



Proposed Residential Development, East Lancashire Paper Mill (A090070-193)

Planning Application Ref: 62969

Technical Note 'TN01' - Response to Comments from Highway Authority – 26 September 2018

1. Introduction

1.1 This Technical Note ('TN01') responds to comments raised on the submitted Transport Assessment (TA) by the Local Highway Authority (LHA) which is Bury Council (BC) and also Transport for Greater Manchester (TfGM). The comments made were in two pieces of correspondence, as follows:

- Email from the LHA dated 17th July 2018
- Consultation response from TfGM dated 23rd July 2018

1.2 Both sets of comments are collectively referred to as 'the Response' and are contained within **Appendix A**. The comments relate to the following aspects of the Transport Assessment (TA):

- Access Arrangements
- Future Traffic Flows
- Junction Modelling
- Access to Metrolink
- Site Accessibility
- Active Travel
- Travel Plan

1.3 Comments on the access arrangements were made by the LHA and all other comments were made by TfGM.

2. Access Arrangements

2.1 Vehicular access to the site is proposed via two priority junctions, an eastern and western access, which will be taken from Cross Lane (A6053).

- 2.2 The eastern access follows an alignment approximately 40m west of the alignment of Croft Lane and the western access follows the alignment of Cock Clod Street.
- 2.3 The access layouts which are shown in the TA have been designed according to current design guidance set out in Manual for Streets and Manual for Streets 2 (MfS/MfS2). However, officers at BC have raised a verbal objection to the design of the proposed accesses and stated that if they were to receive planning consent then BC would be unlikely to adopt them as they do not accord with BC adoption standards. However, WYG is unaware of any written adoption standards
- 2.4 Even though the accesses confirm to current standards and are adequate in terms of capacity and safety, the layout of the accesses have been redesigned to accord with the feedback provided by BC.
- 2.5 Both the eastern and western accesses have flares on the access roads to create left turn and right turn lanes. The access roads will be provided with 6.5m wide carriageways and 10m turn radii. Pedestrian islands will be provided across the minor arms and both access roads will deliver two, 2.0m wide footways. The revised access layouts now fully accord with the feedback received from officers at BC and are shown in the layout drawings contained within **Appendix B**.

3. Future Traffic Flows and Committed Developments

- 3.1 TfGM's response states that the growth factors as listed in Table 6.1 of the TA have not been applied correctly when deriving the traffic flows.
- 3.2 The growth factors that are presented in the text of the TA are incorrect, however the factors that have been used in the figures to forecast the base and assessment flows are correct. Accordingly, the discrepancy has no bearing on the TA results. The growth factors that have been used in the TA are shown in **Table 1**.

Table 1 – TEMPRO Growth Factors

Local Growth	AM	PM
2017 – 2023	1.803	1.076



- 3.3 TfGM requested that WYG seek clarification with BC over whether there is a need to account for any committed developments in the assessments. Highways officers at BC have confirmed that there are no additional committed developments that need to be accounted for.

4. Junction Modelling

Key Performance Indicators

- 4.1 In the response, TfGM recommends that forecast RFCs (ratio of flow to capacity) should be 0.85 or less if junctions are to operate within their practical capacity. The response continues to state that with values greater than 0.85 there is potential for queues and delays to increase significantly.
- 4.2 During peak traffic periods, it is not unusual for junctions within urban areas to operate with RFCs over 0.85. This is confirmed in many appeal decisions, for example in the decision (ref: APP/N4205/W/17/3167848) contained in **Appendix C**. For this appeal numerous junctions across the local highway network were operating over capacity and the appeal was allowed.
- 4.3 For the appeal statement, TfGM stated that a degree of saturation of over 90% (i.e. an RFC over 0.9) meant that junctions have no available capacity for additional traffic, however the Inspector and Council accepted that that *'such a situation is not unusual during peak traffic periods within urban areas'*.
- 4.4 An RFC of 0.85 should not therefore be used as a threshold of acceptability as suggested in the response. The proposals should be determined using the test set out in paragraph 109 of the National Planning Policy Framework (NPPF) which 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."* The TA clearly demonstrates that there would be no 'severe' traffic impacts and no unacceptable impacts on highway safety.
- 4.5 TfGM have provided comments on the ways that several of the junctions have been modelled. Whilst WYG does not entirely agree with the validity of all the comments, the modelling at these junctions has been revised according to the comments. The remainder

of this section presents summary results from the revised modelling which demonstrate that the proposals pass the test set out in paragraph 109.

York St / Dumers Lane Junction

- 4.6 During the scoping discussions for the TA, TfGM requested for this junction to be included in the assessments however the results were not included in the final TA. Traffic flows for this junction are shown in the figures appended to this Technical Note and the model outputs are contained in **Appendix D**. The summary assessment results are shown in **Table 2**.

Table 2 – Summary Results York St / Dumers Lane

Approach	2023 Base			2023 with Dev.			Difference	
	DoS	Ave Delay (secs)	Queue (vehs)	DoS	Ave Delay (secs)	Queue (vehs)	Ave Delay (secs)	Queue (vehs)
AM Peak Hour								
York Street	26%	74	1	26%	74	1	0	0
Dumers Lane from Bury	41%	28	8	42%	28	8	0	0
Access to Housing Development	52%	55	6	52%	55	6	0	0
Dumers Lane from Radcliffe	53%	30	12	56%	31	12	1	1
PM Peak Hour								
York Street	20%	72	1	20%	72	1	0	0
Dumers Lane from Bury	52%	25	11	54%	26	11	1	1
Access to Housing Development	49%	63	4	49%	63	4	0	0
Dumers Lane from Radcliffe	47%	25	9	50%	25	10	1	1

- 4.7 The results in **Table 2** show that the impacts of the development at this junction are nominal with a maximum change in queues of 1 vehicle. Even the queues with the development are very minor.

Junctions Assessed in TA

- 4.8 TfGM reviewed the junction model assessments that were included in the TA and suggested changes to the modelling at the following junctions:

- Water St / Spring Lane (J3) and Water Street / Ainsworth Road (J4)
- Pilkington Way/New Road/Blackburn Street (J6)
- Bury New Road/Bury Old Road/Higher Lane (J7)
- Manchester Road / Dumers Lane (J8)

- Manchester Road/Radcliffe Road (J9)

4.9 The remainder of this section summarises where changes have been made and presents the updated summary modelling results.

Water St / Spring Lane (J3) and Water Street / Ainsworth Road (J4)

- 4.10 The Water St / Spring Lane (J3) and Water Street / Ainsworth Road (J4) junctions are in close proximity to each other and in accordance with comments from TfGM, these have now been modelled as linked junctions in a single TRANSYT model.
- 4.11 In line with TfGM's recommendations, these have been remodelled using traffic flows that now account for 'suppressed demands'. These are known as 'demand flows' that account for queued traffic rather than actual flows which are the observed turning movements.
- 4.12 There are several methods for accounting for suppressed demands in the assessments. An accurate method is to calculate the difference in queues between the start and end of the modelled time periods and add this difference to the observed turn flows. This method will account for any excess demands that the junction cannot process during the modelled time period. However, if using this method, there may be occasions where the queues at the end of the modelled time periods are lower than those at the start of the modelled time period. If this method is used then the demand flows will be lower than the actual flows as queues will have reduced over the modelled time period.
- 4.13 For these assessments, the suppressed demands have been accounted for by adding the queued flows at the end of the modelled time periods to the observed turn flows. This does not take account of the queues at the start of the modelled time period and can lead to an over-estimate in the suppressed demands. The method used has resulted in a highly robust assessment.
- 4.14 The traffic surveys that were undertaken for the TA did not include queue surveys and so, using these surveys, it is not possible to account for the suppressed demands. Traffic surveys at these two junctions have therefore been repeated but with the inclusion of queue surveys. The traffic surveys were undertaken on Monday 10th September 2018 and the survey data is contained within **Appendix E**.

- 4.15 Traffic figures showing the updated flows that are used in the assessments are shown in **Figure 1 to Figure 9**.

Pilkington Way/New Road/Blackburn Street (J6)

- 4.16 At this junction give way parameters have been provided for arm A, lane 2. The model outputs are contained in **Appendix F**.

Bury New Road/Bury Old Road/Higher Lane (J7)

- 4.17 At this junction arm 2 has now been modelled as two long lanes plus two flares. The model outputs are contained in **Appendix G**.

Manchester Road / Dumers Lane (J8)

- 4.18 This junction has been remodelled using TRANSYT and in accordance with TfGM's detailed comments which are contained within **Appendix A**. The model outputs are contained in **Appendix H**.

Manchester Road/Radcliffe Road (J9)

- 4.19 This junction has been modelled to accord with TfGM's comments. Arm 1 has been modelled as one lane plus a flare and the give way parameters for arm 4 lane 1 and arm 3 lane 1 have been corrected. The model outputs are contained in **Appendix I**.

4.20 The updated assessment results for the AM peak hour are summarised in **Table 3**.

Table 3 – Results of Updated Assessments, AM Peak Hour

Approach	2023 Base			2023 with Dev.			Difference	
	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Ave Delay (secs)	Queue (vehs)
J3 - Water St (A665) / Blackburn St (A665) / Spring Lane (A6053) / Abden St								
Water St Left Ahead	102%	103	49	103%	114	52	+11	+3
Water St Ahead	94%	39	34	94%	40	35	+1	+1
Spring Ln	100%	136	21	107%	198	29	+61	+8
Pilkington Way Ahead	25%	12	4	25%	12	4	0	0
Pilkington Way Ahead Right	25%	33	4	25%	33	4	0	0
Abden St Left Ahead	56%	68	3	56%	68	3	0	0
Abden St Right	22%	53	1	22%	53	1	0	0
J4 - Water St (A665) / Ainsworth Rd (B6292)								
Ainsworth Road	89%	49	28	91%	53	30	+5	+1
Water Street WB Ahead	32%	2	2	32%	2	2	0	0
Water Street WB Right	44%	42	8	44%	42	8	0	0
Water Street Eastbound	81%	28	30	82%	29	32	+1	+1
J6 - Pilkington Way (A556) / New Road / Blackburn St / Stand Lane								
Stand Lane Southbound	21%	21	3	30%	23	4	+2	+1
New Road Ahead Left Ahead	35%	34	5	34%	33	5	-1	0
New Road Ahead Right/ Ahead	44%	34	6	46%	34	6	0	0
Stand Lane Northbound	45%	31	7	46%	32	7	+1	0
Pilkington Way Left Ahead	43%	26	8	42%	25	8	-1	0
Pilkington Way Ahead Right	44%	24	7	43%	24	7	-1	0
J7 - A56 Bury New Road / Bury Old Rd / Higher Lane								
Bury New Road SB Left	44%	34	5	45%	35	5	+1	0
Bury New Road SB Ahead	66%	38	8	68%	39	9	+1	0
Bury New Road NB Left	40%	3	3	42%	3	3	0	0
Bury New Road NB Ahead	62%	30	12	63%	31	12	+1	0
Bury New Road NB Ahead Right	48%	21	9	50%	21	10	0	+1
Higher Lane Left Ahead	66%	21	9	67%	20	10	0	+1
Higher Lane Ahead Right	44%	34	5	45%	35	5	+1	0
J8 - A56 Manchester Road / Radcliffe Rd / Parkhills Rd								
Manchester Road SB Left Ahead	49%	20	7	50%	20	7	0	0
Manchester Road SB Ahead Right	49%	28	9	52%	29	9	+1	0
Parkhills Road	81%	46	18	82%	47	18	+1	0
Manchester Road NB Ahead Left	56%	37	13	56%	37	13	0	0
Manchester Road NB Ahead Right	19%	28	3	19%	28	3	0	0
Radcliffe Road	84%	49	21	89%	55	23	+7	+3

Table 3 (continued) – Results of Updated Assessments, AM Peak Hour

Approach	2023 Base			2023 with Dev.			Difference	
	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Ave Delay (secs)	Queue (vehs)
J9 - A56 Manchester Road / Dumers Lane								
Manchester Rd from Bury Left/Ahead	77%	29	22	77%	29	22	0	0
Manchester Rd from Bury Ahead/Right	1%	27	0	1%	27	0	0	0
Millwood Court	80%	37	20	83%	39	21	2	+1
Manchester Rd from Manchester Ahead/Left	61%	28	14	60%	28	14	0	0
Manchester Rd From Manchester Ahead/Right	80%	47	17	83%	51	19	4	+2
Dumers Lane	77%	29	22	77%	29	22	0	0

4.21 All the modelled junctions operate within capacity, the only exception to this is J3 where only two arms are marginally over capacity, however the corresponding changes to queues and delays on the arms are relatively low.

4.22 Overall, the results in **Table 3** show that in the AM peak hour the impact of the development traffic on queues is nominal at all locations. The biggest queue increase is at the Spring Lane approach to junction 3, where queues increase by 8 vehicles. At all other locations, the impact on queues is 3 vehicles or less

4.1 The updated assessment results for the AM peak hour are summarised in **Table 4**.

Table 4 – Results of Updated Assessments, PM Peak Hour

Approach	2023 Base			2023 with Dev.			Difference	
	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Ave Delay (secs)	Queue (vehs)
J3 - Water St (A665) / Blackburn St (A665) / Spring Lane (A6053) / Abden St								
Water St Left Ahead	77%	43	14	79%	45	15	1	+1
Water St Ahead	81%	45	18	82%	47	18	1	+1
Spring Ln	97%	76	34	99%	85	36	9	+3
Pilkington Way Ahead	98%	86	33	98%	88	33	2	0
Pilkington Way Ahead Right	84%	60	21	84%	60	21	0	0
Abden St Left Ahead	100%	206	9	100%	206	9	0	0
Abden St Right	25%	59	1	25%	59	1	0	0
J4 - Water St (A665) / Ainsworth Rd (B6292)								
Ainsworth Road	30%	10	7	30%	10	8	0	0
Water Street WB Ahead	72%	6	31	72%	7	32	0	+1
Water Street WB Right	83%	12	14	83%	12	14	0	0
Water Street Eastbound	57%	44	15	59%	44	15	1	0
J6 - Pilkington Way (A556) / New Road / Blackburn St / Stand Lane								
Stand Lane Southbound	20%	26	2	27%	29	3	4	+1
New Road Ahead Left Ahead	46%	32	9	58%	33	13	0	+4
New Road Ahead Right/ Ahead	62%	35	8	71%	40	9	5	+1
Stand Lane Northbound	63%	42	11	70%	48	12	6	+1
Pilkington Way Left Ahead	35%	22	6	35%	20	6	-2	0
Pilkington Way Ahead Right	42%	22	7	39%	20	6	-2	-1
J7 - A56 Bury New Road / Bury Old Rd / Higher Lane								
Bury New Road SB Left	30%	18	3	30%	18	3	0	0
Bury New Road SB Ahead	67%	22	9	67%	22	9	0	0
Bury New Road NB Left	66%	5	5	69%	5	6	0	+1
Bury New Road NB Ahead	67%	17	14	67%	17	14	0	0
Bury New Road NB Ahead Right	52%	37	7	54%	37	8	1	0
Higher Lane Left Ahead	68%	37	8	70%	37	8	1	0
Higher Lane Ahead Right	30%	18	3	30%	18	3	0	0
J8 - A56 Manchester Road / Radcliffe Rd / Parkhills Rd								
Manchester Road SB Left Ahead	44%	26	7	45%	26	7	0	0
Manchester Road SB Ahead Right	44%	31	6	45%	31	8	1	2
Parkhills Road	65%	31	14	67%	32	14	1	1
Manchester Road NB Ahead Left	68%	45	17	68%	45	18	0	0
Manchester Road NB Ahead Right	24%	33	3	25%	34	3	0	0
Radcliffe Road	82%	41	23	84%	43	24	2	1

Table 4 (continued) – Results of Updated Assessments, AM Peak Hour

Approach	2023 Base			2023 with Dev.			Difference	
	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Max RFC /DoS	Ave Delay (secs)	Queue (vehs)	Ave Delay (secs)	Queue (vehs)
J9 - A56 Manchester Road / Dumers Lane								
Manchester Road From Bury Left Ahead	79%	28	21	79%	28	21	0	0
Manchester Road From Bury Ahead Right	1%	30	0	1%	30	0	0	0
Millwood Court	95%	55	36	96%	63	39	8	3
Manchester Rd From Manchester Ahead Left	94%	81	21	94%	81	21	0	0
Manchester Rd From Manchester Ahead Right	93%	74	23	96%	85	26	10	2
Dumers Lane	79%	28	21	79%	28	21	0	0

- 4.1 All the modelled junctions operate within capacity, the only exception to this is J3 where only one arms is marginally over capacity, however the corresponding changes to queues and delays on this arms is negligible.
- 4.2 The results in **Table 4** show that in the PM peak hour the impact of the development traffic on queues is nominal at all locations. The biggest queue increase is at the New Road approach to junction 6, where queues increase by 4 vehicles.

5. Access to Metrolink

- 5.1 With regards to the access to the Metrolink, officers at TfGM state that 'there is no direct pedestrian access to the stop platforms from the east'. They have suggested that a Metrolink stop pedestrian and cycle access improvement scheme is delivered as part of this development which could be delivered through the following condition:

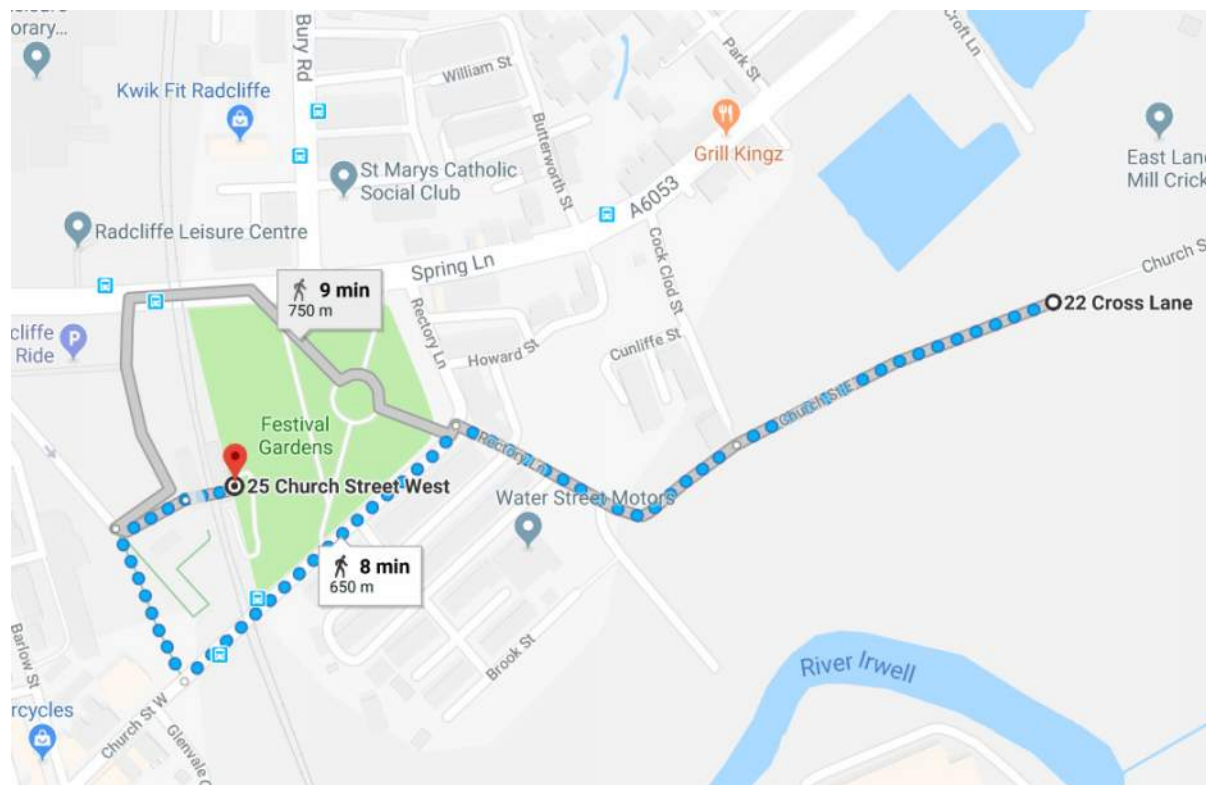
"The development shall not be brought into use until a Radcliffe Metrolink stop pedestrian and cycle access improvement scheme has been submitted to, and approved in writing by Bury Council (approval to be in consultation with Transport for Greater Manchester)."

Reason: In the interests of encouraging use of public transport, pursuant to policies".

- 5.2 The route planning feature within google maps has been used to establish the existing walking routes that are in place between the centre of the site and the Metrolink station.

- 5.3 A screenshot of various walking routes between the site and the Metrolink station is shown in **Map 1**.

Map 1 – Walking routes to Radcliffe Metrolink Station



- 5.4 **Map 1** shows that currently at least two walking routes are in place between the site and Redcliffe Metrolink station.
- 5.5 The most direct walking route between the site and Radcliffe Metrolink station follows the Rectory Lane, Church Street West route. This is a step-free route of around 650m and will take around 8 mins from the centre of the site. The footways along this route are lit and are in good condition.
- 5.6 An alternative walking route is in place via Rectory Lane, across Festival Gardens and involves accessing the Metrolink station off Spring Lane. This is also a step-free route around 750m and will take around 9 mins from the centre of the site. The footways along this route are also lit and are in good condition.



- 5.7 The IHT document 'Guidelines for Planning for Public Transport in Developments' states in paragraph 5.21 that new developments should be located less than 800m from the nearest railway station.
- 5.8 Both routes are step free and involve walk distances of less than 800m which is well within the threshold quoted in the IHT document. The existing routes to the Metrolink station are therefore entirely suitable to serve the development.
- 5.9 The NPPF sets out policies relating the use of planning conditions. Paragraph 54 states that *"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations."*
- 5.10 Paragraph 55 goes on to state that *"Planning conditions should be kept to a minimum and only imposed where they are necessary, relevant to planning and to the development to be permitted, enforceable, precise and reasonable in all other respects."*
- 5.11 As demonstrated above, adequate walking routes are currently in place between the site and Radcliffe Metrolink station. Planning conditions should only be used to make a development acceptable and should only be imposed where they are 'necessary'. Clearly provision of a further walking route is unnecessary to make the proposals acceptable in planning terms and the suggested condition does not accord with the NPPF. Accordingly, the applicant is unwilling to agree to the suggested planning condition.

6. Site Accessibility

Bus Stop Improvements

- 6.1 Clarification was requested by TfGM over the accessibility of the site and in particular, the current state of the existing bus stops near the site.
- 6.2 The consultation response refers to four bus stops and which are close to the site.
- Cross Lane (NC0582), opposite proposed eastern access
 - Cross Lane (NC0975), opposite proposed western access at Cock Clod St
 - Bury Street (NC0580), north of Bealey Row
 - Cross Lane (NC0583), outside the Staff of Life pub

6.3 Currently, the three bus stops on Cross Lane comprise a simple pole and sign arrangement. There are no shelters or raised kerbs. The bus stop on Bury Street has pole and a bus shelter in place but does not have raised kerbs.

6.4 TfGM's response requests that improvements are provided at the four bus stops. These are listed below as follows:

Cross Lane NC0582 Opposite new site entrance road,

- Proposed new QBC platform to be provided at stop.
- Bus Layby being created due to the additional width provided.
- Renewal of bus stop cage marking.

Cross Lane NC0975 Opposite junction Cock Clod Street,

- Proposed new QBC platform provided at stop.
- Bus stop cage marking introduced.
- Clearway Order needs to be introduced.

Bury Street NC0580 Opposite new site,

- Proposed new QBC platform provided at stop.
- Bus stop Cage to be introduced.

Cross Lane NC0583 Bus stop outside the Staff of Life,

- Proposed new QBC platform provided stop.
- Bus stop cage marking introduced.
- Clearway Order needs to be introduced.

6.5 The improvements listed above can be delivered through the S106 agreement. Initial cost estimates are set out below.

- £20k, 4 x new QBC platforms
- £5k, 4 x bus stop cage markings
- £25k, total for bus stop improvements (excluding costs associated with the bus layby and TRO for clearway order, if required)

6.6 The applicant is willing to provide funding of up to £25k for these improvements through the S106 agreement.

- 6.7 The request for a bus layby at Cross Lane NC0582 is being provided as part of the access arrangements for the eastern access. This can be secured through the S278 process.

Other Comments

- 6.8 At the stop opposite Cock Clod St the response questions whether there is an opportunity to widen the highway at this location, to improve flow past stationary buses.
- 6.9 The extent of the adopted highway in this location is a constraining factor which prohibits widening of the carriageway at this point.

7. Active Travel

- 7.1 The site currently contains two Public Rights of Ways (PRoWs). The proposals involve potentially re-routing PRoW 9SM to follow the alignment of the internal roads. TfGM's response questions how the PRoW will be diverted.
- 7.2 The application is outline, with all matters reserved except for access, therefore the internal layout will be determined at a later date through a reserved matters application. It is possible that there will be no need to divert the route of the existing PRoW, depending on the final site layout.
- 7.3 If the final site layout does require the PRoW to be diverted then this could be undertaken through S257 of the Town and Country Planning Act.
- 7.4 The TfGM response discusses the walking routes through the site and states that there is no clear map showing these routes.
- 7.5 As set out in the TA, pedestrian accesses will be provided at the following points:
- Western Access
 - Eastern Access
 - Rectory Lane
 - Church Street East / Sandford Street
 - Bury St, at a point approximately 80m south of the Eton Hill Road junction
 - Glebe Street



- 7.6 A plan, which is based upon the illustrative masterplan, showing the location of these pedestrian points is contained within **Appendix J**. The walking routes through the site are reliant on the final site layout which will be proposed through a reserved matters application.
- 7.7 As per the revised access drawings in **Appendix B**. The eastern, western accesses and route via Glebe Street will be provided with two 2.0m wide footways. The exact dimensions of the other pedestrian links will be dependent on the internal layout which will be determined through a reserved matters application. It is envisaged that the Rectory Lane and Church Street East / Sandford Street accesses will tie in with the existing footways at these locations.
- 7.8 TfGM requested that the map showing how the site will link into the existing cycle network. A plan has been produced which shows the access points for cyclists and **Plan 1** shows the wider cycle network.

8. Travel Plan

- 8.1 TfGM propose that, if the application is approved, a condition should be attached to the consent which requires a full Travel Plan to be implemented.
- 8.2 The application was accompanied by a Framework Travel Plan which sets out the method of promoting sustainable travel. The exact specification of the Travel Plan can be agreed at a reserved matters stage.

9. Conclusions

- 9.1 The layouts of the proposed access junctions have been altered to accord with the feedback received from highways officers at BC. The access roads now have 6.5m wide carriageways and two lanes (a left turn and a right turn) at the junctions with Cross Lane.
- 9.2 Comments relating to the growth factors in the TA have been addressed. Highway officers at BC have confirmed that there are no committed developments that need to be accounted for when deriving future traffic flows that are used in the assessments. It has been demonstrated that the growth factors and thus the future year flows used in the original assessments are correct.



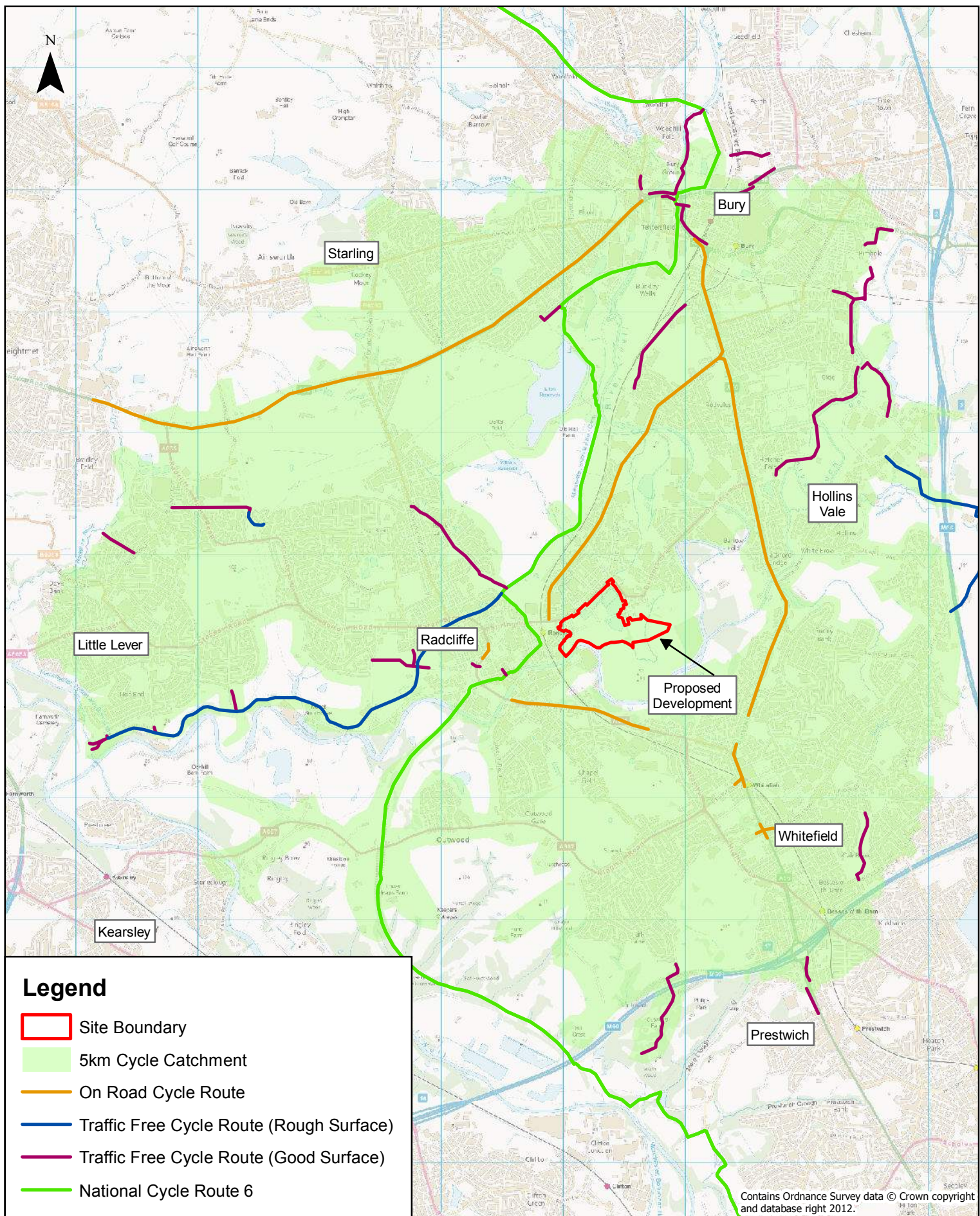
- 9.3 The capacity of the York Street / Dumers Lane junction has been assessed and the results show that with the inclusion of the development traffic, the junction continues to work well within capacity. The impact of the development is nominal.
- 9.4 The modelling at several junctions has been revisited based on comments received from TfGM. The revised modelling results show that the development does not result in a material change in traffic congestion patterns on the local highway network. The biggest impact in terms of queues is along Spring Lanes where queues increase by 8 vehicles in the AM peak. Impacts on queues at all other locations are 4 vehicles or less. Based on the revised results, the residual cumulative impacts of the development are insignificant.
- 9.5 Officers at TfGM have stated that there is no direct pedestrian access between the site and Radcliffe Metrolink station and have suggested that a new pedestrian and cycle access routes is provided. Two adequate, safe and secure step free routes are already in place between the site and Radcliffe Metrolink station which are within a reasonable walk distance. A new route is unnecessary and so the request for such a planning condition does not comply with the NPPF which requires planning conditions to be necessary.
- 9.6 A series of improvements have been identified by TfGM at bus stops close to the site and the applicant is willing to fund up to £25k for these through a S106 agreement. The bus stop layby for the Cross Lane (NC0582) opposite the eastern access can delivered as part of the eastern site access.
- 9.7 The mechanism for diverting as existing PRoW that runs through the site was questioned by TfGM. The need to divert the PRoW is dependent on the site layout. This application is in outline, with all matters reserved apart from access and so the internal layout and hence the need to divert the PRoW will be determined at a later stage through a reserved matters application.
- 9.8 Development of the site will result in several walking connections and the site's connectivity to the cycle network have been clarified. The commitments attached to the Travel Plan can be agreed through a reserved matters application.
- 9.9 In summary, the proposals will result in a sustainable development which is in close proximity to Radcliffe town centre, local bus stops and the Metrolink. The new site access junctions will provide safe and suitable access for users of the site.



- 9.10 The proposals accord with the key test set out in paragraph 109 of the NPPF as the development will not result in an unacceptable impact on safety and the residual cumulative impacts of the road network will not be significant, let alone severe. There are therefore no highways and transport related reasons why the proposals should not be granted consent.



Plans



East Lancashire Paper Mill

Plan 1: 5km Cycle Catchment

Scale @ A4 1:40,000

Project No: A090070-193

QUAY WEST AT MEDIACITY UK
TRAFFORD WHARF ROAD
TRAFFORD PARK
MANCHESTER
M17 1HH

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Figures

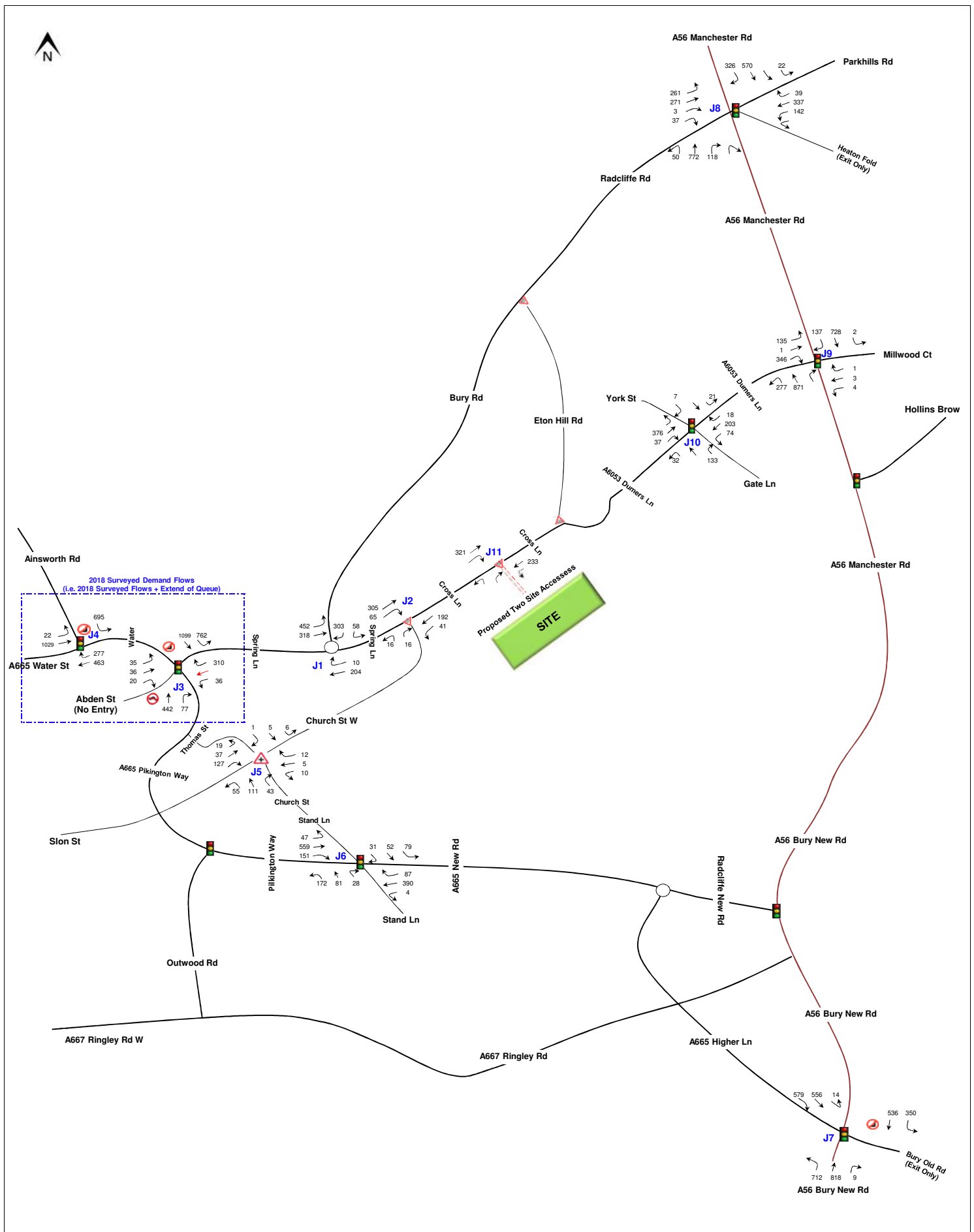


Figure. 1: AM Peak Hour 2017/2018 Surveyed Traffic Flows (07:45-08:45)

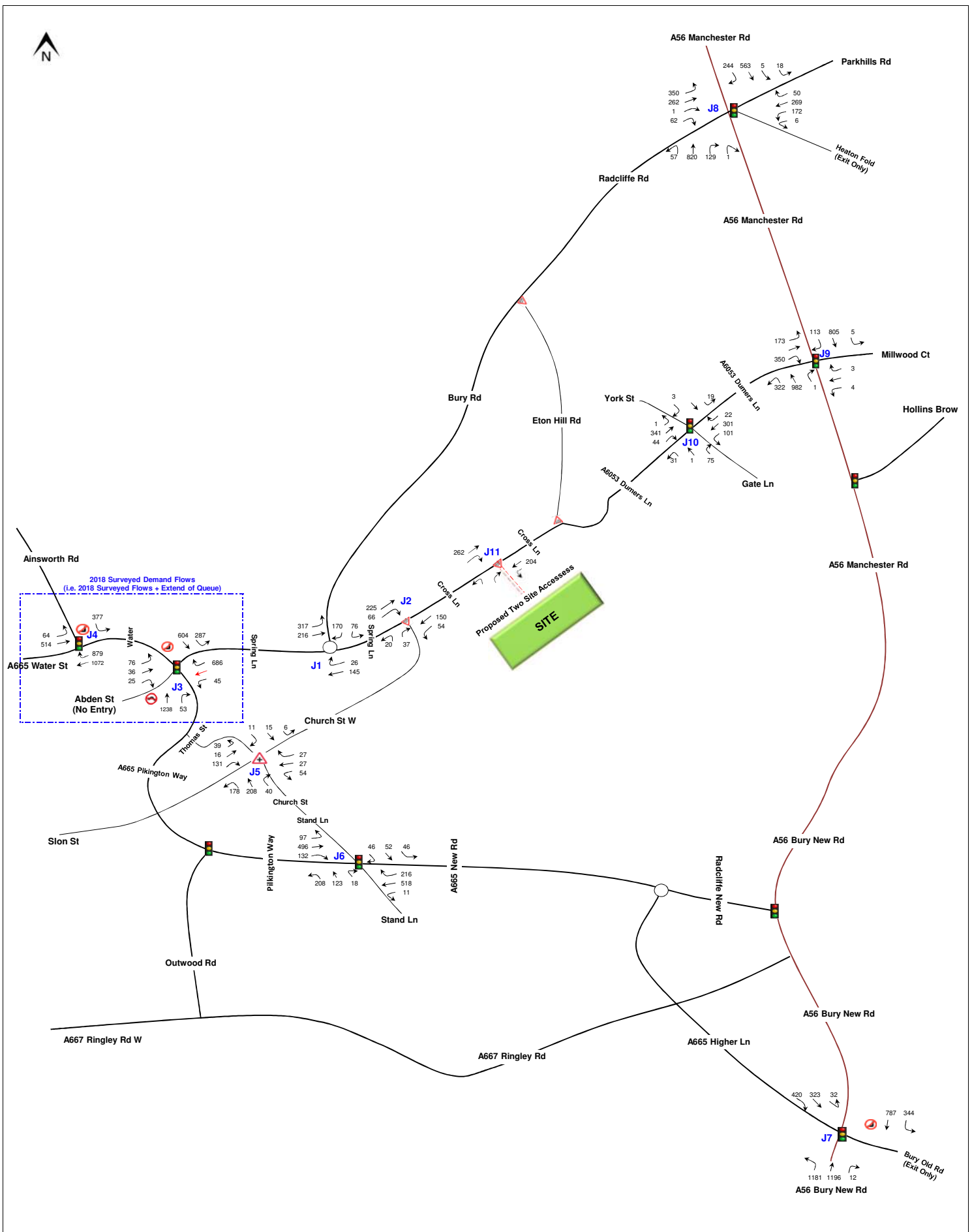


Figure. 2: PM Peak Hour 2017/2018 Surveyed Traffic Flows (16:30-17:30)

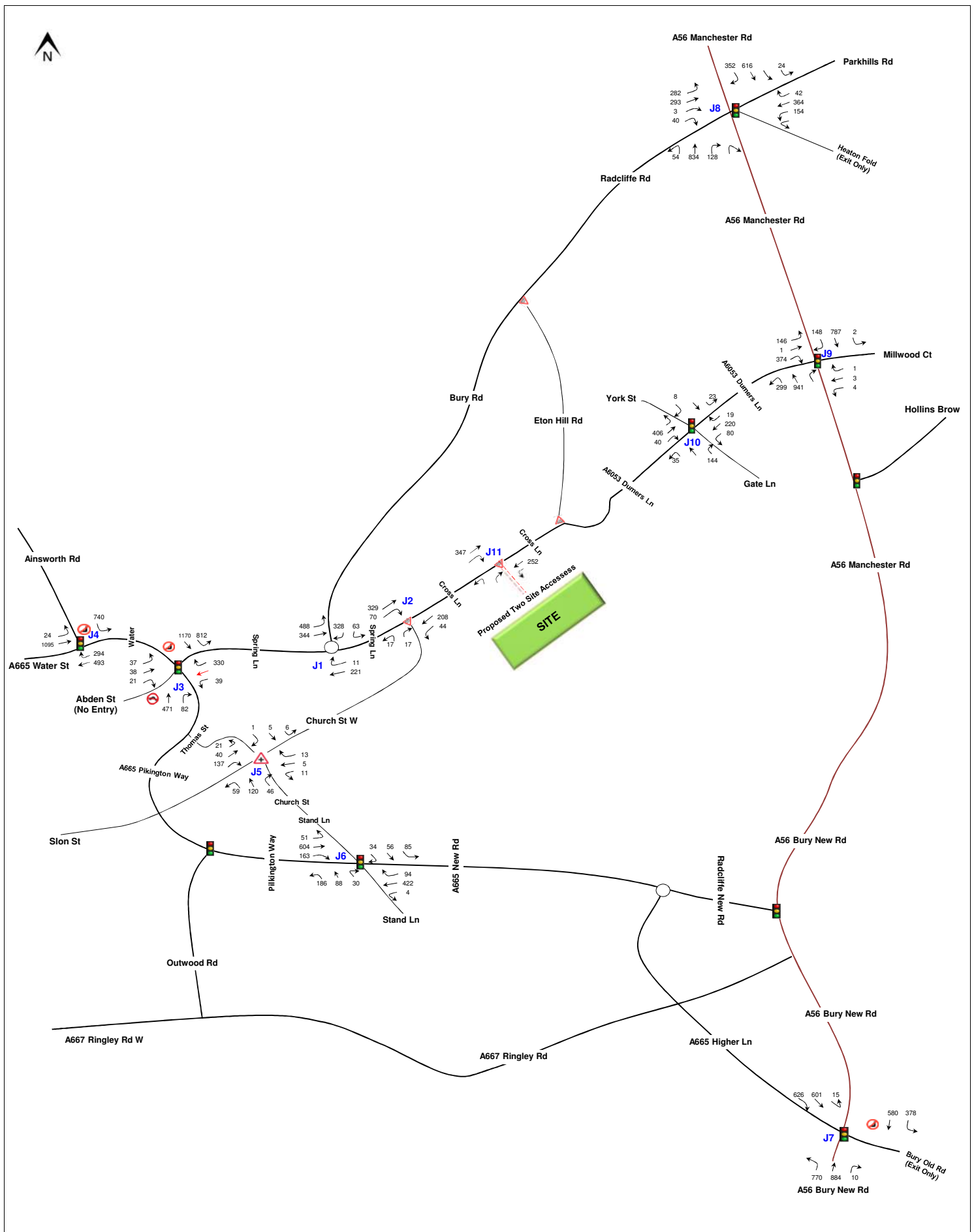


Figure 3: AM Peak Hour 2023 Baseline Flow (07:45-08:45)

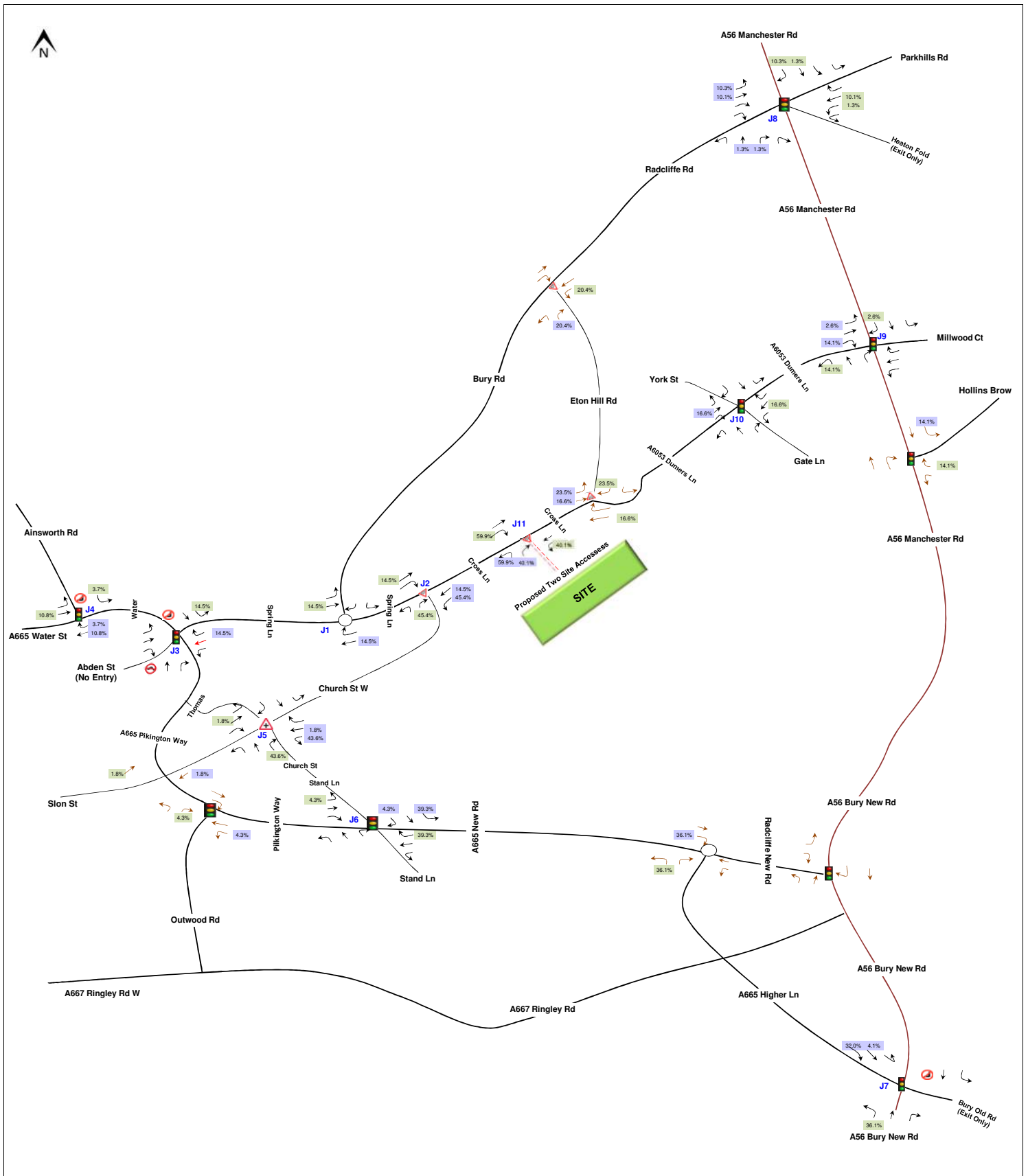


Figure 5: Trip Distribution based on 2011 Census- Proposed Residential Development

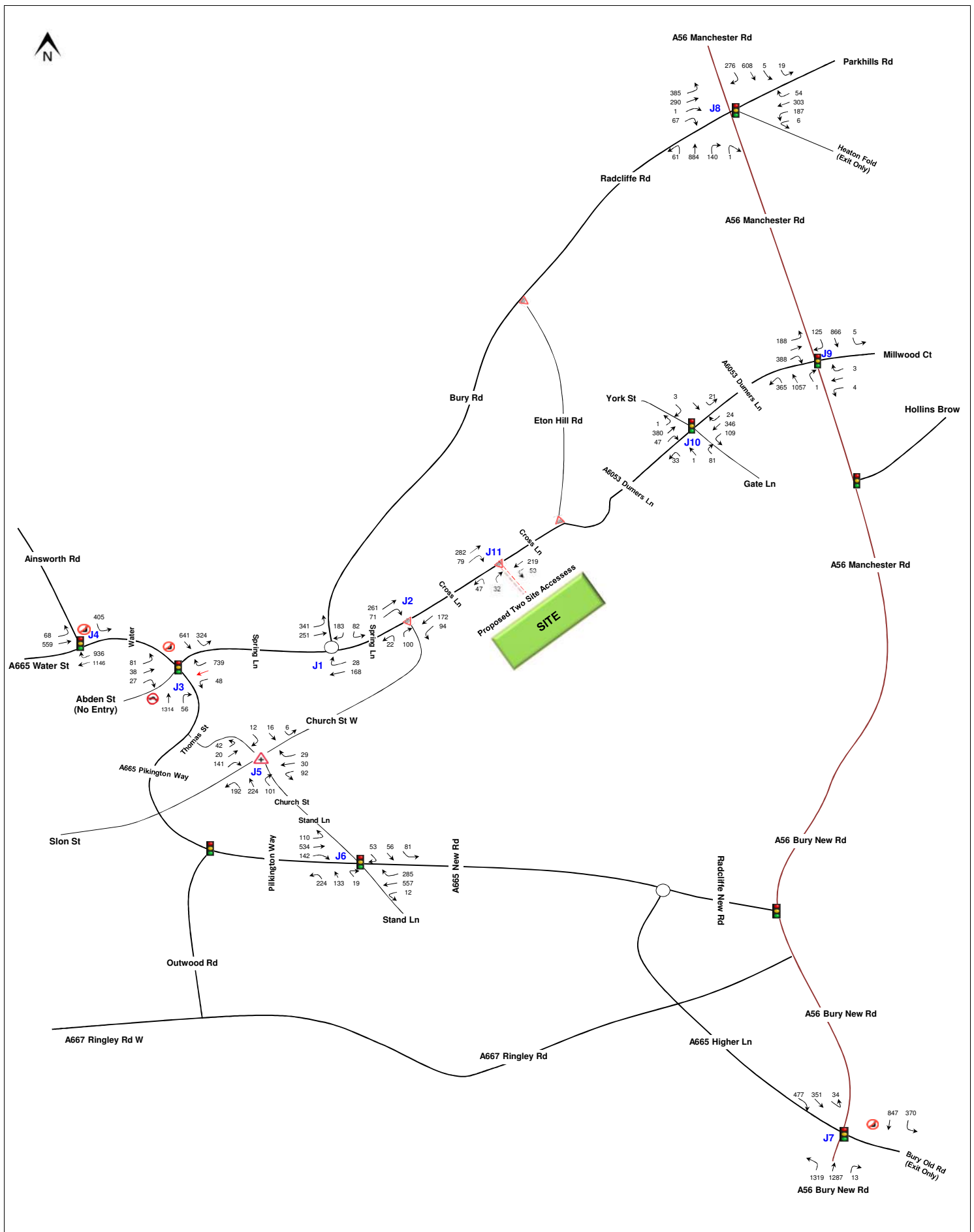


Figure. 9: PM Peak Hour 2023 With Development Flows



Appendices

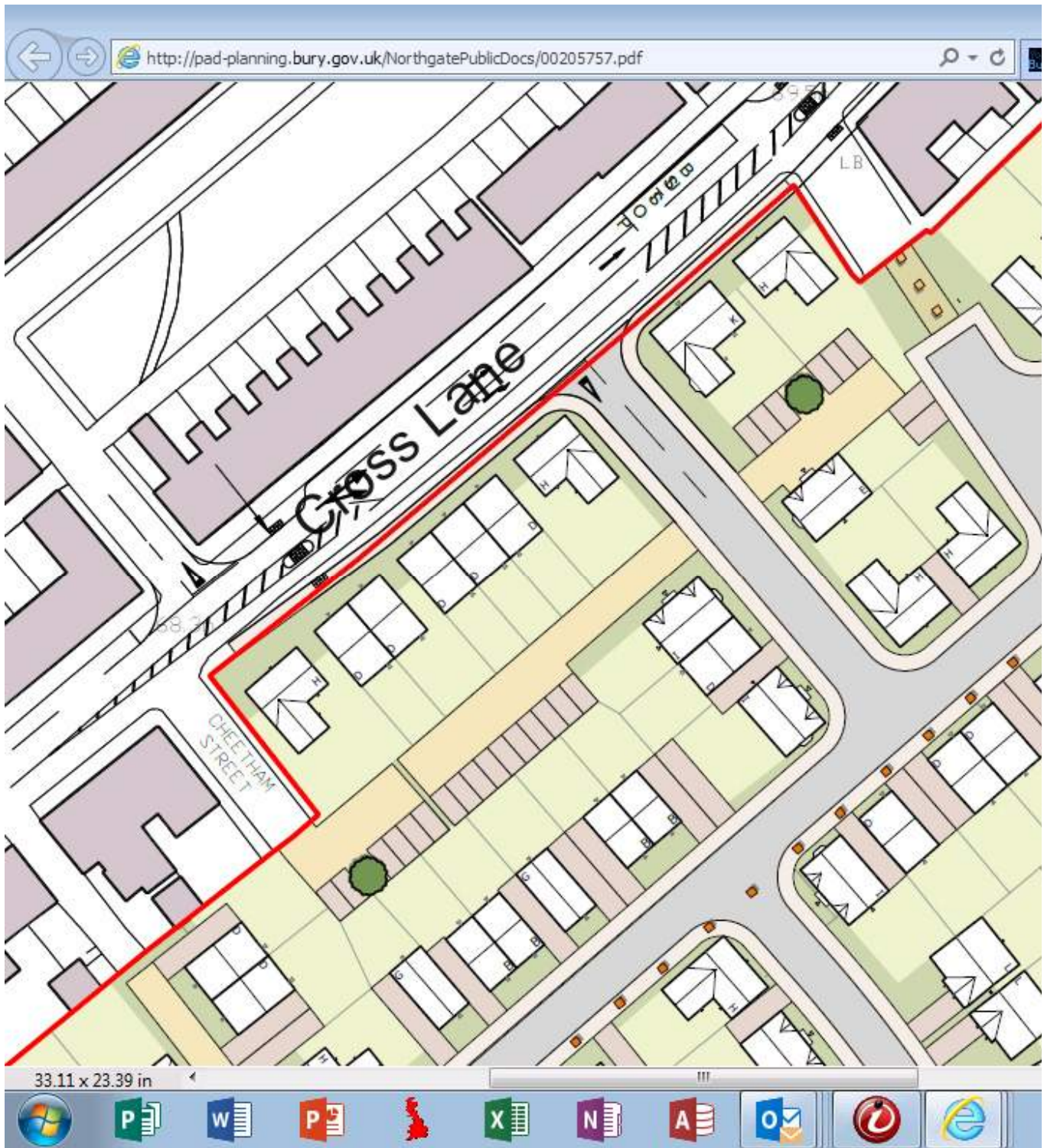


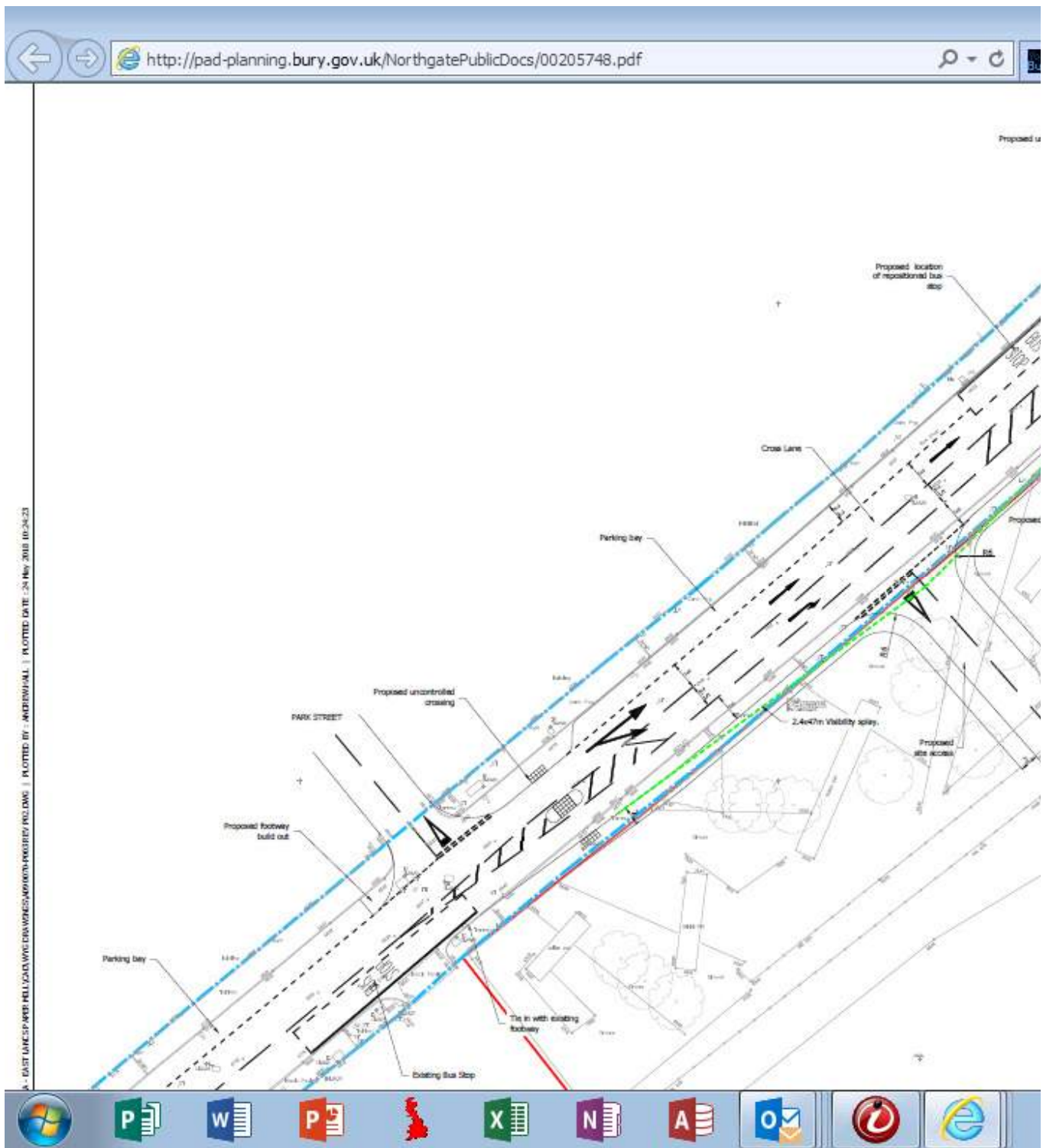
Appendix A – LHA and TfGM Response

From: Holmes, Paul <P.Holmes@bury.gov.uk>
Sent: 17 July 2018 10:59
To: Longworth, Helen
Cc: Southgate, Andrew; Liddle, Andrew; Kenyon, Paul; Pearce, Claire
Subject: RE: 62969 - Outline application for up to 400 dwellings at ELPM, Church Street East, Radcliffe
Attachments: FW: Pre-application Enquiry No. 02070/E: East Lancs Paper Mill Site
Follow Up Flag: Follow up
Flag Status: Flagged

Helen,

Further to our telephone conversation regarding the above, I can confirm that the advice given at pre-application stage has not been fully taken on board as the previously approved main access arrangements onto Cross Lane have not been replicated as part of the details submitted. The applicant's previous intention to serve the site from Croft Lane seems to be leading the estate road design that, whilst illustrative, would be relied upon by the applicant, so this issue needs to be raised at this stage rather than rely on conditions. You will see from the illustrative Masterplan submitted that the Croft Lane route, whilst not forming a vehicular junction with Croft Lane is wider and more substantial than the access onto Cross Lane that does not now include left and right turn lanes and leaves very little stacking room in the event of a right turning vehicle blocking left turners:





The arrangements forwarded previously should be incorporated within the design of the both the access arrangements to be approved and illustrative Masterplan to be conditioned for submission at reserved matters.

Please let me know if you require anything further at this stage.

Regards,

Paul

From: Longworth, Helen
Sent: 13 July 2018 17:19

To: Holmes, Paul <P.Holmes@bury.gov.uk>; Southgate, Andrew <A.M.Southgate@bury.gov.uk>; envsection <envsection@bury.gov.uk>; Neighbourhoods Enforcement <Neighbourhoods.Enfor@bury.gov.uk>; UrbanRenewal (CRM) <urbanrenewal@bury.gov.uk>; Holland, Keith <K.Holland@bury.gov.uk>; Property <Property@bury.gov.uk>; Planning Policy <Planning.Policy@bury.gov.uk>

Subject: 62969 - Outline application for up to 400 dwellings at ELPM, Church Street East, Radcliffe

Dear all

You should have received a consultation request about the application at East Lancs Paper Mill at the end of June. The application must be presented to planning committee and as such, I must be in a position to make a recommendation on the application by 17 August. As such, I would be most grateful if you could send through your consultation responses by 20 July to allow sufficient time to submit any new information and for it to be assessed.

If this causes an issue, I would be grateful if you could contact me to discuss a way forward.

Regards

Helen

Helen Longworth
Principal Planning Officer
Development Management
3 Knowsley Place
Duke Street
Bury
BL9 0EJ
Phone: 0161 253 5322
E-mail: h.longworth@bury.gov.uk
Web – www.bury.gov.uk/environment/planning



Under the General Data Protection Regulation as supplemented by the UK Data Protection Act 2018, by providing your personal information you are giving your consent for us to use and collate your personal data to enable us to perform the contract we have entered into with you to process your planning application, enquiry or representation and comply with our legal obligation to carry out a public task/function and provide a planning service.

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<https://www.bury.gov.uk/index.aspx?articleid=14263>

Mrs Helen Longworth
Bury Council
Planning Services
3 Knowsley Place
Duke Street
Bury
BL9 0EJ

Our ref: TRA/18/151

Your ref: 62969

23 July 2018

Dear Mrs Townsend,

Application Number: **62969**

Location: **East Lancs Paper Mill, Church Street East, Radcliffe, Manchester, M26 9P**

Proposal: **Outline application for up to 400 residential dwellings including details of vehicular access (all other matters reserved) and associated works including relocation of cricket pitch, provision of open space and sports facilities and demolition of existing building and structures**

Thank you for consulting Transport for Greater Manchester (TfGM) on the above planning application. The following comments are offered as advice on transport issues for you to balance against other factors in determining the application and are made in the context of TfGM's role in the planning process, as set out in the footnote below.¹

Background

The application seeks approval for the development of a residential development at the former East Lancashire Paper Mill site at Radcliffe in Bury. The quantum of development is for 400 dwellings.

¹TfGM does not have any planning powers and is not a statutory consultee in the planning process. The purpose of the advice offered is to suggest the best way to improve land use / transport integration through the development proposals. Advice is based on the information provided by the applicant, and it is not TfGM's role to undertake detailed verification unless specifically commissioned to do so.

Highways Impact

HFAS (Highways Forecasting Analytical Services) and UTC (Urban Traffic Control) have checked the Transport Assessment (TA) issued in support of the proposed development and have provided comments on the highway section.

Trip Generation

HFAS have been able to replicate the TRICS values and the trip rates for the development. In addition the junction counts in 2017 have been applied accurately.

HFAS found the TEMPro growth factor stated in Table 6.1 to be a robust assessment of the likely growth factor. However, the growth factors from table 6.1 have not been applied correctly to the trip rates in Figure 3 and Figure 4 (and as such the errors are continued into Figures 8 and 9). A growth rate of 1.08 appears to have been used for both the AM and the PM. Assessment flows should be revised accordingly.

Committed Developments

The TA does not include any committed developments as agreed at the scoping stage with Bury Council. Bury Council should confirm that there are still no committed developments that they wish to be included.

The addition of any committed development would alter the results of the junction capacity assessments. If any committed development inclusion is requested by Bury, TfGM would expect to see a revised modelling exercise.

TfGM note that in scoping documentation included in TA appendices, WYG stated that: "I will confirm which committed developments are to be accounted for with Paul Holmes at BCC".

Junction Assessment Results – Priority Junctions

TfGM disagree with the comments made in the TA in relation to priority junctions and their analysis in JUNCTIONS 9. The statement reads: the key operational output parameters of JUNCTION9 are:

"The ratio of flow to capacity (RFC), in which RFC values of less than 1.0 indicate the junction is operating within its ultimate capacity. Queues in vehicles, which indicates the forecast length of traffic queues".

TfGM recommends following established best practice which maintains that the forecast RFC should be 0.85 or less if the junction is to operate within its practical capacity.

It is generally considered that a Ratio of Flow to Capacity (RFC) result of less than 0.85 is acceptable in terms of demonstrating that the junction can operate effectively.

The RFC value of 0.85 is a guide to indicate the practical capacity of a priority controlled junction and allows for a margin of error and some further growth. With values greater than 0.85 there is potential for queues and delays to increase significantly.

The assessment results show that junction 1 will operate above practical capacity in 2023.

Junction Assessment Results – Signalised Junctions

The junction of York Street / Dumers Lane has not been modelled. This was requested by TfGM during scoping discussions. The relevant correspondence is shown in the Appendix section of the TA.

Water Street/Spring Lane (J3) and Water Street/Ainsworth Road (J4)

Linsig has been used to model these junctions as standalone junctions. The modelling parameters used at the junctions of Water Street/Spring Lane and Water Street/Ainsworth Road are acceptable. However the modelling results are not realistic. This is because the suppressed traffic demands on Water Street and Ainsworth Road have not been taken into account. In reality, high levels of queuing frequently occur during the peak periods with queuing in the eastbound direction from Spring Lane sometimes extending back past Ainsworth Road and on some occasions past Stopes Lane. This has not been captured in the modelling as the junction assessments utilise counted flows rather than demand flows. The traffic counts only capture the traffic that is getting through the junction in the hour, rather than traffic wanting to get through. Furthermore exit blocking between the two junctions have not been captured in the modelling. Accordingly, we do not consider that the modelling submitted in the TA provides an accurate representation of the network for the current, base and with development scenarios along the A665.

To ensure that the traffic demand is correctly assessed, queue surveys should be undertaken. The extent of queuing should be used to calculate excess traffic demand which should then be added to the counted traffic flows to ensure that realistic assessments are undertaken. TRANSYT 15 should also be used to ensure that exit blocking along the A665 is adequately represented.

Pilkington Way/New Road/Blackburn Street (J6)

Give way parameters have not been provided for Arm 3 Lane 2. The modelling needs to be amended as the current results are optimistic as a result of this.

Bury New Road/Bury Old Road/Higher Lane (J7)

Arm 2 should be modelled as 2 long lanes plus 2 flares. The modelling needs to be amended as the current results are optimistic as a result of this.

Manchester Road/Dumers Lane (J8)

Arm 1 Lane 1 and Arm 3 Lane 1 should have give-way parameters.

Arm 3 has been modelled as 2 long lanes and 2 flare. This is overly optimistic. In the northbound direction, the nearside ahead lane is only 75 metres in length due to the bus lane upstream of the junction. Downstream of the stop line the offside exit lane becomes a right turn lane into Wellington Road. The model shows a left turn flare, 2 long ahead lanes and a right turn flare. This is significantly overestimating the capacity of the junction. In reality, lane usage at the stop line will be influenced by lane allocations downstream of the junction. This has not been reflected in the modelling.

To provide more realistic results it is possible to omit the left turn lane, model the ahead lanes as one long lane and a flare of 75 metres, to allocate the ahead flows according to existing lane usage and model the right turn lane as a long lane. However, even this approach would provide very optimistic results. The only accurate way to model this junction is to use TRANSYT 15.

Manchester Road/Radcliffe Road (J9)

Arm 1 should be modelled as 1 lane plus one flare. The give way parameters for Arm 4 Lane 1 and Arm 3 Lane 1 are incorrect.

Summary

The modelling does not provide an accurate representation of the network. The results of the modelling cannot be considered valid and we recommend that the modelling is corrected and resubmitted. Queue surveys should be undertaken to ensure that suppressed demand is captured in the modelling.

The revised models may show the need for mitigation measures depending on the results.

TfGM would be grateful if revised models be sent to UTC at WaiLing.Cheung@tfgm.com.

Please note that the current TfGM turnaround time for resubmissions is two weeks. Please take this into account in relation to meeting the relevant planning deadlines.

Metrolink Comments

TfGM note that the development (masterplan attached) is located to the east of the Metrolink Radcliffe stop and in principle should encourage the use of public transport by residents.

However, there is no direct pedestrian access to the stop platforms from the east (where the development is located). The current primary pedestrian access points to the stop are indicated with red arrows on the image below.



To ensure that use of the stop is as attractive as possible for residents of the new development, we would suggest that a Metrolink stop pedestrian and cycle access improvement scheme is delivered as part of this development.

This would include a new step free connection from the public footpath on Church St West onto the existing ramp on the eastern embankment (approximate location marked with green arrow on the plan below), improved cycle parking,

footpath improvements between the development and the stop including crossing points, tactile paving, wayfinding etc.



Therefore we would be grateful if you could condition the delivery of such a scheme (wording suggested below)

Condition

The development shall not be brought into use until a Radcliffe Metrolink stop pedestrian and cycle access improvement scheme has been submitted to, and approved in writing by Bury Council (approval to be in consultation with Transport for Greater Manchester).

Reason:

1. In the interests of encouraging use of public transport, pursuant to policies

Clearly we will need to agree the scope of the improvement scheme and delivery timescales.

If you have any queries please contact Alan Lowe (after August 8th) or colleague David Everson on 0161 244 1865 if a discussion is required before this date.

Site Accessibility

I. Public Transport

The TA includes a figure showing the location of bus stops in the vicinity of the proposed development.

The closest bus stops to the site are located on Cross Lane (A6053) and further bus stops are located on Bury Road (A6053). Both of these stops are within the 400m threshold from the centre of the site

The TA lists the bus services transiting through the stops located in the vicinity of the site. The table shows that there are services transiting a few times per hour.

TfGM note that the TA does not explain the current make-up of the existing bus stops. For example do they include a bus shelter?

Bus Travel Improvements

TfGM's bus infrastructure department have requested the following upgrades to the bus infrastructure in order to accommodate the development.

Cross Lane NC0582 Opposite new site entrance road,

- Proposed new QBC platform to be provided at stop.
- Bus Layby being created due to the additional width provided.
- Renewal of bus stop cage marking.

Cross Lane NC0975 Opposite junction Cock Clod Street,

- Proposed new QBC platform provided at stop.
- Is there opportunity to widen the highway at this location, to improve flow past stationary bus?
- Bus stop cage marking introduced.
- Clearway Order needs to be introduced.

Cross Lane Bury Street NC0580 Opposite new site,

- Proposed new QBC platform provided at stop.
- Bus stop Cage to be introduced.

Cross Lane NC0583 Bus stop outside the Staff of Life,

- Proposed new QBC platform provided stop.
- Bus stop cage marking introduced.
- Clearway Order needs to be introduced.

For queries relating to bus stops upgrades please contact the following address:
Shelters@tfgm.com

II. Active Travel

The TA provides a description of the existing highway network.

Cock Clod Street

Currently it has a carriageway width of around 4m with a footway and is in a poor state of repair.

Cross Lane (A6053)

Cross Lane also benefits from pedestrian footways and street lighting which are in place on both sides of the carriageway.

Church Street East / Sandford Street

No mention of pedestrian footway provision.

Rectory Lane

This is a single lane road with a continuous footway along the northern extent of the road and an intermittent footway on the southern side.

The Glebe Street Area

It benefits from pedestrian footways and street lighting.

Public Rights of Way

The site contains two Public Rights of Way (PRoWs) these are Route 9SM which runs between Church Street East and Croft Lane and 8SM which runs from Rectory Lane via a footbridge over the river and connects with Milltown Street.

The TA states that footpath 9SM will be diverted slightly as part of the proposals and will follow the alignment of the new street layout.

The TA does not explain how the right of way will be diverted. This detail should be included.

The TA states that “the proposed development will be highly permeable and will include high quality pedestrian facilities. The layout of the site will create new walking routes, both for users of the development and other pedestrians, thus bringing benefits to the wider community”.

TfGM note that there is no clear map showing the new walking routes and their make-up. For example how wide are they going to be?

The TA states that the site is located close to a network of cycle routes and has a significant number of amenities and local facilities such as schools, employment, shops and leisure facilities within a reasonable cycling distance. Overall, the site can be considered to be accessible by cycle.

TfGM cannot agree or disagree with the statement above as there is no detail included in the TA which show the extent of the existing cycle network and how the proposed development will link into this. For example a cycle map should have been included in the TA. This information is available online. There should also be a clear plan showing how the development links into said existing cycle infrastructure. We would also suggest details are provided on the state of the existing cycle infrastructure along Cross Lane and Bury Street.

III. Travel Plan

Although the site is accessible by sustainable modes, it is important to influence travel patterns at the beginning of occupation and therefore it is encouraging that the application is accompanied by a Framework Travel Plan. If the Travel Plan is to be successful, it will be dependent on establishing a culture of sustainable travel behaviour at the outset, rather than on changing already established travel practices. The success of the Travel Plan measures will depend on their effective delivery and commitment from the occupiers and therefore robust arrangements for the implementation and running of the Travel Plan need to be included in the Travel Plan. These include:

- a travel plan budget and resources for the implementation and day to day management of travel plan measures;
- appropriate management structures;
- detailed time frames for the delivery;
- a marketing and communication strategy;
- handover arrangements for the travel plan or its components when the developer's responsibility ceases; and
- initial targets before first surveys are conducted

Ideally a full Travel Plan should include tailored measures to overcome specific barriers, or take advantage of opportunities, presented by the site in order to encourage future residents to use sustainable modes of travel for appropriate journeys.

Condition: Should Bury Council be minded to approve this application it is suggested that the further development, implementation and monitoring of a full Travel Plan be attached as conditions of any planning consent.

I hope you find these comments useful in the determination of this planning application. Should you wish to discuss any matter further please do not hesitate to contact me.

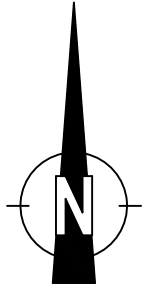
Yours faithfully,

Riccardo Boncinelli
Infrastructure Development Officer
Direct Line 0161 244 1420
Email Riccardo.Boncinelli@tfgm.com



Appendix B – Revised Site Access Layouts

FILENAME : J:\2016\A090070-193 HCA - EAST LANCES PAPER MILL CAD\WVG DRAWINGS\A090070-LP002 REV P03.DWG | PLOTTED BY : MOSSROOR, KHAN | PLOTTED DATE : 21 September 2018 10:06:55



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3. Visibility splays are based on 85th percentile speeds and Manual for Streets.

85th percentile speeds

- Eastbound 33mph
- Westbound 32mph

Key:

- Visibility splay
- Red line boundary
- . - . Extent of highway adoption

PRELIMINARY ISSUE

P03	LHA comments incorporated	JG	SF	SF	SEP 2018
P02	Drawing based on topographical survey	AH	SF	MD	MAY 2018
P01	Drawing based on topographical survey	JG	SF	MD	APR 2018
REV	DESCRIPTION	BY	CHK	APP	DATE

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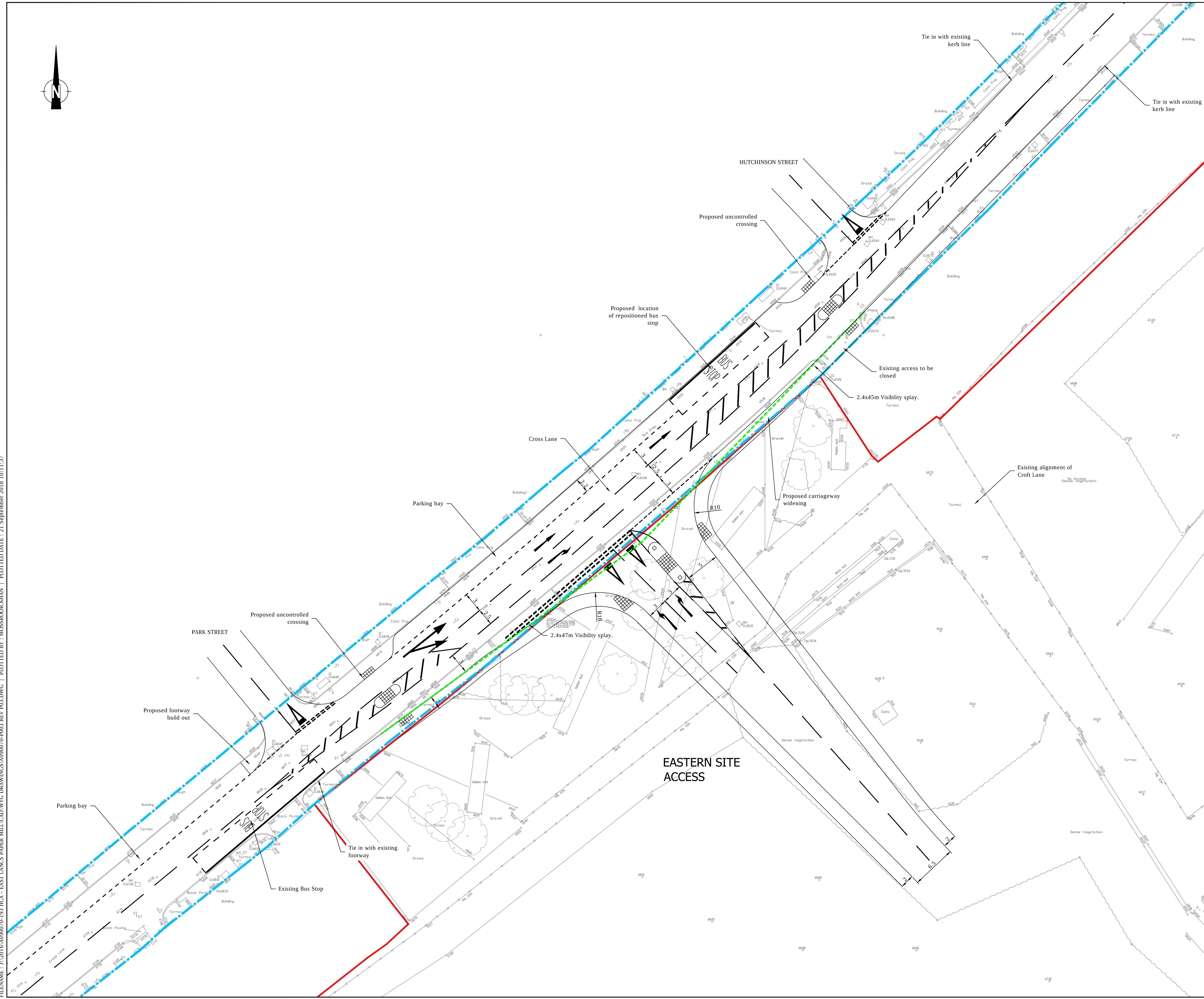
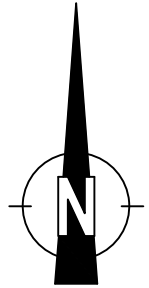


Project:
EAST LANCASHIRE PAPER MILL

Drawing Title:
PROPOSED WESTERN ACCESS

Scale @ A1	Drawn	Date	Checked	Date	Approved	Date
1:250	JG	JAN. 18	LB	JAN. 18	SF	JAN. 18
Project No.	Office	Type	Drawing No.		Revision	
A090070-193	27	C	A090070-193-P002		P03	

FILENAME : J:\2016\A090070-193 HCA - EAST LANCAS PAPER MILL\CAD\WVG DRAWINGS\A090070-P003 REV P03.DWG | PLOTTED BY : MOSSROOR, KHAN | PLOTTED DATE : 21 September 2018 10:11:37



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- All dimensions are in metres unless specified otherwise.
- Visibility Splays are based on 85th percentile speeds and Manual For Streets
 - Westbound 32mph
 - Eastbound 33mph

Key:

- Visibility splay
- Red line boundary
- Extent of highway adoption

PRELIMINARY ISSUE						
P03	LHA comments incorporated	JG	SF	SF	SEP	2018
P02	Minor edits	AH	LB	MD	MAY	18
P01	Drawing based on topographical survey	JG	LB	MD	APR	18
REV	DESCRIPTION	BY	CHK	APP	DATE	

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Project:
EAST LANCASHIRE PAPER MILL

Drawing Title:
PROPOSED EASTERN ACCESS

Scale @	A1	Drawn	Date	Checked	Date	Approved	Date
1:250	JG	JAN.	18	LB	JAN.	SF	JAN.
Project No.	Office	Type	Drawing No.		Revision		
A090070-193	27	C	A090070-193-P003		P03		

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Appendix C – Appeal Decision

Appeal Decision

Inquiry held on 5 - 7 July 2017

Site visit made on 6 July 2017

by H Baugh-Jones BA(Hons) DipLA MA CMLI

an Inspector appointed by the Secretary of State for Communities and Local Government

Decision date: 21 August 2017

Appeal Ref: APP/N4205/W/17/3167848

Bowlands Hey, Land off Collingwood Way and Old Lane, Westhoughton, Bolton

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
 - The appeal is made by Bellway Homes Limited (Manchester Division) against the decision of Bolton Metropolitan Borough Council.
 - The application Ref 97377/16, dated 5 September 2016, was refused by notice dated 16 January 2017.
 - The development proposed is the erection of 129 dwellings, the laying out of roads and footways; hard and soft landscaping, walls and fences and drainage; together with the laying out of public open space including ecological mitigation; and other associated works.
-

Decision

1. The appeal is allowed and planning permission is granted for the erection of 129 dwellings, the laying out of roads and footways; hard and soft landscaping, walls and fences and drainage; together with the laying out of public open space including ecological mitigation; and other associated works at Bowlands Hey, land off Collingwood Way and Old Lane, Westhoughton, Bolton in accordance with the terms of the application, Ref 97377/16, dated 5 September 2016, subject to the conditions set out in the Schedule to this decision.

Procedural Matters

2. At the Inquiry, the Council submitted enlarged versions of the vehicle swept path analyses forming Appendix B of the Highways Proof of Evidence. The details on these drawings are identical to those previously submitted and I am satisfied that no party's case is prejudiced by my taking them into account.
3. At the Inquiry, the appellant submitted an executed Section 106 Agreement that includes a number of obligations to come into effect in the event that planning permission is granted. These obligations would secure on-site affordable housing along with financial contributions towards primary and secondary education facilities, off-site public open space and highway works. I will return to this matter later in my decision.

Main Issues

4. In light of all the submissions before me, the main issues in this appeal are:
 1. Whether the proposal would be an acceptable form of development having regard to the development plan strategy for the location of housing and any relevant material considerations; and
 2. The effects of the proposal on the efficient and safe operation of the local highway network.

Reasons

Background

5. The site is located to the west of Collingwood Way on the edge of Westhoughton and covers an area of 4.26 hectares. It is a greenfield site identified as Protected Open Land (POL) within the development plan, which comprises Bolton's Core Strategy (2011) (the CS) and Bolton's Allocations Plan (2014) (the AP).
6. The site is bounded by mature hedgerows and pockets of woodland. Old Lane runs along part of the site's southern edge and the railway corridor provides its northern boundary. There is a mature hedgerow running across the site from north to south although it has a substantial gap within it. Although the site's character is generally reflective of the surrounding countryside, some of the large buildings forming the nearby industrial estate are visually prominent. Thus, there is a distinct sense that the site is next to the urban area.
7. CS policy OA3 sets out, amongst other things, that new housing in the area should be concentrated within Westhoughton town centre and on other sites within the existing urban area. It also seeks to ensure POL remains undeveloped. The main parties agree that the proposal runs counter to this policy and also to AP policy CG6AP that only permits development on areas of POL where it would fall within one or more specified categories. The appeal proposal would not fall within any of the specified categories and the site is outside the urban area boundary. I therefore have no reason to disagree with the main parties that the proposal is at odds with these policies.
8. There is also agreement between the parties that the Council cannot currently demonstrate a 5 year supply of deliverable housing land (housing land supply (HLS)); the accepted and agreed figure being 3.1 years. It is therefore common ground between the main parties that policies OA3 and CG6AP cannot be considered up-to-date and that paragraph 14 of the National Planning Policy Framework is engaged as a consequence.

Location of housing

9. The Council accepted at the Inquiry that, given its HLS position and because CS policy OA3 and AP policy CG6AP are out-of-date, these policies attract limited weight. However, the Council drew my attention to Strategic Objective 15 of the CS (SO15), which also seeks to focus new housing in the existing urban area, especially in Bolton town centre, council-owned housing areas and in mixed-use developments on existing older industrial sites. I accept that this is generally in accordance with the core planning principles of the Framework.

10. Notwithstanding this, as the judgement of the Supreme Court¹ on 10 May 2017 made clear, the important issue is whether the result of the development plan policies is the existence of a 5 year HLS in accordance with the objectives of Framework paragraph 47. The absence of a 5 year HLS engages Framework paragraph 14. Whilst I acknowledge that development plan policies may be apportioned weight according to their consistency with the Framework, from all that was put to me, I have no reason to take an opposing view as to the limited weight to be given to policies OA3 and CG6AP. These policies flow from SO15, which operates together with them to significantly affect the distribution of housing. I therefore also give limited weight to SO15.
11. The Framework says that planning should encourage the effective use of land by reusing land that has been previously developed, provided that it is not of high environmental value. As I have already mentioned, the appeal site is greenfield land. Thus, it does not fall within the category of being previously developed. However, the degree of the HLS shortfall indicates to me that the Council's development plan policies are not functioning to achieve the Framework objective to boost significantly the supply of housing.
12. The Council accepts that development on POL will be necessary to address the HLS shortfall but nevertheless put to me that the release of POL for housing should be dealt with as part of a local plan review or through the Greater Manchester Spatial Framework (GMSF). However, whilst I recognise the general desirability of such an approach as part of the plan-led system, the shortfall in the Council's HLS is an important material consideration. In my view the extent of the shortfall indicates that action is needed now to address it. There is nothing before me to indicate that a review of the local plan will take place in the short to medium term. Furthermore, given its very early preparation stage, the GMSF cannot in my view, carry any meaningful weight.
13. It is also important to note that the Framework says that where there has been a record of persistent under-delivery of housing, local planning authorities should increase (from 5%) a 20% buffer to the HLS to provide a realistic prospect of achieving the planned supply and to ensure choice and competition in the market for land. The Council confirmed that it is a 20% buffer authority. Therefore, taking the extent of the HLS shortfall into account, the proposal would make an important contribution to the availability of housing in a Borough where there is an accumulation of unmet housing need.
14. Furthermore, the proposal includes the provision of 45 affordable dwellings. Thus it would also make a very useful contribution to this type of housing, the pressing need for which was confirmed by the Council at the Inquiry.
15. I heard evidence on the issue of whether POL should be considered as 'safeguarded land' for the purposes of Framework paragraph 85. The Framework makes clear that when defining Green Belt boundaries, local planning authorities should, amongst other things, where necessary, identify in their plans areas of safeguarded land between the urban area and the Green Belt in order to meet longer term development needs stretching well beyond the plan period; and make clear that the safeguarded land is not allocated for development at the present time. Planning permission for the permanent

¹ Suffolk Coastal District Council v Hopkins Homes Ltd and SSCLG; Richborough Estates Partnership LLP and SSCLG v Cheshire East Borough Council

development of safeguarded land should only be granted following a local plan review which proposes development.

16. From this, is it clear to me that the identification of safeguarded land is aimed at protecting the long term integrity of the Green Belt. At the Inquiry, the Council confirmed that POL is nearly all land outside the urban area boundary that is not Green Belt. The Framework clearly envisages that safeguarded land is land that will be likely to be developed at some point in the future, as the 3rd and 4th bullet points of paragraph 85 make clear.
17. Furthermore, the reliance placed by the Council on the planned release of POL must be balanced against the Framework paragraph 47 requirement and the importance placed by the government on having up-to-date local plans in place and which should meet the full, objectively assessed needs for market and affordable housing.
18. The Council raised the matter of the site forming part of an allocation within the 1995 Unitary Development Plan (UDP) and despite this, proposals for development have been rejected on appeal in 1993 and 1997. Whilst this is noted, the Council expressly conceded that POL will be required to meet the HLS shortfall. This was not the case in 1995 and this appeal is being determined in the context of different local and national planning policy circumstances. The weight I give to this argument is therefore limited.
19. In addition to all of this, is the site's location next to the sizeable settlement of Westhoughton and its reasonable access to shops and services either on foot or by bicycle. There are also bus stops within reasonable walking distance giving regular access to Bolton and Wigan. Westhoughton rail station is also within reasonable walking distance of the site. I therefore find that the proposal would accord with CS policy P5 that seeks to ensure developments take into account accessibility by transport other than the car and enable accessibility to public transport.
20. Furthermore, the proposal would accord with paragraph 17 of the Framework that says planning should actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable. My conclusion on this main issue is that the proposed development would be sustainably located and would accord with the development plan strategy for the location of housing.

Efficient and safe operation of the local highway network

21. Vehicular access to the appeal site would be from Collingwood Way, a residential street that connects to Church Street which is the local distributor road (B5236) via Peel Street and/or Grundy Street.
22. Apart from the Peel Street and Grundy Street junctions, there are a number of other junctions on and leading to Church Street. Based on all that has been put to me, those of greatest significance are the traffic light controlled junctions referred to in the evidence as junctions 1 (A6 Chorley Road); 4 (School Street/Market Street) and; 5 (The Fairways/A58 Cricketers Way).
23. The effect of potential additional vehicles arising from the development has been modelled using both the LinSig and TRANSYT methods. It was agreed at

the Inquiry that there is little difference in the outcomes between the two models in terms of the effects on junctions 1, 4 and 5.

24. However, the Council contends that given the current levels of traffic congestion, any increase would have an adverse effect, particularly in terms of 'blocking back' between junctions 4 and 5. I have not been presented with any compelling evidence to show that blocking back currently interrupts the flow of traffic along Church Street and, particularly between junctions 4 and 5. Nevertheless, I accept that there may be some additional waiting time for drivers during the AM and PM peak periods.
25. Transport for Greater Manchester (TfGM) state that a degree of saturation of over 90% means the respective junctions have no available capacity for additional traffic. The modelling shows that there will be an exceedance of 90%. Nevertheless, the Council accepted at the Inquiry, that such a situation is not unusual during peak traffic periods within urban areas.
26. I also heard evidence in relation to the 120/240 second pedestrian cycle time referred to in the modelling. The Council have not produced any empirical evidence to demonstrate that 240 second cycle time is unrealistic. Moreover, TfGM accepted the data based on the LinSig modelling. Furthermore, the traffic lights at junctions 4 and 5 operate using the SCOOT system to control traffic flows. I am satisfied from the evidence put to me that the figures in the modelling can reasonably be taken as conservative and when taking the SCOOT system into account, there would be no significant effects on blocking back between junctions 4 and 5.
27. Accordingly, in the absence of any compelling evidence to the contrary, I consider that the proposal's effects on traffic flow and congestion would not be out of the ordinary for an area such as Westhoughton during peak periods. Even if I were to accept that there would be some net increase, I am not persuaded on the basis of the evidence, that it would be anything more than modest. Therefore, this particular aspect of the proposal would not in my view, result in a severe residual cumulative impact on traffic flows or congestion. Indeed no such concerns were raised by TfGM or the Council's highways officers.
28. Having said all of that, the Council also raised concerns that the parking of vehicles within the streets surrounding the appeal site would adversely affect access by refuse vehicles and the emergency services to the proposed development. It is this matter to which I now turn.
29. The appellant has provided swept path analyses for the junctions of Peel Street and Grundy Street with Church Street. At my site visit, I observed a car parked close to Peel Street's junction with Church Street which gives credence to the photographs in the Council's Proof of Evidence. However, the space between the end of Peel Street and Church Street is substantial because of the service road immediately to the south that runs parallel to Church Street. This allows for greater visibility into Peel Street than would otherwise be the case and sufficient room for a large vehicle to be able to turn in.
30. The Council's swept path analysis suggests that refuse vehicles will turn into Peel Street from the service road. However, from what I observed, this is very narrow and given the presence of parked cars at the time, it is clear that the

available space would prohibit access by large vehicles. I have nothing before me to suggest that this is an unusual situation.

31. Peel Street is relatively narrow, which appears to be the reason that vehicles utilise part of the pavements for parking. It was evident to me that without pavement parking, the available road width could restrict the passage of large vehicles such as those collecting refuse or operated by the emergency services.
32. However, whilst I observed a pinch point along Peel Street and that vehicles park close to the junctions of Peel Street and Grundy Street with Church Street, I note the absence of any reported problems in relation to access by refuse vehicles or the emergency services. Notably, there have been no objections to the appeal proposal from the Council's highways officers or the Fire Service. Furthermore, the Council has powers to increase yellow line parking restrictions to prevent parking close to the junctions.
33. The appellant has carried out a parking survey² that has recorded the number and location of parked vehicles in Peel Street, Grundy Street and nearby Wesley Street which also provides access from Church Street onto Collingwood Way via the western part of Peel Street (Peel Terrace). Notwithstanding this, it seems unlikely to me that drivers would use the more circuitous route around Wesley Street to access the development given the much more straightforward access routes via Peel Street and Grundy Street.
34. The parking survey examined parking during various dates throughout March 2017 and shows that of the three recording times (0900; 2100; and 2345) and across each period, there is only minimal double parking of vehicles in Peel Street to the east of its junction with Collingwood Way. Consequently, I am satisfied that on-street parking in Peel Street is not so restrictive that it would result in significant problems for drivers or that the likelihood of vehicle collisions would materially increase. In the event that it was necessary for a vehicle to reverse to allow an oncoming vehicle to pass, the availability of passing places would prevent the need for lengthy reversing manoeuvres.
35. Turning to Grundy Street, instances of parking on both sides of the street are greater than in Peel Street. However, given the greater width of Grundy Street, this still allows vehicles to pass using the passing places created between parked vehicles. Again, I am satisfied that this is an acceptable situation in the context of the proposed development.
36. The majority of parking in Collingwood Way takes place on property driveways and thus, on-street parking here is minimal. Furthermore, the existing levels of parking within the streets surrounding the site would not be increased by the proposed development. The Council accepted at the Inquiry that the proposal would not result in harm to the safety of pedestrians or cyclists using the surrounding streets.
37. Correspondence between the Council and the Fire Service indicates that the latter considered that an alternative emergency access from Old Lane was sought. However, this was not followed through with a firm requirement for such an access. Accordingly, I am not persuaded that the Fire Service request related to anything more than a desirable as opposed to an essential requirement. I am satisfied that the Fire Service has been fully engaged in

² Mr Khan's Proof Appendix C Doc C3

discussions about the appeal proposal and would have registered a formal objection if fire tender access was a critical issue in this case.

