TECHNICAL NOTE

Project Title: Land at Model Farm, Rhoose, PBPC

Report Reference: JNY9624-06A

Date: 06 February 2020

Introduction

1.1 This Technical Note (TN) has been prepared in relation to a planning application for employment uses at Land at Model Farm, Rhoose PBPC. It has been prepared following the receipt of a review document (Mott McDonald Report Ref: 389508AD) of the RPS Transport Assessment (RPS Report Ref: JNY9624-04B) and a subsequent meeting between The Vale of Glamorgan Council (TVoGC), a representative from Mott McDonald on behalf of TVoGC (from hereon in, also referred to as TVoGC), Legal & General (Strategic Land) Ltd and RPS on 21st October 2019. The Review is attached at Appendix A.

1.2 During the meeting on 21st October 2019, there was also discussions on car parking and the estimated build programme. For completeness, both of these items are considered within this TN.

1.3 For the purpose of this TN the Transport Assessment will be referred to as 'the TA', with Mott McDonald's review referred to as 'the Review'. The Review sets out a commentary on the TA with some items raised on technical matters for further submission. The format of this TN consists of the item raised in the Review and/or meeting on 21st October 2019, followed by a response enclosing further information where necessary.

Items Raised and Reponses

Item 1 – Personal Injury Accident Data

1.4 The Review sets out that the TA does not adequately show that there are no highway safety issues in the vicinity of the site. The comments refer to the data protection issues attached to the data received by RPS and the details that can be disclosed in the TA.

1.5 The Review suggests that TVoGC review the accident information that they hold and provide a review of the road safety.

Response to Item 1

1.6 RPS are not able to produce more detailed information and the information submitted within the TA is all that Welsh Government permit due to data protection, as recognised in the Review.

Indeed, RPS had had to destroy the data to conform with the conditions of issue of the data from Welsh Government.

1.7 The Review recommends that TVoGC should review the injury accident data themselves and provide their own view.

1.8 As set out in the TA, RPS reviewed the injury accident data and concluded that there were no common contributory factors that highlight any deficiencies in the highway network.

Item 2 – Modal Share Application

1.9 The Review states, in reference to the modal share proposals, that:

"It is not clear whether the adjusted trip reduction has only been applied to commuting trips and not operational trips, which are not likely to be affected by a Travel Plan. This should be clarified."

Response to Item 2

1.10 RPS confirm that the adjusted trip reduction has only been applied to commuting trips.

Item 3 – Car Parking Requirements

1.11 Building upon car parking standards as set out within the Review, TVoGC sought an estimate of the potential number of car parking spaces during the meeting between TVoGC, Legal & General (Strategic Land) Ltd and RPS on 21st October 2019. TVoGC suggested that an initial estimate of car parking requirements for the development would be useful to provide a level of qualification to the statements within the TA that car parking would be provided based upon car parking standards.

Response to Item 3

1.12 Car parking standards (maximum standards) are set out in The Vale of Glamorgan Local Development Plan 2011 to 2026 Supplementary Planning Guidance 'Parking Standards', adopted in 2015. As recognised in the Review, car parking standards are based upon the location of development sites with five zones.

1.13 As recognised in the Review, the site is currently in zone 6 'deep rural', however, with the wider developments and accessibility improvements coming forward, it is expected that the area within which the site is located would be reclassified.

1.14 Tables 1 and 2 therefore set out the car parking standards for zones five and six (current) and for zones three and four (potential future) respectively. It should be noted that these are maximum car parking standards.

Table 1: Car Parking Standards (maximum standards) (zones 5 & 6 - countryside & deep rural)

Land Use	Gross Floor Area	Operational Standard	Non-Operational Standard
B1 Office *	75,890m²	-	1 space per 40m²
B2 Industrial	37,945m²	10%	1 space per 80m²
B8 Industrial	75,890m²	10%	1 space per 140m²
B8 Storage		1 space per 500m²	-
B8 Warehouse		10%	1 space per 80m²

* note: zones 4 to 6

Table 2: Car Parking Standards (maximum standards) (zones 3 & 4 - urban, suburban, near urban)

Land Use	Gross Floor Area	Operational Standard	Non-Operational Standard
B1 Office *	75,890m²	-	1 space per 60m²
B2 Industrial	37,945m²	10%	1 space per 120m²
B8 Industrial	75,890m²	10%	1 space per 140m²
B8 Storage		1 space per 500m²	-
B8 Warehouse		10%	1 space per 120m²

* note: zones 2 to 3

1.15 An initial estimate of the maximum number of car parking spaces has been made based upon the above car parking standards (maximum standards). There are three different car parking standards for B8 land uses depending upon the specific activities being undertaken (B8 industrial, B8 storage or B8 warehouse). For the purposes of assessment only, it has been assumed that the total B8 GFA is equally mixed of all three.

1.16 The resultant maximum number of car parking spaces based upon zones five and six (current) and zones three and four (potential future) are set out in Tables 3 and 4 respectively.

1.17 For a direct comparison to the vehicular trips generated contained in the TA, the number of maximum car parking spaces have been calculated based upon the GFAs contained in the TA.

Table 3: Maximum Number of Car Parking Spaces (zones 5 & 6 - countryside & deep rural)

Land Use	Gross Floor Area	Operational Provision	Non-Operational Provision	Total Car Parking Spaces
B1 Office *	75,890m^2	-	1,897 spaces	1,897 spaces
B2 Industrial	37,945m^2	3,794.5m^2	474 spaces	474 spaces
B8 Industrial	25,297m^2	2,530m^2	181 spaces	181 spaces
B8 Storage	25,297m^2	51 spaces	-	51 spaces
B8 Warehouse	25,297m^2	6,324m^2	316 spaces	316 spaces
Total				2,919 spaces

* note: zones 4 to 6

Table 4: Maximum Number of Car Parking Spaces (zones 3 & 4 - urban, suburban, near urban)

Land Use	Gross Floor Area	Operational Provision	Non-Operational Provision	Total Car Parking Spaces
B1 Office *	75,890m^2	-	1,265 spaces	1,265 spaces
B2 Industrial	37,945m^2	3,794.5m^2	474 spaces	474 spaces
B8 Industrial	25,297m^2	2,530m^2	181 spaces	181 spaces
B8 Storage	25,297m^2	51 spaces	-	51 spaces
B8 Warehouse	25,297m^2	6,324m^2	211 spaces	211 spaces
Total				2,181 spaces

* note: zones 2 to 3

1.18 As can be seen, if the site is considered within zones five and six (current), the car parking standards (maximum standards) suggest that a maximum of up to 2,919 car parking spaces could be provided.

1.19 If the site is considered within zones three and four (potential future), the car parking standards (maximum standards) suggest that a maximum of up to 2,181 car parking spaces could be provided.

1.20 As set out in the Transport Assessment, the intention is not to provide car parking spaces based upon a maximum standard. Instead, it is proposed to provide a level of car parking that is below the maximum standards in conjunction with a range of transport measures to seek to reduce reliance on the private car.

Item 4 – Highway Capacity Assessment of Sycamore Cross Junction

1.21 The Review notes that the increase in traffic through the Sycamore Cross junction as a result of the proposals is approximately 10%. It suggests that the operation of the Sycamore Cross junction and the impact of development upon the junction is assessed.

Response to Item 4

1.22 A LinSig (v3,2,27,0) model has been constructed in order to analyse the impact of development upon the operation of the Sycamore Cross traffic signal junction during the weekday AM and PM peak hours using the 2026 and 2029 with and without development traffic flow scenarios set out in the TA.

1.23 For ease of reference, the traffic flows through the junction for each of the scenarios are attached at Appendix B. Given that the classification of HGVs in terms of rigid or articulated is not known, PCUs have been calculated by applying a factor of 2.0 to all HGVs.

1.24 The geometries of the junction have recently been improved and it operates under MOVA control (Microprocessor Optimised Vehicle Actuation). The current traffic signal data sheets, observed stage timings downloaded from site (11^{th} to 18^{th} November 2019) and the as built drawings have been supplied by TVoGC. These are attached at Appendix C and have all been used to construct the model.

1.25 The as built layout drawings provided the staging diagrams, lane naming convention and lane markings. The turning radii, lane widths and flare lengths were measured from the drawings and saturation flows were calculated using RR67 methodologies.

1.26 It should be noted that the junction operates under MOVA control and therefore green times, staging and phase times are adjusted in real time on a continual basis depending on traffic demand, queues and vehicle speeds. This cannot be replicated within LinSig and therefore only a fixed time representation of the junction can be modelled. The actual operation of the junction will therefore be better than that modelled within LinSig.

1.27 The junction operates with five stages in total, the fifth being a pedestrian stage. The stage timing data provided by TVoGC shows that this stage is not called during the weekday AM and PM peak hours, therefore pedestrians have not been modelled. The average weekday stage times have been calculated from the data provided by TVoGC and these are set out in Table 5.

Table 5: Observed Average Stage Times

	Stage 1	Stage 2	Stage 3	Stage 4	Cycle Time
AM Peak Hour	11 seconds	25 seconds	11 seconds	12 seconds	83 seconds
PM Peak Hour	19 seconds	15 seconds	12 seconds	10 seconds	80 seconds

1.28 A summary of the LinSig assessments are set out in Tables 6 and 7 for the AM and PM peak hour periods respectively and full output files are attached at Appendix D.

Table 6: Summary of AM Peak Hour LinSig Operational Assessments at Sycamore Cross Junction

Arm / Link & Lane	2026 AM Base Sat %	MMQ	Delay (s/pcu)	2026 AM Base + DEV Sat %	MMQ	Delay (s/pcu)	2029 AM Base Sat %	MMQ	Delay (s/pcu)	2029 AM Base + Dev Sat %	MMQ	Delay (s/pcu)
A4226 Northbound												
1/1 Lane 1- nearside left to A48 W/B and right to A48 E/B	66.0	9.1	30.3	69.3	9.9	31.5	66.6	9.2	30.5	69.7	10.0	31.6
1/2 Lane 2 – offside right turn to A48 eastbound	73.5	11.9	32.4	76.3	12.7	33.8	73.6	11.9	32.5	76.3	12.7	33.8
A48 Westbound Prior to A4226												
2/1 Lane 1 – nearside left turn to A4226	33.3	4.4	10.2	54.9	8.8	12.9	34.4	4.6	10.3	54.1	8.5	12.7
2/2 Lane 2 – offside ahead to A48 westbound	39.8	2.9	42.0	39.2	2.8	41.8	39.8	2.9	42.0	39.5	2.8	41.9
2/3 Lane 3 – offside ahead to A48 westbound 2/4 Lane 4 – offside short flare ahead to A48 westbound	50.1	3.4	39.8	48.6	3.3	39.7	50.2	3.4	39.7	49.1	3.3	39.7
A48 Eastbound between Access Road from Pendoylan and A4226												
5/1 Lane 1 – nearside ahead eastbound to A48	55.6	10.1	7.5	54.3	9.6	7.3	55.8	10.1	7.5	54.9	9.7	7.3
5/2 Lane 2 – offside right turn to A4226	69.0	9.3	24.5	70.8	9.8	25.7	70.5	9.7	25.1	72.4	10.1	27.1
A48 Eastbound Prior to Access Road to Pendoylan												
8/1 Lane 1 - nearside left turn to Pendoylan 8/2 Lane 2 – offside ahead to A48 eastbound	48.6	7.9	15.8	47.5	7.8	15.7	48.8	8.1	15.8	48.0	7.8	15.7
8/3 Lane 3 – offside ahead to A48 eastbound	34.9	5.4	14.3	35.1	5.4	14.3	35.6	5.6	14.4	35.0	5.4	14.3
Access Road from Pendoylan												
13/1 Lane 1 – nearside left turn flare to A48 eastbound 13/2 Lane 2 – offside right turn to A48 westbound	31.8	2.0	38.8	33.4	2.2	39.2	32.7	2.1	38.7	38.1	2.5	39.8
A48 Westbound between A4226 and Access Road to Pendoylan												
14/1 Lane 1 – nearside ahead to A48 westbound	37.6	3.6	9.1	36.4	3.6	9.2	37.7	3.7	9.2	36.8	3.7	9.3
14/2 Lane 2 - offside ahead to A48 westbound	43.1	4.7	9.7	41.2	4.6	9.7	43.2	4.7	9.8	41.9	4.7	9.9
14/3 Lane 3 - offside right turn to Pendoylan and A48 WB	55.1	3.6	57.7	51.1	3.2	56.4	56.6	3.7	58.4	52.3	3.3	57.0
Practical Reserve Capacity Overall %	22.5%			18.0%			22.2%			18.0%		
Total Delay Overall (signal-controlled lanes only) pcuHr	26.11			27.71			26.63			28.35		
Cycle Time	83 Seconds			83 Seconds			83 Seconds			83 seconds		

Table 7: Summary of PM Peak Hour LinSig Operational Assessments at Sycamore Cross Junction

	2026 PM Base			2026 PM Base + DEV			2029 PM Base			2029 PM Base + Dev		
Arm / Link & Lane	**Sat %**	**MMQ**	**Delay (s/pcu)**	**Sat %**	**MMQ**	**Delay (s/pcu)**	**Sat %**	**MMQ**	**Delay (s/pcu)**	**Sat %**	**MMQ**	**Delay (s/pcu)**
A4226 Northbound												
1/1 Lane 1- nearside left to A48 W/B and right to A48 E/B	66.2	8.7	29.7	68.7	9.3	30.5	67.1	8.9	30.1	69.8	9.6	31.0
1/2 Lane 2 – offside right turn to A48 eastbound	65.1	9.5	28.4	73.4	11.5	31.5	65.2	9.5	28.4	74.1	11.6	31.8
A48 Westbound Prior to A4226												
2/1 Lane 1 – nearside left turn to A4226	47.8	6.3	7.2	47.8	6.3	7.2	49.7	6.7	7.4	47.8	6.3	7.2
2/2 Lane 2 – offside ahead to A48 westbound	56.0	6.3	33.9	55.5	6.3	33.7	54.5	6.1	33.5	56.4	6.4	33.9
2/3 Lane 3 – offside ahead to A48 westbound 2/4 Lane 4 – offside short flare ahead to A48 westbound	59.5	5.8	32.2	60.1	6.0	32.3	58.4	5.6	31.8	60.7	6.1	32.5
A48 Eastbound between Access Road from Pendoylan and A4226												
5/1 Lane 1 – nearside ahead eastbound to A48	30.8	5.0	8.0	34.5	5.6	7.8	31.6	5.3	8.1	33.4	5.5	8.0
5/2 Lane 2 – offside right turn to A4226	99.8	17.8	114.4	92.1	12.0	69.4	101.6	20.1	133.0	94.7	13.5	80.6
A48 Eastbound Prior to Access Road to Pendoylan												
8/1 Lane 1 - nearside left turn to Pendoylan 8/2 Lane 2 – offside ahead to A48 eastbound	22.0	2.8	12.7	26.0	3.4	13.0	22.5	2.9	12.7	24.8	3.2	12.9
8/3 Lane 3 – offside ahead to A48 eastbound	30.6	4.5	13.7	28.3	4.0	13.4	31.2	4.6	13.7	29.4	4.2	13.5
Access Road from Pendoylan												
13/1 Lane 1 – nearside left turn flare to A48 eastbound 13/2 Lane 2 – offside right turn to A48 westbound	54.1	3.3	45.3	51.7	3.2	44.5	55.8	3.5	45.8	52.5	3.2	44.4
A48 Westbound between A4226 and Access Road to Pendoylan												
14/1 Lane 1 – nearside ahead to A48 westbound	49.5	4.5	6.7	47.5	4.4	6.5	48.9	7.2	6.8	48.4	4.5	6.6
14/2 Lane 2 - offside ahead to A48 westbound	51.1	7.3	7.6	50.4	7.6	7.7	50.4	7.3	7.7	50.5	7.7	7.7
14/3 Lane 3 - offside right turn to Pendoylan and A48 WB	48.3	3.2	51.1	47.2	3.2	51.4	50.4	3.4	51.6	49.0	3.3	51.6
Practical Reserve Capacity Overall %	-10.9%			-2.3%			-12.9%			-5.3%		
Total Delay Overall (signal-controlled lanes only) pcuHr	35.13			30.99			37.63			32.79		
Cycle Time	80 Seconds			80 Seconds			80 Seconds			80 seconds		

1.29 Table 6 shows that the Sycamore Cross junction is predicted to operate within capacity during the AM peak hour in all 2026 and 2029 scenarios, both with and without development.

