

**PROPOSED RESIDENTIAL DEVELOPMENT,
SOOTHILL LANE, BATLEY**

TRANSPORT ASSESSMENT ADDENDUM

JUNE 2019

1 INTRODUCTION

- 1.1 Vectos have been appointed by Savills on behalf of Kirklees Council (KC) to provide highways and transportation advice in support of an outline planning application for a proposed residential development off Soothill Lane in Batley.
- 1.2 This Transport Assessment (TA) Addendum should be read in conjunction with a TA report dated December 2018 (document reference VN81151). The TA was prepared by Vectos in support of an outline planning application (planning application reference: 2015/49/92908/E) for the development of 309 residential units, ranging from two to five bedroom houses, and a 60-bed extra care facility comprising of one and two bedroom apartments.
- 1.3 Since the planning application was submitted, the proposed development scheme has been updated to provide a total of 366 residential units comprising 312 residential dwellings, ranging from two to five bedroom houses, and 54 two bedroom apartments.
- 1.4 Following the submission of the original TA report with the planning application for the residential housing and extra care scheme, Vectos received comments from KC Highways on the traffic impact assessment methodology in relation to the considered committed developments and the scope of detailed junction modelling. Savills on behalf of Vectos issued an initial response to these comments from the Local Highway Authority (LHA) on the 20th March 2019, and following this correspondence there was a meeting with the LHA on the 8th April 2019 to discuss the post application transport submission requirements.
- 1.5 The scope of assessment considered in this TA Addendum has been discussed and agreed with KC Highways following the meeting on the 8th April 2019. The relevant email correspondence confirming this has been included as **Appendix A** of this TA Addendum.
- 1.6 Accordingly, this TA Addendum considers the following matters:
- The updated development proposals, including the access, parking and servicing arrangements;
 - An updated trip generation forecast and percentage impact assessment to reflect the latest development proposals;

- The additional committed development considerations requested by KC Highways;
- Detailed capacity assessments for the following off-site junctions reflecting the outcomes of observations on-site, the percentage impact assessment and dialogue with KC Highways:
 - o A653 Leeds Road / B6124 Soothill Lane/ Heybeck Lane;
 - o A653 Leeds Road / Owl Lane;
 - o A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way;
 - o B6124 Station Road / B6124 Soothill Lane;
- A strategy for mitigating the impact of development traffic on off-site junctions; and
- Additional sustainable transport infrastructure proposals and travel planning measures to encourage greater uptake of sustainable modes of transport.

2 DEVELOPMENT PROPOSALS

2.1 The proposed development scheme has been updated to provide a total of 366 residential units comprising 312 residential dwellings, ranging from two to five-bedroom houses, and 54 two-bedroom residential apartments.

2.2 The updated indicative proposed site layout has been included as **Appendix B** to this TA Addendum. The main change from the previous site layout submitted as part of the planning application is the inclusion of the apartments in two locations at the northwest and northeast of the site. As a result, the proposed internal road layout in these areas has altered slightly. Accordingly, swept path analysis has been undertaken to demonstrate access by a large refuse vehicle and this can be seen in plan **VN91266-TR101**.

Vehicular Access Arrangements

2.3 The vehicular access strategy for the updated development proposals at the site remains unchanged from the arrangements outlined in the Vectos TA from December 2018. The development proposals will include two vehicular access points from the B6124 Soothill Lane and Mill Forest Way in the form of priority T-junctions.

Sustainable Transport Provision

2.4 To encourage the use of sustainable transport amongst future residents, as part of the proposed development the existing bus stop facilities on Soothill Lane will be upgraded in accordance with the standard specification for bus stops in KC and West Yorkshire (Metro). The upgraded bus stops will be provisioned with shelters and Real Time Information (RTI).



2.5 The bus stops are situated approximately 190m to the east of the proposed site access with Soothill Lane. There is currently no footway on the southern side of the carriageway at this location. To facilitate easy access between the site and the bus stop provision the introduction of new pedestrian infrastructure is proposed. This will comprise of a 1.5m footway with a 1m verge with drop kerbs across existing access junctions. An existing pedestrian refuge island will be reconfigured to provide dropped kerbs to assist pedestrians in accessing the bus stop facilities on the opposite side of the carriageway.

2.6 The location of the bus stop facilities and proposed pedestrian infrastructure improvements are illustrated in **Drawing VN91266-D102**. These are draft proposals for review with the client team at KC at this stage.

Internal Layout

2.7 Internally, the new streets will be designed according to the principles outlined in Manual for Streets (MfS), to encourage low speeds and prioritise pedestrian movement.

Parking

2.8 Appendix 2 of the Kirklees Unitary Development Plan deals with maximum car parking standards in Kirklees. The development proposals will comply with the relevant parking requirements which are shown in an extract from the parking standards in **Figure 1**.

USE CLASS C3: RESIDENTIAL		
1 Resident parking	spaces per unit:	
Houses <140 sq. m.	2	Conversions in town centres, e.g. above shops, should provide parking at the operational minimum level.
Houses >140 sq. m.	3	
Affordable housing		
Houses <110 sq. m.	1	
Houses >110 sq. m.	2	Development served by informal roads should include 1 space for visitor parking per 4 units.
Flats		
Bedsits	0.5	
1 bedroom	1	
2 bedroom or > 70 sq. m.	1.5	
Sheltered housing	0.25 plus 1 per resident staff	
2 Cycle parking	spaces per unit:	
	1	

Figure 1: Parking Standards for Land Use Class C3 (Source: Kirklees Unitary Development Plan, Appendix 2)

3 DEVELOPMENT TRIP GENERATION AND PERCENTAGE IMPACT

Proposed Development Trip Forecasts

- 3.1 As stated in the Vectos TA report from December 2018, vehicle trip rates for the proposed residential dwellings have been agreed with KC.
- 3.2 To forecast the vehicle trip generation of the proposed residential apartments the industry standard TRICS databased has been interrogated. The vehicle trip rates for the residential apartments have been calculated based upon the following parameters with the TRICS outputs included as **Appendix C**:
- 'Flats Privately Owned' land use selected;
 - Sites in Greater London and Ireland removed;
 - Sites in suburban areas and edge of town selected;
 - Sites within 1km of a rail station manually removed; and
 - Average trip rates calculated.
- 3.3 The trip rates for the proposed residential apartments have also been accepted by KC.
- 3.4 The forecast trip rates and resultant trip generation figures based on 312 residential dwellings and 54 residential apartments have been summarised in **Table 1**.

Peak	Land use		Arr	Dep	Total
AM	Houses	Trip rate	0.190	0.510	0.700
		Trips	59	159	218
	Apartments	Trip rate	0.062	0.226	0.288
		Trips	3	12	15
Total			63	171	234
PM	Houses	Trip rate	0.450	0.250	0.700
		Trips	140	78	218
	Apartments	Trip rate	0.211	0.101	0.312
		Trips	11	5	16
Total			152	83	235

Table 1: Proposed Development Trip Forecasts

- 3.5 As shown in **Table 1**, the proposed development is forecast to generate a total of 234 two-way vehicle trips in the weekday AM peak and 235 two-way vehicle trips in the PM peak.

3.6 The proposed development vehicle trip generation has been compared to that of the previously consented residential scheme (application reference: 2015/49/92908/E) for up to 420 residential dwellings, and this is summarised in **Table 2**.

	Peak	Arr	Dep	Total
Proposed	AM	63	171	234
	PM	152	83	235
Extant consent	AM	80	215	295
	PM	190	105	295
Comparison	AM	-17	-44	-61
	PM	-38	-22	-60

Table 2: Development Trip Forecast Comparison – Proposed vs Previously Consented

3.7 As shown in **Table 2**, the proposed development predicted vehicle trip generation represents a significant reduction in both the AM and PM peak periods compared to the previously consented residential scheme.

3.8 Vectos also undertook a comparison the previously assessed residential scheme with the extra care facility and the current proposed scheme, and the forecasts showed that across nearly all of the junctions in the study network the change in vehicle trips is negligible between the two schemes. The largest increase in vehicle movements occurs at the Challenge Way / Mill Forest Way roundabout which, as outlined in the previous TA report, has been observed and modelled to be operating within capacity with minimal queuing or delay.

3.9 The trip distribution and assignment methodology outlined in Section 5 of the Vectos TA has been adopted again for this TA Addendum. The resultant distribution of development traffic across the study network is shown in **Figures 1** and **2** for the AM and PM peak respectively.

4 COMMITTED DEVELOPMENTS

4.1 As outlined in Section 5 of the Vectos TA report from December 2018, the following committed developments were taken into consideration as part of the traffic impact assessment:

- 206 dwellings at land adjacent to Dewsbury Rams Rugby League Football Club, Owl Lane, Dewsbury; and
- 149 dwellings at land off Rumble Road, Dewsbury.

4.2 Following post application correspondence, KC Highways have requested an updated assessment which removes the Rumble Road development scheme from the analysis and includes two additional committed developments.

4.3 The Owl Lane development scheme has been retained for the assessment. For ease of reference, the AM and PM peak traffic flows for the Owl Lane development are shown in **Figures 3 and 4** of this TA Addendum.

4.4 The two additional committed development schemes requested by KC Highways are summarised in detail below:

Land at Chidswell, Dewsbury

4.5 The proposed Land at Chidswell, Dewsbury site is a major mixed-use residential and employment masterplan area at land situated to the northeast of Chidswell, near Dewsbury, West Yorkshire.

4.6 The site is allocated in the recently adopted Kirklees Local Plan (site reference: MX1905) but does not currently benefit from planning consent.

4.7 In order to consider the forecast traffic flows for the Chidswell site, reference has been made to an Interim Transport Assessment (ITA), dated August 2016, and prepared by consultant White Young Green. This document was prepared to consider the transport and highway implications of the Chidswell site prior to the submission of a planning application.

4.8 The indicative Chidswell masterplan considered in the ITA included the following:

- Land Use Class C3 - Residential dwellings (private) – 1,228 units; and
- Land Use Class C3 - Residential dwellings (affordable) – 307 units.

Total residential: 1,535 units

- Land Use Class B1(a) – Business (office) – 30,625m²;
- Land Use Class B1(c) – Business (light industry) – 30,625m²;
- Land Use Class B2 – General industry – 30,625m²; and
- Land Use Class B8 – Storage or distribution – 30,625m².

Total employment: 122,500m²

4.9 The ITA provides vehicle trip forecasts for both the residential and employment land uses and divides the masterplan area into five land parcels to be served by a total of five access / egress points.

The ITA provides information on the development trip distribution for vehicle trips arriving and departing the five access / egress points across the masterplan area. However, it does not provide information on the assignment of trips across the wider local highway network.

- 4.10 For the purposes of this TA Addendum, the distributions provided in the ITA for the AM peak (ITA Figure 4.3) and the PM peak (ITA Figure 4.4) have been adopted to determine the proportion of the Chidswell site development traffic arriving and departing each access / egress point. This traffic has then been distributed across the wider highway network using existing turning movements.
- 4.11 The future year of 2023 considered in the TA has been adopted again for the assessment presented within this TA Addendum. The scale of the Chidswell masterplan will result in the delivery of the site taking place over a number of years spanning the majority of the Local Plan period and as a result only part of the masterplan site will have been delivered by around 2023.
- 4.12 For the purposes of this assessment, it has been assumed that first occupation of the Chidswell site will take place in 2020 and will be delivered through the Local Plan period up to 2031 (11 years). As the site does not currently benefit from planning consent the use of 2020 as an opening year for the site is considered to be robust as in practice the site is unlikely to be built / occupied within such a short timescale.
- 4.13 In the absence of more detailed information on the development delivery timetable for the Chidswell site, it has been assumed that the site will be delivered at a constant rate across 11 years. Applying this assumption to a future year of 2023, approximately 30% of the masterplan site will have been delivered. The vehicle trip forecasts have been factored down accordingly to account for this proportion.
- 4.14 The AM and PM peak traffic flows calculated for the Chidswell development are shown in **Figures 5 and 6** of this TA Addendum.

Land off Westerton Road and Haigh Moor Road, West Ardsley

- 4.15 At the request of KC Highways a residential development at Land off Westerton Road and Haigh Moor Road, West Ardsley (planning reference 17/08262/OT) has been considered in the updated traffic impact assessment as outlined in this TA Addendum.
- 4.16 The site is currently an area of undeveloped land and is bound to the north by Westerton Road, to the east by Haigh Moor Road, to the south by Batley Road and to the west by Baghill Road. The site falls within the jurisdiction of Leeds City Council, who act as both planning authority and highway authority. At the time of drafting this TA Addendum the site does not benefit from planning consent.
- 4.17 To determine the development flows across the study network a Transport Assessment dated August 2017 and prepared by consultant Bryan G Hall has been reviewed.
- 4.18 The development traffic flows presented within Appendix BGH 20 of the Bryan G Hall Transport Assessment have been referenced. The development traffic flows have been distributed across the study network considered in this TA Addendum using existing turning movements.

- 4.19 The AM and PM peak traffic flows for the Westerton Road and Haigh Moor Road development are shown in **Figures 7** and **8** of this TA Addendum.

5 FUTURE YEAR ASSESSMENT SCENARIOS

2023 Baseline 'Without Development'

- 5.1 As outlined in the Vectos TA from December 2018, the 2015 surveyed traffic flows have been uplifted to a future year of 2023. These uplifted base flows have been combined with the forecast traffic flows from the three committed development sites to generate the 2023 Baseline 'Without Development' scenario.
- 5.2 The 2023 Baseline 'Without Development' traffic flows are shown in **Figures 9** and **10** for the AM and PM peaks respectively.

2023 Baseline 'Without Development'

- 5.3 The proposed development vehicle trip generation forecasts have been combined with the 2023 'Without Development' traffic flows to generate the 2023 'With Development' scenario. As agreed with KC Highways, for the revised traffic impact assessment in the TA Addendum TEMPro background traffic growth is included in the 2023 traffic flow forecasts, and the same approach as previously set out in the Vectos TA from December 2018 has been adopted.
- 5.4 The 2023 Baseline 'Without Development' traffic flows are shown in **Figures 11** and **12** for the AM and PM peaks respectively.

6 PERCENTAGE IMPACT ASSESSMENTS

- 6.1 An update to the percentage impact assessment presented within the Vectos TA from December 2018 is summarised in **Table 3** and reflects the updated development proposals.

Junction	2023 Baseline 'Without Dev'		2023 Baseline 'With Dev'		% Increase	
	AM	PM	AM	PM	AM	PM
A653 Leeds Road/B6124 Soothill Lane/Heybeck Lane	3498	3746	3614	3863	3.3%	3.1%
Leeds Road North	1166	1703	1183	1745	1.5%	2.5%
Heybeck Lane	307	212	307	212	0.0%	0.0%
Leeds Road South	1614	1413	1642	1453	1.7%	2.8%
Soothill Lane	412	418	482	453	17.1%	8.2%
A653 Leeds Road/Owl Lane	2574	2625	2644	2695	2.7%	2.7%
Leeds Road East	1101	1300	1144	1331	3.8%	2.4%

Owl Lane	527	477	527	477	0.0%	0.0%
Leeds Road West	945	847	973	887	3.0%	4.7%
A653 Leeds Road/John Ormsby VC Way/B6128 Challenge Way	2942	2869	3034	2961	3.1%	3.2%
Leeds Road East	495	502	525	517	6.2%	3.0%
John Ormsby VC Way	796	856	838	887	5.3%	3.6%
Leeds Road West	632	718	632	718	0.0%	0.0%
Challenge Way	1019	793	1038	840	1.9%	5.9%
B6128 Grange Road/Mill Forest Way/Challenge Way/Grange Valley Road	1126	1008	1196	1080	6.3%	7.1%
Mill Forest Way	89	43	141	68	58.3%	58.8%
Challenge Way	546	432	557	459	2.0%	6.3%
Grange Valley Road	40	54	40	54	0.0%	0.0%
Grange Road	451	480	459	499	1.7%	3.9%
B6124 Station Road/B6124 Soothill Lane	1462	1698	1529	1765	4.6%	4.0%
Soothill Lane	528	576	577	600	9.3%	4.1%
Station Road North	934	1122	952	1165	1.9%	3.9%
Station Road/B6124 Rouse Mill Lane	1326	1423	1355	1452	2.2%	2.1%
Station Road	582	716	582	716	0.0%	0.0%
Rouse Mill Lane East	676	636	697	647	3.1%	1.6%
Rouse Mill Lane West	69	71	76	89	11.2%	26.7%
A652 Bradford Road/Rouse Mill Lane/Albion Street	1825	2030	1875	2080	2.7%	2.5%
Bradford Road North	507	550	528	571	4.1%	3.7%
Rouse Mill Lane	755	797	777	807	2.8%	1.3%
Bradford Road South	563	676	571	696	1.4%	2.8%
Albion Street	0	6	0	6	0.0%	0.0%
A652 Bradford Road/Station Road/Hick Lane	2921	3248	3002	3321	2.8%	2.3%
Bradford Road North	864	1027	876	1057	1.4%	2.9%
Station Road	417	455	465	479	11.8%	5.2%
Bradford Road South	1101	1216	1121	1236	1.8%	1.7%
Hick Lane	540	549	540	549	0.0%	0.0%

Table 3: Proposed Development Net Traffic Impact

6.2 As shown in **Table 3**, the forecast development traffic will generally have a negligible proportional impact on the 2023 baseline traffic flows at junctions across the study area network.

7 OPERATIONAL ASSESSMENT

7.1 In accordance with the post application scope of assessment discussed and agreed with KC Highways, the following signalised junctions have been subject to detailed capacity assessments as part of the TA Addendum:

- A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane;
- A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way; and
- A653 Leeds Road/ Owl Lane.

7.2 In addition to the above, a further assessment has been undertaken for the B6124 Station Road / B6124 Soothill Lane priority junction. The junction was observed to be operating over capacity during two separate site visits and, as shown in **Table 3**, due to its proximity to the proposed development site and because around 70% of the development traffic distributes via the Soothill Lane access junction, the level of the proportional development traffic impact at this junction is relatively high. It is therefore considered that further assessment of the junction is required to fully appraise the impact of the development proposals on the local highway network.

A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane

7.3 The A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane signalised crossroads has been assessed using the software package LinSig v3.2. Signal timing information was provided by KC and incorporated into the modelling of the junction.

7.4 The junction includes signalised pedestrian crossings on all arms. Pedestrian refuge islands are provided on the Leeds Road and Soothill Lane arms of the junction. The staging information provided by KC indicates the presence of a demand dependent 'all red' stage during which all pedestrian phases are active.

7.5 The information provided by KC provided information regarding the usage of the 'all-red' pedestrian stage indicates it is typically in use in only one out of every three or four cycles, and that its use accounts for a total time of 20 or 21 seconds. In order to model the 'occasional' use of the pedestrian facilities a single cycle approach which omits the all-red stage has been used, but with a reduction in the nominal 90 second cycle time. A cycle time of 83 seconds is used and the 7 second reduction is equivalent to a total of 21 seconds of all-red applied one in every three cycles. This approach avoids a more complex 'triple-cycle' approach in the LinSig model.

- 7.6 The junction was firstly assessed using the surveyed traffic flows to reflect a 2018 base year scenario. The results of this exercise are provided as **Appendix D** of this TA Addendum. The modelling results broadly reflect on-site observations of the junction's operation with the junction operating within capacity in both the AM and PM peaks.
- 7.7 The junction has been assessed using 2023 Baseline 'Without Development' traffic flows. The results of the assessment are summarised in **Table 4** with the full modelling outputs provided as **Appendix D** of this TA Addendum.

Link	2023 Baseline 'Without Development'			
	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
Leeds Road (north)	85.2	11	95.0	25
Heybeck Lane	63.7	7	47.2	5
Leeds Road (south)	89.2	20	85.8	14
Soothill Lane	85.8	12	96.2	16
PRC	0.9		-6.9	
Cycle Time	83		83	

Table 4: 2023 Baseline 'Without Development' LinSig Results

- 7.8 The results presented in **Table 4** demonstrate that under 2023 Baseline 'Without Development' traffic conditions the A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane junction is forecast to operate within capacity in the AM peak and over capacity in the PM peak.
- 7.9 A Practical Reserve Capacity (PRC) value of 0.9% is forecast for the AM peak and a PRC value of -6.9% is forecast for the PM peak. A maximum Degree of Saturation (DoS) value of 89.2% is forecast for the southern Leeds Road arm of the junction in the AM peak. A maximum DoS value of 96.2% is forecast for the Soothill Lane arm of the junction in the PM peak.
- 7.10 The junction has then been assessed using the 2023 Baseline 'With Development' traffic flows. The results of this assessment are summarised in **Table 5** with the full modelling output files provided as **Appendix D** of this TA Addendum.
- 7.11 The change in forecast PRC and MMQ values between the 'Without Development' and 'With Development' scenarios have been included in brackets for ease of comparison between the two 2023 traffic flow scenarios.

Link	2023 Baseline 'With Development'			
	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
Leeds Road (north)	91.1 (+5.9)	12 (+1)	96.0 (+1.0)	26 (+2)
Heybeck Lane	56.1 (-7.6)	7 (-1)	42.9 (-4.3)	4 (0)
Leeds Road (south)	97.1 (+7.9)	28 (+8)	96.6 (+10.8)	17 (+3)
Soothill Lane	96.9 (+11.1)	19 (+7)	94.4 (-1.8)	16 (0)
PRC	-7.9 (-8.8)		-7.3 (-0.4)	
Cycle Time	83		83	

Table 5: 2023 Baseline 'With Development' LinSig Results

- 7.12 The results presented within **Table 5** demonstrate that under 2023 Baseline 'With Development' traffic conditions the A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane junction is forecast to operate over capacity in both the AM and PM peaks.
- 7.13 A PRC value of -7.9% is forecast for the AM peak and a PRC value of -7.4% is forecast for the PM peak. Maximum DoS values of 97.1% and 96.6% are forecast for the southern Leeds Road arm of the junction in the AM and PM peak respectively. The operation of the Soothill Lane arm of the junction is also forecast to significantly worsen in the AM peak period with the addition of the development traffic onto the network.
- 7.14 As shown, the proportional impact of the introduction of development traffic on the forecast PRC values is -8.8% in the AM peak and -0.4% in the PM peak. The proportional impact of development traffic in the PM peak is considered negligible. However, to address the impact of development traffic in the AM peak, a proposed mitigation scheme for the Soothill Lane arm of the signalised junction has been developed, and is discussed later in this TA Addendum.

B6124 Station Road / B6124 Soothill Lane

- 7.15 The B6124 Station Road / B6124 Soothill Lane priority junction in the centre of Batley to the west has been modelled in the PICADY module of software package Junctions 8.
- 7.16 The junction was firstly assessed using the surveyed traffic flows to reflect a 2018 base year scenario. The results of this exercise are provided as **Appendix E** of this TA Addendum. The modelling results broadly reflect on-site observations of the junction's operation with the junction operating over capacity in both the AM and PM peaks, with extensive queuing on the Soothill Lane arm.
- 7.17 The junction has been assessed using the 2023 Baseline 'Without Development' traffic flows. The results of this assessment are summarised in **Table 6** with the full modelling output files provided as **Appendix E** of this TA Addendum.

	2023 Baseline 'Without Development'			
	AM Peak		PM Peak	
	RFC	Q (PCU)	RFC	Q (PCU)
B6124 Soothill Lane (left turn lane)	1.25	14	1.50	32
B6124 Soothill Lane (right turn lane)	1.29	63	1.54	114

Table 6: 2023 Baseline 'Without Development' PICADY Results

- 7.18 The results presented within **Table 6** demonstrate that under 2023 Baseline 'Without Development' traffic conditions the B6124 Station Road / B6124 Soothill Lane junction is forecast to operate over capacity in both the AM and PM peaks.
- 7.19 A maximum Ratio of Flow to Capacity (RFC) value of 1.29 is forecast for the AM peak with a total queue of 77 PCUs. A maximum RFC value of 1.54 is forecast for the PM peak with a total queue of 146 PCUs.
- 7.20 The junction has then been assessed using the 2023 Baseline 'With Development' traffic flows. The results of this assessment are summarised in **Table 7** with the full modelling output files provided as **Appendix E** of this TA Addendum.
- 7.21 The change in forecast RFC and queue values between the 'Without Development' and 'With Development' scenarios have been included in brackets for ease of comparison between the two 2023 traffic flow scenarios.

	2023 Baseline 'With Development'			
	AM Peak		PM Peak	
	RFC	Q (PCU)	RFC	Q (PCU)
B6124 Soothill Lane (left turn lane)	1.38 (+0.13)	20 (+6)	1.59 (+0.09)	37 (+5)
B6124 Soothill Lane (right turn lane)	1.43 (+0.14)	102 (+39)	1.62 (+0.08)	139 (+25)

Table 7: 2023 Baseline 'With Development' PICADY Results

- 7.22 The results presented within **Table 7** demonstrate that under 2023 'With Development' traffic conditions the B6124 Station Road / B6124 Soothill Lane junction is forecast to continue to operate over capacity in both the AM and PM peaks.
- 7.23 A maximum RFC value of 1.43 is forecast for the AM peak with a total queue of 122 PCUs. A maximum RFC value of 1.62 is forecast for the PM peak with a total queue of 176 PCUs.
- 7.24 It should be noted that in PICADY the relationship between RFC values and queues is such that queues begin to increase exponentially with high RFC values (>0.85). At junctions operating close to, or over capacity, even small increases in RFC values can result in significant increases in modelled queues. Therefore, in such instances modelled queue lengths results should be treated with caution, with RFC values providing a more stable reflection of levels of impact.
- 7.25 As shown, the proportional impact of development traffic on the forecast RFC values is +0.14 in the AM peak and +0.09 in the PM peak on the Soothill Lane right and left turn lane movements respectively. The proportional impact of development traffic in the PM peak is considered negligible. However, to address the impact of development traffic in the AM peak, a proposed mitigation scheme has been developed and is discussed later in this TA Addendum.

A653 Leeds Road Corridor

- 7.26 The A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way and A653 Leeds Road / Owl Lane signalised junctions have been modelled in software package LinSig v3.2. Signal timing information was provided by KC and incorporated into the modelling of the junction. Due to their proximity to one another, the junctions have been assessed using a network model which includes the signal-controlled pedestrian crossing on Leeds Road directly outside the Shaw Cross Infant & Nursery School.
- 7.27 The junctions were firstly assessed using the surveyed traffic flows to reflect a 2018 base year scenario. The results of this exercise are provided as **Appendix F** of this TA Addendum. The modelling results broadly reflect on-site observations of the network's operation, with the network in this location operating over capacity with extensive queuing.
- 7.28 The A653 Leeds Road Corridor junctions have been assessed using 2023 Baseline 'Without Development' traffic flows. The results of the assessment are summarised in **Table 8** with the full modelling outputs provided as **Appendix F** of this TA Addendum.

Link	2023 Baseline 'Without Development'			
	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way				
Challenge Way	106.2	31	122.1	60
Leeds Road (north)	108.3	47	120.2	91
John Ormsby VC Way	92.7	13	99.4	17
Leeds Road (south)	109.7	74	82.0	16
PRC	-21.9		-35.7	
Cycle Time	76		76	
A653 Leeds Road / Owl Lane				
Leeds Road (north)	78.6	17	80.5	18
Owl Lane	83.9	13	82.5	12
Leeds Road (south)	75.8	3	69.3	5
PRC	7.3		9.1	
Cycle Time	76		76	
Leeds Road Pedestrian Crossing				
Leeds Road (north)	57.1	8	61.4	10
Leeds Road (south)	100.0	48	93.7	30
PRC	-11.1		-4.1	
Cycle Time	76		76	

Table 8: 2023 Baseline 'Without Development' LinSig Results

- 7.29 The results presented in **Table 8** demonstrate that under 2023 Baseline 'Without Development' traffic conditions the A653 Leeds Road Corridor junctions are forecast to operate overcapacity in both the AM and PM peaks.
- 7.30 The A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way junction is forecast to have PRC values of -21.9% and -35.7% for the AM and PM peaks respectively.
- 7.31 The A653 Leeds Road / Owl Lane junction is forecast to operate with positive PRC values in both weekday peak period. However, the modelling exercise is likely to be overestimating the operation of this junction because of the interaction of the queuing that forms from the Leeds Road pedestrian crossing back through the Owl Lane junction and onto the John Ormsby VC Way / B6128 Challenge Way junction as well. There is forecast to be extensive queuing across the network as a result of the operation of the standalone pedestrian crossing on the A653 Leeds Road, which causes interaction with the adjacent junctions exacerbating capacity issues on this part of the network.
- 7.32 It should be noted that the modelling exercise undertaken in respect of the junction has made the assumption that the pedestrian crossing will be called every cycle. This is a robust approach to take as this is unlikely to occur throughout the entirety of the AM and PM peak hours.
- 7.33 The A653 Leeds Road Corridor junctions have then been assessed using the 2023 Baseline 'With Development' traffic flows. The results of this assessment are summarised in **Table 9** with the full modelling files provided as **Appendix F** of this TA Addendum.
- 7.34 The change in forecast PRC and MMQ values between the 'Without Development' and 'With Development' scenarios has been included in brackets for ease of comparison between the two 2023 traffic flow scenarios.

Link	2023 Baseline 'With Development'			
	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way				
Challenge Way	109.9 (+3.7)	39 (+9)	124.1 (+2.0)	65 (+5)
Leeds Road (north)	114.3 (+6.0)	65 (+19)	122.9 (+2.7)	101 (+10)
John Ormsby VC Way	92.7 (0)	13 (0)	99.4 (0)	17 (0)
Leeds Road (south)	112.0 (+2.3)	85 (+11)	87.1 (+5.1)	18 (+2)
PRC	-27.0 (-5.1)		-37.9 (-2.2)	
Cycle Time	76		76	
A653 Leeds Road / Owl Lane				
Leeds Road (north)	82.7 (+4.1)	18 (+1)	83.4 (2.9)	19 (+1)
Owl Lane	83.9 (0)	13 (0)	82.5 (0)	12 (0)
Leeds Road (south)	76.5 (+0.7)	4 (+1)	72.4 (3.1)	5 (0)
PRC	7.3 (0)		7.9 (-1.2)	
Cycle Time	76		76	
Leeds Road Pedestrian Crossing				
Leeds Road (north)	60.2 (+3.1)	9 (+1)	63.7 (+2.3)	10 (+1)
Leeds Road (south)	100.5 (+0.5)	50 (+3)	96.3 (+2.6)	34 (+4)
PRC	-11.7 (-0.6)		-7.0 (-2.9)	
Cycle Time	76		76	

Table 9: 2023 Baseline 'With Development' LinSig Results

- 7.35 The results presented in **Table 9** demonstrate that under 2023 Baseline 'With Development' traffic conditions the A653 Leeds Road Corridor junctions are forecast to continue to operate over capacity in both the AM and PM peaks.
- 7.36 While it is clear from on-site observations and the results of the modelling exercise presented within this TA Addendum that this network has capacity issues, the proportional impact of development traffic is considered to be minimal.
- 7.37 In the AM peak, the largest change in PRC (-5.1%) as a result of development traffic is forecast to occur at the A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way junction.
- 7.38 In the PM peak, the largest change in PRC (-2.9%) as a result of development traffic is forecast to occur at the A653 Leeds Road / Owl Lane junction.
- 7.39 In summary, the results of the modelling exercise indicate that the congestion and queuing experienced around this area of the highway network are considered to be existing network issues that are exacerbated by background traffic growth, and are not as a direct result of traffic generated by the

proposed residential development. On this basis, it is not considered that mitigation at this junction is required to deliver the development proposals.

7.40 Following the site observations and analysis of the traffic modelling of the A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way and A653 Leeds Road / Owl Lane signalised junctions, Vectos would suggest that KC consider some preliminary investigations to seek to improve the operation of the highway network in this area:

- Review the pedestrian crossing provision in the area to see if this can be reconfigured and made more efficient; and
- Monitor the operation of the controlled pedestrian crossing outside the Shaw Cross Infant & Nursery School in the weekday AM peak to understand the frequency that it is called. This may provide an opportunity to reduce the impact of the A653 Leeds Road pedestrian crossing on the overall operation of this part of the local highway network.

8 OFF-SITE JUNCTION MITIGATION STRATEGY

A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane

8.1 A preliminary mitigation scheme is proposed for the A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane signalised junction. These works are presented in the **Drawing VN91266-D100** and propose the introduction of a two lane approach on the Soothill Lane arm of the junction to provide a dedicated right turn lane and additional capacity. In order to accommodate this additional lane, the existing pedestrian refuge island is to be relocated and the southern kerb line realigned. These are draft proposals for review with the client team at KC at this stage.

8.2 An AutoTRACK exercise has been undertaken to confirm that the reconfigured Soothill Lane arm of the junction is suitable to accommodate a large articulated vehicle. This exercise is shown in **Drawing VN91266-TR100**.

8.3 The signalised junction has been subject to a further operational assessment with a LinSig model incorporating the proposed mitigation scheme. The junction has been assessed using the 2023 Baseline 'With Development' traffic flows. The results of this assessment are summarised in **Table 10** with the full modelling files provided as **Appendix G** of this TA Addendum.

- 8.4 The change in forecast PRC and MMQ values between the 'Without Development' and 'With Development' scenarios has been included in brackets for ease of comparison between the two 2023 traffic flow scenarios.

Link	2023 Baseline 'With Development' (With Mitigation)			
	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
Leeds Road (north)	91.1 (+5.9)	11 (0)	93.9 (-1.1)	23 (-1)
Heybeck Lane	63.7 (0)	7 (0)	47.2 (0)	5 (0)
Leeds Road (south)	90.6 (+1.4)	21 (+1)	85.8 (0)	16 (+2)
Soothill Lane	89.3 (+3.5)	13 (+2)	93.1 (-3.1)	15 (-2)
PRC	-1.3 (-2.2)		-4.3 (+2.6)	
Cycle Time	83		83	

Table 10: 2023 Baseline 'With Development' (With Mitigation) LinSig Results

- 8.5 The results presented in **Table 10** demonstrate that the proposed mitigation scheme will mitigate the impact of development traffic in both the AM and PM peaks.
- 8.6 In the AM peak, the addition of development traffic will result in a 2.2% reduction in the forecast PRC compared with the 2023 'Without Development' scenario. In the PM peak, the addition of development traffic at the junction will result in a 2.6% increase in the forecast PRC compared with the 2023 'With Development' scenario, and this will help improve the operational performance of the junction to a satisfactory capacity in both peak periods.
- 8.7 In summary, the proposed mitigation scheme for the A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane signalised junction will result in development traffic having a negligible impact on the operation of the junction in the AM peak and a positive impact on the operation of the junction in the PM peak.

B6124 Station Road / B6124 Soothill Lane

- 8.8 To address the impact of development traffic on the operation of B6124 Station Road / B6124 Soothill Lane junction a mitigation scheme has been proposed. The preliminary proposed mitigation layout for the junction is illustrated in **Drawing VN91266-D101** and proposes a lining and signing scheme (including the introduction of double yellow parking restrictions) to allow for the introduction of a longer two lane approach on the Soothill Lane arm of the junction. These are draft proposals for review with the client team at KC at this stage.
- 8.9 During two separate site visits undertaken by Vectos, it was confirmed that on-street car parking takes place along Soothill Lane on the approach to the junction. It is therefore considered necessary to propose a Traffic Regulation Order in the form of double yellow lining to control this activity and ensure that the existing carriageway space can be fully utilised with the provision of a two lane approach.
- 8.10 The junction has undergone a further operational assessment with a model incorporating the proposed mitigation strategy. The junction has been assessed using the 2023 Baseline 'With Development' traffic flows. The results of this assessment are summarised in **Table 11** with the full modelling files provided as **Appendix G** of this TA Addendum.
- 8.11 The change in forecast RFC and queue values between the 'Without Development' and 'With Development' (With Mitigation) scenarios has been included in brackets for ease of comparison between the two 2023 traffic flow scenarios.

	2023 Baseline 'With Development'			
	AM Peak		PM Peak	
	RFC	Q (PCU)	RFC	Q (PCU)
B6124 Soothill Lane (left turn lane)	1.27 (+0.02)	16 (+1)	1.44 (-0.06)	28 (-4)
B6124 Soothill Lane (right turn lane)	1.33 (+0.04)	76 (+13)	1.48 (-0.06)	106 (-8)

Table 11: 2023 Baseline 'With Development' (With Mitigation) LinSig Results

- 8.12 The results presented in **Table 11** demonstrate that the proposed mitigation strategy will help mitigate the impact of development traffic in both the AM and PM peaks.
- 8.13 In the AM peak, the addition of development traffic will result in an increase in the forecast RFC value of 0.04 when compared with the 'Without Development' scenario.
- 8.14 In the PM peak, the addition of development traffic will result in a decrease in the forecast RFC value of 0.06 when compared with the 'Without Development' scenario.

- 8.15 In summary, the proposed package of mitigation works will result in development traffic having a negligible impact on the operation of the junction in the AM peak and a positive impact on the operation of the junction in the PM peak.

9 TRAVEL PLAN MEASURES

- 9.1 A Framework Travel Plan for the proposed development was provided as part of the Vectos TA report from December 2018. Additional measures to encourage the use of the sustainable modes have been considered in more detail at the post application stage and following the meeting with KC Highways on the 8th April 2019.
- 9.2 As outlined previously in this TA Addendum, the existing bus stop infrastructure on Soothill Lane is proposed to be upgraded to provide shelters and RTI in both directions. Accessibility to these bus stops for residents of the proposed development will be significantly improved through the introduction of a new footway which links to the existing pedestrian refuge island to the east of the proposed site access junction on Soothill Lane.
- 9.3 To further encourage the uptake of sustainable transport the applicant / developer will offer future residents the opportunity to take up a free monthly bus pass on request. The Pink MCard is available from Metro for use on public transport. A monthly countywide bus pass is available for use on all buses in West Yorkshire at a cost of £90. On the basis of a total of 366 residential units this would equate to a potential contribution to sustainable transport of £32,940 (on the basis of one Pink MCard being available per dwelling). This is a draft proposal for review with the client team at KC at this stage.

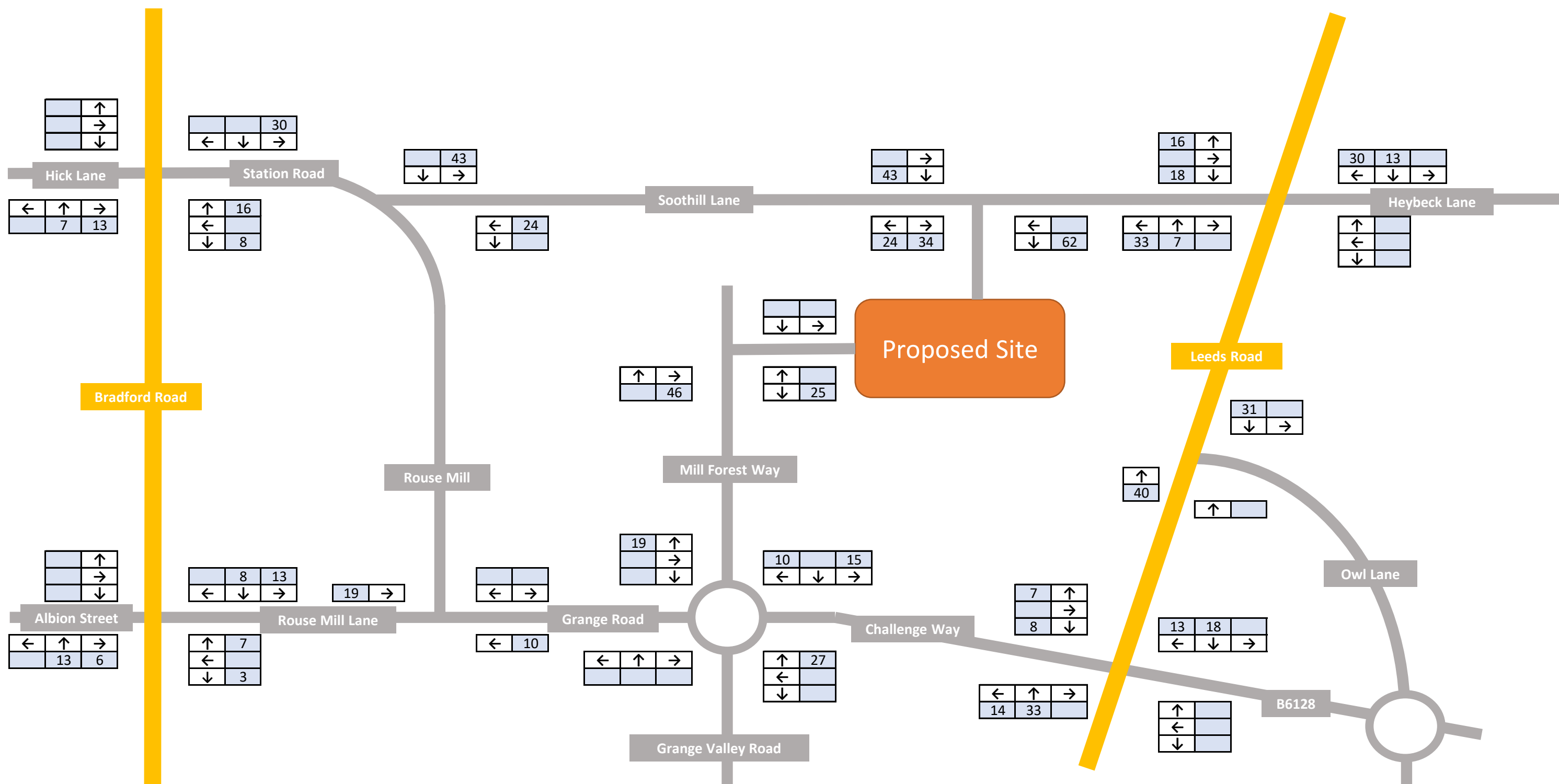
10 CONCLUSIONS

- 10.1 Vectos have been appointed by Savills on behalf of KC to provide highways and transportation advice in support of an outline planning application for a proposed residential development off Soothill Lane in Batley.
- 10.2 This TA Addendum should be read in conjunction with a TA report dated December 2018 (document reference VN81151). The TA was prepared by Vectos in support of an outline planning application (planning application reference: 2015/49/92908/E) for the development of 309 residential units, ranging from two to five bedroom houses, and a 60-bed extra care facility comprising of one and two bedroom apartments.
- 10.3 Since the planning application was submitted, the proposed development scheme has been updated to provide a total of 366 residential units comprising 312 residential dwellings, ranging from two to five bedroom houses, and 54 two bedroom apartments.

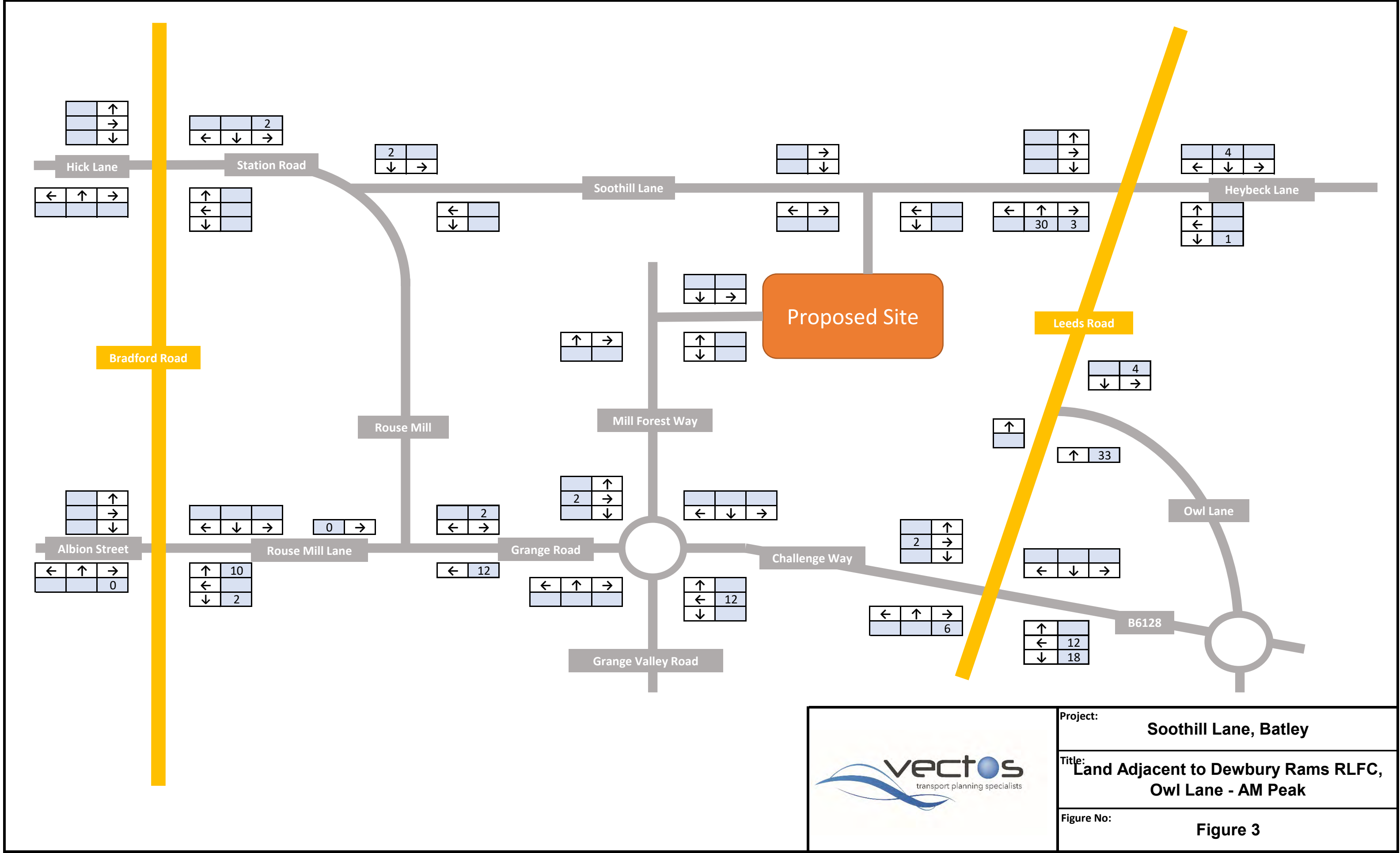
- 10.4 The National Planning Policy Framework states that, *‘development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe’*.
- 10.5 This TA Addendum has demonstrated that the proposed residential development site and associated off-site works would have no material impact on the operation of local highway network. There is also no reason to believe that it will have a detrimental impact upon highway safety, and the development proposals also include measures and infrastructure to improve the access to the sustainable transport network for future residents.
- 10.6 The site therefore accords with relevant guidance and there are no reasons why the planning application should be refused on highway or transportation grounds. The agreement of KC Highways is sought to the findings of this TA Addendum.