38. Notwithstanding all of this, I accept that access and traffic flow should not be reliant on pavement parking. However, such a situation exists now and would be likely to continue with or without the proposed development. I have already found that any likely increase in vehicular traffic would be spread across the Peel Street and Grundy Street routes to access Church Street and that this could be accommodated without adverse highway effects. Furthermore, the appellant has provided a planning obligation that includes a contribution towards additional lining works to the junctions of Peel Street and Grundy Street with Church Street including increasing the parking restrictions in Grundy Street. I address matters relating to obligations below but were I to find it to meet the relevant tests, I am satisfied that the parking and access situations at these junctions would be acceptable.
39. Collingwood Way is also a winding street which therefore reduces forward visibility. Manual for Streets (MfS) says that such visibility constraints assist in reducing vehicle speeds. Furthermore, I apply the same considerations to the restricted forward visibility where Grundy Street turns into Bligh Road.
40. I have also noted the Council's assertions in relation to MfS and in particular, the potential effects on cyclists and pedestrians. However, MfS is concerned with new street layouts and in my view the existing parking situation in Peel Street and Grundy Street is not a matter within the scope of MfS in the context of the appeal proposal. Furthermore, cyclist and pedestrian effects did not form part of the Council's reason for refusal or its Highways Proof of Evidence and these matters were not substantiated in cross examination at the Inquiry.
41. In addition to all of this the Church Street junctions with Peel Street and Grundy Street are a considerable distance apart. Thus, it would be reasonable to conclude that those leaving the development by car would opt for access to Church Street either by Peel Street or Grundy Street depending on the intended direction of travel along Church Street. Therefore, it would be unlikely in my view, for all future occupiers to use one particular route and any increase in traffic would be spread across the two routes.
42. Moreover, although the appeal proposal has the potential to increase the amount of vehicle trips along the surrounding streets, in reality, these are unlikely to all take place at the same time. Given the nearby availability of public transport, I am not convinced that the number of likely trips by car would have a material effect on traffic flow in the surrounding streets.
43. I note the submissions from interested parties in relation to this main issue. In particular, it has been put to me that parking within Peel Street and Grundy Street resulted in access difficulties for the emergency services due to cars being double parked. These matters were raised at a public meeting held in connection with the planning application that included a video relating to refuse vehicle access. Although I take this seriously, in the absence of substantive confirmatory evidence, including from the emergency services themselves, this does not alter my overall conclusions on this main issue.
44. Taking all of the above into account, I am satisfied that there would be no severe effects on traffic flow or driver safety along Peel Street or Grundy Street. I am equally satisfied that there would be no significant issues with

regard to either refuse vehicles or those used by the emergency services gaining access to the proposed development.

45. I therefore find that the proposal would not conflict with CS policy P5 which seeks to ensure developments take servicing arrangements into account. Further, the proposal would accord with CS policy SC1 that amongst other things, seeks to promote road safety in the design of new development. I also find that there would be no conflict with the transport objectives of the Framework.

Other Matters

46. The appellant is the residential developer for the first phase of development on the Horwich Loco Works site which will be the key to unlocking the site's wider development for 1700 new dwellings. This is a major strategic housing scheme and the Council is concerned that the development of the appeal site will distract the appellant from delivering on the Loco Works site.
47. However, I heard evidence that the appellant has now signed a contract in relation to the Loco Works site and will be submitting a planning application in the near future. Having regard to this and in the absence of any substantive evidence to the contrary, I am not persuaded that a generalised concern over deliverability of the Loco Works scheme is sufficient to weigh against the appeal proposal in any meaningful way.
48. I have taken into account the objections from interested parties in respect of historic heritage. I have been presented with a substantial amount of information in relation to this matter. At the Inquiry, the appellant provided a specialist witness who was able to specifically address the interested party concerns raised. Moreover, there is nothing before me to indicate that any of the relevant statutory or specialist historic heritage consultees have raised any objections to the proposed development.
49. I have no reason to doubt that the site may host archaeological remains. However, I have no clear evidence to suggest that they are of such importance that they must be preserved in-situ. In granting planning permission, I have the option of imposing a suitably worded condition to ensure archaeological remains are recorded. I am satisfied on the balance of evidence that the proposed development would not have unacceptable heritage effects.
50. I also received interested party submissions in respect of ecology and again, these were addressed by a specialist witness on behalf of the appellant. I am satisfied on the basis of what I heard that there is nothing to indicate material harm would be caused to protected species of flora or fauna as a result of the proposed development, subject to the imposition of conditions which I will return to later in my decision.
51. Accordingly, I am satisfied that neither heritage nor ecology concerns would be appropriate reasons to withhold permission in this particular case.

Planning Obligations

52. At the Inquiry, the appellant submitted an executed Section 106 Agreement that includes a number of obligations to come into effect in the event that planning permission is granted. I have considered these in light of the

Framework, Planning Practice Guidance (PPG) and the Community Infrastructure Levy Regulations (the CIL Regulations).

53. The obligation in respect of the on-site provision of affordable housing is supported by CS policies SC1 and IPC1 along with the Council's Supplementary Planning Document *Affordable Housing* (SPD). I am satisfied that the obligation is necessary to make the development acceptable in planning terms, is directly related to the development and is fairly and reasonably related to it in scale and kind. It therefore meets the statutory tests set out in paragraph 204 of the Framework.
54. The education contribution is supported by CS policies A1.4 and IPC1 and the Council's SPD *Infrastructure and Planning Contributions* (IPC SPD). The contribution would be used towards ensuring the facilities at St Georges C of E Primary School and Westhoughton High School are sufficient to cope with the additional demand for school places resulting from the development.
55. The public open space contribution would be used towards improvements at Westhoughton Central Park in order to provide the appropriate level of play facilities generated by the development that could not all be met on site. The contribution is supported by CS policy IPC1 and the IPC SPD.
56. Finally, a contribution would be used towards the costs relating to a Traffic Regulation Order covering works to Peel Street/Grundy Street/Church Street. This is supported by CS policies P5, S1.2 and IPC1.
57. The Council has provided a CIL Compliance Statement which sets out that none of the contributions sought would be prohibited by the pooling restrictions in CIL Regulation 123. I am satisfied on the basis of the evidence that this is the case and that the contributions provided by these obligations meet the Framework paragraph 204 tests and accord with CIL Regulation 122. Accordingly, I have taken them into account in reaching my decision.

Planning Balance

58. I have found that the proposal would not result in harm to the efficient and safe operation of the local highway network. Neither have I found that there would be unacceptable effects on heritage or ecology interests on the site. Nevertheless, the proposal would run counter to the relevant development plan policies for the location of housing. However, taking into account the Borough's significant HLS shortfall, these policies cannot be considered up-to-date in the context of paragraphs 14 and 49 of the Framework. As such they attract only limited weight.
59. The contribution that the appeal scheme would make to the availability of housing including affordable, represents significant social benefits of the scheme that attract substantial weight. The proposal would accord with paragraph 50 of the Framework; the objective of which is to deliver a wide choice of high quality homes, widen opportunities for home ownership and create sustainable, inclusive and mixed communities. It would also accord with the Framework requirement to boost significantly the supply of housing and this also attracts very substantial weight.
60. In addition, the scheme would provide a number of economic benefits during and after its construction by providing employment and support for local businesses. It would also have environmental benefits by way of its sustainable

location and the potential for occupants of the development to access work, shops and services by means other than the car. I give significant weight to these aspects of the scheme.

61. Whilst I recognise that the development plan forms the starting point for my decision, having considered all relevant matters, I find that the various environmental, economic and social benefits of the proposal comprise material considerations that are sufficient to outweigh the development plan in this case. The proposal would comprise sustainable development when assessed against the policies in the Framework taken as a whole.

Conditions

62. A number of conditions suggested by the Council were discussed at the Inquiry. I have considered these in light of the Framework and PPG. Where necessary, I have amended some of the suggested wordings for clarity, to ensure compliance with national policy and guidance and in light of the discussions between the main parties at the Inquiry.
63. I have imposed a condition specifying the relevant drawings as this provides certainty. Included for completeness and with regard to condition 14, I have included the two plans detailing soft landscaping.
64. To ensure the appearance of the development is satisfactory, I have imposed respective conditions relating to materials and soft landscaping. A condition is imposed requiring the protection of existing trees and shrubs as they make a valuable contribution to the character and appearance of the area and biodiversity. Also in the interests of biodiversity, conditions are necessary relating to the protection of reptiles and amphibians given that the site provides potential foraging habitats for these species. Also in the interests of biodiversity, conditions are imposed relating to external lighting and a Landscape and Ecological Management and Maintenance Plan.
65. I have considered the suggested condition relating to updated bat and badger surveys in the event that the development has not begun by March 2018. I agree that a condition in some form is necessary given that the situation on the site could change in the intervening period. I have therefore imposed a condition requiring adherence to an approved scheme to protect bats and badgers. Also in the interests of safeguarding bats, I have imposed a condition requiring bat boxes to be provided in accordance with the submitted Bat Appendix. This will compensate for the fragmentation of the hedgerow running north-south across the site.
66. In order to ensure the development is adequately drained, I have imposed conditions relating to sustainable drainage and surface and foul water drainage. In order to minimise flood risk, I have imposed a condition requiring ground levels to be in accordance with the submitted Flood Risk Assessment.
67. A condition is necessary in relation to contamination and I have imposed it accordingly. A suite of conditions is imposed in relation to archaeology matters including the provision of a Written Scheme of Investigation.
68. Conditions are imposed relating to access by and parking of motor vehicles in the interests of ensuring the efficient and safe operation of the highway network within the development. However, the main parties agreed, that certain permitted development rights should be removed in order to prevent

the accretion of anything that would inhibit the parking areas being used for their originally intended purpose. Accordingly, I have worded the condition to exclude the grant of planning permission by the operation of statutory provision under the Town and Country Planning (General Permitted Development) (England) Order 2015 (the GPDO). The High Court and then the Court of Appeal have held that this prevents the operation of the GPDO³.

69. The size of the development triggers a requirement to provide public art in accordance with CS policy IPC1. I am Satisfied that this condition would meet the statutory tests set out in national policy and guidance and have imposed it accordingly. Finally, a condition is imposed requiring the submission and approval of a Construction Method Statement in order to ensure the development does not have adverse effects on the living conditions of nearby residents or the efficient and safe operation of the local highway network.

Conclusion

70. For the above reasons and having had regard to all other matters raised, including those by interested parties, the appeal succeeds.

Hayden Baugh-Jones

Inspector

³ Dunnett Investments Ltd v SSCLG & East Dorset DC [2016] EWHC 534 (Admin); [2017] EWCA Civ 192

APPEARANCES

FOR THE LOCAL PLANNING AUTHORITY:

Mr Vincent Fraser, of Queens Counsel

Kings Chambers
Instructed by Nicola Raby,
Solicitor, Bolton Council

He called:

Mr Roland Craig
BSc, FCIHT, CMILT

AECOM Limited

Ms Helen Williams
BA(Hons), MA, MRTPI

Principal Development
Officer, Bolton Council

FOR THE APPELLANT:

Mr David Manley, of Queens Counsel

Kings Chambers
Instructed by Mike Stone,
Bellway Homes

He called:

Mr Amjid Khan
BSc(Hons), MICE,
MIGHT

WYG Transport

Mr Simon Pemberton
MA(Hons), MRTPI,
AIEMA

Lichfields

INTERESTED PERSONS:

Ms Denise Roscoe
Mr David Fearnley
Mr Stuart Snape
Ms Alison Patterson
Councillor David Chadwick

Local resident
Local resident
Local resident
Local resident
Cabinet Member and
Member for
Westhoughton South Ward,
Bolton Council

DOCUMENTS SUBMITTED AT THE INQUIRY

Documents submitted by the appellant

- AP1 Comparison of LinSig and TRANSYT Results for Junctions 4 and 5
- AP2 Response to Third Party Comments by TEP
- AP3 Appellant's closing submissions

Documents submitted by the local planning authority

- LPA1a Refuse Vehicle Swept Path Analysis Access Via Peel Street
- LPA1b Refuse Vehicle Swept Path Analysis Access Via Grundy Street
- LPA2 Plan showing location of Horwich Loco Works
- LPA3 Fee Proposal [redacted] by AECOM to Bolton Council and associated emails
- LPA4 Local authority's closing submissions

Documents submitted by interested parties

- IP1 Statement of Opposition from Councillor Zoe Kirk-Robinson
- IP2 Witness Statement from Denise Roscoe, local resident
- IP3 Email from Alison Patterson (local resident) to Bolton Council Solicitor regarding emergency vehicle access
- IP4 Appeal Statement by Councillor David Chadwick

Other documents (submitted jointly by the main parties)

- ID1 Agreed list of planning conditions
- ID2 Additional planning condition relating to a Construction Management Plan
- ID3 Signed, dated Planning Obligation

SCHEDULE OF CONDITIONS

- 1) The development hereby permitted shall begin not later than 3 years from the date of this decision.
- 2) The development hereby permitted shall be carried out in accordance with the following approved plans: Topographical Survey Drawing No 16H027/002; Fencing Layout Drawing No FL01 Rev. P2; Hard Surfacing Layout Drawing No HS01 Rev. P2; Collingwood Way, Westhoughton – House Types Drawing No BHM005/HT; Proposed Planning Layout Drawing No BHM005/PL01 Rev. P14; Proposed Street Scenes Drawing No BHM005/SS; Planting Plan 1 of 2 Drawing No LDS384-01; Planting Plan 2 of 2 Drawing No LDS384-02.
- 3) No development above finished floor level of the dwellings hereby permitted shall commence until details / samples of the materials to be used in the construction of the external surfaces of the dwellings hereby permitted have been submitted to and approved in writing by the local planning authority. Development shall be carried out in accordance with the approved details / samples.
- 4) No development shall take place until details of the implementation, adoption, maintenance and management of the sustainable drainage system shall have been submitted to and approved in writing by the local planning authority. Those details shall include:
 - i) a timetable for its implementation; and,
 - ii) a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the effective operation of the sustainable drainage system throughout its lifetime.

The sustainable drainage system shall be implemented and thereafter managed and maintained in accordance with the approved details.

- 5) No works shall take place including soil stripping and vegetation clearance until a written scheme detailing Reasonable Avoidance Measures to be taken to protect reptiles and amphibians has been submitted to and approved in writing by the local planning authority. The approved scheme shall include but not be limited to, provision for the supervision of all works on the site by a suitably qualified ecologist. Development shall be carried out in accordance with the approved scheme.
- 6) If development has not commenced by March 2018 surveys of the trees within the site for potential bat roosts and a 30m buffer for badger setts shall be undertaken prior to the commencement of development. Should evidence of either protected species be found, a suitable avoidance or licensed mitigation plan shall be submitted to and approved in writing by the local planning authority. The approved plan shall be implemented in accordance with a timetable that shall first have been submitted to and approved in writing by the local planning authority.
- 7) The development shall not be occupied until bat boxes have been provided on site in accordance with the recommendations in the Bat Appendix by TEP dated November 2016 Document Ref 5128.02.001. The bat boxes shall thereafter be retained.

- 8) No development shall take place including any site clearance, earth moving or soil stripping until a biodiversity enhancement plan including a Landscape and Ecological Management and Maintenance Plan for the lifetime of the development has been submitted to and approved in writing by the local planning authority. The plan shall include:
- i. the creation of the attenuation basin in accordance with the details shown on approved drawing no. BHM005/PL01 Rev. P14 which shall be designed to hold water under average rainfall conditions;
 - ii. the creation of a hibernaculum for amphibians in a suitable location within the Public Open Space shown on approved drawing no. BHM005/PL01 Rev. P14;
 - iii. control of Himalayan Balsam along the section of Pennington Brook within the site;
 - iv. details of improvements to the section of Pennington Brook within the site including the planting of locally native wetland species;
 - v. the arrangements for adoption of the attenuation basin by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme to fulfil its attenuation purposes throughout its lifetime.
- 9) Prior to occupation of the dwellings hereby permitted details of an external lighting scheme shall be submitted to and approved in writing by the local planning authority. The scheme should ensure that there is no direct lighting of the site boundaries, retained trees and the section of the Pennington Brook within the site. The lighting scheme shall be implemented in accordance with the approved details and in accordance with a timetable that shall have first been submitted to and approved in writing by the local planning authority. The lighting scheme shall be retained thereafter.
- 10) No site clearance, preparatory work or development shall take place until a scheme for the protection of the retained trees (the tree protection plan) and the appropriate working methods (the arboricultural method statement) in accordance with paragraphs 5.5 and 6.1 of British Standard BS 5837: Trees in relation to design, demolition and construction - Recommendations (or in an equivalent British Standard if replaced) shall have been submitted to and approved in writing by the local planning authority. The scheme for the protection of the retained trees shall be carried out as approved and before any site clearance, preparatory work or development the local planning authority shall be given a minimum of 14 days written notice confirming that the scheme for the protection of retained trees has been implemented.
- In this condition "retained tree" means an existing tree which is to be retained in accordance with the approved plans and particulars.
- 11) Any contamination that is found during the course of construction of the approved development that was not previously identified shall be reported immediately to the local planning authority. Development on the part of the site affected shall be suspended and a risk assessment carried out and submitted to and approved in writing by the local planning authority. Where unacceptable risks are found remediation and verification schemes shall be submitted to and approved in writing by the

- local planning authority. These approved schemes shall be carried out before the development is resumed or continued.
- 12) The development hereby permitted shall be carried out in accordance with the ground levels detailed in the Flood Risk Assessment by Ironside Farrar Limited dated August 2016 Document Reference 30219/SRG.
 - 13) No demolition/development shall take place until a Written Scheme of Archaeological Investigation shall have been submitted to and approved in writing by the local planning authority. The scheme shall include:
 - i) the programme and methodology of site investigation and recording;
 - ii) the programme for post investigation assessment;
 - iii) the provision to be made for analysis of the site investigation and recording;
 - iv) the provision to be made for publication and dissemination of the analysis and records of the site investigation;
 - v) the provision to be made for archive deposition of the analysis and records of the site investigation;
 - vi) the nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation.
 - 14) No demolition/development shall take place other than in accordance with the Written Scheme of Investigation approved under condition 13.
 - 15) Any historic or archaeological features not previously identified which are revealed when carrying out the development hereby permitted shall be retained in-situ and reported to the local planning authority in writing within 3 working days of their being revealed. Works shall be immediately halted in the area/part of the building affected until provision shall have been made for the retention and/or recording in accordance with details that shall first have been submitted to and approved in writing by the local planning authority.
 - 16) A scheme of soft landscaping works shall be implemented in accordance with the details shown on approved drawings nos. LDS384-01 and LDS384-02. The landscaping works shall be carried out in accordance with an implementation programme that shall have first been submitted to and approved in writing by the local planning authority. Any trees or plants which within a period of 5 years from the completion of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species.
 - 17) None of the dwellings hereby permitted shall be occupied until a scheme for the parking and/or garaging of motor vehicles has been implemented in accordance with drawing no. BHM005/PL01 Rev. P14 for cars to be parked and that space shall thereafter be kept available at all times for the parking of vehicles and for no other purpose whatsoever without express planning consent from the local planning authority first being obtained.
 - 18) Notwithstanding the details shown on the approved plans, none of the dwellings hereby permitted shall be occupied until a means of access for vehicles shall have been constructed in accordance with details that shall

have first been submitted to and approved in writing by the local planning authority. The access shall be retained thereafter.

- 19) No development shall take place until details of sewage disposal and surface water drainage works have been submitted to and approved in writing by the local planning authority. The sewage disposal and surface water drainage works shall be completed in accordance with the approved details.
- 20) None of the dwellings hereby permitted shall be occupied until details of public art to be provided within the development have been submitted to and approved by the local planning authority. The public art shall be installed in accordance with the approved details, in a timeframe agreed with the local planning authority and shall be retained thereafter.
- 21) No development shall take place, including any works of demolition, until a Construction Method Statement has been submitted to, and approved in writing by the local planning authority. The Statement shall provide for:
 - i) the parking of vehicles of site operatives and visitors;
 - ii) loading and unloading of plant and materials;
 - iii) storage of plant and materials used in constructing the development;
 - iv) the erection and maintenance of security hoarding including decorative displays and facilities for public viewing, where appropriate;
 - v) wheel washing facilities;
 - vi) measures to control the emission of dust and dirt during construction;
 - vii) a scheme for recycling/disposing of waste resulting from demolition and construction works;
 - viii) delivery, demolition and construction working hours.
 - ix) construction vehicle routing and access

The approved Construction Method Statement shall be adhered to throughout the construction period for the development.

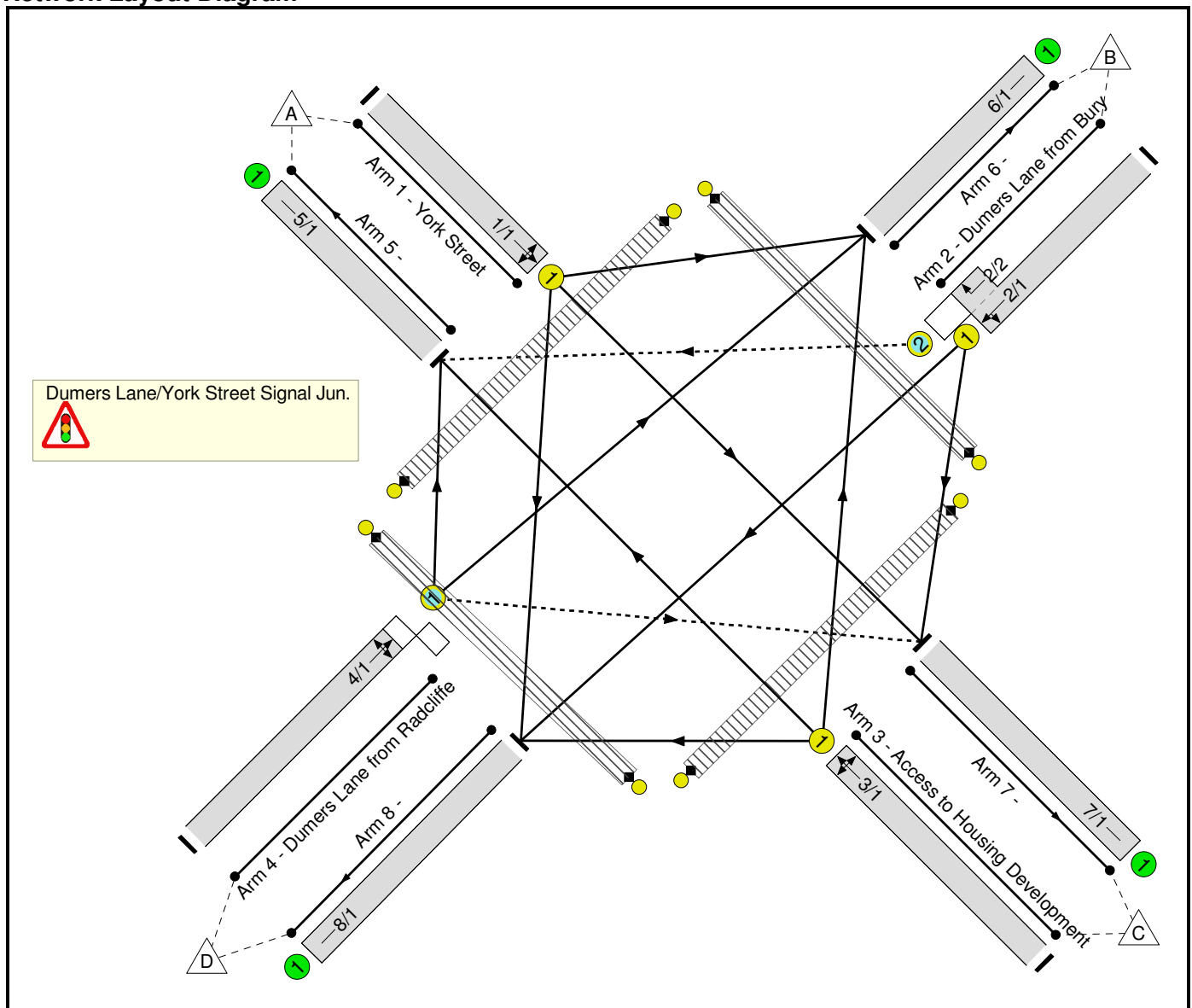


Appendix D – Model Outputs York St / Dumers Lane

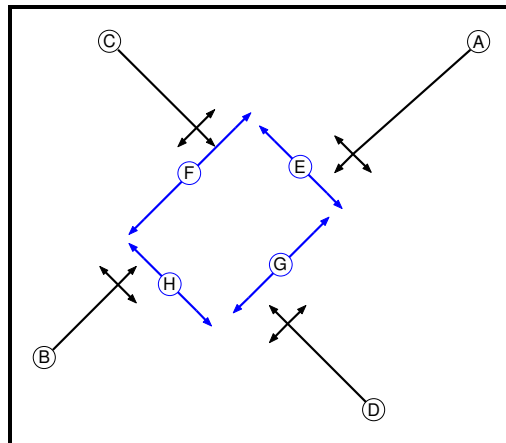
User and Project Details

Project:	
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Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

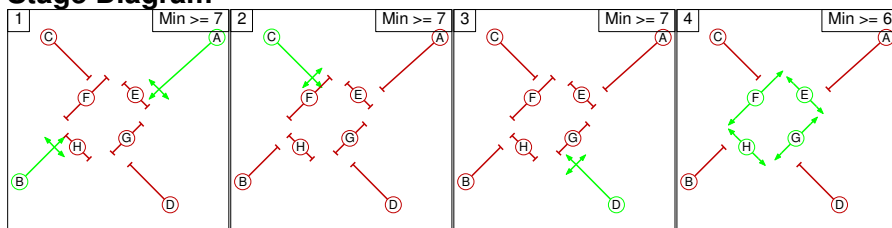
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
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B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		6	6
F	Pedestrian		6	6
G	Pedestrian		6	6
H	Pedestrian		6	6

Phase Intergreens Matrix

	Starting Phase							
	A	B	C	D	E	F	G	H
Terminating Phase	A	-	7	7	5	9	9	7
	B	-	8	9	9	8	5	10
	C	8	8	8	8	6	10	9
	D	8	8	8	8	9	9	5
	E	9	9	9	9	-	-	-
	F	9	9	9	9	-	-	-
	G	7	7	7	7	-	-	-
	H	9	9	9	9	-	-	-

Phases in Stage

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

Stage Diagram**Phase Delays**

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

Prohibited Stage Change

	To Stage				
		1	2	3	4
	1		8	9	10
	2	8		8	10
	3	8	8		9
	4	9	9	9	

Give-Way Lane Input Data

Junction: Dumers Lane/York Street Signal Jun.											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/2 (Dumers Lane from Bury)	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00
4/1 (Dumers Lane from Radcliffe)	7/1 (Right)	1439	0	2/1	1.09	All	2.00	1.00	0.50	2	2.00

Lane Input Data

Junction: Dumers Lane/York Street Signal Jun.												
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 (York Street)	U	C	2	3	60.0	Geom	-	3.28	0.00	Y	Arm 6 Left	25.32
											Arm 7 Ahead	39.37
											Arm 8 Right	9.17
2/1 (Dumers Lane from Bury)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 7 Left	5.61
											Arm 8 Ahead	Inf
2/2 (Dumers Lane from Bury)	O	A	2	3	2.0	Geom	-	2.80	0.00	Y	Arm 5 Right	21.21
											Arm 5 Ahead	22.76
3/1 (Access to Housing Development)	U	D	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 6 Right	14.38
											Arm 8 Left	8.55
4/1 (Dumers Lane from Radcliffe)	O	B	2	3	60.0	Geom	-	3.99	0.00	Y	Arm 5 Left	4.92
											Arm 6 Ahead	Inf
											Arm 7 Right	18.50
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Peak Hour 2017 Surveyed Flows'	07:45	08:45	01:00	
2: 'PM Peak Hour 2017 Surveyed Flows'	17:30	18:30	01:00	
3: 'AM Peak Hour 2023 w/o Dev.'	07:45	08:45	01:00	
4: 'PM Peak Hour 2023 w/o Dev.'	17:30	18:30	01:00	
5: 'AM Peak Hour 2023 with Dev.'	07:45	08:45	01:00	
6: 'PM Peak Hour 2023 with Dev.'	17:30	18:30	01:00	

Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	21	0	7	28
	B	18	0	74	203	295
	C	0	133	0	32	165
	D	0	376	37	0	413
	Tot.	18	530	111	242	901

Traffic Lane Flows

Lane	Scenario 1: AM Peak Hour 2017 Surveyed Flows
Junction: Dumers Lane/York Street Signal Jun.	
1/1	28
2/1 (with short)	295(In) 277(Out)
2/2 (short)	18
3/1	165
4/1	413
5/1	18
6/1	530
7/1	111
8/1	242

Lane Saturation Flows

Junction: Dumers Lane/York Street Signal Jun.								
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 (York Street)	3.28	0.00	Y	Arm 6 Left	25.32	75.0 %	1790	1790
				Arm 7 Ahead	39.37	0.0 %		
				Arm 8 Right	9.17	25.0 %		
2/1 (Dumers Lane from Bury)	3.00	0.00	Y	Arm 7 Left	5.61	26.7 %	1787	1787
				Arm 8 Ahead	Inf	73.3 %		
2/2 (Dumers Lane from Bury)	2.80	0.00	Y	Arm 5 Right	21.21	100.0 %	1770	1770
3/1 (Access to Housing Development)	3.80	0.00	Y	Arm 5 Ahead	22.76	0.0 %	1784	1784
				Arm 6 Right	14.38	80.6 %		
				Arm 8 Left	8.55	19.4 %		
4/1 (Dumers Lane from Radcliffe)	3.99	0.00	Y	Arm 5 Left	4.92	0.0 %	1999	1999
				Arm 6 Ahead	Inf	91.0 %		
				Arm 7 Right	18.50	9.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	19	0	3	22
	B	22	0	101	301	424
	C	1	75	0	31	107
	D	1	341	44	0	386
	Tot.	24	435	145	335	939

Lane	Scenario 2: PM Peak Hour 2017 Surveyed Flows
Junction: Dumers Lane/York Street Signal Jun.	
1/1	22
2/1 (with short)	424(In) 402(Out)
2/2 (short)	22
3/1	107
4/1	386
5/1	24
6/1	435
7/1	145
8/1	335

Junction: Dumers Lane/York Street Signal Jun.								
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 (York Street)	3.28	0.00	Y	Arm 6 Left	25.32	86.4 %	1810	1810
				Arm 7 Ahead	39.37	0.0 %		
				Arm 8 Right	9.17	13.6 %		
2/1 (Dumers Lane from Bury)	3.00	0.00	Y	Arm 7 Left	5.61	25.1 %	1794	1794
2/2 (Dumers Lane from Bury)	2.80	0.00	Y	Arm 8 Ahead	Inf	74.9 %		
				Arm 5 Right	21.21	100.0 %	1770	1770
3/1 (Access to Housing Development)	3.80	0.00	Y	Arm 5 Ahead	22.76	0.9 %	1774	1774
				Arm 6 Right	14.38	70.1 %		
				Arm 8 Left	8.55	29.0 %		
4/1 (Dumers Lane from Radcliffe)	3.99	0.00	Y	Arm 5 Left	4.92	0.3 %	1994	1994
				Arm 6 Ahead	Inf	88.3 %		
				Arm 7 Right	18.50	11.4 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM Peak Hour 2023 w/o Dev.' (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	23	0	8	31
	B	19	0	80	220	319
	C	0	144	0	35	179
	D	0	406	40	0	446
	Tot.	19	573	120	263	975

Traffic Lane Flows

Lane	Scenario 3: AM Peak Hour 2023 w/o Dev.
Junction: Dumers Lane/York Street Signal Jun.	
1/1	31
2/1 (with short)	319(In) 300(Out)
2/2 (short)	19
3/1	179
4/1	446
5/1	19
6/1	573
7/1	120
8/1	263

Lane Saturation Flows

Junction: Dumers Lane/York Street Signal Jun.								
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 (York Street)	3.28	0.00	Y	Arm 6 Left	25.32	74.2 %	1789	1789
				Arm 7 Ahead	39.37	0.0 %		
				Arm 8 Right	9.17	25.8 %		
2/1 (Dumers Lane from Bury)	3.00	0.00	Y	Arm 7 Left	5.61	26.7 %	1788	1788
				Arm 8 Ahead	Inf	73.3 %		
2/2 (Dumers Lane from Bury)	2.80	0.00	Y	Arm 5 Right	21.21	100.0 %	1770	1770
3/1 (Access to Housing Development)	3.80	0.00	Y	Arm 5 Ahead	22.76	0.0 %	1784	1784
				Arm 6 Right	14.38	80.4 %		
				Arm 8 Left	8.55	19.6 %		
4/1 (Dumers Lane from Radcliffe)	3.99	0.00	Y	Arm 5 Left	4.92	0.0 %	1999	1999
				Arm 6 Ahead	Inf	91.0 %		
				Arm 7 Right	18.50	9.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM Peak Hour 2023 w/o Dev.' (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired**Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	21	0	3	24
	B	24	0	109	324	457
	C	1	81	0	33	115
	D	1	367	47	0	415
	Tot.	26	469	156	360	1011

Lane	Scenario 4: PM Peak Hour 2023 w/o Dev.
Junction: Dumers Lane/York Street Signal Jun.	
1/1	24
2/1 (with short)	457(In) 433(Out)
2/2 (short)	24
3/1	115
4/1	415
5/1	26
6/1	469
7/1	156
8/1	360

Junction: Dumers Lane/York Street Signal Jun.								
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 (York Street)	3.28	0.00	Y	Arm 6 Left	25.32	87.5 %	1812	1812
				Arm 7 Ahead	39.37	0.0 %		
				Arm 8 Right	9.17	12.5 %		
2/1 (Dumers Lane from Bury)	3.00	0.00	Y	Arm 7 Left	5.61	25.2 %	1794	1794
2/2 (Dumers Lane from Bury)	2.80	0.00	Y	Arm 8 Ahead	Inf	74.8 %		
				Arm 5 Right	21.21	100.0 %	1770	1770
3/1 (Access to Housing Development)	3.80	0.00	Y	Arm 5 Ahead	22.76	0.9 %	1774	1774
				Arm 6 Right	14.38	70.4 %		
				Arm 8 Left	8.55	28.7 %		
4/1 (Dumers Lane from Radcliffe)	3.99	0.00	Y	Arm 5 Left	4.92	0.2 %	1994	1994
				Arm 6 Ahead	Inf	88.4 %		
				Arm 7 Right	18.50	11.3 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'AM Peak Hour 2023 with Dev.' (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
Origin		A	B	C	D	Tot.
	A	0	23	0	8	31
	B	19	0	80	231	330
	C	0	144	0	35	179
	D	0	431	40	0	471
	Tot.	19	598	120	274	1011

Traffic Lane Flows

Lane	Scenario 5: AM Peak Hour 2023 with Dev.
Junction: Dumers Lane/York Street Signal Jun.	
1/1	31
2/1 (with short)	330(In) 311(Out)
2/2 (short)	19
3/1	179
4/1	471
5/1	19
6/1	598
7/1	120
8/1	274

Lane Saturation Flows

Junction: Dumers Lane/York Street Signal Jun.								
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 (York Street)	3.28	0.00	Y	Arm 6 Left	25.32	74.2 %	1789	1789
				Arm 7 Ahead	39.37	0.0 %		
				Arm 8 Right	9.17	25.8 %		
2/1 (Dumers Lane from Bury)	3.00	0.00	Y	Arm 7 Left	5.61	25.7 %	1792	1792
				Arm 8 Ahead	Inf	74.3 %		
2/2 (Dumers Lane from Bury)	2.80	0.00	Y	Arm 5 Right	21.21	100.0 %	1770	1770
3/1 (Access to Housing Development)	3.80	0.00	Y	Arm 5 Ahead	22.76	0.0 %	1784	1784
				Arm 6 Right	14.38	80.4 %		
				Arm 8 Left	8.55	19.6 %		
4/1 (Dumers Lane from Radcliffe)	3.99	0.00	Y	Arm 5 Left	4.92	0.0 %	2000	2000
				Arm 6 Ahead	Inf	91.5 %		
				Arm 7 Right	18.50	8.5 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'PM Peak Hour 2023 with Dev.' (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired**Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	21	0	3	24
	B	24	0	109	346	479
	C	1	81	0	33	115
	D	1	380	47	0	428
	Tot.	26	482	156	382	1046

Traffic Lane Flows

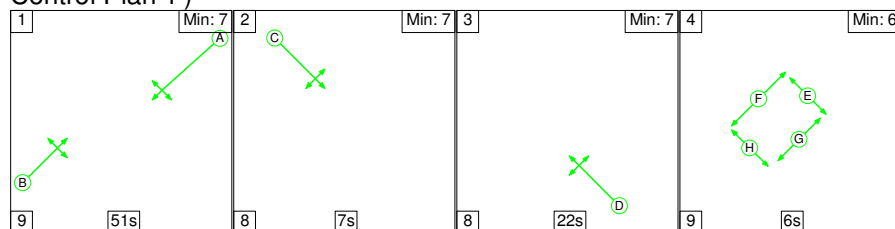
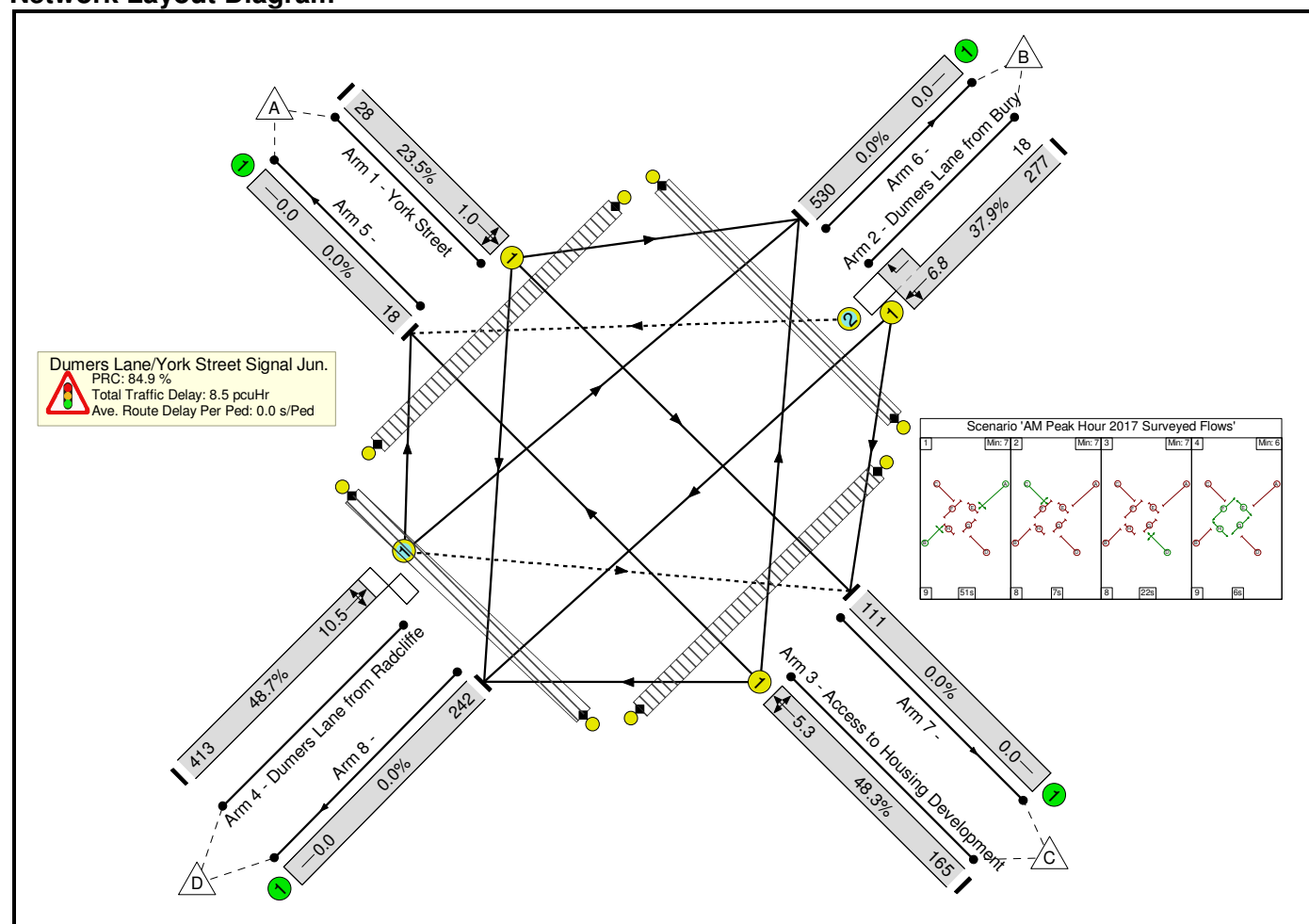
Lane	Scenario 6: PM Peak Hour 2023 with Dev.
Junction: Dumers Lane/York Street Signal Jun.	
1/1	24
2/1 (with short)	479(In) 455(Out)
2/2 (short)	24
3/1	115
4/1	428
5/1	26
6/1	482
7/1	156
8/1	382

Lane Saturation Flows

Junction: Dumers Lane/York Street Signal Jun.								
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 (York Street)	3.28	0.00	Y	Arm 6 Left	25.32	87.5 %	1812	1812
				Arm 7 Ahead	39.37	0.0 %		
				Arm 8 Right	9.17	12.5 %		
2/1 (Dumers Lane from Bury)	3.00	0.00	Y	Arm 7 Left	5.61	24.0 %	1800	1800
2/2 (Dumers Lane from Bury)	2.80	0.00	Y	Arm 8 Ahead	Inf	76.0 %		
				Arm 5 Right	21.21	100.0 %	1770	1770
3/1 (Access to Housing Development)	3.80	0.00	Y	Arm 5 Ahead	22.76	0.9 %	1774	1774
				Arm 6 Right	14.38	70.4 %		
				Arm 8 Left	8.55	28.7 %		
4/1 (Dumers Lane from Radcliffe)	3.99	0.00	Y	Arm 5 Left	4.92	0.2 %	1995	1995
				Arm 6 Ahead	Inf	88.8 %		
				Arm 7 Right	18.50	11.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Stage Sequence Diagram

Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

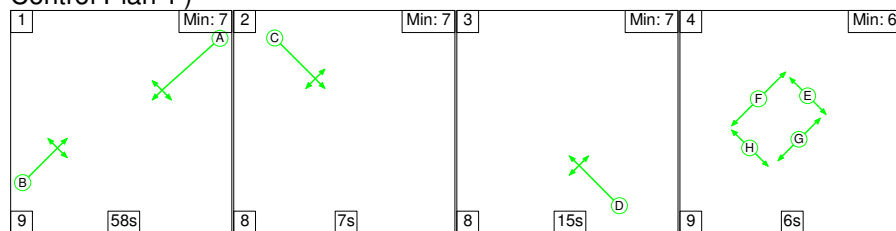
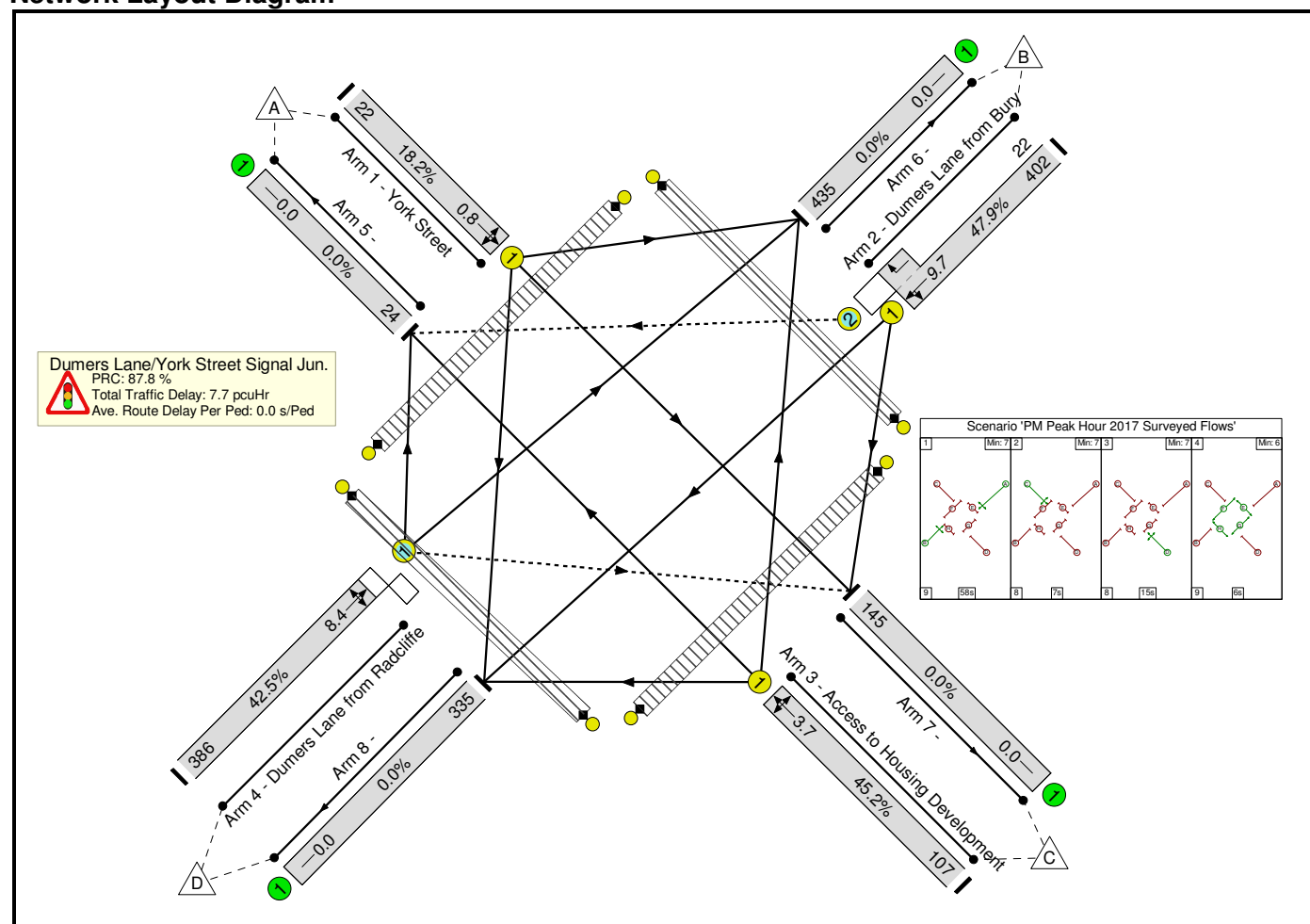
**Network Layout Diagram**

Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	48.7%	7.1	1.4	8.5	-	-	-	-
Dumers Lane/York Street Signal Jun.	-	-	-	-	-	48.7%	7.1	1.4	8.5	-	-	-	-
1/1	York Street Left Ahead Right	C	28	1790	119	23.5%	0.4	0.2	0.6	72.8	0.9	0.2	1.0
2/1+2/2	Dumers Lane from Bury Right Left Ahead	A	295	1787:1770	778	37.9%	1.9	0.3	2.2	26.9	6.5	0.3	6.8
3/1	Access to Housing Development Ahead Right Left	D	165	1784	342	48.3%	2.0	0.5	2.4	53.3	4.9	0.5	5.3
4/1	Dumers Lane from Radcliffe Left Ahead Right	B	413	1999	848	48.7%	2.8	0.5	3.3	28.9	10.0	0.5	10.5
Ped Link: P1	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		84.9	Total Delay for Signalled Lanes (pcuHr):			8.53	Cycle Time (s): 120			
			PRC Over All Lanes (%):		84.9	Total Delay Over All Lanes(pcuHr):			8.53				

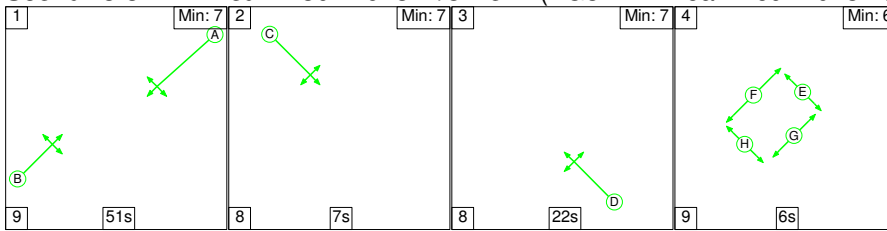
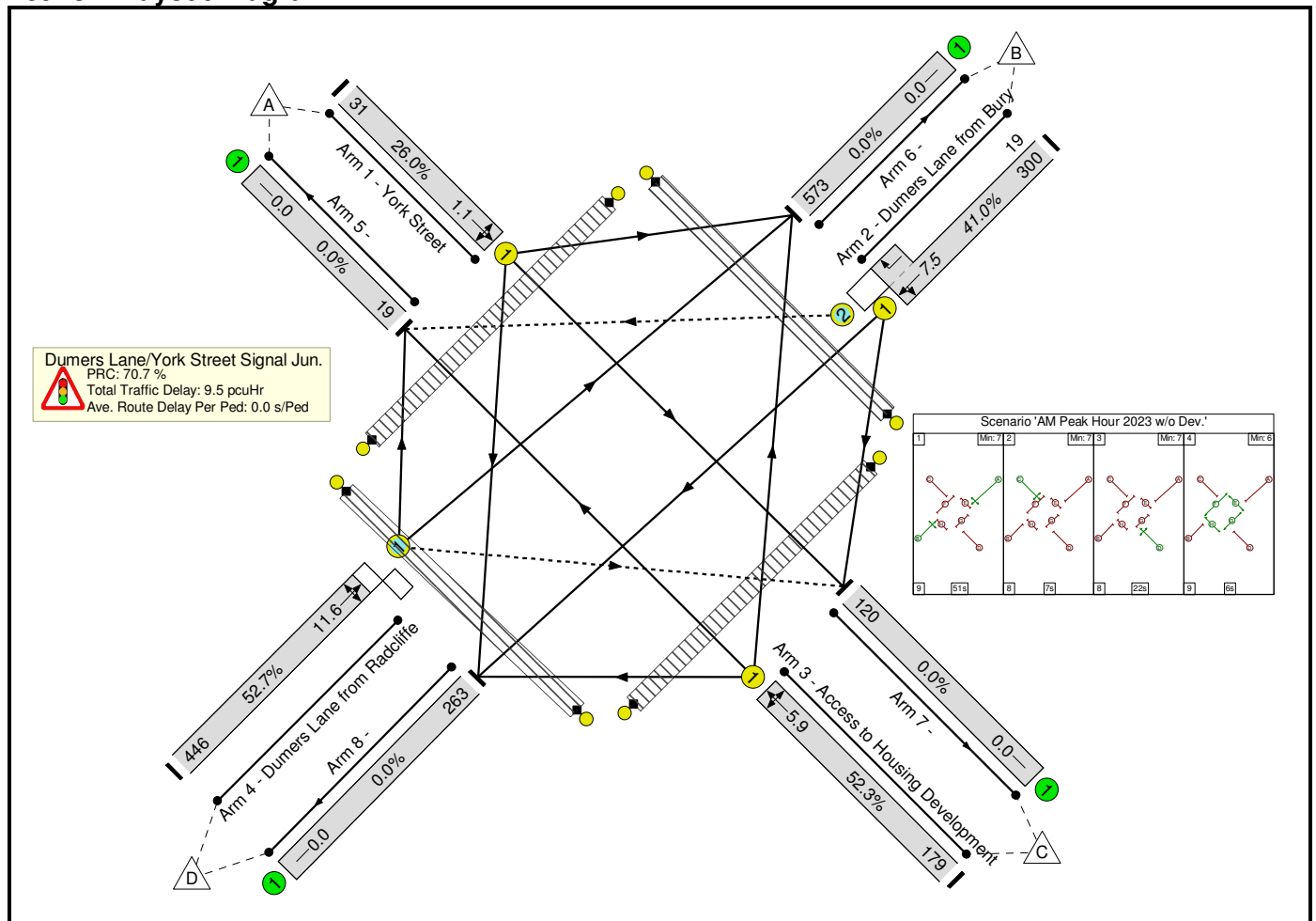
Stage Sequence Diagram

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

**Network Layout Diagram**

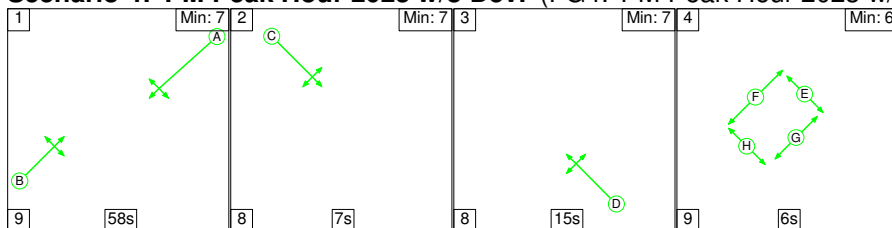
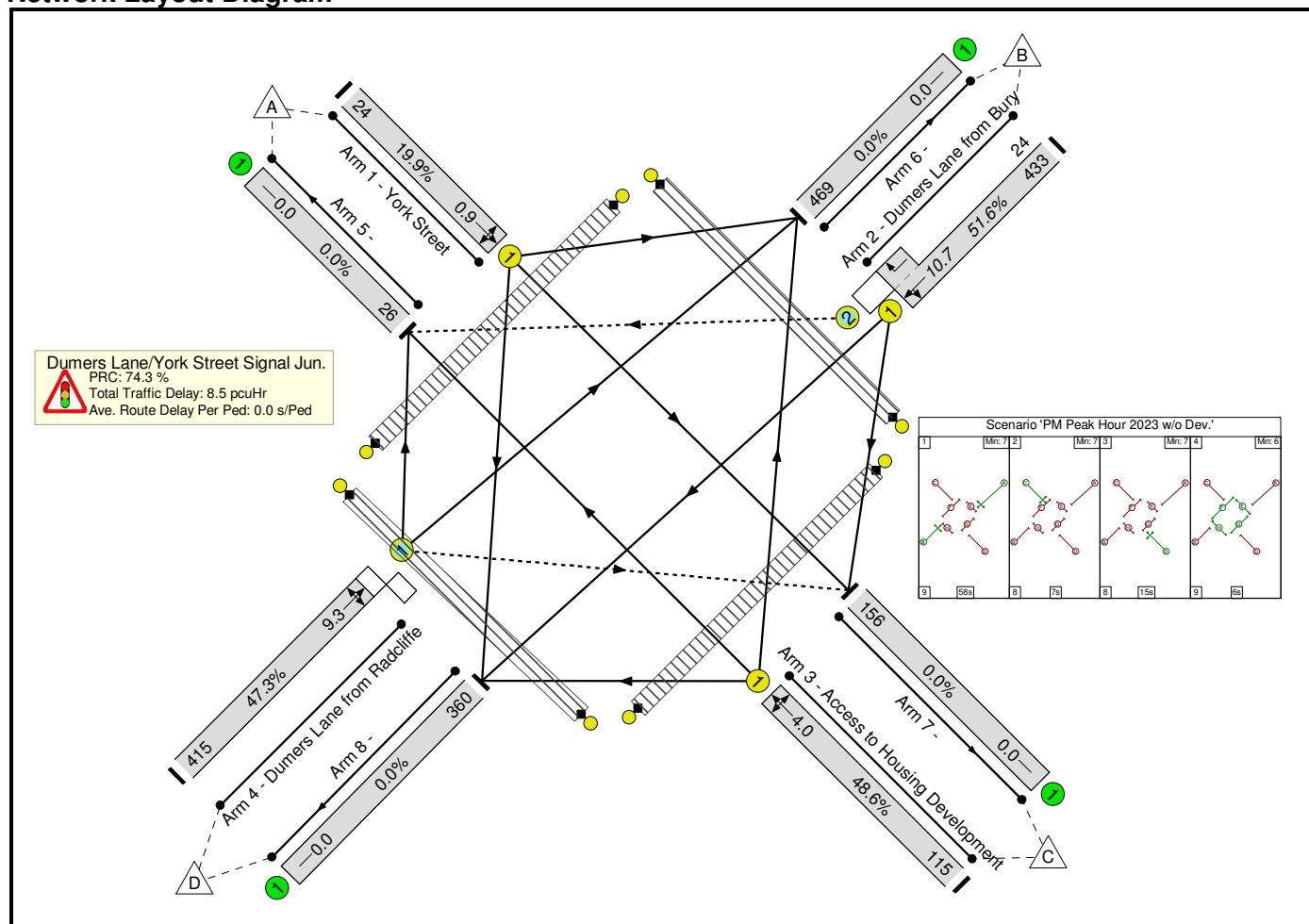
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	47.9%	6.2	1.4	7.7	-	-	-	-
Dumers Lane/York Street Signal Jun.	-	-	-	-	-	47.9%	6.2	1.4	7.7	-	-	-	-
1/1	York Street Left Ahead Right	C	22	1810	121	18.2%	0.3	0.1	0.4	71.2	0.7	0.1	0.8
2/1+2/2	Dumers Lane from Bury Right Left Ahead	A	424	1794:1770	885	47.9%	2.4	0.5	2.9	24.2	9.2	0.5	9.7
3/1	Access to Housing Development Ahead Right Left	D	107	1774	237	45.2%	1.4	0.4	1.8	61.8	3.3	0.4	3.7
4/1	Dumers Lane from Radcliffe Left Ahead Right	B	386	1994	908	42.5%	2.1	0.4	2.5	23.7	8.0	0.4	8.4
Ped Link: P1	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		87.8	Total Delay for Signalled Lanes (pcuHr):			7.66	Cycle Time (s): 120			
			PRC Over All Lanes (%):		87.8	Total Delay Over All Lanes(pcuHr):			7.66				

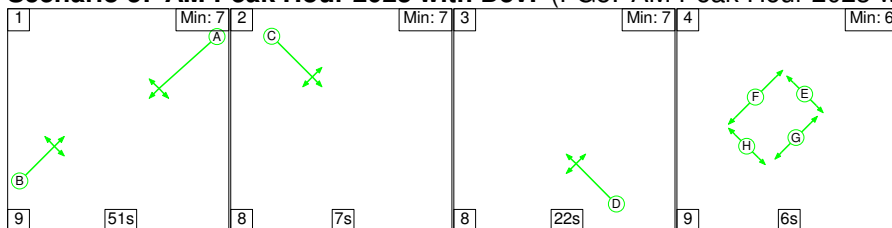
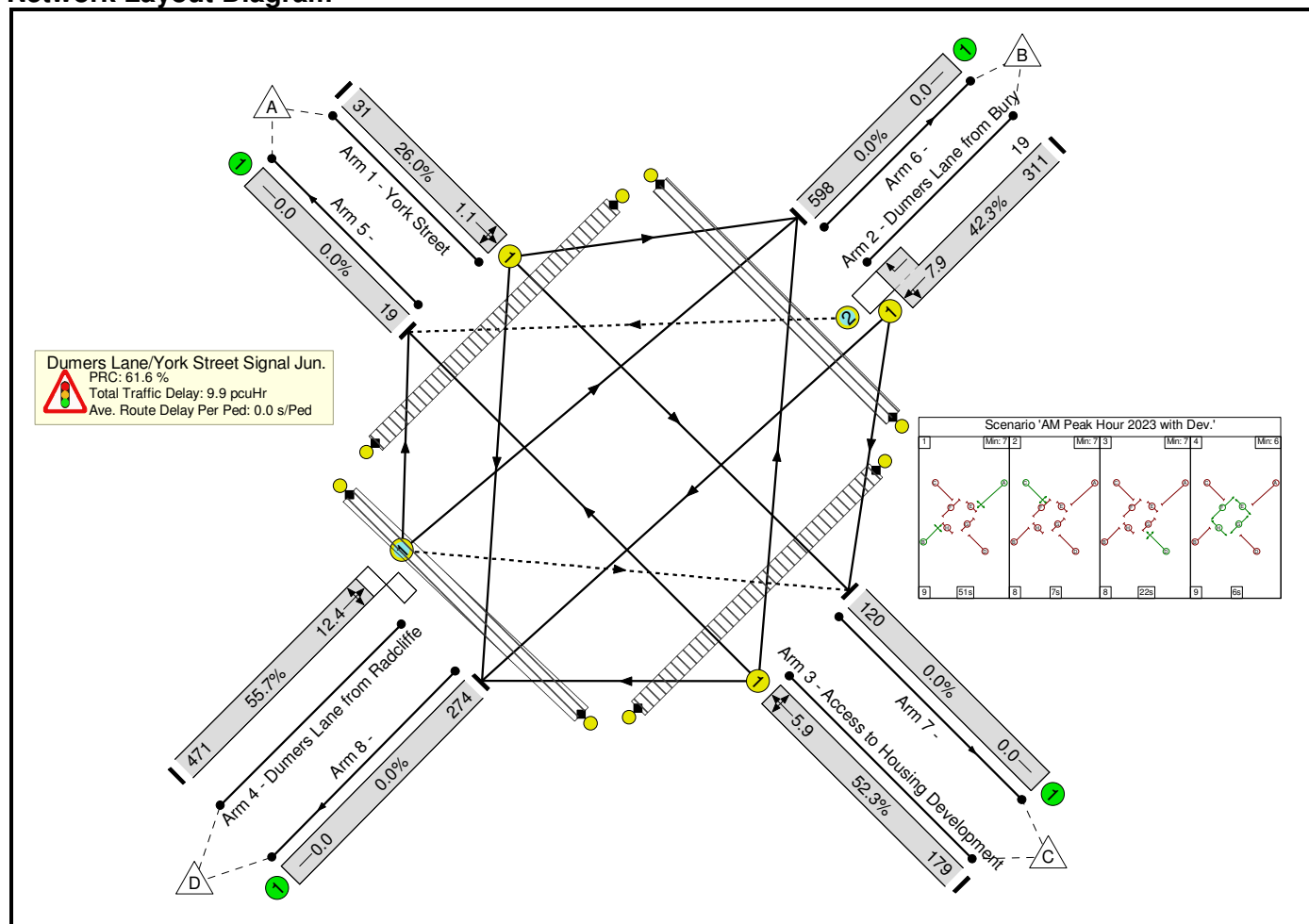
Stage Sequence Diagram**Scenario 3: 'AM Peak Hour 2023 w/o Dev.'** (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Network Results

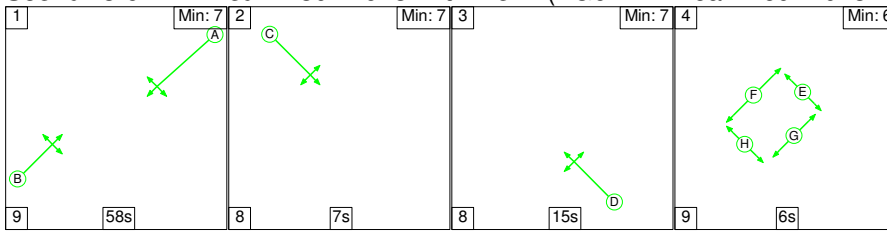
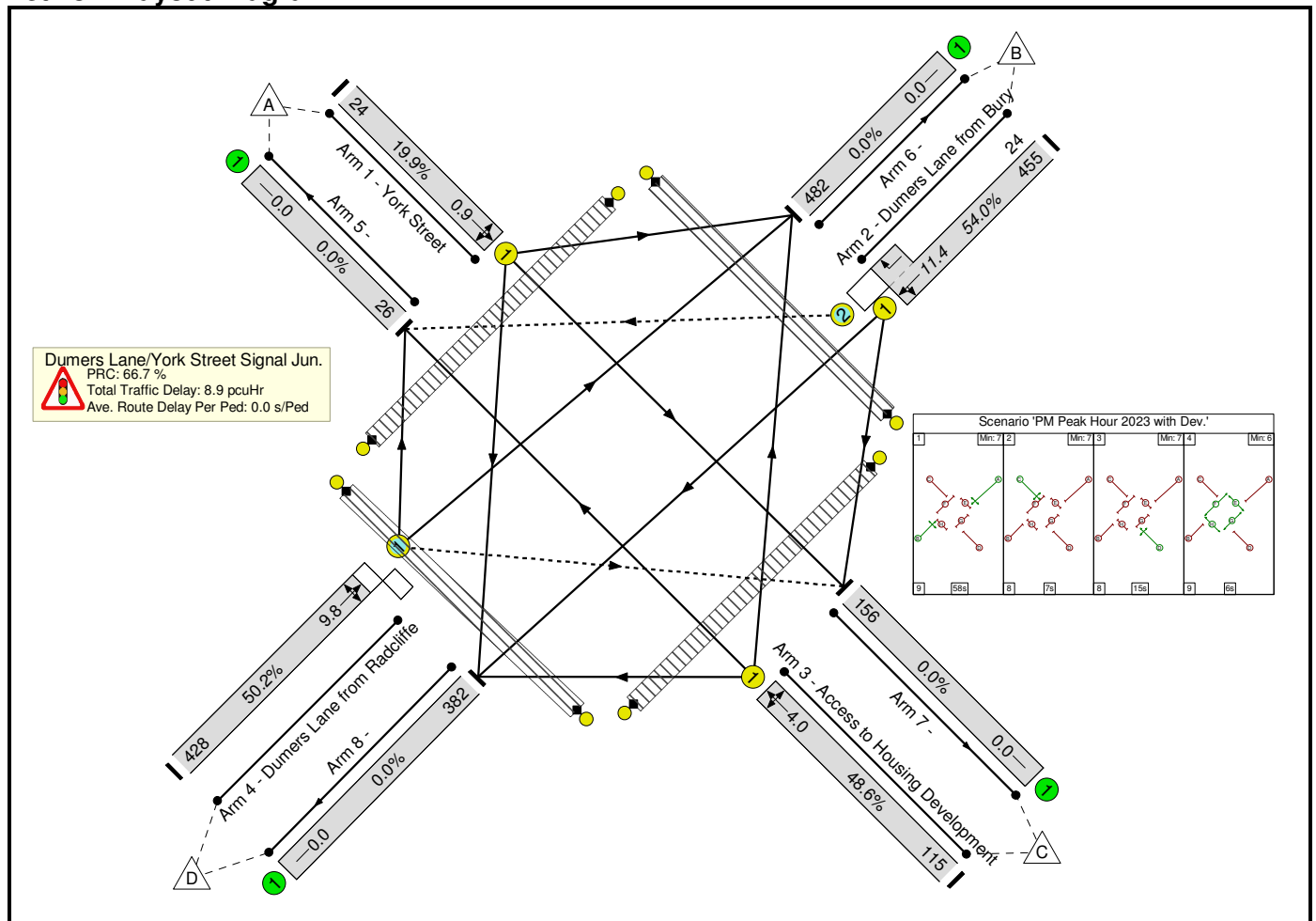
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	52.7%	7.8	1.6	9.5	-	-	-	-
Dumers Lane/York Street Signal Jun.	-	-	-	-	-	52.7%	7.8	1.6	9.5	-	-	-	-
1/1	York Street Left Ahead Right	C	31	1789	119	26.0%	0.5	0.2	0.6	73.5	1.0	0.2	1.1
2/1+2/2	Dumers Lane from Bury Right Left Ahead	A	319	1788:1770	779	41.0%	2.1	0.3	2.4	27.5	7.1	0.3	7.5
3/1	Access to Housing Development Ahead Right Left	D	179	1784	342	52.3%	2.2	0.5	2.7	54.6	5.3	0.5	5.9
4/1	Dumers Lane from Radcliffe Left Ahead Right	B	446	1999	846	52.7%	3.1	0.6	3.7	29.9	11.0	0.6	11.6
Ped Link: P1	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		70.7	Total Delay for Signalled Lanes (pcuHr):			9.48	Cycle Time (s): 120			
			PRC Over All Lanes (%):		70.7	Total Delay Over All Lanes(pcuHr):			9.48				

Stage Sequence Diagram**Scenario 4: 'PM Peak Hour 2023 w/o Dev.'** (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	51.6%	6.8	1.6	8.5	-	-	-	-
Dumers Lane/York Street Signal Jun.	-	-	-	-	-	51.6%	6.8	1.6	8.5	-	-	-	-
1/1	York Street Left Ahead Right	C	24	1812	121	19.9%	0.4	0.1	0.5	71.6	0.8	0.1	0.9
2/1+2/2	Dumers Lane from Bury Right Left Ahead	A	457	1794:1770	885	51.6%	2.6	0.5	3.2	25.0	10.2	0.5	10.7
3/1	Access to Housing Development Ahead Right Left	D	115	1774	237	48.6%	1.5	0.5	2.0	62.9	3.5	0.5	4.0
4/1	Dumers Lane from Radcliffe Left Ahead Right	B	415	1994	876	47.3%	2.3	0.4	2.8	24.6	8.9	0.4	9.3
Ped Link: P1	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1		PRC for Signalled Lanes (%):			74.3	Total Delay for Signalled Lanes (pcuHr):			8.50	Cycle Time (s): 120			
		PRC Over All Lanes (%):			74.3	Total Delay Over All Lanes(pcuHr):			8.50				

Stage Sequence Diagram**Scenario 5: 'AM Peak Hour 2023 with Dev.'** (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	55.7%	8.1	1.7	9.9	-	-	-	-
Dumers Lane/York Street Signal Jun.	-	-	-	-	-	55.7%	8.1	1.7	9.9	-	-	-	-
1/1	York Street Left Ahead Right	C	31	1789	119	26.0%	0.5	0.2	0.6	73.5	1.0	0.2	1.1
2/1+2/2	Dumers Lane from Bury Right Left Ahead	A	330	1792:1770	780	42.3%	2.1	0.4	2.5	27.8	7.5	0.4	7.9
3/1	Access to Housing Development Ahead Right Left	D	179	1784	342	52.3%	2.2	0.5	2.7	54.6	5.3	0.5	5.9
4/1	Dumers Lane from Radcliffe Left Ahead Right	B	471	2000	846	55.7%	3.3	0.6	4.0	30.6	11.8	0.6	12.4
Ped Link: P1	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1		PRC for Signalled Lanes (%):		61.6	Total Delay for Signalled Lanes (pcuHr):		9.89	Cycle Time (s): 120					
		PRC Over All Lanes (%):		61.6	Total Delay Over All Lanes(pcuHr):		9.89						

Stage Sequence Diagram**Scenario 6: 'PM Peak Hour 2023 with Dev.'** (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	54.0%	7.0	1.7	8.9	-	-	-	-
Dumers Lane/York Street Signal Jun.	-	-	-	-	-	54.0%	7.0	1.7	8.9	-	-	-	-
1/1	York Street Left Ahead Right	C	24	1812	121	19.9%	0.4	0.1	0.5	71.6	0.8	0.1	0.9
2/1+2/2	Dumers Lane from Bury Right Left Ahead	A	479	1800:1770	887	54.0%	2.8	0.6	3.4	25.5	10.8	0.6	11.4
3/1	Access to Housing Development Ahead Right Left	D	115	1774	237	48.6%	1.5	0.5	2.0	62.9	3.5	0.5	4.0
4/1	Dumers Lane from Radcliffe Left Ahead Right	B	428	1995	852	50.2%	2.4	0.5	3.0	25.2	9.3	0.5	9.8
Ped Link: P1	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		66.7	Total Delay for Signalled Lanes (pcuHr):			8.88	Cycle Time (s): 120			
			PRC Over All Lanes (%):		66.7	Total Delay Over All Lanes(pcuHr):			8.88				



Appendix E – Model Outputs Water St / Spring Lane (J3) and Water Street / Ainsworth Road (J4)

TRANSYT 15	
Version: 15.5.1.7048 © Copyright TRL Limited, 2017	
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Filename: J3 & J4.t15

Path: J:\2016\A090070-193 HCA - East Lancs Paper Mill\Jun. Ass\J3 (Water St_Blackburn St_Spring Ln_Abden St (Sig & Tran)\J3 & J4 Transyt

Report generation date: 24/09/2018 10:32:02

»A1 - AM Peak 2018 Demand Flows : D1 - AM Peak Hour 2018 Demand Flows* :
 »A2 - PM Peak 2018 Demand Flows : D2 - PM Peak Hour 2018 Demand Flows* :
 »A3 - AM Peak Hour 2023 w/o Dev. : D3 - AM Peak Hour 2023 w/o Dev.* :
 »A4 - PM Peak Hour 2023 w/o Dev. : D4 - PM Peak Hour 2023 w/o Dev.* :
 »A5 - AM Peak Hour 2023 with Dev. : D5 - AM Peak Hour 2023 with Dev.* :
 »A6 - PM Peak Hour 2023 with Dev. : D6 - PM Peak Hour 2023 with Dev.* :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	17/09/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYGlyujing.liu
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber

Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	mph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

A1 - AM Peak 2018 Demand Flows

D1 - AM Peak Hour 2018 Demand Flows*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	24/09/2018 10:30:34	24/09/2018 10:30:35	07:15	112	869.03	51.67	96.31	3/1	2	10	3/1	12/1	3/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
AM Peak 2018 Demand Flows		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
AM Peak Hour 2018 Demand Flows				07:15	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
112		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05			1, 2			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
(ALL)	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
1	(untitled)		1
2	(untitled)		1
3	(untitled)		1
4	(untitled)		1
5	(untitled)		
7	(untitled)		
8	(untitled)		2
9	(untitled)		2
10	(untitled)		2
11	(untitled)		2
12	(untitled)		2
14	(untitled)		
15	(untitled)		
16	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
1	1	(untitled)			200.00	✓	Sum of lanes	1866			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	2000			✓		Normal	
2	1	(untitled)			200.00	✓	Sum of lanes	1807			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	1663			✓		Normal	
3	1	(untitled)		✓	326.04	✓	Sum of lanes	1781			✓		Normal	
	2	(untitled)		✓	324.65	✓	Sum of lanes	2042			✓		Normal	
4	1	(untitled)			200.00	✓	Sum of lanes	1847			✓		Normal	
5	1	(untitled)		✓	121.09								Normal	
	2	(untitled)		✓	120.81								Normal	
7	1	(untitled)		✓	116.64								Normal	
8	1	(untitled)		✓	335.30	✓	Sum of lanes	1965			✓		Normal	
	2	(untitled)		✓	337.85	✓	Sum of lanes	1773			✓		Normal	
9	1	(untitled)		✓	33.26	✓	Sum of lanes	1924	✓	1800	✓		Normal	
	2	(untitled)		✓	33.15	✓	Sum of lanes	1929	✓	1800	✓		Normal	
10	1	(untitled)			200.00	✓	Sum of lanes	1965					Normal	
11	1	(untitled)		✓	18.46	✓	Sum of lanes	1823			✓		Normal	
	2	(untitled)		✓	18.44	✓	Sum of lanes	1960			✓		Normal	
12	1	(untitled)			200.00	✓	Sum of lanes	1964					Normal	
14	1	(untitled)		✓	121.12								Normal	
15	1	(untitled)		✓	103.39								Normal	
16	1	(untitled)		✓	21.81	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
1	1	1	(untitled)		✓	N/A	N/A	0	2.51	✓	0	99999.00	✓	1866
	2	1	(untitled)		✓	N/A	N/A	0	2.69	✓	42	51.93		2000
2	1	1	(untitled)		✓	N/A	N/A	0	2.89	✓	39	10.85	✓	1807
	2	1	(untitled)		✓	N/A	N/A	0	2.85	✓	100	10.50	✓	1663
3	1	1	(untitled)		✓	N/A	N/A	0	2.94	✓	82	17.06	✓	1781
	2	1	(untitled)		✓	N/A	N/A	0	2.87	✓	0	99999.00		2042
4	1	1	(untitled)		✓	N/A	N/A	0	4.30	✓	100	13.98	✓	1847
5	1	1	(untitled)											
	2	2	(untitled)											
7	1	1	(untitled)											
8	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
	2	1	(untitled)		✓	N/A	N/A	0	3.40	✓	100	14.64	✓	1773
9	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	3	15.65	✓	1924
	2	9	(untitled)		✓	N/A	N/A	0	3.14	✓	0	99999.00	✓	1929
10	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
11	1	2	(untitled)		✓	N/A	N/A	0	3.40	✓	100	20.68	✓	1823
	2	1	(untitled)		✓	N/A	N/A	0	3.35	✓	100	22.67		1960
12	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	100	57.92	✓	1964
14	1	1	(untitled)											
15	1	1	(untitled)											
16	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
2	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
3	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
4	1	NetworkDefault	100	100	100		0.00		
5	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
7	1	NetworkDefault	100	100	100		0.00		
8	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
9	1	Flare	100	100	100		6.00		
	2	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		4.00		
	2	Flare	100	100	100		4.00		
12	1	NetworkDefault	100	100	100		0.00		
14	1	NetworkDefault	100	100	100		0.00		
15	1	NetworkDefault	100	100	100		0.00		
16	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	112

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
1	1	258	258
	2	278	278
2	1	70	70
	2	25	25
3	1	873	873
	2	916	916
4	1	357	357
5	1	198	198
	2	957	957
7	1	875	875
8	1	463	463
	2	284	284
9	1	542	542
	2	544	544
10	1	1086	1086
11	1	346	346
	2	372	372
12	1	718	718
14	1	463	463
15	1	299	299
16	1	116	116

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
1	1	1	A		
	2	1	A	✓	E
2	1	1	C		
	2	1	C		
3	1	1	B		
	2	1	B		
4	1	1	D		
8	1	2	A		
	2	2	B		
9	1	2	C		
	2	2	C		
11	1	2	D		
	2	2	D		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	(ALL)	14.91	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
3	1	1	9/1	3/1	24.31	30.00	✓	Straight	Straight Movement
	2	1	11/2	3/2	36.31	20.00	✓	Nearside	22.67
5	1	1	3/1	5/1	9.03	30.00	✓	Straight	Straight Movement
	2	1	3/2	5/2	9.01	30.00	✓	Straight	Straight Movement
7	1	1	3/1	7/1	13.05	20.00	✓	Nearside	17.06
8	1	1	2/1	8/1	37.50	20.00	✓	Nearside	10.85
	2	1	2/1	8/2	37.79	20.00	✓	Nearside	12.84
9	1	1	10/1	9/1	2.48	30.00	✓	Straight	Straight Movement
	2	1	10/1	9/2	2.47	30.00	✓	Straight	Straight Movement
11	1	1	12/1	11/1	1.38	30.00	✓	Offside	58.13
	2	1	12/1	11/2	1.37	30.00	✓	Offside	57.92
14	1	1	8/1	14/1	9.03	30.00	✓	Straight	Straight Movement
15	1	1	9/1	15/1	11.56	20.00	✓	Nearside	15.65
16	1	1	1/2	16/1	2.44	20.00	✓	Offside	51.93
3	1	2	11/1	3/1	36.47	20.00	✓	Nearside	20.68
	2	2	9/2	3/2	24.21	30.00	✓	Straight	Straight Movement
5	1	2	4/1	5/1	13.54	20.00	✓	Nearside	13.98
	2	2	4/1	5/2	13.51	20.00	✓	Nearside	15.98
7	1	2	16/1	7/1	13.05	20.00	✓	Offside	6.85
8	1	2	1/1	8/1	25.00	30.00	✓	Straight	Straight Movement
	2	2	1/2	8/2	25.19	30.00	✓	Straight	Straight Movement
15	1	2	8/2	15/1	11.56	20.00	✓	Offside	14.64
5	1	3	2/2	5/1	13.54	20.00	✓	Offside	10.50
	2	3	2/2	5/2	13.51	20.00	✓	Offside	10.50
7	1	3	2/1	7/1	8.70	30.00	✓	Straight	Straight Movement
8	1	3	4/1	8/1	37.50	20.00	✓	Offside	22.60
	2	3	4/1	8/2	37.79	20.00	✓	Offside	22.60

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
16	1	Movement	✓	0	✓	6.85	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Unopposed) (PCU/hr)	Percentage opposed (%)
16	1	1	7/1	1800	100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Upstream signals visible	Conflict shift	Conflict duration
16	1	1	7/1		TrafficStreamMovement	3/1	5/1	100		0	2
					TrafficStreamMovement	3/2	5/2	100		0	2
					TrafficStreamMovement	3/1	7/1	100		0	2

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
	1	2	3	4	5	
From	1	0	57	0	187	113
	2	116	0	0	258	162
	3	43	25	0	18	9
	4	432	639	0	0	15
	5	284	434	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	4/1	7/1	#FF0000
	2	(untitled)	1/1, 1/2	5/1, 5/2	#00FF00
	3	(untitled)	2/1, 2/2		#FFFF00
	4	(untitled)	10/1	14/1	#FFFF00
	5	(untitled)	12/1	15/1	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	6		2	1	1/2, 16/1, 7/1	Normal	116
	10		3	1	2/1, 7/1	Normal	43
	14		3	4	2/1, 8/1, 14/1	Normal	18
	15		3	5	2/1, 8/2, 15/1	Normal	9
	16		1	2	4/1, 5/1	Normal	29
	17		1	2	4/1, 5/2	Normal	29
	18		3	2	2/2, 5/2	Normal	13
	19		3	2	2/2, 5/1	Normal	13
	27		4	5	10/1, 9/1, 15/1	Normal	15
	29		5	2	12/1, 11/2, 3/2, 5/2	Normal	372
	30		4	2	10/1, 9/1, 3/1, 5/1	Normal	95
	31		4	1	10/1, 9/1, 3/1, 7/1	Normal	432
	32		4	2	10/1, 9/2, 3/2, 5/2	Normal	544
	33		5	2	12/1, 11/1, 3/1, 5/1	Normal	62
	34		5	1	12/1, 11/1, 3/1, 7/1	Normal	284
	35		2	4	1/1, 8/1, 14/1	Normal	258
	36		2	5	1/2, 8/2, 15/1	Normal	162
	37		1	5	4/1, 8/2, 15/1	Normal	113
	38		1	4	4/1, 8/1, 14/1	Normal	187

Signal Timings

Network Default: 112s cycle time; 112 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	112

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	D	1
	3	C	1
	4	A, E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1		Single	1, 2, 3, 4	26, 55, 67, 77

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7		
	B			7	7	5	
	C	6	6		5	6	
	D	6	6	5		6	
	E		5	7	7		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	4
	1				
	2				
	3				
	4				

Interstage Matrix for Controller Stream 1

	To				
	1	2	3	4	
From	1	0	7	7	5
	2	6	0	5	6
	3	6	5	0	6
	4	5	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	82	26	56	1	7
	2	✓	2	D	33	55	22	1	7
	3	✓	3	C	60	67	7	1	7
	4	✓	4	A,E	73	77	4	1	4

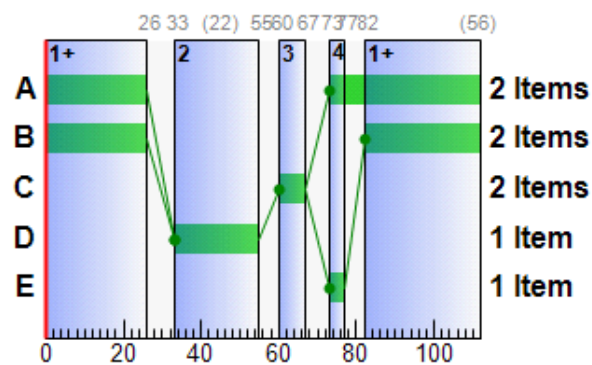
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	73	26	65
	B	1	✓	82	26	56
	C	1	✓	60	67	7
	D	1	✓	33	55	22
	E	1	✓	73	77	4

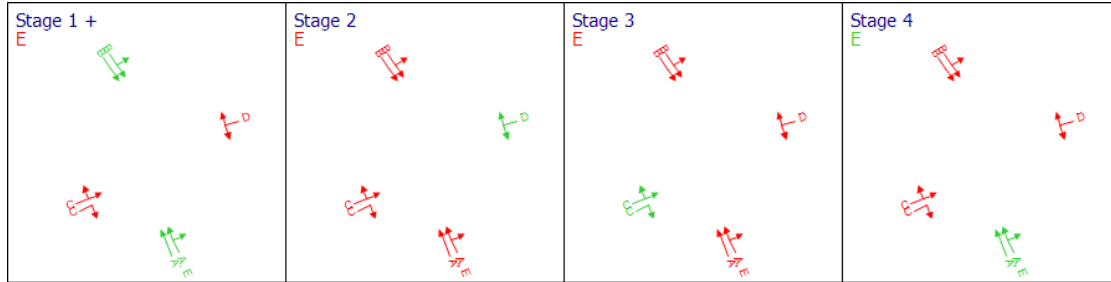
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1	1	1	A	73	26	65
1	2	1	1	A	73	26	65
2	1	1	1	C	60	67	7
2	2	1	1	C	60	67	7
3	1	1	1	B	82	26	56
3	2	1	1	B	82	26	56
4	1	1	1	D	33	55	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Controller Stream 2

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
2	(untitled)		1	NetworkDefault	112

Controller Stream 2 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
2	Unspecified						Absolute

Controller Stream 2 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
2	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
2	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	7	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Traffic	
	E	(untitled)	10	300	0	0	Pedestrian	0
	F	(untitled)	2	300	0	0	Dummy	

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
2	1	A, B, D	1
	2	A, C	1
	3	B, D, E	1

Losing / Gaining Phase Delays

Controller Stream	Delay	Type	Phase	From stage	To stage	Relative delay
2	1	Losing	D	1	2	1
	2	Losing	B	3	2	1
	3	Losing	D	3	2	2

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
2	1		Single	1, 2, 3	74, 26, 43

Intergreen Matrix for Controller Stream 2

	To						
		A	B	C	D	E	F
From	A					7	
	B			6			
	C		6		7	5	7
	D			5			
	E	7		6			7
	F			6		7	

Banned Stage transitions for Controller Stream 2

	To			
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 2

	To			
From		1	2	3
	1	0	6	7
	2	7	0	7
	3	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B,D	50	74	24	1	1
	2	✓	2	A,C	80	26	58	1	7
	3	✓	3	B,D,E	33	43	10	1	10

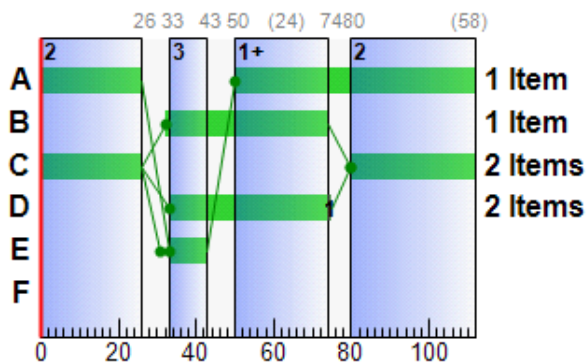
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
2	A	1	✓	50	26	88
	B	1	✓	32	74	42
	C	1	✓	80	26	58
	D	1	✓	33	75	42
	E	1	✓	33	43	10

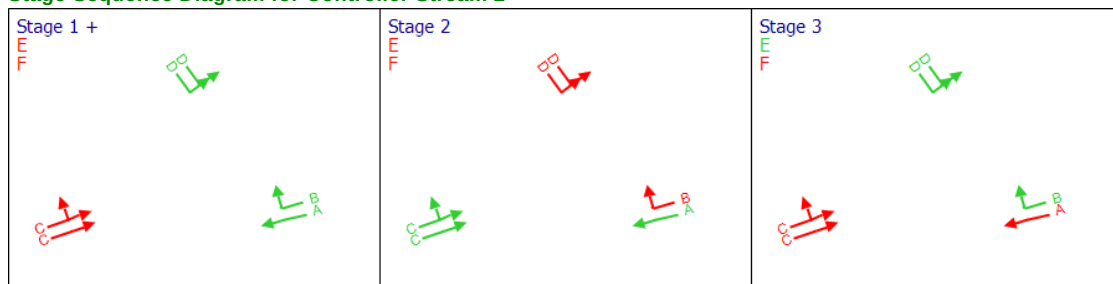
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
8	1	2	2	A	50	26	88
8	2	2	2	B	32	74	42
9	1	2	2	C	80	26	58
9	2	2	2	C	80	26	58
11	1	2	2	D	33	75	42
11	2	2	2	D	33	75	42

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
07:15-08:15	(ALL)	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
07:15-08:15	1	1	(untitled)	A	258	1866	65	1100	23	284	11.47	3.83	11.02	26.38
		2	(untitled)	A	278	2000	65	1179	24	282	11.45	4.13	11.87	26.36
	2	1	(untitled)	C	70	1807	7	129	54	66	66.31	2.41	6.94	81.22
		2	(untitled)	C	26	1663	7	119	22	311	53.34	0.79	2.27	68.25
	3	1	(untitled)	B	873	1781	56	906	96	-7	49.85	33.92	59.82	78.98
		2	(untitled)	B	916	2042	56	1039	88	2	26.53	27.11	48.01	55.66
	4	1	(untitled)	D	358	1847	22	379	94	-5	94.88	16.01	46.03	109.80
		2	(untitled)		199	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.98
	5	1	(untitled)		958	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.21
		2	(untitled)		875	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.83
	8	1	(untitled)	A	463	1965	88	1561	30	204	2.02	1.80	3.10	32.55
		2	(untitled)	B	284	1773	42	681	42	116	40.97	7.86	13.38	71.57
	9	1	(untitled)	C	542	1924	58	1014	53	68	13.98	5.12	85.28	16.46
		2	(untitled)	C	544	1929	58	1016	54	68	13.98	5.13	85.57	16.45
	10	1	(untitled)		1086	1965	112	1463	74	21	10.99	20.06	57.69	25.90
		2	(untitled)	D	346	1823	42	700	49	82	16.29	3.02	75.41	17.66
	11	1	(untitled)		372	1960	42	753	49	82	16.11	3.22	80.62	17.49
		2	(untitled)		718	1964	112	860	83	8	25.72	21.77	62.59	40.64
	12	1	(untitled)		463	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.03
		2	(untitled)		299	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	11.56
	13	1	(untitled)		116	885	112	885	13	587	19.40	2.02	100.96	21.84

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	82	26	56	1	7
	2	✓	2	D	33	55	22	1	7
	3	✓	3	C	60	67	7	1	7
	4	✓	4	A,E	73	77	4	1	4
2	1	✓	1	A,B,D	50	74	24	1	1
	2	✓	2	A,C	80	26	58	1	7
	3	✓	3	B,D,E	33	43	10	1	10

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow
2	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	10	300	0	0	Pedestrian
	F	F	2	300	0	0	Dummy

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
1	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1866	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2000	100	100
2	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1807	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1663	100	100
3	1	✓	326.04	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1781	100	100
	2	✓	324.65	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2042	100	100
4	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1847	100	100
5	1	✓	121.09	NetworkDefault	0.00	Normal						100	100
	2	✓	120.81	NetworkDefault	0.00	Normal						100	100
7	1	✓	116.64	NetworkDefault	0.00	Normal						100	100
8	1	✓	335.30	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1965	100	100
	2	✓	337.85	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1773	100	100
9	1	✓	33.26	Flare	6.00	Normal	✓	✓		Sum of lanes	1924	100	100
	2	✓	33.15	Flare	6.00	Normal	✓	✓		Sum of lanes	1929	100	100
10	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1965	100	100
11	1	✓	18.46	Flare	4.00	Normal	✓	✓		Sum of lanes	1823	100	100
	2	✓	18.44	Flare	4.00	Normal	✓	✓		Sum of lanes	1960	100	100
12	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1964	100	100
14	1	✓	121.12	NetworkDefault	0.00	Normal						100	100
15	1	✓	103.39	NetworkDefault	0.00	Normal						100	100
16	1	✓	21.81	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:15-08:15	1	1	23	284	258	1866	65	11.47	3.83	11.02	11.67	3.82	15.49
		2	24	282	278	2000	65	11.45	4.13	11.87	12.55	4.12	16.67
	2	1	54	66	70	1807	7	66.31	2.41	6.94	18.31	2.46	20.77
		2	22	311	26	1663	7	53.34	0.79	2.27	5.47	0.81	6.28
	3	1	96	-7	873	1781	56	49.85	33.92	59.82	171.66	24.71	196.37
		2	88	2	916	2042	56	26.53	27.11	48.01	95.87	18.55	114.42
	4	1	94	-5	358	1847	22	94.88	16.01	46.03	133.99	15.88	149.87
	5	1	0	Unrestricted	199	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	958	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	0	Unrestricted	875	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	30	204	463	1965	88	2.02	1.80	3.10	3.68	1.74	5.42
		2	42	116	284	1773	42	40.97	7.86	13.38	45.89	6.34	52.23
	9	1	53	68	542	1924	58	13.98	5.12	85.28	29.89	5.34	35.22
		2	54	68	544	1929	58	13.98	5.13	85.57	30.00	5.36	35.36
	10	1	74	21	1086	1965	112	10.99	20.06	57.69	47.08	18.92	66.00
	11	1	49	82	346	1823	42	16.29	3.02	75.41	22.23	3.15	25.37
		2	49	82	372	1960	42	16.11	3.22	80.62	23.64	3.37	27.00
	12	1	83	8	718	1964	112	25.72	21.77	62.59	72.85	19.82	92.67
	14	1	0	Unrestricted	463	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	0	Unrestricted	299	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	13	587	116	885	112	19.40	2.02	100.96	8.88	0.99	9.86

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
07:15-08:15	1	1	258	258	0		1866	1100	23		284	0.00	65
		2	278	278	0		2000	1179	24		282	0.00	65
	2	1	70	70	0		1807	129	54		66	0.00	7
		2	26	26	-1	✓	1663	119	22		311	0.00	7
	3	1	873	873	0		1781	906	96	✓	-7	0.35	56
		2	916	916	0		2042	1039	88		2	0.35	56
	4	1	358	358	-1		1847	379	94	✓	-5	0.00	22
		2	199	199	-1	✓	Unrestricted	Unrestricted	0		Unrestricted	0.54	112
	5	1	958	958	-1	✓	Unrestricted	Unrestricted	0		Unrestricted	0.85	112
		2	875	875	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	112
	8	1	463	463	0		1965	1561	30		204	0.55	88
		2	284	284	0		1773	681	42		116	0.54	42
	9	1	542	542	0		1924	1014	53		68	0.47	58
		2	544	544	0		1929	1016	54		68	0.47	58
	10	1	1086	1086	0		1965	1463	74		21	0.00	112
		2	346	346	0		1823	700	49		82	0.81	42
	11	1	372	372	0		1960	753	49		82	0.81	42
		2	718	718	0		1964	860	83		8	0.00	112
	14	1	463	463	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	112
		2	299	299	0		Unrestricted	Unrestricted	0		Unrestricted	1.23	112
	16	1	116	116	0		885	885	13		587	0.81	112

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:15-08:15	1	1	14.91	11.47	0.82	11.67	45.61	117.68	3.82
		2	14.91	11.45	0.88	12.55	45.61	126.80	4.12
	2	1	14.91	66.31	1.29	18.31	108.31	75.82	2.46
		2	14.91	53.34	0.39	5.47	95.69	24.88	0.81
	3	1	29.13	49.85	12.09	171.66	115.02	1004.14	24.71
		2	29.12	26.53	6.75	95.87	86.33	790.79	18.55
	4	1	14.91	94.88	9.44	133.99	136.62	489.09	15.88
		2	9.98	0.00	0.00	0.00	0.00	0.00	0.00
	5	1	9.21	0.00	0.00	0.00	0.00	0.00	0.00
		2	9.21	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	12.83	0.00	0.00	0.00	0.00	0.00	0.00
		2	30.54	2.02	0.26	3.68	11.75	54.42	1.74
	8	1	30.60	40.97	3.23	45.89	87.91	249.66	6.34
		2	2.48	13.98	2.10	29.89	30.33	164.37	5.34
	9	1	2.47	13.98	2.11	30.00	30.33	164.97	5.36
		2	14.91	10.99	3.32	47.08	53.63	582.47	18.92
	10	1	1.38	16.29	1.57	22.23	28.01	96.92	3.15
		2	1.37	16.11	1.66	23.64	27.86	103.63	3.37
	11	1	14.91	25.72	5.13	72.85	85.00	610.31	19.82
		2	9.03	0.00	0.00	0.00	0.00	0.00	0.00
	14	1	11.56	0.00	0.00	0.00	0.00	0.00	0.00
		2	2.44	19.40	0.63	8.88	58.85	68.26	0.99

