	A	A
Radway Green Road	10.29	0.69	0.068	A	A
Butterton Lane	31.15	2.08	0.134	A	A
White Moss Quarry Site Access	2.49	0.17	0.094	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	4.98	0.33	0.047	A	A
Radway Green Road	7.39	0.49	0.058	A	A
Butterton Lane	17.76	1.18	0.089	A	A
White Moss Quarry Site Access	1.67	0.11	0.075	A	A

Queueing Delay results: (17:45-18:00)

Name	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
Crewe Road	3.88	0.26	0.043	A	A
Radway Green Road	5.57	0.37	0.052	A	A
Butterton Lane	11.68	0.78	0.070	A	A
White Moss Quarry Site Access	1.21	0.08	0.065	A	A

Appendix E – LINSIG Outputs

(CEC Improvements to Crewe Road

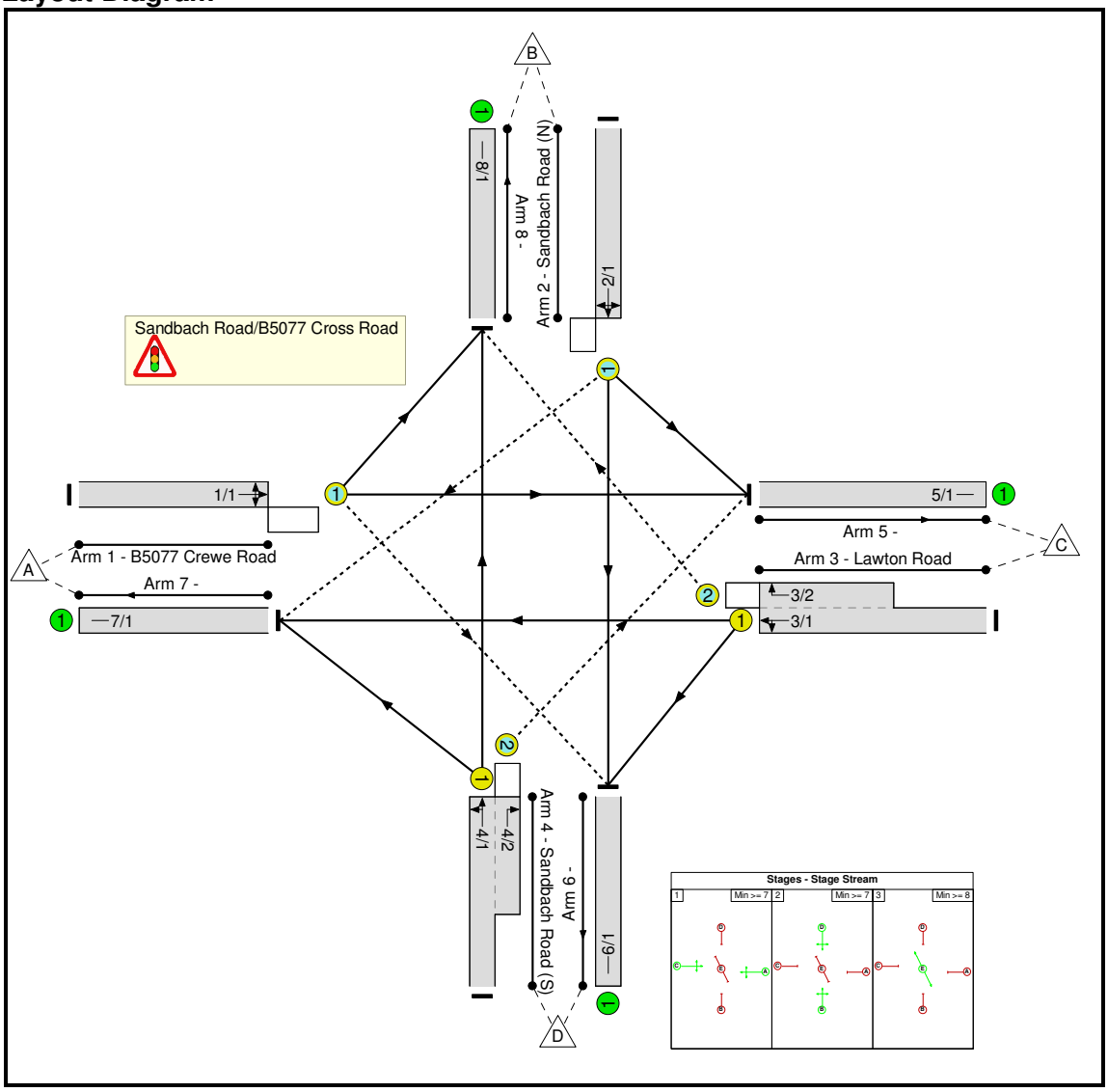
/ Sandbach Road / Lawton Road Junction)

Full Input Data And Results

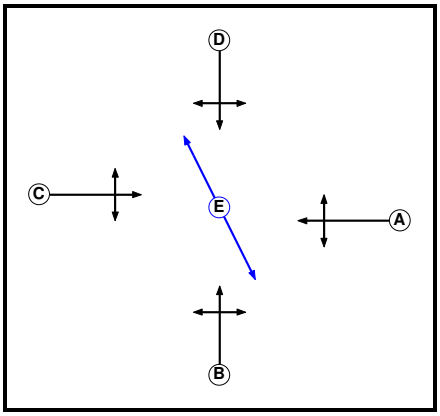
User and Project Details

Project:	**Crewe Road, Alsager**
Title:	**Sandbach Road/B5077 Crewe Road**
Location:	Sandbach Road/B5077 Crewe Road Signal Junction
File name:	Sandbach Road_B5077 Cross Road (White Moss Quarry Mit).lsg3x
Author:	
Company:	WYG
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		8	8

Phase Intergreens Matrix

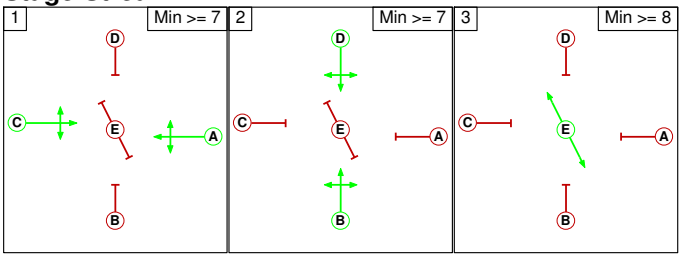
		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		6	-	6	14
	B	7		7	-	10
	C	-	6		6	14
	D	7	-	7		10
	E	8	8	8	8	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B D
1	3	E

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage			
		1	2	3
From Stage	1		6	14
	2	7		10
	3	8	8	

Give-Way Lane Input Data

Junction: Sandbach Road/B5077 Cross Road

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/1 (B5077 Crewe Road)	6/1 (Right)	1440	0	3/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	3.00	3.00	0.50	3	3.00
2/1 (Sandbach Road (N))	7/1 (Right)	1440	0	4/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	2.00	2.00	0.50	2	2.00
3/2 (Lawton Road)	8/1 (Right)	1440	0	1/1	1.09	To 5/1 (Ahead) To 8/1 (Left)	2.00	-	0.50	2	2.00
4/2 (Sandbach Road (S))	5/1 (Right)	1440	0	2/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00

Lane Input Data

Junction: Sandbach Road/B5077 Cross Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B5077 Crewe Road)	O	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	14.00
											Arm 8 Left	15.00
2/1 (Sandbach Road (N))	O	D	2	3	60.0	Geom	-	3.70	0.00	Y	Arm 5 Left	45.00
											Arm 6 Ahead	Inf
											Arm 7 Right	20.00
3/1 (Lawton Road)	U	A	2	3	17.4	Geom	-	3.00	0.00	Y	Arm 6 Left	15.00
											Arm 7 Ahead	Inf
3/2 (Lawton Road)	O	A	2	3	8.0	Geom	-	3.00	0.00	Y	Arm 8 Right	10.00
4/1 (Sandbach Road (S))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 7 Left	40.00
											Arm 8 Ahead	Inf
4/2 (Sandbach Road (S))	O	B	2	3	7.0	Geom	-	3.00	0.00	Y	Arm 5 Right	12.00
5/1	U		2	3	5.2	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2019 Base - AM Peak (With WMQ)'	08:00	09:00	01:00	
2: '2019 Base - PM Peak (With WMQ)'	16:45	17:45	01:00	
3: '2019 Assessment - AM Peak (With WMQ)'	08:00	09:00	01:00	
4: '2019 Assessment - PM Peak (With WMQ)'	16:45	17:45	01:00	

Scenario 1: '2019 Base - AM Peak (With WMQ)' (FG1: '2019 Base - AM Peak (With WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	448	75	591
	B	69	0	79	190	338
	C	535	68	0	50	653
	D	77	110	85	0	272
	Tot.	681	246	612	315	1854

Traffic Lane Flows

Lane	Scenario 1: 2019 Base - AM Peak (With WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	591
2/1	338
3/1 (with short)	653(In) 585(Out)
3/2 (short)	68
4/1 (with short)	272(In) 187(Out)
4/2 (short)	85
5/1	612
6/1	315
7/1	681
8/1	246

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	75.8 %	1868	1868
				Arm 6 Right	14.00	12.7 %		
				Arm 8 Left	15.00	11.5 %		
2/1 (Sandbach Road (N))	3.70	0.00	Y	Arm 5 Left	45.00	23.4 %	1940	1940
				Arm 6 Ahead	Inf	56.2 %		
				Arm 7 Right	20.00	20.4 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	8.5 %	1899	1899
				Arm 7 Ahead	Inf	91.5 %		
3/2 (Lawton Road)	3.00	0.00	Y	Arm 8 Right	10.00	100.0 %	1665	1665
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	41.2 %	1886	1886
				Arm 8 Ahead	Inf	58.8 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2019 Base - PM Peak (With WMQ)' (FG2: '2019 Base - PM Peak (With WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	47	662	57	766
	B	67	0	82	121	270
	C	470	55	0	43	568
	D	64	177	139	0	380
	Tot.	601	279	883	221	1984

Traffic Lane Flows

Lane	Scenario 2: 2019 Base - PM Peak (With WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	766
2/1	270
3/1 (with short)	568(In) 513(Out)
3/2 (short)	55
4/1 (with short)	380(In) 241(Out)
4/2 (short)	139
5/1	883
6/1	221
7/1	601
8/1	279

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	86.4 %	1888	1888
				Arm 6 Right	14.00	7.4 %		
				Arm 8 Left	15.00	6.1 %		
2/1 (Sandbach Road (N))	3.70	0.00	Y	Arm 5 Left	45.00	30.4 %	1930	1930
				Arm 6 Ahead	Inf	44.8 %		
				Arm 7 Right	20.00	24.8 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	8.4 %	1899	1899
				Arm 7 Ahead	Inf	91.6 %		
3/2 (Lawton Road)	3.00	0.00	Y	Arm 8 Right	10.00	100.0 %	1665	1665
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	26.6 %	1896	1896
				Arm 8 Ahead	Inf	73.4 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2019 Assessment - AM Peak (With WMQ)' (FG3: '2019 Assessment - AM Peak (With WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	69	455	76	600
	B	70	0	79	190	339
	C	541	68	0	50	659
	D	78	110	85	0	273
	Tot.	689	247	619	316	1871

Traffic Lane Flows

Lane	Scenario 3: 2019 Assessment - AM Peak (With WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	600
2/1	339
3/1 (with short)	659(In) 591(Out)
3/2 (short)	68
4/1 (with short)	273(In) 188(Out)
4/2 (short)	85
5/1	619
6/1	316
7/1	689
8/1	247

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	75.8 %	1868	1868
				Arm 6 Right	14.00	12.7 %		
				Arm 8 Left	15.00	11.5 %		
2/1 (Sandbach Road (N))	3.70	0.00	Y	Arm 5 Left	45.00	23.3 %	1940	1940
				Arm 6 Ahead	Inf	56.0 %		
				Arm 7 Right	20.00	20.6 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	8.5 %	1899	1899
				Arm 7 Ahead	Inf	91.5 %		
3/2 (Lawton Road)	3.00	0.00	Y	Arm 8 Right	10.00	100.0 %	1665	1665
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	41.5 %	1886	1886
				Arm 8 Ahead	Inf	58.5 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2019 Assessment - PM Peak (With WMQ)' (FG4: '2019 Assessment - PM Peak (With WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	47	671	58	776
	B	68	0	82	121	271
	C	476	55	0	43	574
	D	65	177	139	0	381
	Tot.	609	279	892	222	2002

Traffic Lane Flows

Lane	Scenario 4: 2019 Assessment - PM Peak (With WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	776
2/1	271
3/1 (with short)	574(In) 519(Out)
3/2 (short)	55
4/1 (with short)	381(In) 242(Out)
4/2 (short)	139
5/1	892
6/1	222
7/1	609
8/1	279

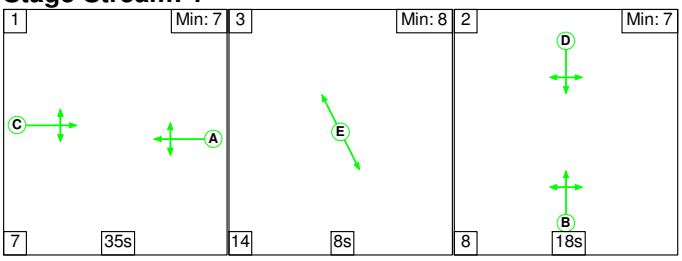
Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	86.5 %	1888	1888
				Arm 6 Right	14.00	7.5 %		
				Arm 8 Left	15.00	6.1 %		
2/1 (Sandbach Road (N))	3.70	0.00	Y	Arm 5 Left	45.00	30.3 %	1929	1929
				Arm 6 Ahead	Inf	44.6 %		
				Arm 7 Right	20.00	25.1 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	8.3 %	1899	1899
				Arm 7 Ahead	Inf	91.7 %		
3/2 (Lawton Road)	3.00	0.00	Y	Arm 8 Right	10.00	100.0 %	1665	1665
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	26.9 %	1896	1896
				Arm 8 Ahead	Inf	73.1 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

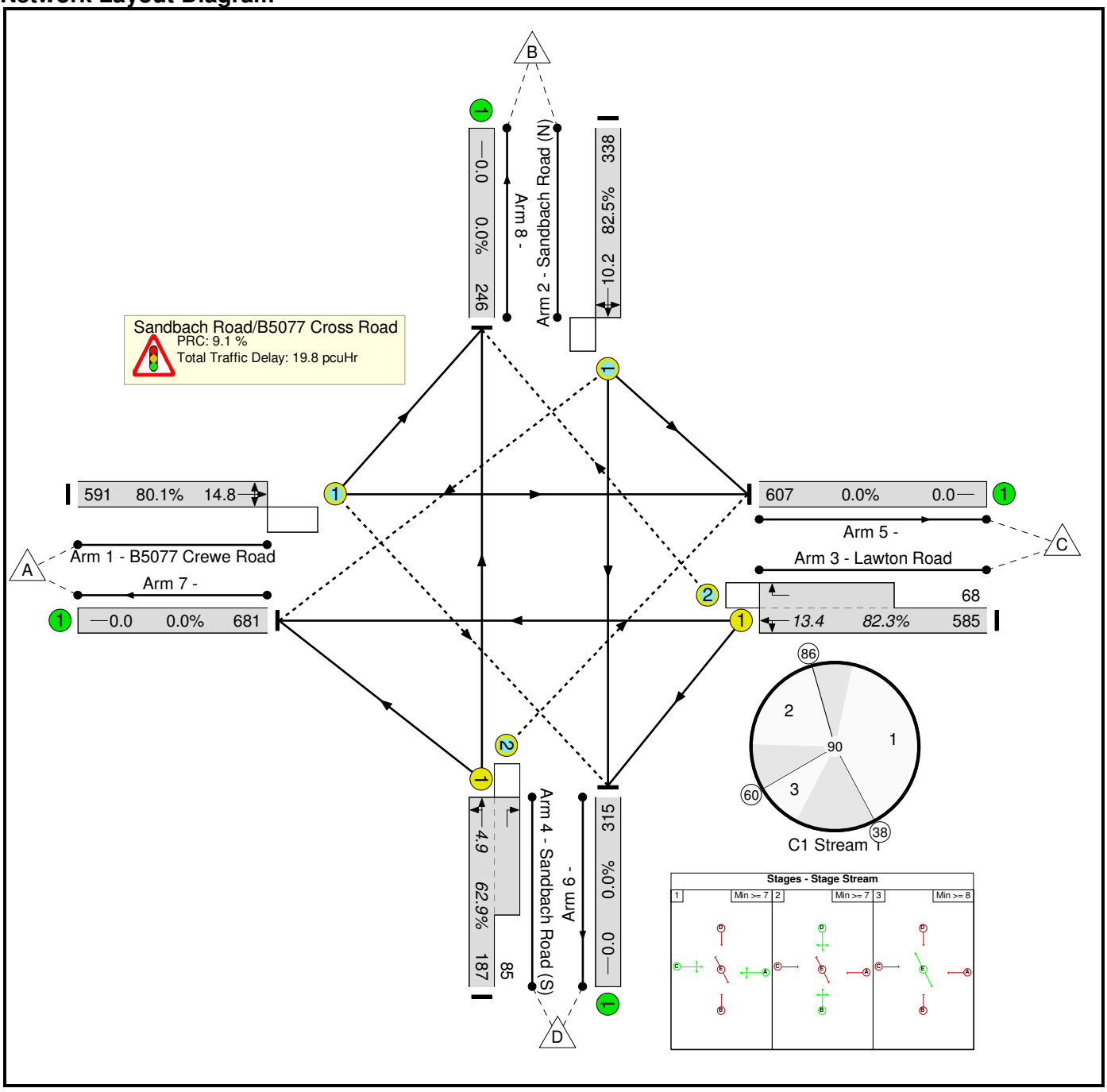
Stage Sequence Diagram

Scenario 1: '2019 Base - AM Peak (With WMQ)' (FG1: '2019 Base - AM Peak (With WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

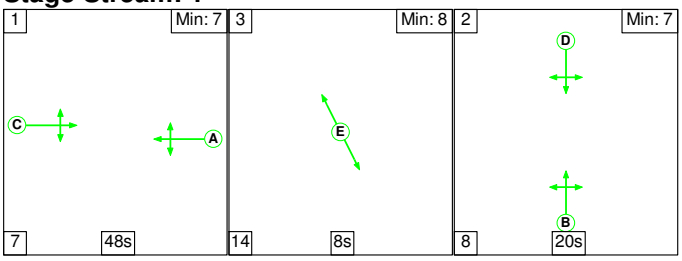
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**82.5%**	**13.7**	**5.0**	**19.8**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**82.5%**	**13.7**	**5.0**	**19.8**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	591	1868	738	80.1%	3.9	2.0	6.2	37.5	12.8	2.0	14.8
2/1	Sandbach Road (N) Left Ahead Right	D	338	1940	410	82.5%	3.2	2.2	5.5	58.2	8.0	2.2	10.2
3/1+3/2	Lawton Road Left Ahead Right	A	653	1899:1665	794	82.3%	4.2	0.0	4.5	25.0	13.4	0.0	13.4
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	272	1886:1702	432	62.9%	2.4	0.8	3.6	48.0	4.1	0.8	4.9