FIGURES



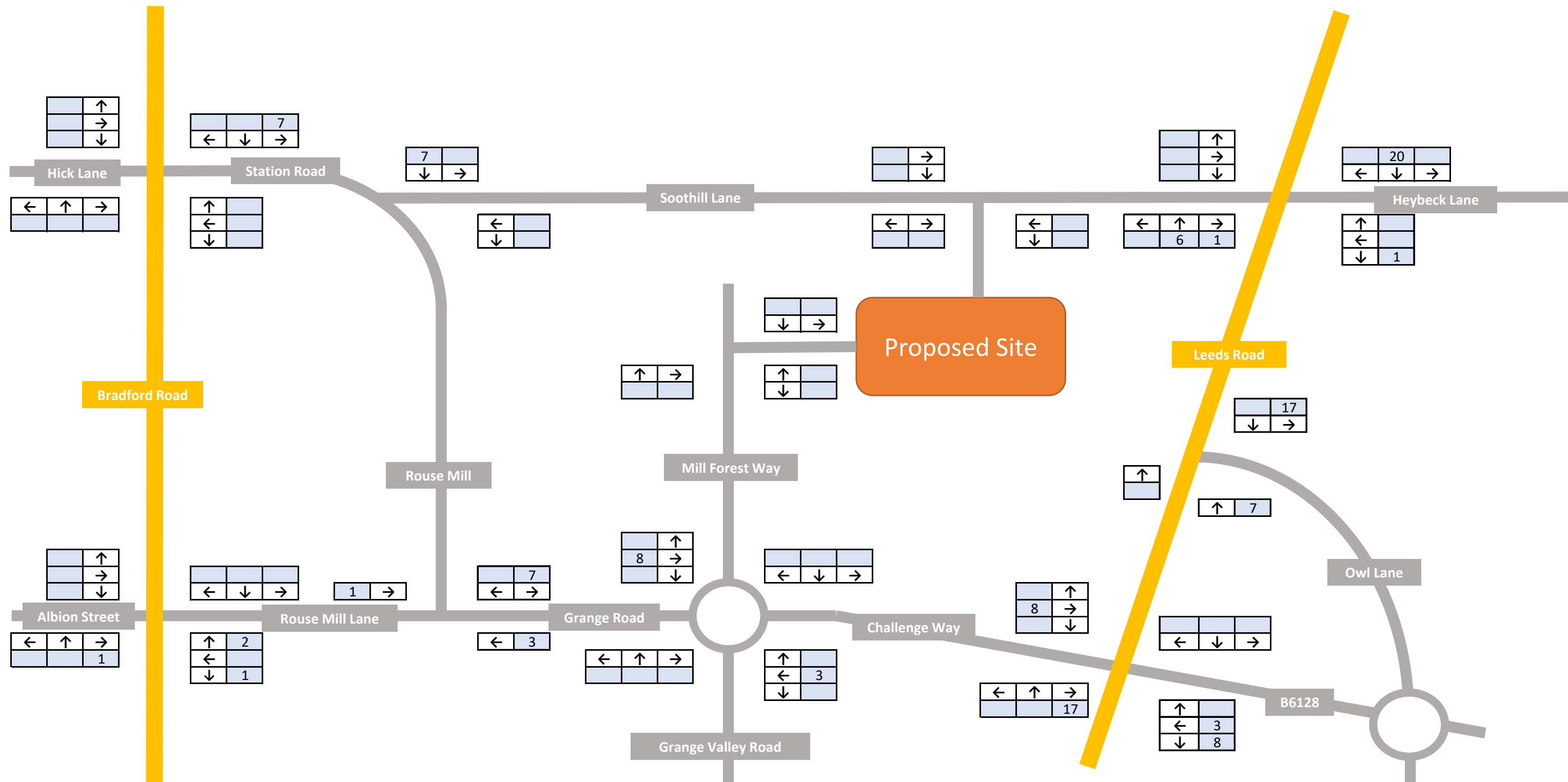


Project:	Soothill Lane, Batley
Title:	Development Trips - PM Peak
Figure No:	Figure 2

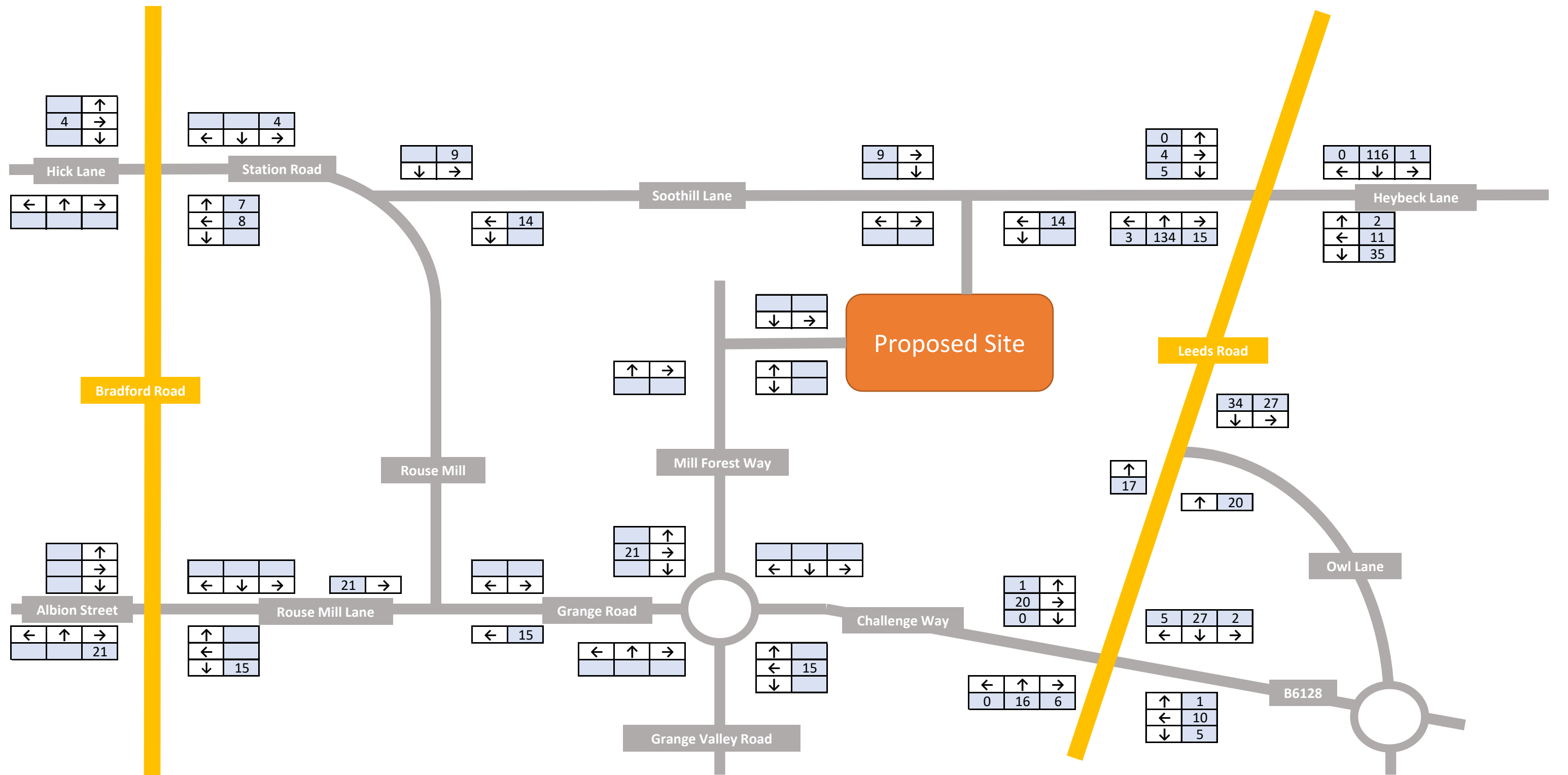




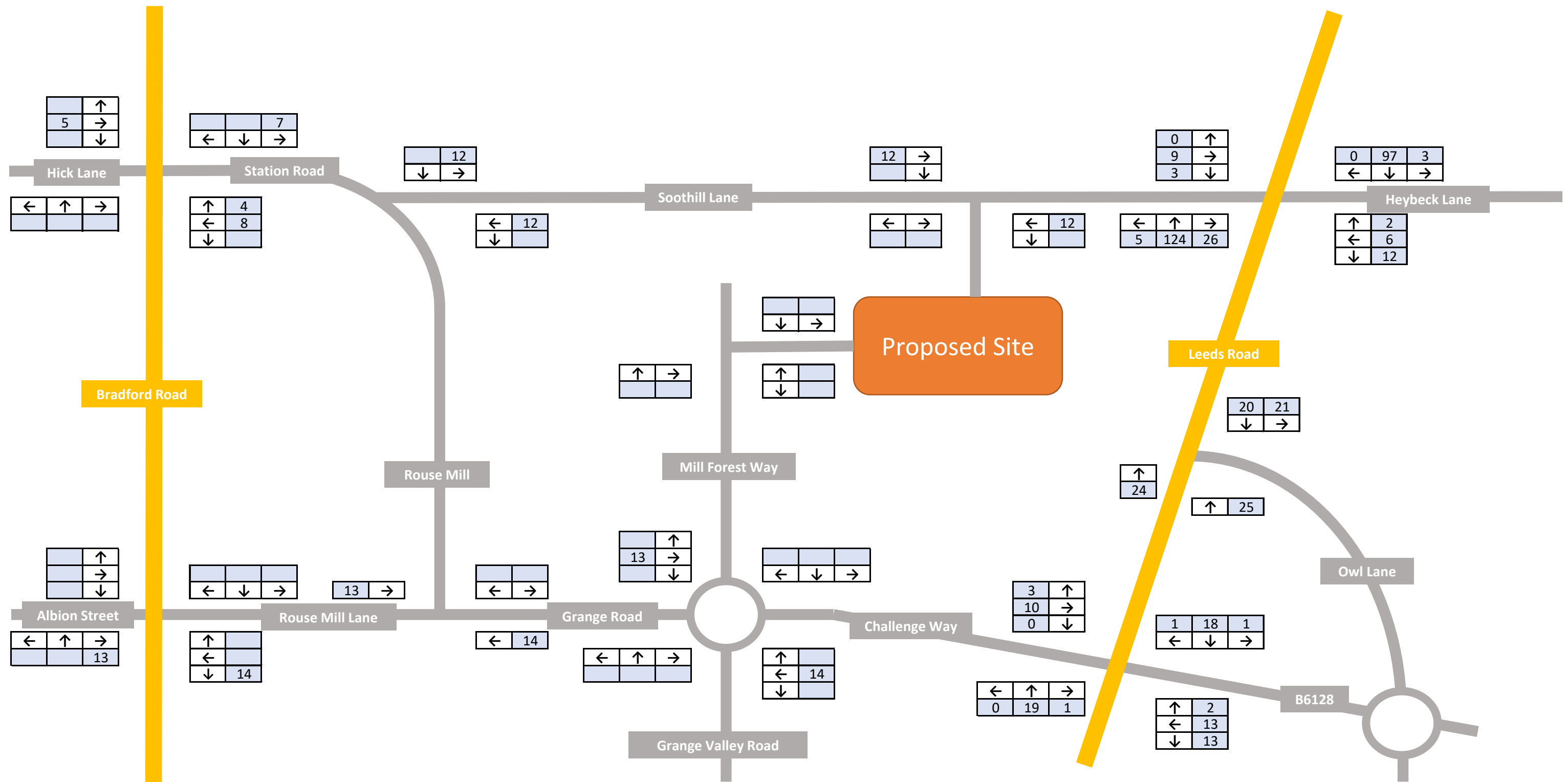
Project:	Soothill Lane, Batley
Title:	Land Adjacent to Dewbury Rams RLFC, Owl Lane - AM Peak
Figure No:	Figure 3



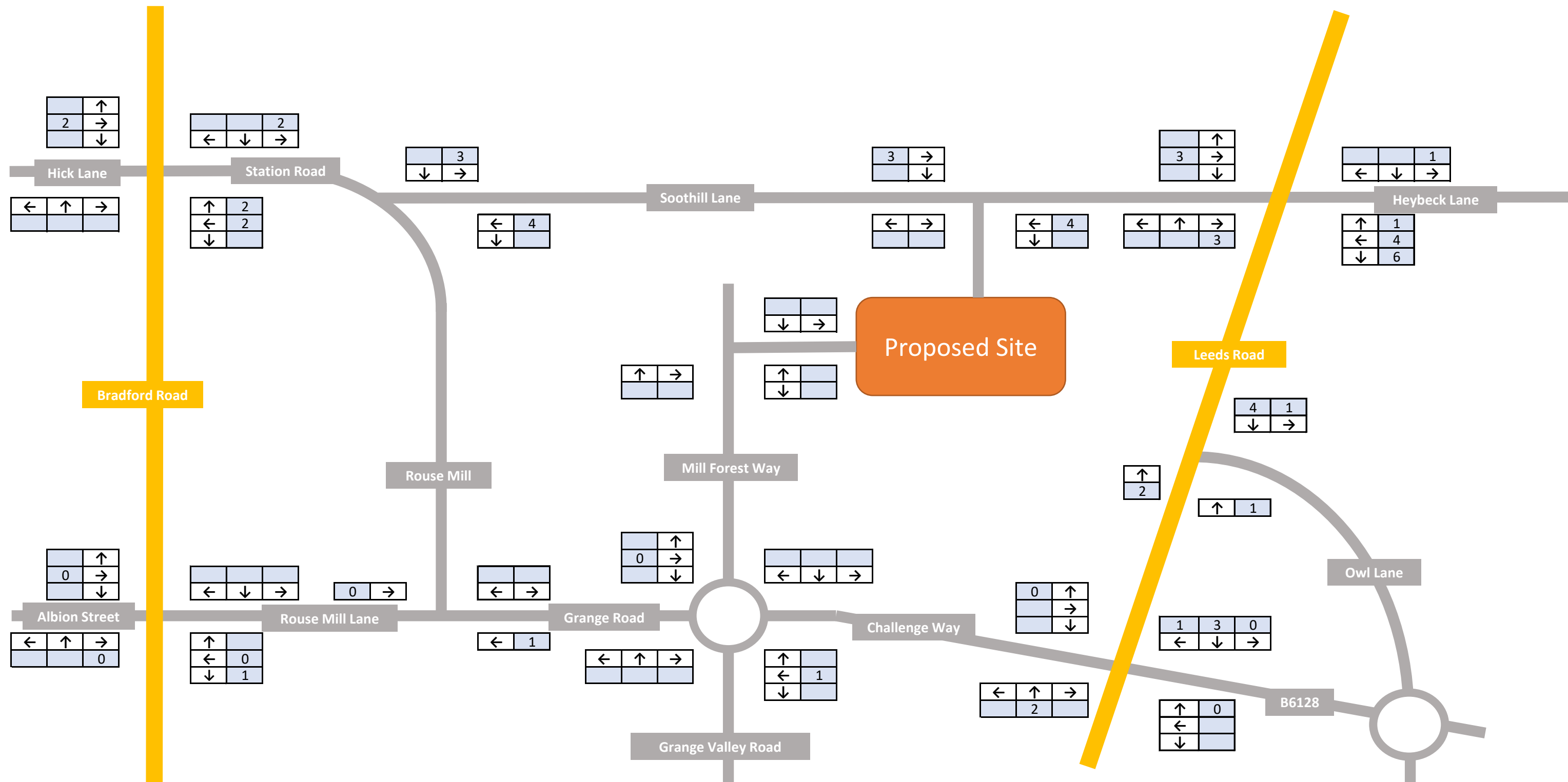
	Project:	Soothill Lane, Batley
	Title:	Land Adjacent to Dewbury Rams RLFC, Owl Lane - AM Peak
	Figure No:	Figure 4



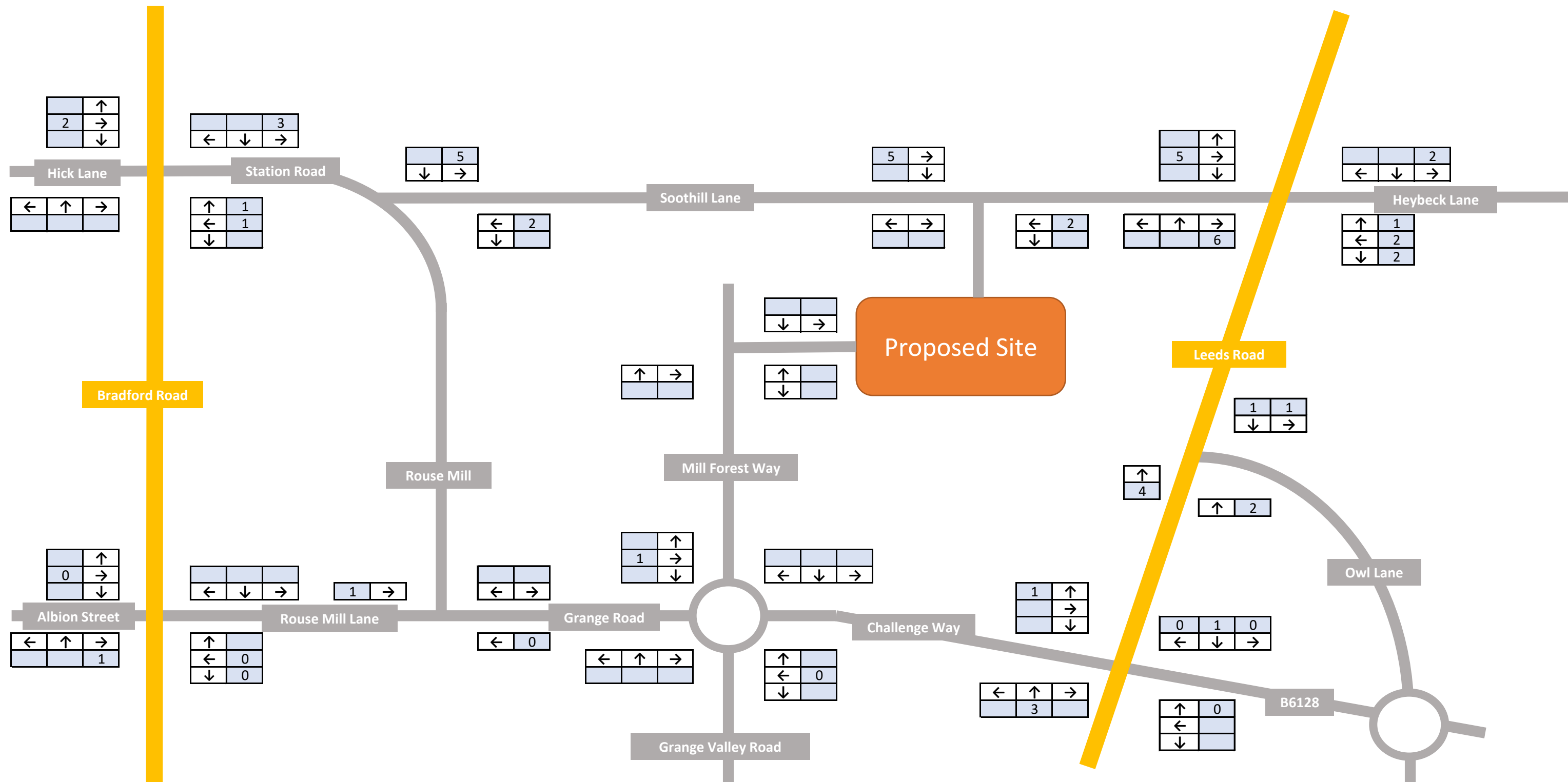
Project:	Soothill Lane, Batley
	Chidswell Mixed Use Allocation (2023) - AM Peak
Figure No:	Figure 5



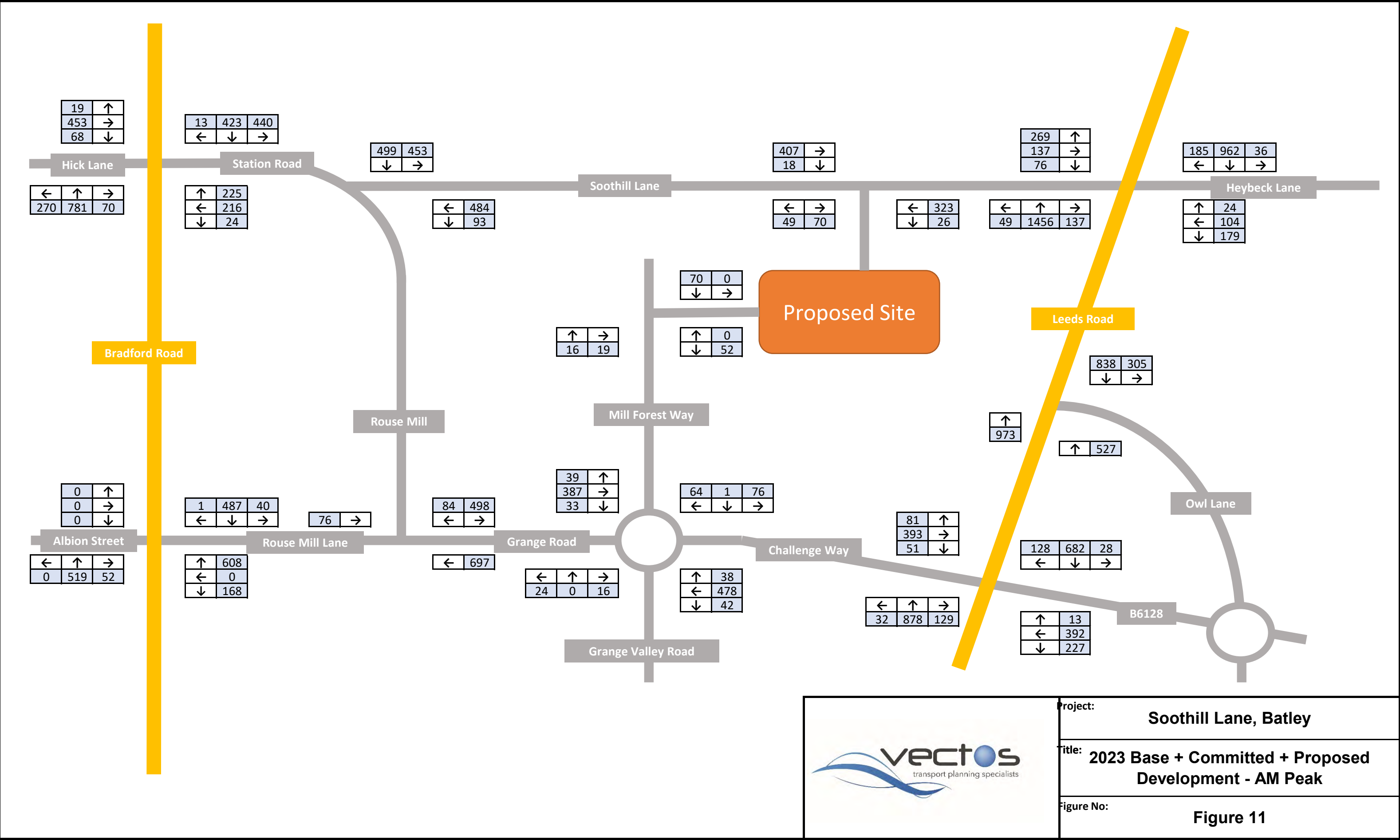
	Project:	Soothill Lane, Batley
		Chidswell Mixed Use Allocation (2023) - AM Peak
	Figure No:	Figure 6



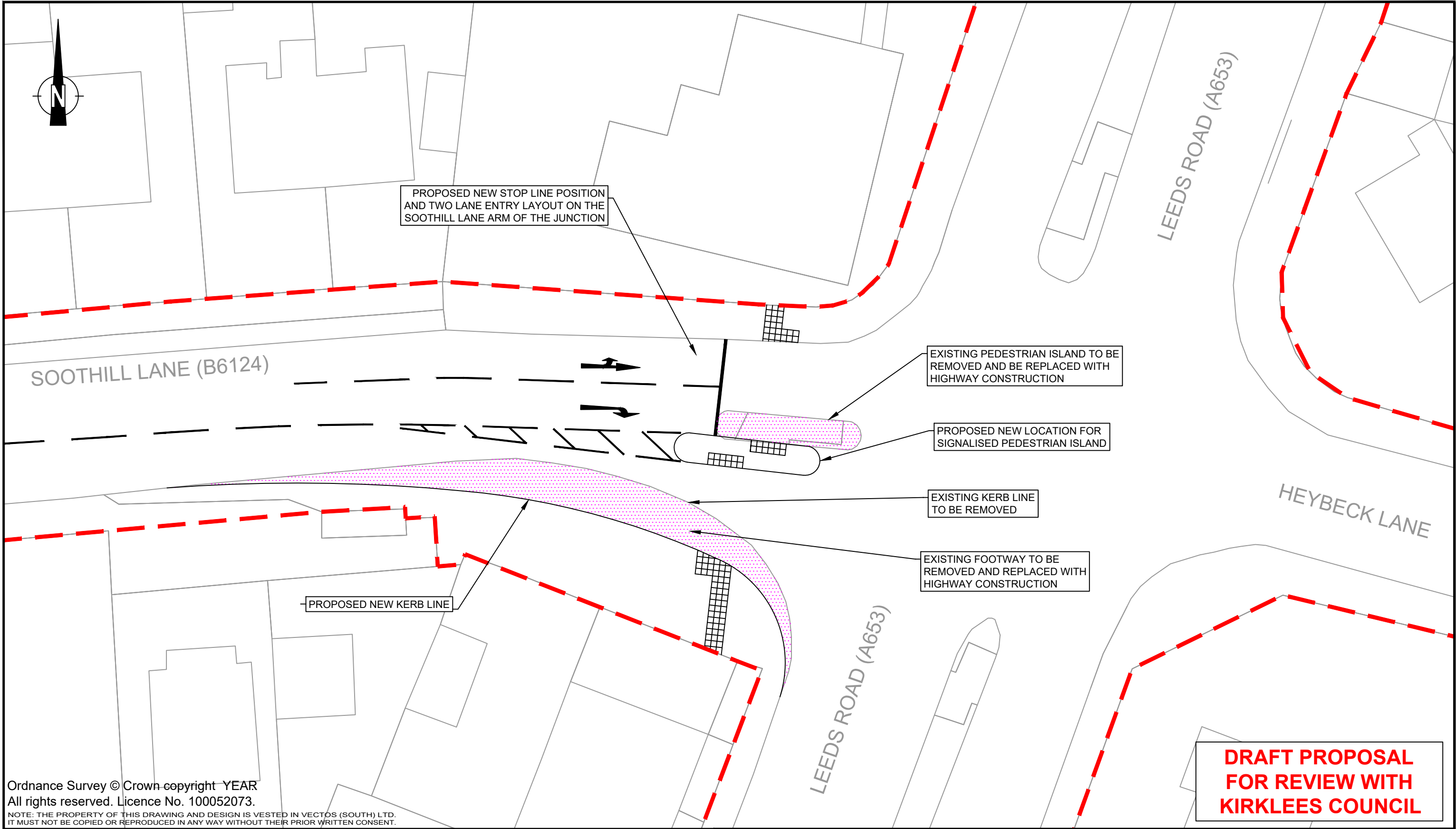
	Project:	Soothill Lane, Batley
		Land off Westerton Road and Haigh Moor Road, West Ardsley - AM Peak
	Figure No:	Figure 7



	Project:	Soothill Lane, Batley
		Land off Westerton Road and Haigh Moor Road, West Ardsley - PM Peak
	Figure No:	Figure 8



DRAWINGS



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REV.	DETAILS	DRAWN	CHECKED	DATE

Notes:

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- White lining is indicative only.

KEY

--- EXTENT OF ADOPTED HIGHWAY BOUNDARY

EXISTING ISLAND / FOOTWAY TO BE REPLACED WITH HIGHWAY CONSTRUCTION

SOOTHILL LANE, BATLEY - POST APP

A653 LEEDS ROAD / B6124 SOOTHILL LANE /
HEYBECK LANE - SIGNALISED JUNCTION
PROPOSED HIGHWAY MITIGATION

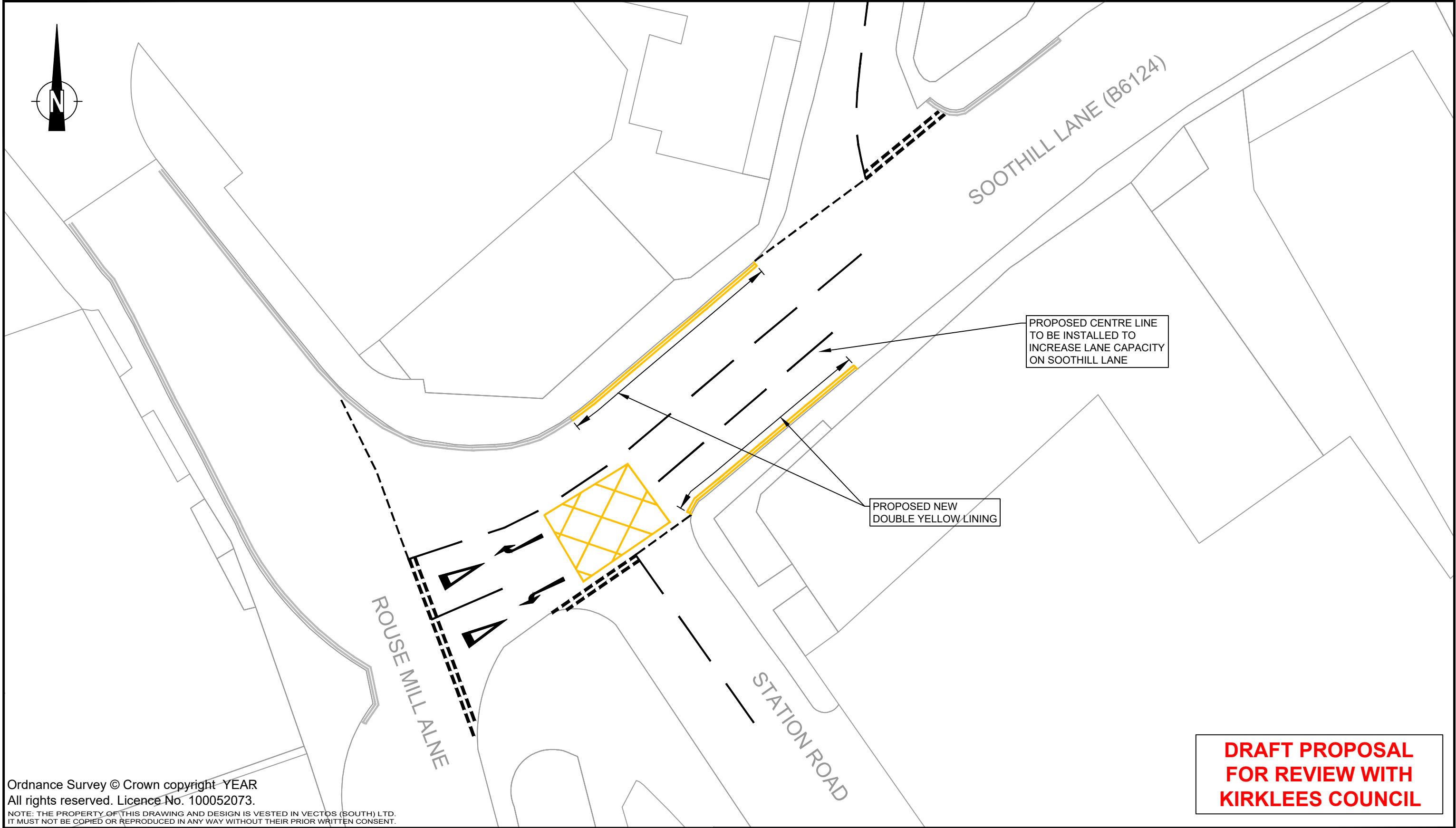
DRAWN: NL	CHECKED: PT	DATE: JUNE 19	SCALES: 1:250 at A3
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4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008 e: manchester@vectos.co.uk

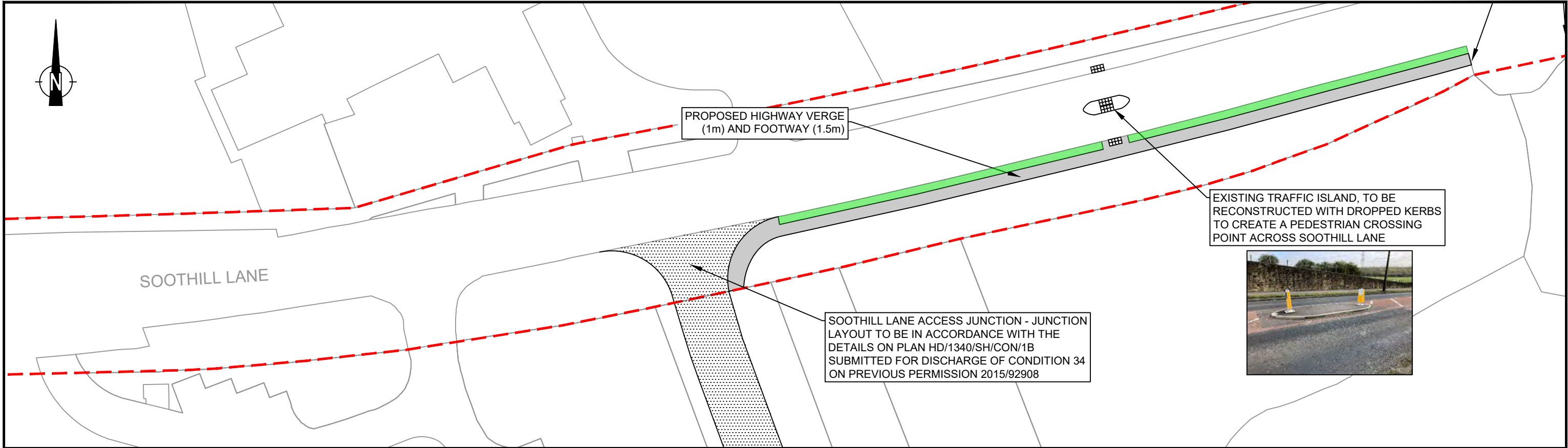
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**DRAFT PROPOSAL
FOR REVIEW WITH
KIRKLEES COUNCIL**

REV.	DETAILS	DRAWN	CHECKED	DATE	Notes: 1. This is not a construction drawing and is intended for illustrative purposes only. 2. White lining is indicative only.	SOOTHILL LANE, BATLEY - POST APP				KIRKLEES COUNCIL	
						B6124 SOOTHILL LANE / ROUSE MILL LANE PRIORITY JUNCTION - PROPOSED HIGHWAY MITIGATION				 transport planning specialists 4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ 0161 228 1008 e: manchester@vectos.co.uk	
						DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
						NL	PT	JUNE 19	1:250 at A3	VN91266 - D101	.



**DRAFT PROPOSAL
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REV.	DETAILS	DRAWN	CHECKED	DATE

Notes:

- This is not a construction drawing and is intended for illustrative purposes only.
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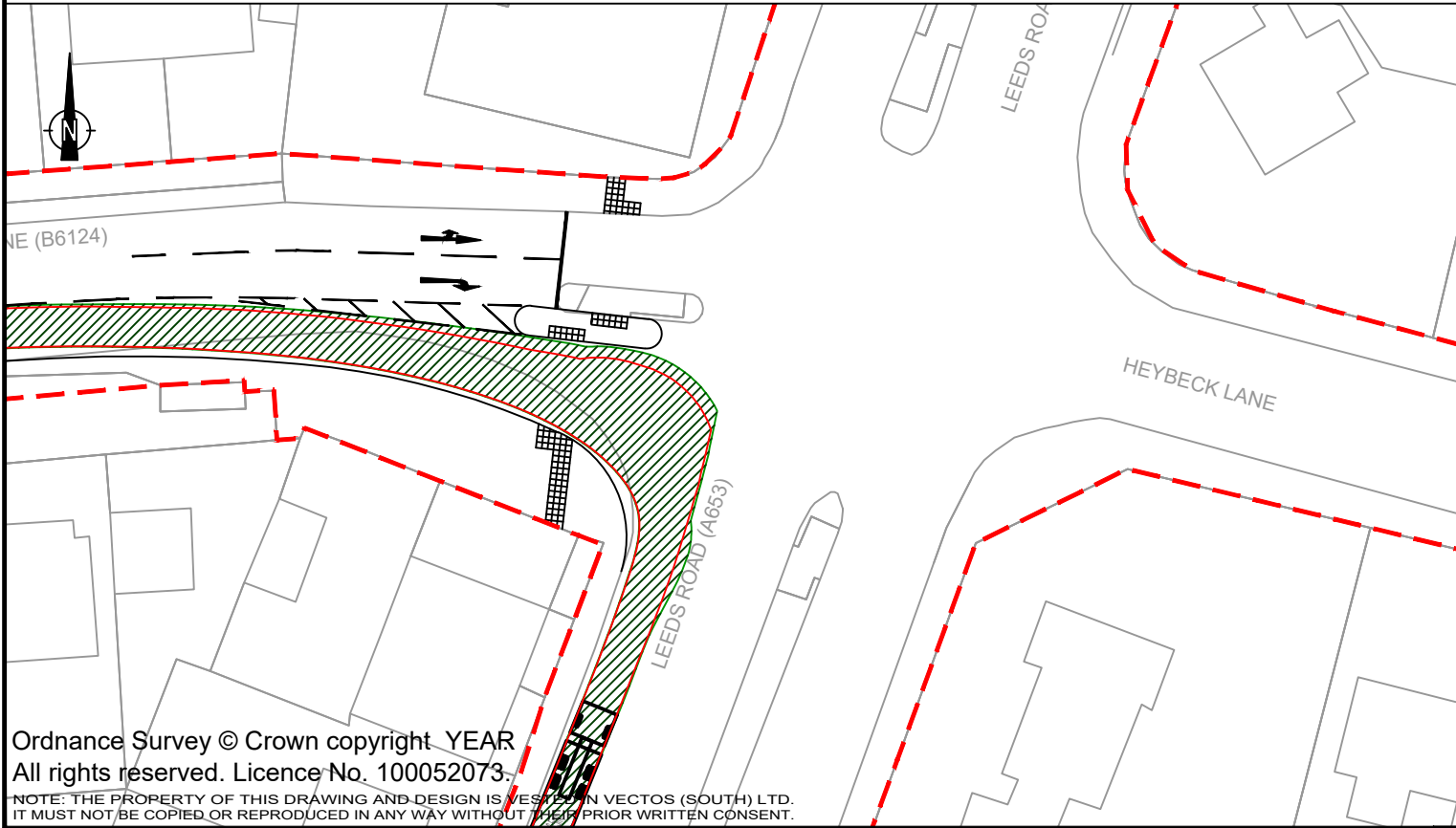
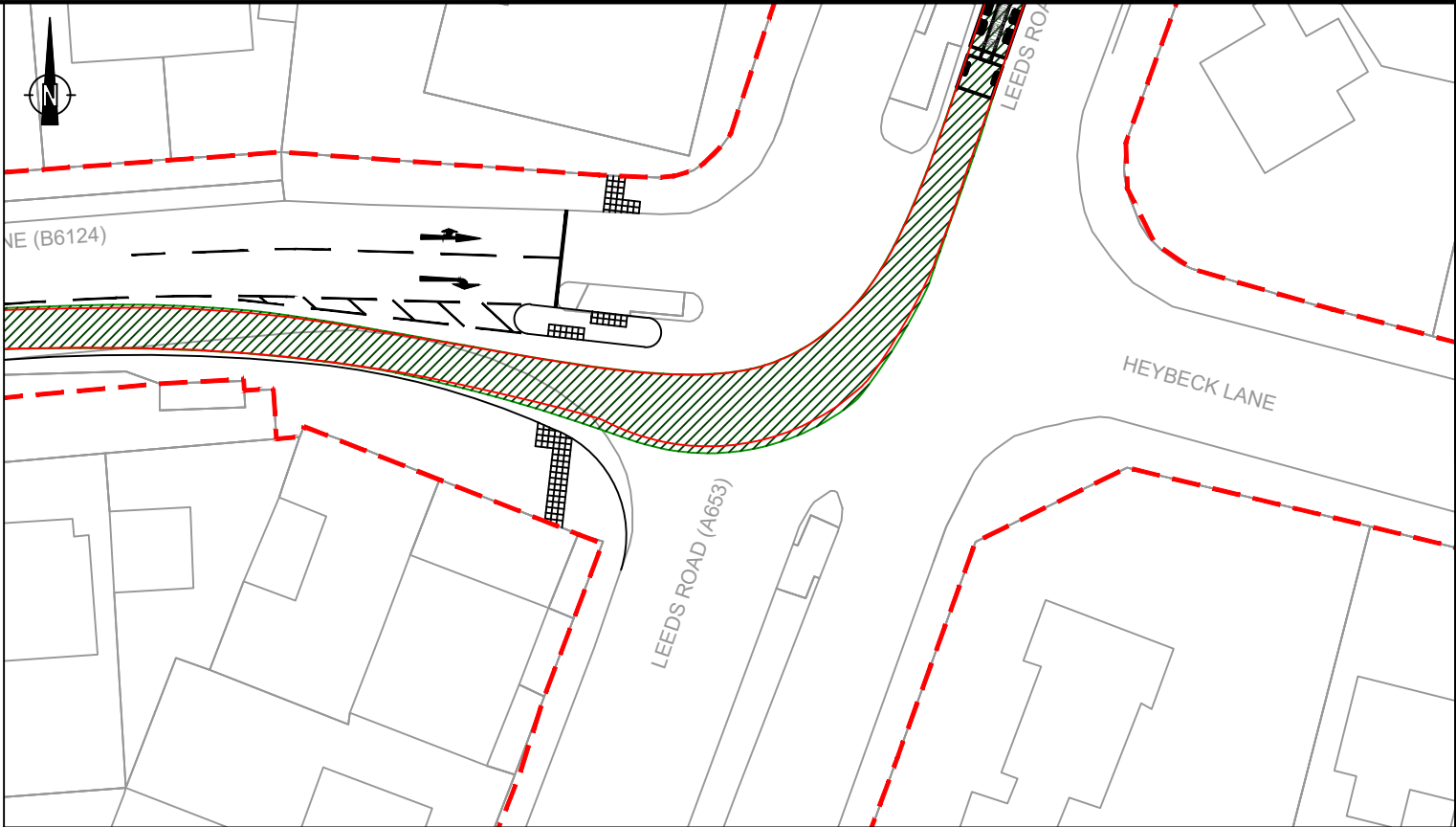
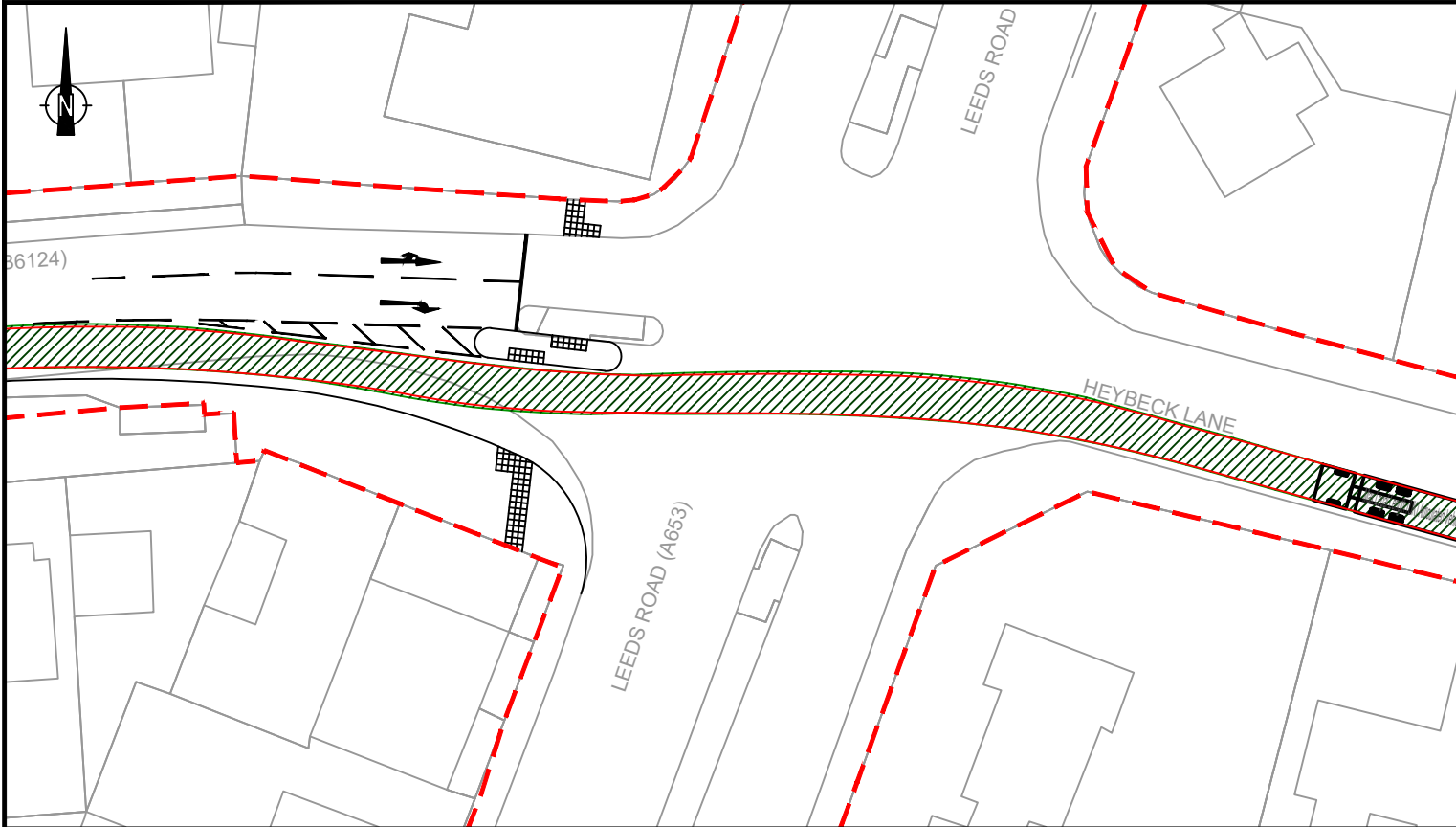
KEY

- EXTENT OF ADOPTED HIGHWAY BOUNDARY
- PROPOSED 1m HIGHWAY VERGE
- PROPOSED 1.5m FOOTWAY

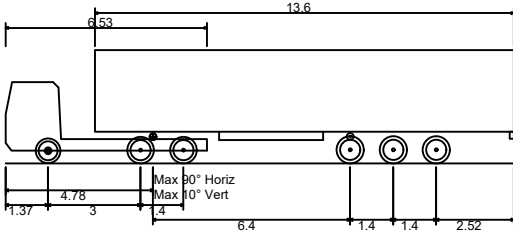
SOOTHILL LANE, BATLEY - POST APP				KIRKLEES COUNCIL	
PROPOSED SUSTAINABLE TRANSPORT INFRASTRUCTURE IMPROVEMENTS ON SOOTHILL LANE					
DRAWN: NL	CHECKED: PT	DATE: JUNE 19	SCALES: 1:500 at A3	DRAWING NUMBER: VN91266 - D102	REVISION: .



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e: manchester@vectos.co.uk



VEHICLE TRACKED



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

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SOOTHILL LANE, BATLEY - POST APP

A553 LEEDS ROAD / B6124 SOOTHILL LANE /
HEYBECK LANE - SIGNALISED JUNCTION
PROPOSED HIGHWAY MITIGATION
(SWEPT PATH ANALYSIS)

DRAWN:	CHECKED:	DATE:	SCALES:
NL	PT	JUNE 19	1:500 at A3

KIRKLEES COUNCIL



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Phoenix 2 Duo (P2-12W with Elite 6x4 chassis)

Overall Length	10.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.800m

REV.	DETAILS	DRAWN	CHECKED	DATE

Notes:

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SOOTHILL LANE, BATLEY - POST APP

SWEPT PATH ANALYSIS - LARGE REFUSE

DRAWN: TO	CHECKED: OM	DATE: 06.06.19	SCALES: N.T.S
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0161 228 1008 e: manchester@vectos.co.uk

DRAWING NUMBER: VN91226-TR101	REVISION: .
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APPENDICES

APPENDIX A

Scoping Correspondence

From: [Ryan Kinder](#)
To: [Phil Tilby](#); [Steven Sampson](#)
Cc: [Alison Bruton](#); [Liz Jefferson](#); ["Jonathan Ainley"](#); [Oliver McLaughlin](#); [Highways DevelopmentControl](#)
Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019
Date: 11 April 2019 12:51:41
Attachments: [image001.jpg](#)
[image002.jpg](#)
[image003.jpg](#)
Importance: High

Hello Phil,

See actions in red below..... any further discussion needed let me know.

Regards

Ryan Kinder

Principal Engineer
Highway Development Management
Investment and Regeneration Service
Kirklees Council
Tel: 01484 221000

From: Phil Tilby [mailto:Phil.Tilby@vectos.co.uk]
Sent: 10 April 2019 16:18
To: Steven Sampson <Steven.Sampson@kirklees.gov.uk>; Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>
Cc: Alison Bruton <Alison.Bruton@kirklees.gov.uk>; Liz Jefferson <Liz.Jefferson@kirklees.gov.uk>; 'Jonathan Ainley' <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>
Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019
Importance: High

Hi Both

I thought it would be useful to summarise the key discussion points and actions from our meeting on Monday so that we are all agreed on the requirements for the addendum transport submission at the post application stage.

Committed Developments

- It is agreed to remove the vehicle trips associated with the Rumble Road, Dewbury development (application reference 2017/91459) from the traffic impact assessment. **agreed**
- The Haigh Moor Road development and Chidswell mixed use site (from the Local Plan) are to be included in the traffic impact assessment. **agreed**
- We have looked through the information contained within the Local Plan documents on the Chidswell site proposals, and have located the following initial transport appraisal

work undertaken by White Young Green in 2016 and the attached concept masterplan which appears to generally correspond with the Local Plan information. We are proposing to utilise the White Young Green information for deriving the development vehicle movements on the network to include in our updated traffic assessment, unless advised otherwise? **agreed**

- No further changes to the considered committed / Local Plan developments are required as part of the revised traffic impact assessment. **agreed**

-

Air Quality AADT Flows

- Vectos will update the AADT (24-hour) traffic flows 'future base' and 'future base + development' forecasts for the air quality assessment. **agreed**

Future Year Assessment and Background Growth

- In the Transport Assessment we assumed a 2023 future year, please can we confirm that this is still acceptable? **agreed**
- As we are now taking into consideration development sites contained within the Local Plan, do we still need to include NTM adjusted TEMPro background growth as well? **Yes include tempo growth**

Traffic Impact Assessment / Junction Modelling

As discussed, with regard to this proposed development the Local Highway Authority consider the critical off-site junctions for detailed modelling assessments:

- A653 Leeds Road / Soothill Lane / Heybeck Lane. **Agreed**
- A653 Leeds Road / Owl Lane. **agreed**

Vectos have also highlighted the following three junctions in their initial post application response to Kirklees Council:

- A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way. **Include full assessment**
- B6124 Station Road / B6126 Soothill Lane. **Not needed**
- A652 Bradford Road / Station Road / Hick Lane. **Not needed**

Please can the Local Highway Authority confirm if they require Vectos to undertake junction modelling assessments of these three junctions as well? **See above**

We are working on the basis that given the existing operational characteristics and the previously submitted findings of the quantitative impact analysis, no further assessment is required of the following junctions:

- B6128 Grange Road / Mill Forest Way / Challenge Way / Grange Valley Road.
- Station Road / B6124 Rouse Mill Lane.
- A652 Bradford Road / Rouse Mill Lane / Albion Street.

Please can the Local Highway Authority confirm if they are in agreement? **agreed**

Mitigation Strategy

- Vectos will review the results of the junction modelling assessments and consider the

locations on the highway network where the development impacts are most significant and / or there are significant operational issues

- Vectos to consider a highway mitigation strategy / proposals where appropriate and within the cost constraints of the project.
- Vectos to consider sustainable transport mitigation measures to address residual highway impacts on the network.

I look forward to hearing from you.

Kind regards

Phil

Phil Tilby

Associate

Vectos

0161 228 1008 (T) 07375 670 904 (M)

4th Floor, Oxford Place, 61 Oxford Street, Manchester, M1 6EQ

From: Phil Tilby

Sent: 10 April 2019 15:08

To: Steven.Sampson@kirklees.gov.uk; Ryan.Kinder@kirklees.gov.uk

Cc: Alison.Bruton@kirklees.gov.uk; Liz.Jefferson@kirklees.gov.uk; Jonathan Ainley <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>

Subject: FW: 2015/49/92908/E - Soothill Batley

Hi Steven, Ryan

Thank you for your time on Monday afternoon to discuss the above planning application.

As discussed, please see the email correspondence below. Vectos were liaising with your colleague Mark Berry at the pre-application stage.

Kind regards

Phil

From: Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>

Sent: 28 November 2018 14:25

To: Phil Tilby <Phil.Tilby@vectos.co.uk>

Subject: FW: 2015/49/92908/E - Soothill Batley

For your info

Oliver McLaughlin
Senior Transport Planner
0161 228 1008 (T)
4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ

From: Mark Berry <Mark.Berry@kirklees.gov.uk>
Sent: 28 November 2018 13:49
To: Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>
Cc: Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>
Subject: RE: 2015/49/92908/E - Soothill Batley

Hi Oliver

These are the only two sites I can find in the locality which may impact to the junctions your assessment needs to consider.

206 dwellings at land adjacent Dewsbury Rams RLFC Owl Lane, Dewsbury (this site is under construction and part developed) - 2014/90780

149 dwellings land off Rumble Road Dewsbury 2017/91459

Regards

Mark

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Cc: Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>; Steven Sampson <Steven.Sampson@kirklees.gov.uk>; Phil Tilby <Phil.Tilby@vectos.co.uk>
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Hi Mark,

Thank you for your email.

Are there any committed development schemes you would like use to consider in our assessment?

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A colleague Steven Sampson dealt with the 2015 application. Neither myself or Ryan have had any previous involvement with this site.

I would consider a trip rate of 0.7 to be appropriate for a robust assessment. 0.7 has been previously accepted and reported to planning committee and in my view should be used in any up-dated assessment.

These are the conditions attached to the decision notice. None refer to off-site junctions.

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Cc: Phil Tilby <Phil.Tilby@vectos.co.uk>; Mark Berry <Mark.Berry@kirklees.gov.uk>; Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>

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Principal Engineer
Highway Development Management
Investment and Regeneration Service
Kirklees Council
Tel: 01484 221000

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Sent: 20 November 2018 10:26

To: Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>

Cc: Phil Tilby <Phil.Tilby@vectos.co.uk>

Subject: 2015/49/92908/E - Soothill Batley

Hi Ryan,

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As such we have undertaken an updated TRICS exercise including more recently surveyed sites. I have attached the full outputs to this email. We have applied the following criteria to ensure the trip rates are robust:

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- Edge of Town sites selected;
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- Sites with frequent bus services manually excluded.

The peak hour trip rates are summarised below:

	AM Peak			PM Peak		
	Arr	Dep	Total	Arr	Dep	Total
Trip rate	0.162	0.405	0.567	0.356	0.155	0.511

In addition to the above, Paragraph 9.1.10 of the WSP TA concludes that several off-site junctions are forecast to operate over capacity and "a number of potential mitigation options can be considered and developed in collaboration with the LHA". I have had a look on the planning portal and it is not immediately obvious if any further work on mitigation options was undertaken before the site was granted consent. Are you aware of this further work and if so please could forward the relevant information?

I would be grateful if you could consider the above and attached and provide feedback as soon as possible?

Regards

Oliver

Oliver McLaughlin
Senior Transport Planner



0161 228 1008 (T)

oliver.mclaughlin@vectos.co.uk

4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ



Registered address: Vectos (North) Limited, Oxford Place, 61 Oxford Street, Manchester, M1 6EQ. Company no. 07794057

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Oliver McLaughlin

To: Phil Tilby
Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019 and Changes to Proposed Residential Scheme

From: Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>
Sent: 08 May 2019 15:29
To: Phil Tilby <Phil.Tilby@vectos.co.uk>
Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019 and Changes to Proposed Residential Scheme

Phil,

Please ignore previous email I have managed to view the information now, this is considered acceptable. I will incorporate the details into my consultation response. Ill come back to you with any queries.

Thanks

Ryan Kinder
Principal Engineer
Highway Development Management
Investment and Regeneration Service
Kirklees Council
Tel: 01484 221000

From: Phil Tilby [<mailto:Phil.Tilby@vectos.co.uk>]
Sent: 08 May 2019 14:53
To: Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>
Cc: Alison Bruton <Alison.Bruton@kirklees.gov.uk>; Liz Jefferson <Liz.Jefferson@kirklees.gov.uk>; 'Jonathan Ainley' <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>; Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>; Steven Sampson <Steven.Sampson@kirklees.gov.uk>
Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019 and Changes to Proposed Residential Scheme

Hi Ryan

Further to our discussion last week, I am pleased to attach the updated TRICS output data for the apartments and the figures in the tables in the email below have been updated accordingly.

I look forward to hearing from you.

Kind regards

Phil

From: Phil Tilby
Sent: 30 April 2019 16:56
To: 'Ryan Kinder' <Ryan.Kinder@kirklees.gov.uk>
Cc: 'Alison Bruton' <Alison.Bruton@kirklees.gov.uk>; 'Liz Jefferson' <Liz.Jefferson@kirklees.gov.uk>; 'Jonathan Ainley' <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>; 'Highways DevelopmentControl' <Highways.DevelopmentControl@kirklees.gov.uk>; 'Steven Sampson' <Steven.Sampson@kirklees.gov.uk>
Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019 and Changes to Proposed Residential Scheme

Hi Ryan

I trust you are well.

Further to recent correspondence on the proposed residential development at Soothill, we have been advised by Savills on behalf of the client at Kirklees Council that the proposed scheme is being altered to remove the extra care element and provide a wholly residential development. The latest development schedule that we have been provided is a total of approximately 366 units across the site (to be confirmed by the architects following spatial testing of the development layout), of which 10% will be apartments, i.e. 329 houses & 37 apartments.

This has changed the vehicle trip generation characteristics of the residential scheme to a degree and I therefore saw it as appropriate to bring you up to speed with these latest developments. I also wanted to confirm that the below scope we previously agreed with regard to the Transport Assessment Addendum is still accepted by Kirklees Council Highways in light of the revised scheme. The information set out below in this email summarises the vehicle trip generations in the AM and PM peak hours at the key off-site junctions on the highway network, and sets out a comparison between the previous residential scheme that includes the extra care facility and the revised scheme of 366 units (329 houses & 37 apartments).

In our previous traffic impact assessment work we used the masterplan as a means of allocating development trips to either the Soothill Lane or Mill Forest Way site accesses. It should be noted that the updated site layout masterplan has not yet been finalised, and as a result the proportion of vehicle trips using each access has been assumed. However, the methodology uses similar proportions to what were previously applied to both access points but it should be noted that this may be subject to some minor changes in the future once we have a better understanding of the scheme.

The previously agreed trip rates have been used for the houses and new trip rates have been calculated for the apartments. I have summarised the apartment traffic generation information below for the AM and PM weekday peaks and the full TRICS outputs are attached. I would be grateful if you could review these and confirm if you are satisfied with them before we begin using them in our detailed modelling assessments.

Peak Period	Apartments	Arr	Dep	Total
AM	Vehicle trip rate	0.062	0.226	0.288
	Vehicle trip generation	2	8	10
PM	Vehicle trip rate	0.211	0.101	0.312
	Vehicle trip generation	8	4	12

Table 1: Apartment Trip Rates and Generation (37 units) – AM and PM Peaks

For ease of reference, we have prepared the below table which shows total development trips at each of the key junctions in the study area. The table includes a comparison between the previously assessed residential scheme

with the extra care facility and the latest proposals. The residential trip distribution and assignment assumptions remain the same as in the Vectos Transport Assessment (December 2018) that was submitted in support of the original planning application.

As shown in the table below, the forecasts indicate that across most junctions in the study network the change in trips is negligible between the two schemes. The largest increase in vehicle movements occurs at the Challenge Way / Mill Forest Way roundabout which, as outlined in previous correspondence, has been observed on two separate site visits to be operating within capacity with minimal queuing or delay. On the basis of the findings set out in the table below the previously agreed scope for undertaking detailed modelling assessments of junctions would appear to remain valid, however I would welcome your views / comments?

Junction		AM Peak			PM Peak		
		Previous residential + care scheme	Latest residential scheme	Difference	Previous residential + care scheme	Latest residential scheme	Difference
1	Challenge Way/ Mill Forest Way Roundabout	68	82	+14	68	82	+14
2	Station Road / Soothill Lane T-Junction	64	65	+1	66	61	-5
3	Rouse Mill Lane/ Station Road T-Junction	28	34	+6	28	34	+6
4	Leeds Road/ Heybeck Lane/ Soothill Lane Signalised Crossroads	112	117	+5	114	110	-3
5	Leeds Road/ Owl Lane Signalised T-Junction	68	72	+5	69	69	0
6	Leeds Road Road/ Owl Lane/ John Orsby VC/ Challenge Way Signalised Crossroads	89	98	+9	90	94	+5
7	Bradford Road/ Rouse Mill Lane/ Albion Street Signalised Crossroads	48	54	+6	48	52	+4
8	Bradford Road/ Station Road/ Hick Lane Signalised Crossroads	78	82	+4	72	69	-3

Table 2: Comparison of Vehicle Trips Between the Previous and Current Residential Schemes

I trust the above information providing an update on the latest scheme proposals is clear, however if there are any queries or issues then please don't hesitate to contact me.