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
07:15-08:15	1	1	0.00	3.83	34.78	11.02	0.00	0.00	
		2	0.00	4.13	34.78	11.87	0.00	2.00	
	2	1	0.00	2.41	34.78	6.94	0.00	0.00	
		2	0.00	0.79	34.78	2.27	0.00	6.00	
	3	1	0.00	33.92	56.70	59.82	0.00	0.00	
		2	0.00	27.11	56.46	48.01	0.00	0.00	
	4	1	0.00	16.01	34.78	46.03	0.00	0.00	
		2	0.00	0.00	21.06	0.00	0.00	20.00	
	5	1	0.00	0.00	21.01	0.00	0.00	14.00	
		2	0.00	0.00	20.28	0.00	0.00	19.00	
	8	1	0.00	1.80	58.31	3.10	0.00	6.00	
		2	0.00	7.86	58.76	13.38	0.00	9.00	
	9	1	0.00	5.12	6.00	85.28	0.00	0.00	
		2	0.00	5.13	6.00	85.57	0.00	0.00	
	10	1	0.00	20.06	34.78	57.69	0.00	28.63	
	11	1	0.00	3.02	4.00	75.41	0.00	0.00	
		2	0.00	3.22	4.00	80.62	0.00	0.00	
	12	1	0.00	21.77	34.78	62.59	0.00	62.94	
	14	1	0.00	0.00	21.06	0.00	0.00	19.00	
	15	1	0.00	0.00	17.98	0.00	0.00	59.00	
	16	1	0.00	2.02	2.00	100.96	0.00	43.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
07:15-08:15	10	1	✓	CTM flare: 10/1,9/1,9/2	89	30.32	1219	1
	12	1	✓	CPDM flare: 12/1,11/2,11/1	85	28.01	842	6

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
07:15-08:15	1	1	0.00	0.00	✓	0.00	3.83	0.04	3.33	1.00	0.00	15.49
		2	0.00	0.00	✓	0.00	4.13	0.04	3.59	1.00	0.00	16.67
	2	1	0.00	0.00	✓	0.00	2.42	0.32	2.34	1.00	0.00	20.77
		2	0.00	0.00	✓	0.00	0.79	0.03	0.78	1.00	0.00	6.28
	3	1	0.00	0.00	✓	0.00	35.35	9.57	18.32	1.00	0.00	196.37
		2	0.00	0.00	✓	0.00	27.20	3.17	12.38	1.00	0.00	114.42
	4	1	0.00	0.00	✓	0.00	16.93	5.99	14.84	1.00	0.00	149.87
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	5	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	7	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	1.81	0.06	1.69	1.00	0.00	5.42
	8	1	0.00	0.00	✓	0.00	7.86	0.15	7.18	1.00	0.00	52.23
		2	0.00	0.00	✓	0.00	5.12	0.31	5.12	1.00	0.00	35.22
	9	1	0.00	0.00	✓	0.00	5.13	0.31	5.13	1.00	0.00	35.36
		2	0.00	0.00	✓	0.00	20.07			1.00	0.00	66.00
	11	1	0.00	0.00	✓	0.00	3.02	0.24	3.02	1.00	0.00	25.37
		2	0.00	0.00	✓	0.00	3.23	0.24	3.23	1.00	0.00	27.00
	12	1	0.00	0.00	✓	0.00	21.81			1.00	0.00	92.67
	14	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	15	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	16	1	0.00	0.00	✓	0.00	2.02			1.00	0.00	9.86

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	24/09/2018 10:30:34	24/09/2018 10:30:35	07:15	112	869.03	51.67	96.31	3/1	2	10	3/1	12/1	3/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:15-08:15	96	-7	10044	1504	18.52	733.67	135.36	869.03

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
07:15-08:15	10044	10044	-4	✓	96	✓	-7	1504

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:15-08:15	14.96	18.52	51.67	733.67	47.04	4724.21	135.36

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s per cycle)
07:15-08:15	100.96	0.00	288.57

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
07:15-08:15	0.00	0.00	✓	0.00	1.00	0.00	0.00	869.03

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	123.3	0.0	156.9	206.4
	2	61.3	0.0	0.0	63.6	99.2
	3	89.9	81.8	0.0	128.4	180.9
	4	130.0	106.0	0.0	0.0	53.9
	5	156.9	132.8	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
6	2	1	116	61.25	116	61.25
10	3	1	43	89.92	43	89.92
14	3	4	18	128.44	18	128.44
15	3	5	9	180.95	9	180.95
16	1	2	29	123.34	29	123.34
17	1	2	29	123.31	29	123.31
18	3	2	13	81.77	13	81.77
19	3	2	13	81.80	13	81.80
27	4	5	15	53.93	15	53.93
29	5	2	372	129.40	372	129.40
30	4	2	95	126.02	95	126.02
31	4	1	432	130.04	432	130.04
32	4	2	544	102.50	544	102.50
33	5	2	62	152.93	62	152.93
34	5	1	284	156.95	284	156.95
35	2	4	258	63.60	258	63.60
36	2	5	162	99.21	162	99.21
37	1	5	113	206.36	113	206.36
38	1	4	187	156.86	187	156.86

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
				Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
1	1	(untitled)	1	1	A		258	1866	65	0.00	23	284	26.38	11.47	45.61	
	2	(untitled)	1	1	A	E	278	2000	65	2.00	24	282	26.36	11.45	45.61	
2	1	(untitled)	1	1	C		70	1807	7	0.00	54	66	81.22	66.31	108.31	
	2	(untitled)	1	1	C		26	1663	7	6.00	22	311	68.25	53.34	95.69	
3	1	(untitled)	1	1	B		873	1781	56	0.00	96	-7	78.98	49.85	115.02	
	2	(untitled)	1	1	B		916	2042	56	0.00	88	2	55.66	26.53	86.33	
4	1	(untitled)	1	1	D		358	1847	22	0.00	94	-5	109.80	94.88	136.62	
5	1	(untitled)					199	Unrestricted	112	20.00	0	Unrestricted	9.98	0.00	0.00	
	2	(untitled)					958	Unrestricted	112	14.00	0	Unrestricted	9.21	0.00	0.00	
7	1	(untitled)					875	Unrestricted	112	19.00	0	Unrestricted	12.83	0.00	0.00	
8	1	(untitled)	2	2	A		463	1965	88	6.00	30	204	32.55	2.02	11.75	
	2	(untitled)	2	2	B		284	1773	42	9.00	42	116	71.57	40.97	87.91	
9	1	(untitled)	2	2	C		542	1924	58	0.00	53	68	16.46	13.98	30.33	
	2	(untitled)	2	2	C		544	1929	58	0.00	54	68	16.45	13.98	30.33	
10	1	(untitled)	2				1086	1965	112	28.63	74	21	25.90	10.99	53.63	
11	1	(untitled)	2	2	D		346	1823	42	0.00	49	82	17.66	16.29	28.01	
	2	(untitled)	2	2	D		372	1960	42	0.00	49	82	17.49	16.11	27.86	
12	1	(untitled)	2				718	1964	112	62.94	83	8	40.64	25.72	85.00	
14	1	(untitled)					463	Unrestricted	112	19.00	0	Unrestricted	9.03	0.00	0.00	
15	1	(untitled)					299	Unrestricted	112	59.00	0	Unrestricted	11.56	0.00	0.00	
16	1	(untitled)	1				116 <	885	112	43.00	13	587	21.84	19.40	58.85	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1772.72	93.40	11.79	51.67	733.67	135.36	0.00	869.03
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1772.72	93.40	11.79	51.67	733.67	135.36	0.00	869.03

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A2 - PM Peak 2018 Demand Flows

D2 - PM Peak Hour 2018 Demand Flows*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	24/09/2018 10:30:35	24/09/2018 10:30:36	17:00	120	937.01	56.59	93.70	2/1	3	14	2/1	10/1	2/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
PM Peak 2018 Demand Flows		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
PM Peak Hour 2018 Demand Flows				17:00	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05			1, 2			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
(ALL)	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
1	(untitled)		1
2	(untitled)		1
3	(untitled)		1
4	(untitled)		1
5	(untitled)		
7	(untitled)		
8	(untitled)		2
9	(untitled)		2
10	(untitled)		2
11	(untitled)		2
12	(untitled)		2
14	(untitled)		
15	(untitled)		
16	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
1	1	(untitled)			200.00	✓	Sum of lanes	1866			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	2019			✓		Normal	
2	1	(untitled)			200.00	✓	Sum of lanes	1745			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	1663			✓		Normal	
3	1	(untitled)		✓	326.04	✓	Sum of lanes	1798			✓		Normal	
	2	(untitled)		✓	324.65	✓	Sum of lanes	2042			✓		Normal	
4	1	(untitled)			200.00	✓	Sum of lanes	1847			✓		Normal	
5	1	(untitled)		✓	121.09								Normal	
	2	(untitled)		✓	120.81								Normal	
7	1	(untitled)		✓	116.64								Normal	
8	1	(untitled)		✓	335.30	✓	Sum of lanes	1965			✓		Normal	
	2	(untitled)		✓	337.85	✓	Sum of lanes	1773			✓		Normal	
9	1	(untitled)		✓	33.26	✓	Sum of lanes	1892	✓	1800	✓		Normal	
	2	(untitled)		✓	33.15	✓	Sum of lanes	1929	✓	1800	✓		Normal	
10	1	(untitled)			200.00	✓	Sum of lanes	1965					Normal	
11	1	(untitled)		✓	18.46	✓	Sum of lanes	1823			✓		Normal	
	2	(untitled)		✓	18.44	✓	Sum of lanes	1960			✓		Normal	
12	1	(untitled)			200.00	✓	Sum of lanes	1964					Normal	
14	1	(untitled)		✓	121.12								Normal	
15	1	(untitled)		✓	103.39								Normal	
16	1	(untitled)		✓	21.81	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
1	1	1	(untitled)		✓	N/A	N/A	0	2.51	✓	0	99999.00	✓	1866
	2	1	(untitled)		✓	N/A	N/A	0	2.69	✓	9	51.93		2019
2	1	1	(untitled)		✓	N/A	N/A	0	2.89	✓	66	10.85	✓	1745
	2	1	(untitled)		✓	N/A	N/A	0	2.85	✓	100	10.50	✓	1663
3	1	1	(untitled)		✓	N/A	N/A	0	2.94	✓	70	17.06	✓	1798
	2	1	(untitled)		✓	N/A	N/A	0	2.87	✓	0	99999.00		2042
4	1	1	(untitled)		✓	N/A	N/A	0	4.30	✓	100	13.98	✓	1847
5	1	1	(untitled)											
	2	2	(untitled)											
7	1	1	(untitled)											
8	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
	2	1	(untitled)		✓	N/A	N/A	0	3.40	✓	100	14.64	✓	1773
9	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	21	15.65	✓	1892
	2	9	(untitled)		✓	N/A	N/A	0	3.14	✓	0	99999.00	✓	1929
10	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
11	1	2	(untitled)		✓	N/A	N/A	0	3.40	✓	100	20.68	✓	1823
	2	1	(untitled)		✓	N/A	N/A	0	3.35	✓	100	22.67		1960
12	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	100	57.92	✓	1964
14	1	1	(untitled)											
15	1	1	(untitled)											
16	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
2	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
3	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
4	1	NetworkDefault	100	100	100		0.00		
5	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
7	1	NetworkDefault	100	100	100		0.00		
8	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
9	1	Flare	100	100	100		6.00		
	2	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		4.00		
	2	Flare	100	100	100		4.00		
12	1	NetworkDefault	100	100	100		0.00		
14	1	NetworkDefault	100	100	100		0.00		
15	1	NetworkDefault	100	100	100		0.00		
16	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
1	1	661	661
	2	609	609
2	1	109	109
	2	26	26
3	1	402	402
	2	479	479
4	1	720	720
5	1	157	157
	2	517	517
7	1	376	376
8	1	1072	1072
	2	884	884
9	1	282	282
	2	287	287
10	1	569	569
11	1	179	179
	2	192	192
12	1	371	371
14	1	1072	1072
15	1	943	943
16	1	57	57

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
1	1	1	A		
	2	1	A	✓	E
2	1	1	C		
	2	1	C		
3	1	1	B		
	2	1	B		
4	1	1	D		
8	1	2	A		
	2	2	B		
9	1	2	C		
	2	2	C		
11	1	2	D		
	2	2	D		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	(ALL)	14.91	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
3	1	1	9/1	3/1	24.31	30.00	✓	Straight	Straight Movement
	2	1	11/2	3/2	36.31	20.00	✓	Nearside	22.67
5	1	1	3/1	5/1	9.03	30.00	✓	Straight	Straight Movement
	2	1	3/2	5/2	9.01	30.00	✓	Straight	Straight Movement
7	1	1	3/1	7/1	13.05	20.00	✓	Nearside	17.06
8	1	1	2/1	8/1	37.50	20.00	✓	Nearside	10.85
	2	1	2/1	8/2	37.79	20.00	✓	Nearside	12.84
9	1	1	10/1	9/1	2.48	30.00	✓	Straight	Straight Movement
	2	1	10/1	9/2	2.47	30.00	✓	Straight	Straight Movement
11	1	1	12/1	11/1	1.38	30.00	✓	Offside	58.13
	2	1	12/1	11/2	1.37	30.00	✓	Offside	57.92
14	1	1	8/1	14/1	9.03	30.00	✓	Straight	Straight Movement
15	1	1	9/1	15/1	11.56	20.00	✓	Nearside	15.65
16	1	1	1/2	16/1	2.44	20.00	✓	Offside	51.93
3	1	2	11/1	3/1	36.47	20.00	✓	Nearside	20.68
	2	2	9/2	3/2	24.21	30.00	✓	Straight	Straight Movement
5	1	2	4/1	5/1	13.54	20.00	✓	Nearside	13.98
	2	2	4/1	5/2	13.51	20.00	✓	Nearside	15.98
7	1	2	16/1	7/1	13.05	20.00	✓	Offside	6.85
8	1	2	1/1	8/1	25.00	30.00	✓	Straight	Straight Movement
	2	2	1/2	8/2	25.19	30.00	✓	Straight	Straight Movement
15	1	2	8/2	15/1	11.56	20.00	✓	Offside	14.64
5	1	3	2/2	5/1	13.54	20.00	✓	Offside	10.50
	2	3	2/2	5/2	13.51	20.00	✓	Offside	10.50
7	1	3	2/1	7/1	8.70	30.00	✓	Straight	Straight Movement
8	1	3	4/1	8/1	37.50	20.00	✓	Offside	22.60
	2	3	4/1	8/2	37.79	20.00	✓	Offside	22.60

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
16	1	Movement	✓	0	✓	6.85	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Unopposed) (PCU/hr)	Percentage opposed (%)
16	1	1	7/1	1800	100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Upstream signals visible	Conflict shift	Conflict duration
16	1	1	7/1		TrafficStreamMovement	3/1	5/1	100		0	2
					TrafficStreamMovement	3/2	5/2	100		0	2
					TrafficStreamMovement	3/1	7/1	100		0	2

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
	1	2	3	4	5	
From	1	0	49	0	370	301
	2	57	0	0	661	552
	3	37	26	0	41	31
	4	166	344	0	0	59
	5	116	255	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	4/1	7/1	#FF0000
	2	(untitled)	1/1, 1/2	5/1, 5/2	#00FF00
	3	(untitled)	2/1, 2/2		#FFFF00
	4	(untitled)	10/1	14/1	#FFFF00
	5	(untitled)	12/1	15/1	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	6		2	1	1/2, 16/1, 7/1	Normal	57
	10		3	1	2/1, 7/1	Normal	37
	14		3	4	2/1, 8/1, 14/1	Normal	41
	15		3	5	2/1, 8/2, 15/1	Normal	31
	16		1	2	4/1, 5/1	Normal	25
	17		1	2	4/1, 5/2	Normal	25
	18		3	2	2/2, 5/2	Normal	13
	19		3	2	2/2, 5/1	Normal	13
	27		4	5	10/1, 9/1, 15/1	Normal	59
	29		5	2	12/1, 11/2, 3/2, 5/2	Normal	192
	30		4	2	10/1, 9/1, 3/1, 5/1	Normal	57
	31		4	1	10/1, 9/1, 3/1, 7/1	Normal	166
	32		4	2	10/1, 9/2, 3/2, 5/2	Normal	287
	33		5	2	12/1, 11/1, 3/1, 5/1	Normal	63
	34		5	1	12/1, 11/1, 3/1, 7/1	Normal	116
	35		2	4	1/1, 8/1, 14/1	Normal	661
	36		2	5	1/2, 8/2, 15/1	Normal	552
	37		1	5	4/1, 8/2, 15/1	Normal	301
	38		1	4	4/1, 8/1, 14/1	Normal	370

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	D	1
	3	C	1
	4	A, E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1		Single	1, 2, 3, 4	85, 22, 34, 44

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7		
	B			7	7	5	
	C	6	6		5	6	
	D	6	6	5		6	
	E		5	7	7		

Banned Stage transitions for Controller Stream 1

		To				
From		1	2	3	4	
	1					
	2					
	3					
	4					

Interstage Matrix for Controller Stream 1

	To				
	1	2	3	4	
From	1	0	7	7	5
	2	6	0	5	6
	3	6	5	0	6
	4	5	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	49	85	36	1	7
	2	✓	2	D	92	22	50	1	7
	3	✓	3	C	27	34	7	1	7
	4	✓	4	A,E	40	44	4	1	4

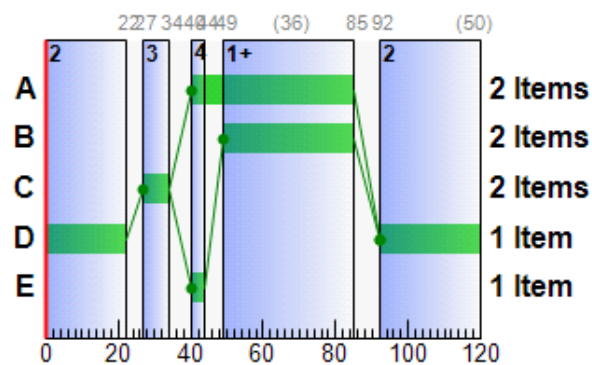
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	40	85	45
	B	1	✓	49	85	36
	C	1	✓	27	34	7
	D	1	✓	92	22	50
	E	1	✓	40	44	4

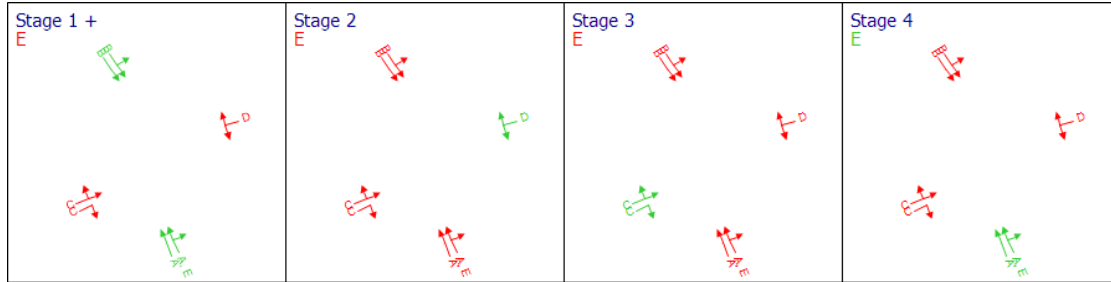
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1	1	1	A	40	85	45
1	2	1	1	A	40	85	45
2	1	1	1	C	27	34	7
2	2	1	1	C	27	34	7
3	1	1	1	B	49	85	36
3	2	1	1	B	49	85	36
4	1	1	1	D	92	22	50

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Controller Stream 2

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
2	(untitled)		1	NetworkDefault	120

Controller Stream 2 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
2	Unspecified						Absolute

Controller Stream 2 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
2	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
2	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	7	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Traffic	
	E	(untitled)	10	300	0	0	Pedestrian	0
	F	(untitled)	2	300	0	0	Dummy	

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
2	1	A, B, D	1
	2	A, C	1
	3	B, D, E	1

Losing / Gaining Phase Delays

Controller Stream	Delay	Type	Phase	From stage	To stage	Relative delay
2	1	Losing	D	1	2	1
	2	Losing	B	3	2	1
	3	Losing	D	3	2	2

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
2	1		Single	1, 2, 3	108, 26, 43

Intergreen Matrix for Controller Stream 2

	To						
		A	B	C	D	E	F
From	A					7	
	B			6			
	C		6		7	5	7
	D			5			
	E	7		6			7
	F			6		7	

Banned Stage transitions for Controller Stream 2

	To			
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 2

	To			
From		1	2	3
	1	0	6	7
	2	7	0	7
	3	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B,D	50	108	58	1	1
	2	✓	2	A,C	114	26	32	1	7
	3	✓	3	B,D,E	33	43	10	1	10

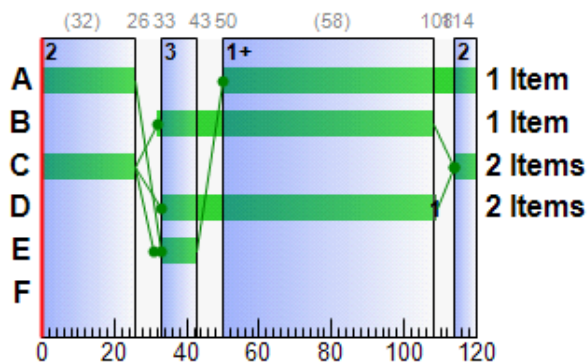
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
2	A	1	✓	50	26	96
	B	1	✓	32	108	76
	C	1	✓	114	26	32
	D	1	✓	33	109	76
	E	1	✓	33	43	10

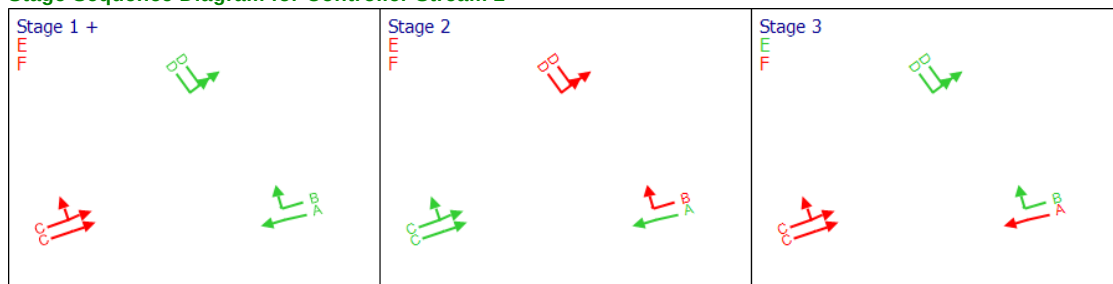
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
8	1	2	2	A	50	26	96
8	2	2	2	B	32	108	76
9	1	2	2	C	114	26	32
9	2	2	2	C	114	26	32
11	1	2	2	D	33	109	76
11	2	2	2	D	33	109	76

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	(ALL)	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
17:00-18:00	1	1	(untitled)	A	661	1866	45	715	92	-3	60.74	25.60	73.59	75.66
		2	(untitled)	A	609	2019	45	774	79	14	41.04	19.18	55.13	55.95
	2	1	(untitled)	C	109	1745	7	116	94	-4	163.40	6.86	19.73	178.31
		2	(untitled)	C	26	1663	7	111	23	284	58.08	0.85	2.45	73.00
	3	1	(untitled)	B	402	1798	36	554	73	24	41.06	13.14	23.17	70.78
		2	(untitled)	B	479	2042	36	630	76	18	42.06	16.11	28.53	71.12
	4	1	(untitled)	D	721	1847	50	785	92	-2	54.68	27.07	77.81	69.60
	5	1	(untitled)		158	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	10.11
		2	(untitled)		517	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.34
	7	1	(untitled)		376	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.62
	8	1	(untitled)	A	1072	1965	96	1588	67	33	5.49	13.30	22.81	35.28
		2	(untitled)	B	884	1773	76	1138	78	16	10.12	10.72	18.24	40.04
	9	1	(untitled)	C	282	1892	32	520	54	66	35.18	5.13	85.48	37.66
		2	(untitled)	C	287	1929	32	530	54	66	35.09	5.14	85.72	37.56
	10	1	(untitled)		569	1965	120	1388	41	120	7.20	7.89	22.68	22.11
	11	1	(untitled)	D	179	1823	76	1170	15	488	7.80	1.89	47.19	9.17
		2	(untitled)	D	192	1960	76	1258	15	490	7.78	2.02	50.59	9.15
	12	1	(untitled)		371	1964	120	1326	28	222	1.64	5.00	14.38	16.56
	14	1	(untitled)		1072	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.03
	15	1	(untitled)		943	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	11.56
	16	1	(untitled)		57	1310	120	1310	4	1969	13.63	1.38	69.14	16.07

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	49	85	36	1	7
	2	✓	2	D	92	22	50	1	7
	3	✓	3	C	27	34	7	1	7
	4	✓	4	A,E	40	44	4	1	4
2	1	✓	1	A,B,D	50	108	58	1	1
	2	✓	2	A,C	114	26	32	1	7
	3	✓	3	B,D,E	33	43	10	1	10

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow
2	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	10	300	0	0	Pedestrian
	F	F	2	300	0	0	Dummy

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
1	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1866	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2019	100	100
2	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1745	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1663	100	100
3	1	✓	326.04	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1798	100	100
	2	✓	324.65	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2042	100	100
4	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1847	100	100
5	1	✓	121.09	NetworkDefault	0.00	Normal						100	100
	2	✓	120.81	NetworkDefault	0.00	Normal						100	100
7	1	✓	116.64	NetworkDefault	0.00	Normal						100	100
8	1	✓	335.30	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1965	100	100
	2	✓	337.85	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1773	100	100
9	1	✓	33.26	Flare	6.00	Normal	✓	✓		Sum of lanes	1892	100	100
	2	✓	33.15	Flare	6.00	Normal	✓	✓		Sum of lanes	1929	100	100
10	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1965	100	100
11	1	✓	18.46	Flare	4.00	Normal	✓	✓		Sum of lanes	1823	100	100
	2	✓	18.44	Flare	4.00	Normal	✓	✓		Sum of lanes	1960	100	100
12	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1964	100	100
14	1	✓	121.12	NetworkDefault	0.00	Normal						100	100
15	1	✓	103.39	NetworkDefault	0.00	Normal						100	100
16	1	✓	21.81	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	92	-3	661	1866	45	60.74	25.60	73.59	158.37	24.13	182.50
		2	79	14	609	2019	45	41.04	19.18	55.13	98.57	18.21	116.79
	2	1	94	-4	109	1745	7	163.40	6.86	19.73	70.25	6.01	76.26
		2	23	284	26	1663	7	58.08	0.85	2.45	5.96	0.82	6.77
	3	1	73	24	402	1798	36	41.06	13.14	23.17	65.10	9.86	74.96
		2	76	18	479	2042	36	42.06	16.11	28.53	79.46	12.40	91.86
	4	1	92	-2	721	1847	50	54.68	27.07	77.81	155.51	25.40	180.92
	5	1	0	Unrestricted	158	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	517	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	0	Unrestricted	376	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	67	33	1072	1965	96	5.49	13.30	22.81	23.21	5.15	28.36
		2	78	16	884	1773	76	10.12	10.72	18.24	35.30	7.04	42.33
	9	1	54	66	282	1892	32	35.18	5.13	85.48	39.13	4.93	44.06
		2	54	66	287	1929	32	35.09	5.14	85.72	39.73	5.01	44.74
	10	1	41	120	569	1965	120	7.20	7.89	22.68	16.16	6.88	23.04
	11	1	15	488	179	1823	76	7.80	1.89	47.19	5.50	1.84	7.35
		2	15	490	192	1960	76	7.78	2.02	50.59	5.89	1.97	7.86
	12	1	28	222	371	1964	120	1.64	5.00	14.38	2.40	3.13	5.53
	14	1	0	Unrestricted	1072	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	0	Unrestricted	943	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	4	1969	57	1310	120	13.63	1.38	69.14	3.06	0.63	3.70

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	1	1	661	661	0		1866	715	92	✓	-3	0.00	45
		2	609	609	0		2019	774	79		14	0.00	45
	2	1	109	109	0		1745	116	94	✓	-4	0.00	7
		2	26	26	0		1663	111	23		284	0.00	7
	3	1	402	402	0		1798	554	73		24	0.63	36
		2	479	479	0		2042	630	76		18	0.68	36
	4	1	721	721	-1	✓	1847	785	92	✓	-2	0.00	50
	5	1	158	158	-1	✓	Unrestricted	Unrestricted	0		Unrestricted	0.92	120
		2	517	517	0	✓	Unrestricted	Unrestricted	0		Unrestricted	1.22	120
	7	1	376	376	0		Unrestricted	Unrestricted	0		Unrestricted	1.08	120
	8	1	1072	1072	0		1965	1588	67		33	0.47	96
		2	884	884	0		1773	1138	78		16	0.52	76
	9	1	282	282	0		1892	520	54		66	0.52	32
		2	287	287	0		1929	530	54		66	0.52	32
	10	1	569	569	0		1965	1388	41		120	0.00	120
	11	1	179	179	0		1823	1170	15		488	0.14	76
		2	192	192	0		1960	1258	15		490	0.14	76
	12	1	371	371	0		1964	1326	28		222	0.00	120
	14	1	1072	1072	0		Unrestricted	Unrestricted	0		Unrestricted	0.66	120
	15	1	943	943	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	120
	16	1	57	57	0		1310	1310	4		1969	1.22	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	1	1	14.91	60.74	11.15	158.37	112.41	743.00	24.13
		2	14.91	41.04	6.94	98.57	92.08	560.78	18.21
	2	1	14.91	163.40	4.95	70.25	169.70	184.97	6.01
		2	14.91	58.08	0.42	5.96	96.57	25.11	0.82
	3	1	29.72	41.06	4.58	65.10	95.98	385.84	9.86
		2	29.06	42.06	5.60	79.46	99.15	474.93	12.40
	4	1	14.91	54.68	10.95	155.51	108.50	782.28	25.40
	5	1	10.11	0.00	0.00	0.00	0.00	0.00	0.00
		2	9.34	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	12.62	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	29.79	5.49	1.63	23.21	27.67	296.64	5.15
		2	29.92	10.12	2.49	35.30	40.51	358.07	7.04
	9	1	2.48	35.18	2.76	39.13	53.81	151.75	4.93
		2	2.47	35.09	2.80	39.73	53.74	154.22	5.01
	10	1	14.91	7.20	1.14	16.16	37.21	211.72	6.88
	11	1	1.38	7.80	0.39	5.50	31.68	56.70	1.84
		2	1.37	7.78	0.41	5.89	31.66	60.78	1.97
	12	1	14.91	1.64	0.17	2.40	25.97	96.37	3.13
	14	1	9.03	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	11.56	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	2.44	13.63	0.22	3.06	76.77	43.76	0.63

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
17:00-18:00	1	1	0.00	25.60	34.78	73.59	0.00	0.00	
		2	0.00	19.18	34.78	55.13	0.00	0.00	
	2	1	0.00	6.86	34.78	19.73	0.00	0.00	
		2	0.00	0.85	34.78	2.45	0.00	6.00	
	3	1	0.00	13.14	56.70	23.17	0.00	0.00	
		2	0.00	16.11	56.46	28.53	0.00	0.00	
	4	1	0.00	27.07	34.78	77.81	0.00	0.00	
		2	0.00	0.00	21.06	0.00	0.00	40.00	
	5	1	0.00	0.00	21.01	0.00	0.00	36.00	
		2	0.00	0.00	20.28	0.00	0.00	54.00	
	7	1	0.00	0.00	20.28	0.00	0.00	54.00	
		2	0.00	13.30	58.31	22.81	0.00	0.00	
	8	1	0.00	10.72	58.76	18.24	0.00	0.00	
		2	0.00	5.13	6.00	85.48	0.00	0.00	
	9	1	0.00	5.14	6.00	85.72	0.00	0.00	
		2	0.00	7.89	34.78	22.68	0.00	35.24	
	10	1	0.00	1.89	4.00	47.19	0.00	0.00	
		2	0.00	2.02	4.00	50.59	0.00	0.00	
	11	1	0.00	5.00	34.78	14.38	0.00	38.97	
		2	0.00	0.00	21.06	0.00	0.00	16.00	
	12	1	0.00	0.00	17.98	0.00	0.00	5.00	
		2	0.00	1.38	2.00	69.14	0.00	78.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
17:00-18:00	10	1	✓	CTM flare: 10/1,9/1,9/2	82	18.16	692	9
	12	1	✓	CPDM flare: 12/1,11/2,11/1	28	8.91	1314	219

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	0.00	0.00	✓	0.00	26.00	5.07	18.65	1.00	0.00	182.50
		2	0.00	0.00	✓	0.00	19.20	1.43	13.95	1.00	0.00	116.79
	2	1	0.00	0.00	✓	0.00	7.73	4.13	7.52	1.00	0.00	76.26
		2	0.00	0.00	✓	0.00	0.85	0.04	0.84	1.00	0.00	6.77
	3	1	0.00	0.00	✓	0.00	13.15	0.95	11.30	1.00	0.00	74.96
		2	0.00	0.00	✓	0.00	16.13	1.19	13.81	1.00	0.00	91.86
	4	1	0.00	0.00	✓	0.00	27.39	4.75	18.57	1.00	0.00	180.92
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	5	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	7	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	13.30	0.70	6.40	1.00	0.00	28.36
	8	1	0.00	0.00	✓	0.00	10.73	1.34	6.66	1.00	0.00	42.33
		2	0.00	0.00	✓	0.00	5.13	0.32	5.06	1.00	0.00	44.06
	9	1	0.00	0.00	✓	0.00	5.14	0.32	5.14	1.00	0.00	44.74
		2	0.00	0.00	✓	0.00	7.89			1.00	0.00	23.04
	10	1	0.00	0.00	✓	0.00	1.89	0.01	1.89	1.00	0.00	7.35
		2	0.00	0.00	✓	0.00	2.02	0.01	2.02	1.00	0.00	7.86
	11	1	0.00	0.00	✓	0.00	5.00			1.00	0.00	5.53
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	12	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	14	1	0.00	0.00	✓	0.00	1.38			1.00	0.00	3.70
		2	0.00	0.00	✓	0.00				1.00	0.00	

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	24/09/2018 10:30:35	24/09/2018 10:30:36	17:00	120	937.01	56.59	93.70	2/1	3	14	2/1	10/1	2/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	94	-4	9966	1574	20.44	803.62	133.40	937.01

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
17:00-18:00	9966	9966	-2	✓	94	✓	-4	1574

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	16.44	20.44	56.59	803.62	46.03	4586.92	133.40

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s per cycle)
17:00-18:00	85.72	0.00	309.21

Network Results: Advanced

Segment	penalty (£ per hr)	penalty (£ per hr)	up	error	Factor	penalties (£ per hr)	penalties (£ per hr)	(£ per hr)
17:00-18:00	0.00	0.00	✓	0.00	1.00	0.00	0.00	937.01

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
	1	2	3	4	5	
From	1	0.0	83.1	0.0	127.2	134.3
	2	85.1	0.0	0.0	112.2	100.2
	3	187.0	86.5	0.0	228.2	233.5
	4	138.0	134.8	0.0	0.0	71.3
	5	116.5	113.0	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
6	2	1	57	85.06	57	85.06
10	3	1	37	187.01	37	187.01
14	3	4	41	228.24	41	228.24
15	3	5	31	233.54	31	233.54
16	1	2	25	83.14	25	83.14
17	1	2	25	83.11	25	83.11
18	3	2	13	86.51	13	86.51
19	3	2	13	86.54	13	86.54
27	4	5	59	71.34	59	71.34
29	5	2	192	113.12	192	113.12
30	4	2	57	134.01	57	134.01
31	4	1	166	138.03	166	138.03
32	4	2	287	134.93	287	134.93
33	5	2	63	112.47	63	112.47
34	5	1	116	116.49	116	116.49
35	2	4	661	112.18	661	112.18
36	2	5	552	100.19	552	100.19
37	1	5	301	134.34	301	134.34
38	1	4	370	127.21	370	127.21

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS			FLOWS		PERFORMANCE				PER PCU		
				Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)
1	1	(untitled)	1	1	A		661	1866	45	0.00	92	-3	75.66	60.74	112.41
	2	(untitled)	1	1	A	E	609	2019	45	0.00	79	14	55.95	41.04	92.08
2	1	(untitled)	1	1	C		109	1745	7	0.00	94	-4	178.31	163.40	169.70
	2	(untitled)	1	1	C		26	1663	7	6.00	23	284	73.00	58.08	96.57
3	1	(untitled)	1	1	B		402	1798	36	0.00	73	24	70.78	41.06	95.98
	2	(untitled)	1	1	B		479	2042	36	0.00	76	18	71.12	42.06	99.15
4	1	(untitled)	1	1	D		721	1847	50	0.00	92	-2	69.60	54.68	108.50
5	1	(untitled)					158	Unrestricted	120	40.00	0	Unrestricted	10.11	0.00	0.00
	2	(untitled)					517	Unrestricted	120	36.00	0	Unrestricted	9.34	0.00	0.00
7	1	(untitled)					376	Unrestricted	120	54.00	0	Unrestricted	12.62	0.00	0.00
8	1	(untitled)	2	2	A		1072	1965	96	0.00	67	33	35.28	5.49	27.67
	2	(untitled)	2	2	B		884	1773	76	0.00	78	16	40.04	10.12	40.51
9	1	(untitled)	2	2	C		282	1892	32	0.00	54	66	37.66	35.18	53.81
	2	(untitled)	2	2	C		287	1929	32	0.00	54	66	37.56	35.09	53.74
10	1	(untitled)	2				569	1965	120	35.24	41	120	22.11	7.20	37.21
11	1	(untitled)	2	2	D		179	1823	76	0.00	15	488	9.17	7.80	31.68
	2	(untitled)	2	2	D		192	1960	76	0.00	15	490	9.15	7.78	31.66
12	1	(untitled)	2				371	1964	120	38.97	28	222	16.56	1.64	25.97
14	1	(untitled)					1072	Unrestricted	120	16.00	0	Unrestricted	9.03	0.00	0.00
15	1	(untitled)					943	Unrestricted	120	5.00	0	Unrestricted	11.56	0.00	0.00
16	1	(untitled)	1				57	1310	120	78.00	4	1969	16.07	13.63	76.77

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1937.64	102.09	11.79	56.59	803.62	133.40	0.00	937.01
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1937.64	102.09	11.79	56.59	803.62	133.40	0.00	937.01

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A3 - AM Peak Hour 2023 w/o Dev. D3 - AM Peak Hour 2023 w/o Dev.*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
3	24/09/2018 10:30:36	24/09/2018 10:30:36	07:15	112	1289.92	79.01	102.38	3/1	3	14	3/1	12/1	3/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
AM Peak Hour 2023 w/o Dev.		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
AM Peak Hour 2023 w/o Dev.				07:15	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
112		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05			1, 2			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
(ALL)	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
1	(untitled)		1
2	(untitled)		1
3	(untitled)		1
4	(untitled)		1
5	(untitled)		
7	(untitled)		
8	(untitled)		2
9	(untitled)		2
10	(untitled)		2
11	(untitled)		2
12	(untitled)		2
14	(untitled)		
15	(untitled)		
16	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
1	1	(untitled)			200.00	✓	Sum of lanes	1866			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	2000			✓		Normal	
2	1	(untitled)			200.00	✓	Sum of lanes	1809			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	1663			✓		Normal	
3	1	(untitled)		✓	326.04	✓	Sum of lanes	1781			✓		Normal	
	2	(untitled)		✓	324.65	✓	Sum of lanes	2042			✓		Normal	
4	1	(untitled)			200.00	✓	Sum of lanes	1847			✓		Normal	
5	1	(untitled)		✓	121.09								Normal	
	2	(untitled)		✓	120.81								Normal	
7	1	(untitled)		✓	116.64								Normal	
8	1	(untitled)		✓	335.30	✓	Sum of lanes	1965			✓		Normal	
	2	(untitled)		✓	337.85	✓	Sum of lanes	1773			✓		Normal	
9	1	(untitled)		✓	33.26	✓	Sum of lanes	1924	✓	1800	✓		Normal	
	2	(untitled)		✓	33.15	✓	Sum of lanes	1929	✓	1800	✓		Normal	
10	1	(untitled)			200.00	✓	Sum of lanes	1965					Normal	
11	1	(untitled)		✓	18.46	✓	Sum of lanes	1823			✓		Normal	
	2	(untitled)		✓	18.44	✓	Sum of lanes	1960			✓		Normal	
12	1	(untitled)			200.00	✓	Sum of lanes	1964					Normal	
14	1	(untitled)		✓	121.12								Normal	
15	1	(untitled)		✓	103.39								Normal	
16	1	(untitled)		✓	21.81	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
1	1	1	(untitled)		✓	N/A	N/A	0	2.51	✓	0	99999.00	✓	1866
	2	1	(untitled)		✓	N/A	N/A	0	2.69	✓	42	51.93		2000
2	1	1	(untitled)		✓	N/A	N/A	0	2.89	✓	38	10.85	✓	1809
	2	1	(untitled)		✓	N/A	N/A	0	2.85	✓	100	10.50	✓	1663
3	1	1	(untitled)		✓	N/A	N/A	0	2.94	✓	82	17.06	✓	1781
	2	1	(untitled)		✓	N/A	N/A	0	2.87	✓	0	99999.00		2042
4	1	1	(untitled)		✓	N/A	N/A	0	4.30	✓	100	13.98	✓	1847
5	1	1	(untitled)											
	2	2	(untitled)											
7	1	1	(untitled)											
8	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
	2	1	(untitled)		✓	N/A	N/A	0	3.40	✓	100	14.64	✓	1773
9	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	3	15.65	✓	1924
	2	9	(untitled)		✓	N/A	N/A	0	3.14	✓	0	99999.00	✓	1929
10	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
11	1	2	(untitled)		✓	N/A	N/A	0	3.40	✓	100	20.68	✓	1823
	2	1	(untitled)		✓	N/A	N/A	0	3.35	✓	100	22.67		1960
12	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	100	57.92	✓	1964
14	1	1	(untitled)											
15	1	1	(untitled)											
16	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
2	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
3	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
4	1	NetworkDefault	100	100	100		0.00		
5	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
7	1	NetworkDefault	100	100	100		0.00		
8	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
9	1	Flare	100	100	100		6.00		
	2	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		4.00		
	2	Flare	100	100	100		4.00		
12	1	NetworkDefault	100	100	100		0.00		
14	1	NetworkDefault	100	100	100		0.00		
15	1	NetworkDefault	100	100	100		0.00		
16	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	112

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
1	1	275	275
	2	297	297
2	1	73	73
	2	26	26
3	1	928	928
	2	975	975
4	1	381	381
5	1	210	210
	2	1019	1019
7	1	931	931
8	1	493	493
	2	302	302
9	1	577	577
	2	579	579
10	1	1156	1156
11	1	368	368
	2	396	396
12	1	764	764
14	1	493	493
15	1	319	319
16	1	124	124

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
1	1	1	A		
	2	1	A	✓	E
2	1	1	C		
	2	1	C		
3	1	1	B		
	2	1	B		
4	1	1	D		
8	1	2	A		
	2	2	B		
9	1	2	C		
	2	2	C		
11	1	2	D		
	2	2	D		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	(ALL)	14.91	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
3	1	1	9/1	3/1	24.31	30.00	✓	Straight	Straight Movement
	2	1	11/2	3/2	36.31	20.00	✓	Nearside	22.67
5	1	1	3/1	5/1	9.03	30.00	✓	Straight	Straight Movement
	2	1	3/2	5/2	9.01	30.00	✓	Straight	Straight Movement
7	1	1	3/1	7/1	13.05	20.00	✓	Nearside	17.06
8	1	1	2/1	8/1	37.50	20.00	✓	Nearside	10.85
	2	1	2/1	8/2	37.79	20.00	✓	Nearside	12.84
9	1	1	10/1	9/1	2.48	30.00	✓	Straight	Straight Movement
	2	1	10/1	9/2	2.47	30.00	✓	Straight	Straight Movement
11	1	1	12/1	11/1	1.38	30.00	✓	Offside	58.13
	2	1	12/1	11/2	1.37	30.00	✓	Offside	57.92
14	1	1	8/1	14/1	9.03	30.00	✓	Straight	Straight Movement
15	1	1	9/1	15/1	11.56	20.00	✓	Nearside	15.65
16	1	1	1/2	16/1	2.44	20.00	✓	Offside	51.93
3	1	2	11/1	3/1	36.47	20.00	✓	Nearside	20.68
	2	2	9/2	3/2	24.21	30.00	✓	Straight	Straight Movement
5	1	2	4/1	5/1	13.54	20.00	✓	Nearside	13.98
	2	2	4/1	5/2	13.51	20.00	✓	Nearside	15.98
7	1	2	16/1	7/1	13.05	20.00	✓	Offside	6.85
8	1	2	1/1	8/1	25.00	30.00	✓	Straight	Straight Movement
	2	2	1/2	8/2	25.19	30.00	✓	Straight	Straight Movement
15	1	2	8/2	15/1	11.56	20.00	✓	Offside	14.64
5	1	3	2/2	5/1	13.54	20.00	✓	Offside	10.50
	2	3	2/2	5/2	13.51	20.00	✓	Offside	10.50
7	1	3	2/1	7/1	8.70	30.00	✓	Straight	Straight Movement
8	1	3	4/1	8/1	37.50	20.00	✓	Offside	22.60
	2	3	4/1	8/2	37.79	20.00	✓	Offside	22.60

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
16	1	Movement	✓	0	✓	6.85	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Unopposed) (PCU/hr)	Percentage opposed (%)
16	1	1	7/1	1800	100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Upstream signals visible	Conflict shift	Conflict duration
16	1	1	7/1		TrafficStreamMovement	3/1	5/1	100		0	2
					TrafficStreamMovement	3/2	5/2	100		0	2
					TrafficStreamMovement	3/1	7/1	100		0	2

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
	1	2	3	4	5	
From	1	0	62	0	199	120
	2	124	0	0	275	173
	3	45	26	0	19	9
	4	460	679	0	0	17
	5	302	462	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	4/1	7/1	#FF0000
	2	(untitled)	1/1, 1/2	5/1, 5/2	#00FF00
	3	(untitled)	2/1, 2/2		#FFFF00
	4	(untitled)	10/1	14/1	#FFFF00
	5	(untitled)	12/1	15/1	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	6		2	1	1/2, 16/1, 7/1	Normal	124
	10		3	1	2/1, 7/1	Normal	45
	14		3	4	2/1, 8/1, 14/1	Normal	19
	15		3	5	2/1, 8/2, 15/1	Normal	9
	16		1	2	4/1, 5/1	Normal	31
	17		1	2	4/1, 5/2	Normal	31
	18		3	2	2/2, 5/2	Normal	13
	19		3	2	2/2, 5/1	Normal	13
	27		4	5	10/1, 9/1, 15/1	Normal	17
	29		5	2	12/1, 11/2, 3/2, 5/2	Normal	396
	30		4	2	10/1, 9/1, 3/1, 5/1	Normal	100
	31		4	1	10/1, 9/1, 3/1, 7/1	Normal	460
	32		4	2	10/1, 9/2, 3/2, 5/2	Normal	579
	33		5	2	12/1, 11/1, 3/1, 5/1	Normal	66
	34		5	1	12/1, 11/1, 3/1, 7/1	Normal	302
	35		2	4	1/1, 8/1, 14/1	Normal	275
	36		2	5	1/2, 8/2, 15/1	Normal	173
	37		1	5	4/1, 8/2, 15/1	Normal	120
	38		1	4	4/1, 8/1, 14/1	Normal	199

Signal Timings

Network Default: 112s cycle time; 112 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	112

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	D	1
	3	C	1
	4	A, E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1		Single	1, 2, 3, 4	26, 55, 67, 77

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7		
	B			7	7	5	
	C	6	6		5	6	
	D	6	6	5		6	
	E		5	7	7		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	4
	1				
	2				
	3				
	4				

Interstage Matrix for Controller Stream 1

	To				
	1	2	3	4	
From	1	0	7	7	5
	2	6	0	5	6
	3	6	5	0	6
	4	5	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	82	26	56	1	7
	2	✓	2	D	33	55	22	1	7
	3	✓	3	C	60	67	7	1	7
	4	✓	4	A,E	73	77	4	1	4

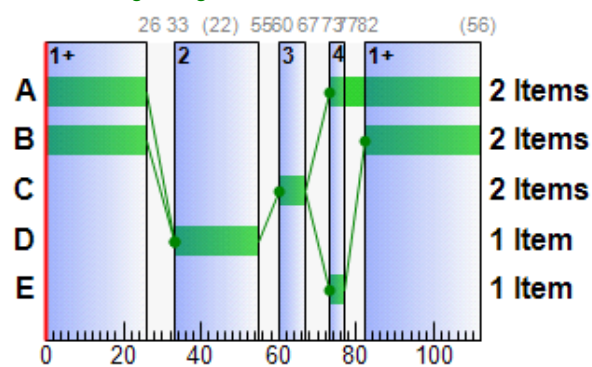
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	73	26	65
	B	1	✓	82	26	56
	C	1	✓	60	67	7
	D	1	✓	33	55	22
	E	1	✓	73	77	4

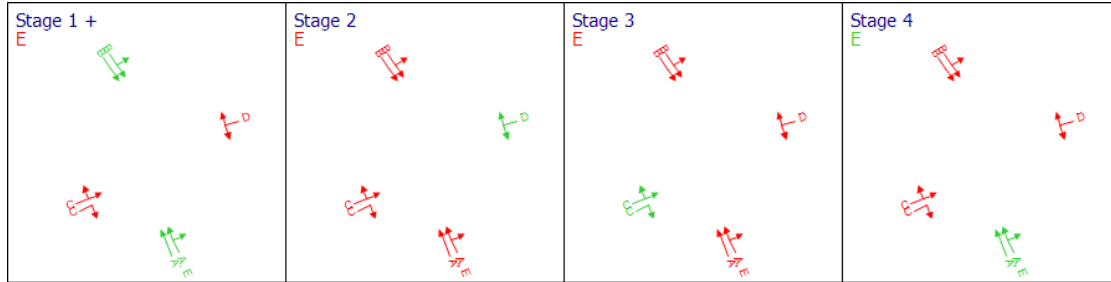
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1	1	1	A	73	26	65
1	2	1	1	A	73	26	65
2	1	1	1	C	60	67	7
2	2	1	1	C	60	67	7
3	1	1	1	B	82	26	56
3	2	1	1	B	82	26	56
4	1	1	1	D	33	55	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Controller Stream 2

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
2	(untitled)		1	NetworkDefault	112

Controller Stream 2 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
2	Unspecified						Absolute

Controller Stream 2 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
2	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
2	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	7	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Traffic	
	E	(untitled)	10	300	0	0	Pedestrian	0
	F	(untitled)	2	300	0	0	Dummy	

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
2	1	A, B, D	1
	2	A, C	1
	3	B, D, E	1

Losing / Gaining Phase Delays

Controller Stream	Delay	Type	Phase	From stage	To stage	Relative delay
2	1	Losing	D	1	2	1
	2	Losing	B	3	2	1
	3	Losing	D	3	2	2

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
2	1		Single	1, 2, 3	74, 26, 43

Intergreen Matrix for Controller Stream 2

	To						
		A	B	C	D	E	F
From	A					7	
	B			6			
	C		6		7	5	7
	D			5			
	E	7		6			7
	F			6		7	

Banned Stage transitions for Controller Stream 2

	To			
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 2

	To			
From		1	2	3
	1	0	6	7
	2	7	0	7
	3	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B,D	50	74	24	1	1
	2	✓	2	A,C	80	26	58	1	7
	3	✓	3	B,D,E	33	43	10	1	10

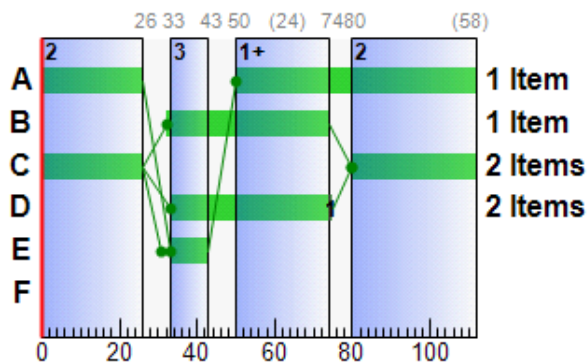
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
2	A	1	✓	50	26	88
	B	1	✓	32	74	42
	C	1	✓	80	26	58
	D	1	✓	33	75	42
	E	1	✓	33	43	10

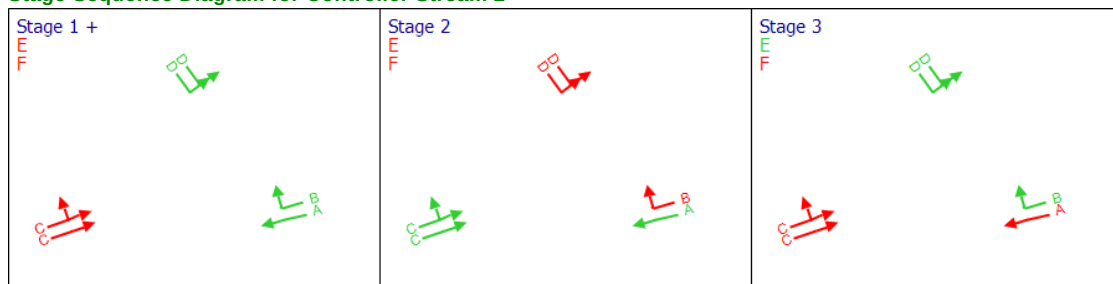
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
8	1	2	2	A	50	26	88
8	2	2	2	B	32	74	42
9	1	2	2	C	80	26	58
9	2	2	2	C	80	26	58
11	1	2	2	D	33	75	42
11	2	2	2	D	33	75	42

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
07:15-08:15	(ALL)	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
07:15-08:15	1	1	(untitled)	A	275	1866	65	1100	25	260	11.63	4.09	11.76	26.54
		2	(untitled)	A	297	2000	65	1179	25	257	11.61	4.50	12.93	26.52
	2	1	(untitled)	C	73	1809	7	129	56	59	67.86	2.55	7.32	82.77
		2	(untitled)	C	26	1663	7	119	22	311	53.34	0.79	2.27	68.25
	3	1	(untitled)	B	928	1781	56	906	102	-12	102.92	49.00	86.42	132.05
		2	(untitled)	B	975	2042	56	1039	94	-4	39.08	33.89	60.01	68.21
	4	1	(untitled)	D	381	1847	22	379	100	-10	136.13	21.41	61.56	151.04
	5	1	(untitled)		206	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.99
		2	(untitled)		1019	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.20
	7	1	(untitled)		913	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.83
	8	1	(untitled)	A	492	1965	88	1561	32	186	2.08	1.93	3.31	32.60
		2	(untitled)	B	301	1773	42	681	44	103	41.69	8.46	14.39	72.24
	9	1	(untitled)	C	577	1924	58	1014	57	58	13.82	5.19	86.42	16.30
		2	(untitled)	C	579	1929	58	1016	57	58	13.82	5.20	86.71	16.29
	10	1	(untitled)		1156	1965	112	1430	81	11	14.52	25.11	72.20	29.43
	11	1	(untitled)	D	368	1823	42	700	53	71	16.08	3.07	76.79	17.45
		2	(untitled)	D	396	1960	42	753	53	71	15.88	3.28	82.10	17.26
	12	1	(untitled)		764	1964	112	860	89	1	32.47	24.90	71.58	47.38
	14	1	(untitled)		492	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.03
	15	1	(untitled)		318	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	11.56
	16	1	(untitled)		124	884	112	884	14	542	21.16	2.31	115.56	23.60

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	82	26	56	1	7
	2	✓	2	D	33	55	22	1	7
	3	✓	3	C	60	67	7	1	7
	4	✓	4	A,E	73	77	4	1	4
2	1	✓	1	A,B,D	50	74	24	1	1
	2	✓	2	A,C	80	26	58	1	7
	3	✓	3	B,D,E	33	43	10	1	10

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow
2	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	10	300	0	0	Pedestrian
	F	F	2	300	0	0	Dummy

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
1	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1866	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2000	100	100
2	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1809	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1663	100	100
3	1	✓	326.04	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1781	100	100
	2	✓	324.65	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2042	100	100
4	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1847	100	100
5	1	✓	121.09	NetworkDefault	0.00	Normal						100	100
	2	✓	120.81	NetworkDefault	0.00	Normal						100	100
7	1	✓	116.64	NetworkDefault	0.00	Normal						100	100
8	1	✓	335.30	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1965	100	100
	2	✓	337.85	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1773	100	100
9	1	✓	33.26	Flare	6.00	Normal	✓	✓		Sum of lanes	1924	100	100
	2	✓	33.15	Flare	6.00	Normal	✓	✓		Sum of lanes	1929	100	100
10	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1965	100	100
11	1	✓	18.46	Flare	4.00	Normal	✓	✓		Sum of lanes	1823	100	100
	2	✓	18.44	Flare	4.00	Normal	✓	✓		Sum of lanes	1960	100	100
12	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1964	100	100
14	1	✓	121.12	NetworkDefault	0.00	Normal						100	100
15	1	✓	103.39	NetworkDefault	0.00	Normal						100	100
16	1	✓	21.81	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:15-08:15	1	1	25	260	275	1866	65	11.63	4.09	11.76	12.61	4.10	16.71
		2	25	257	297	2000	65	11.61	4.50	12.93	13.60	4.43	18.03
	2	1	56	59	73	1809	7	67.86	2.55	7.32	19.54	2.60	22.14
		2	22	311	26	1663	7	53.34	0.79	2.27	5.47	0.81	6.28
	3	1	102	-12	928	1781	56	102.92	49.00	86.42	376.72	36.67	413.39
		2	94	-4	975	2042	56	39.08	33.89	60.01	150.31	24.82	175.13
	4	1	100	-10	381	1847	22	136.13	21.41	61.56	204.58	20.33	224.91
	5	1	0	Unrestricted	206	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	1019	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	0	Unrestricted	913	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	32	186	492	1965	88	2.08	1.93	3.31	4.04	1.87	5.91
		2	44	103	301	1773	42	41.69	8.46	14.39	49.57	6.83	56.40
	9	1	57	58	577	1924	58	13.82	5.19	86.42	31.44	5.41	36.85
		2	57	58	579	1929	58	13.82	5.20	86.71	31.56	5.43	36.99
	10	1	81	11	1156	1965	112	14.52	25.11	72.20	66.20	23.88	90.08
	11	1	53	71	368	1823	42	16.08	3.07	76.79	23.33	3.20	26.54
		2	53	71	396	1960	42	15.88	3.28	82.10	24.81	3.43	28.24
	12	1	89	1	764	1964	112	32.47	24.90	71.58	97.84	23.04	120.89
	14	1	0	Unrestricted	492	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	0	Unrestricted	318	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	14	542	124	884	112	21.16	2.31	115.56	10.35	1.10	11.45

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
07:15-08:15	1	1	275	275	0		1866	1100	25		260	0.00	65
		2	297	297	0		2000	1179	25		257	0.00	65
	2	1	73	73	0		1809	129	56		59	0.00	7
		2	26	26	0		1663	119	22		311	0.00	7
	3	1	928	906	0		1781	906	102	✓	-12	0.31	56
		2	975	975	0		2042	1039	94	✓	-4	0.31	56
	4	1	381	379	0		1847	379	100	✓	-10	0.00	22
	5	1	206	206	4	✓	Unrestricted	Unrestricted	0		Unrestricted	0.52	112
		2	1019	1019	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	112
	7	1	913	913	18	✓	Unrestricted	Unrestricted	0		Unrestricted	0.63	112
	8	1	492	492	1	✓	1965	1561	32		186	0.55	88
		2	301	301	1	✓	1773	681	44		103	0.54	42
	9	1	577	577	0		1924	1014	57		58	0.50	58
		2	579	579	0		1929	1016	57		58	0.50	58
	10	1	1156	1156	0		1965	1430	81		11	0.00	112
	11	1	368	368	0		1823	700	53		71	0.84	42
		2	396	396	0		1960	753	53		71	0.84	42
	12	1	764	764	0		1964	860	89		1	0.00	112
	14	1	492	492	1	✓	Unrestricted	Unrestricted	0		Unrestricted	0.63	112
	15	1	318	318	1	✓	Unrestricted	Unrestricted	0		Unrestricted	1.23	112
	16	1	124	124	0		884	884	14		542	0.81	112

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:15-08:15	1	1	14.91	11.63	0.89	12.61	45.87	126.15	4.10
		2	14.91	11.61	0.96	13.60	45.91	136.36	4.43
	2	1	14.91	67.86	1.38	19.54	109.64	80.04	2.60
		2	14.91	53.34	0.39	5.47	95.69	24.88	0.81
	3	1	29.13	102.92	26.53	376.72	160.40	1453.91	36.67
		2	29.12	39.08	10.59	150.31	104.73	1021.11	24.82
	4	1	14.91	136.13	14.41	204.58	165.08	626.12	20.33
	5	1	9.99	0.00	0.00	0.00	0.00	0.00	0.00
		2	9.20	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	12.83	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	30.52	2.08	0.28	4.04	11.89	58.51	1.87
		2	30.56	41.69	3.49	49.57	89.11	268.65	6.83
	9	1	2.48	13.82	2.21	31.44	28.87	166.59	5.41
		2	2.47	13.82	2.22	31.56	28.87	167.16	5.43
	10	1	14.91	14.52	4.66	66.20	63.61	735.32	23.88
	11	1	1.38	16.08	1.64	23.33	26.82	98.68	3.20
		2	1.37	15.88	1.75	24.81	26.65	105.52	3.43
	12	1	14.91	32.47	6.89	97.84	92.87	709.53	23.04
	14	1	9.03	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	11.56	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	2.44	21.16	0.73	10.35	61.57	76.35	1.10

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
07:15-08:15	1	1	0.00	4.09	34.78	11.76	0.00	0.00	
		2	0.00	4.50	34.78	12.93	0.00	10.00	
	2	1	0.00	2.55	34.78	7.32	0.00	0.00	
		2	0.00	0.79	34.78	2.27	0.00	6.00	
	3	1	0.00	49.00	56.70	86.42	0.00	0.00	
		2	0.00	33.89	56.46	60.01	0.00	0.00	
	4	1	0.00	21.41	34.78	61.56	0.00	0.00	
	5	1	0.00	0.00	21.06	0.00	0.00	16.00	
		2	0.00	0.00	21.01	0.00	0.00	12.00	
	7	1	0.00	0.00	20.28	0.00	0.00	18.00	
	8	1	0.00	1.93	58.31	3.31	0.00	5.00	
		2	0.00	8.46	58.76	14.39	0.00	8.00	
	9	1	0.00	5.19	6.00	86.42	0.00	0.00	
		2	0.00	5.20	6.00	86.71	0.00	0.00	
	10	1	0.00	25.11	34.78	72.20	0.00	30.48	
	11	1	0.00	3.07	4.00	76.79	0.00	0.00	
		2	0.00	3.28	4.00	82.10	0.00	0.00	
	12	1	0.00	24.90	34.78	71.58	0.00	62.95	
	14	1	0.00	0.00	21.06	0.00	0.00	19.00	
	15	1	0.00	0.00	17.98	0.00	0.00	57.00	
	16	1	0.00	2.31	2.00	115.56	0.00	43.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
07:15-08:15	10	1	✓	CTM flare: 10/1,9/1,9/2	94	35.50	1224	-5
	12	1	✓	CPDM flare: 12/1,11/2,11/1	91	31.25	842	-1

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
07:15-08:15	1	1	0.00	0.00	✓	0.00	4.09	0.04	3.56	1.00	0.00	16.71
		2	0.00	0.00	✓	0.00	4.50	0.04	3.84	1.00	0.00	18.03
	2	1	0.00	0.00	✓	0.00	2.55	0.36	2.47	1.00	0.00	22.14
		2	0.00	0.00	✓	0.00	0.79	0.03	0.78	1.00	0.00	6.28
	3	1	0.00	0.00	✓	0.00	62.33	34.40	43.98	1.00	0.00	413.39
		2	0.00	0.00	✓	0.00	34.40	6.39	16.71	1.00	0.00	175.13
	4	1	0.00	0.00	✓	0.00	25.89	14.20	23.57	1.00	0.00	224.91
	5	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	7	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	8	1	0.00	0.00	✓	0.00	1.93	0.07	1.81	1.00	0.00	5.91
		2	0.00	0.00	✓	0.00	8.46	0.18	7.68	1.00	0.00	56.40
	9	1	0.00	0.00	✓	0.00	5.19	0.38	5.19	1.00	0.00	36.85
		2	0.00	0.00	✓	0.00	5.20	0.38	5.20	1.00	0.00	36.99
	10	1	0.00	0.00	✓	0.00	25.13			1.00	0.00	90.08
	11	1	0.00	0.00	✓	0.00	3.07	0.29	3.07	1.00	0.00	26.54
		2	0.00	0.00	✓	0.00	3.28	0.29	3.28	1.00	0.00	28.24
	12	1	0.00	0.00	✓	0.00	25.03			1.00	0.00	120.89
	14	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	15	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	16	1	0.00	0.00	✓	0.00	2.31			1.00	0.00	11.45

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
3	24/09/2018 10:30:36	24/09/2018 10:30:36	07:15	112	1289.92	79.01	102.38	3/1	3	14	3/1	12/1	3/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:15-08:15	102	-12	10661	1504	26.68	1121.98	167.95	1289.92

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
07:15-08:15	10661	10638	25	✓	102	✓	-12	1504

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:15-08:15	14.96	26.68	79.01	1121.98	55.27	5854.86	167.95

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s per cycle)
07:15-08:15	115.56	0.00	287.43

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
07:15-08:15	0.00	0.00	✓	0.00	1.00	0.00	0.00	1289.92

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	164.6	0.0	198.2	248.4
	2	63.2	0.0	0.0	63.8	100.1
	3	91.5	81.8	0.0	130.0	183.1
	4	188.2	128.8	0.0	0.0	57.3
	5	214.0	156.2	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
6	2	1	124	63.17	124	63.17
10	3	1	45	91.47	45	91.47
14	3	4	19	130.04	19	130.04
15	3	5	9	183.05	9	183.05
16	1	2	31	164.59	31	164.59
17	1	2	31	164.56	31	164.56
18	3	2	13	81.77	13	81.77
19	3	2	13	81.80	13	81.80
27	4	5	17	57.29	17	57.29
29	5	2	396	147.22	396	147.22
30	4	2	100	184.16	100	184.16
31	4	1	460	188.17	460	188.17
32	4	2	579	119.27	579	119.27
33	5	2	66	209.94	66	209.94
34	5	1	302	213.96	302	213.96
35	2	4	275	63.83	275	63.83
36	2	5	173	100.11	173	100.11
37	1	5	120	248.40	120	248.40
38	1	4	199	198.15	199	198.15

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS			FLOWS		PERFORMANCE				PER PCU		
				Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)
1	1	(untitled)	1	1	A		275	1866	65	0.00	25	260	26.54	11.63	45.87
	2	(untitled)	1	1	A	E	297	2000	65	10.00	25	257	26.52	11.61	45.91
2	1	(untitled)	1	1	C		73	1809	7	0.00	56	59	82.77	67.86	109.64
	2	(untitled)	1	1	C		26	1663	7	6.00	22	311	68.25	53.34	95.69
3	1	(untitled)	1	1	B		928	1781	56	0.00	102	-12	132.05	102.92	160.40
	2	(untitled)	1	1	B		975	2042	56	0.00	94	-4	68.21	39.08	104.73
4	1	(untitled)	1	1	D		381	1847	22	0.00	100	-10	151.04	136.13	165.08
5	1	(untitled)					206	Unrestricted	112	16.00	0	Unrestricted	9.99	0.00	0.00
	2	(untitled)					1019	Unrestricted	112	12.00	0	Unrestricted	9.20	0.00	0.00
7	1	(untitled)					913	Unrestricted	112	18.00	0	Unrestricted	12.83	0.00	0.00
8	1	(untitled)	2	2	A		492	1965	88	5.00	32	186	32.60	2.08	11.89
	2	(untitled)	2	2	B		301	1773	42	8.00	44	103	72.24	41.69	89.11
9	1	(untitled)	2	2	C		577	1924	58	0.00	57	58	16.30	13.82	28.87
	2	(untitled)	2	2	C		579	1929	58	0.00	57	58	16.29	13.82	28.87
10	1	(untitled)	2				1156	1965	112	30.48	81	11	29.43	14.52	63.61
11	1	(untitled)	2	2	D		368	1823	42	0.00	53	71	17.45	16.08	26.82
	2	(untitled)	2	2	D		396	1960	42	0.00	53	71	17.26	15.88	26.65
12	1	(untitled)	2				764	1964	112	62.95	89	1	47.38	32.47	92.87
14	1	(untitled)					492	Unrestricted	112	19.00	0	Unrestricted	9.03	0.00	0.00
15	1	(untitled)					318	Unrestricted	112	57.00	0	Unrestricted	11.56	0.00	0.00
16	1	(untitled)	1				124 <	884	112	43.00	14	542	23.60	21.16	61.57

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1882.62	123.31	9.49	79.01	1121.98	167.95	0.00	1289.92
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1882.62	123.31	9.49	79.01	1121.98	167.95	0.00	1289.92

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A4 - PM Peak Hour 2023 w/o Dev. D4 - PM Peak Hour 2023 w/o Dev.*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
4	24/09/2018 10:30:36	24/09/2018 10:30:37	17:00	120	1203.90	73.38	99.71	2/1	3	14	2/1	10/1	2/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
PM Peak Hour 2023 w/o Dev.		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
PM Peak Hour 2023 w/o Dev.				17:00	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05			1, 2			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
(ALL)	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
1	(untitled)		1
2	(untitled)		1
3	(untitled)		1
4	(untitled)		1
5	(untitled)		
7	(untitled)		
8	(untitled)		2
9	(untitled)		2
10	(untitled)		2
11	(untitled)		2
12	(untitled)		2
14	(untitled)		
15	(untitled)		
16	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
1	1	(untitled)			200.00	✓	Sum of lanes	1866			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	2019			✓		Normal	
2	1	(untitled)			200.00	✓	Sum of lanes	1745			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	1663			✓		Normal	
3	1	(untitled)		✓	326.04	✓	Sum of lanes	1798			✓		Normal	
	2	(untitled)		✓	324.65	✓	Sum of lanes	2042			✓		Normal	
4	1	(untitled)			200.00	✓	Sum of lanes	1847			✓		Normal	
5	1	(untitled)		✓	121.09								Normal	
	2	(untitled)		✓	120.81								Normal	
7	1	(untitled)		✓	116.64								Normal	
8	1	(untitled)		✓	335.30	✓	Sum of lanes	1965			✓		Normal	
	2	(untitled)		✓	337.85	✓	Sum of lanes	1773			✓		Normal	
9	1	(untitled)		✓	33.26	✓	Sum of lanes	1892	✓	1800	✓		Normal	
	2	(untitled)		✓	33.15	✓	Sum of lanes	1929	✓	1800	✓		Normal	
10	1	(untitled)			200.00	✓	Sum of lanes	1965					Normal	
11	1	(untitled)		✓	18.46	✓	Sum of lanes	1823			✓		Normal	
	2	(untitled)		✓	18.44	✓	Sum of lanes	1960			✓		Normal	
12	1	(untitled)			200.00	✓	Sum of lanes	1964					Normal	
14	1	(untitled)		✓	121.12								Normal	
15	1	(untitled)		✓	103.39								Normal	
16	1	(untitled)		✓	21.81	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
1	1	1	(untitled)		✓	N/A	N/A	0	2.51	✓	0	99999.00	✓	1866
	2	1	(untitled)		✓	N/A	N/A	0	2.69	✓	9	51.93		2019
2	1	1	(untitled)		✓	N/A	N/A	0	2.89	✓	66	10.85	✓	1745
	2	1	(untitled)		✓	N/A	N/A	0	2.85	✓	100	10.50	✓	1663
3	1	1	(untitled)		✓	N/A	N/A	0	2.94	✓	70	17.06	✓	1798
	2	1	(untitled)		✓	N/A	N/A	0	2.87	✓	0	99999.00		2042
4	1	1	(untitled)		✓	N/A	N/A	0	4.30	✓	100	13.98	✓	1847
5	1	1	(untitled)											
	2	2	(untitled)											
7	1	1	(untitled)											
8	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
	2	1	(untitled)		✓	N/A	N/A	0	3.40	✓	100	14.64	✓	1773
9	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	21	15.65	✓	1892
	2	9	(untitled)		✓	N/A	N/A	0	3.14	✓	0	99999.00	✓	1929
10	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
11	1	2	(untitled)		✓	N/A	N/A	0	3.40	✓	100	20.68	✓	1823
	2	1	(untitled)		✓	N/A	N/A	0	3.35	✓	100	22.67		1960
12	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	100	57.92	✓	1964
14	1	1	(untitled)											
15	1	1	(untitled)											
16	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
2	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
3	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
4	1	NetworkDefault	100	100	100		0.00		
5	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
7	1	NetworkDefault	100	100	100		0.00		
8	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
9	1	Flare	100	100	100		6.00		
	2	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		4.00		
	2	Flare	100	100	100		4.00		
12	1	NetworkDefault	100	100	100		0.00		
14	1	NetworkDefault	100	100	100		0.00		
15	1	NetworkDefault	100	100	100		0.00		
16	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
1	1	701	701
	2	647	647
2	1	116	116
	2	28	28
3	1	426	426
	2	509	509
4	1	763	763
5	1	167	167
	2	549	549
7	1	398	398
8	1	1137	1137
	2	939	939
9	1	299	299
	2	305	305
10	1	604	604
11	1	190	190
	2	204	204
12	1	394	394
14	1	1137	1137
15	1	1002	1002
16	1	60	60

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
1	1	1	A		
	2	1	A	✓	E
2	1	1	C		
	2	1	C		
3	1	1	B		
	2	1	B		
4	1	1	D		
8	1	2	A		
	2	2	B		
9	1	2	C		
	2	2	C		
11	1	2	D		
	2	2	D		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	(ALL)	14.91	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
3	1	1	9/1	3/1	24.31	30.00	✓	Straight	Straight Movement
	2	1	11/2	3/2	36.31	20.00	✓	Nearside	22.67
5	1	1	3/1	5/1	9.03	30.00	✓	Straight	Straight Movement
	2	1	3/2	5/2	9.01	30.00	✓	Straight	Straight Movement
7	1	1	3/1	7/1	13.05	20.00	✓	Nearside	17.06
8	1	1	2/1	8/1	37.50	20.00	✓	Nearside	10.85
	2	1	2/1	8/2	37.79	20.00	✓	Nearside	12.84
9	1	1	10/1	9/1	2.48	30.00	✓	Straight	Straight Movement
	2	1	10/1	9/2	2.47	30.00	✓	Straight	Straight Movement
11	1	1	12/1	11/1	1.38	30.00	✓	Offside	58.13
	2	1	12/1	11/2	1.37	30.00	✓	Offside	57.92
14	1	1	8/1	14/1	9.03	30.00	✓	Straight	Straight Movement
15	1	1	9/1	15/1	11.56	20.00	✓	Nearside	15.65
16	1	1	1/2	16/1	2.44	20.00	✓	Offside	51.93
3	1	2	11/1	3/1	36.47	20.00	✓	Nearside	20.68
	2	2	9/2	3/2	24.21	30.00	✓	Straight	Straight Movement
5	1	2	4/1	5/1	13.54	20.00	✓	Nearside	13.98
	2	2	4/1	5/2	13.51	20.00	✓	Nearside	15.98
7	1	2	16/1	7/1	13.05	20.00	✓	Offside	6.85
8	1	2	1/1	8/1	25.00	30.00	✓	Straight	Straight Movement
	2	2	1/2	8/2	25.19	30.00	✓	Straight	Straight Movement
15	1	2	8/2	15/1	11.56	20.00	✓	Offside	14.64
5	1	3	2/2	5/1	13.54	20.00	✓	Offside	10.50
	2	3	2/2	5/2	13.51	20.00	✓	Offside	10.50
7	1	3	2/1	7/1	8.70	30.00	✓	Straight	Straight Movement
8	1	3	4/1	8/1	37.50	20.00	✓	Offside	22.60
	2	3	4/1	8/2	37.79	20.00	✓	Offside	22.60

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
16	1	Movement	✓	0	✓	6.85	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Unopposed) (PCU/hr)	Percentage opposed (%)
16	1	1	7/1	1800	100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Upstream signals visible	Conflict shift	Conflict duration
16	1	1	7/1		TrafficStreamMovement	3/1	5/1	100		0	2
					TrafficStreamMovement	3/2	5/2	100		0	2
					TrafficStreamMovement	3/1	7/1	100		0	2

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
	1	2	3	4	5	
From	1	0	52	0	392	319
	2	60	0	0	701	587
	3	39	28	0	44	33
	4	176	365	0	0	63
	5	123	271	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	4/1	7/1	#FF0000
	2	(untitled)	1/1, 1/2	5/1, 5/2	#00FF00
	3	(untitled)	2/1, 2/2		#FFFF00
	4	(untitled)	10/1	14/1	#FFFF00
	5	(untitled)	12/1	15/1	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	6		2	1	1/2, 16/1, 7/1	Normal	60
	10		3	1	2/1, 7/1	Normal	39
	14		3	4	2/1, 8/1, 14/1	Normal	44
	15		3	5	2/1, 8/2, 15/1	Normal	33
	16		1	2	4/1, 5/1	Normal	26
	17		1	2	4/1, 5/2	Normal	26
	18		3	2	2/2, 5/2	Normal	14
	19		3	2	2/2, 5/1	Normal	14
	27		4	5	10/1, 9/1, 15/1	Normal	63
	29		5	2	12/1, 11/2, 3/2, 5/2	Normal	204
	30		4	2	10/1, 9/1, 3/1, 5/1	Normal	60
	31		4	1	10/1, 9/1, 3/1, 7/1	Normal	176
	32		4	2	10/1, 9/2, 3/2, 5/2	Normal	305
	33		5	2	12/1, 11/1, 3/1, 5/1	Normal	67
	34		5	1	12/1, 11/1, 3/1, 7/1	Normal	123
	35		2	4	1/1, 8/1, 14/1	Normal	701
	36		2	5	1/2, 8/2, 15/1	Normal	587
	37		1	5	4/1, 8/2, 15/1	Normal	319
	38		1	4	4/1, 8/1, 14/1	Normal	392

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	D	1
	3	C	1
	4	A, E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1		Single	1, 2, 3, 4	85, 22, 34, 44

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7		
	B			7	7	5	
	C	6	6		5	6	
	D	6	6	5		6	
	E		5	7	7		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	4
	1				
	2				
	3				
	4				

Interstage Matrix for Controller Stream 1

	To				
	1	2	3	4	
From	1	0	7	7	5
	2	6	0	5	6
	3	6	5	0	6
	4	5	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	49	85	36	1	7
	2	✓	2	D	92	22	50	1	7
	3	✓	3	C	27	34	7	1	7
	4	✓	4	A,E	40	44	4	1	4

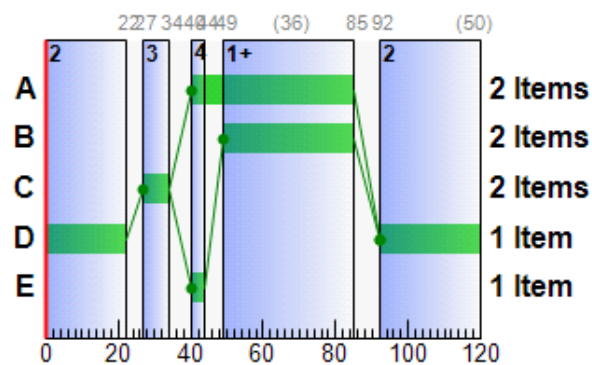
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	40	85	45
	B	1	✓	49	85	36
	C	1	✓	27	34	7
	D	1	✓	92	22	50
	E	1	✓	40	44	4

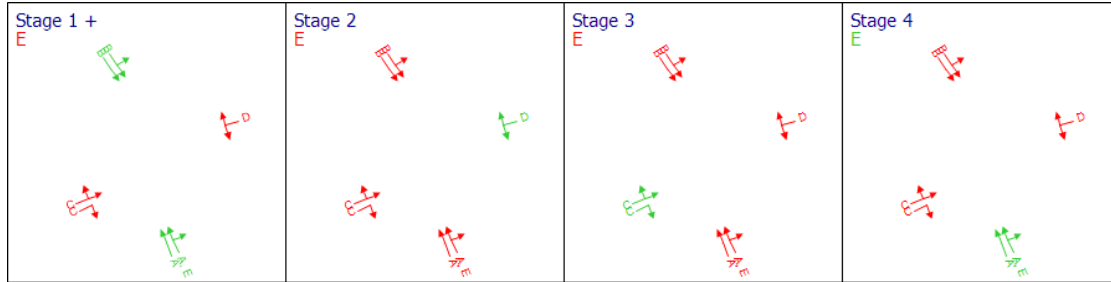
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1	1	1	A	40	85	45
1	2	1	1	A	40	85	45
2	1	1	1	C	27	34	7
2	2	1	1	C	27	34	7
3	1	1	1	B	49	85	36
3	2	1	1	B	49	85	36
4	1	1	1	D	92	22	50

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Controller Stream 2

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
2	(untitled)		1	NetworkDefault	120

Controller Stream 2 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
2	Unspecified						Absolute

Controller Stream 2 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
2	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
2	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	7	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Traffic	
	E	(untitled)	10	300	0	0	Pedestrian	0
	F	(untitled)	2	300	0	0	Dummy	

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
2	1	A, B, D	1
	2	A, C	1
	3	B, D, E	1

Losing / Gaining Phase Delays

Controller Stream	Delay	Type	Phase	From stage	To stage	Relative delay
2	1	Losing	D	1	2	1
	2	Losing	B	3	2	1
	3	Losing	D	3	2	2

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
2	1		Single	1, 2, 3	108, 26, 43

Intergreen Matrix for Controller Stream 2

	To						
		A	B	C	D	E	F
From	A					7	
	B			6			
	C		6		7	5	7
	D			5			
	E	7		6			7
	F			6		7	

Banned Stage transitions for Controller Stream 2

	To			
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 2

	To			
From		1	2	3
	1	0	6	7
	2	7	0	7
	3	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B,D	50	108	58	1	1
	2	✓	2	A,C	114	26	32	1	7
	3	✓	3	B,D,E	33	43	10	1	10

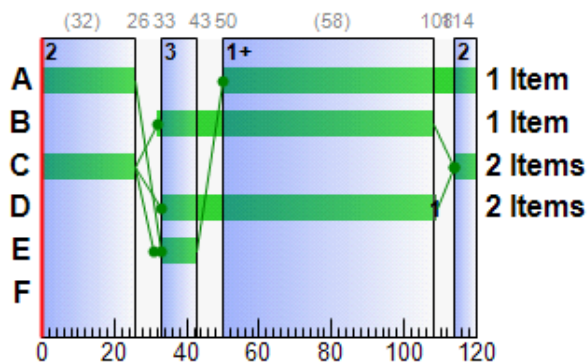
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
2	A	1	✓	50	26	96
	B	1	✓	32	108	76
	C	1	✓	114	26	32
	D	1	✓	33	109	76
	E	1	✓	33	43	10

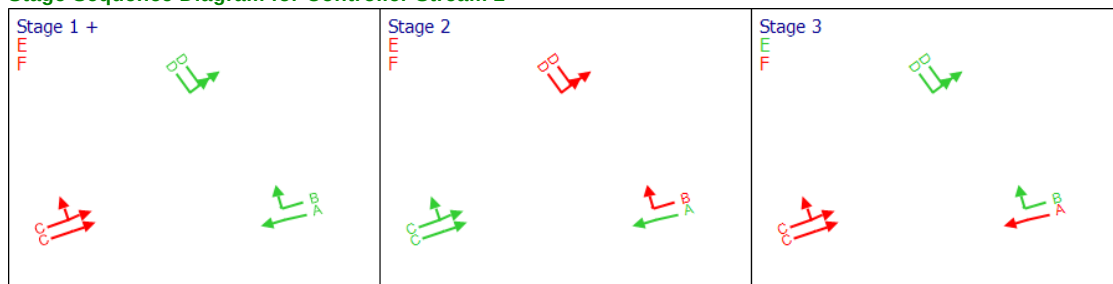
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
8	1	2	2	A	50	26	96
8	2	2	2	B	32	108	76
9	1	2	2	C	114	26	32
9	2	2	2	C	114	26	32
11	1	2	2	D	33	109	76
11	2	2	2	D	33	109	76

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	(ALL)	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
17:00-18:00	1	1	(untitled)	A	701	1866	45	715	98	-8	86.16	32.64	93.83	101.07
		2	(untitled)	A	647	2019	45	774	84	8	44.92	21.45	61.66	59.83
	2	1	(untitled)	C	116	1745	7	116	100	-10	206.37	8.68	24.96	221.28
		2	(untitled)	C	28	1663	7	111	25	256	58.63	0.92	2.65	73.54
	3	1	(untitled)	B	426	1798	36	554	77	17	43.47	14.40	25.40	73.20
		2	(untitled)	B	509	2042	36	630	81	11	45.20	17.74	31.42	74.26
	4	1	(untitled)	D	763	1847	50	785	97	-7	75.77	33.69	96.87	90.69
	5	1	(untitled)		167	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	10.11
		2	(untitled)		549	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.34
	7	1	(untitled)		398	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.62
	8	1	(untitled)	A	1137	1965	96	1588	72	26	6.46	30.98	53.12	36.26
		2	(untitled)	B	939	1773	76	1138	83	9	12.07	14.25	24.25	41.98
	9	1	(untitled)	C	299	1892	32	520	57	57	34.75	5.20	86.59	37.23
		2	(untitled)	C	305	1929	32	530	57	57	34.68	5.21	86.87	37.15
	10	1	(untitled)		604	1965	120	1337	45	99	9.06	9.41	27.06	23.97
	11	1	(untitled)	D	190	1823	76	1170	16	454	7.79	1.97	49.35	9.17
		2	(untitled)	D	204	1960	76	1258	16	455	7.77	2.12	52.95	9.14
	12	1	(untitled)		394	1964	120	1331	30	204	1.77	5.32	15.28	16.68
	14	1	(untitled)		1137	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.03
	15	1	(untitled)		1002	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	11.56
	16	1	(untitled)		60	1293	120	1293	5	1839	14.84	1.51	75.37	17.28

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	49	85	36	1	7
	2	✓	2	D	92	22	50	1	7
	3	✓	3	C	27	34	7	1	7
	4	✓	4	A,E	40	44	4	1	4
2	1	✓	1	A,B,D	50	108	58	1	1
	2	✓	2	A,C	114	26	32	1	7
	3	✓	3	B,D,E	33	43	10	1	10

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow
2	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	10	300	0	0	Pedestrian
	F	F	2	300	0	0	Dummy

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
1	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1866	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2019	100	100
2	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1745	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1663	100	100
3	1	✓	326.04	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1798	100	100
	2	✓	324.65	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2042	100	100
4	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1847	100	100
5	1	✓	121.09	NetworkDefault	0.00	Normal						100	100
	2	✓	120.81	NetworkDefault	0.00	Normal						100	100
7	1	✓	116.64	NetworkDefault	0.00	Normal						100	100
8	1	✓	335.30	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1965	100	100
	2	✓	337.85	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1773	100	100
9	1	✓	33.26	Flare	6.00	Normal	✓	✓		Sum of lanes	1892	100	100
	2	✓	33.15	Flare	6.00	Normal	✓	✓		Sum of lanes	1929	100	100
10	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1965	100	100
11	1	✓	18.46	Flare	4.00	Normal	✓	✓		Sum of lanes	1823	100	100
	2	✓	18.44	Flare	4.00	Normal	✓	✓		Sum of lanes	1960	100	100
12	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1964	100	100
14	1	✓	121.12	NetworkDefault	0.00	Normal						100	100
15	1	✓	103.39	NetworkDefault	0.00	Normal						100	100
16	1	✓	21.81	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	98	-8	701	1866	45	86.16	32.64	93.83	238.24	30.24	268.48
		2	84	8	647	2019	45	44.92	21.45	61.66	114.63	20.35	134.98
	2	1	100	-10	116	1745	7	206.37	8.68	24.96	94.43	7.18	101.61
		2	25	256	28	1663	7	58.63	0.92	2.65	6.48	0.88	7.36
	3	1	77	17	426	1798	36	43.47	14.40	25.40	73.04	10.72	83.76
		2	81	11	509	2042	36	45.20	17.74	31.42	90.75	13.57	104.32
	4	1	97	-7	763	1847	50	75.77	33.69	96.87	228.04	31.35	259.40
	5	1	0	Unrestricted	167	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	549	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	0	Unrestricted	398	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	72	26	1137	1965	96	6.46	30.98	53.12	28.99	12.10	41.10
		2	83	9	939	1773	76	12.07	14.25	24.25	44.70	9.06	53.76
	9	1	57	57	299	1892	32	34.75	5.20	86.59	40.98	4.98	45.96
		2	57	57	305	1929	32	34.68	5.21	86.87	41.72	5.07	46.80
	10	1	45	99	604	1965	120	9.06	9.41	27.06	21.58	8.36	29.93
	11	1	16	454	190	1823	76	7.79	1.97	49.35	5.84	1.93	7.76
		2	16	455	204	1960	76	7.77	2.12	52.95	6.25	2.07	8.32
	12	1	30	204	394	1964	120	1.77	5.32	15.28	2.75	3.42	6.16
	14	1	0	Unrestricted	1137	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	0	Unrestricted	1002	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	5	1839	60	1293	120	14.84	1.51	75.37	3.51	0.69	4.20

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	1	1	701	701	0		1866	715	98	✓	-8	0.00	45
		2	647	647	0		2019	774	84		8	0.00	45
	2	1	116	116	0		1745	116	100	✓	-10	0.00	7
		2	28	28	0		1663	111	25		256	0.00	7
	3	1	426	426	0		1798	554	77		17	0.62	36
		2	509	509	0		2042	630	81		11	0.67	36
	4	1	763	763	0		1847	785	97	✓	-7	0.00	50
		2	167	167	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	120
	5	1	549	549	0		Unrestricted	Unrestricted	0		Unrestricted	1.21	120
		2	398	398	0		Unrestricted	Unrestricted	0		Unrestricted	1.05	120
	7	1	1137	1137	0		1965	1588	72		26	0.45	96
		2	939	939	0		1773	1138	83		9	0.51	76
	8	1	299	299	0		1892	520	57		57	0.58	32
		2	305	305	0		1929	530	57		57	0.58	32
	9	1	604	604	0		1965	1337	45		99	0.00	120
		2	190	190	0		1823	1170	16		454	0.15	76
	10	1	204	204	0		1960	1258	16		455	0.15	76
		2	394	394	0		1964	1331	30		204	0.00	120
	11	1	1137	1137	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120
		2	1002	1002	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	120
	12	1	60	60	0		1293	1293	5		1839	1.22	120
		2											

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	1	1	14.91	86.16	16.78	238.24	132.82	931.10	30.24
		2	14.91	44.92	8.07	114.63	96.86	626.68	20.35
	2	1	14.91	206.37	6.65	94.43	190.61	221.11	7.18
		2	14.91	58.63	0.46	6.48	96.98	27.16	0.88
	3	1	29.73	43.47	5.14	73.04	99.39	423.38	10.72
		2	29.06	45.20	6.39	90.75	102.91	523.80	13.57
	4	1	14.91	75.77	16.06	228.04	126.53	965.45	31.35
		2	10.11	0.00	0.00	0.00	0.00	0.00	0.00
	5	1	9.34	0.00	0.00	0.00	0.00	0.00	0.00
		2	12.62	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	29.80	6.46	2.04	28.99	47.11	535.68	12.10
		2	29.91	12.07	3.15	44.70	45.93	431.24	9.06
	8	1	2.48	34.75	2.89	40.98	51.30	153.39	4.98
		2	2.47	34.68	2.94	41.72	51.23	156.26	5.07
	9	1	14.91	9.06	1.52	21.58	42.61	257.34	8.36
		2	1.38	7.79	0.41	5.84	31.20	59.28	1.93
	10	1	1.37	7.77	0.44	6.25	31.18	63.62	2.07
		2	14.91	1.77	0.19	2.75	26.72	105.26	3.42
	11	1	9.03	0.00	0.00	0.00	0.00	0.00	0.00
		2	11.56	0.00	0.00	0.00	0.00	0.00	0.00
	12	1	2.44	14.84	0.25	3.51	80.00	48.00	0.69
		2							

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
17:00-18:00	1	1	0.00	32.64	34.78	93.83	0.00	0.00	
		2	0.00	21.45	34.78	61.66	0.00	0.00	
	2	1	0.00	8.68	34.78	24.96	0.00	0.00	
		2	0.00	0.92	34.78	2.65	0.00	6.00	
	3	1	0.00	14.40	56.70	25.40	0.00	0.00	
		2	0.00	17.74	56.46	31.42	0.00	0.00	
	4	1	0.00	33.69	34.78	96.87	0.00	0.00	
		2	0.00	0.00	21.06	0.00	0.00	37.00	
	5	1	0.00	0.00	21.01	0.00	0.00	33.00	
		2	0.00	0.00	20.28	0.00	0.00	51.00	
	8	1	0.00	30.98	58.31	53.12	0.00	0.00	
		2	0.00	14.25	58.76	24.25	0.00	0.00	
	9	1	0.00	5.20	6.00	86.59	0.00	0.00	
		2	0.00	5.21	6.00	86.87	0.00	0.00	
	10	1	0.00	9.41	34.78	27.06	0.00	38.36	
		2	0.00	1.97	4.00	49.35	0.00	0.00	
	11	1	0.00	1.97	4.00	49.35	0.00	0.00	
		2	0.00	2.12	4.00	52.95	0.00	0.00	
	12	1	0.00	5.32	34.78	15.28	0.00	38.66	
		2	0.00	0.00	21.06	0.00	0.00	16.00	
	14	1	0.00	0.00	21.06	0.00	0.00	16.00	
		2	0.00	0.00	17.98	0.00	0.00	5.00	
	15	1	0.00	0.00	17.98	0.00	0.00	5.00	
		2	0.00	1.51	2.00	75.37	0.00	74.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
17:00-18:00	10	1	✓	CTM flare: 10/1,9/1,9/2	87	19.82	693	3
	12	1	✓	CPDM flare: 12/1,11/2,11/1	30	9.41	1316	201