C1 Stream: 1 PRC for Signalled Lanes (%): 9.1 Total Delay for Signalled Lanes (pcuHr): 19.78 Cycle Time (s): 90
PRC Over All Lanes (%): 9.1 Total Delay Over All Lanes(pcuHr): 19.78

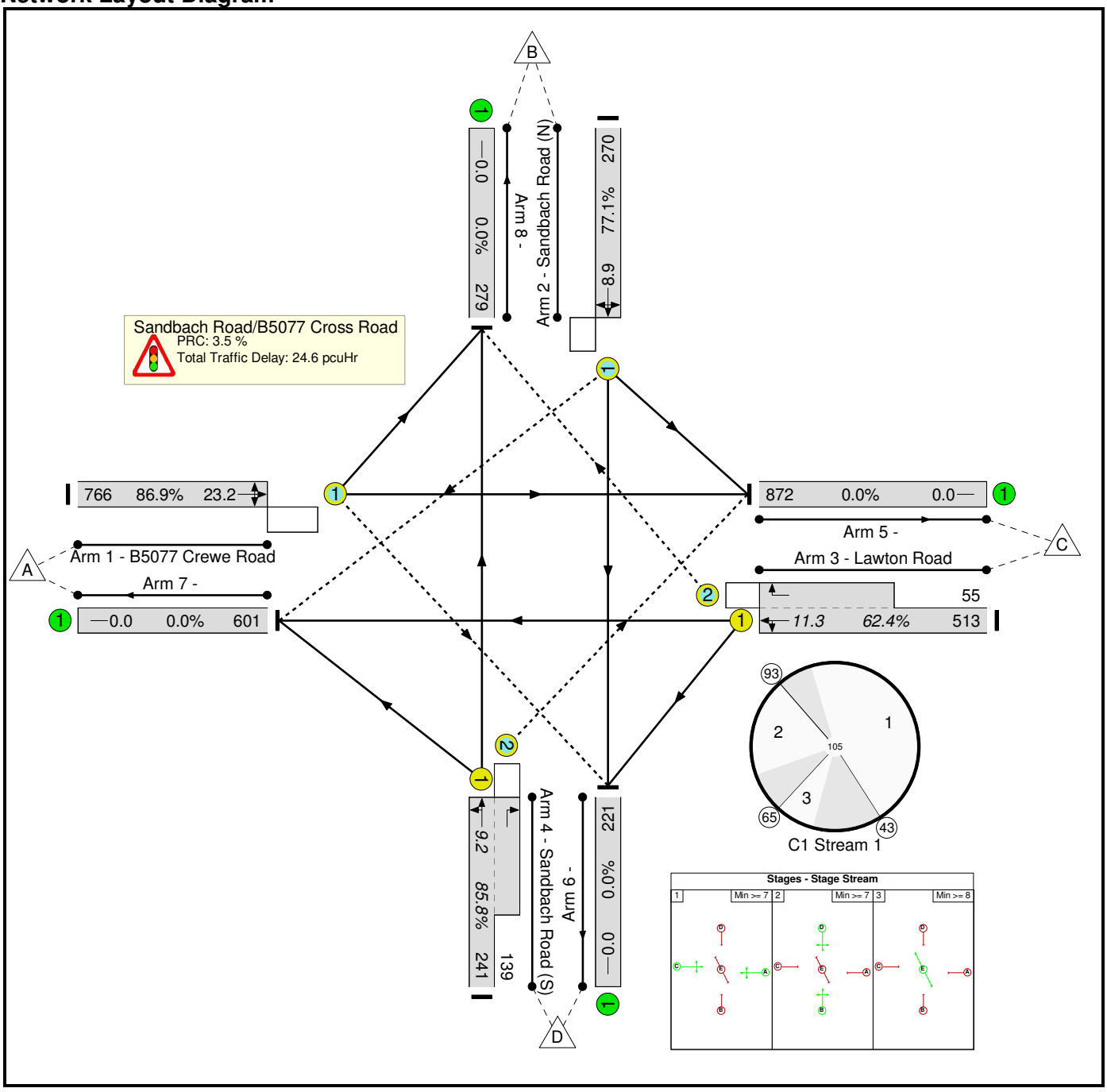
Stage Sequence Diagram

Scenario 2: '2019 Base - PM Peak (With WMQ)' (FG2: '2019 Base - PM Peak (With WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

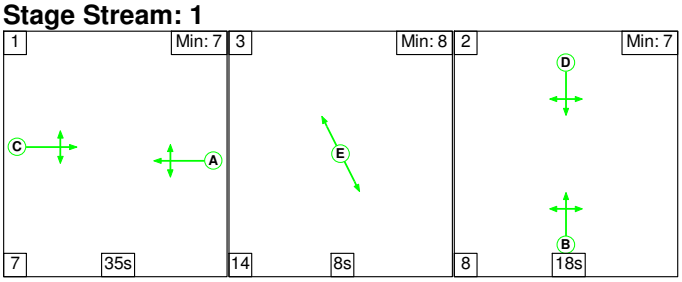
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**86.9%**	**16.0**	**7.6**	**24.6**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**86.9%**	**16.0**	**7.6**	**24.6**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	766	1888	881	86.9%	5.3	3.2	8.6	40.4	20.0	3.2	23.2
2/1	Sandbach Road (N) Left Ahead Right	D	270	1930	350	77.1%	2.9	1.6	4.7	62.5	7.3	1.6	8.9
3/1+3/2	Lawton Road Left Ahead Right	A	568	1899:1665	910	62.4%	3.2	0.0	3.6	23.0	11.3	0.0	11.3
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	380	1896:1702	443	85.8%	4.5	2.8	7.7	72.6	6.4	2.8	9.2

C1 Stream: 1 PRC for Signalled Lanes (%): 3.5 Total Delay for Signalled Lanes (pcuHr): 24.58 Cycle Time (s): 105
PRC Over All Lanes (%): 3.5 Total Delay Over All Lanes(pcuHr): 24.58

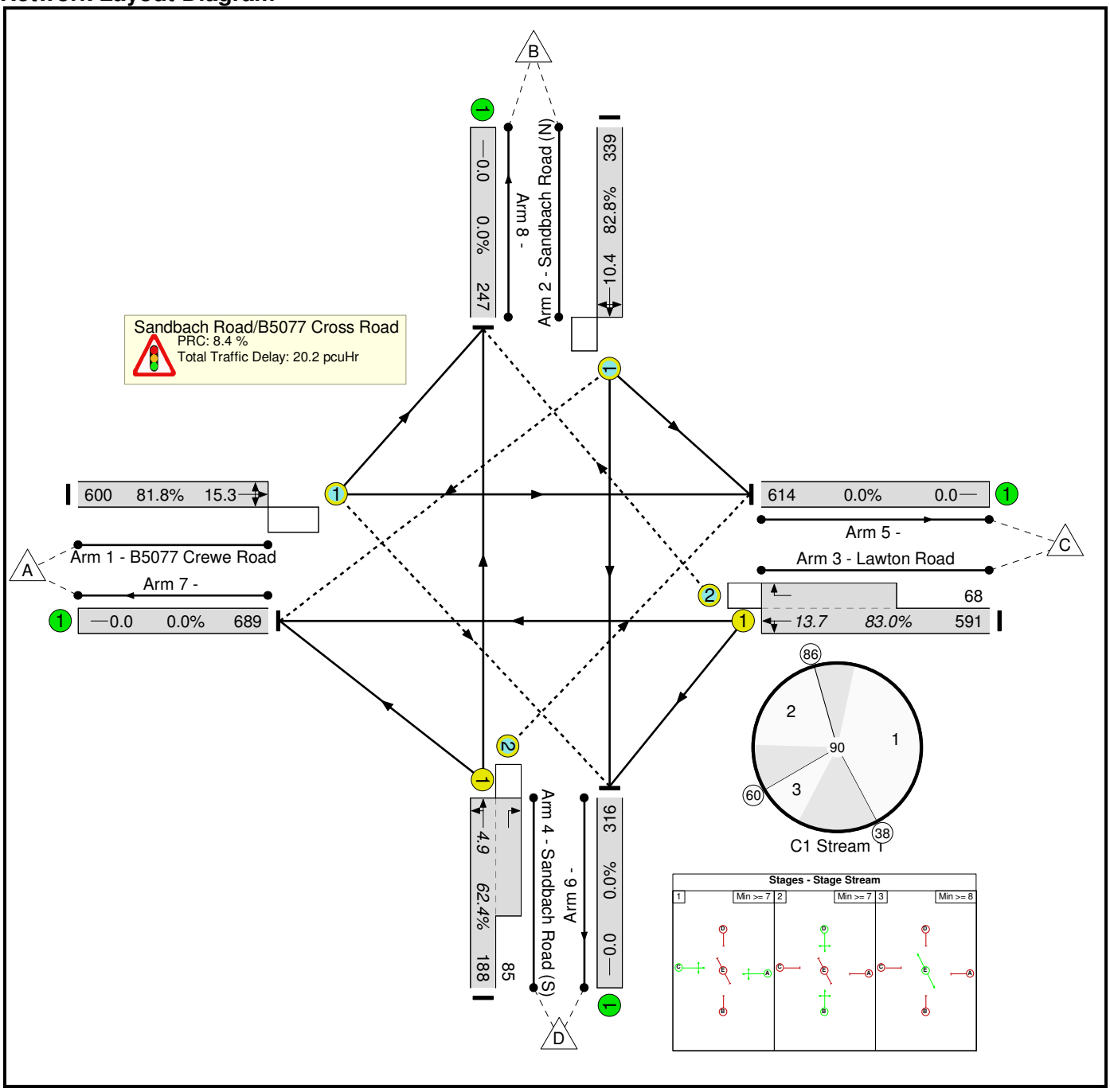
Stage Sequence Diagram

Scenario 3: '2019 Assessment - AM Peak (With WMQ)' (FG3: '2019 Assessment - AM Peak (With WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

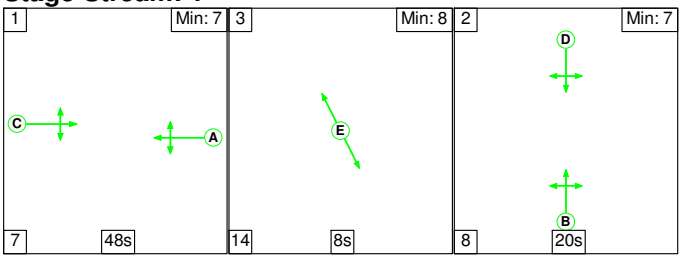
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**83.0%**	**13.9**	**5.3**	**20.2**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**83.0%**	**13.9**	**5.3**	**20.2**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	600	1868	734	81.8%	4.0	2.2	6.5	38.7	13.2	2.2	15.3
2/1	Sandbach Road (N) Left Ahead Right	D	339	1940	409	82.8%	3.2	2.3	5.5	58.6	8.1	2.3	10.4
3/1+3/2	Lawton Road Left Ahead Right	A	659	1899:1665	794	83.0%	4.3	0.0	4.6	25.2	13.7	0.0	13.7
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	273	1886:1702	437	62.4%	2.4	0.8	3.6	47.7	4.1	0.8	4.9

C1 Stream: 1 PRC for Signalled Lanes (%): 8.4 Total Delay for Signalled Lanes (pcuHr): 20.20 Cycle Time (s): 90
PRC Over All Lanes (%): 8.4 Total Delay Over All Lanes(pcuHr): 20.20

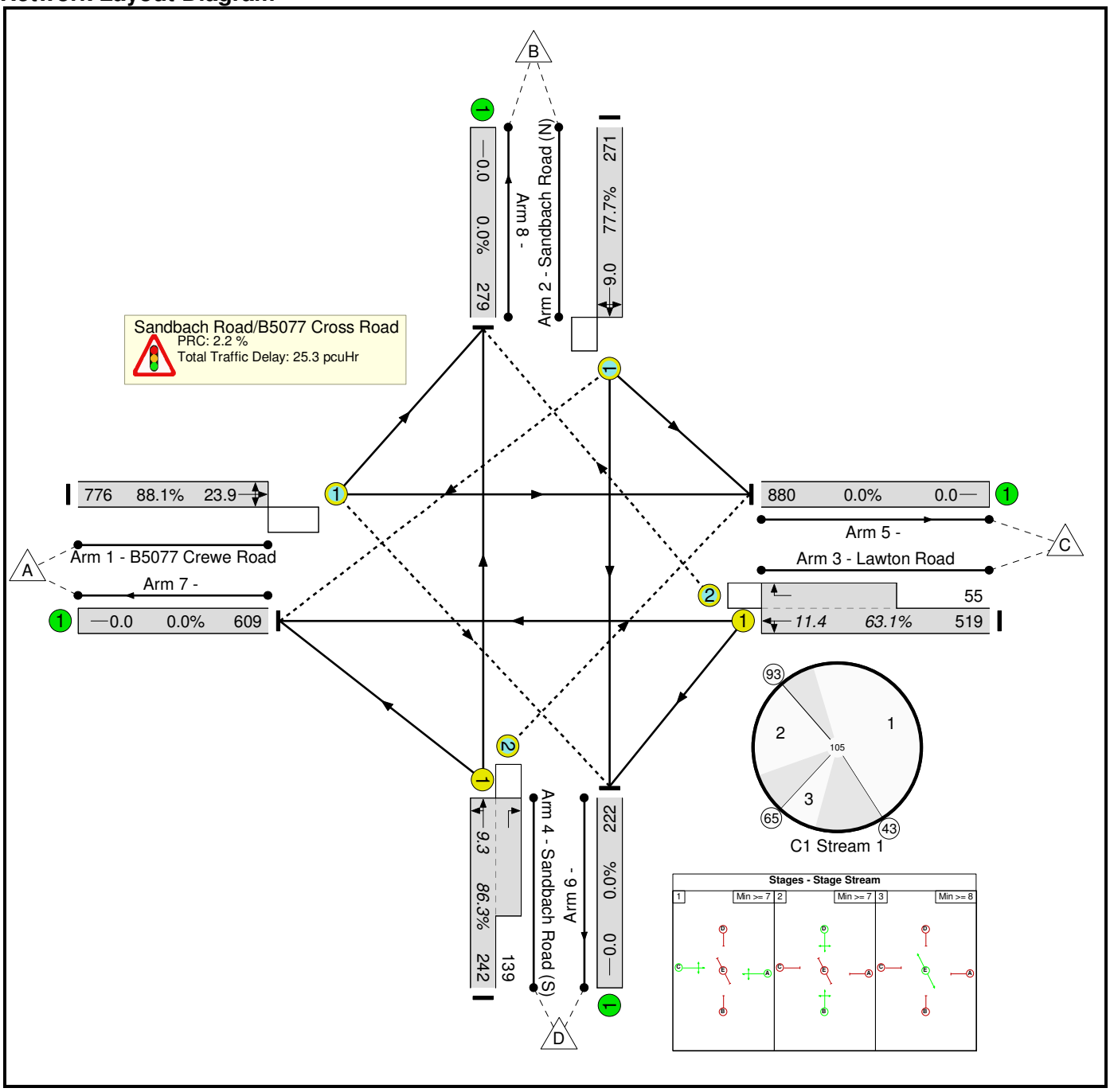
Stage Sequence Diagram

Scenario 4: '2019 Assessment - PM Peak (With WMQ)' (FG4: '2019 Assessment - PM Peak (With WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**88.1%**	**16.2**	**8.0**	**25.3**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**88.1%**	**16.2**	**8.0**	**25.3**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	776	1888	881	88.1%	5.5	3.5	9.0	41.9	20.5	3.5	23.9
2/1	Sandbach Road (N) Left Ahead Right	D	271	1929	349	77.7%	2.9	1.7	4.8	63.2	7.4	1.7	9.0
3/1+3/2	Lawton Road Left Ahead Right	A	574	1899:1665	910	63.1%	3.2	0.0	3.7	23.1	11.4	0.0	11.4
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	381	1896:1702	441	86.3%	4.6	2.9	7.8	73.8	6.5	2.9	9.3

C1 Stream: 1 PRC for Signalled Lanes (%): 2.2 Total Delay for Signalled Lanes (pcuHr): 25.28 Cycle Time (s): 105
PRC Over All Lanes (%): 2.2 Total Delay Over All Lanes(pcuHr): 25.28

Appendix F – PICADY Outputs

(Proposed Site Access Junctions)

Junctions 8

PICADY 8 - Priority Intersection Module

Filename: (new file)
Path:
Report generation date: 17/04/2015 08:14:57

Summary of junction performance

	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
	Proposed Site Access 1 - 2019 Assessment Flows			
Stream B-AC	0.00	0.00	0.00	0.00
Stream C-AB	0.00	0.00	0.00	0.00
Stream C-A	-	-	-	-
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2019 Assessment Flows, AM " model duration: 07:45 - 09:15
"D2 - 2019 Assessment Flows, PM" model duration: 16:30 - 18:00

Run using Junctions 8.0.1.305 at 17/04/2015 08:14:57

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	16/04/2015
Version	
Status	Site Access 1
Identifier	
Client	
Jobnumber	
Enumerator	WYG\yujing.liu
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)

5.75			N/A	0.85	36.00	20.00

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	PCU	PCU	perHour	s	-Min	perMin

Proposed Site Access 1 - 2019 Assessment Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Site Access 1	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Assessment Flows, AM	2019 Assessment Flows	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
Site Access 1	T-Junction	Two-way	A,B,C		0.00	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description	Arm Type
B5077 Crewe Road (E)	B5077 Crewe Road (E)		Major
Site Access 1	Site Access 1		Minor
B5077 Crewe Road (W)	B5077 Crewe Road (W)		Major

Major Arm Geometry

Name	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)

B5077 Crewe Road (W)	7.35		0.00		2.20	110.00	✓	1.00

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

Minor Arm Geometry

Name	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
Site Access 1	One lane	2.40										18	18

Pedestrian Crossings

Name	Crossing Type
B5077 Crewe Road (E)	None
Site Access 1	None
B5077 Crewe Road (W)	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	462.732	0.079	0.201	0.126	0.286
1	B-C	597.107	0.086	0.218	-	-
1	C-B	637.665	0.233	0.233	-	-

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 Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
B5077 Crewe Road (E)	ONE HOUR	✓	866.00	100.000
Site Access 1	ONE HOUR	✓	3.00	100.000
B5077 Crewe Road (W)	ONE HOUR	✓	500.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	0.000	1.000	865.000
	B	1.000	0.000	2.000
	C	500.000	0.000	0.000

Turning Proportions (PCU) - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.33	0.00	0.67
	C	1.00	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	458.81	688.21	-	-	-	-	-
A-B	-	-	-	-	0.92	1.38	-	-	-	-	-
A-C	-	-	-	-	793.74	1190.61	-	-	-	-	-

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	350.24	0.000	0.00	0.00	0.000	A
C-AB	0.00	0.00	0.00	0.00	765.41	0.000	0.00	0.00	0.000	A
C-A	376.43	94.11	376.43	0.00	-	-	-	-	-	-
A-B	0.75	0.19	0.75	0.00	-	-	-	-	-	-
A-C	651.22	162.80	651.22	0.00	-	-	-	-	-	-