I look forward to receiving your response.

Kind regards

Phil

From: Phil Tilby

Sent: 11 April 2019 15:10

To: Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>; Steven Sampson <Steven.Sampson@kirklees.gov.uk>

Cc: Alison Bruton <Alison.Bruton@kirklees.gov.uk>; Liz Jefferson <Liz.Jefferson@kirklees.gov.uk>; 'Jonathan Ainley' <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>; Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>

Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019

Hi Ryan

That's great, thank you. We will get cracking with pulling this Transport Addendum together.

Kind regards

Phil

From: Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>

Sent: 11 April 2019 12:51

To: Phil Tilby <Phil.Tilby@vectos.co.uk>; Steven Sampson <Steven.Sampson@kirklees.gov.uk>

Cc: Alison Bruton <Alison.Bruton@kirklees.gov.uk>; Liz Jefferson <Liz.Jefferson@kirklees.gov.uk>; 'Jonathan Ainley' <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>; Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>

Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019

Importance: High

Hello Phil,

See actions in red below..... any further discussion needed let me know.

Regards

Ryan Kinder

Principal Engineer

Highway Development Management

Investment and Regeneration Service

Kirklees Council

Tel: 01484 221000

From: Phil Tilby [<mailto:Phil.Tilby@vectos.co.uk>]

Sent: 10 April 2019 16:18

To: Steven Sampson <Steven.Sampson@kirklees.gov.uk>; Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>

Cc: Alison Bruton <Alison.Bruton@kirklees.gov.uk>; Liz Jefferson <Liz.Jefferson@kirklees.gov.uk>; 'Jonathan Ainley' <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>

Subject: RE: 2015/49/92908/E Soothill Batley - Highways Meeting 08/04/2019

Importance: High

Hi Both

I thought it would be useful to summarise the key discussion points and actions from our meeting on Monday so that we are all agreed on the requirements for the addendum transport submission at the post application stage.

Committed Developments

- It is agreed to remove the vehicle trips associated with the Rumble Road, Dewbury development (application reference 2017/91459) from the traffic impact assessment. **agreed**
- The Haigh Moor Road development and Chidswell mixed use site (from the Local Plan) are to be included in the traffic impact assessment. **agreed**
- We have looked through the information contained within the Local Plan documents on the Chidswell site proposals, and have located the following initial transport appraisal work undertaken by White Young Green in 2016 and the attached concept masterplan which appears to generally correspond with the Local Plan information. We are proposing to utilise the White Young Green information for deriving the development vehicle movements on the network to include in our updated traffic assessment, unless advised otherwise? **agreed**
- No further changes to the considered committed / Local Plan developments are required as part of the revised traffic impact assessment. **agreed**

Air Quality AADT Flows

- Vectos will update the AADT (24-hour) traffic flows 'future base' and 'future base + development' forecasts for the air quality assessment. **agreed**

Future Year Assessment and Background Growth

- In the Transport Assessment we assumed a 2023 future year, please can we confirm that this is still acceptable? **agreed**
- As we are now taking into consideration development sites contained within the Local Plan, do we still need to include NTM adjusted TEMPro background growth as well? **Yes include tempo growth**

Traffic Impact Assessment / Junction Modelling

As discussed, with regard to this proposed development the Local Highway Authority consider the critical off-site junctions for detailed modelling assessments:

- A653 Leeds Road / Soothill Lane / Heybeck Lane. **Agreed**
- A653 Leeds Road / Owl Lane. **agreed**

Vectos have also highlighted the following three junctions in their initial post application response to Kirklees Council:

- A653 Leeds Road / John Ormsby VC Way / B6128 Challenge Way. **Include full assessment**
- B6124 Station Road / B6126 Soothill Lane. **Not needed**
- A652 Bradford Road / Station Road / Hick Lane. **Not needed**

Please can the Local Highway Authority confirm if they require Vectos to undertake junction modelling assessments of these three junctions as well? **See above**

We are working on the basis that given the existing operational characteristics and the previously submitted findings of the quantitative impact analysis, no further assessment is required of the following junctions:

- B6128 Grange Road / Mill Forest Way / Challenge Way / Grange Valley Road.
- Station Road / B6124 Rouse Mill Lane.
- A652 Bradford Road / Rouse Mill Lane / Albion Street.

Please can the Local Highway Authority confirm if they are in agreement? **agreed**

Mitigation Strategy

- Vectos will review the results of the junction modelling assessments and consider the locations on the highway network where the development impacts are most significant and / or there are significant operational issues
- Vectos to consider a highway mitigation strategy / proposals where appropriate and within the cost constraints of the project.
- Vectos to consider sustainable transport mitigation measures to address residual highway impacts on the network.

I look forward to hearing from you.

Kind regards

Phil

Phil Tilby

Associate

Vectos

0161 228 1008 (T) 07375 670 904 (M)

4th Floor, Oxford Place, 61 Oxford Street, Manchester, M1 6EQ

From: Phil Tilby

Sent: 10 April 2019 15:08

To: Steven.Sampson@kirklees.gov.uk; Ryan.Kinder@kirklees.gov.uk

Cc: Alison.Bruton@kirklees.gov.uk; Liz.Jefferson@kirklees.gov.uk; Jonathan Ainley <JAinley@savills.com>; Oliver McLaughlin <oliver.mclaughlin@vectos.co.uk>

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Sent: 20 November 2018 10:34

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Cc: Phil Tilby <Phil.Tilby@vectos.co.uk>; Mark Berry <Mark.Berry@kirklees.gov.uk>; Highways DevelopmentControl <Highways.DevelopmentControl@kirklees.gov.uk>

Subject: RE: 2015/49/92908/E - Soothill Batley

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Regards

Ryan Kinder

Principal Engineer

Highway Development Management

Investment and Regeneration Service

Kirklees Council

Tel: 01484 221000

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Sent: 20 November 2018 10:26

To: Ryan Kinder <Ryan.Kinder@kirklees.gov.uk>

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Subject: 2015/49/92908/E - Soothill Batley

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	Arr	Dep	Total	Arr	Dep	Total
Trip rate	0.162	0.405	0.567	0.356	0.155	0.511

In addition to the above, Paragraph 9.1.10 of the WSP TA concludes that several off-site junctions are forecast to operate over capacity and “a number of potential mitigation options can be considered and developed in collaboration with the LHA”. I have had a look on the planning portal and it is not immediately obvious if any further work on mitigation options was undertaken before the site was granted consent. Are you aware of this further work and if so please could forward the relevant information?

I would be grateful if you could consider the above and attached and provide feedback as soon as possible?

Regards
Oliver

Oliver McLaughlin
Senior Transport Planner



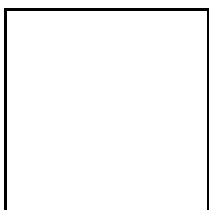
0161 228 1008 (T)
oliver.mclaughlin@vectos.co.uk

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APPENDIX B

Indicative Site Layout



Schedule of Accommodation:

Housing:			
Type A	2Bed House	753sqft/70sqm	96no
Type B	3Bed House	904sqft/84sqm	124no
Type C	4Bed House	1250sqft/116.15sqm	70no
Type D	5Bed House	1498sqft/139.25sqm	22no
Total:			312no

200% Car parking

Apartments - 2Bed Apart	753sqft / 70sqm	54no
100% Car Parking		

Total no of Units: 366

Public space 23580 sqm / 5.8 acres

Type A total floor area = 6,720 sqm
Type B total floor area = 10,416sqm
Type C total floor area = 8,130sqm
Type D total floor area = 3,064sqm
Apartment total floor area = 3,780sqm

Total Residential floor area= 32110 sqm

1 Site
1 : 1000

nicol thomas

Rev	Date	Description
A	18.12.18	INcreases no. of units
B	13.05.19	Easements added
C	24.05.19	Drawing amended to clients requirements
D	24.05.19	Drawing amended to clients requirements

nicol thomas
architects project managers construction cost consultants CDM co-ordinators
Registered in England and Wales. Reg No. 2140639
Quality Assured to BS ENISO 9001:1994 Certificate Number GB 4723
Heyside House, Blackshaw Lane, Heyside, Royton, Oldham OL2 6NS
Also at Birmingham (Registered office)

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INDICATIVE



Client	Kirklees MBC		
Job	Soothill Lane/Mill Forrest Way, Batley		
Drawing title Site Layout			
Project number	M4492	PL03	Rev D
Scale	1 : 1000 @ A1		
Date	12/13/18		
Drawn by	KG	Checked by	GRF

24.05.19

APPENDIX C

TRICS Outputs – Residential Apartments

Calculation Reference: AUDIT-715001-190508-0546

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : C - FLATS PRIVATELY OWNED
 VEHICLES

Selected regions and areas:

03	SOUTH WEST	
	DC DORSET	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	2 days
05	EAST MIDLANDS	
	NT NOTTINGHAMSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	RI EAST RIDING OF YORKSHIRE	1 days
09	NORTH	
	CB CUMBRIA	2 days
	TV TEES VALLEY	1 days
11	SCOTLAND	
	EB CITY OF EDINBURGH	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
 Actual Range: 14 to 135 (units:)
 Range Selected by User: 6 to 215 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 05/06/18

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

Selected survey days:

Monday	2 days
Tuesday	4 days
Wednesday	3 days
Friday	1 days

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

Selected survey types:

Manual count	10 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	8
Edge of Town	2

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

Selected Location Sub Categories:

Residential Zone	5
No Sub Category	5

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

Secondary Filtering selection:

Use Class:

C3 10 days

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

Population within 1 mile:

1,001 to 5,000	2 days
10,001 to 15,000	3 days
20,001 to 25,000	2 days
25,001 to 50,000	3 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
125,001 to 250,000	2 days
250,001 to 500,000	4 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	7 days

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

Travel Plan:

No 10 days

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

PTAL Rating:

No PTAL Present 10 days

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

LIST OF SITES relevant to selection parameters

1	CA-03-C-02	BLOCK OF FLATS		CAMBRIDGESHIRE
	WESTFIELD ROAD			
	PETERBOROUGH			
	NETHERTON			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Number of dwellings:	44		
	Survey date: TUESDAY	18/10/11		Survey Type: MANUAL
2	CA-03-C-03	BLOCKS OF FLATS		CAMBRIDGESHIRE
	CROMWELL ROAD			
	CAMBRIDGE			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Number of dwellings:	82		
	Survey date: MONDAY	18/09/17		Survey Type: MANUAL
3	CB-03-C-02	BLOCK OF FLATS		CUMBRIA
	BRIDGE LANE			
	PENRITH			
	Edge of Town			
	No Sub Category			
	Total Number of dwellings:	35		
	Survey date: WEDNESDAY	11/06/14		Survey Type: MANUAL
4	CB-03-C-03	FLATS & BUNGALOWS		CUMBRIA
	LOUND STREET			
	KENDAL			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	33		
	Survey date: MONDAY	09/06/14		Survey Type: MANUAL
5	DC-03-C-02	FLATS IN BLOCKS		DORSET
	PALM COURT			
	WEYMOUTH			
	SPA ROAD			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	14		
	Survey date: FRIDAY	28/03/14		Survey Type: MANUAL
6	EB-03-C-01	BLOCKS OF FLATS		CITY OF EDINBURGH
	MYRESIDE ROAD			
	EDINBURGH			
	CRAIGLOCKHART			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	32		
	Survey date: TUESDAY	26/05/15		Survey Type: MANUAL
7	NT-03-C-01	HOUSES (SPLIT INTO FLATS)		NOTTINGHAMSHIRE
	LAWRENCE WAY			
	NOTTINGHAM			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Number of dwellings:	56		
	Survey date: TUESDAY	08/11/16		Survey Type: MANUAL
8	NT-03-C-02	HOUSES (SPLIT INTO FLATS)		NOTTINGHAMSHIRE
	CASTLE MARINA ROAD			
	NOTTINGHAM			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Number of dwellings:	135		
	Survey date: WEDNESDAY	09/11/16		Survey Type: MANUAL
9	RI-03-C-01	FLATS		EAST RIDING OF YORKSHIRE
	465 PRIORY ROAD			
	HULL			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	20		
	Survey date: TUESDAY	13/05/14		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

10 TV-03-C-02 FLATS TEES VALLEY
 ACKLAM ROAD
 MIDDLESBROUGH
 LINTHORPE
 Suburban Area (PPS6 Out of Centre)
 Residential Zone
 Total Number of dwellings: 85
 Survey date: WEDNESDAY 29/06/11 Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
ES-03-C-01	Rail station with 1km
SF-03-C-03	Rail station within 1km

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	54	0.065	10	54	0.146	10	54	0.211
08:00 - 09:00	10	54	0.062	10	54	0.226	10	54	0.288
09:00 - 10:00	10	54	0.099	10	54	0.131	10	54	0.230
10:00 - 11:00	10	54	0.075	10	54	0.082	10	54	0.157
11:00 - 12:00	10	54	0.080	10	54	0.073	10	54	0.153
12:00 - 13:00	10	54	0.078	10	54	0.067	10	54	0.145
13:00 - 14:00	10	54	0.075	10	54	0.090	10	54	0.165
14:00 - 15:00	10	54	0.101	10	54	0.110	10	54	0.211
15:00 - 16:00	10	54	0.118	10	54	0.078	10	54	0.196
16:00 - 17:00	10	54	0.116	10	54	0.086	10	54	0.202
17:00 - 18:00	10	54	0.211	10	54	0.101	10	54	0.312
18:00 - 19:00	10	54	0.129	10	54	0.093	10	54	0.222
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		1.209			1.283				2.492

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

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

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Parameter summary

Trip rate parameter range selected:	14 - 135 (units:)
Survey date range:	01/01/11 - 05/06/18
Number of weekdays (Monday-Friday):	10
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	2

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

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	54	0.009	10	54	0.009	10	54	0.018
08:00 - 09:00	10	54	0.002	10	54	0.002	10	54	0.004
09:00 - 10:00	10	54	0.006	10	54	0.004	10	54	0.010
10:00 - 11:00	10	54	0.002	10	54	0.004	10	54	0.006
11:00 - 12:00	10	54	0.006	10	54	0.006	10	54	0.012
12:00 - 13:00	10	54	0.002	10	54	0.000	10	54	0.002
13:00 - 14:00	10	54	0.000	10	54	0.002	10	54	0.002
14:00 - 15:00	10	54	0.007	10	54	0.007	10	54	0.014
15:00 - 16:00	10	54	0.004	10	54	0.004	10	54	0.008
16:00 - 17:00	10	54	0.002	10	54	0.002	10	54	0.004
17:00 - 18:00	10	54	0.004	10	54	0.004	10	54	0.008
18:00 - 19:00	10	54	0.004	10	54	0.004	10	54	0.008
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.048			0.048			0.096

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

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

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	54	0.002	10	54	0.002	10	54	0.004
08:00 - 09:00	10	54	0.002	10	54	0.002	10	54	0.004
09:00 - 10:00	10	54	0.002	10	54	0.002	10	54	0.004
10:00 - 11:00	10	54	0.000	10	54	0.000	10	54	0.000
11:00 - 12:00	10	54	0.002	10	54	0.002	10	54	0.004
12:00 - 13:00	10	54	0.002	10	54	0.002	10	54	0.004
13:00 - 14:00	10	54	0.000	10	54	0.000	10	54	0.000
14:00 - 15:00	10	54	0.002	10	54	0.000	10	54	0.002
15:00 - 16:00	10	54	0.002	10	54	0.002	10	54	0.004
16:00 - 17:00	10	54	0.002	10	54	0.002	10	54	0.004
17:00 - 18:00	10	54	0.000	10	54	0.000	10	54	0.000
18:00 - 19:00	10	54	0.000	10	54	0.000	10	54	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.016			0.014			0.030

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

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

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	54	0.000	10	54	0.000	10	54	0.000
08:00 - 09:00	10	54	0.000	10	54	0.000	10	54	0.000
09:00 - 10:00	10	54	0.000	10	54	0.000	10	54	0.000
10:00 - 11:00	10	54	0.000	10	54	0.000	10	54	0.000
11:00 - 12:00	10	54	0.000	10	54	0.000	10	54	0.000
12:00 - 13:00	10	54	0.000	10	54	0.000	10	54	0.000
13:00 - 14:00	10	54	0.000	10	54	0.000	10	54	0.000
14:00 - 15:00	10	54	0.002	10	54	0.002	10	54	0.004
15:00 - 16:00	10	54	0.000	10	54	0.000	10	54	0.000
16:00 - 17:00	10	54	0.002	10	54	0.002	10	54	0.004
17:00 - 18:00	10	54	0.002	10	54	0.002	10	54	0.004
18:00 - 19:00	10	54	0.000	10	54	0.000	10	54	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.006			0.006			0.012

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	54	0.006	10	54	0.011	10	54	0.017
08:00 - 09:00	10	54	0.004	10	54	0.019	10	54	0.023
09:00 - 10:00	10	54	0.006	10	54	0.007	10	54	0.013
10:00 - 11:00	10	54	0.002	10	54	0.004	10	54	0.006
11:00 - 12:00	10	54	0.007	10	54	0.006	10	54	0.013
12:00 - 13:00	10	54	0.004	10	54	0.000	10	54	0.004
13:00 - 14:00	10	54	0.000	10	54	0.002	10	54	0.002
14:00 - 15:00	10	54	0.006	10	54	0.004	10	54	0.010
15:00 - 16:00	10	54	0.007	10	54	0.006	10	54	0.013
16:00 - 17:00	10	54	0.009	10	54	0.002	10	54	0.011
17:00 - 18:00	10	54	0.006	10	54	0.004	10	54	0.010
18:00 - 19:00	10	54	0.007	10	54	0.002	10	54	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.064			0.067			0.131

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

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

Appendix D

A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane

LinSig Outputs

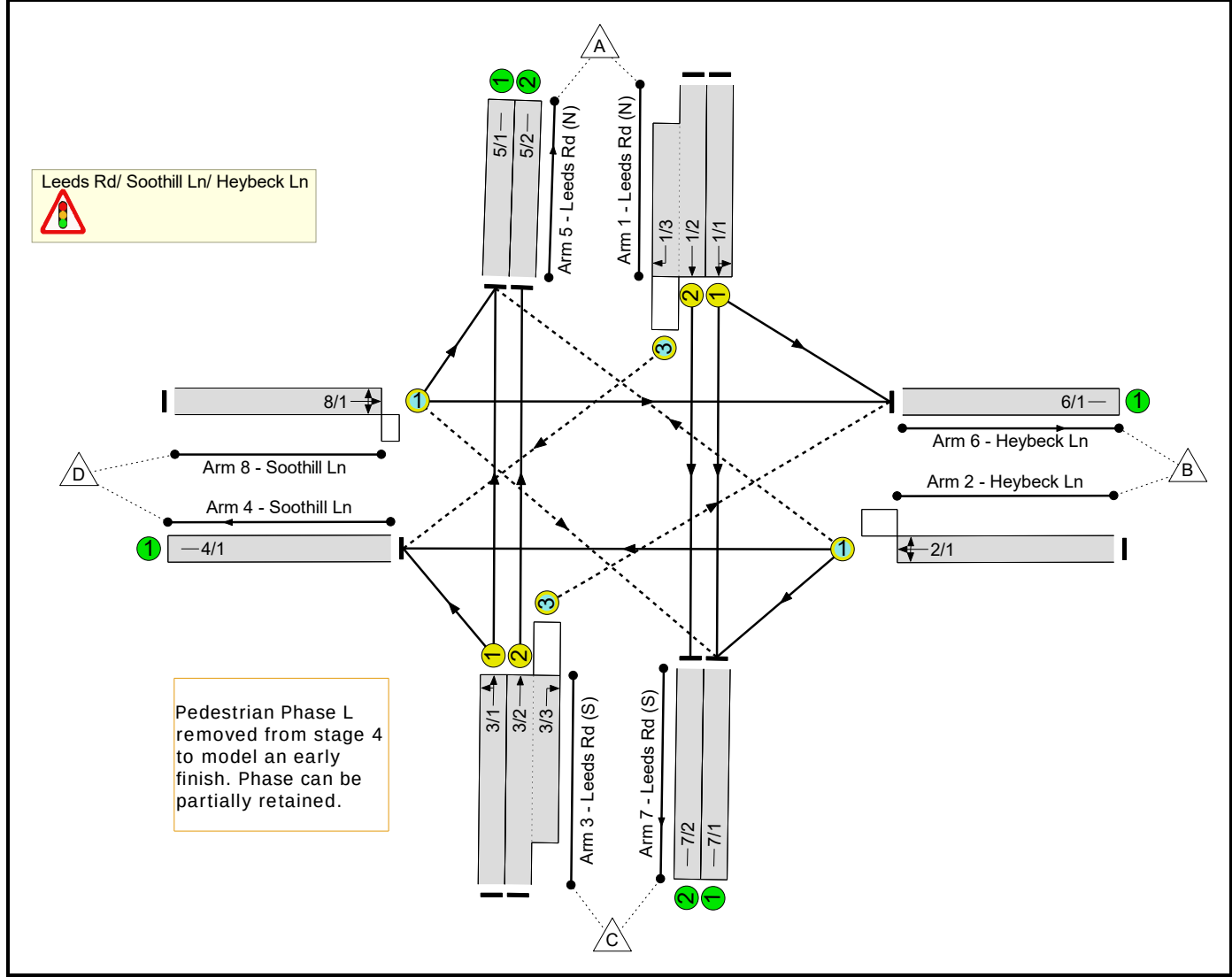
Full Input Data And Results

Full Input Data And Results

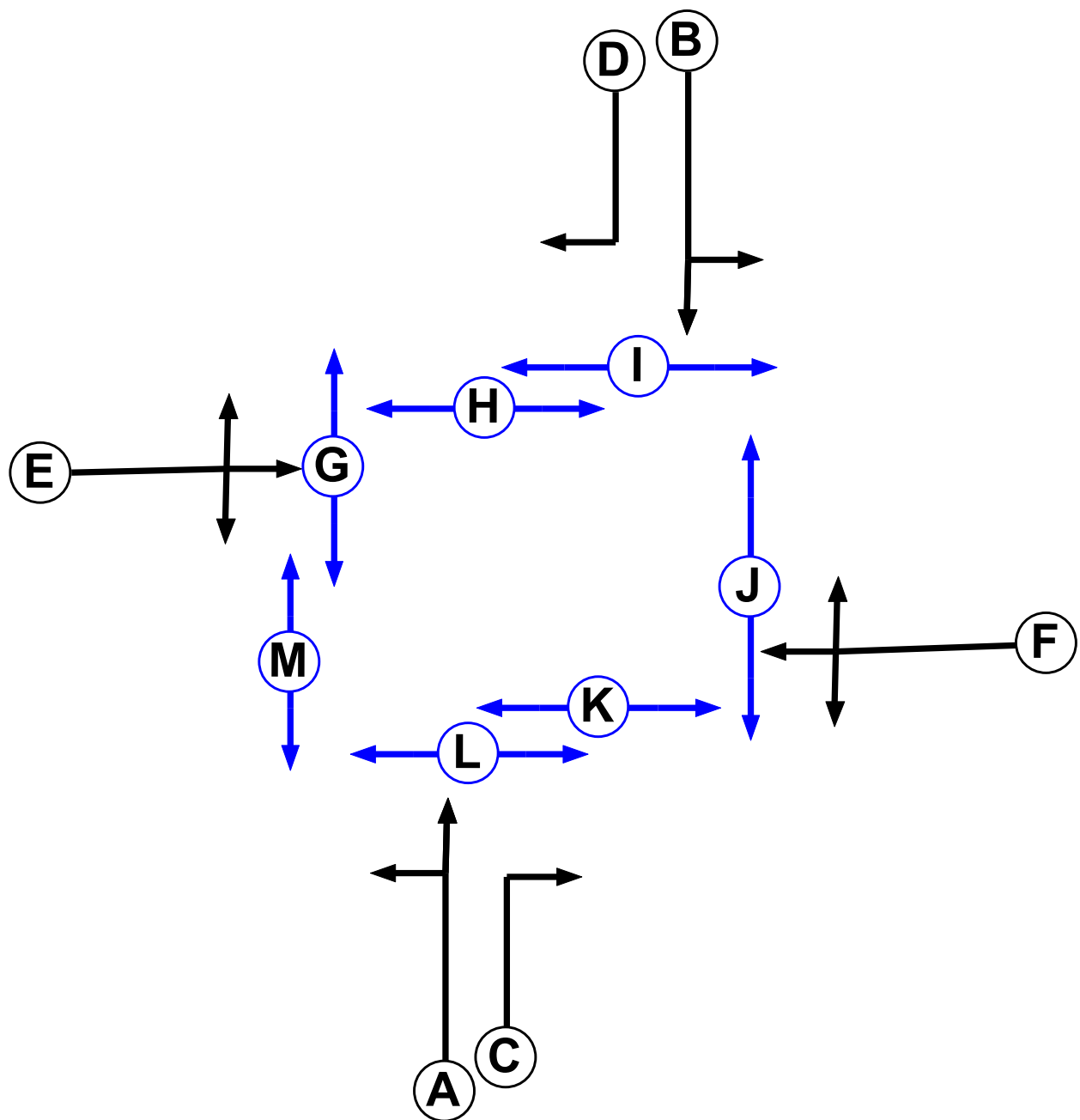
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Leeds Rd - Soothill Ln - Heybeck Ln v1.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		4	4
H	Pedestrian		5	5
I	Pedestrian		6	6
J	Pedestrian		8	8
K	Pedestrian		5	5
L	Pedestrian		6	6
M	Pedestrian		6	6

Phase Intergreens Matrix

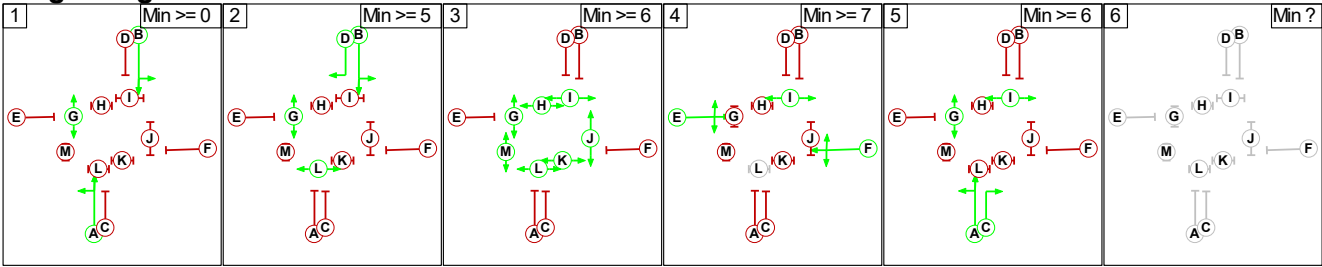
	Starting Phase												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Terminating Phase	A	-	-	6	7	6	-	10	-	-	-	6	9
	B	-	-	6	6	7	-	-	6	9	10	-	-
	C	-	8	-	6	9	-	-	-	12	10	6	-
	D	8	-	6	-	8	7	-	10	6	-	-	13
	E	5	6	5	5	-	5	8	-	8	10	-	-
	F	6	5	5	5	-	-	9	-	5	8	-	9
	G	-	-	-	-	5	-	-	-	-	-	-	-
	H	7	-	-	-	7	7	-	-	-	-	-	-
	I	-	10	-	10	-	-	-	-	-	-	-	-
	J	-	12	12	-	12	12	-	-	-	-	-	-
	K	-	7	-	-	7	7	-	-	-	-	-	-
	L	10	-	10	-	-	-	-	-	-	-	-	-
	M	7	-	-	7	-	7	-	-	-	-	-	-

Phases in Stage

Stage No.	Phases in Stage
1	A B G
2	B D G L
3	G H I J K L M
4	E F I
5	A C G I
6	

Full Input Data And Results

Stage Diagram



Phase Delays

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

Prohibited Stage Change

	To Stage							
From Stage		1	2	3	4	5	6	
	1			6	10	7	6	X
	2	10		13	8	10		X
	3	12	12		12	12		X
	4	10	10	10		6		X
	5	10	10	12	9			X
	6	X	X	X	X	X		

Full Input Data And Results

Give-Way Lane Input Data

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln											
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)
1/3 (Leeds Rd (N))	4/1 (Right)	1439	0	3/1	1.09	All	3.00	-	0.50	3	3.00
				3/2	1.09	All					
2/1 (Heybeck Ln)	5/1 (Right)	1439	0	8/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	2.00	0.50	2	2.00
3/3 (Leeds Rd (S))	6/1 (Right)	1439	0	1/1	1.09	All	3.00	-	0.50	3	3.00
				1/2	1.09	All					
8/1 (Soothill Ln)	7/1 (Right)	1439	0	2/1	1.09	To 4/1 (Ahead) To 7/1 (Left)	1.00	1.00	0.50	1	1.00

Full Input Data And Results

Lane Input Data

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln												
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 (Leeds Rd (N))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	13.50
											Arm 7 Ahead	Inf
1/2 (Leeds Rd (N))	U	B	2	3	60.0	Geom	-	3.00	0.00	N	Arm 7 Ahead	Inf
1/3 (Leeds Rd (N))	O	D	2	3	13.9	Geom	-	3.00	0.00	Y	Arm 4 Right	65.00
2/1 (Heybeck Ln)	O	F	2	3	60.0	Geom	-	4.25	0.00	Y	Arm 4 Ahead	Inf
											Arm 5 Right	21.00
3/1 (Leeds Rd (S))	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Left	7.50
											Arm 4 Left	20.50
3/2 (Leeds Rd (S))	U	A	2	3	60.0	Geom	-	3.25	0.00	N	Arm 5 Ahead	Inf
											Arm 4 Left	20.50
3/3 (Leeds Rd (S))	O	C	2	3	13.9	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
4/1 (Soothill Ln)	U		2	3	60.0	Inf	-	-	-	-	Arm 6 Right	30.00
5/1 (Leeds Rd (N))	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2 (Leeds Rd (N))	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Heybeck Ln)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Leeds Rd (S))	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2 (Leeds Rd (S))	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Soothill Ln)	O	E	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 5 Left	17.00
											Arm 6 Ahead	Inf
											Arm 7 Right	18.00

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: 'Survey AM'	08:00	09:00	01:00	
8: 'Survey PM'	17:00	18:00	01:00	
13: '2023 base + comm dev AM'	08:00	09:00	01:00	F1+F3+F5+F9
14: '2023 base + comm dev PM'	17:00	18:00	01:00	F2+F4+F6+F10
15: '2023 base + comm dev + dev AM'	08:00	09:00	01:00	F1+F3+F5+F9+F11
16: '2023 base + comm dev + dev PM'	17:00	18:00	01:00	F2+F4+F6+F10+F12

Scenario 1: 'Survey AM' (FG7: 'Survey AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	32	781	161	974
	B	19	0	128	84	231
	C	1192	108	0	30	1330
	D	220	121	32	0	373
	Tot.	1431	261	941	275	2908

Traffic Lane Flows

Lane	Scenario 1: Survey AM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	381
1/2 (with short)	593(In) 432(Out)
1/3 (short)	161
2/1	231
3/1	585
3/2 (with short)	745(In) 637(Out)
3/3 (short)	108
4/1	275
5/1	794
5/2	637
6/1	261
7/1	509
7/2	432
8/1	373

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	8.4 %	1897	1897
				Arm 7 Ahead	Inf	91.6 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	36.4 %	1827	1827
				Arm 5 Right	21.00	8.2 %		
				Arm 7 Left	7.50	55.4 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	20.50	5.1 %	1933	1933
				Arm 5 Ahead	Inf	94.9 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	59.0 %	1902	1902
				Arm 6 Ahead	Inf	32.4 %		
				Arm 7 Right	18.00	8.6 %		

Scenario 2: 'Survey PM' (FG8: 'Survey PM', Plan 2: 'Network Control Plan 2')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	41	1218	218	1477
	B	22	0	75	76	173
	C	989	130	0	44	1163
	D	222	116	37	0	375
	Tot.	1233	287	1330	338	3188

Traffic Lane Flows

Lane	Scenario 2: Survey PM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	603
1/2 (with short)	874(In) 656(Out)
1/3 (short)	218
2/1	173
3/1	490
3/2 (with short)	673(In) 543(Out)
3/3 (short)	130
4/1	338
5/1	690
5/2	543
6/1	287
7/1	674
7/2	656
8/1	375

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	6.8 %	1901	1901
				Arm 7 Ahead	Inf	93.2 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	43.9 %	1862	1862
				Arm 5 Right	21.00	12.7 %		
				Arm 7 Left	7.50	43.4 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	20.50	9.0 %	1927	1927
				Arm 5 Ahead	Inf	91.0 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	59.2 %	1900	1900
				Arm 6 Ahead	Inf	30.9 %		
				Arm 7 Right	18.00	9.9 %		

Scenario 3: '2023 'Without Development' AM' (FG13: '2023 base + comm dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	36	957	173	1166
	B	23	0	179	105	307
	C	1442	137	0	35	1614
	D	236	137	39	0	412
	Tot.	1701	310	1175	313	3499

Traffic Lane Flows

Lane	Scenario 3: 2023 'Without Development' AM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	477
1/2 (with short)	689(In) 516(Out)
1/3 (short)	173
2/1	307
3/1	714
3/2 (with short)	900(In) 763(Out)
3/3 (short)	137
4/1	313
5/1	938
5/2	763
6/1	310
7/1	659
7/2	516
8/1	412

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	7.5 %	1899	1899
				Arm 7 Ahead	Inf	92.5 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	34.2 %	1818	1818
				Arm 5 Right	21.00	7.5 %		
				Arm 7 Left	7.50	58.3 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	20.50	4.9 %	1933	1933
				Arm 5 Ahead	Inf	95.1 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	57.3 %	1904	1904
				Arm 6 Ahead	Inf	33.3 %		
				Arm 7 Right	18.00	9.5 %		

Scenario 4: '2023 'Without Development' PM' (FG14: '2023 base + comm dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

		Destination				
Origin		A	B	C	D	Tot.
	A	0	49	1422	234	1705
	B	27	0	95	89	211
	C	1190	172	0	52	1414
	D	238	138	43	0	419
	Tot.	1455	359	1560	375	3749

Traffic Lane Flows

Lane	Scenario 4: 2023 'Without Development' PM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	721
1/2 (with short)	984(In) 750(Out)
1/3 (short)	234
2/1	211
3/1	604
3/2 (with short)	810(In) 638(Out)
3/3 (short)	172
4/1	375
5/1	817
5/2	638
6/1	359
7/1	810
7/2	750
8/1	419

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	6.8 %	1901	1901
				Arm 7 Ahead	Inf	93.2 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	42.2 %	1856	1856
				Arm 5 Right	21.00	12.8 %		
				Arm 7 Left	7.50	45.0 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	20.50	8.6 %	1928	1928
				Arm 5 Ahead	Inf	91.4 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	56.8 %	1903	1903
				Arm 6 Ahead	Inf	32.9 %		
				Arm 7 Right	18.00	10.3 %		

Scenario 5: '2023 'With Development' AM' (FG15: '2023 base + comm dev + dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	36	962	185	1183
	B	23	0	179	105	307
	C	1457	137	0	49	1643
	D	269	137	76	0	482
	Tot.	1749	310	1217	339	3615

Traffic Lane Flows

Lane	Scenario 5: 2023 'With Development' AM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	479
1/2 (with short)	704(In) 519(Out)
1/3 (short)	185
2/1	307
3/1	736
3/2 (with short)	907(In) 770(Out)
3/3 (short)	137
4/1	339
5/1	979
5/2	770
6/1	310
7/1	698
7/2	519
8/1	482

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	7.5 %	1899	1899
				Arm 7 Ahead	Inf	92.5 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	34.2 %	1818	1818
				Arm 5 Right	21.00	7.5 %		
				Arm 7 Left	7.50	58.3 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	20.50	6.7 %	1931	1931
				Arm 5 Ahead	Inf	93.3 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	55.8 %		
				Arm 6 Ahead	Inf	28.4 %		
				Arm 7 Right	18.00	15.8 %		

Scenario 6: '2023 'With Development' PM' (FG16: '2023 base + comm dev + dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

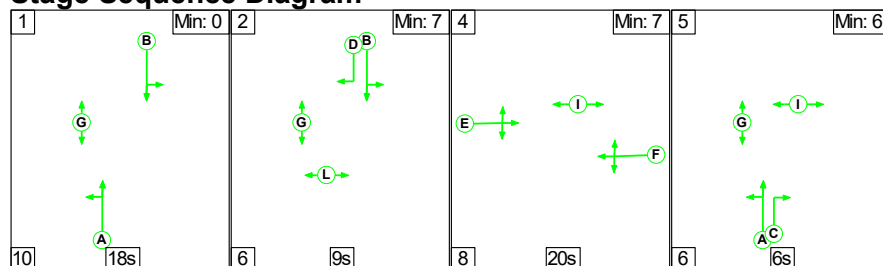
	Destination					
		A	B	C	D	Tot.
Origin	A	0	49	1435	264	1748
	B	27	0	95	89	211
	C	1197	172	0	85	1454
	D	254	138	61	0	453
	Tot.	1478	359	1591	438	3866

Traffic Lane Flows

Lane	Scenario 6: 2023 'With Development' PM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	731
1/2 (with short)	1017(In) 753(Out)
1/3 (short)	264
2/1	211
3/1	626
3/2 (with short)	828(In) 656(Out)
3/3 (short)	172
4/1	438
5/1	822
5/2	656
6/1	359
7/1	838
7/2	753
8/1	453

Lane Saturation Flows

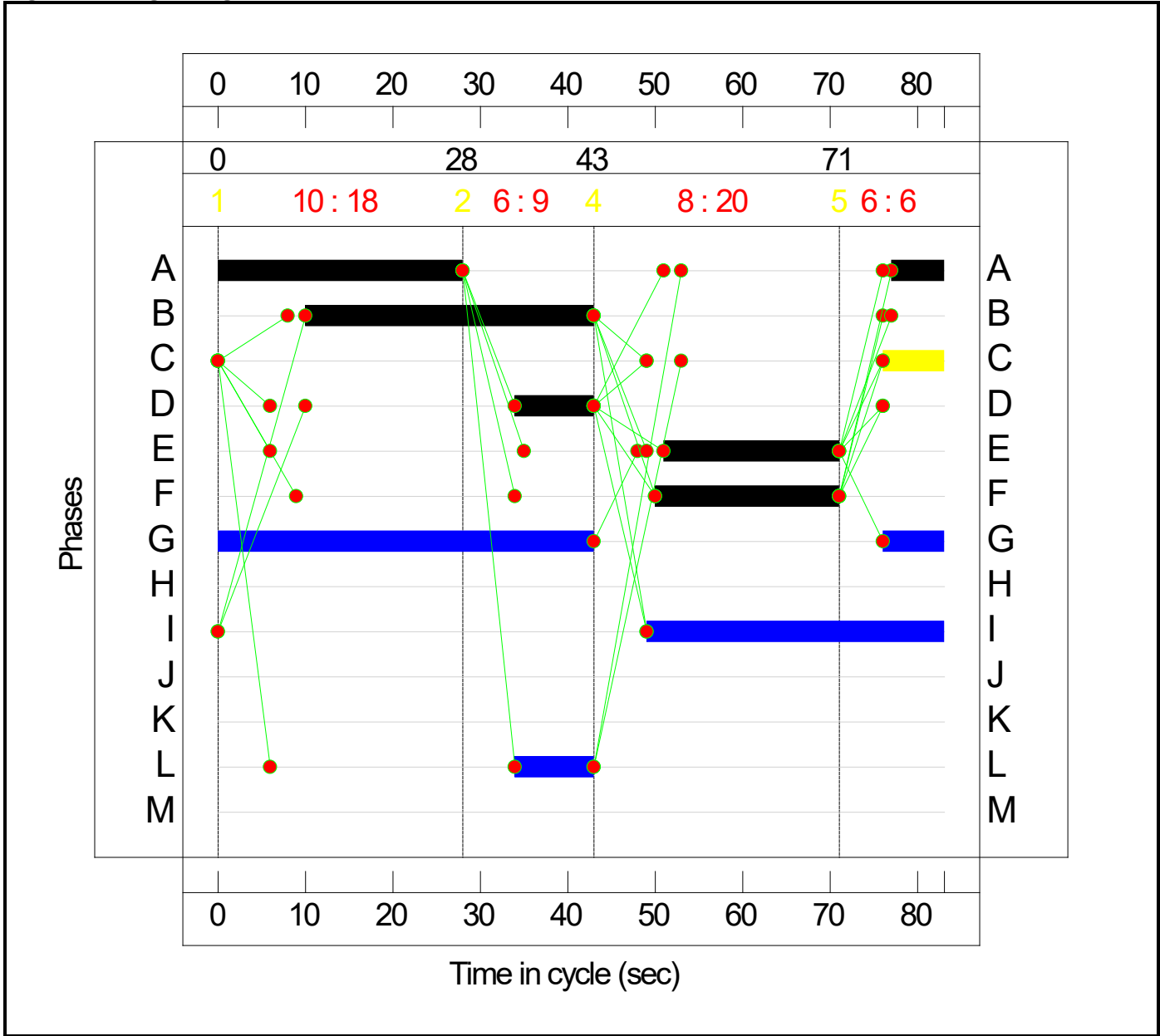
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	6.7 %	1901	1901
				Arm 7 Ahead	Inf	93.3 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	42.2 %	1856	1856
				Arm 5 Right	21.00	12.8 %		
				Arm 7 Left	7.50	45.0 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	20.50	13.6 %	1921	1921
				Arm 5 Ahead	Inf	86.4 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	56.1 %	1900	1900
				Arm 6 Ahead	Inf	30.5 %		
				Arm 7 Right	18.00	13.5 %		

Scenario 1: 'Survey AM' (FG7: 'Survey AM', Plan 2: 'Network Control Plan 2')**Stage Sequence Diagram**

Stage Timings

Stage	1	2	4	5
Duration	18	9	20	6
Change Point	0	28	43	71

Signal Timings Diagram



Full Input Data And Results

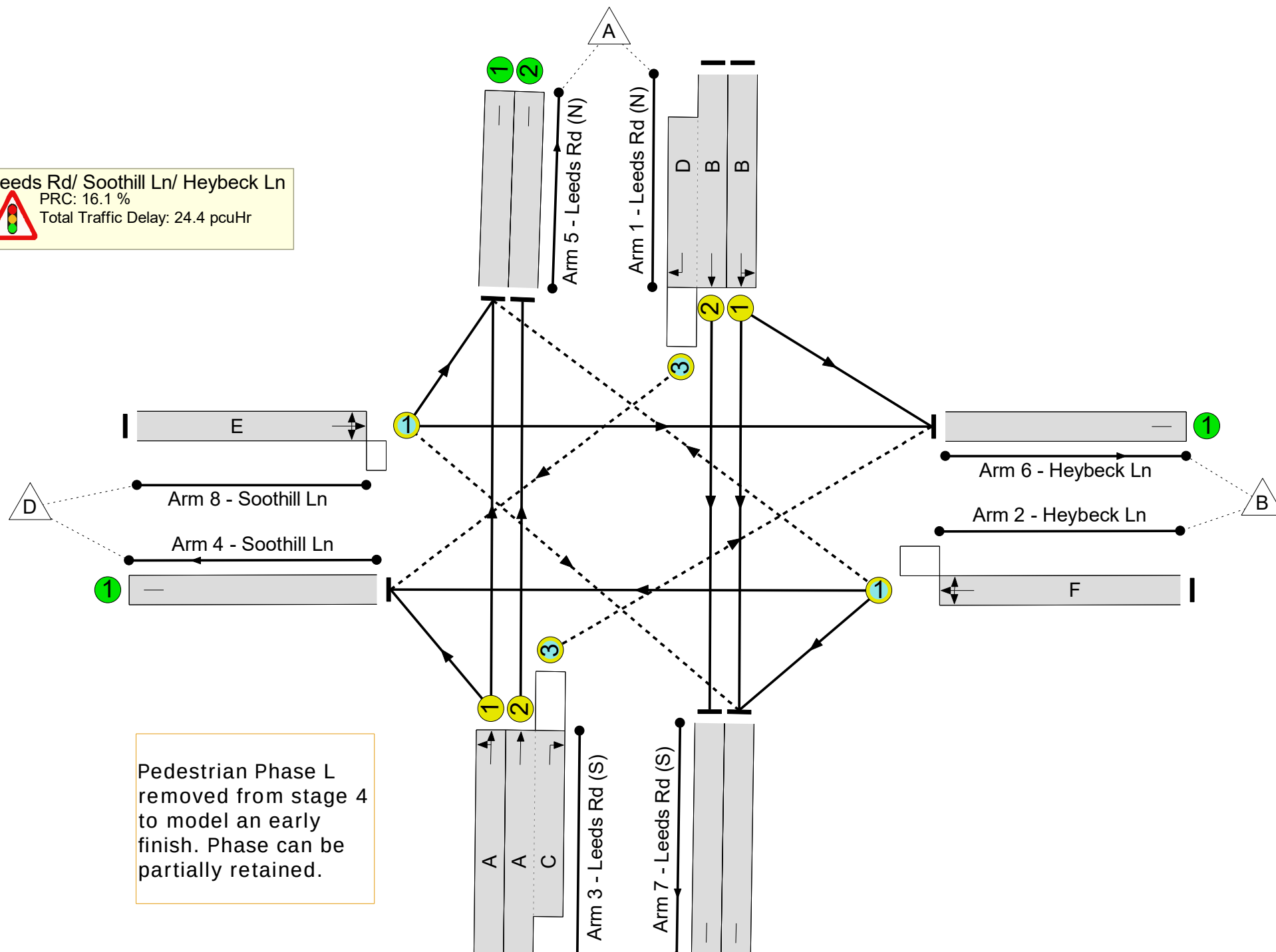
Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: 16.1 %

Total Traffic Delay: 24.4 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	77.5%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	77.5%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	33	-	381	1897	777	49.0%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	33:9	-	593	2055:1872	781+226	55.3 : 71.4%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	21	-	231	1827	484	47.7%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	34	-	585	1933	815	71.8%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	34:7	-	745	2080:1848	837+142	76.1 : 76.1%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	275	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	794	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	637	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	261	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	509	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	432	Inf	Inf	0.0%
8/1	Soothill Ln Left Ahead Right	O	N/A	N/A	E		1	20	-	373	1902	481	77.5%

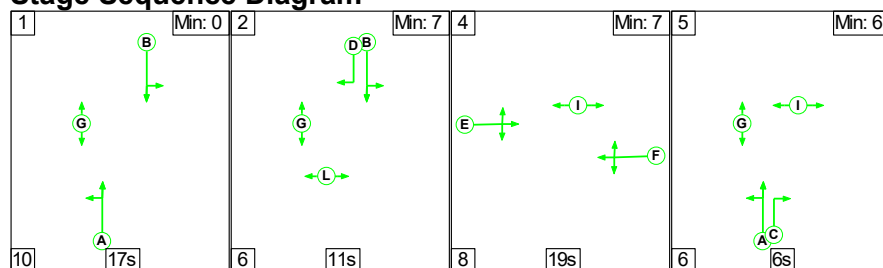
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	51	259	10	18.2	6.2	0.1	24.4	-	-	-	-
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	51	259	10	18.2	6.2	0.1	24.4	-	-	-	-
1/1	381	381	-	-	-	1.9	0.5	-	2.4	22.6	6.5	0.5	6.9
1/2+1/3	593	593	0	155	6	3.8	0.7	0.0	4.5	27.2	7.4	0.7	8.2
2/1	231	231	19	0	0	1.6	0.5	0.1	2.2	33.6	4.4	0.5	4.9
3/1	585	585	-	-	-	3.2	1.3	-	4.5	27.6	11.1	1.3	12.3
3/2+3/3	745	745	0	104	4	4.6	1.6	0.0	6.2	29.9	12.2	1.6	13.8
4/1	275	275	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	794	794	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	637	637	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	261	261	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	509	509	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	432	432	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	373	373	32	0	0	3.0	1.7	0.0	4.7	45.2	8.0	1.7	9.6
C1 PRC for Signalled Lanes (%): 16.1 Total Delay for Signalled Lanes (pcuHr): 24.41 Cycle Time (s): 83 PRC Over All Lanes (%): 16.1 Total Delay Over All Lanes(pcuHr): 24.41													

Full Input Data And Results

Scenario 2: 'Survey PM' (FG8: 'Survey PM', Plan 2: 'Network Control Plan 2')

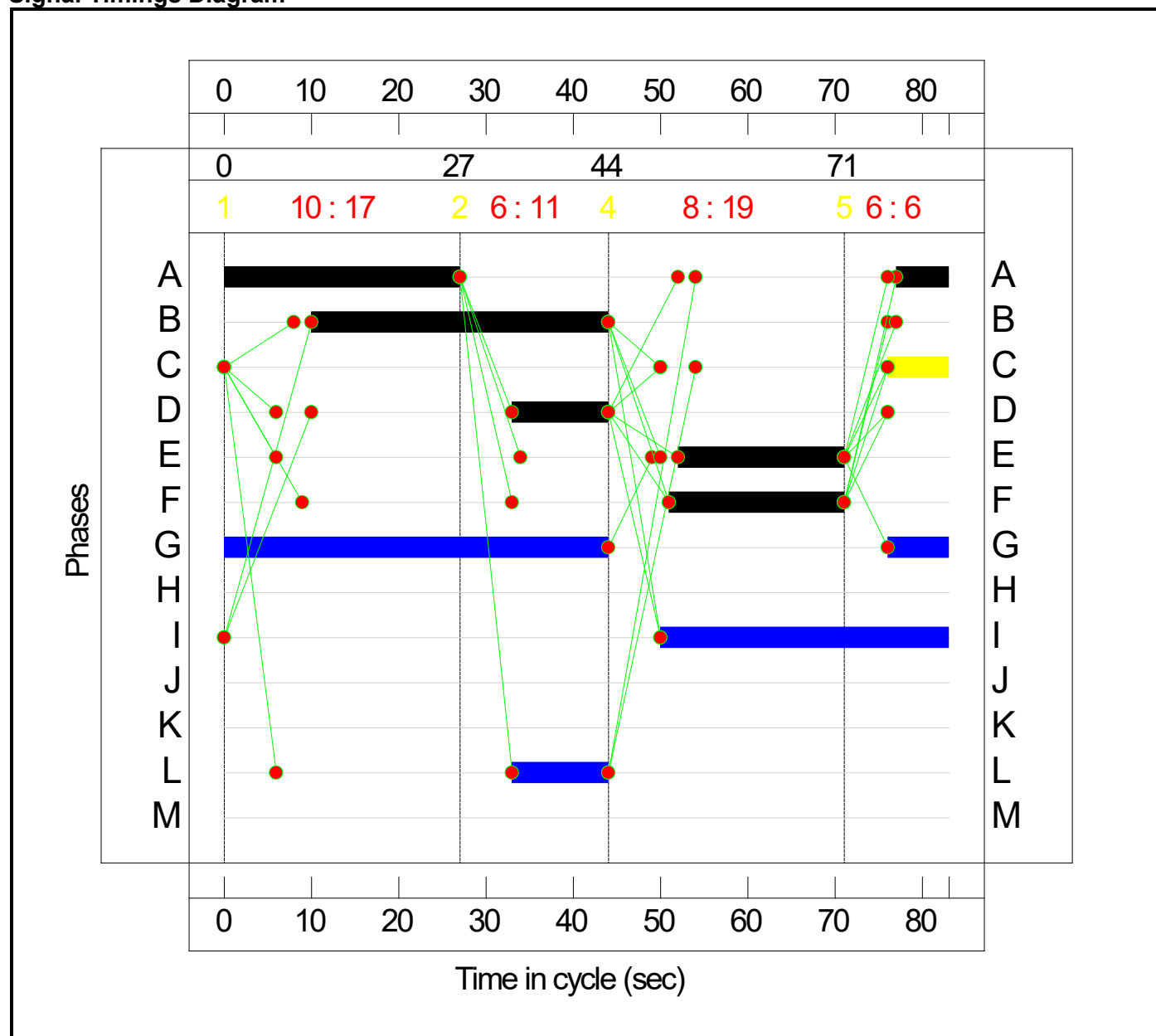
Stage Sequence Diagram



Stage Timings

Stage	1	2	4	5
Duration	17	11	19	6
Change Point	0	27	44	71

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

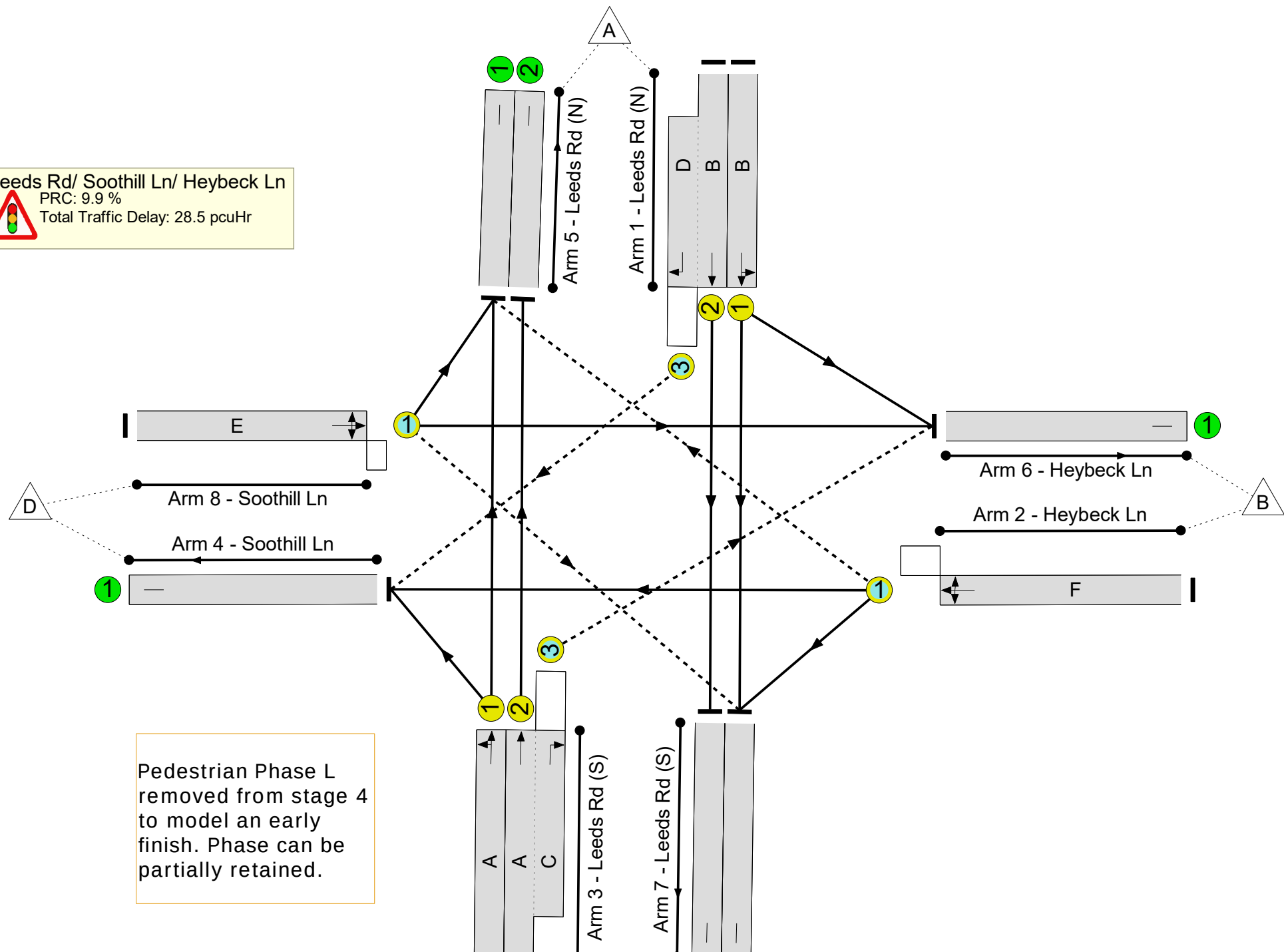
Full Input Data And Results

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: 9.9 %

Total Traffic Delay: 28.5 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	81.9%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	81.9%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	34	-	603	1901	802	75.2%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	34:11	-	874	2055:1872	805+267	81.5 : 81.5%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	20	-	173	1862	468	36.9%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	33	-	490	1927	789	62.1%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	33:7	-	673	2080:1848	803+178	67.6 : 73.0%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	338	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	690	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	543	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	674	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	656	Inf	Inf	0.0%
8/1	Soothill Ln Left Ahead Right	O	N/A	N/A	E		1	19	-	375	1900	458	81.9%