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	0.00	0.00	✓	0.00	35.39	12.41	26.82	1.00	0.00	268.48
		2	0.00	0.00	✓	0.00	21.49	2.08	15.38	1.00	0.00	134.98
	2	1	0.00	0.00	✓	0.00	10.82	6.98	10.59	1.00	0.00	101.61
		2	0.00	0.00	✓	0.00	0.92	0.04	0.91	1.00	0.00	7.36
	3	1	0.00	0.00	✓	0.00	14.42	1.26	12.19	1.00	0.00	83.76
		2	0.00	0.00	✓	0.00	17.77	1.67	15.03	1.00	0.00	104.32
	4	1	0.00	0.00	✓	0.00	35.74	10.94	25.57	1.00	0.00	259.40
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	5	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	7	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	8	1	0.00	0.00	✓	0.00	30.98	0.90	6.73	1.00	0.00	41.10
		2	0.00	0.00	✓	0.00	14.27	1.92	7.41	1.00	0.00	53.76
	9	1	0.00	0.00	✓	0.00	5.20	0.39	5.12	1.00	0.00	45.96
		2	0.00	0.00	✓	0.00	5.21	0.39	5.21	1.00	0.00	46.80
	10	1	0.00	0.00	✓	0.00	9.41			1.00	0.00	29.93
		2	0.00	0.00	✓	0.00	1.97	0.02	1.97	1.00	0.00	7.76
	11	1	0.00	0.00	✓	0.00	1.97	0.02	1.97	1.00	0.00	7.76
		2	0.00	0.00	✓	0.00	2.12	0.02	2.12	1.00	0.00	8.32
	12	1	0.00	0.00	✓	0.00	5.32			1.00	0.00	6.16
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	14	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	15	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	16	1	0.00	0.00	✓	0.00	1.51			1.00	0.00	4.20
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set	Run start	Run finish	Modelling start time	Network Cycle	Performance Index (£ per hr)	Total network delay (hr/hr)	Highest DOS	Item with	Number of oversaturated	Percentage of oversaturated	Item with worst	Item with worst	Item with worst
4	24/09/2018 10:30:36	24/09/2018 10:30:37	17:00	120	1203.90	73.38	99.71	2/1	3	14	2/1	10/1	2/1

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	100	-10	10575	1574	24.98	1041.93	161.97	1203.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
17:00-18:00	10575	10575	0		100	✓	-10	1574

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	16.44	24.98	73.38	1041.93	52.28	5528.75	161.97

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s per cycle)
17:00-18:00	96.87	0.00	299.02

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	0.00	1.00	0.00	0.00	1203.90

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	104.2	0.0	148.8	157.0
	2	90.2	0.0	0.0	138.8	106.2
	3	230.0	87.1	0.0	272.7	278.4
	4	141.7	139.1	0.0	0.0	72.8
	5	119.2	116.2	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
6	2	1	60	90.15	60	90.15
10	3	1	39	229.98	39	229.98
14	3	4	44	272.71	44	272.71
15	3	5	33	278.40	33	278.40
16	1	2	26	104.23	26	104.23
17	1	2	26	104.20	26	104.20
18	3	2	14	87.05	14	87.05
19	3	2	14	87.08	14	87.08
27	4	5	63	72.76	63	72.76
29	5	2	204	116.58	204	116.58
30	4	2	60	137.70	60	137.70
31	4	1	176	141.72	176	141.72
32	4	2	305	139.38	305	139.38
33	5	2	67	115.18	67	115.18
34	5	1	123	119.20	123	119.20
35	2	4	701	138.79	701	138.79
36	2	5	587	106.22	587	106.22
37	1	5	319	157.03	319	157.03
38	1	4	392	148.84	392	148.84

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS			FLOWS		PERFORMANCE				PER PCU		
				Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)
1	1	(untitled)	1	1	A		701	1866	45	0.00	98	-8	101.07	86.16	132.82
	2	(untitled)	1	1	A	E	647	2019	45	0.00	84	8	59.83	44.92	96.86
2	1	(untitled)	1	1	C		116	1745	7	0.00	100	-10	221.28	206.37	190.61
	2	(untitled)	1	1	C		28	1663	7	6.00	25	256	73.54	58.63	96.98
3	1	(untitled)	1	1	B		426	1798	36	0.00	77	17	73.20	43.47	99.39
	2	(untitled)	1	1	B		509	2042	36	0.00	81	11	74.26	45.20	102.91
4	1	(untitled)	1	1	D		763	1847	50	0.00	97	-7	90.69	75.77	126.53
5	1	(untitled)					167	Unrestricted	120	37.00	0	Unrestricted	10.11	0.00	0.00
	2	(untitled)					549	Unrestricted	120	33.00	0	Unrestricted	9.34	0.00	0.00
7	1	(untitled)					398	Unrestricted	120	51.00	0	Unrestricted	12.62	0.00	0.00
8	1	(untitled)	2	2	A		1137	1965	96	0.00	72	26	36.26	6.46	47.11
	2	(untitled)	2	2	B		939	1773	76	0.00	83	9	41.98	12.07	45.93
9	1	(untitled)	2	2	C		299	1892	32	0.00	57	57	37.23	34.75	51.30
	2	(untitled)	2	2	C		305	1929	32	0.00	57	57	37.15	34.68	51.23
10	1	(untitled)	2				604	1965	120	38.36	45	99	23.97	9.06	42.61
11	1	(untitled)	2	2	D		190	1823	76	0.00	16	454	9.17	7.79	31.20
	2	(untitled)	2	2	D		204	1960	76	0.00	16	455	9.14	7.77	31.18
12	1	(untitled)	2				394	1964	120	38.66	30	204	16.68	1.77	26.72
14	1	(untitled)					1137	Unrestricted	120	16.00	0	Unrestricted	9.03	0.00	0.00
15	1	(untitled)					1002	Unrestricted	120	5.00	0	Unrestricted	11.56	0.00	0.00
16	1	(untitled)	1				60	1293	120	74.00	5	1839	17.28	14.84	80.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	2056.12	121.66	10.50	73.38	1041.93	161.97	0.00	1203.90
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	2056.12	121.66	10.50	73.38	1041.93	161.97	0.00	1203.90

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A5 - AM Peak Hour 2023 with Dev. D5 - AM Peak Hour 2023 with Dev.*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
5	24/09/2018 10:30:37	24/09/2018 10:30:37	07:15	112	1476.87	91.51	106.51	4/1	4	19	4/1	12/1	4/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
AM Peak Hour 2023 with Dev.		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
AM Peak Hour 2023 with Dev.				07:15	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
112		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05			1, 2			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
(ALL)	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
1	(untitled)		1
2	(untitled)		1
3	(untitled)		1
4	(untitled)		1
5	(untitled)		
7	(untitled)		
8	(untitled)		2
9	(untitled)		2
10	(untitled)		2
11	(untitled)		2
12	(untitled)		2
14	(untitled)		
15	(untitled)		
16	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
1	1	(untitled)			200.00	✓	Sum of lanes	1866			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	2000			✓		Normal	
2	1	(untitled)			200.00	✓	Sum of lanes	1809			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	1663			✓		Normal	
3	1	(untitled)		✓	326.04	✓	Sum of lanes	1779			✓		Normal	
	2	(untitled)		✓	324.65	✓	Sum of lanes	2042			✓		Normal	
4	1	(untitled)			200.00	✓	Sum of lanes	1847			✓		Normal	
5	1	(untitled)		✓	121.09								Normal	
	2	(untitled)		✓	120.81								Normal	
7	1	(untitled)		✓	116.64								Normal	
8	1	(untitled)		✓	335.30	✓	Sum of lanes	1965			✓		Normal	
	2	(untitled)		✓	337.85	✓	Sum of lanes	1773			✓		Normal	
9	1	(untitled)		✓	33.26	✓	Sum of lanes	1924	✓	1800	✓		Normal	
	2	(untitled)		✓	33.15	✓	Sum of lanes	1929	✓	1800	✓		Normal	
10	1	(untitled)			200.00	✓	Sum of lanes	1965					Normal	
11	1	(untitled)		✓	18.46	✓	Sum of lanes	1823			✓		Normal	
	2	(untitled)		✓	18.44	✓	Sum of lanes	1960			✓		Normal	
12	1	(untitled)			200.00	✓	Sum of lanes	1964					Normal	
14	1	(untitled)		✓	121.12								Normal	
15	1	(untitled)		✓	103.39								Normal	
16	1	(untitled)		✓	21.81	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
1	1	1	(untitled)		✓	N/A	N/A	0	2.51	✓	0	99999.00	✓	1866
	2	1	(untitled)		✓	N/A	N/A	0	2.69	✓	42	51.93		2000
2	1	1	(untitled)		✓	N/A	N/A	0	2.89	✓	38	10.85	✓	1809
	2	1	(untitled)		✓	N/A	N/A	0	2.85	✓	100	10.50	✓	1663
3	1	1	(untitled)		✓	N/A	N/A	0	2.94	✓	83	17.06	✓	1779
	2	1	(untitled)		✓	N/A	N/A	0	2.87	✓	0	99999.00		2042
4	1	1	(untitled)		✓	N/A	N/A	0	4.30	✓	100	13.98	✓	1847
5	1	1	(untitled)											
	2	2	(untitled)											
7	1	1	(untitled)											
8	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
	2	1	(untitled)		✓	N/A	N/A	0	3.40	✓	100	14.64	✓	1773
9	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	3	15.65	✓	1924
	2	9	(untitled)		✓	N/A	N/A	0	3.14	✓	0	99999.00	✓	1929
10	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
11	1	2	(untitled)		✓	N/A	N/A	0	3.40	✓	100	20.68	✓	1823
	2	1	(untitled)		✓	N/A	N/A	0	3.35	✓	100	22.67		1960
12	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	100	57.92	✓	1964
14	1	1	(untitled)											
15	1	1	(untitled)											
16	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
2	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
3	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
4	1	NetworkDefault	100	100	100		0.00		
5	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
7	1	NetworkDefault	100	100	100		0.00		
8	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
9	1	Flare	100	100	100		6.00		
	2	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		4.00		
	2	Flare	100	100	100		4.00		
12	1	NetworkDefault	100	100	100		0.00		
14	1	NetworkDefault	100	100	100		0.00		
15	1	NetworkDefault	100	100	100		0.00		
16	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	112

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
1	1	276	276
	2	295	295
2	1	73	73
	2	26	26
3	1	934	934
	2	981	981
4	1	404	404
5	1	205	205
	2	1025	1025
7	1	942	942
8	1	509	509
	2	308	308
9	1	582	582
	2	583	583
10	1	1165	1165
11	1	370	370
	2	397	397
12	1	767	767
14	1	509	509
15	1	325	325
16	1	124	124

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
1	1	1	A		
	2	1	A	✓	E
2	1	1	C		
	2	1	C		
3	1	1	B		
	2	1	B		
4	1	1	D		
8	1	2	A		
	2	2	B		
9	1	2	C		
	2	2	C		
11	1	2	D		
	2	2	D		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	(ALL)	14.91	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
3	1	1	9/1	3/1	24.31	30.00	✓	Straight	Straight Movement
	2	1	11/2	3/2	36.31	20.00	✓	Nearside	22.67
5	1	1	3/1	5/1	9.03	30.00	✓	Straight	Straight Movement
	2	1	3/2	5/2	9.01	30.00	✓	Straight	Straight Movement
7	1	1	3/1	7/1	13.05	20.00	✓	Nearside	17.06
8	1	1	2/1	8/1	37.50	20.00	✓	Nearside	10.85
	2	1	2/1	8/2	37.79	20.00	✓	Nearside	12.84
9	1	1	10/1	9/1	2.48	30.00	✓	Straight	Straight Movement
	2	1	10/1	9/2	2.47	30.00	✓	Straight	Straight Movement
11	1	1	12/1	11/1	1.38	30.00	✓	Offside	58.13
	2	1	12/1	11/2	1.37	30.00	✓	Offside	57.92
14	1	1	8/1	14/1	9.03	30.00	✓	Straight	Straight Movement
15	1	1	9/1	15/1	11.56	20.00	✓	Nearside	15.65
16	1	1	1/2	16/1	2.44	20.00	✓	Offside	51.93
3	1	2	11/1	3/1	36.47	20.00	✓	Nearside	20.68
	2	2	9/2	3/2	24.21	30.00	✓	Straight	Straight Movement
5	1	2	4/1	5/1	13.54	20.00	✓	Nearside	13.98
	2	2	4/1	5/2	13.51	20.00	✓	Nearside	15.98
7	1	2	16/1	7/1	13.05	20.00	✓	Offside	6.85
8	1	2	1/1	8/1	25.00	30.00	✓	Straight	Straight Movement
	2	2	1/2	8/2	25.19	30.00	✓	Straight	Straight Movement
15	1	2	8/2	15/1	11.56	20.00	✓	Offside	14.64
5	1	3	2/2	5/1	13.54	20.00	✓	Offside	10.50
	2	3	2/2	5/2	13.51	20.00	✓	Offside	10.50
7	1	3	2/1	7/1	8.70	30.00	✓	Straight	Straight Movement
8	1	3	4/1	8/1	37.50	20.00	✓	Offside	22.60
	2	3	4/1	8/2	37.79	20.00	✓	Offside	22.60

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
16	1	Movement	✓	0	✓	6.85	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Unopposed) (PCU/hr)	Percentage opposed (%)
16	1	1	7/1	1800	100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Upstream signals visible	Conflict shift	Conflict duration
16	1	1	7/1		TrafficStreamMovement	3/1	5/1	100		0	2
					TrafficStreamMovement	3/2	5/2	100		0	2
					TrafficStreamMovement	3/1	7/1	100		0	2

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
	1	2	3	4	5	
From	1	0	62	0	214	128
	2	124	0	0	276	171
	3	45	26	0	19	9
	4	467	681	0	0	17
	5	306	461	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	4/1	7/1	#FF0000
	2	(untitled)	1/1, 1/2	5/1, 5/2	#00FF00
	3	(untitled)	2/1, 2/2		#FFFF00
	4	(untitled)	10/1	14/1	#FFFF00
	5	(untitled)	12/1	15/1	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	6		2	1	1/2, 16/1, 7/1	Normal	124
	10		3	1	2/1, 7/1	Normal	45
	14		3	4	2/1, 8/1, 14/1	Normal	19
	15		3	5	2/1, 8/2, 15/1	Normal	9
	16		1	2	4/1, 5/1	Normal	31
	17		1	2	4/1, 5/2	Normal	31
	18		3	2	2/2, 5/2	Normal	13
	19		3	2	2/2, 5/1	Normal	13
	27		4	5	10/1, 9/1, 15/1	Normal	17
	29		5	2	12/1, 11/2, 3/2, 5/2	Normal	397
	30		4	2	10/1, 9/1, 3/1, 5/1	Normal	98
	31		4	1	10/1, 9/1, 3/1, 7/1	Normal	467
	32		4	2	10/1, 9/2, 3/2, 5/2	Normal	583
	33		5	2	12/1, 11/1, 3/1, 5/1	Normal	64
	34		5	1	12/1, 11/1, 3/1, 7/1	Normal	306
	35		2	4	1/1, 8/1, 14/1	Normal	276
	36		2	5	1/2, 8/2, 15/1	Normal	171
	37		1	5	4/1, 8/2, 15/1	Normal	128
	38		1	4	4/1, 8/1, 14/1	Normal	214

Signal Timings

Network Default: 112s cycle time; 112 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	112

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	D	1
	3	C	1
	4	A, E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1		Single	1, 2, 3, 4	26, 55, 67, 77

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7		
	B			7	7	5	
	C	6	6		5	6	
	D	6	6	5		6	
	E		5	7	7		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	4
	1				
	2				
	3				
	4				

Interstage Matrix for Controller Stream 1

	To				
	1	2	3	4	
From	1	0	7	7	5
	2	6	0	5	6
	3	6	5	0	6
	4	5	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	82	26	56	1	7
	2	✓	2	D	33	55	22	1	7
	3	✓	3	C	60	67	7	1	7
	4	✓	4	A,E	73	77	4	1	4

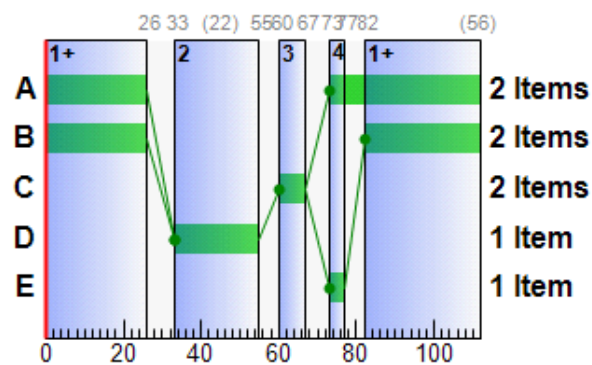
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	73	26	65
	B	1	✓	82	26	56
	C	1	✓	60	67	7
	D	1	✓	33	55	22
	E	1	✓	73	77	4

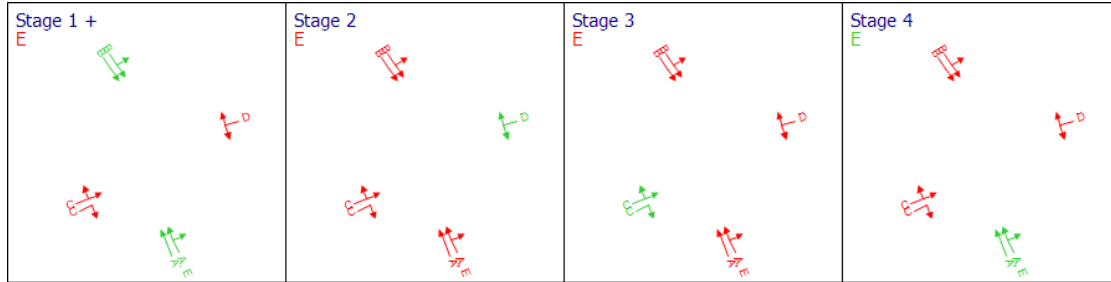
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1	1	1	A	73	26	65
1	2	1	1	A	73	26	65
2	1	1	1	C	60	67	7
2	2	1	1	C	60	67	7
3	1	1	1	B	82	26	56
3	2	1	1	B	82	26	56
4	1	1	1	D	33	55	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Controller Stream 2

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
2	(untitled)		1	NetworkDefault	112

Controller Stream 2 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
2	Unspecified						Absolute

Controller Stream 2 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
2	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
2	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	7	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Traffic	
	E	(untitled)	10	300	0	0	Pedestrian	0
	F	(untitled)	2	300	0	0	Dummy	

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
2	1	A, B, D	1
	2	A, C	1
	3	B, D, E	1

Losing / Gaining Phase Delays

Controller Stream	Delay	Type	Phase	From stage	To stage	Relative delay
2	1	Losing	D	1	2	1
	2	Losing	B	3	2	1
	3	Losing	D	3	2	2

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
2	1		Single	1, 2, 3	74, 26, 43

Intergreen Matrix for Controller Stream 2

	To						
		A	B	C	D	E	F
From	A					7	
	B			6			
	C		6		7	5	7
	D			5			
	E	7		6			7
	F			6		7	

Banned Stage transitions for Controller Stream 2

	To			
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 2

	To			
From		1	2	3
	1	0	6	7
	2	7	0	7
	3	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B,D	50	74	24	1	1
	2	✓	2	A,C	80	26	58	1	7
	3	✓	3	B,D,E	33	43	10	1	10

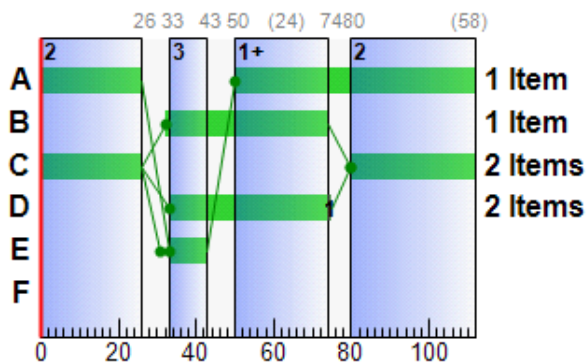
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
2	A	1	✓	50	26	88
	B	1	✓	32	74	42
	C	1	✓	80	26	58
	D	1	✓	33	75	42
	E	1	✓	33	43	10

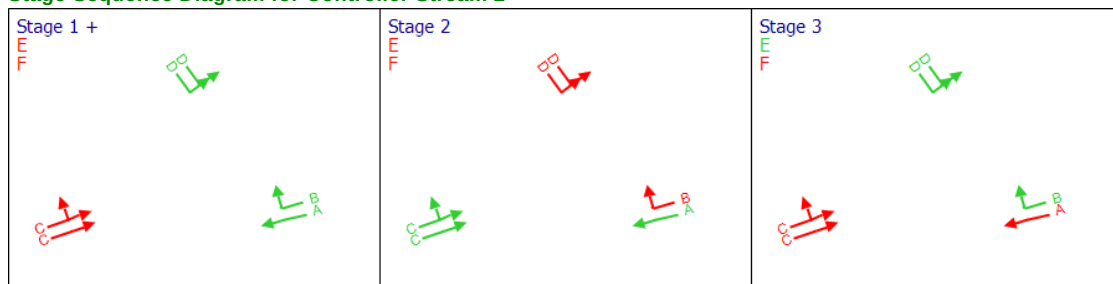
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
8	1	2	2	A	50	26	88
8	2	2	2	B	32	74	42
9	1	2	2	C	80	26	58
9	2	2	2	C	80	26	58
11	1	2	2	D	33	75	42
11	2	2	2	D	33	75	42

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
07:15-08:15	(ALL)	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
07:15-08:15	1	1	(untitled)	A	276	1866	65	1100	25	259	11.63	4.11	11.80	26.55
		2	(untitled)	A	295	2000	65	1179	25	260	11.59	4.38	12.61	26.50
	2	1	(untitled)	C	73	1809	7	129	56	59	67.86	2.55	7.32	82.77
		2	(untitled)	C	26	1663	7	119	22	311	53.34	0.79	2.27	68.25
	3	1	(untitled)	B	935	1779	56	905	103	-13	113.68	51.80	91.36	142.80
		2	(untitled)	B	980	2042	56	1039	94	-5	40.49	34.73	61.52	69.60
	4	1	(untitled)	D	404	1847	22	379	107	-16	197.59	29.18	83.89	212.51
	5	1	(untitled)		199	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.98
		2	(untitled)		1022	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.19
	7	1	(untitled)		918	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.83
	8	1	(untitled)	A	496	1965	88	1561	32	183	2.08	1.94	3.33	32.63
		2	(untitled)	B	300	1773	42	681	44	104	41.71	8.41	14.32	72.33
	9	1	(untitled)	C	582	1924	58	1014	57	57	13.80	5.20	86.60	16.28
		2	(untitled)	C	583	1929	58	1016	57	57	13.79	5.21	86.85	16.26
	10	1	(untitled)		1165	1965	112	1421	82	10	15.21	26.42	75.96	30.13
	11	1	(untitled)	D	370	1823	42	700	53	70	16.08	3.08	77.04	17.45
		2	(untitled)	D	397	1960	42	753	53	71	15.86	3.28	82.07	17.24
	12	1	(untitled)		767	1964	112	843	91	-1	37.11	26.24	75.44	52.02
	14	1	(untitled)		496	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.03
	15	1	(untitled)		317	Unrestricted	112	Unrestricted	0	Unrestricted	0.00	0.00	0.00	11.56
	16	1	(untitled)		124	884	112	884	14	542	21.01	2.30	115.07	23.45

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	82	26	56	1	7
	2	✓	2	D	33	55	22	1	7
	3	✓	3	C	60	67	7	1	7
	4	✓	4	A,E	73	77	4	1	4
2	1	✓	1	A,B,D	50	74	24	1	1
	2	✓	2	A,C	80	26	58	1	7
	3	✓	3	B,D,E	33	43	10	1	10

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow
2	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	10	300	0	0	Pedestrian
	F	F	2	300	0	0	Dummy

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
1	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1866	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2000	100	100
2	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1809	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1663	100	100
3	1	✓	326.04	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1779	100	100
	2	✓	324.65	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2042	100	100
4	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1847	100	100
5	1	✓	121.09	NetworkDefault	0.00	Normal						100	100
	2	✓	120.81	NetworkDefault	0.00	Normal						100	100
7	1	✓	116.64	NetworkDefault	0.00	Normal						100	100
8	1	✓	335.30	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1965	100	100
	2	✓	337.85	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1773	100	100
9	1	✓	33.26	Flare	6.00	Normal	✓	✓		Sum of lanes	1924	100	100
	2	✓	33.15	Flare	6.00	Normal	✓	✓		Sum of lanes	1929	100	100
10	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1965	100	100
11	1	✓	18.46	Flare	4.00	Normal	✓	✓		Sum of lanes	1823	100	100
	2	✓	18.44	Flare	4.00	Normal	✓	✓		Sum of lanes	1960	100	100
12	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1964	100	100
14	1	✓	121.12	NetworkDefault	0.00	Normal						100	100
15	1	✓	103.39	NetworkDefault	0.00	Normal						100	100
16	1	✓	21.81	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:15-08:15	1	1	25	259	276	1866	65	11.63	4.11	11.80	12.67	4.11	16.78
		2	25	260	295	2000	65	11.59	4.38	12.61	13.49	4.39	17.88
	2	1	56	59	73	1809	7	67.86	2.55	7.32	19.54	2.60	22.14
		2	22	311	26	1663	7	53.34	0.79	2.27	5.47	0.81	6.28
	3	1	103	-13	935	1779	56	113.68	51.80	91.36	419.25	38.42	457.67
		2	94	-5	980	2042	56	40.49	34.73	61.52	156.53	25.44	181.96
	4	1	107	-16	404	1847	22	197.59	29.18	83.89	314.88	25.43	340.31
	5	1	0	Unrestricted	199	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	1022	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	0	Unrestricted	918	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	32	183	496	1965	88	2.08	1.94	3.33	4.07	1.88	5.95
		2	44	104	300	1773	42	41.71	8.41	14.32	49.39	6.78	56.17
	9	1	57	57	582	1924	58	13.80	5.20	86.60	31.68	5.42	37.11
		2	57	57	583	1929	58	13.79	5.21	86.85	31.71	5.43	37.14
	10	1	82	10	1165	1965	112	15.21	26.42	75.96	69.91	24.66	94.56
	11	1	53	70	370	1823	42	16.08	3.08	77.04	23.46	3.21	26.68
		2	53	71	397	1960	42	15.86	3.28	82.07	24.84	3.43	28.27
	12	1	91	-1	767	1964	112	37.11	26.24	75.44	112.27	24.35	136.62
	14	1	0	Unrestricted	496	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	0	Unrestricted	317	Unrestricted	112	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	14	542	124	884	112	21.01	2.30	115.07	10.28	1.10	11.37

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
07:15-08:15	1	1	276	276	0		1866	1100	25		259	0.00	65
		2	295	295	0		2000	1179	25		260	0.00	65
	2	1	73	73	0		1809	129	56		59	0.00	7
		2	26	26	0		1663	119	22		311	0.00	7
	3	1	935	905	-1		1779	905	103	✓	-13	0.33	56
		2	980	980	1		2042	1039	94	✓	-5	0.32	56
	4	1	404	379	0		1847	379	107	✓	-16	0.00	22
		2	199	199	6	✓	Unrestricted	Unrestricted	0		Unrestricted	0.52	112
	5	1	1022	1022	3	✓	Unrestricted	Unrestricted	0		Unrestricted	0.86	112
		2	918	918	24	✓	Unrestricted	Unrestricted	0		Unrestricted	0.63	112
	8	1	496	496	13	✓	1965	1561	32		183	0.55	88
		2	300	300	8	✓	1773	681	44		104	0.54	42
	9	1	582	582	0		1924	1014	57		57	0.51	58
		2	583	583	0		1929	1016	57		57	0.51	58
	10	1	1165	1165	0		1965	1421	82		10	0.00	112
		2	370	370	0		1823	700	53		70	0.86	42
	11	1	397	397	0		1960	753	53		71	0.86	42
		2	767	767	0		1964	843	91	✓	-1	0.00	112
	14	1	496	496	13	✓	Unrestricted	Unrestricted	0		Unrestricted	0.63	112
		2	317	317	8	✓	Unrestricted	Unrestricted	0		Unrestricted	1.22	112
	16	1	124	124	0		884	884	14		542	0.81	112

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:15-08:15	1	1	14.91	11.63	0.89	12.67	45.88	126.64	4.11
		2	14.91	11.59	0.95	13.49	45.84	135.24	4.39
	2	1	14.91	67.86	1.38	19.54	109.64	80.04	2.60
		2	14.91	53.34	0.39	5.47	95.69	24.88	0.81
	3	1	29.12	113.68	29.52	419.25	167.95	1520.62	38.42
		2	29.11	40.49	11.02	156.53	106.45	1043.25	25.44
	4	1	14.91	197.59	22.17	314.88	206.49	783.21	25.43
		2	9.98	0.00	0.00	0.00	0.00	0.00	0.00
	5	1	9.19	0.00	0.00	0.00	0.00	0.00	0.00
		2	9.19	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	12.83	0.00	0.00	0.00	0.00	0.00	0.00
		2	30.54	2.08	0.29	4.07	11.85	58.77	1.88
	8	1	30.61	41.71	3.48	49.39	89.03	267.25	6.78
		2	2.48	13.80	2.23	31.68	28.69	166.95	5.42
	9	1	2.47	13.79	2.23	31.71	28.68	167.18	5.43
		2	14.91	15.21	4.92	69.91	65.17	759.24	24.66
	10	1	1.38	16.08	1.65	23.46	26.76	98.99	3.21
		2	1.37	15.86	1.75	24.84	26.57	105.48	3.43
	11	1	14.91	37.11	7.91	112.27	97.76	749.84	24.35
		2	9.03	0.00	0.00	0.00	0.00	0.00	0.00
	14	1	11.56	0.00	0.00	0.00	0.00	0.00	0.00
		2	2.44	21.01	0.72	10.28	61.32	76.03	1.10

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
07:15-08:15	1	1	0.00	4.11	34.78	11.80	0.00	0.00	
		2	0.00	4.38	34.78	12.61	0.00	9.00	
	2	1	0.00	2.55	34.78	7.32	0.00	0.00	
		2	0.00	0.79	34.78	2.27	0.00	6.00	
	3	1	0.00	51.80	56.70	91.36	0.00	0.00	
		2	0.00	34.73	56.46	61.52	0.00	0.00	
	4	1	0.00	29.18	34.78	83.89	0.00	0.00	
	5	1	0.00	0.00	21.06	0.00	0.00	18.00	
		2	0.00	0.00	21.01	0.00	0.00	13.00	
	7	1	0.00	0.00	20.28	0.00	0.00	18.00	
	8	1	0.00	1.94	58.31	3.33	0.00	5.00	
		2	0.00	8.41	58.76	14.32	0.00	9.00	
	9	1	0.00	5.20	6.00	86.60	0.00	0.00	
		2	0.00	5.21	6.00	86.85	0.00	0.00	
	10	1	0.00	26.42	34.78	75.96	0.00	31.01	
	11	1	0.00	3.08	4.00	77.04	0.00	0.00	
		2	0.00	3.28	4.00	82.07	0.00	0.00	
	12	1	0.00	26.24	34.78	75.44	0.00	63.95	
	14	1	0.00	0.00	21.06	0.00	0.00	19.00	
	15	1	0.00	0.00	17.98	0.00	0.00	57.00	
	16	1	0.00	2.30	2.00	115.07	0.00	43.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
07:15-08:15	10	1	✓	CTM flare: 10/1,9/1,9/2	95	36.83	1225	-5
	12	1	✓	CPDM flare: 12/1,11/2,11/1	91	32.60	842	-1

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
07:15-08:15	1	1	0.00	0.00	✓	0.00	4.11	0.04	3.57	1.00	0.00	16.78
		2	0.00	0.00	✓	0.00	4.38	0.04	3.81	1.00	0.00	17.88
	2	1	0.00	0.00	✓	0.00	2.55	0.36	2.47	1.00	0.00	22.14
		2	0.00	0.00	✓	0.00	0.79	0.03	0.78	1.00	0.00	6.28
	3	1	0.00	0.00	✓	0.00	68.42	40.52	49.98	1.00	0.00	457.67
		2	0.00	0.00	✓	0.00	35.35	6.89	17.13	1.00	0.00	181.96
	4	1	0.00	0.00	✓	0.00	42.39	30.69	40.07	1.00	0.00	340.31
	5	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	7	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	8	1	0.00	0.00	✓	0.00	1.94	0.07	1.82	1.00	0.00	5.95
		2	0.00	0.00	✓	0.00	8.41	0.17	7.65	1.00	0.00	56.17
	9	1	0.00	0.00	✓	0.00	5.20	0.39	5.20	1.00	0.00	37.11
		2	0.00	0.00	✓	0.00	5.21	0.39	5.20	1.00	0.00	37.14
	10	1	0.00	0.00	✓	0.00	26.44			1.00	0.00	94.56
	11	1	0.00	0.00	✓	0.00	3.08	0.30	3.08	1.00	0.00	26.68
		2	0.00	0.00	✓	0.00	3.28	0.29	3.28	1.00	0.00	28.27
	12	1	0.00	0.00	✓	0.00	26.48			1.00	0.00	136.62
	14	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	15	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	16	1	0.00	0.00	✓	0.00	2.30			1.00	0.00	11.37

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
5	24/09/2018 10:30:37	24/09/2018 10:30:37	07:15	112	1476.87	91.51	106.51	4/1	4	19	4/1	12/1	4/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:15-08:15	107	-16	10725	1504	30.72	1299.42	177.45	1476.87

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
07:15-08:15	10725	10670	75	✓	107	✓	-16	1504

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:15-08:15	14.96	30.72	91.51	1299.42	58.41	6163.62	177.45

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s per cycle)
07:15-08:15	115.07	0.00	291.96

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
07:15-08:15	0.00	0.00	✓	0.00	1.00	0.00	0.00	1476.87

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	226.0	0.0	259.6	309.9
	2	63.0	0.0	0.0	63.8	100.1
	3	91.5	81.8	0.0	130.0	183.0
	4	200.1	132.3	0.0	0.0	58.0
	5	228.6	162.7	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
6	2	1	124	63.00	124	63.00
10	3	1	45	91.47	45	91.47
14	3	4	19	130.04	19	130.04
15	3	5	9	183.04	9	183.04
16	1	2	31	226.05	31	226.05
17	1	2	31	226.02	31	226.02
18	3	2	13	81.77	13	81.77
19	3	2	13	81.80	13	81.80
27	4	5	17	57.97	17	57.97
29	5	2	397	152.83	397	152.83
30	4	2	98	196.06	98	196.06
31	4	1	467	200.08	467	200.08
32	4	2	583	121.62	583	121.62
33	5	2	64	224.62	64	224.62
34	5	1	306	228.64	306	228.64
35	2	4	276	63.85	276	63.85
36	2	5	171	100.07	171	100.07
37	1	5	128	309.86	128	309.86
38	1	4	214	259.62	214	259.62

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS			FLOWS		PERFORMANCE				PER PCU		
				Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)
1	1	(untitled)	1	1	A		276	1866	65	0.00	25	259	26.55	11.63	45.88
	2	(untitled)	1	1	A	E	295	2000	65	9.00	25	260	26.50	11.59	45.84
2	1	(untitled)	1	1	C		73	1809	7	0.00	56	59	82.77	67.86	109.64
	2	(untitled)	1	1	C		26	1663	7	6.00	22	311	68.25	53.34	95.69
3	1	(untitled)	1	1	B		935	1779	56	0.00	103	-13	142.80	113.68	167.95
	2	(untitled)	1	1	B		980	2042	56	0.00	94	-5	69.60	40.49	106.45
4	1	(untitled)	1	1	D		404	1847	22	0.00	107	-16	212.51	197.59	206.49
5	1	(untitled)					199	Unrestricted	112	18.00	0	Unrestricted	9.98	0.00	0.00
	2	(untitled)					1022	Unrestricted	112	13.00	0	Unrestricted	9.19	0.00	0.00
7	1	(untitled)					918	Unrestricted	112	18.00	0	Unrestricted	12.83	0.00	0.00
8	1	(untitled)	2	2	A		496	1965	88	5.00	32	183	32.63	2.08	11.85
	2	(untitled)	2	2	B		300	1773	42	9.00	44	104	72.33	41.71	89.03
9	1	(untitled)	2	2	C		582	1924	58	0.00	57	57	16.28	13.80	28.69
	2	(untitled)	2	2	C		583	1929	58	0.00	57	57	16.26	13.79	28.68
10	1	(untitled)	2				1165	1965	112	31.01	82	10	30.13	15.21	65.17
11	1	(untitled)	2	2	D		370	1823	42	0.00	53	70	17.45	16.08	26.76
	2	(untitled)	2	2	D		397	1960	42	0.00	53	71	17.24	15.86	26.57
12	1	(untitled)	2				767	1964	112	63.95	91	-1	52.02	37.11	97.76
14	1	(untitled)					496	Unrestricted	112	19.00	0	Unrestricted	9.03	0.00	0.00
15	1	(untitled)					317	Unrestricted	112	57.00	0	Unrestricted	11.56	0.00	0.00
16	1	(untitled)	1				124 <	884	112	43.00	14	542	23.45	21.01	61.32

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1894.88	136.08	8.65	91.51	1299.42	177.45	0.00	1476.87
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1894.88	136.08	8.65	91.51	1299.42	177.45	0.00	1476.87

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A6 - PM Peak Hour 2023 with Dev. D6 - PM Peak Hour 2023 with Dev.*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
6	24/09/2018 10:30:37	24/09/2018 10:30:38	17:00	120	1261.88	76.99	99.71	2/1	3	14	2/1	10/1	2/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
PM Peak Hour 2023 with Dev.		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
PM Peak Hour 2023 with Dev.				17:00	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ² [-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ² [-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05			1, 2			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
(ALL)	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
1	(untitled)		1
2	(untitled)		1
3	(untitled)		1
4	(untitled)		1
5	(untitled)		
7	(untitled)		
8	(untitled)		2
9	(untitled)		2
10	(untitled)		2
11	(untitled)		2
12	(untitled)		2
14	(untitled)		
15	(untitled)		
16	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
1	1	(untitled)			200.00	✓	Sum of lanes	1866			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	2019			✓		Normal	
2	1	(untitled)			200.00	✓	Sum of lanes	1745			✓		Normal	
	2	(untitled)			200.00	✓	Sum of lanes	1663			✓		Normal	
3	1	(untitled)		✓	326.04	✓	Sum of lanes	1794			✓		Normal	
	2	(untitled)		✓	324.65	✓	Sum of lanes	2042			✓		Normal	
4	1	(untitled)			200.00	✓	Sum of lanes	1847			✓		Normal	
5	1	(untitled)		✓	121.09								Normal	
	2	(untitled)		✓	120.81								Normal	
7	1	(untitled)		✓	116.64								Normal	
8	1	(untitled)		✓	335.30	✓	Sum of lanes	1965			✓		Normal	
	2	(untitled)		✓	337.85	✓	Sum of lanes	1773			✓		Normal	
9	1	(untitled)		✓	33.26	✓	Sum of lanes	1892	✓	1800	✓		Normal	
	2	(untitled)		✓	33.15	✓	Sum of lanes	1929	✓	1800	✓		Normal	
10	1	(untitled)			200.00	✓	Sum of lanes	1965					Normal	
11	1	(untitled)		✓	18.46	✓	Sum of lanes	1823			✓		Normal	
	2	(untitled)		✓	18.44	✓	Sum of lanes	1960			✓		Normal	
12	1	(untitled)			200.00	✓	Sum of lanes	1964					Normal	
14	1	(untitled)		✓	121.12								Normal	
15	1	(untitled)		✓	103.39								Normal	
16	1	(untitled)		✓	21.81	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
1	1	1	(untitled)		✓	N/A	N/A	0	2.51	✓	0	99999.00	✓	1866
	2	1	(untitled)		✓	N/A	N/A	0	2.69	✓	9	51.93		2019
2	1	1	(untitled)		✓	N/A	N/A	0	2.89	✓	66	10.85	✓	1745
	2	1	(untitled)		✓	N/A	N/A	0	2.85	✓	100	10.50	✓	1663
3	1	1	(untitled)		✓	N/A	N/A	0	2.94	✓	73	17.06	✓	1794
	2	1	(untitled)		✓	N/A	N/A	0	2.87	✓	0	99999.00		2042
4	1	1	(untitled)		✓	N/A	N/A	0	4.30	✓	100	13.98	✓	1847
5	1	1	(untitled)											
	2	2	(untitled)											
7	1	1	(untitled)											
8	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
	2	1	(untitled)		✓	N/A	N/A	0	3.40	✓	100	14.64	✓	1773
9	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	21	15.65	✓	1892
	2	9	(untitled)		✓	N/A	N/A	0	3.14	✓	0	99999.00	✓	1929
10	1	1	(untitled)		✓	N/A	N/A	0	3.50	✓	0	99999.00	✓	1965
11	1	2	(untitled)		✓	N/A	N/A	0	3.40	✓	100	20.68	✓	1823
	2	1	(untitled)		✓	N/A	N/A	0	3.35	✓	100	22.67		1960
12	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	100	57.92	✓	1964
14	1	1	(untitled)											
15	1	1	(untitled)											
16	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
2	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
3	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
4	1	NetworkDefault	100	100	100		0.00		
5	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
7	1	NetworkDefault	100	100	100		0.00		
8	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
9	1	Flare	100	100	100		6.00		
	2	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		4.00		
	2	Flare	100	100	100		4.00		
12	1	NetworkDefault	100	100	100		0.00		
14	1	NetworkDefault	100	100	100		0.00		
15	1	NetworkDefault	100	100	100		0.00		
16	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
1	1	703	703
	2	645	645
2	1	116	116
	2	28	28
3	1	435	435
	2	519	519
4	1	774	774
5	1	157	157
	2	559	559
7	1	417	417
8	1	1146	1146
	2	941	941
9	1	306	306
	2	312	312
10	1	618	618
11	1	192	192
	2	207	207
12	1	399	399
14	1	1146	1146
15	1	1004	1004
16	1	60	60

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
1	1	1	A		
	2	1	A	✓	E
2	1	1	C		
	2	1	C		
3	1	1	B		
	2	1	B		
4	1	1	D		
8	1	2	A		
	2	2	B		
9	1	2	C		
	2	2	C		
11	1	2	D		
	2	2	D		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	(ALL)	14.91	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
3	1	1	9/1	3/1	24.31	30.00	✓	Straight	Straight Movement
	2	1	11/2	3/2	36.31	20.00	✓	Nearside	22.67
5	1	1	3/1	5/1	9.03	30.00	✓	Straight	Straight Movement
	2	1	3/2	5/2	9.01	30.00	✓	Straight	Straight Movement
7	1	1	3/1	7/1	13.05	20.00	✓	Nearside	17.06
8	1	1	2/1	8/1	37.50	20.00	✓	Nearside	10.85
	2	1	2/1	8/2	37.79	20.00	✓	Nearside	12.84
9	1	1	10/1	9/1	2.48	30.00	✓	Straight	Straight Movement
	2	1	10/1	9/2	2.47	30.00	✓	Straight	Straight Movement
11	1	1	12/1	11/1	1.38	30.00	✓	Offside	58.13
	2	1	12/1	11/2	1.37	30.00	✓	Offside	57.92
14	1	1	8/1	14/1	9.03	30.00	✓	Straight	Straight Movement
15	1	1	9/1	15/1	11.56	20.00	✓	Nearside	15.65
16	1	1	1/2	16/1	2.44	20.00	✓	Offside	51.93
3	1	2	11/1	3/1	36.47	20.00	✓	Nearside	20.68
	2	2	9/2	3/2	24.21	30.00	✓	Straight	Straight Movement
5	1	2	4/1	5/1	13.54	20.00	✓	Nearside	13.98
	2	2	4/1	5/2	13.51	20.00	✓	Nearside	15.98
7	1	2	16/1	7/1	13.05	20.00	✓	Offside	6.85
8	1	2	1/1	8/1	25.00	30.00	✓	Straight	Straight Movement
	2	2	1/2	8/2	25.19	30.00	✓	Straight	Straight Movement
15	1	2	8/2	15/1	11.56	20.00	✓	Offside	14.64
5	1	3	2/2	5/1	13.54	20.00	✓	Offside	10.50
	2	3	2/2	5/2	13.51	20.00	✓	Offside	10.50
7	1	3	2/1	7/1	8.70	30.00	✓	Straight	Straight Movement
8	1	3	4/1	8/1	37.50	20.00	✓	Offside	22.60
	2	3	4/1	8/2	37.79	20.00	✓	Offside	22.60

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
16	1	Movement	✓	0	✓	6.85	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Unopposed) (PCU/hr)	Percentage opposed (%)
16	1	1	7/1	1800	100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Upstream signals visible	Conflict shift	Conflict duration
16	1	1	7/1		TrafficStreamMovement	3/1	5/1	100		0	2
					TrafficStreamMovement	3/2	5/2	100		0	2
					TrafficStreamMovement	3/1	7/1	100		0	2

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
	1	2	3	4	5	
From	1	0	52	0	399	323
	2	60	0	0	703	585
	3	39	28	0	44	33
	4	188	367	0	0	63
	5	130	269	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	4/1	7/1	#FF0000
	2	(untitled)	1/1, 1/2	5/1, 5/2	#00FF00
	3	(untitled)	2/1, 2/2		#FFFF00
	4	(untitled)	10/1	14/1	#FFFF00
	5	(untitled)	12/1	15/1	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	6		2	1	1/2, 16/1, 7/1	Normal	60
	10		3	1	2/1, 7/1	Normal	39
	14		3	4	2/1, 8/1, 14/1	Normal	44
	15		3	5	2/1, 8/2, 15/1	Normal	33
	16		1	2	4/1, 5/1	Normal	26
	17		1	2	4/1, 5/2	Normal	26
	18		3	2	2/2, 5/2	Normal	14
	19		3	2	2/2, 5/1	Normal	14
	27		4	5	10/1, 9/1, 15/1	Normal	63
	29		5	2	12/1, 11/2, 3/2, 5/2	Normal	207
	30		4	2	10/1, 9/1, 3/1, 5/1	Normal	55
	31		4	1	10/1, 9/1, 3/1, 7/1	Normal	188
	32		4	2	10/1, 9/2, 3/2, 5/2	Normal	312
	33		5	2	12/1, 11/1, 3/1, 5/1	Normal	62
	34		5	1	12/1, 11/1, 3/1, 7/1	Normal	130
	35		2	4	1/1, 8/1, 14/1	Normal	703
	36		2	5	1/2, 8/2, 15/1	Normal	585
	37		1	5	4/1, 8/2, 15/1	Normal	323
	38		1	4	4/1, 8/1, 14/1	Normal	399

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	D	1
	3	C	1
	4	A, E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1		Single	1, 2, 3, 4	85, 22, 34, 44

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7		
	B			7	7	5	
	C	6	6		5	6	
	D	6	6	5		6	
	E		5	7	7		

Banned Stage transitions for Controller Stream 1

		To				
From		1	2	3	4	
	1					
	2					
	3					
	4					

Interstage Matrix for Controller Stream 1

	To				
	1	2	3	4	
From	1	0	7	7	5
	2	6	0	5	6
	3	6	5	0	6
	4	5	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	49	85	36	1	7
	2	✓	2	D	92	22	50	1	7
	3	✓	3	C	27	34	7	1	7
	4	✓	4	A,E	40	44	4	1	4

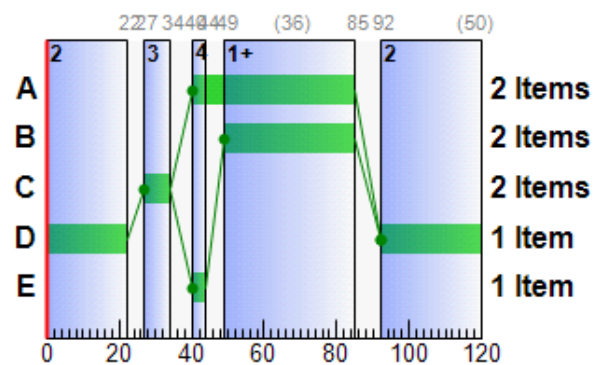
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	40	85	45
	B	1	✓	49	85	36
	C	1	✓	27	34	7
	D	1	✓	92	22	50
	E	1	✓	40	44	4

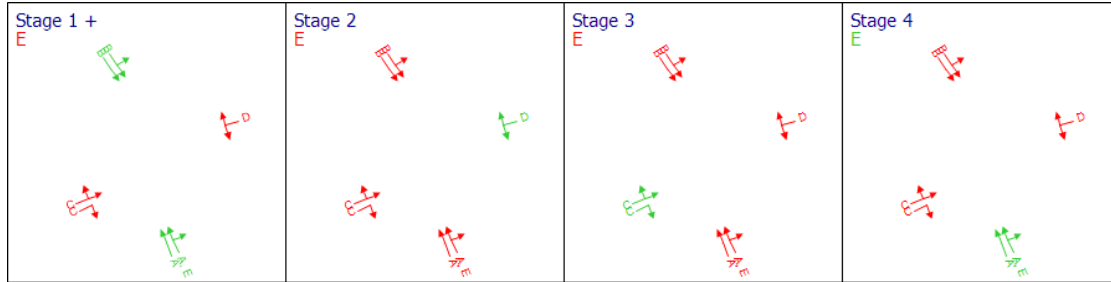
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1	1	1	A	40	85	45
1	2	1	1	A	40	85	45
2	1	1	1	C	27	34	7
2	2	1	1	C	27	34	7
3	1	1	1	B	49	85	36
3	2	1	1	B	49	85	36
4	1	1	1	D	92	22	50

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Controller Stream 2

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
2	(untitled)		1	NetworkDefault	120

Controller Stream 2 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
2	Unspecified						Absolute

Controller Stream 2 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
2	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
2	A	(untitled)	7	300	0	0	Traffic	
	B	(untitled)	7	300	0	0	Traffic	
	C	(untitled)	7	300	0	0	Traffic	
	D	(untitled)	7	300	0	0	Traffic	
	E	(untitled)	10	300	0	0	Pedestrian	0
	F	(untitled)	2	300	0	0	Dummy	

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
2	1	A, B, D	1
	2	A, C	1
	3	B, D, E	1

Losing / Gaining Phase Delays

Controller Stream	Delay	Type	Phase	From stage	To stage	Relative delay
2	1	Losing	D	1	2	1
	2	Losing	B	3	2	1
	3	Losing	D	3	2	2

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
2	1		Single	1, 2, 3	108, 26, 43

Intergreen Matrix for Controller Stream 2

	To						
		A	B	C	D	E	F
From	A					7	
	B			6			
	C		6		7	5	7
	D			5			
	E	7		6			7
	F			6		7	

Banned Stage transitions for Controller Stream 2

	To			
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 2

	To			
From		1	2	3
	1	0	6	7
	2	7	0	7
	3	7	7	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B,D	50	108	58	1	1
	2	✓	2	A,C	114	26	32	1	7
	3	✓	3	B,D,E	33	43	10	1	10

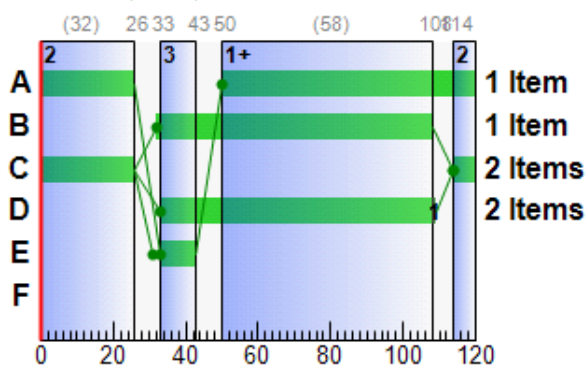
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
2	A	1	✓	50	26	96
	B	1	✓	32	108	76
	C	1	✓	114	26	32
	D	1	✓	33	109	76
	E	1	✓	33	43	10

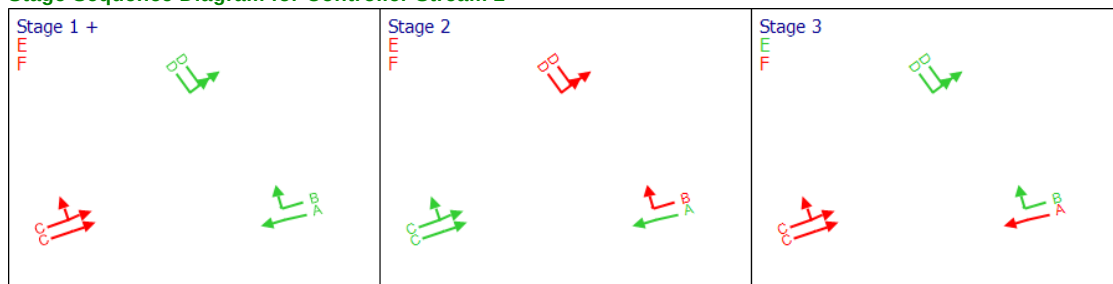
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
8	1	2	2	A	50	26	96
8	2	2	2	B	32	108	76
9	1	2	2	C	114	26	32
9	2	2	2	C	114	26	32
11	1	2	2	D	33	109	76
11	2	2	2	D	33	109	76

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	(ALL)	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
17:00-18:00	1	1	(untitled)	A	703	1866	45	715	98	-8	88.11	33.10	95.16	103.02
		2	(untitled)	A	645	2019	45	774	83	8	44.67	21.35	61.37	59.59
	2	1	(untitled)	C	116	1745	7	116	100	-10	206.37	8.68	24.96	221.28
		2	(untitled)	C	28	1663	7	111	25	256	58.63	0.92	2.65	73.54
	3	1	(untitled)	B	435	1794	36	553	79	14	44.71	14.97	26.40	74.38
		2	(untitled)	B	519	2042	36	630	82	9	46.51	18.38	32.55	75.54
	4	1	(untitled)	D	774	1847	50	785	99	-9	85.10	36.33	104.44	100.02
	5	1	(untitled)		157	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	10.18
		2	(untitled)		559	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.33
	7	1	(untitled)		417	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.64
	8	1	(untitled)	A	1146	1965	96	1588	72	25	6.79	32.12	55.08	36.62
		2	(untitled)	B	941	1773	76	1138	83	9	12.12	14.26	24.27	42.08
	9	1	(untitled)	C	306	1892	32	520	59	53	34.63	5.23	87.11	37.11
		2	(untitled)	C	312	1929	32	530	59	53	34.55	5.24	87.38	37.02
	10	1	(untitled)		618	1965	120	1308	47	91	9.83	10.17	29.23	24.75
	11	1	(untitled)	D	192	1823	76	1170	16	448	7.79	1.99	49.69	9.16
		2	(untitled)	D	207	1960	76	1258	16	447	7.77	2.14	53.55	9.14
	12	1	(untitled)		399	1964	120	1332	30	201	1.79	5.38	15.48	16.71
	14	1	(untitled)		1146	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	9.03
	15	1	(untitled)		1004	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	11.56
	16	1	(untitled)		60	1288	120	1288	5	1832	15.36	1.53	76.27	17.80

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	49	85	36	1	7
	2	✓	2	D	92	22	50	1	7
	3	✓	3	C	27	34	7	1	7
	4	✓	4	A,E	40	44	4	1	4
2	1	✓	1	A,B,D	50	108	58	1	1
	2	✓	2	A,C	114	26	32	1	7
	3	✓	3	B,D,E	33	43	10	1	10

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow
2	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	10	300	0	0	Pedestrian
	F	F	2	300	0	0	Dummy

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
1	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1866	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2019	100	100
2	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1745	100	100
	2		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1663	100	100
3	1	✓	326.04	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1794	100	100
	2	✓	324.65	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	2042	100	100
4	1		200.00	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1847	100	100
5	1	✓	121.09	NetworkDefault	0.00	Normal						100	100
	2	✓	120.81	NetworkDefault	0.00	Normal						100	100
7	1	✓	116.64	NetworkDefault	0.00	Normal						100	100
8	1	✓	335.30	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1965	100	100
	2	✓	337.85	NetworkDefault	0.00	Normal	✓	✓		Sum of lanes	1773	100	100
9	1	✓	33.26	Flare	6.00	Normal	✓	✓		Sum of lanes	1892	100	100
	2	✓	33.15	Flare	6.00	Normal	✓	✓		Sum of lanes	1929	100	100
10	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1965	100	100
11	1	✓	18.46	Flare	4.00	Normal	✓	✓		Sum of lanes	1823	100	100
	2	✓	18.44	Flare	4.00	Normal	✓	✓		Sum of lanes	1960	100	100
12	1		200.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1964	100	100
14	1	✓	121.12	NetworkDefault	0.00	Normal						100	100
15	1	✓	103.39	NetworkDefault	0.00	Normal						100	100
16	1	✓	21.81	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	98	-8	703	1866	45	88.11	33.10	95.16	244.32	30.65	274.97
		2	83	8	645	2019	45	44.67	21.35	61.37	113.66	20.24	133.90
	2	1	100	-10	116	1745	7	206.37	8.68	24.96	94.43	7.18	101.61
		2	25	256	28	1663	7	58.63	0.92	2.65	6.48	0.88	7.36
	3	1	79	14	435	1794	36	44.71	14.97	26.40	76.71	11.14	87.84
		2	82	9	519	2042	36	46.51	18.38	32.55	95.20	14.02	109.23
	4	1	99	-9	774	1847	50	85.10	36.33	104.44	259.82	33.60	293.42
	5	1	0	Unrestricted	157	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	559	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	0	Unrestricted	417	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	72	25	1146	1965	96	6.79	32.12	55.08	30.68	14.48	45.16
		2	83	9	941	1773	76	12.12	14.26	24.27	45.00	9.13	54.13
	9	1	59	53	306	1892	32	34.63	5.23	87.11	41.80	5.01	46.81
		2	59	53	312	1929	32	34.55	5.24	87.38	42.52	5.10	47.63
	10	1	47	91	618	1965	120	9.83	10.17	29.23	23.97	8.97	32.94
	11	1	16	448	192	1823	76	7.79	1.99	49.69	5.90	1.94	7.83
		2	16	447	207	1960	76	7.77	2.14	53.55	6.34	2.09	8.43
	12	1	30	201	399	1964	120	1.79	5.38	15.48	2.82	3.48	6.30
	14	1	0	Unrestricted	1146	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	0	Unrestricted	1004	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	5	1832	60	1288	120	15.36	1.53	76.27	3.63	0.70	4.33

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	1	1	703	703	0		1866	715	98	✓	-8	0.00	45
		2	645	645	0		2019	774	83		8	0.00	45
	2	1	116	116	0		1745	116	100	✓	-10	0.00	7
		2	28	28	0		1663	111	25		256	0.00	7
	3	1	435	435	0		1794	553	79		14	0.62	36
		2	519	519	0		2042	630	82		9	0.67	36
	4	1	774	774	0		1847	785	99	✓	-9	0.00	50
	5	1	157	157	0		Unrestricted	Unrestricted	0		Unrestricted	0.89	120
		2	559	559	0		Unrestricted	Unrestricted	0		Unrestricted	1.21	120
	7	1	417	417	0		Unrestricted	Unrestricted	0		Unrestricted	1.05	120
	8	1	1146	1146	0		1965	1588	72		25	0.44	96
		2	941	941	0		1773	1138	83		9	0.51	76
	9	1	306	306	0		1892	520	59		53	0.60	32
		2	312	312	0		1929	530	59		53	0.60	32
	10	1	618	618	0		1965	1308	47		91	0.00	120
	11	1	192	192	0		1823	1170	16		448	0.15	76
		2	207	207	0		1960	1258	16		447	0.15	76
	12	1	399	399	0		1964	1332	30		201	0.00	120
	14	1	1146	1146	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120
	15	1	1004	1004	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	120
	16	1	60	60	0		1288	1288	5		1832	1.22	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	1	1	14.91	88.11	17.21	244.32	134.24	943.68	30.65
		2	14.91	44.67	8.00	113.66	96.62	623.23	20.24
	2	1	14.91	206.37	6.65	94.43	190.61	221.11	7.18
		2	14.91	58.63	0.46	6.48	96.98	27.16	0.88
	3	1	29.68	44.71	5.40	76.71	101.13	439.94	11.14
		2	29.04	46.51	6.70	95.20	104.38	541.72	14.02
	4	1	14.91	85.10	18.30	259.82	133.66	1034.55	33.60
	5	1	10.18	0.00	0.00	0.00	0.00	0.00	0.00
		2	9.33	0.00	0.00	0.00	0.00	0.00	0.00
	7	1	12.64	0.00	0.00	0.00	0.00	0.00	0.00
	8	1	29.83	6.79	2.16	30.68	53.63	614.63	14.48
		2	29.96	12.12	3.17	45.00	46.07	433.48	9.13
	9	1	2.48	34.63	2.94	41.80	50.45	154.37	5.01
		2	2.47	34.55	2.99	42.52	50.37	157.16	5.10
	10	1	14.91	9.83	1.69	23.97	44.68	276.15	8.97
	11	1	1.38	7.79	0.42	5.90	31.09	59.70	1.94
		2	1.37	7.77	0.45	6.34	31.08	64.33	2.09
	12	1	14.91	1.79	0.20	2.82	26.83	107.06	3.48
	14	1	9.03	0.00	0.00	0.00	0.00	0.00	0.00
	15	1	11.56	0.00	0.00	0.00	0.00	0.00	0.00
	16	1	2.44	15.36	0.26	3.63	80.26	48.15	0.70

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
17:00-18:00	1	1	0.00	33.10	34.78	95.16	0.00	0.00	
		2	0.00	21.35	34.78	61.37	0.00	0.00	
	2	1	0.00	8.68	34.78	24.96	0.00	0.00	
		2	0.00	0.92	34.78	2.65	0.00	6.00	
	3	1	0.00	14.97	56.70	26.40	0.00	0.00	
		2	0.00	18.38	56.46	32.55	0.00	0.00	
	4	1	0.00	36.33	34.78	104.44	0.00	0.00	
		2	0.00	0.00	21.06	0.00	0.00	37.00	
	5	1	0.00	0.00	21.01	0.00	0.00	32.00	
		2	0.00	0.00	20.28	0.00	0.00	51.00	
	8	1	0.00	32.12	58.31	55.08	0.00	0.00	
		2	0.00	14.26	58.76	24.27	0.00	0.00	
	9	1	0.00	5.23	6.00	87.11	0.00	0.00	
		2	0.00	5.24	6.00	87.38	0.00	0.00	
	10	1	0.00	10.17	34.78	29.23	0.00	40.11	
	11	1	0.00	1.99	4.00	49.69	0.00	0.00	
		2	0.00	2.14	4.00	53.55	0.00	0.00	
	12	1	0.00	5.38	34.78	15.48	0.00	38.60	
	14	1	0.00	0.00	21.06	0.00	0.00	16.00	
	15	1	0.00	0.00	17.98	0.00	0.00	5.00	
	16	1	0.00	1.53	2.00	76.27	0.00	74.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
17:00-18:00	10	1	✓	CTM flare: 10/1,9/1,9/2	89	20.64	694	1
	12	1	✓	CPDM flare: 12/1,11/2,11/1	30	9.51	1317	197

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	0.00	0.00	✓	0.00	36.14	13.10	27.55	1.00	0.00	274.97
		2	0.00	0.00	✓	0.00	21.39	2.04	15.30	1.00	0.00	133.90
	2	1	0.00	0.00	✓	0.00	10.82	6.98	10.59	1.00	0.00	101.61
		2	0.00	0.00	✓	0.00	14.99	1.42	12.60	1.00	0.00	87.84
	3	1	0.00	0.00	✓	0.00	18.42	1.89	15.50	1.00	0.00	109.23
		2	0.00	0.00	✓	0.00	39.82	14.45	29.29	1.00	0.00	293.42
	4	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	7	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
		2	0.00	0.00	✓	0.00	32.12	0.93	6.78	1.00	0.00	45.16
	8	1	0.00	0.00	✓	0.00	14.28	1.95	7.42	1.00	0.00	54.13
		2	0.00	0.00	✓	0.00	5.23	0.42	5.15	1.00	0.00	46.81
	9	1	0.00	0.00	✓	0.00	5.24	0.42	5.24	1.00	0.00	47.63
		2	0.00	0.00	✓	0.00	10.17			1.00	0.00	32.94
	11	1	0.00	0.00	✓	0.00	1.99	0.02	1.99	1.00	0.00	7.83
		2	0.00	0.00	✓	0.00	2.14	0.02	2.14	1.00	0.00	8.43
	12	1	0.00	0.00	✓	0.00	5.38			1.00	0.00	6.30
	14	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	15	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	16	1	0.00	0.00	✓	0.00	1.53			1.00	0.00	4.33

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
6	24/09/2018 10:30:37	24/09/2018 10:30:38	17:00	120	1261.88	76.99	99.71	2/1	3	14	2/1	10/1	2/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	100	-10	10684	1574	25.94	1093.29	168.59	1261.88

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
17:00-18:00	10684	10684	0		100	✓	-10	1574

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	16.43	25.94	76.99	1093.29	53.79	5746.42	168.59

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s per cycle)
17:00-18:00	104.44	0.00	299.71

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	0.00	1.00	0.00	0.00	1261.88

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	113.5	0.0	158.3	166.3
	2	90.4	0.0	0.0	141.1	106.1
	3	230.0	87.1	0.0	273.1	278.5
	4	143.6	141.0	0.0	0.0	73.4
	5	120.5	117.7	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
6	2	1	60	90.43	60	90.43
10	3	1	39	229.98	39	229.98
14	3	4	44	273.12	44	273.12
15	3	5	33	278.49	33	278.49
16	1	2	26	113.56	26	113.56
17	1	2	26	113.53	26	113.53
18	3	2	14	87.05	14	87.05
19	3	2	14	87.08	14	87.08
27	4	5	63	73.42	63	73.42
29	5	2	207	118.02	207	118.02
30	4	2	55	139.54	55	139.54
31	4	1	188	143.56	188	143.56
32	4	2	312	141.26	312	141.26
33	5	2	62	116.53	62	116.53
34	5	1	130	120.54	130	120.54
35	2	4	703	141.14	703	141.14
36	2	5	585	106.06	585	106.06
37	1	5	323	166.29	323	166.29
38	1	4	399	158.26	399	158.26

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS			FLOWS		PERFORMANCE				PER PCU		
				Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)
1	1	(untitled)	1	1	A		703	1866	45	0.00	98	-8	103.02	88.11	134.24
	2	(untitled)	1	1	A	E	645	2019	45	0.00	83	8	59.59	44.67	96.62
2	1	(untitled)	1	1	C		116	1745	7	0.00	100	-10	221.28	206.37	190.61
	2	(untitled)	1	1	C		28	1663	7	6.00	25	256	73.54	58.63	96.98
3	1	(untitled)	1	1	B		435	1794	36	0.00	79	14	74.38	44.71	101.13
	2	(untitled)	1	1	B		519	2042	36	0.00	82	9	75.54	46.51	104.38
4	1	(untitled)	1	1	D		774 <	1847	50	0.00	99	-9	100.02	85.10	133.66
5	1	(untitled)					157	Unrestricted	120	37.00	0	Unrestricted	10.18	0.00	0.00
	2	(untitled)					559	Unrestricted	120	32.00	0	Unrestricted	9.33	0.00	0.00
7	1	(untitled)					417	Unrestricted	120	51.00	0	Unrestricted	12.64	0.00	0.00
8	1	(untitled)	2	2	A		1146	1965	96	0.00	72	25	36.62	6.79	53.63
	2	(untitled)	2	2	B		941	1773	76	0.00	83	9	42.08	12.12	46.07
9	1	(untitled)	2	2	C		306	1892	32	0.00	59	53	37.11	34.63	50.45
	2	(untitled)	2	2	C		312	1929	32	0.00	59	53	37.02	34.55	50.37
10	1	(untitled)	2				618	1965	120	40.11	47	91	24.75	9.83	44.68
11	1	(untitled)	2	2	D		192	1823	76	0.00	16	448	9.16	7.79	31.09
	2	(untitled)	2	2	D		207	1960	76	0.00	16	447	9.14	7.77	31.08
12	1	(untitled)	2				399	1964	120	38.60	30	201	16.71	1.79	26.83
14	1	(untitled)					1146	Unrestricted	120	16.00	0	Unrestricted	9.03	0.00	0.00
15	1	(untitled)					1004	Unrestricted	120	5.00	0	Unrestricted	11.56	0.00	0.00
16	1	(untitled)	1				60	1288	120	74.00	5	1832	17.80	15.36	80.26

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	2076.06	125.77	10.26	76.99	1093.29	168.59	0.00	1261.88
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	2076.06	125.77	10.26	76.99	1093.29	168.59	0.00	1261.88

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**



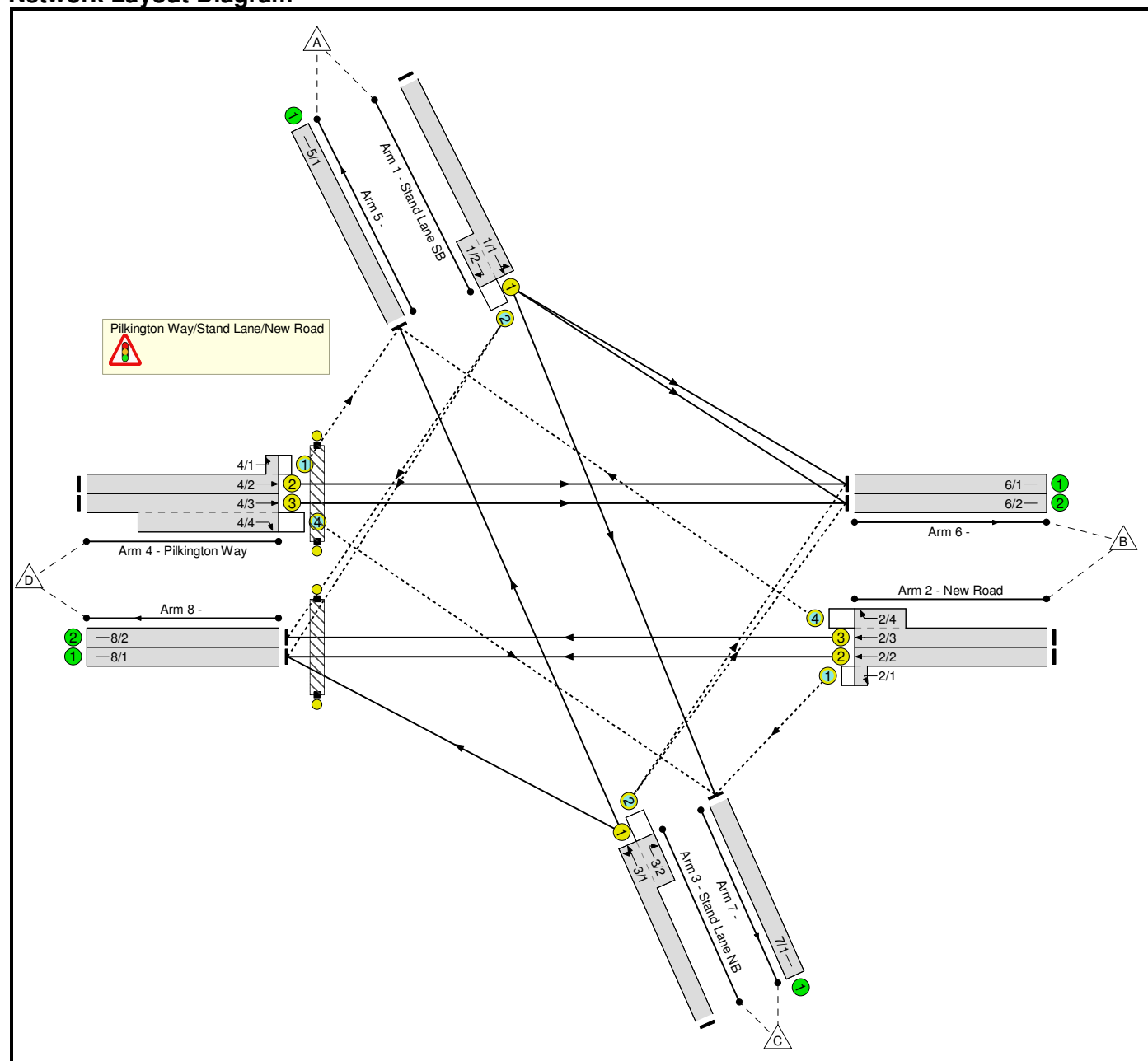


Appendix F – Model Outputs Pilkington Way/New Road/Blackburn Street (J6)

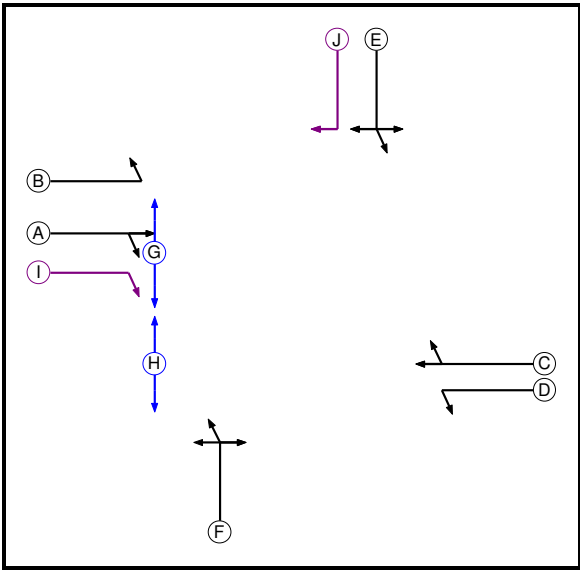
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	J6 - Amended based on TfGM Comments.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

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

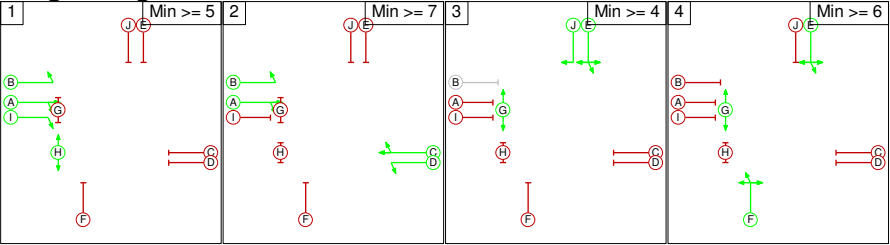
Phase Intergreens Matrix

Terminating Phase	Starting Phase										
		A	B	C	D	E	F	G	H	I	J
	A		-	-	-	7	6	5	-	-	7
	B	-		-	-	-	5	-	-	-	-
	C	-	-		-	7	6	-	9	6	7
	D	-	-	-		5	-	-	-	5	-
	E	8	-	7	10		-	-	10	8	-
	F	7	9	7	-	-		-	9	7	5
	G	8	-	-	-	-	-		-	8	-
	H	-	-	5	-	5	5	-		-	5
	I	-	-	5	7	7	5	5	-		4
	J	8	-	7	-	-	5	-	10	6	

Phases in Stage

Stage No.	Phases in Stage
1	A B H I
2	A B C D
3	E G J
4	E F G

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	7	7
	2	9		7	7
	3	10	10		5
	4	10	10	5	

Give-Way Lane Input Data

Junction: Pilkington Way/Stand Lane/New Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (Stand Lane SB)	8/1 (Right)	1439	0	3/1	1.09	All	2.00	-	0.50	2	2.00
	8/2 (Right)	1439	0	3/1	1.09	All					
2/1 (New Road)	7/1 (Left)	715	0	4/4	0.22	All	1.00	-	0.50	1	2.00
2/4 (New Road)	5/1 (Right)	1439	0	4/2	1.09	All	2.00	-	0.50	2	2.00
				4/3	1.09	All					
3/2 (Stand Lane NB)	6/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
	6/2 (Right)	1439	0	1/1	1.09	All					
4/1 (Pilkington Way)	5/1 (Left)	715	0	2/4	0.22	All	1.00	-	0.50	1	2.00
4/4 (Pilkington Way)	7/1 (Right)	1439	0	2/2	1.09	All	2.00	-	0.50	2	2.00
				2/3	1.09	All					

Lane Input Data

Junction: Pilkington Way/Stand Lane/New Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Stand Lane SB)	U	E	2	3	60.0	Geom	-	2.18	0.00	Y	Arm 6 Left	15.72
											Arm 7 Ahead	Inf
1/2 (Stand Lane SB)	O	E J	2	3	4.0	Geom	-	2.36	0.00	Y	Arm 8 Right	12.77
2/1 (New Road)	O	D	2	3	1.0	Geom	-	5.00	0.00	Y	Arm 7 Left	17.10
2/2 (New Road)	U	C	2	3	60.0	Geom	-	2.83	0.00	Y	Arm 8 Ahead	Inf
2/3 (New Road)	U	C	2	3	60.0	Geom	-	2.91	0.00	N	Arm 8 Ahead	Inf
2/4 (New Road)	O	C	2	3	4.0	Geom	-	2.85	0.00	Y	Arm 5 Right	28.42
3/1 (Stand Lane NB)	U	F	2	3	60.0	Geom	-	2.78	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	14.48
3/2 (Stand Lane NB)	O	F	2	3	4.0	Geom	-	2.62	0.00	Y	Arm 6 Right	11.89
4/1 (Pilkington Way)	O	B	2	3	1.0	Geom	-	4.35	0.00	Y	Arm 5 Left	18.79
4/2 (Pilkington Way)	U	A	2	3	60.0	Geom	-	3.05	0.00	Y	Arm 6 Ahead	Inf
4/3 (Pilkington Way)	U	A	2	3	60.0	Geom	-	3.02	0.00	N	Arm 6 Ahead	Inf
4/4 (Pilkington Way)	O	A I	2	3	11.0	Geom	-	3.10	0.00	Y	Arm 7 Right	29.06
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Peak Hour 2017 Surveyed Flows'	07:45	08:45	01:00	
2: 'PM Peak Hour 2017 Surveyed Flows'	16:30	17:30	01:00	
3: 'AM Peak Hour 2023 w/o Dev.'	07:45	08:45	01:00	
4: 'PM Peak Hour 2023 w/o Dev.'	16:30	17:30	01:00	
5: 'AM Peak Hour 2023 with Dev.'	07:45	08:45	01:00	
6: 'PM Peak Hour 2023 with Dev.'	16:30	17:30	01:00	

Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	79	52	31	162
	B	87	0	4	390	481
	C	81	28	0	172	281
	D	47	559	151	0	757
	Tot.	215	666	207	593	1681

Traffic Lane Flows

Lane	Scenario 1: AM Peak Hour 2017 Surveyed Flows
Junction: Pilkington Way/Stand Lane/New Road	
1/1 (with short)	162(In) 131(Out)
1/2 (short)	31
2/1 (short)	4
2/2 (with short)	199(In) 195(Out)
2/3 (with short)	282(In) 195(Out)
2/4 (short)	87
3/1 (with short)	281(In) 253(Out)
3/2 (short)	28
4/1 (short)	47
4/2 (with short)	326(In) 279(Out)
4/3 (with short)	431(In) 280(Out)
4/4 (short)	151
5/1	215
6/1	332
6/2	334
7/1	207
8/1	383
8/2	210

Lane Saturation Flows

Junction: Pilkington Way/Stand Lane/New Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Stand Lane SB)	2.18	0.00	Y	Arm 6 Left	15.72	60.3 %	1733	1733
				Arm 7 Ahead	Inf	39.7 %		
1/2 (Stand Lane SB)	2.36	0.00	Y	Arm 8 Right	12.77	100.0 %	1656	1656
2/1 (New Road)	5.00	0.00	Y	Arm 7 Left	17.10	100.0 %	1944	1944
2/2 (New Road)	2.83	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1898	1898
2/3 (New Road)	2.91	0.00	N	Arm 8 Ahead	Inf	100.0 %	2046	2046
2/4 (New Road)	2.85	0.00	Y	Arm 5 Right	28.42	100.0 %	1805	1805
3/1 (Stand Lane NB)	2.78	0.00	Y	Arm 5 Ahead	Inf	32.0 %	1768	1768
				Arm 8 Left	14.48	68.0 %		
3/2 (Stand Lane NB)	2.62	0.00	Y	Arm 6 Right	11.89	100.0 %	1667	1667
4/1 (Pilkington Way)	4.35	0.00	Y	Arm 5 Left	18.79	100.0 %	1898	1898
4/2 (Pilkington Way)	3.05	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1920	1920
4/3 (Pilkington Way)	3.02	0.00	N	Arm 6 Ahead	Inf	100.0 %	2057	2057
4/4 (Pilkington Way)	3.10	0.00	Y	Arm 7 Right	29.06	100.0 %	1831	1831
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Crosstabs: Row 1						
	Destination					
Origin		A	B	C	D	Tot.
	A	0	46	52	46	144
	B	216	0	11	518	745
	C	123	18	0	208	349
	D	97	496	132	0	725
	Tot.	436	560	195	772	1963

Traffic Lane Flows

Lane	Scenario 2: PM Peak Hour 2017 Surveyed Flows
Junction: Pilkington Way/Stand Lane/New Road	
1/1 (with short)	144(In) 98(Out)
1/2 (short)	46
2/1 (short)	11
2/2 (with short)	292(In) 281(Out)
2/3 (with short)	453(In) 237(Out)
2/4 (short)	216
3/1 (with short)	349(In) 331(Out)
3/2 (short)	18
4/1 (short)	97
4/2 (with short)	295(In) 198(Out)
4/3 (with short)	430(In) 298(Out)
4/4 (short)	132
5/1	436
6/1	230
6/2	330
7/1	195
8/1	512
8/2	260

Lane Saturation Flows

Junction: Pilkington Way/Stand Lane/New Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Stand Lane SB)	2.18	0.00	Y	Arm 6 Left	15.72	46.9 %	1754	1754
				Arm 7 Ahead	Inf	53.1 %		
1/2 (Stand Lane SB)	2.36	0.00	Y	Arm 8 Right	12.77	100.0 %	1656	1656
2/1 (New Road)	5.00	0.00	Y	Arm 7 Left	17.10	100.0 %	1944	1944
2/2 (New Road)	2.83	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1898	1898
2/3 (New Road)	2.91	0.00	N	Arm 8 Ahead	Inf	100.0 %	2046	2046
2/4 (New Road)	2.85	0.00	Y	Arm 5 Right	28.42	100.0 %	1805	1805
3/1 (Stand Lane NB)	2.78	0.00	Y	Arm 5 Ahead	Inf	37.2 %	1777	1777
				Arm 8 Left	14.48	62.8 %		
3/2 (Stand Lane NB)	2.62	0.00	Y	Arm 6 Right	11.89	100.0 %	1667	1667
4/1 (Pilkington Way)	4.35	0.00	Y	Arm 5 Left	18.79	100.0 %	1898	1898
4/2 (Pilkington Way)	3.05	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1920	1920
4/3 (Pilkington Way)	3.02	0.00	N	Arm 6 Ahead	Inf	100.0 %	2057	2057
4/4 (Pilkington Way)	3.10	0.00	Y	Arm 7 Right	29.06	100.0 %	1831	1831
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM Peak Hour 2023 w/o Dev.' (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	85	56	34	175
	B	94	0	4	422	520
	C	88	30	0	186	304
	D	51	604	163	0	818
	Tot.	233	719	223	642	1817

Traffic Lane Flows

Lane	Scenario 3: AM Peak Hour 2023 w/o Dev.
Junction: Pilkington Way/Stand Lane/New Road	
1/1 (with short)	175(In) 141(Out)
1/2 (short)	34
2/1 (short)	4
2/2 (with short)	215(In) 211(Out)
2/3 (with short)	305(In) 211(Out)
2/4 (short)	94
3/1 (with short)	304(In) 274(Out)
3/2 (short)	30
4/1 (short)	51
4/2 (with short)	353(In) 302(Out)
4/3 (with short)	465(In) 302(Out)
4/4 (short)	163
5/1	233
6/1	359
6/2	360
7/1	223
8/1	414
8/2	228

Lane Saturation Flows

Junction: Pilkington Way/Stand Lane/New Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Stand Lane SB)	2.18	0.00	Y	Arm 6 Left	15.72	60.3 %	1733	1733
				Arm 7 Ahead	Inf	39.7 %		
1/2 (Stand Lane SB)	2.36	0.00	Y	Arm 8 Right	12.77	100.0 %	1656	1656
2/1 (New Road)	5.00	0.00	Y	Arm 7 Left	17.10	100.0 %	1944	1944
2/2 (New Road)	2.83	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1898	1898
2/3 (New Road)	2.91	0.00	N	Arm 8 Ahead	Inf	100.0 %	2046	2046
2/4 (New Road)	2.85	0.00	Y	Arm 5 Right	28.42	100.0 %	1805	1805
3/1 (Stand Lane NB)	2.78	0.00	Y	Arm 5 Ahead	Inf	32.1 %	1769	1769
				Arm 8 Left	14.48	67.9 %		
3/2 (Stand Lane NB)	2.62	0.00	Y	Arm 6 Right	11.89	100.0 %	1667	1667
4/1 (Pilkington Way)	4.35	0.00	Y	Arm 5 Left	18.79	100.0 %	1898	1898
4/2 (Pilkington Way)	3.05	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1920	1920
4/3 (Pilkington Way)	3.02	0.00	N	Arm 6 Ahead	Inf	100.0 %	2057	2057
4/4 (Pilkington Way)	3.10	0.00	Y	Arm 7 Right	29.06	100.0 %	1831	1831
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM Peak Hour 2023 w/o Dev.' (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired**Desired Flow :**

Crosstabs: Row 1						
	Destination					
Origin		A	B	C	D	Tot.
	A	0	50	56	50	156
	B	232	0	12	557	801
	C	133	19	0	224	376
	D	105	534	142	0	781
	Tot.	470	603	210	831	2114

Traffic Lane Flows

Lane	Scenario 4: PM Peak Hour 2023 w/o Dev.
Junction: Pilkington Way/Stand Lane/New Road	
1/1 (with short)	156(In) 106(Out)
1/2 (short)	50
2/1 (short)	12
2/2 (with short)	337(In) 325(Out)
2/3 (with short)	464(In) 232(Out)
2/4 (short)	232
3/1 (with short)	376(In) 357(Out)
3/2 (short)	19
4/1 (short)	105
4/2 (with short)	315(In) 210(Out)
4/3 (with short)	466(In) 324(Out)
4/4 (short)	142
5/1	470
6/1	245
6/2	358
7/1	210
8/1	574
8/2	257

Lane Saturation Flows

Junction: Pilkington Way/Stand Lane/New Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Stand Lane SB)	2.18	0.00	Y	Arm 6 Left	15.72	47.2 %	1754	1754
				Arm 7 Ahead	Inf	52.8 %		
1/2 (Stand Lane SB)	2.36	0.00	Y	Arm 8 Right	12.77	100.0 %	1656	1656
2/1 (New Road)	5.00	0.00	Y	Arm 7 Left	17.10	100.0 %	1944	1944
2/2 (New Road)	2.83	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1898	1898
2/3 (New Road)	2.91	0.00	N	Arm 8 Ahead	Inf	100.0 %	2046	2046
2/4 (New Road)	2.85	0.00	Y	Arm 5 Right	28.42	100.0 %	1805	1805
3/1 (Stand Lane NB)	2.78	0.00	Y	Arm 5 Ahead	Inf	37.3 %	1777	1777
				Arm 8 Left	14.48	62.7 %		
3/2 (Stand Lane NB)	2.62	0.00	Y	Arm 6 Right	11.89	100.0 %	1667	1667
4/1 (Pilkington Way)	4.35	0.00	Y	Arm 5 Left	18.79	100.0 %	1898	1898
4/2 (Pilkington Way)	3.05	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1920	1920
4/3 (Pilkington Way)	3.02	0.00	N	Arm 6 Ahead	Inf	100.0 %	2057	2057
4/4 (Pilkington Way)	3.10	0.00	Y	Arm 7 Right	29.06	100.0 %	1831	1831
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'AM Peak Hour 2023 with Dev.' (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	144	56	40	240
	B	121	0	4	422	547
	C	88	30	0	186	304
	D	54	604	163	0	821
	Tot.	263	778	223	648	1912

Traffic Lane Flows

Lane	Scenario 5: AM Peak Hour 2023 with Dev.
Junction: Pilkington Way/Stand Lane/New Road	
1/1 (with short)	240(In) 200(Out)
1/2 (short)	40
2/1 (short)	4
2/2 (with short)	215(In) 211(Out)
2/3 (with short)	332(In) 211(Out)
2/4 (short)	121
3/1 (with short)	304(In) 274(Out)
3/2 (short)	30
4/1 (short)	54
4/2 (with short)	356(In) 302(Out)
4/3 (with short)	465(In) 302(Out)
4/4 (short)	163
5/1	263
6/1	389
6/2	389
7/1	223
8/1	417
8/2	231

Lane Saturation Flows

Junction: Pilkington Way/Stand Lane/New Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Stand Lane SB)	2.18	0.00	Y	Arm 6 Left	15.72	72.0 %	1715	1715
				Arm 7 Ahead	Inf	28.0 %		
1/2 (Stand Lane SB)	2.36	0.00	Y	Arm 8 Right	12.77	100.0 %	1656	1656
2/1 (New Road)	5.00	0.00	Y	Arm 7 Left	17.10	100.0 %	1944	1944
2/2 (New Road)	2.83	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1898	1898
2/3 (New Road)	2.91	0.00	N	Arm 8 Ahead	Inf	100.0 %	2046	2046
2/4 (New Road)	2.85	0.00	Y	Arm 5 Right	28.42	100.0 %	1805	1805
3/1 (Stand Lane NB)	2.78	0.00	Y	Arm 5 Ahead	Inf	32.1 %	1769	1769
				Arm 8 Left	14.48	67.9 %		
3/2 (Stand Lane NB)	2.62	0.00	Y	Arm 6 Right	11.89	100.0 %	1667	1667
4/1 (Pilkington Way)	4.35	0.00	Y	Arm 5 Left	18.79	100.0 %	1898	1898
4/2 (Pilkington Way)	3.05	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1920	1920
4/3 (Pilkington Way)	3.02	0.00	N	Arm 6 Ahead	Inf	100.0 %	2057	2057
4/4 (Pilkington Way)	3.10	0.00	Y	Arm 7 Right	29.06	100.0 %	1831	1831
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'PM Peak Hour 2023 with Dev.' (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

Crosstabs: Row 1						
	Destination					
Origin		A	B	C	D	Tot.
	A	0	81	56	53	190
	B	285	0	12	557	854
	C	133	19	0	224	376
	D	110	534	142	0	786
	Tot.	528	634	210	834	2206

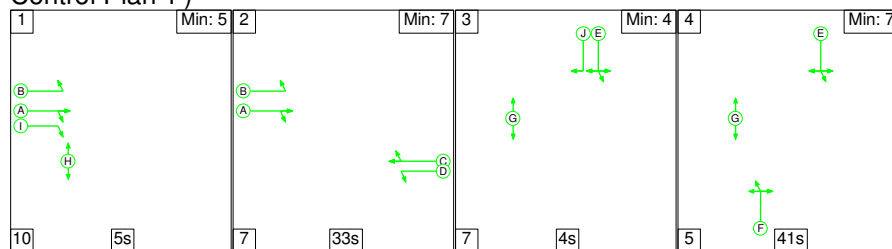
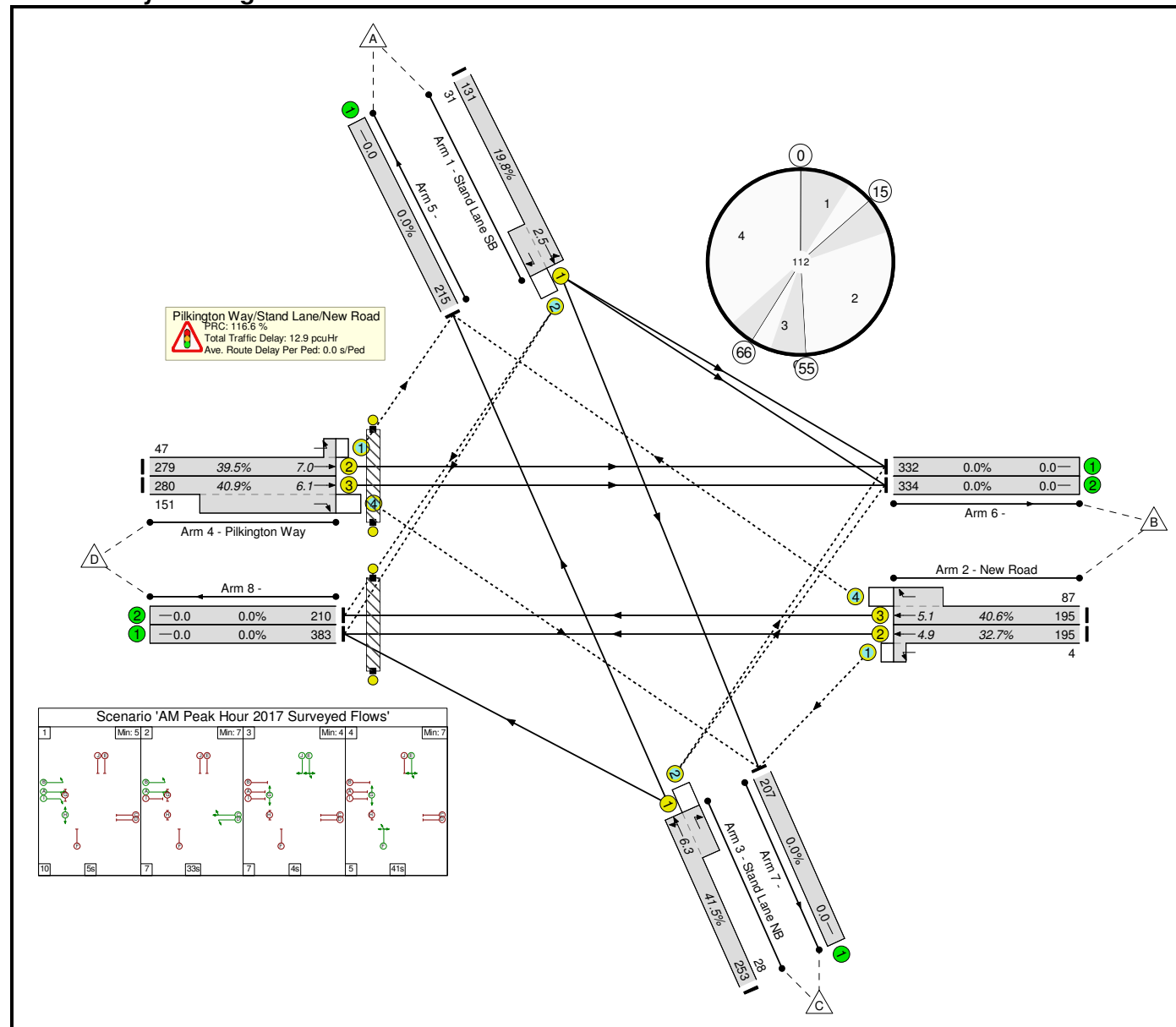
Traffic Lane Flows

Lane	Scenario 6: PM Peak Hour 2023 with Dev.
Junction: Pilkington Way/Stand Lane/New Road	
1/1 (with short)	190(In) 137(Out)
1/2 (short)	53
2/1 (short)	12
2/2 (with short)	462(In) 450(Out)
2/3 (with short)	392(In) 107(Out)
2/4 (short)	285
3/1 (with short)	376(In) 357(Out)
3/2 (short)	19
4/1 (short)	110
4/2 (with short)	320(In) 210(Out)
4/3 (with short)	466(In) 324(Out)
4/4 (short)	142
5/1	528
6/1	260
6/2	374
7/1	210
8/1	701
8/2	133

Junction: Pilkington Way/Stand Lane/New Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Stand Lane SB)	2.18	0.00	Y	Arm 6 Left	15.72	59.1 %	1735	1735
				Arm 7 Ahead	Inf	40.9 %		
1/2 (Stand Lane SB)	2.36	0.00	Y	Arm 8 Right	12.77	100.0 %	1656	1656
2/1 (New Road)	5.00	0.00	Y	Arm 7 Left	17.10	100.0 %	1944	1944
2/2 (New Road)	2.83	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1898	1898
2/3 (New Road)	2.91	0.00	N	Arm 8 Ahead	Inf	100.0 %	2046	2046
2/4 (New Road)	2.85	0.00	Y	Arm 5 Right	28.42	100.0 %	1805	1805
3/1 (Stand Lane NB)	2.78	0.00	Y	Arm 5 Ahead	Inf	37.3 %	1777	1777
				Arm 8 Left	14.48	62.7 %		
3/2 (Stand Lane NB)	2.62	0.00	Y	Arm 6 Right	11.89	100.0 %	1667	1667
4/1 (Pilkington Way)	4.35	0.00	Y	Arm 5 Left	18.79	100.0 %	1898	1898
4/2 (Pilkington Way)	3.05	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1920	1920
4/3 (Pilkington Way)	3.02	0.00	N	Arm 6 Ahead	Inf	100.0 %	2057	2057
4/4 (Pilkington Way)	3.10	0.00	Y	Arm 7 Right	29.06	100.0 %	1831	1831
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Stage Sequence Diagram

Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

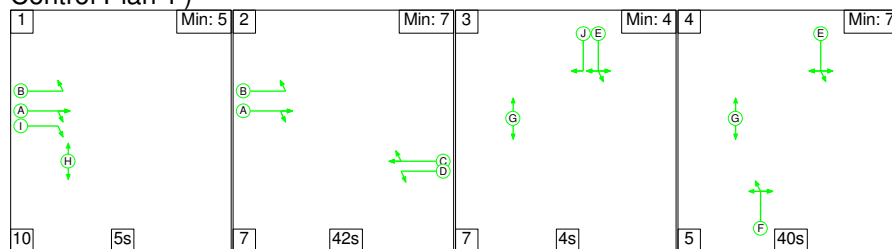
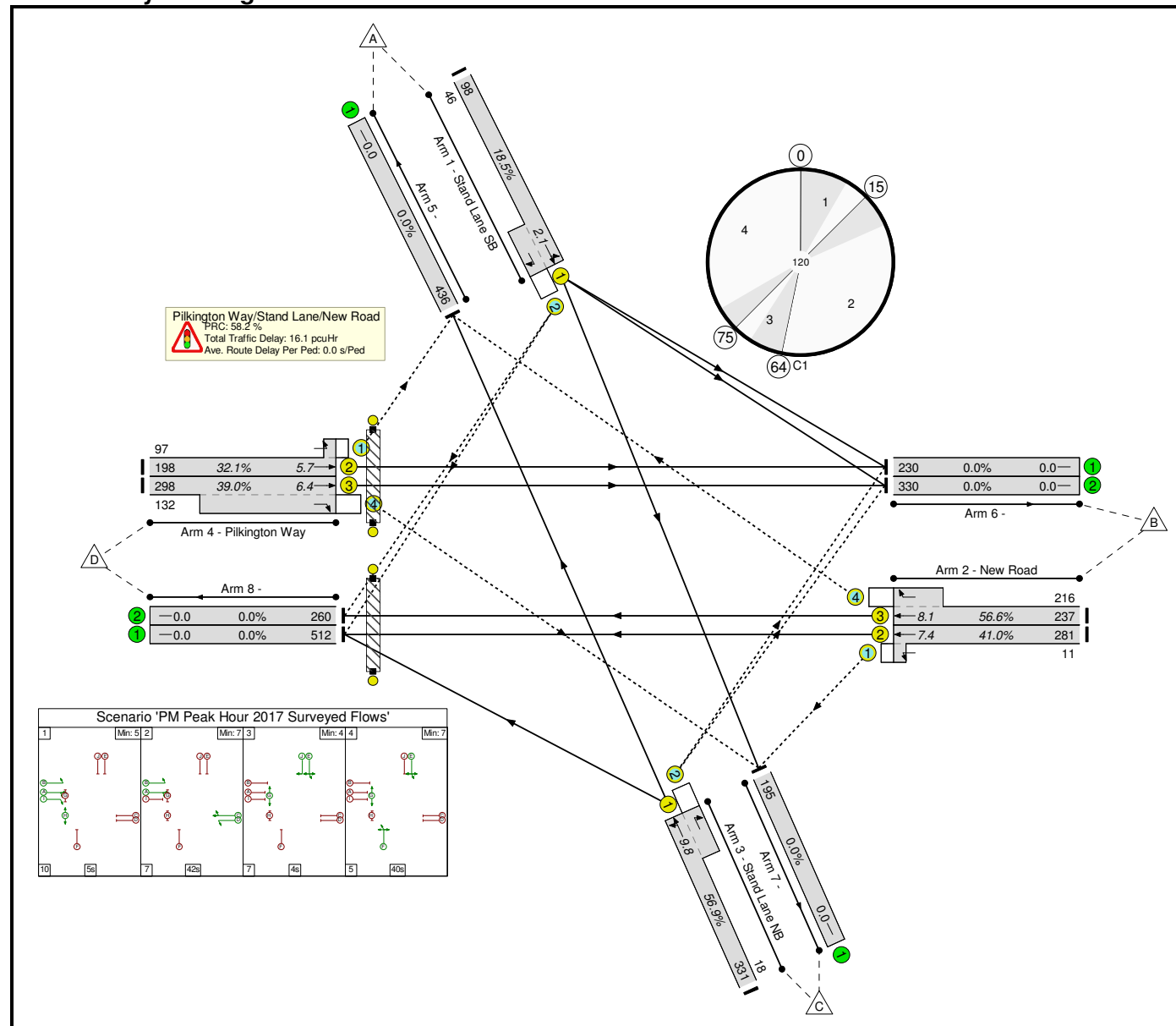
**Network Layout Diagram**

Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	41.5%	11.1	1.7	12.9	-	-	-	-
Pilkington Way/Stand Lane/New Road	-	-	-	-	-	41.5%	11.1	1.7	12.9	-	-	-	-
1/1+1/2	Stand Lane SB Left Ahead Right	E	162	1733:1656	818	19.8%	0.8	0.1	0.9	20.7	2.4	0.1	2.5
2/2+2/1	New Road Left Ahead	C D	199	1898:1944	609	32.7%	1.6	0.2	1.8	33.2	4.6	0.2	4.9
2/3+2/4	New Road Right Ahead	C	282	2046:1805	695	40.6%	2.2	0.3	2.6	33.2	4.8	0.3	5.1
3/1+3/2	Stand Lane NB Ahead Right Left	F	281	1768:1667	676	41.5%	2.0	0.4	2.3	29.9	6.0	0.4	6.3
4/2+4/1	Pilkington Way Left Ahead	A B	326	1920:1898	825	39.5%	2.0	0.3	2.3	25.5	6.7	0.3	7.0
4/3+4/4	Pilkington Way Ahead Right	A	431	2057:1831	1055	40.9%	2.5	0.3	2.9	23.8	5.8	0.3	6.1
Ped Link: P1	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		116.6	Total Delay for Signalled Lanes (pcuHr):			12.87	Cycle Time (s): 112			
			PRC Over All Lanes (%):		116.6	Total Delay Over All Lanes(pcuHr):			12.87				

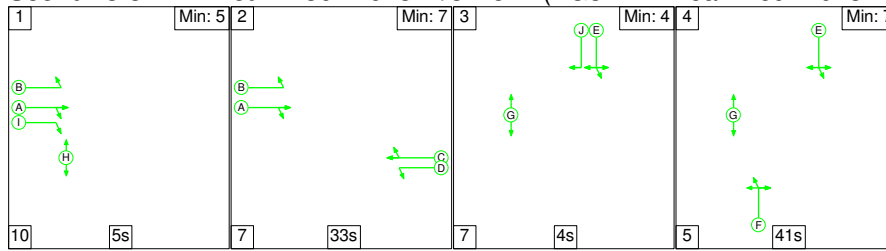
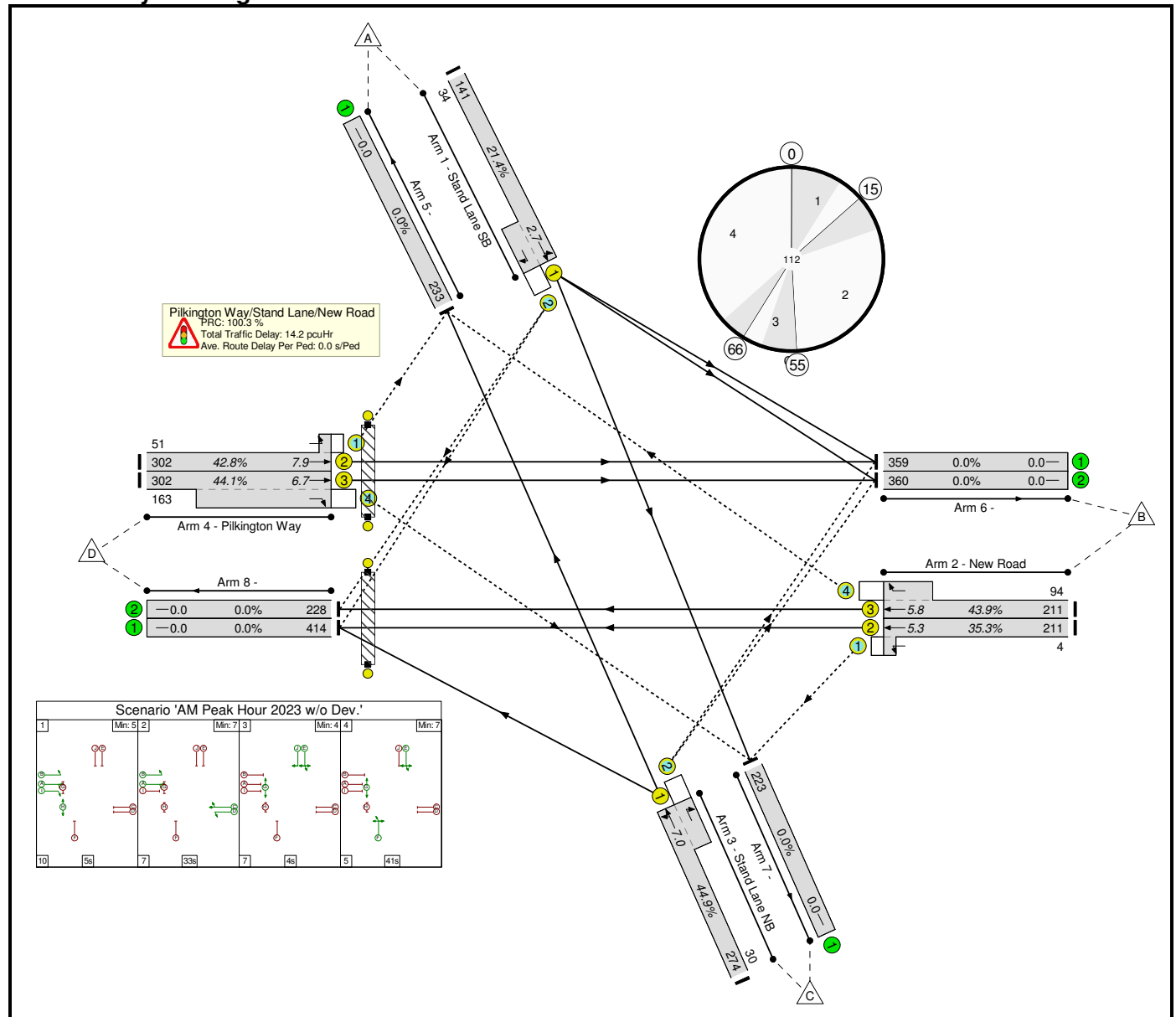
Stage Sequence Diagram

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

**Network Layout Diagram**

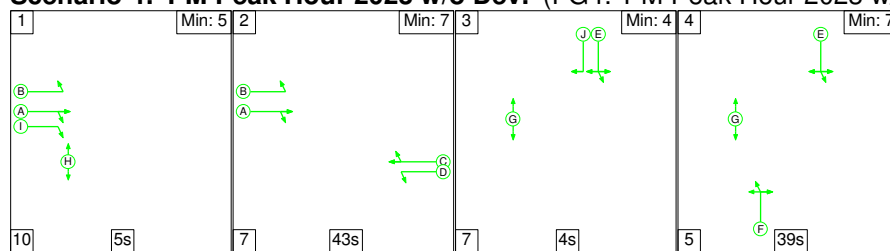
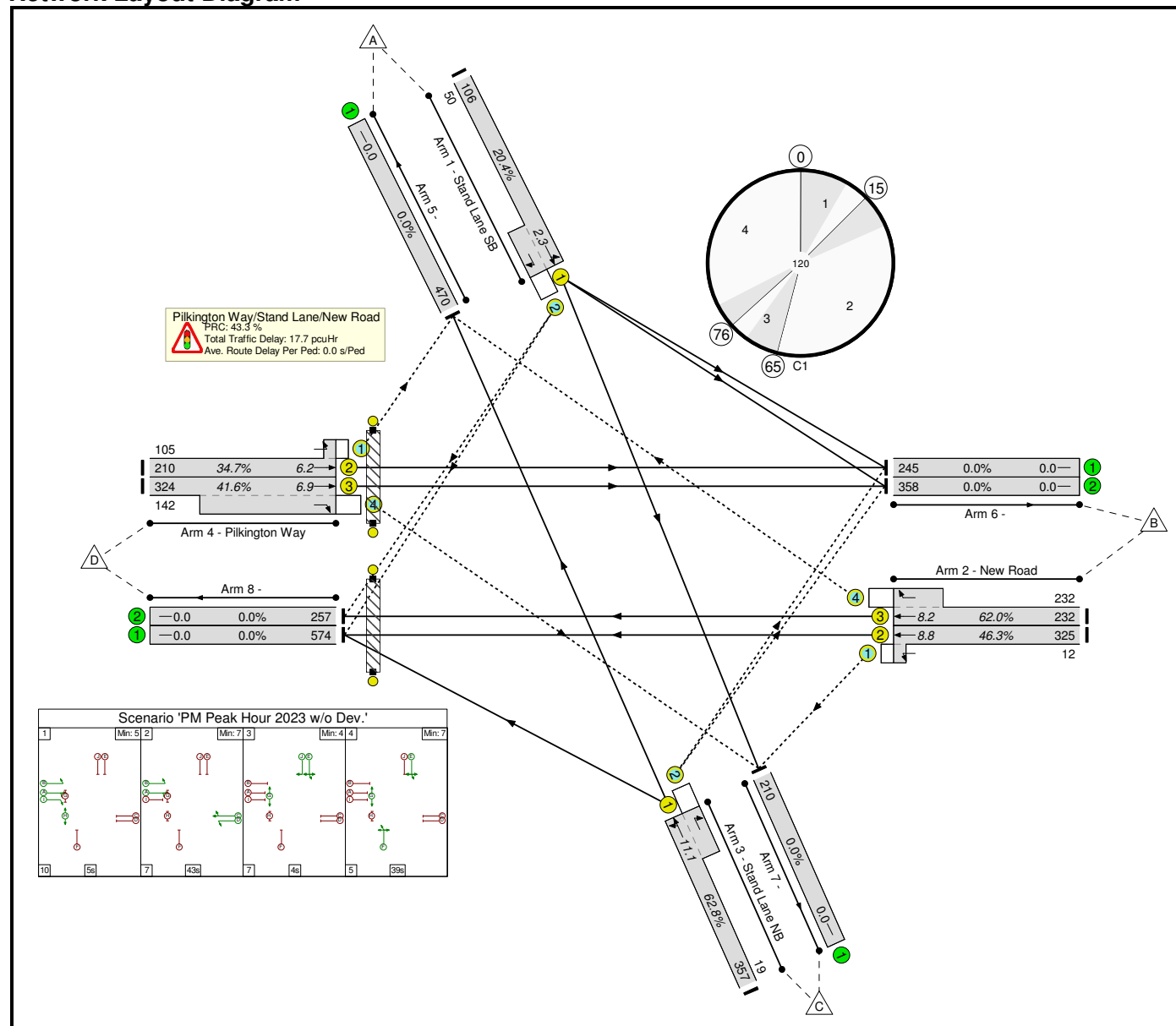
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	56.9%	13.4	2.3	16.1	-	-	-	-
Pilkington Way/Stand Lane/New Road	-	-	-	-	-	56.9%	13.4	2.3	16.1	-	-	-	-
1/1+1/2	Stand Lane SB Left Ahead Right	E	144	1754:1656	779	18.5%	0.9	0.1	1.0	24.9	2.0	0.1	2.1
2/2+2/1	New Road Left Ahead	C D	292	1898:1944	712	41.0%	2.2	0.3	2.6	32.0	7.1	0.3	7.4
2/3+2/4	New Road Right Ahead	C	453	2046:1805	801	56.6%	3.4	0.6	4.3	33.9	7.4	0.6	8.1
3/1+3/2	Stand Lane NB Ahead Right Left	F	349	1777:1667	614	56.9%	3.1	0.7	3.8	38.8	9.2	0.7	9.8
4/2+4/1	Pilkington Way Left Ahead	A B	295	1920:1898	918	32.1%	1.6	0.2	1.8	22.2	5.5	0.2	5.7
4/3+4/4	Pilkington Way Ahead Right	A	430	2057:1831	1104	39.0%	2.3	0.3	2.6	21.9	6.0	0.3	6.4
Ped Link: P1	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		58.2	Total Delay for Signalled Lanes (pcuHr):			16.06	Cycle Time (s): 120			
			PRC Over All Lanes (%):		58.2	Total Delay Over All Lanes(pcuHr):			16.06				

Stage Sequence Diagram**Scenario 3: 'AM Peak Hour 2023 w/o Dev.'** (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

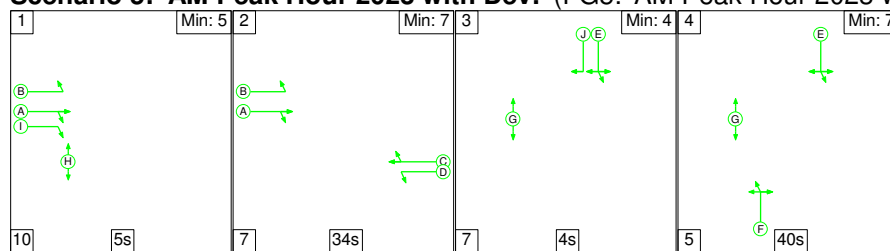
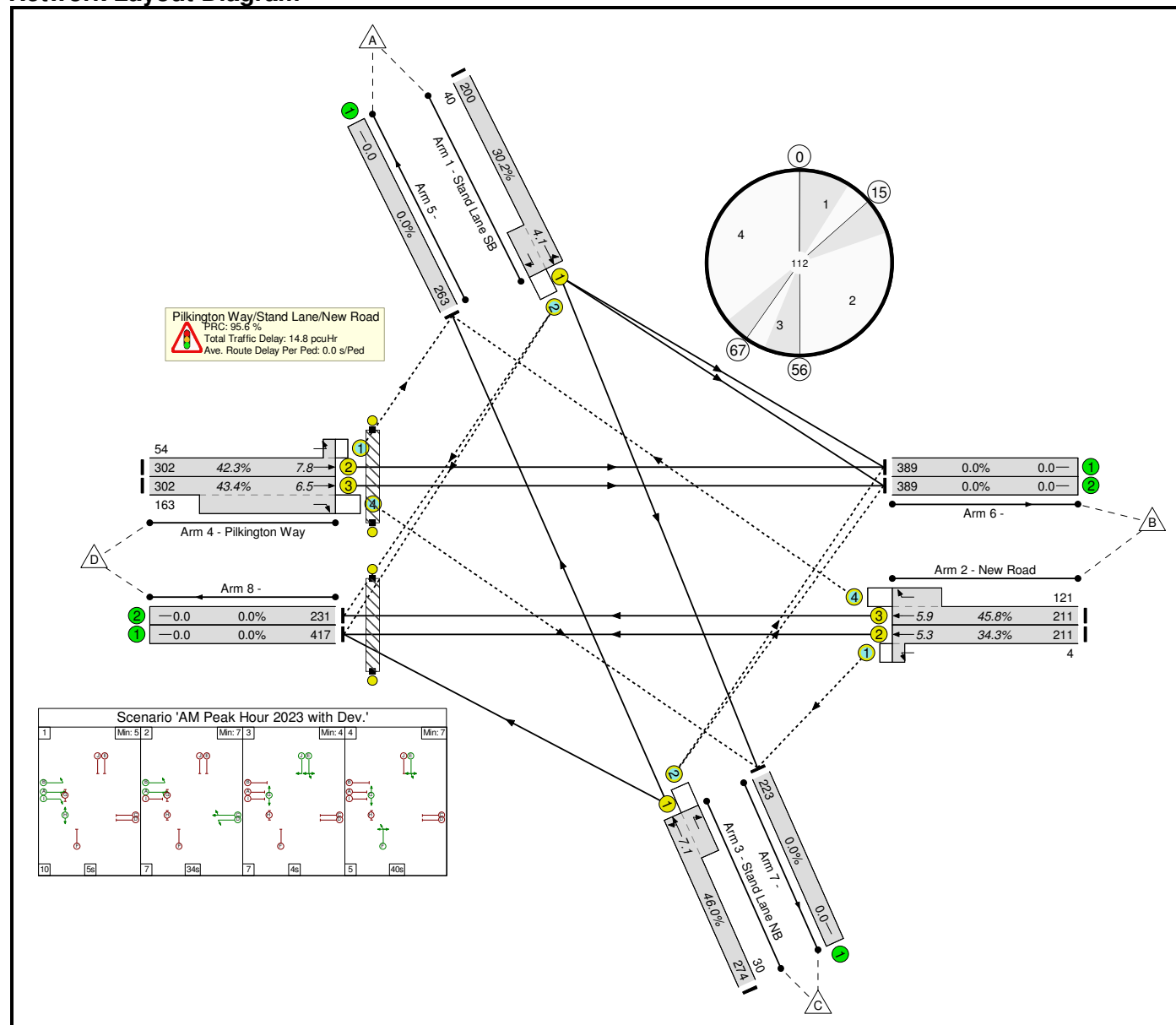
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	44.9%	12.1	2.0	14.2	-	-	-	-
Pilkington Way/Stand Lane/New Road	-	-	-	-	-	44.9%	12.1	2.0	14.2	-	-	-	-
1/1+1/2	Stand Lane SB Left Ahead Right	E	175	1733:1656	819	21.4%	0.9	0.1	1.0	20.9	2.6	0.1	2.7
2/2+2/1	New Road Left Ahead	C D	215	1898:1944	609	35.3%	1.7	0.3	2.0	33.7	5.1	0.3	5.3
2/3+2/4	New Road Right Ahead	C	305	2046:1805	695	43.9%	2.4	0.4	2.9	34.2	5.4	0.4	5.8
3/1+3/2	Stand Lane NB Ahead Right Left	F	304	1769:1667	676	44.9%	2.2	0.4	2.6	30.6	6.6	0.4	7.0
4/2+4/1	Pilkington Way Left Ahead	A B	353	1920:1898	825	42.8%	2.2	0.4	2.6	26.1	7.5	0.4	7.9
4/3+4/4	Pilkington Way Ahead Right	A	465	2057:1831	1055	44.1%	2.7	0.4	3.1	24.3	6.3	0.4	6.7
Ped Link: P1	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		100.3	Total Delay for Signalled Lanes (pcuHr):			14.20	Cycle Time (s): 112			
			PRC Over All Lanes (%):		100.3	Total Delay Over All Lanes(pcuHr):			14.20				

Stage Sequence Diagram**Scenario 4: 'PM Peak Hour 2023 w/o Dev.'** (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

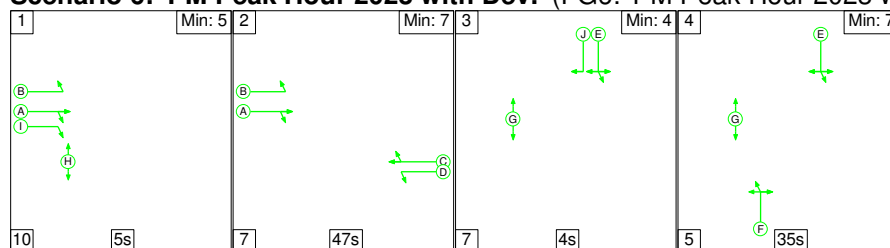
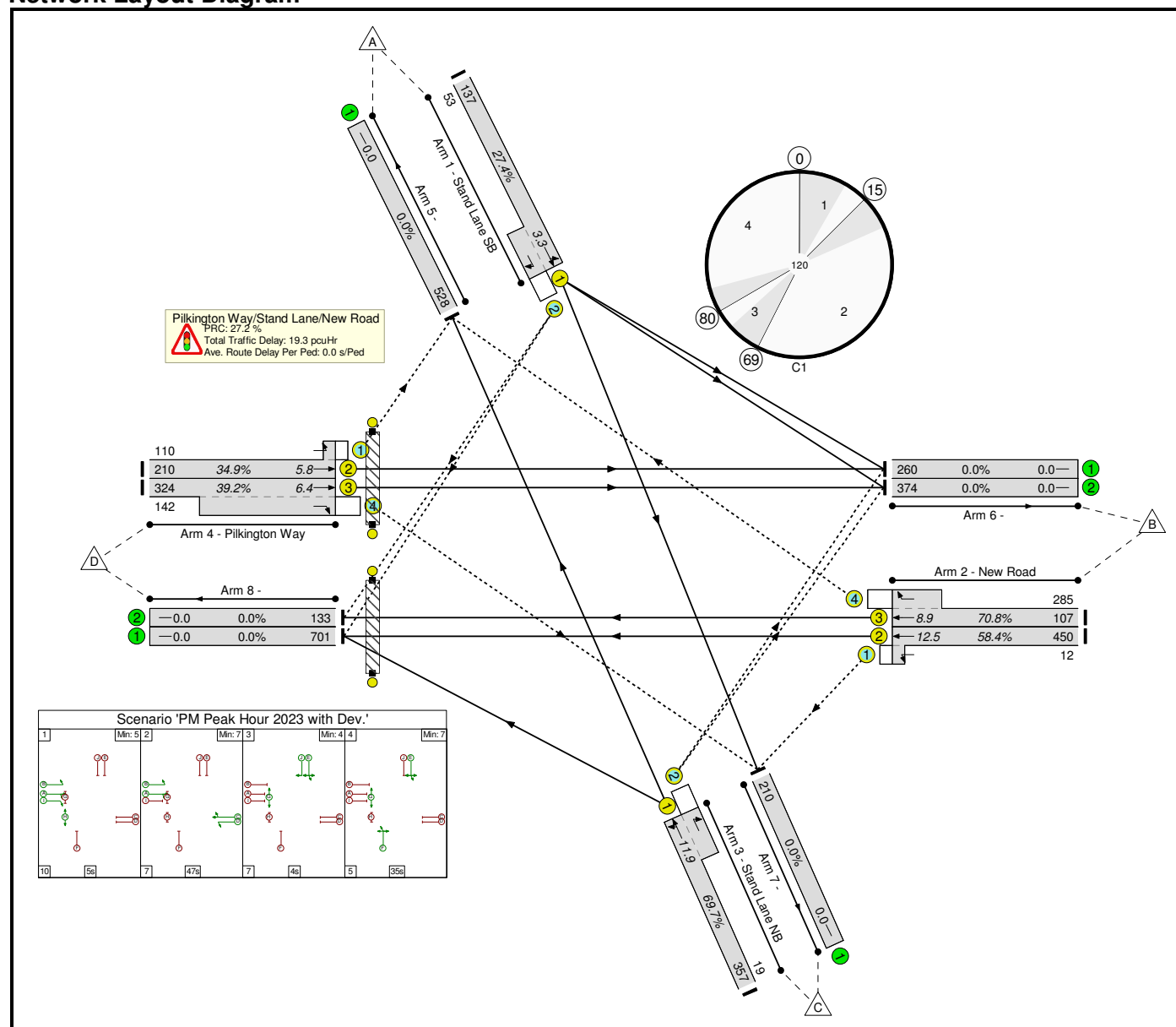
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	62.8%	14.5	2.8	17.7	-	-	-	-
Pilkington Way/Stand Lane/New Road	-	-	-	-	-	62.8%	14.5	2.8	17.7	-	-	-	-
1/1+1/2	Stand Lane SB Left Ahead Right	E	156	1754:1656	765	20.4%	1.0	0.1	1.1	25.9	2.2	0.1	2.3
2/2+2/1	New Road Left Ahead	C D	337	1898:1944	728	46.3%	2.6	0.4	3.0	32.4	8.4	0.4	8.8
2/3+2/4	New Road Right Ahead	C	464	2046:1805	748	62.0%	3.4	0.8	4.5	35.0	7.3	0.8	8.2
3/1+3/2	Stand Lane NB Ahead Right Left	F	376	1777:1667	599	62.8%	3.5	0.8	4.3	41.5	10.2	0.8	11.1
4/2+4/1	Pilkington Way Left Ahead	A B	315	1920:1898	907	34.7%	1.6	0.3	1.9	22.0	5.9	0.3	6.2
4/3+4/4	Pilkington Way Ahead Right	A	466	2057:1831	1119	41.6%	2.4	0.4	2.8	21.8	6.6	0.4	6.9
Ped Link: P1	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		43.3	Total Delay for Signalled Lanes (pcuHr):			17.73	Cycle Time (s): 120			
			PRC Over All Lanes (%):		43.3	Total Delay Over All Lanes(pcuHr):			17.73				

Stage Sequence Diagram**Scenario 5: 'AM Peak Hour 2023 with Dev.'** (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	46.0%	12.5	2.1	14.8	-	-	-	-
Pilkington Way/Stand Lane/New Road	-	-	-	-	-	46.0%	12.5	2.1	14.8	-	-	-	-
1/1+1/2	Stand Lane SB Left Ahead Right	E	240	1715:1656	794	30.2%	1.3	0.2	1.5	22.6	3.9	0.2	4.1
2/2+2/1	New Road Left Ahead	C D	215	1898:1944	626	34.3%	1.7	0.3	2.0	32.7	5.0	0.3	5.3
2/3+2/4	New Road Right Ahead	C	332	2046:1805	725	45.8%	2.6	0.4	3.1	33.9	5.5	0.4	5.9
3/1+3/2	Stand Lane NB Ahead Right Left	F	304	1769:1667	661	46.0%	2.2	0.4	2.7	31.6	6.7	0.4	7.1
4/2+4/1	Pilkington Way Left Ahead	A B	356	1920:1898	842	42.3%	2.1	0.4	2.5	25.4	7.4	0.4	7.8
4/3+4/4	Pilkington Way Ahead Right	A	465	2057:1831	1073	43.4%	2.6	0.4	3.0	23.5	6.1	0.4	6.5
Ped Link: P1	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		95.6	Total Delay for Signalled Lanes (pcuHr):			14.80	Cycle Time (s): 112			
			PRC Over All Lanes (%):		95.6	Total Delay Over All Lanes(pcuHr):			14.80				

Stage Sequence Diagram**Scenario 6: 'PM Peak Hour 2023 with Dev.'** (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	70.8%	15.0	3.8	19.3	-	-	-	-
Pilkington Way/Stand Lane/New Road	-	-	-	-	-	70.8%	15.0	3.8	19.3	-	-	-	-
1/1+1/2	Stand Lane SB Left Ahead Right	E	190	1735:1656	694	27.4%	1.3	0.2	1.6	29.4	3.1	0.2	3.3
2/2+2/1	New Road Left Ahead	C D	462	1898:1944	790	58.4%	3.5	0.7	4.2	32.5	11.8	0.7	12.5
2/3+2/4	New Road Right Ahead	C	392	2046:1805	554	70.8%	2.8	1.2	4.3	39.5	7.8	1.2	8.9
3/1+3/2	Stand Lane NB Ahead Right Left	F	376	1777:1667	540	69.7%	3.9	1.1	5.0	47.7	10.8	1.1	11.9
4/2+4/1	Pilkington Way Left Ahead	A B	320	1920:1898	916	34.9%	1.5	0.3	1.8	19.7	5.5	0.3	5.8
4/3+4/4	Pilkington Way Ahead Right	A	466	2057:1831	1189	39.2%	2.1	0.3	2.5	19.6	6.1	0.3	6.4
Ped Link: P1	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	H	0	-	0	0.0%	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):		27.2	Total Delay for Signalled Lanes (pcuHr):			19.31	Cycle Time (s): 120			
			PRC Over All Lanes (%):		27.2	Total Delay Over All Lanes(pcuHr):			19.31				

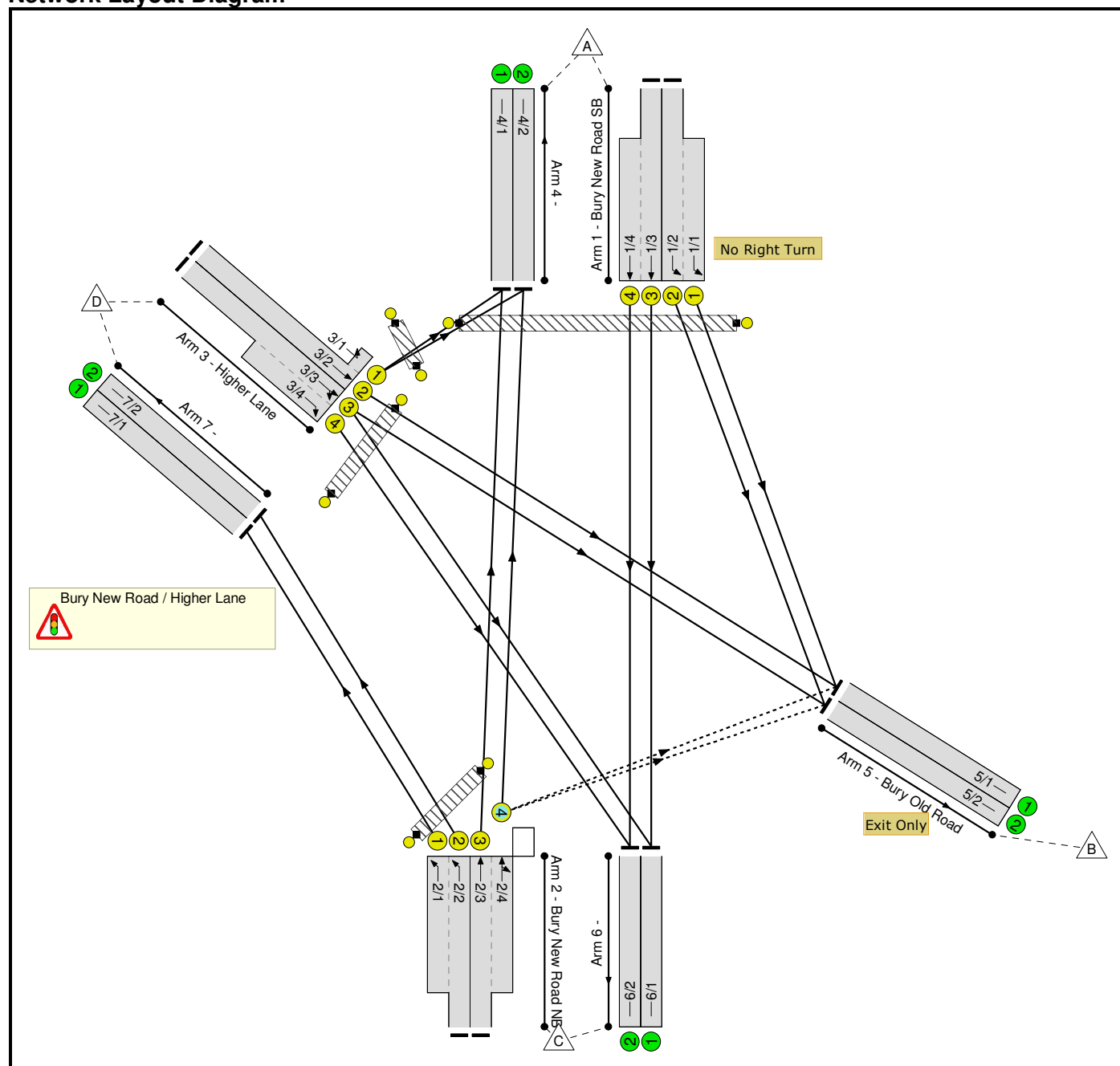


Appendix G – Model Outputs Bury New Road/Bury Old Road/Higher Lane (J7)

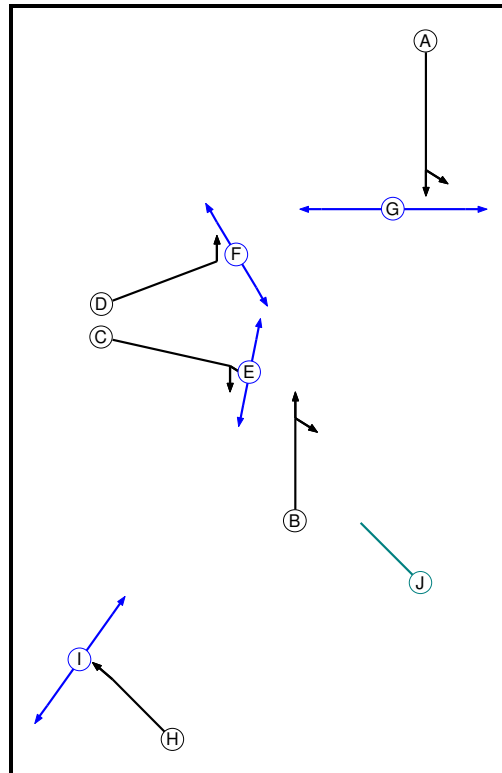
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	J7 - Amended based on TfGM Comments.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		5	5
F	Pedestrian	1		5	5
G	Pedestrian	1		13	13
H	Traffic	2		7	7
I	Pedestrian	2		6	6
J	Dummy	1		1	1

Phase Intergreens Matrix

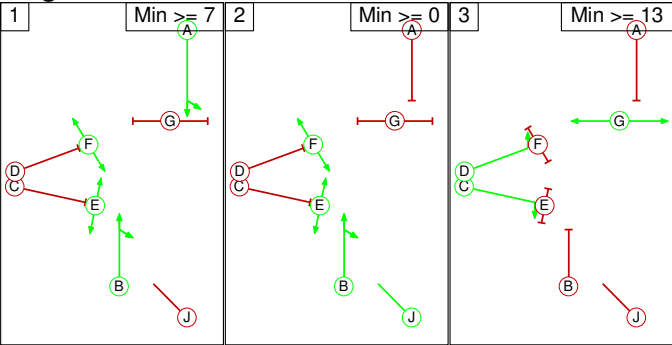
Terminating Phase	Starting Phase										
		A	B	C	D	E	F	G	H	I	J
	A		-	5	-	-	-	5	-	-	5
	B	-		7	10	-	-	10	-	-	-
	C	5	5		-	5	-	-	-	-	5
	D	-	5	-		-	5	-	-	-	5
	E	-	-	10	-		-	-	-	-	-
	F	-	-	-	5	-		-	-	-	-
	G	10	8	-	-	-	-		-	-	-
	H	-	-	-	-	-	-	-		5	-
	I	-	-	-	-	-	-	-	6		-
	J	-	-	-	-	-	-	-	-	-	

Phases in Stage

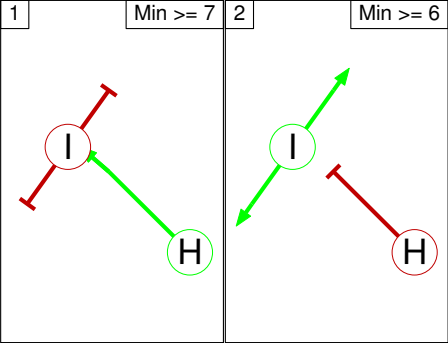
Stream	Stage No.	Phases in Stage
1	1	A B E F
1	2	B E F J
1	3	C D G
2	1	H
2	2	I

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays**Stage Stream: 1**

Term. Stage	Start Stage	Phase	Type	Value	Cont value
3	1	C	Losing	5	5
3	1	D	Losing	5	5

Stage Stream: 2

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

Prohibited Stage Change**Stage Stream: 1**

	To Stage			
From Stage		1	2	3
	1		5	10
	2	2		10
	3	10	8	

Stage Stream: 2

	To Stage		
From Stage		1	2
	1		5
	2	6	

Give-Way Lane Input Data

Junction: Bury New Road / Higher Lane											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/4 (Bury New Road NB)	5/1 (Right)	1439	0	1/1	1.09	All	2.00	2.00	0.50	2	2.00
				1/2	1.09	All					
				1/3	1.09	All					
				1/4	1.09	All					
	5/2 (Right)	1439	0	1/1	1.09	All					
				1/2	1.09	All					
				1/3	1.09	All					
				1/4	1.09	All					

Lane Input Data

Junction: Bury New Road / Higher 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)
1/1 (Bury New Road SB)	U	A	2	3	10.0	Geom	-	2.40	0.00	Y	Arm 5 Left	101.91
1/2 (Bury New Road SB)	U	A	2	3	60.0	Geom	-	2.70	0.00	N	Arm 5 Left	105.01
1/3 (Bury New Road SB)	U	A	2	3	60.0	Geom	-	2.80	0.00	N	Arm 6 Ahead	Inf
1/4 (Bury New Road SB)	U	A	2	3	10.0	Geom	-	2.67	0.00	Y	Arm 6 Ahead	Inf
2/1 (Bury New Road NB)	U	H	2	3	13.0	Geom	-	2.57	0.00	Y	Arm 7 Left	96.30
2/2 (Bury New Road NB)	U	H	2	3	60.0	Geom	-	2.58	0.00	N	Arm 7 Left	99.10
2/3 (Bury New Road NB)	U	B	2	3	60.0	Geom	-	2.78	0.00	N	Arm 4 Ahead	Inf
2/4 (Bury New Road NB)	O	B	2	3	29.0	Geom	-	2.36	0.00	Y	Arm 4 Ahead	Inf
											Arm 5 Right	7.71
3/1 (Higher Lane)	U	D	2	3	1.0	Geom	-	4.90	0.00	Y	Arm 4 Left	6.06
3/2 (Higher Lane)	U	C	2	3	60.0	Geom	-	3.32	0.00	Y	Arm 5 Ahead	153.95
3/3 (Higher Lane)	U	C	2	3	60.0	Geom	-	3.21	0.00	N	Arm 5 Ahead	86.18
											Arm 6 Right	39.77
3/4 (Higher Lane)	U	C	2	3	7.0	Geom	-	3.02	0.00	Y	Arm 6 Right	36.42
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (Bury Old Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2 (Bury Old Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	U		2	3	60.0	Inf	-	-	-	-	-	-

7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Peak Hour 2017 Surveyed Flows'	07:45	08:45	01:00	
2: 'PM Peak Hour 2017 Surveyed Flows'	16:30	17:30	01:00	
3: 'AM Peak Hour 2023 w/o Dev.'	07:45	08:45	01:00	
4: 'PM Peak Hour 2023 w/o Dev.'	16:30	17:30	01:00	
5: 'AM Peak Hour 2023 with Dev.'	07:45	08:45	01:00	
6: 'PM Peak Hour 2023 with Dev.'	16:30	17:30	01:00	

Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired**Desired Flow :**

Origin	Destination					
		A	B	C	D	Tot.
	A	0	350	536	0	886
	B	0	0	0	0	0
	C	818	9	0	712	1539
	D	14	556	579	0	1149
	Tot.	832	915	1115	712	3574

Traffic Lane Flows

Lane	Scenario 1: AM Peak Hour 2017 Surveyed Flows
Junction: Bury New Road / Higher Lane	
1/1 (short)	167
1/2 (with short)	350(In) 183(Out)
1/3 (with short)	536(In) 278(Out)
1/4 (short)	258
2/1 (short)	343
2/2 (with short)	712(In) 369(Out)
2/3 (with short)	827(In) 442(Out)
2/4 (short)	385
3/1 (short)	14
3/2 (with short)	418(In) 404(Out)
3/3 (with short)	731(In) 382(Out)
3/4 (short)	349
4/1	449
4/2	383
5/1	576
5/2	339
6/1	508
6/2	607
7/1	343
7/2	369

Lane Saturation Flows

Junction: Bury New Road / Higher Lane								
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 (Bury New Road SB)	2.40	0.00	Y	Arm 5 Left	101.91	100.0 %	1828	1828
1/2 (Bury New Road SB)	2.70	0.00	N	Arm 5 Left	105.01	100.0 %	1996	1996
1/3 (Bury New Road SB)	2.80	0.00	N	Arm 6 Ahead	Inf	100.0 %	2035	2035
1/4 (Bury New Road SB)	2.67	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1882	1882
2/1 (Bury New Road NB)	2.57	0.00	Y	Arm 7 Left	96.30	100.0 %	1843	1843
2/2 (Bury New Road NB)	2.58	0.00	N	Arm 7 Left	99.10	100.0 %	1983	1983
2/3 (Bury New Road NB)	2.78	0.00	N	Arm 4 Ahead	Inf	100.0 %	2033	2033
2/4 (Bury New Road NB)	2.36	0.00	Y	Arm 4 Ahead	Inf	97.7 %	1843	1843
				Arm 5 Right	7.71	2.3 %		
3/1 (Higher Lane)	4.90	0.00	Y	Arm 4 Left	6.06	100.0 %	1687	1687
3/2 (Higher Lane)	3.32	0.00	Y	Arm 5 Ahead	153.95	100.0 %	1928	1928
3/3 (Higher Lane)	3.21	0.00	N	Arm 5 Ahead	86.18	39.8 %	2016	2016
				Arm 6 Right	39.77	60.2 %		
3/4 (Higher Lane)	3.02	0.00	Y	Arm 6 Right	36.42	100.0 %	1841	1841
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1 (Bury Old Road Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Bury Old Road Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	344	787	0	1131
	B	0	0	0	0	0
	C	1196	12	0	1181	2389
	D	32	323	420	0	775
	Tot.	1228	679	1207	1181	4295

Traffic Lane Flows

Lane	Scenario 2: PM Peak Hour 2017 Surveyed Flows
Junction: Bury New Road / Higher Lane	
1/1 (short)	164
1/2 (with short)	344(In) 180(Out)
1/3 (with short)	787(In) 409(Out)
1/4 (short)	378
2/1 (short)	569
2/2 (with short)	1181(In) 612(Out)
2/3 (with short)	1208(In) 644(Out)
2/4 (short)	564
3/1 (short)	32
3/2 (with short)	267(In) 235(Out)
3/3 (with short)	508(In) 266(Out)
3/4 (short)	242
4/1	660
4/2	568
5/1	405
5/2	274
6/1	587
6/2	620
7/1	569
7/2	612

Lane Saturation Flows

Junction: Bury New Road / Higher Lane								
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 (Bury New Road SB)	2.40	0.00	Y	Arm 5 Left	101.91	100.0 %	1828	1828
1/2 (Bury New Road SB)	2.70	0.00	N	Arm 5 Left	105.01	100.0 %	1996	1996
1/3 (Bury New Road SB)	2.80	0.00	N	Arm 6 Ahead	Inf	100.0 %	2035	2035
1/4 (Bury New Road SB)	2.67	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1882	1882
2/1 (Bury New Road NB)	2.57	0.00	Y	Arm 7 Left	96.30	100.0 %	1843	1843
2/2 (Bury New Road NB)	2.58	0.00	N	Arm 7 Left	99.10	100.0 %	1983	1983
2/3 (Bury New Road NB)	2.78	0.00	N	Arm 4 Ahead	Inf	100.0 %	2033	2033
2/4 (Bury New Road NB)	2.36	0.00	Y	Arm 4 Ahead	Inf	97.9 %	1843	1843
				Arm 5 Right	7.71	2.1 %		
3/1 (Higher Lane)	4.90	0.00	Y	Arm 4 Left	6.06	100.0 %	1687	1687
3/2 (Higher Lane)	3.32	0.00	Y	Arm 5 Ahead	153.95	100.0 %	1928	1928
3/3 (Higher Lane)	3.21	0.00	N	Arm 5 Ahead	86.18	33.1 %	2014	2014
				Arm 6 Right	39.77	66.9 %		
3/4 (Higher Lane)	3.02	0.00	Y	Arm 6 Right	36.42	100.0 %	1841	1841
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1 (Bury Old Road Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Bury Old Road Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM Peak Hour 2023 w/o Dev.' (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	378	580	0	958
	B	0	0	0	0	0
	C	884	10	0	770	1664
	D	15	601	626	0	1242
	Tot.	899	989	1206	770	3864

Traffic Lane Flows

Lane	Scenario 3: AM Peak Hour 2023 w/o Dev.
Junction: Bury New Road / Higher Lane	
1/1 (short)	181
1/2 (with short)	378(In) 197(Out)
1/3 (with short)	580(In) 301(Out)
1/4 (short)	279
2/1 (short)	371
2/2 (with short)	770(In) 399(Out)
2/3 (with short)	894(In) 477(Out)
2/4 (short)	417
3/1 (short)	15
3/2 (with short)	462(In) 447(Out)
3/3 (with short)	780(In) 409(Out)
3/4 (short)	371
4/1	484
4/2	415
5/1	633
5/2	356
6/1	556
6/2	650
7/1	371
7/2	399

Lane Saturation Flows

Junction: Bury New Road / Higher Lane								
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 (Bury New Road SB)	2.40	0.00	Y	Arm 5 Left	101.91	100.0 %	1828	1828
1/2 (Bury New Road SB)	2.70	0.00	N	Arm 5 Left	105.01	100.0 %	1996	1996
1/3 (Bury New Road SB)	2.80	0.00	N	Arm 6 Ahead	Inf	100.0 %	2035	2035
1/4 (Bury New Road SB)	2.67	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1882	1882
2/1 (Bury New Road NB)	2.57	0.00	Y	Arm 7 Left	96.30	100.0 %	1843	1843
2/2 (Bury New Road NB)	2.58	0.00	N	Arm 7 Left	99.10	100.0 %	1983	1983
2/3 (Bury New Road NB)	2.78	0.00	N	Arm 4 Ahead	Inf	100.0 %	2033	2033
2/4 (Bury New Road NB)	2.36	0.00	Y	Arm 4 Ahead	Inf	97.6 %	1842	1842
				Arm 5 Right	7.71	2.4 %		
3/1 (Higher Lane)	4.90	0.00	Y	Arm 4 Left	6.06	100.0 %	1687	1687
3/2 (Higher Lane)	3.32	0.00	Y	Arm 5 Ahead	153.95	100.0 %	1928	1928
3/3 (Higher Lane)	3.21	0.00	N	Arm 5 Ahead	86.18	37.7 %	2015	2015
				Arm 6 Right	39.77	62.3 %		
3/4 (Higher Lane)	3.02	0.00	Y	Arm 6 Right	36.42	100.0 %	1841	1841
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1 (Bury Old Road Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Bury Old Road Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM Peak Hour 2023 w/o Dev.' (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	370	847	0	1217
	B	0	0	0	0	0
	C	1287	13	0	1271	2571
	D	34	348	452	0	834
	Tot.	1321	731	1299	1271	4622

Traffic Lane Flows

Lane	Scenario 4: PM Peak Hour 2023 w/o Dev.
Junction: Bury New Road / Higher Lane	
1/1 (short)	177
1/2 (with short)	370(In) 193(Out)
1/3 (with short)	847(In) 440(Out)
1/4 (short)	407
2/1 (short)	612
2/2 (with short)	1271(In) 659(Out)
2/3 (with short)	1300(In) 692(Out)
2/4 (short)	608
3/1 (short)	34
3/2 (with short)	294(In) 260(Out)
3/3 (with short)	540(In) 282(Out)
3/4 (short)	258
4/1	709
4/2	612
5/1	444
5/2	287
6/1	634
6/2	665
7/1	612
7/2	659

Lane Saturation Flows

Junction: Bury New Road / Higher Lane								
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 (Bury New Road SB)	2.40	0.00	Y	Arm 5 Left	101.91	100.0 %	1828	1828
1/2 (Bury New Road SB)	2.70	0.00	N	Arm 5 Left	105.01	100.0 %	1996	1996
1/3 (Bury New Road SB)	2.80	0.00	N	Arm 6 Ahead	Inf	100.0 %	2035	2035
1/4 (Bury New Road SB)	2.67	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1882	1882
2/1 (Bury New Road NB)	2.57	0.00	Y	Arm 7 Left	96.30	100.0 %	1843	1843
2/2 (Bury New Road NB)	2.58	0.00	N	Arm 7 Left	99.10	100.0 %	1983	1983
2/3 (Bury New Road NB)	2.78	0.00	N	Arm 4 Ahead	Inf	100.0 %	2033	2033
2/4 (Bury New Road NB)	2.36	0.00	Y	Arm 4 Ahead	Inf	97.9 %	1843	1843
				Arm 5 Right	7.71	2.1 %		
3/1 (Higher Lane)	4.90	0.00	Y	Arm 4 Left	6.06	100.0 %	1687	1687
3/2 (Higher Lane)	3.32	0.00	Y	Arm 5 Ahead	153.95	100.0 %	1928	1928
3/3 (Higher Lane)	3.21	0.00	N	Arm 5 Ahead	86.18	31.2 %	2013	2013
				Arm 6 Right	39.77	68.8 %		
3/4 (Higher Lane)	3.02	0.00	Y	Arm 6 Right	36.42	100.0 %	1841	1841
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1 (Bury Old Road Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Bury Old Road Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'AM Peak Hour 2023 with Dev.' (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	378	580	0	958
	B	0	0	0	0	0
	C	884	10	0	795	1689
	D	15	607	673	0	1295
	Tot.	899	995	1253	795	3942

Traffic Lane Flows

Lane	Scenario 5: AM Peak Hour 2023 with Dev.
Junction: Bury New Road / Higher Lane	
1/1 (short)	181
1/2 (with short)	378(In) 197(Out)
1/3 (with short)	580(In) 301(Out)
1/4 (short)	279
2/1 (short)	383
2/2 (with short)	795(In) 412(Out)
2/3 (with short)	894(In) 477(Out)
2/4 (short)	417
3/1 (short)	15
3/2 (with short)	489(In) 474(Out)
3/3 (with short)	806(In) 423(Out)
3/4 (short)	383
4/1	484
4/2	415
5/1	660
5/2	335
6/1	591
6/2	662
7/1	383
7/2	412

Lane Saturation Flows

Junction: Bury New Road / Higher Lane								
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 (Bury New Road SB)	2.40	0.00	Y	Arm 5 Left	101.91	100.0 %	1828	1828
1/2 (Bury New Road SB)	2.70	0.00	N	Arm 5 Left	105.01	100.0 %	1996	1996
1/3 (Bury New Road SB)	2.80	0.00	N	Arm 6 Ahead	Inf	100.0 %	2035	2035
1/4 (Bury New Road SB)	2.67	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1882	1882
2/1 (Bury New Road NB)	2.57	0.00	Y	Arm 7 Left	96.30	100.0 %	1843	1843
2/2 (Bury New Road NB)	2.58	0.00	N	Arm 7 Left	99.10	100.0 %	1983	1983
2/3 (Bury New Road NB)	2.78	0.00	N	Arm 4 Ahead	Inf	100.0 %	2033	2033
2/4 (Bury New Road NB)	2.36	0.00	Y	Arm 4 Ahead	Inf	97.6 %	1842	1842
				Arm 5 Right	7.71	2.4 %		
3/1 (Higher Lane)	4.90	0.00	Y	Arm 4 Left	6.06	100.0 %	1687	1687
3/2 (Higher Lane)	3.32	0.00	Y	Arm 5 Ahead	153.95	100.0 %	1928	1928
3/3 (Higher Lane)	3.21	0.00	N	Arm 5 Ahead	86.18	31.4 %	2013	2013
				Arm 6 Right	39.77	68.6 %		
3/4 (Higher Lane)	3.02	0.00	Y	Arm 6 Right	36.42	100.0 %	1841	1841
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1 (Bury Old Road Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Bury Old Road Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'PM Peak Hour 2023 with Dev.' (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

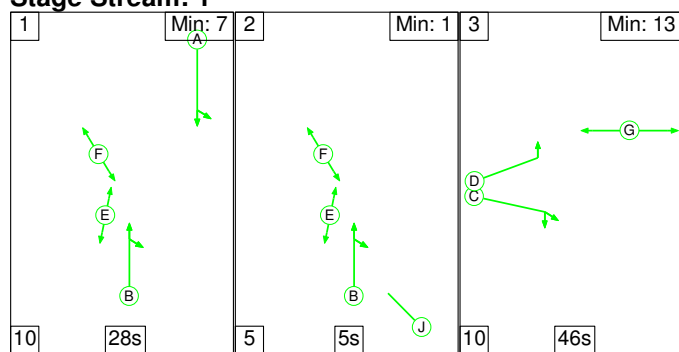
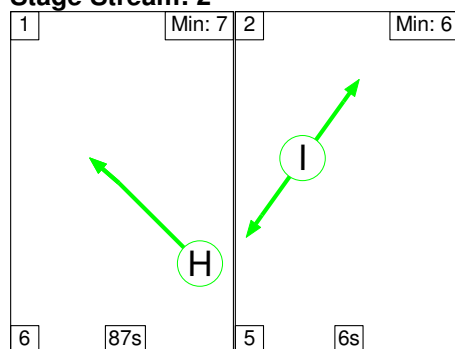
	Destination					
		A	B	C	D	Tot.
Origin	A	0	370	847	0	1217
	B	0	0	0	0	0
	C	1287	13	0	1319	2619
	D	34	351	477	0	862
	Tot.	1321	734	1324	1319	4698

Traffic Lane Flows

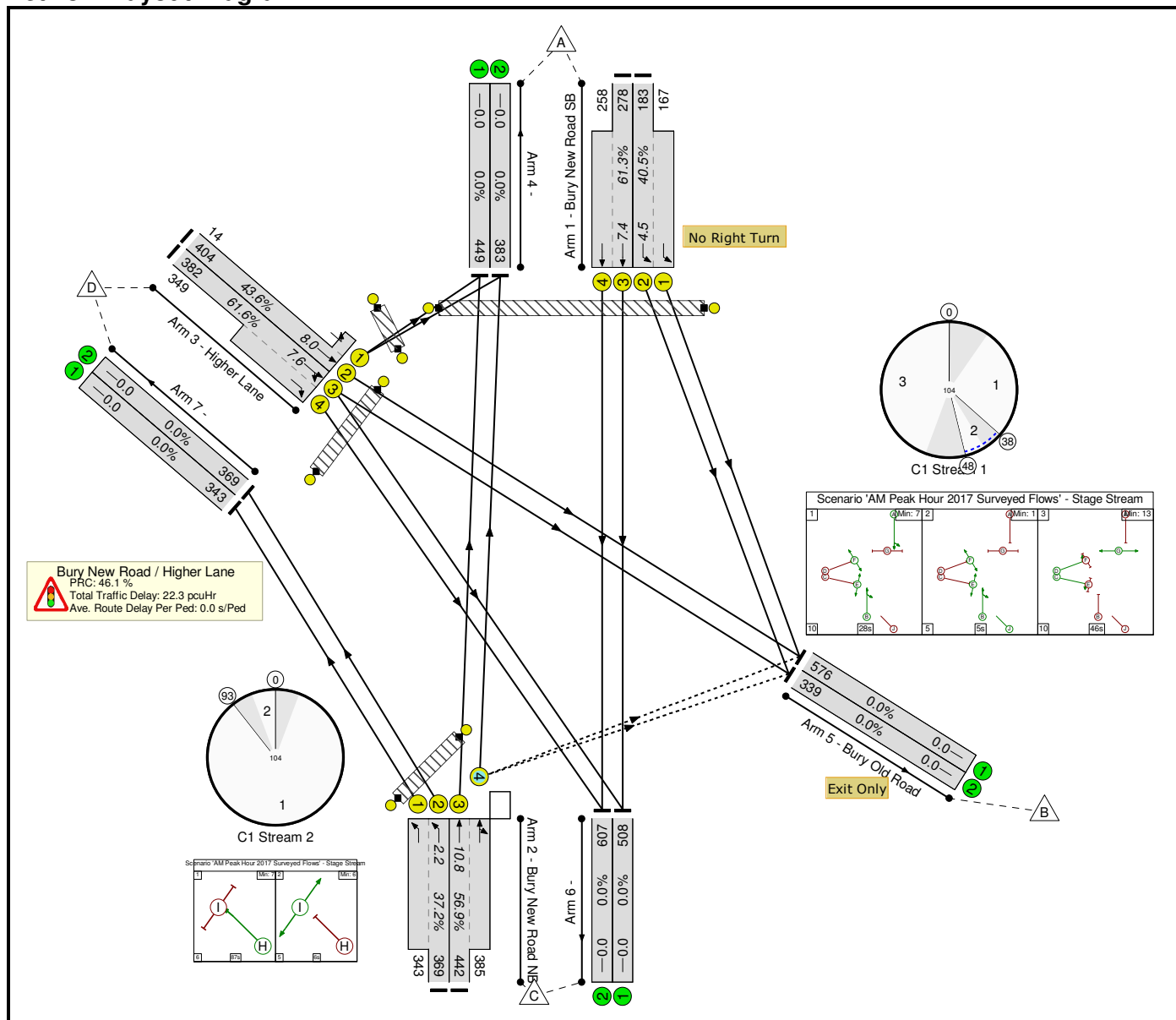
Lane	Scenario 6: PM Peak Hour 2023 with Dev.
Junction: Bury New Road / Higher Lane	
1/1 (short)	177
1/2 (with short)	370(In) 193(Out)
1/3 (with short)	847(In) 440(Out)
1/4 (short)	407
2/1 (short)	635
2/2 (with short)	1319(In) 684(Out)
2/3 (with short)	1300(In) 682(Out)
2/4 (short)	618
3/1 (short)	34
3/2 (with short)	306(In) 272(Out)
3/3 (with short)	556(In) 290(Out)
3/4 (short)	266
4/1	699
4/2	622
5/1	456
5/2	278
6/1	651
6/2	673
7/1	635
7/2	684

Lane Saturation Flows

Junction: Bury New Road / Higher Lane								
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 (Bury New Road SB)	2.40	0.00	Y	Arm 5 Left	101.91	100.0 %	1828	1828
1/2 (Bury New Road SB)	2.70	0.00	N	Arm 5 Left	105.01	100.0 %	1996	1996
1/3 (Bury New Road SB)	2.80	0.00	N	Arm 6 Ahead	Inf	100.0 %	2035	2035
1/4 (Bury New Road SB)	2.67	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1882	1882
2/1 (Bury New Road NB)	2.57	0.00	Y	Arm 7 Left	96.30	100.0 %	1843	1843
2/2 (Bury New Road NB)	2.58	0.00	N	Arm 7 Left	99.10	100.0 %	1983	1983
2/3 (Bury New Road NB)	2.78	0.00	N	Arm 4 Ahead	Inf	100.0 %	2033	2033
2/4 (Bury New Road NB)	2.36	0.00	Y	Arm 4 Ahead	Inf	97.9 %	1843	1843
				Arm 5 Right	7.71	2.1 %		
3/1 (Higher Lane)	4.90	0.00	Y	Arm 4 Left	6.06	100.0 %	1687	1687
3/2 (Higher Lane)	3.32	0.00	Y	Arm 5 Ahead	153.95	100.0 %	1928	1928
3/3 (Higher Lane)	3.21	0.00	N	Arm 5 Ahead	86.18	27.2 %	2011	2011
				Arm 6 Right	39.77	72.8 %		
3/4 (Higher Lane)	3.02	0.00	Y	Arm 6 Right	36.42	100.0 %	1841	1841
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1 (Bury Old Road Lane 1)	Infinite Saturation Flow						Inf	Inf
5/2 (Bury Old Road Lane 2)	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf

Stage Sequence Diagram**Scenario 1: 'AM Peak Hour 2017 Surveyed Flows'** (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')**Stage Stream: 1****Stage Stream: 2**

Network Layout Diagram

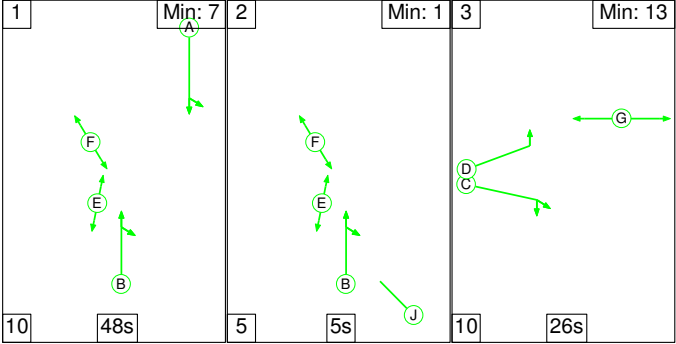


[illegible]

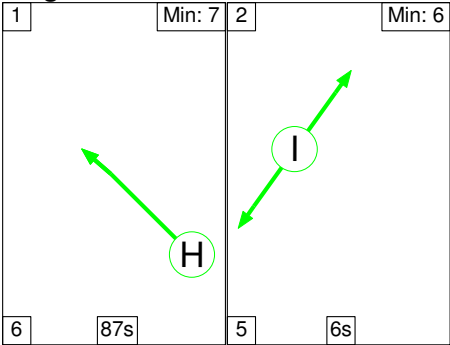
Stage Sequence Diagram

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

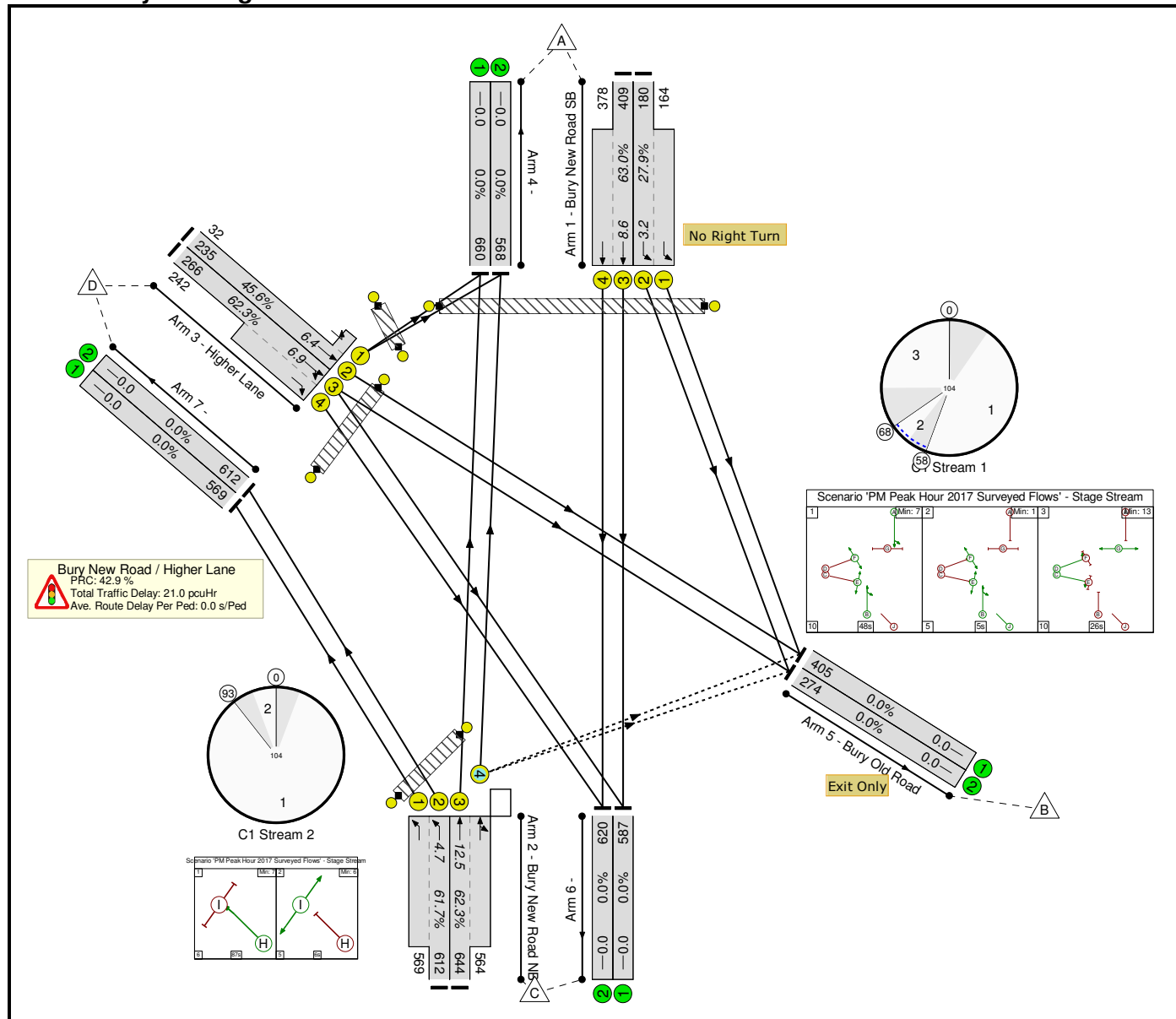
Stage Stream: 1



Stage Stream: 2



Network Layout Diagram



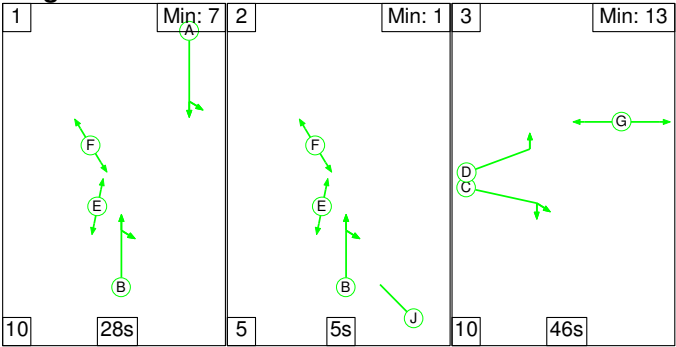
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	63.0%	17.0	3.9	21.0	-	-	-	-
Bury New Road / Higher Lane	-	-	-	-	-	63.0%	17.0	3.9	21.0	-	-	-	-
1/2+1/1	Bury New Road SB Left	A	344	1996:1828	1232	27.9%	1.5	0.2	1.7	18.0	3.0	0.2	3.2
1/3+1/4	Bury New Road SB Ahead	A	787	2035:1882	1250	63.0%	4.0	0.8	4.8	22.1	7.7	0.8	8.6
2/2+2/1	Bury New Road NB Left	H	1181	1983:1843	1913	61.7%	0.6	0.8	1.4	4.2	3.9	0.8	4.7
2/3+2/4	Bury New Road NB Ahead Right	B	1208	2033:1843	1940	62.3%	4.7	0.8	5.6	16.6	11.6	0.8	12.5
3/2+3/1	Higher Lane Left Ahead	C D	267	1928:1687	586	45.6%	2.1	0.4	2.6	34.5	6.0	0.4	6.4
3/3+3/4	Higher Lane Ahead Right	C	508	2014:1841	815	62.3%	4.1	0.8	4.9	34.5	6.1	0.8	6.9
Ped Link: P1	Unnamed Ped Link	I	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
		C1	Stream: 1 PRC for Signalled Lanes (%):		42.9	Total Delay for Signalled Lanes (pcuHr):		19.57	Cycle Time (s):		104		
		C1	Stream: 2 PRC for Signalled Lanes (%):		45.8	Total Delay for Signalled Lanes (pcuHr):		1.39	Cycle Time (s):		104		
			PRC Over All Lanes (%):		42.9	Total Delay Over All Lanes(pcuHr):		20.96					

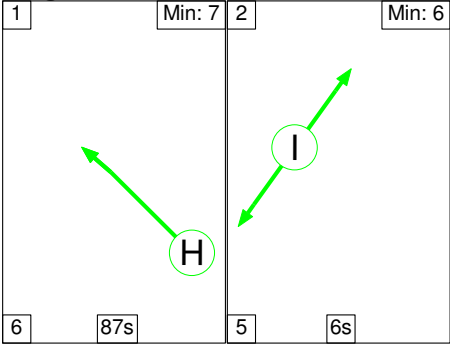
Stage Sequence Diagram

Scenario 3: 'AM Peak Hour 2023 w/o Dev.' (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')

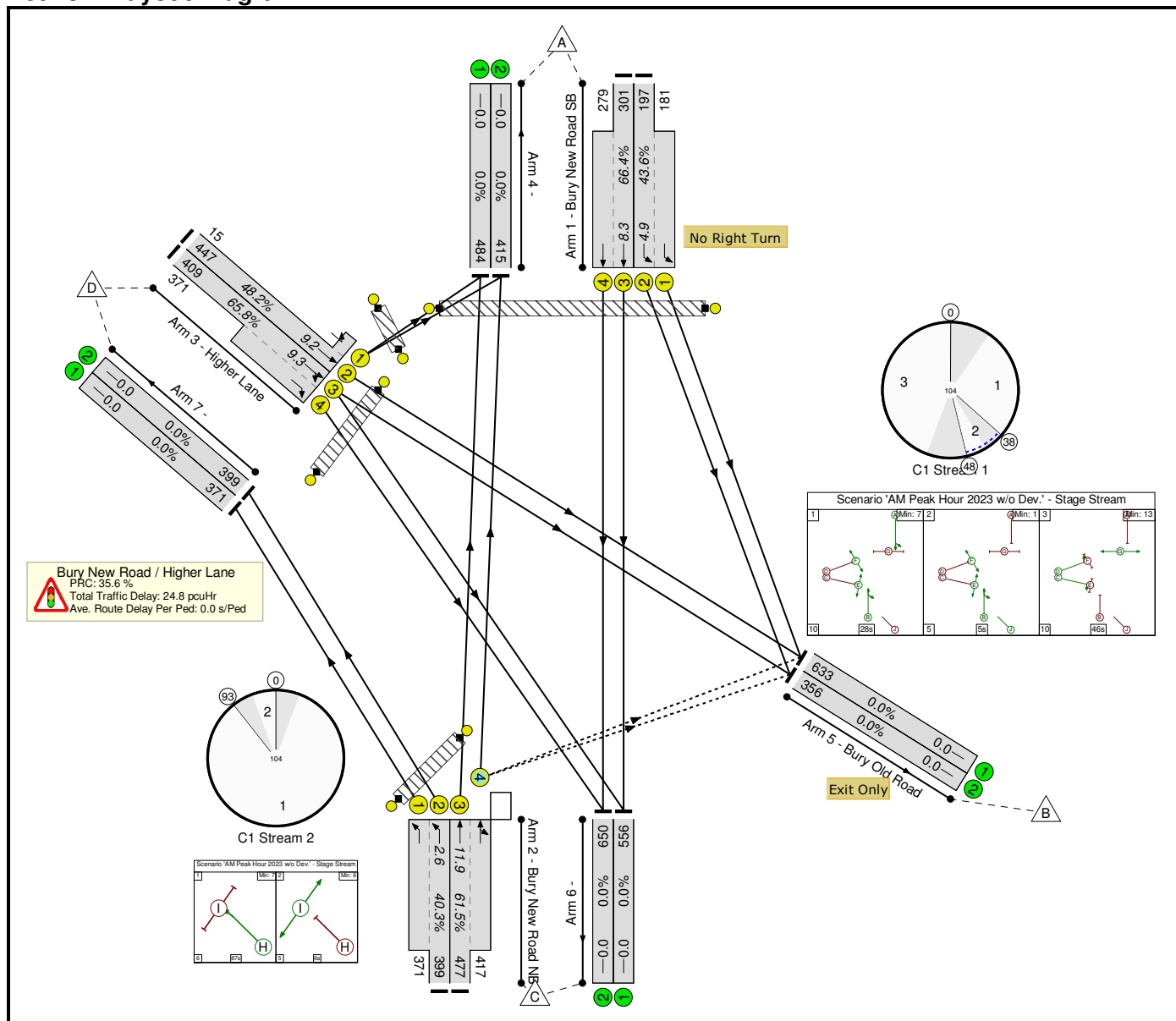
Stage Stream: 1



Stage Stream: 2



Network Layout Diagram



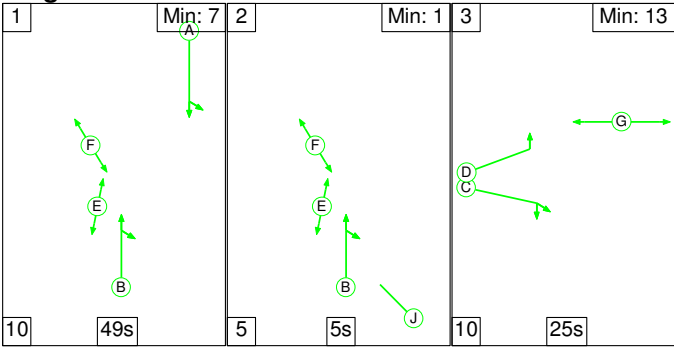
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	66.4%	20.9	3.9	24.8	-	-	-	-
Bury New Road / Higher Lane	-	-	-	-	-	66.4%	20.9	3.9	24.8	-	-	-	-
1/2+1/1	Bury New Road SB Left	A	378	1996:1828	866	43.6%	3.2	0.4	3.5	33.7	4.5	0.4	4.9
1/3+1/4	Bury New Road SB Ahead	A	580	2035:1882	874	66.4%	5.1	1.0	6.1	37.8	7.4	1.0	8.3
2/2+2/1	Bury New Road NB Left	H	770	1983:1843	1913	40.3%	0.3	0.3	0.7	3.1	2.2	0.3	2.6
2/3+2/4	Bury New Road NB Ahead Right	B	894	2033:1842	1453	61.5%	6.6	0.8	7.4	29.7	11.1	0.8	11.9
3/2+3/1	Higher Lane Left Ahead	C D	462	1928:1687	958	48.2%	2.2	0.5	2.7	20.8	8.7	0.5	9.2
3/3+3/4	Higher Lane Ahead Right	C	780	2015:1841	1185	65.8%	3.5	1.0	4.5	20.8	8.3	1.0	9.3
Ped Link: P1	Unnamed Ped Link	I	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
C1 Stream: 1 PRC for Signalled Lanes (%):			35.6		Total Delay for Signalled Lanes (pcuHr):		24.17		Cycle Time (s): 104				
C1 Stream: 2 PRC for Signalled Lanes (%):			123.6		Total Delay for Signalled Lanes (pcuHr):		0.67		Cycle Time (s): 104				
PRC Over All Lanes (%):			35.6		Total Delay Over All Lanes(pcuHr):		24.83						

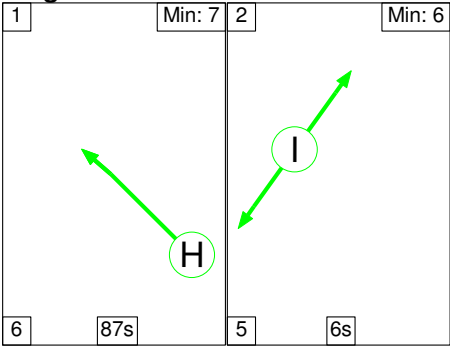
Stage Sequence Diagram

Scenario 4: 'PM Peak Hour 2023 w/o Dev.' (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')

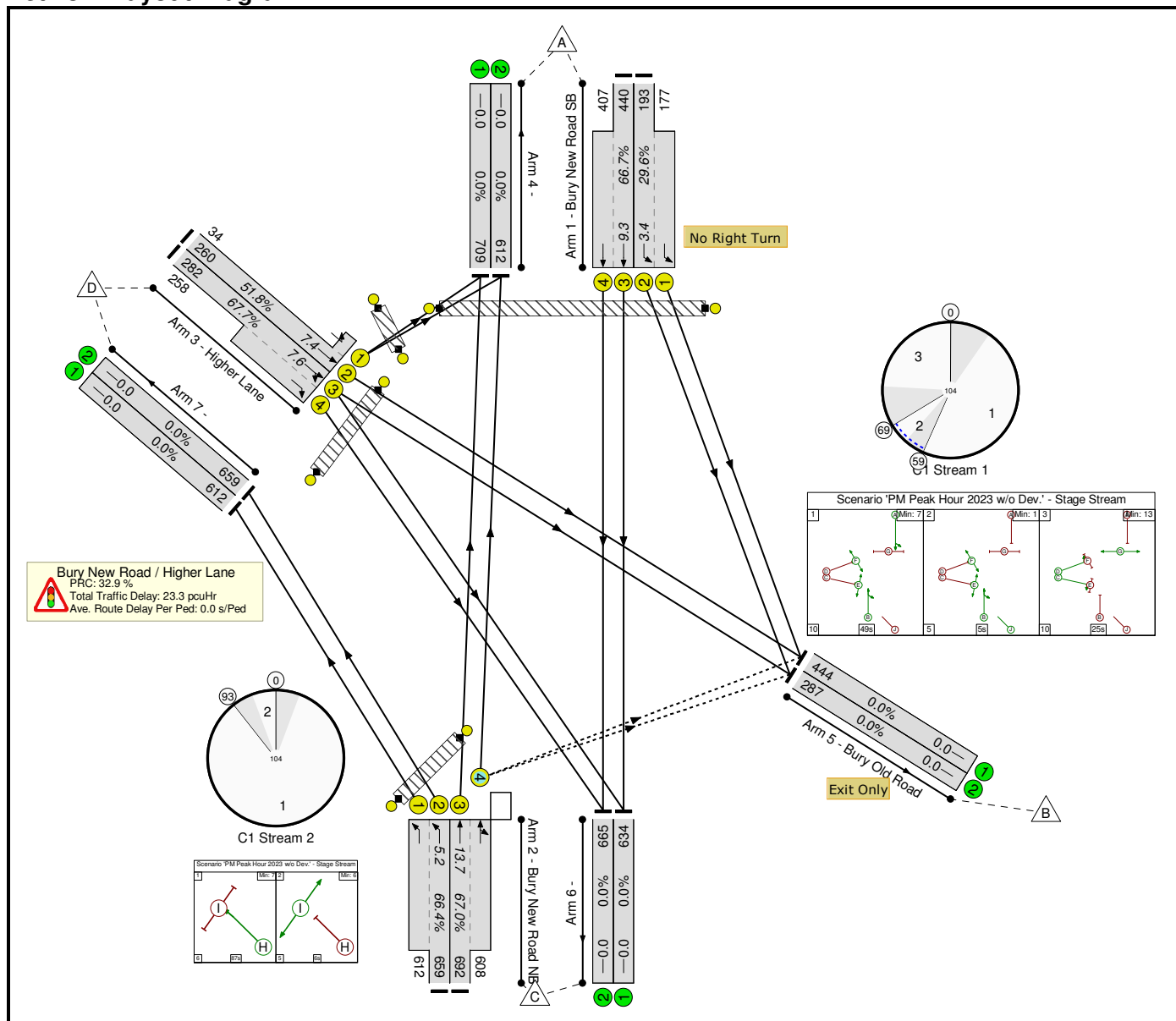
Stage Stream: 1



Stage Stream: 2

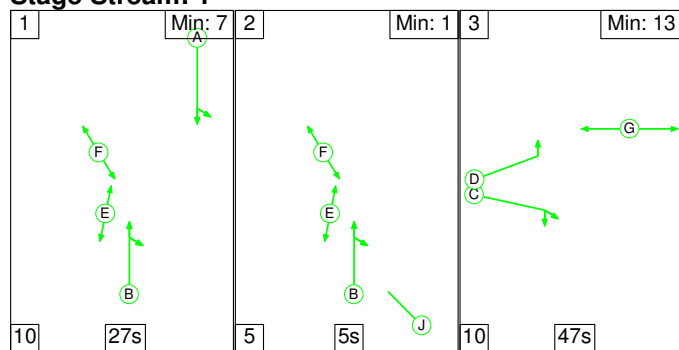
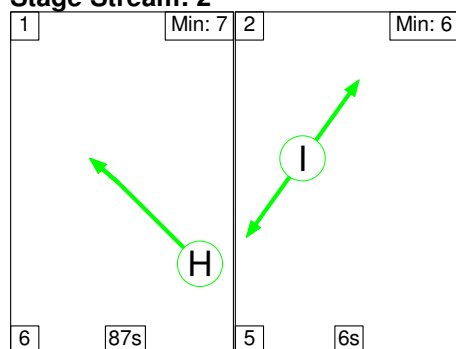


Network Layout Diagram

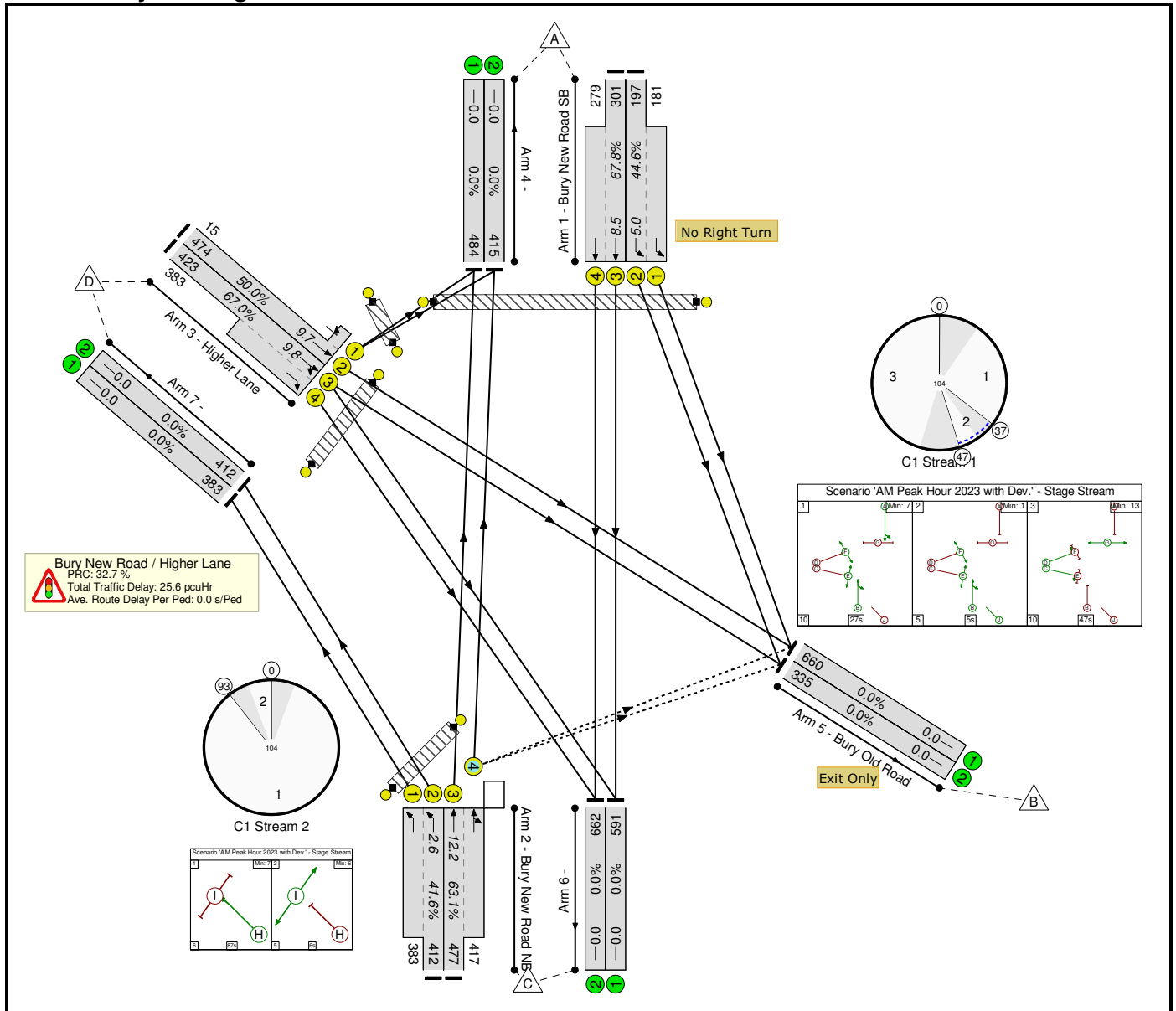


Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	67.7%	18.5	4.8	23.3	-	-	-	-
Bury New Road / Higher Lane	-	-	-	-	-	67.7%	18.5	4.8	23.3	-	-	-	-
1/2+1/1	Bury New Road SB Left	A	370	1996:1828	1252	29.6%	1.6	0.2	1.8	17.6	3.2	0.2	3.4
1/3+1/4	Bury New Road SB Ahead	A	847	2035:1882	1269	66.7%	4.2	1.0	5.2	22.1	8.3	1.0	9.3
2/2+2/1	Bury New Road NB Left	H	1271	1983:1843	1913	66.4%	0.7	1.0	1.6	4.6	4.2	1.0	5.2
2/3+2/4	Bury New Road NB Ahead Right	B	1300	2033:1843	1939	67.0%	5.1	1.0	6.1	16.9	12.7	1.0	13.7
3/2+3/1	Higher Lane Left Ahead	C D	294	1928:1687	568	51.8%	2.5	0.5	3.0	36.7	6.9	0.5	7.4
3/3+3/4	Higher Lane Ahead Right	C	540	2013:1841	798	67.7%	4.5	1.0	5.5	36.7	6.6	1.0	7.6
Ped Link: P1	Unnamed Ped Link	I	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
		C1	Stream: 1 PRC for Signalled Lanes (%):		32.9	Total Delay for Signalled Lanes (pcuHr):		21.61	Cycle Time (s):		104		
		C1	Stream: 2 PRC for Signalled Lanes (%):		35.5	Total Delay for Signalled Lanes (pcuHr):		1.64	Cycle Time (s):		104		
			PRC Over All Lanes (%):		32.9	Total Delay Over All Lanes(pcuHr):		23.25					

Stage Sequence Diagram**Scenario 5: 'AM Peak Hour 2023 with Dev.'** (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Stage Stream: 1****Stage Stream: 2**

Network Layout Diagram



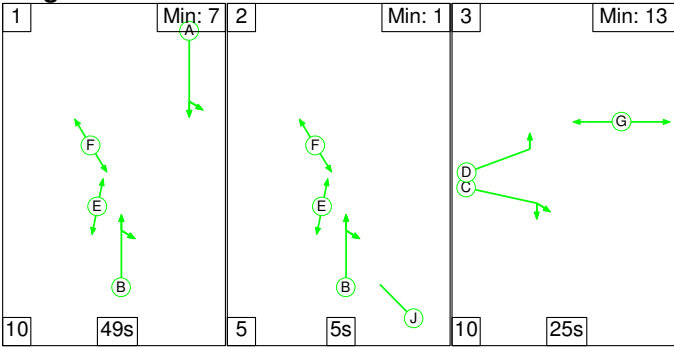
Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	67.8%	21.4	4.2	25.6	-	-	-	-
Bury New Road / Higher Lane	-	-	-	-	-	67.8%	21.4	4.2	25.6	-	-	-	-
1/2+1/1	Bury New Road SB Left	A	378	1996:1828	848	44.6%	3.2	0.4	3.6	34.6	4.6	0.4	5.0
1/3+1/4	Bury New Road SB Ahead	A	580	2035:1882	855	67.8%	5.3	1.0	6.3	39.1	7.4	1.0	8.5
2/2+2/1	Bury New Road NB Left	H	795	1983:1843	1913	41.6%	0.3	0.4	0.7	3.2	2.3	0.4	2.6
2/3+2/4	Bury New Road NB Ahead Right	B	894	2033:1842	1416	63.1%	6.8	0.9	7.6	30.7	11.4	0.9	12.2
3/2+3/1	Higher Lane Left Ahead	C D	489	1928:1687	977	50.0%	2.3	0.5	2.8	20.5	9.2	0.5	9.7
3/3+3/4	Higher Lane Ahead Right	C	806	2013:1841	1203	67.0%	3.6	1.0	4.6	20.4	8.8	1.0	9.8
Ped Link: P1	Unnamed Ped Link	I	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
C1 Stream: 1 PRC for Signalled Lanes (%):			32.7		Total Delay for Signalled Lanes (pcuHr):				24.92	Cycle Time (s): 104			
C1 Stream: 2 PRC for Signalled Lanes (%):			116.6		Total Delay for Signalled Lanes (pcuHr):				0.70	Cycle Time (s): 104			
PRC Over All Lanes (%):			32.7		Total Delay Over All Lanes(pcuHr):				25.62				

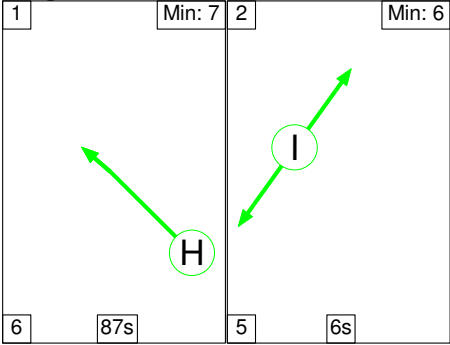
Stage Sequence Diagram

Scenario 6: 'PM Peak Hour 2023 with Dev.' (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')

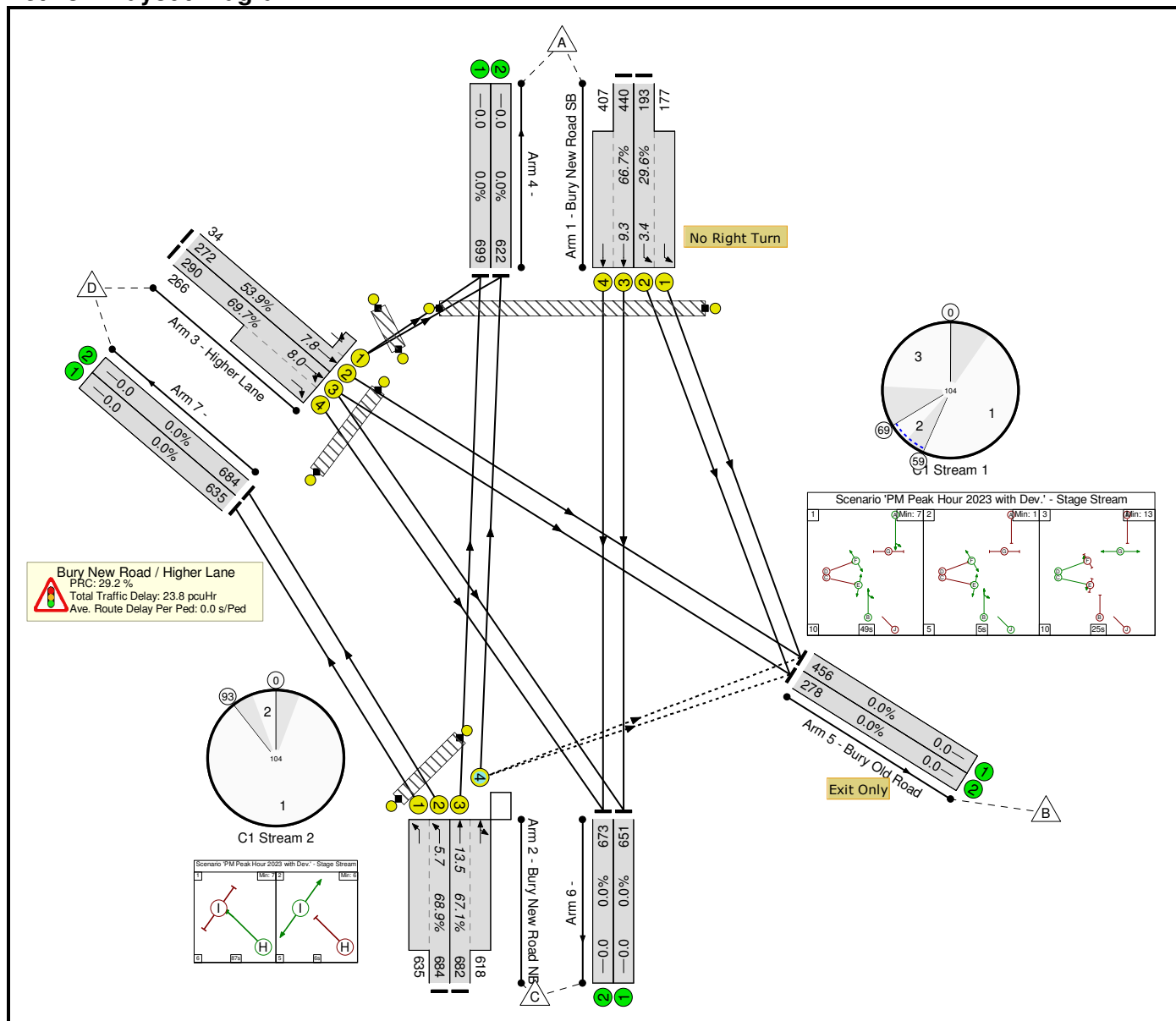
Stage Stream: 1



Stage Stream: 2



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	69.7%	18.8	5.0	23.8	-	-	-	-
Bury New Road / Higher Lane	-	-	-	-	-	69.7%	18.8	5.0	23.8	-	-	-	-
1/2+1/1	Bury New Road SB Left	A	370	1996:1828	1252	29.6%	1.6	0.2	1.8	17.6	3.2	0.2	3.4
1/3+1/4	Bury New Road SB Ahead	A	847	2035:1882	1269	66.7%	4.2	1.0	5.2	22.1	8.3	1.0	9.3
2/2+2/1	Bury New Road NB Left	H	1319	1983:1843	1913	68.9%	0.7	1.1	1.8	4.9	4.6	1.1	5.7
2/3+2/4	Bury New Road NB Ahead Right	B	1300	2033:1843	1938	67.1%	5.1	1.0	6.1	16.9	12.5	1.0	13.5
3/2+3/1	Higher Lane Left Ahead	C D	306	1928:1687	568	53.9%	2.6	0.6	3.2	37.3	7.2	0.6	7.8
3/3+3/4	Higher Lane Ahead Right	C	556	2011:1841	798	69.7%	4.6	1.1	5.8	37.3	6.8	1.1	8.0
Ped Link: P1	Unnamed Ped Link	I	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	E	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	F	0	-	0	0.0%	-	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	G	0	-	0	0.0%	-	-	-	-	-	-	-
		C1	Stream: 1 PRC for Signalled Lanes (%):		29.2	Total Delay for Signalled Lanes (pcuHr):		22.04	Cycle Time (s):		104		
		C1	Stream: 2 PRC for Signalled Lanes (%):		30.5	Total Delay for Signalled Lanes (pcuHr):		1.80	Cycle Time (s):		104		
			PRC Over All Lanes (%):		29.2	Total Delay Over All Lanes(pcuHr):		23.83					