1.30 A Practical Reserve Capacity (PRC) of 22.5% is predicted in the 2026 base scenario, reducing to 18.0% in the 2026 base plus development scenario. In 2029, a PRC of 22.2% is predicted without development, reducing to 18.0% with development.

1.31 During the PM peak hour, Table 7 shows the Sycamore Cross junction is predicted to operate at capacity, however, only on one movement; the eastbound right turn from the A48 into the A4226. It is noted that the development does not increase traffic flows on this movement. Indeed, there is a small reduction in vehicle movements on this movement in the with development scenario. Thus, the development does not cause any worsening to this movement or the operation of the junction.

1.32 A PRC of -10.9% is predicted in the 2026 base scenario during the PM peak hour, improving to -2.3% in the 2026 base plus development scenario. In 2029, a PRC of -12.9% is predicted without development, improving to -5.3% with development

1.33 During the PM peak hour, a maximum Degree of Saturation (Sat %) of 99.8% is predicted in the 2026 base scenario on the eastbound right turn from the A48 into the A4226, improving to 92.1% in the 2026 base plus development scenario. In 2029, a Sat % of 101.6% is predicted on the eastbound right turn from the A48 into the A4226 without development, improving to 94.7% with development.

1.34 Although the development will increase traffic flows as a whole through the junction, these increases are on movements that are predicted to operate within capacity and would continue to do so following the addition of development.

1.35 The modelling shows that the development would not result in a significant impact at the Sycamore Cross junction.

Item 5 – Phasing

1.36 Although not specifically mentioned in the Review, phasing was discussed during the meeting between TVoGC, Legal & General (Strategic Land) Ltd and RPS on 21st October 2019. At the time of preparing the planning application, there was not an estimated build out programme and the number of trips generated by each mode of transport for key build-out milestones was not able to be calculated.

Response to Item 5

1.37 Legal & General (Strategic Land) Ltd have since developed a hypothetical build out programme, as set out in Table 8. This is only hypothetical at this stage and only to inform this TN.

Table 8: Estimated Annual Build-Out

Year	B1 – Office	B1c/B2/B8	Industrial Land Sale	Front Land Sale	Total
1	929 m²	4,625 m²	8,361 m²	2,323 m²	16,258 m²
2	929 m²	4,625 m²	8,361 m²	465 m²	14,400 m²
3	929 m²	4,625 m²	5,574 m²	465 m²	11,613 m²
4	929 m²	4,625 m²	5,574 m²	1,858 m²	13,006 m²
5	929 m²	4,625 m²	4,831 m²	2,323 m²	13,471 m²
6	929 m²	4,625 m²	4,831 m²	1,858 m²	12,263 m²
7	929 m²	4,625 m²	4,831 m²	2,323 m²	12,728 m²
8	929 m²	4,625 m²	4,831 m²	2,323 m²	12,728 m²
9	929 m²	4,625 m²	4,831 m²	-	10,405 m²
10	929 m²	4,625 m²	4,831 m²	-	10,405 m²
11	929 m²	4,625 m²	4,831 m²	-	10,405 m²
12	929 m²	4,625 m²	-	-	5,574 m²
13	929 m²	4,625 m²	-	-	5,574 m²
14	-	4,625 m²	-	-	4,645 m²
15	-	4,625 m²	-	-	4,645 m²
Total	**12,077 m² GFA**	**69,677 m² GFA**	**62,430 m² GFA**	**13,935 m² GFA**	**158,120 m² GFA**

1.38 In summary, estimated Gross Floor Area (GFA) per land use is broken down into the following mix:

- B1 Office: approx. 12,000m² GFA;
- B1c / B2 / B8: approx. 70,000m² GFA;
- Industrial Land Sale: approx. 62,000m² GFA; and
- Front Land Sale: approx. 14,000m² GFA.

1.39 For assessment purposes only, to enable a direct comparison to the TA, the following assumptions have been made:

- The above B1 build out is representative of the B1 assumptions (including trip rate) in the TA;
- The above B1(C)/B2/B8 build out is one-third B1, one-third B2 and one-third B8 and representative of each of these assumptions (including trip rate) in the TA;
- The above front land sale build out is one-third B1, one-third B2 and one-third B8 and representative of each of these assumptions (including trip rate) in the TA; and
- The above industrial land sale build out is representative of the B2 assumptions (including trip rate) in the TA.

1.40 Using this estimated phasing, the multi modal trip generating capabilities for each year of the build out has been calculated for the AM (07:45 to 08:45) and PM (16:30 to 17:30) peak hours as well as a 12 hour (07:00 to 19:00) daily period. The results are summarised in Table 9.

Table 9: Estimated Trip Generation Capability per Year

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
Year 1								
AM Peak (0745-0845)	71	3	15	3	12	12	6	123
PM Peak (1630-1730)	67	3	15	3	12	12	6	116
12 Hour (0700-1900)	587	26	128	26	102	102	51	1020
Year 2								
AM Peak (0745-0845)	62	3	13	3	11	11	5	107
PM Peak (1630-1730)	59	2	13	2	10	10	5	102
12 Hour (0700-1900)	512	22	111	22	89	89	45	891
Year 3								
AM Peak (0745-0845)	53	2	12	2	9	9	5	92
PM Peak (1630-1730)	49	2	11	2	9	9	4	86
12 Hour (0700-1900)	433	19	94	19	75	75	38	754
Year 4								
AM Peak (0745-0845)	60	3	13	3	10	10	5	104
PM Peak (1630-1730)	56	2	12	2	10	10	5	97
12 Hour (0700-1900)	489	21	106	21	85	85	42	850
Year 5								
AM Peak (0745-0845)	62	3	14	3	11	11	5	108
PM Peak (1630-1730)	58	2	13	2	10	10	5	100
12 Hour (0700-1900)	508	22	110	22	88	88	44	883
Year 6								
AM Peak (0745-0845)	58	3	13	3	10	10	5	100
PM Peak (1630-1730)	53	2	12	2	9	9	5	93
12 Hour (0700-1900)	468	20	102	20	81	81	41	814
Year 7								
AM Peak (0745-0845)	60	3	13	3	10	10	5	104
PM Peak (1630-1730)	55	2	12	2	10	10	5	96
12 Hour (0700-1900)	487	21	106	21	85	85	42	846
Year 8								
AM Peak (0745-0845)	60	3	13	3	10	10	5	104
PM Peak (1630-1730)	55	2	12	2	10	10	5	96
12 Hour (0700-1900)	487	21	106	21	85	85	42	846
Year 9								
AM Peak (0745-0845)	48	2	11	2	8	8	4	84
PM Peak (1630-1730)	45	2	10	2	8	8	4	78
12 Hour (0700-1900)	394	17	86	17	68	68	34	685
Year 10								
AM Peak (0745-0845)	48	2	11	2	8	8	4	84
PM Peak (1630-1730)	45	2	10	2	8	8	4	78
12 Hour (0700-1900)	394	17	86	17	68	68	34	685
Year 11								
AM Peak (0745-0845)	48	2	11	2	8	8	4	84
PM Peak (1630-1730)	45	2	10	2	8	8	4	78
12 Hour (0700-1900)	394	17	86	17	68	68	34	685
Year 12								
AM Peak (0745-0845)	33	1	7	1	6	6	3	58
PM Peak (1630-1730)	29	1	6	1	5	5	3	50

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
12 Hour (0700-1900)	257	11	56	11	45	45	22	446
				Year 13				
AM Peak (0745-0845)	33	1	7	1	6	6	3	58
PM Peak (1630-1730)	29	1	6	1	5	5	3	50
12 Hour (0700-1900)	257	11	56	11	45	45	22	446
				Year 14				
AM Peak (0745-0845)	23	1	5	1	4	4	2	41
PM Peak (1630-1730)	21	1	5	1	4	4	2	36
12 Hour (0700-1900)	186	8	40	8	32	32	16	323
				Year 15				
AM Peak (0745-0845)	23	1	5	1	4	4	2	41
PM Peak (1630-1730)	21	1	5	1	4	4	2	36
12 Hour (0700-1900)	186	8	40	8	32	32	16	323

1.41 It should be noted that the above estimates are based upon the predicted build out of the development, whereas the application seeks up to 189,000m^2 GFA. Table 10 has therefore been created to show the annual trip generation of the proposals based upon the maximum GFA sought as part of the planning application.

Table 10: Estimated Trip Generation Capability per Year (189,000m^2 GFA)

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
				Year 1				
AM Peak (0745-0845)	85	4	19	4	15	15	7	148
PM Peak (1630-1730)	80	3	17	3	14	14	7	140
12 Hour (0700-1900)	704	31	153	31	122	122	61	1224
				Year 2				
AM Peak (0745-0845)	74	3	16	3	13	13	6	129
PM Peak (1630-1730)	70	3	15	3	12	12	6	122
12 Hour (0700-1900)	615	27	134	27	107	107	53	1069
				Year 3				
AM Peak (0745-0845)	63	3	14	3	11	11	6	110
PM Peak (1630-1730)	59	3	13	3	10	10	5	103
12 Hour (0700-1900)	520	23	113	23	90	90	45	904
				Year 4				
AM Peak (0745-0845)	72	3	16	3	12	12	6	125
PM Peak (1630-1730)	67	3	14	3	12	12	6	116
12 Hour (0700-1900)	587	26	128	26	102	102	51	1020
				Year 5				
AM Peak (0745-0845)	75	3	16	3	13	13	6	130
PM Peak (1630-1730)	69	3	15	3	12	12	6	120
12 Hour (0700-1900)	609	27	132	27	106	106	53	1059
				Year 6				
AM Peak (0745-0845)	69	3	15	3	12	12	6	120
PM Peak (1630-1730)	64	3	14	3	11	11	6	111
12 Hour (0700-1900)	561	24	122	24	98	98	49	977
				Year 7				
AM Peak (0745-0845)	72	3	16	3	12	12	6	125
PM Peak (1630-1730)	66	3	14	3	12	12	6	115

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
12 Hour (0700-1900)	584	25	127	25	102	102	51	1015
Year 8								
AM Peak (0745-0845)	72	3	16	3	12	12	6	125
PM Peak (1630-1730)	66	3	14	3	12	12	6	115
12 Hour (0700-1900)	584	25	127	25	102	102	51	1015
Year 9								
AM Peak (0745-0845)	58	3	13	3	10	10	5	101
PM Peak (1630-1730)	54	2	12	2	9	9	5	94
12 Hour (0700-1900)	472	21	103	21	82	82	41	821
Year 10								
AM Peak (0745-0845)	58	3	13	3	10	10	5	101
PM Peak (1630-1730)	54	2	12	2	9	9	5	94
12 Hour (0700-1900)	472	21	103	21	82	82	41	821
Year 11								
AM Peak (0745-0845)	58	3	13	3	10	10	5	101
PM Peak (1630-1730)	54	2	12	2	9	9	5	94
12 Hour (0700-1900)	472	21	103	21	82	82	41	821
Year 12								
AM Peak (0745-0845)	40	2	9	2	7	7	3	69
PM Peak (1630-1730)	35	1	8	1	6	6	3	61
12 Hour (0700-1900)	308	13	67	13	54	54	27	536
Year 13								
AM Peak (0745-0845)	40	2	9	2	7	7	3	69
PM Peak (1630-1730)	35	1	8	1	6	6	3	61
12 Hour (0700-1900)	308	13	67	13	54	54	27	536
Year 14								
AM Peak (0745-0845)	28	1	6	1	5	5	2	49
PM Peak (1630-1730)	25	1	5	1	4	4	2	43
12 Hour (0700-1900)	223	10	48	10	39	39	19	388
Year 15								
AM Peak (0745-0845)	28	1	6	1	5	5	2	49
PM Peak (1630-1730)	25	1	5	1	4	4	2	43
12 Hour (0700-1900)	223	10	48	10	39	39	19	388

1.42 The multi modal trip generation shown in Table 10 (189,000m^2 GFA) has been aggregated to determine the cumulative trips per annum generated by the build out of the proposals, as shown in Table 11.