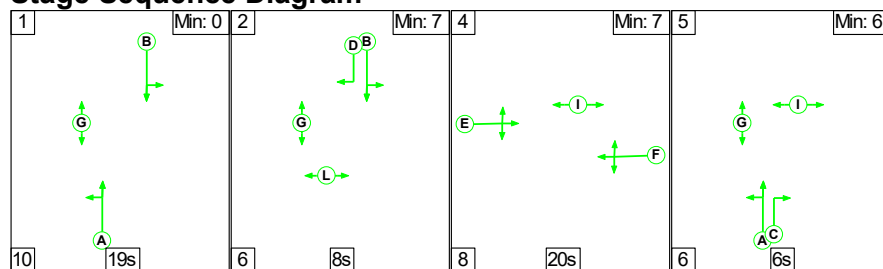
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 3: '2023 'Without Development' AM' (FG13: '2023 base + comm dev AM', Plan 2: 'Network Control Plan 2')

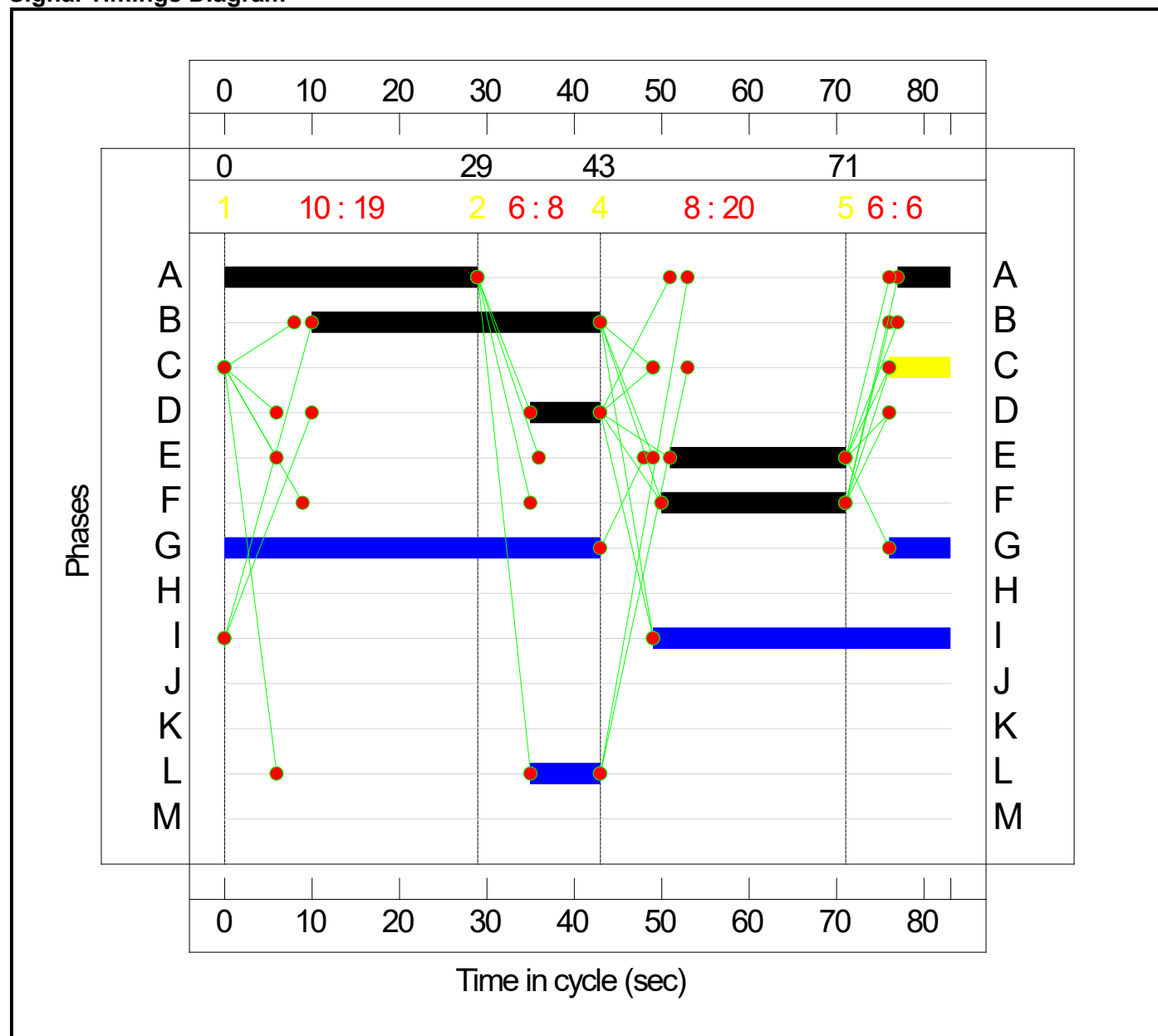
Stage Sequence Diagram



Stage Timings

Stage	1	2	4	5
Duration	19	8	20	6
Change Point	0	29	43	71

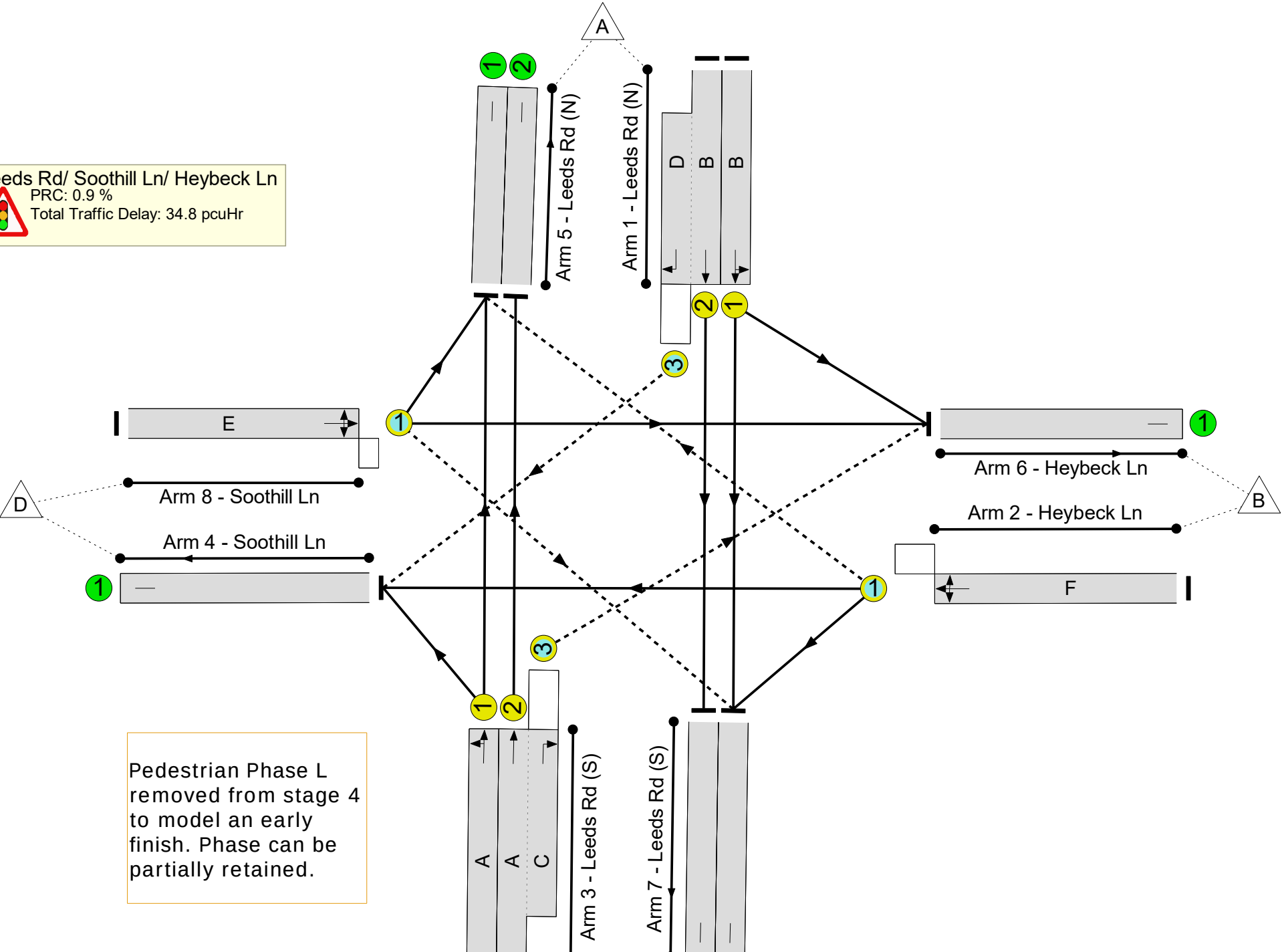
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln
PRC: 0.9 %
Total Traffic Delay: 34.8 pcuHr



Pedestrian Phase L
removed from stage 4
to model an early
finish. Phase can be
partially retained.

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	89.2%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	89.2%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	33	-	477	1899	778	61.3%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	33:8	-	689	2055:1872	786+203	65.6 : 85.2%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	21	-	307	1818	482	63.7%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	35	-	714	1933	838	85.2%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	35:7	-	900	2080:1848	856+166	89.2 : 82.5%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	313	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	938	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	763	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	659	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	516	Inf	Inf	0.0%
8/1	Soothill Ln Left Ahead Right	O	N/A	N/A	E		1	20	-	412	1904	480	85.8%

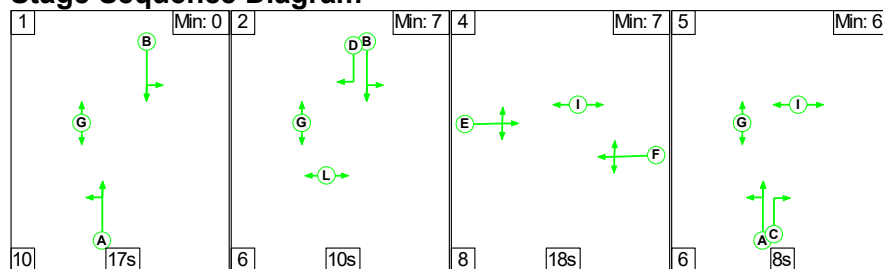
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 4: '2023 'Without Development' PM' (FG14: '2023 base + comm dev PM', Plan 2: 'Network Control Plan 2')

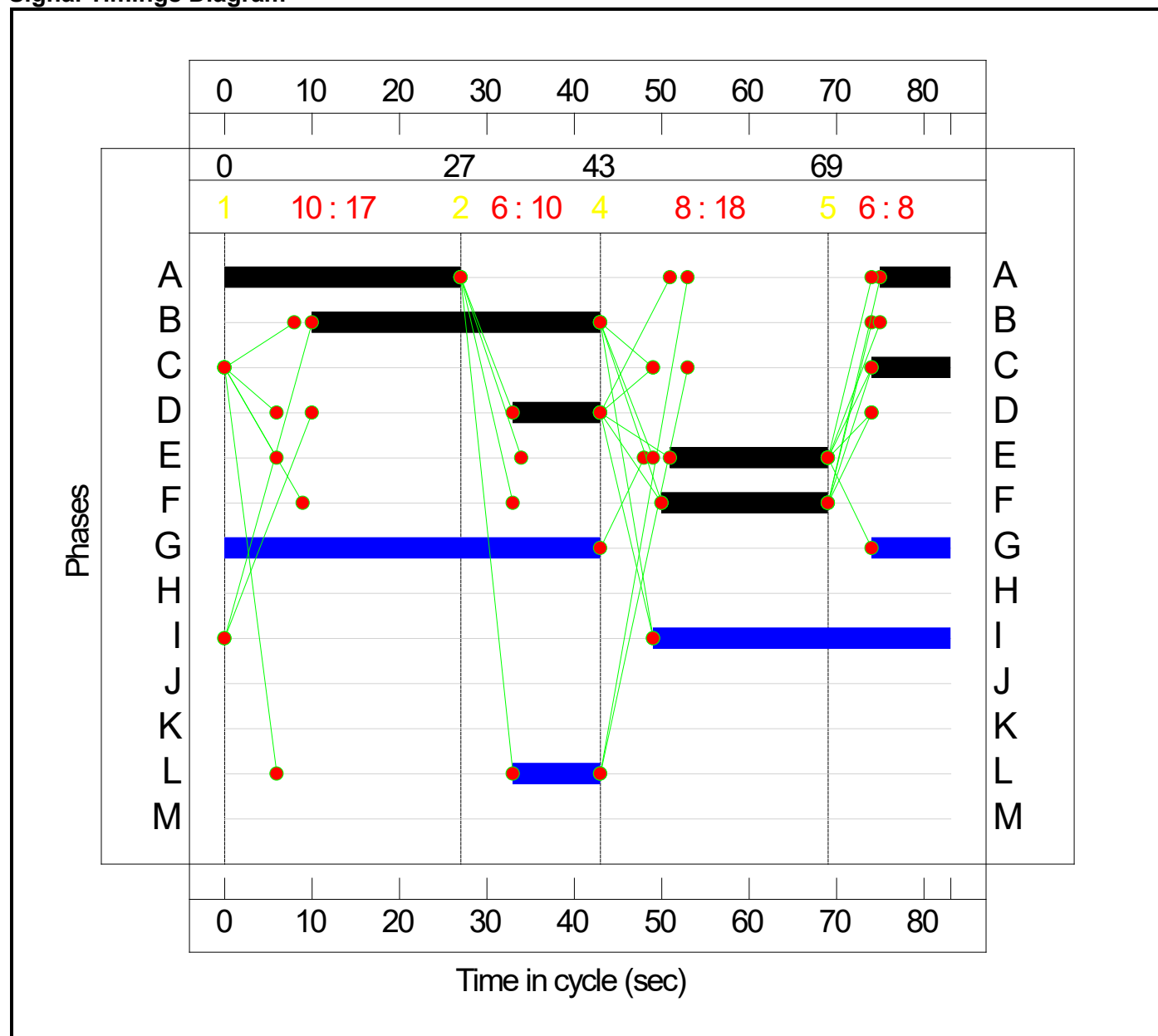
Stage Sequence Diagram



Stage Timings

Stage	1	2	4	5
Duration	17	10	18	8
Change Point	0	27	43	69

Signal Timings Diagram



Full Input Data And Results

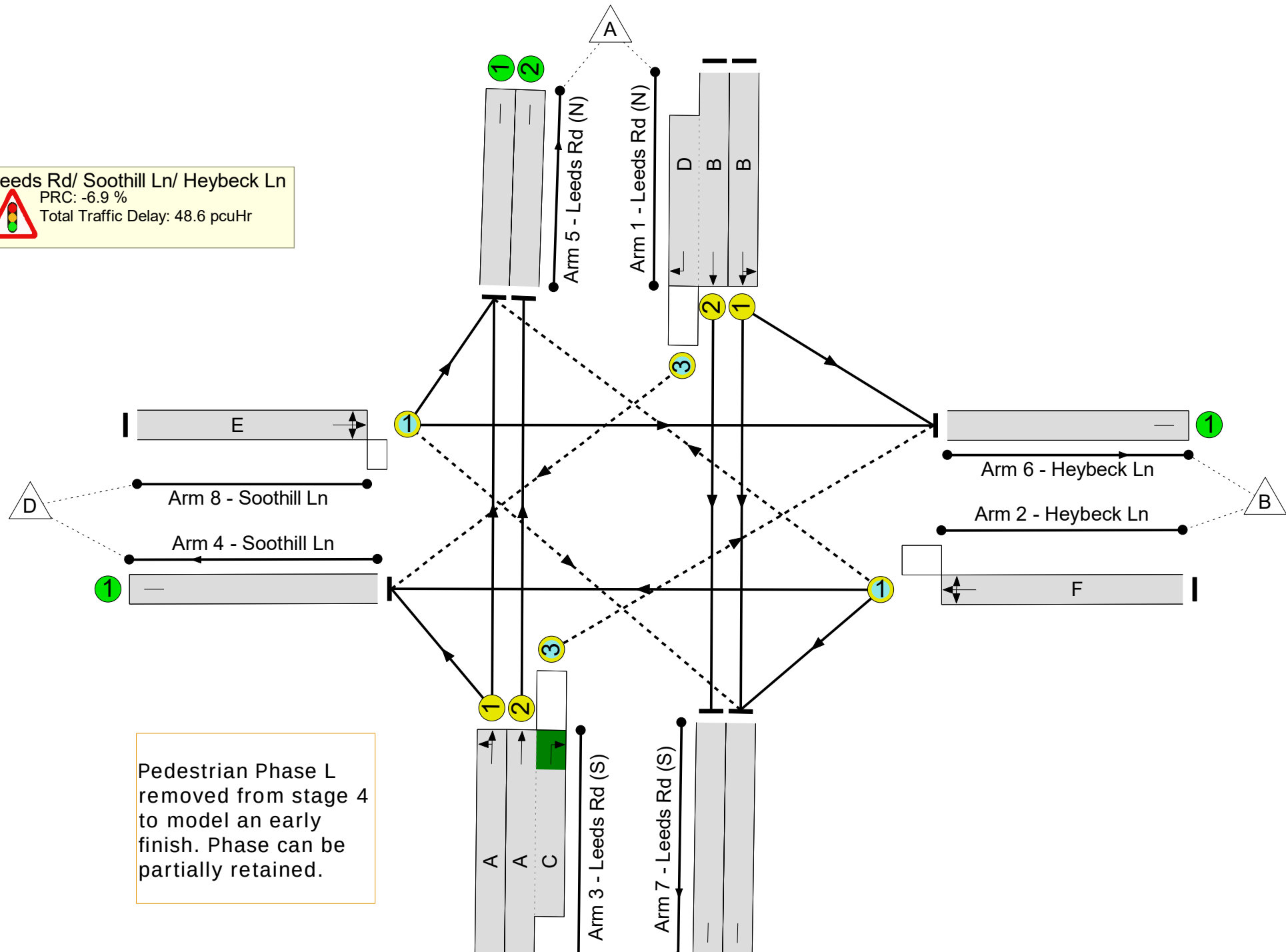
Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: -6.9 %

Total Traffic Delay: 48.6 pcuHr



Full Input Data And Results

Network Results

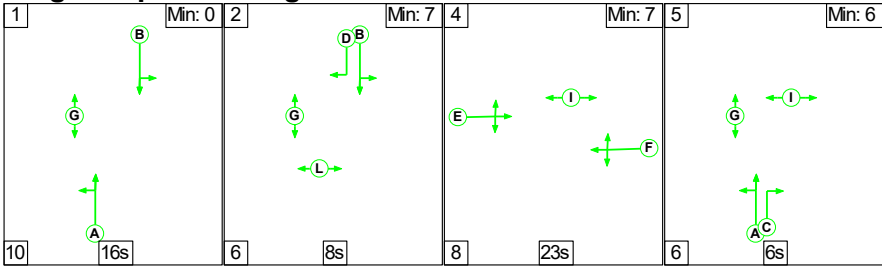
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	96.2%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	96.2%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	33	-	721	1901	779	92.6%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	33:10	-	984	2055:1872	790+246	95.0 : 95.0%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	19	-	211	1856	447	47.2%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	35	-	604	1928	836	72.2%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	35:9	-	810	2080:1848	836+200	76.3 : 85.8%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	375	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	817	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	638	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	359	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	810	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	750	Inf	Inf	0.0%
8/1	Soothill Ln Left Ahead Right	O	N/A	N/A	E		1	18	-	419	1903	436	96.2%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	54	314	108	25.4	23.0	0.1	48.6	-	-	-	-
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	54	314	108	25.4	23.0	0.1	48.6	-	-	-	-
1/1	721	721	-	-	-	4.7	5.3	-	9.9	49.7	15.6	5.3	20.9
1/2+1/3	984	984	0	180	54	7.1	7.4	0.0	14.4	52.8	17.2	7.4	24.5
2/1	211	211	11	0	16	1.6	0.4	0.1	2.1	36.4	4.2	0.4	4.6
3/1	604	604	-	-	-	3.3	1.3	-	4.5	27.0	11.4	1.3	12.7
3/2+3/3	810	810	0	134	38	5.1	1.8	0.0	6.9	30.7	11.9	1.8	13.6
4/1	375	375	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	817	817	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	638	638	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	359	359	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	810	810	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	750	750	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	419	419	43	0	0	3.7	6.9	0.0	10.6	91.1	9.5	6.9	16.4
C1 PRC for Signalled Lanes (%): -6.9 Total Delay for Signalled Lanes (pcuHr): 48.56 Cycle Time (s): 83 PRC Over All Lanes (%): -6.9 Total Delay Over All Lanes(pcuHr): 48.56													

Full Input Data And Results
Scenario 5: '2023 'With Development' AM' (FG15: '2023 base + comm dev + dev AM', Plan 2: 'Network Control Plan 2')

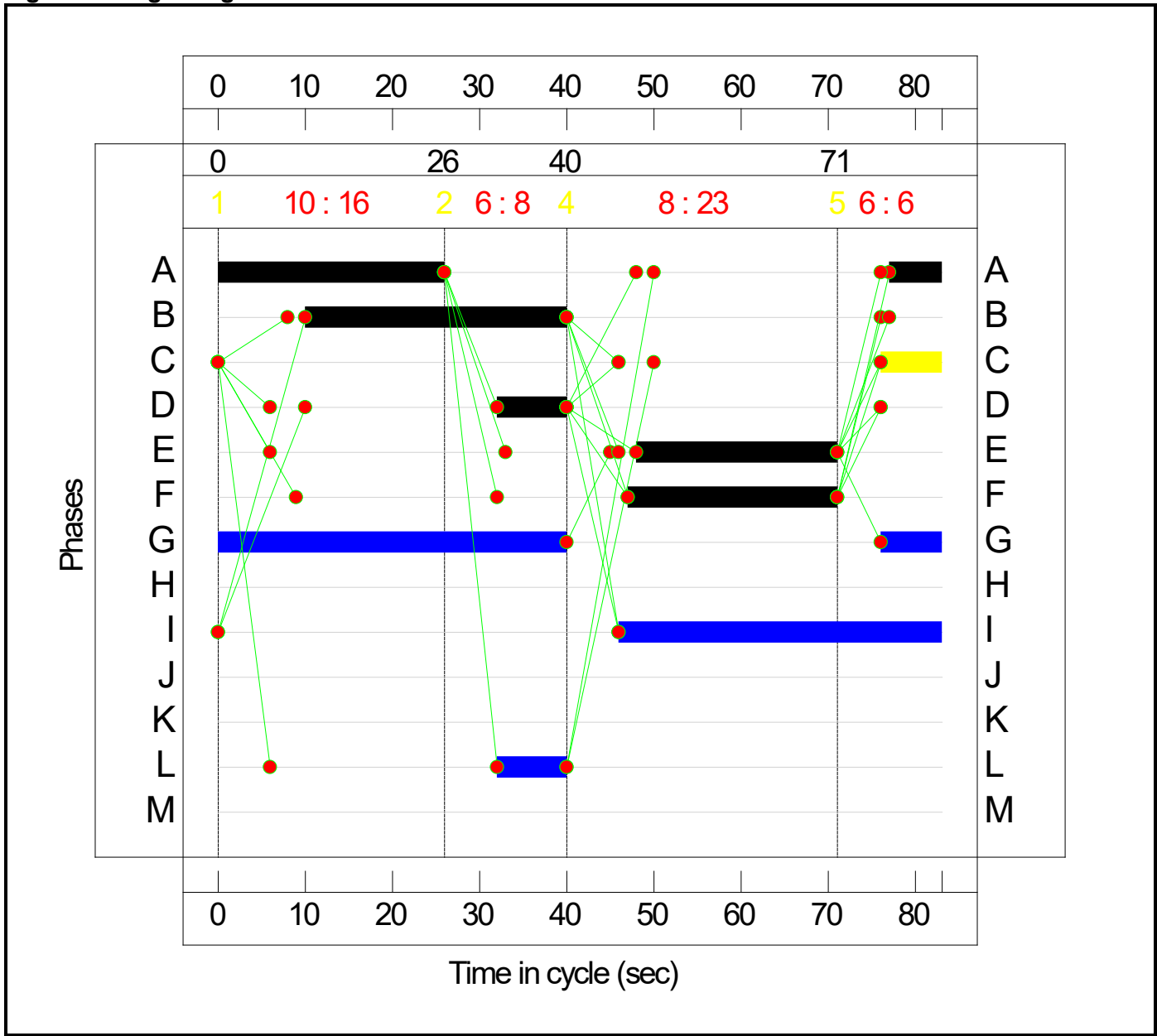
Stage Sequence Diagram



Stage Timings

Stage	1	2	4	5
Duration	16	8	23	6
Change Point	0	26	40	71

Signal Timings Diagram



Full Input Data And Results

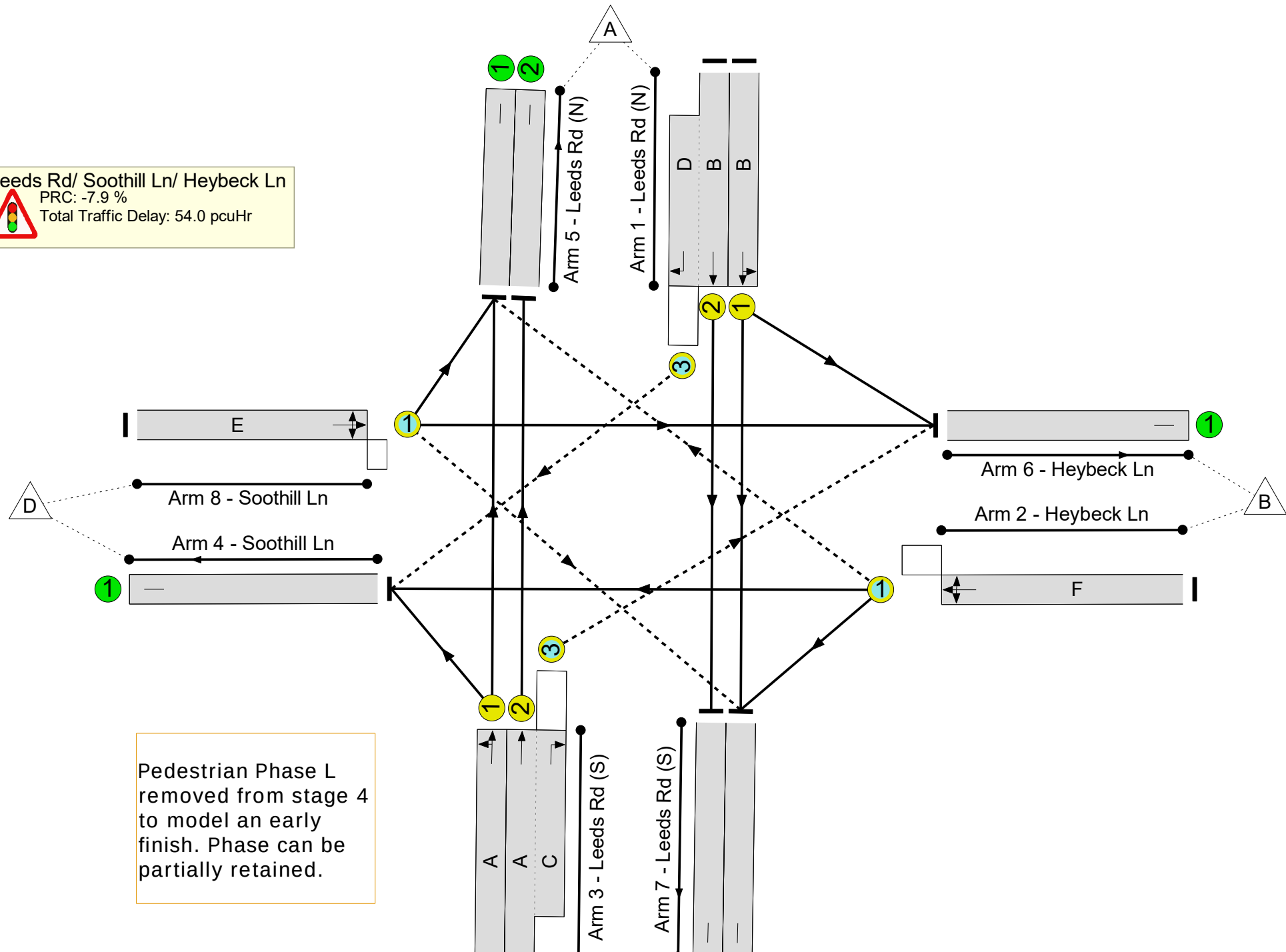
Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: -7.9 %

Total Traffic Delay: 54.0 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	97.1%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	97.1%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	30	-	479	1899	709	67.5%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	30:8	-	704	2055:1872	730+203	71.1 : 91.1%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	24	-	307	1818	548	56.1%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	32	-	736	1931	768	95.9%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	32:7	-	907	2080:1848	793+141	97.1 : 97.1%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	979	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	770	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	698	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	519	Inf	Inf	0.0%
8/1	Soothill Ln Left Ahead Right	O	N/A	N/A	E		1	23	-	482	1897	497	96.9%

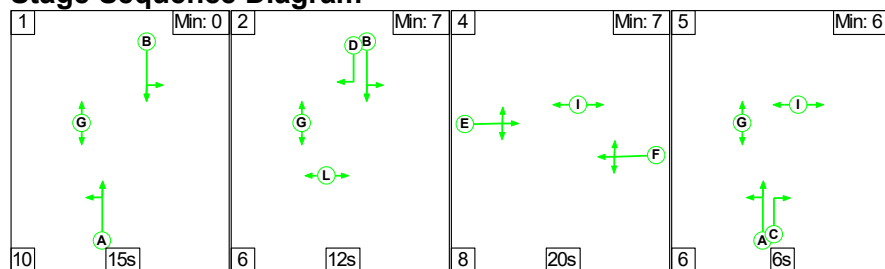
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 6: '2023 'With Development' PM' (FG16: '2023 base + comm dev + dev PM', Plan 2: 'Network Control Plan 2')

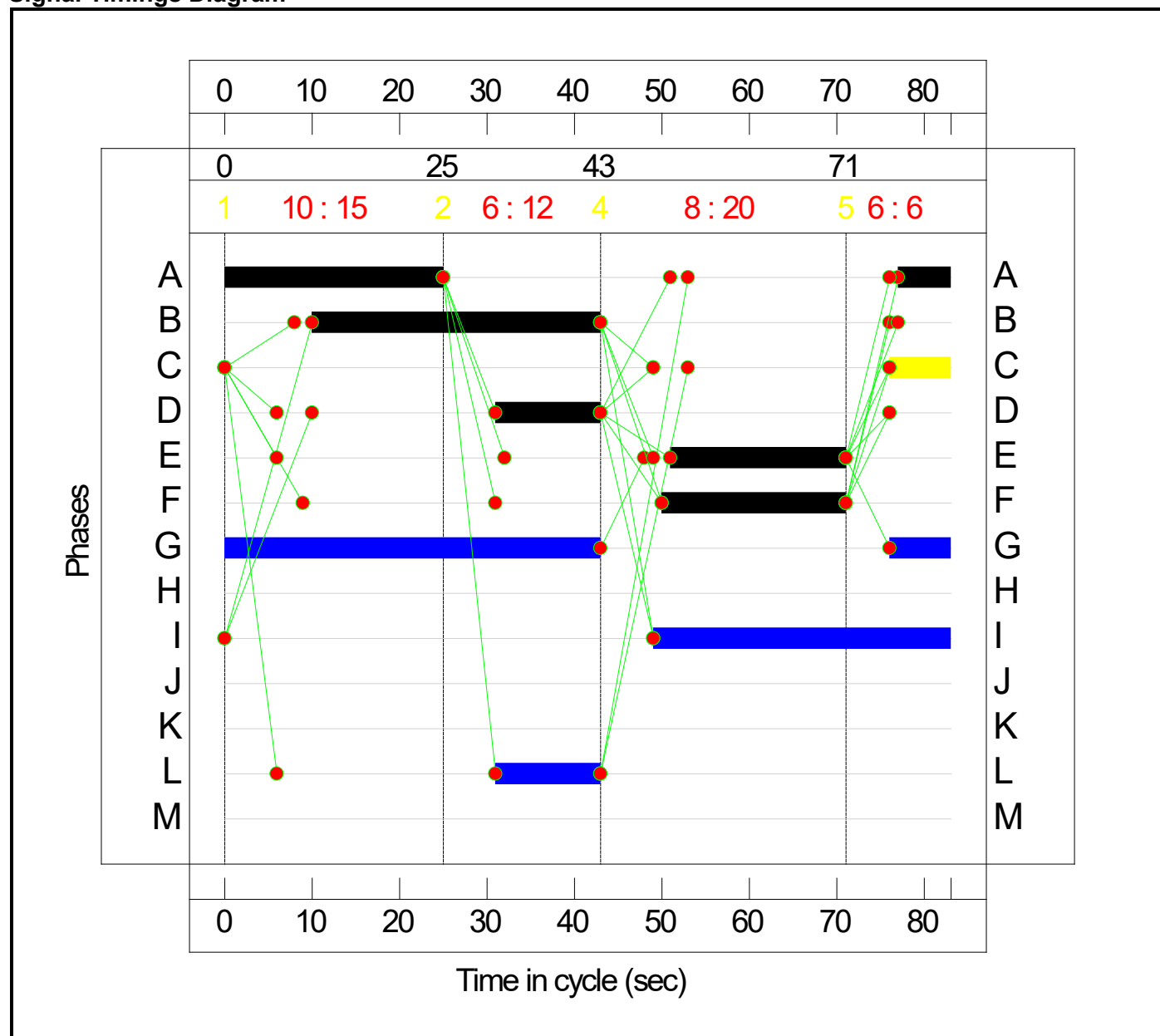
Stage Sequence Diagram



Stage Timings

Stage	1	2	4	5
Duration	15	12	20	6
Change Point	0	25	43	71

Signal Timings Diagram



Full Input Data And Results

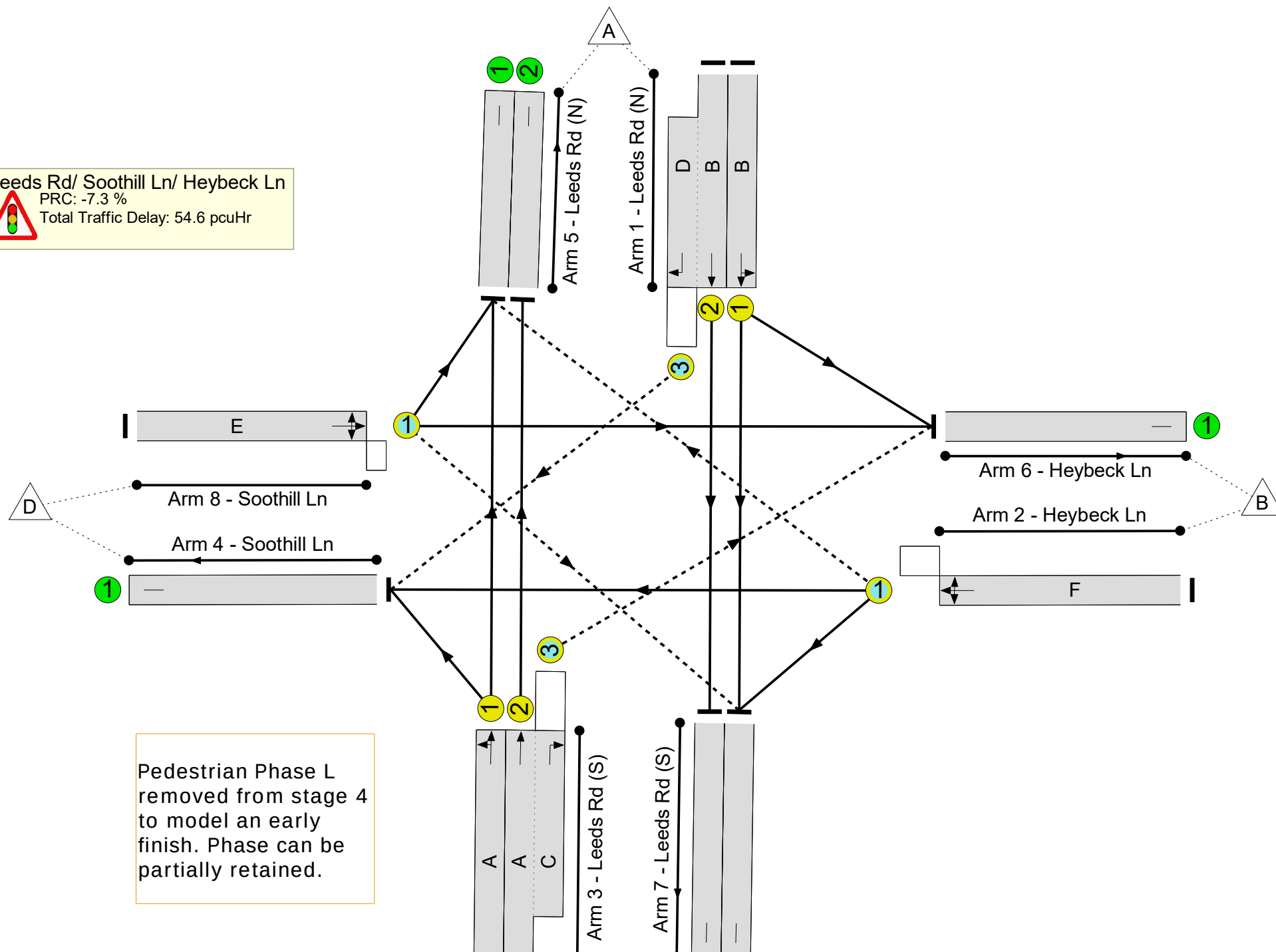
Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: -7.3 %

Total Traffic Delay: 54.6 pcuHr



Pedestrian Phase L
removed from stage 4
to model an early
finish. Phase can be
partially retained.

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	96.6%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	96.6%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	33	-	731	1901	779	93.9%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	33:12	-	1017	2055:1872	784+275	96.0 : 96.0%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	21	-	211	1856	492	42.9%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	31	-	626	1921	741	84.5%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	31:7	-	828	2080:1848	760+178	86.3 : 96.6%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	438	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	822	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	656	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	359	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	838	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	753	Inf	Inf	0.0%
8/1	Soothill Ln Left Ahead Right	O	N/A	N/A	E		1	20	-	453	1900	480	94.4%

Full Input Data And Results

[illegible]

Appendix E

B6124 Station Road/ B6124 Soothill Lane

JUNCTIONS Outputs

Junctions 8	
PICADY 8 - Priority Intersection Module	
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2019	
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Filename: Station Rd - Soothill Ln v3.arc8

Path: N:\Vectos Job Data\2019\VN91266 Soothill Lane - Post App\Picady

Report generation date: 05/06/2019 17:11:33

« (Default Analysis Set) - 2015 survey, AM

» Junction Network

» Arms

» Traffic Flows

» Entry Flows

» Direct/Resultant Flows

» Turning Proportions

» Vehicle Mix

» Results

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
A1 - 2015 survey								
Stream B-C	8.32	340.41	1.12	F	19.08	643.07	1.28	F
Stream B-A	30.23	244.79	1.12	F	63.65	601.47	1.32	F
Stream C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	A
Stream C-A	-	-	-	-	-	-	-	-
Stream A-B	-	-	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-	-	-
A1 - 2023 base + comm dev								
Stream B-C	14.28	603.97	1.25	F	32.08	1111.86	1.50	F
Stream B-A	62.57	544.72	1.29	F	113.73	1072.62	1.54	F
Stream C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	A
Stream C-A	-	-	-	-	-	-	-	-
Stream A-B	-	-	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-	-	-
A1 - 2023 base + comm dev + dev								
Stream B-C	20.20	908.80	1.38	F	37.04	1318.67	1.59	F
Stream B-A	101.15	848.28	1.43	F	138.86	1278.39	1.62	F
Stream C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	A
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 - 2015 survey, AM" model duration: 08:00 - 09:30

"D2 - 2015 survey, PM" model duration: 17:00 - 18:30

"D3 - 2023 base + comm dev, AM" model duration: 08:00 - 09:30

"D4 - 2023 base + comm dev, PM" model duration: 17:00 - 18:30

"D5 - 2023 base + comm dev + dev, AM" model duration: 08:00 - 09:30

"D6 - 2023 base + comm dev + dev, PM" model duration: 17:00 - 18:30

Run using Junctions 8.0.6.541 at 05/06/2019 17:11:32

File summary

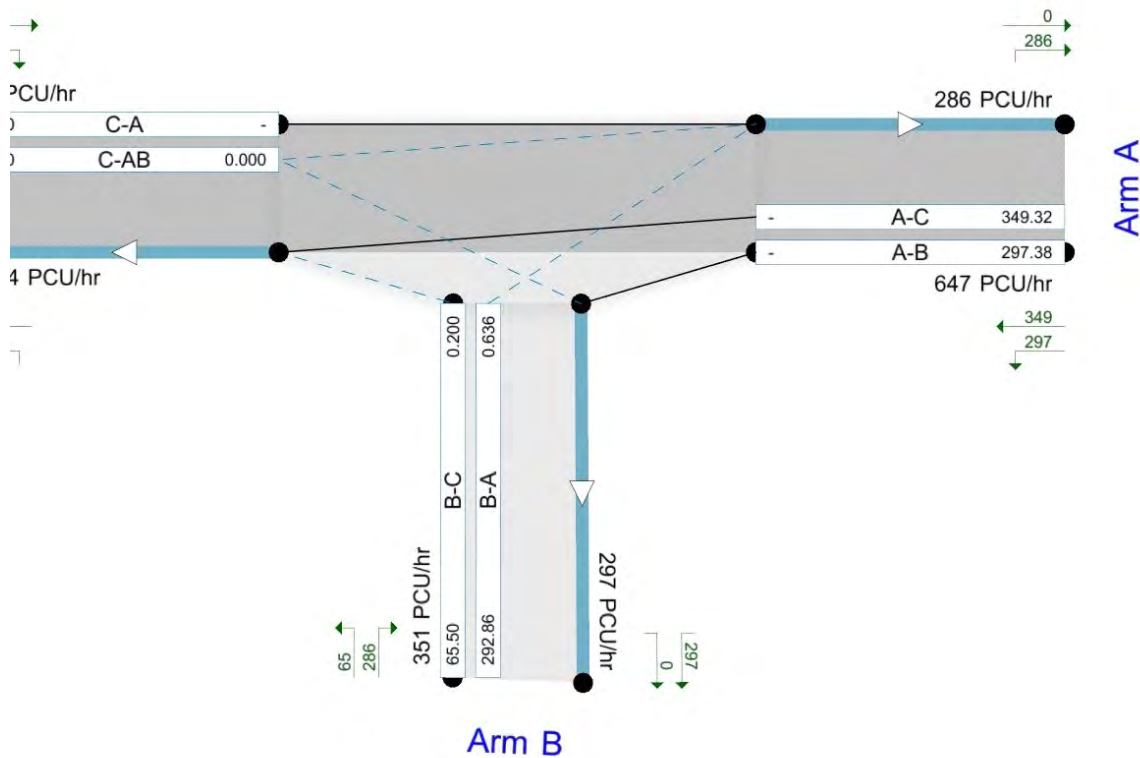
Title	(untitled)
Location	
Site Number	
Date	28/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Office
Description	

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



Showing modelled flow through junction (PCU/hr).
Streams (upstreams) show Total Demand (PCU/hr). Streams (downstreams) show RFC (%).
Time Segment: (08:00-08:15)
Showing Analysis Set "A1"; Demand Set "D1 - 2015 survey, AM"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2015 survey, 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
(Default Analysis Set)	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
2015 survey, AM	2015 survey	AM		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		262.26	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Station Road (N)		Major
B	B	Soothill Lane		Minor
C	C	Station Road (S)		Major

Major Arm Geometry

Arm	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)
C	6.00		0.00		2.20	0.00	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	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)
B	One lane plus flare				10.00	7.40	6.00	4.40	4.20		1.00	35	45

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	594.212	0.108	0.274	0.172	0.391
1	B-C	608.200	0.093	0.236	-	-
1	C-B	573.963	0.222	0.222	-	-

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

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	859.00	100.000
B	ONE HOUR	✓	476.00	100.000
C	ONE HOUR	✓	0.00	100.000

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
08:00-08:15	A	646.70	646.70		
08:00-08:15	B	358.36	358.36		
08:00-08:15	C	0.00	0.00		
08:15-08:30	A	772.22	772.22		
08:15-08:30	B	427.91	427.91		
08:15-08:30	C	0.00	0.00		
08:30-08:45	A	945.78	945.78		
08:30-08:45	B	524.09	524.09		
08:30-08:45	C	0.00	0.00		
08:45-09:00	A	945.78	945.78		
08:45-09:00	B	524.09	524.09		
08:45-09:00	C	0.00	0.00		
09:00-09:15	A	772.22	772.22		
09:00-09:15	B	427.91	427.91		
09:00-09:15	C	0.00	0.00		
09:15-09:30	A	646.70	646.70		
09:15-09:30	B	358.36	358.36		
09:15-09:30	C	0.00	0.00		

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.000	395.000	464.000
	B	389.000	0.000	87.000
	C	0.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.00	0.46	0.54
	B	0.82	0.00	0.18
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 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 - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	0.0
	B	0.0	0.0	0.0
	C	0.0	0.0	0.0

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-C	1.12	340.41	8.32	F	79.83	119.75	286.11	143.35	3.18	286.13	143.36
B-A	1.12	244.79	30.23	F	356.95	535.43	1041.80	116.74	11.58	1042.08	116.77
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	-	-	-	-	0.00	0.00	-	-	-	-	-
A-B	-	-	-	-	362.46	543.69	-	-	-	-	-
A-C	-	-	-	-	425.77	638.66	-	-	-	-	-

Main Results for each time segment

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-C	65.50	16.37	64.52	0.00	328.29	0.200	0.00	0.24	13.599	B
B-A	292.86	73.21	286.28	0.00	460.19	0.636	0.00	1.65	20.022	C
C-AB	0.00	0.00	0.00	0.00	430.15	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	297.38	74.34	297.38	0.00	-	-	-	-	-	-
A-C	349.32	87.33	349.32	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-C	78.21	19.55	76.83	0.00	204.63	0.382	0.24	0.59	27.877	D
B-A	349.70	87.43	341.67	0.00	428.17	0.817	1.65	3.65	38.375	E
C-AB	0.00	0.00	0.00	0.00	402.23	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	355.10	88.77	355.10	0.00	-	-	-	-	-	-
A-C	417.13	104.28	417.13	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-C	95.79	23.95	74.56	0.00	85.42	1.121	0.59	5.90	208.911	F
B-A	428.30	107.07	372.11	0.00	385.49	1.111	3.65	17.70	126.776	F
C-AB	0.00	0.00	0.00	0.00	363.64	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	434.90	108.73	434.90	0.00	-	-	-	-	-	-
A-C	510.87	127.72	510.87	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-C	95.79	23.95	86.09	0.00	91.30	1.049	5.90	8.32	340.412	F
B-A	428.30	107.07	378.16	0.00	381.73	1.122	17.70	30.23	244.785	F
C-AB	0.00	0.00	0.00	0.00	363.64	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	434.90	108.73	434.90	0.00	-	-	-	-	-	-
A-C	510.87	127.72	510.87	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-C	78.21	19.55	88.70	0.00	97.99	0.798	8.32	5.70	283.193	F
B-A	349.70	87.43	400.38	0.00	413.63	0.845	30.23	17.56	218.761	F
C-AB	0.00	0.00	0.00	0.00	402.23	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	355.10	88.77	355.10	0.00	-	-	-	-	-	-
A-C	417.13	104.28	417.13	0.00	-	-	-	-	-	-

Main results: (09:15-09:30)

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-C	65.50	16.37	86.68	0.00	233.94	0.280	5.70	0.40	27.839	D
B-A	292.86	73.21	354.86	0.00	449.75	0.651	17.56	2.06	55.968	F
C-AB	0.00	0.00	0.00	0.00	430.15	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	297.38	74.34	297.38	0.00	-	-	-	-	-	-
A-C	349.32	87.33	349.32	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

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-C	3.46	0.23	13.599	B	B
B-A	21.93	1.46	20.022	C	C
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-C	8.10	0.54	27.877	D	C
B-A	46.33	3.09	38.375	E	D
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-C	54.62	3.64	208.911	F	F
B-A	167.78	11.19	126.776	F	F
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-C	107.24	7.15	340.412	F	F
B-A	360.40	24.03	244.785	F	F
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-C	99.95	6.66	283.193	F	F
B-A	358.47	23.90	218.761	F	F
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:15-09:30)

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-C	12.74	0.85	27.839	D	C
B-A	86.89	5.79	55.968	F	E
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Appendix F