Appendix H – Model Outputs Manchester Road / Dumers Lane (J8)

TRANSYT 15	
Version: 15.5.1.7048 © Copyright TRL Limited, 2017	
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk	
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution	

Filename: J8.t15

Path: J:\2016\A090070-193 HCA - East Lancs Paper Mill\Jun. Ass\J8 A56_Radcliffe Rd_Park Hill Rd (Sig & Tran)\Transyt Model

Report generation date: 24/09/2018 10:43:39

»A1 - AM Peak Hour 2017 Surveyed Flows : D1 - AM Peak Hour 2017 Surveyed Flows* :
 »A2 - PM Peak Hour 2017 Surveyed Flows : D2 - PM Peak Hour 2017 Surveyed Flows* :
 »A3 - AM Peak Hour 2023 w/o Dev. : D3 - AM Peak Hour 2023 w/o Dev.* :
 »A4 - PM Peak Hour 2023 w/o Dev. : D4 - PM Peak Hour 2023 w/o Dev.* :
 »A5 - AM Peak Hour 2023 with Dev. : D5 - AM Peak Hour 2023 with Dev.* :
 »A6 - PM Peak Hour 2023 with Dev. : D6 - PM Peak Hour 2023 with Dev.* :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	13/09/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYGlyujing.liu
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber

Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	mph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

A1 - AM Peak Hour 2017 Surveyed Flows

D1 - AM Peak Hour 2017 Surveyed Flows*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Arm Data	Arm 3	No traffic node specified for arm(s): 3, 4, 7, 9, 10, 13, 16, 19, 21, 23, 29

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	24/09/2018 10:43:14	24/09/2018 10:43:14	07:45	120	410.21	26.71	77.74	11/1	0	0	11/1	3/1	11/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
AM Peak Hour 2017 Surveyed Flows		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
AM Peak Hour 2017 Surveyed Flows				07:45	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
3	(untitled)		
4	(untitled)		
5	(untitled)		1
6	(untitled)		1
7	(untitled)		
8	(untitled)		1
9	(untitled)		
10	(untitled)		
11	(untitled)		1
12	(untitled)		1
13	(untitled)		
14	(untitled)		1
15	(untitled)		1
16	(untitled)		
17	(untitled)		1
18	(untitled)		1
19	(untitled)		
20	(untitled)		1
21	(untitled)		
22	(untitled)		
23	(untitled)		
24	(untitled)		
25	(untitled)		
26	(untitled)		
27	(untitled)		
29	(untitled)		
30	(untitled)		1
31	(untitled)		1
32	(untitled)		1
33	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
3	1	(untitled)			100.00	✓	Sum of lanes	2025					Normal	
4	1	(untitled)		✓	21.31	✓	Sum of lanes	2055	✓	1800			Normal	
5	1	(untitled)		✓	61.00	✓	Sum of lanes	1924	✓	1800	✓		Normal	
6	1	(untitled)		✓	60.18	✓	Sum of lanes	2060	✓	1800	✓		Normal	
7	1	(untitled)		✓	61.65	✓	Sum of lanes	2117	✓	1800			Normal	
8	1	(untitled)		✓	22.00	✓	Sum of lanes	2070			✓		Normal	
9	1	(untitled)		✓	36.65				✓	1800		✓	Normal	
10	1	(untitled)			100.00	✓	Sum of lanes	1974					Normal	
11	1	(untitled)		✓	43.05	✓	Sum of lanes	1825	✓	1800	✓		Normal	
12	1	(untitled)		✓	43.48	✓	Sum of lanes	1873	✓	1800	✓		Normal	
13	1	(untitled)			100.00	✓	Sum of lanes	1880					Normal	
14	1	(untitled)		✓	52.68	✓	Sum of lanes	1713	✓	1800	✓		Normal	
15	1	(untitled)		✓	52.56	✓	Sum of lanes	1854	✓	1800	✓		Normal	
16	1	(untitled)			100.00	✓	Sum of lanes	2015					Normal	
17	1	(untitled)		✓	43.77	✓	Sum of lanes	1839	✓	1800	✓		Normal	
18	1	(untitled)		✓	43.14	✓	Sum of lanes	1983	✓	1800	✓		Normal	
19	1	(untitled)		✓	70.66	✓	Sum of lanes	1800	✓	1800			Normal	
20	1	(untitled)		✓	8.03	✓	Sum of lanes	2055			✓		Normal	
21	1	(untitled)		✓	17.28							✓	Normal	
22	1	(untitled)		✓	139.64								Normal	
23	1	(untitled)		✓	60.64								Normal	
24	1	(untitled)		✓	148.12								Normal	
25	1	(untitled)		✓	183.95								Normal	
26	1	(untitled)		✓	109.00								Normal	
27	1	(untitled)		✓	107.80								Normal	
29	1	(untitled)		✓	35.23	✓	Sum of lanes	2005	✓	1800			Normal	
30	1	(untitled)		✓	13.67	✓	Sum of lanes	1800				✓	Normal	
31	1	(untitled)		✓	17.15	✓	Sum of lanes	1800				✓	Normal	
32	1	(untitled)		✓	17.25	✓	Sum of lanes	1800				✓	Normal	
33	1	(untitled)		✓	16.97	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
3	1	1	(untitled)		✓	N/A	N/A	0	4.10	✓	0	99999.00	✓	2025
4	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
5	1	1	(untitled)		✓	N/A	N/A	0	3.09	✓	0	99999.00	✓	1924
6	1	1	(untitled)		✓	N/A	N/A	0	3.05	✓	0	99999.00		2060
7	1	1	(untitled)		✓	N/A	N/A	0	4.20	✓	11	6.00		2117
8	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	0	6.00		2070
9	1	1	(untitled)											
10	1	1	(untitled)		✓	N/A	N/A	0	4.23	✓	100	46.29	✓	1974
11	1	1	(untitled)		✓	N/A	N/A	0	2.53	✓	49	30.97	✓	1825
12	1	1	(untitled)		✓	N/A	N/A	0	2.58	✓	0	99999.00	✓	1873
13	1	1	(untitled)		✓	N/A	N/A	0	2.65	✓	0	99999.00	✓	1880
14	1	1	(untitled)		✓	N/A	N/A	0	2.27	✓	30	6.00	✓	1713
15	1	1	(untitled)		✓	N/A	N/A	0	2.39	✓	0	99999.00	✓	1854
16	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	0	99999.00	✓	2015
17	1	1	(untitled)		✓	N/A	N/A	0	2.24	✓	0	99999.00	✓	1839
18	1	1	(untitled)		✓	N/A	N/A	0	2.28	✓	0	99999.00		1983
19	1	1	(untitled)											1800
20	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	80.03		2055
21	1	1	(untitled)											
22	1	1	(untitled)											
		2	(untitled)											
23	1	1	(untitled)											
24	1	1	(untitled)											
25	1	1	(untitled)											
		2	(untitled)											
26	1	1	(untitled)											
27	1	1	(untitled)											
29	1	1	(untitled)		✓	N/A	N/A	0	2.50	✓	0	99999.00		2005
30	1	1	(untitled)											1800
31	1	1	(untitled)											1800
32	1	1	(untitled)											1800
33	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
3	1	NetworkDefault	100	100	100		0.00		
4	1	CTM	100	100	100		0.00		
5	1	Flare	100	100	100		0.00		
6	1	Flare	100	100	100		0.00		
7	1	CTM	100	100	100		0.00		
8	1	Flare	100	100	100		4.00		
9	1	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		8.00		
12	1	Flare	100	100	100		8.00		
13	1	NetworkDefault	100	100	100		0.00		
14	1	Flare	100	100	100		9.00		
15	1	Flare	100	100	100		0.00		
16	1	NetworkDefault	100	100	100		0.00		
17	1	Flare	100	100	100		6.00		
18	1	Flare	100	100	100		7.00		
19	1	CTM	100	100	100		0.00		
20	1	Flare	100	100	100		1.00		
21	1	NetworkDefault	100	100	100		1.00		
22	1	NetworkDefault	100	100	100		0.00		
23	1	NetworkDefault	100	100	100		0.00		
24	1	NetworkDefault	100	100	100		0.00		
25	1	NetworkDefault	100	100	100		0.00		
26	1	NetworkDefault	100	100	100		0.00		
27	1	NetworkDefault	100	100	100		0.00		
29	1	CTM	100	100	100		0.00		
30	1	Flare	100	100	100		2.00		
31	1	Flare	100	100	100		2.00		
32	1	Flare	100	100	100		2.00		
33	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
3	1	940	940
4	1	503	503
5	1	118	118
6	1	385	385
7	1	437	437
8	1	387	387
9	1	50	50
10	1	572	572
11	1	532	532
12	1	40	40
13	1	518	518
14	1	479	479
15	1	39	39
16	1	918	918
17	1	326	326
18	1	280	280
19	1	312	312
20	1	290	290
21	1	22	22
22	1	1072	1072
23	1	663	663
24	1	411	411
25	1	749	749
26	1	3	3
27	1	713	713
29	1	606	606
30	1	326	326
31	1	118	118
32	1	40	40
33	1	39	39

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
5	1	1	D		
6	1	1	D		
8	1	1	D		
11	1	1	A		
12	1	1	A		
14	1	1	B		
15	1	1	B		
17	1	1	C	✓	E
18	1	1	C		
20	1	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	1	12.00	18.64

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
4	1	1	3/1	4/1	2.56	18.64	✓	Straight	Straight Movement
5	1	1	4/1	5/1	7.32	18.64	✓	Straight	Straight Movement
6	1	1	4/1	6/1	7.22	18.64	✓	Straight	Straight Movement
7	1	1	3/1	7/1	7.40	18.64	✓	Straight	Straight Movement
8	1	1	7/1	8/1	2.64	18.64	✓	Straight	Straight Movement
9	1	1	7/1	9/1	4.40	18.64	✓	Nearside	6.00
11	1	1	10/1	11/1	5.17	18.64	✓	Nearside	58.13
12	1	1	10/1	12/1	5.22	18.64	✓	Nearside	46.29
14	1	1	13/1	14/1	6.32	18.64	✓	Straight	Straight Movement
15	1	1	13/1	15/1	6.31	18.64	✓	Straight	Straight Movement
17	1	1	29/1	17/1	5.25	18.64	✓	Straight	Straight Movement
18	1	1	29/1	18/1	5.18	18.64	✓	Straight	Straight Movement
19	1	1	16/1	19/1	8.48	18.64	✓	Straight	Straight Movement
20	1	1	19/1	20/1	1.00	18.64	✓	Straight	Straight Movement
21	1	1	19/1	21/1	2.07	18.64	✓	Nearside	16.99
22	1	1	11/1	22/1	16.76	18.64	✓	Nearside	30.97
23	1	1	8/1	23/1	7.28	18.64	✓	Nearside	6.00
24	1	1	11/1	24/1	17.77	18.64	✓	Straight	Straight Movement
25	1	1	20/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	1	20/1	26/1	13.08	18.64	✓	Nearside	80.03
27	1	1	23/1	27/1	12.94	18.64	✓	Offside	74.09
29	1	1	16/1	29/1	4.23	18.64	✓	Straight	Straight Movement
30	1	1	17/1	30/1	1.64	18.64	✓	Straight	Straight Movement
31	1	1	5/1	31/1	2.06	18.64	✓	Straight	Straight Movement
32	1	1	12/1	32/1	2.07	18.64	✓	Straight	Straight Movement
33	1	1	15/1	33/1	2.04	18.64	✓	Straight	Straight Movement
22	1	2	8/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	2	14/1	23/1	7.28	18.64	✓	Straight	Straight Movement
24	1	2	21/1	24/1	17.77	18.64	✓	Nearside	11.52
25	1	2	18/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	2	14/1	26/1	13.08	18.64	✓	Nearside	6.00
27	1	2	9/1	27/1	12.94	18.64	✓	Nearside	17.86
22	1	3	6/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	3	30/1	23/1	7.28	18.64	✓	Offside	23.55
24	1	3	31/1	24/1	17.77	18.64	✓	Offside	17.01
25	1	3	14/1	25/1	22.07	18.64	✓	Nearside	22.17
26	1	3	31/1	26/1	13.08	18.64	✓	Offside	6.00
22	1	4	33/1	22/1	16.76	18.64	✓	Offside	9.51
25	1	4	32/1	25/1	22.07	18.64	✓	Offside	6.00
26	1	4	32/1	26/1	13.08	18.64	✓	Offside	6.00

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
9	1	Movement					
21	1	Movement					
30	1	Movement	✓	0	✓	23.55	
31	1	Movement	✓	0	✓	6.00	
32	1	Movement	✓	0	✓	6.00	
33	1	Movement	✓	0	✓	9.51	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Opposed) (PCU/hr)	Max Flow (Unopposed) (PCU/hr)	Max congested capacity (PCU/hr)	Percentage opposed (%)
9	1	1	27/1	715	715	0	100
21	1	1	24/1	715	715		100
30	1	1	23/1		1800		100
31	1	1	24/1		1800		100
		2	26/1		1800		100
32	1	1	25/1		1800		100
		2	26/1		1800		100
33	1	1	22/1		1800		100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling traffic stream	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Slope coefficient	Upstream signals visible	Conflict shift
9	1	1	27/1	23/1	TrafficStream	23/1			100	0.22		0
21	1	1	24/1		TrafficStreamMovement		31/1	24/1	100	0.22		0
30	1	1	23/1		TrafficStreamMovement		8/1	22/1	100			0
					TrafficStreamMovement		6/1	22/1	100			0
31	1	1	24/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
		2	26/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
32	1	1	25/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
		2	26/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
					TrafficStreamMovement		14/1	26/1	100			0
					TrafficStreamMovement		11/1	24/1	100			0
33	1	1	22/1		TrafficStreamMovement		11/1	22/1	100			0
					TrafficStreamMovement		11/1	22/1	100			0

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
		1	2	3	4	5
From	1	0	22	0	570	326
	2	39	0	0	142	337
	3	0	0	0	0	0
	4	772	118	0	0	50
	5	261	271	3	37	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	16/1	22/1	#FF0000
	2	(untitled)	13/1	24/1	#00FF00
	3	(untitled)		26/1	#FFFF00
	4	(untitled)	3/1	25/1	#00FFFF
	5	(untitled)	10/1	27/1	#FF00FF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	4		2	3	13/1, 14/1, 26/1	Normal	0
	6		2	4	13/1, 14/1, 25/1	Normal	142
	7		4	1	3/1, 4/1, 6/1, 22/1	Normal	385
	8		5	1	10/1, 11/1, 22/1	Normal	261
	9		5	2	10/1, 11/1, 24/1	Normal	271
	13		2	5	13/1, 14/1, 23/1, 27/1	Normal	337
	17		4	1	3/1, 7/1, 8/1, 22/1	Normal	387
	18		4	2	3/1, 4/1, 5/1, 31/1, 24/1	Normal	118
	19		4	3	3/1, 4/1, 5/1, 31/1, 26/1	Normal	0
	21		1	4	16/1, 29/1, 18/1, 25/1	Normal	280
	25		1	5	16/1, 29/1, 17/1, 30/1, 23/1, 27/1	Normal	326
	26		2	1	13/1, 15/1, 33/1, 22/1	Normal	39
	27		5	4	10/1, 12/1, 32/1, 25/1	Normal	37
	28		5	3	10/1, 12/1, 32/1, 26/1	Normal	3
	29		4	5	3/1, 7/1, 8/1, 23/1, 27/1	Normal	0
	30		4	5	3/1, 7/1, 9/1, 27/1	Normal	50
	31		1	4	16/1, 19/1, 20/1, 25/1	Normal	290
	32		1	3	16/1, 19/1, 20/1, 26/1	Normal	0
	33		1	2	16/1, 19/1, 21/1, 24/1	Normal	22

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C, E	1
	3	C, D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	34, 55, 101

Intergreen Matrix for Controller Stream 1

		To				
From		A	B	C	D	E
	A			7	7	7
	B			7	7	7
	C	9	9			
	D	9	9			9
	E	7	7		3	

Banned Stage transitions for Controller Stream 1

		To		
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

		To		
From		1	2	3
	1	0	7	7
	2	9	0	3
	3	9	9	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	110	34	44	1	7
	2	✓	2	C,E	41	55	14	1	4
	3	✓	3	C,D	58	101	43	1	7

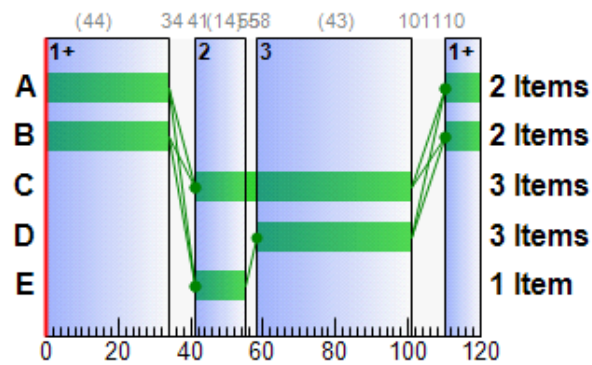
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	110	34	44
	B	1	✓	110	34	44
	C	1	✓	41	101	60
	D	1	✓	58	101	43
	E	1	✓	41	55	14

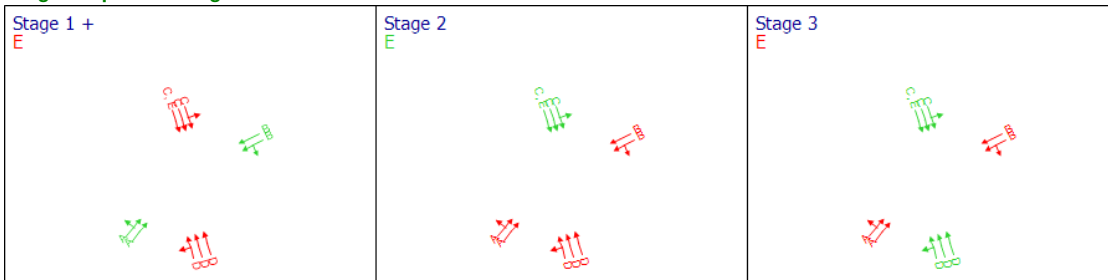
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
5	1	1	1	D	58	101	43
6	1	1	1	D	58	101	43
8	1	1	1	D	58	101	43
11	1	1	1	A	110	34	44
12	1	1	1	A	110	34	44
14	1	1	1	B	110	34	44
15	1	1	1	B	110	34	44
17	1	1	1	C	41	101	60
18	1	1	1	C	41	101	60
20	1	1	1	C	41	101	60

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
07:45-08:45	1	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
07:45-08:45	3	1	(untitled)		940	2025	120	2025	46	94	0.77	0.20	1.15	12.77
	4	1	(untitled)		503	2055	120	2055	24	268	0.28	0.04	1.07	2.84
	5	1	(untitled)	D	118	1924	43	700	17	434	26.29	2.57	24.26	33.61
	6	1	(untitled)	D	385	2060	43	755	51	77	32.79	9.83	93.94	40.02
	7	1	(untitled)		437	2117	120	1307	33	169	11.90	6.66	62.10	19.30
	8	1	(untitled)	D	387	2070	43	759	51	77	21.36	4.26	106.60	24.00
	9	1	(untitled)		50	569	120	569	9	924	0.30	0.00	0.07	4.70
	10	1	(untitled)		572	1974	120	1328	43	109	9.43	8.90	51.18	21.43
	11	1	(untitled)	A	532	1825	44	684	78	16	33.74	9.06	113.28	38.90
	12	1	(untitled)	A	40	1873	44	702	6	1479	21.73	1.53	19.19	26.95
	13	1	(untitled)		518	1880	120	1427	36	148	5.09	5.71	32.86	17.09
	14	1	(untitled)	B	479	1713	44	642	75	21	36.21	9.61	106.79	42.53
	15	1	(untitled)	B	39	1854	44	695	6	1503	23.52	1.45	15.87	29.82
	16	1	(untitled)		918	2015	120	2015	46	98	0.75	0.19	1.09	12.75
	17	1	(untitled)	C	326	1839	60	852	38	135	18.86	5.83	97.15	24.11
	18	1	(untitled)	C	280	1983	60	1008	28	224	17.58	4.96	70.82	22.76
	19	1	(untitled)		312	1800	120	1059	29	205	12.85	4.83	39.31	21.33
	20	1	(untitled)	C	290	2055	60	1045	28	224	6.22	1.05	105.33	7.22
	21	1	(untitled)		22	689	120	689	3	2719	0.09	0.00	0.05	2.16
	22	1	(untitled)		1072	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	16.76
	23	1	(untitled)		663	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	7.28
	24	1	(untitled)		411	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	17.77
	25	1	(untitled)		749	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	22.07
	26	1	(untitled)		3	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	13.08
	27	1	(untitled)		713	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.94
	29	1	(untitled)		606	2005	120	1885	32	180	0.70	1.55	25.22	4.93
	30	1	(untitled)		326	1278	120	1278	26	253	4.23	2.01	100.59	5.87
	31	1	(untitled)		118	1315	120	1315	9	903	0.84	0.65	32.36	2.90
	32	1	(untitled)		40	1227	120	1227	3	2661	16.96	1.07	53.63	19.03
	33	1	(untitled)		39	1203	120	1203	3	2677	21.12	1.11	55.66	23.16

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	110	34	44	1	7
	2	✓	2	C,E	41	55	14	1	4
	3	✓	3	C,D	58	101	43	1	7

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
3	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2025	100	100
4	1	✓	21.31	CTM	0.00	Normal	✓			Sum of lanes	2055	100	100
5	1	✓	61.00	Flare	0.00	Normal	✓	✓		Sum of lanes	1924	100	100
6	1	✓	60.18	Flare	0.00	Normal	✓	✓		Sum of lanes	2060	100	100
7	1	✓	61.65	CTM	0.00	Normal	✓			Sum of lanes	2117	100	100
8	1	✓	22.00	Flare	4.00	Normal	✓	✓		Sum of lanes	2070	100	100
9	1	✓	36.65	Flare	6.00	Normal			✓			100	100
10	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1974	100	100
11	1	✓	43.05	Flare	8.00	Normal	✓	✓		Sum of lanes	1825	100	100
12	1	✓	43.48	Flare	8.00	Normal	✓	✓		Sum of lanes	1873	100	100
13	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1880	100	100
14	1	✓	52.68	Flare	9.00	Normal	✓	✓		Sum of lanes	1713	100	100
15	1	✓	52.56	Flare	0.00	Normal	✓	✓		Sum of lanes	1854	100	100
16	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2015	100	100
17	1	✓	43.77	Flare	6.00	Normal	✓	✓		Sum of lanes	1839	100	100
18	1	✓	43.14	Flare	7.00	Normal	✓	✓		Sum of lanes	1983	100	100
19	1	✓	70.66	CTM	0.00	Normal	✓			Sum of lanes	1800	100	100
20	1	✓	8.03	Flare	1.00	Normal	✓	✓		Sum of lanes	2055	100	100
21	1	✓	17.28	NetworkDefault	1.00	Normal			✓			100	100
22	1	✓	139.64	NetworkDefault	0.00	Normal						100	100
23	1	✓	60.64	NetworkDefault	0.00	Normal						100	100
24	1	✓	148.12	NetworkDefault	0.00	Normal						100	100
25	1	✓	183.95	NetworkDefault	0.00	Normal						100	100
26	1	✓	109.00	NetworkDefault	0.00	Normal						100	100
27	1	✓	107.80	NetworkDefault	0.00	Normal						100	100
29	1	✓	35.23	CTM	0.00	Normal	✓			Sum of lanes	2005	100	100
30	1	✓	13.67	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
31	1	✓	17.15	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
32	1	✓	17.25	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
33	1	✓	16.97	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:45-08:45	3	1	46	94	940	2025	120	0.77	0.20	1.15	2.85	0.00	2.85
	4	1	24	268	503	2055	120	0.28	0.04	1.07	0.56	0.00	0.56
	5	1	17	434	118	1924	43	26.29	2.57	24.26	12.24	0.97	13.20
	6	1	51	77	385	2060	43	32.79	9.83	93.94	49.80	3.70	53.50
	7	1	33	169	437	2117	120	11.90	6.66	62.10	20.52	2.50	23.02
	8	1	51	77	387	2070	43	21.36	4.26	106.60	32.61	1.69	34.30
	9	1	9	924	50	569	120	0.30	0.00	0.07	0.06	0.00	0.06
	10	1	43	109	572	1974	120	9.43	8.90	51.18	21.27	3.17	24.44
	11	1	78	16	532	1825	44	33.74	9.06	113.28	70.79	3.40	74.19
	12	1	6	1479	40	1873	44	21.73	1.53	19.19	3.43	0.22	3.65
	13	1	36	148	518	1880	120	5.09	5.71	32.86	10.39	2.02	12.41
	14	1	75	21	479	1713	44	36.21	9.61	106.79	68.41	3.61	72.02
	15	1	6	1503	39	1854	44	23.52	1.45	15.87	3.62	0.26	3.88
	16	1	46	98	918	2015	120	0.75	0.19	1.09	2.70	0.00	2.70
	17	1	38	135	326	1839	60	18.86	5.83	97.15	24.25	2.33	26.58
	18	1	28	224	280	1983	60	17.58	4.96	70.82	19.42	1.86	21.29
	19	1	29	205	312	1800	120	12.85	4.83	39.31	15.81	1.81	17.63
	20	1	28	224	290	2055	60	6.22	1.05	105.33	7.11	0.37	7.48
	21	1	3	2719	22	689	120	0.09	0.00	0.05	0.01	0.00	0.01
	22	1	0	Unrestricted	1072	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	0	Unrestricted	663	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	0	Unrestricted	411	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	0	Unrestricted	749	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	0	Unrestricted	3	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	0	Unrestricted	713	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	32	180	606	2005	120	0.70	1.55	25.22	1.68	0.41	2.09
	30	1	26	253	326	1278	120	4.23	2.01	100.59	5.44	1.26	6.71
	31	1	9	903	118	1315	120	0.84	0.65	32.36	0.39	0.44	0.83
	32	1	3	2661	40	1227	120	16.96	1.07	53.63	2.68	0.44	3.12
	33	1	3	2677	39	1203	120	21.12	1.11	55.66	3.25	0.45	3.69

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
07:45-08:45	3	1	940	940	0		2025	2025	46		94	0.00	120
	4	1	503	503	0		2055	2055	24		268	0.00	120
	5	1	118	118	0		1924	700	17		434	0.00	43
	6	1	385	385	0		2060	755	51		77	0.00	43
	7	1	437	437	0		2117	1307	33		169	0.00	120
	8	1	387	387	0		2070	759	51		77	0.75	43
	9	1	50	50	0		569	569	9		924	0.76	120
	10	1	572	572	0		1974	1328	43		109	0.00	120
	11	1	532	532	0		1825	684	78		16	0.58	44
	12	1	40	40	0		1873	702	6		1479	0.58	44
	13	1	518	518	0		1880	1427	36		148	0.00	120
	14	1	479	479	0		1713	642	75		21	0.41	44
	15	1	39	39	0		1854	695	6		1503	0.41	44
	16	1	918	918	0		2015	2015	46		98	0.00	120
	17	1	326	326	0		1839	852	38		135	0.10	60
	18	1	280	280	0		1983	1008	28		224	0.10	60
	19	1	312	312	0		1800	1059	29		205	0.00	120
	20	1	290	290	0		2055	1045	28		224	0.81	60
	21	1	22	22	0		689	689	3		2719	0.80	120
	22	1	1072	1072	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	120
	23	1	663	663	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	120
	24	1	411	411	0		Unrestricted	Unrestricted	0		Unrestricted	0.68	120
	25	1	749	749	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	120
	26	1	3	3	0		Unrestricted	Unrestricted	0		Unrestricted	1.62	120
	27	1	713	713	0		Unrestricted	Unrestricted	0		Unrestricted	0.50	120
	29	1	606	606	0		2005	1885	32		180	0.00	120
	30	1	326	326	0		1278	1278	26		253	1.02	120
	31	1	118	118	0		1315	1315	9		903	1.26	120
	32	1	40	40	0		1227	1227	3		2661	1.36	120
	33	1	39	39	0		1203	1203	3		2677	1.38	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:45-08:45	3	1	12.00	0.77	0.20	2.85	0.00	0.00	0.00
	4	1	2.56	0.28	0.04	0.56	0.00	0.00	0.00
	5	1	7.32	26.29	0.86	12.24	65.43	77.21	0.97
	6	1	7.22	32.79	3.51	49.80	76.60	294.90	3.70
	7	1	7.40	11.90	1.44	20.52	45.68	199.64	2.50
	8	1	2.64	21.36	2.30	32.61	34.87	134.95	1.69
	9	1	4.40	0.30	0.00	0.06	0.00	0.00	0.00
	10	1	12.00	9.43	1.50	21.27	44.25	253.10	3.17
	11	1	5.17	33.74	4.99	70.79	50.97	271.16	3.40
	12	1	5.22	21.73	0.24	3.43	43.79	17.52	0.22
	13	1	12.00	5.09	0.73	10.39	31.10	161.12	2.02
	14	1	6.32	36.21	4.82	68.41	60.08	287.79	3.61
	15	1	6.31	23.52	0.25	3.62	53.62	20.91	0.26
	16	1	12.00	0.75	0.19	2.70	0.00	0.00	0.00
	17	1	5.25	18.86	1.71	24.25	57.05	185.98	2.33
	18	1	5.18	17.58	1.37	19.42	53.12	148.73	1.86
	19	1	8.48	12.85	1.11	15.81	46.39	144.75	1.81
	20	1	1.00	6.22	0.50	7.11	10.90	31.60	0.37
	21	1	2.07	0.09	0.00	0.01	0.00	0.00	0.00
	22	1	16.76	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	7.28	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	17.77	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	22.07	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	13.08	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	12.94	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	4.23	0.70	0.12	1.68	5.42	32.83	0.41
	30	1	1.64	4.23	0.38	5.44	30.93	100.83	1.26
	31	1	2.06	0.84	0.03	0.39	29.90	35.28	0.44
	32	1	2.07	16.96	0.19	2.68	87.65	35.06	0.44
	33	1	2.04	21.12	0.23	3.25	91.06	35.51	0.45

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
07:45-08:45	3	1	0.00	0.20	17.39	1.15	0.00	0.00	
	4	1	0.00	0.04	3.71	1.07	0.00	0.00	
	5	1	0.00	2.57	10.61	24.26	0.00	0.32	
	6	1	0.00	9.83	10.47	93.94	0.00	0.00	
	7	1	0.00	6.66	10.72	62.10	0.00	46.00	
	8	1	0.00	4.26	4.00	106.60	0.00	0.00	
	9	1	0.00	0.00	6.00	0.07	0.00	106.00	
	10	1	0.00	8.90	17.39	51.18	0.00	39.30	
	11	1	0.00	9.06	8.00	113.28	0.00	0.00	
	12	1	0.00	1.53	8.00	19.19	0.00	25.04	
	13	1	0.00	5.71	17.39	32.86	0.00	28.89	
	14	1	0.00	9.61	9.00	106.79	0.00	0.00	
	15	1	0.00	1.45	9.14	15.87	0.00	31.03	
	16	1	0.00	0.19	17.39	1.09	0.00	0.00	
	17	1	0.00	5.83	6.00	97.15	0.00	5.38	
	18	1	0.00	4.96	7.00	70.82	0.00	0.00	
	19	1	0.00	4.83	12.29	39.31	0.00	49.46	
	20	1	0.00	1.05	1.00	105.33	0.00	0.00	
	21	1	0.00	0.00	1.00	0.05	0.00	109.00	
	22	1	0.00	0.00	48.57	0.00	0.00	12.00	
	23	1	0.00	0.00	10.55	0.00	0.00	21.00	
	24	1	0.00	0.00	25.76	0.00	0.00	0.00	
	25	1	0.00	0.00	63.98	0.00	0.00	0.00	
	26	1	0.00	0.00	18.96	0.00	0.00	120.00	
	27	1	0.00	0.00	18.75	0.00	0.00	0.00	
	29	1	0.00	1.55	6.13	25.22	0.00	7.20	
	30	1	0.00	2.01	2.00	100.59	0.00	58.00	
	31	1	0.00	0.65	2.00	32.36	0.00	76.00	
	32	1	0.00	1.07	2.00	53.63	0.00	85.00	
	33	1	0.00	1.11	2.00	55.66	0.00	83.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
07:45-08:45	4	1	✓	CTM flare: 4/1,6/1,5/1	59	12.45	849	52
	10	1	✓	CTM flare: 10/1,11/1,12/1	81	19.50	707	11
	13	1	✓	CTM flare: 13/1,14/1,15/1	77	16.78	669	16
	29	1	✓	CTM flare: 29/1,18/1,17/1	59	12.33	1019	51

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
07:45-08:45	3	1	0.00	0.00	✓	0.00	0.20			1.00	0.00	2.85
	4	1	0.00	0.00	✓	0.00	0.04			1.00	0.00	0.56
	5	1	0.00	0.00	✓	0.00	2.57	0.02	2.54	1.00	0.00	13.20
	6	1	0.00	0.00	✓	0.00	9.83	0.26	9.00	1.00	0.00	53.50
	7	1	0.00	0.00	✓	0.00	6.66			1.00	0.00	23.02
	8	1	0.00	0.00	✓	0.00	4.26	0.26	4.26	1.00	0.00	34.30
	9	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.06
	10	1	0.00	0.00	✓	0.00	8.90			1.00	0.00	24.44
	11	1	0.00	0.00	✓	0.00	9.08	1.34	9.08	1.00	0.00	74.19
	12	1	0.00	0.00	✓	0.00	1.53	0.00	0.58	1.00	0.00	3.65
	13	1	0.00	0.00	✓	0.00	5.71			1.00	0.00	12.41
	14	1	0.00	0.00	✓	0.00	9.62	1.08	9.62	1.00	0.00	72.02
	15	1	0.00	0.00	✓	0.00	1.45	0.00	0.70	1.00	0.00	3.88
	16	1	0.00	0.00	✓	0.00	0.19			1.00	0.00	2.70
	17	1	0.00	0.00	✓	0.00	5.83	0.12	5.81	1.00	0.00	26.58
	18	1	0.00	0.00	✓	0.00	4.96	0.05	4.88	1.00	0.00	21.29
	19	1	0.00	0.00	✓	0.00	4.83			1.00	0.00	17.63
	20	1	0.00	0.00	✓	0.00	1.05	0.05	1.05	1.00	0.00	7.48
	21	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.01
	22	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	23	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	24	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	25	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	26	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	27	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	29	1	0.00	0.00	✓	0.00	1.55			1.00	0.00	2.09
	30	1	0.00	0.00	✓	0.00	2.01			1.00	0.00	6.71
	31	1	0.00	0.00	✓	0.00	0.65			1.00	0.00	0.83
	32	1	0.00	0.00	✓	0.00	1.07			1.00	0.00	3.12
	33	1	0.00	0.00	✓	0.00	1.11			1.00	0.00	3.69

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	24/09/2018 10:43:14	24/09/2018 10:43:14	07:45	120	410.21	26.71	77.74	11/1	0	0	11/1	3/1	11/1

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:45-08:45	78	16	11888	2885	8.09	379.28	30.93	410.21

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
07:45-08:45	11888	11888	0		78		16	2885

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:45-08:45	9.80	8.09	26.71	379.28	20.77	2468.86	30.93

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
07:45-08:45	113.28	0.00	902.61

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
07:45-08:45	0.00	0.00	✓	0.00	1.00	0.00	0.00	410.21

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	54.0	0.0	62.9	67.9
	2	86.8	0.0	0.0	81.7	79.8
	3	0.0	0.0	0.0	0.0	0.0
	4	72.6	69.9	0.0	0.0	49.7
	5	77.1	78.1	80.5	89.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
4	2	3	0	0.00	0	0.00
6	2	4	142	81.69	142	81.69
7	4	1	385	72.38	385	72.38
8	5	1	261	77.09	261	77.09
9	5	2	271	78.10	271	78.10
13	2	5	337	79.83	337	79.83
17	4	1	387	72.83	387	72.83
18	4	2	118	69.90	118	69.90
19	4	3	0	0.00	0	0.00
21	1	4	280	62.51	280	62.51
25	1	5	326	67.87	326	67.87
26	2	1	39	86.82	39	86.82
27	5	4	37	89.48	37	89.48
28	5	3	3	80.49	3	80.49
29	4	5	0	0.00	0	0.00
30	4	5	50	49.71	50	49.71
31	1	4	290	63.37	290	63.37
32	1	3	0	0.00	0	0.00
33	1	2	22	54.01	22	54.01

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
3	1	(untitled)					940	2025	120	0.00	46	94	12.77	0.77	0.00	
4	1	(untitled)					503	2055	120	0.00	24	268	2.84	0.28	0.00	
5	1	(untitled)	1	1	D		118	1924	43	0.32	17	434	33.61	26.29	65.43	
6	1	(untitled)	1	1	D		385	2060	43	0.00	51	77	40.02	32.79	76.60	
7	1	(untitled)					437	2117	120	46.00	33	169	19.30	11.90	45.68	
8	1	(untitled)	1	1	D		387 <	2070	43	0.00	51	77	24.00	21.36	34.87	
9	1	(untitled)					50	569	120	106.00	9	924	4.70	0.30	0.00	
10	1	(untitled)					572	1974	120	39.30	43	109	21.43	9.43	44.25	
11	1	(untitled)	1	1	A		532 <	1825	44	0.00	78	16	38.90	33.74	50.97	
12	1	(untitled)	1	1	A		40	1873	44	25.04	6	1479	26.95	21.73	43.79	
13	1	(untitled)					518	1880	120	28.89	36	148	17.09	5.09	31.10	
14	1	(untitled)	1	1	B		479 <	1713	44	0.00	75	21	42.53	36.21	60.08	
15	1	(untitled)	1	1	B		39	1854	44	31.03	6	1503	29.82	23.52	53.62	
16	1	(untitled)					918	2015	120	0.00	46	98	12.75	0.75	0.00	
17	1	(untitled)	1	1	C	E	326	1839	60	5.38	38	135	24.11	18.86	57.05	
18	1	(untitled)	1	1	C		280	1983	60	0.00	28	224	22.76	17.58	53.12	
19	1	(untitled)					312	1800	120	49.46	29	205	21.33	12.85	46.39	
20	1	(untitled)	1	1	C		290 <	2055	60	0.00	28	224	7.22	6.22	10.90	
21	1	(untitled)					22	689	120	109.00	3	2719	2.16	0.09	0.00	
22	1	(untitled)					1072	Unrestricted	120	12.00	0	Unrestricted	16.76	0.00	0.00	
23	1	(untitled)					663	Unrestricted	120	21.00	0	Unrestricted	7.28	0.00	0.00	
24	1	(untitled)					411	Unrestricted	120	0.00	0	Unrestricted	17.77	0.00	0.00	
25	1	(untitled)					749	Unrestricted	120	0.00	0	Unrestricted	22.07	0.00	0.00	
26	1	(untitled)					3	Unrestricted	120	120.00	0	Unrestricted	13.08	0.00	0.00	
27	1	(untitled)					713	Unrestricted	120	0.00	0	Unrestricted	12.94	0.00	0.00	
29	1	(untitled)					606	2005	120	7.20	32	180	4.93	0.70	5.42	
30	1	(untitled)	1				326 <	1278	120	58.00	26	253	5.87	4.23	30.93	
31	1	(untitled)	1				118	1315	120	76.00	9	903	2.90	0.84	29.90	
32	1	(untitled)	1				40	1227	120	85.00	3	2661	19.03	16.96	87.65	
33	1	(untitled)	1				39	1203	120	83.00	3	2677	23.16	21.12	91.06	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	971.13	59.08	10.21	26.71	379.28	30.93	0.00	410.21
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	971.13	59.08	10.21	26.71	379.28	30.93	0.00	410.21

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX

A2 - PM Peak Hour 2017 Surveyed Flows

D2 - PM Peak Hour 2017 Surveyed Flows*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Arm Data	Arm 3	No traffic node specified for arm(s): 3, 4, 7, 9, 10, 13, 16, 19, 21, 23, 29

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	24/09/2018 10:43:15	24/09/2018 10:43:15	17:30	120	428.14	27.87	77.68	11/1	0	0	11/1	10/1	11/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
PM Peak Hour 2017 Surveyed Flows		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
PM Peak Hour 2017 Surveyed Flows				17:30	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
3	(untitled)		
4	(untitled)		
5	(untitled)		1
6	(untitled)		1
7	(untitled)		
8	(untitled)		1
9	(untitled)		
10	(untitled)		
11	(untitled)		1
12	(untitled)		1
13	(untitled)		
14	(untitled)		1
15	(untitled)		1
16	(untitled)		
17	(untitled)		1
18	(untitled)		1
19	(untitled)		
20	(untitled)		1
21	(untitled)		
22	(untitled)		
23	(untitled)		
24	(untitled)		
25	(untitled)		
26	(untitled)		
27	(untitled)		
29	(untitled)		
30	(untitled)		1
31	(untitled)		1
32	(untitled)		1
33	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
3	1	(untitled)			100.00	✓	Sum of lanes	2025					Normal	
4	1	(untitled)		✓	21.31	✓	Sum of lanes	2055	✓	1800			Normal	
5	1	(untitled)		✓	61.00	✓	Sum of lanes	1924	✓	1800	✓		Normal	
6	1	(untitled)		✓	60.18	✓	Sum of lanes	2060	✓	1800	✓		Normal	
7	1	(untitled)		✓	61.65	✓	Sum of lanes	2112	✓	1800			Normal	
8	1	(untitled)		✓	22.00	✓	Sum of lanes	2070			✓		Normal	
9	1	(untitled)		✓	36.65				✓	1800		✓	Normal	
10	1	(untitled)			100.00	✓	Sum of lanes	1974					Normal	
11	1	(untitled)		✓	43.05	✓	Sum of lanes	1818	✓	1800	✓		Normal	
12	1	(untitled)		✓	43.48	✓	Sum of lanes	1873	✓	1800	✓		Normal	
13	1	(untitled)			100.00	✓	Sum of lanes	1880					Normal	
14	1	(untitled)		✓	52.68	✓	Sum of lanes	1675	✓	1800	✓		Normal	
15	1	(untitled)		✓	52.56	✓	Sum of lanes	1854	✓	1800	✓		Normal	
16	1	(untitled)			100.00	✓	Sum of lanes	2015					Normal	
17	1	(untitled)		✓	43.77	✓	Sum of lanes	1839	✓	1800	✓		Normal	
18	1	(untitled)		✓	43.14	✓	Sum of lanes	1983	✓	1800	✓		Normal	
19	1	(untitled)		✓	70.66	✓	Sum of lanes	1800	✓	1800			Normal	
20	1	(untitled)		✓	8.03	✓	Sum of lanes	2054			✓		Normal	
21	1	(untitled)		✓	17.28							✓	Normal	
22	1	(untitled)		✓	139.64								Normal	
23	1	(untitled)		✓	60.64								Normal	
24	1	(untitled)		✓	148.12								Normal	
25	1	(untitled)		✓	183.95								Normal	
26	1	(untitled)		✓	109.00								Normal	
27	1	(untitled)		✓	107.80								Normal	
29	1	(untitled)		✓	35.23	✓	Sum of lanes	2005	✓	1800			Normal	
30	1	(untitled)		✓	13.67	✓	Sum of lanes	1800				✓	Normal	
31	1	(untitled)		✓	17.15	✓	Sum of lanes	1800				✓	Normal	
32	1	(untitled)		✓	17.25	✓	Sum of lanes	1800				✓	Normal	
33	1	(untitled)		✓	16.97	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
3	1	1	(untitled)		✓	N/A	N/A	0	4.10	✓	0	99999.00	✓	2025
4	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
5	1	1	(untitled)		✓	N/A	N/A	0	3.09	✓	0	99999.00	✓	1924
6	1	1	(untitled)		✓	N/A	N/A	0	3.05	✓	0	99999.00		2060
7	1	1	(untitled)		✓	N/A	N/A	0	4.20	✓	12	6.00		2112
8	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	0	6.00		2070
9	1	1	(untitled)											
10	1	1	(untitled)		✓	N/A	N/A	0	4.23	✓	100	46.29	✓	1974
11	1	1	(untitled)		✓	N/A	N/A	0	2.53	✓	57	30.97	✓	1818
12	1	1	(untitled)		✓	N/A	N/A	0	2.58	✓	0	99999.00	✓	1873
13	1	1	(untitled)		✓	N/A	N/A	0	2.65	✓	0	99999.00	✓	1880
14	1	1	(untitled)		✓	N/A	N/A	0	2.27	✓	40	6.00	✓	1675
15	1	1	(untitled)		✓	N/A	N/A	0	2.39	✓	0	99999.00	✓	1854
16	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	0	99999.00	✓	2015
17	1	1	(untitled)		✓	N/A	N/A	0	2.24	✓	0	99999.00	✓	1839
18	1	1	(untitled)		✓	N/A	N/A	0	2.28	✓	0	99999.00		1983
19	1	1	(untitled)											1800
20	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	2	80.03		2054
21	1	1	(untitled)											
22	1	1	(untitled)											
		2	(untitled)											
23	1	1	(untitled)											
24	1	1	(untitled)											
25	1	1	(untitled)											
		2	(untitled)											
26	1	1	(untitled)											
27	1	1	(untitled)											
29	1	1	(untitled)		✓	N/A	N/A	0	2.50	✓	0	99999.00		2005
30	1	1	(untitled)											1800
31	1	1	(untitled)											1800
32	1	1	(untitled)											1800
33	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
3	1	NetworkDefault	100	100	100		0.00		
4	1	CTM	100	100	100		0.00		
5	1	Flare	100	100	100		0.00		
6	1	Flare	100	100	100		0.00		
7	1	CTM	100	100	100		0.00		
8	1	Flare	100	100	100		4.00		
9	1	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		8.00		
12	1	Flare	100	100	100		8.00		
13	1	NetworkDefault	100	100	100		0.00		
14	1	Flare	100	100	100		9.00		
15	1	Flare	100	100	100		0.00		
16	1	NetworkDefault	100	100	100		0.00		
17	1	Flare	100	100	100		6.00		
18	1	Flare	100	100	100		7.00		
19	1	CTM	100	100	100		0.00		
20	1	Flare	100	100	100		1.00		
21	1	NetworkDefault	100	100	100		1.00		
22	1	NetworkDefault	100	100	100		0.00		
23	1	NetworkDefault	100	100	100		0.00		
24	1	NetworkDefault	100	100	100		0.00		
25	1	NetworkDefault	100	100	100		0.00		
26	1	NetworkDefault	100	100	100		0.00		
27	1	NetworkDefault	100	100	100		0.00		
29	1	CTM	100	100	100		0.00		
30	1	Flare	100	100	100		2.00		
31	1	Flare	100	100	100		2.00		
32	1	Flare	100	100	100		2.00		
33	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
3	1	1007	1007
4	1	539	539
5	1	130	130
6	1	409	409
7	1	468	468
8	1	411	411
9	1	57	57
10	1	675	675
11	1	612	612
12	1	63	63
13	1	497	497
14	1	447	447
15	1	50	50
16	1	830	830
17	1	244	244
18	1	279	279
19	1	307	307
20	1	289	289
21	1	18	18
22	1	1220	1220
23	1	513	513
24	1	409	409
25	1	797	797
26	1	13	13
27	1	570	570
29	1	523	523
30	1	244	244
31	1	130	130
32	1	63	63
33	1	50	50

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
5	1	1	D		
6	1	1	D		
8	1	1	D		
11	1	1	A		
12	1	1	A		
14	1	1	B		
15	1	1	B		
17	1	1	C	✓	E
18	1	1	C		
20	1	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	1	12.00	18.64

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
4	1	1	3/1	4/1	2.56	18.64	✓	Straight	Straight Movement
5	1	1	4/1	5/1	7.32	18.64	✓	Straight	Straight Movement
6	1	1	4/1	6/1	7.22	18.64	✓	Straight	Straight Movement
7	1	1	3/1	7/1	7.40	18.64	✓	Straight	Straight Movement
8	1	1	7/1	8/1	2.64	18.64	✓	Straight	Straight Movement
9	1	1	7/1	9/1	4.40	18.64	✓	Nearside	6.00
11	1	1	10/1	11/1	5.17	18.64	✓	Nearside	58.13
12	1	1	10/1	12/1	5.22	18.64	✓	Nearside	46.29
14	1	1	13/1	14/1	6.32	18.64	✓	Straight	Straight Movement
15	1	1	13/1	15/1	6.31	18.64	✓	Straight	Straight Movement
17	1	1	29/1	17/1	5.25	18.64	✓	Straight	Straight Movement
18	1	1	29/1	18/1	5.18	18.64	✓	Straight	Straight Movement
19	1	1	16/1	19/1	8.48	18.64	✓	Straight	Straight Movement
20	1	1	19/1	20/1	1.00	18.64	✓	Straight	Straight Movement
21	1	1	19/1	21/1	2.07	18.64	✓	Nearside	16.99
22	1	1	11/1	22/1	16.76	18.64	✓	Nearside	30.97
23	1	1	8/1	23/1	7.28	18.64	✓	Nearside	6.00
24	1	1	11/1	24/1	17.77	18.64	✓	Straight	Straight Movement
25	1	1	20/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	1	20/1	26/1	13.08	18.64	✓	Nearside	80.03
27	1	1	23/1	27/1	12.94	18.64	✓	Offside	74.09
29	1	1	16/1	29/1	4.23	18.64	✓	Straight	Straight Movement
30	1	1	17/1	30/1	1.64	18.64	✓	Straight	Straight Movement
31	1	1	5/1	31/1	2.06	18.64	✓	Straight	Straight Movement
32	1	1	12/1	32/1	2.07	18.64	✓	Straight	Straight Movement
33	1	1	15/1	33/1	2.04	18.64	✓	Straight	Straight Movement
22	1	2	8/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	2	14/1	23/1	7.28	18.64	✓	Straight	Straight Movement
24	1	2	21/1	24/1	17.77	18.64	✓	Nearside	11.52
25	1	2	18/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	2	14/1	26/1	13.08	18.64	✓	Nearside	6.00
27	1	2	9/1	27/1	12.94	18.64	✓	Nearside	17.86
22	1	3	6/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	3	30/1	23/1	7.28	18.64	✓	Offside	23.55
24	1	3	31/1	24/1	17.77	18.64	✓	Offside	17.01
25	1	3	14/1	25/1	22.07	18.64	✓	Nearside	22.17
26	1	3	31/1	26/1	13.08	18.64	✓	Offside	6.00
22	1	4	33/1	22/1	16.76	18.64	✓	Offside	9.51
25	1	4	32/1	25/1	22.07	18.64	✓	Offside	6.00
26	1	4	32/1	26/1	13.08	18.64	✓	Offside	6.00

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
9	1	Movement					
21	1	Movement					
30	1	Movement	✓	0	✓	23.55	
31	1	Movement	✓	0	✓	6.00	
32	1	Movement	✓	0	✓	6.00	
33	1	Movement	✓	0	✓	9.51	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Opposed) (PCU/hr)	Max Flow (Unopposed) (PCU/hr)	Max congested capacity (PCU/hr)	Percentage opposed (%)
9	1	1	27/1	715	715	0	100
21	1	1	24/1	715	715		100
30	1	1	23/1		1800		100
31	1	1	24/1		1800		100
		2	26/1		1800		100
32	1	1	25/1		1800		100
		2	26/1		1800		100
33	1	1	22/1		1800		100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling traffic stream	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Slope coefficient	Upstream signals visible	Conflict shift
9	1	1	27/1	23/1	TrafficStream	23/1			100	0.22		0
21	1	1	24/1		TrafficStreamMovement		31/1	24/1	100	0.22		0
30	1	1	23/1		TrafficStreamMovement		8/1	22/1	100			0
					TrafficStreamMovement		6/1	22/1	100			0
31	1	1	24/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
		2	26/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
32	1	1	25/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
		2	26/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
					TrafficStreamMovement		14/1	26/1	100			0
					TrafficStreamMovement		11/1	24/1	100			0
33	1	1	22/1		TrafficStreamMovement		11/1	22/1	100			0
					TrafficStreamMovement		11/1	22/1	100			0

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
		1	2	3	4	5
From	1	0	18	5	563	244
	2	50	0	6	172	269
	3	0	0	0	0	0
	4	820	129	1	0	57
	5	350	262	1	62	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	16/1	22/1	#FF0000
	2	(untitled)	13/1	24/1	#00FF00
	3	(untitled)		26/1	#FFFF00
	4	(untitled)	3/1	25/1	#00FFFF
	5	(untitled)	10/1	27/1	#FF00FF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	4		2	3	13/1, 14/1, 26/1	Normal	6
	6		2	4	13/1, 14/1, 25/1	Normal	172
	7		4	1	3/1, 4/1, 6/1, 22/1	Normal	409
	8		5	1	10/1, 11/1, 22/1	Normal	350
	9		5	2	10/1, 11/1, 24/1	Normal	262
	13		2	5	13/1, 14/1, 23/1, 27/1	Normal	269
	17		4	1	3/1, 7/1, 8/1, 22/1	Normal	411
	18		4	2	3/1, 4/1, 5/1, 31/1, 24/1	Normal	129
	19		4	3	3/1, 4/1, 5/1, 31/1, 26/1	Normal	1
	21		1	4	16/1, 29/1, 18/1, 25/1	Normal	279
	25		1	5	16/1, 29/1, 17/1, 30/1, 23/1, 27/1	Normal	244
	26		2	1	13/1, 15/1, 33/1, 22/1	Normal	50
	27		5	4	10/1, 12/1, 32/1, 25/1	Normal	62
	28		5	3	10/1, 12/1, 32/1, 26/1	Normal	1
	29		4	5	3/1, 7/1, 8/1, 23/1, 27/1	Normal	0
	30		4	5	3/1, 7/1, 9/1, 27/1	Normal	57
	31		1	4	16/1, 19/1, 20/1, 25/1	Normal	284
	32		1	3	16/1, 19/1, 20/1, 26/1	Normal	5
	33		1	2	16/1, 19/1, 21/1, 24/1	Normal	18

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C, E	1
	3	C, D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	34, 52, 94

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7	7	
	B			7	7	7	
	C	9	9				
	D	9	9			9	
	E	7	7		3		

Banned Stage transitions for Controller Stream 1

		To		
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

		To		
From		1	2	3
	1	0	7	7
	2	9	0	3
	3	9	9	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	103	34	51	1	7
	2	✓	2	C,E	41	52	11	1	4
	3	✓	3	C,D	55	94	39	1	7

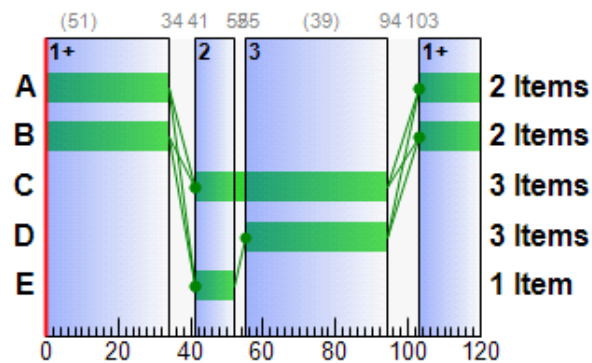
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	103	34	51
	B	1	✓	103	34	51
	C	1	✓	41	94	53
	D	1	✓	55	94	39
	E	1	✓	41	52	11

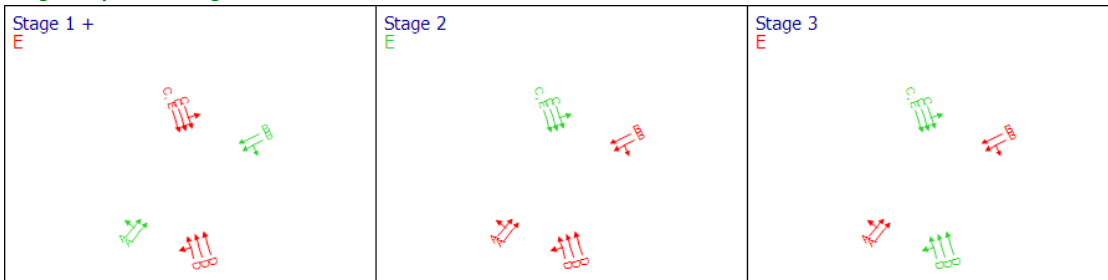
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
5	1	1	1	D	55	94	39
6	1	1	1	D	55	94	39
8	1	1	1	D	55	94	39
11	1	1	1	A	103	34	51
12	1	1	1	A	103	34	51
14	1	1	1	B	103	34	51
15	1	1	1	B	103	34	51
17	1	1	1	C	41	94	53
18	1	1	1	C	41	94	53
20	1	1	1	C	41	94	53

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:30-18:30	1	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
17:30-18:30	3	1	(untitled)		1007	2025	120	2025	50	81	0.88	0.25	1.41	12.88
	4	1	(untitled)		539	2055	120	1874	29	213	0.84	1.51	40.73	3.40
	5	1	(untitled)	D	130	1924	39	619	21	328	29.66	3.06	28.87	36.98
	6	1	(untitled)	D	409	2060	39	687	60	51	37.57	10.57	101.02	44.79
	7	1	(untitled)		468	2112	120	1198	39	130	15.79	8.30	77.44	23.19
	8	1	(untitled)	D	411	2070	39	690	60	51	23.10	4.44	110.89	25.74
	9	1	(untitled)		57	602	120	602	9	851	0.31	0.00	0.08	4.71
	10	1	(untitled)		675	1974	120	1336	51	78	10.31	11.13	64.01	22.31
	11	1	(untitled)	A	612	1818	51	788	78	16	27.98	9.06	113.29	33.14
	12	1	(untitled)	A	63	1873	51	811	8	1059	17.67	1.54	19.21	22.89
	13	1	(untitled)		497	1880	120	1606	31	191	1.88	3.24	18.66	13.88
	14	1	(untitled)	B	447	1675	51	726	62	46	28.85	9.03	100.35	35.17
	15	1	(untitled)	B	50	1854	51	803	6	1345	19.97	1.45	15.88	26.28
	16	1	(untitled)		830	2015	120	2015	41	118	0.63	0.14	0.83	12.63
	17	1	(untitled)	C	244	1839	53	824	30	204	21.92	5.08	84.63	27.17
	18	1	(untitled)	C	279	1983	53	892	31	188	22.25	5.82	83.12	27.42
	19	1	(untitled)		307	1800	120	950	32	179	16.73	5.36	43.63	25.21
	20	1	(untitled)	C	289	2054	53	924	31	188	7.18	1.07	107.10	8.18
	21	1	(untitled)		18	687	120	687	3	3333	0.07	0.00	0.04	2.14
	22	1	(untitled)		1220	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	16.76
	23	1	(untitled)		513	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	7.28
	24	1	(untitled)		409	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	17.77
	25	1	(untitled)		797	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	22.07
	26	1	(untitled)		13	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	13.08
	27	1	(untitled)		570	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.94
	29	1	(untitled)		523	2005	120	2005	26	245	0.32	0.05	0.75	4.54
	30	1	(untitled)		244	1282	120	1282	19	373	4.78	1.75	87.58	6.43
	31	1	(untitled)		130	1343	120	1343	10	829	1.56	0.87	43.71	3.61
	32	1	(untitled)		63	1217	120	1217	5	1639	11.89	1.24	62.01	13.96
	33	1	(untitled)		50	1107	120	1107	5	1893	25.69	1.40	69.76	27.72

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	103	34	51	1	7
	2	✓	2	C,E	41	52	11	1	4
	3	✓	3	C,D	55	94	39	1	7

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
3	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2025	100	100
4	1	✓	21.31	CTM	0.00	Normal	✓			Sum of lanes	2055	100	100
5	1	✓	61.00	Flare	0.00	Normal	✓	✓		Sum of lanes	1924	100	100
6	1	✓	60.18	Flare	0.00	Normal	✓	✓		Sum of lanes	2060	100	100
7	1	✓	61.65	CTM	0.00	Normal	✓			Sum of lanes	2112	100	100
8	1	✓	22.00	Flare	4.00	Normal	✓	✓		Sum of lanes	2070	100	100
9	1	✓	36.65	Flare	6.00	Normal			✓			100	100
10	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1974	100	100
11	1	✓	43.05	Flare	8.00	Normal	✓	✓		Sum of lanes	1818	100	100
12	1	✓	43.48	Flare	8.00	Normal	✓	✓		Sum of lanes	1873	100	100
13	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1880	100	100
14	1	✓	52.68	Flare	9.00	Normal	✓	✓		Sum of lanes	1675	100	100
15	1	✓	52.56	Flare	0.00	Normal	✓	✓		Sum of lanes	1854	100	100
16	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2015	100	100
17	1	✓	43.77	Flare	6.00	Normal	✓	✓		Sum of lanes	1839	100	100
18	1	✓	43.14	Flare	7.00	Normal	✓	✓		Sum of lanes	1983	100	100
19	1	✓	70.66	CTM	0.00	Normal	✓			Sum of lanes	1800	100	100
20	1	✓	8.03	Flare	1.00	Normal	✓	✓		Sum of lanes	2054	100	100
21	1	✓	17.28	NetworkDefault	1.00	Normal			✓			100	100
22	1	✓	139.64	NetworkDefault	0.00	Normal						100	100
23	1	✓	60.64	NetworkDefault	0.00	Normal						100	100
24	1	✓	148.12	NetworkDefault	0.00	Normal						100	100
25	1	✓	183.95	NetworkDefault	0.00	Normal						100	100
26	1	✓	109.00	NetworkDefault	0.00	Normal						100	100
27	1	✓	107.80	NetworkDefault	0.00	Normal						100	100
29	1	✓	35.23	CTM	0.00	Normal	✓			Sum of lanes	2005	100	100
30	1	✓	13.67	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
31	1	✓	17.15	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
32	1	✓	17.25	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
33	1	✓	16.97	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	3	1	50	81	1007	2025	120	0.88	0.25	1.41	3.49	0.00	3.49
	4	1	29	213	539	2055	120	0.84	1.51	40.73	1.80	0.41	2.20
	5	1	21	328	130	1924	39	29.66	3.06	28.87	15.21	1.24	16.45
	6	1	60	51	409	2060	39	37.57	10.57	101.02	60.61	3.98	64.59
	7	1	39	130	468	2112	120	15.79	8.30	77.44	29.14	3.12	32.27
	8	1	60	51	411	2070	39	23.10	4.44	110.89	37.44	1.75	39.20
	9	1	9	851	57	602	120	0.31	0.00	0.08	0.07	0.00	0.07
	10	1	51	78	675	1974	120	10.31	11.13	64.01	27.45	3.99	31.44
	11	1	78	16	612	1818	51	27.98	9.06	113.29	67.53	3.40	70.93
	12	1	8	1059	63	1873	51	17.67	1.54	19.21	4.39	0.30	4.69
	13	1	31	191	497	1880	120	1.88	3.24	18.66	3.68	1.06	4.74
	14	1	62	46	447	1675	51	28.85	9.03	100.35	50.87	3.40	54.26
	15	1	6	1345	50	1854	51	19.97	1.45	15.88	3.94	0.36	4.29
	16	1	41	118	830	2015	120	0.63	0.14	0.83	2.05	0.00	2.05
	17	1	30	204	244	1839	53	21.92	5.08	84.63	21.10	1.91	23.01
	18	1	31	188	279	1983	53	22.25	5.82	83.12	24.48	2.19	26.67
	19	1	32	179	307	1800	120	16.73	5.36	43.63	20.26	2.02	22.28
	20	1	31	188	289	2054	53	7.18	1.07	107.10	8.19	0.37	8.56
	21	1	3	3333	18	687	120	0.07	0.00	0.04	0.01	0.00	0.01
	22	1	0	Unrestricted	1220	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	0	Unrestricted	513	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	0	Unrestricted	409	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	0	Unrestricted	797	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	0	Unrestricted	13	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	0	Unrestricted	570	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	26	245	523	2005	120	0.32	0.05	0.75	0.65	0.00	0.65
	30	1	19	373	244	1282	120	4.78	1.75	87.58	4.60	0.96	5.57
	31	1	10	829	130	1343	120	1.56	0.87	43.71	0.80	0.80	1.59
	32	1	5	1639	63	1217	120	11.89	1.24	62.01	2.95	0.55	3.50
	33	1	5	1893	50	1107	120	25.69	1.40	69.76	5.07	0.57	5.63

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:30-18:30	3	1	1007	1007	0		2025	2025	50		81	0.00	120
	4	1	539	539	0		2055	1874	29		213	0.00	120
	5	1	130	130	0		1924	619	21		328	0.11	39
	6	1	409	409	0		2060	687	60		51	0.11	39
	7	1	468	468	0		2112	1198	39		130	0.00	120
	8	1	411	411	0		2070	690	60		51	0.85	39
	9	1	57	57	0		602	602	9		851	0.86	120
	10	1	675	675	0		1974	1336	51		78	0.00	120
	11	1	612	612	0		1818	788	78		16	0.58	51
	12	1	63	63	0		1873	811	8		1059	0.58	51
	13	1	497	497	0		1880	1606	31		191	0.00	120
	14	1	447	447	0		1675	726	62		46	0.22	51
	15	1	50	50	0		1854	803	6		1345	0.22	51
	16	1	830	830	0		2015	2015	41		118	0.00	120
	17	1	244	244	0		1839	824	30		204	0.00	53
	18	1	279	279	0		1983	892	31		188	0.00	53
	19	1	307	307	0		1800	950	32		179	0.00	120
	20	1	289	289	0		2054	924	31		188	0.93	53
	21	1	18	18	0		687	687	3		3333	0.92	120
	22	1	1220	1220	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120
	23	1	513	513	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	120
	24	1	409	409	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	120
	25	1	797	797	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	120
	26	1	13	13	0		Unrestricted	Unrestricted	0		Unrestricted	0.49	120
	27	1	570	570	0		Unrestricted	Unrestricted	0		Unrestricted	0.53	120
	29	1	523	523	0		2005	2005	26		245	0.00	120
	30	1	244	244	0		1282	1282	19		373	1.09	120
	31	1	130	130	0		1343	1343	10		829	1.42	120
	32	1	63	63	0		1217	1217	5		1639	1.24	120
	33	1	50	50	0		1107	1107	5		1893	1.26	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	3	1	12.00	0.88	0.25	3.49	0.00	0.00	0.00
	4	1	2.56	0.84	0.13	1.80	6.01	32.38	0.41
	5	1	7.32	29.66	1.07	15.21	76.22	99.09	1.24
	6	1	7.22	37.57	4.27	60.61	77.53	317.09	3.98
	7	1	7.40	15.79	2.05	29.14	53.20	248.98	3.12
	8	1	2.64	23.10	2.64	37.44	33.98	139.66	1.75
	9	1	4.40	0.31	0.00	0.07	0.00	0.00	0.00
	10	1	12.00	10.31	1.93	27.45	47.15	318.28	3.99
	11	1	5.17	27.98	4.76	67.53	44.32	271.25	3.40
	12	1	5.22	17.67	0.31	4.39	38.11	24.01	0.30
	13	1	12.00	1.88	0.26	3.68	17.02	84.57	1.06
	14	1	6.32	28.85	3.58	50.87	60.58	270.81	3.40
	15	1	6.31	19.97	0.28	3.94	56.76	28.38	0.36
	16	1	12.00	0.63	0.14	2.05	0.00	0.00	0.00
	17	1	5.25	21.92	1.49	21.10	62.43	152.33	1.91
	18	1	5.18	22.25	1.72	24.48	62.52	174.42	2.19
	19	1	8.48	16.73	1.43	20.26	52.39	160.85	2.02
	20	1	1.00	7.18	0.58	8.19	11.12	32.13	0.37
	21	1	2.07	0.07	0.00	0.01	0.00	0.00	0.00
	22	1	16.76	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	7.28	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	17.77	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	22.07	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	13.08	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	12.94	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	4.23	0.32	0.05	0.65	0.00	0.00	0.00
	30	1	1.64	4.78	0.32	4.60	31.53	76.94	0.96
	31	1	2.06	1.56	0.06	0.80	48.80	63.44	0.80
	32	1	2.07	11.89	0.21	2.95	69.10	43.53	0.55
	33	1	2.04	25.69	0.36	5.07	90.27	45.13	0.57

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	3	1	0.00	0.25	17.39	1.41	0.00	0.00	
	4	1	0.00	1.51	3.71	40.73	0.00	10.56	
	5	1	0.00	3.06	10.61	28.87	0.00	8.41	
	6	1	0.00	10.57	10.47	101.02	0.00	0.00	
	7	1	0.00	8.30	10.72	77.44	0.00	53.00	
	8	1	0.00	4.44	4.00	110.89	0.00	0.00	
	9	1	0.00	0.00	6.00	0.08	0.00	102.00	
	10	1	0.00	11.13	17.39	64.01	0.00	38.81	
	11	1	0.00	9.06	8.00	113.29	0.00	0.00	
	12	1	0.00	1.54	8.00	19.21	0.00	12.04	
	13	1	0.00	3.24	17.39	18.66	0.00	17.51	
	14	1	0.00	9.03	9.00	100.35	0.00	0.00	
	15	1	0.00	1.45	9.14	15.88	0.00	42.03	
	16	1	0.00	0.14	17.39	0.83	0.00	0.00	
	17	1	0.00	5.08	6.00	84.63	0.00	0.21	
	18	1	0.00	5.82	7.00	83.12	0.00	0.00	
	19	1	0.00	5.36	12.29	43.63	0.00	56.70	
	20	1	0.00	1.07	1.00	107.10	0.00	0.00	
	21	1	0.00	0.00	1.00	0.04	0.00	107.00	
	22	1	0.00	0.00	48.57	0.00	0.00	9.00	
	23	1	0.00	0.00	10.55	0.00	0.00	26.00	
	24	1	0.00	0.00	25.76	0.00	0.00	2.00	
	25	1	0.00	0.00	63.98	0.00	0.00	0.00	
	26	1	0.00	0.00	18.96	0.00	0.00	120.00	
	27	1	0.00	0.00	18.75	0.00	0.00	0.00	
	29	1	0.00	0.05	6.13	0.75	0.00	0.00	
	30	1	0.00	1.75	2.00	87.58	0.00	65.00	
	31	1	0.00	0.87	2.00	43.71	0.00	85.00	
	32	1	0.00	1.24	2.00	62.01	0.00	68.00	
	33	1	0.00	1.40	2.00	69.76	0.00	77.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
17:30-18:30	4	1	✓	CTM flare: 4/1,6/1,5/1	68	15.14	796	33
	10	1	✓	CTM flare: 10/1,11/1,12/1	82	21.73	821	9
	13	1	✓	CTM flare: 13/1,14/1,15/1	65	13.73	762	38
	29	1	✓	CTM flare: 29/1,18/1,17/1	50	10.94	1050	81

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:30-18:30	3	1	0.00	0.00	✓	0.00	0.25			1.00	0.00	3.49
	4	1	0.00	0.00	✓	0.00	1.51			1.00	0.00	2.20
	5	1	0.00	0.00	✓	0.00	3.06	0.03	2.98	1.00	0.00	16.45
	6	1	0.00	0.00	✓	0.00	10.57	0.44	10.21	1.00	0.00	64.59
	7	1	0.00	0.00	✓	0.00	8.30			1.00	0.00	32.27
	8	1	0.00	0.00	✓	0.00	4.44	0.44	4.44	1.00	0.00	39.20
	9	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.07
	10	1	0.00	0.00	✓	0.00	11.13			1.00	0.00	31.44
	11	1	0.00	0.00	✓	0.00	9.08	1.34	9.08	1.00	0.00	70.93
	12	1	0.00	0.00	✓	0.00	1.54	0.00	0.80	1.00	0.00	4.69
	13	1	0.00	0.00	✓	0.00	3.24			1.00	0.00	4.74
	14	1	0.00	0.00	✓	0.00	9.03	0.49	9.03	1.00	0.00	54.26
	15	1	0.00	0.00	✓	0.00	1.45	0.00	0.95	1.00	0.00	4.29
	16	1	0.00	0.00	✓	0.00	0.14			1.00	0.00	2.05
	17	1	0.00	0.00	✓	0.00	5.08	0.06	4.81	1.00	0.00	23.01
	18	1	0.00	0.00	✓	0.00	5.82	0.07	5.46	1.00	0.00	26.67
	19	1	0.00	0.00	✓	0.00	5.36			1.00	0.00	22.28
	20	1	0.00	0.00	✓	0.00	1.07	0.07	1.07	1.00	0.00	8.56
	21	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.01
	22	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	23	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	24	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	25	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	26	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	27	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	29	1	0.00	0.00	✓	0.00	0.05			1.00	0.00	0.65
	30	1	0.00	0.00	✓	0.00	1.75			1.00	0.00	5.57
	31	1	0.00	0.00	✓	0.00	0.87			1.00	0.00	1.59
	32	1	0.00	0.00	✓	0.00	1.24			1.00	0.00	3.50
	33	1	0.00	0.00	✓	0.00	1.40			1.00	0.00	5.63

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	24/09/2018 10:43:15	24/09/2018 10:43:15	17:30	120	428.14	27.87	77.68	11/1	0	0	11/1	10/1	11/1

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	78	16	11864	2880	8.46	395.78	32.36	428.14

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
17:30-18:30	11864	11864	0		78		16	2880

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	9.96	8.46	27.87	395.78	21.77	2583.27	32.36

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
17:30-18:30	113.29	0.00	900.27

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:30-18:30	0.00	0.00	✓	0.00	1.00	0.00	0.00	428.14

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
		1	2	3	4	5
	1	0.0	57.8	59.1	67.4	71.0
	2	84.6	0.0	62.1	71.1	69.3
	3	0.0	0.0	0.0	0.0	0.0
	4	78.2	74.7	70.0	0.0	53.7
	5	72.2	73.2	72.2	81.2	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
4	2	3	6	62.13	6	62.13
6	2	4	172	71.13	172	71.13
7	4	1	409	77.83	409	77.83
8	5	1	350	72.21	350	72.21
9	5	2	262	73.22	262	73.22
13	2	5	269	69.26	269	69.26
17	4	1	411	78.56	411	78.56
18	4	2	129	74.65	129	74.65
19	4	3	1	69.96	1	69.96
21	1	4	279	66.67	279	66.67
25	1	5	244	70.98	244	70.98
26	2	1	50	84.63	50	84.63
27	5	4	62	81.23	62	81.23
28	5	3	1	72.24	1	72.24
29	4	5	0	0.00	0	0.00
30	4	5	57	53.71	57	53.71
31	1	4	284	68.10	284	68.10
32	1	3	5	59.10	5	59.10
33	1	2	18	57.76	18	57.76

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
3	1	(untitled)					1007	2025	120	0.00	50	81	12.88	0.88	0.00	
4	1	(untitled)					539	2055	120	10.56	29	213	3.40	0.84	6.01	
5	1	(untitled)	1	1	D		130	1924	39	8.41	21	328	36.98	29.66	76.22	
6	1	(untitled)	1	1	D		409 <	2060	39	0.00	60	51	44.79	37.57	77.53	1
7	1	(untitled)					468	2112	120	53.00	39	130	23.19	15.79	53.20	
8	1	(untitled)	1	1	D		411 <	2070	39	0.00	60	51	25.74	23.10	33.98	
9	1	(untitled)					57	602	120	102.00	9	851	4.71	0.31	0.00	
10	1	(untitled)					675	1974	120	38.81	51	78	22.31	10.31	47.15	
11	1	(untitled)	1	1	A		612 <	1818	51	0.00	78	16	33.14	27.98	44.32	
12	1	(untitled)	1	1	A		63	1873	51	12.04	8	1059	22.89	17.67	38.11	
13	1	(untitled)					497	1880	120	17.51	31	191	13.88	1.88	17.02	
14	1	(untitled)	1	1	B		447 <	1675	51	0.00	62	46	35.17	28.85	60.58	
15	1	(untitled)	1	1	B		50	1854	51	42.03	6	1345	26.28	19.97	56.76	
16	1	(untitled)					830	2015	120	0.00	41	118	12.63	0.63	0.00	
17	1	(untitled)	1	1	C	E	244	1839	53	0.21	30	204	27.17	21.92	62.43	
18	1	(untitled)	1	1	C		279	1983	53	0.00	31	188	27.42	22.25	62.52	
19	1	(untitled)					307	1800	120	56.70	32	179	25.21	16.73	52.39	
20	1	(untitled)	1	1	C		289 <	2054	53	0.00	31	188	8.18	7.18	11.12	
21	1	(untitled)					18	687	120	107.00	3	3333	2.14	0.07	0.00	
22	1	(untitled)					1220	Unrestricted	120	9.00	0	Unrestricted	16.76	0.00	0.00	
23	1	(untitled)					513	Unrestricted	120	26.00	0	Unrestricted	7.28	0.00	0.00	
24	1	(untitled)					409	Unrestricted	120	2.00	0	Unrestricted	17.77	0.00	0.00	
25	1	(untitled)					797	Unrestricted	120	0.00	0	Unrestricted	22.07	0.00	0.00	
26	1	(untitled)					13	Unrestricted	120	120.00	0	Unrestricted	13.08	0.00	0.00	
27	1	(untitled)					570	Unrestricted	120	0.00	0	Unrestricted	12.94	0.00	0.00	
29	1	(untitled)					523	2005	120	0.00	26	245	4.54	0.32	0.00	
30	1	(untitled)	1				244	1282	120	65.00	19	373	6.43	4.78	31.53	
31	1	(untitled)	1				130	1343	120	85.00	10	829	3.61	1.56	48.80	
32	1	(untitled)	1				63	1217	120	68.00	5	1639	13.96	11.89	69.10	
33	1	(untitled)	1				50	1107	120	77.00	5	1893	27.72	25.69	90.27	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	984.67	60.70	10.08	27.87	395.78	32.36	0.00	428.14
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	984.67	60.70	10.08	27.87	395.78	32.36	0.00	428.14

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX

A3 - AM Peak Hour 2023 w/o Dev. D3 - AM Peak Hour 2023 w/o Dev.*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Arm Data	Arm 3	No traffic node specified for arm(s): 3, 4, 7, 9, 10, 13, 16, 19, 21, 23, 29

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
3	24/09/2018 10:43:15	24/09/2018 10:43:16	07:45	120	484.94	31.64	84.02	11/1	0	0	11/1	3/1	11/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
AM Peak Hour 2023 w/o Dev.		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
AM Peak Hour 2023 w/o Dev.				07:45	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
3	(untitled)		
4	(untitled)		
5	(untitled)		1
6	(untitled)		1
7	(untitled)		
8	(untitled)		1
9	(untitled)		
10	(untitled)		
11	(untitled)		1
12	(untitled)		1
13	(untitled)		
14	(untitled)		1
15	(untitled)		1
16	(untitled)		
17	(untitled)		1
18	(untitled)		1
19	(untitled)		
20	(untitled)		1
21	(untitled)		
22	(untitled)		
23	(untitled)		
24	(untitled)		
25	(untitled)		
26	(untitled)		
27	(untitled)		
29	(untitled)		
30	(untitled)		1
31	(untitled)		1
32	(untitled)		1
33	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
3	1	(untitled)			100.00	✓	Sum of lanes	2025					Normal	
4	1	(untitled)		✓	21.31	✓	Sum of lanes	2055	✓	1800			Normal	
5	1	(untitled)		✓	61.00	✓	Sum of lanes	1924	✓	1800	✓		Normal	
6	1	(untitled)		✓	60.18	✓	Sum of lanes	2060	✓	1800	✓		Normal	
7	1	(untitled)		✓	61.65	✓	Sum of lanes	2117	✓	1800			Normal	
8	1	(untitled)		✓	22.00	✓	Sum of lanes	2070			✓		Normal	
9	1	(untitled)		✓	36.65				✓	1800		✓	Normal	
10	1	(untitled)			100.00	✓	Sum of lanes	1974					Normal	
11	1	(untitled)		✓	43.05	✓	Sum of lanes	1825	✓	1800	✓		Normal	
12	1	(untitled)		✓	43.48	✓	Sum of lanes	1873	✓	1800	✓		Normal	
13	1	(untitled)			100.00	✓	Sum of lanes	1880					Normal	
14	1	(untitled)		✓	52.68	✓	Sum of lanes	1713	✓	1800	✓		Normal	
15	1	(untitled)		✓	52.56	✓	Sum of lanes	1854	✓	1800	✓		Normal	
16	1	(untitled)			100.00	✓	Sum of lanes	2015					Normal	
17	1	(untitled)		✓	43.77	✓	Sum of lanes	1839	✓	1800	✓		Normal	
18	1	(untitled)		✓	43.14	✓	Sum of lanes	1983	✓	1800	✓		Normal	
19	1	(untitled)		✓	70.66	✓	Sum of lanes	1800	✓	1800			Normal	
20	1	(untitled)		✓	8.03	✓	Sum of lanes	2055			✓		Normal	
21	1	(untitled)		✓	17.28							✓	Normal	
22	1	(untitled)		✓	139.64								Normal	
23	1	(untitled)		✓	60.64								Normal	
24	1	(untitled)		✓	148.12								Normal	
25	1	(untitled)		✓	183.95								Normal	
26	1	(untitled)		✓	109.00								Normal	
27	1	(untitled)		✓	107.80								Normal	
29	1	(untitled)		✓	35.23	✓	Sum of lanes	2005	✓	1800			Normal	
30	1	(untitled)		✓	13.67	✓	Sum of lanes	1800				✓	Normal	
31	1	(untitled)		✓	17.15	✓	Sum of lanes	1800				✓	Normal	
32	1	(untitled)		✓	17.25	✓	Sum of lanes	1800				✓	Normal	
33	1	(untitled)		✓	16.97	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
3	1	1	(untitled)		✓	N/A	N/A	0	4.10	✓	0	99999.00	✓	2025
4	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
5	1	1	(untitled)		✓	N/A	N/A	0	3.09	✓	0	99999.00	✓	1924
6	1	1	(untitled)		✓	N/A	N/A	0	3.05	✓	0	99999.00		2060
7	1	1	(untitled)		✓	N/A	N/A	0	4.20	✓	11	6.00		2117
8	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	0	6.00		2070
9	1	1	(untitled)											
10	1	1	(untitled)		✓	N/A	N/A	0	4.23	✓	100	46.29	✓	1974
11	1	1	(untitled)		✓	N/A	N/A	0	2.53	✓	49	30.97	✓	1825
12	1	1	(untitled)		✓	N/A	N/A	0	2.58	✓	0	99999.00	✓	1873
13	1	1	(untitled)		✓	N/A	N/A	0	2.65	✓	0	99999.00	✓	1880
14	1	1	(untitled)		✓	N/A	N/A	0	2.27	✓	30	6.00	✓	1713
15	1	1	(untitled)		✓	N/A	N/A	0	2.39	✓	0	99999.00	✓	1854
16	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	0	99999.00	✓	2015
17	1	1	(untitled)		✓	N/A	N/A	0	2.24	✓	0	99999.00	✓	1839
18	1	1	(untitled)		✓	N/A	N/A	0	2.28	✓	0	99999.00		1983
19	1	1	(untitled)											1800
20	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	80.03		2055
21	1	1	(untitled)											
22	1	1	(untitled)											
		2	(untitled)											
23	1	1	(untitled)											
24	1	1	(untitled)											
25	1	1	(untitled)											
		2	(untitled)											
26	1	1	(untitled)											
27	1	1	(untitled)											
29	1	1	(untitled)		✓	N/A	N/A	0	2.50	✓	0	99999.00		2005
30	1	1	(untitled)											1800
31	1	1	(untitled)											1800
32	1	1	(untitled)											1800
33	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
3	1	NetworkDefault	100	100	100		0.00		
4	1	CTM	100	100	100		0.00		
5	1	Flare	100	100	100		0.00		
6	1	Flare	100	100	100		0.00		
7	1	CTM	100	100	100		0.00		
8	1	Flare	100	100	100		4.00		
9	1	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		8.00		
12	1	Flare	100	100	100		8.00		
13	1	NetworkDefault	100	100	100		0.00		
14	1	Flare	100	100	100		9.00		
15	1	Flare	100	100	100		0.00		
16	1	NetworkDefault	100	100	100		0.00		
17	1	Flare	100	100	100		6.00		
18	1	Flare	100	100	100		7.00		
19	1	CTM	100	100	100		0.00		
20	1	Flare	100	100	100		1.00		
21	1	NetworkDefault	100	100	100		1.00		
22	1	NetworkDefault	100	100	100		0.00		
23	1	NetworkDefault	100	100	100		0.00		
24	1	NetworkDefault	100	100	100		0.00		
25	1	NetworkDefault	100	100	100		0.00		
26	1	NetworkDefault	100	100	100		0.00		
27	1	NetworkDefault	100	100	100		0.00		
29	1	CTM	100	100	100		0.00		
30	1	Flare	100	100	100		2.00		
31	1	Flare	100	100	100		2.00		
32	1	Flare	100	100	100		2.00		
33	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
3	1	1016	1016
4	1	544	544
5	1	128	128
6	1	416	416
7	1	472	472
8	1	418	418
9	1	54	54
10	1	618	618
11	1	575	575
12	1	43	43
13	1	560	560
14	1	518	518
15	1	42	42
16	1	992	992
17	1	352	352
18	1	303	303
19	1	337	337
20	1	313	313
21	1	24	24
22	1	1158	1158
23	1	716	716
24	1	445	445
25	1	810	810
26	1	3	3
27	1	770	770
29	1	655	655
30	1	352	352
31	1	128	128
32	1	43	43
33	1	42	42

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
5	1	1	D		
6	1	1	D		
8	1	1	D		
11	1	1	A		
12	1	1	A		
14	1	1	B		
15	1	1	B		
17	1	1	C	✓	E
18	1	1	C		
20	1	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	1	12.00	18.64

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
4	1	1	3/1	4/1	2.56	18.64	✓	Straight	Straight Movement
5	1	1	4/1	5/1	7.32	18.64	✓	Straight	Straight Movement
6	1	1	4/1	6/1	7.22	18.64	✓	Straight	Straight Movement
7	1	1	3/1	7/1	7.40	18.64	✓	Straight	Straight Movement
8	1	1	7/1	8/1	2.64	18.64	✓	Straight	Straight Movement
9	1	1	7/1	9/1	4.40	18.64	✓	Nearside	6.00
11	1	1	10/1	11/1	5.17	18.64	✓	Nearside	58.13
12	1	1	10/1	12/1	5.22	18.64	✓	Nearside	46.29
14	1	1	13/1	14/1	6.32	18.64	✓	Straight	Straight Movement
15	1	1	13/1	15/1	6.31	18.64	✓	Straight	Straight Movement
17	1	1	29/1	17/1	5.25	18.64	✓	Straight	Straight Movement
18	1	1	29/1	18/1	5.18	18.64	✓	Straight	Straight Movement
19	1	1	16/1	19/1	8.48	18.64	✓	Straight	Straight Movement
20	1	1	19/1	20/1	1.00	18.64	✓	Straight	Straight Movement
21	1	1	19/1	21/1	2.07	18.64	✓	Nearside	16.99
22	1	1	11/1	22/1	16.76	18.64	✓	Nearside	30.97
23	1	1	8/1	23/1	7.28	18.64	✓	Nearside	6.00
24	1	1	11/1	24/1	17.77	18.64	✓	Straight	Straight Movement
25	1	1	20/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	1	20/1	26/1	13.08	18.64	✓	Nearside	80.03
27	1	1	23/1	27/1	12.94	18.64	✓	Offside	74.09
29	1	1	16/1	29/1	4.23	18.64	✓	Straight	Straight Movement
30	1	1	17/1	30/1	1.64	18.64	✓	Straight	Straight Movement
31	1	1	5/1	31/1	2.06	18.64	✓	Straight	Straight Movement
32	1	1	12/1	32/1	2.07	18.64	✓	Straight	Straight Movement
33	1	1	15/1	33/1	2.04	18.64	✓	Straight	Straight Movement
22	1	2	8/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	2	14/1	23/1	7.28	18.64	✓	Straight	Straight Movement
24	1	2	21/1	24/1	17.77	18.64	✓	Nearside	11.52
25	1	2	18/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	2	14/1	26/1	13.08	18.64	✓	Nearside	6.00
27	1	2	9/1	27/1	12.94	18.64	✓	Nearside	17.86
22	1	3	6/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	3	30/1	23/1	7.28	18.64	✓	Offside	23.55
24	1	3	31/1	24/1	17.77	18.64	✓	Offside	17.01
25	1	3	14/1	25/1	22.07	18.64	✓	Nearside	22.17
26	1	3	31/1	26/1	13.08	18.64	✓	Offside	6.00
22	1	4	33/1	22/1	16.76	18.64	✓	Offside	9.51
25	1	4	32/1	25/1	22.07	18.64	✓	Offside	6.00
26	1	4	32/1	26/1	13.08	18.64	✓	Offside	6.00

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
9	1	Movement					
21	1	Movement					
30	1	Movement	✓	0	✓	23.55	
31	1	Movement	✓	0	✓	6.00	
32	1	Movement	✓	0	✓	6.00	
33	1	Movement	✓	0	✓	9.51	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Opposed) (PCU/hr)	Max Flow (Unopposed) (PCU/hr)	Max congested capacity (PCU/hr)	Percentage opposed (%)
9	1	1	27/1	715	715	0	100
21	1	1	24/1	715	715		100
30	1	1	23/1		1800		100
31	1	1	24/1		1800		100
		2	26/1		1800		100
32	1	1	25/1		1800		100
		2	26/1		1800		100
33	1	1	22/1		1800		100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling traffic stream	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Slope coefficient	Upstream signals visible	Conflict shift
9	1	1	27/1	23/1	TrafficStream	23/1			100	0.22		0
21	1	1	24/1		TrafficStreamMovement		31/1	24/1	100	0.22		0
30	1	1	23/1		TrafficStreamMovement		8/1	22/1	100			0
					TrafficStreamMovement		6/1	22/1	100			0
31	1	1	24/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
		2	26/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
32	1	1	25/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
		2	26/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
					TrafficStreamMovement		14/1	26/1	100			0
					TrafficStreamMovement		11/1	24/1	100			0
33	1	1	22/1		TrafficStreamMovement		11/1	22/1	100			0
					TrafficStreamMovement		11/1	22/1	100			0

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
		1	2	3	4	5
From	1	0	24	0	616	352
	2	42	0	0	154	364
	3	0	0	0	0	0
	4	834	128	0	0	54
	5	282	293	3	40	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	16/1	22/1	#FF0000
	2	(untitled)	13/1	24/1	#00FF00
	3	(untitled)		26/1	#FFFF00
	4	(untitled)	3/1	25/1	#00FFFF
	5	(untitled)	10/1	27/1	#FF00FF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	4		2	3	13/1, 14/1, 26/1	Normal	0
	6		2	4	13/1, 14/1, 25/1	Normal	154
	7		4	1	3/1, 4/1, 6/1, 22/1	Normal	416
	8		5	1	10/1, 11/1, 22/1	Normal	282
	9		5	2	10/1, 11/1, 24/1	Normal	293
	13		2	5	13/1, 14/1, 23/1, 27/1	Normal	364
	17		4	1	3/1, 7/1, 8/1, 22/1	Normal	418
	18		4	2	3/1, 4/1, 5/1, 31/1, 24/1	Normal	128
	19		4	3	3/1, 4/1, 5/1, 31/1, 26/1	Normal	0
	21		1	4	16/1, 29/1, 18/1, 25/1	Normal	303
	25		1	5	16/1, 29/1, 17/1, 30/1, 23/1, 27/1	Normal	352
	26		2	1	13/1, 15/1, 33/1, 22/1	Normal	42
	27		5	4	10/1, 12/1, 32/1, 25/1	Normal	40
	28		5	3	10/1, 12/1, 32/1, 26/1	Normal	3
	29		4	5	3/1, 7/1, 8/1, 23/1, 27/1	Normal	0
	30		4	5	3/1, 7/1, 9/1, 27/1	Normal	54
	31		1	4	16/1, 19/1, 20/1, 25/1	Normal	313
	32		1	3	16/1, 19/1, 20/1, 26/1	Normal	0
	33		1	2	16/1, 19/1, 21/1, 24/1	Normal	24

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C, E	1
	3	C, D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	34, 56, 101

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7	7	
	B			7	7	7	
	C	9	9				
	D	9	9			9	
	E	7	7		3		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	
	1				
	2				
	3				

Interstage Matrix for Controller Stream 1

		To			
From		1	2	3	
	1	0	7	7	
	2	9	0	3	
	3	9	9	0	

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	110	34	44	1	7
	2	✓	2	C,E	41	56	15	1	4
	3	✓	3	C,D	59	101	42	1	7

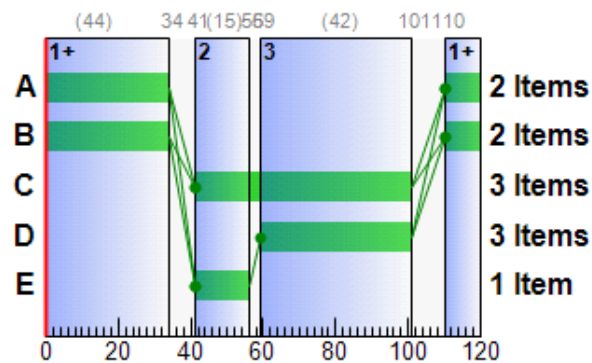
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	110	34	44
	B	1	✓	110	34	44
	C	1	✓	41	101	60
	D	1	✓	59	101	42
	E	1	✓	41	56	15