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	315.58	0.000	0.00	0.00	0.000	A
C-AB	0.00	0.00	0.00	0.00	728.45	0.000	0.00	0.00	0.000	A
C-A	449.49	112.37	449.49	0.00	-	-	-	-	-	-
A-B	0.90	0.22	0.90	0.00	-	-	-	-	-	-
A-C	777.62	194.40	777.62	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	266.26	0.000	0.00	0.00	0.000	A
C-AB	0.00	0.00	0.00	0.00	675.72	0.000	0.00	0.00	0.000	A
C-A	550.51	137.63	550.51	0.00	-	-	-	-	-	-
A-B	1.10	0.28	1.10	0.00	-	-	-	-	-	-
A-C	952.38	238.10	952.38	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	266.26	0.000	0.00	0.00	0.000	A
C-AB	0.00	0.00	0.00	0.00	675.72	0.000	0.00	0.00	0.000	A
C-A	550.51	137.63	550.51	0.00	-	-	-	-	-	-
A-B	1.10	0.28	1.10	0.00	-	-	-	-	-	-
A-C	952.38	238.10	952.38	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	315.58	0.000	0.00	0.00	0.000	A
C-AB	0.00	0.00	0.00	0.00	728.45	0.000	0.00	0.00	0.000	A
C-A	449.49	112.37	449.49	0.00	-	-	-	-	-	-
A-B	0.90	0.22	0.90	0.00	-	-	-	-	-	-
A-C	777.62	194.40	777.62	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	350.24	0.000	0.00	0.00	0.000	A
C-AB	0.00	0.00	0.00	0.00	765.41	0.000	0.00	0.00	0.000	A
C-A	376.43	94.11	376.43	0.00	-	-	-	-	-	-

A-B	0.75	0.19	0.75	0.00	-	-	-	-	-	-
A-C	651.22	162.80	651.22	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Proposed Site Access 1 - 2019 Assessment Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Site Access 1	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Assessment Flows, PM	2019 Assessment Flows	PM		ONE HOUR	16:30	18:00	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
Site Access 1	T-Junction	Two-way	A,B,C		7.01	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description	Arm Type
B5077 Crewe Road (E)	B5077 Crewe Road (E)		Major
Site Access 1	Site Access 1		Minor
B5077 Crewe Road (W)	B5077 Crewe Road (W)		Major

Major Arm Geometry

Name	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
B5077 Crewe Road (W)	7.35		0.00		2.20	110.00	✓	1.00

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

Minor Arm Geometry

Name	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
Site Access 1	One lane	2.40										18	18

Pedestrian Crossings

Name	Crossing Type
B5077 Crewe Road (E)	None
Site Access 1	None
B5077 Crewe Road (W)	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	462.732	0.079	0.201	0.126	0.286
1	B-C	597.107	0.086	0.218	-	-
1	C-B	637.665	0.233	0.233	-	-

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 Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
B5077 Crewe Road (E)	ONE HOUR	✓	490.00	100.000
Site Access 1	ONE HOUR	✓	2.00	100.000
B5077 Crewe Road (W)	ONE HOUR	✓	981.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	0.000	1.000	489.000
	B	1.000	0.000	1.000
	C	979.000	2.000	0.000

Turning Proportions (PCU) - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.50	0.00	0.50
	C	1.00	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Site Access 1 (for whole period)

		To		
		A	B	C
From	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.00	7.01	0.00	A	1.85	2.77	0.31	6.80	0.00	0.31	6.80
C-A	-	-	-	-	898.34	1347.50	-	-	-	-	-
A-B	-	-	-	-	0.92	1.38	-	-	-	-	-
A-C	-	-	-	-	448.71	673.07	-	-	-	-	-

Main Results for each time segment

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	375.98	0.000	0.00	0.00	0.000	A
C-AB	1.51	0.38	1.50	0.00	553.27	0.003	0.00	0.00	6.523	A
C-A	737.04	184.26	737.04	0.00	-	-	-	-	-	-
A-B	0.75	0.19	0.75	0.00	-	-	-	-	-	-
A-C	368.14	92.04	368.14	0.00	-	-	-	-	-	-

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	344.98	0.000	0.00	0.00	0.000	A
C-AB	1.81	0.45	1.81	0.00	537.30	0.003	0.00	0.00	6.721	A
C-A	880.09	220.02	880.09	0.00	-	-	-	-	-	-
A-B	0.90	0.22	0.90	0.00	-	-	-	-	-	-
A-C	439.60	109.90	439.60	0.00	-	-	-	-	-	-

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	299.86	0.000	0.00	0.00	0.000	A
C-AB	2.22	0.56	2.22	0.00	515.51	0.004	0.00	0.00	7.012	A
C-A	1077.88	269.47	1077.88	0.00	-	-	-	-	-	-
A-B	1.10	0.28	1.10	0.00	-	-	-	-	-	-
A-C	538.40	134.60	538.40	0.00	-	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	299.85	0.000	0.00	0.00	0.000	A
C-AB	2.22	0.56	2.22	0.00	515.51	0.004	0.00	0.00	7.012	A
C-A	1077.88	269.47	1077.88	0.00	-	-	-	-	-	-
A-B	1.10	0.28	1.10	0.00	-	-	-	-	-	-
A-C	538.40	134.60	538.40	0.00	-	-	-	-	-	-

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	344.97	0.000	0.00	0.00	0.000	A
C-AB	1.81	0.45	1.81	0.00	537.30	0.003	0.00	0.00	6.722	A
C-A	880.09	220.02	880.09	0.00	-	-	-	-	-	-
A-B	0.90	0.22	0.90	0.00	-	-	-	-	-	-
A-C	439.60	109.90	439.60	0.00	-	-	-	-	-	-

Main results: (17:45-18:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	0.00	0.00	0.00	0.00	375.98	0.000	0.00	0.00	0.000	A
C-AB	1.51	0.38	1.51	0.00	553.27	0.003	0.00	0.00	6.526	A
C-A	737.04	184.26	737.04	0.00	-	-	-	-	-	-
A-B	0.75	0.19	0.75	0.00	-	-	-	-	-	-
A-C	368.14	92.04	368.14	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (16:30-16:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.04	0.00	6.523	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.05	0.00	6.721	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:00-17:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.06	0.00	7.012	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:15-17:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.07	0.00	7.012	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:30-17:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.05	0.00	6.722	A	A

C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:45-18:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.00	0.00	0.000	A	A
C-AB	0.04	0.00	6.526	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: (new file)
Path:
Report generation date: 17/04/2015 08:16:40

Summary of junction performance

	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
	Proposed Site Access 2 - 2019 Assessment Flows			
Stream B-AC	0.10	0.09	0.06	0.06
Stream C-AB	0.01	0.01	0.04	0.03
Stream C-A	-	-	-	-
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2019 Assessment Flows, AM " model duration: 07:45 - 09:15
"D2 - 2019 Assessment Flows, PM" model duration: 16:30 - 18:00

Run using Junctions 8.0.1.305 at 17/04/2015 08:16:39

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	16/04/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYG\yujing.liu
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)

5.75			N/A	0.85	36.00	20.00

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	PCU	PCU	perHour	s	-Min	perMin

Proposed Site Access 2 - 2019 Assessment Flows, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Site Access 2	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Assessment Flows, AM	2019 Assessment Flows	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
Site Access 2	T-Junction	Two-way	A,B,C		12.32	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description	Arm Type
B5077 Crewe Road (E)	B5077 Crewe Road (E)		Major
Site Access 2	Site Access 2		Minor
B5077 Crewe Road (W)	B5077 Crewe Road (W)		Major

Major Arm Geometry

Name	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)

B5077 Crewe Road (W)	7.60		0.00		2.20	180.00	✓	1.00

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

Minor Arm Geometry

Name	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
Site Access 2	One lane	2.75										19	16

Pedestrian Crossings

Name	Crossing Type
B5077 Crewe Road (E)	None
Site Access 2	None
B5077 Crewe Road (W)	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	479.343	0.081	0.205	0.129	0.293
1	B-C	618.140	0.088	0.223	-	-
1	C-B	678.203	0.244	0.244	-	-

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 Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
B5077 Crewe Road (E)	ONE HOUR	✓	867.00	100.000
Site Access 2	ONE HOUR	✓	26.00	100.000
B5077 Crewe Road (W)	ONE HOUR	✓	494.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	0.000	7.000	860.000
	B	9.000	0.000	17.000
	C	491.000	3.000	0.000

Turning Proportions (PCU) - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.35	0.00	0.65
	C	0.99	0.01	0.00

Vehicle Mix

Average PCU Per Vehicle - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.09	12.81	0.10	B	23.86	35.79	6.63	11.11	0.07	6.63	11.11
C-AB	0.01	8.10	0.01	A	2.77	4.15	0.52	7.58	0.01	0.52	7.58
C-A	-	-	-	-	450.53	675.80	-	-	-	-	-
A-B	-	-	-	-	6.42	9.64	-	-	-	-	-
A-C	-	-	-	-	789.15	1183.73	-	-	-	-	-

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	19.57	4.89	19.37	0.00	393.02	0.050	0.00	0.05	9.630	A
C-AB	2.27	0.57	2.25	0.00	519.77	0.004	0.00	0.00	6.955	A
C-A	369.64	92.41	369.64	0.00	-	-	-	-	-	-
A-B	5.27	1.32	5.27	0.00	-	-	-	-	-	-
A-C	647.45	161.86	647.45	0.00	-	-	-	-	-	-

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	23.37	5.84	23.31	0.00	358.68	0.065	0.05	0.07	10.731	B
C-AB	2.71	0.68	2.71	0.00	489.43	0.006	0.00	0.01	7.395	A
C-A	441.39	110.35	441.39	0.00	-	-	-	-	-	-
A-B	6.29	1.57	6.29	0.00	-	-	-	-	-	-
A-C	773.12	193.28	773.12	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	28.63	7.16	28.50	0.00	309.61	0.092	0.07	0.10	12.801	B
C-AB	3.33	0.83	3.33	0.00	447.84	0.007	0.01	0.01	8.098	A
C-A	540.57	135.14	540.57	0.00	-	-	-	-	-	-
A-B	7.71	1.93	7.71	0.00	-	-	-	-	-	-
A-C	946.88	236.72	946.88	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	28.63	7.16	28.62	0.00	309.61	0.092	0.10	0.10	12.811	B
C-AB	3.33	0.83	3.33	0.00	447.84	0.007	0.01	0.01	8.098	A
C-A	540.57	135.14	540.57	0.00	-	-	-	-	-	-
A-B	7.71	1.93	7.71	0.00	-	-	-	-	-	-
A-C	946.88	236.72	946.88	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	23.37	5.84	23.50	0.00	358.67	0.065	0.10	0.07	10.746	B
C-AB	2.71	0.68	2.72	0.00	489.43	0.006	0.01	0.01	7.395	A
C-A	441.39	110.35	441.39	0.00	-	-	-	-	-	-
A-B	6.29	1.57	6.29	0.00	-	-	-	-	-	-
A-C	773.12	193.28	773.12	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	19.57	4.89	19.64	0.00	393.01	0.050	0.07	0.05	9.643	A
C-AB	2.27	0.57	2.27	0.00	519.77	0.004	0.01	0.00	6.955	A
C-A	369.64	92.41	369.64	0.00	-	-	-	-	-	-

A-B	5.27	1.32	5.27	0.00	-	-	-	-	-	-
A-C	647.45	161.86	647.45	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.75	0.05	9.630	A	A
C-AB	0.06	0.00	6.955	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	1.00	0.07	10.731	B	B
C-AB	0.08	0.01	7.395	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	1.45	0.10	12.801	B	B
C-AB	0.11	0.01	8.098	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	1.51	0.10	12.811	B	B
C-AB	0.11	0.01	8.098	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	1.09	0.07	10.746	B	B
C-AB	0.08	0.01	7.395	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.82	0.05	9.643	A	A
C-AB	0.07	0.00	6.955	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Proposed Site Access 2 - 2019 Assessment Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Proposed Site Access 2	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2019 Assessment Flows, PM	2019 Assessment Flows	PM		ONE HOUR	16:30	18:00	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
Site Access 2	T-Junction	Two-way	A,B,C		9.98	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Name	Description	Arm Type
B5077 Crewe Road (E)	B5077 Crewe Road (E)		Major
Site Access 2	Site Access 2		Minor
B5077 Crewe Road (W)	B5077 Crewe Road (W)		Major

Major Arm Geometry

Name	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
B5077 Crewe Road (W)	7.60		0.00		2.20	180.00	✓	1.00

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

Minor Arm Geometry

Name	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
Site Access 2	One lane	2.75										19	16

Pedestrian Crossings

Name	Crossing Type
B5077 Crewe Road (E)	None
Site Access 2	None
B5077 Crewe Road (W)	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	479.343	0.081	0.205	0.129	0.293
1	B-C	618.140	0.088	0.223	-	-
1	C-B	678.203	0.244	0.244	-	-

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 Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
B5077 Crewe Road (E)	ONE HOUR	✓	489.00	100.000
Site Access 2	ONE HOUR	✓	15.00	100.000
B5077 Crewe Road (W)	ONE HOUR	✓	987.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	0.000	8.000	481.000
	B	10.000	0.000	5.000
	C	971.000	16.000	0.000

Turning Proportions (PCU) - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.67	0.00	0.33
	C	0.98	0.02	0.00

Vehicle Mix

Average PCU Per Vehicle - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Site Access 2 (for whole period)

		To		
		A	B	C
From	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.06	13.82	0.06	B	13.76	20.65	4.12	11.98	0.05	4.12	11.98
C-AB	0.03	6.53	0.04	A	15.34	23.01	2.50	6.53	0.03	2.50	6.53
C-A	-	-	-	-	890.35	1335.52	-	-	-	-	-
A-B	-	-	-	-	7.34	11.01	-	-	-	-	-
A-C	-	-	-	-	441.37	662.06	-	-	-	-	-

Main Results for each time segment

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	11.29	2.82	11.16	0.00	357.71	0.032	0.00	0.03	10.385	B
C-AB	12.35	3.09	12.27	0.00	598.19	0.021	0.00	0.02	6.144	A
C-A	730.71	182.68	730.71	0.00	-	-	-	-	-	-
A-B	6.02	1.51	6.02	0.00	-	-	-	-	-	-
A-C	362.12	90.53	362.12	0.00	-	-	-	-	-	-

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	13.48	3.37	13.44	0.00	324.49	0.042	0.03	0.04	11.572	B
C-AB	14.94	3.73	14.92	0.00	585.57	0.026	0.02	0.03	6.308	A
C-A	872.35	218.09	872.35	0.00	-	-	-	-	-	-
A-B	7.19	1.80	7.19	0.00	-	-	-	-	-	-
A-C	432.41	108.10	432.41	0.00	-	-	-	-	-	-

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	16.52	4.13	16.44	0.00	277.05	0.060	0.04	0.06	13.808	B
C-AB	18.73	4.68	18.69	0.00	570.12	0.033	0.03	0.04	6.528	A
C-A	1067.98	267.00	1067.98	0.00	-	-	-	-	-	-
A-B	8.81	2.20	8.81	0.00	-	-	-	-	-	-
A-C	529.59	132.40	529.59	0.00	-	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	16.52	4.13	16.51	0.00	277.04	0.060	0.06	0.06	13.817	B
C-AB	18.73	4.68	18.73	0.00	570.12	0.033	0.04	0.04	6.528	A
C-A	1067.98	267.00	1067.98	0.00	-	-	-	-	-	-
A-B	8.81	2.20	8.81	0.00	-	-	-	-	-	-
A-C	529.59	132.40	529.59	0.00	-	-	-	-	-	-

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	13.48	3.37	13.56	0.00	324.48	0.042	0.06	0.04	11.583	B
C-AB	14.94	3.73	14.97	0.00	585.57	0.026	0.04	0.03	6.308	A
C-A	872.35	218.09	872.35	0.00	-	-	-	-	-	-
A-B	7.19	1.80	7.19	0.00	-	-	-	-	-	-
A-C	432.41	108.10	432.41	0.00	-	-	-	-	-	-

Main results: (17:45-18:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	11.29	2.82	11.34	0.00	357.68	0.032	0.04	0.03	10.397	B
C-AB	12.35	3.09	12.37	0.00	598.19	0.021	0.03	0.02	6.147	A
C-A	730.71	182.68	730.71	0.00	-	-	-	-	-	-
A-B	6.02	1.51	6.02	0.00	-	-	-	-	-	-
A-C	362.12	90.53	362.12	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (16:30-16:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.46	0.03	10.385	B	B
C-AB	0.32	0.02	6.144	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.62	0.04	11.572	B	B
C-AB	0.40	0.03	6.308	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:00-17:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.90	0.06	13.808	B	B
C-AB	0.53	0.04	6.528	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:15-17:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.94	0.06	13.817	B	B
C-AB	0.53	0.04	6.528	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:30-17:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.68	0.05	11.583	B	B
C-AB	0.41	0.03	6.308	A	A

C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:45-18:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.51	0.03	10.397	B	B
C-AB	0.32	0.02	6.147	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

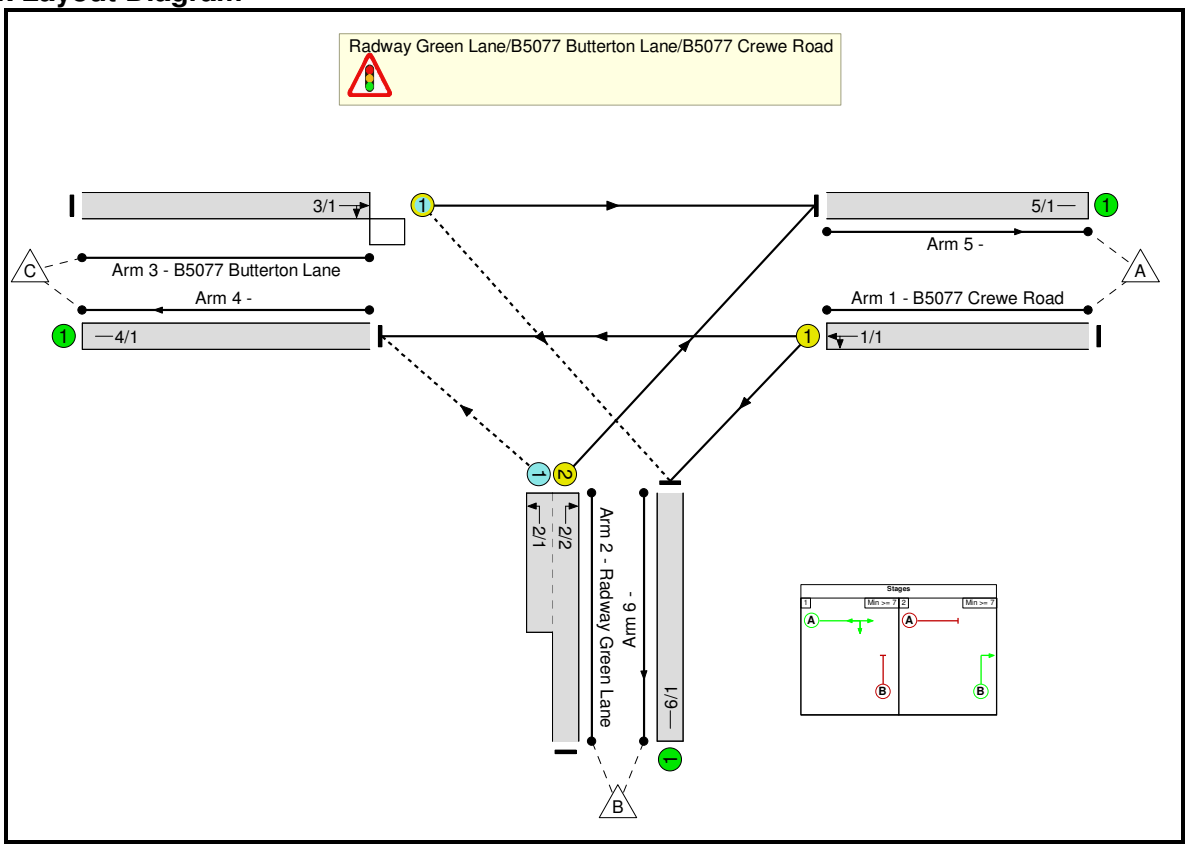
Appendix G – LINSIG Outputs (Existing Radway Green / Crewe Road / Butterton Lane Junction)