Leeds Road Corridor

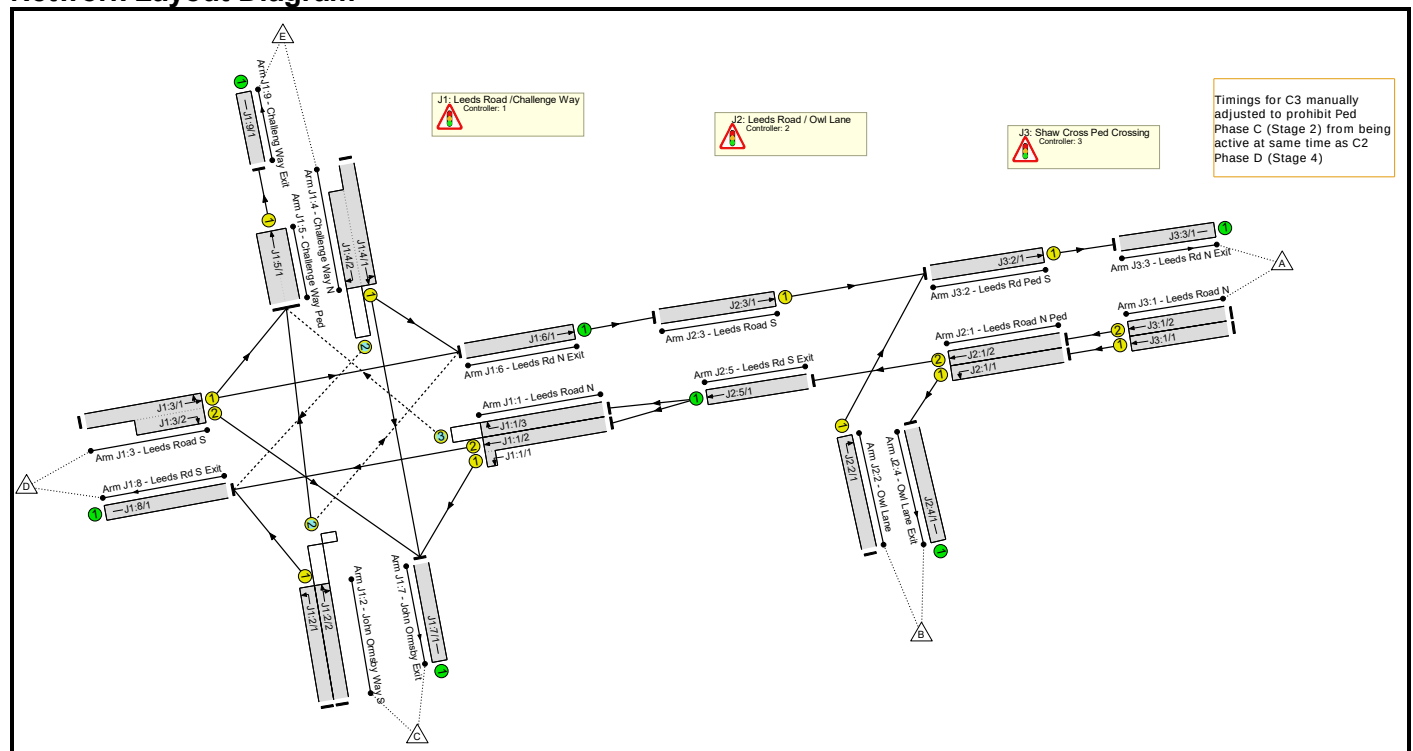
LinSig Outputs

Full Input Data And Results

User and Project Details

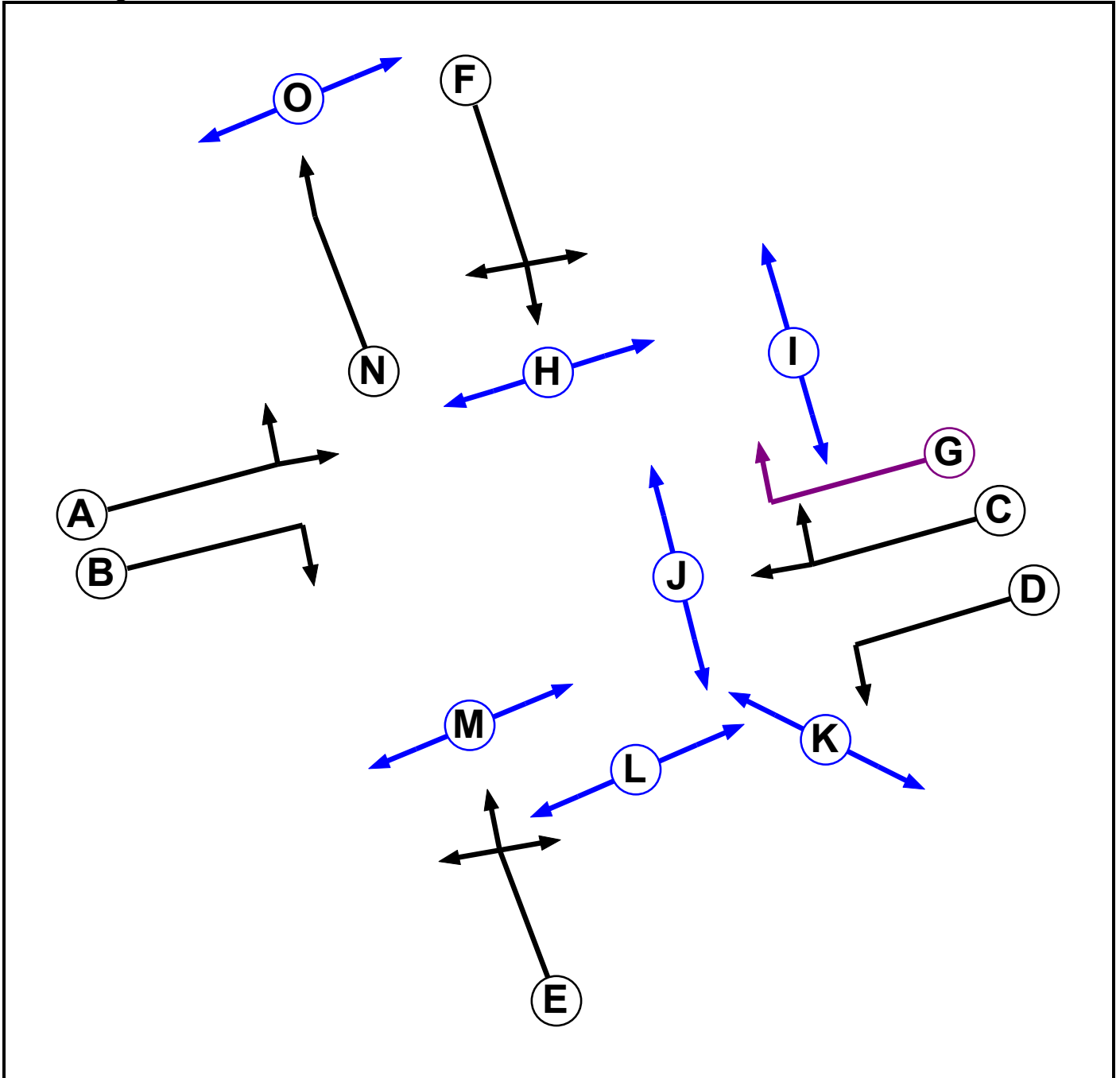
Project:	
Title:	
Location:	
Additional detail:	
File name:	Leeds Road Network v2.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



C1

Phase Diagram



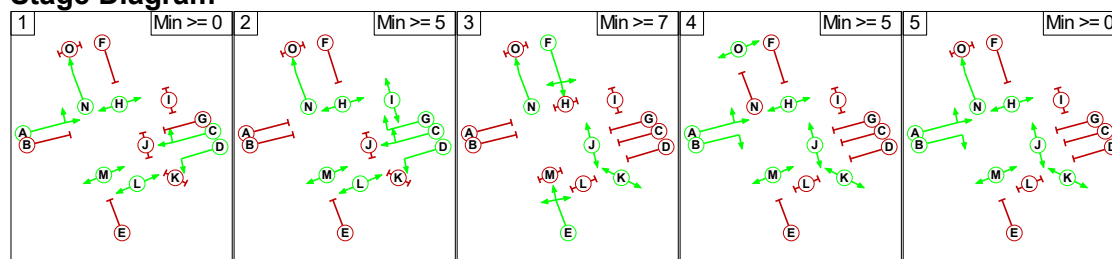
Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Ind. Arrow	C	2	2
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		5	5
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Traffic		7	7
O	Pedestrian		5	5

Phases in Stage

Stage Diagram



Phase Delays

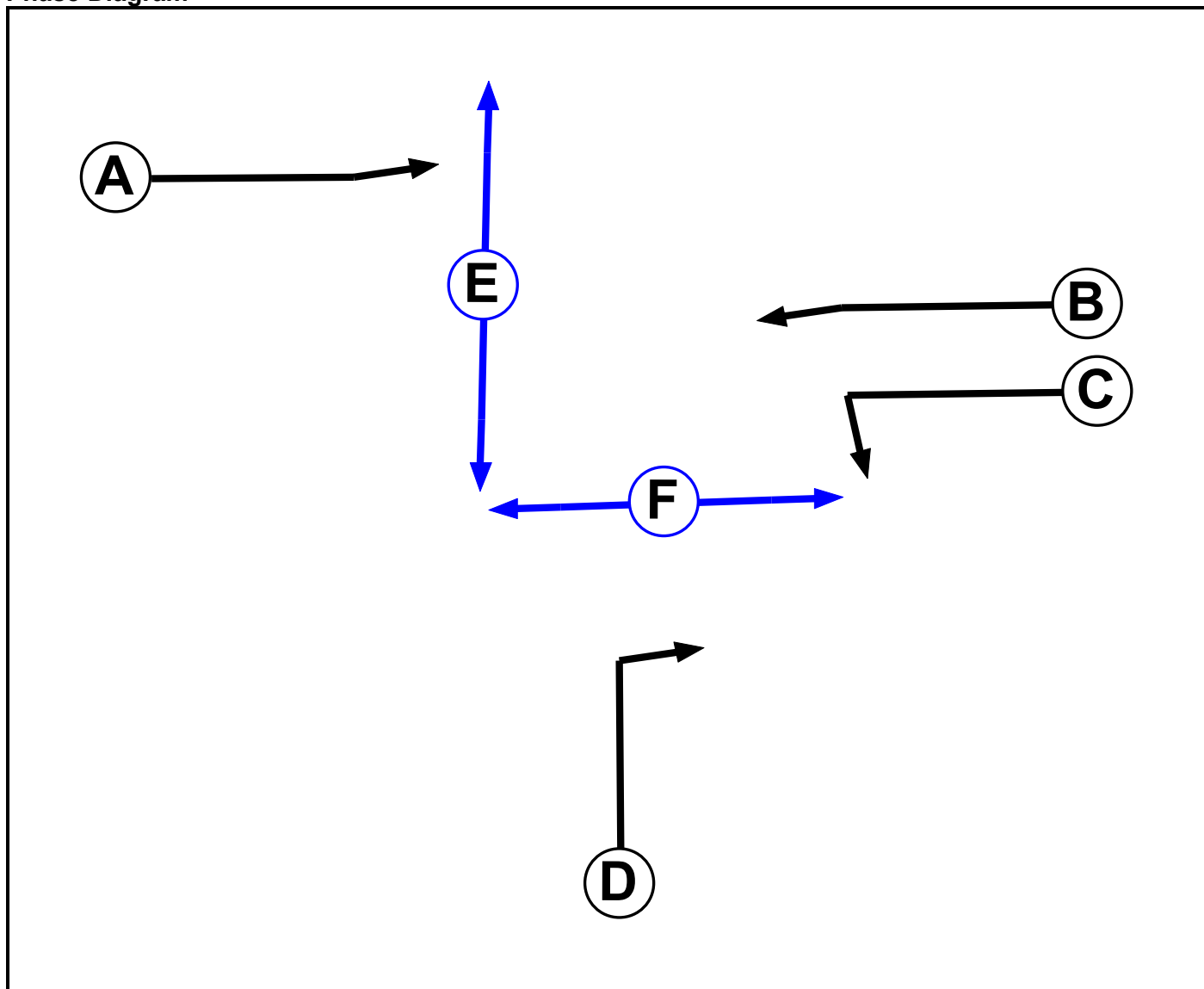
Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	A	Losing	2	2
1	3	C	Losing	2	2
1	3	D	Losing	2	2
1	3	L	Losing	3	3
2	3	C	Losing	2	2
2	3	D	Losing	2	2
2	3	G	Losing	2	2
2	3	L	Losing	3	3
3	4	N	Losing	6	6

Prohibited Stage Change

From Stage	To Stage					
	1	2	3	4	5	
	1		8	8	10	5
	2	5		8	10	5
	3	9	9		11	7
	4	8	8	8		8
	5	8	8	8	5	

C2

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		5	5
F	Pedestrian		7	7

Full Input Data And Results

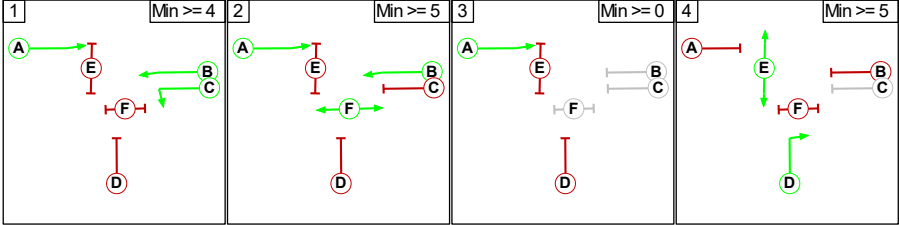
Phase Intergreens Matrix

Terminating Phase	Starting Phase						
		A	B	C	D	E	F
	A		-	-	5	5	-
	B	-		-	5	8	-
	C	-	-		-	-	7
	D	5	5	-		-	5
	E	4	4	-	-		-
	F	-	-	8	8	-	

Phases in Stage

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

Stage Diagram



Phase Delays

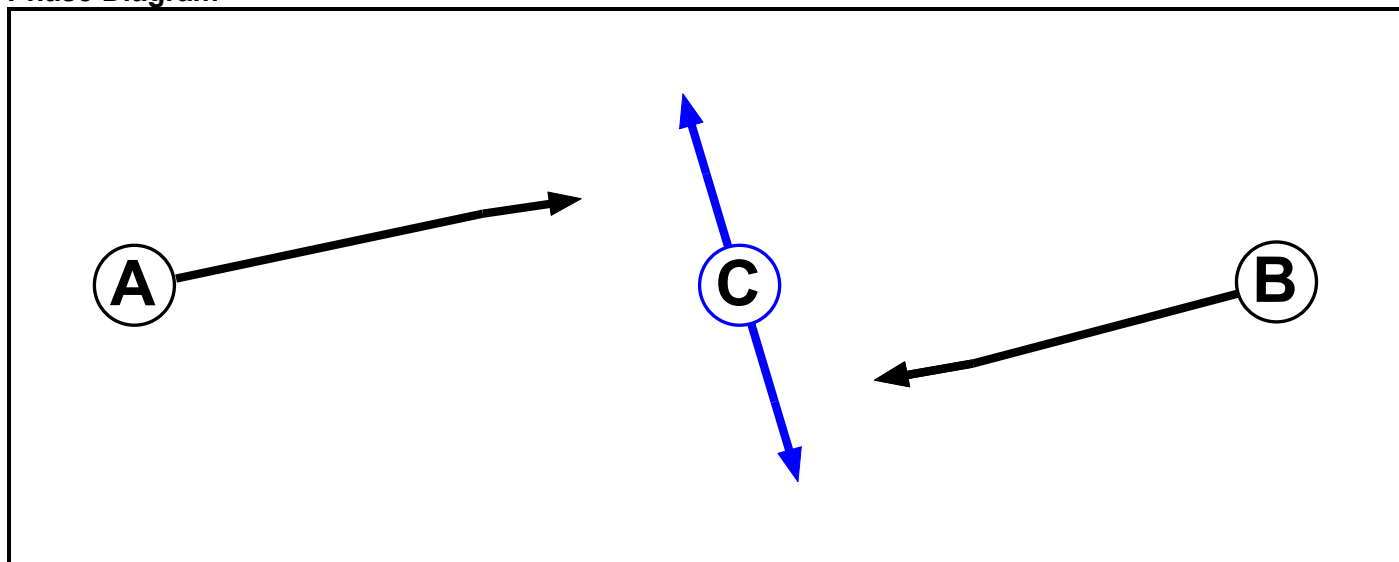
Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		7	0	8
	2	8		0	8
	3	2	2		5
	4	5	5	5	

C3

Phase Diagram



Phase Input Data

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

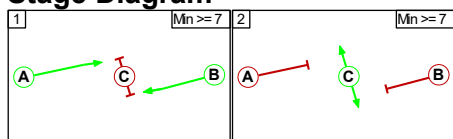
Phase Intergreens Matrix

	Starting Phase			
Terminating Phase		A	B	C
	A		-	6
	B	-		6
	C	9	9	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	C

Stage Diagram



Phase Delays

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

Prohibited Stage Change

From Stage	To Stage		
		1	2
	1		6
	2	9	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Leeds Road /Challenge Way											
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)
J1:1/3 (Leeds Road N)	J1:5/1 (Right)	1439	0	J1:3/1	1.09	All	3.00	-	0.50	3	3.00
J1:2/2 (John Ormsby Way S)	J1:6/1 (Right)	1439	0	J1:4/1	1.09	All	5.00	1.00	0.50	5	5.00
				J1:4/2	1.09	All					
J1:4/2 (Challenge Way N)	J1:8/1 (Right)	1439	0	J1:2/1	1.09	All	5.00	-	0.50	5	5.00
				J1:2/2	1.09	All					

Junction: J2: Leeds Road / Owl Lane
There are no Opposed Lanes in this Junction

Junction: J3: Shaw Cross Ped Crossing
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: Leeds Road /Challenge Way												
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)
J1:1/1 (Leeds Road N)	U	D	2	3	1.0	Geom	-	4.70	0.00	Y	Arm J1:7 Left	32.00
J1:1/2 (Leeds Road N)	U	C	2	3	60.0	Geom	-	3.60	0.00	Y	Arm J1:8 Ahead	Inf
J1:1/3 (Leeds Road N)	O	C G	2	3	9.0	Geom	-	3.60	0.00	Y	Arm J1:5 Right	11.00
J1:2/1 (John Ormsby Way S)	U	E	2	3	60.0	Geom	-	3.60	0.00	Y	Arm J1:8 Left	23.00
J1:2/2 (John Ormsby Way S)	O	E	2	3	60.0	Geom	-	3.60	0.00	Y	Arm J1:5 Ahead	Inf
											Arm J1:6 Right	6.00
J1:3/1 (Leeds Road S)	U	A	2	3	60.0	Geom	-	4.30	0.00	Y	Arm J1:5 Left	14.00
											Arm J1:6 Ahead	Inf
J1:3/2 (Leeds Road S)	U	B	2	3	7.0	Geom	-	3.30	0.00	Y	Arm J1:7 Right	11.00
J1:4/1 (Challenge Way N)	U	F	2	3	60.0	Geom	-	3.40	0.00	Y	Arm J1:6 Left	18.00
											Arm J1:7 Ahead	Inf
J1:4/2 (Challenge Way N)	O	F	2	3	19.0	Geom	-	4.10	0.00	Y	Arm J1:8 Right	6.00
J1:5/1 (Challenge Way Ped)	U	N	2	3	3.0	User	3850	-	-	-	-	-
J1:6/1 (Leeds Rd N Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:7/1 (John Ormsby Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:8/1 (Leeds Rd S Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:9/1 (Challeng Way Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: Leeds Road / Owl Lane												
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)
J2:1/1 (Leeds Road N Ped)	U	C	2	3	8.0	Geom	-	3.10	0.00	Y	Arm J2:4 Left	21.00
J2:1/2 (Leeds Road N Ped)	U	B	2	3	8.0	Geom	-	3.10	0.00	Y	Arm J2:5 Ahead	Inf
J2:2/1 (Owl Lane)	U	D	2	3	60.0	Geom	-	4.50	0.00	Y	Arm J3:2 Right	19.00
J2:3/1 (Leeds Road S)	U	A	2	3	60.0	Geom	-	4.00	0.00	Y	Arm J3:2 Ahead	Inf
J2:4/1 (Owl Lane Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:5/1 (Leeds Rd S Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Junction: J3: Shaw Cross Ped Crossing												
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)
J3:1/1 (Leeds Road N)	U	B	2	3	11.0	Geom	-	3.10	0.00	Y	Arm J2:1 Ahead	Inf
J3:1/2 (Leeds Road N)	U	B	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J2:1 Ahead	Inf
J3:2/1 (Leeds Rd Ped S)	U	A	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J3:3 Ahead	Inf
J3:3/1 (Leeds Rd N Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: 'Survey AM'	08:00	09:00	01:00	
8: 'Survey PM'	17:00	18:00	01:00	
13: '2023 base + comm dev AM'	08:00	09:00	01:00	F1+F3+F5+F9
14: '2023 base + comm dev PM'	17:00	18:00	01:00	F2+F4+F6+F10
15: '2023 base + comm dev + dev AM'	08:00	09:00	01:00	F1+F3+F5+F9+F11
16: ' 2023 base + comm dev + dev PM'	17:00	18:00	01:00	F2+F4+F6+F10+F12

Scenario 1: 'Survey AM' (FG7: 'Survey AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination						
Origin		A	B	C	D	E	Tot.
	A	0	255	24	574	109	962
	B	442	0	0	0	0	442
	C	12	0	0	190	345	547
	D	790	0	109	0	24	923
	E	61	0	346	33	0	440
	Tot.	1305	255	479	797	478	3314

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: Survey AM
Junction: J1: Leeds Road /Challenge Way	
J1:1/1 (short)	24
J1:1/2 (with short)	598(In) 574(Out)
J1:1/3	109
J1:2/1	190
J1:2/2	357
J1:3/1 (with short)	923(In) 814(Out)
J1:3/2 (short)	109
J1:4/1 (with short)	440(In) 407(Out)
J1:4/2 (short)	33
J1:5/1	478
J1:6/1	863
J1:7/1	479
J1:8/1	797
J1:9/1	478
Junction: J2: Leeds Road / Owl Lane	
J2:1/1	255
J2:1/2	707
J2:2/1	442
J2:3/1	863
J2:4/1	255
J2:5/1	707
Junction: J3: Shaw Cross Ped Crossing	
J3:1/1	255
J3:1/2	707
J3:2/1	1305
J3:3/1	1305

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Leeds Road /Challenge Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Leeds Road N)	4.70	0.00	Y	Arm J1:7 Left	32.00	100.0 %	1992	1992
J1:1/2 (Leeds Road N)	3.60	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1975	1975
J1:1/3 (Leeds Road N)	3.60	0.00	Y	Arm J1:5 Right	11.00	100.0 %	1738	1738
J1:2/1 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:8 Left	23.00	100.0 %	1854	1854
J1:2/2 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:5 Ahead	Inf	96.6 %	1959	1959
				Arm J1:6 Right	6.00	3.4 %		
J1:3/1 (Leeds Road S)	4.30	0.00	Y	Arm J1:5 Left	14.00	2.9 %	2039	2039
				Arm J1:6 Ahead	Inf	97.1 %		
J1:3/2 (Leeds Road S)	3.30	0.00	Y	Arm J1:7 Right	11.00	100.0 %	1712	1712
J1:4/1 (Challenge Way N)	3.40	0.00	Y	Arm J1:6 Left	18.00	15.0 %	1931	1931
				Arm J1:7 Ahead	Inf	85.0 %		
J1:4/2 (Challenge Way N)	4.10	0.00	Y	Arm J1:8 Right	6.00	100.0 %	1620	1620
J1:5/1 (Challenge Way Ped Lane 1)	This lane uses a directly entered Saturation Flow						3850	3850
J1:6/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (John Ormsby Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:8/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:9/1 (Challeng Way Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Leeds Road / Owl Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:4 Left	21.00	100.0 %	1797	1797
J2:1/2 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	1925	1925
J2:2/1 (Owl Lane)	4.50	0.00	Y	Arm J3:2 Right	19.00	100.0 %	1914	1914
J2:3/1 (Leeds Road S)	4.00	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2015	2015
J2:4/1 (Owl Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: Shaw Cross Ped Crossing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:1/2 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:2/1 (Leeds Rd Ped S)	3.10	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1925	1925
J3:3/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'Survey PM' (FG8: 'Survey PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination						
	A	B	C	D	E	Tot.	
Origin	A	0	381	24	712	43	1160
	B	414	0	0	0	0	414
	C	27	0	0	296	311	634
	D	637	0	43	0	23	703
	E	100	0	311	38	0	449
	Tot.	1178	381	378	1046	377	3360

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: Survey PM
Junction: J1: Leeds Road /Challenge Way	
J1:1/1 (short)	24
J1:1/2 (with short)	736(In) 712(Out)
J1:1/3	43
J1:2/1	296
J1:2/2	338
J1:3/1 (with short)	703(In) 660(Out)
J1:3/2 (short)	43
J1:4/1 (with short)	449(In) 411(Out)
J1:4/2 (short)	38
J1:5/1	377
J1:6/1	764
J1:7/1	378
J1:8/1	1046
J1:9/1	377
Junction: J2: Leeds Road / Owl Lane	
J2:1/1	381
J2:1/2	779
J2:2/1	414
J2:3/1	764
J2:4/1	381
J2:5/1	779
Junction: J3: Shaw Cross Ped Crossing	
J3:1/1	381
J3:1/2	779
J3:2/1	1178
J3:3/1	1178

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Leeds Road /Challenge Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Leeds Road N)	4.70	0.00	Y	Arm J1:7 Left	32.00	100.0 %	1992	1992
J1:1/2 (Leeds Road N)	3.60	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1975	1975
J1:1/3 (Leeds Road N)	3.60	0.00	Y	Arm J1:5 Right	11.00	100.0 %	1738	1738
J1:2/1 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:8 Left	23.00	100.0 %	1854	1854
J1:2/2 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:5 Ahead	Inf	92.0 %	1936	1936
				Arm J1:6 Right	6.00	8.0 %		
J1:3/1 (Leeds Road S)	4.30	0.00	Y	Arm J1:5 Left	14.00	3.5 %	2037	2037
				Arm J1:6 Ahead	Inf	96.5 %		
J1:3/2 (Leeds Road S)	3.30	0.00	Y	Arm J1:7 Right	11.00	100.0 %	1712	1712
J1:4/1 (Challenge Way N)	3.40	0.00	Y	Arm J1:6 Left	18.00	24.3 %	1916	1916
				Arm J1:7 Ahead	Inf	75.7 %		
J1:4/2 (Challenge Way N)	4.10	0.00	Y	Arm J1:8 Right	6.00	100.0 %	1620	1620
J1:5/1 (Challenge Way Ped Lane 1)	This lane uses a directly entered Saturation Flow						3850	3850
J1:6/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (John Ormsby Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:8/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:9/1 (Challeng Way Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Leeds Road / Owl Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:4 Left	21.00	100.0 %	1797	1797
J2:1/2 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	1925	1925
J2:2/1 (Owl Lane)	4.50	0.00	Y	Arm J3:2 Right	19.00	100.0 %	1914	1914
J2:3/1 (Leeds Road S)	4.00	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2015	2015
J2:4/1 (Owl Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: Shaw Cross Ped Crossing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:1/2 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:2/1 (Leeds Rd Ped S)	3.10	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1925	1925
J3:3/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2023 'Without Development' AM' (FG13: '2023 base + comm dev AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination						
		A	B	C	D	E	Tot.
	A	0	305	28	645	123	1101
	B	528	0	0	0	0	528
	C	14	0	0	227	392	633
	D	865	0	129	0	26	1020
	E	66	0	393	35	0	494
	Tot.	1473	305	550	907	541	3776

Traffic Lane Flows

Lane	Scenario 3: 2023 'Without Development' AM
Junction: J1: Leeds Road /Challenge Way	
J1:1/1 (short)	28
J1:1/2 (with short)	673(In) 645(Out)
J1:1/3	123
J1:2/1	227
J1:2/2	406
J1:3/1 (with short)	1020(In) 891(Out)
J1:3/2 (short)	129
J1:4/1 (with short)	494(In) 459(Out)
J1:4/2 (short)	35
J1:5/1	541
J1:6/1	945
J1:7/1	550
J1:8/1	907
J1:9/1	541
Junction: J2: Leeds Road / Owl Lane	
J2:1/1	305
J2:1/2	796
J2:2/1	528
J2:3/1	945
J2:4/1	305
J2:5/1	796
Junction: J3: Shaw Cross Ped Crossing	
J3:1/1	305
J3:1/2	796
J3:2/1	1473
J3:3/1	1473

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Leeds Road /Challenge Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Leeds Road N)	4.70	0.00	Y	Arm J1:7 Left	32.00	100.0 %	1992	1992
J1:1/2 (Leeds Road N)	3.60	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1975	1975
J1:1/3 (Leeds Road N)	3.60	0.00	Y	Arm J1:5 Right	11.00	100.0 %	1738	1738
J1:2/1 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:8 Left	23.00	100.0 %	1854	1854
J1:2/2 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:5 Ahead	Inf	96.6 %	1958	1958
				Arm J1:6 Right	6.00	3.4 %		
J1:3/1 (Leeds Road S)	4.30	0.00	Y	Arm J1:5 Left	14.00	2.9 %	2039	2039
				Arm J1:6 Ahead	Inf	97.1 %		
J1:3/2 (Leeds Road S)	3.30	0.00	Y	Arm J1:7 Right	11.00	100.0 %	1712	1712
J1:4/1 (Challenge Way N)	3.40	0.00	Y	Arm J1:6 Left	18.00	14.4 %	1932	1932
				Arm J1:7 Ahead	Inf	85.6 %		
J1:4/2 (Challenge Way N)	4.10	0.00	Y	Arm J1:8 Right	6.00	100.0 %	1620	1620
J1:5/1 (Challenge Way Ped Lane 1)	This lane uses a directly entered Saturation Flow						3850	3850
J1:6/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (John Ormsby Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:8/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:9/1 (Challeng Way Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Leeds Road / Owl Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:4 Left	21.00	100.0 %	1797	1797
J2:1/2 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	1925	1925
J2:2/1 (Owl Lane)	4.50	0.00	Y	Arm J3:2 Right	19.00	100.0 %	1914	1914
J2:3/1 (Leeds Road S)	4.00	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2015	2015
J2:4/1 (Owl Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: Shaw Cross Ped Crossing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:1/2 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:2/1 (Leeds Rd Ped S)	3.10	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1925	1925
J3:3/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2023 'Without Development' PM' (FG14: '2023 base + comm dev PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination						
		A	B	C	D	E	Tot.
	A	0	447	27	782	47	1303
	B	478	0	0	0	0	478
	C	31	0	0	338	349	718
	D	705	0	64	0	25	794
	E	111	0	351	41	0	503
	Tot.	1325	447	442	1161	421	3796

Traffic Lane Flows

Lane	Scenario 4: 2023 'Without Development' PM
Junction: J1: Leeds Road /Challenge Way	
J1:1/1 (short)	27
J1:1/2 (with short)	809(In) 782(Out)
J1:1/3	47
J1:2/1	338
J1:2/2	380
J1:3/1 (with short)	794(In) 730(Out)
J1:3/2 (short)	64
J1:4/1 (with short)	503(In) 462(Out)
J1:4/2 (short)	41
J1:5/1	421
J1:6/1	847
J1:7/1	442
J1:8/1	1161
J1:9/1	421
Junction: J2: Leeds Road / Owl Lane	
J2:1/1	447
J2:1/2	856
J2:2/1	478
J2:3/1	847
J2:4/1	447
J2:5/1	856
Junction: J3: Shaw Cross Ped Crossing	
J3:1/1	447
J3:1/2	856
J3:2/1	1325
J3:3/1	1325

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Leeds Road /Challenge Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Leeds Road N)	4.70	0.00	Y	Arm J1:7 Left	32.00	100.0 %	1992	1992
J1:1/2 (Leeds Road N)	3.60	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1975	1975
J1:1/3 (Leeds Road N)	3.60	0.00	Y	Arm J1:5 Right	11.00	100.0 %	1738	1738
J1:2/1 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:8 Left	23.00	100.0 %	1854	1854
J1:2/2 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:5 Ahead	Inf	91.8 %	1936	1936
				Arm J1:6 Right	6.00	8.2 %		
J1:3/1 (Leeds Road S)	4.30	0.00	Y	Arm J1:5 Left	14.00	3.4 %	2038	2038
				Arm J1:6 Ahead	Inf	96.6 %		
J1:3/2 (Leeds Road S)	3.30	0.00	Y	Arm J1:7 Right	11.00	100.0 %	1712	1712
J1:4/1 (Challenge Way N)	3.40	0.00	Y	Arm J1:6 Left	18.00	24.0 %	1917	1917
				Arm J1:7 Ahead	Inf	76.0 %		
J1:4/2 (Challenge Way N)	4.10	0.00	Y	Arm J1:8 Right	6.00	100.0 %	1620	1620
J1:5/1 (Challenge Way Ped Lane 1)	This lane uses a directly entered Saturation Flow						3850	3850
J1:6/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (John Ormsby Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:8/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:9/1 (Challeng Way Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Leeds Road / Owl Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:4 Left	21.00	100.0 %	1797	1797
J2:1/2 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	1925	1925
J2:2/1 (Owl Lane)	4.50	0.00	Y	Arm J3:2 Right	19.00	100.0 %	1914	1914
J2:3/1 (Leeds Road S)	4.00	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2015	2015
J2:4/1 (Owl Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: Shaw Cross Ped Crossing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:1/2 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:2/1 (Leeds Rd Ped S)	3.10	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1925	1925
J3:3/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2023 'With Development' AM' (FG15: '2023 base + comm dev + dev AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination						
		A	B	C	D	E	Tot.
	A	0	305	28	682	128	1143
	B	528	0	0	0	0	528
	C	14	0	0	227	392	633
	D	879	0	129	0	32	1040
	E	81	0	393	51	0	525
	Tot.	1502	305	550	960	552	3869

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2023 'With Development' AM
Junction: J1: Leeds Road /Challenge Way	
J1:1/1 (short)	28
J1:1/2 (with short)	710(In) 682(Out)
J1:1/3	128
J1:2/1	227
J1:2/2	406
J1:3/1 (with short)	1040(In) 911(Out)
J1:3/2 (short)	129
J1:4/1 (with short)	525(In) 474(Out)
J1:4/2 (short)	51
J1:5/1	552
J1:6/1	974
J1:7/1	550
J1:8/1	960
J1:9/1	552
Junction: J2: Leeds Road / Owl Lane	
J2:1/1	305
J2:1/2	838
J2:2/1	528
J2:3/1	974
J2:4/1	305
J2:5/1	838
Junction: J3: Shaw Cross Ped Crossing	
J3:1/1	305
J3:1/2	838
J3:2/1	1502
J3:3/1	1502

Lane Saturation Flows

Junction: J2: Leeds Road / Owl Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:4 Left	21.00	100.0 %	1797	1797
J2:1/2 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	1925	1925
J2:2/1 (Owl Lane)	4.50	0.00	Y	Arm J3:2 Right	19.00	100.0 %	1914	1914
J2:3/1 (Leeds Road S)	4.00	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2015	2015
J2:4/1 (Owl Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: Shaw Cross Ped Crossing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:1/2 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:2/1 (Leeds Rd Ped S)	3.10	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1925	1925
J3:3/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2023 'With Development' PM' (FG16: ' 2023 base + comm dev + dev PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination						
		A	B	C	D	E	Tot.
	A	0	447	27	800	60	1334
	B	478	0	0	0	0	478
	C	31	0	0	338	349	718
	D	738	0	64	0	39	841
	E	118	0	351	49	0	518
	Tot.	1365	447	442	1187	448	3889

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2023 'With Development' PM
Junction: J1: Leeds Road /Challenge Way	
J1:1/1 (short)	27
J1:1/2 (with short)	827(In) 800(Out)
J1:1/3	60
J1:2/1	338
J1:2/2	380
J1:3/1 (with short)	841(In) 777(Out)
J1:3/2 (short)	64
J1:4/1 (with short)	518(In) 469(Out)
J1:4/2 (short)	49
J1:5/1	448
J1:6/1	887
J1:7/1	442
J1:8/1	1187
J1:9/1	448
Junction: J2: Leeds Road / Owl Lane	
J2:1/1	447
J2:1/2	887
J2:2/1	478
J2:3/1	887
J2:4/1	447
J2:5/1	887
Junction: J3: Shaw Cross Ped Crossing	
J3:1/1	447
J3:1/2	887
J3:2/1	1365
J3:3/1	1365

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Leeds Road /Challenge Way								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Leeds Road N)	4.70	0.00	Y	Arm J1:7 Left	32.00	100.0 %	1992	1992
J1:1/2 (Leeds Road N)	3.60	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1975	1975
J1:1/3 (Leeds Road N)	3.60	0.00	Y	Arm J1:5 Right	11.00	100.0 %	1738	1738
J1:2/1 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:8 Left	23.00	100.0 %	1854	1854
J1:2/2 (John Ormsby Way S)	3.60	0.00	Y	Arm J1:5 Ahead	Inf	91.8 %	1936	1936
				Arm J1:6 Right	6.00	8.2 %		
J1:3/1 (Leeds Road S)	4.30	0.00	Y	Arm J1:5 Left	14.00	5.0 %	2034	2034
				Arm J1:6 Ahead	Inf	95.0 %		
J1:3/2 (Leeds Road S)	3.30	0.00	Y	Arm J1:7 Right	11.00	100.0 %	1712	1712
J1:4/1 (Challenge Way N)	3.40	0.00	Y	Arm J1:6 Left	18.00	25.2 %	1915	1915
				Arm J1:7 Ahead	Inf	74.8 %		
J1:4/2 (Challenge Way N)	4.10	0.00	Y	Arm J1:8 Right	6.00	100.0 %	1620	1620
J1:5/1 (Challenge Way Ped Lane 1)	This lane uses a directly entered Saturation Flow						3850	3850
J1:6/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (John Ormsby Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:8/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:9/1 (Challeng Way Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Leeds Road / Owl Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:4 Left	21.00	100.0 %	1797	1797
J2:1/2 (Leeds Road N Ped)	3.10	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	1925	1925
J2:2/1 (Owl Lane)	4.50	0.00	Y	Arm J3:2 Right	19.00	100.0 %	1914	1914
J2:3/1 (Leeds Road S)	4.00	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2015	2015
J2:4/1 (Owl Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Leeds Rd S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

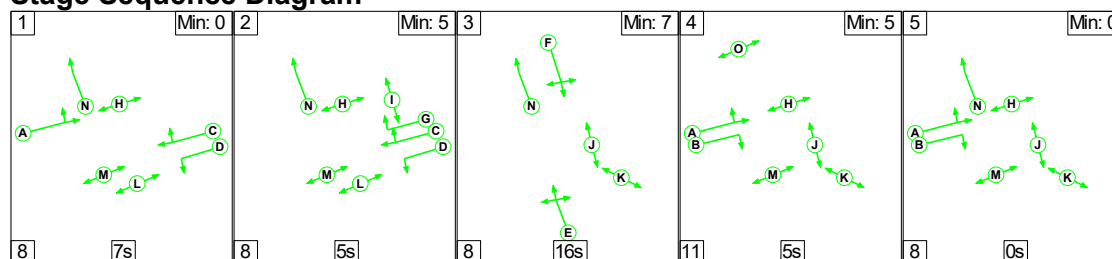
Full Input Data And Results

Junction: J3: Shaw Cross Ped Crossing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:1/2 (Leeds Road N)	3.10	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1925	1925
J3:2/1 (Leeds Rd Ped S)	3.10	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1925	1925
J3:3/1 (Leeds Rd N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'Survey AM' (FG7: 'Survey AM', Plan 1: 'Network Control Plan 1')

C1

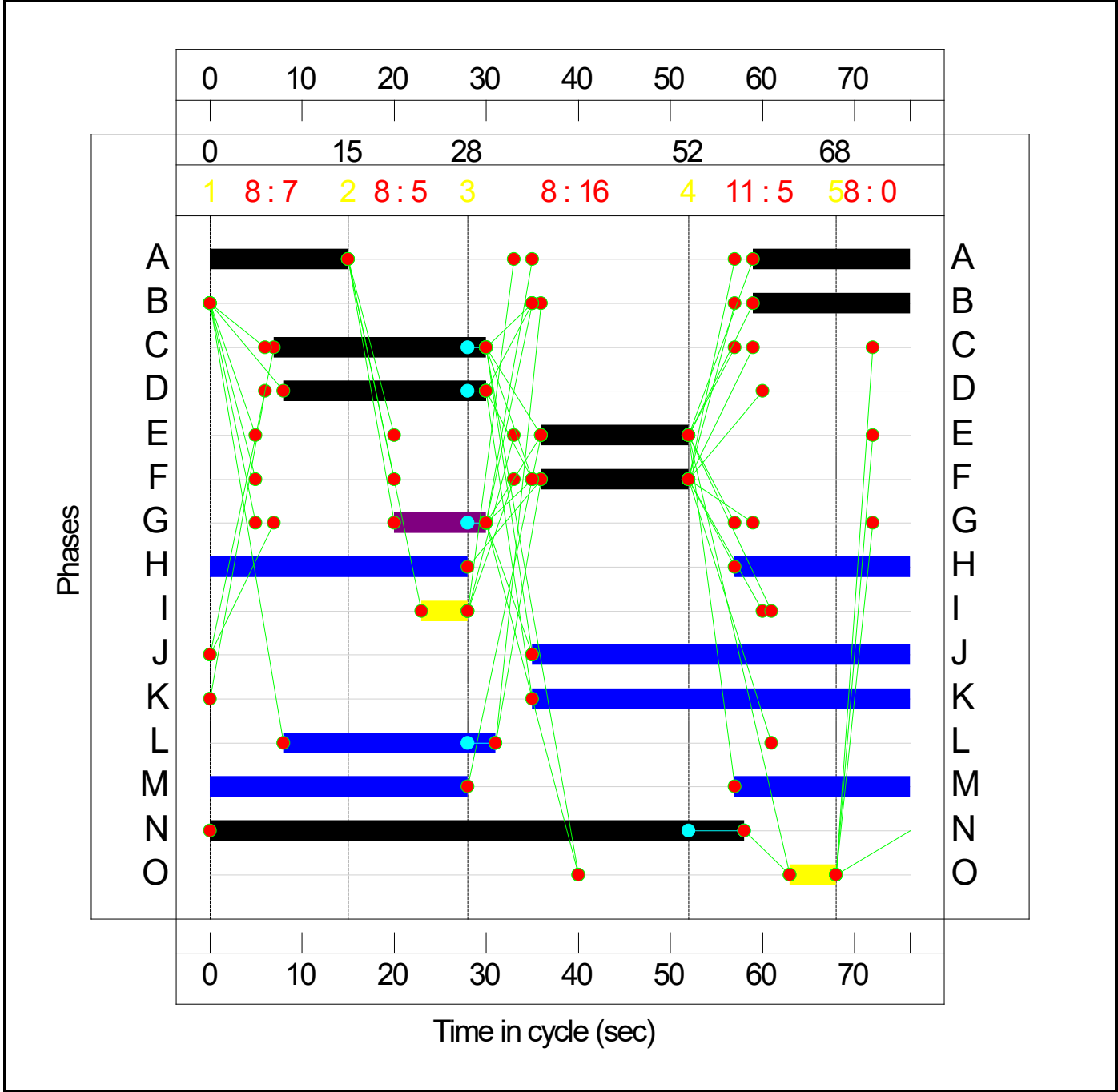
Stage Sequence Diagram



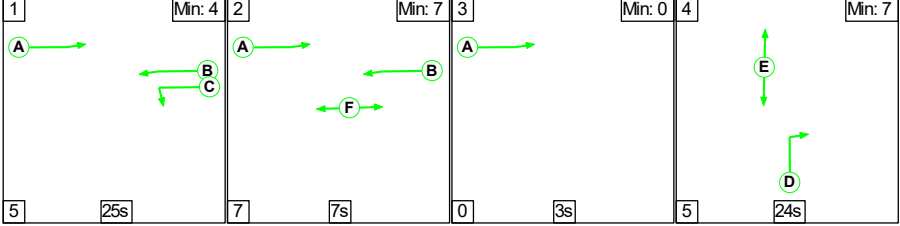
Stage Timings

Stage	1	2	3	4	5
Duration	7	5	16	5	0
Change Point	0	15	28	52	68

Signal Timings Diagram



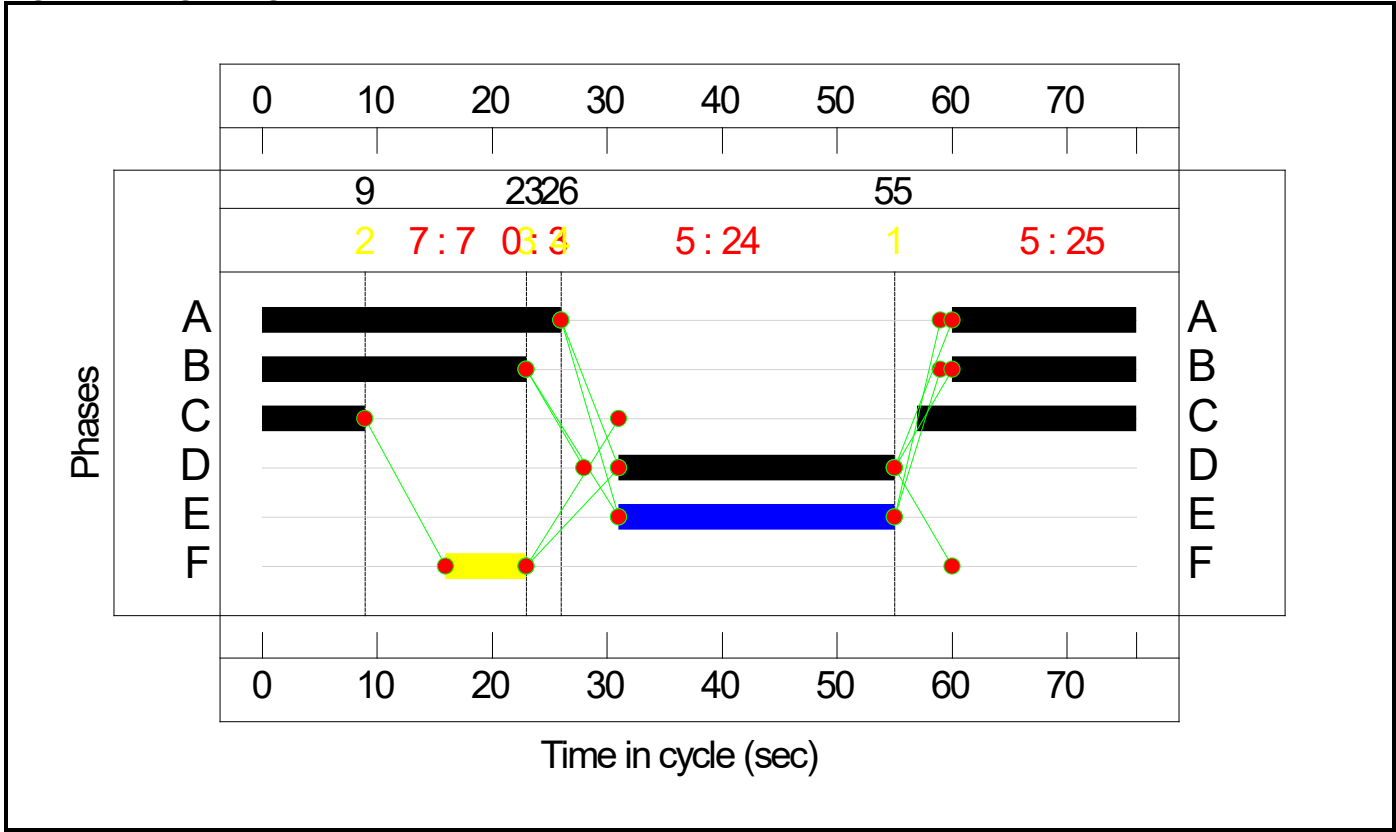
C2
Stage Sequence Diagram



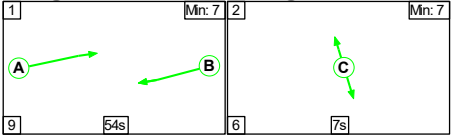
Stage Timings

Stage	1	2	3	4
Duration	25	7	3	24
Change Point	55	9	23	26

Signal Timings Diagram



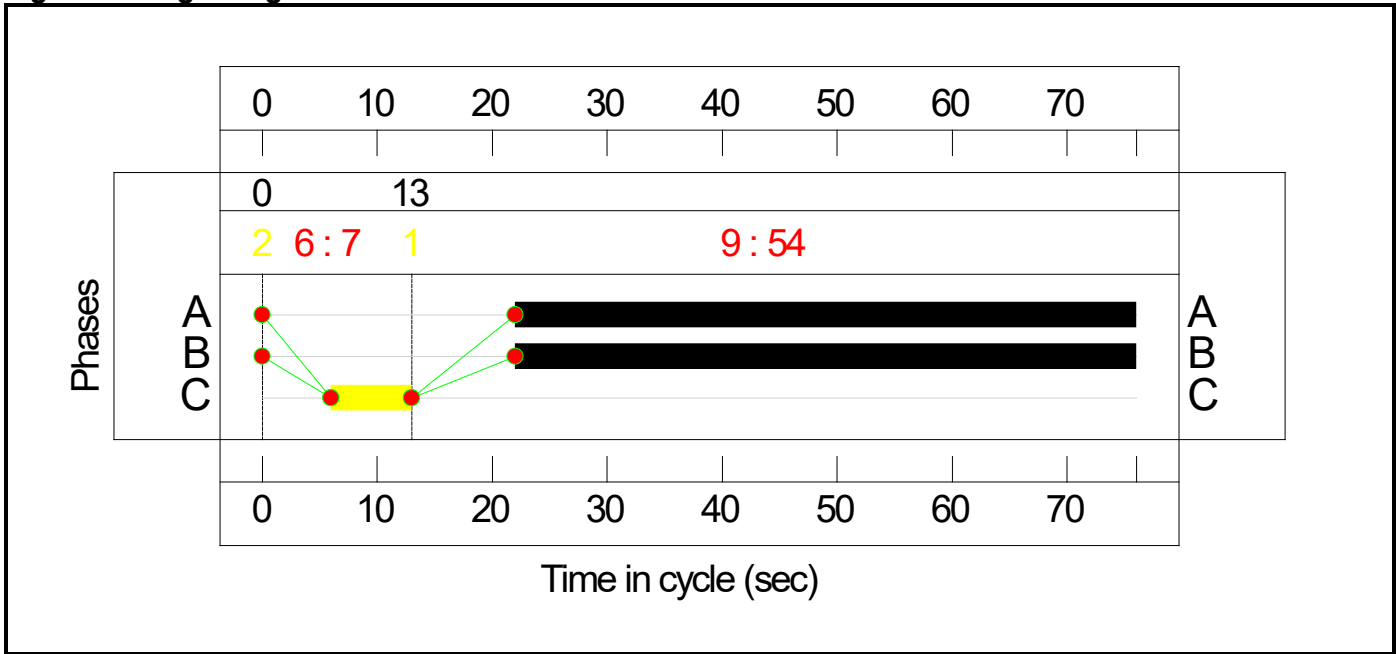
C3
Stage Sequence Diagram



Stage Timings

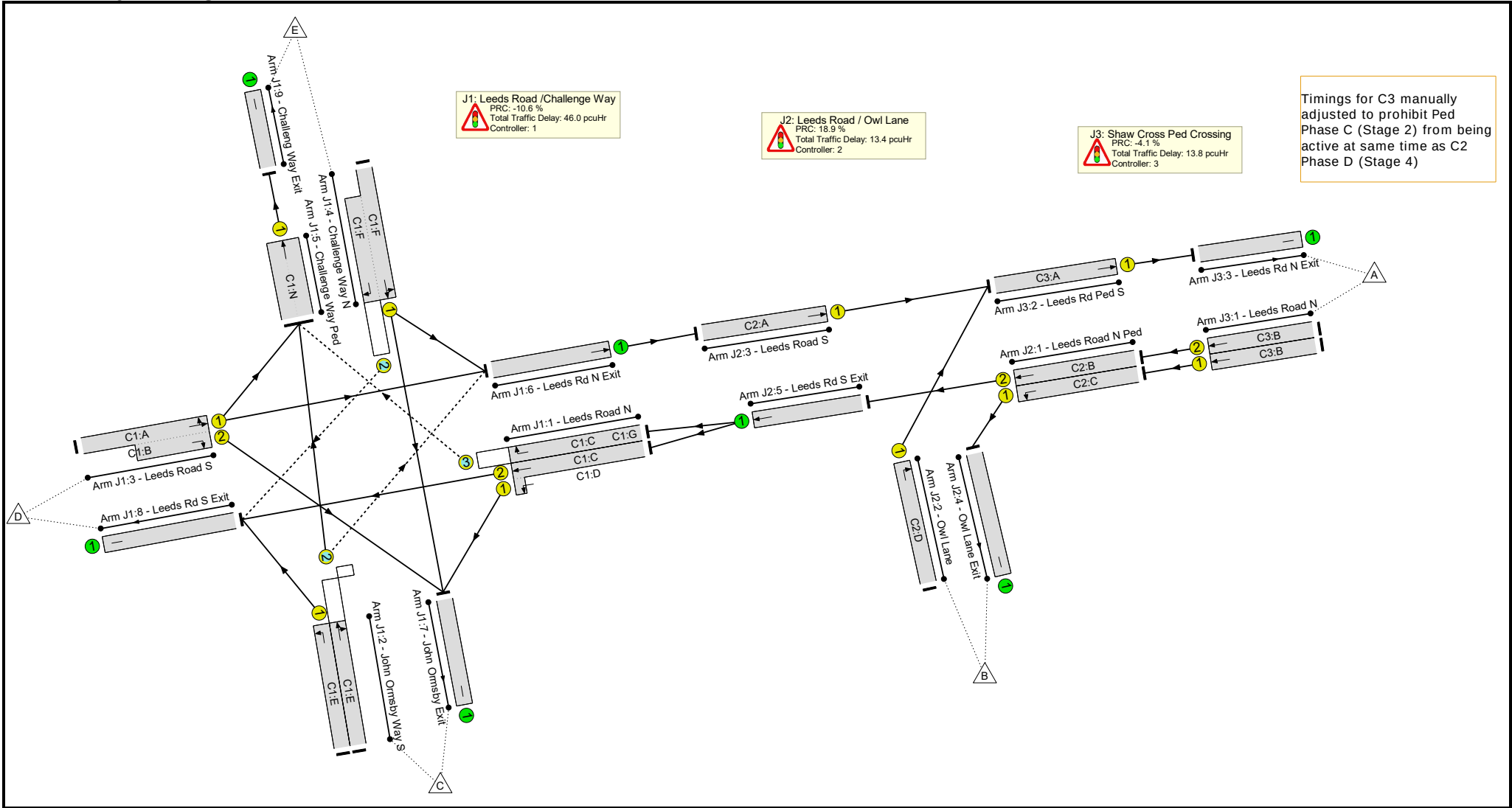
Stage	1	2
Duration	54	7
Change Point	13	0

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	99.6%
J1: Leeds Road /Challenge Way	-	-	N/A	-	-		-	-	-	-	-	-	99.6%
1/2+1/1	Leeds Road N Left Ahead	U	N/A	N/A	C1:C C1:D		1	23:22	-	598	1975:1992	596+25	96.3 : 96.3%
1/3	Leeds Road N Right	O	N/A	N/A	C1:C	C1:G	1	23	10	109	1738	371	29.4%
2/1	John Ormsby Way S Left	U	N/A	N/A	C1:E		1	16	-	190	1854	415	45.8%
2/2	John Ormsby Way S Ahead Right	O	N/A	N/A	C1:E		1	16	-	357	1959	438	81.5%
3/1+3/2	Leeds Road S Left Ahead Right	U	N/A	N/A	C1:A C1:B		1	32:17	-	923	2039:1712	817+109	99.6 : 99.6%
4/1+4/2	Challenge Way N Left Ahead Right	U+O	N/A	N/A	C1:F		1	16	-	440	1931:1620	432+35	94.2 : 94.2%
5/1	Challenge Way Ped Ahead	U	N/A	N/A	C1:N		1	58	-	478	3850	2989	16.0%
6/1	Leeds Rd N Exit Ahead	U	N/A	N/A	-		-	-	-	863	Inf	Inf	0.0%
7/1	John Ormsby Exit	U	N/A	N/A	-		-	-	-	479	Inf	Inf	0.0%
8/1	Leeds Rd S Exit	U	N/A	N/A	-		-	-	-	797	Inf	Inf	0.0%
9/1	Challeng Way Exit	U	N/A	N/A	-		-	-	-	478	Inf	Inf	0.0%
J2: Leeds Road / Owl Lane	-	-	N/A	-	-		-	-	-	-	-	-	75.7%
1/1	Leeds Road N Ped Left	U	N/A	N/A	C2:C		1	28	-	255	1797	686	37.2%
1/2	Leeds Road N Ped Ahead	U	N/A	N/A	C2:B		1	39	-	707	1925	1013	69.8%