Table 11: Estimated Cumulative Trip Generation Capability (189,000m^2 GFA)

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
Year 1								
AM Peak (0745-0845)	85	4	19	4	15	15	7	148
PM Peak (1630-1730)	80	3	17	3	14	14	7	140
12 Hour (0700-1900)	704	31	153	31	122	122	61	1,224
Year 2								
AM Peak (0745-0845)	159	7	35	7	28	28	14	277
PM Peak (1630-1730)	151	6	33	6	26	26	13	262
12 Hour (0700-1900)	1,319	57	287	57	229	229	115	2,293

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
Year 3								
AM Peak (0745-0845)	222	10	48	10	39	39	19	387
PM Peak (1630-1730)	210	9	46	9	37	37	18	365
12 Hour (0700-1900)	1,838	80	400	80	320	320	160	3,197
Year 4								
AM Peak (0745-0845)	294	13	64	13	51	51	26	512
PM Peak (1630-1730)	277	12	60	12	48	48	24	481
12 Hour (0700-1900)	2,425	106	527	106	422	422	211	4,218
Year 5								
AM Peak (0745-0845)	369	16	80	16	64	64	32	642
PM Peak (1630-1730)	346	15	75	15	60	60	30	602
12 Hour (0700-1900)	3,034	132	660	132	528	528	264	5,277
Year 6								
AM Peak (0745-0845)	438	19	95	19	76	76	38	762
PM Peak (1630-1730)	410	17	89	17	71	71	36	713
12 Hour (0700-1900)	3,596	157	782	157	625	625	312	6,253
Year 7								
AM Peak (0745-0845)	510	22	111	22	89	89	44	887
PM Peak (1630-1730)	477	20	103	20	83	83	42	828
12 Hour (0700-1900)	4,180	182	909	182	727	727	363	7,269
Year 8								
AM Peak (0745-0845)	581	26	127	26	101	101	51	1,012
PM Peak (1630-1730)	543	23	118	23	95	95	47	943
12 Hour (0700-1900)	4,763	207	1,036	207	828	828	414	8,284
Year 9								
AM Peak (0745-0845)	639	28	139	28	111	111	56	1,113
PM Peak (1630-1730)	597	25	129	25	104	104	52	1,037
12 Hour (0700-1900)	5,236	228	1,138	228	910	910	455	9,105
Year 10								
AM Peak (0745-0845)	697	31	152	31	121	121	61	1,214
PM Peak (1630-1730)	651	28	141	28	113	113	57	1,131
12 Hour (0700-1900)	5,708	249	1,241	249	992	992	496	9,927
Year 11								
AM Peak (0745-0845)	755	33	165	33	131	131	66	1,314
PM Peak (1630-1730)	705	30	153	30	123	123	61	1,225
12 Hour (0700-1900)	6,180	269	1,344	269	1,075	1,075	537	10,748
Year 12								
AM Peak (0745-0845)	795	35	173	35	138	138	69	1,384
PM Peak (1630-1730)	740	31	160	31	129	129	64	1,285
12 Hour (0700-1900)	6,488	283	1,411	283	1,128	1,128	564	11,284
Year 13								
AM Peak (0745-0845)	835	37	182	37	145	145	73	1,453
PM Peak (1630-1730)	775	33	168	33	135	135	67	1,346
12 Hour (0700-1900)	6,796	296	1,478	296	1,182	1,182	590	11,819
Year 14								
AM Peak (0745-0845)	863	38	188	38	150	150	75	1,502
PM Peak (1630-1730)	799	34	173	34	139	139	70	1,389
12 Hour (0700-1900)	7,019	306	1,526	306	1,220	1,220	610	12,207

Period	Car Driver	Rail	Bus	M/C	Car Passenger	Bicycle	On Foot	Total
				Year 15				
AM Peak (0745-0845)	891	39	194	39	155	155	77	1,550
PM Peak (1630-1730)	824	35	179	35	144	144	72	1,432
12 Hour (0700-1900)	7,242	315	1,575	315	1,259	1,259	629	12,595

1.43 The vehicular trips generated in Table 11 are slightly lower than those set out in the TA. This is because the TA was based upon the total GFA of 189,000m^2 comprising of 40% B1 / 20% B2 / 40% B8, which was devised in advance of a potential build out being developed and to ensure a worst case in terms of traffic generation was assessed.

1.44 Given that the vehicular trips generated in Table 11 are slightly lower than those set out in the TA, it provides confidence to the assessments in the TA being robust.

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Appendices

Appendix A – Transport Assessment Review Document

MOTT MACDONALD

Land at Model Farm

Transport Assessment Review

28 October 2019

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The Vale of Glamorgan Council

Land at Model Farm

Transport Assessment Review

28 October 2019

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Issue and Revision Record

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Information class: Standard

Contents

1 Introduction

Mott MacDonald were commissioned by the Vale of Glamorgan Council (TVoGC) in September 2019 to undertake a review of a Transport Assessment submitted in support of an outline planning application, for land at Model Farm near Rhoose.

The Transport Assessment was undertaken in July 2019 by RPS on behalf of Legal & General (Strategic Land) Ltd. The application proposes mixed use employment:

- B1 Office - 75,890m^2
- B2 General Industrial - 37,945m^2
- B8 Storage and Distribution - 75,890m^2

This report will broadly follow the structure of the Transport Assessment (TA) and provide comment and recommendation where appropriate.

2 Policy Review

Section 2 of the Transport Assessment (TA) provides an overview of relevant planning and transport policy. It highlights some of the key and relevant issues in terms of land use planning and transport.

The review considers most of the relevant national and local policy documents. The Well-being of Future Generations Act should be considered in this section and how the proposed development works towards achieving the well-being goals.

Paragraph 2.15-2.23 focuses on local planning and transport policy. It provides the aims and objectives of the Local Transport Plan (LTP) and sets out the transport requirements of the Local Development Plan (LDP). The development site is identified on the LDP proposals map as a site for Employment Allocation and Strategic Development. Rhoose to the west of the site is considered a Primary Settlement. The LTP indicates that the A4226 forms part of the strategic highway network and is identified as a Strategic Transport Corridor. The LTP references a number of issues, opportunities and interventions along this corridor.

The TA acknowledges that the policy documents aim to promote sustainable travel to and from developments and encourage development in areas that maximise sustainable transport opportunities, including an emphasis on cycling and walking for shorter trips. New developments should have no unacceptable highway safety or congestion impacts.

It is considered that the proposed development is generally in accord with local and national policy. The site is located in an LDP allocation for employment and strategic development, with good opportunity to incorporate walking and cycling infrastructure into the internal design and development of the site. However, to increase the mode share of public transport and active travel journeys from wider key destinations, suitable mitigation will be required. The strategic transport corridor should remain resilient and congestions free, with alternative modes of travel available that are viable and attractive to users.

3 Existing and Baseline Conditions

The application site forms a parcel of land located between Cardiff Airport and Porthkerry Park, approximately 2km northeast of Rhoose and 4km west of Barry. The land is separated from the airport by Port Road and Porthkerry Road, which forms a border along the western edge of the proposed site

Allocated in the LDP, the site forms part of the Cardiff Airport – St. Athan Enterprise Zone, and the vision for the wider development area is to create an 'airport city'.

The site is isolated from the existing settlements and composed solely of employment land uses. As such currently it could be considered to have a low degree of sustainability, although this will improve as the wider area and airport city is developed. It would be possible to improve sustainability by ensuring that some amenities (for example a shop, café or gym) are available to workers at the site.

The TA provides an accurate description of the local highway network. The main access route to the development site will be from the A4226 to the north, via the A4226/Port Road roundabout. The site can also be accessed from the south, via Porthkerry Road from Rhoose.

It should be noted that Porthkerry Road has lighting for approximately 450m from the Port Road roundabout at its northern end. The remaining 1.4km before the road enters Rhoose is currently unlit. This will affect its suitability as a walking and cycling route between Rhoose and the development.

National Cycle Network route 88 provides a route for cyclists and pedestrians to Barry and Rhoose, including an off-carriageway shared pedestrian/cycle route alongside Porthkerry Road to Rhoose, and a path through Porthkerry County Park to the southwestern edge of Barry. The TA suggests that these routes will also be used by commuters, with Rhoose railway station and residential areas of Rhoose and Barry within a 40 minute walking distance.

While considered to be within an acceptable commute time for cyclists, to both Rhoose and Barry, it is not considered acceptable for commuting on foot. In addition to the journey time, Porthkerry Road is not lit in full and neither is the path through Porthkerry County Park, which will limit the attractiveness in terms of safety and security for users, particularly during winter months and hours of darkness.

Three bus stops are identified close to the development site. One on the A4226 and two serving airport hotels on Port Road. The closest rail stations are identified as Rhoose and Barry.

The TA summarises the bus services available from the three nearby stops and the rail services from Rhoose Rail Station. It is noted that service X91 no longer operates.

Hourly rail services to Cardiff Central, Bridgend and Aberdare and a service to Newport run every 30 minutes. The higher frequency to Newport is possible because of the option to travel via Bridgend and approach Rhoose from the west. Barry Station has a higher service frequency, with a service to Cardiff every 15-20 minutes.

The three existing bus stops would serve most of the development, within the 400m (desirable walkable distance). It is understood that bus routes are also to be extended into the development site.

The TA suggests that rail users would walk from the development site to Rhoose and Barry stations. Due to the walk times, this is considered unlikely, and therefore bus services should be an important aspect of the transport implementation strategy.

Personal injury accident data has been reviewed for the most recent five years available. The TA provides the number of slight and serious collisions at each junction and details of the type of vehicles involved. No further information is provided on the nature of the accidents. The TA states that the road network has an atypical number of injury accidents and concludes that there are no highway safety issues on the network that was analysed.

Causation factors have not been made available due to Welsh Government data protection and confidentiality restrictions. It is recommended that TVoGC review the accident information they hold and provide a view on the road safety. However, a review of the area using crashmap.co.uk has been undertaken, which shows three accidents grouped together in close proximity to the proposed site access points. One at the A4226/Port Road roundabout and another on Port Road to the south of the Hilton access roundabout. In addition, there were two serious accidents on Porthkerry Road. At present the TA does not adequately show that there are no highway safety issues in the vicinity of the site.

4 Development Proposals

This section outlines the nature and location of the proposed development, including the proposed access arrangements:

- Northern access: a forth arm on the Port Road/A4226 roundabout.
- Southern access: a priority controlled T-junction from the unnamed road that serves the Holiday Inn Express.

For both junctions, outline designs have been provided, which have been used to assess the junction capacity. At the northern access a four-arm roundabout is proposed with an increased ICD of 60m. The local road alignment will be slightly adjusted to accommodate the fourth arm, and the A4226 approach arms will be widened to a three-lane flare.

The detailed design of these junctions and the internal roads will be a reserved matter, to be agreed with TVoGC. The layout is considered to be acceptable in principal and suitable to use for junction capacity analysis. It is recommended that a Road Safety Audit is also conditioned in reserved matters.

The sites Sustainable Access Strategy includes incorporating good quality walking and cycling routes into the site design, including along the main spine road, with links to the surrounding network at appropriate points and the provision of bus stops within the site. The internal infrastructure will also provide an alternative route to Port Road for pedestrians and cyclists from outside of the development.

The TA suggests that TVoGC are receiving contributions from developers for the improvement of public transport services and therefore, will separately confirm the final public transport strategy associated with the Model Farm development. Details of the public transport strategy need to be agreed and confirmed. The TA is based on a significant change in modal share, primarily as a result of increased journeys by cycling, bus and as a passenger. The number of trips by bus has been assumed to increase by 10%. Therefore, the public transport strategy is considered to be crucial in ensuring the development is sustainable, with good opportunity to travel from wider destinations by modes other than private car.

5 Car Parking Management

This chapter of the TA presents draft measures for a Car Parking Management Plan (CPMP), which is to be produced in full for the reserved matters application.

The TA correctly identifies the development site, in the Vale of Glamorgan Parking Standards site, as in Zone E – Deep Rural. It is recognised that if the wider development aspirations of the enterprise zone are fulfilled, particularly with enhancements to public transport, the site would no longer be classified as deep rural. However, it is noted that the parking standard applied to offices in Zone E is the same as for Zones D (Countryside) for industrial and warehouse uses and also as C (suburban – as Rhoose and the outer areas of Barry) for office uses. The maximum parking standard quoted are therefore not considered to be excessively high based on TVoGC's parking standards.

For Heavy Goods Vehicles, the TA states that parking will be provided to match the need of the occupiers. Operational areas, layout and parking will need to be considered in detail and approved by TVoGC as a reserved matter.

The TA quotes the Vale of Glamorgan standard for cycle parking proposes an increased provision, to be agreed with the TVoGC. Motorcycle provision is suggested to be 5% of total parking provision.

The CPMP includes considering a parking permit system and barrier controls. It suggests restricting employees within a set distance from obtaining a permit. TROs are to be used throughout the site to prevent parking on internal roads. Appropriate provision is to be made for electric vehicle charging and car sharing spaces.

It is agreed that there will need to be an emphasis on parking management, which will play an important role in encouraging sustainable travel, by limiting and restricting availability. As the site is in close proximity to Cardiff Airport, parking controls and enforcement will be required to prevent airport users from parking erroneously.

6 Future Year Transport Situation

This section outlines the transport schemes that are likely to be implemented in future years that will provide a benefit and improve access to the proposed development site. It includes work proposed as part of the development as well as other committed schemes:

- Five Mile Lane improvements including Waycock Cross and Sycamore Cross junctions;
- The Pendoylan Link, to connect the M4 Junction 34 to the A48 at Sycamore Cross;
- Mitigation to walking routes to the development from Rhoose and Barry;
- Pedestrian access to bus stops on port Road, providing a safe alternative to walking on Port Road;
- Cycleways expected on the A4226, Five Mile Lane, and within Barry;
- Completion and extension of NCN88, leading to a cycle route from Bridgend to Cardiff and Newport;
- Cycleway connections within the site and connecting to external cycleways;
- Increased service frequencies for bus and rail;
- Upgrading of bus stops on Port Road;

Traffic forecasting uses the South East Wales Transport Model, which includes committed development. It is agreed that the future year traffic assessments should include the Five Mile Lane development but not the Pendoylan Link.

The suggested improvements to walking and cycling links are considered integral to delivering a sustainable development. However, this section of the TA does not provide any detail of how walking routes will be mitigated and how the improvements will be delivered. Lighting and signage should be considered. Clarification is required in discussion with TVoGC.

7 Development Travel Demand

Vehicle trip generation has been estimated using the TRICs database. The parameters used in the TRICS assessment are considered appropriate. The office component of the development is categorised as business park rather than office, which may result in a slightly lower trip rate, but is considered to best reflect the proposed land use.

It is noted that sites with high public transport use have been deselected, which is considered to be accurate and robust. This will help to ensure that a realistic proportion of public transport use is assumed. Sites with travel plans have also been excluded, this approach is assumed to have been taken to avoid double counting the vehicle reduction effects of implementing a Travel Plan.

A baseline modal share has been estimated using the neighbouring MSOA, which includes Cardiff Airport, Rhoose and the surrounding area.

The adjusted trip rates and modal share, to be achieved by the development proposals and implementing the travel plan, are considered ambitious. However, if the proposed transport improvements are delivered, together with the wider public transport strategy and development of the enterprise zone, the adjusted modal share is not considered unrealistic.

It is not clear whether the adjusted trip reduction has only been applied to commuting trips and not operational trips, which are not likely to be affected by a travel plan. This should be clarified.

8 Strategic Modelling and Transport Impact

As agreed during the scoping, the traffic impact of the development has been assessed by Norman Rourke Pryme using the SEWTM model. The 2026 future year model has been used as well as a 2029 model created by Norman Rourke Pryme by applying TEMPRO growth rates to the 2026 model.

The TA considers the impact of development traffic on surrounding highway junctions, identifying those with an increase of greater than 10%. These junctions have then been subject to further, more detailed junction assessments. In addition to the junctions identified in the TA, it is recommended that the Sycamore Cross junction is also assessed, due to its strategic importance and the percentage increase being approximately 10%.