Full Input Data And Results

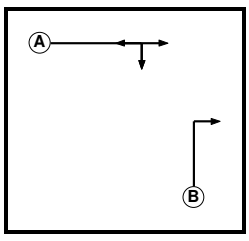
User and Project Details

Project:	**Crewe Road, Alsager**
Title:	**Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road**
Location:	Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road
File name:	Radway Green Lane_B5077 T-Junction.lsg3x
Author:	
Company:	WYG
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7

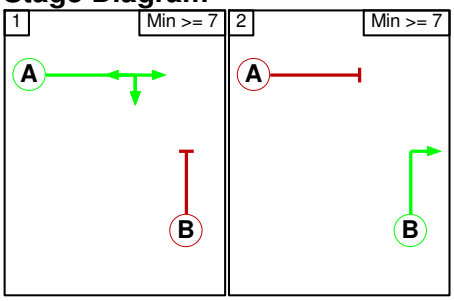
Phase Intergreens Matrix

		Starting Phase	
		A	B
Terminating Phase	A		7
	B	7	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage	
		1	2
From Stage	1		7
	2	7	

Give-Way Lane Input Data

Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/1 (Radway Green Lane)	4/1 (Left)	715	0	1/1	0.22	To 4/1 (Ahead)	-	-	-	-	-
3/1 (B5077 Butterton Lane)	6/1 (Right)	1440	0	1/1	1.09	All	2.00	2.00	0.50	2	2.00

Lane Input Data

Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B5077 Crewe Road)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Left	12.00
2/1 (Radway Green Lane)	O		2	3	8.0	Inf	-	-	-	-	-	-
2/2 (Radway Green Lane)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Right	20.00
3/1 (B5077 Butterton Lane)	O	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	12.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)'	08:00	09:00	01:00	
2: 'PM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)'	16:45	17:45	01:00	
3: 'AM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)'	08:00	09:00	01:00	
4: 'PM Peak 2019 with Dev. Flows (Exc. White Moss Quarry) '	16:45	17:45	01:00	

Scenario 1: 'AM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)' (FG1: 'AM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	352	731	1083
	B	163	0	119	282
	C	255	144	0	399
	Tot.	418	496	850	1764

Traffic Lane Flows

Lane	Scenario 1: AM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)
Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	
1/1	1083
2/1 (short)	119
2/2 (with short)	282(In) 163(Out)
3/1	399
4/1	850
5/1	418
6/1	496

Lane Saturation Flows

Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	67.5 %	1888	1888
				Arm 6 Left	12.00	32.5 %		
2/1 (Radway Green Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Radway Green Lane)	3.50	0.00	Y	Arm 5 Right	20.00	100.0 %	1828	1828
3/1 (B5077 Butterton Lane)	3.50	0.00	Y	Arm 5 Ahead	Inf	63.9 %	1880	1880
				Arm 6 Right	12.00	36.1 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)' (FG2: 'PM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	160	247	407
	B	392	0	79	471
	C	619	177	0	796
	Tot.	1011	337	326	1674

Traffic Lane Flows

Lane	Scenario 2: PM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)
Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	
1/1	407
2/1 (short)	79
2/2 (with short)	471(In) 392(Out)
3/1	796
4/1	326
5/1	1011
6/1	337

Lane Saturation Flows

Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5077 Crewe Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	60.7 %	1873	1873
				Arm 6 Left	12.00	39.3 %		
2/1 (Radway Green Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Radway Green Lane)	3.50	0.00	Y	Arm 5 Right	20.00	100.0 %	1828	1828
3/1 (B5077 Butterton Lane)	3.50	0.00	Y	Arm 5 Ahead	Inf	77.8 %	1912	1912
				Arm 6 Right	12.00	22.2 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)' (FG3: 'AM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	357	744	1101
	B	165	0	119	284
	C	258	144	0	402
	Tot.	423	501	863	1787

Traffic Lane Flows

Lane	Scenario 3: AM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)
Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	
1/1	1101
2/1 (short)	119
2/2 (with short)	284(In) 165(Out)
3/1	402
4/1	863
5/1	423
6/1	501

Lane Saturation Flows

Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5077 Crewe Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	67.6 %	1888	1888
				Arm 6 Left	12.00	32.4 %		
2/1 (Radway Green Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Radway Green Lane)	3.50	0.00	Y	Arm 5 Right	20.00	100.0 %	1828	1828
3/1 (B5077 Butterton Lane)	3.50	0.00	Y	Arm 5 Ahead	Inf	64.2 %	1881	1881
				Arm 6 Right	12.00	35.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)' (FG4: 'PM Peak 2019 with Dev. Flows (Exc. White Moss Quarry) ', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	162	250	412
	B	399	0	79	478
	C	630	177	0	807
	Tot.	1029	339	329	1697

Traffic Lane Flows

Lane	Scenario 4: PM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)
Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	
1/1	412
2/1 (short)	79
2/2 (with short)	478(In) 399(Out)
3/1	807
4/1	329
5/1	1029
6/1	339

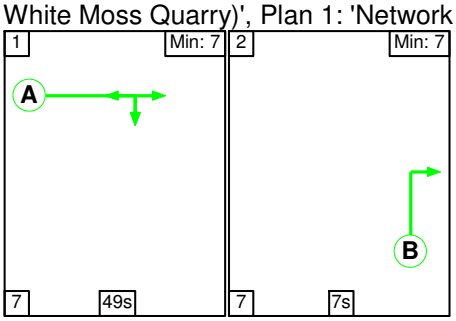
Lane Saturation Flows

Junction: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road

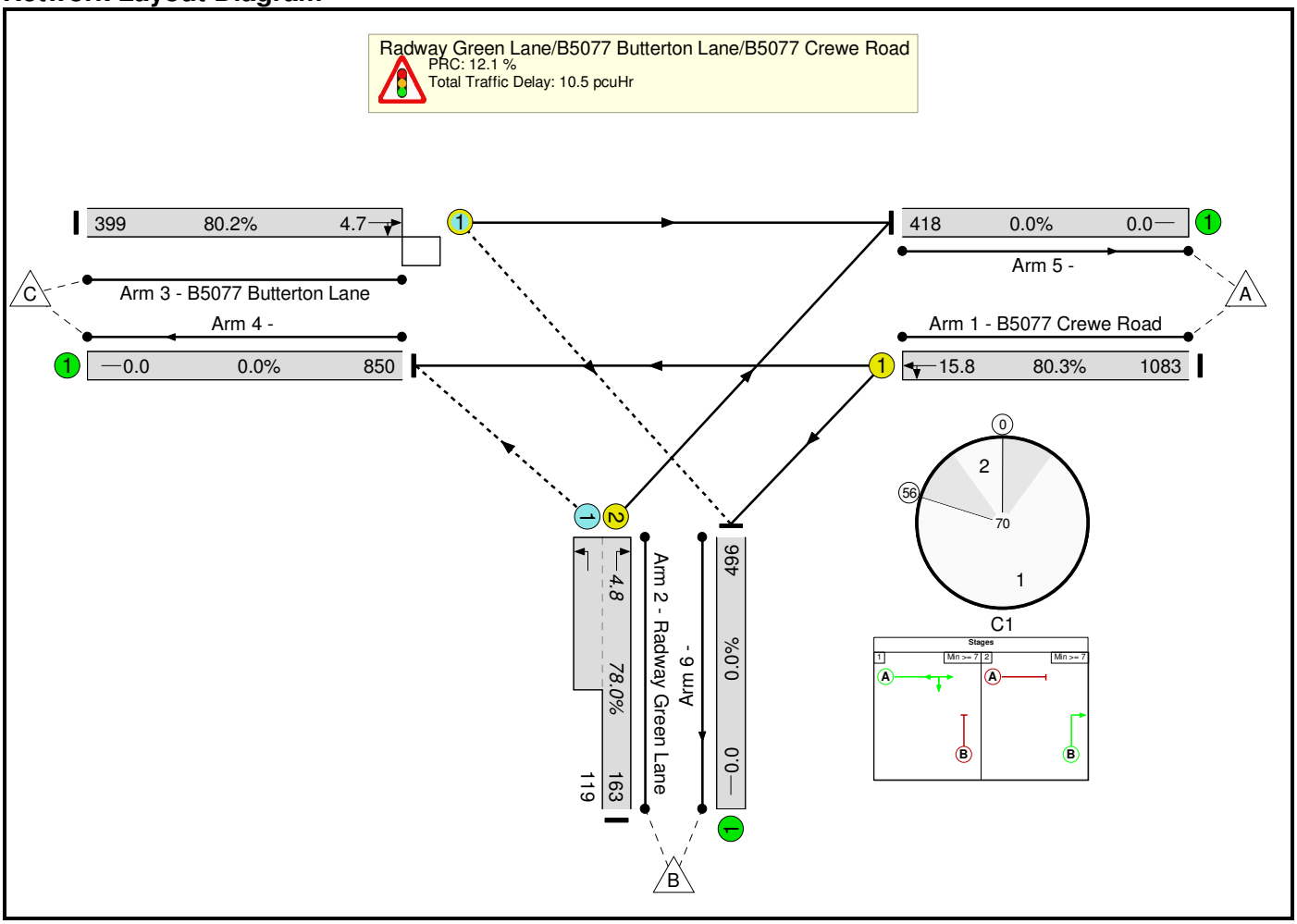
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5077 Crewe Road)	3.50	0.00	Y	Arm 4 Ahead	Inf	60.7 %	1873	1873
				Arm 6 Left	12.00	39.3 %		
2/1 (Radway Green Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Radway Green Lane)	3.50	0.00	Y	Arm 5 Right	20.00	100.0 %	1828	1828
3/1 (B5077 Butterton Lane)	3.50	0.00	Y	Arm 5 Ahead	Inf	78.1 %	1913	1913
				Arm 6 Right	12.00	21.9 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Stage Sequence Diagram

Scenario 1: 'AM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)' (FG1: 'AM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)', Plan 1: 'Network Control Plan 1')



Network Layout Diagram



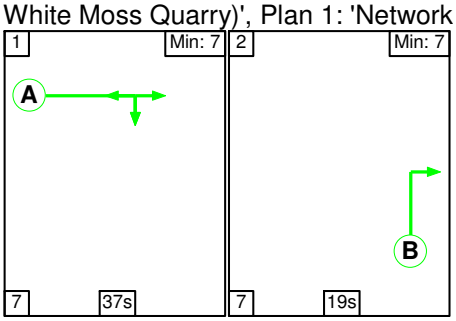
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**80.3%**	**3.8**	**5.7**	**10.5**	**-**	**-**	**-**	**-**
Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**80.3%**	**3.8**	**5.7**	**10.5**	**-**	**-**	**-**	**-**
1/1	B5077 Crewe Road Ahead Left	A	1083	1888	1349	80.3%	2.0	2.0	4.0	13.4	13.8	2.0	15.8
2/2+2/1	Radway Green Lane Left Right	B -	282	1828: Inf	361	78.0%	1.4	1.7	3.1	39.2	3.1	1.7	4.8
3/1	B5077 Butterton Lane Ahead Right	A	399	1880	497	80.2%	0.4	1.9	3.4	30.3	2.8	1.9	4.7

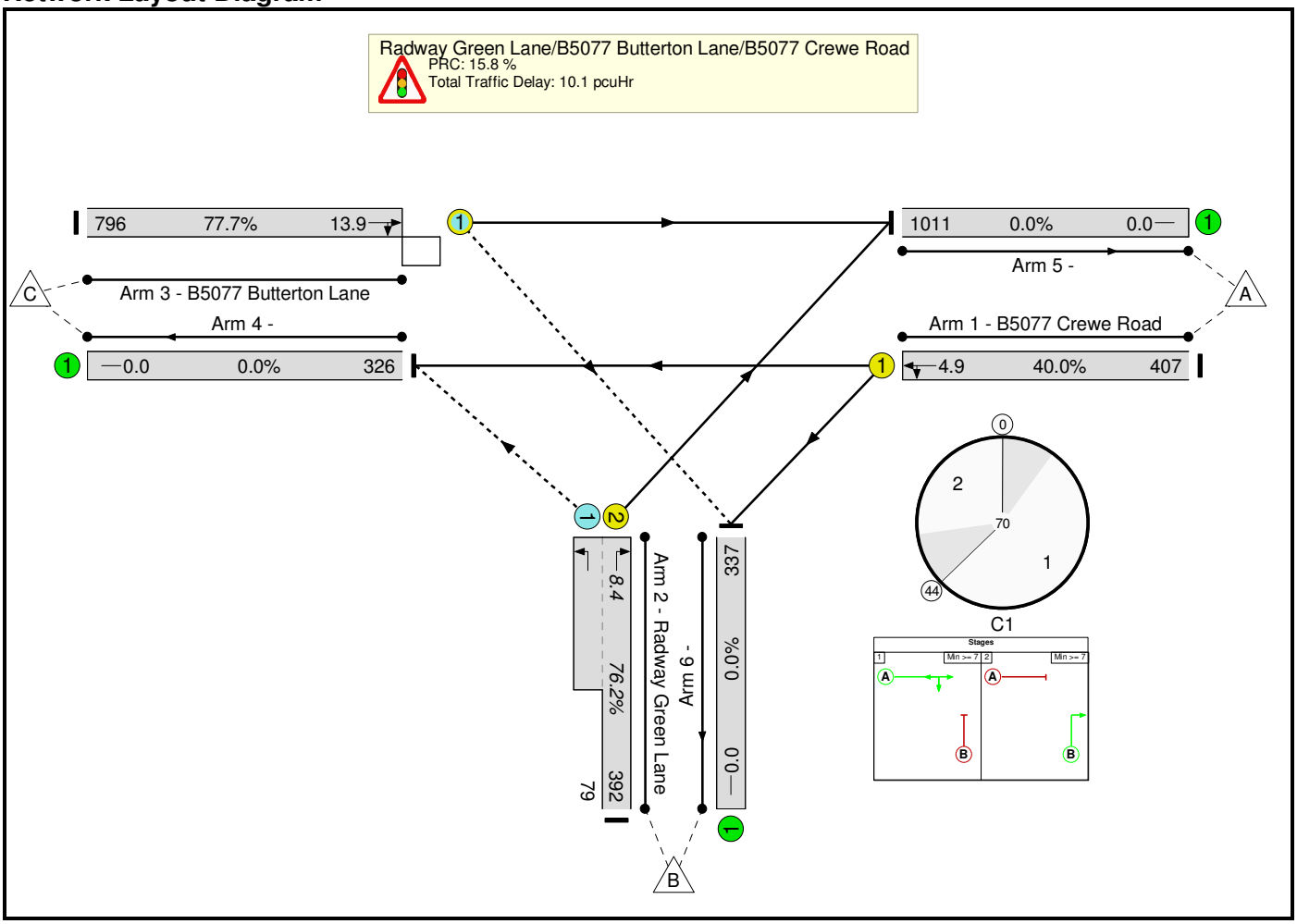
C1 PRC for Signalled Lanes (%): 12.1 Total Delay for Signalled Lanes (pcuHr): 10.45 Cycle Time (s): 70
PRC Over All Lanes (%): 12.1 Total Delay Over All Lanes(pcuHr): 10.45

Stage Sequence Diagram

Scenario 2: 'PM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)' (FG2: 'PM Peak 2019 w/o Dev. Flows (Exc. White Moss Quarry)', Plan 1: 'Network Control Plan 1')



Network Layout Diagram



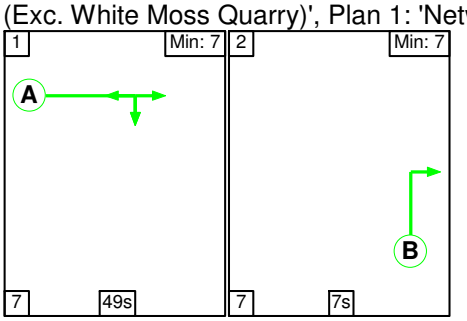
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**77.7%**	**6.3**	**3.6**	**10.1**	**-**	**-**	**-**	**-**
Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**77.7%**	**6.3**	**3.6**	**10.1**	**-**	**-**	**-**	**-**
1/1	B5077 Crewe Road Ahead Left	A	407	1873	1017	40.0%	1.1	0.3	1.4	12.3	4.5	0.3	4.9
2/2+2/1	Radway Green Lane Left Right	B -	471	1828: Inf	618	76.2%	2.5	1.6	4.0	30.9	6.9	1.6	8.4
3/1	B5077 Butterton Lane Ahead Right	A	796	1912	1024	77.7%	2.8	1.7	4.6	21.0	12.2	1.7	13.9

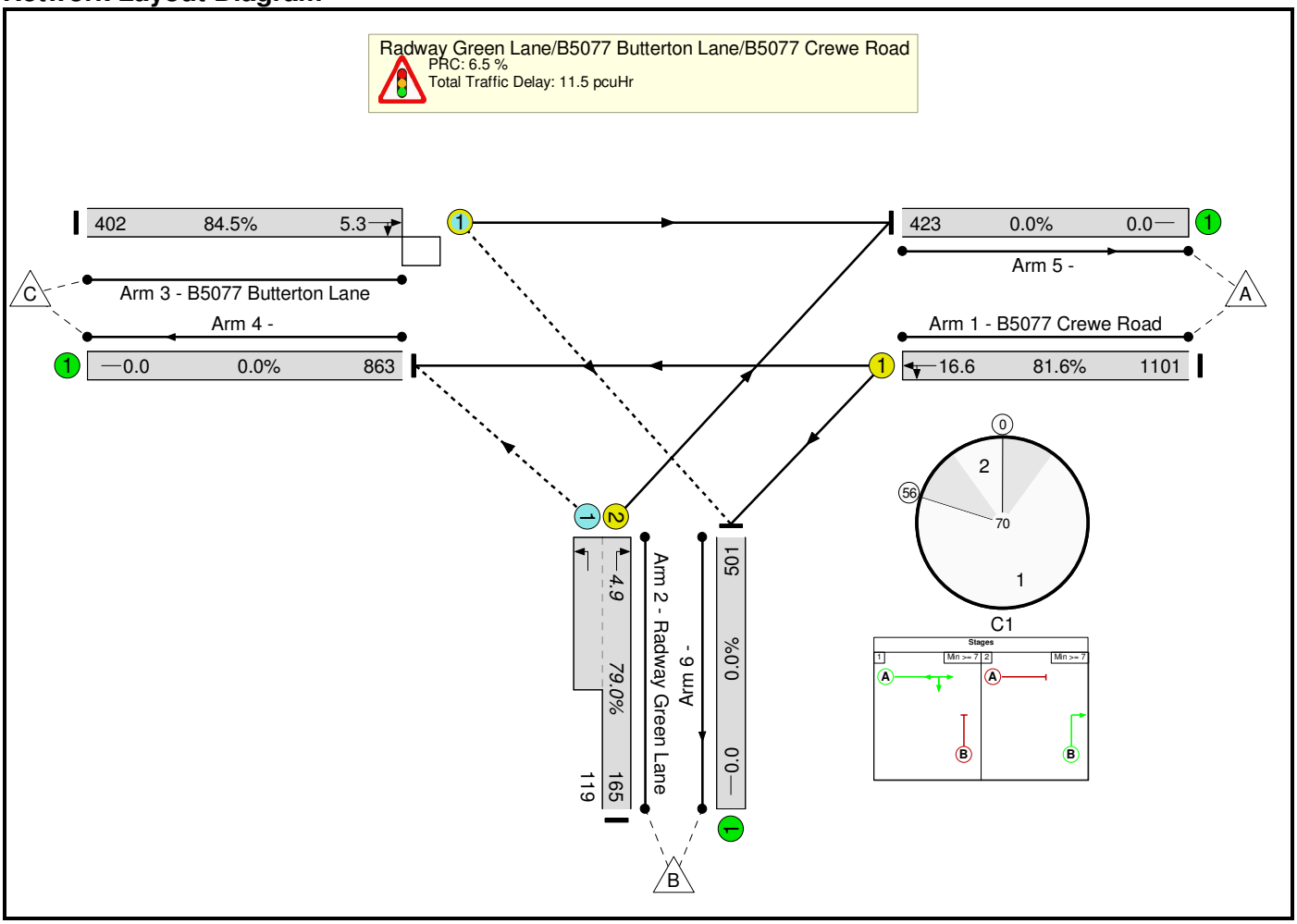
C1 PRC for Signalled Lanes (%): 15.8 Total Delay for Signalled Lanes (pcuHr): 10.07 Cycle Time (s): 70
PRC Over All Lanes (%): 15.8 Total Delay Over All Lanes(pcuHr): 10.07