Full Input Data And Results

2/1	Owl Lane Right	U	N/A	N/A	C2:D		1	24	-	442	1914	630	70.2%
3/1	Leeds Road S Ahead	U	N/A	N/A	C2:A		1	42	-	863	2015	1140	75.7%
4/1	Owl Lane Exit	U	N/A	N/A	-		-	-	-	255	Inf	Inf	0.0%
5/1	Leeds Rd S Exit Ahead	U	N/A	N/A	-		-	-	-	707	Inf	Inf	0.0%
J3: Shaw Cross Ped Crossing	-	-	N/A	-	-		-	-	-	-	-	-	93.7%
1/1	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	255	1925	1393	18.3%
1/2	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	707	1925	1393	50.8%
2/1	Leeds Rd Ped S Ahead	U	N/A	N/A	C3:A		1	54	-	1305	1925	1393	93.7%
3/1	Leeds Rd N Exit	U	N/A	N/A	-		-	-	-	1305	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	11	108	35	31.1	41.7	0.3	73.2	-	-	-	-
J1: Leeds Road /Challenge Way	-	-	11	108	35	15.2	30.5	0.3	46.0	-	-	-	-
1/2+1/1	598	598	-	-	-	1.3	7.7	-	9.0	54.3	12.6	7.7	20.3
1/3	109	109	0	108	1	0.1	0.2	0.2	0.5	14.9	1.1	0.2	1.3
2/1	190	190	-	-	-	1.3	0.4	-	1.8	33.5	3.4	0.4	3.9
2/2	357	357	11	0	1	2.8	2.1	0.0	4.9	49.3	7.1	2.1	9.2
3/1+3/2	923	923	-	-	-	6.0	14.2	-	20.3	79.1	18.3	14.2	32.5
4/1+4/2	440	440	0	0	33	3.5	5.7	0.1	9.3	76.4	8.4	5.7	14.1
5/1	478	478	-	-	-	0.1	0.1	-	0.2	1.6	0.4	0.0	0.4
6/1	863	863	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	479	479	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	797	797	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	478	478	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Leeds Road / Owl Lane	-	-	0	0	0	9.2	4.1	0.0	13.4	-	-	-	-
1/1	255	255	-	-	-	1.2	0.3	-	1.5	20.6	4.2	0.3	4.5
1/2	707	707	-	-	-	4.9	1.1	-	6.1	30.8	14.9	1.1	16.1
2/1	442	442	-	-	-	2.7	1.2	-	3.9	31.7	8.1	1.2	9.3
3/1	863	863	-	-	-	0.4	1.5	-	2.0	8.2	1.9	1.5	3.4
4/1	255	255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	707	707	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Shaw Cross Ped Crossing	-	-	0	0	0	6.8	7.1	0.0	13.8	-	-	-	-
1/1	255	255	-	-	-	0.2	0.1	-	0.3	4.9	1.7	0.1	1.8
1/2	707	707	-	-	-	0.9	0.5	-	1.4	7.2	6.5	0.5	7.0

Full Input Data And Results

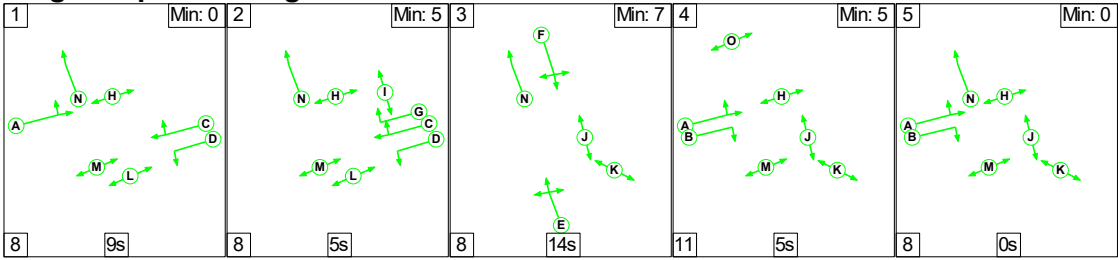
2/1	1305	1305	-	-	-	5.6	6.5	-	12.1	33.3	26.0	6.5	32.4
3/1	1305	1305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -10.6 Total Delay for Signalled Lanes (pcuHr): 45.96 Cycle Time (s): 76 C2 PRC for Signalled Lanes (%): 18.9 Total Delay for Signalled Lanes (pcuHr): 13.36 Cycle Time (s): 76 C3 PRC for Signalled Lanes (%): -4.1 Total Delay for Signalled Lanes (pcuHr): 13.84 Cycle Time (s): 76 PRC Over All Lanes (%): -10.6 Total Delay Over All Lanes(pcuHr): 73.16													

Full Input Data And Results

Scenario 2: 'Survey PM' (FG8: 'Survey PM', Plan 1: 'Network Control Plan 1')

C1

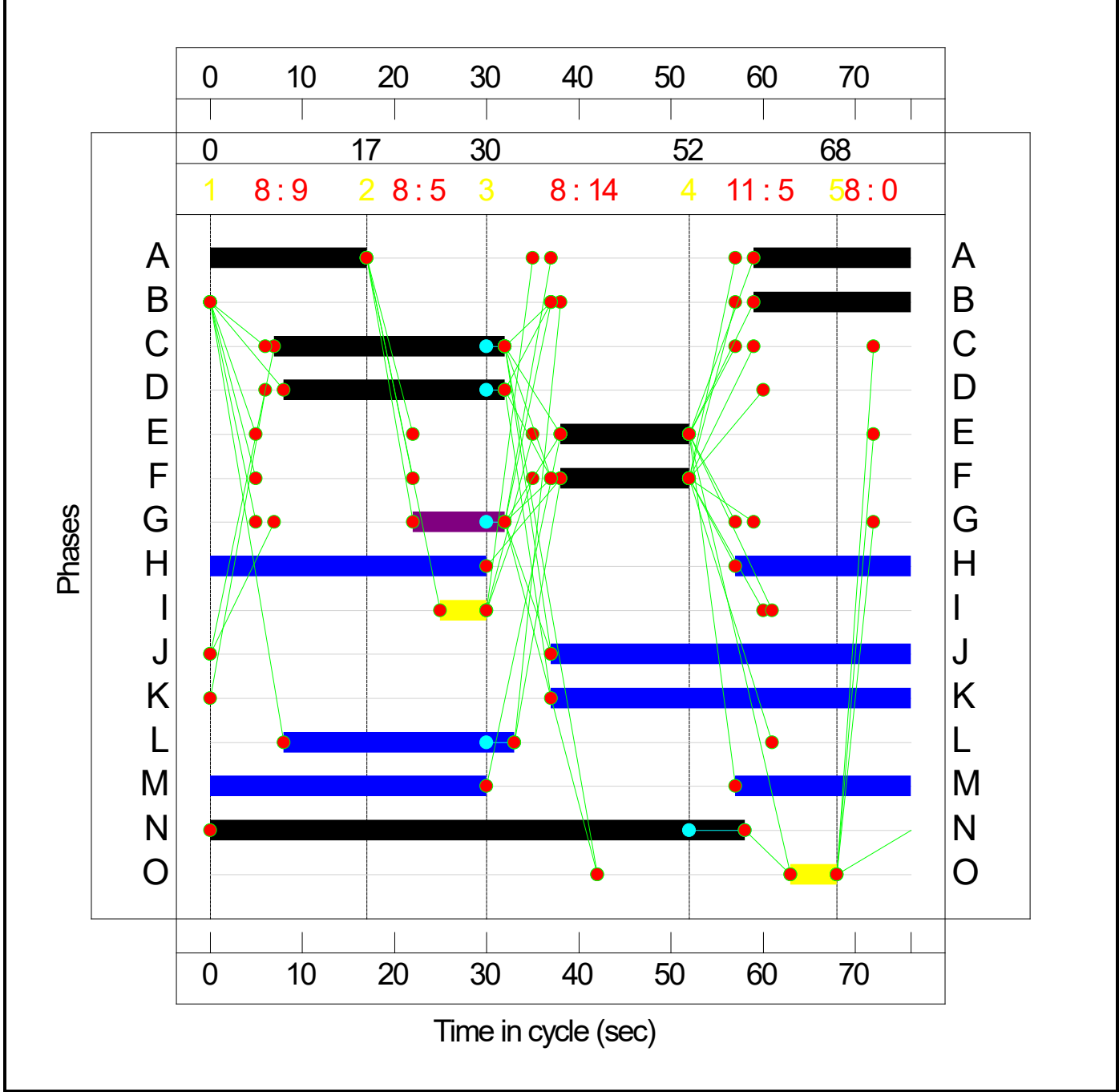
Stage Sequence Diagram



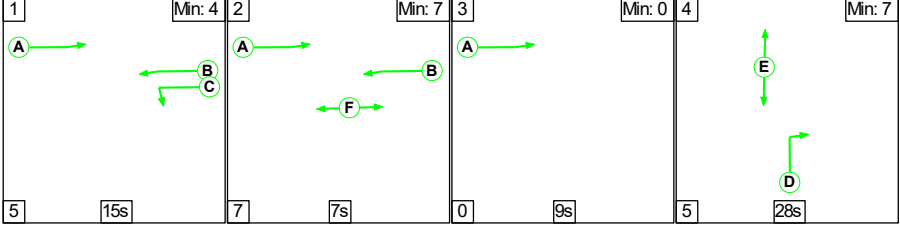
Stage Timings

Stage	1	2	3	4	5
Duration	9	5	14	5	0
Change Point	0	17	30	52	68

Signal Timings Diagram



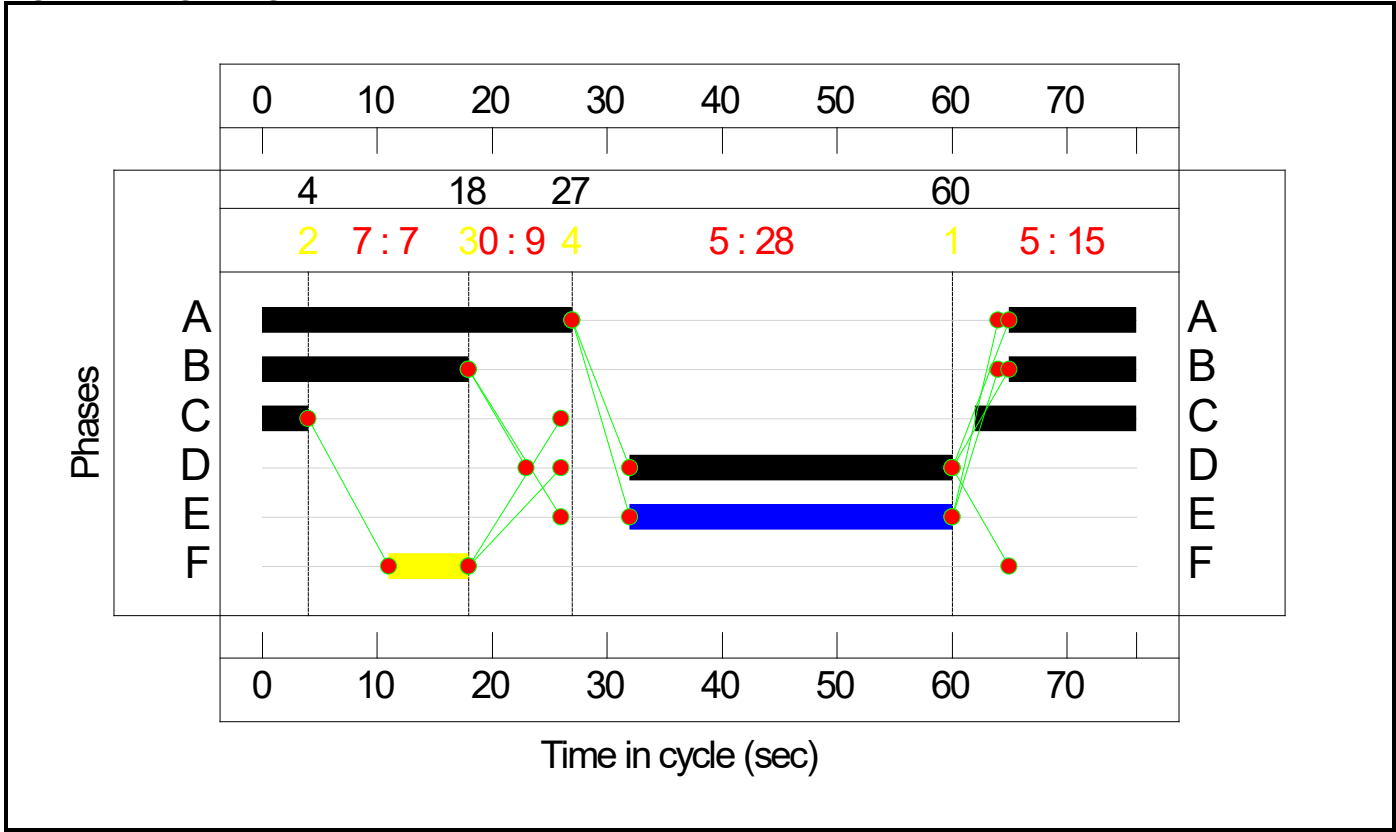
C2
Stage Sequence Diagram



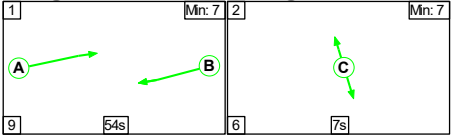
Stage Timings

Stage	1	2	3	4
Duration	15	7	9	28
Change Point	60	4	18	27

Signal Timings Diagram



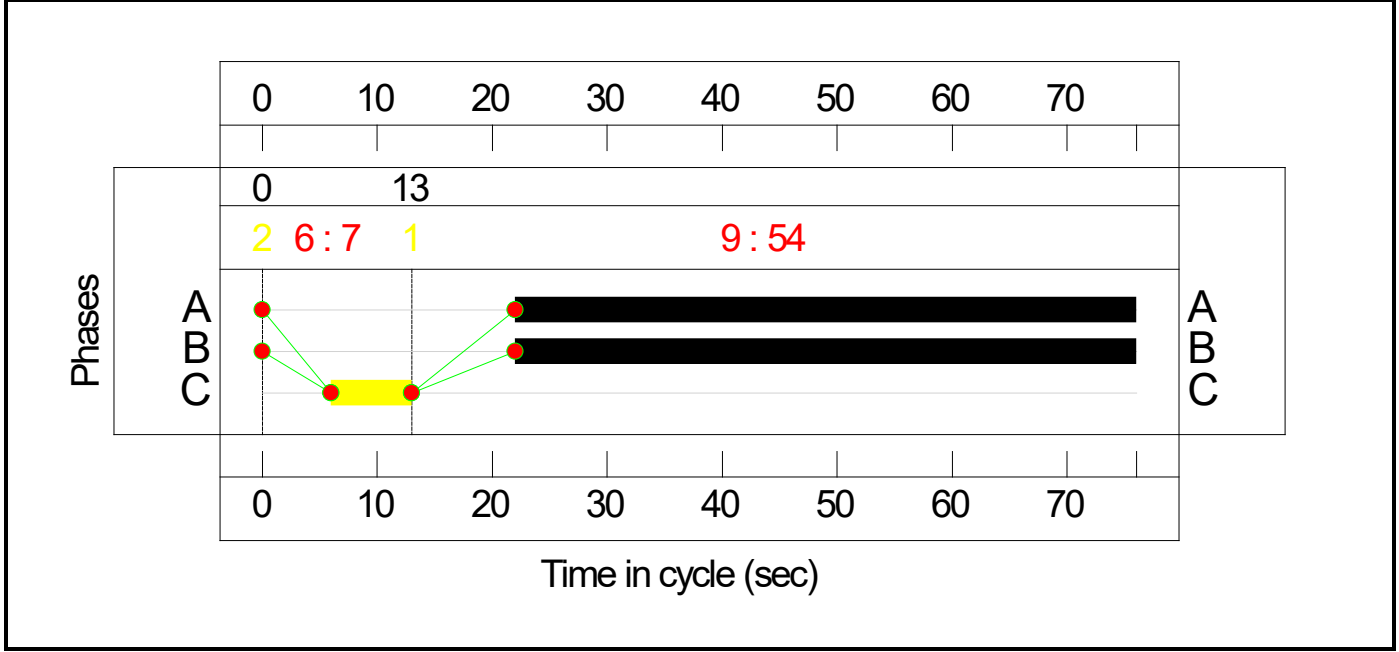
C3
Stage Sequence Diagram



Stage Timings

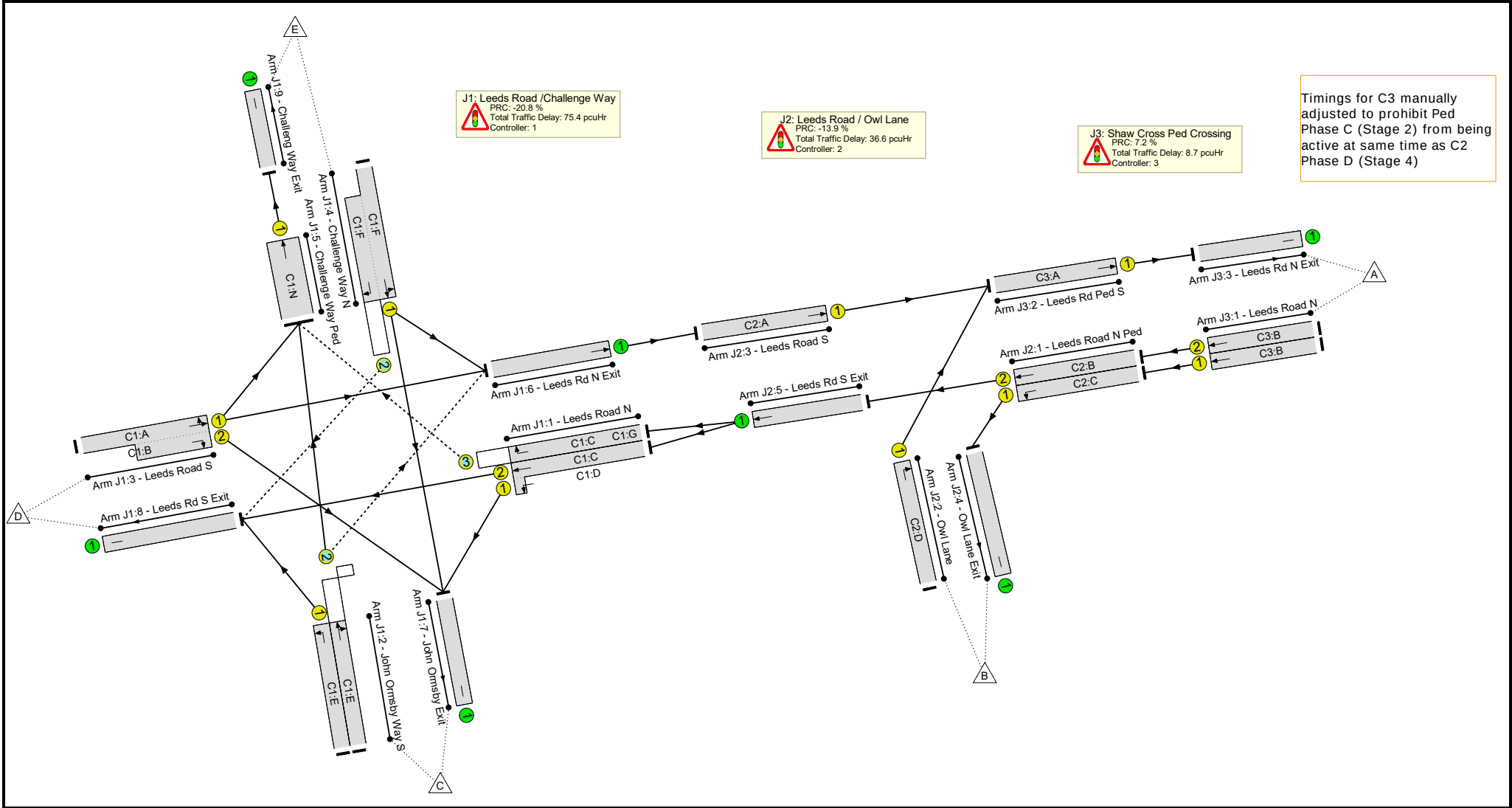
Stage	1	2
Duration	54	7
Change Point	13	0

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	108.7%
J1: Leeds Road /Challenge Way	-	-	N/A	-	-		-	-	-	-	-	-	108.7%
1/2+1/1	Leeds Road N Left Ahead	U	N/A	N/A	C1:C C1:D		1	25:24	-	736	1975:1992	651+22	106.7 : 106.7%
1/3	Leeds Road N Right	O	N/A	N/A	C1:C	C1:G	1	25	10	43	1738	534	7.9%
2/1	John Ormsby Way S Left	U	N/A	N/A	C1:E		1	14	-	296	1854	366	80.9%
2/2	John Ormsby Way S Ahead Right	O	N/A	N/A	C1:E		1	14	-	338	1936	382	88.5%
3/1+3/2	Leeds Road S Left Ahead Right	U	N/A	N/A	C1:A C1:B		1	34:17	-	703	2037:1712	904+59	73.0 : 73.0%
4/1+4/2	Challenge Way N Left Ahead Right	U+O	N/A	N/A	C1:F		1	14	-	449	1916:1620	378+35	108.7 : 108.7%
5/1	Challenge Way Ped Ahead	U	N/A	N/A	C1:N		1	58	-	377	3850	2989	12.6%
6/1	Leeds Rd N Exit Ahead	U	N/A	N/A	-		-	-	-	764	Inf	Inf	0.0%
7/1	John Ormsby Exit	U	N/A	N/A	-		-	-	-	378	Inf	Inf	0.0%
8/1	Leeds Rd S Exit	U	N/A	N/A	-		-	-	-	1046	Inf	Inf	0.0%
9/1	Challeng Way Exit	U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%
J2: Leeds Road / Owl Lane	-	-	N/A	-	-		-	-	-	-	-	-	102.5%
1/1	Leeds Road N Ped Left	U	N/A	N/A	C2:C		1	18	-	381	1797	449	84.8%
1/2	Leeds Road N Ped Ahead	U	N/A	N/A	C2:B		1	29	-	779	1925	760	102.5%

Full Input Data And Results

2/1	Owl Lane Right	U	N/A	N/A	C2:D		1	28	-	414	1914	730	56.7%
3/1	Leeds Road S Ahead	U	N/A	N/A	C2:A		1	38	-	764	2015	1034	73.1%
4/1	Owl Lane Exit	U	N/A	N/A	-		-	-	-	381	Inf	Inf	0.0%
5/1	Leeds Rd S Exit Ahead	U	N/A	N/A	-		-	-	-	779	Inf	Inf	0.0%
J3: Shaw Cross Ped Crossing	-	-	N/A	-	-		-	-	-	-	-	-	84.0%
1/1	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	381	1925	1393	27.3%
1/2	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	779	1925	1393	55.9%
2/1	Leeds Rd Ped S Ahead	U	N/A	N/A	C3:A		1	54	-	1178	1925	1393	84.0%
3/1	Leeds Rd N Exit	U	N/A	N/A	-		-	-	-	1178	Inf	Inf	0.0%

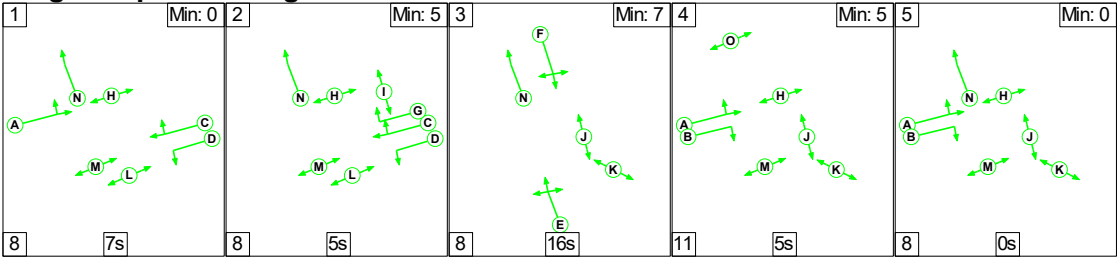
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	23	17	67	34.6	85.9	0.2	120.7	-	-	-	-
J1: Leeds Road /Challenge Way	-	-	23	17	67	16.8	58.4	0.2	75.4	-	-	-	-
1/2+1/1	718	673	-	-	-	3.2	28.8	-	32.0	160.2	16.7	28.8	45.5
1/3	42	42	23	17	2	0.0	0.0	0.0	0.1	5.4	0.2	0.0	0.2
2/1	296	296	-	-	-	2.4	2.0	-	4.4	53.5	5.9	2.0	7.9
2/2	338	338	0	0	27	2.8	3.3	0.0	6.2	65.6	6.9	3.3	10.2
3/1+3/2	703	703	-	-	-	3.4	1.3	-	4.7	24.2	11.3	1.3	12.6
4/1+4/2	449	416	0	0	38	4.7	22.9	0.1	27.7	221.9	9.4	22.9	32.2
5/1	376	376	-	-	-	0.3	0.1	-	0.4	3.7	0.9	0.0	0.9
6/1	756	756	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	351	351	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	985	985	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	376	376	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Leeds Road / Owl Lane	-	-	0	0	0	12.5	24.1	0.0	36.6	-	-	-	-
1/1	381	381	-	-	-	2.5	2.6	-	5.1	48.0	7.6	2.6	10.2
1/2	779	760	-	-	-	7.4	19.5	-	27.0	124.6	16.8	19.5	36.4
2/1	414	414	-	-	-	2.1	0.7	-	2.8	24.2	6.8	0.7	7.4
3/1	756	756	-	-	-	0.5	1.3	-	1.8	8.6	3.4	1.3	4.7
4/1	381	381	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Shaw Cross Ped Crossing	-	-	0	0	0	5.3	3.4	0.0	8.7	-	-	-	-
1/1	381	381	-	-	-	0.4	0.2	-	0.6	5.4	2.8	0.2	2.9
1/2	779	779	-	-	-	1.1	0.6	-	1.7	7.8	7.6	0.6	8.2

Full Input Data And Results

2/1	1170	1170	-	-	-	3.9	2.6	-	6.4	19.7	19.8	2.6	22.4
3/1	1170	1170	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
			C1	PRC for Signalled Lanes (%):	-20.8	Total Delay for Signalled Lanes (pcuHr):		75.36	Cycle Time (s):		76		
			C2	PRC for Signalled Lanes (%):	-13.9	Total Delay for Signalled Lanes (pcuHr):		36.63	Cycle Time (s):		76		
			C3	PRC for Signalled Lanes (%):	7.2	Total Delay for Signalled Lanes (pcuHr):		8.67	Cycle Time (s):		76		
				PRC Over All Lanes (%):	-20.8	Total Delay Over All Lanes(pcuHr):		120.67					

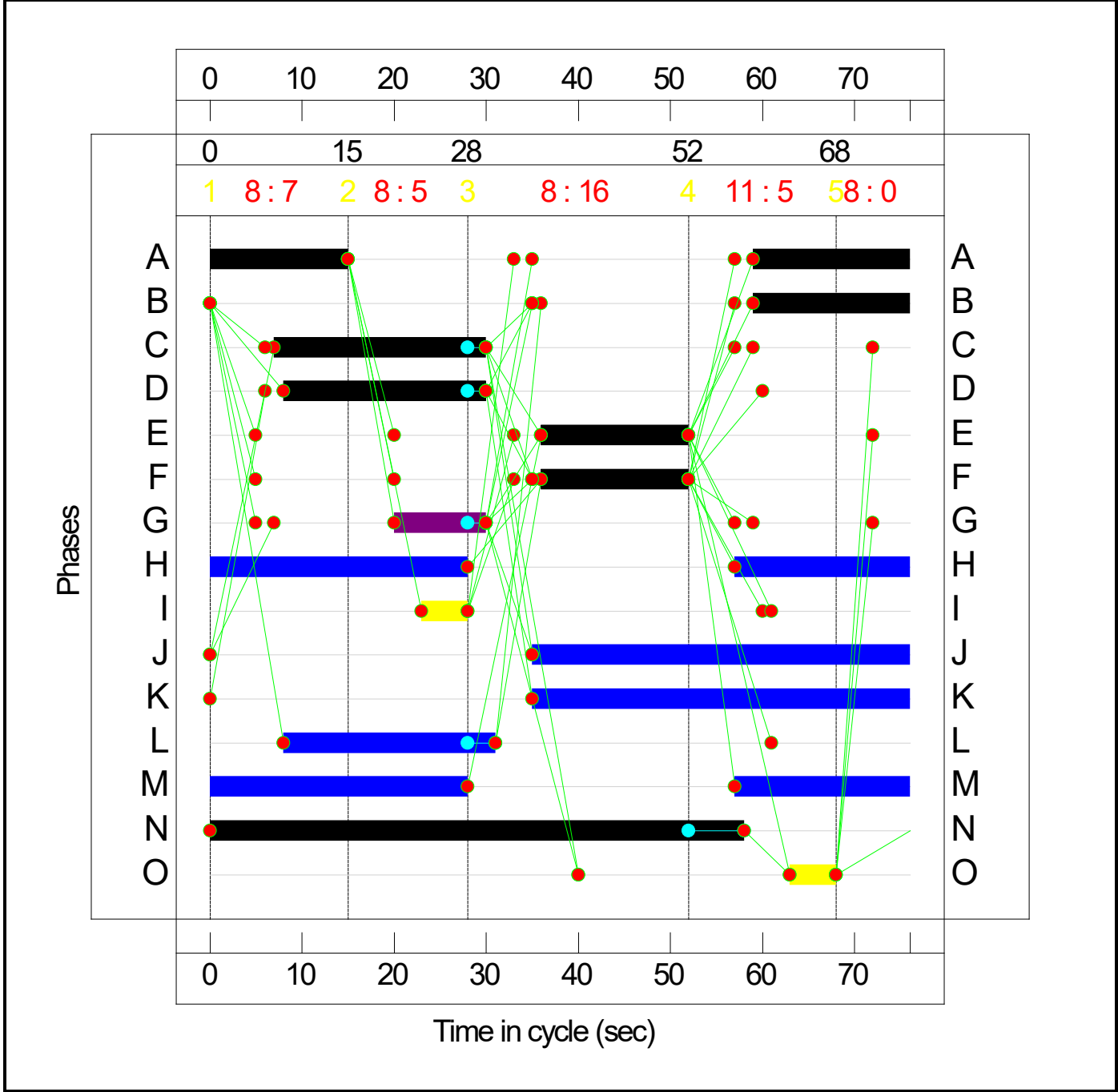
Stage Sequence Diagram



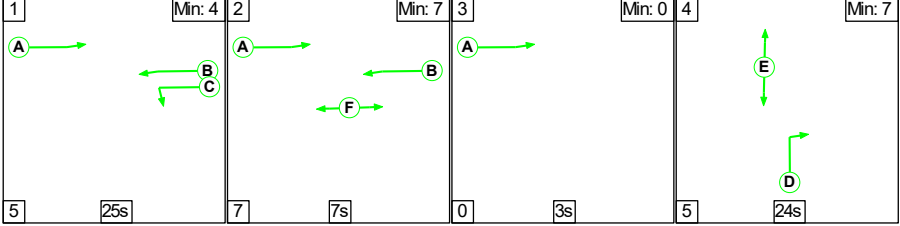
Stage Timings

Stage	1	2	3	4	5
Duration	7	5	16	5	0
Change Point	0	15	28	52	68

Signal Timings Diagram



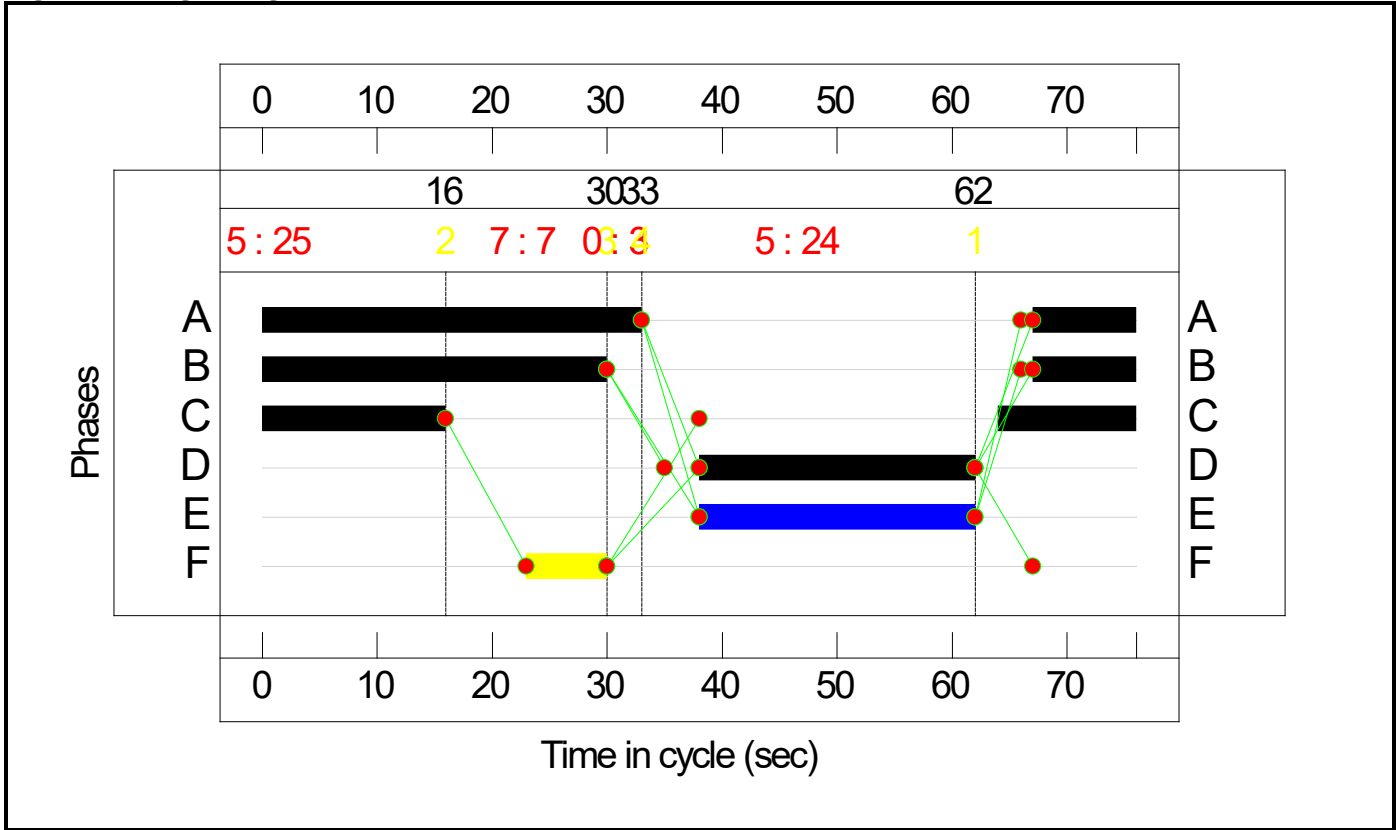
C2
Stage Sequence Diagram



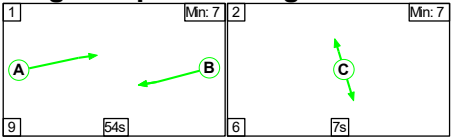
Stage Timings

Stage	1	2	3	4
Duration	25	7	3	24
Change Point	62	16	30	33

Signal Timings Diagram



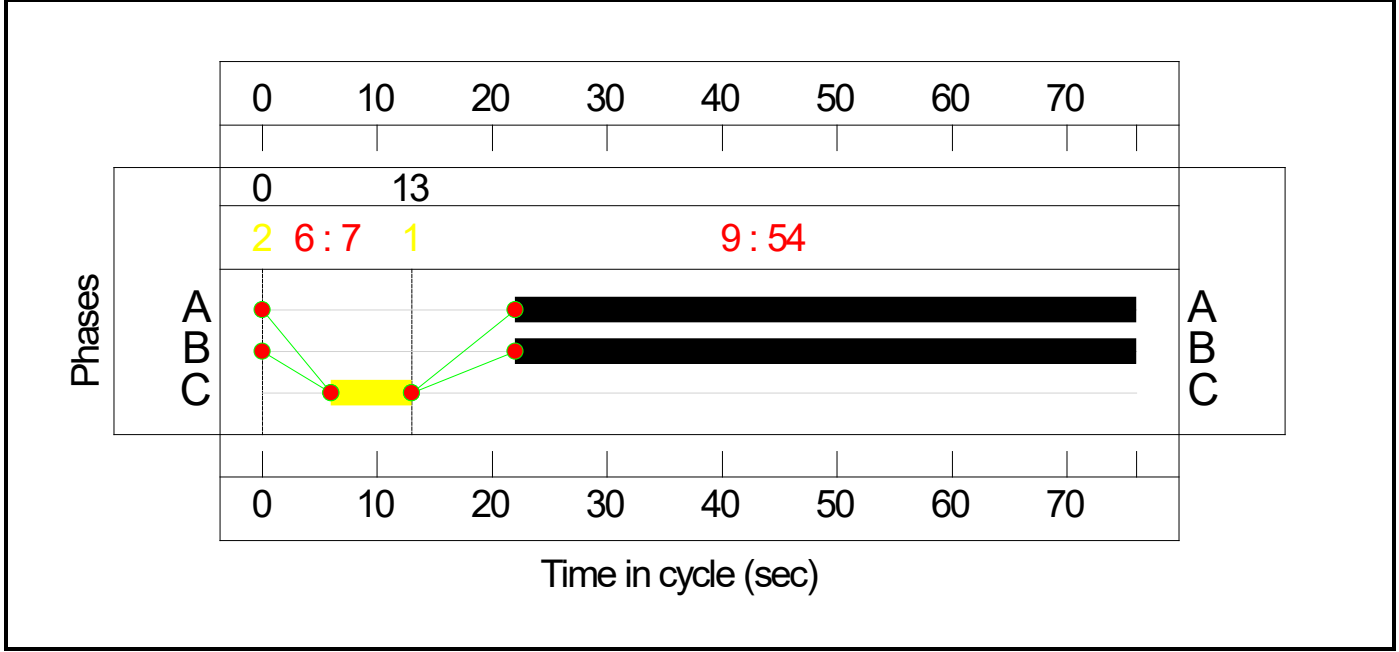
C3
Stage Sequence Diagram



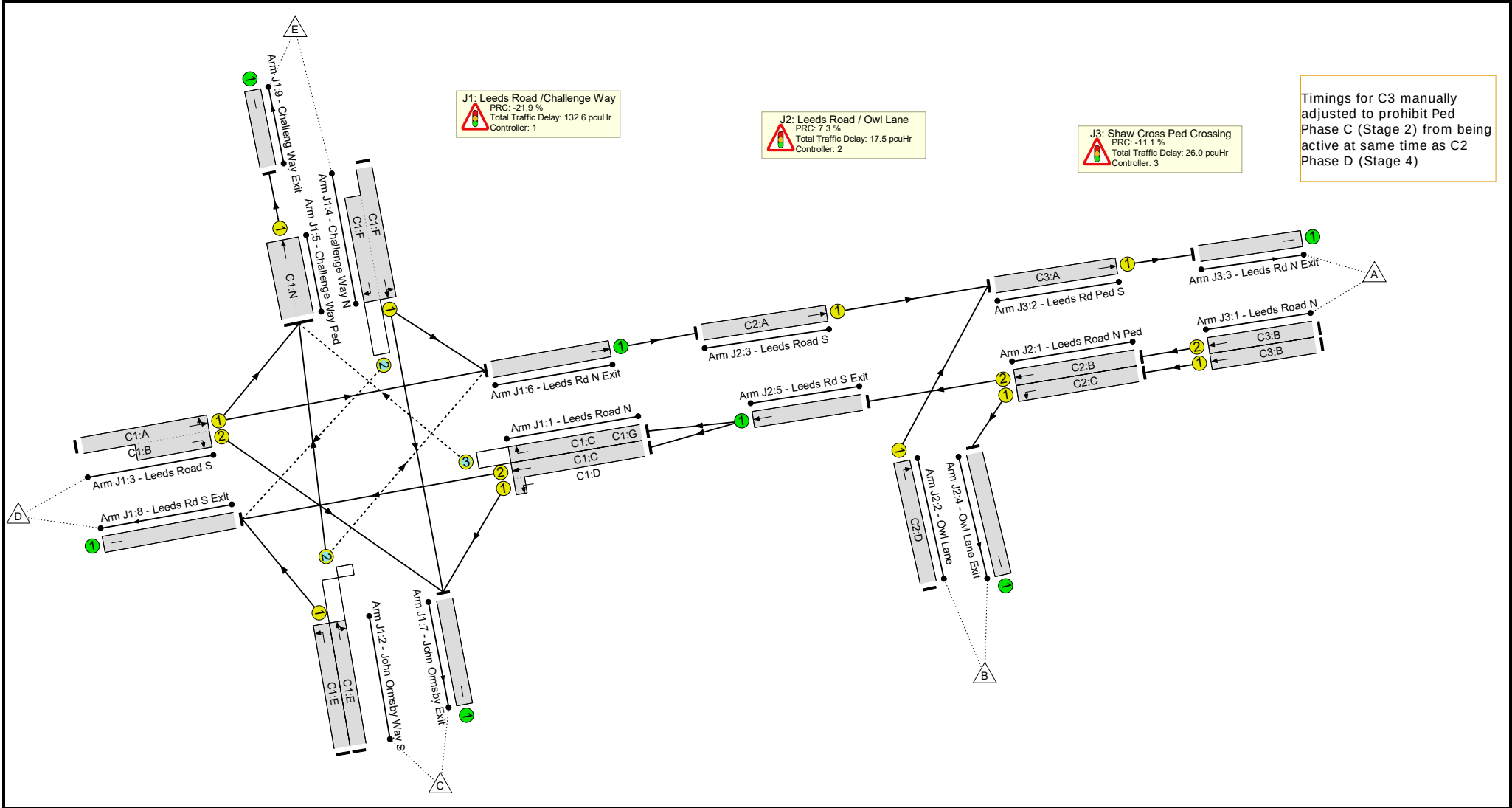
Stage Timings

Stage	1	2
Duration	54	7
Change Point	13	0

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	109.7%
J1: Leeds Road /Challenge Way	-	-	N/A	-	-		-	-	-	-	-	-	109.7%
1/2+1/1	Leeds Road N Left Ahead	U	N/A	N/A	C1:C C1:D		1	23:22	-	673	1975:1992	595+26	108.3 : 108.3%
1/3	Leeds Road N Right	O	N/A	N/A	C1:C	C1:G	1	23	10	123	1738	371	33.2%
2/1	John Ormsby Way S Left	U	N/A	N/A	C1:E		1	16	-	227	1854	415	54.7%
2/2	John Ormsby Way S Ahead Right	O	N/A	N/A	C1:E		1	16	-	406	1958	438	92.7%
3/1+3/2	Leeds Road S Left Ahead Right	U	N/A	N/A	C1:A C1:B		1	32:17	-	1020	2039:1712	812+118	109.7 : 109.7%
4/1+4/2	Challenge Way N Left Ahead Right	U+O	N/A	N/A	C1:F		1	16	-	494	1932:1620	432+33	106.2 : 106.2%
5/1	Challenge Way Ped Ahead	U	N/A	N/A	C1:N		1	58	-	541	3850	2989	18.0%
6/1	Leeds Rd N Exit Ahead	U	N/A	N/A	-		-	-	-	945	Inf	Inf	0.0%
7/1	John Ormsby Exit	U	N/A	N/A	-		-	-	-	550	Inf	Inf	0.0%
8/1	Leeds Rd S Exit	U	N/A	N/A	-		-	-	-	907	Inf	Inf	0.0%
9/1	Challeng Way Exit	U	N/A	N/A	-		-	-	-	541	Inf	Inf	0.0%
J2: Leeds Road / Owl Lane	-	-	N/A	-	-		-	-	-	-	-	-	83.9%
1/1	Leeds Road N Ped Left	U	N/A	N/A	C2:C		1	28	-	305	1797	686	44.5%
1/2	Leeds Road N Ped Ahead	U	N/A	N/A	C2:B		1	39	-	796	1925	1013	78.6%

Full Input Data And Results

2/1	Owl Lane Right	U	N/A	N/A	C2:D		1	24	-	528	1914	630	83.9%
3/1	Leeds Road S Ahead	U	N/A	N/A	C2:A		1	42	-	945	2015	1140	75.8%
4/1	Owl Lane Exit	U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
5/1	Leeds Rd S Exit Ahead	U	N/A	N/A	-		-	-	-	796	Inf	Inf	0.0%
J3: Shaw Cross Ped Crossing	-	-	N/A	-	-		-	-	-	-	-	-	100.0%
1/1	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	305	1925	1393	21.9%
1/2	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	796	1925	1393	57.1%
2/1	Leeds Rd Ped S Ahead	U	N/A	N/A	C3:A		1	54	-	1473	1925	1393	100.0%
3/1	Leeds Rd N Exit	U	N/A	N/A	-		-	-	-	1473	Inf	Inf	0.0%

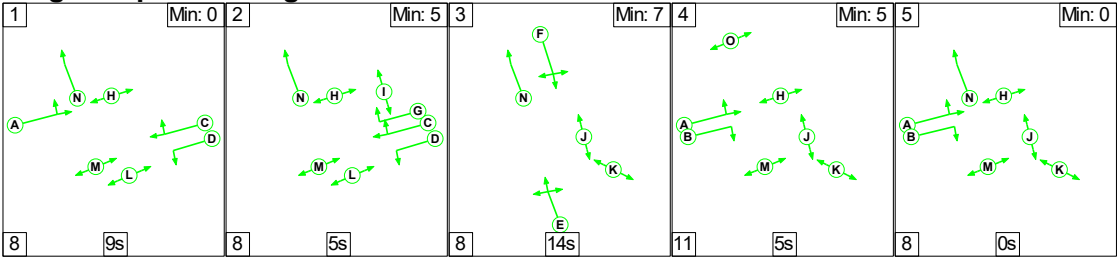
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	0	116	56	42.5	133.3	0.3	176.1	-	-	-	-
J1: Leeds Road /Challenge Way	-	-	0	116	56	24.6	107.7	0.3	132.6	-	-	-	-
1/2+1/1	673	621	-	-	-	3.9	31.2	-	35.1	187.9	15.5	31.2	46.7
1/3	123	123	0	116	7	0.2	0.2	0.1	0.6	18.4	0.8	0.2	1.1
2/1	227	227	-	-	-	1.6	0.6	-	2.2	35.6	4.2	0.6	4.8
2/2	406	406	0	0	14	3.3	4.9	0.0	8.2	72.3	8.3	4.9	13.2
3/1+3/2	1020	930	-	-	-	10.5	50.2	-	60.7	214.2	23.8	50.2	74.1
4/1+4/2	494	467	0	0	35	4.8	20.5	0.1	25.4	184.9	10.3	20.5	30.7
5/1	539	539	-	-	-	0.3	0.1	-	0.4	2.7	0.8	0.1	0.8
6/1	865	865	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	513	513	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	857	857	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	539	539	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Leeds Road / Owl Lane	-	-	0	0	0	11.3	6.2	0.0	17.5	-	-	-	-
1/1	305	305	-	-	-	1.9	0.4	-	2.3	27.6	5.8	0.4	6.2
1/2	796	796	-	-	-	5.6	1.8	-	7.4	33.6	14.8	1.8	16.6
2/1	528	528	-	-	-	3.5	2.5	-	5.9	40.5	10.3	2.5	12.7
3/1	865	865	-	-	-	0.2	1.6	-	1.8	7.4	1.9	1.6	3.4
4/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	796	796	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Shaw Cross Ped Crossing	-	-	0	0	0	6.6	19.3	0.0	26.0	-	-	-	-
1/1	305	305	-	-	-	0.3	0.1	-	0.4	5.1	2.0	0.1	2.2
1/2	796	796	-	-	-	1.1	0.7	-	1.8	8.0	7.7	0.7	8.4

Full Input Data And Results

2/1	1393	1393	-	-	-	5.3	18.5	-	23.8	61.5	29.0	18.5	47.5
3/1	1393	1393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -21.9 Total Delay for Signalled Lanes (pcuHr): 132.62 Cycle Time (s): 76 C2 PRC for Signalled Lanes (%): 7.3 Total Delay for Signalled Lanes (pcuHr): 17.49 Cycle Time (s): 76 C3 PRC for Signalled Lanes (%): -11.1 Total Delay for Signalled Lanes (pcuHr): 25.98 Cycle Time (s): 76 PRC Over All Lanes (%): -21.9 Total Delay Over All Lanes(pcuHr): 176.09													