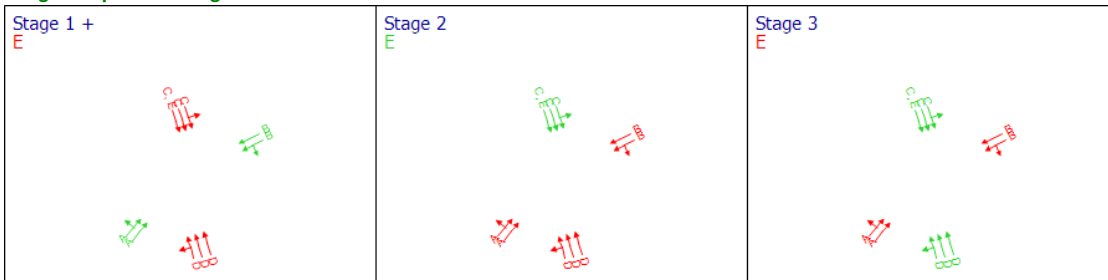
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
5	1	1	1	D	59	101	42
6	1	1	1	D	59	101	42
8	1	1	1	D	59	101	42
11	1	1	1	A	110	34	44
12	1	1	1	A	110	34	44
14	1	1	1	B	110	34	44
15	1	1	1	B	110	34	44
17	1	1	1	C	41	101	60
18	1	1	1	C	41	101	60
20	1	1	1	C	41	101	60

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
07:45-08:45	1	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
07:45-08:45	3	1	(untitled)		1016	2025	120	2025	50	79	0.89	0.25	1.45	12.89
	4	1	(untitled)		544	2055	120	1896	29	214	0.69	1.51	40.66	3.25
	5	1	(untitled)	D	128	1924	42	680	19	378	27.23	2.93	27.59	34.55
	6	1	(untitled)	D	416	2060	42	738	56	60	34.65	10.48	100.17	41.87
	7	1	(untitled)		472	2117	120	1238	38	136	14.40	8.05	75.08	21.79
	8	1	(untitled)	D	418	2070	42	742	56	60	21.30	4.36	109.04	23.94
	9	1	(untitled)		54	557	120	557	10	829	0.35	0.01	0.09	4.74
	10	1	(untitled)		618	1974	120	1261	49	84	12.00	11.05	63.54	24.00
	11	1	(untitled)	A	575	1825	44	684	84	7	36.86	9.84	122.98	42.02
	12	1	(untitled)	A	43	1873	44	702	6	1369	20.92	1.54	19.19	26.14
	13	1	(untitled)		560	1880	120	1349	42	117	7.22	7.61	43.78	19.22
	14	1	(untitled)	B	518	1713	44	642	81	12	38.56	10.16	112.86	44.88
	15	1	(untitled)	B	42	1854	44	695	6	1389	22.96	1.45	15.87	29.27
	16	1	(untitled)		992	2015	120	2015	49	83	0.87	0.24	1.37	12.87
	17	1	(untitled)	C	352	1839	60	720	49	84	20.27	5.94	99.07	25.52
	18	1	(untitled)	C	303	1983	60	1008	30	199	17.56	4.98	71.15	22.73
	19	1	(untitled)		337	1800	120	1042	32	178	13.65	5.32	43.28	22.13
	20	1	(untitled)	C	313	2055	60	1045	30	200	5.93	1.06	106.40	6.93
	21	1	(untitled)		24	687	120	687	3	2476	0.09	0.00	0.06	2.17
	22	1	(untitled)		1158	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	16.76
	23	1	(untitled)		716	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	7.28
	24	1	(untitled)		445	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	17.77
	25	1	(untitled)		810	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	22.07
	26	1	(untitled)		3	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	13.08
	27	1	(untitled)		770	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.94
	29	1	(untitled)		655	2005	120	1815	36	149	1.33	3.00	48.97	5.56
	30	1	(untitled)		352	1257	120	1257	28	221	5.44	2.05	102.62	7.09
	31	1	(untitled)		128	1272	120	1272	10	795	1.20	0.87	43.29	3.26
	32	1	(untitled)		43	1195	120	1195	4	2401	19.19	1.18	58.95	21.26
	33	1	(untitled)		42	1175	120	1175	4	2417	23.53	1.24	62.17	25.57

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	110	34	44	1	7
	2	✓	2	C,E	41	56	15	1	4
	3	✓	3	C,D	59	101	42	1	7

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
3	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2025	100	100
4	1	✓	21.31	CTM	0.00	Normal	✓			Sum of lanes	2055	100	100
5	1	✓	61.00	Flare	0.00	Normal	✓	✓		Sum of lanes	1924	100	100
6	1	✓	60.18	Flare	0.00	Normal	✓	✓		Sum of lanes	2060	100	100
7	1	✓	61.65	CTM	0.00	Normal	✓			Sum of lanes	2117	100	100
8	1	✓	22.00	Flare	4.00	Normal	✓	✓		Sum of lanes	2070	100	100
9	1	✓	36.65	Flare	6.00	Normal			✓			100	100
10	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1974	100	100
11	1	✓	43.05	Flare	8.00	Normal	✓	✓		Sum of lanes	1825	100	100
12	1	✓	43.48	Flare	8.00	Normal	✓	✓		Sum of lanes	1873	100	100
13	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1880	100	100
14	1	✓	52.68	Flare	9.00	Normal	✓	✓		Sum of lanes	1713	100	100
15	1	✓	52.56	Flare	0.00	Normal	✓	✓		Sum of lanes	1854	100	100
16	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2015	100	100
17	1	✓	43.77	Flare	6.00	Normal	✓	✓		Sum of lanes	1839	100	100
18	1	✓	43.14	Flare	7.00	Normal	✓	✓		Sum of lanes	1983	100	100
19	1	✓	70.66	CTM	0.00	Normal	✓			Sum of lanes	1800	100	100
20	1	✓	8.03	Flare	1.00	Normal	✓	✓		Sum of lanes	2055	100	100
21	1	✓	17.28	NetworkDefault	1.00	Normal			✓			100	100
22	1	✓	139.64	NetworkDefault	0.00	Normal						100	100
23	1	✓	60.64	NetworkDefault	0.00	Normal						100	100
24	1	✓	148.12	NetworkDefault	0.00	Normal						100	100
25	1	✓	183.95	NetworkDefault	0.00	Normal						100	100
26	1	✓	109.00	NetworkDefault	0.00	Normal						100	100
27	1	✓	107.80	NetworkDefault	0.00	Normal						100	100
29	1	✓	35.23	CTM	0.00	Normal	✓			Sum of lanes	2005	100	100
30	1	✓	13.67	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
31	1	✓	17.15	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
32	1	✓	17.25	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
33	1	✓	16.97	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:45-08:45	3	1	50	79	1016	2025	120	0.89	0.25	1.45	3.58	0.00	3.58
	4	1	29	214	544	2055	120	0.69	1.51	40.66	1.48	0.32	1.81
	5	1	19	378	128	1924	42	27.23	2.93	27.59	13.75	1.07	14.82
	6	1	56	60	416	2060	42	34.65	10.48	100.17	56.86	3.94	60.80
	7	1	38	136	472	2117	120	14.40	8.05	75.08	26.80	3.02	29.83
	8	1	56	60	418	2070	42	21.30	4.36	109.04	35.12	1.73	36.85
	9	1	10	829	54	557	120	0.35	0.01	0.09	0.07	0.00	0.07
	10	1	49	84	618	1974	120	12.00	11.05	63.54	29.24	3.93	33.17
	11	1	84	7	575	1825	44	36.86	9.84	122.98	83.60	3.68	87.28
	12	1	6	1369	43	1873	44	20.92	1.54	19.19	3.55	0.22	3.77
	13	1	42	117	560	1880	120	7.22	7.61	43.78	15.95	2.68	18.63
	14	1	81	12	518	1713	44	38.56	10.16	112.86	78.78	3.81	82.59
	15	1	6	1389	42	1854	44	22.96	1.45	15.87	3.80	0.26	4.07
	16	1	49	83	992	2015	120	0.87	0.24	1.37	3.38	0.00	3.38
	17	1	49	84	352	1839	60	20.27	5.94	99.07	28.14	2.60	30.73
	18	1	30	199	303	1983	60	17.56	4.98	71.15	20.98	1.87	22.85
	19	1	32	178	337	1800	120	13.65	5.32	43.28	18.15	2.00	20.15
	20	1	30	200	313	2055	60	5.93	1.06	106.40	7.32	0.37	7.69
	21	1	3	2476	24	687	120	0.09	0.00	0.06	0.01	0.00	0.01
	22	1	0	Unrestricted	1158	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	0	Unrestricted	716	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	0	Unrestricted	445	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	0	Unrestricted	810	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	0	Unrestricted	3	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	0	Unrestricted	770	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	36	149	655	2005	120	1.33	3.00	48.97	3.44	0.91	4.35
	30	1	28	221	352	1257	120	5.44	2.05	102.62	7.56	1.60	9.16
	31	1	10	795	128	1272	120	1.20	0.87	43.29	0.60	0.60	1.21
	32	1	4	2401	43	1195	120	19.19	1.18	58.95	3.26	0.50	3.75
	33	1	4	2417	42	1175	120	23.53	1.24	62.17	3.90	0.50	4.40

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
07:45-08:45	3	1	1016	1016	0		2025	2025	50		79	0.00	120
	4	1	544	544	0		2055	1896	29		214	0.00	120
	5	1	128	128	0		1924	680	19		378	0.09	42
	6	1	416	416	0		2060	738	56		60	0.09	42
	7	1	472	472	0		2117	1238	38		136	0.00	120
	8	1	418	418	0		2070	742	56		60	0.81	42
	9	1	54	54	0		557	557	10		829	0.82	120
	10	1	618	618	0		1974	1261	49		84	0.00	120
	11	1	575	575	0		1825	684	84		7	0.64	44
	12	1	43	43	0		1873	702	6		1369	0.64	44
	13	1	560	560	0		1880	1349	42		117	0.00	120
	14	1	518	518	0		1713	642	81		12	0.49	44
	15	1	42	42	0		1854	695	6		1389	0.49	44
	16	1	992	992	0		2015	2015	49		83	0.00	120
	17	1	352	352	0		1839	720	49		84	0.18	60
	18	1	303	303	0		1983	1008	30		199	0.18	60
	19	1	337	337	0		1800	1042	32		178	0.00	120
	20	1	313	313	0		2055	1045	30		200	0.82	60
	21	1	24	24	0		687	687	3		2476	0.82	120
	22	1	1158	1158	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	120
	23	1	716	716	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120
	24	1	445	445	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	120
	25	1	810	810	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	120
	26	1	3	3	0		Unrestricted	Unrestricted	0		Unrestricted	1.62	120
	27	1	770	770	0		Unrestricted	Unrestricted	0		Unrestricted	0.47	120
	29	1	655	655	0		2005	1815	36		149	0.00	120
	30	1	352	352	0		1257	1257	28		221	1.10	120
	31	1	128	128	0		1272	1272	10		795	1.36	120
	32	1	43	43	0		1195	1195	4		2401	1.36	120
	33	1	42	42	0		1175	1175	4		2417	1.39	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:45-08:45	3	1	12.00	0.89	0.25	3.58	0.00	0.00	0.00
	4	1	2.56	0.69	0.10	1.48	4.76	25.89	0.32
	5	1	7.32	27.23	0.97	13.75	66.79	85.49	1.07
	6	1	7.22	34.65	4.00	56.86	75.59	314.47	3.94
	7	1	7.40	14.40	1.89	26.80	51.08	241.07	3.02
	8	1	2.64	21.30	2.47	35.12	32.98	137.84	1.73
	9	1	4.40	0.35	0.01	0.07	0.00	0.00	0.00
	10	1	12.00	12.00	2.06	29.24	50.70	313.33	3.93
	11	1	5.17	36.86	5.89	83.60	51.04	293.46	3.68
	12	1	5.22	20.92	0.25	3.55	40.53	17.43	0.22
	13	1	12.00	7.22	1.12	15.95	38.16	213.71	2.68
	14	1	6.32	38.56	5.55	78.78	58.61	303.61	3.81
	15	1	6.31	22.96	0.27	3.80	49.61	20.83	0.26
	16	1	12.00	0.87	0.24	3.38	0.00	0.00	0.00
	17	1	5.25	20.27	1.98	28.14	58.85	207.14	2.60
	18	1	5.18	17.56	1.48	20.98	49.31	149.42	1.87
	19	1	8.48	13.65	1.28	18.15	47.35	159.57	2.00
	20	1	1.00	5.93	0.52	7.32	10.20	31.92	0.37
	21	1	2.07	0.09	0.00	0.01	0.00	0.00	0.00
	22	1	16.76	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	7.28	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	17.77	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	22.07	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	13.08	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	12.94	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	4.23	1.33	0.24	3.44	11.10	72.69	0.91
	30	1	1.64	5.44	0.53	7.56	36.30	127.78	1.60
	31	1	2.06	1.20	0.04	0.60	37.45	47.93	0.60
	32	1	2.07	19.19	0.23	3.26	91.84	39.49	0.50
	33	1	2.04	23.53	0.27	3.90	95.24	40.00	0.50

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
07:45-08:45	3	1	0.00	0.25	17.39	1.45	0.00	0.00	
	4	1	0.00	1.51	3.71	40.66	0.00	9.28	
	5	1	0.00	2.93	10.61	27.59	0.00	6.59	
	6	1	0.00	10.48	10.47	100.17	0.00	0.00	
	7	1	0.00	8.05	10.72	75.08	0.00	50.00	
	8	1	0.00	4.36	4.00	109.04	0.00	0.00	
	9	1	0.00	0.01	6.00	0.09	0.00	103.00	
	10	1	0.00	11.05	17.39	63.54	0.00	43.32	
	11	1	0.00	9.84	8.00	122.98	0.00	0.00	
	12	1	0.00	1.54	8.00	19.19	0.00	22.04	
	13	1	0.00	7.61	17.39	43.78	0.00	33.88	
	14	1	0.00	10.16	9.00	112.86	0.00	0.00	
	15	1	0.00	1.45	9.14	15.87	0.00	27.03	
	16	1	0.00	0.24	17.39	1.37	0.00	0.00	
	17	1	0.00	5.94	6.00	99.07	0.00	14.04	
	18	1	0.00	4.98	7.00	71.15	0.00	0.00	
	19	1	0.00	5.32	12.29	43.28	0.00	50.56	
	20	1	0.00	1.06	1.00	106.40	0.00	0.00	
	21	1	0.00	0.00	1.00	0.06	0.00	107.00	
	22	1	0.00	0.00	48.57	0.00	0.00	11.00	
	23	1	0.00	0.00	10.55	0.00	0.00	21.00	
	24	1	0.00	0.00	25.76	0.00	0.00	0.00	
	25	1	0.00	0.00	63.98	0.00	0.00	0.00	
	26	1	0.00	0.00	18.96	0.00	0.00	120.00	
	27	1	0.00	0.00	18.75	0.00	0.00	0.00	
	29	1	0.00	3.00	6.13	48.97	0.00	11.39	
	30	1	0.00	2.05	2.00	102.62	0.00	58.00	
	31	1	0.00	0.87	2.00	43.29	0.00	83.00	
	32	1	0.00	1.18	2.00	58.95	0.00	81.00	
	33	1	0.00	1.24	2.00	62.17	0.00	78.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
07:45-08:45	4	1	✓	CTM flare: 4/1,6/1,5/1	65	14.92	843	39
	10	1	✓	CTM flare: 10/1,11/1,12/1	87	22.42	708	3
	13	1	✓	CTM flare: 13/1,14/1,15/1	84	19.22	670	8
	29	1	✓	CTM flare: 29/1,18/1,17/1	74	13.93	889	22

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
07:45-08:45	3	1	0.00	0.00	✓	0.00	0.25			1.00	0.00	3.58
	4	1	0.00	0.00	✓	0.00	1.51			1.00	0.00	1.81
	5	1	0.00	0.00	✓	0.00	2.93	0.02	2.80	1.00	0.00	14.82
	6	1	0.00	0.00	✓	0.00	10.49	0.36	9.95	1.00	0.00	60.80
	7	1	0.00	0.00	✓	0.00	8.05			1.00	0.00	29.83
	8	1	0.00	0.00	✓	0.00	4.36	0.36	4.36	1.00	0.00	36.85
	9	1	0.00	0.00	✓	0.00	0.01			1.00	0.00	0.07
	10	1	0.00	0.00	✓	0.00	11.05			1.00	0.00	33.17
	11	1	0.00	0.00	✓	0.00	9.89	2.15	9.89	1.00	0.00	87.28
	12	1	0.00	0.00	✓	0.00	1.54	0.00	0.58	1.00	0.00	3.77
	13	1	0.00	0.00	✓	0.00	7.61			1.00	0.00	18.63
	14	1	0.00	0.00	✓	0.00	10.19	1.65	10.19	1.00	0.00	82.59
	15	1	0.00	0.00	✓	0.00	1.45	0.00	0.69	1.00	0.00	4.07
	16	1	0.00	0.00	✓	0.00	0.24			1.00	0.00	3.38
	17	1	0.00	0.00	✓	0.00	5.94	0.23	5.94	1.00	0.00	30.73
	18	1	0.00	0.00	✓	0.00	4.98	0.06	4.98	1.00	0.00	22.85
	19	1	0.00	0.00	✓	0.00	5.32			1.00	0.00	20.15
	20	1	0.00	0.00	✓	0.00	1.06	0.06	1.06	1.00	0.00	7.69
	21	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.01
	22	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	23	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	24	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	25	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	26	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	27	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	29	1	0.00	0.00	✓	0.00	3.00			1.00	0.00	4.35
	30	1	0.00	0.00	✓	0.00	2.05			1.00	0.00	9.16
	31	1	0.00	0.00	✓	0.00	0.87			1.00	0.00	1.21
	32	1	0.00	0.00	✓	0.00	1.18			1.00	0.00	3.75
	33	1	0.00	0.00	✓	0.00	1.24			1.00	0.00	4.40

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
3	24/09/2018 10:43:15	24/09/2018 10:43:16	07:45	120	484.94	31.64	84.02	11/1	0	0	11/1	3/1	11/1

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:45-08:45	84	7	12847	2882	8.87	449.32	35.62	484.94

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
07:45-08:45	12847	12847	0		84		7	2882

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:45-08:45	9.80	8.87	31.64	449.32	22.13	2843.08	35.62

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
07:45-08:45	122.98	0.00	930.14

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
07:45-08:45	0.00	0.00	✓	0.00	1.00	0.00	0.00	484.94

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To				
	1	2	3	4	5
From	1	0.0	54.9	0.0	63.6
	2	90.8	0.0	0.0	86.2
	3	0.0	0.0	0.0	0.0
	4	75.1	71.7	0.0	52.4
	5	82.8	83.8	84.5	93.5

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
4	2	3	0	0.00	0	0.00
6	2	4	154	86.17	154	86.17
7	4	1	416	74.77	416	74.77
8	5	1	282	82.78	282	82.78
9	5	2	293	83.80	293	83.80
13	2	5	364	84.31	364	84.31
17	4	1	418	75.38	418	75.38
18	4	2	128	71.72	128	71.72
19	4	3	0	0.00	0	0.00
21	1	4	303	63.23	303	63.23
25	1	5	352	71.24	352	71.24
26	2	1	42	90.81	42	90.81
27	5	4	40	93.47	40	93.47
28	5	3	3	84.48	3	84.48
29	4	5	0	0.00	0	0.00
30	4	5	54	52.37	54	52.37
31	1	4	313	64.00	313	64.00
32	1	3	0	0.00	0	0.00
33	1	2	24	54.94	24	54.94

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Wasted time total (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
3	1	(untitled)					1016	2025	120	0.00	50	79	12.89	0.89	0.00	
4	1	(untitled)					544	2055	120	9.28	29	214	3.25	0.69	4.76	
5	1	(untitled)	1	1	D		128	1924	42	6.59	19	378	34.55	27.23	66.79	
6	1	(untitled)	1	1	D		416 <	2060	42	0.00	56	60	41.87	34.65	75.59	1
7	1	(untitled)					472	2117	120	50.00	38	136	21.79	14.40	51.08	
8	1	(untitled)	1	1	D		418 <	2070	42	0.00	56	60	23.94	21.30	32.98	
9	1	(untitled)					54	557	120	103.00	10	829	4.74	0.35	0.00	
10	1	(untitled)					618	1974	120	43.32	49	84	24.00	12.00	50.70	
11	1	(untitled)	1	1	A		575 <	1825	44	0.00	84	7	42.02	36.86	51.04	
12	1	(untitled)	1	1	A		43	1873	44	22.04	6	1369	26.14	20.92	40.53	
13	1	(untitled)					560	1880	120	33.88	42	117	19.22	7.22	38.16	
14	1	(untitled)	1	1	B		518 <	1713	44	0.00	81	12	44.88	38.56	58.61	1
15	1	(untitled)	1	1	B		42	1854	44	27.03	6	1389	29.27	22.96	49.61	
16	1	(untitled)					992	2015	120	0.00	49	83	12.87	0.87	0.00	
17	1	(untitled)	1	1	C	E	352	1839	60	14.04	49	84	25.52	20.27	58.85	
18	1	(untitled)	1	1	C		303	1983	60	0.00	30	199	22.73	17.56	49.31	
19	1	(untitled)					337	1800	120	50.56	32	178	22.13	13.65	47.35	
20	1	(untitled)	1	1	C		313 <	2055	60	0.00	30	200	6.93	5.93	10.20	
21	1	(untitled)					24	687	120	107.00	3	2476	2.17	0.09	0.00	
22	1	(untitled)					1158	Unrestricted	120	11.00	0	Unrestricted	16.76	0.00	0.00	
23	1	(untitled)					716	Unrestricted	120	21.00	0	Unrestricted	7.28	0.00	0.00	
24	1	(untitled)					445	Unrestricted	120	0.00	0	Unrestricted	17.77	0.00	0.00	
25	1	(untitled)					810	Unrestricted	120	0.00	0	Unrestricted	22.07	0.00	0.00	
26	1	(untitled)					3	Unrestricted	120	120.00	0	Unrestricted	13.08	0.00	0.00	
27	1	(untitled)					770	Unrestricted	120	0.00	0	Unrestricted	12.94	0.00	0.00	
29	1	(untitled)					655	2005	120	11.39	36	149	5.56	1.33	11.10	
30	1	(untitled)	1				352 <	1257	120	58.00	28	221	7.09	5.44	36.30	
31	1	(untitled)	1				128	1272	120	83.00	10	795	3.26	1.20	37.45	
32	1	(untitled)	1				43	1195	120	81.00	4	2401	21.26	19.19	91.84	
33	1	(untitled)	1				42	1175	120	78.00	4	2417	25.57	23.53	95.24	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1049.56	66.63	9.79	31.64	449.32	35.62	0.00	484.94
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1049.56	66.63	9.79	31.64	449.32	35.62	0.00	484.94

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX

A4 - PM Peak Hour 2023 w/o Dev. D4 - PM Peak Hour 2023 w/o Dev.*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Arm Data	Arm 3	No traffic node specified for arm(s): 3, 4, 7, 9, 10, 13, 16, 19, 21, 23, 29

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
4	24/09/2018 10:43:16	24/09/2018 10:43:16	17:30	120	499.97	32.59	82.07	11/1	0	0	11/1	10/1	11/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
PM Peak Hour 2023 w/o Dev.		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
PM Peak Hour 2023 w/o Dev.				17:30	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ² [-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ² [-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
3	(untitled)		
4	(untitled)		
5	(untitled)		1
6	(untitled)		1
7	(untitled)		
8	(untitled)		1
9	(untitled)		
10	(untitled)		
11	(untitled)		1
12	(untitled)		1
13	(untitled)		
14	(untitled)		1
15	(untitled)		1
16	(untitled)		
17	(untitled)		1
18	(untitled)		1
19	(untitled)		
20	(untitled)		1
21	(untitled)		
22	(untitled)		
23	(untitled)		
24	(untitled)		
25	(untitled)		
26	(untitled)		
27	(untitled)		
29	(untitled)		
30	(untitled)		1
31	(untitled)		1
32	(untitled)		1
33	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
3	1	(untitled)			100.00	✓	Sum of lanes	2025					Normal	
4	1	(untitled)		✓	21.31	✓	Sum of lanes	2055	✓	1800			Normal	
5	1	(untitled)		✓	61.00	✓	Sum of lanes	1924	✓	1800	✓		Normal	
6	1	(untitled)		✓	60.18	✓	Sum of lanes	2060	✓	1800	✓		Normal	
7	1	(untitled)		✓	61.65	✓	Sum of lanes	2112	✓	1800			Normal	
8	1	(untitled)		✓	22.00	✓	Sum of lanes	2070			✓		Normal	
9	1	(untitled)		✓	36.65				✓	1800		✓	Normal	
10	1	(untitled)			100.00	✓	Sum of lanes	1974					Normal	
11	1	(untitled)		✓	43.05	✓	Sum of lanes	1818	✓	1800	✓		Normal	
12	1	(untitled)		✓	43.48	✓	Sum of lanes	1873	✓	1800	✓		Normal	
13	1	(untitled)			100.00	✓	Sum of lanes	1880					Normal	
14	1	(untitled)		✓	52.68	✓	Sum of lanes	1675	✓	1800	✓		Normal	
15	1	(untitled)		✓	52.56	✓	Sum of lanes	1854	✓	1800	✓		Normal	
16	1	(untitled)			100.00	✓	Sum of lanes	2015					Normal	
17	1	(untitled)		✓	43.77	✓	Sum of lanes	1839	✓	1800	✓		Normal	
18	1	(untitled)		✓	43.14	✓	Sum of lanes	1983	✓	1800	✓		Normal	
19	1	(untitled)		✓	70.66	✓	Sum of lanes	1800	✓	1800			Normal	
20	1	(untitled)		✓	8.03	✓	Sum of lanes	2054			✓		Normal	
21	1	(untitled)		✓	17.28							✓	Normal	
22	1	(untitled)		✓	139.64								Normal	
23	1	(untitled)		✓	60.64								Normal	
24	1	(untitled)		✓	148.12								Normal	
25	1	(untitled)		✓	183.95								Normal	
26	1	(untitled)		✓	109.00								Normal	
27	1	(untitled)		✓	107.80								Normal	
29	1	(untitled)		✓	35.23	✓	Sum of lanes	2005	✓	1800			Normal	
30	1	(untitled)		✓	13.67	✓	Sum of lanes	1800				✓	Normal	
31	1	(untitled)		✓	17.15	✓	Sum of lanes	1800				✓	Normal	
32	1	(untitled)		✓	17.25	✓	Sum of lanes	1800				✓	Normal	
33	1	(untitled)		✓	16.97	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
3	1	1	(untitled)		✓	N/A	N/A	0	4.10	✓	0	99999.00	✓	2025
4	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
5	1	1	(untitled)		✓	N/A	N/A	0	3.09	✓	0	99999.00	✓	1924
6	1	1	(untitled)		✓	N/A	N/A	0	3.05	✓	0	99999.00		2060
7	1	1	(untitled)		✓	N/A	N/A	0	4.20	✓	12	6.00		2112
8	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	0	6.00		2070
9	1	1	(untitled)											
10	1	1	(untitled)		✓	N/A	N/A	0	4.23	✓	100	46.29	✓	1974
11	1	1	(untitled)		✓	N/A	N/A	0	2.53	✓	57	30.97	✓	1818
12	1	1	(untitled)		✓	N/A	N/A	0	2.58	✓	0	99999.00	✓	1873
13	1	1	(untitled)		✓	N/A	N/A	0	2.65	✓	0	99999.00	✓	1880
14	1	1	(untitled)		✓	N/A	N/A	0	2.27	✓	40	6.00	✓	1675
15	1	1	(untitled)		✓	N/A	N/A	0	2.39	✓	0	99999.00	✓	1854
16	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	0	99999.00	✓	2015
17	1	1	(untitled)		✓	N/A	N/A	0	2.24	✓	0	99999.00	✓	1839
18	1	1	(untitled)		✓	N/A	N/A	0	2.28	✓	0	99999.00		1983
19	1	1	(untitled)											1800
20	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	2	80.03		2054
21	1	1	(untitled)											
22	1	1	(untitled)											
		2	(untitled)											
23	1	1	(untitled)											
24	1	1	(untitled)											
25	1	1	(untitled)											
		2	(untitled)											
26	1	1	(untitled)											
27	1	1	(untitled)											
29	1	1	(untitled)		✓	N/A	N/A	0	2.50	✓	0	99999.00		2005
30	1	1	(untitled)											1800
31	1	1	(untitled)											1800
32	1	1	(untitled)											1800
33	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
3	1	NetworkDefault	100	100	100		0.00		
4	1	CTM	100	100	100		0.00		
5	1	Flare	100	100	100		0.00		
6	1	Flare	100	100	100		0.00		
7	1	CTM	100	100	100		0.00		
8	1	Flare	100	100	100		4.00		
9	1	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		8.00		
12	1	Flare	100	100	100		8.00		
13	1	NetworkDefault	100	100	100		0.00		
14	1	Flare	100	100	100		9.00		
15	1	Flare	100	100	100		0.00		
16	1	NetworkDefault	100	100	100		0.00		
17	1	Flare	100	100	100		6.00		
18	1	Flare	100	100	100		7.00		
19	1	CTM	100	100	100		0.00		
20	1	Flare	100	100	100		1.00		
21	1	NetworkDefault	100	100	100		1.00		
22	1	NetworkDefault	100	100	100		0.00		
23	1	NetworkDefault	100	100	100		0.00		
24	1	NetworkDefault	100	100	100		0.00		
25	1	NetworkDefault	100	100	100		0.00		
26	1	NetworkDefault	100	100	100		0.00		
27	1	NetworkDefault	100	100	100		0.00		
29	1	CTM	100	100	100		0.00		
30	1	Flare	100	100	100		2.00		
31	1	Flare	100	100	100		2.00		
32	1	Flare	100	100	100		2.00		
33	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
3	1	1084	1084
4	1	580	580
5	1	140	140
6	1	440	440
7	1	504	504
8	1	443	443
9	1	61	61
10	1	727	727
11	1	659	659
12	1	68	68
13	1	535	535
14	1	481	481
15	1	54	54
16	1	893	893
17	1	263	263
18	1	300	300
19	1	330	330
20	1	311	311
21	1	19	19
22	1	1314	1314
23	1	553	553
24	1	440	440
25	1	858	858
26	1	13	13
27	1	614	614
29	1	563	563
30	1	263	263
31	1	140	140
32	1	68	68
33	1	54	54

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
5	1	1	D		
6	1	1	D		
8	1	1	D		
11	1	1	A		
12	1	1	A		
14	1	1	B		
15	1	1	B		
17	1	1	C	✓	E
18	1	1	C		
20	1	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	1	12.00	18.64

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
4	1	1	3/1	4/1	2.56	18.64	✓	Straight	Straight Movement
5	1	1	4/1	5/1	7.32	18.64	✓	Straight	Straight Movement
6	1	1	4/1	6/1	7.22	18.64	✓	Straight	Straight Movement
7	1	1	3/1	7/1	7.40	18.64	✓	Straight	Straight Movement
8	1	1	7/1	8/1	2.64	18.64	✓	Straight	Straight Movement
9	1	1	7/1	9/1	4.40	18.64	✓	Nearside	6.00
11	1	1	10/1	11/1	5.17	18.64	✓	Nearside	58.13
12	1	1	10/1	12/1	5.22	18.64	✓	Nearside	46.29
14	1	1	13/1	14/1	6.32	18.64	✓	Straight	Straight Movement
15	1	1	13/1	15/1	6.31	18.64	✓	Straight	Straight Movement
17	1	1	29/1	17/1	5.25	18.64	✓	Straight	Straight Movement
18	1	1	29/1	18/1	5.18	18.64	✓	Straight	Straight Movement
19	1	1	16/1	19/1	8.48	18.64	✓	Straight	Straight Movement
20	1	1	19/1	20/1	1.00	18.64	✓	Straight	Straight Movement
21	1	1	19/1	21/1	2.07	18.64	✓	Nearside	16.99
22	1	1	11/1	22/1	16.76	18.64	✓	Nearside	30.97
23	1	1	8/1	23/1	7.28	18.64	✓	Nearside	6.00
24	1	1	11/1	24/1	17.77	18.64	✓	Straight	Straight Movement
25	1	1	20/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	1	20/1	26/1	13.08	18.64	✓	Nearside	80.03
27	1	1	23/1	27/1	12.94	18.64	✓	Offside	74.09
29	1	1	16/1	29/1	4.23	18.64	✓	Straight	Straight Movement
30	1	1	17/1	30/1	1.64	18.64	✓	Straight	Straight Movement
31	1	1	5/1	31/1	2.06	18.64	✓	Straight	Straight Movement
32	1	1	12/1	32/1	2.07	18.64	✓	Straight	Straight Movement
33	1	1	15/1	33/1	2.04	18.64	✓	Straight	Straight Movement
22	1	2	8/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	2	14/1	23/1	7.28	18.64	✓	Straight	Straight Movement
24	1	2	21/1	24/1	17.77	18.64	✓	Nearside	11.52
25	1	2	18/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	2	14/1	26/1	13.08	18.64	✓	Nearside	6.00
27	1	2	9/1	27/1	12.94	18.64	✓	Nearside	17.86
22	1	3	6/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	3	30/1	23/1	7.28	18.64	✓	Offside	23.55
24	1	3	31/1	24/1	17.77	18.64	✓	Offside	17.01
25	1	3	14/1	25/1	22.07	18.64	✓	Nearside	22.17
26	1	3	31/1	26/1	13.08	18.64	✓	Offside	6.00
22	1	4	33/1	22/1	16.76	18.64	✓	Offside	9.51
25	1	4	32/1	25/1	22.07	18.64	✓	Offside	6.00
26	1	4	32/1	26/1	13.08	18.64	✓	Offside	6.00

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
9	1	Movement					
21	1	Movement					
30	1	Movement	✓	0	✓	23.55	
31	1	Movement	✓	0	✓	6.00	
32	1	Movement	✓	0	✓	6.00	
33	1	Movement	✓	0	✓	9.51	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Opposed) (PCU/hr)	Max Flow (Unopposed) (PCU/hr)	Max congested capacity (PCU/hr)	Percentage opposed (%)
9	1	1	27/1	715	715	0	100
21	1	1	24/1	715	715		100
30	1	1	23/1		1800		100
31	1	1	24/1		1800		100
		2	26/1		1800		100
32	1	1	25/1		1800		100
		2	26/1		1800		100
33	1	1	22/1		1800		100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling traffic stream	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Slope coefficient	Upstream signals visible	Conflict shift
9	1	1	27/1	23/1	TrafficStream	23/1			100	0.22		0
21	1	1	24/1		TrafficStreamMovement		31/1	24/1	100	0.22		0
30	1	1	23/1		TrafficStreamMovement		8/1	22/1	100			0
					TrafficStreamMovement		6/1	22/1	100			0
31	1	1	24/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
		2	26/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
32	1	1	25/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
		2	26/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
					TrafficStreamMovement		14/1	26/1	100			0
					TrafficStreamMovement		11/1	24/1	100			0
33	1	1	22/1		TrafficStreamMovement		11/1	22/1	100			0
					TrafficStreamMovement		11/1	22/1	100			0

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
		1	2	3	4	5
From	1	0	19	5	606	263
	2	54	0	6	185	290
	3	0	0	0	0	0
	4	883	139	1	0	61
	5	377	282	1	67	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	16/1	22/1	#FF0000
	2	(untitled)	13/1	24/1	#00FF00
	3	(untitled)		26/1	#FFFF00
	4	(untitled)	3/1	25/1	#00FFFF
	5	(untitled)	10/1	27/1	#FF00FF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	4		2	3	13/1, 14/1, 26/1	Normal	6
	6		2	4	13/1, 14/1, 25/1	Normal	185
	7		4	1	3/1, 4/1, 6/1, 22/1	Normal	440
	8		5	1	10/1, 11/1, 22/1	Normal	377
	9		5	2	10/1, 11/1, 24/1	Normal	282
	13		2	5	13/1, 14/1, 23/1, 27/1	Normal	290
	17		4	1	3/1, 7/1, 8/1, 22/1	Normal	443
	18		4	2	3/1, 4/1, 5/1, 31/1, 24/1	Normal	139
	19		4	3	3/1, 4/1, 5/1, 31/1, 26/1	Normal	1
	21		1	4	16/1, 29/1, 18/1, 25/1	Normal	300
	25		1	5	16/1, 29/1, 17/1, 30/1, 23/1, 27/1	Normal	263
	26		2	1	13/1, 15/1, 33/1, 22/1	Normal	54
	27		5	4	10/1, 12/1, 32/1, 25/1	Normal	67
	28		5	3	10/1, 12/1, 32/1, 26/1	Normal	1
	29		4	5	3/1, 7/1, 8/1, 23/1, 27/1	Normal	0
	30		4	5	3/1, 7/1, 9/1, 27/1	Normal	61
	31		1	4	16/1, 19/1, 20/1, 25/1	Normal	306
	32		1	3	16/1, 19/1, 20/1, 26/1	Normal	5
	33		1	2	16/1, 19/1, 21/1, 24/1	Normal	19

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C, E	1
	3	C, D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	36, 55, 95

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7	7	
	B			7	7	7	
	C	9	9				
	D	9	9			9	
	E	7	7		3		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	
	1				
	2				
	3				

Interstage Matrix for Controller Stream 1

		To			
From		1	2	3	
	1	0	7	7	
	2	9	0	3	
	3	9	9	0	

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	104	36	52	1	7
	2	✓	2	C,E	43	55	12	1	4
	3	✓	3	C,D	58	95	37	1	7

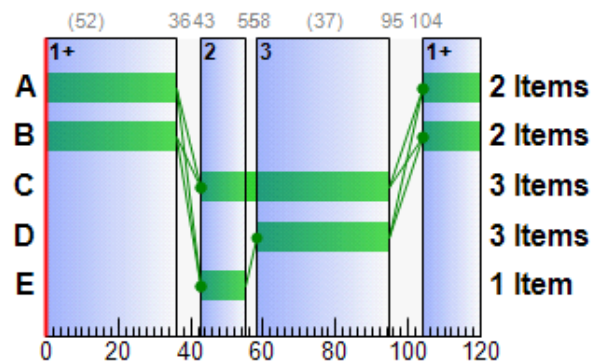
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	104	36	52
	B	1	✓	104	36	52
	C	1	✓	43	95	52
	D	1	✓	58	95	37
	E	1	✓	43	55	12

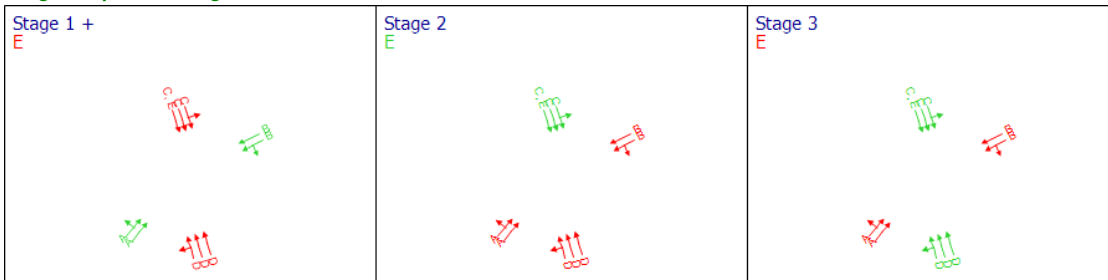
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
5	1	1	1	D	58	95	37
6	1	1	1	D	58	95	37
8	1	1	1	D	58	95	37
11	1	1	1	A	104	36	52
12	1	1	1	A	104	36	52
14	1	1	1	B	104	36	52
15	1	1	1	B	104	36	52
17	1	1	1	C	43	95	52
18	1	1	1	C	43	95	52
20	1	1	1	C	43	95	52

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:30-18:30	1	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
17:30-18:30	3	1	(untitled)		1084	2025	120	1957	55	62	1.24	2.75	15.82	13.24
	4	1	(untitled)		580	2055	120	1735	33	169	2.24	2.98	80.47	4.80
	5	1	(untitled)	D	140	1924	37	574	24	269	31.55	3.27	30.78	38.87
	6	1	(untitled)	D	440	2060	37	652	67	33	40.58	10.83	103.52	47.81
	7	1	(untitled)		504	2112	120	1112	45	99	19.28	9.80	91.43	26.68
	8	1	(untitled)	D	443	2070	37	656	68	33	24.43	4.70	117.39	27.07
	9	1	(untitled)		61	593	120	593	10	775	0.35	0.01	0.10	4.75
	10	1	(untitled)		727	1974	120	1302	56	61	12.22	13.28	76.34	24.22
	11	1	(untitled)	A	659	1818	52	803	82	10	28.89	9.55	119.43	34.05
	12	1	(untitled)	A	68	1873	52	827	8	994	16.65	1.54	19.21	21.87
	13	1	(untitled)		535	1880	120	1553	34	161	2.86	4.40	25.30	14.86
	14	1	(untitled)	B	481	1675	52	740	65	38	28.47	9.14	101.55	34.79
	15	1	(untitled)	B	54	1854	52	818	7	1264	19.33	1.45	15.88	25.64
	16	1	(untitled)		893	2015	120	2015	44	103	0.71	0.18	1.01	12.71
	17	1	(untitled)	C	263	1839	52	687	38	135	23.72	5.60	93.29	28.97
	18	1	(untitled)	C	300	1983	52	876	34	163	23.36	6.36	90.82	28.53
	19	1	(untitled)		330	1800	120	919	36	151	18.30	6.18	50.29	26.78
	20	1	(untitled)	C	311	2054	52	907	34	163	7.03	1.09	108.93	8.03
	21	1	(untitled)		19	684	120	684	3	3142	0.08	0.00	0.04	2.15
	22	1	(untitled)		1314	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	16.76
	23	1	(untitled)		553	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	7.28
	24	1	(untitled)		440	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	17.77
	25	1	(untitled)		858	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	22.07
	26	1	(untitled)		13	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	13.08
	27	1	(untitled)		614	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.94
	29	1	(untitled)		563	2005	120	2005	28	221	0.35	0.05	0.89	4.58
	30	1	(untitled)		263	1273	120	1273	21	335	5.83	2.01	100.75	7.47
	31	1	(untitled)		140	1317	120	1317	11	747	1.88	0.95	47.60	3.94
	32	1	(untitled)		68	1181	120	1181	6	1463	12.75	1.37	68.37	14.82
	33	1	(untitled)		54	1069	120	1069	5	1682	28.81	1.54	76.81	30.84

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	104	36	52	1	7
	2	✓	2	C,E	43	55	12	1	4
	3	✓	3	C,D	58	95	37	1	7

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
3	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2025	100	100
4	1	✓	21.31	CTM	0.00	Normal	✓			Sum of lanes	2055	100	100
5	1	✓	61.00	Flare	0.00	Normal	✓	✓		Sum of lanes	1924	100	100
6	1	✓	60.18	Flare	0.00	Normal	✓	✓		Sum of lanes	2060	100	100
7	1	✓	61.65	CTM	0.00	Normal	✓			Sum of lanes	2112	100	100
8	1	✓	22.00	Flare	4.00	Normal	✓	✓		Sum of lanes	2070	100	100
9	1	✓	36.65	Flare	6.00	Normal			✓			100	100
10	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1974	100	100
11	1	✓	43.05	Flare	8.00	Normal	✓	✓		Sum of lanes	1818	100	100
12	1	✓	43.48	Flare	8.00	Normal	✓	✓		Sum of lanes	1872	100	100
13	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1880	100	100
14	1	✓	52.68	Flare	9.00	Normal	✓	✓		Sum of lanes	1675	100	100
15	1	✓	52.56	Flare	0.00	Normal	✓	✓		Sum of lanes	1854	100	100
16	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2015	100	100
17	1	✓	43.77	Flare	6.00	Normal	✓	✓		Sum of lanes	1839	100	100
18	1	✓	43.14	Flare	7.00	Normal	✓	✓		Sum of lanes	1983	100	100
19	1	✓	70.66	CTM	0.00	Normal	✓			Sum of lanes	1800	100	100
20	1	✓	8.03	Flare	1.00	Normal	✓	✓		Sum of lanes	2054	100	100
21	1	✓	17.28	NetworkDefault	1.00	Normal			✓			100	100
22	1	✓	139.64	NetworkDefault	0.00	Normal						100	100
23	1	✓	60.64	NetworkDefault	0.00	Normal						100	100
24	1	✓	148.12	NetworkDefault	0.00	Normal						100	100
25	1	✓	183.95	NetworkDefault	0.00	Normal						100	100
26	1	✓	109.00	NetworkDefault	0.00	Normal						100	100
27	1	✓	107.80	NetworkDefault	0.00	Normal						100	100
29	1	✓	35.23	CTM	0.00	Normal	✓			Sum of lanes	2005	100	100
30	1	✓	13.67	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
31	1	✓	17.15	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
32	1	✓	17.25	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
33	1	✓	16.97	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	3	1	55	62	1084	2025	120	1.24	2.75	15.82	5.31	0.66	5.96
	4	1	33	169	580	2055	120	2.24	2.98	80.47	5.13	1.06	6.19
	5	1	24	269	140	1924	37	31.55	3.27	30.78	17.42	1.39	18.81
	6	1	67	33	440	2060	37	40.58	10.83	103.52	70.44	4.07	74.51
	7	1	45	99	504	2112	120	19.28	9.80	91.43	38.33	3.69	42.01
	8	1	68	33	443	2070	37	24.43	4.70	117.39	42.68	1.85	44.53
	9	1	10	775	61	593	120	0.35	0.01	0.10	0.08	0.00	0.08
	10	1	56	61	727	1974	120	12.22	13.28	76.34	35.03	4.78	39.82
	11	1	82	10	659	1818	52	28.89	9.55	119.43	75.08	3.58	78.66
	12	1	8	994	68	1873	52	16.65	1.54	19.21	4.47	0.30	4.77
	13	1	34	161	535	1880	120	2.86	4.40	25.30	6.03	1.49	7.52
	14	1	65	38	481	1675	52	28.47	9.14	101.55	54.02	3.44	57.45
	15	1	7	1264	54	1854	52	19.33	1.45	15.88	4.12	0.36	4.48
	16	1	44	103	893	2015	120	0.71	0.18	1.01	2.50	0.00	2.50
	17	1	38	135	263	1839	52	23.72	5.60	93.29	24.60	2.27	26.87
	18	1	34	163	300	1983	52	23.36	6.36	90.82	27.64	2.39	30.03
	19	1	36	151	330	1800	120	18.30	6.18	50.29	23.82	2.31	26.13
	20	1	34	163	311	2054	52	7.03	1.09	108.93	8.62	0.38	9.00
	21	1	3	3142	19	684	120	0.08	0.00	0.04	0.01	0.00	0.01
	22	1	0	Unrestricted	1314	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	0	Unrestricted	553	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	0	Unrestricted	440	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	0	Unrestricted	858	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	0	Unrestricted	13	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	0	Unrestricted	614	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	28	221	563	2005	120	0.35	0.05	0.89	0.78	0.00	0.78
	30	1	21	335	263	1273	120	5.83	2.01	100.75	6.05	1.06	7.11
	31	1	11	747	140	1317	120	1.88	0.95	47.60	1.04	0.91	1.94
	32	1	6	1463	68	1181	120	12.75	1.37	68.37	3.42	0.61	4.03
	33	1	5	1682	54	1069	120	28.81	1.54	76.81	6.14	0.64	6.78

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:30-18:30	3	1	1084	1084	0		2025	1957	55		62	0.00	120
	4	1	580	580	0		2055	1735	33		169	0.04	120
	5	1	140	140	0		1924	574	24		269	0.25	37
	6	1	440	440	0		2060	652	67		33	0.25	37
	7	1	504	504	0		2112	1112	45		99	0.04	120
	8	1	443	443	0		2070	656	68		33	0.92	37
	9	1	61	61	0		593	593	10		775	0.94	120
	10	1	727	727	0		1974	1302	56		61	0.00	120
	11	1	659	659	0		1818	803	82		10	0.62	52
	12	1	68	68	0		1873	827	8		994	0.62	52
	13	1	535	535	0		1880	1553	34		161	0.00	120
	14	1	481	481	0		1675	740	65		38	0.28	52
	15	1	54	54	0		1854	818	7		1264	0.28	52
	16	1	893	893	0		2015	2015	44		103	0.00	120
	17	1	263	263	0		1839	687	38		135	0.00	52
	18	1	300	300	0		1983	876	34		163	0.00	52
	19	1	330	330	0		1800	919	36		151	0.00	120
	20	1	311	311	0		2054	907	34		163	0.96	52
	21	1	19	19	0		684	684	3		3142	0.95	120
	22	1	1314	1314	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	120
	23	1	553	553	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	120
	24	1	440	440	0		Unrestricted	Unrestricted	0		Unrestricted	0.54	120
	25	1	858	858	0		Unrestricted	Unrestricted	0		Unrestricted	0.56	120
	26	1	13	13	0		Unrestricted	Unrestricted	0		Unrestricted	0.44	120
	27	1	614	614	0		Unrestricted	Unrestricted	0		Unrestricted	0.54	120
	29	1	563	563	0		2005	2005	28		221	0.00	120
	30	1	263	263	0		1273	1273	21		335	1.18	120
	31	1	140	140	0		1317	1317	11		747	1.45	120
	32	1	68	68	0		1181	1181	6		1463	1.23	120
	33	1	54	54	0		1069	1069	5		1682	1.25	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	3	1	12.00	1.24	0.37	5.31	4.82	52.26	0.66
	4	1	2.56	2.24	0.36	5.13	14.60	84.65	1.06
	5	1	7.32	31.55	1.23	17.42	79.01	110.61	1.39
	6	1	7.22	40.58	4.96	70.44	73.82	324.81	4.07
	7	1	7.40	19.28	2.70	38.33	58.33	293.99	3.69
	8	1	2.64	24.43	3.01	42.68	33.26	147.35	1.85
	9	1	4.40	0.35	0.01	0.08	0.00	0.00	0.00
	10	1	12.00	12.22	2.47	35.03	52.45	381.30	4.78
	11	1	5.17	28.89	5.29	75.08	43.33	285.53	3.58
	12	1	5.22	16.65	0.31	4.47	35.41	24.08	0.30
	13	1	12.00	2.86	0.42	6.03	22.25	119.05	1.49
	14	1	6.32	28.47	3.80	54.02	56.97	274.03	3.44
	15	1	6.31	19.33	0.29	4.12	53.37	28.82	0.36
	16	1	12.00	0.71	0.18	2.50	0.00	0.00	0.00
	17	1	5.25	23.72	1.73	24.60	68.74	180.78	2.27
	18	1	5.18	23.36	1.95	27.64	63.57	190.71	2.39
	19	1	8.48	18.30	1.68	23.82	55.90	184.47	2.31
	20	1	1.00	7.03	0.61	8.62	10.51	32.67	0.38
	21	1	2.07	0.08	0.00	0.01	0.00	0.00	0.00
	22	1	16.76	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	7.28	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	17.77	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	22.07	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	13.08	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	12.94	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	4.23	0.35	0.05	0.78	0.00	0.00	0.00
	30	1	1.64	5.83	0.43	6.05	32.17	84.61	1.06
	31	1	2.06	1.88	0.07	1.04	51.65	72.31	0.91
	32	1	2.07	12.75	0.24	3.42	71.43	48.57	0.61
	33	1	2.04	28.81	0.43	6.14	94.43	50.99	0.64

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	3	1	0.00	2.75	17.39	15.82	0.00	4.02	
	4	1	0.00	2.98	3.71	80.47	0.00	18.69	
	5	1	0.00	3.27	10.61	30.78	0.00	9.21	
	6	1	0.00	10.83	10.47	103.52	0.00	0.00	
	7	1	0.00	9.80	10.72	91.43	0.00	60.00	
	8	1	0.00	4.70	4.00	117.39	0.00	0.00	
	9	1	0.00	0.01	6.00	0.10	0.00	57.00	
	10	1	0.00	13.28	17.39	76.34	0.00	40.86	
	11	1	0.00	9.55	8.00	119.43	0.00	0.00	
	12	1	0.00	1.54	8.00	19.21	0.00	12.04	
	13	1	0.00	4.40	17.39	25.30	0.00	20.86	
	14	1	0.00	9.14	9.00	101.55	0.00	0.00	
	15	1	0.00	1.45	9.14	15.88	0.00	40.03	
	16	1	0.00	0.18	17.39	1.01	0.00	0.00	
	17	1	0.00	5.60	6.00	93.29	0.00	8.15	
	18	1	0.00	6.36	7.00	90.82	0.00	0.00	
	19	1	0.00	6.18	12.29	50.29	0.00	58.78	
	20	1	0.00	1.09	1.00	108.93	0.00	0.00	
	21	1	0.00	0.00	1.00	0.04	0.00	106.00	
	22	1	0.00	0.00	48.57	0.00	0.00	8.00	
	23	1	0.00	0.00	10.55	0.00	0.00	27.00	
	24	1	0.00	0.00	25.76	0.00	0.00	0.00	
	25	1	0.00	0.00	63.98	0.00	0.00	0.00	
	26	1	0.00	0.00	18.96	0.00	0.00	120.00	
	27	1	0.00	0.00	18.75	0.00	0.00	0.00	
	29	1	0.00	0.05	6.13	0.89	0.00	0.00	
	30	1	0.00	2.01	2.00	100.75	0.00	65.00	
	31	1	0.00	0.95	2.00	47.60	0.00	86.00	
	32	1	0.00	1.37	2.00	68.37	0.00	67.00	
	33	1	0.00	1.54	2.00	76.81	0.00	71.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
17:30-18:30	4	1	✓	CTM flare: 4/1,6/1,5/1	76	17.08	767	19
	10	1	✓	CTM flare: 10/1,11/1,12/1	87	24.37	838	4
	13	1	✓	CTM flare: 13/1,14/1,15/1	69	14.99	777	31
	29	1	✓	CTM flare: 29/1,18/1,17/1	54	12.01	1050	68

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:30-18:30	3	1	0.00	0.00	✓	0.00	2.75			1.00	0.00	5.96
	4	1	0.00	0.00	✓	0.00	2.98			1.00	0.00	6.19
	5	1	0.00	0.00	✓	0.00	3.27	0.04	3.26	1.00	0.00	18.81
	6	1	0.00	0.00	✓	0.00	10.84	0.69	10.84	1.00	0.00	74.51
	7	1	0.00	0.00	✓	0.00	9.80			1.00	0.00	42.01
	8	1	0.00	0.00	✓	0.00	4.70	0.70	4.70	1.00	0.00	44.53
	9	1	0.00	0.00	✓	0.00	0.01			1.00	0.00	0.08
	10	1	0.00	0.00	✓	0.00	13.28			1.00	0.00	39.82
	11	1	0.00	0.00	✓	0.00	9.59	1.84	9.59	1.00	0.00	78.66
	12	1	0.00	0.00	✓	0.00	1.54	0.00	0.80	1.00	0.00	4.77
	13	1	0.00	0.00	✓	0.00	4.40			1.00	0.00	7.52
	14	1	0.00	0.00	✓	0.00	9.14	0.60	9.14	1.00	0.00	57.45
	15	1	0.00	0.00	✓	0.00	1.45	0.00	0.96	1.00	0.00	4.48
	16	1	0.00	0.00	✓	0.00	0.18			1.00	0.00	2.50
	17	1	0.00	0.00	✓	0.00	5.60	0.12	5.31	1.00	0.00	26.87
	18	1	0.00	0.00	✓	0.00	6.36	0.09	6.01	1.00	0.00	30.03
	19	1	0.00	0.00	✓	0.00	6.18			1.00	0.00	26.13
	20	1	0.00	0.00	✓	0.00	1.09	0.09	1.09	1.00	0.00	9.00
	21	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.01
	22	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	23	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	24	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	25	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	26	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	27	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	29	1	0.00	0.00	✓	0.00	0.05			1.00	0.00	0.78
	30	1	0.00	0.00	✓	0.00	2.01			1.00	0.00	7.11
	31	1	0.00	0.00	✓	0.00	0.95			1.00	0.00	1.94
	32	1	0.00	0.00	✓	0.00	1.37			1.00	0.00	4.03
	33	1	0.00	0.00	✓	0.00	1.54			1.00	0.00	6.78

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
4	24/09/2018 10:43:16	24/09/2018 10:43:16	17:30	120	499.97	32.59	82.07	11/1	0	0	11/1	10/1	11/1

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	82	10	12772	2875	9.19	462.74	37.23	499.97

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
17:30-18:30	12772	12772	0		82		10	2875

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	9.96	9.19	32.59	462.74	23.27	2971.59	37.23

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
17:30-18:30	119.43	0.00	879.64

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:30-18:30	0.00	0.00	✓	0.00	1.00	0.00	0.00	499.97

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
		1	2	3	4	5
	1	0.0	59.4	60.6	68.8	73.9
	2	88.1	0.0	62.7	71.7	69.9
	3	0.0	0.0	0.0	0.0	0.0
	4	83.2	78.6	73.9	0.0	57.6
	5	75.0	76.0	74.0	83.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
4	2	3	6	62.73	6	62.73
6	2	4	185	71.72	185	71.72
7	4	1	440	82.60	440	82.60
8	5	1	377	75.03	377	75.03
9	5	2	282	76.04	282	76.04
13	2	5	290	69.86	290	69.86
17	4	1	443	83.74	443	83.74
18	4	2	139	78.62	139	78.62
19	4	3	1	73.93	1	73.93
21	1	4	300	67.90	300	67.90
25	1	5	263	73.94	263	73.94
26	2	1	54	88.10	54	88.10
27	5	4	67	82.98	67	82.98
28	5	3	1	73.99	1	73.99
29	4	5	0	0.00	0	0.00
30	4	5	61	57.60	61	57.60
31	1	4	306	69.59	306	69.59
32	1	3	5	60.59	5	60.59
33	1	2	19	59.41	19	59.41

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Wasted time total (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
3	1	(untitled)					1084	2025	120	4.02	55	62	13.24	1.24	4.82	
4	1	(untitled)					580	2055	120	18.69	33	169	4.80	2.24	14.60	
5	1	(untitled)	1	1	D		140	1924	37	9.21	24	269	38.87	31.55	79.01	
6	1	(untitled)	1	1	D		440 <	2060	37	0.00	67	33	47.81	40.58	73.82	1
7	1	(untitled)					504	2112	120	60.00	45	99	26.68	19.28	58.33	
8	1	(untitled)	1	1	D		443 <	2070	37	0.00	68	33	27.07	24.43	33.26	
9	1	(untitled)					61	593	120	57.00	10	775	4.75	0.35	0.00	
10	1	(untitled)					727	1974	120	40.86	56	61	24.22	12.22	52.45	
11	1	(untitled)	1	1	A		659 <	1818	52	0.00	82	10	34.05	28.89	43.33	
12	1	(untitled)	1	1	A		68	1873	52	12.04	8	994	21.87	16.65	35.41	
13	1	(untitled)					535	1880	120	20.86	34	161	14.86	2.86	22.25	
14	1	(untitled)	1	1	B		481 <	1675	52	0.00	65	38	34.79	28.47	56.97	
15	1	(untitled)	1	1	B		54	1854	52	40.03	7	1264	25.64	19.33	53.37	
16	1	(untitled)					893	2015	120	0.00	44	103	12.71	0.71	0.00	
17	1	(untitled)	1	1	C	E	263	1839	52	8.15	38	135	28.97	23.72	68.74	
18	1	(untitled)	1	1	C		300	1983	52	0.00	34	163	28.53	23.36	63.57	
19	1	(untitled)					330	1800	120	58.78	36	151	26.78	18.30	55.90	
20	1	(untitled)	1	1	C		311 <	2054	52	0.00	34	163	8.03	7.03	10.51	
21	1	(untitled)					19	684	120	106.00	3	3142	2.15	0.08	0.00	
22	1	(untitled)					1314	Unrestricted	120	8.00	0	Unrestricted	16.76	0.00	0.00	
23	1	(untitled)					553	Unrestricted	120	27.00	0	Unrestricted	7.28	0.00	0.00	
24	1	(untitled)					440	Unrestricted	120	0.00	0	Unrestricted	17.77	0.00	0.00	
25	1	(untitled)					858	Unrestricted	120	0.00	0	Unrestricted	22.07	0.00	0.00	
26	1	(untitled)					13	Unrestricted	120	120.00	0	Unrestricted	13.08	0.00	0.00	
27	1	(untitled)					614	Unrestricted	120	0.00	0	Unrestricted	12.94	0.00	0.00	
29	1	(untitled)					563	2005	120	0.00	28	221	4.58	0.35	0.00	
30	1	(untitled)	1				263 <	1273	120	65.00	21	335	7.47	5.83	32.17	
31	1	(untitled)	1				140	1317	120	86.00	11	747	3.94	1.88	51.65	
32	1	(untitled)	1				68	1181	120	67.00	6	1463	14.82	12.75	71.43	
33	1	(untitled)	1				54	1069	120	71.00	5	1682	30.84	28.81	94.43	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1059.99	67.92	9.70	32.59	462.74	37.23	0.00	499.97
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1059.99	67.92	9.70	32.59	462.74	37.23	0.00	499.97

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX

A5 - AM Peak Hour 2023 with Dev. D5 - AM Peak Hour 2023 with Dev.*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Arm Data	Arm 3	No traffic node specified for arm(s): 3, 4, 7, 9, 10, 13, 16, 19, 21, 23, 29

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
5	24/09/2018 10:43:17	24/09/2018 10:43:17	07:45	120	514.91	33.65	88.55	11/1	0	0	11/1	10/1	11/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
AM Peak Hour 2023 with Dev.		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
AM Peak Hour 2023 with Dev.				07:45	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
3	(untitled)		
4	(untitled)		
5	(untitled)		1
6	(untitled)		1
7	(untitled)		
8	(untitled)		1
9	(untitled)		
10	(untitled)		
11	(untitled)		1
12	(untitled)		1
13	(untitled)		
14	(untitled)		1
15	(untitled)		1
16	(untitled)		
17	(untitled)		1
18	(untitled)		1
19	(untitled)		
20	(untitled)		1
21	(untitled)		
22	(untitled)		
23	(untitled)		
24	(untitled)		
25	(untitled)		
26	(untitled)		
27	(untitled)		
29	(untitled)		
30	(untitled)		1
31	(untitled)		1
32	(untitled)		1
33	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
3	1	(untitled)			100.00	✓	Sum of lanes	2025					Normal	
4	1	(untitled)		✓	21.31	✓	Sum of lanes	2055	✓	1800			Normal	
5	1	(untitled)		✓	61.00	✓	Sum of lanes	1924	✓	1800	✓		Normal	
6	1	(untitled)		✓	60.18	✓	Sum of lanes	2060	✓	1800	✓		Normal	
7	1	(untitled)		✓	61.65	✓	Sum of lanes	2117	✓	1800			Normal	
8	1	(untitled)		✓	22.00	✓	Sum of lanes	2070			✓		Normal	
9	1	(untitled)		✓	36.65				✓	1800		✓	Normal	
10	1	(untitled)			100.00	✓	Sum of lanes	1974					Normal	
11	1	(untitled)		✓	43.05	✓	Sum of lanes	1825	✓	1800	✓		Normal	
12	1	(untitled)		✓	43.48	✓	Sum of lanes	1873	✓	1800	✓		Normal	
13	1	(untitled)			100.00	✓	Sum of lanes	1880					Normal	
14	1	(untitled)		✓	52.68	✓	Sum of lanes	1717	✓	1800	✓		Normal	
15	1	(untitled)		✓	52.56	✓	Sum of lanes	1854	✓	1800	✓		Normal	
16	1	(untitled)			100.00	✓	Sum of lanes	2015					Normal	
17	1	(untitled)		✓	43.77	✓	Sum of lanes	1839	✓	1800	✓		Normal	
18	1	(untitled)		✓	43.14	✓	Sum of lanes	1983	✓	1800	✓		Normal	
19	1	(untitled)		✓	70.66	✓	Sum of lanes	1800	✓	1800			Normal	
20	1	(untitled)		✓	8.03	✓	Sum of lanes	2055			✓		Normal	
21	1	(untitled)		✓	17.28							✓	Normal	
22	1	(untitled)		✓	139.64								Normal	
23	1	(untitled)		✓	60.64								Normal	
24	1	(untitled)		✓	148.12								Normal	
25	1	(untitled)		✓	183.95								Normal	
26	1	(untitled)		✓	109.00								Normal	
27	1	(untitled)		✓	107.80								Normal	
29	1	(untitled)		✓	35.23	✓	Sum of lanes	2005	✓	1800			Normal	
30	1	(untitled)		✓	13.67	✓	Sum of lanes	1800				✓	Normal	
31	1	(untitled)		✓	17.15	✓	Sum of lanes	1800				✓	Normal	
32	1	(untitled)		✓	17.25	✓	Sum of lanes	1800				✓	Normal	
33	1	(untitled)		✓	16.97	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
3	1	1	(untitled)		✓	N/A	N/A	0	4.10	✓	0	99999.00	✓	2025
4	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
5	1	1	(untitled)		✓	N/A	N/A	0	3.09	✓	0	99999.00	✓	1924
6	1	1	(untitled)		✓	N/A	N/A	0	3.05	✓	0	99999.00		2060
7	1	1	(untitled)		✓	N/A	N/A	0	4.20	✓	11	6.00		2117
8	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	0	6.00		2070
9	1	1	(untitled)											
10	1	1	(untitled)		✓	N/A	N/A	0	4.23	✓	100	46.29	✓	1974
11	1	1	(untitled)		✓	N/A	N/A	0	2.53	✓	49	30.97	✓	1825
12	1	1	(untitled)		✓	N/A	N/A	0	2.58	✓	0	99999.00	✓	1873
13	1	1	(untitled)		✓	N/A	N/A	0	2.65	✓	0	99999.00	✓	1880
14	1	1	(untitled)		✓	N/A	N/A	0	2.27	✓	29	6.00	✓	1717
15	1	1	(untitled)		✓	N/A	N/A	0	2.39	✓	0	99999.00	✓	1854
16	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	0	99999.00	✓	2015
17	1	1	(untitled)		✓	N/A	N/A	0	2.24	✓	0	99999.00	✓	1839
18	1	1	(untitled)		✓	N/A	N/A	0	2.28	✓	0	99999.00		1983
19	1	1	(untitled)											1800
20	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	80.03		2055
21	1	1	(untitled)											
22	1	1	(untitled)											
		2	(untitled)											
23	1	1	(untitled)											
24	1	1	(untitled)											
25	1	1	(untitled)											
		2	(untitled)											
26	1	1	(untitled)											
27	1	1	(untitled)											
29	1	1	(untitled)		✓	N/A	N/A	0	2.50	✓	0	99999.00		2005
30	1	1	(untitled)											1800
31	1	1	(untitled)											1800
32	1	1	(untitled)											1800
33	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
3	1	NetworkDefault	100	100	100		0.00		
4	1	CTM	100	100	100		0.00		
5	1	Flare	100	100	100		0.00		
6	1	Flare	100	100	100		0.00		
7	1	CTM	100	100	100		0.00		
8	1	Flare	100	100	100		4.00		
9	1	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		8.00		
12	1	Flare	100	100	100		8.00		
13	1	NetworkDefault	100	100	100		0.00		
14	1	Flare	100	100	100		9.00		
15	1	Flare	100	100	100		0.00		
16	1	NetworkDefault	100	100	100		0.00		
17	1	Flare	100	100	100		6.00		
18	1	Flare	100	100	100		7.00		
19	1	CTM	100	100	100		0.00		
20	1	Flare	100	100	100		1.00		
21	1	NetworkDefault	100	100	100		1.00		
22	1	NetworkDefault	100	100	100		0.00		
23	1	NetworkDefault	100	100	100		0.00		
24	1	NetworkDefault	100	100	100		0.00		
25	1	NetworkDefault	100	100	100		0.00		
26	1	NetworkDefault	100	100	100		0.00		
27	1	NetworkDefault	100	100	100		0.00		
29	1	CTM	100	100	100		0.00		
30	1	Flare	100	100	100		2.00		
31	1	Flare	100	100	100		2.00		
32	1	Flare	100	100	100		2.00		
33	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
3	1	1019	1019
4	1	546	546
5	1	129	129
6	1	417	417
7	1	473	473
8	1	419	419
9	1	54	54
10	1	649	649
11	1	606	606
12	1	43	43
13	1	568	568
14	1	526	526
15	1	42	42
16	1	1000	1000
17	1	359	359
18	1	303	303
19	1	338	338
20	1	314	314
21	1	24	24
22	1	1176	1176
23	1	730	730
24	1	461	461
25	1	812	812
26	1	3	3
27	1	784	784
29	1	662	662
30	1	359	359
31	1	129	129
32	1	43	43
33	1	42	42

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
5	1	1	D		
6	1	1	D		
8	1	1	D		
11	1	1	A		
12	1	1	A		
14	1	1	B		
15	1	1	B		
17	1	1	C	✓	E
18	1	1	C		
20	1	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	1	12.00	18.64

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
4	1	1	3/1	4/1	2.56	18.64	✓	Straight	Straight Movement
5	1	1	4/1	5/1	7.32	18.64	✓	Straight	Straight Movement
6	1	1	4/1	6/1	7.22	18.64	✓	Straight	Straight Movement
7	1	1	3/1	7/1	7.40	18.64	✓	Straight	Straight Movement
8	1	1	7/1	8/1	2.64	18.64	✓	Straight	Straight Movement
9	1	1	7/1	9/1	4.40	18.64	✓	Nearside	6.00
11	1	1	10/1	11/1	5.17	18.64	✓	Nearside	58.13
12	1	1	10/1	12/1	5.22	18.64	✓	Nearside	46.29
14	1	1	13/1	14/1	6.32	18.64	✓	Straight	Straight Movement
15	1	1	13/1	15/1	6.31	18.64	✓	Straight	Straight Movement
17	1	1	29/1	17/1	5.25	18.64	✓	Straight	Straight Movement
18	1	1	29/1	18/1	5.18	18.64	✓	Straight	Straight Movement
19	1	1	16/1	19/1	8.48	18.64	✓	Straight	Straight Movement
20	1	1	19/1	20/1	1.00	18.64	✓	Straight	Straight Movement
21	1	1	19/1	21/1	2.07	18.64	✓	Nearside	16.99
22	1	1	11/1	22/1	16.76	18.64	✓	Nearside	30.97
23	1	1	8/1	23/1	7.28	18.64	✓	Nearside	6.00
24	1	1	11/1	24/1	17.77	18.64	✓	Straight	Straight Movement
25	1	1	20/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	1	20/1	26/1	13.08	18.64	✓	Nearside	80.03
27	1	1	23/1	27/1	12.94	18.64	✓	Offside	74.09
29	1	1	16/1	29/1	4.23	18.64	✓	Straight	Straight Movement
30	1	1	17/1	30/1	1.64	18.64	✓	Straight	Straight Movement
31	1	1	5/1	31/1	2.06	18.64	✓	Straight	Straight Movement
32	1	1	12/1	32/1	2.07	18.64	✓	Straight	Straight Movement
33	1	1	15/1	33/1	2.04	18.64	✓	Straight	Straight Movement
22	1	2	8/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	2	14/1	23/1	7.28	18.64	✓	Straight	Straight Movement
24	1	2	21/1	24/1	17.77	18.64	✓	Nearside	11.52
25	1	2	18/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	2	14/1	26/1	13.08	18.64	✓	Nearside	6.00
27	1	2	9/1	27/1	12.94	18.64	✓	Nearside	17.86
22	1	3	6/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	3	30/1	23/1	7.28	18.64	✓	Offside	23.55
24	1	3	31/1	24/1	17.77	18.64	✓	Offside	17.01
25	1	3	14/1	25/1	22.07	18.64	✓	Nearside	22.17
26	1	3	31/1	26/1	13.08	18.64	✓	Offside	6.00
22	1	4	33/1	22/1	16.76	18.64	✓	Offside	9.51
25	1	4	32/1	25/1	22.07	18.64	✓	Offside	6.00
26	1	4	32/1	26/1	13.08	18.64	✓	Offside	6.00

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
9	1	Movement					
21	1	Movement					
30	1	Movement	✓	0	✓	23.55	
31	1	Movement	✓	0	✓	6.00	
32	1	Movement	✓	0	✓	6.00	
33	1	Movement	✓	0	✓	9.51	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Opposed) (PCU/hr)	Max Flow (Unopposed) (PCU/hr)	Max congested capacity (PCU/hr)	Percentage opposed (%)
9	1	1	27/1	715	715	0	100
21	1	1	24/1	715	715		100
30	1	1	23/1		1800		100
31	1	1	24/1		1800		100
		2	26/1		1800		100
32	1	1	25/1		1800		100
		2	26/1		1800		100
33	1	1	22/1		1800		100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling traffic stream	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Slope coefficient	Upstream signals visible	Conflict shift
9	1	1	27/1	23/1	TrafficStream	23/1			100	0.22		0
21	1	1	24/1		TrafficStreamMovement		31/1	24/1	100	0.22		0
30	1	1	23/1		TrafficStreamMovement		8/1	22/1	100			0
					TrafficStreamMovement		6/1	22/1	100			0
31	1	1	24/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
		2	26/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
32	1	1	25/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
		2	26/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
					TrafficStreamMovement		14/1	26/1	100			0
					TrafficStreamMovement		11/1	24/1	100			0
33	1	1	22/1		TrafficStreamMovement		11/1	22/1	100			0
					TrafficStreamMovement		11/1	22/1	100			0

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
		1	2	3	4	5
From	1	0	24	0	617	359
	2	42	0	0	155	371
	3	0	0	0	0	0
	4	836	129	0	0	54
	5	298	308	3	40	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	16/1	22/1	#FF0000
	2	(untitled)	13/1	24/1	#00FF00
	3	(untitled)		26/1	#FFFF00
	4	(untitled)	3/1	25/1	#00FFFF
	5	(untitled)	10/1	27/1	#FF00FF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	4		2	3	13/1, 14/1, 26/1	Normal	0
	6		2	4	13/1, 14/1, 25/1	Normal	155
	7		4	1	3/1, 4/1, 6/1, 22/1	Normal	417
	8		5	1	10/1, 11/1, 22/1	Normal	298
	9		5	2	10/1, 11/1, 24/1	Normal	308
	13		2	5	13/1, 14/1, 23/1, 27/1	Normal	371
	17		4	1	3/1, 7/1, 8/1, 22/1	Normal	419
	18		4	2	3/1, 4/1, 5/1, 31/1, 24/1	Normal	129
	19		4	3	3/1, 4/1, 5/1, 31/1, 26/1	Normal	0
	21		1	4	16/1, 29/1, 18/1, 25/1	Normal	303
	25		1	5	16/1, 29/1, 17/1, 30/1, 23/1, 27/1	Normal	359
	26		2	1	13/1, 15/1, 33/1, 22/1	Normal	42
	27		5	4	10/1, 12/1, 32/1, 25/1	Normal	40
	28		5	3	10/1, 12/1, 32/1, 26/1	Normal	3
	29		4	5	3/1, 7/1, 8/1, 23/1, 27/1	Normal	0
	30		4	5	3/1, 7/1, 9/1, 27/1	Normal	54
	31		1	4	16/1, 19/1, 20/1, 25/1	Normal	314
	32		1	3	16/1, 19/1, 20/1, 26/1	Normal	0
	33		1	2	16/1, 19/1, 21/1, 24/1	Normal	24

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C, E	1
	3	C, D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	34, 56, 101

Intergreen Matrix for Controller Stream 1

		To				
From		A	B	C	D	E
	A			7	7	7
	B			7	7	7
	C	9	9			
	D	9	9			9
	E	7	7		3	

Banned Stage transitions for Controller Stream 1

		To		
From		1	2	3
	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

		To		
From		1	2	3
	1	0	7	7
	2	9	0	3
	3	9	9	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	110	34	44	1	7
	2	✓	2	C,E	41	56	15	1	4
	3	✓	3	C,D	59	101	42	1	7

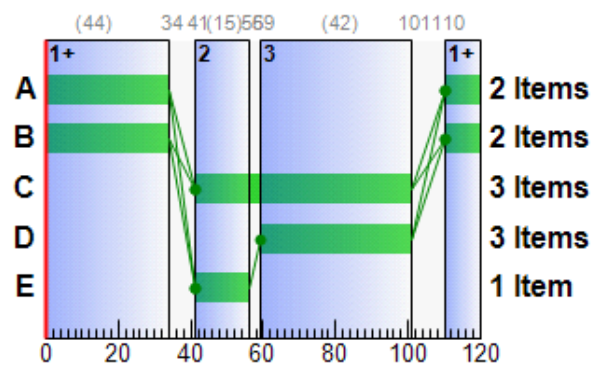
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	110	34	44
	B	1	✓	110	34	44
	C	1	✓	41	101	60
	D	1	✓	59	101	42
	E	1	✓	41	56	15

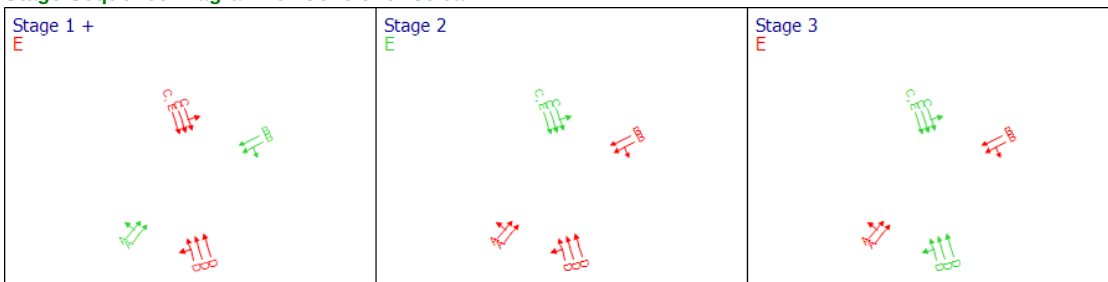
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
5	1	1	1	D	59	101	42
6	1	1	1	D	59	101	42
8	1	1	1	D	59	101	42
11	1	1	1	A	110	34	44
12	1	1	1	A	110	34	44
14	1	1	1	B	110	34	44
15	1	1	1	B	110	34	44
17	1	1	1	C	41	101	60
18	1	1	1	C	41	101	60
20	1	1	1	C	41	101	60

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
07:45-08:45	1	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
07:45-08:45	3	1	(untitled)		1019	2025	120	2025	50	79	0.90	0.25	1.46	12.90
	4	1	(untitled)		546	2055	120	1895	29	212	0.71	1.51	40.68	3.27
	5	1	(untitled)	D	129	1924	42	680	19	374	27.25	2.94	27.71	34.57
	6	1	(untitled)	D	417	2060	42	738	56	59	34.67	10.49	100.23	41.89
	7	1	(untitled)		473	2117	120	1237	38	135	14.46	8.08	75.34	21.85
	8	1	(untitled)	D	419	2070	42	742	56	59	21.29	4.36	109.11	23.92
	9	1	(untitled)		54	554	120	554	10	824	0.35	0.01	0.09	4.75
	10	1	(untitled)		649	1974	120	1213	53	68	13.96	12.57	72.25	25.96
	11	1	(untitled)	A	606	1825	44	684	89	2	41.45	10.85	135.61	46.62
	12	1	(untitled)	A	43	1873	44	702	6	1369	20.31	1.54	19.19	25.53
	13	1	(untitled)		568	1880	120	1334	43	111	7.67	7.89	45.36	19.67
	14	1	(untitled)	B	526	1717	44	644	82	10	39.07	10.29	114.31	45.40
	15	1	(untitled)	B	42	1854	44	695	6	1389	22.83	1.45	15.87	29.14
	16	1	(untitled)		1000	2015	120	2015	50	81	0.88	0.24	1.40	12.88
	17	1	(untitled)	C	359	1839	60	695	52	74	20.73	5.99	99.77	25.99
	18	1	(untitled)	C	303	1983	60	1008	30	199	17.45	4.88	69.78	22.63
	19	1	(untitled)		338	1800	120	1042	32	177	13.68	5.34	43.44	22.16
	20	1	(untitled)	C	314	2055	60	1045	30	199	5.92	1.06	106.45	6.92
	21	1	(untitled)		24	687	120	687	3	2475	0.09	0.00	0.06	2.17
	22	1	(untitled)		1176	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	16.76
	23	1	(untitled)		730	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	7.28
	24	1	(untitled)		461	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	17.77
	25	1	(untitled)		812	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	22.07
	26	1	(untitled)		3	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	13.08
	27	1	(untitled)		784	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.94
	29	1	(untitled)		662	2005	120	1786	37	143	1.54	3.16	51.50	5.77
	30	1	(untitled)		359	1256	120	1256	29	215	5.59	2.06	102.77	7.23
	31	1	(untitled)		129	1268	120	1268	10	785	1.21	0.87	43.38	3.27
	32	1	(untitled)		43	1191	120	1191	4	2392	18.69	1.15	57.71	20.76
	33	1	(untitled)		42	1155	120	1155	4	2376	26.01	1.27	63.54	28.05

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	110	34	44	1	7
	2	✓	2	C,E	41	56	15	1	4
	3	✓	3	C,D	59	101	42	1	7

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
3	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2025	100	100
4	1	✓	21.31	CTM	0.00	Normal	✓			Sum of lanes	2055	100	100
5	1	✓	61.00	Flare	0.00	Normal	✓	✓		Sum of lanes	1924	100	100
6	1	✓	60.18	Flare	0.00	Normal	✓	✓		Sum of lanes	2060	100	100
7	1	✓	61.65	CTM	0.00	Normal	✓			Sum of lanes	2117	100	100
8	1	✓	22.00	Flare	4.00	Normal	✓	✓		Sum of lanes	2070	100	100
9	1	✓	36.65	Flare	6.00	Normal			✓			100	100
10	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1974	100	100
11	1	✓	43.05	Flare	8.00	Normal	✓	✓		Sum of lanes	1825	100	100
12	1	✓	43.48	Flare	8.00	Normal	✓	✓		Sum of lanes	1873	100	100
13	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1880	100	100
14	1	✓	52.68	Flare	9.00	Normal	✓	✓		Sum of lanes	1717	100	100
15	1	✓	52.56	Flare	0.00	Normal	✓	✓		Sum of lanes	1854	100	100
16	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2015	100	100
17	1	✓	43.77	Flare	6.00	Normal	✓	✓		Sum of lanes	1839	100	100
18	1	✓	43.14	Flare	7.00	Normal	✓	✓		Sum of lanes	1983	100	100
19	1	✓	70.66	CTM	0.00	Normal	✓			Sum of lanes	1800	100	100
20	1	✓	8.03	Flare	1.00	Normal	✓	✓		Sum of lanes	2055	100	100
21	1	✓	17.28	NetworkDefault	1.00	Normal			✓			100	100
22	1	✓	139.64	NetworkDefault	0.00	Normal						100	100
23	1	✓	60.64	NetworkDefault	0.00	Normal						100	100
24	1	✓	148.12	NetworkDefault	0.00	Normal						100	100
25	1	✓	183.95	NetworkDefault	0.00	Normal						100	100
26	1	✓	109.00	NetworkDefault	0.00	Normal						100	100
27	1	✓	107.80	NetworkDefault	0.00	Normal						100	100
29	1	✓	35.23	CTM	0.00	Normal	✓			Sum of lanes	2005	100	100
30	1	✓	13.67	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
31	1	✓	17.15	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
32	1	✓	17.25	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
33	1	✓	16.97	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:45-08:45	3	1	50	79	1019	2025	120	0.90	0.25	1.46	3.61	0.00	3.61
	4	1	29	212	546	2055	120	0.71	1.51	40.68	1.54	0.34	1.87
	5	1	19	374	129	1924	42	27.25	2.94	27.71	13.87	1.09	14.96
	6	1	56	59	417	2060	42	34.67	10.49	100.23	57.03	3.95	60.97
	7	1	38	135	473	2117	120	14.46	8.08	75.34	26.97	3.03	30.00
	8	1	56	59	419	2070	42	21.29	4.36	109.11	35.18	1.73	36.91
	9	1	10	824	54	554	120	0.35	0.01	0.09	0.07	0.00	0.07
	10	1	53	68	649	1974	120	13.96	12.57	72.25	35.74	4.50	40.24
	11	1	89	2	606	1825	44	41.45	10.85	135.61	99.09	4.04	103.13
	12	1	6	1369	43	1873	44	20.31	1.54	19.19	3.45	0.21	3.65
	13	1	43	111	568	1880	120	7.67	7.89	45.36	17.19	2.81	19.99
	14	1	82	10	526	1717	44	39.07	10.29	114.31	81.07	3.85	84.92
	15	1	6	1389	42	1854	44	22.83	1.45	15.87	3.78	0.26	4.04
	16	1	50	81	1000	2015	120	0.88	0.24	1.40	3.47	0.00	3.47
	17	1	52	74	359	1839	60	20.73	5.99	99.77	29.36	2.67	32.03
	18	1	30	199	303	1983	60	17.45	4.88	69.78	20.86	1.84	22.70
	19	1	32	177	338	1800	120	13.68	5.34	43.44	18.25	2.01	20.25
	20	1	30	199	314	2055	60	5.92	1.06	106.45	7.33	0.37	7.70
	21	1	3	2475	24	687	120	0.09	0.00	0.06	0.01	0.00	0.01
	22	1	0	Unrestricted	1176	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	0	Unrestricted	730	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	0	Unrestricted	461	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	0	Unrestricted	812	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	0	Unrestricted	3	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	0	Unrestricted	784	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	37	143	662	2005	120	1.54	3.16	51.50	4.02	1.06	5.08
	30	1	29	215	359	1256	120	5.59	2.06	102.77	7.92	1.67	9.58
	31	1	10	785	129	1268	120	1.21	0.87	43.38	0.62	0.61	1.23
	32	1	4	2392	43	1191	120	18.69	1.15	57.71	3.17	0.49	3.66
	33	1	4	2376	42	1155	120	26.01	1.27	63.54	4.31	0.51	4.82

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
07:45-08:45	3	1	1019	1019	0		2025	2025	50		79	0.00	120
	4	1	546	546	0		2055	1895	29		212	0.00	120
	5	1	129	129	0		1924	680	19		374	0.09	42
	6	1	417	417	0		2060	738	56		59	0.09	42
	7	1	473	473	0		2117	1237	38		135	0.00	120
	8	1	419	419	0		2070	742	56		59	0.81	42
	9	1	54	54	0		554	554	10		824	0.82	120
	10	1	649	649	0		1974	1213	53		68	0.00	120
	11	1	606	606	0		1825	684	89		2	0.69	44
	12	1	43	43	0		1873	702	6		1369	0.69	44
	13	1	568	568	0		1880	1334	43		111	0.00	120
	14	1	526	526	0		1717	644	82		10	0.51	44
	15	1	42	42	0		1854	695	6		1389	0.51	44
	16	1	1000	1000	0		2015	2015	50		81	0.00	120
	17	1	359	359	0		1839	695	52		74	0.20	60
	18	1	303	303	0		1983	1008	30		199	0.20	60
	19	1	338	338	0		1800	1042	32		177	0.00	120
	20	1	314	314	0		2055	1045	30		199	0.83	60
	21	1	24	24	0		687	687	3		2475	0.82	120
	22	1	1176	1176	0		Unrestricted	Unrestricted	0		Unrestricted	0.68	120
	23	1	730	730	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120
	24	1	461	461	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	120
	25	1	812	812	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	120
	26	1	3	3	0		Unrestricted	Unrestricted	0		Unrestricted	1.63	120
	27	1	784	784	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	120
	29	1	662	662	0		2005	1786	37		143	0.00	120
	30	1	359	359	0		1256	1256	29		215	1.11	120
	31	1	129	129	0		1268	1268	10		785	1.36	120
	32	1	43	43	0		1191	1191	4		2392	1.37	120
	33	1	42	42	0		1155	1155	4		2376	1.39	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:45-08:45	3	1	12.00	0.90	0.25	3.61	0.00	0.00	0.00
	4	1	2.56	0.71	0.11	1.54	4.94	26.96	0.34
	5	1	7.32	27.25	0.98	13.87	67.64	87.25	1.09
	6	1	7.22	34.67	4.02	57.03	75.45	314.63	3.95
	7	1	7.40	14.46	1.90	26.97	51.16	241.98	3.03
	8	1	2.64	21.29	2.48	35.18	32.92	137.94	1.73
	9	1	4.40	0.35	0.01	0.07	0.00	0.00	0.00
	10	1	12.00	13.96	2.52	35.74	55.35	359.21	4.50
	11	1	5.17	41.45	6.98	99.09	53.13	321.98	4.04
	12	1	5.22	20.31	0.24	3.45	38.47	16.54	0.21
	13	1	12.00	7.67	1.21	17.19	39.39	223.73	2.81
	14	1	6.32	39.07	5.71	81.07	58.43	307.36	3.85
	15	1	6.31	22.83	0.27	3.78	48.85	20.52	0.26
	16	1	12.00	0.88	0.24	3.47	0.00	0.00	0.00
	17	1	5.25	20.73	2.07	29.36	59.35	213.08	2.67
	18	1	5.18	17.45	1.47	20.86	48.36	146.54	1.84
	19	1	8.48	13.68	1.28	18.25	47.39	160.16	2.01
	20	1	1.00	5.92	0.52	7.33	10.17	31.93	0.37
	21	1	2.07	0.09	0.00	0.01	0.00	0.00	0.00
	22	1	16.76	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	7.28	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	17.77	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	22.07	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	13.08	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	12.94	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	4.23	1.54	0.28	4.02	12.79	84.66	1.06
	30	1	1.64	5.59	0.56	7.92	37.06	133.05	1.67
	31	1	2.06	1.21	0.04	0.62	37.69	48.62	0.61
	32	1	2.07	18.69	0.22	3.17	91.11	39.18	0.49
	33	1	2.04	26.01	0.30	4.31	96.92	40.71	0.51

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
07:45-08:45	3	1	0.00	0.25	17.39	1.46	0.00	0.00	
	4	1	0.00	1.51	3.71	40.68	0.00	9.33	
	5	1	0.00	2.94	10.61	27.71	0.00	6.59	
	6	1	0.00	10.49	10.47	100.23	0.00	0.00	
	7	1	0.00	8.08	10.72	75.34	0.00	50.00	
	8	1	0.00	4.36	4.00	109.11	0.00	0.00	
	9	1	0.00	0.01	6.00	0.09	0.00	103.00	
	10	1	0.00	12.57	17.39	72.25	0.00	46.24	
	11	1	0.00	10.85	8.00	135.61	0.00	0.00	
	12	1	0.00	1.54	8.00	19.19	0.00	20.04	
	13	1	0.00	7.89	17.39	45.36	0.00	34.83	
	14	1	0.00	10.29	9.00	114.31	0.00	0.00	
	15	1	0.00	1.45	9.14	15.87	0.00	27.03	
	16	1	0.00	0.24	17.39	1.40	0.00	0.00	
	17	1	0.00	5.99	6.00	99.77	0.00	15.67	
	18	1	0.00	4.88	7.00	69.78	0.00	0.00	
	19	1	0.00	5.34	12.29	43.44	0.00	50.56	
	20	1	0.00	1.06	1.00	106.45	0.00	0.00	
	21	1	0.00	0.00	1.00	0.06	0.00	107.00	
	22	1	0.00	0.00	48.57	0.00	0.00	9.00	
	23	1	0.00	0.00	10.55	0.00	0.00	21.00	
	24	1	0.00	0.00	25.76	0.00	0.00	0.00	
	25	1	0.00	0.00	63.98	0.00	0.00	0.00	
	26	1	0.00	0.00	18.96	0.00	0.00	120.00	
	27	1	0.00	0.00	18.75	0.00	0.00	0.00	
	29	1	0.00	3.16	6.13	51.50	0.00	13.11	
	30	1	0.00	2.06	2.00	102.77	0.00	57.00	
	31	1	0.00	0.87	2.00	43.38	0.00	83.00	
	32	1	0.00	1.15	2.00	57.71	0.00	80.00	
	33	1	0.00	1.27	2.00	63.54	0.00	76.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
07:45-08:45	4	1	✓	CTM flare: 4/1,6/1,5/1	65	14.94	844	39
	10	1	✓	CTM flare: 10/1,11/1,12/1	92	24.95	707	-2
	13	1	✓	CTM flare: 13/1,14/1,15/1	85	19.63	671	6
	29	1	✓	CTM flare: 29/1,18/1,17/1	77	14.03	861	17

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
07:45-08:45	3	1	0.00	0.00	✓	0.00	0.25			1.00	0.00	3.61
	4	1	0.00	0.00	✓	0.00	1.51			1.00	0.00	1.87
	5	1	0.00	0.00	✓	0.00	2.94	0.02	2.82	1.00	0.00	14.96
	6	1	0.00	0.00	✓	0.00	10.49	0.37	9.98	1.00	0.00	60.97
	7	1	0.00	0.00	✓	0.00	8.08			1.00	0.00	30.00
	8	1	0.00	0.00	✓	0.00	4.37	0.37	4.37	1.00	0.00	36.91
	9	1	0.00	0.00	✓	0.00	0.01			1.00	0.00	0.07
	10	1	0.00	0.00	✓	0.00	12.57			1.00	0.00	40.24
	11	1	0.00	0.00	✓	0.00	10.99	3.25	10.99	1.00	0.00	103.13
	12	1	0.00	0.00	✓	0.00	1.54	0.00	0.55	1.00	0.00	3.65
	13	1	0.00	0.00	✓	0.00	7.89			1.00	0.00	19.99
	14	1	0.00	0.00	✓	0.00	10.32	1.78	10.32	1.00	0.00	84.92
	15	1	0.00	0.00	✓	0.00	1.45	0.00	0.68	1.00	0.00	4.04
	16	1	0.00	0.00	✓	0.00	0.24			1.00	0.00	3.47
	17	1	0.00	0.00	✓	0.00	5.99	0.28	5.99	1.00	0.00	32.03
	18	1	0.00	0.00	✓	0.00	4.88	0.06	4.88	1.00	0.00	22.70
	19	1	0.00	0.00	✓	0.00	5.34			1.00	0.00	20.25
	20	1	0.00	0.00	✓	0.00	1.06	0.06	1.06	1.00	0.00	7.70
	21	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.01
	22	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	23	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	24	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	25	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	26	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	27	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	29	1	0.00	0.00	✓	0.00	3.16			1.00	0.00	5.08
	30	1	0.00	0.00	✓	0.00	2.06			1.00	0.00	9.58
	31	1	0.00	0.00	✓	0.00	0.87			1.00	0.00	1.23
	32	1	0.00	0.00	✓	0.00	1.15			1.00	0.00	3.66
	33	1	0.00	0.00	✓	0.00	1.27			1.00	0.00	4.82

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
5	24/09/2018 10:43:17	24/09/2018 10:43:17	07:45	120	514.91	33.65	88.55	11/1	0	0	11/1	10/1	11/1

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
07:45-08:45	89	2	13030	2882	9.30	477.88	37.04	514.91

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s per cycle)
07:45-08:45	13030	13030	0		89		2	2882

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
07:45-08:45	9.81	9.30	33.65	477.88	22.69	2956.02	37.04

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
07:45-08:45	135.61	0.00	929.41

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
07:45-08:45	0.00	0.00	✓	0.00	1.00	0.00	0.00	514.91

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To				
	1	2	3	4	5
From	1	0.0	55.0	0.0	63.7
	2	93.6	0.0	0.0	87.1
	3	0.0	0.0	0.0	0.0
	4	75.1	71.8	0.0	52.4
	5	89.3	90.4	85.3	94.3

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
4	2	3	0	0.00	0	0.00
6	2	4	155	87.14	155	87.14
7	4	1	417	74.82	417	74.82
8	5	1	298	89.34	298	89.34
9	5	2	308	90.36	308	90.36
13	2	5	371	85.28	371	85.28
17	4	1	419	75.43	419	75.43
18	4	2	129	71.79	129	71.79
19	4	3	0	0.00	0	0.00
21	1	4	303	63.35	303	63.35
25	1	5	359	72.08	359	72.08
26	2	1	42	93.61	42	93.61
27	5	4	40	94.33	40	94.33
28	5	3	3	85.33	3	85.33
29	4	5	0	0.00	0	0.00
30	4	5	54	52.44	54	52.44
31	1	4	314	64.03	314	64.03
32	1	3	0	0.00	0	0.00
33	1	2	24	54.99	24	54.99