Stage Sequence Diagram

Scenario 3: 'AM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)' (FG3: 'AM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)', Plan 1: 'Network Control Plan 1')



Network Layout Diagram



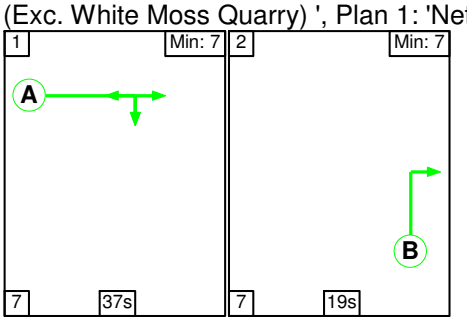
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**84.5%**	**3.9**	**6.5**	**11.5**	**-**	**-**	**-**	**-**
Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**84.5%**	**3.9**	**6.5**	**11.5**	**-**	**-**	**-**	**-**
1/1	B5077 Crewe Road Ahead Left	A	1101	1888	1349	81.6%	2.1	2.2	4.3	14.0	14.4	2.2	16.6
2/2+2/1	Radway Green Lane Left Right	B -	284	1828: Inf	360	79.0%	1.4	1.8	3.2	40.3	3.1	1.8	4.9
3/1	B5077 Butterton Lane Ahead Right	A	402	1881	476	84.5%	0.4	2.6	4.0	36.0	2.8	2.6	5.3

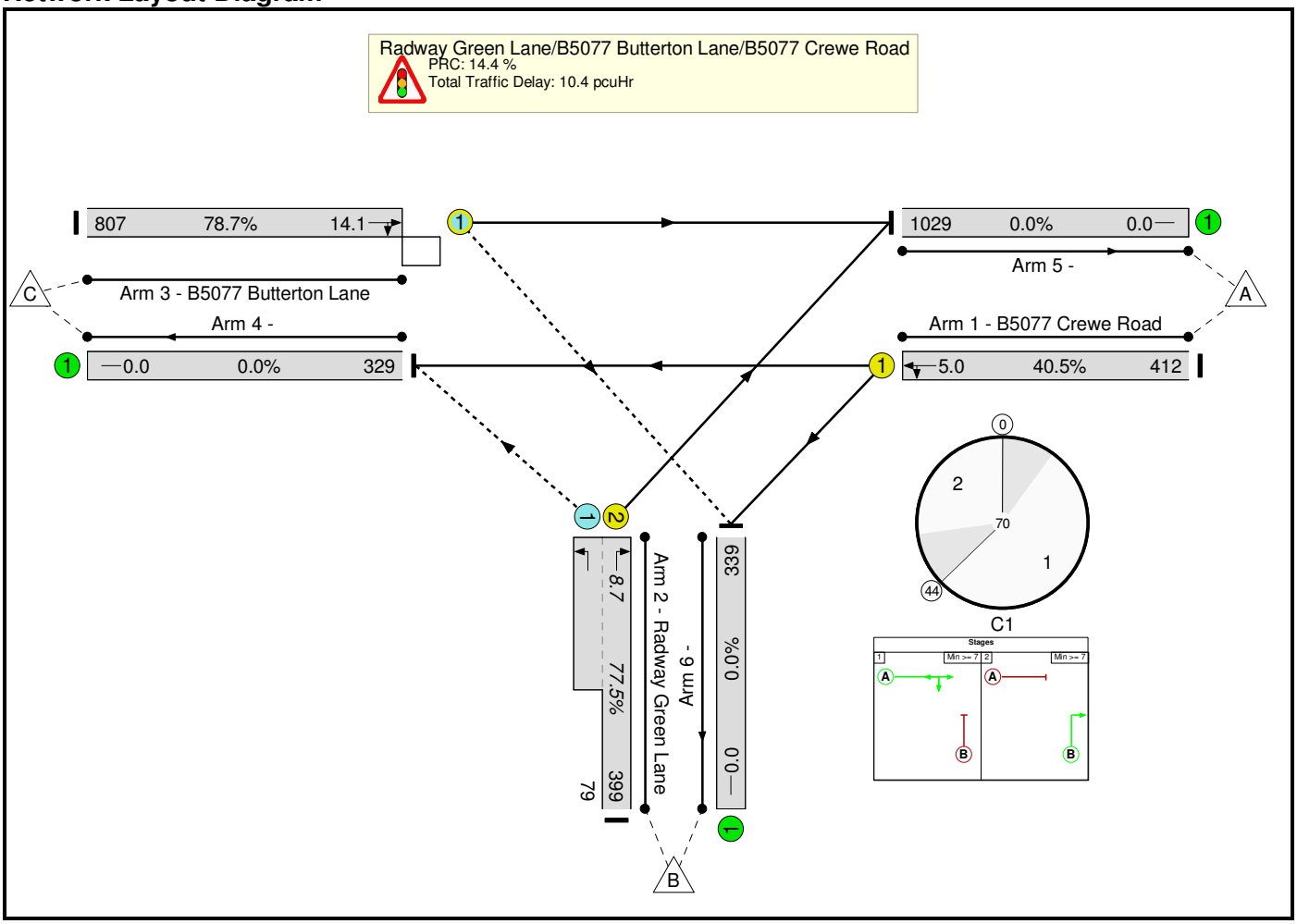
C1 PRC for Signalled Lanes (%): 6.5 Total Delay for Signalled Lanes (pcuHr): 11.48 Cycle Time (s): 70
PRC Over All Lanes (%): 6.5 Total Delay Over All Lanes(pcuHr): 11.48

Stage Sequence Diagram

Scenario 4: 'PM Peak 2019 with Dev. Flows (Exc. White Moss Quarry)' (FG4: 'PM Peak 2019 with Dev. Flows (Exc. White Moss Quarry) ', Plan 1: 'Network Control Plan 1')



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**78.7%**	**6.5**	**3.8**	**10.4**	**-**	**-**	**-**	**-**
Radway Green Lane/B5077 Butterton Lane/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**78.7%**	**6.5**	**3.8**	**10.4**	**-**	**-**	**-**	**-**
1/1	B5077 Crewe Road Ahead Left	A	412	1873	1017	40.5%	1.1	0.3	1.4	12.4	4.7	0.3	5.0
2/2+2/1	Radway Green Lane Left Right	B -	478	1828: Inf	616	77.5%	2.5	1.7	4.2	31.8	7.0	1.7	8.7
3/1	B5077 Butterton Lane Ahead Right	A	807	1913	1026	78.7%	2.9	1.8	4.8	21.4	12.3	1.8	14.1

C1 PRC for Signalled Lanes (%): 14.4 Total Delay for Signalled Lanes (pcuHr): 10.42 Cycle Time (s): 70
PRC Over All Lanes (%): 14.4 Total Delay Over All Lanes(pcuHr): 10.42

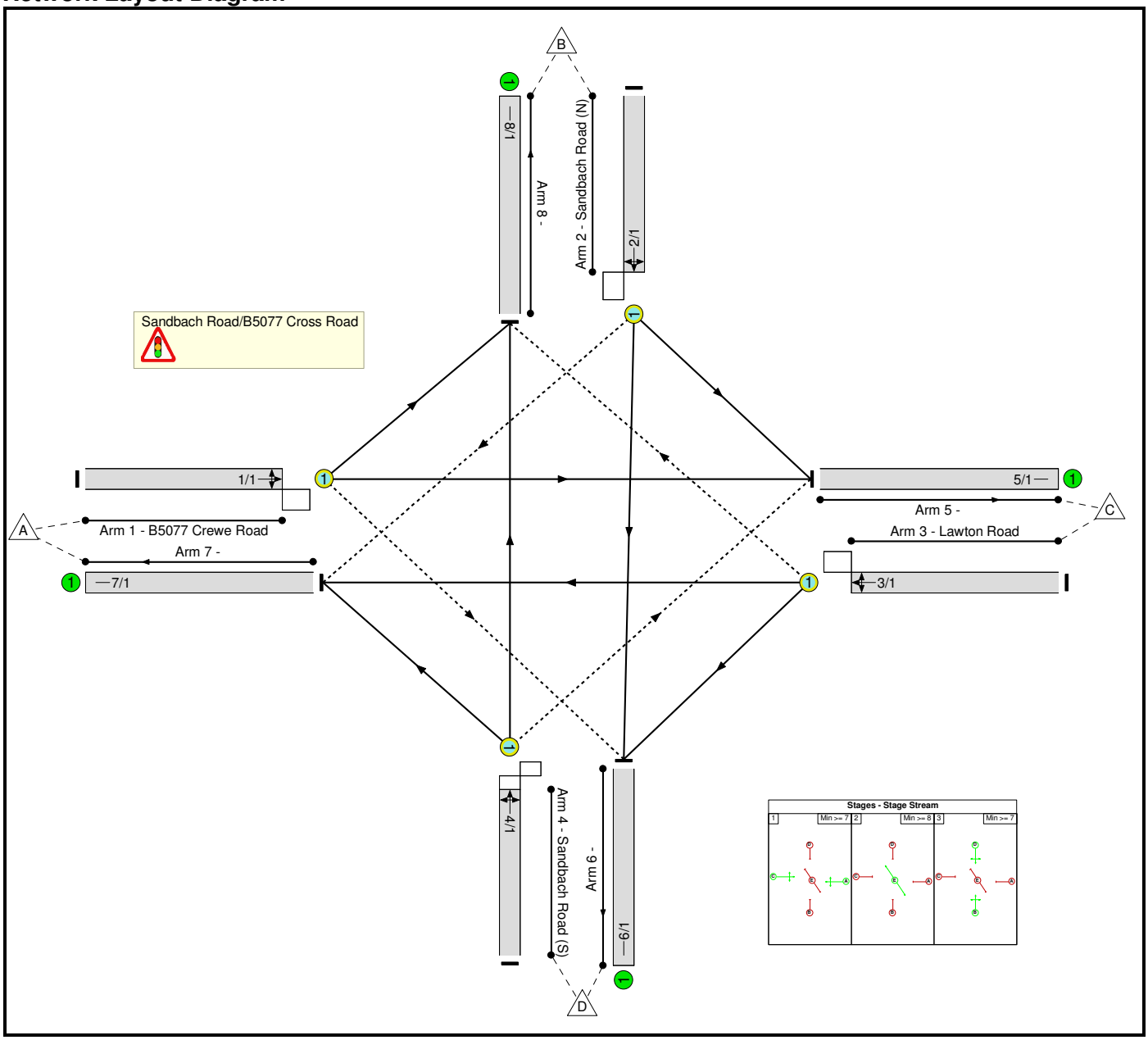
Appendix H – LINSIG Outputs (Existing Crewe Road / Sandbach Road / Lawton Road Junction)

Full Input Data And Results

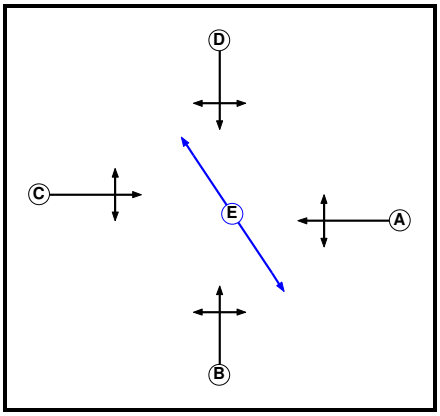
User and Project Details

Project:	**Crewe Road, Alsager**
Title:	**Sandbach Road/B5077 Crewe Road**
Location:	Sandbach Road/B5077 Crewe Road Signal Junction
File name:	Sandbach Road_B5077 Cross Road.lsg3x
Author:	
Company:	WYG
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		8	8

Phase Intergreens Matrix

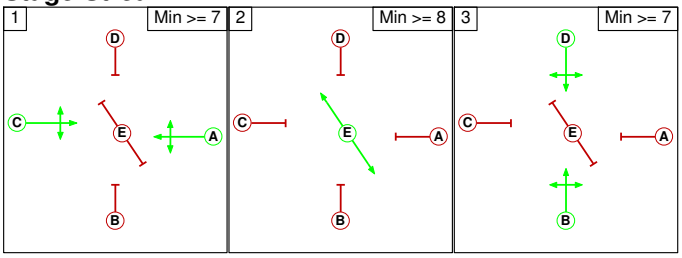
		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		6	-	6	14
	B	7		7	-	10
	C	-	6		6	14
	D	7	-	7		10
	E	8	8	8	8	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A C
1	2	E
1	3	B D

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage			
From Stage		1	2	3
	1		14	6
	2	8		8
	3	7	10	

Give-Way Lane Input Data

Junction: Sandbach Road/B5077 Cross Road

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/1 (B5077 Crewe Road)	6/1 (Right)	1440	0	3/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	2.00	2.00	0.50	2	2.00
2/1 (Sandbach Road (N))	7/1 (Right)	1440	0	4/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	2.00	2.00	0.50	2	2.00
3/1 (Lawton Road)	8/1 (Right)	1440	0	1/1	1.09	To 5/1 (Ahead) To 8/1 (Left)	2.00	2.00	0.50	2	2.00
4/1 (Sandbach Road (S))	5/1 (Right)	1440	0	2/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	1.00	0.50	2	2.00

Lane Input Data

Junction: Sandbach Road/B5077 Cross Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B5077 Crewe Road)	O	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	60.00
											Arm 8 Left	15.00
2/1 (Sandbach Road (N))	O	D	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 5 Left	45.00
											Arm 6 Ahead	Inf
											Arm 7 Right	20.00
3/1 (Lawton Road)	O	A	2	3	17.4	Geom	-	3.00	0.00	Y	Arm 6 Left	15.00
											Arm 7 Ahead	Inf
											Arm 8 Right	55.00
4/1 (Sandbach Road (S))	O	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Right	12.00
											Arm 7 Left	40.00
											Arm 8 Ahead	Inf
5/1	U		2	3	5.2	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2019 Base - AM Peak (No WMQ)'	08:00	09:00	01:00	
2: '2019 Base - PM Peak (No WMQ)'	16:45	17:45	01:00	
3: '2019 Assessment - AM Peak (No WMQ)'	08:00	09:00	01:00	
4: '2019 Assessment - PM Peak (No WMQ)'	16:45	17:45	01:00	

Scenario 1: '2019 Base - AM Peak (No WMQ)' (FG1: '2019 Base - AM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	57	414	68	539
	B	65	0	79	190	334
	C	514	68	0	50	632
	D	77	110	85	0	272
	Tot.	656	235	578	308	1777

Traffic Lane Flows

Lane	Scenario 1: 2019 Base - AM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	539
2/1	334
3/1	632
4/1	272
5/1	578
6/1	308
7/1	656
8/1	235

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	76.8 %	1889	1889
				Arm 6 Right	60.00	12.6 %		
				Arm 8 Left	15.00	10.6 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	23.7 %	1971	1971
				Arm 6 Ahead	Inf	56.9 %		
				Arm 7 Right	20.00	19.5 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	7.9 %	1894	1894
				Arm 7 Ahead	Inf	81.3 %		
				Arm 8 Right	55.00	10.8 %		
4/1 (Sandbach Road (S))	3.50	0.00	Y	Arm 5 Right	12.00	31.3 %	1872	1872
				Arm 7 Left	40.00	28.3 %		
				Arm 8 Ahead	Inf	40.4 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2019 Base - PM Peak (No WMQ)' (FG2: '2019 Base - PM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	40	629	52	721
	B	57	0	82	121	260
	C	437	55	0	43	535
	D	64	177	139	0	380
	Tot.	558	272	850	216	1896

Traffic Lane Flows

Lane	Scenario 2: 2019 Base - PM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	721
2/1	260
3/1	535
4/1	380
5/1	850
6/1	216
7/1	558
8/1	272

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	87.2 %	1901	1901
				Arm 6 Right	60.00	7.2 %		
				Arm 8 Left	15.00	5.5 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	31.5 %	1962	1962
				Arm 6 Ahead	Inf	46.5 %		
				Arm 7 Right	20.00	21.9 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	8.0 %	1894	1894
				Arm 7 Ahead	Inf	81.7 %		
				Arm 8 Right	55.00	10.3 %		
4/1 (Sandbach Road (S))	3.50	0.00	Y	Arm 5 Right	12.00	36.6 %	1868	1868
				Arm 7 Left	40.00	16.8 %		
				Arm 8 Ahead	Inf	46.6 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2019 Assessment - AM Peak (No WMQ)' (FG3: '2019 Assessment - AM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	58	421	69	548
	B	66	0	79	190	335
	C	520	68	0	50	638
	D	78	110	85	0	273
	Tot.	664	236	585	309	1794

Traffic Lane Flows

Lane	Scenario 3: 2019 Assessment - AM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	548
2/1	335
3/1	638
4/1	273
5/1	585
6/1	309
7/1	664
8/1	236

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	76.8 %	1889	1889
				Arm 6 Right	60.00	12.6 %		
				Arm 8 Left	15.00	10.6 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	23.6 %	1970	1970
				Arm 6 Ahead	Inf	56.7 %		
				Arm 7 Right	20.00	19.7 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	7.8 %	1895	1895
				Arm 7 Ahead	Inf	81.5 %		
				Arm 8 Right	55.00	10.7 %		
4/1 (Sandbach Road (S))	3.50	0.00	Y	Arm 5 Right	12.00	31.1 %	1872	1872
				Arm 7 Left	40.00	28.6 %		
				Arm 8 Ahead	Inf	40.3 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2019 Assessment - PM Peak (No WMQ)' (FG4: '2019 Assessment - PM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	40	638	53	731
	B	58	0	82	121	261
	C	443	55	0	43	541
	D	65	177	139	0	381
	Tot.	566	272	859	217	1914