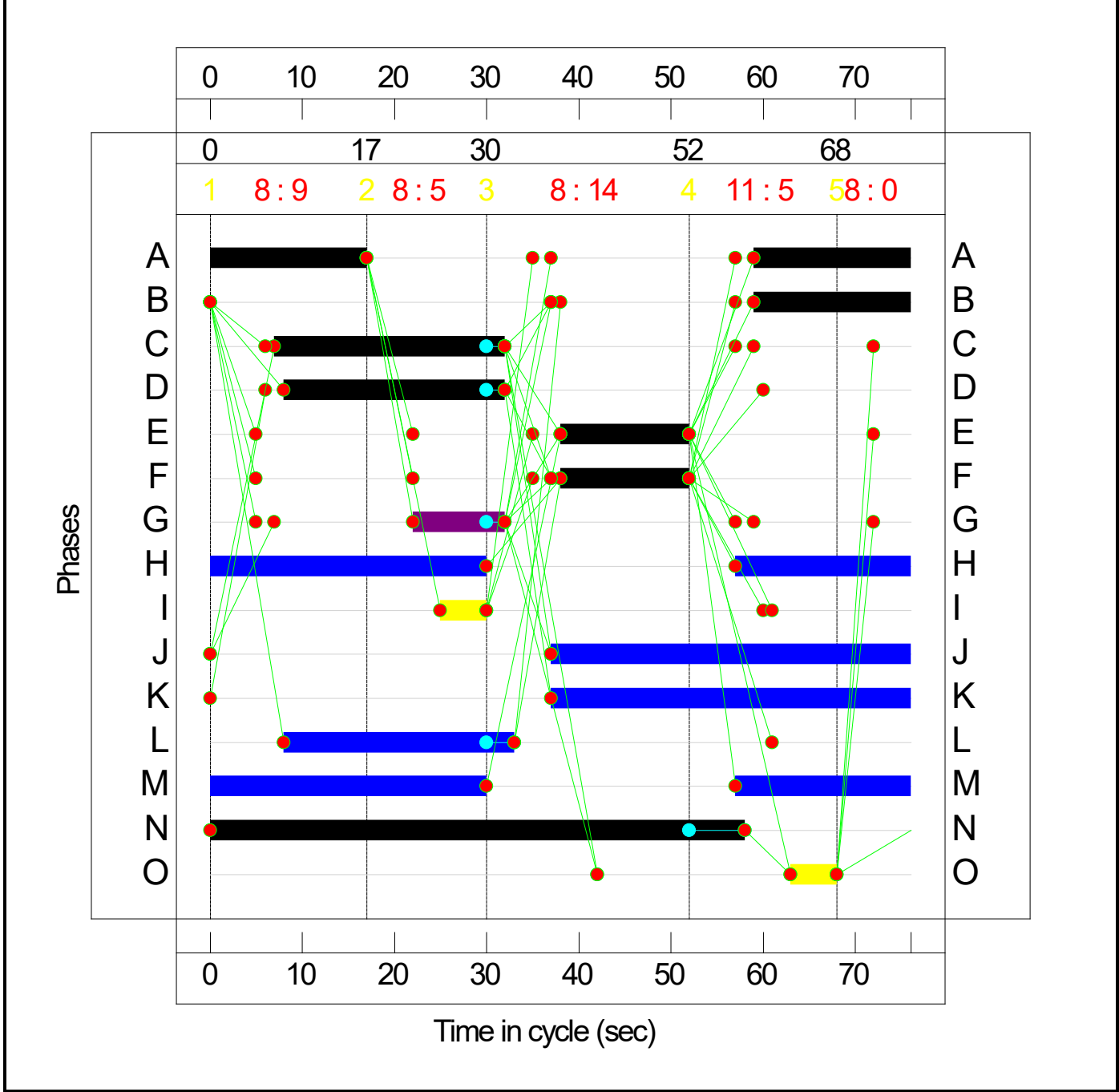
Stage Sequence Diagram



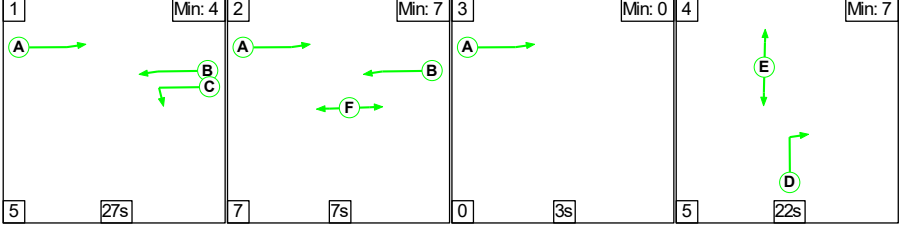
Stage Timings

Stage	1	2	3	4	5
Duration	9	5	14	5	0
Change Point	0	17	30	52	68

Signal Timings Diagram



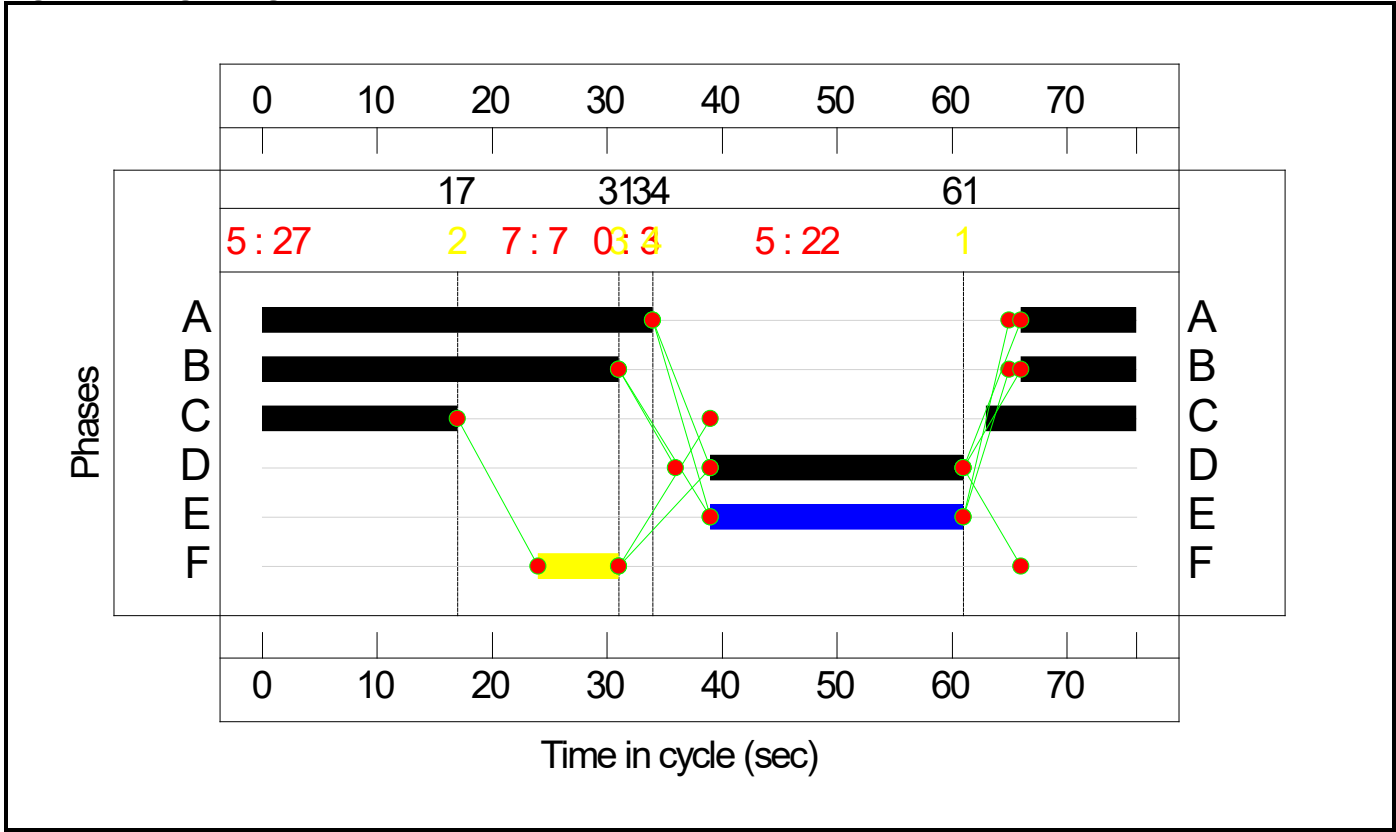
C2
Stage Sequence Diagram



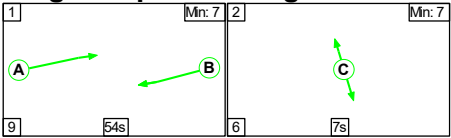
Stage Timings

Stage	1	2	3	4
Duration	27	7	3	22
Change Point	61	17	31	34

Signal Timings Diagram



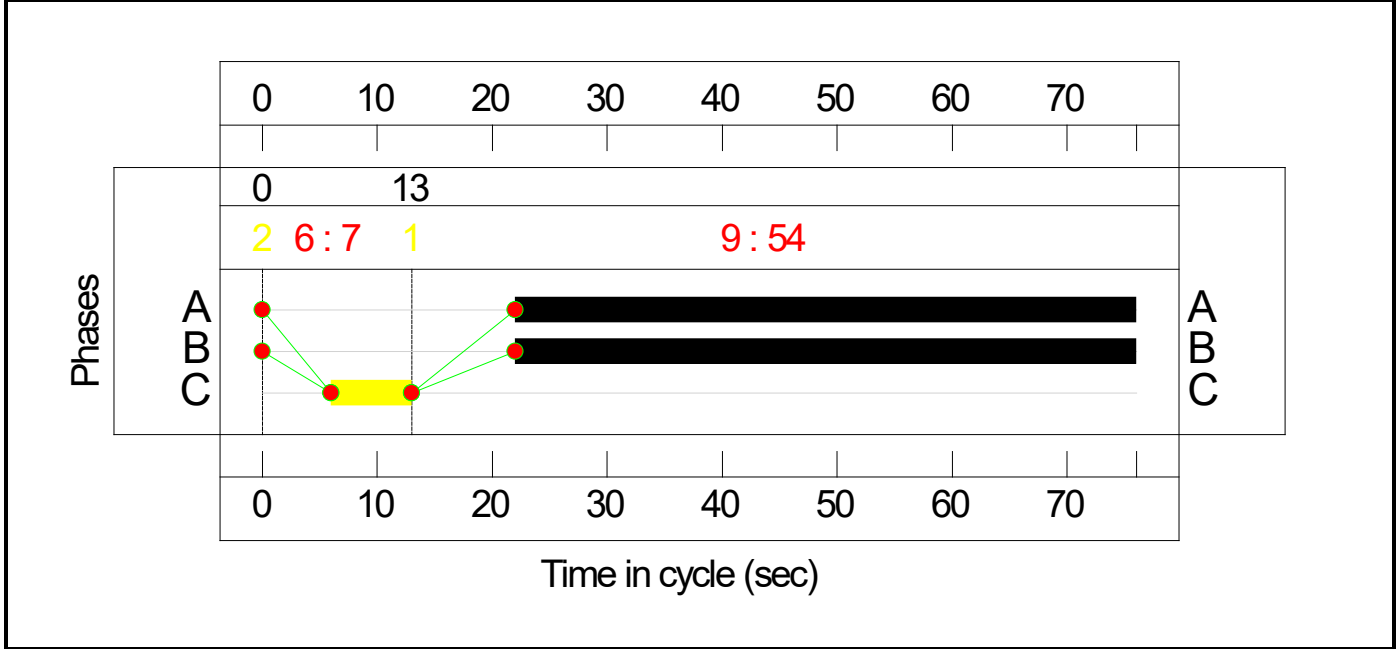
C3
Stage Sequence Diagram



Stage Timings

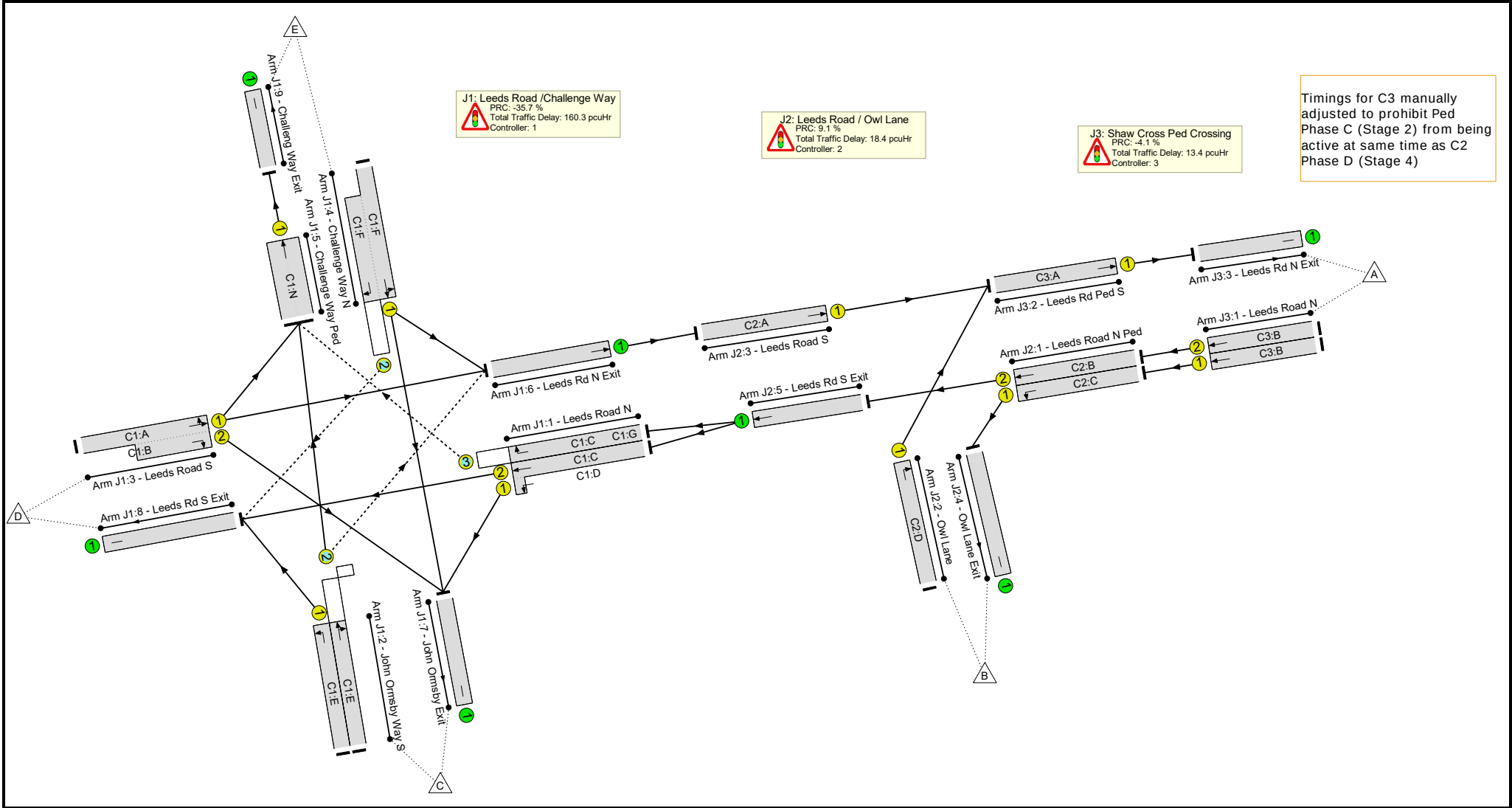
Stage	1	2
Duration	54	7
Change Point	13	0

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	122.1%
J1: Leeds Road /Challenge Way	-	-	N/A	-	-		-	-	-	-	-	-	122.1%
1/2+1/1	Leeds Road N Left Ahead	U	N/A	N/A	C1:C C1:D		1	25:24	-	809	1975:1992	650+22	120.2 : 120.2%
1/3	Leeds Road N Right	O	N/A	N/A	C1:C	C1:G	1	25	10	47	1738	524	9.0%
2/1	John Ormsby Way S Left	U	N/A	N/A	C1:E		1	14	-	338	1854	366	92.4%
2/2	John Ormsby Way S Ahead Right	O	N/A	N/A	C1:E		1	14	-	380	1936	382	99.4%
3/1+3/2	Leeds Road S Left Ahead Right	U	N/A	N/A	C1:A C1:B		1	34:17	-	794	2038:1712	890+78	82.0 : 82.0%
4/1+4/2	Challenge Way N Left Ahead Right	U+O	N/A	N/A	C1:F		1	14	-	503	1917:1620	378+34	122.1 : 122.1%
5/1	Challenge Way Ped Ahead	U	N/A	N/A	C1:N		1	58	-	421	3850	2989	14.1%
6/1	Leeds Rd N Exit Ahead	U	N/A	N/A	-		-	-	-	847	Inf	Inf	0.0%
7/1	John Ormsby Exit	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
8/1	Leeds Rd S Exit	U	N/A	N/A	-		-	-	-	1161	Inf	Inf	0.0%
9/1	Challeng Way Exit	U	N/A	N/A	-		-	-	-	421	Inf	Inf	0.0%
J2: Leeds Road / Owl Lane	-	-	N/A	-	-		-	-	-	-	-	-	82.5%
1/1	Leeds Road N Ped Left	U	N/A	N/A	C2:C		1	30	-	447	1797	733	61.0%
1/2	Leeds Road N Ped Ahead	U	N/A	N/A	C2:B		1	41	-	856	1925	1064	80.5%

Full Input Data And Results

2/1	Owl Lane Right	U	N/A	N/A	C2:D		1	22	-	478	1914	579	82.5%
3/1	Leeds Road S Ahead	U	N/A	N/A	C2:A		1	44	-	847	2015	1193	69.3%
4/1	Owl Lane Exit	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
5/1	Leeds Rd S Exit Ahead	U	N/A	N/A	-		-	-	-	856	Inf	Inf	0.0%
J3: Shaw Cross Ped Crossing	-	-	N/A	-	-		-	-	-	-	-	-	93.7%
1/1	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	447	1925	1393	32.1%
1/2	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	856	1925	1393	61.4%
2/1	Leeds Rd Ped S Ahead	U	N/A	N/A	C3:A		1	54	-	1325	1925	1393	93.7%
3/1	Leeds Rd N Exit	U	N/A	N/A	-		-	-	-	1325	Inf	Inf	0.0%

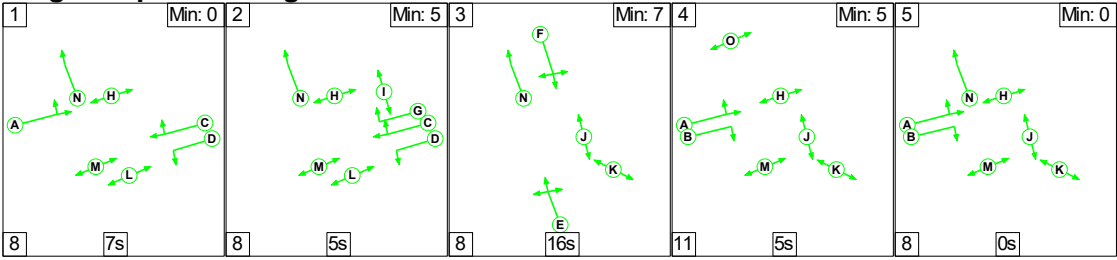
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	28	17	74	43.1	148.9	0.2	192.1	-	-	-	-
J1: Leeds Road /Challenge Way	-	-	28	17	74	24.9	135.2	0.2	160.3	-	-	-	-
1/2+1/1	809	673	-	-	-	7.6	70.9	-	78.5	349.2	20.1	70.9	91.1
1/3	47	47	28	17	2	0.1	0.0	0.0	0.1	11.1	0.3	0.0	0.4
2/1	338	338	-	-	-	2.8	4.6	-	7.4	78.5	6.9	4.6	11.5
2/2	380	380	0	0	31	3.2	9.2	0.1	12.5	118.4	7.9	9.2	17.2
3/1+3/2	794	794	-	-	-	4.2	2.2	-	6.4	29.0	13.7	2.2	15.9
4/1+4/2	503	419	0	0	41	6.6	48.1	0.1	54.9	393.0	11.5	48.1	59.7
5/1	421	421	-	-	-	0.5	0.1	-	0.5	4.5	1.2	0.0	1.3
6/1	827	827	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	374	374	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	1029	1029	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	421	421	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Leeds Road / Owl Lane	-	-	0	0	0	12.3	6.2	0.0	18.4	-	-	-	-
1/1	447	447	-	-	-	3.0	0.8	-	3.8	30.6	9.3	0.8	10.0
1/2	856	856	-	-	-	5.7	2.0	-	7.7	32.4	15.6	2.0	17.6
2/1	478	478	-	-	-	3.3	2.3	-	5.5	41.7	9.3	2.3	11.6
3/1	827	827	-	-	-	0.3	1.1	-	1.4	6.2	3.4	1.1	4.5
4/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	856	856	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Shaw Cross Ped Crossing	-	-	0	0	0	5.9	7.5	0.0	13.4	-	-	-	-
1/1	447	447	-	-	-	0.5	0.2	-	0.7	5.7	3.4	0.2	3.6
1/2	856	856	-	-	-	1.2	0.8	-	2.0	8.6	8.8	0.8	9.6

Full Input Data And Results

2/1	1305	1305	-	-	-	4.2	6.5	-	10.6	29.3	23.7	6.5	30.1
3/1	1305	1305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -35.7 Total Delay for Signalled Lanes (pcuHr): 160.34 Cycle Time (s): 76 C2 PRC for Signalled Lanes (%): 9.1 Total Delay for Signalled Lanes (pcuHr): 18.45 Cycle Time (s): 76 C3 PRC for Signalled Lanes (%): -4.1 Total Delay for Signalled Lanes (pcuHr): 13.36 Cycle Time (s): 76 PRC Over All Lanes (%): -35.7 Total Delay Over All Lanes(pcuHr): 192.14													

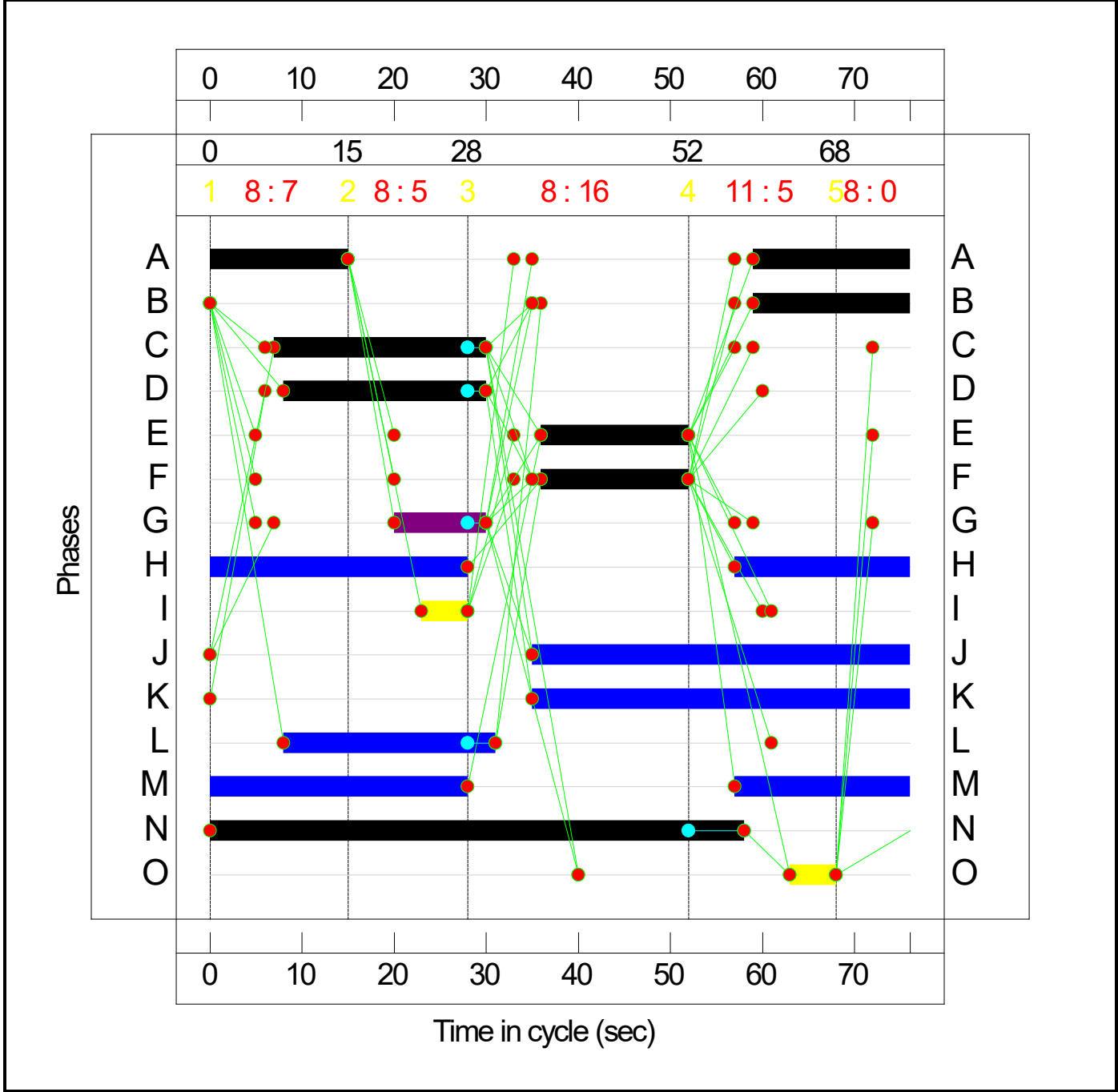
Stage Sequence Diagram



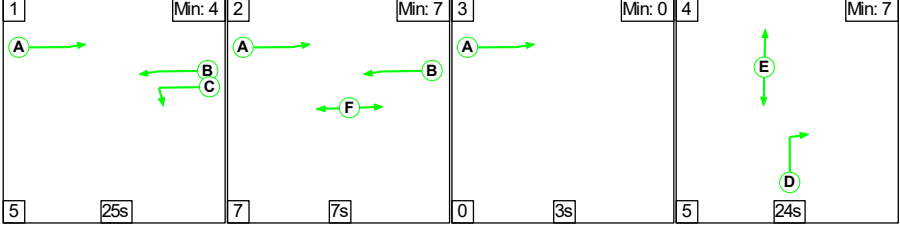
Stage Timings

Stage	1	2	3	4	5
Duration	7	5	16	5	0
Change Point	0	15	28	52	68

Signal Timings Diagram



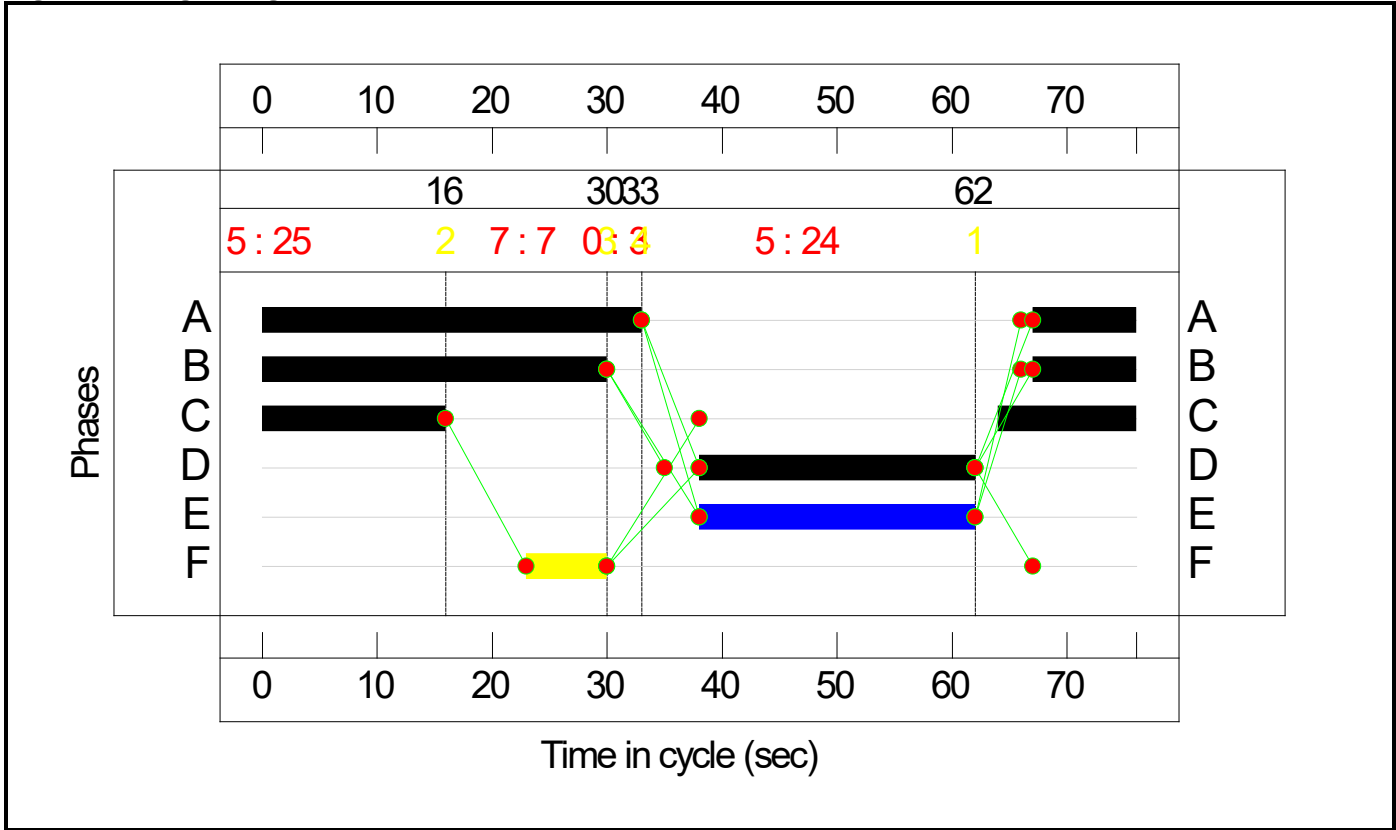
C2
Stage Sequence Diagram



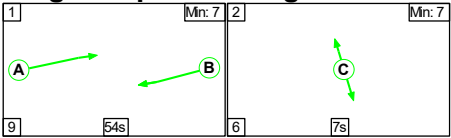
Stage Timings

Stage	1	2	3	4
Duration	25	7	3	24
Change Point	62	16	30	33

Signal Timings Diagram



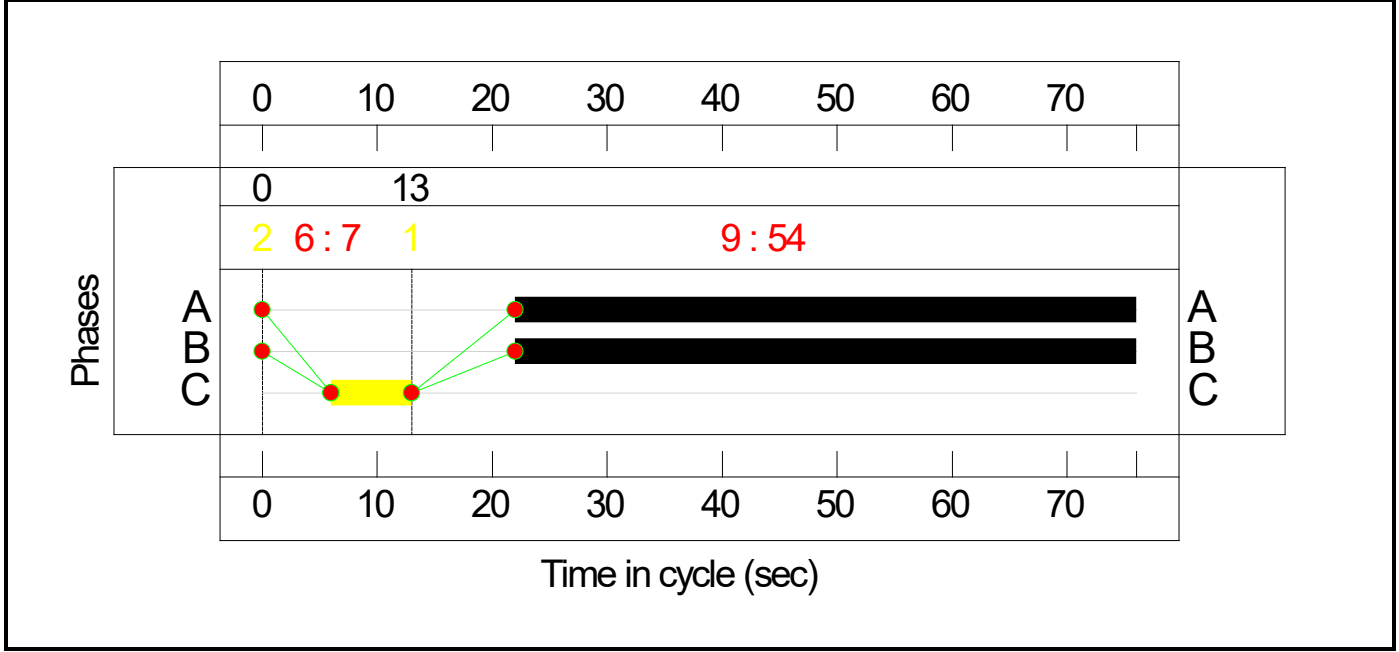
C3
Stage Sequence Diagram



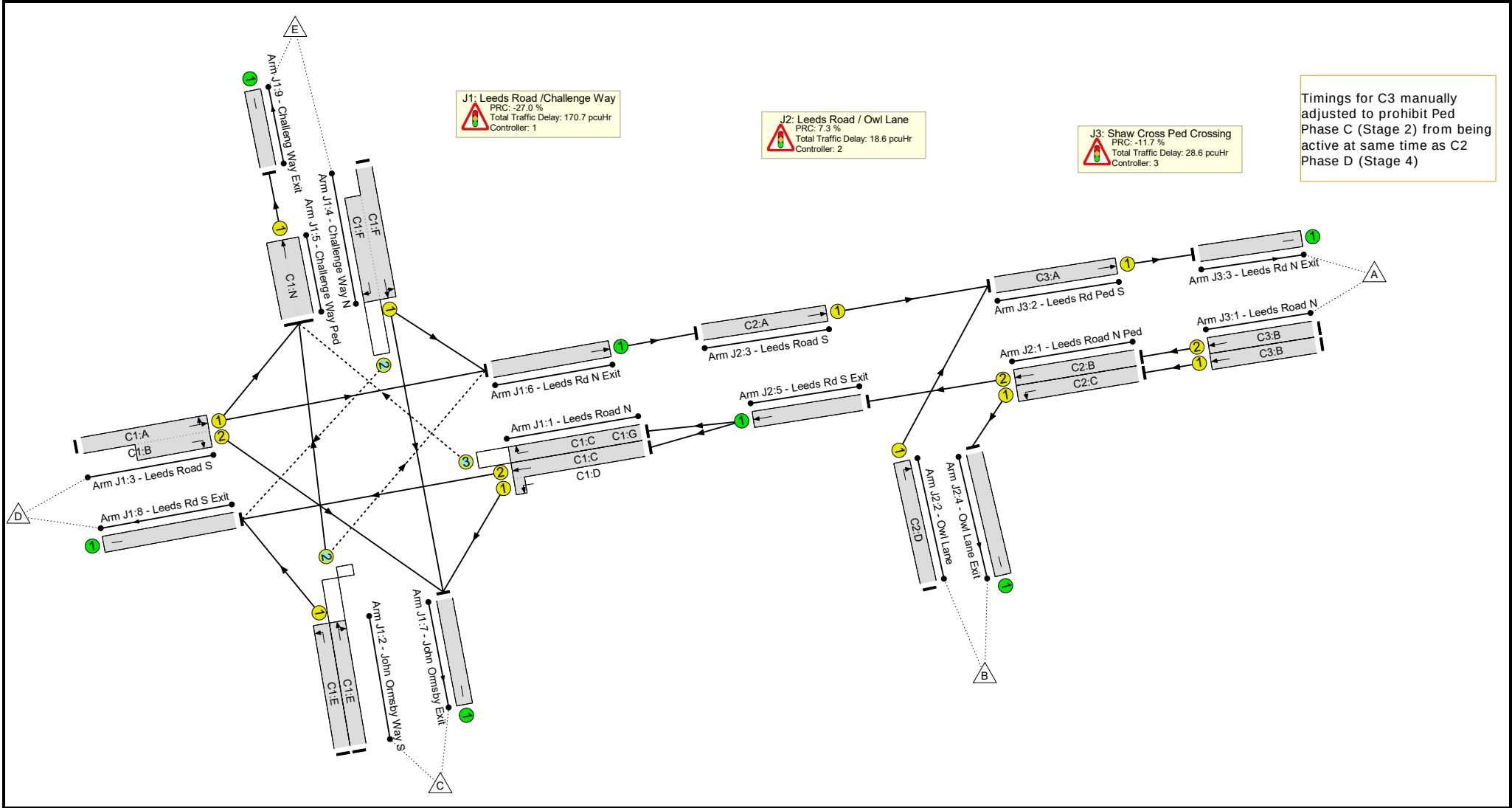
Stage Timings

Stage	1	2
Duration	54	7
Change Point	13	0

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	114.3%
J1: Leeds Road /Challenge Way	-	-	N/A	-	-		-	-	-	-	-	-	114.3%
1/2+1/1	Leeds Road N Left Ahead	U	N/A	N/A	C1:C C1:D		1	23:22	-	710	1975:1992	597+24	114.3 : 114.3%
1/3	Leeds Road N Right	O	N/A	N/A	C1:C	C1:G	1	23	10	128	1738	371	34.5%
2/1	John Ormsby Way S Left	U	N/A	N/A	C1:E		1	16	-	227	1854	415	54.7%
2/2	John Ormsby Way S Ahead Right	O	N/A	N/A	C1:E		1	16	-	406	1958	438	92.7%
3/1+3/2	Leeds Road S Left Ahead Right	U	N/A	N/A	C1:A C1:B		1	32:17	-	1040	2037:1712	813+115	112.0 : 112.0%
4/1+4/2	Challenge Way N Left Ahead Right	U+O	N/A	N/A	C1:F		1	16	-	525	1928:1620	431+46	109.9 : 109.9%
5/1	Challenge Way Ped Ahead	U	N/A	N/A	C1:N		1	58	-	552	3850	2989	18.4%
6/1	Leeds Rd N Exit Ahead	U	N/A	N/A	-		-	-	-	974	Inf	Inf	0.0%
7/1	John Ormsby Exit	U	N/A	N/A	-		-	-	-	550	Inf	Inf	0.0%
8/1	Leeds Rd S Exit	U	N/A	N/A	-		-	-	-	960	Inf	Inf	0.0%
9/1	Challeng Way Exit	U	N/A	N/A	-		-	-	-	552	Inf	Inf	0.0%
J2: Leeds Road / Owl Lane	-	-	N/A	-	-		-	-	-	-	-	-	83.9%
1/1	Leeds Road N Ped Left	U	N/A	N/A	C2:C		1	28	-	305	1797	686	44.5%
1/2	Leeds Road N Ped Ahead	U	N/A	N/A	C2:B		1	39	-	838	1925	1013	82.7%

Full Input Data And Results

2/1	Owl Lane Right	U	N/A	N/A	C2:D		1	24	-	528	1914	630	83.9%
3/1	Leeds Road S Ahead	U	N/A	N/A	C2:A		1	42	-	974	2015	1140	76.5%
4/1	Owl Lane Exit	U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
5/1	Leeds Rd S Exit Ahead	U	N/A	N/A	-		-	-	-	838	Inf	Inf	0.0%
J3: Shaw Cross Ped Crossing	-	-	N/A	-	-		-	-	-	-	-	-	100.5%
1/1	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	305	1925	1393	21.9%
1/2	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	838	1925	1393	60.2%
2/1	Leeds Rd Ped S Ahead	U	N/A	N/A	C3:A		1	54	-	1502	1925	1393	100.5%
3/1	Leeds Rd N Exit	U	N/A	N/A	-		-	-	-	1502	Inf	Inf	0.0%

Full Input Data And Results

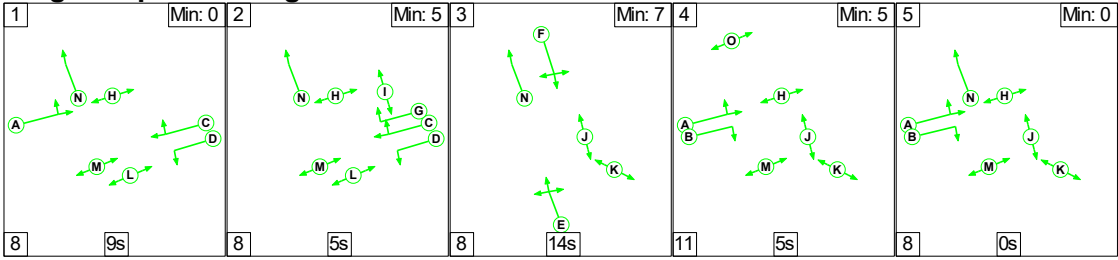
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	118	75	46.9	170.7	0.3	217.9	-	-	-	-
J1: Leeds Road /Challenge Way	-	-	0	118	75	28.1	142.3	0.3	170.7	-	-	-	-
1/2+1/1	710	621	-	-	-	5.6	48.1	-	53.7	272.4	17.2	48.1	65.2
1/3	128	128	0	118	10	0.3	0.3	0.1	0.7	19.5	0.9	0.3	1.1
2/1	227	227	-	-	-	1.6	0.6	-	2.2	35.6	4.2	0.6	4.8
2/2	406	406	0	0	14	3.3	4.9	0.0	8.2	72.3	8.3	4.9	13.2
3/1+3/2	1040	928	-	-	-	11.5	60.1	-	71.6	247.7	24.8	60.1	84.9
4/1+4/2	525	482	0	0	51	5.5	28.3	0.2	34.0	232.9	10.9	28.3	39.2
5/1	549	549	-	-	-	0.3	0.1	-	0.4	2.7	0.8	0.1	0.9
6/1	872	872	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	497	497	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	875	875	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	549	549	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Leeds Road / Owl Lane	-	-	0	0	0	11.8	6.8	0.0	18.6	-	-	-	-
1/1	305	305	-	-	-	1.9	0.4	-	2.3	27.6	5.8	0.4	6.2
1/2	838	838	-	-	-	6.1	2.3	-	8.4	36.3	15.7	2.3	18.0
2/1	528	528	-	-	-	3.5	2.5	-	5.9	40.5	10.3	2.5	12.7
3/1	872	872	-	-	-	0.3	1.6	-	1.9	7.8	2.4	1.6	4.0
4/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	838	838	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Shaw Cross Ped Crossing	-	-	0	0	0	7.0	21.5	0.0	28.6	-	-	-	-
1/1	305	305	-	-	-	0.3	0.1	-	0.4	5.1	2.0	0.1	2.2
1/2	838	838	-	-	-	1.2	0.8	-	1.9	8.4	8.6	0.8	9.4

Full Input Data And Results

2/1	1400	1393	-	-	-	5.5	20.6	-	26.2	67.3	29.7	20.6	50.3
3/1	1393	1393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -27.0 Total Delay for Signalled Lanes (pcuHr): 170.75 Cycle Time (s): 76 C2 PRC for Signalled Lanes (%): 7.3 Total Delay for Signalled Lanes (pcuHr): 18.62 Cycle Time (s): 76 C3 PRC for Signalled Lanes (%): -11.7 Total Delay for Signalled Lanes (pcuHr): 28.55 Cycle Time (s): 76 PRC Over All Lanes (%): -27.0 Total Delay Over All Lanes(pcuHr): 217.92													

Full Input Data And Results
Scenario 6: '2023 'With Development' PM' (FG16: ' 2023 base + comm dev + dev PM', Plan 1: 'Network Control Plan 1')

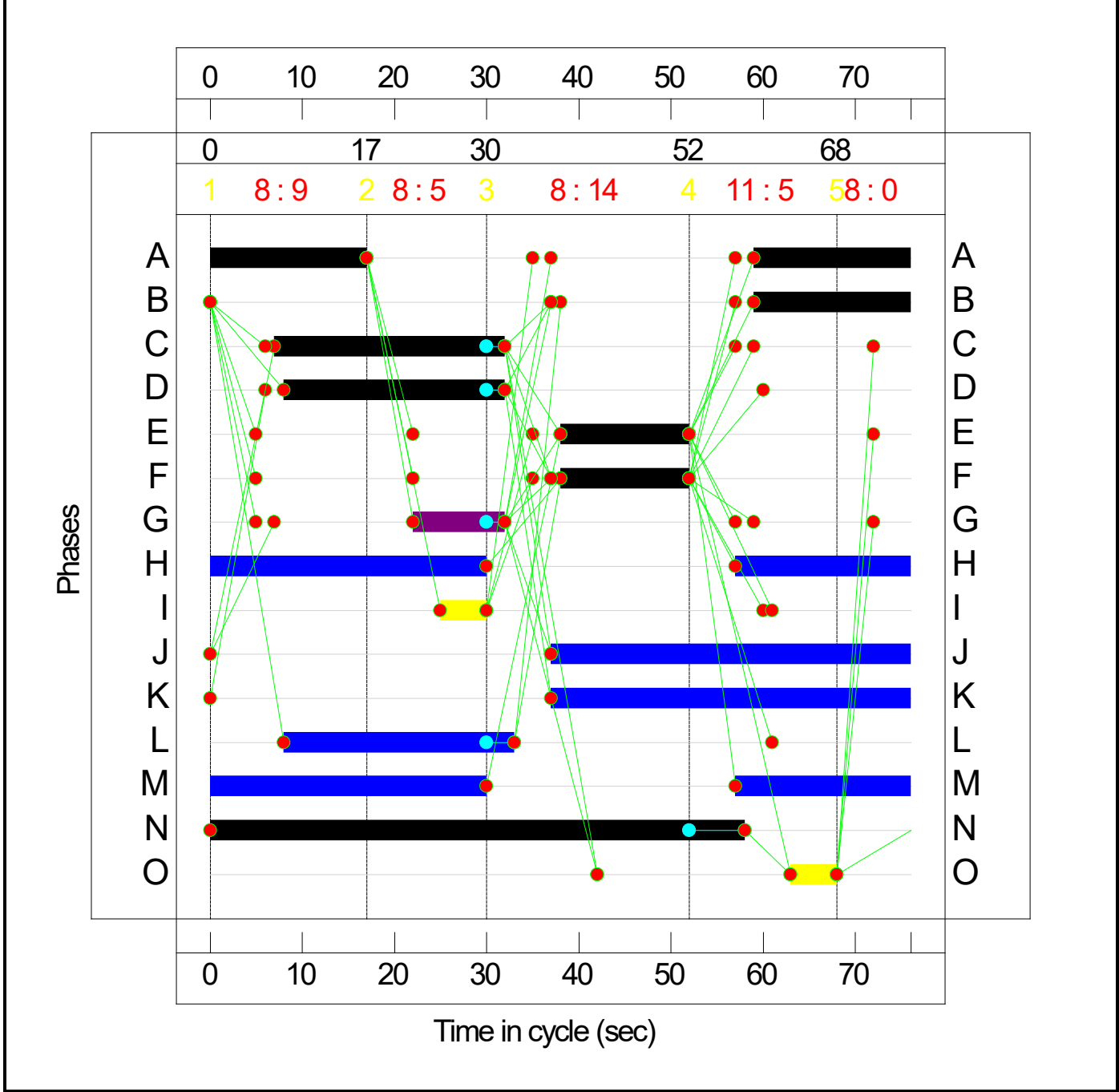
C1
Stage Sequence Diagram



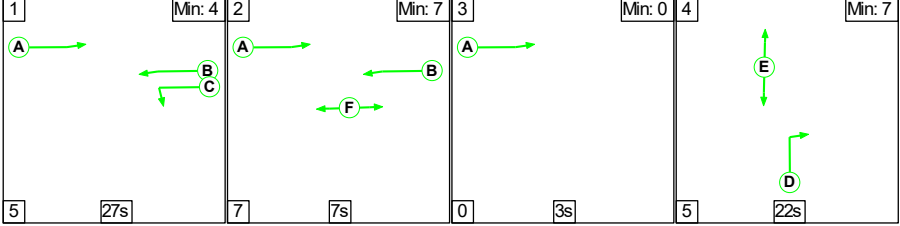
Stage Timings

Stage	1	2	3	4	5
Duration	9	5	14	5	0
Change Point	0	17	30	52	68

Signal Timings Diagram



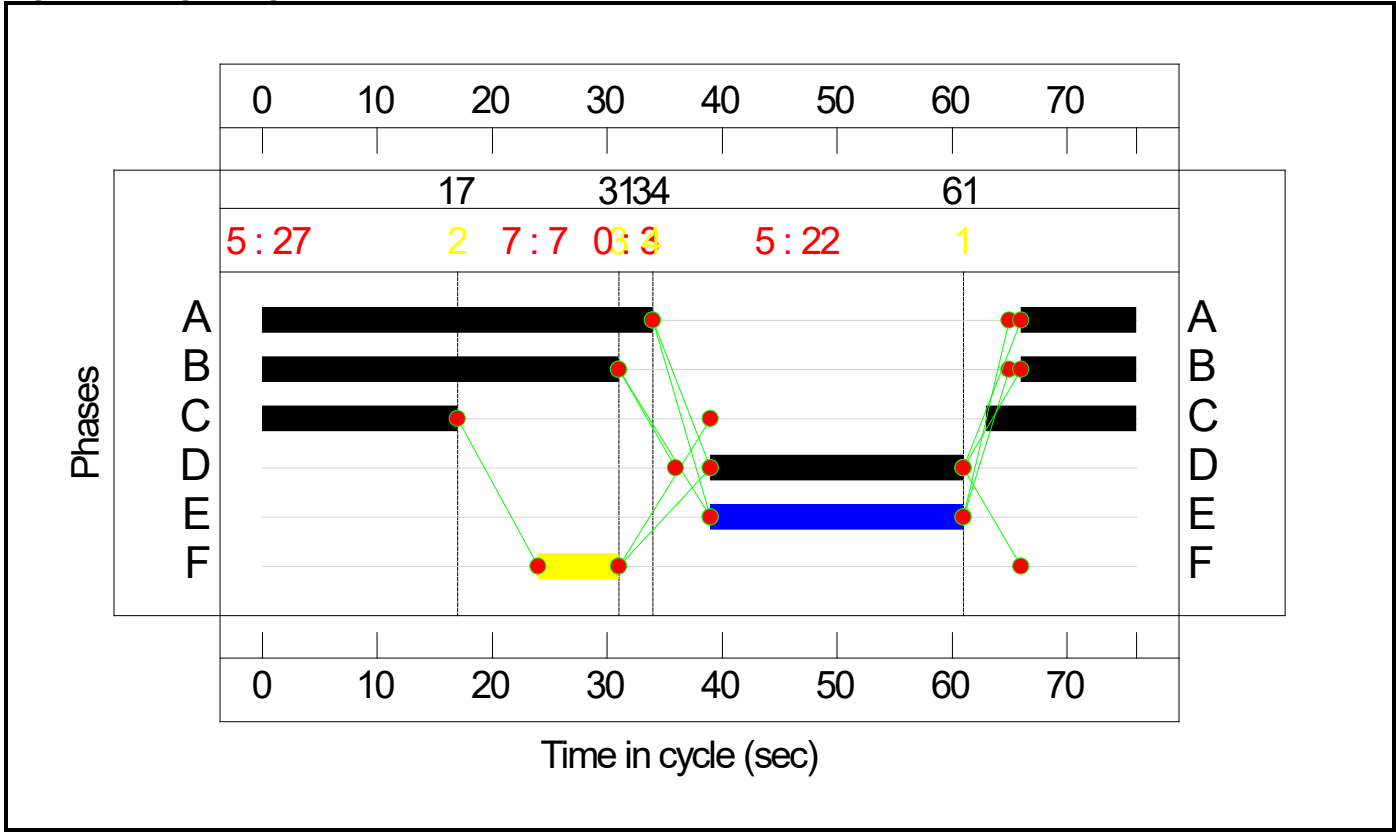
C2
Stage Sequence Diagram



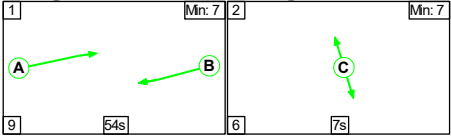
Stage Timings

Stage	1	2	3	4
Duration	27	7	3	22
Change Point	61	17	31	34

Signal Timings Diagram



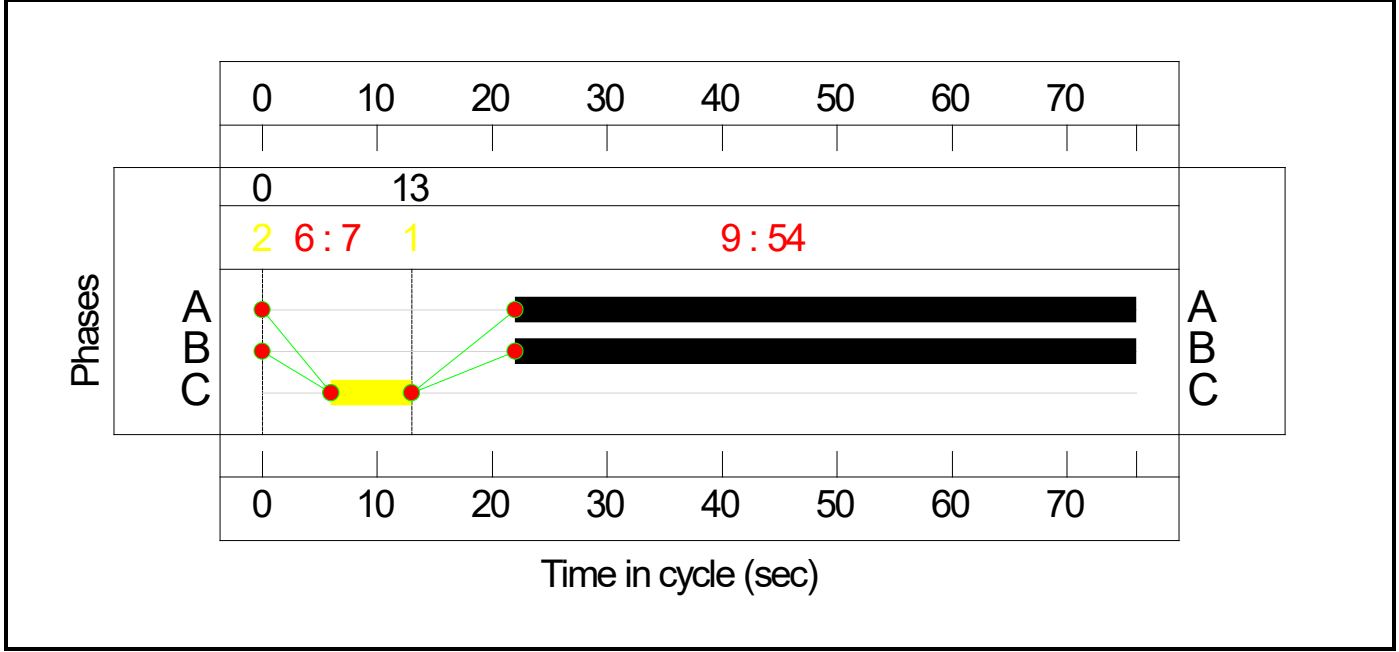
C3
Stage Sequence Diagram



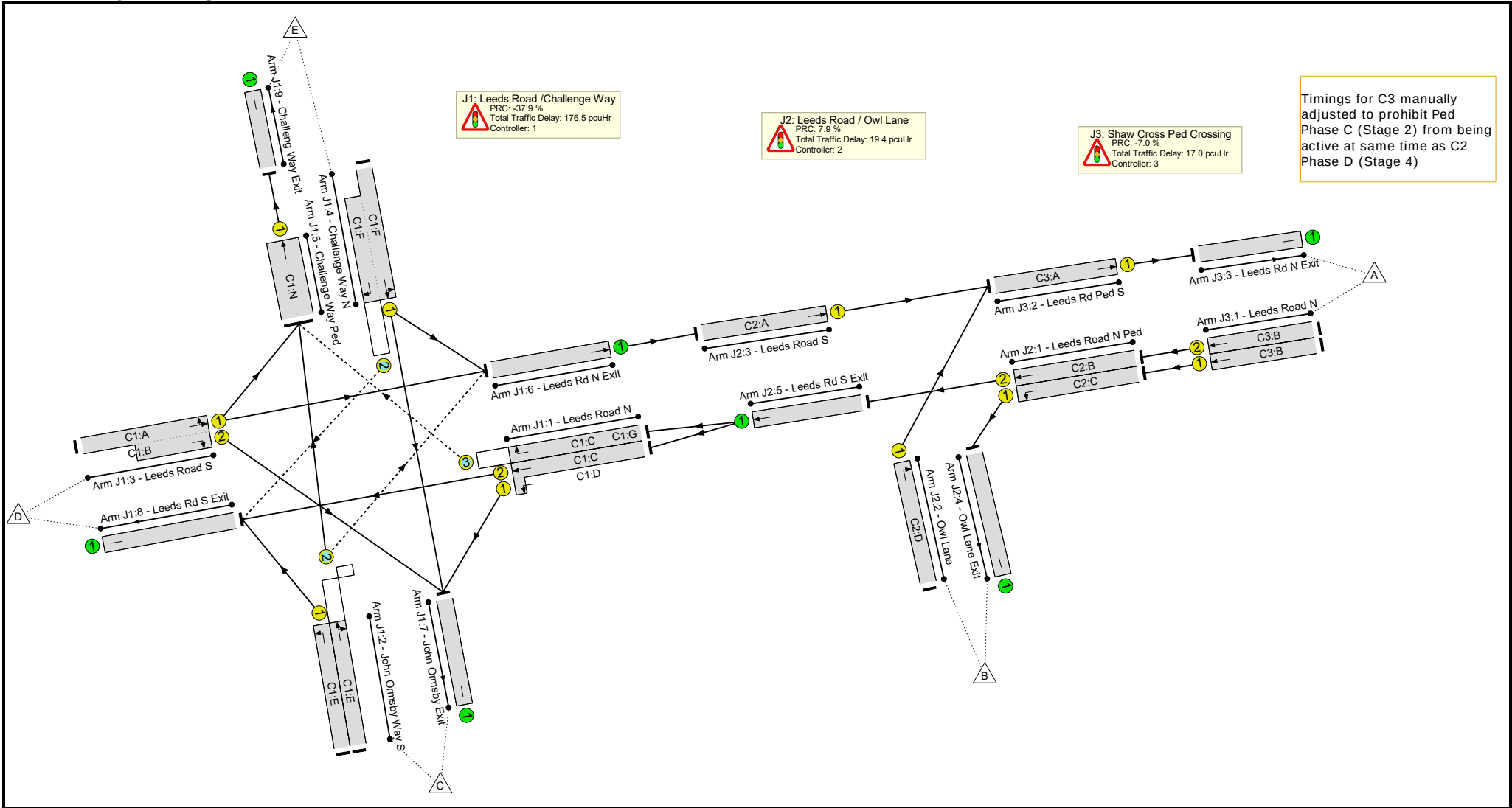
Stage Timings

Stage	1	2
Duration	54	7
Change Point	13	0

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	124.1%
J1: Leeds Road /Challenge Way	-	-	N/A	-	-		-	-	-	-	-	-	124.1%
1/2+1/1	Leeds Road N Left Ahead	U	N/A	N/A	C1:C C1:D		1	25:24	-	827	1975:1992	651+22	122.9 : 122.9%
1/3	Leeds Road N Right	O	N/A	N/A	C1:C	C1:G	1	25	10	60	1738	502	12.0%
2/1	John Ormsby Way S Left	U	N/A	N/A	C1:E		1	14	-	338	1854	366	92.4%
2/2	John Ormsby Way S Ahead Right	O	N/A	N/A	C1:E		1	14	-	380	1936	382	99.4%
3/1+3/2	Leeds Road S Left Ahead Right	U	N/A	N/A	C1:A C1:B		1	34:17	-	841	2034:1712	892+73	87.1 : 87.1%
4/1+4/2	Challenge Way N Left Ahead Right	U+O	N/A	N/A	C1:F		1	14	-	518	1915:1620	378+39	124.1 : 124.1%
5/1	Challenge Way Ped Ahead	U	N/A	N/A	C1:N		1	58	-	448	3850	2989	15.0%
6/1	Leeds Rd N Exit Ahead	U	N/A	N/A	-		-	-	-	887	Inf	Inf	0.0%
7/1	John Ormsby Exit	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
8/1	Leeds Rd S Exit	U	N/A	N/A	-		-	-	-	1187	Inf	Inf	0.0%
9/1	Challeng Way Exit	U	N/A	N/A	-		-	-	-	448	Inf	Inf	0.0%
J2: Leeds Road / Owl Lane	-	-	N/A	-	-		-	-	-	-	-	-	83.4%
1/1	Leeds Road N Ped Left	U	N/A	N/A	C2:C		1	30	-	447	1797	733	61.0%
1/2	Leeds Road N Ped Ahead	U	N/A	N/A	C2:B		1	41	-	887	1925	1064	83.4%