The assessment of Weycock Cross roundabout forecasts an operation RFC (ratio of flow to capacity) which is greater than 0.90 in both 2026 and 2029. The TA acknowledges that suitable mitigation will need to be determined and agreed with TVoGC. Consideration should be given to development phasing and conditioning appropriate levels of mitigation based on agreed thresholds.

Aside to using the SEWTM the Transport Assessment also includes a link capacity assessment for Port Road (A4226), between the site access roundabout and Weycock Cross roundabout. The link has been categorised as an Urban All-Purpose 1 road. Although the section of road is rural in feel for some of its length, the categorised road type used in the assessment is considered appropriate and provides a good indication of theoretical capacity levels.

It should be noted that although it is agreed that forecast flows for 2026 and 2029 will remain within the capacity limits, they will increase significantly, and this section of road will be at its link capacity limit. The road between the airport and Weycock Roundabout forms part of the strategic road network and mitigation measures should be considered to ensure resilience and reduce congestion.

The impact of construction traffic has not been assessed in the TA. It is agreed that due to the type of development the number of HGVs during construction is not likely to be higher than when the development is fully operational and therefore unlikely there will be any capacity issues. However, a draft construction traffic management plan should be included, or a detailed plan considered in reserved matters.

9 Transport Implementation Strategy

Section 10 of the TA sets out the transport proposals that will maximise the potential sustainable travel modes, including:

- Framework Travel Plan (FTP);
- Walking and Cycling Strategy;
- Public Transport Strategy;
- Vehicular Access Strategy; and
- Car Parking Management Plan (CPMP).

In line with TAN 18 the Transport Implementation Strategy (TIS) details the measures proposed to improve access by public transport, walking and cycling. Highlighting the opportunity to reduce the number of motorised journeys associated with the proposal. Objectives and targets relating to managing travel demand for the development have been identified. However, the infrastructure measures and financial contributions necessary to achieve them have not been made clear.

10 Summary and Conclusions

Mott MacDonald were commissioned by the Vale of Glamorgan Council to undertake a review of a Transport Assessment submitted in support of an outline planning application, for land at Model Farm, Rhoose.

The site forms part of a wider Enterprise Zone and is located adjacent to the Cardiff International Airport, approximately 1.5 km east of Rhoose and 4km west of Barry. A mix of employment use is being proposed, including:

- B1 Office – 75,890m^2
- B2 General Industrial – 37,945m^2
- B8 Storage and Distribution – 75,890m^2

The application is for outline planning permission, with all matters reserved except of access. The Transport Assessment is proportionate in terms of the level of detail provided. The methodology and level of assessment is considered robust.

Although subject to detail design, the Transport Assessment (TA), Travel Plan and illustrative masterplan include measures that will promote sustainability. Providing walking and cycling links to existing infrastructure and a spine road through the site that enables buses to penetrate the development.

A Draft Car Parking Management Plan (CPMP) follows the guidance set out in TVoGC's parking standards. The proposed measures and a desire to keep parking levels below the maximum standards will help to decrease the number of single occupancy vehicle trips. A full and detailed CPMP will be a reserved matter.

The impact of construction traffic has not been assessed. Given that the number of vehicle trips during construction is expected to be much less than post construction, when the site is fully developed, it is agreed that this does not need to be assessed separately. However, it is recommended that a Draft Construction Traffic Management Plan should be provided.

A Draft Framework Travel Plan has been developed and has been considered in conjunction with the TA. The travel plan will be implemented across the site and includes appropriate, targets, measures and marketing techniques to promote a sustainable travel to employees and visitors. A site-wide Travel Plan Co-ordinator will need to be appointed and at detailed design individual travel plans will need to be developed and monitored.

As a result of proposed and potential mitigation, for development related trips, the forecast change in modal share is approximately a 19% decrease in single occupancy vehicle trips compared to baseline travel patterns. This is considered to be significant. To achieve this level of shift then the parking management, public transport strategy and walking/cycling improvements will need to proportionate.

The transport issues for the development, such as potential mitigation and detailed access design, will be determined at the reserved matters and detailed design stage of the application.

An assessment of the impact of the traffic generated by the development using TRiCS and the SEWTM model of 11 junctions has been undertaken by Norman Rourke Pryme. As a result of the strategic modelling exercise, more detailed operational assessments have been undertaken at three junctions to determine the transport impact. Weycock Cross roundabout is forecast to operate over capacity and will require mitigation. The development impact at Sycamore Cross is shown to be 10%. Due to its strategic importance, it is recommended that this junction is also subject to more detailed analysis.

The proposed development will result in a significant increase in vehicle trips on the local highway network, particularly on the section of road between Weycock Cross and the Airport. The assessment considers and identifies future improvements to public transport and walking/cycling infrastructure in principle, however, it is not clear how and when these measures will be delivered.

Mitigating measures will need to limit congestion and help to provide a more resilient strategic road network for those who will still need to travel by vehicle. To ensure and promote sustainability, it is considered that walking, cycling and public transport links to the wider key origins will need to be an integral part of the development.

It is recommended that the proposed mitigation measures identified in the TA are expanded upon, in terms of the required infrastructure and financial contributions necessary to deliver them. The mitigation measures should be agreed and conditioned by TVoGC, to secure better conditions for pedestrians, cyclists and public transport users and to encourage a change in travel choices away from the single occupancy car. In addition, consideration should be given to delivery, and how the development will be phased. Appropriate thresholds will need to be agreed, to ensure the right level of mitigation is provided as the development expands and the wider enterprise zone continues to grow.

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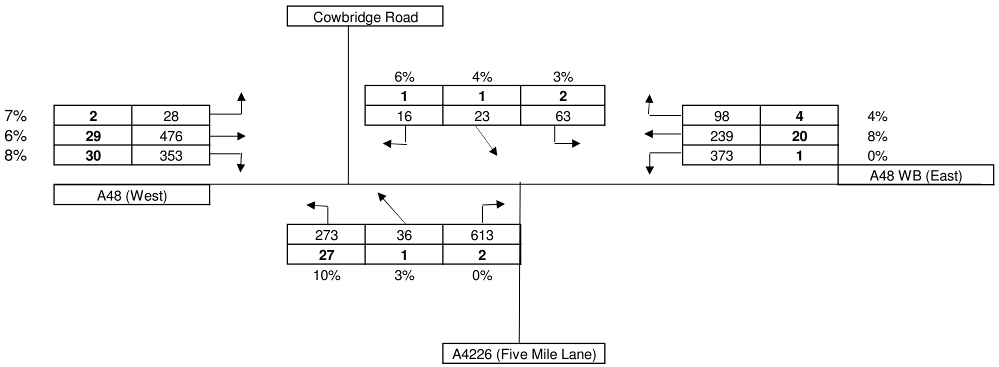
Appendix B – Sycamore Cross Traffic Flows