Traffic Lane Flows

Lane	Scenario 4: 2019 Assessment - PM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	731
2/1	261
3/1	541
4/1	381
5/1	859
6/1	217
7/1	566
8/1	272

Lane Saturation Flows

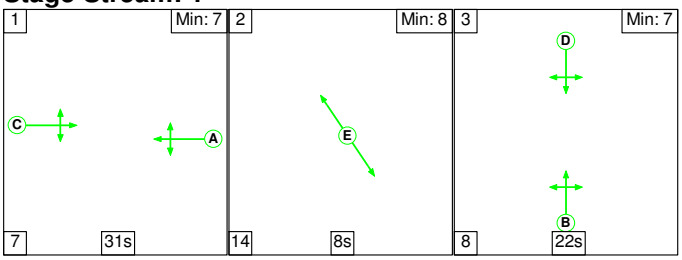
Junction: Sandbach Road/B5077 Cross Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	87.3 %	1901	1901
				Arm 6 Right	60.00	7.3 %		
				Arm 8 Left	15.00	5.5 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	31.4 %	1962	1962
				Arm 6 Ahead	Inf	46.4 %		
				Arm 7 Right	20.00	22.2 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	7.9 %	1895	1895
				Arm 7 Ahead	Inf	81.9 %		
				Arm 8 Right	55.00	10.2 %		
4/1 (Sandbach Road (S))	3.50	0.00	Y	Arm 5 Right	12.00	36.5 %	1868	1868
				Arm 7 Left	40.00	17.1 %		
				Arm 8 Ahead	Inf	46.5 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

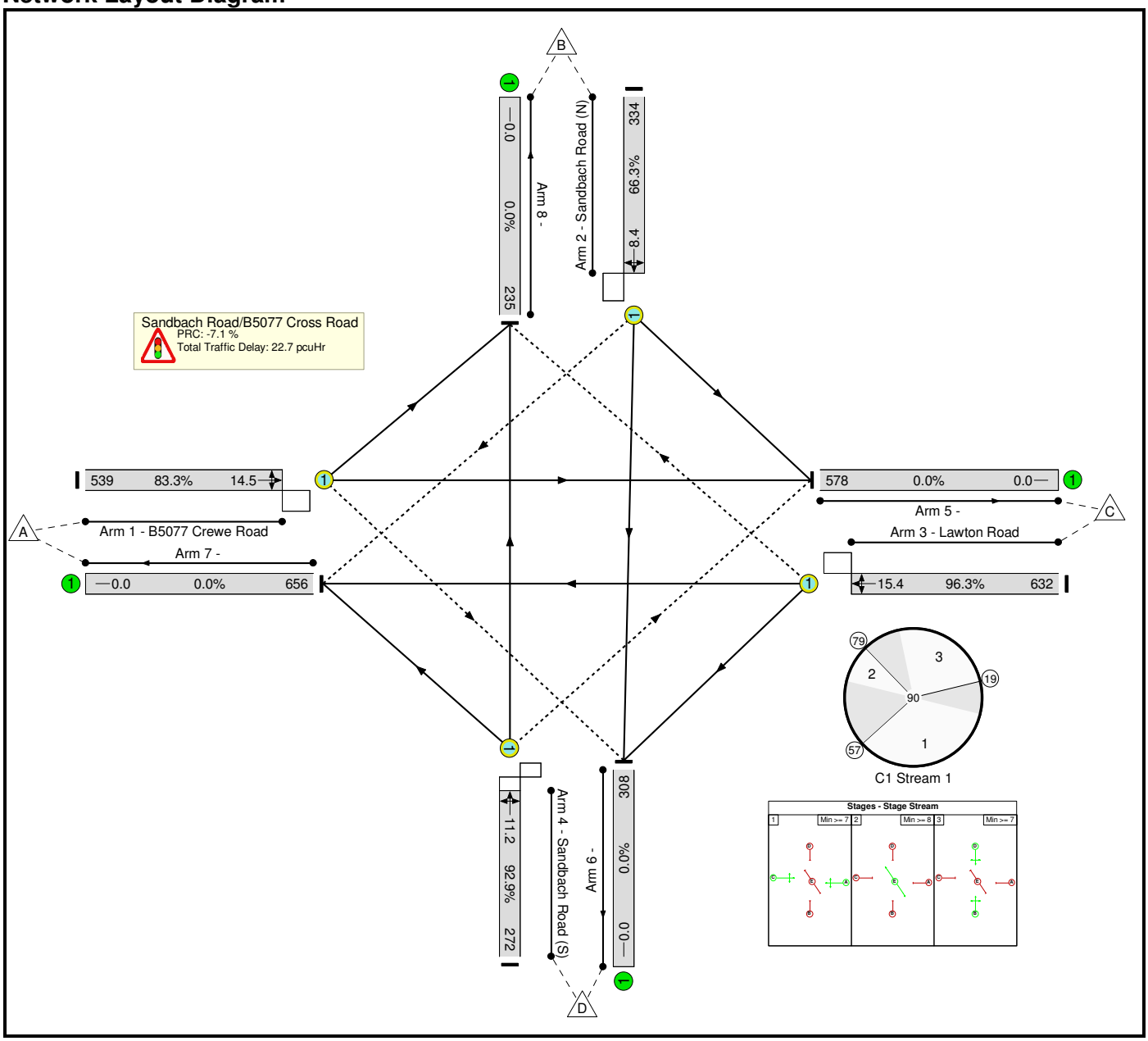
Stage Sequence Diagram

Scenario 1: '2019 Base - AM Peak (No WMQ)' (FG1: '2019 Base - AM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

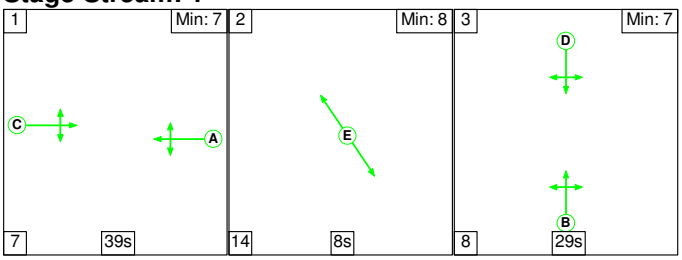
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**96.3%**	**14.1**	**7.9**	**22.7**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**96.3%**	**14.1**	**7.9**	**22.7**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	539	1889	647	83.3%	3.9	2.4	6.6	44.4	12.1	2.4	14.5
2/1	Sandbach Road (N) Left Ahead Right	D	334	1971	504	66.3%	2.8	1.0	3.8	40.8	7.4	1.0	8.4
3/1	Lawton Road Left Ahead Right	A	632	1894	656	96.3%	4.9	0.0	5.2	29.4	15.4	0.0	15.4
4/1	Sandbach Road (S) Right Left Ahead	B	272	1872	293	92.9%	2.4	4.5	7.1	94.5	6.6	4.5	11.2

C1 Stream: 1 PRC for Signalled Lanes (%): -7.1 Total Delay for Signalled Lanes (pcuHr): 22.72 Cycle Time (s): 90
PRC Over All Lanes (%): -7.1 Total Delay Over All Lanes(pcuHr): 22.72

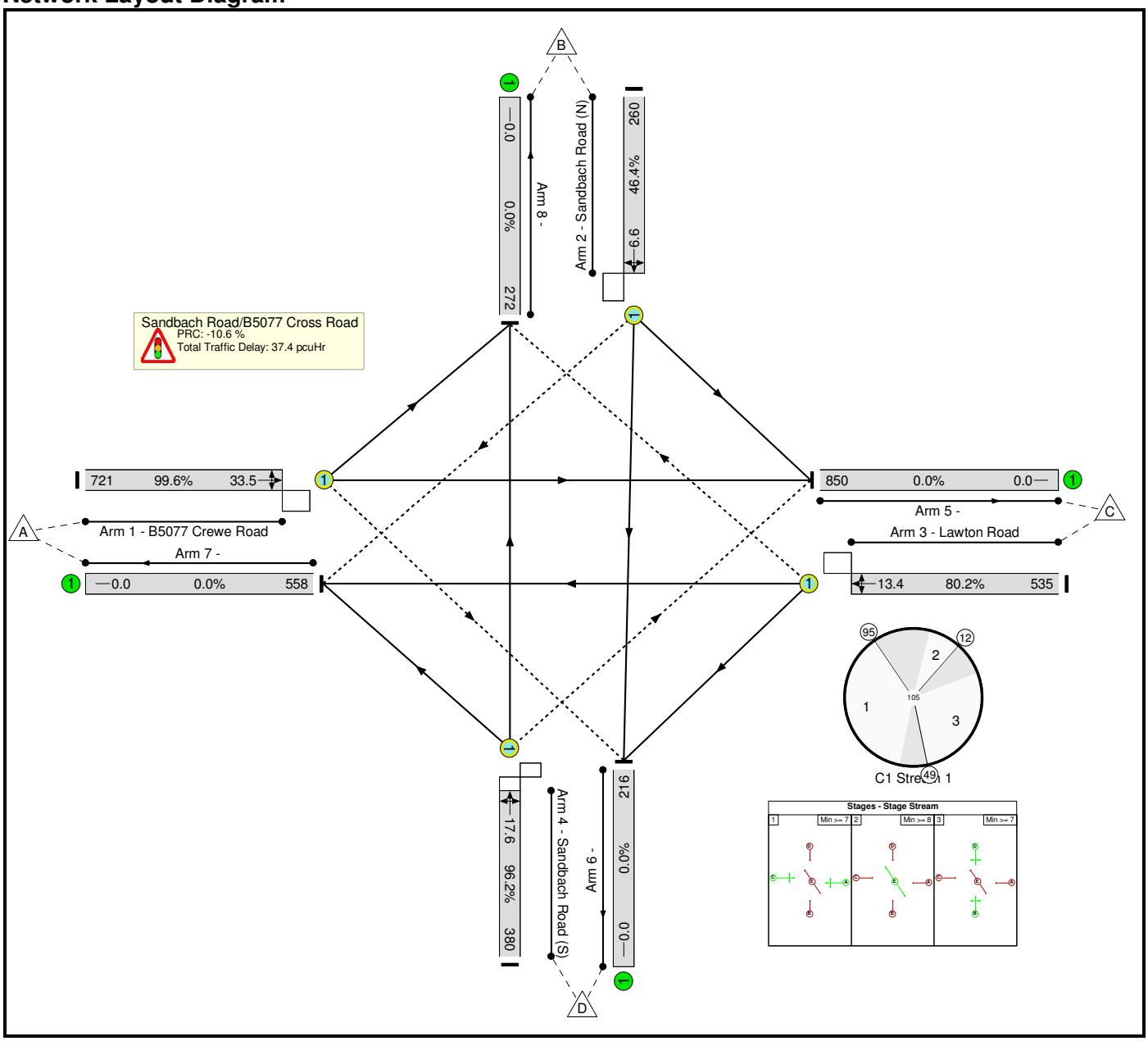
Stage Sequence Diagram

Scenario 2: '2019 Base - PM Peak (No WMQ)' (FG2: '2019 Base - PM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

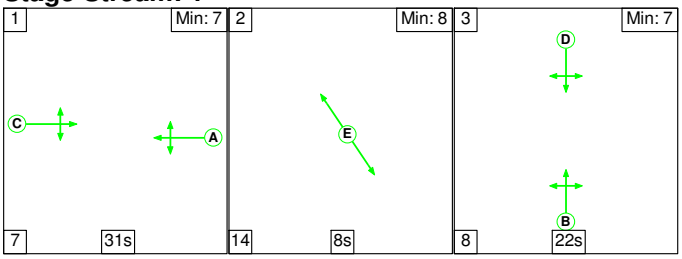
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**99.6%**	**16.9**	**19.8**	**37.4**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**99.6%**	**16.9**	**19.8**	**37.4**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	721	1901	724	99.6%	6.5	12.7	19.3	96.3	20.8	12.7	33.5
2/1	Sandbach Road (N) Left Ahead Right	D	260	1962	561	46.4%	2.2	0.4	2.7	37.0	6.2	0.4	6.6
3/1	Lawton Road Left Ahead Right	A	535	1894	667	80.2%	4.2	0.0	4.6	30.8	13.4	0.0	13.4
4/1	Sandbach Road (S) Right Left Ahead	B	380	1868	395	96.2%	4.0	6.7	10.9	103.2	10.9	6.7	17.6

C1 Stream: 1 PRC for Signalled Lanes (%): -10.6 Total Delay for Signalled Lanes (pcuHr): 37.42 Cycle Time (s): 105
PRC Over All Lanes (%): -10.6 Total Delay Over All Lanes(pcuHr): 37.42

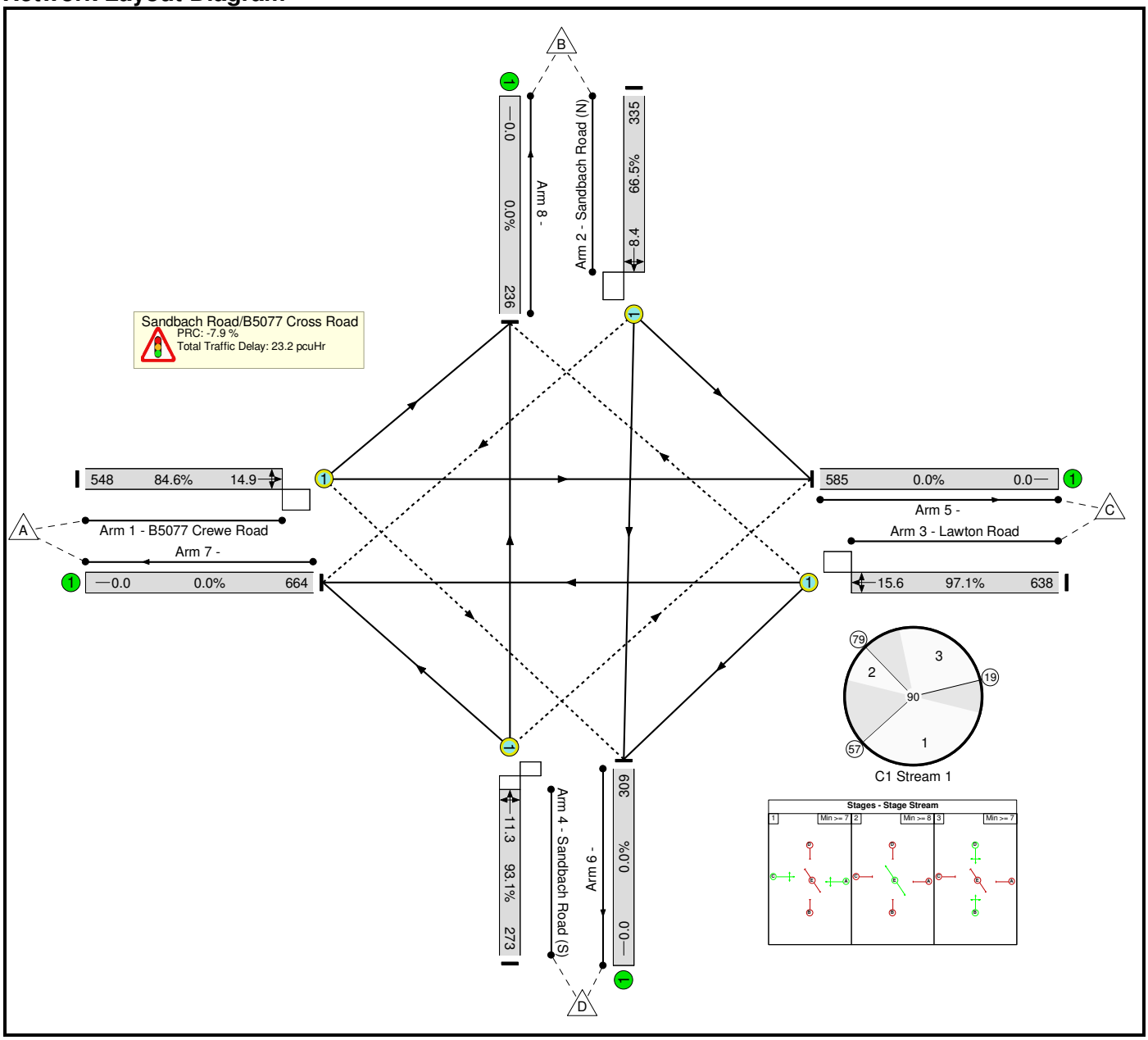
Stage Sequence Diagram

Scenario 3: '2019 Assessment - AM Peak (No WMQ)' (FG3: '2019 Assessment - AM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

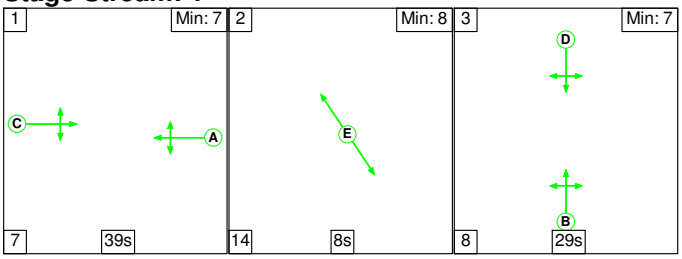
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**97.1%**	**14.2**	**8.2**	**23.2**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**97.1%**	**14.2**	**8.2**	**23.2**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	548	1889	647	84.6%	4.0	2.6	7.0	45.9	12.3	2.6	14.9
2/1	Sandbach Road (N) Left Ahead Right	D	335	1970	503	66.5%	2.8	1.0	3.8	40.9	7.4	1.0	8.4
3/1	Lawton Road Left Ahead Right	A	638	1895	657	97.1%	5.0	0.0	5.2	29.6	15.6	0.0	15.6
4/1	Sandbach Road (S) Right Left Ahead	B	273	1872	293	93.1%	2.4	4.6	7.2	95.3	6.7	4.6	11.3

C1 Stream: 1 PRC for Signalled Lanes (%): -7.9 Total Delay for Signalled Lanes (pcuHr): 23.25 Cycle Time (s): 90
PRC Over All Lanes (%): -7.9 Total Delay Over All Lanes(pcuHr): 23.25