Full Input Data And Results

2/1	Owl Lane Right	U	N/A	N/A	C2:D		1	22	-	478	1914	579	82.5%
3/1	Leeds Road S Ahead	U	N/A	N/A	C2:A		1	44	-	887	2015	1193	72.4%
4/1	Owl Lane Exit	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
5/1	Leeds Rd S Exit Ahead	U	N/A	N/A	-		-	-	-	887	Inf	Inf	0.0%
J3: Shaw Cross Ped Crossing	-	-	N/A	-	-		-	-	-	-	-	-	96.3%
1/1	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	447	1925	1393	32.1%
1/2	Leeds Road N Ahead	U	N/A	N/A	C3:B		1	54	-	887	1925	1393	63.7%
2/1	Leeds Rd Ped S Ahead	U	N/A	N/A	C3:A		1	54	-	1365	1925	1393	96.3%
3/1	Leeds Rd N Exit	U	N/A	N/A	-		-	-	-	1365	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	35	22	83	45.7	167.0	0.2	212.9	-	-	-	-
J1: Leeds Road /Challenge Way	-	-	35	22	83	26.7	149.6	0.2	176.5	-	-	-	-
1/2+1/1	827	673	-	-	-	8.5	79.7	-	88.2	383.8	21.1	79.7	100.8
1/3	60	60	35	22	3	0.1	0.1	0.0	0.2	12.6	0.4	0.1	0.5
2/1	338	338	-	-	-	2.8	4.6	-	7.4	78.5	6.9	4.6	11.5
2/2	380	380	0	0	31	3.2	9.2	0.1	12.5	118.4	7.9	9.2	17.2
3/1+3/2	841	841	-	-	-	4.6	3.2	-	7.8	33.4	15.1	3.2	18.3
4/1+4/2	518	427	0	0	49	7.0	52.7	0.1	59.9	416.0	11.8	52.7	64.6
5/1	448	448	-	-	-	0.5	0.1	-	0.6	4.4	1.3	0.0	1.3
6/1	864	864	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	1038	1038	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	448	448	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Leeds Road / Owl Lane	-	-	0	0	0	12.6	6.8	0.0	19.4	-	-	-	-
1/1	447	447	-	-	-	3.0	0.8	-	3.8	30.6	9.3	0.8	10.0
1/2	887	887	-	-	-	6.0	2.4	-	8.5	34.4	16.2	2.4	18.7
2/1	478	478	-	-	-	3.3	2.3	-	5.5	41.7	9.3	2.3	11.6
3/1	864	864	-	-	-	0.3	1.3	-	1.6	6.7	3.5	1.3	4.8
4/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	887	887	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Shaw Cross Ped Crossing	-	-	0	0	0	6.4	10.7	0.0	17.0	-	-	-	-
1/1	447	447	-	-	-	0.5	0.2	-	0.7	5.7	3.4	0.2	3.6
1/2	887	887	-	-	-	1.3	0.9	-	2.2	8.9	9.4	0.9	10.2

Full Input Data And Results

2/1	1342	1342	-	-	-	4.6	9.6	-	14.1	37.9	24.5	9.6	34.0
3/1	1342	1342	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -37.9 Total Delay for Signalled Lanes (pcuHr): 176.47 Cycle Time (s): 76 C2 PRC for Signalled Lanes (%): 7.9 Total Delay for Signalled Lanes (pcuHr): 19.43 Cycle Time (s): 76 C3 PRC for Signalled Lanes (%): -7.0 Total Delay for Signalled Lanes (pcuHr): 17.03 Cycle Time (s): 76 PRC Over All Lanes (%): -37.9 Total Delay Over All Lanes(pcuHr): 212.93													

Appendix G

A653 Leeds Road / B6124 Soothill Lane / Heybeck Lane - Mitigation

LinSig Outputs

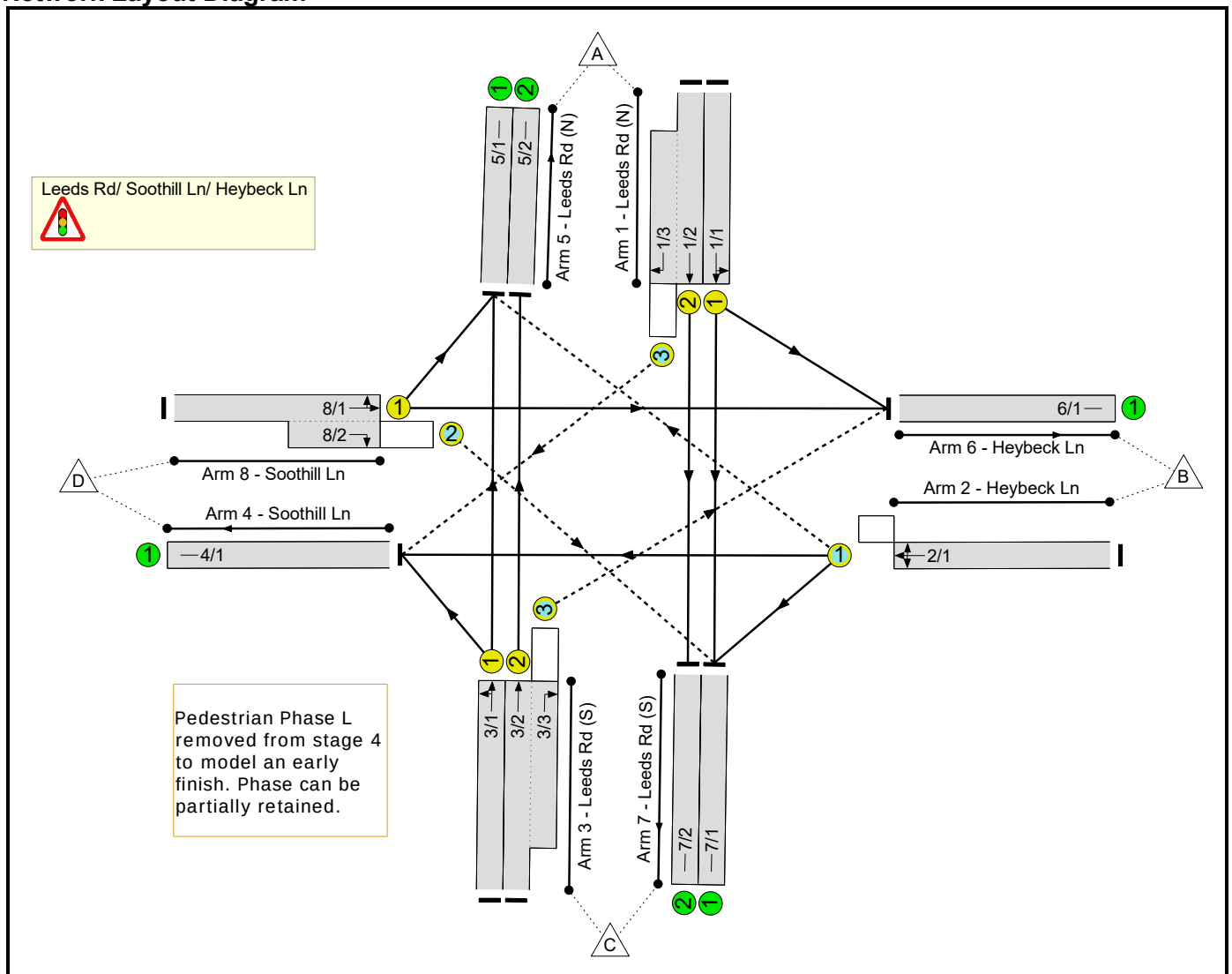
Full Input Data And Results

Full Input Data And Results

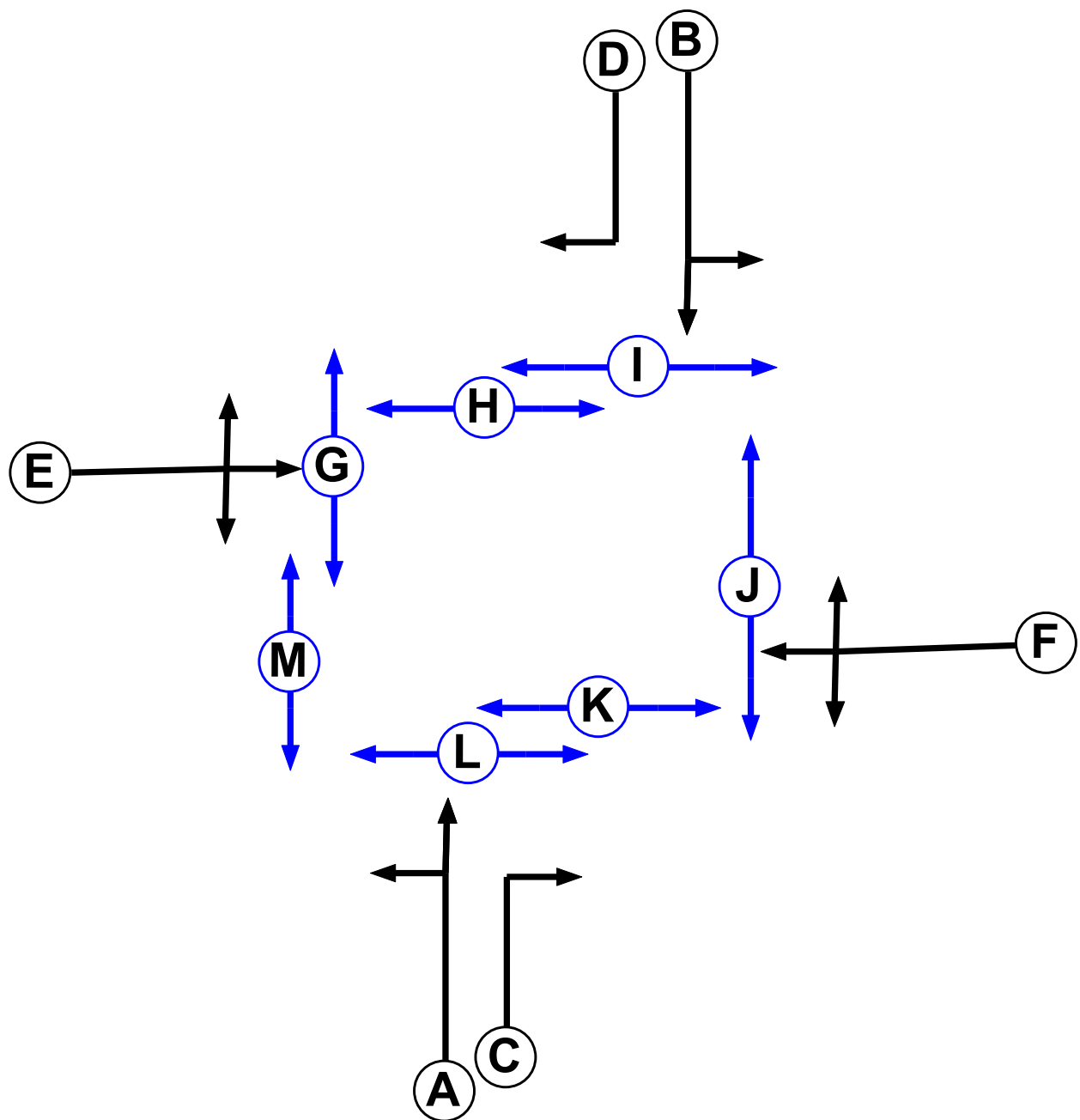
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Leeds Rd - Soothill Ln - Heybeck Ln v1_mitigation v1.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		4	4
H	Pedestrian		5	5
I	Pedestrian		6	6
J	Pedestrian		8	8
K	Pedestrian		5	5
L	Pedestrian		6	6
M	Pedestrian		6	6

Phase Intergreens Matrix

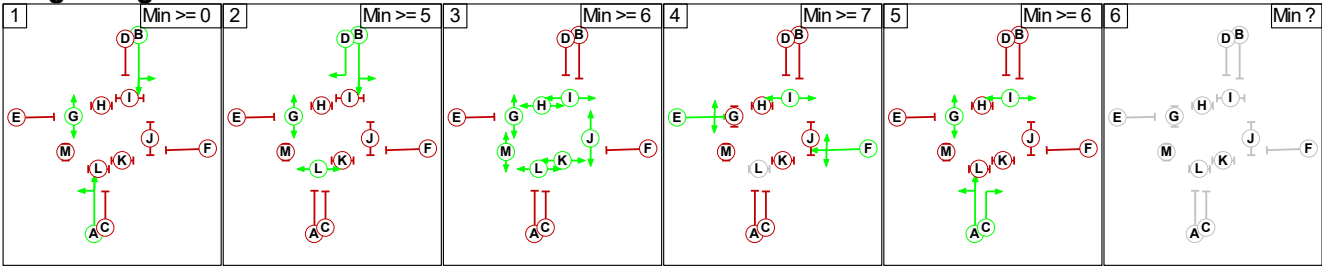
	Starting Phase												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Terminating Phase	A	-	-	6	7	6	-	10	-	-	-	6	9
	B	-	6	-	6	7	-	-	6	9	10	-	-
	C	-	8	6	6	9	-	-	-	12	10	6	-
	D	8	-	6	8	7	-	10	6	-	-	-	13
	E	5	6	5	5	-	5	8	-	8	10	-	-
	F	6	5	5	5	-	-	9	-	5	8	-	9
	G	-	-	-	5	-	-	-	-	-	-	-	-
	H	7	-	-	7	7	-	-	-	-	-	-	-
	I	-	10	-	10	-	-	-	-	-	-	-	-
	J	-	12	12	-	12	-	-	-	-	-	-	-
	K	-	7	-	7	7	-	-	-	-	-	-	-
	L	10	-	10	-	-	-	-	-	-	-	-	-
	M	7	-	-	7	7	-	-	-	-	-	-	-

Phases in Stage

Stage No.	Phases in Stage
1	A B G
2	B D G L
3	G H I J K L M
4	E F I
5	A C G I
6	

Full Input Data And Results

Stage Diagram



Phase Delays

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

Prohibited Stage Change

	To Stage						
From Stage		1	2	3	4	5	6
	1		6	10	7	6	X
	2	10		13	8	10	X
	3	12	12		12	12	X
	4	10	10	10		6	X
	5	10	10	12	9		X
	6	X	X	X	X	X	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln											
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)
1/3 (Leeds Rd (N))	4/1 (Right)	1439	0	3/1	1.09	All	3.00	-	0.50	3	3.00
				3/2	1.09	All					
2/1 (Heybeck Ln)	5/1 (Right)	1439	0	8/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	2.00	0.50	2	2.00
3/3 (Leeds Rd (S))	6/1 (Right)	1439	0	1/1	1.09	All	3.00	-	0.50	3	3.00
				1/2	1.09	All					
8/2 (Soothill Ln)	7/1 (Right)	1439	0	2/1	1.09	To 4/1 (Ahead) To 7/1 (Left)	3.00	-	0.50	3	3.00

Full Input Data And Results

Lane Input Data

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln												
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 (Leeds Rd (N))	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	13.50
											Arm 7 Ahead	Inf
1/2 (Leeds Rd (N))	U	B	2	3	60.0	Geom	-	3.00	0.00	N	Arm 7 Ahead	Inf
1/3 (Leeds Rd (N))	O	D	2	3	13.9	Geom	-	3.00	0.00	Y	Arm 4 Right	65.00
2/1 (Heybeck Ln)	O	F	2	3	60.0	Geom	-	4.25	0.00	Y	Arm 4 Ahead	Inf
											Arm 5 Right	21.00
3/1 (Leeds Rd (S))	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Left	7.50
											Arm 4 Left	9.00
3/2 (Leeds Rd (S))	U	A	2	3	60.0	Geom	-	3.25	0.00	N	Arm 5 Ahead	Inf
											Arm 4 Left	9.00
3/3 (Leeds Rd (S))	O	C	2	3	13.9	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
4/1 (Soothill Ln)	U		2	3	60.0	Inf	-	-	-	-	Arm 6 Right	30.00
5/1 (Leeds Rd (N))	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2 (Leeds Rd (N))	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Heybeck Ln)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Leeds Rd (S))	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2 (Leeds Rd (S))	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Soothill Ln)	U	E	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 5 Left	17.00
											Arm 6 Ahead	Inf
8/2 (Soothill Ln)	O	E	2	3	5.2	Geom	-	3.25	0.00	Y	Arm 7 Right	Inf

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: 'Survey AM'	08:00	09:00	01:00	
8: 'Survey PM'	17:00	18:00	01:00	
13: '2023 base + comm dev AM'	08:00	09:00	01:00	F1+F3+F5+F9
14: '2023 base + comm dev PM'	17:00	18:00	01:00	F2+F4+F6+F10
15: '2023 base + comm dev + dev AM'	08:00	09:00	01:00	F1+F3+F5+F9+F11
16: '2023 base + comm dev + dev PM'	17:00	18:00	01:00	F2+F4+F6+F10+F12

Scenario 1: '2023 'With Development' AM' (FG15: '2023 base + comm dev + dev AM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	36	962	185	1183
	B	23	0	179	105	307
	C	1457	137	0	49	1643
	D	269	137	76	0	482
	Tot.	1749	310	1217	339	3615

Traffic Lane Flows

Lane	Scenario 1: 2023 'With Development' AM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	483
1/2 (with short)	700(In) 515(Out)
1/3 (short)	185
2/1	307
3/1	730
3/2 (with short)	913(In) 776(Out)
3/3 (short)	137
4/1	339
5/1	973
5/2	776
6/1	310
7/1	702
7/2	515
8/1 (with short)	482(In) 406(Out)
8/2 (short)	76

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	7.5 %	1899	1899
				Arm 7 Ahead	Inf	92.5 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	34.2 %	1818	1818
				Arm 5 Right	21.00	7.5 %		
				Arm 7 Left	7.50	58.3 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	9.00	6.7 %	1919	1919
				Arm 5 Ahead	Inf	93.3 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	66.3 %	1904	1904
				Arm 6 Ahead	Inf	33.7 %		
8/2 (Soothill Ln)	3.25	0.00	Y	Arm 7 Right	Inf	100.0 %	1940	1940

Scenario 2: '2023 'With Development' PM' (FG16: '2023 base + comm dev + dev PM', Plan 2: 'Network Control Plan 2')

Traffic Flows, Desired

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	49	1435	264	1748
	B	27	0	95	89	211
	C	1197	172	0	85	1454
	D	254	138	61	0	453
	Tot.	1478	359	1591	438	3866

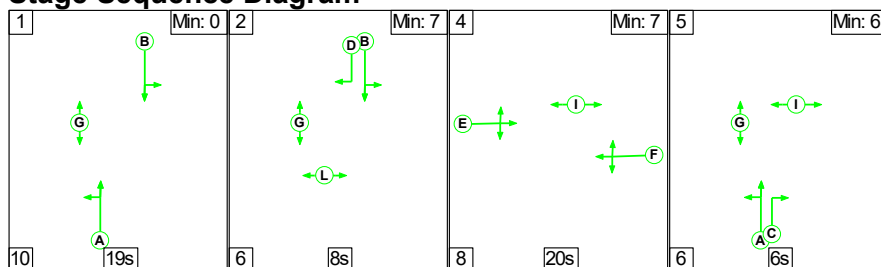
Traffic Lane Flows

Lane	Scenario 2: 2023 'With Development' PM
Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln	
1/1	731
1/2 (with short)	1017(In) 753(Out)
1/3 (short)	264
2/1	211
3/1	613
3/2 (with short)	841(In) 669(Out)
3/3 (short)	172
4/1	438
5/1	809
5/2	669
6/1	359
7/1	838
7/2	753
8/1 (with short)	453(In) 392(Out)
8/2 (short)	61

Lane Saturation Flows

Junction: Leeds Rd/ Soothill Ln/ Heybeck Ln								
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 (Leeds Rd (N))	3.00	0.00	Y	Arm 6 Left	13.50	6.7 %	1901	1901
				Arm 7 Ahead	Inf	93.3 %		
1/2 (Leeds Rd (N))	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
1/3 (Leeds Rd (N))	3.00	0.00	Y	Arm 4 Right	65.00	100.0 %	1872	1872
2/1 (Heybeck Ln)	4.25	0.00	Y	Arm 4 Ahead	Inf	42.2 %	1856	1856
				Arm 5 Right	21.00	12.8 %		
				Arm 7 Left	7.50	45.0 %		
3/1 (Leeds Rd (S))	3.25	0.00	Y	Arm 4 Left	9.00	13.9 %	1896	1896
				Arm 5 Ahead	Inf	86.1 %		
3/2 (Leeds Rd (S))	3.25	0.00	N	Arm 5 Ahead	Inf	100.0 %	2080	2080
3/3 (Leeds Rd (S))	3.25	0.00	Y	Arm 6 Right	30.00	100.0 %	1848	1848
4/1 (Soothill Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (Leeds Rd (N) Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Leeds Rd (N) Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1 (Heybeck Ln Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Leeds Rd (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/2 (Leeds Rd (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
8/1 (Soothill Ln)	4.00	0.00	Y	Arm 5 Left	17.00	64.8 %	1906	1906
				Arm 6 Ahead	Inf	35.2 %		
8/2 (Soothill Ln)	3.25	0.00	Y	Arm 7 Right	Inf	100.0 %	1940	1940

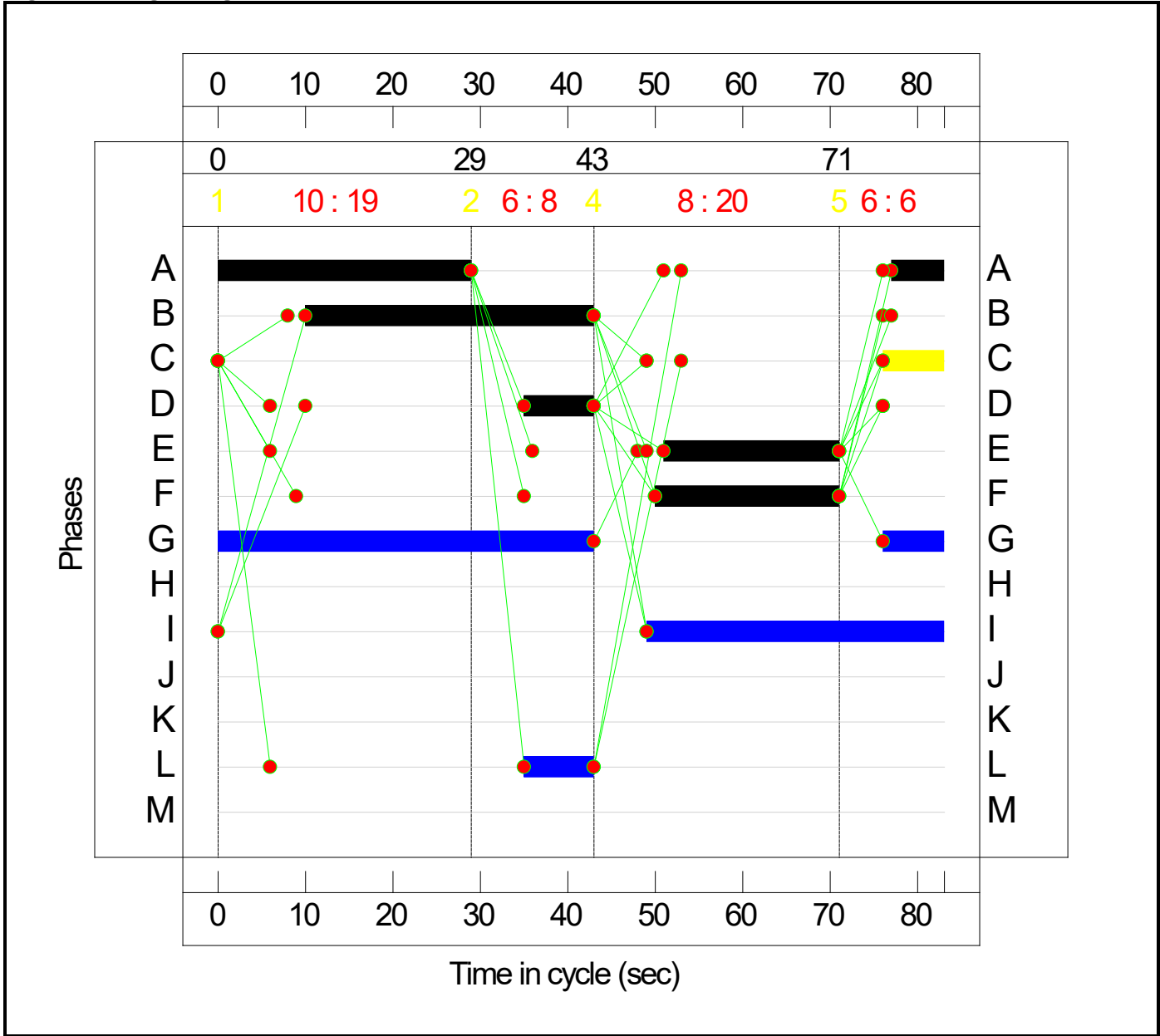
Scenario 1: '2023 'With Development' AM' (FG15: '2023 base + comm dev + dev AM', Plan 2: 'Network Control Plan 2')

Stage Sequence Diagram

Stage Timings

Stage	1	2	4	5
Duration	19	8	20	6
Change Point	0	29	43	71

Signal Timings Diagram



Full Input Data And Results

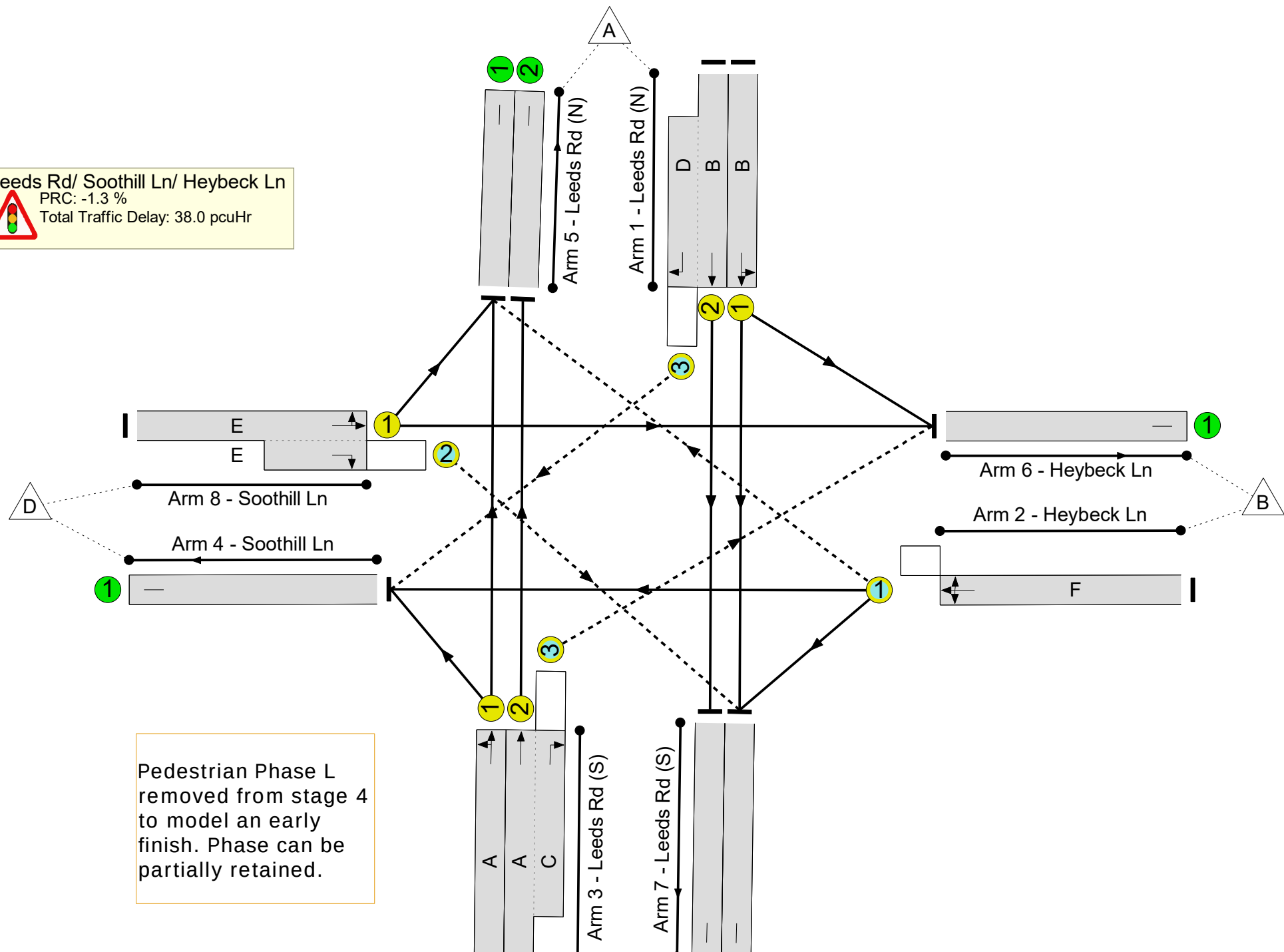
Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: -1.3 %

Total Traffic Delay: 38.0 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	91.1%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	91.1%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	33	-	483	1899	778	62.1%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	33:8	-	700	2055:1872	783+203	65.8 : 91.1%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	21	-	307	1818	482	63.7%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	35	-	730	1919	832	87.7%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	35:7	-	913	2080:1848	856+161	90.6 : 85.3%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	973	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	776	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	702	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
8/1+8/2	Soothill Ln Left Ahead Right	U+O	N/A	N/A	E		1	20	-	482	1904:1940	455+85	89.3 : 89.3%

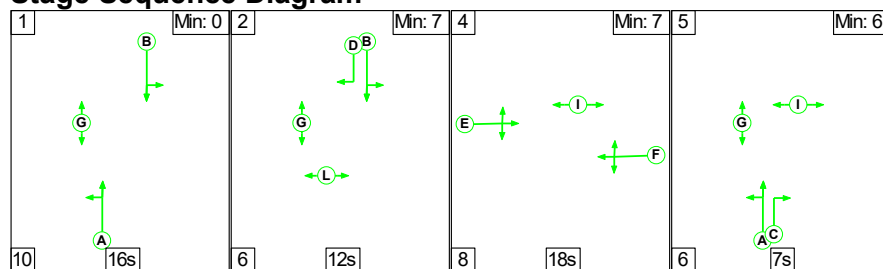
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	98	247	76	23.8	14.0	0.2	38.0	-	-	-	-
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	98	247	76	23.8	14.0	0.2	38.0	-	-	-	-
1/1	483	483	-	-	-	2.6	0.8	-	3.4	25.5	8.7	0.8	9.5
1/2+1/3	700	700	0	135	50	4.6	1.2	0.0	5.9	30.1	9.3	1.2	10.5
2/1	307	307	23	0	0	2.3	0.9	0.1	3.2	38.1	6.2	0.9	7.1
3/1	730	730	-	-	-	4.4	3.3	-	7.7	38.0	15.2	3.3	18.6
3/2+3/3	913	913	0	111	26	6.0	4.1	0.0	10.0	39.6	16.9	4.1	21.0
4/1	339	339	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	973	973	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	776	776	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	702	702	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	515	515	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1+8/2	482	482	75	0	1	3.9	3.7	0.1	7.7	57.8	9.6	3.7	13.3
C1 PRC for Signalled Lanes (%): -1.3 Total Delay for Signalled Lanes (pcuHr): 38.02 Cycle Time (s): 83 PRC Over All Lanes (%): -1.3 Total Delay Over All Lanes(pcuHr): 38.02													

Full Input Data And Results

Scenario 2: '2023 'With Development' PM' (FG16: '2023 base + comm dev + dev PM', Plan 2: 'Network Control Plan 2')

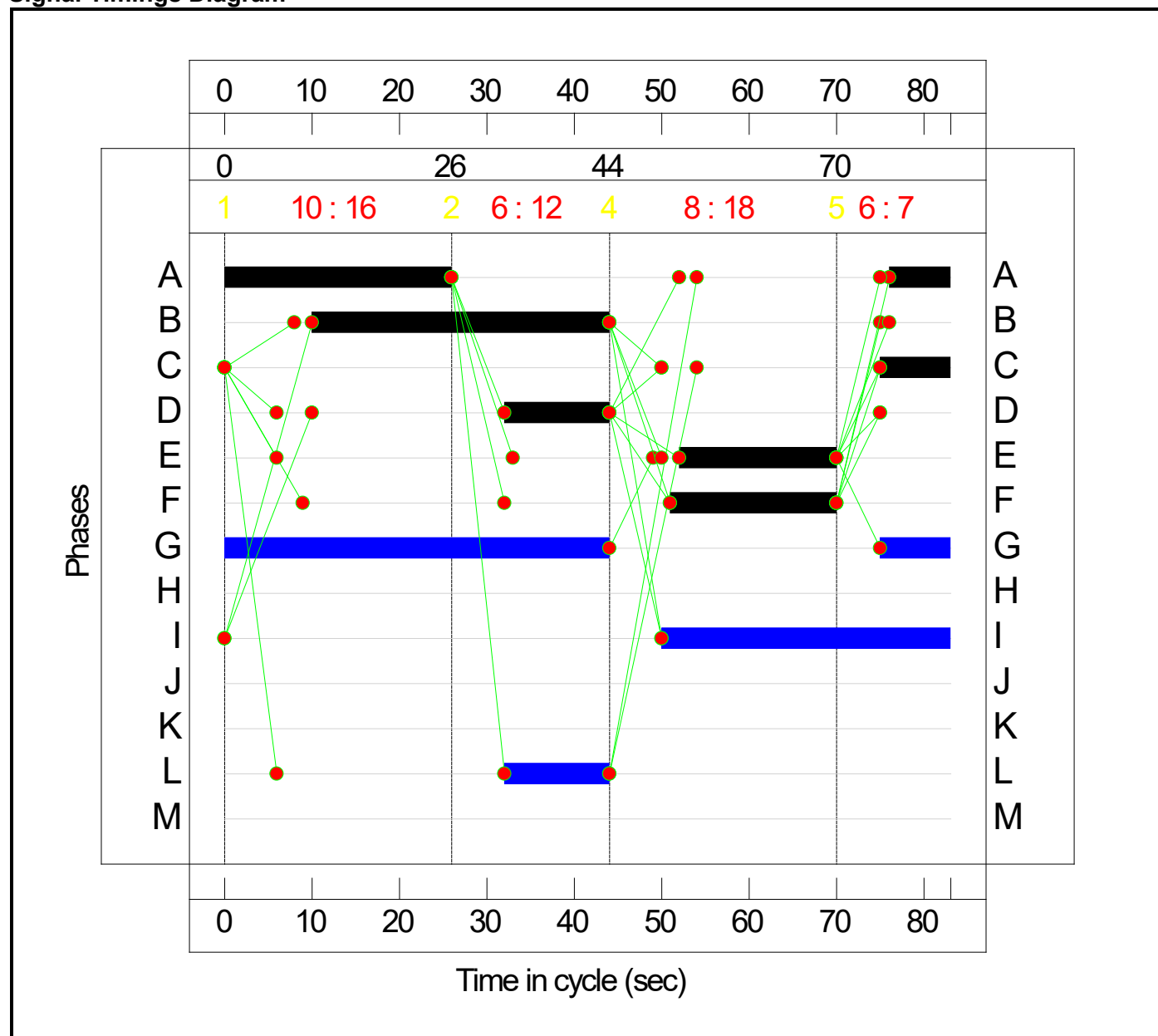
Stage Sequence Diagram



Stage Timings

Stage	1	2	4	5
Duration	16	12	18	7
Change Point	0	26	44	70

Signal Timings Diagram



Full Input Data And Results

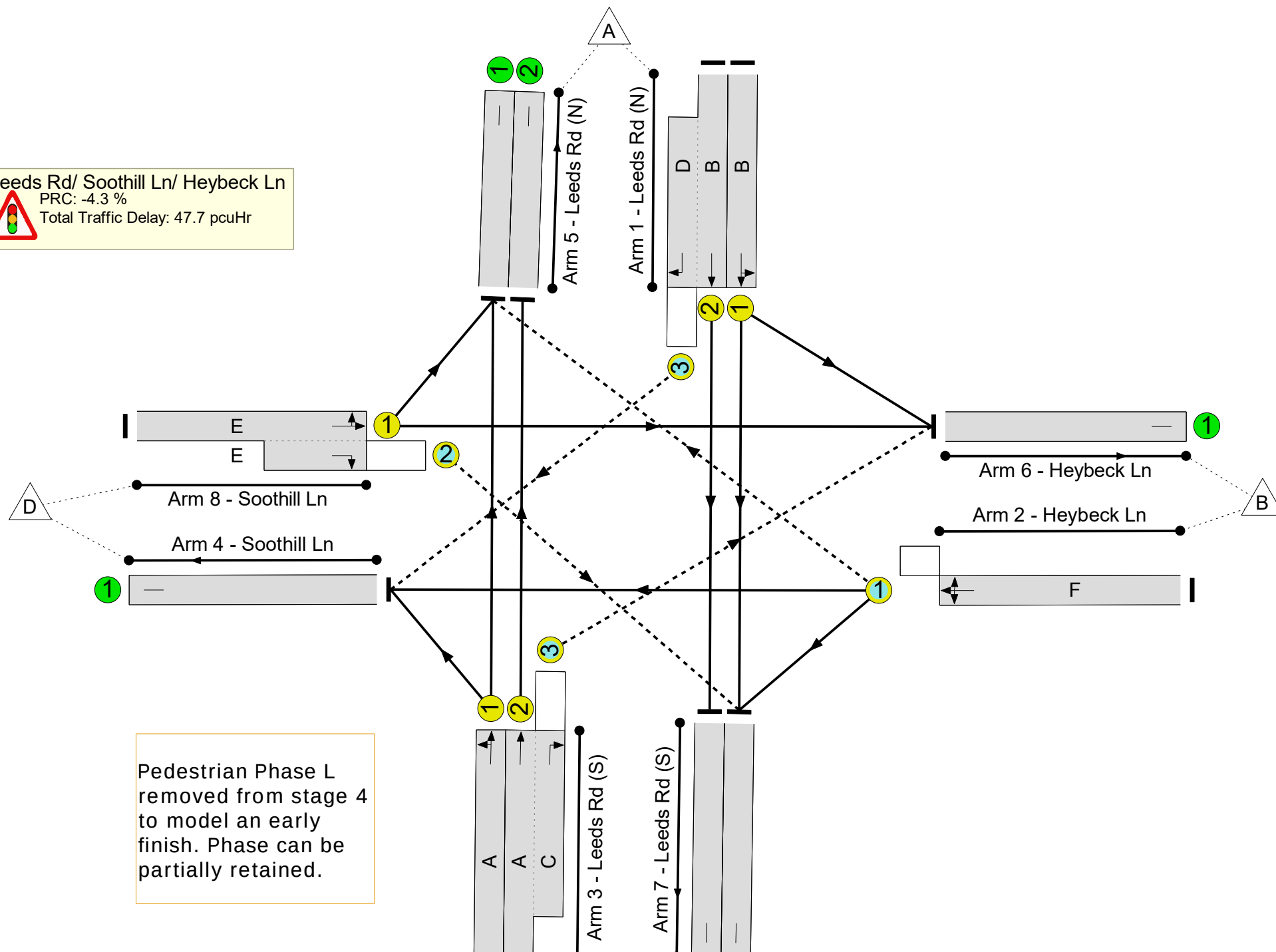
Network Layout Diagram

Leeds Rd/ Soothill Ln/ Heybeck Ln



PRC: -4.3 %

Total Traffic Delay: 47.7 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	93.9%
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	N/A	-	-		-	-	-	-	-	-	93.9%
1/1	Leeds Rd (N) Left Ahead	U	N/A	N/A	B		1	34	-	731	1901	802	91.2%
1/2+1/3	Leeds Rd (N) Right Ahead	U+O	N/A	N/A	B D		1	34:12	-	1017	2055:1872	802+281	93.9 : 93.9%
2/1	Heybeck Ln Ahead Right Left	O	N/A	N/A	F		1	19	-	211	1856	447	47.2%
3/1	Leeds Rd (S) Left Ahead	U	N/A	N/A	A		1	33	-	613	1896	777	78.9%
3/2+3/3	Leeds Rd (S) Ahead Right	U+O	N/A	N/A	A C		1	33:8	-	841	2080:1848	800+200	83.7 : 85.8%
4/1	Soothill Ln	U	N/A	N/A	-		-	-	-	438	Inf	Inf	0.0%
5/1	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	809	Inf	Inf	0.0%
5/2	Leeds Rd (N)	U	N/A	N/A	-		-	-	-	669	Inf	Inf	0.0%
6/1	Heybeck Ln	U	N/A	N/A	-		-	-	-	359	Inf	Inf	0.0%
7/1	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	838	Inf	Inf	0.0%
7/2	Leeds Rd (S)	U	N/A	N/A	-		-	-	-	753	Inf	Inf	0.0%
8/1+8/2	Soothill Ln Left Ahead Right	U+O	N/A	N/A	E		1	18	-	453	1906:1940	421+66	93.1 : 93.1%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform 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	-	-	83	359	82	26.5	21.0	0.2	47.7	-	-	-	-
Leeds Rd/ Soothill Ln/ Heybeck Ln	-	-	83	359	82	26.5	21.0	0.2	47.7	-	-	-	-
1/1	731	731	-	-	-	4.6	4.6	-	9.2	45.1	15.6	4.6	20.2
1/2+1/3	1017	1017	0	226	38	7.1	6.4	0.0	13.6	48.0	17.0	6.4	23.4
2/1	211	211	23	0	4	1.6	0.4	0.1	2.1	36.3	4.2	0.4	4.6
3/1	613	613	-	-	-	3.6	1.8	-	5.5	32.1	12.3	1.8	14.1
3/2+3/3	841	841	0	134	38	5.7	2.6	0.0	8.3	35.4	13.4	2.6	15.9
4/1	438	438	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	809	809	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	669	669	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	359	359	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	838	838	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	753	753	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1+8/2	453	453	60	0	1	3.9	5.1	0.1	9.1	72.2	9.4	5.1	14.5
C1 PRC for Signalled Lanes (%): -4.3 Total Delay for Signalled Lanes (pcuHr): 47.65 Cycle Time (s): 83 PRC Over All Lanes (%): -4.3 Total Delay Over All Lanes(pcuHr): 47.65													

Appendix H

B6124 Station Road/ B6124 Soothill Lane - Mitigation

JUNCTIONS Outputs

Junctions 8							
PICADY 8 - Priority Intersection Module							
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2019							
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Filename: Station Rd - Soothill Ln_with mitigation.arc8
Path: N:\Vectos Job Data\2019\VN91266 Soothill Lane - Post App\Picady
Report generation date: 05/06/2019 17:48:52

« (Default Analysis Set) - 2023 base + comm dev + dev, AM
 » Junction Network
 » Arms
 » Traffic Flows
 » Entry Flows
 » Direct/Resultant Flows
 » Turning Proportions
 » Vehicle Mix
 » Results

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
A1 - 2023 base + comm dev + dev								
Stream B-C	15.67	676.20	1.27	F	28.48	969.46	1.44	F
Stream B-A	75.90	614.38	1.33	F	105.71	895.60	1.48	F
Stream C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	A
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.

"D5 - 2023 base + comm dev + dev, AM" model duration: 08:00 - 09:30

"D6 - 2023 base + comm dev + dev, PM" model duration: 17:00 - 18:30

Run using Junctions 8.0.6.541 at 05/06/2019 17:48:50

File summary

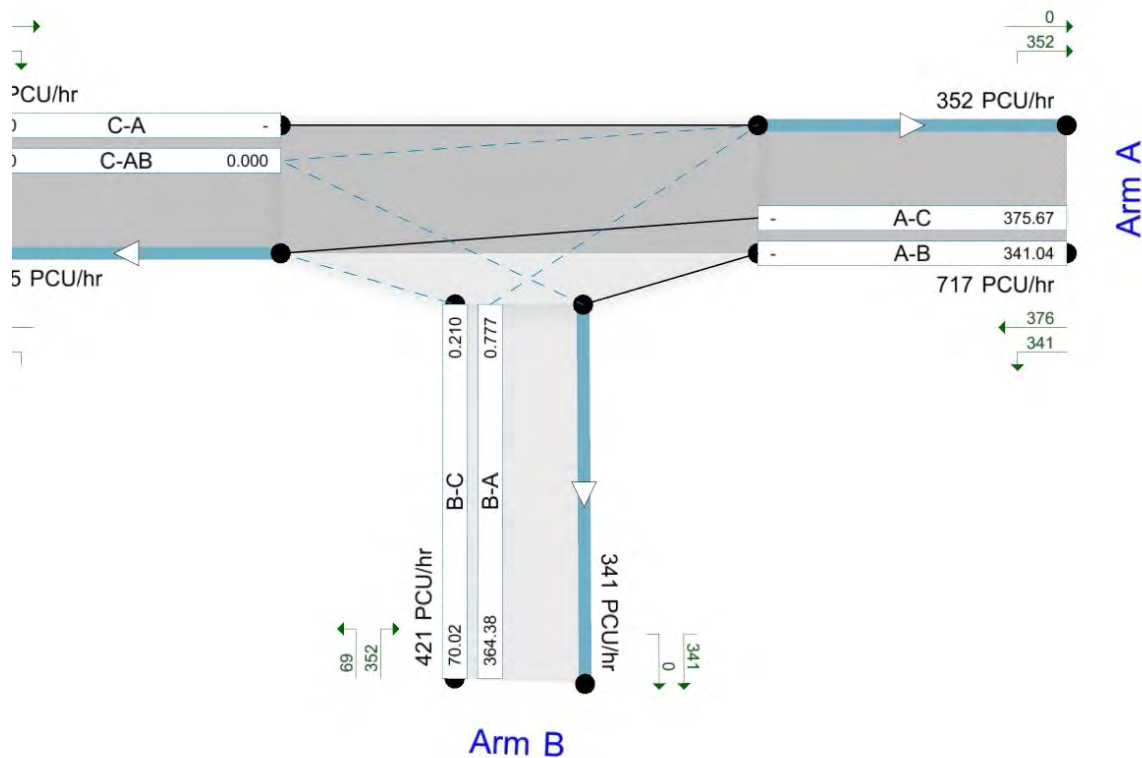
Title	(untitled)
Location	
Site Number	
Date	28/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	Office
Description	

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



Showing modelled flow through junction (PCU/hr).
Streams (upstreams) show Total Demand (PCU/hr). Streams (downstreams) show RFC (%).
Time Segment: (08:00-08:15)
Showing Analysis Set "A1"; Demand Set "D5 - 2023 base + comm dev + dev, AM"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2023 base + comm dev + dev, 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
(Default Analysis Set)	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
2023 base + comm dev + dev, AM	2023 base + comm dev + dev	AM		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		624.34	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Station Road (N)		Major
B	B	Soothill Lane		Minor
C	C	Station Road (S)		Major

Major Arm Geometry

Arm	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)
C	6.00		0.00		2.20	0.00	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	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)
B	One lane plus flare				10.00	7.40	6.00	6.00	6.00		5.00	35	45

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	613.411	0.112	0.282	0.178	0.403
1	B-C	592.187	0.091	0.229	-	-
1	C-B	573.963	0.222	0.222	-	-

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

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	952.00	100.000
B	ONE HOUR	✓	577.00	100.000
C	ONE HOUR	✓	0.00	100.000

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
08:00-08:15	A	716.72	716.72		
08:00-08:15	B	434.40	434.40		
08:00-08:15	C	0.00	0.00		
08:15-08:30	A	855.83	855.83		
08:15-08:30	B	518.71	518.71		
08:15-08:30	C	0.00	0.00		
08:30-08:45	A	1048.17	1048.17		
08:30-08:45	B	635.29	635.29		
08:30-08:45	C	0.00	0.00		
08:45-09:00	A	1048.17	1048.17		
08:45-09:00	B	635.29	635.29		
08:45-09:00	C	0.00	0.00		
09:00-09:15	A	855.83	855.83		
09:00-09:15	B	518.71	518.71		
09:00-09:15	C	0.00	0.00		
09:15-09:30	A	716.72	716.72		
09:15-09:30	B	434.40	434.40		
09:15-09:30	C	0.00	0.00		

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

	To			
		A	B	C
	A	0.000	453.000	499.000
	B	484.000	0.000	93.000
	C	0.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

	To			
		A	B	C
	A	0.00	0.48	0.52
	B	0.84	0.00	0.16
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 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 - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	0.0
	B	0.0	0.0	0.0
	C	0.0	0.0	0.0

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-C	1.27	676.20	15.67	F	85.34	128.01	775.87	363.67	8.62	816.78	382.84
B-A	1.33	614.38	75.90	F	444.13	666.19	3527.02	317.66	39.19	3694.95	332.78
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	-	-	-	-	0.00	0.00	-	-	-	-	-
A-B	-	-	-	-	415.68	623.52	-	-	-	-	-
A-C	-	-	-	-	457.89	686.84	-	-	-	-	-

Main Results for each time segment

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-C	70.02	17.50	68.97	0.00	332.92	0.210	0.00	0.26	13.587	B
B-A	364.38	91.10	352.32	0.00	469.21	0.777	0.00	3.01	28.458	D
C-AB	0.00	0.00	0.00	0.00	414.58	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	341.04	85.26	341.04	0.00	-	-	-	-	-	-
A-C	375.67	93.92	375.67	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-C	83.61	20.90	68.07	0.00	83.51	1.001	0.26	4.15	169.357	F
B-A	435.11	108.78	408.14	0.00	441.16	0.986	3.01	9.76	75.745	F
C-AB	0.00	0.00	0.00	0.00	383.64	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	407.24	101.81	407.24	0.00	-	-	-	-	-	-
A-C	448.59	112.15	448.59	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-C	102.39	25.60	79.84	0.00	83.58	1.225	4.15	9.78	378.245	F
B-A	532.89	133.22	399.22	0.00	401.77	1.326	9.76	43.17	258.709	F
C-AB	0.00	0.00	0.00	0.00	340.87	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	498.76	124.69	498.76	0.00	-	-	-	-	-	-
A-C	549.41	137.35	549.41	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-C	102.39	25.60	79.33	0.00	80.71	1.269	9.78	15.55	615.648	F
B-A	532.89	133.22	401.97	0.00	402.41	1.324	43.17	75.90	530.757	F
C-AB	0.00	0.00	0.00	0.00	340.87	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	498.76	124.69	498.76	0.00	-	-	-	-	-	-
A-C	549.41	137.35	549.41	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-C	83.61	20.90	83.13	0.00	87.06	0.960	15.55	15.67	676.200	F
B-A	435.11	108.78	435.12	0.00	441.14	0.986	75.90	75.90	614.377	F
C-AB	0.00	0.00	0.00	0.00	383.64	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	407.24	101.81	407.24	0.00	-	-	-	-	-	-
A-C	448.59	112.15	448.59	0.00	-	-	-	-	-	-

Main results: (09:15-09:30)

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-C	70.02	17.50	87.59	0.00	93.18	0.751	15.67	11.27	562.925	F
B-A	364.38	91.10	463.01	0.00	469.11	0.777	75.90	51.24	496.631	F
C-AB	0.00	0.00	0.00	0.00	414.58	0.000	0.00	0.00	0.000	A
C-A	0.00	0.00	0.00	0.00	-	-	-	-	-	-
A-B	341.04	85.26	341.04	0.00	-	-	-	-	-	-
A-C	375.67	93.92	375.67	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

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-C	3.70	0.25	13.587	B	B
B-A	37.56	2.50	28.458	D	C
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-C	40.00	2.67	169.357	F	F
B-A	105.24	7.02	75.745	F	E
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-C	105.74	7.05	378.245	F	F
B-A	398.87	26.59	258.709	F	F
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-C	190.28	12.69	615.648	F	F
B-A	893.23	59.55	530.757	F	F
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-C	234.11	15.61	676.200	F	F
B-A	1138.54	75.90	614.377	F	F
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:15-09:30)

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-C	202.04	13.47	562.925	F	F
B-A	953.58	63.57	496.631	F	F
C-AB	0.00	0.00	0.000	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-