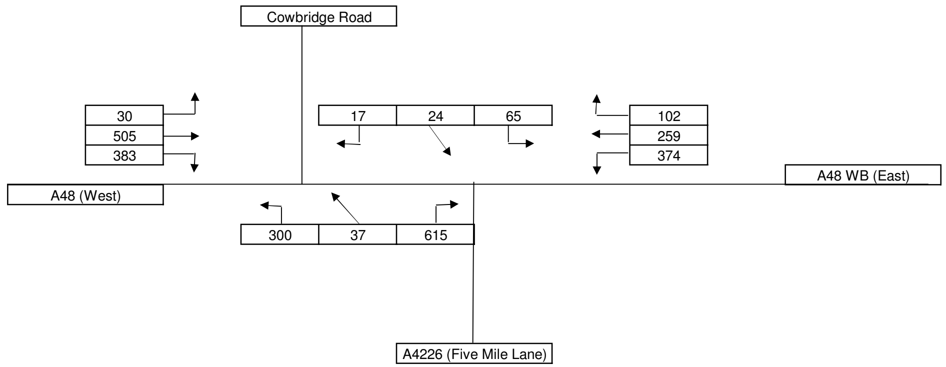
SYCAMORE CROSS JUNCTION 2026 BASE

AM PEAK 07:45 - 8:45



PCUs

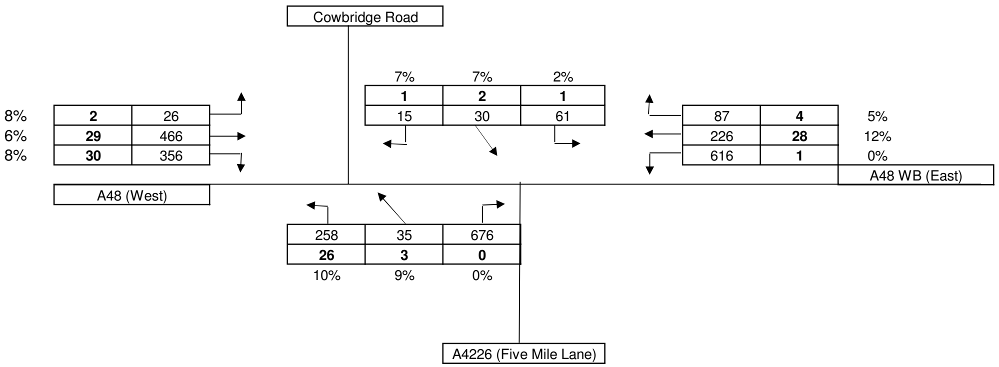
AM PEAK 07:45 - 8:45



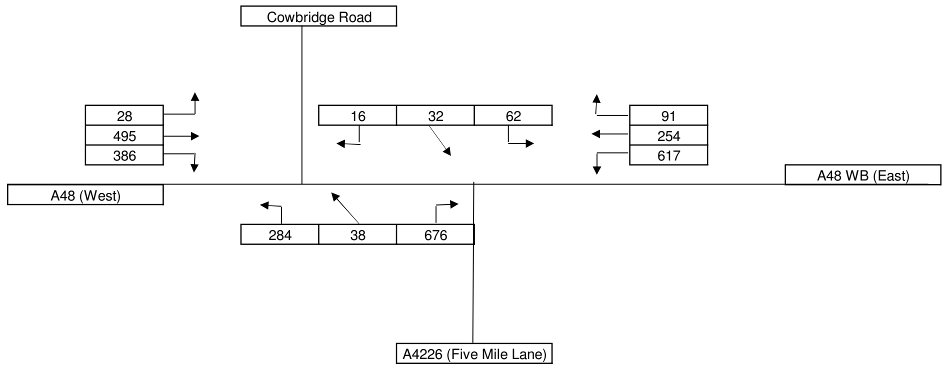
PCUs

SYCAMORE CROSS JUNCTION 2026 BASE + DEV

AM PEAK 07:45 - 8:45

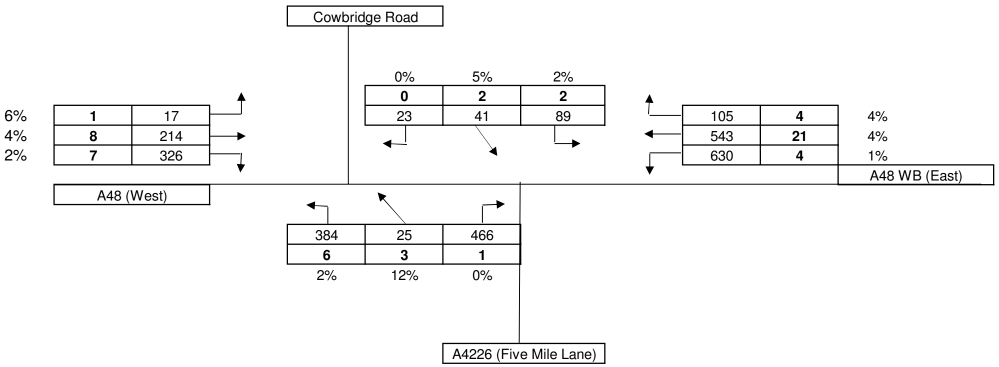


AM PEAK 07:45 - 8:45



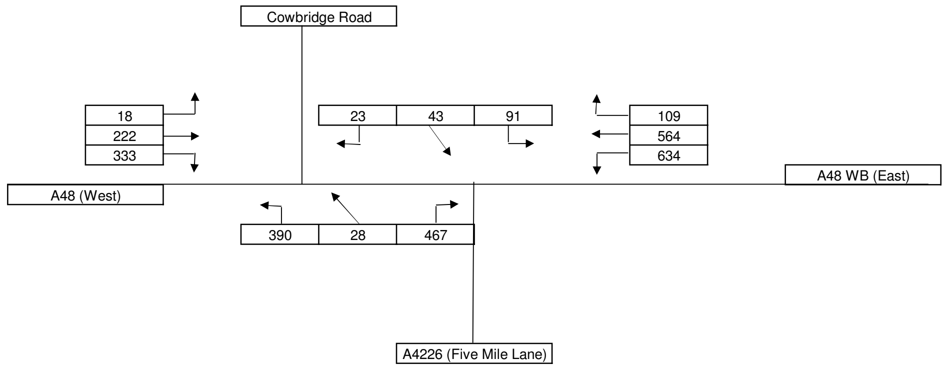
SYCAMORE CROSS JUNCTION 2026 BASE

PM PEAK 16:30 - 17:30



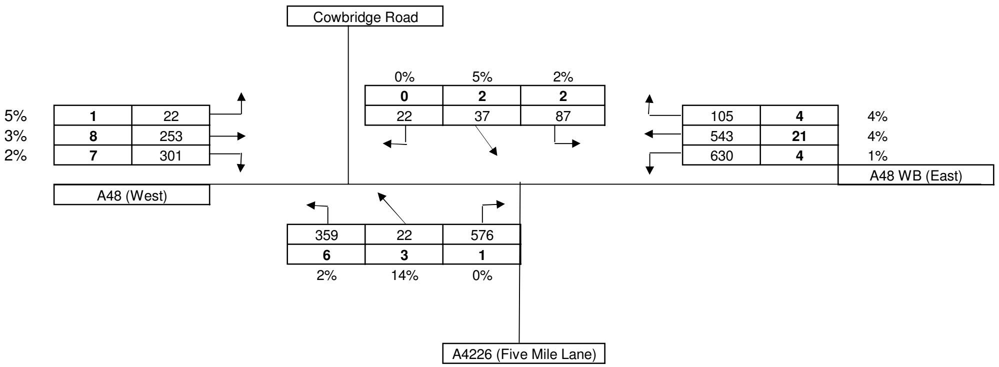
PCUs

PM PEAK 16:30 - 17:30



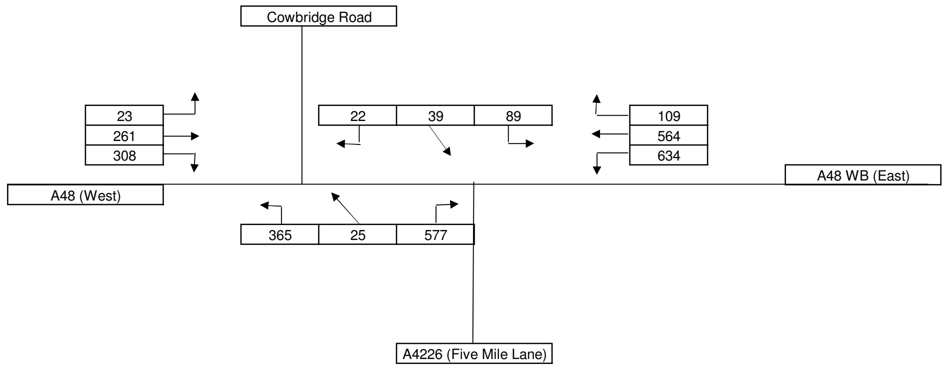
SYCAMORE CROSS JUNCTION 2026 BASE + DEV

PM Peak 16:30 - 17:30



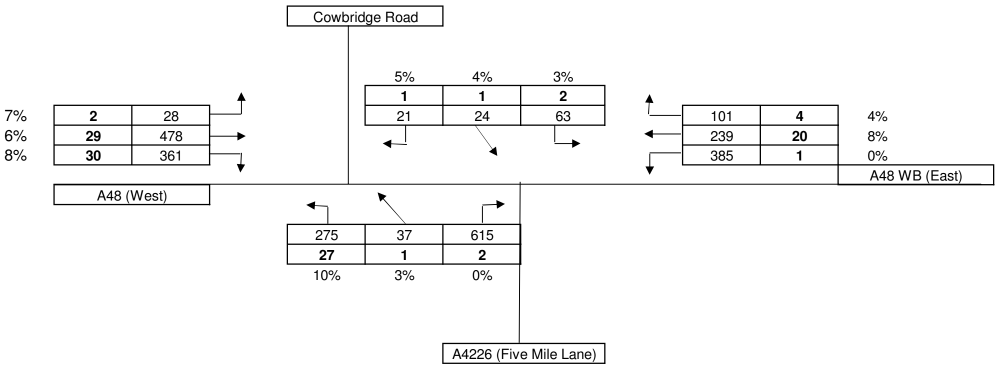
PCUs

PM Peak 16:30 - 17:30



SYCAMORE CROSS JUNCTION 2029 BASE

AM PEAK 07:45 - 8:45



PCUs

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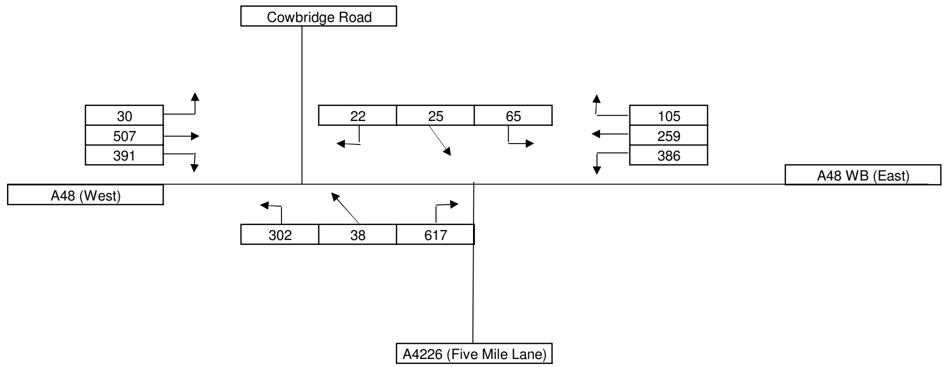

SYCAMORE CROSS JUNCTION 2029 BASE + DEV

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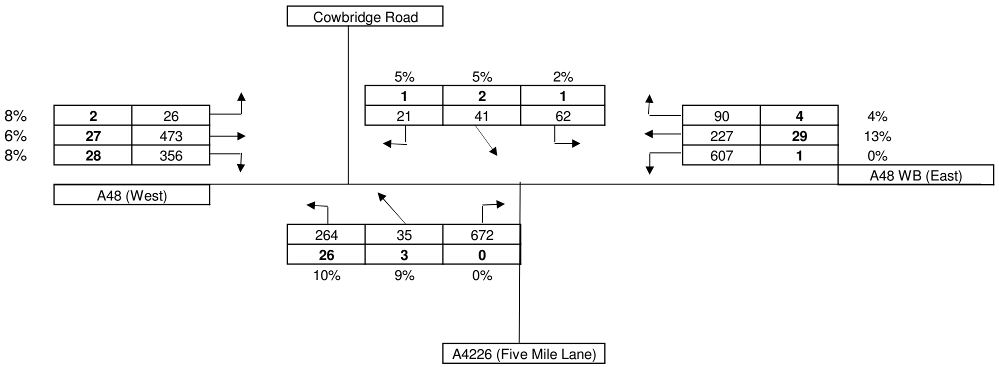

PCUs

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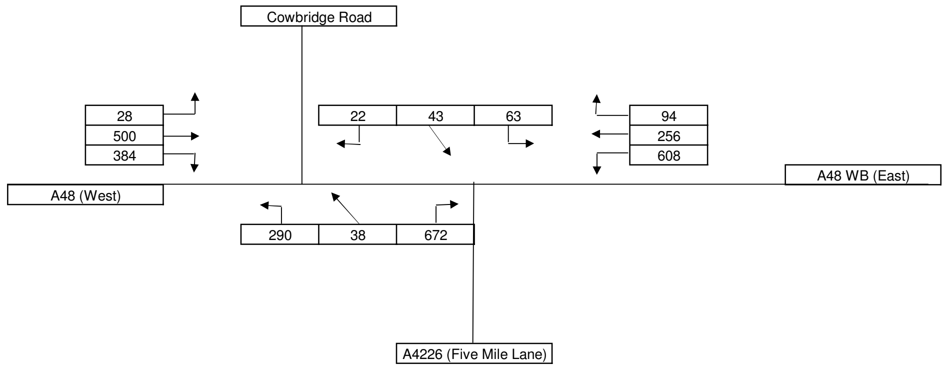

SYCAMORE CROSS JUNCTION 2029 BASE

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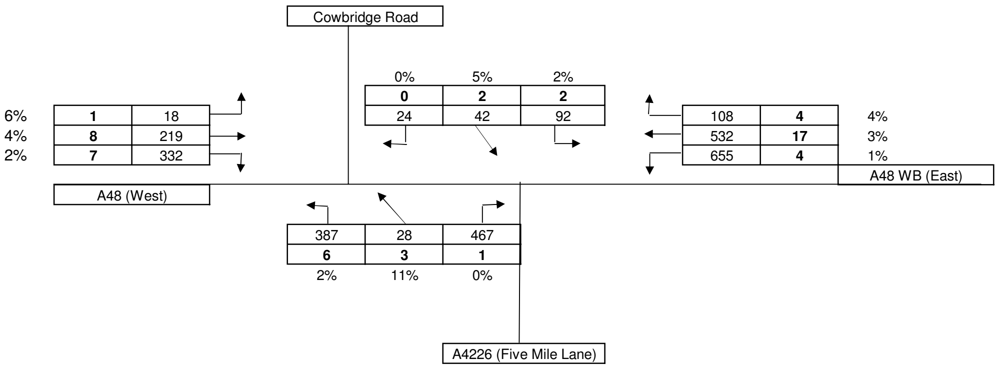

PCUs

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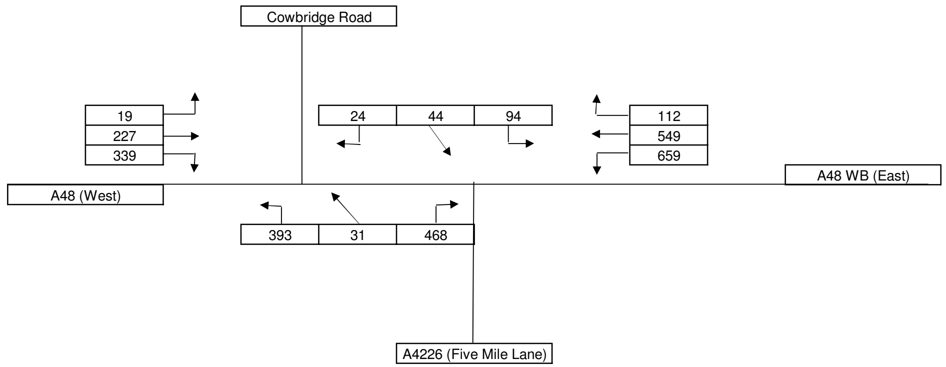
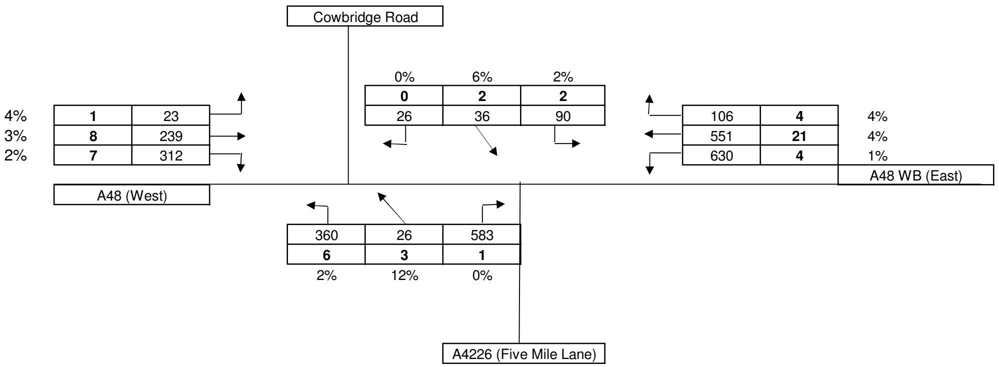


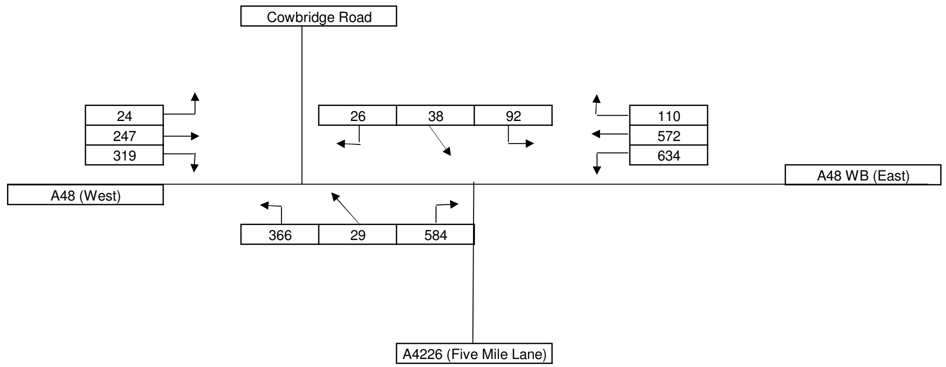
SYCAMORE CROSS JUNCTION 2029 BASE + DEV

PM Peak 16:30 - 17:30



PCUs

PM Peak 16:30 - 17:30



Appendix C – Sycamore Cross Signal Data

David Archibald

From:	Howells, Lee M [redacted]
Sent:	18 November 2019 15:28
To:	Alex Snartt
Subject:	FW: Sycamore Cross Signals 19111810
Attachments:	5 mile lane stage times.log
Importance:	High

CAUTION: This email originated from outside of RPS.

Alex,

Please find below / attached the timings of the signals at sycamore cross as requested

Kind Regards

Lee

From: Pritchard, Ian (Capita) [redacted]
Sent: 18 November 2019 15:22
To: Howells, Lee M [redacted]
Cc: Dent, John [redacted]
Mark [redacted]
Subject: RE: Sycamore Cross Signals 19111810

Hi Lee

Five Mile Lane – signal timings

Further to your e-mail of 11 November please find attached the Sycamore Cross timings MOVA log.

This has been downloaded from the controller and gives the stage times between the dates 11/11/2019 and 18/11/2019.

The printout has been simplified as much as possible, so first line reads:

11/11 8- 9: 1= 40/ 11 2= 40/ 29 3= 40/ 12 4= 37/ 12 5= 0/ 0 6= 0/ 0

Where:

11/11 = date 11th November 2019
8-9 = time 08:00 to 09:00 hours
1=40/11 = stage 1 appeared 40 times with average stage length of 11 seconds
2=40/12 = stage 2 appeared 40 times with average stage length of 29 seconds
3=40/12 = stage 3 appeared 40 times with average stage length of 12 seconds
4=37/12 = stage 4 appeared 37 times with average stage length of 12 seconds
5=0/0 = stage 5 appeared 0 times with average stage length of 0 seconds
6=0/0 = stage 6 appeared 0 times with average stage length of 0 seconds.

If you have any queries please do not hesitate to contact me. I trust that this is in order.

David Archibald

From: Howells, Lee M [redacted]
Sent: 18 November 2019 15:28
To: Alex Snartt
Subject: FW: Sycamore Cross Signals 19111810
Attachments: 5 mile lane stage times.log

Importance: High

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5=0/0 = stage 5 appeared 0 times with average stage length of 0 seconds
6=0/0 = stage 6 appeared 0 times with average stage length of 0 seconds.

If you have any queries please do not hesitate to contact me. I trust that this is in order.

Commercial in Confidence

From: Howells, Lee [redacted]
Sent: 11 November 2019 11:49
To: Pritchard, Ian (Capita) [redacted]
Cc: Dent, John [redacted], Simpson, Mark [redacted]
Subject: RE: Sycamore Cross Signals 1911116

Ian,

Can you please arrange ASAP as this information can then be updated with our street Lighting section who also monitor telematics

Kind Regards

Lee

From: Pritchard, Ian (Capita) <[redacted]
Sent: 11 November 2019 10:30
To: Howells, Lee [redacted]
Cc: Dent, John [redacted]
Subject: RE: Sycamore Cross Signals 1911116

Hi Lee

I have been advised that the timings the controller is currently using would need to be downloaded from the mova unit in the controller. Are you able to do this or would you wish us to obtain them?

I look forward to hearing from you.

Many thanks

Kind regards

Ian Pritchard
Principal Engineer – Infrastructure Projects
Real Estate and Infrastructure
029 2080 3626 | 07860 948752 | **Capita** St David's House Pascal Close St Mellons Cardiff CF3 0LW
capitaproperty.co.uk

GO BEYOND
Create tomorrow's prosperous and connected places

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Real estate and infrastructure

Commercial in Confidence

From: Howells, Lee M [redacted]
Sent: 11 November 2019 09:45
To: Pritchard, Ian (Capita [redacted]
Cc: Dent, John [redacted]
Subject: RE: Sycamore Cross Signals

Ian / Dent,

Is it possible that we can have the latest signal timings for sycamore cross which will form part of the technical submission / modelling for the Model Farm Development.