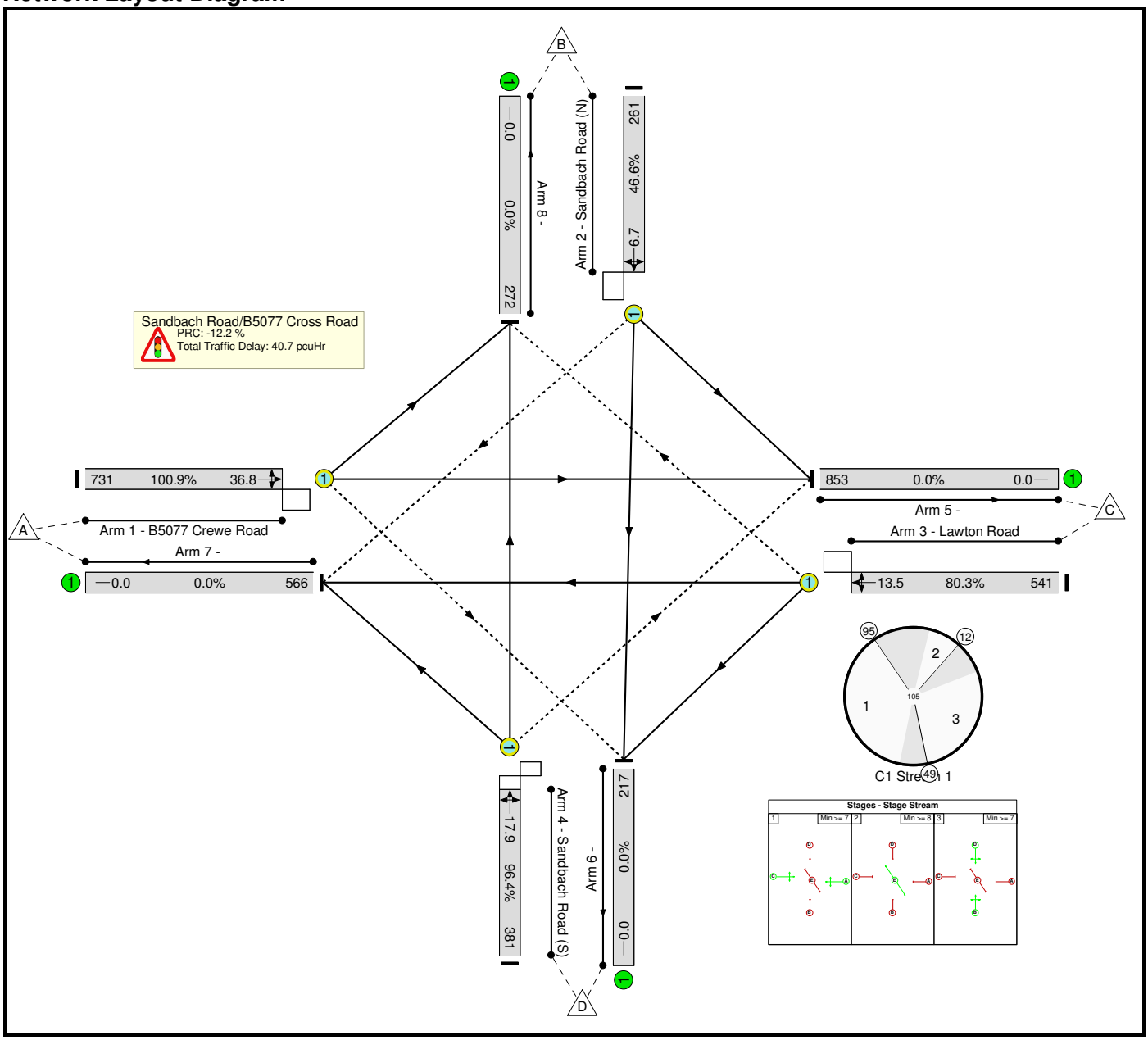
Stage Sequence Diagram

Scenario 4: '2019 Assessment - PM Peak (No WMQ)' (FG4: '2019 Assessment - PM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**100.9%**	**17.4**	**22.6**	**40.7**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**100.9%**	**17.4**	**22.6**	**40.7**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	731	1901	724	100.9%	6.8	15.3	22.3	109.9	21.5	15.3	36.8
2/1	Sandbach Road (N) Left Ahead Right	D	261	1962	561	46.6%	2.2	0.4	2.7	37.0	6.2	0.4	6.7
3/1	Lawton Road Left Ahead Right	A	541	1895	674	80.3%	4.2	0.0	4.6	30.8	13.5	0.0	13.5
4/1	Sandbach Road (S) Right Left Ahead	B	381	1868	395	96.4%	4.1	6.8	11.0	104.3	11.0	6.8	17.9

C1 Stream: 1 PRC for Signalled Lanes (%): -12.2 Total Delay for Signalled Lanes (pcuHr): 40.68 Cycle Time (s): 105
PRC Over All Lanes (%): -12.2 Total Delay Over All Lanes(pcuHr): 40.68

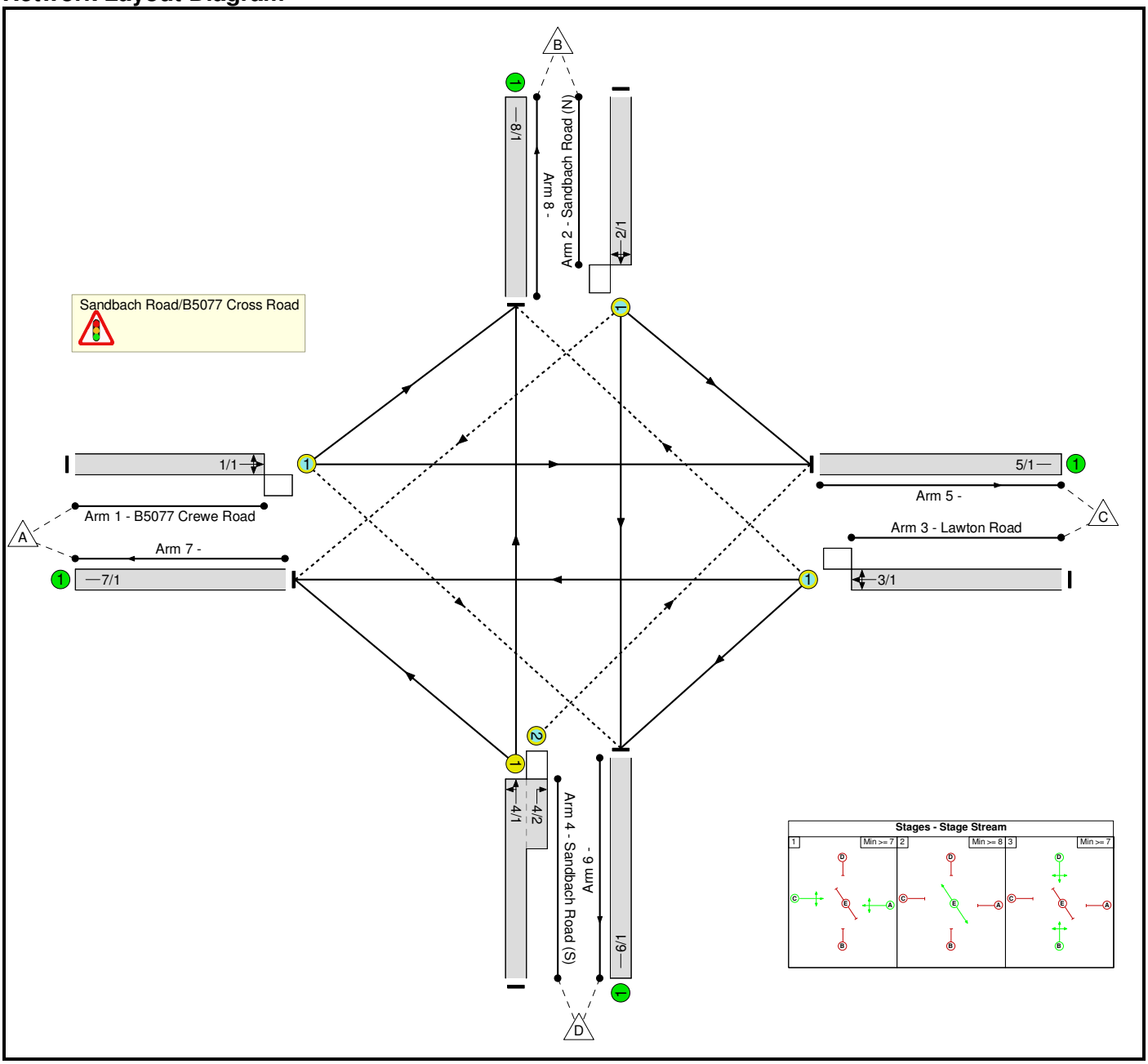
Appendix J – LINSIG outputs (WYG improvements to the Crewe Road / Sandbach Road / Lawton Road Junction)

Full Input Data And Results

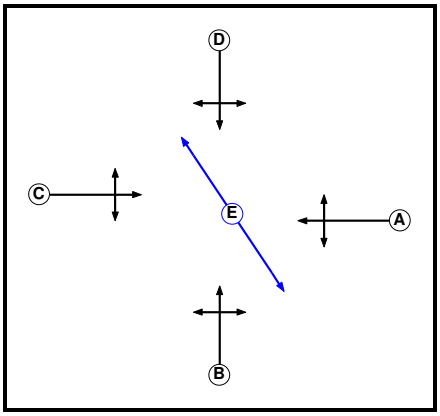
User and Project Details

Project:	**Crewe Road, Alsager**
Title:	**Sandbach Road/B5077 Crewe Road**
Location:	Sandbach Road/B5077 Crewe Road Signal Junction
File name:	Sandbach Road_B5077 Cross Road - WYG Improvement.lsg3x
Author:	
Company:	WYG
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		8	8

Phase Intergreens Matrix

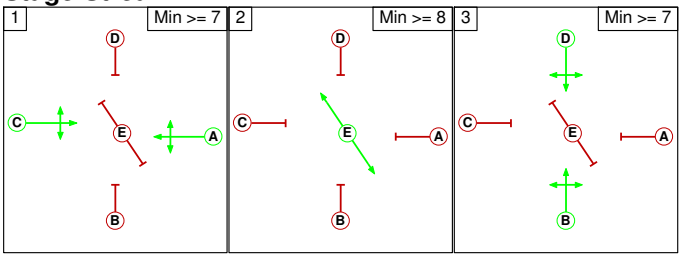
		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		6	-	6	14
	B	7		7	-	10
	C	-	6		6	14
	D	7	-	7		10
	E	8	8	8	8	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A C
1	2	E
1	3	B D

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage			
		1	2	3
From Stage	1		14	6
	2	8		8
	3	7	10	

Give-Way Lane Input Data

Junction: Sandbach Road/B5077 Cross Road

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/1 (B5077 Crewe Road)	6/1 (Right)	1440	0	3/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	2.00	2.00	0.50	2	2.00
2/1 (Sandbach Road (N))	7/1 (Right)	1440	0	4/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	2.00	2.00	0.50	2	2.00
3/1 (Lawton Road)	8/1 (Right)	1440	0	1/1	1.09	To 5/1 (Ahead) To 8/1 (Left)	2.00	2.00	0.50	2	2.00
4/2 (Sandbach Road (S))	5/1 (Right)	1440	0	2/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00

Lane Input Data

Junction: Sandbach Road/B5077 Cross Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B5077 Crewe Road)	O	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	60.00
											Arm 8 Left	15.00
2/1 (Sandbach Road (N))	O	D	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 5 Left	45.00
											Arm 6 Ahead	Inf
											Arm 7 Right	20.00
3/1 (Lawton Road)	O	A	2	3	17.4	Geom	-	3.00	0.00	Y	Arm 6 Left	15.00
											Arm 7 Ahead	Inf
											Arm 8 Right	55.00
4/1 (Sandbach Road (S))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 7 Left	40.00
											Arm 8 Ahead	Inf
4/2 (Sandbach Road (S))	O	B	2	3	5.0	Geom	-	3.00	0.00	Y	Arm 5 Right	12.00
5/1	U		2	3	5.2	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2019 Base - AM Peak (No WMQ)'	08:00	09:00	01:00	
2: '2019 Base - PM Peak (No WMQ)'	16:45	17:45	01:00	
3: '2019 Assessment - AM Peak (No WMQ)'	08:00	09:00	01:00	
4: '2019 Assessment - PM Peak (No WMQ)'	16:45	17:45	01:00	

Scenario 1: '2019 Base - AM Peak (No WMQ)' (FG1: '2019 Base - AM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	57	414	68	539
	B	65	0	79	190	334
	C	514	68	0	50	632
	D	77	110	85	0	272
	Tot.	656	235	578	308	1777

Traffic Lane Flows

Lane	Scenario 1: 2019 Base - AM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	539
2/1	334
3/1	632
4/1 (with short)	272(In) 187(Out)
4/2 (short)	85
5/1	578
6/1	308
7/1	656
8/1	235

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	76.8 %	1889	1889
				Arm 6 Right	60.00	12.6 %		
				Arm 8 Left	15.00	10.6 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	23.7 %	1971	1971
				Arm 6 Ahead	Inf	56.9 %		
				Arm 7 Right	20.00	19.5 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	7.9 %	1894	1894
				Arm 7 Ahead	Inf	81.3 %		
				Arm 8 Right	55.00	10.8 %		
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	41.2 %	1886	1886
				Arm 8 Ahead	Inf	58.8 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2019 Base - PM Peak (No WMQ)' (FG2: '2019 Base - PM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	40	629	52	721
	B	57	0	82	121	260
	C	437	55	0	43	535
	D	64	177	139	0	380
	Tot.	558	272	850	216	1896

Traffic Lane Flows

Lane	Scenario 2: 2019 Base - PM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	721
2/1	260
3/1	535
4/1 (with short)	380(In) 241(Out)
4/2 (short)	139
5/1	850
6/1	216
7/1	558
8/1	272

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	87.2 %	1901	1901
				Arm 6 Right	60.00	7.2 %		
				Arm 8 Left	15.00	5.5 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	31.5 %	1962	1962
				Arm 6 Ahead	Inf	46.5 %		
				Arm 7 Right	20.00	21.9 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	8.0 %	1894	1894
				Arm 7 Ahead	Inf	81.7 %		
				Arm 8 Right	55.00	10.3 %		
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	26.6 %	1896	1896
				Arm 8 Ahead	Inf	73.4 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2019 Assessment - AM Peak (No WMQ)' (FG3: '2019 Assessment - AM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	58	421	69	548
	B	66	0	79	190	335
	C	520	68	0	50	638
	D	78	110	85	0	273
	Tot.	664	236	585	309	1794

Traffic Lane Flows

Lane	Scenario 3: 2019 Assessment - AM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	548
2/1	335
3/1	638
4/1 (with short)	273(In) 188(Out)
4/2 (short)	85
5/1	585
6/1	309
7/1	664
8/1	236

Lane Saturation Flows

Junction: Sandbach Road/B5077 Cross Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	76.8 %	1889	1889
				Arm 6 Right	60.00	12.6 %		
				Arm 8 Left	15.00	10.6 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	23.6 %	1970	1970
				Arm 6 Ahead	Inf	56.7 %		
				Arm 7 Right	20.00	19.7 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	7.8 %	1895	1895
				Arm 7 Ahead	Inf	81.5 %		
				Arm 8 Right	55.00	10.7 %		
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	41.5 %	1886	1886
				Arm 8 Ahead	Inf	58.5 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2019 Assessment - PM Peak (No WMQ)' (FG4: '2019 Assessment - PM Peak (No WMQ)', Plan 1: 'single cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	40	638	53	731
	B	58	0	82	121	261
	C	443	55	0	43	541
	D	65	177	139	0	381
	Tot.	566	272	859	217	1914

Traffic Lane Flows

Lane	Scenario 4: 2019 Assessment - PM Peak (No WMQ)
Junction: Sandbach Road/B5077 Cross Road	
1/1	731
2/1	261
3/1	541
4/1 (with short)	381(In) 242(Out)
4/2 (short)	139
5/1	859
6/1	217
7/1	566
8/1	272

Lane Saturation Flows

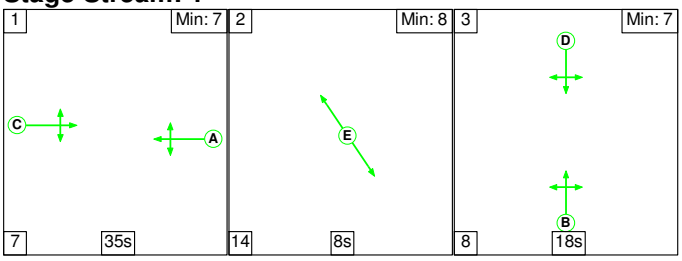
Junction: Sandbach Road/B5077 Cross Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5077 Crewe Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	87.3 %	1901	1901
				Arm 6 Right	60.00	7.3 %		
				Arm 8 Left	15.00	5.5 %		
2/1 (Sandbach Road (N))	4.00	0.00	Y	Arm 5 Left	45.00	31.4 %	1962	1962
				Arm 6 Ahead	Inf	46.4 %		
				Arm 7 Right	20.00	22.2 %		
3/1 (Lawton Road)	3.00	0.00	Y	Arm 6 Left	15.00	7.9 %	1895	1895
				Arm 7 Ahead	Inf	81.9 %		
				Arm 8 Right	55.00	10.2 %		
4/1 (Sandbach Road (S))	3.00	0.00	Y	Arm 7 Left	40.00	26.9 %	1896	1896
				Arm 8 Ahead	Inf	73.1 %		
4/2 (Sandbach Road (S))	3.00	0.00	Y	Arm 5 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

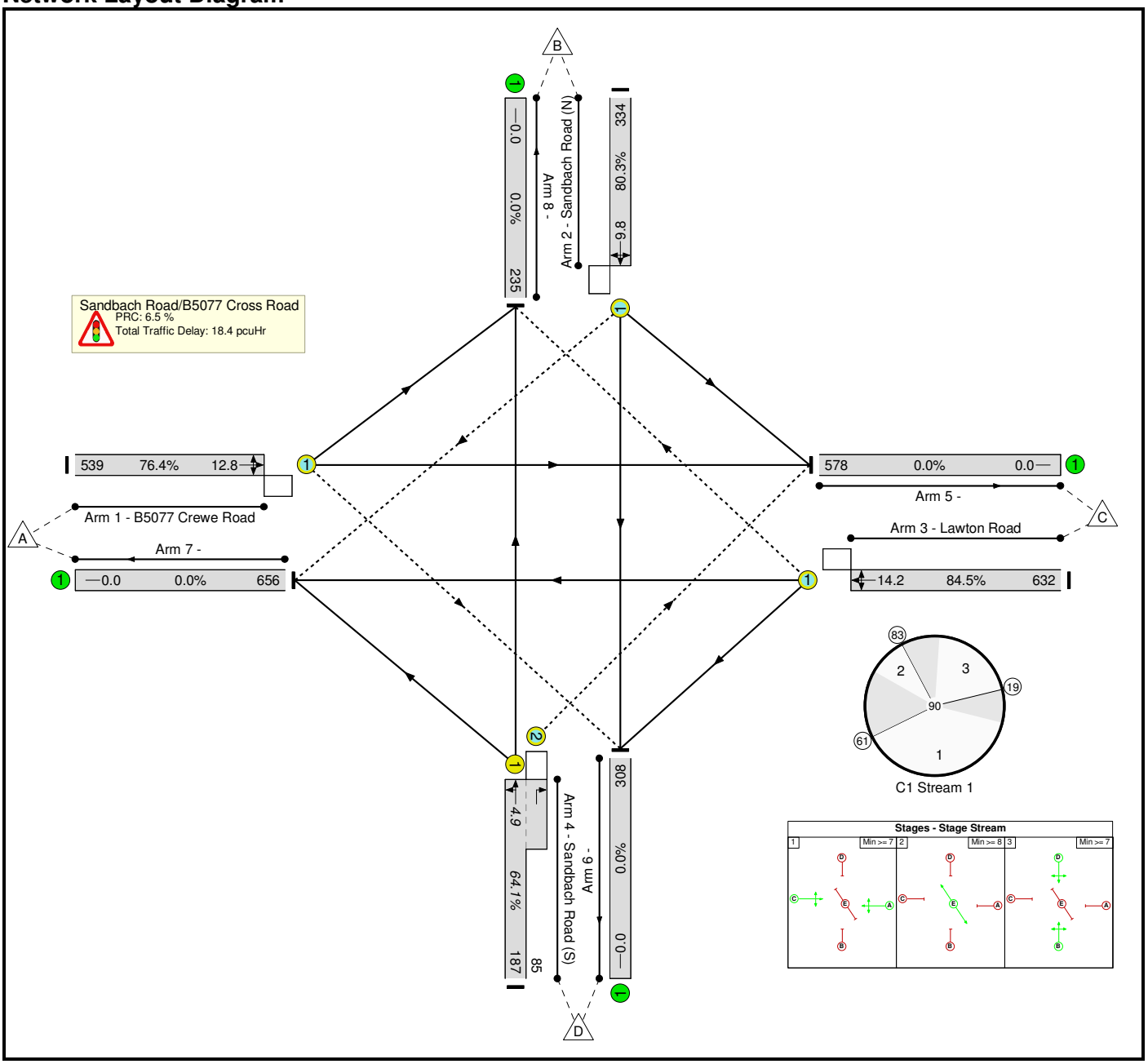
Stage Sequence Diagram

Scenario 1: '2019 Base - AM Peak (No WMQ)' (FG1: '2019 Base - AM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