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
3	1	(untitled)					1019	2025	120	0.00	50	79	12.90	0.90	0.00	
4	1	(untitled)					546	2055	120	9.33	29	212	3.27	0.71	4.94	
5	1	(untitled)	1	1	D		129	1924	42	6.59	19	374	34.57	27.25	67.64	
6	1	(untitled)	1	1	D		417 <	2060	42	0.00	56	59	41.89	34.67	75.45	1
7	1	(untitled)					473	2117	120	50.00	38	135	21.85	14.46	51.16	
8	1	(untitled)	1	1	D		419 <	2070	42	0.00	56	59	23.92	21.29	32.92	
9	1	(untitled)					54	554	120	103.00	10	824	4.75	0.35	0.00	
10	1	(untitled)					649	1974	120	46.24	53	68	25.96	13.96	55.35	
11	1	(untitled)	1	1	A		606 <	1825	44	0.00	89	2	46.62	41.45	53.13	1
12	1	(untitled)	1	1	A		43	1873	44	20.04	6	1369	25.53	20.31	38.47	
13	1	(untitled)					568	1880	120	34.83	43	111	19.67	7.67	39.39	
14	1	(untitled)	1	1	B		526 <	1717	44	0.00	82	10	45.40	39.07	58.43	1
15	1	(untitled)	1	1	B		42	1854	44	27.03	6	1389	29.14	22.83	48.85	
16	1	(untitled)					1000	2015	120	0.00	50	81	12.88	0.88	0.00	
17	1	(untitled)	1	1	C	E	359	1839	60	15.67	52	74	25.99	20.73	59.35	
18	1	(untitled)	1	1	C		303	1983	60	0.00	30	199	22.63	17.45	48.36	
19	1	(untitled)					338	1800	120	50.56	32	177	22.16	13.68	47.39	
20	1	(untitled)	1	1	C		314 <	2055	60	0.00	30	199	6.92	5.92	10.17	
21	1	(untitled)					24	687	120	107.00	3	2475	2.17	0.09	0.00	
22	1	(untitled)					1176	Unrestricted	120	9.00	0	Unrestricted	16.76	0.00	0.00	
23	1	(untitled)					730	Unrestricted	120	21.00	0	Unrestricted	7.28	0.00	0.00	
24	1	(untitled)					461	Unrestricted	120	0.00	0	Unrestricted	17.77	0.00	0.00	
25	1	(untitled)					812	Unrestricted	120	0.00	0	Unrestricted	22.07	0.00	0.00	
26	1	(untitled)					3	Unrestricted	120	120.00	0	Unrestricted	13.08	0.00	0.00	
27	1	(untitled)					784	Unrestricted	120	0.00	0	Unrestricted	12.94	0.00	0.00	
29	1	(untitled)					662	2005	120	13.11	37	143	5.77	1.54	12.79	
30	1	(untitled)	1				359 <	1256	120	57.00	29	215	7.23	5.59	37.06	
31	1	(untitled)	1				129	1268	120	83.00	10	785	3.27	1.21	37.69	
32	1	(untitled)	1				43	1191	120	80.00	4	2392	20.76	18.69	91.11	
33	1	(untitled)	1				42	1155	120	76.00	4	2376	28.05	26.01	96.92	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1064.92	69.15	9.57	33.65	477.88	37.04	0.00	514.91
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1064.92	69.15	9.57	33.65	477.88	37.04	0.00	514.91

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX

A6 - PM Peak Hour 2023 with Dev. D6 - PM Peak Hour 2023 with Dev*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Arm Data	Arm 3	No traffic node specified for arm(s): 3, 4, 7, 9, 10, 13, 16, 19, 21, 23, 29

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
6	24/09/2018 10:43:17	24/09/2018 10:43:18	17:30	120	516.50	33.67	84.07	11/1	0	0	11/1	10/1	11/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
PM Peak Hour 2023 with Dev.		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
PM Peak Hour 2023 with Dev				17:30	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient
Default	35

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Bus	1.00	70	15	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion coefficient1	Dispersion coefficient2	Acceleration (ms ^[-2])	Travel time coefficient1	Travel time coefficient2
Tram	1.00	0	0	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓		Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
3	(untitled)		
4	(untitled)		
5	(untitled)		1
6	(untitled)		1
7	(untitled)		
8	(untitled)		1
9	(untitled)		
10	(untitled)		
11	(untitled)		1
12	(untitled)		1
13	(untitled)		
14	(untitled)		1
15	(untitled)		1
16	(untitled)		
17	(untitled)		1
18	(untitled)		1
19	(untitled)		
20	(untitled)		1
21	(untitled)		
22	(untitled)		
23	(untitled)		
24	(untitled)		
25	(untitled)		
26	(untitled)		
27	(untitled)		
29	(untitled)		
30	(untitled)		1
31	(untitled)		1
32	(untitled)		1
33	(untitled)		1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
3	1	(untitled)			100.00	✓	Sum of lanes	2025					Normal	
4	1	(untitled)		✓	21.31	✓	Sum of lanes	2055	✓	1800			Normal	
5	1	(untitled)		✓	61.00	✓	Sum of lanes	1924	✓	1800	✓		Normal	
6	1	(untitled)		✓	60.18	✓	Sum of lanes	2060	✓	1800	✓		Normal	
7	1	(untitled)		✓	61.65	✓	Sum of lanes	2112	✓	1800			Normal	
8	1	(untitled)		✓	22.00	✓	Sum of lanes	2070			✓		Normal	
9	1	(untitled)		✓	36.65				✓	1800		✓	Normal	
10	1	(untitled)			100.00	✓	Sum of lanes	1974					Normal	
11	1	(untitled)		✓	43.05	✓	Sum of lanes	1818	✓	1800	✓		Normal	
12	1	(untitled)		✓	43.48	✓	Sum of lanes	1873	✓	1800	✓		Normal	
13	1	(untitled)			100.00	✓	Sum of lanes	1880					Normal	
14	1	(untitled)		✓	52.68	✓	Sum of lanes	1678	✓	1800	✓		Normal	
15	1	(untitled)		✓	52.56	✓	Sum of lanes	1854	✓	1800	✓		Normal	
16	1	(untitled)			100.00	✓	Sum of lanes	2015					Normal	
17	1	(untitled)		✓	43.77	✓	Sum of lanes	1839	✓	1800	✓		Normal	
18	1	(untitled)		✓	43.14	✓	Sum of lanes	1983	✓	1800	✓		Normal	
19	1	(untitled)		✓	70.66	✓	Sum of lanes	1800	✓	1800			Normal	
20	1	(untitled)		✓	8.03	✓	Sum of lanes	2054			✓		Normal	
21	1	(untitled)		✓	17.28							✓	Normal	
22	1	(untitled)		✓	139.64								Normal	
23	1	(untitled)		✓	60.64								Normal	
24	1	(untitled)		✓	148.12								Normal	
25	1	(untitled)		✓	183.95								Normal	
26	1	(untitled)		✓	109.00								Normal	
27	1	(untitled)		✓	107.80								Normal	
29	1	(untitled)		✓	35.23	✓	Sum of lanes	2005	✓	1800			Normal	
30	1	(untitled)		✓	13.67	✓	Sum of lanes	1800				✓	Normal	
31	1	(untitled)		✓	17.15	✓	Sum of lanes	1800				✓	Normal	
32	1	(untitled)		✓	17.25	✓	Sum of lanes	1800				✓	Normal	
33	1	(untitled)		✓	16.97	✓	Sum of lanes	1800				✓	Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
3	1	1	(untitled)		✓	N/A	N/A	0	4.10	✓	0	99999.00	✓	2025
4	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
5	1	1	(untitled)		✓	N/A	N/A	0	3.09	✓	0	99999.00	✓	1924
6	1	1	(untitled)		✓	N/A	N/A	0	3.05	✓	0	99999.00		2060
7	1	1	(untitled)		✓	N/A	N/A	0	4.20	✓	12	6.00		2112
8	1	1	(untitled)		✓	N/A	N/A	0	3.15	✓	0	6.00		2070
9	1	1	(untitled)											
10	1	1	(untitled)		✓	N/A	N/A	0	4.23	✓	100	46.29	✓	1974
11	1	1	(untitled)		✓	N/A	N/A	0	2.53	✓	57	30.97	✓	1818
12	1	1	(untitled)		✓	N/A	N/A	0	2.58	✓	0	99999.00	✓	1873
13	1	1	(untitled)		✓	N/A	N/A	0	2.65	✓	0	99999.00	✓	1880
14	1	1	(untitled)		✓	N/A	N/A	0	2.27	✓	39	6.00	✓	1678
15	1	1	(untitled)		✓	N/A	N/A	0	2.39	✓	0	99999.00	✓	1854
16	1	1	(untitled)		✓	N/A	N/A	0	4.00	✓	0	99999.00	✓	2015
17	1	1	(untitled)		✓	N/A	N/A	0	2.24	✓	0	99999.00	✓	1839
18	1	1	(untitled)		✓	N/A	N/A	0	2.28	✓	0	99999.00		1983
19	1	1	(untitled)											1800
20	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	2	80.03		2054
21	1	1	(untitled)											
22	1	1	(untitled)											
		2	(untitled)											
23	1	1	(untitled)											
24	1	1	(untitled)											
25	1	1	(untitled)											
		2	(untitled)											
26	1	1	(untitled)											
27	1	1	(untitled)											
29	1	1	(untitled)		✓	N/A	N/A	0	2.50	✓	0	99999.00		2005
30	1	1	(untitled)											1800
31	1	1	(untitled)											1800
32	1	1	(untitled)											1800
33	1	1	(untitled)											1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
3	1	NetworkDefault	100	100	100		0.00		
4	1	CTM	100	100	100		0.00		
5	1	Flare	100	100	100		0.00		
6	1	Flare	100	100	100		0.00		
7	1	CTM	100	100	100		0.00		
8	1	Flare	100	100	100		4.00		
9	1	Flare	100	100	100		6.00		
10	1	NetworkDefault	100	100	100		0.00		
11	1	Flare	100	100	100		8.00		
12	1	Flare	100	100	100		8.00		
13	1	NetworkDefault	100	100	100		0.00		
14	1	Flare	100	100	100		9.00		
15	1	Flare	100	100	100		0.00		
16	1	NetworkDefault	100	100	100		0.00		
17	1	Flare	100	100	100		6.00		
18	1	Flare	100	100	100		7.00		
19	1	CTM	100	100	100		0.00		
20	1	Flare	100	100	100		1.00		
21	1	NetworkDefault	100	100	100		1.00		
22	1	NetworkDefault	100	100	100		0.00		
23	1	NetworkDefault	100	100	100		0.00		
24	1	NetworkDefault	100	100	100		0.00		
25	1	NetworkDefault	100	100	100		0.00		
26	1	NetworkDefault	100	100	100		0.00		
27	1	NetworkDefault	100	100	100		0.00		
29	1	CTM	100	100	100		0.00		
30	1	Flare	100	100	100		2.00		
31	1	Flare	100	100	100		2.00		
32	1	Flare	100	100	100		2.00		
33	1	Flare	100	100	100		2.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
3	1	1086	1086
4	1	582	582
5	1	141	141
6	1	441	441
7	1	504	504
8	1	443	443
9	1	61	61
10	1	743	743
11	1	675	675
12	1	68	68
13	1	550	550
14	1	496	496
15	1	54	54
16	1	908	908
17	1	276	276
18	1	301	301
19	1	331	331
20	1	312	312
21	1	19	19
22	1	1323	1323
23	1	579	579
24	1	449	449
25	1	862	862
26	1	13	13
27	1	640	640
29	1	577	577
30	1	276	276
31	1	141	141
32	1	68	68
33	1	54	54

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
5	1	1	D		
6	1	1	D		
8	1	1	D		
11	1	1	A		
12	1	1	A		
14	1	1	B		
15	1	1	B		
17	1	1	C	✓	E
18	1	1	C		
20	1	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)
(ALL)	1	12.00	18.64

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (mph)	Auto turning radius	Traffic turn style	Turning radius (m)
4	1	1	3/1	4/1	2.56	18.64	✓	Straight	Straight Movement
5	1	1	4/1	5/1	7.32	18.64	✓	Straight	Straight Movement
6	1	1	4/1	6/1	7.22	18.64	✓	Straight	Straight Movement
7	1	1	3/1	7/1	7.40	18.64	✓	Straight	Straight Movement
8	1	1	7/1	8/1	2.64	18.64	✓	Straight	Straight Movement
9	1	1	7/1	9/1	4.40	18.64	✓	Nearside	6.00
11	1	1	10/1	11/1	5.17	18.64	✓	Nearside	58.13
12	1	1	10/1	12/1	5.22	18.64	✓	Nearside	46.29
14	1	1	13/1	14/1	6.32	18.64	✓	Straight	Straight Movement
15	1	1	13/1	15/1	6.31	18.64	✓	Straight	Straight Movement
17	1	1	29/1	17/1	5.25	18.64	✓	Straight	Straight Movement
18	1	1	29/1	18/1	5.18	18.64	✓	Straight	Straight Movement
19	1	1	16/1	19/1	8.48	18.64	✓	Straight	Straight Movement
20	1	1	19/1	20/1	1.00	18.64	✓	Straight	Straight Movement
21	1	1	19/1	21/1	2.07	18.64	✓	Nearside	16.99
22	1	1	11/1	22/1	16.76	18.64	✓	Nearside	30.97
23	1	1	8/1	23/1	7.28	18.64	✓	Nearside	6.00
24	1	1	11/1	24/1	17.77	18.64	✓	Straight	Straight Movement
25	1	1	20/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	1	20/1	26/1	13.08	18.64	✓	Nearside	80.03
27	1	1	23/1	27/1	12.94	18.64	✓	Offside	74.09
29	1	1	16/1	29/1	4.23	18.64	✓	Straight	Straight Movement
30	1	1	17/1	30/1	1.64	18.64	✓	Straight	Straight Movement
31	1	1	5/1	31/1	2.06	18.64	✓	Straight	Straight Movement
32	1	1	12/1	32/1	2.07	18.64	✓	Straight	Straight Movement
33	1	1	15/1	33/1	2.04	18.64	✓	Straight	Straight Movement
22	1	2	8/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	2	14/1	23/1	7.28	18.64	✓	Straight	Straight Movement
24	1	2	21/1	24/1	17.77	18.64	✓	Nearside	11.52
25	1	2	18/1	25/1	22.07	18.64	✓	Straight	Straight Movement
26	1	2	14/1	26/1	13.08	18.64	✓	Nearside	6.00
27	1	2	9/1	27/1	12.94	18.64	✓	Nearside	17.86
22	1	3	6/1	22/1	16.76	18.64	✓	Straight	Straight Movement
23	1	3	30/1	23/1	7.28	18.64	✓	Offside	23.55
24	1	3	31/1	24/1	17.77	18.64	✓	Offside	17.01
25	1	3	14/1	25/1	22.07	18.64	✓	Nearside	22.17
26	1	3	31/1	26/1	13.08	18.64	✓	Offside	6.00
22	1	4	33/1	22/1	16.76	18.64	✓	Offside	9.51
25	1	4	32/1	25/1	22.07	18.64	✓	Offside	6.00
26	1	4	32/1	26/1	13.08	18.64	✓	Offside	6.00

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Number of storage spaces	Use connector turning radius	Radius of turn (m)	Visibility restricted
9	1	Movement					
21	1	Movement					
30	1	Movement	✓	0	✓	23.55	
31	1	Movement	✓	0	✓	6.00	
32	1	Movement	✓	0	✓	6.00	
33	1	Movement	✓	0	✓	9.51	

Give Way Data - Movements

Arm	Traffic Stream	Movement	Destination traffic stream	Max Flow (Opposed) (PCU/hr)	Max Flow (Unopposed) (PCU/hr)	Max congested capacity (PCU/hr)	Percentage opposed (%)
9	1	1	27/1	715	715	0	100
21	1	1	24/1	715	715		100
30	1	1	23/1		1800		100
31	1	1	24/1		1800		100
		2	26/1		1800		100
32	1	1	25/1		1800		100
		2	26/1		1800		100
33	1	1	22/1		1800		100

Give Way Data - Movements - Conflicts

Arm	Traffic Stream	Movement	Destination traffic stream	Description	Controlling type	Controlling traffic stream	Controlling from traffic stream	Controlling to traffic stream	Percentage opposing (%)	Slope coefficient	Upstream signals visible	Conflict shift
9	1	1	27/1	23/1	TrafficStream	23/1			100	0.22		0
21	1	1	24/1		TrafficStreamMovement		31/1	24/1	100	0.22		0
30	1	1	23/1		TrafficStreamMovement		8/1	22/1	100			0
					TrafficStreamMovement		6/1	22/1	100			0
31	1	1	24/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
		2	26/1		TrafficStreamMovement		20/1	25/1	100			0
					TrafficStreamMovement		18/1	25/1	100			0
					TrafficStreamMovement		20/1	26/1	100			0
32	1	1	25/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
		2	26/1		TrafficStreamMovement		14/1	23/1	100			0
					TrafficStreamMovement		14/1	25/1	100			0
					TrafficStreamMovement		14/1	26/1	100			0
					TrafficStreamMovement		11/1	24/1	100			0
33	1	1	22/1		TrafficStreamMovement		11/1	22/1	100			0
					TrafficStreamMovement		11/1	22/1	100			0

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Lane Balancing			✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To					
		1	2	3	4	5
From	1	0	19	5	608	276
	2	54	0	6	187	303
	3	0	0	0	0	0
	4	884	140	1	0	61
	5	385	290	1	67	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	16/1	22/1	#FF0000
	2	(untitled)	13/1	24/1	#00FF00
	3	(untitled)		26/1	#FFFF00
	4	(untitled)	3/1	25/1	#00FFFF
	5	(untitled)	10/1	27/1	#FF00FF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	4		2	3	13/1, 14/1, 26/1	Normal	6
	6		2	4	13/1, 14/1, 25/1	Normal	187
	7		4	1	3/1, 4/1, 6/1, 22/1	Normal	441
	8		5	1	10/1, 11/1, 22/1	Normal	385
	9		5	2	10/1, 11/1, 24/1	Normal	290
	13		2	5	13/1, 14/1, 23/1, 27/1	Normal	303
	17		4	1	3/1, 7/1, 8/1, 22/1	Normal	443
	18		4	2	3/1, 4/1, 5/1, 31/1, 24/1	Normal	140
	19		4	3	3/1, 4/1, 5/1, 31/1, 26/1	Normal	1
	21		1	4	16/1, 29/1, 18/1, 25/1	Normal	301
	25		1	5	16/1, 29/1, 17/1, 30/1, 23/1, 27/1	Normal	276
	26		2	1	13/1, 15/1, 33/1, 22/1	Normal	54
	27		5	4	10/1, 12/1, 32/1, 25/1	Normal	67
	28		5	3	10/1, 12/1, 32/1, 26/1	Normal	1
	29		4	5	3/1, 7/1, 8/1, 23/1, 27/1	Normal	0
	30		4	5	3/1, 7/1, 9/1, 27/1	Normal	61
	31		1	4	16/1, 19/1, 20/1, 25/1	Normal	307
	32		1	3	16/1, 19/1, 20/1, 26/1	Normal	5
	33		1	2	16/1, 19/1, 21/1, 24/1	Normal	19

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits		

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	7	300	0	0	Traffic
	B	(untitled)	7	300	0	0	Traffic
	C	(untitled)	7	300	0	0	Traffic
	D	(untitled)	7	300	0	0	Traffic
	E	(untitled)	4	300	0	0	Indicative arrow

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C, E	1
	3	C, D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	36, 55, 95

Intergreen Matrix for Controller Stream 1

		To					
From		A	B	C	D	E	
	A			7	7	7	
	B			7	7	7	
	C	9	9				
	D	9	9			9	
	E	7	7		3		

Banned Stage transitions for Controller Stream 1

		To			
From		1	2	3	
	1				
	2				
	3				

Interstage Matrix for Controller Stream 1

		To			
From		1	2	3	
	1	0	7	7	
	2	9	0	3	
	3	9	9	0	

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	104	36	52	1	7
	2	✓	2	C,E	43	55	12	1	4
	3	✓	3	C,D	58	95	37	1	7

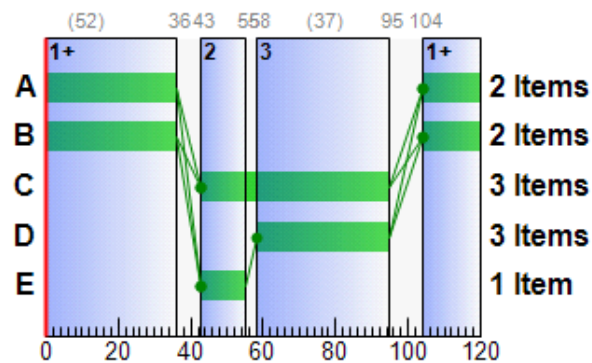
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	104	36	52
	B	1	✓	104	36	52
	C	1	✓	43	95	52
	D	1	✓	58	95	37
	E	1	✓	43	55	12

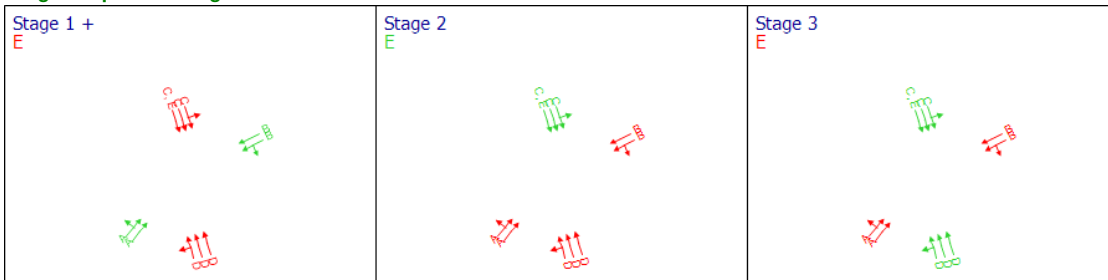
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
5	1	1	1	D	58	95	37
6	1	1	1	D	58	95	37
8	1	1	1	D	58	95	37
11	1	1	1	A	104	36	52
12	1	1	1	A	104	36	52
14	1	1	1	B	104	36	52
15	1	1	1	B	104	36	52
17	1	1	1	C	43	95	52
18	1	1	1	C	43	95	52
20	1	1	1	C	43	95	52

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:30-18:30	1	0.00	0.00	0.00	0.00

Results - Link

Results - Traffic Stream

Results - Traffic Stream: Vehicle summary

Time Segment	Arm	Traffic Stream	Name	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Calculated capacity (PCU/hr)	Degree of saturation (%)	Practical reserve capacity (%)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	JourneyTime (s)
17:30-18:30	3	1	(untitled)		1086	2025	120	1947	56	61	1.28	3.07	17.63	13.28
	4	1	(untitled)		582	2055	120	1722	34	166	2.28	2.98	80.54	4.84
	5	1	(untitled)	D	141	1924	37	573	25	266	31.60	3.28	30.94	38.92
	6	1	(untitled)	D	441	2060	37	652	68	33	40.61	10.84	103.58	47.83
	7	1	(untitled)		504	2112	120	1112	45	99	19.26	9.78	91.21	26.66
	8	1	(untitled)	D	443	2070	37	656	68	33	24.43	4.70	117.39	27.07
	9	1	(untitled)		61	588	120	588	10	767	0.35	0.01	0.10	4.75
	10	1	(untitled)		743	1974	120	1285	58	56	13.08	14.22	81.78	25.08
	11	1	(untitled)	A	675	1818	52	803	84	7	30.01	9.86	123.27	35.18
	12	1	(untitled)	A	68	1873	52	827	8	994	16.43	1.54	19.21	21.65
	13	1	(untitled)		550	1880	120	1522	36	149	3.43	4.99	28.70	15.43
	14	1	(untitled)	B	496	1678	52	741	67	34	28.65	9.21	102.35	34.97
	15	1	(untitled)	B	54	1854	52	818	7	1264	19.25	1.45	15.88	25.55
	16	1	(untitled)		908	2015	120	2015	45	100	0.73	0.18	1.06	12.73
	17	1	(untitled)	C	276	1839	52	651	42	112	24.40	5.86	97.64	29.65
	18	1	(untitled)	C	301	1983	52	876	34	162	23.33	6.31	90.13	28.50
	19	1	(untitled)		331	1800	120	918	36	150	18.34	6.20	50.47	26.82
	20	1	(untitled)	C	312	2054	52	907	34	162	7.01	1.09	109.00	8.01
	21	1	(untitled)		19	684	120	684	3	3141	0.08	0.00	0.04	2.15
	22	1	(untitled)		1323	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	16.76
	23	1	(untitled)		579	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	7.28
	24	1	(untitled)		449	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	17.77
	25	1	(untitled)		862	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	22.07
	26	1	(untitled)		13	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	13.08
	27	1	(untitled)		640	Unrestricted	120	Unrestricted	0	Unrestricted	0.00	0.00	0.00	12.94
	29	1	(untitled)		577	2005	120	1949	30	204	0.44	1.51	24.67	4.67
	30	1	(untitled)		276	1272	120	1272	22	315	5.84	2.02	101.19	7.48
	31	1	(untitled)		141	1316	120	1316	11	740	1.93	0.97	48.36	3.98
	32	1	(untitled)		68	1167	120	1167	6	1444	13.43	1.39	69.35	15.50
	33	1	(untitled)		54	1060	120	1060	5	1666	29.93	1.57	78.30	31.96

Data Entry - Stage Start and End

Resultant Stage

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	104	36	52	1	7
	2	✓	2	C,E	43	55	12	1	4
	3	✓	3	C,D	58	95	37	1	7

Data Entry - Phase

Phase

Controller Stream	Phase	Phase	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	A	7	300	0	0	Traffic
	B	B	7	300	0	0	Traffic
	C	C	7	300	0	0	Traffic
	D	D	7	300	0	0	Traffic
	E	E	4	300	0	0	Indicative arrow

Data Entry - Traffic Stream

Traffic Stream

Arm	Traffic Stream	Auto length	Length (m)	Traffic model	Max queue storage (PCU)	Traffic type	Has Saturation Flow	Is signal controlled	Is give way	Saturation flow source	Saturation flow (PCU/hr)	Delay weighting multiplier (%)	Stop weighting multiplier (%)
3	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2025	100	100
4	1	✓	21.31	CTM	0.00	Normal	✓			Sum of lanes	2055	100	100
5	1	✓	61.00	Flare	0.00	Normal	✓	✓		Sum of lanes	1924	100	100
6	1	✓	60.18	Flare	0.00	Normal	✓	✓		Sum of lanes	2060	100	100
7	1	✓	61.65	CTM	0.00	Normal	✓			Sum of lanes	2112	100	100
8	1	✓	22.00	Flare	4.00	Normal	✓	✓		Sum of lanes	2070	100	100
9	1	✓	36.65	Flare	6.00	Normal			✓			100	100
10	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1974	100	100
11	1	✓	43.05	Flare	8.00	Normal	✓	✓		Sum of lanes	1818	100	100
12	1	✓	43.48	Flare	8.00	Normal	✓	✓		Sum of lanes	1873	100	100
13	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	1880	100	100
14	1	✓	52.68	Flare	9.00	Normal	✓	✓		Sum of lanes	1678	100	100
15	1	✓	52.56	Flare	0.00	Normal	✓	✓		Sum of lanes	1854	100	100
16	1		100.00	NetworkDefault	0.00	Normal	✓			Sum of lanes	2015	100	100
17	1	✓	43.77	Flare	6.00	Normal	✓	✓		Sum of lanes	1839	100	100
18	1	✓	43.14	Flare	7.00	Normal	✓	✓		Sum of lanes	1983	100	100
19	1	✓	70.66	CTM	0.00	Normal	✓			Sum of lanes	1800	100	100
20	1	✓	8.03	Flare	1.00	Normal	✓	✓		Sum of lanes	2054	100	100
21	1	✓	17.28	NetworkDefault	1.00	Normal			✓			100	100
22	1	✓	139.64	NetworkDefault	0.00	Normal						100	100
23	1	✓	60.64	NetworkDefault	0.00	Normal						100	100
24	1	✓	148.12	NetworkDefault	0.00	Normal						100	100
25	1	✓	183.95	NetworkDefault	0.00	Normal						100	100
26	1	✓	109.00	NetworkDefault	0.00	Normal						100	100
27	1	✓	107.80	NetworkDefault	0.00	Normal						100	100
29	1	✓	35.23	CTM	0.00	Normal	✓			Sum of lanes	2005	100	100
30	1	✓	13.67	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
31	1	✓	17.15	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
32	1	✓	17.25	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100
33	1	✓	16.97	Flare	2.00	Normal	✓		✓	Sum of lanes	1800	100	100

Data entry - Link

Results - Pedestrian

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	3	1	56	61	1086	2025	120	1.28	3.07	17.63	5.49	0.71	6.20
	4	1	34	166	582	2055	120	2.28	2.98	80.54	5.23	1.07	6.30
	5	1	25	266	141	1924	37	31.60	3.28	30.94	17.57	1.40	18.98
	6	1	68	33	441	2060	37	40.61	10.84	103.58	70.64	4.07	74.71
	7	1	45	99	504	2112	120	19.26	9.78	91.21	38.29	3.68	41.97
	8	1	68	33	443	2070	37	24.43	4.70	117.39	42.68	1.85	44.53
	9	1	10	767	61	588	120	0.35	0.01	0.10	0.09	0.00	0.09
	10	1	58	56	743	1974	120	13.08	14.22	81.78	38.33	5.08	43.42
	11	1	84	7	675	1818	52	30.01	9.86	123.27	79.90	3.69	83.59
	12	1	8	994	68	1873	52	16.43	1.54	19.21	4.41	0.29	4.70
	13	1	36	149	550	1880	120	3.43	4.99	28.70	7.45	1.72	9.17
	14	1	67	34	496	1678	52	28.65	9.21	102.35	56.06	3.46	59.52
	15	1	7	1264	54	1854	52	19.25	1.45	15.88	4.10	0.35	4.45
	16	1	45	100	908	2015	120	0.73	0.18	1.06	2.62	0.00	2.62
	17	1	42	112	276	1839	52	24.40	5.86	97.64	26.56	2.43	28.99
	18	1	34	162	301	1983	52	23.33	6.31	90.13	27.69	2.37	30.07
	19	1	36	150	331	1800	120	18.34	6.20	50.47	23.95	2.32	26.27
	20	1	34	162	312	2054	52	7.01	1.09	109.00	8.63	0.38	9.01
	21	1	3	3141	19	684	120	0.08	0.00	0.04	0.01	0.00	0.01
	22	1	0	Unrestricted	1323	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	0	Unrestricted	579	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	0	Unrestricted	449	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	0	Unrestricted	862	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	0	Unrestricted	13	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	0	Unrestricted	640	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	30	204	577	2005	120	0.44	1.51	24.67	1.00	0.17	1.18
	30	1	22	315	276	1272	120	5.84	2.02	101.19	6.36	1.12	7.48
	31	1	11	740	141	1316	120	1.93	0.97	48.36	1.07	0.92	1.99
	32	1	6	1444	68	1167	120	13.43	1.39	69.35	3.60	0.63	4.23
	33	1	5	1666	54	1060	120	29.93	1.57	78.30	6.37	0.65	7.03

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:30-18:30	3	1	1086	1086	0		2025	1947	56		61	0.00	120
	4	1	582	582	0		2055	1722	34		166	0.04	120
	5	1	141	141	0		1924	573	25		266	0.26	37
	6	1	441	441	0		2060	652	68		33	0.26	37
	7	1	504	504	0		2112	1112	45		99	0.04	120
	8	1	443	443	0		2070	656	68		33	0.92	37
	9	1	61	61	0		588	588	10		767	0.94	120
	10	1	743	743	0		1974	1285	58		56	0.00	120
	11	1	675	675	0		1818	803	84		7	0.63	52
	12	1	68	68	0		1873	827	8		994	0.63	52
	13	1	550	550	0		1880	1522	36		149	0.00	120
	14	1	496	496	0		1678	741	67		34	0.32	52
	15	1	54	54	0		1854	818	7		1264	0.32	52
	16	1	908	908	0		2015	2015	45		100	0.00	120
	17	1	276	276	0		1839	651	42		112	0.04	52
	18	1	301	301	0		1983	876	34		162	0.04	52
	19	1	331	331	0		1800	918	36		150	0.00	120
	20	1	312	312	0		2054	907	34		162	0.96	52
	21	1	19	19	0		684	684	3		3141	0.95	120
	22	1	1323	1323	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	120
	23	1	579	579	0		Unrestricted	Unrestricted	0		Unrestricted	0.75	120
	24	1	449	449	0		Unrestricted	Unrestricted	0		Unrestricted	0.53	120
	25	1	862	862	0		Unrestricted	Unrestricted	0		Unrestricted	0.56	120
	26	1	13	13	0		Unrestricted	Unrestricted	0		Unrestricted	0.43	120
	27	1	640	640	0		Unrestricted	Unrestricted	0		Unrestricted	0.53	120
	29	1	577	577	0		2005	1949	30		204	0.00	120
	30	1	276	276	0		1272	1272	22		315	1.20	120
	31	1	141	141	0		1316	1316	11		740	1.45	120
	32	1	68	68	0		1167	1167	6		1444	1.23	120
	33	1	54	54	0		1060	1060	5		1666	1.25	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	3	1	12.00	1.28	0.39	5.49	5.23	56.85	0.71
	4	1	2.56	2.28	0.37	5.23	14.62	85.11	1.07
	5	1	7.32	31.60	1.24	17.57	79.33	111.85	1.40
	6	1	7.22	40.61	4.97	70.64	73.69	324.99	4.07
	7	1	7.40	19.26	2.70	38.29	58.19	293.27	3.68
	8	1	2.64	24.43	3.01	42.68	33.26	147.35	1.85
	9	1	4.40	0.35	0.01	0.09	0.00	0.00	0.00
	10	1	12.00	13.08	2.70	38.33	54.55	405.30	5.08
	11	1	5.17	30.01	5.63	79.90	43.61	294.37	3.69
	12	1	5.22	16.43	0.31	4.41	34.57	23.51	0.29
	13	1	12.00	3.43	0.52	7.45	24.97	137.34	1.72
	14	1	6.32	28.65	3.95	56.06	55.67	276.13	3.46
	15	1	6.31	19.25	0.29	4.10	51.78	27.96	0.35
	16	1	12.00	0.73	0.18	2.62	0.00	0.00	0.00
	17	1	5.25	24.40	1.87	26.56	70.16	193.63	2.43
	18	1	5.18	23.33	1.95	27.69	62.88	189.27	2.37
	19	1	8.48	18.34	1.69	23.95	55.98	185.28	2.32
	20	1	1.00	7.01	0.61	8.63	10.48	32.69	0.38
	21	1	2.07	0.08	0.00	0.01	0.00	0.00	0.00
	22	1	16.76	0.00	0.00	0.00	0.00	0.00	0.00
	23	1	7.28	0.00	0.00	0.00	0.00	0.00	0.00
	24	1	17.77	0.00	0.00	0.00	0.00	0.00	0.00
	25	1	22.07	0.00	0.00	0.00	0.00	0.00	0.00
	26	1	13.08	0.00	0.00	0.00	0.00	0.00	0.00
	27	1	12.94	0.00	0.00	0.00	0.00	0.00	0.00
	29	1	4.23	0.44	0.07	1.00	2.42	13.95	0.17
	30	1	1.64	5.84	0.45	6.36	32.27	89.06	1.12
	31	1	2.06	1.93	0.08	1.07	52.08	73.43	0.92
	32	1	2.07	13.43	0.25	3.60	73.54	50.00	0.63
	33	1	2.04	29.93	0.45	6.37	96.08	51.89	0.65

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
17:30-18:30	3	1	0.00	3.07	17.39	17.63	0.00	4.62	
	4	1	0.00	2.98	3.71	80.54	0.00	19.45	
	5	1	0.00	3.28	10.61	30.94	0.00	9.26	
	6	1	0.00	10.84	10.47	103.58	0.00	0.00	
	7	1	0.00	9.78	10.72	91.21	0.00	60.00	
	8	1	0.00	4.70	4.00	117.39	0.00	0.00	
	9	1	0.00	0.01	6.00	0.10	0.00	57.00	
	10	1	0.00	14.22	17.39	81.78	0.00	41.88	
	11	1	0.00	9.86	8.00	123.27	0.00	0.00	
	12	1	0.00	1.54	8.00	19.21	0.00	12.04	
	13	1	0.00	4.99	17.39	28.70	0.00	22.86	
	14	1	0.00	9.21	9.00	102.35	0.00	0.00	
	15	1	0.00	1.45	9.14	15.88	0.00	39.03	
	16	1	0.00	0.18	17.39	1.06	0.00	0.00	
	17	1	0.00	5.86	6.00	97.64	0.00	10.53	
	18	1	0.00	6.31	7.00	90.13	0.00	0.00	
	19	1	0.00	6.20	12.29	50.47	0.00	58.85	
	20	1	0.00	1.09	1.00	109.00	0.00	0.00	
	21	1	0.00	0.00	1.00	0.04	0.00	106.00	
	22	1	0.00	0.00	48.57	0.00	0.00	7.00	
	23	1	0.00	0.00	10.55	0.00	0.00	25.00	
	24	1	0.00	0.00	25.76	0.00	0.00	0.00	
	25	1	0.00	0.00	63.98	0.00	0.00	0.00	
	26	1	0.00	0.00	18.96	0.00	0.00	120.00	
	27	1	0.00	0.00	18.75	0.00	0.00	0.00	
	29	1	0.00	1.51	6.13	24.67	0.00	3.32	
	30	1	0.00	2.02	2.00	101.19	0.00	64.00	
	31	1	0.00	0.97	2.00	48.36	0.00	86.00	
	32	1	0.00	1.39	2.00	69.35	0.00	67.00	
	33	1	0.00	1.57	2.00	78.30	0.00	69.00	

Traffic Stream Results: Flare

Time Segment	Arm	Traffic Stream	Flare present	Flare components	Degree of saturation (%)	Mean max queue (PCU)	Calculated capacity (PCU/hr)	Practical reserve capacity (%)
17:30-18:30	4	1	✓	CTM flare: 4/1,6/1,5/1	76	17.11	768	19
	10	1	✓	CTM flare: 10/1,11/1,12/1	89	25.62	837	1
	13	1	✓	CTM flare: 13/1,14/1,15/1	71	15.65	778	27
	29	1	✓	CTM flare: 29/1,18/1,17/1	54	13.68	1059	65

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:30-18:30	3	1	0.00	0.00	✓	0.00	3.07			1.00	0.00	6.20
	4	1	0.00	0.00	✓	0.00	2.98			1.00	0.00	6.30
	5	1	0.00	0.00	✓	0.00	3.28	0.04	3.28	1.00	0.00	18.98
	6	1	0.00	0.00	✓	0.00	10.85	0.70	10.84	1.00	0.00	74.71
	7	1	0.00	0.00	✓	0.00	9.78			1.00	0.00	41.97
	8	1	0.00	0.00	✓	0.00	4.70	0.70	4.70	1.00	0.00	44.53
	9	1	0.00	0.00	✓	0.00	0.01			1.00	0.00	0.09
	10	1	0.00	0.00	✓	0.00	14.22			1.00	0.00	43.42
	11	1	0.00	0.00	✓	0.00	9.91	2.17	9.91	1.00	0.00	83.59
	12	1	0.00	0.00	✓	0.00	1.54	0.00	0.78	1.00	0.00	4.70
	13	1	0.00	0.00	✓	0.00	4.99			1.00	0.00	9.17
	14	1	0.00	0.00	✓	0.00	9.21	0.67	9.21	1.00	0.00	59.52
	15	1	0.00	0.00	✓	0.00	1.45	0.00	0.93	1.00	0.00	4.45
	16	1	0.00	0.00	✓	0.00	0.18			1.00	0.00	2.62
	17	1	0.00	0.00	✓	0.00	5.86	0.16	5.60	1.00	0.00	28.99
	18	1	0.00	0.00	✓	0.00	6.31	0.09	6.03	1.00	0.00	30.07
	19	1	0.00	0.00	✓	0.00	6.20			1.00	0.00	26.27
	20	1	0.00	0.00	✓	0.00	1.09	0.09	1.09	1.00	0.00	9.01
	21	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.01
	22	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	23	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	24	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	25	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	26	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	27	1	0.00	0.00	✓	0.00	0.00			1.00	0.00	0.00
	29	1	0.00	0.00	✓	0.00	1.51			1.00	0.00	1.18
	30	1	0.00	0.00	✓	0.00	2.02			1.00	0.00	7.48
	31	1	0.00	0.00	✓	0.00	0.97			1.00	0.00	1.99
	32	1	0.00	0.00	✓	0.00	1.39			1.00	0.00	4.23
	33	1	0.00	0.00	✓	0.00	1.57			1.00	0.00	7.03

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
6	24/09/2018 10:43:17	24/09/2018 10:43:18	17:30	120	516.50	33.67	84.07	11/1	0	0	11/1	10/1	11/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:30-18:30	84	7	12973	2875	9.34	478.12	38.38	516.50

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:30-18:30	12973	12973	0		84		7	2875

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:30-18:30	9.95	9.34	33.67	478.12	23.61	3063.25	38.38

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
17:30-18:30	123.27	0.00	882.85

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Warmed up error	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:30-18:30	0.00	0.00	✓	0.00	1.00	0.00	0.00	516.50

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To					
From		1	2	3	4	5
	1	0.0	59.5	60.6	68.8	74.7
	2	89.7	0.0	63.5	72.5	70.6
	3	0.0	0.0	0.0	0.0	0.0
	4	83.2	78.8	74.1	0.0	57.6
	5	77.0	78.0	75.3	84.3	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
4	2	3	6	63.49	6	63.49
6	2	4	187	72.48	187	72.48
7	4	1	441	82.71	441	82.71
8	5	1	385	77.01	385	77.01
9	5	2	290	78.03	290	78.03
13	2	5	303	70.62	303	70.62
17	4	1	443	83.76	443	83.76
18	4	2	140	78.79	140	78.79
19	4	3	1	74.10	1	74.10
21	1	4	301	67.98	301	67.98
25	1	5	276	74.75	276	74.75
26	2	1	54	89.71	54	89.71
27	5	4	67	84.31	67	84.31
28	5	3	1	75.31	1	75.31
29	4	5	0	0.00	0	0.00
30	4	5	61	57.63	61	57.63
31	1	4	307	69.64	307	69.64
32	1	3	5	60.65	5	60.65
33	1	2	19	59.48	19	59.48

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			Q
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	
3	1	(untitled)					1086	2025	120	4.62	56	61	13.28	1.28	5.23	
4	1	(untitled)					582	2055	120	19.45	34	166	4.84	2.28	14.62	
5	1	(untitled)	1	1	D		141	1924	37	9.26	25	266	38.92	31.60	79.33	
6	1	(untitled)	1	1	D		441 <	2060	37	0.00	68	33	47.83	40.61	73.69	1
7	1	(untitled)					504	2112	120	60.00	45	99	26.66	19.26	58.19	
8	1	(untitled)	1	1	D		443 <	2070	37	0.00	68	33	27.07	24.43	33.26	
9	1	(untitled)					61	588	120	57.00	10	767	4.75	0.35	0.00	
10	1	(untitled)					743	1974	120	41.88	58	56	25.08	13.08	54.55	
11	1	(untitled)	1	1	A		675 <	1818	52	0.00	84	7	35.18	30.01	43.61	
12	1	(untitled)	1	1	A		68	1873	52	12.04	8	994	21.65	16.43	34.57	
13	1	(untitled)					550	1880	120	22.86	36	149	15.43	3.43	24.97	
14	1	(untitled)	1	1	B		496 <	1678	52	0.00	67	34	34.97	28.65	55.67	
15	1	(untitled)	1	1	B		54	1854	52	39.03	7	1264	25.55	19.25	51.78	
16	1	(untitled)					908	2015	120	0.00	45	100	12.73	0.73	0.00	
17	1	(untitled)	1	1	C	E	276	1839	52	10.53	42	112	29.65	24.40	70.16	
18	1	(untitled)	1	1	C		301	1983	52	0.00	34	162	28.50	23.33	62.88	
19	1	(untitled)					331	1800	120	58.85	36	150	26.82	18.34	55.98	
20	1	(untitled)	1	1	C		312 <	2054	52	0.00	34	162	8.01	7.01	10.48	
21	1	(untitled)					19	684	120	106.00	3	3141	2.15	0.08	0.00	
22	1	(untitled)					1323	Unrestricted	120	7.00	0	Unrestricted	16.76	0.00	0.00	
23	1	(untitled)					579	Unrestricted	120	25.00	0	Unrestricted	7.28	0.00	0.00	
24	1	(untitled)					449	Unrestricted	120	0.00	0	Unrestricted	17.77	0.00	0.00	
25	1	(untitled)					862	Unrestricted	120	0.00	0	Unrestricted	22.07	0.00	0.00	
26	1	(untitled)					13	Unrestricted	120	120.00	0	Unrestricted	13.08	0.00	0.00	
27	1	(untitled)					640	Unrestricted	120	0.00	0	Unrestricted	12.94	0.00	0.00	
29	1	(untitled)					577	2005	120	3.32	30	204	4.67	0.44	2.42	
30	1	(untitled)	1				276 <	1272	120	64.00	22	315	7.48	5.84	32.27	
31	1	(untitled)	1				141	1316	120	86.00	11	740	3.98	1.93	52.08	
32	1	(untitled)	1				68	1167	120	67.00	6	1444	15.50	13.43	73.54	
33	1	(untitled)	1				54	1060	120	69.00	5	1666	31.96	29.93	96.08	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (mph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1075.52	69.52	9.61	33.67	478.12	38.38	0.00	516.50
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians								
TOTAL	1075.52	69.52	9.61	33.67	478.12	38.38	0.00	516.50

- 1 < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- 1 * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- 1 ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- 1 + = average link/traffic stream excess queue is greater than 0
- 1 P.I. = PERFORMANCE INDEX

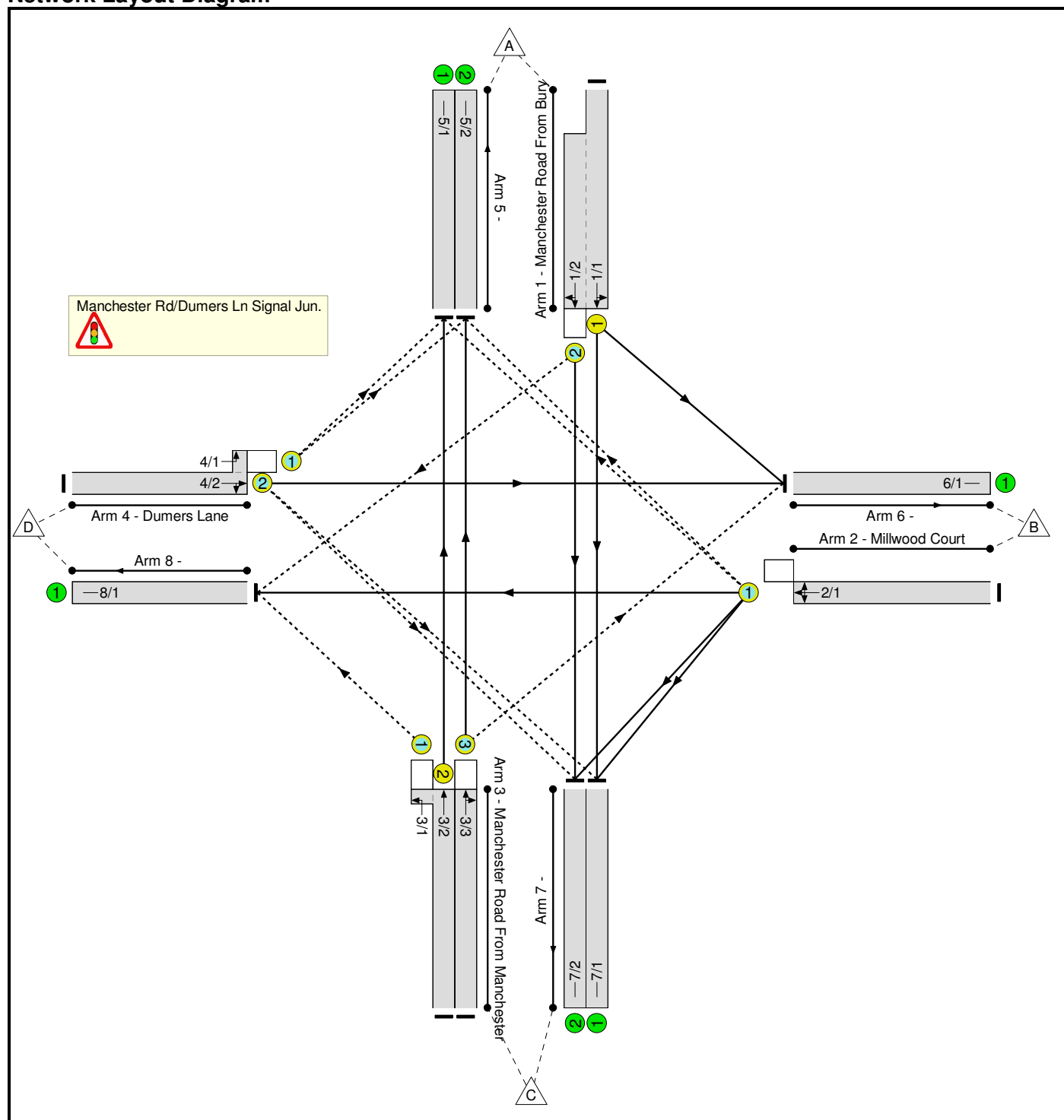


Appendix I – Model Outputs Manchester Road/Radcliffe Road (J9)

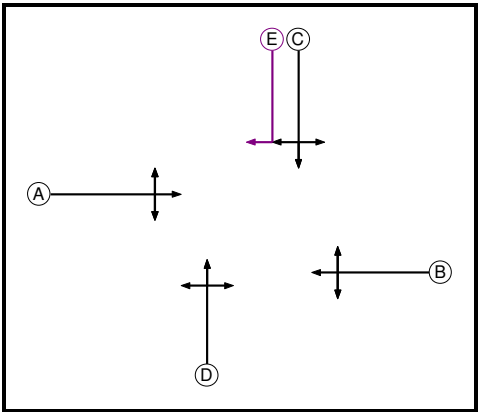
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	J9 - Amended based on TfGM Comments.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Ind. Arrow	C	3	3

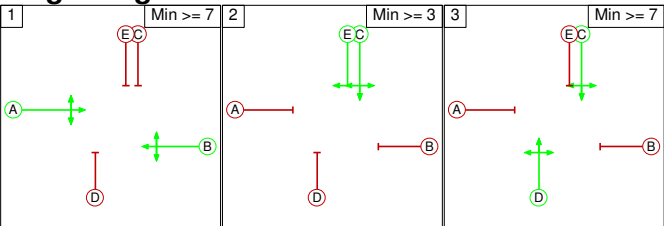
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	
	A	-	6	6	6	
	B	-	6	6	6	
	C	7	7	-	-	
	D	7	7	-	7	
	E	7	7	-	4	

Phases in Stage

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

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
	1	6	6
	2	7	4
	3	7	7

Give-Way Lane Input Data

Junction: Manchester Rd/Dumers Ln Signal Jun.											
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)
1/2 (Manchester Road From Bury)	8/1 (Right)	1439	0	3/2 3/3	1.09 1.09	All To 5/2 (Ahead)	2.00	-	0.50	2	2.00
2/1 (Millwood Court)	5/1 (Right)	1439	0	4/2	1.09	To 6/1 (Ahead)	2.00	2.00	0.50	2	2.00
	5/2 (Right)	1439	0	4/2	1.09	To 6/1 (Ahead)					
3/1 (Manchester Road From Manchester)	8/1 (Left)	715	0	1/2	0.22	To 8/1 (Right)	2.00	-	0.50	2	2.00
3/3 (Manchester Road From Manchester)	6/1 (Right)	1439	0	1/1 1/2	1.09 1.09	All To 7/2 (Ahead)	2.00	-	0.50	2	2.00
4/1 (Dumers Lane)	5/1 (Left)	715	0	2/1	0.22	To 5/1 (Right) To 5/2 (Right)	2.00	-	0.50	2	2.00
	5/2 (Left)	715	0	2/1	0.22	To 5/1 (Right) To 5/2 (Right)					
4/2 (Dumers Lane)	7/1 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 7/2 (Left) To 8/1 (Ahead)	-	-	-	-	-
	7/2 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 7/2 (Left) To 8/1 (Ahead)					

Lane Input Data

Junction: Manchester Rd/Dumers Ln Signal Jun.												
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 (Manchester Road From Bury)	U	C	2	3	60.0	Geom	-	2.92	0.00	Y	Arm 6 Left	10.31
											Arm 7 Ahead	Inf
1/2 (Manchester Road From Bury)	O	C E	2	3	33.0	Geom	-	2.96	0.00	Y	Arm 7 Ahead	Inf
											Arm 8 Right	12.08
2/1 (Millwood Court)	O	B	2	3	60.0	Geom	-	3.08	0.00	Y	Arm 5 Right	8.35
											Arm 7 Left	9.20
											Arm 8 Ahead	Inf
3/1 (Manchester Road From Manchester)	O	D	2	3	1.0	Geom	-	4.00	0.00	Y	Arm 8 Left	19.82
3/2 (Manchester Road From Manchester)	U	D	2	3	60.0	Geom	-	3.11	0.00	Y	Arm 5 Ahead	Inf
3/3 (Manchester Road From Manchester)	O	D	2	3	60.0	Geom	-	2.92	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	13.81
4/1 (Dumers Lane)	O	A	2	3	1.0	Geom	-	4.60	0.00	Y	Arm 5 Left	31.53
4/2 (Dumers Lane)	O	A	2	3	60.0	Geom	-	3.57	0.00	Y	Arm 6 Ahead	40.69
											Arm 7 Right	10.79
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Peak Hour 2017 Surveyed Flows'	07:45	08:45	01:00	
2: 'PM Peak Hour 2017 Surveyed Flows'	17:30	18:30	01:00	
3: 'AM Peak Hour 2023 w/o Dev.'	07:45	08:45	01:00	
4: 'PM Peak Hour 2023 w/o Dev.'	17:30	18:30	01:00	
5: 'AM Peak Hour 2023 with Dev.'	07:45	08:45	01:00	
6: 'PM Peak Hour 2023 with Dev.'	17:30	18:30	01:00	

Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	2	728	137	867
	B	1	0	4	3	8
	C	871	0	0	277	1148
	D	135	1	346	0	482
	Tot.	1007	3	1078	417	2505

Traffic Lane Flows

Lane	Scenario 1: AM Peak Hour 2017 Surveyed Flows
Junction: Manchester Rd/Dumers Ln Signal Jun.	
1/1 (with short)	867(In) 669(Out)
1/2 (short)	198
2/1	8
3/1 (short)	277
3/2 (with short)	639(In) 362(Out)
3/3	509
4/1 (short)	135
4/2 (with short)	482(In) 347(Out)
5/1	429
5/2	578
6/1	3
7/1	842
7/2	236
8/1	417

Lane Saturation Flows

Junction: Manchester Rd/Dumers Ln Signal Jun.								
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 (Manchester Road From Bury)	2.92	0.00	Y	Arm 6 Left	10.31	0.3 %	1906	1906
				Arm 7 Ahead	Inf	99.7 %		
1/2 (Manchester Road From Bury)	2.96	0.00	Y	Arm 7 Ahead	Inf	30.8 %	1760	1760
				Arm 8 Right	12.08	69.2 %		
2/1 (Millwood Court)	3.08	0.00	Y	Arm 5 Right	8.35	12.5 %	1742	1742
				Arm 7 Left	9.20	50.0 %		
				Arm 8 Ahead	Inf	37.5 %		
3/1 (Manchester Road From Manchester)	4.00	0.00	Y	Arm 8 Left	19.82	100.0 %	1873	1873
3/2 (Manchester Road From Manchester)	3.11	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1926	1926
3/3 (Manchester Road From Manchester)	2.92	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1907	1907
				Arm 6 Right	13.81	0.0 %		
4/1 (Dumers Lane)	4.60	0.00	Y	Arm 5 Left	31.53	100.0 %	1981	1981
4/2 (Dumers Lane)	3.57	0.00	Y	Arm 6 Ahead	40.69	0.3 %	1732	1732
				Arm 7 Right	10.79	99.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	5	805	113	923
	B	3	0	4	0	7
	C	982	1	0	322	1305
	D	173	0	350	0	523
	Tot.	1158	6	1159	435	2758

Traffic Lane Flows

Lane	Scenario 2: PM Peak Hour 2017 Surveyed Flows
Junction: Manchester Rd/Dumers Ln Signal Jun.	
1/1 (with short)	923(In) 619(Out)
1/2 (short)	304
2/1	7
3/1 (short)	322
3/2 (with short)	725(In) 403(Out)
3/3	580
4/1 (short)	173
4/2 (with short)	523(In) 350(Out)
5/1	490
5/2	668
6/1	6
7/1	791
7/2	368
8/1	435

Lane Saturation Flows

Junction: Manchester Rd/Dumers Ln Signal Jun.								
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 (Manchester Road From Bury)	2.92	0.00	Y	Arm 6 Left	10.31	0.8 %	1905	1905
				Arm 7 Ahead	Inf	99.2 %		
1/2 (Manchester Road From Bury)	2.96	0.00	Y	Arm 7 Ahead	Inf	62.8 %	1827	1827
				Arm 8 Right	12.08	37.2 %		
2/1 (Millwood Court)	3.08	0.00	Y	Arm 5 Right	8.35	42.9 %	1643	1643
				Arm 7 Left	9.20	57.1 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Manchester Road From Manchester)	4.00	0.00	Y	Arm 8 Left	19.82	100.0 %	1873	1873
3/2 (Manchester Road From Manchester)	3.11	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1926	1926
3/3 (Manchester Road From Manchester)	2.92	0.00	Y	Arm 5 Ahead	Inf	99.8 %	1907	1907
				Arm 6 Right	13.81	0.2 %		
4/1 (Dumers Lane)	4.60	0.00	Y	Arm 5 Left	31.53	100.0 %	1981	1981
4/2 (Dumers Lane)	3.57	0.00	Y	Arm 6 Ahead	40.69	0.0 %	1731	1731
				Arm 7 Right	10.79	100.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM Peak Hour 2023 w/o Dev.' (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	2	787	148	937
	B	1	0	4	3	8
	C	941	0	0	299	1240
	D	146	1	374	0	521
	Tot.	1088	3	1165	450	2706

Traffic Lane Flows

Lane	Scenario 3: AM Peak Hour 2023 w/o Dev.
Junction: Manchester Rd/Dumers Ln Signal Jun.	
1/1 (with short)	937(In) 776(Out)
1/2 (short)	161
2/1	8
3/1 (short)	299
3/2 (with short)	691(In) 392(Out)
3/3	549
4/1 (short)	146
4/2 (with short)	521(In) 375(Out)
5/1	465
5/2	623
6/1	3
7/1	963
7/2	202
8/1	450

Lane Saturation Flows

Junction: Manchester Rd/Dumers Ln Signal Jun.								
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 (Manchester Road From Bury)	2.92	0.00	Y	Arm 6 Left	10.31	0.3 %	1906	1906
				Arm 7 Ahead	Inf	99.7 %		
1/2 (Manchester Road From Bury)	2.96	0.00	Y	Arm 7 Ahead	Inf	8.1 %	1715	1715
				Arm 8 Right	12.08	91.9 %		
2/1 (Millwood Court)	3.08	0.00	Y	Arm 5 Right	8.35	12.5 %	1742	1742
				Arm 7 Left	9.20	50.0 %		
				Arm 8 Ahead	Inf	37.5 %		
3/1 (Manchester Road From Manchester)	4.00	0.00	Y	Arm 8 Left	19.82	100.0 %	1873	1873
3/2 (Manchester Road From Manchester)	3.11	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1926	1926
3/3 (Manchester Road From Manchester)	2.92	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1907	1907
				Arm 6 Right	13.81	0.0 %		
4/1 (Dumers Lane)	4.60	0.00	Y	Arm 5 Left	31.53	100.0 %	1981	1981
4/2 (Dumers Lane)	3.57	0.00	Y	Arm 6 Ahead	40.69	0.3 %	1732	1732
				Arm 7 Right	10.79	99.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM Peak Hour 2023 w/o Dev.' (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	5	866	122	993
	B	3	0	4	0	7
	C	1057	1	0	347	1405
	D	186	0	376	0	562
	Tot.	1246	6	1246	469	2967

Traffic Lane Flows

Lane	Scenario 4: PM Peak Hour 2023 w/o Dev.
Junction: Manchester Rd/Dumers Ln Signal Jun.	
1/1 (with short)	993(In) 781(Out)
1/2 (short)	212
2/1	7
3/1 (short)	347
3/2 (with short)	932(In) 585(Out)
3/3	473
4/1 (short)	186
4/2 (with short)	562(In) 376(Out)
5/1	679
5/2	567
6/1	6
7/1	966
7/2	280
8/1	469

Lane Saturation Flows

Junction: Manchester Rd/Dumers Ln Signal Jun.								
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 (Manchester Road From Bury)	2.92	0.00	Y	Arm 6 Left	10.31	0.6 %	1905	1905
				Arm 7 Ahead	Inf	99.4 %		
1/2 (Manchester Road From Bury)	2.96	0.00	Y	Arm 7 Ahead	Inf	42.5 %	1784	1784
				Arm 8 Right	12.08	57.5 %		
2/1 (Millwood Court)	3.08	0.00	Y	Arm 5 Right	8.35	42.9 %	1643	1643
				Arm 7 Left	9.20	57.1 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Manchester Road From Manchester)	4.00	0.00	Y	Arm 8 Left	19.82	100.0 %	1873	1873
3/2 (Manchester Road From Manchester)	3.11	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1926	1926
3/3 (Manchester Road From Manchester)	2.92	0.00	Y	Arm 5 Ahead	Inf	99.8 %	1907	1907
				Arm 6 Right	13.81	0.2 %		
4/1 (Dumers Lane)	4.60	0.00	Y	Arm 5 Left	31.53	100.0 %	1981	1981
4/2 (Dumers Lane)	3.57	0.00	Y	Arm 6 Ahead	40.69	0.0 %	1731	1731
				Arm 7 Right	10.79	100.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'AM Peak Hour 2023 with Dev.' (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	2	787	150	939
	B	1	0	4	3	8
	C	941	0	0	309	1250
	D	150	1	395	0	546
	Tot.	1092	3	1186	462	2743

Traffic Lane Flows

Lane	Scenario 5: AM Peak Hour 2023 with Dev.
Junction: Manchester Rd/Dumers Ln Signal Jun.	
1/1 (with short)	939(In) 776(Out)
1/2 (short)	163
2/1	8
3/1 (short)	309
3/2 (with short)	704(In) 395(Out)
3/3	546
4/1 (short)	150
4/2 (with short)	546(In) 396(Out)
5/1	470
5/2	622
6/1	3
7/1	973
7/2	213
8/1	462

Lane Saturation Flows

Junction: Manchester Rd/Dumers Ln Signal Jun.								
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 (Manchester Road From Bury)	2.92	0.00	Y	Arm 6 Left	10.31	0.3 %	1906	1906
				Arm 7 Ahead	Inf	99.7 %		
1/2 (Manchester Road From Bury)	2.96	0.00	Y	Arm 7 Ahead	Inf	8.0 %	1715	1715
				Arm 8 Right	12.08	92.0 %		
2/1 (Millwood Court)	3.08	0.00	Y	Arm 5 Right	8.35	12.5 %	1742	1742
				Arm 7 Left	9.20	50.0 %		
				Arm 8 Ahead	Inf	37.5 %		
3/1 (Manchester Road From Manchester)	4.00	0.00	Y	Arm 8 Left	19.82	100.0 %	1873	1873
3/2 (Manchester Road From Manchester)	3.11	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1926	1926
3/3 (Manchester Road From Manchester)	2.92	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1907	1907
				Arm 6 Right	13.81	0.0 %		
4/1 (Dumers Lane)	4.60	0.00	Y	Arm 5 Left	31.53	100.0 %	1981	1981
4/2 (Dumers Lane)	3.57	0.00	Y	Arm 6 Ahead	40.69	0.3 %	1732	1732
				Arm 7 Right	10.79	99.7 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'PM Peak Hour 2023 with Dev.' (FG6: 'PM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	5	866	125	996
	B	3	0	4	0	7
	C	1057	1	0	365	1423
	D	188	0	388	0	576
	Tot.	1248	6	1258	490	3002

Traffic Lane Flows

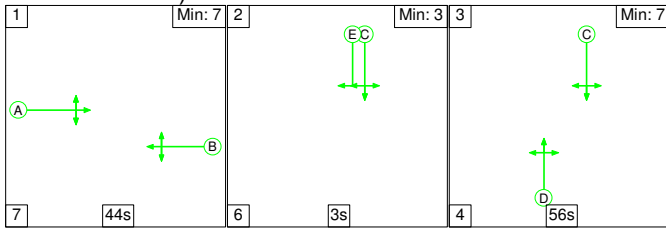
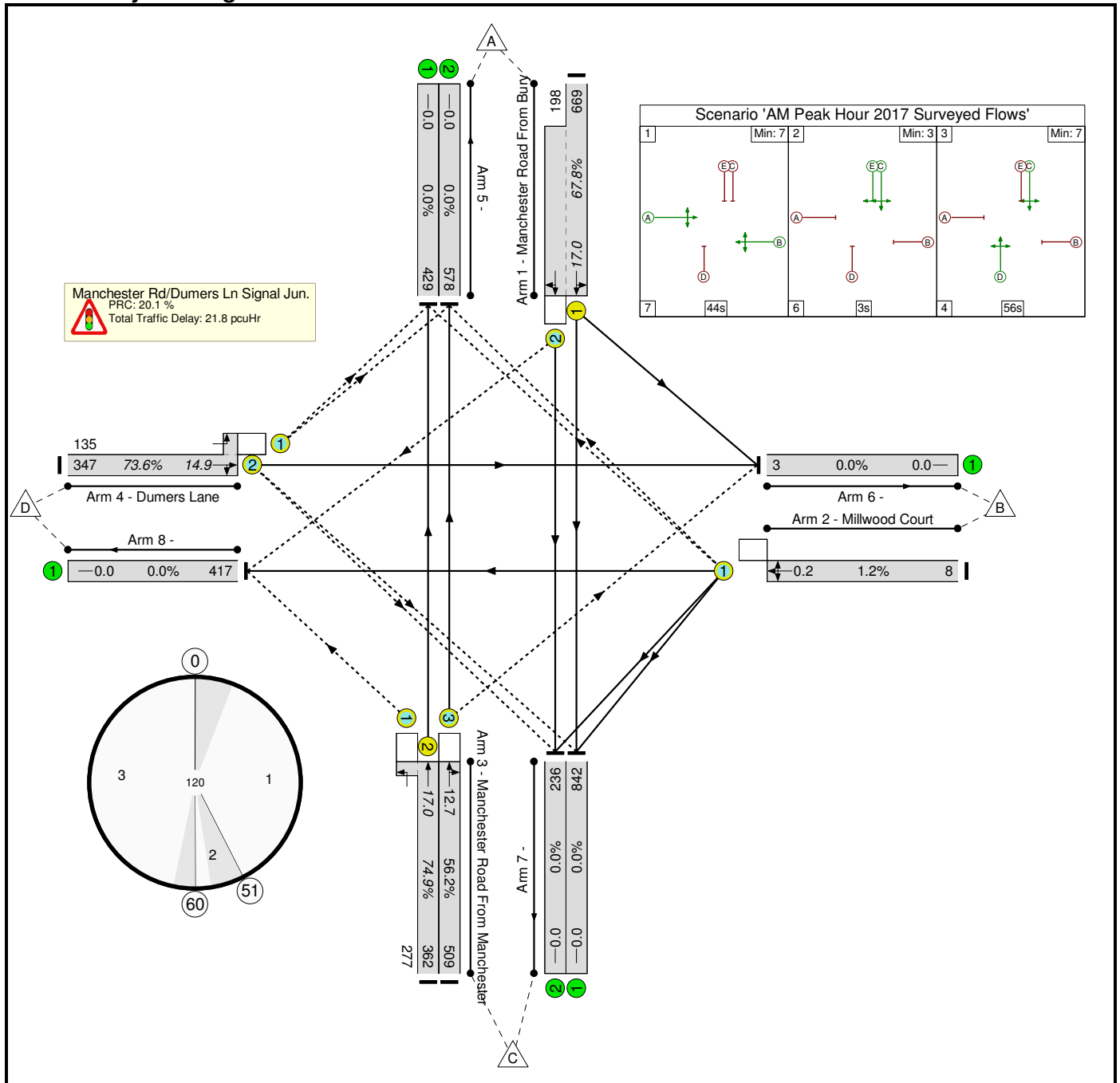
Lane	Scenario 6: PM Peak Hour 2023 with Dev.
Junction: Manchester Rd/Dumers Ln Signal Jun.	
1/1 (with short)	996(In) 781(Out)
1/2 (short)	215
2/1	7
3/1 (short)	365
3/2 (with short)	950(In) 585(Out)
3/3	473
4/1 (short)	188
4/2 (with short)	576(In) 388(Out)
5/1	680
5/2	568
6/1	6
7/1	972
7/2	286
8/1	490

Lane Saturation Flows

Junction: Manchester Rd/Dumers Ln Signal Jun.								
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 (Manchester Road From Bury)	2.92	0.00	Y	Arm 6 Left	10.31	0.6 %	1905	1905
				Arm 7 Ahead	Inf	99.4 %		
1/2 (Manchester Road From Bury)	2.96	0.00	Y	Arm 7 Ahead	Inf	41.9 %	1782	1782
				Arm 8 Right	12.08	58.1 %		
2/1 (Millwood Court)	3.08	0.00	Y	Arm 5 Right	8.35	42.9 %	1643	1643
				Arm 7 Left	9.20	57.1 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (Manchester Road From Manchester)	4.00	0.00	Y	Arm 8 Left	19.82	100.0 %	1873	1873
3/2 (Manchester Road From Manchester)	3.11	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1926	1926
3/3 (Manchester Road From Manchester)	2.92	0.00	Y	Arm 5 Ahead	Inf	99.8 %	1907	1907
				Arm 6 Right	13.81	0.2 %		
4/1 (Dumers Lane)	4.60	0.00	Y	Arm 5 Left	31.53	100.0 %	1981	1981
4/2 (Dumers Lane)	3.57	0.00	Y	Arm 6 Ahead	40.69	0.0 %	1731	1731
				Arm 7 Right	10.79	100.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Stage Sequence Diagram

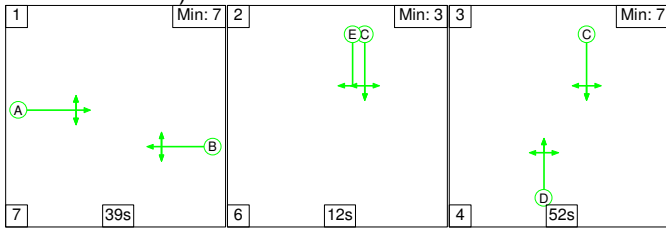
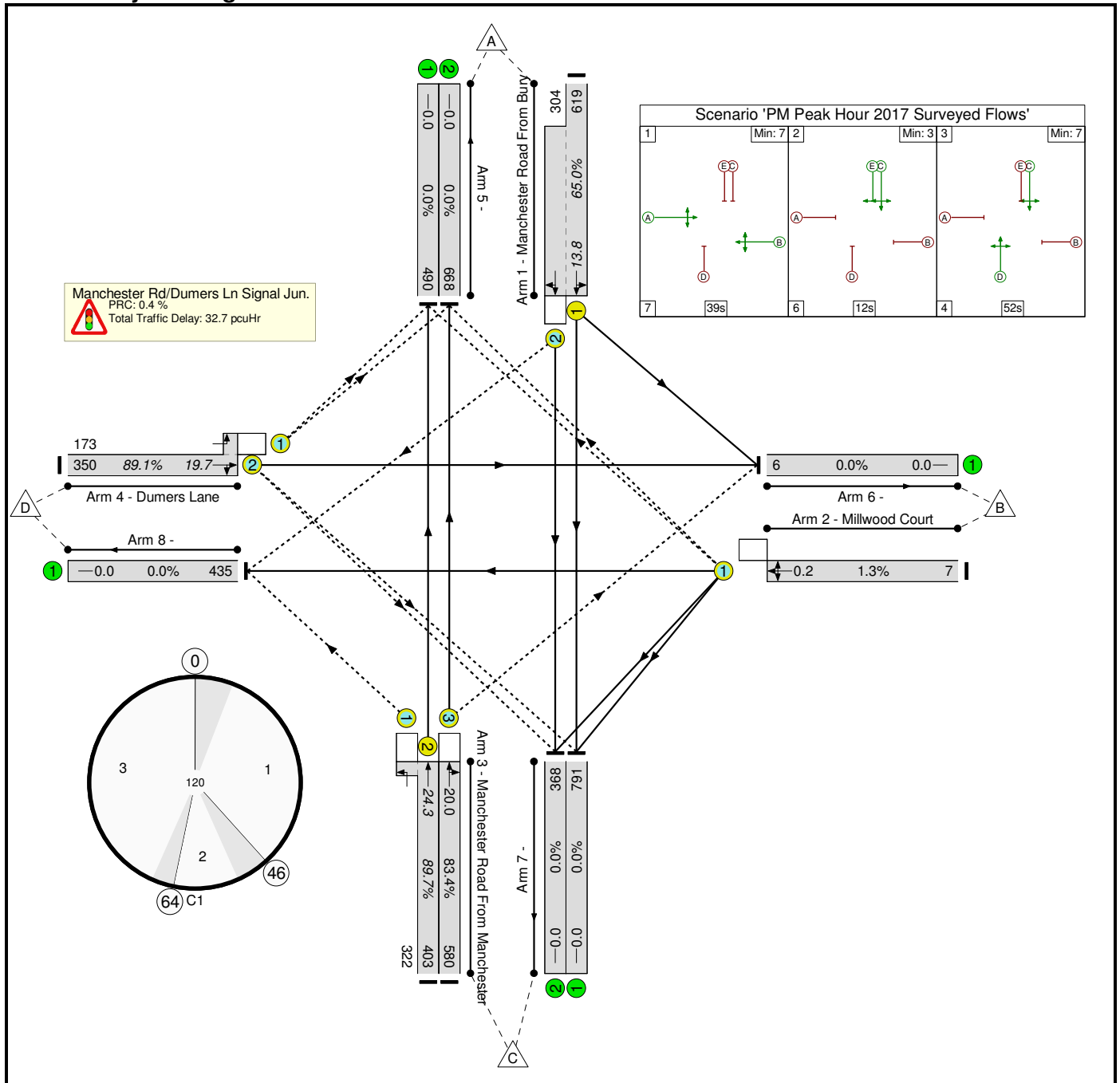
Scenario 1: 'AM Peak Hour 2017 Surveyed Flows' (FG1: 'AM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

**Network Layout Diagram**

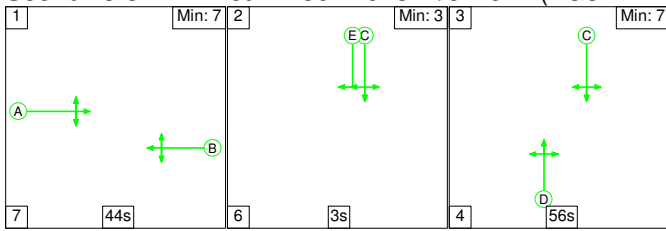
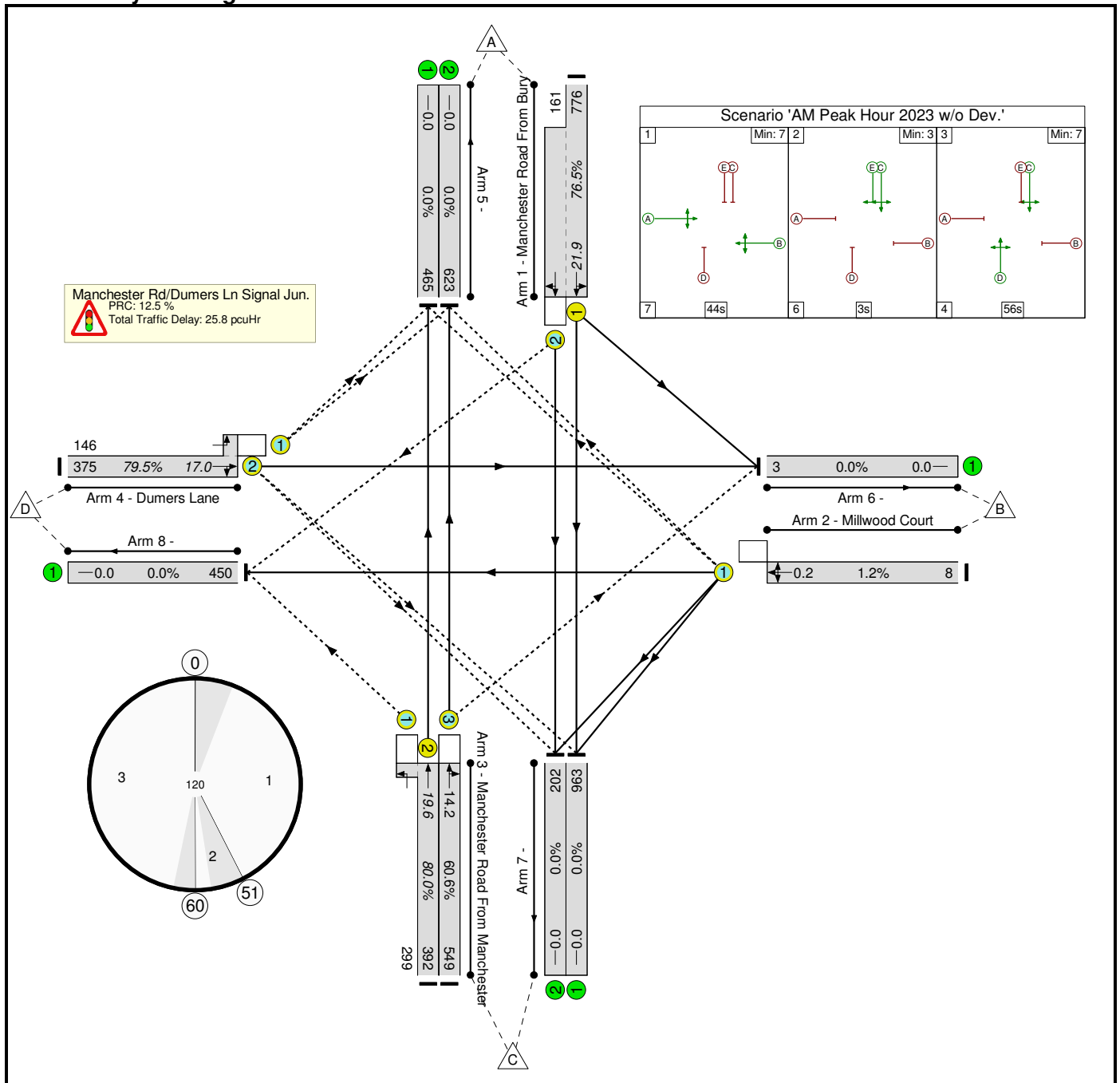
Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	74.9%	16.6	4.5	21.8	-	-	-	-
Manchester Rd/Dumers Ln Signal Jun.	-	-	-	-	-	74.9%	16.6	4.5	21.8	-	-	-	-
1/1+1/2	Manchester Road From Bury Left Ahead Right	C	867	1906:1760	1279	67.8%	4.6	1.0	6.1	25.4	16.0	1.0	17.0
2/1	Millwood Court Right Left Ahead	B	8	1742	653	1.2%	0.1	0.0	0.1	26.5	0.2	0.0	0.2
3/2+3/1	Manchester Road From Manchester Ahead Left	D	639	1926:1873	853	74.9%	4.2	1.5	6.0	33.6	15.6	1.5	17.0
3/3	Manchester Road From Manchester Ahead Right	D	509	1907	906	56.2%	3.2	0.6	3.8	27.1	12.0	0.6	12.7
4/2+4/1	Dumers Lane Left Ahead Right	A	482	1732:1981	655	73.6%	4.4	1.4	5.8	43.4	13.5	1.4	14.9
C1 PRC for Signalled Lanes (%): 20.1 Total Delay for Signalled Lanes (pcuHr): 21.79 Cycle Time (s): 120 PRC Over All Lanes (%): 20.1 Total Delay Over All Lanes(pcuHr): 21.79													

Stage Sequence Diagram

Scenario 2: 'PM Peak Hour 2017 Surveyed Flows' (FG2: 'PM Peak Hour 2017 Surveyed Flows', Plan 1: 'Network Control Plan 1')

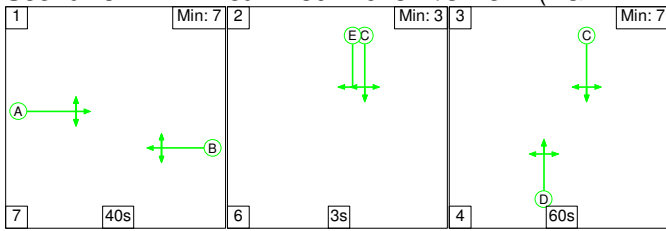
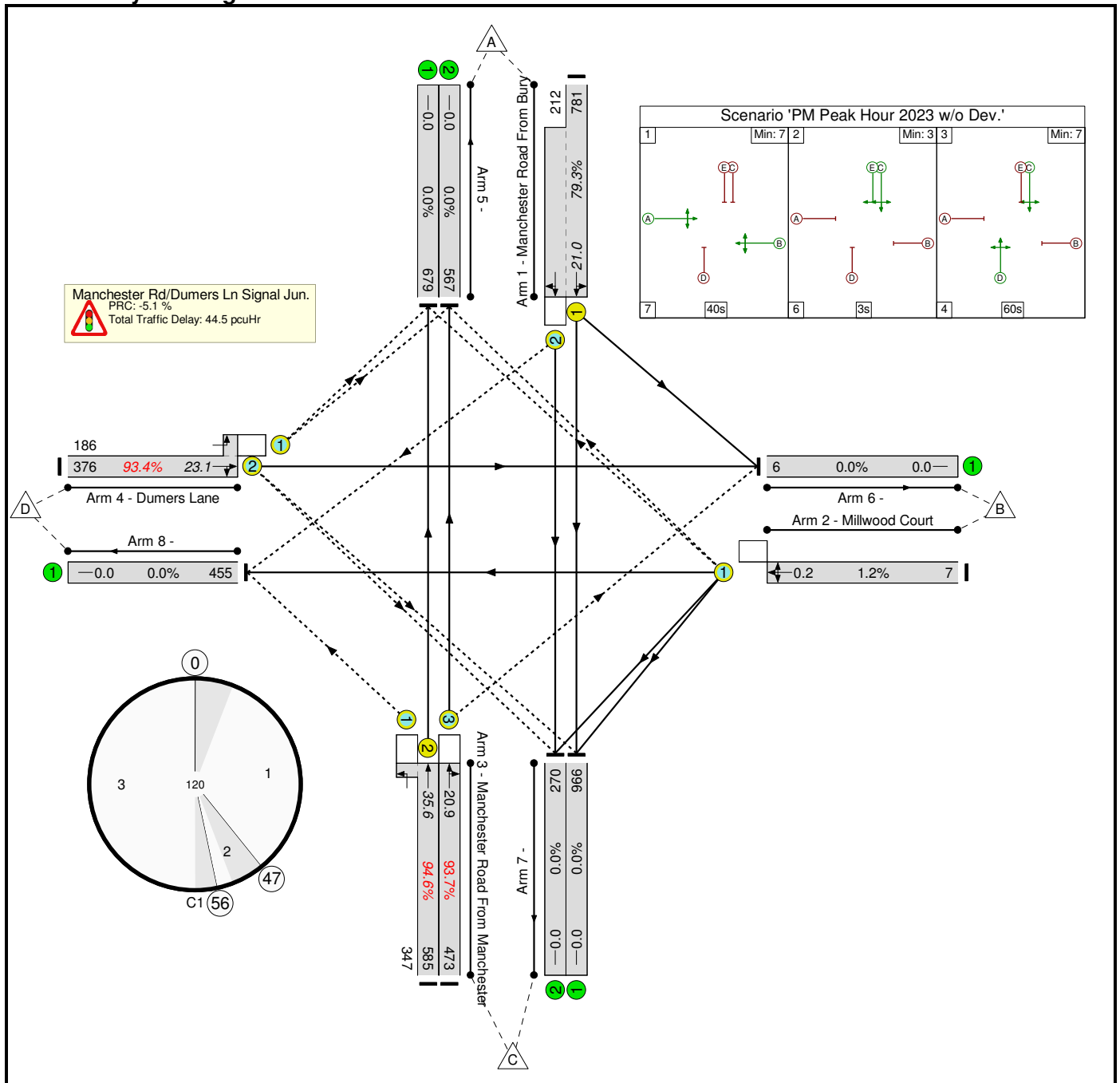
**Network Layout Diagram**

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	89.7%	21.1	11.0	32.7	-	-	-	-
Manchester Rd/Dumers Ln Signal Jun.	-	-	-	-	-	89.7%	21.1	11.0	32.7	-	-	-	-
1/1+1/2	Manchester Road From Bury Left Ahead Right	C	923	1905:1827	1419	65.0%	4.1	0.9	5.2	20.4	12.9	0.9	13.8
2/1	Millwood Court Right Left Ahead	B	7	1643	548	1.3%	0.1	0.0	0.1	30.3	0.2	0.0	0.2
3/2+3/1	Manchester Road From Manchester Ahead Left	D	725	1926:1873	809	89.7%	5.9	4.0	10.3	51.1	20.3	4.0	24.3
3/3	Manchester Road From Manchester Ahead Right	D	580	1907	696	83.4%	5.5	2.4	7.9	48.8	17.6	2.4	20.0
4/2+4/1	Dumers Lane Left Ahead Right	A	523	1731:1981	587	89.1%	5.6	3.7	9.3	63.9	16.1	3.7	19.7
C1 PRC for Signalled Lanes (%): 0.4 Total Delay for Signalled Lanes (pcuHr): 32.72 Cycle Time (s): 120 PRC Over All Lanes (%): 0.4 Total Delay Over All Lanes(pcuHr): 32.72													

Stage Sequence Diagram**Scenario 3: 'AM Peak Hour 2023 w/o Dev.'** (FG3: 'AM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

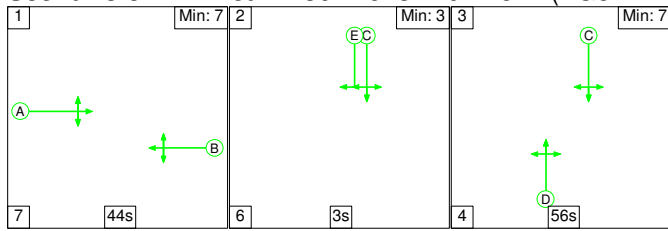
Network Results

[illegible]

Stage Sequence Diagram**Scenario 4: 'PM Peak Hour 2023 w/o Dev.'** (FG4: 'PM Peak Hour 2023 w/o Dev.', Plan 1: 'Network Control Plan 1')**Network Layout Diagram**

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	94.6%	23.8	19.9	44.5	-	-	-	-
Manchester Rd/Dumers Ln Signal Jun.	-	-	-	-	-	94.6%	23.8	19.9	44.5	-	-	-	-
1/1+1/2	Manchester Road From Bury Left Ahead Right	C	993	1905:1784	1252	79.3%	5.5	1.9	7.9	28.8	19.1	1.9	21.0
2/1	Millwood Court Right Left Ahead	B	7	1643	561	1.2%	0.1	0.0	0.1	29.6	0.2	0.0	0.2
3/2+3/1	Manchester Road From Manchester Ahead Left	D	932	1926:1873	985	94.6%	7.1	7.0	14.2	54.9	28.7	7.0	35.6
3/3	Manchester Road From Manchester Ahead Right	D	473	1907	505	93.7%	5.2	5.5	10.7	81.3	15.4	5.5	20.9
4/2+4/1	Dumers Lane Left Ahead Right	A	562	1731:1981	602	93.4%	6.1	5.5	11.6	74.2	17.6	5.5	23.1
C1 PRC for Signalled Lanes (%): -5.1 Total Delay for Signalled Lanes (pcuHr): 44.48 Cycle Time (s): 120 PRC Over All Lanes (%): -5.1 Total Delay Over All Lanes(pcuHr): 44.48													

Scenario 5: 'AM Peak Hour 2023 with Dev.' (FG5: 'AM Peak Hour 2023 with Dev.', Plan 1: 'Network Control Plan 1')

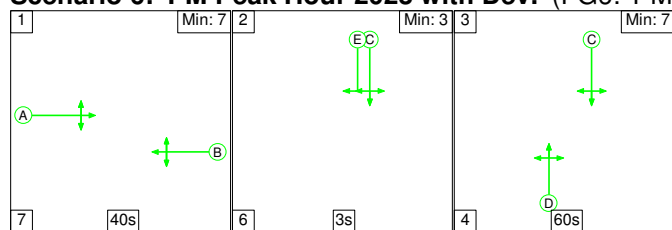


Manchester Rd/Dumers Ln Signal Jun.
 PRC: 7.9 %
 Total Traffic Delay: 27.2 pcuHr

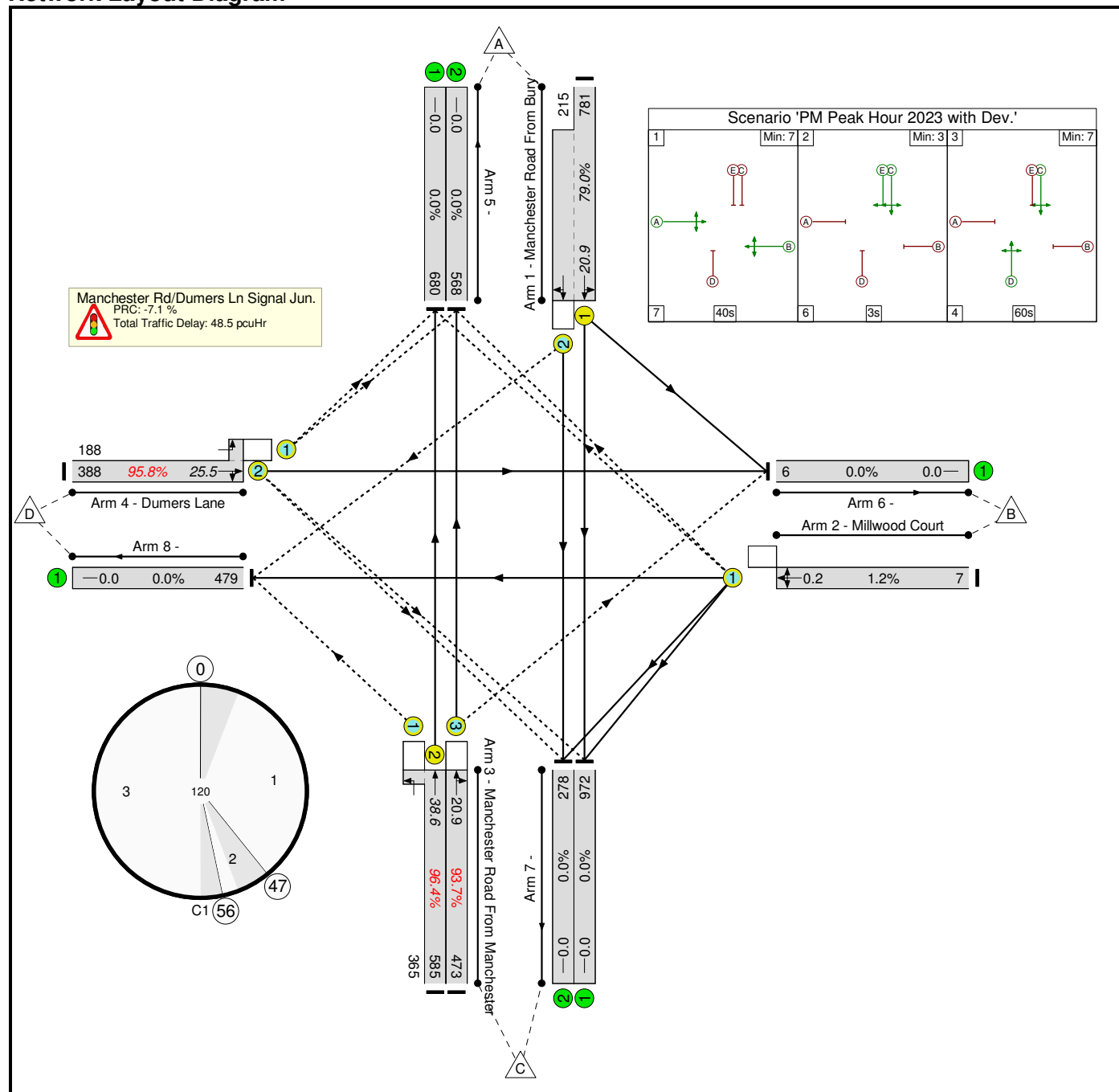
Scenario 'AM Peak Hour 2023 with Dev.'

1	Min: 7	2	Min: 3	3	Min: 7
A	A	A	A	A	A
B	B	B	B	B	B
C	C	C	C	C	C
D	D	D	D	D	D
44s	3s	56s			

[illegible]



Network Layout Diagram



Network Results

Item	Lane Description	Full Phase	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	96.4%	24.2	23.5	48.5	-	-	-	-
Manchester Rd/Dumers Ln Signal Jun.	-	-	-	-	-	96.4%	24.2	23.5	48.5	-	-	-	-
1/1+1/2	Manchester Road From Bury Left Ahead Right	C	996	1905:1782	1260	79.0%	5.3	1.9	7.7	27.8	19.1	1.9	20.9
2/1	Millwood Court Right Left Ahead	B	7	1643	561	1.2%	0.1	0.0	0.1	29.6	0.2	0.0	0.2
3/2+3/1	Manchester Road From Manchester Ahead Left	D	950	1926:1873	985	96.4%	7.4	8.9	16.5	62.7	29.7	8.9	38.6
3/3	Manchester Road From Manchester Ahead Right	D	473	1907	505	93.7%	5.2	5.5	10.7	81.3	15.4	5.5	20.9
4/2+4/1	Dumers Lane Left Ahead Right	A	576	1731:1981	601	95.8%	6.3	7.3	13.5	84.6	18.2	7.3	25.5
C1 PRC for Signalled Lanes (%): -7.1 Total Delay for Signalled Lanes (pcuHr): 48.53 Cycle Time (s): 120 PRC Over All Lanes (%): -7.1 Total Delay Over All Lanes(pcuHr): 48.53													



Appendix J – Pedestrian Access Points



WYG Group

REVISIONS

REV	AMENDMENTS	BY	DATE
A	Revised layout	HH	15.05.18

KEY

- Site Boundary (HCA)
- Site Boundary (Bury Council)
- Proposed Dwellings
- Gardens
- Public Open Space
- Proposed Roads
- Proposed Private Drives
- Emergency Vehicle Access
- Pedestrian / Cycle / Emergency Vehicle Access only
- Public Right of Way
- Proposed Pedestrian Routes
- Retained Trees
- Proposed Trees
- Proposed Realignment of Golt
- Proposed SUDs attenuation ponds
- Retained Reservoir
- Proposed Sports Pavillion/Club House

North