Kind Regards

Lee

From: Alex Snartt [redacted]
Sent: 08 November 2019 14:10
To: Howells, Lee M [redacted]
Cc: David Archibal [redacted]
Subject: Sycamore Cross Signals

Hi Lee,

Good to talk on the phone a moment ago. As mentioned, due to the timescales involved, and given that the signal timings are currently being optimised on the ground, we will run a LINSIG model with our own signal timings, estimated by ourselves and by LINSIG. This will allow us to assess the impact of development in a similar way to what we would do with the signal timings data if / when we receive them.

Could you confirm that you are happy for us to progress on that basis please.

Thanks and kind regards,

Alex Snartt BA (Hons)
Graduate Transport Planner
RPS | Consulting UK & Ireland
260 Park Avenue
Almondsbury
Bristol
BS32 4SY, United Kingdom
T +44 1454 853 000
D 01454 279590
E alex.snartt@rpsgroup.com
rpsgroup.com

rps

11/11 8- 9: 1= 40/ 11 2= 40/ 29 3= 40/ 12 4= 37/ 12 5= 0/ 0 6= 0/ 0

11/11 9-12: 1=191/ 11 2=145/ 12 3=167/ 9 4=123/ 9 5= 0/ 0 6= 0/ 0

11/11 12-15: 1=185/ 13 2=161/ 10 3=167/ 10 4=107/ 8 5= 0/ 0 6= 0/ 0

11/11 15-16: 1= 51/ 15 2= 49/ 13 3= 51/ 11 4= 40/ 8 5= 0/ 0 6= 0/ 0

11/11 16-17: 1= 41/ 22 2= 40/ 15 3= 40/ 14 4= 38/ 12 5= 0/ 0 6= 0/ 0

11/11 17-18: 1= 38/ 24 2= 39/ 17 3= 39/ 14 4= 32/ 14 5= 0/ 0 6= 0/ 0

11/11 18-19: 1= 55/ 19 2= 43/ 11 3= 53/ 10 4= 35/ 9 5= 0/ 0 6= 0/ 0

11/11 19-20: 1= 70/ 17 2= 47/ 8 3= 56/ 8 4= 29/ 8 5= 0/ 0 6= 1/ 5

12/11 6- 7: 1= 79/ 12 2= 47/ 9 3= 57/ 9 4= 30/ 8 5= 0/ 0 6= 4/ 11

12/11 7- 8: 1= 45/ 10 2= 41/ 24 3= 43/ 13 4= 33/ 13 5= 0/ 0 6= 0/ 0

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12/11 9-12: 1=177/ 11 2=150/ 13 3=160/ 9 4=133/ 8 5= 0/ 0 6= 0/ 0

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12/11 19-20: 1= 76/ 14 2= 52/ 8 3= 53/ 8 4= 37/ 7 5= 0/ 0 6= 1/ 3

13/11 6- 7: 1= 81/ 13 2= 45/ 9 3= 63/ 8 4= 28/ 8 5= 0/ 0 6= 3/ 3

13/11 7- 8: 1= 42/ 10 2= 41/ 26 3= 42/ 12 4= 37/ 12 5= 0/ 0 6= 0/ 0

13/11 8- 9: 1= 35/ 11 2= 35/ 34 3= 35/ 12 4= 33/ 17 5= 0/ 0 6= 0/ 0

13/11 9-12: 1=173/ 12 2=149/ 14 3=156/ 10 4=121/ 8 5= 0/ 0 6= 0/ 0

13/11 12-15: 1=174/ 15 2=152/ 11 3=155/ 11 4=111/ 8 5= 0/ 0 6= 0/ 0

13/11 15-16: 1= 53/ 15 2= 46/ 13 3= 53/ 10 4= 37/ 9 5= 0/ 0 6= 0/ 0

13/11 16-17: 1= 41/ 21 2= 40/ 18 3= 40/ 14 4= 35/ 11 5= 0/ 0 6= 0/ 0

13/11 17-18: 1= 43/ 20 2= 43/ 16 3= 43/ 12 4= 39/ 9 5= 0/ 0 6= 0/ 0

13/11 18-19: 1= 53/ 18 2= 47/ 11 3= 51/ 9 4= 41/ 7 5= 0/ 0 6= 0/ 0

13/11 19-20: 1= 74/ 14 2= 49/ 9 3= 56/ 9 4= 31/ 7 5= 0/ 0 6= 1/ 6

14/11 6- 7: 1= 79/ 13 2= 46/ 9 3= 61/ 8 4= 29/ 7 5= 0/ 0 6= 2/ 9

14/11 7- 8: 1= 47/ 11 2= 43/ 22 3= 45/ 11 4= 39/ 12 5= 0/ 0 6= 0/ 0

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14/11 18-19: 1= 58/ 16 2= 47/ 11 3= 51/ 11 4= 34/ 8 5= 0/ 0 6= 0/ 0

14/11 19-20: 1= 72/ 14 2= 51/ 9 3= 55/ 9 4= 32/ 8 5= 0/ 0 6= 1/ 3

15/11 6- 7: 1= 69/ 17 2= 47/ 9 3= 51/ 9 4= 25/ 8 5= 0/ 0 6= 4/ 8

15/11 7- 8: 1= 49/ 11 2= 43/ 22 3= 47/ 11 4= 37/ 10 5= 0/ 0 6= 0/ 0

15/11 8- 9: 1= 44/ 10 2= 43/ 22 3= 43/ 12 4= 41/ 10 5= 0/ 0 6= 0/ 0

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15/11 12-15: 1=164/ 14 2=149/ 13 3=152/ 10 4=117/ 8 5= 1/ 12 6= 0/ 0

15/11 15-16: 1= 45/ 19 2= 43/ 15 3= 44/ 13 4= 42/ 10 5= 0/ 0 6= 0/ 0

15/11 16-17: 1= 40/ 21 2= 39/ 17 3= 40/ 14 4= 39/ 11 5= 0/ 0 6= 0/ 0

15/11 17-18: 1= 49/ 19 2= 47/ 13 3= 46/ 11 4= 39/ 9 5= 0/ 0 6= 0/ 0

15/11 18-19: 1= 63/ 15 2= 43/ 10 3= 57/ 9 4= 43/ 7 5= 0/ 0 6= 0/ 0

15/11 19-20: 1= 75/ 13 2= 50/ 9 3= 57/ 9 4= 33/ 8 5= 0/ 0 6= 1/ 3

16/11 6- 7: 1= 76/ 17 2= 26/ 7 3= 34/ 8 4= 20/ 8 5= 0/ 0 6= 17/ 38

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16/11 16-17: 1= 56/ 15 2= 52/ 11 3= 53/ 10 4= 34/ 8 5= 1/ 12 6= 0/ 0

16/11 17-18: 1= 60/ 16 2= 50/ 11 3= 52/ 10 4= 32/ 8 5= 0/ 0 6= 0/ 0

16/11 18-19: 1= 71/ 13 2= 47/ 10 3= 57/ 8 4= 38/ 7 5= 0/ 0 6= 0/ 0

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17/11 18-19: 1= 81/ 12 2= 54/ 8 3= 58/ 8 4= 25/ 8 5= 0/ 0 6= 0/ 0

17/11 19-20: 1= 84/ 15 2= 47/ 8 3= 49/ 8 4= 23/ 7 5= 0/ 0 6= 4/ 8

18/11 6- 7: 1= 87/ 12 2= 48/ 8 3= 60/ 9 4= 26/ 7 5= 0/ 0 6= 1/ 3

18/11 7- 8: 1= 45/ 10 2= 43/ 24 3= 45/ 11 4= 38/ 10 5= 0/ 0 6= 0/ 0

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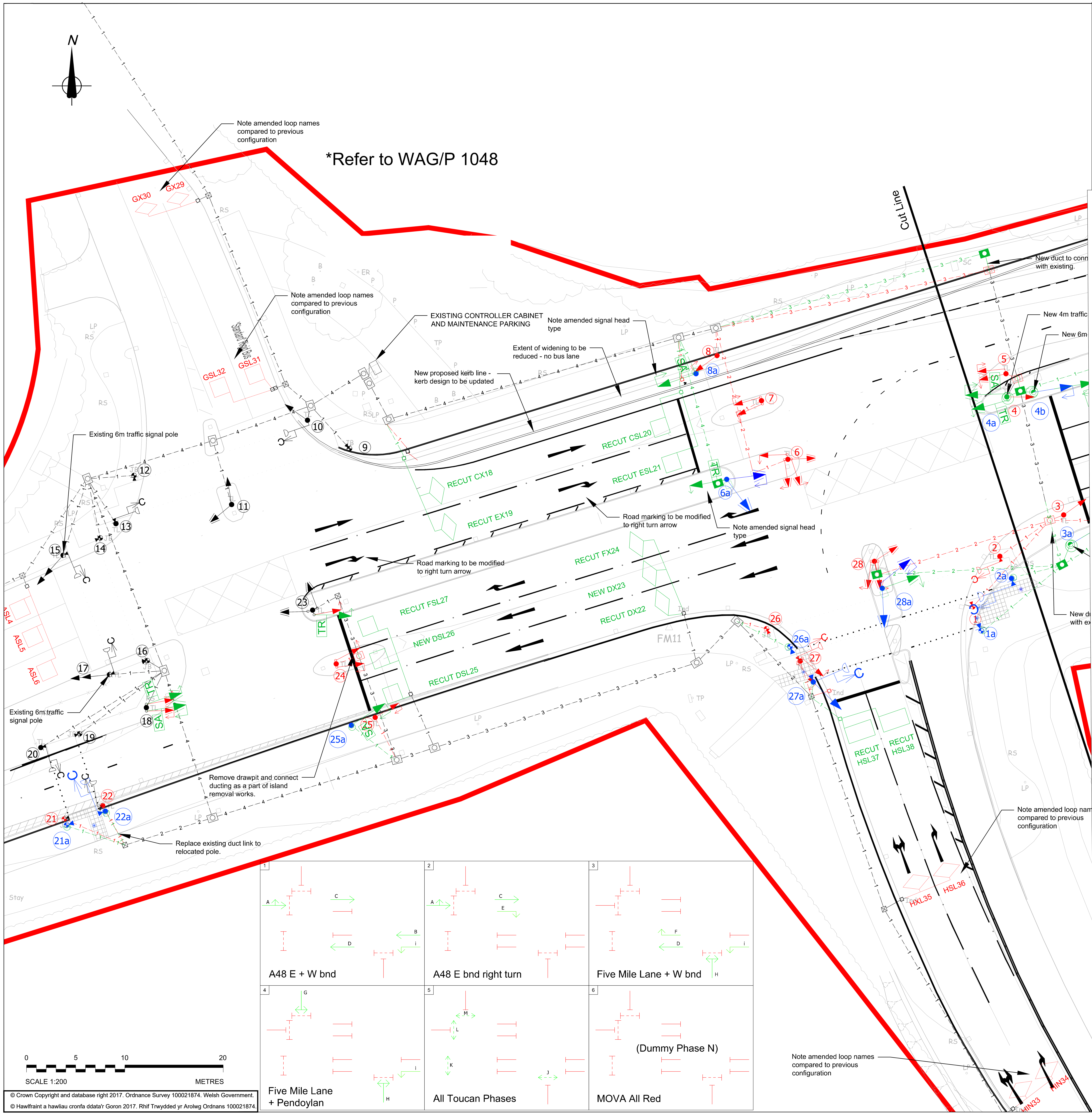
18/11 9-12: 1=177/ 11 2=155/ 13 3=160/ 10 4=124/ 8 5= 0/ 0 6= 0/ 0



694997-CH2-HSN-JN01-DR-CH-1201.dwg

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the Designers Health & Safety Risk Assessment).

Construction

H01. DCWW Water Main
H04. Western Power Distribution (WPD) 132kV (HV) Overhead Lines
H06. British Telecom (BT) Underground Cables
H10. Street lighting (columns and cables)
H13. Live carriageway
H24. Working near invasive plants
H32. Wales and West Utilities (WWU) Low Pressure Gas Main
H33. Western Power Distribution (WPD) Service Underground Cable

Maintenance/Cleaning

None

Use

None

Decommissioning/Demolition

None

Key

EQUIPMENT COLOUR STATUS INDICATION

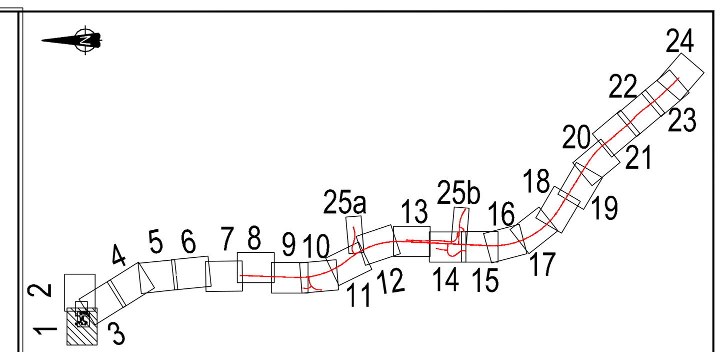
- New Equipment
- Relocated Equipment
- Retained/Unchanged Equipment
- Original Equipment Location

BELOW GROUND EQUIPMENT LEGEND:

- New NAL Ltd RS115 Duckfoot retention socket for 2m and 4m pole (114mm in diameter)
- New NAL Ltd RS145 Duckfoot retention socket for 4m pole (145mm in diameter)
- New NAL Ltd RS168 Duckfoot retention socket for 6m pole (168mm in diameter)
- Existing access chamber
- 600x600mm NAL Ltd STAKKAbox plastic access chamber, with x2 access rings
- 450x450mm NAL Ltd STAKKAbox plastic access chamber, with x1 access ring
- NAL Ltd Carriageway loop box, with hockey stick connection
- Slot cut tail
- 100mm dia. UPVC traffic signal duct (with no. of ducts shown)
- Inductive loop detectors (new or to be cut)

ABOVE GROUND EQUIPMENT LEGEND

- Traffic signal pole 2m
- Traffic signal pole 4m
- Traffic signal pole 6m
- Primary Signal Head
- Secondary Signal Head
- High-level Signal Head
- C Toucan display indicator
- Push button unit with tactile device
- TR Green arrow (right) signal head with turn right box sign
- SA Green arrow (ahead) signal head with straight ahead box sign
- Green arrow (left) signal head



NOTES:

1. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MAOD).
4. FOR INDICATIVE LOCATIONS OF THE EXISTING STATUTORY UNDERTAKERS APPARATUS, INCLUDING OVERHEAD CABLES, REFER TO CONTRACTOR'S STATUTORY UNDERTAKERS' C2 ENQUIRY RESPONSES.
5. PRIOR TO COMMENCEMENT OF ANY EXCAVATION THE CONTRACTOR SHALL BE SATISFIED THAT UNDERGROUND SERVICES ARE NOT PRESENT BY SUITABLE HAND EXCAVATIONS AND NON INTRUSIVE DETECTION METHODS.
6. FOR DETAILS OF SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION REFER TO DESIGNER'S RISK ASSESSMENT 694997-CH2-GEN-ZZZZ-RA-CH-0001.
7. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE 1200 SERIES SPECIFICATION DOCUMENT 694997-CH2-HKF-ZZZZ-SP-CH-0001.
8. FOR DETAILS OF KERBS, FOOTWAYS, EDGINGS, CROSSINGS, REFUGE SPLITTER ISLAND AND BUS LAY-BYS, REFER TO DRAWING NOs. 694997-CH2-HKF-ZZZZ-DR-CH-1151 TO 1153.
9. THE CROSSFALL OF THE PROPOSED FOOTWAY/CYCLEWAY SHALL NOT BE STEEPER THAN 1:50 IN ORDER TO BE COMPLIANT WITH THE DDA REQUIREMENTS.