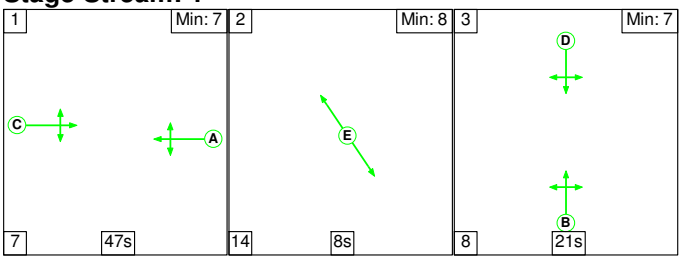
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	**-**	**-**	**-**	**-**	**-**	**84.5%**	**13.1**	**4.4**	**18.4**	**-**	**-**	**-**	**-**
Sandbach Road/B5077 Cross Road	**-**	**-**	**-**	**-**	**-**	**84.5%**	**13.1**	**4.4**	**18.4**	**-**	**-**	**-**	**-**
1/1	B5077 Crewe Road Ahead Right Left	C	539	1889	705	76.4%	3.4	1.6	5.3	35.5	11.2	1.6	12.8
2/1	Sandbach Road (N) Left Ahead Right	D	334	1971	416	80.3%	3.1	1.9	5.1	55.3	7.9	1.9	9.8
3/1	Lawton Road Left Ahead Right	A	632	1894	748	84.5%	4.3	0.0	4.5	25.4	14.2	0.0	14.2
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	272	1886:1702	424	64.1%	2.3	0.9	3.5	46.8	4.1	0.9	4.9

C1 Stream: 1 PRC for Signalled Lanes (%): 6.5 Total Delay for Signalled Lanes (pcuHr): 18.44 Cycle Time (s): 90
PRC Over All Lanes (%): 6.5 Total Delay Over All Lanes(pcuHr): 18.44

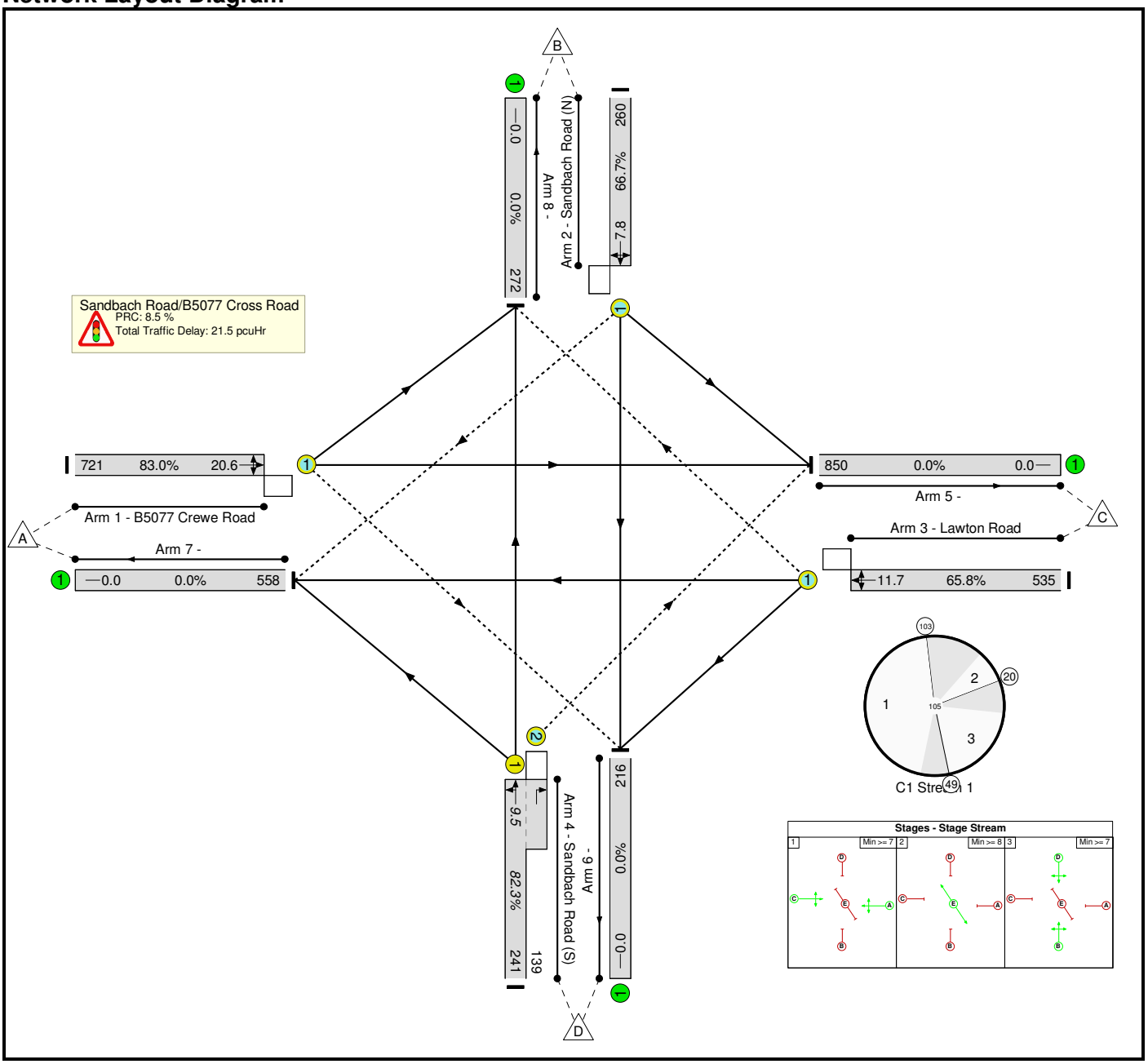
Stage Sequence Diagram

Scenario 2: '2019 Base - PM Peak (No WMQ)' (FG2: '2019 Base - PM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

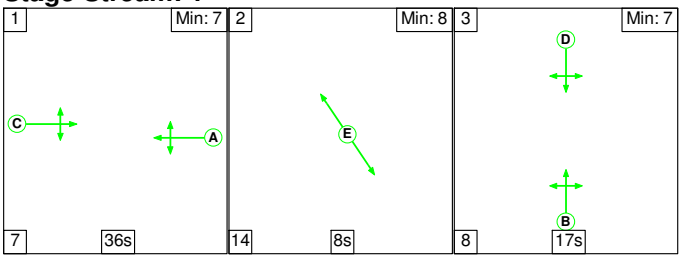
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**83.0%**	**15.0**	**5.6**	**21.5**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**83.0%**	**15.0**	**5.6**	**21.5**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	721	1901	869	83.0%	5.0	2.4	7.5	37.3	18.2	2.4	20.6
2/1	Sandbach Road (N) Left Ahead Right	D	260	1962	390	66.7%	2.7	1.0	3.9	53.3	6.9	1.0	7.8
3/1	Lawton Road Left Ahead Right	A	535	1894	813	65.8%	3.2	0.0	3.5	23.8	11.7	0.0	11.7
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	380	1896:1702	462	82.3%	4.1	2.2	6.6	62.8	7.2	2.2	9.5

C1 Stream: 1 PRC for Signalled Lanes (%): 8.5 Total Delay for Signalled Lanes (pcuHr): 21.48 Cycle Time (s): 105
PRC Over All Lanes (%): 8.5 Total Delay Over All Lanes(pcuHr): 21.48

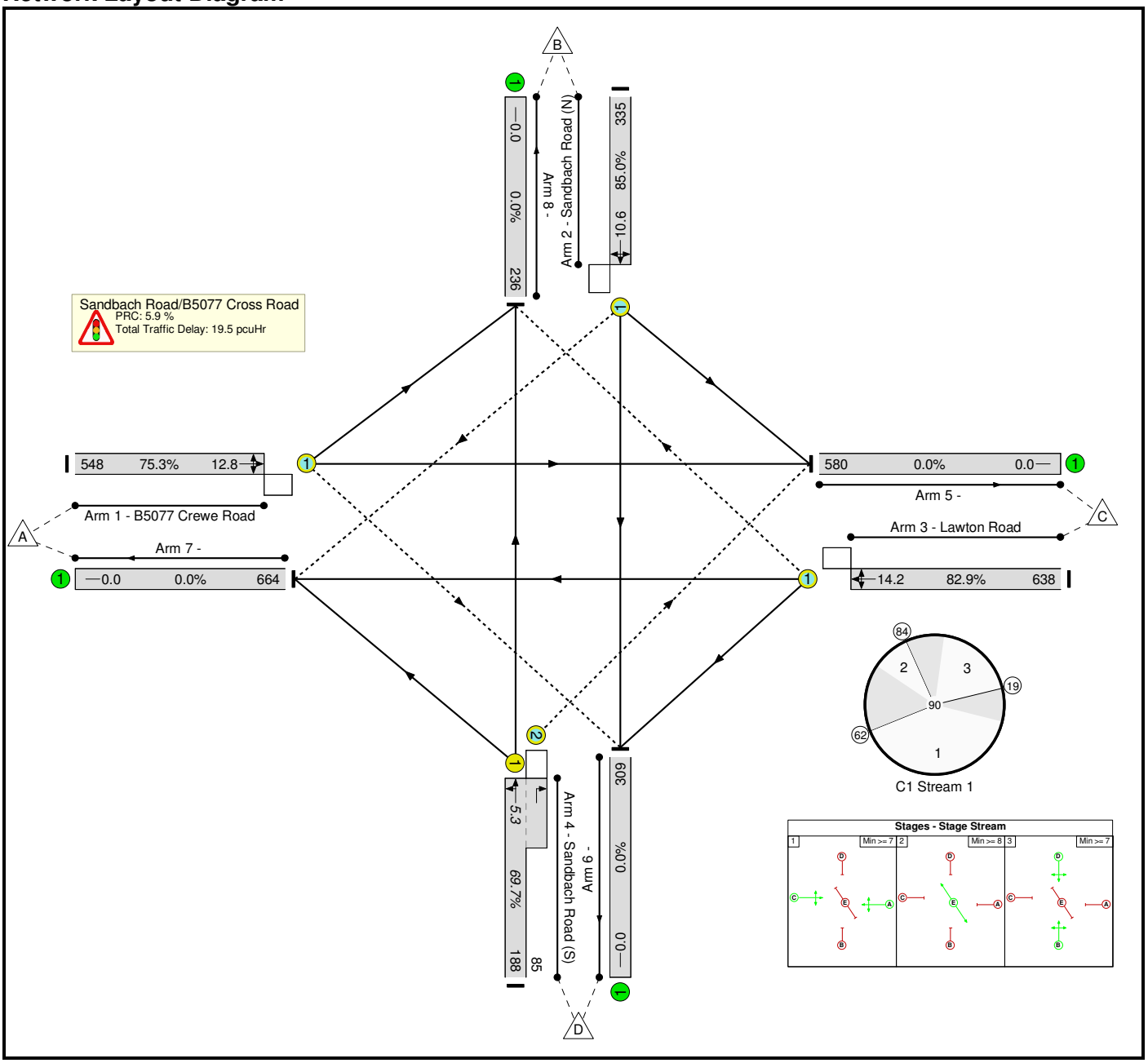
Stage Sequence Diagram

Scenario 3: '2019 Assessment - AM Peak (No WMQ)' (FG3: '2019 Assessment - AM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

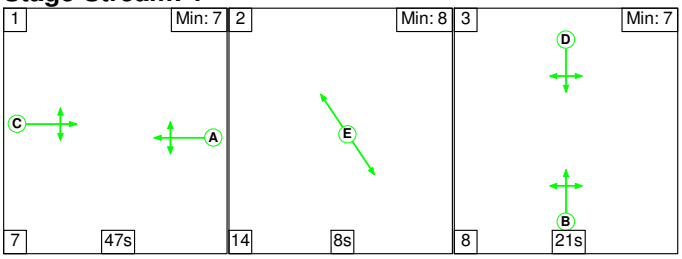
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**85.0%**	**13.4**	**5.2**	**19.5**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**85.0%**	**13.4**	**5.2**	**19.5**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	548	1889	728	75.3%	3.3	1.5	5.2	34.0	11.3	1.5	12.8
2/1	Sandbach Road (N) Left Ahead Right	D	335	1970	394	85.0%	3.2	2.6	5.9	63.3	8.0	2.6	10.6
3/1	Lawton Road Left Ahead Right	A	638	1895	769	82.9%	4.2	0.0	4.4	24.6	14.2	0.0	14.2
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	273	1886:1702	392	69.7%	2.6	1.1	4.1	53.8	4.1	1.1	5.3

C1 Stream: 1 PRC for Signalled Lanes (%): 5.9 Total Delay for Signalled Lanes (pcuHr): 19.52 Cycle Time (s): 90
PRC Over All Lanes (%): 5.9 Total Delay Over All Lanes(pcuHr): 19.52

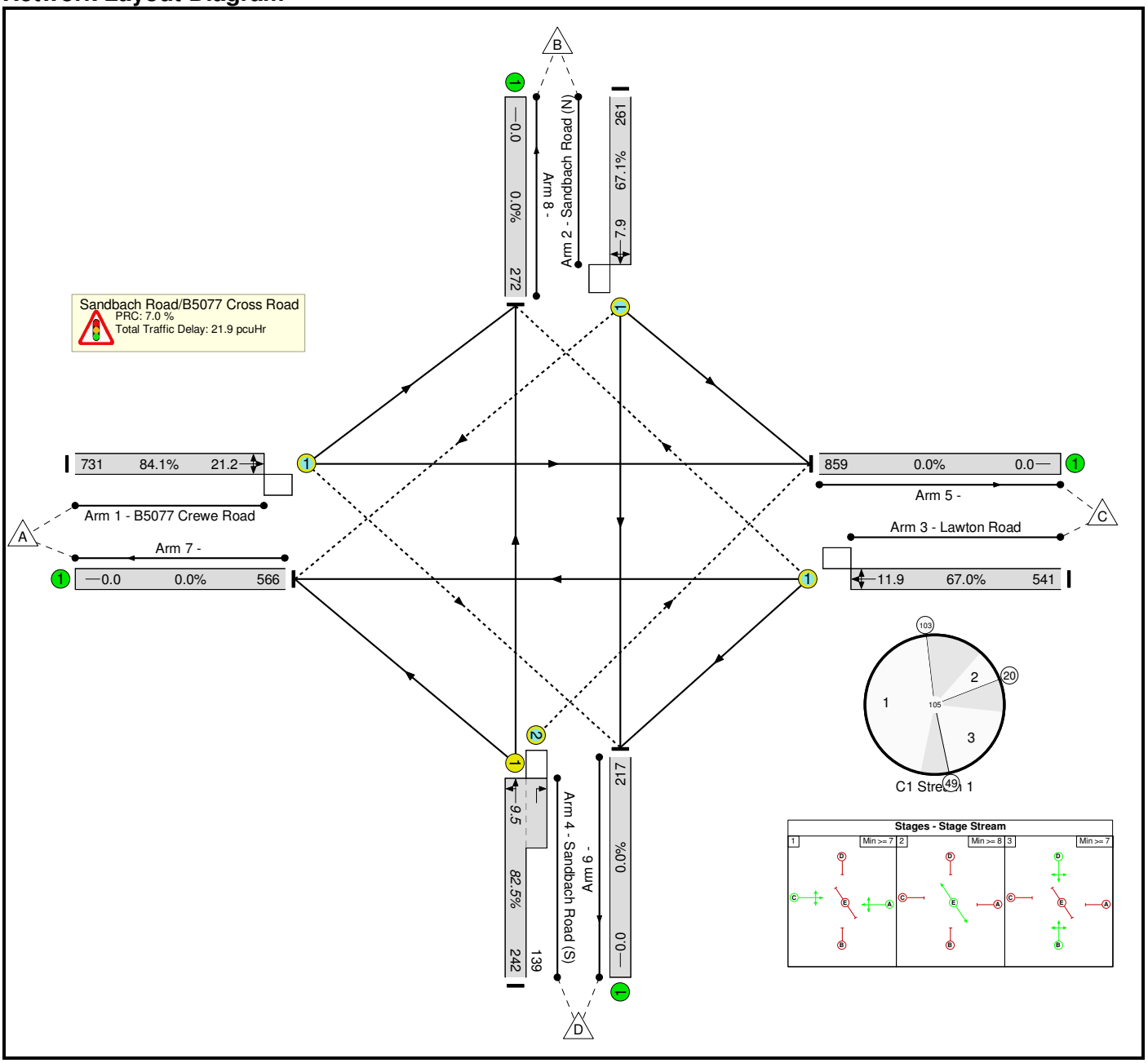
Stage Sequence Diagram

Scenario 4: '2019 Assessment - PM Peak (No WMQ)' (FG4: '2019 Assessment - PM Peak (No WMQ)', Plan 1: 'single cycle')

Stage Stream: 1



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Sandbach Road/B5077 Crewe Road	-	-	-	-	-	**84.1%**	**15.2**	**5.8**	**21.9**	-	-	-	-
Sandbach Road/B5077 Cross Road	-	-	-	-	-	**84.1%**	**15.2**	**5.8**	**21.9**	-	-	-	-
1/1	B5077 Crewe Road Ahead Right Left	C	731	1901	869	84.1%	5.1	2.6	7.8	38.3	18.7	2.6	21.2
2/1	Sandbach Road (N) Left Ahead Right	D	261	1962	389	67.1%	2.7	1.0	3.9	53.6	6.9	1.0	7.9
3/1	Lawton Road Left Ahead Right	A	541	1895	808	67.0%	3.3	0.0	3.6	24.0	11.9	0.0	11.9
4/1+4/2	Sandbach Road (S) Right Left Ahead	B	381	1896:1702	462	82.5%	4.1	2.2	6.7	63.1	7.3	2.2	9.5

C1 Stream: 1 PRC for Signalled Lanes (%): 7.0 Total Delay for Signalled Lanes (pcuHr): 21.94 Cycle Time (s): 105
PRC Over All Lanes (%): 7.0 Total Delay Over All Lanes(pcuHr): 21.94