TRAFFIC SIGNAL NOTES

1. EXISTING HEADS, POLES, NAL SOCKETS AND CABLES SHALL BE RE_USED WHERE POSSIBLE SUBJECT TO DISCUSSIONS WITH THE SITE WORKS SUPERVISOR.
2. TRAFFIC SIGNAL DRAWINGS ARE 694997-CH2-HSN-JN01-DR-CH-1201 TO 1203, THE LATTER OF WHICH HAS AN EQUIPMENT SCHEDULE.
3. FOR A SPECIFIC TRAFFIC SIGNALS DESIGNER'S RISK ASSESSMENT, SEE DOCUMENT 694997-CH2-HSN-JN01-RA-CH-0001.
4. DETAILS OF TRAFFIC SIGNAL DRAW PIT INSTALLATION SHOWN IN GRIFFITHS STANDARD DETAIL DRAWING NO. MJ002-C-1217.
5. ALL CHAMBERS TO HAVE PLASTIC NON-SLIP COVERS.

Rev	By	Chkd	App	Date	Description
C02	PJS	LAT	CD	06/24/2019	UPDATED DESIGN
C01	STM	LAT	CD	04/12/2018	CONSTRUCTION ISSUE
P02	PJS	LAT	CD		ISSUED TO VOG/CAPITA
P01	IE	ON	CD		ISSUED FOR AGC REVIEW

Client

VALE of GLAMORGAN
BRO MORGANNWG

GRIFFITHS civil engineering and construction
WATERWAYS HOUSE, MERTHYR ROAD, LANFOIST, ABERGAVENNY NP7 9PE
TEL: +44 (0)1873 857 211

JACOBS
JACOBS, ONE KINGSWAY, CARDIFF, CF10 3AN
TEL: +44 (0)2920 720920

Project

A4226 FIVE MILE LANE IMPROVEMENTS

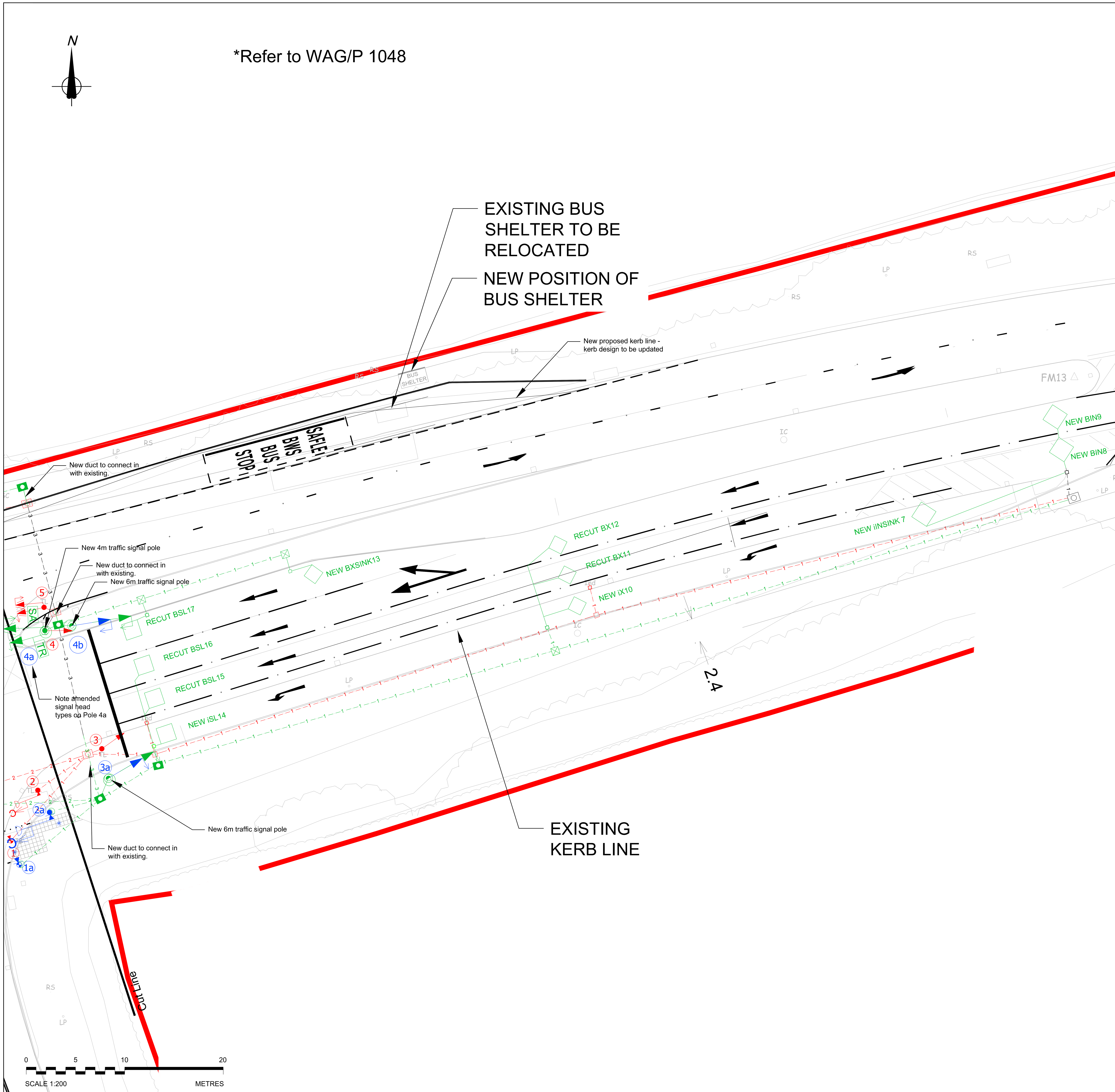
Drawing

PROPOSED TRAFFIC SIGNALS AT SYCAMORE JUNCTION SHEET 1 OF 3

Drawn by: STM Date: 04/12/2018
Checked by: PJS Date: 04/12/2018
Approved by: CD Date: 04/12/2018

Drawing No.: 694997-CH2-HSN-JN01-DR-CH-1201
Status: A
Revision: C02

Drawing Scale: AS SHOWN



694997-CH2-HSN-JN01-DR-CH-1202.dwg

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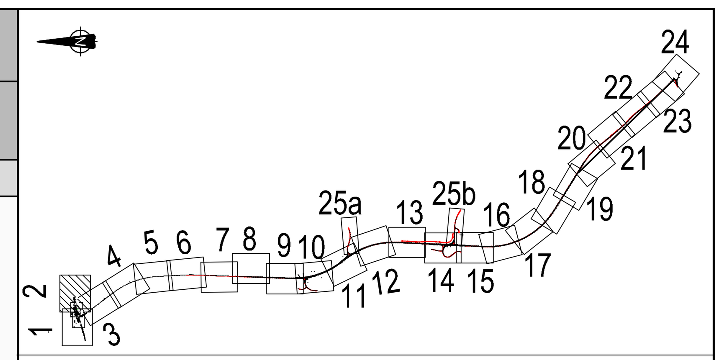
- Push button unit with tactile device
- TR Green arrow (right) signal head with turn right box sign
- SA Green arrow (ahead) signal head with straight ahead box sign
- Green arrow (left) signal head



NOTES:

1. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MAOD).
4. FOR INDICATIVE LOCATIONS OF THE EXISTING STATUTORY UNDERTAKERS APPARATUS, INCLUDING OVERHEAD CABLES, REFER TO CONTRACTOR'S STATUTORY UNDERTAKERS' C2 ENQUIRY RESPONSES.
5. PRIOR TO COMMENCEMENT OF ANY EXCAVATION THE CONTRACTOR SHALL BE SATISFIED THAT UNDERGROUND SERVICES ARE NOT PRESENT BY SUITABLE HAND EXCAVATIONS AND NON INTRUSIVE DETECTION METHODS.
6. FOR DETAILS OF SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION REFER TO DESIGNER'S RISK ASSESSMENT 694997-CH2-GEN-ZZZZ-RA-CH-0001.
7. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE 1200 SERIES SPECIFICATION DOCUMENT 694997-CH2-HKF-ZZZZ-SP-CH-0001.
8. FOR DETAILS OF KERBS, FOOTWAYS, EDGINGS, CROSSINGS, REFUGE SPLITTER ISLAND AND BUS LAY-BYS, REFER TO DRAWING NOs. 694997-CH2-HKF-ZZZZ-DR-CH-1151 TO 1153.
9. THE CROSSFALL OF THE PROPOSED FOOTWAY/CYCLEWAY SHALL NOT BE STEEPER THAN 1:50 IN ORDER TO BE COMPLIANT WITH THE DDA REQUIREMENTS.

TRAFFIC SIGNAL NOTES

1. EXISTING HEADS, POLES, NAL SOCKETS AND CABLES SHALL BE RE_USED WHERE POSSIBLE SUBJECT TO DISCUSSIONS WITH THE SITE WORKS SUPERVISORR.
2. TRAFFIC SIGNAL DRAWINGS ARE 694997-CH2-HSN-JN01-DR-CH-1201 TO 1203, THE LATTER OF WHICH HAS AN EQUIPMENT SCHEDULE.
3. FOR A SPECIFIC TRAFFIC SIGNALS DESIGNER'S RISK ASSESSMENT, SEE DOCUMENT 694997-CH2-HSN-JN01-RA-CH-0001.
4. DETAILS OF TRAFFIC SIGNAL DRAW PIT INSTALLATION SHOWN IN GRIFFITHS STANDARD DETAIL DRAWING NO. MJ002-C-1217.
5. ALL CHAMBERS TO HAVE PLASTIC NON-SLIP COVERS.

C02	PJS	LAT	CD	06/24/2019	UPDATED DESIGN
C01	STM	LAT	CD	04/12/2018	CONSTRUCTION ISSUE
P02	PJS	LAT	CD		ISSUED TO VOG/CAPITA
P01	IE	ON	CD		ISSUED FOR AGC REVIEW
Rev	By	Chkd	App	Date	Description

Client

VALE of GLAMORGAN
BRO MORGANNWG

GRIFFITHS
civil engineering and construction

WATERWAYS HOUSE, MERTHYR ROAD, LANFOIST, ABERGAVENNY NP7 9PE
TEL: +44 (0)1873 857 211

JACOBS
JACOBS, ONE KINGSWAY, CARDIFF, CF10 3AN
TEL: +44 (0)2920 720920

Project

A4226 FIVE MILE LANE IMPROVEMENTS

Drawing

PROPOSED TRAFFIC SIGNALS AT SYCAMORE JUNCTION SHEET 2 OF 3

Drawn by: STM Date: 04/12/2018
Checked by: PJS Date: 04/12/2018
Approved by: CD Date: 04/12/2018

Drawing No.	Status	Revision
694997-CH2-HSN-JN01-DR-CH-1202	A	C02

Drawing Scale: AS SHOWN

Administration

General Specifications

Customer Name	VALE OF GLAMORGAN
Intersection/ General Description	SYCAMORE CROSSROADS A48 - PENDOYLAN
Controller	⦿ New ○ Modification
Area Specifications/ Customer Drawings	
Specification Section	
Contract/Tender Ref.	
Quotation No.	
Works Order No.	
Customer Order No.	
Controller/ Serial Number	
S.T.S. /EM Number	gg0002 Issue 6
Equipment Installation by	SIEMENS
Slot Cutting by	
Civil Works by	
Customer's Engineer	[redacted]
Telephone Number	[redacted]

Signal Company Use Only

Signal Engineer: Nick Rule

(IF PROM Label as >) PROM Number: 16700 PROM Variant: 199

Configuration Check Value: 2E 2B 31 8D

Controller Options

Hardware: ST900 ELV Firmware Type and Issue: PB801 ISS 5 Other Options

ST950/ST900/ST750 Series Cabinet Options

Cabinet/Rack: Cabinet Kit Type Options: ⦿ UK-Std ○ Non-UK ○ ○

Cabinet/Rack Variant: Grey Cuckoo Options: None Gemini Unit Fitted ☑

Mains Supply	230 Volts	50 Hz			
Peak Lamp Current	1 Amps	Dimming Voltage	27.5	Answer Issue	0
Average Lamp Power	1 Watts			Date Created	02/02/13
Total Average Power	1 Watts	Low Inrush Transformer	☐	Edit Issue	22

Power feed fuse rating: requires 30 Amp minimum for controller, 15 Amp minimum for pelican/lightly loaded controller

Phases, Stages and Streams

Phases, Stages and Streams

Add/Delete/Insert Streams:

Streams

(•) Current Number of Streams: 1

Phases

( ) Current Total Number of Phases: 14

(•) Number of Real Phases: 13

( ) Number of Dummy Phases: 1

Stages

( ) Current Number of stages (inc. ALL-RED stages): 6

Switched Signs

( ) Number of Switched Signs: 0

Action

Add At | Delete At

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Facilities/Modes Enabled and Mode Priority Levels

Facilities

UTC
- ☑ Serial/Internal UTMC OTU
- ☐ Free-standing OTU
- ☐ Integral TC12 OTU
- ☑ Serial MOVA

- ☑ Master Time Clock
- ☐ Holiday Clock
- ☑ FT To Current MAX
- ☐ Linked Fixed Time

- ☑ Lamp Monitoring
- ☑ RED Lamp Monitoring
- ☐ Pelican/Puffin/Toucan
- ☐ Standalone Manual

- ☐ Extend All Red
- ☐ Speed Measurement
- ☐ Ripple Change
- ☐ London IMU

- ☐ Non-UK
- ☐ Fail to Part Time
- ☐ Fail To Hardware Flashing
- ☐
- ☐ Download To Level 3

9 Starting Intergreen

Mode Priority

	1	2	3	4	5	6	7	8	9	10	11	12	13
☐ Part Time	○	○	○	○	○	○	○	○	○	○	○	○	○
☐ Emergency Vehicles	○	○	○	○	○	○	○	○	○	○	○	○	○
☑ Hurry Call	○	○	○	⊙	○	○	○	○	○	○	○	○	○
☐	○	○	○	○	○	○	○	○	○	○	○	○	○
☐ Priority Vehicle	○	○	○	○	○	○	○	○	○	○	○	○	○
☑ Manual Control	⊙	○	○	○	○	○	○	○	○	○	○	○	○
☐ Manual Step On	○	○	○	○	○	○	○	○	○	○	○	○	○
☑ Selected FT or VA or	○	⊙	○	○	○	○	○	○	○	○	○	○	○
☑ UTC	○	○	⊙	○	○	○	○	○	○	○	○	○	○
☐	○	○	○	○	○	○	○	○	○	○	○	○	○
☐ CLF (Non-Base Time	○	○	○	○	○	○	○	○	○	○	○	○	○
☑ CLF (Base Time)	○	○	○	○	⊙	○	○	○	○	○	○	○	○
☑ Vehicle Actuated	○	○	○	○	○	⊙	○	○	○	○	○	○	○
☑ Fixed Time	○	○	○	○	○	○	⊙	○	○	○	○	○	○

Configuration Complexity

○ Low ○ Medium ○ High ⊙ Maximum

standardPB801.8df
Default PROM data file

Correspondence Monitoring to inc.

- ☑ Reds
- ☐ Switched Signs
- ☑ Ambers
- ☐ Ignore Reds and Ambers

Flash Rate (ms)

400 Off 400 On

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Phases in Stages

Phases

In Stages	A	B	C	D	E	F	G	H	I	J	K	L	M	N
0														■
1	■	■	■	■					■					
2	■		■		■									
3				■		■		■	■					
4							■	■	■					
5										■	■	■	■	

Works Order :
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Stages in Streams

Stages in Streams

	0	1	2	3	4	5	6	7
Phase or Stage to revert to in absence of								
Startup Stage	1							
Switch Off Stage								
Standalone Pedestrian	☐	☐	☐	☐	☐	☐	☐	☐

Note: For a Stand-Alone Stream, the reversion must be to All Red stage or Traffic stage/phase to meet the relevant standard or specification.

Stages

In Stream	0	1	2	3	4	5
0	■	■	■	■	■	■

Works Order :
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Phase Type and Conditions

Phase Type and Conditions

(•) Phases A to P ( )

Manual Output Allocation ☑

Phase	Title	Type	App. Type	Term. Type	Assoc. Phase	No. of Drive Outputs "R"	"A"	"G"
A	A48 EASTBOUND	0 - UK Traffic	0	0 -		2	2	2
B	A48 WESTBOUND	0 - UK Traffic	0	0 -		2	2	2
C	A48 EASTBOUND INNER	0 - UK Traffic	0	0 -		1	1	1
D	A48 WESTBOUND INNER	0 - UK Traffic	0	0 -		1	1	1
E	A48 EASTBOUND INNER RIGHT TURN	0 - UK Traffic	0	0 -		1	1	1
F	A48 WESTBOUND INNER RIGHTTURN	0 - UK Traffic	0	0 -		1	1	1
G	PENDOYLAN	0 - UK Traffic	0	0 -		1	1	1
H	FIVE MILE LANE L+R	0 - UK Traffic	0	0 -		1	1	1
I	A48 Westbound Left Turn	0 - UK Traffic	0	0 -		1	1	1
J	PEDS X FIVE MILE LANE	1 - UK Far Side Pedestrian	0	0 -		1	1	2
K	PEDS X A48 WESTBOUND	1 - UK Far Side Pedestrian	0	0 -		1	1	2
L	PEDS X A48 EASTBOUND	1 - UK Far Side Pedestrian	0	0 -		1	1	2
M	PEDS X PENDOYLAN	1 - UK Far Side Pedestrian	0	0 -		1	1	2
N	Dummy All Red	2 - UK Green Arrow	0	0 -				

1) App Types: 0 = Always Appears, 1 = Appears if dem'd prior to interstage, 2 = If dem'd, 3 = If dem'd before end of window time
2) Term Types: 0 = Term's at end of stage, 1 = Term's when Assoc phase gains R.O.W, 2 = Term's when Assoc phase loses R.O.W.
3) The H/W Fail Flash fields are for information only on all but ST900ELV Controllers. For other controllers, physical switches or links (etc.) select which aspects flash and these need to be set up manually.

Works Order :
EM Number : gg0002
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Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Opposing and Conflicting Phases

Select Stream(s) To Configure

○ All ○ 0 ○ ○ ○ ○ ○ ○ ○

Initialise

☑ Amber Conflict Monitoring

To Phase

From Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A		o	o	o	o	Co	Co	o	o	Co	Co	Co	Co	o
B	o		o	o	Co	o	o	Co	o	Co	Co	Co	Co	o
C	o	o		o	o	o	o	Co	o	Co	Co	Co	Co	o
D	o	o	o		o	o	Co	o	o	Co	Co	Co	Co	o
E	o	Co	o	o		o	o	Co	Co	Co	Co	Co	Co	o
F	Co	o	o	o	o		Co	o	o	Co	Co	Co	Co	o
G	Co	o	o	Co	o	Co		o	o	Co	Co	Co	Co	o
H	o	Co	Co	o	Co	o	o		o	Co	Co	Co	Co	o
I	o	o	o	o	Co	o	o	o		Co	Co	Co	Co	o
J	Co	Co	Co	Co	Co	Co	Co	Co	Co		o	o	o	o
K	Co	Co	Co	Co	Co	Co	Co	Co	Co	o		o	o	o
L	Co	Co	Co	Co	Co	Co	Co	Co	Co	o	o		o	o
M	Co	Co	Co	Co	Co	Co	Co	Co	Co	o	o	o		o
N	o	o	o	o	o	o	o	o	o	o	o	o	o	

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Phase Minimums, Maximums, Extensions, Ped Leaving Periods

Phase Minimums, Maximums, Extensions, Ped Leaving Periods

Phases A to P

Phase	Min Green	Min Ped Clr	Extension	Max A	Max B	Max C	Max D	Max E	Max F	Max G	Max H	Pre-timed
A	7	0	0.0	60	45	35	45	0	0	0	0	☐
B	7	0	0.0	30	24	45	24	0	0	0	0	☐
C	7	0	0.0	58	43	35	43	0	0	0	0	☐
D	7	0	0.0	58	43	45	43	0	0	0	0	☐
E	7	0	0.0	20	15	20	15	0	0	0	0	☐
F	7	0	0.0	10	10	12	10	0	0	0	0	☐
G	7	0	0.0	12	10	10	10	0	0	0	0	☐
H	7	0	0.0	25	25	25	25	0	0	0	0	☐
I	7	0	0.0	25	25	25	25	0	0	0	0	☐
J	12	3	0.0	0	0	0	0	0	0	0	0	☐
K	6	3	0.0	0	0	0	0	0	0	0	0	☐
L	6	3	0.0	0	0	0	0	0	0	0	0	☐
M	12	3	0.0	0	0	0	0	0	0	0	0	☐
N	3	0	0.0	0	0	0	0	0	0	0	0	☐

Note: For Standalone Streams see Help for use of Max Sets.

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Phase Intergreen Times

Select Stream(s) To Configure

○ All ○ 0 ○ ○ ○ ○ ○ ○ ○

Note: On a Stand Alone Pelican/Toucan/Puffin Stream the Intergreens between Pedestrian and Traffic Phases are controlled by the timings (PBT, PIT, CMX, CDY, CRD and PAR), therefore 0 should be entered for the appropriate intergreen times in grid below.

To Phase

From Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A						6	6			9	9	9	9	3
B					6			6		9	9	9	9	3
C								6		9	9	9	9	3
D							6			9	9	9	9	3
E		6						6	6	9	9	9	9	3
F	6						6			9	9	9	9	3
G	6			6		6				9	9	9	9	3
H		6	6		6					9	9	9	9	3
I					6					9	9	9	9	3
J	7	7	7	7	7	7	7	7	7					3
K	7	7	7	7	7	7	7	7	7					3
L	7	7	7	7	7	7	7	7	7					3
M	7	7	7	7	7	7	7	7	7					3
N	2	2	2	2	2	2	2	2	2	2	2	2	2	

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Intergreen Handset Limits

HIGH 30

Copy Intergreen Values

To Phase

From Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A						5	5			5	5	5	5	3
B					5			5		5	5	5	5	3
C										5	5	5	5	3
D							5			5	5	5	5	3
E		5							5	5	5	5	5	3
F	5						5			5	5	5	5	3
G	5			5		5				5	5	5	5	3
H		5								5	5	5	5	3
I					5					5				3
J	5	5	5	5	5	5	5	5	5					3
K	5	5	5	5	5	5	5	5						3
L	5	5	5	5	5	5	5	5						3
M	5	5	5	5	5	5	5	5						3
N	2	2	2	2	2	2	2	2	2	2	2	2	2	

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Phase Timing Handset Ranges

Phase Timing Handset Ranges

Initialise Min Green Limits

Phase	Min. Green Min.	Min. Green Max.
A	7	30
B	7	30
C	7	30
D	7	30
E	7	30
F	7	30
G	7	30
H	7	30
I	7	30
J	4	30
K	4	30
L	4	30
M	4	30
N	3	255
O		
P		

Phase	Min. Green Min.	Min. Green Max.
Q		
R		
S		
T		
U		
V		
W		
X		
Y		
Z		
A2		
B2		
C2		
D2		
E2		
F2		

	Min.	Max.
Max. Green	0	255
Vehicle Extension	0.0	10.0
Phase Delay	0	30
Starting I/G	6	14
Min Pedestrian Clearance (PBT)	0	12
Traffic Phase Leaving	3.0	3.0
Traffic Phase Red/Amber	2	2

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

VA Demand and Extend Definitions

VA Demand and Extend Definitions

(•) Phases A to P ( )

Demands

For Unlatched demands precede the name with a #.
Conditioning MUST be used to specify unlatched demands.

Phase	Demands				Extensions			
A	AX2	AX3	ASL4	ASL5	AX2	AX3	ASL4	ASL5
B	BX11	BX12	BXSINK13		BX11	BX12	BXSINK13	
C	CX18	CSL20			CX18	CSL20		
D	DX22	DX23	DSL25	DSL26	DX22	DX22	DSL25	DSL26
E	EX19	ESL21			EX19	ESL21		
F	FX24	FSL27			FX24	FSL27		
G	GX29	GX30	GSL31	GSL32	GX29	GX30	GSL31	GSL32
H	HX35	HX36	HSL37	HSL38	HX35	HX36	HSL37	HSL38
I	IX10	ISL14			IX10	ISL14		
J	PEDJ1	PEDJ2						
K	PEDK1	PEDK2						
L	PEDL1	PEDL2						
M	PEDM1	PEDM2						
N								

Phase Internal/Revertive Demands

Phase Internal/Revertive Demands

Start-up Vehicle Responsive Demands

A ☑	B ☑	C ☑	D ☑	E ☑	F ☑	G ☑	H ☑	I ☑	J ☑	K ☑	L ☑	M ☑	N ☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Demands Inserted When Leaving Manual and Fixed Time Modes

A ☑	B ☑	C ☑	D ☑	E ☑	F ☑	G ☑	H ☑	I ☑	J ☑	K ☑	L ☑	M ☑	N ☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Unlatched Demands that Start Max Timers

A ☑	B ☑	C ☑	D ☑	E ☑	F ☑	G ☑	H ☑	I ☑	J ☑	K ☑	L ☑	M ☑	N ☑	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Revertive Phase Demands

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	B	C	D	E	F	G	H	I							
Q	R	S	T	U	V	W	X	Y	Z	A2	B2	C2	D2	E2	F2

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Stage Internal Demands/Pedestrian Window Times

Stage Internal Demands/Pedestrian Window Times

Start-up Vehicle Responsive Demands

0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Demands Inserted When Leaving Manual and Fixed Time Modes

0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Unlatched Demands that Start Maximum Timers

0 ☑ 1 ☑ 2 ☑ 3 ☑ 4 ☑ 5 ☑ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Window Times

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	0										

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Exceptional Stages

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Works Order :
EM Number : gg0002
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Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Phase Delays

Phase Delays

(•) Phase Delays 0-29 ( ) Phase Delays 30-59 ( ) Phase Delays 60-89 ( ) Phase Delays 90-119

No.	Delay Phase	On Change from Stage	To Stage	By (X) Seconds	No.	Delay Phase	On Change from Stage	To Stage	By (X) Seconds
0	A	0	1	4	15	C	1	0	3
1	A	0	2	4	16	C	1	3	3
2	B	0	1	4	17	C	1	4	3
3	G	0	4	4	18	C	1	5	3
4	H	0	3	4	19	C	2	0	4
5	H	0	4	4	20	C	2	3	4
6	I	0	1	4	21	C	2	4	4
7	I	0	3	4	22	C	2	5	4
8	I	0	4	4	23	D	1	0	3
9	D	2	1	0	24	D	1	2	3
10				0	25	D	1	4	3
11				0	26	D	1	5	3
12				0	27	E	2	0	4
13				0	28	E	2	1	4
14				0	29	E	2	3	4

Works Order :
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Phase Delays

Phase Delays

○ Phase Delays 0-29 ◉ Phase Delays 30-59 ○ Phase Delays 60-89 ○ Phase Delays 90-119

No.	Delay Phase	On Change from Stage	To Stage	By (X) Seconds	No.	Delay Phase	On Change from Stage	To Stage	By (X) Seconds
30	E	2	4	4	45				0
31	E	2	5	4	46				0
32	F	3	0	4	47				0
33	F	3	1	4	48				0
34	F	3	2	4	49				0
35	F	3	4	0	50				0
36	F	3	5	4	51				0
37				0	52				0
38				0	53				0
39				0	54				0
40				0	55				0
41				0	56				0
42				0	57				0
43				0	58				0
44				0	59				0

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Fixed Time

Fixed Time

Stage Moves & Times (Not Fixed Time to Current Max)

Current Stage	0	1	2	3	4	5	6	7
Next Stage								
Time								

Current Stage	8	9	10	11	12	13	14	15
Next Stage								
Time								

Current Stage	16	17	18	19	20	21	22	23
Next Stage								
Time								

Current Stage	24	25	26	27	28	29	30	31
Next Stage								
Time								

Phases Demanded and Extended under Fixed Time to Current Max.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Demand	☑	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐
Extend	☑	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐

	Q	R	S	T	U	V	W	X	Y	Z	A2	B2	C2	D2	E2	F2
Demand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

CLF - Base Time

CLF - Base Time

Controller Base Date XX/XX/XX

Controller Base Time 02:00:00

Plan Offset

	Minutes	Seconds		Minutes	Seconds
Plan 0	0	0	Plan 8	0	0
Plan 1	0	0	Plan 9	0	0
Plan 2	0	0	Plan 10	0	0
Plan 3	0	0	Plan 11	0	0
Plan 4	0	0	Plan 12	0	0
Plan 5	0	0	Plan 13	0	0
Plan 6	0	0	Plan 14	0	0
Plan 7	0	0	Plan 15	0	0

Handset Range Limits

	Minutes	Seconds
Min	0	0
Max	255	59

UTC General Data

UTC General Data

Type of UTC

- (•) 106
- ( ) 316

Integral OTU Address

2	Number of Control Words
2	Number of Reply Words

- [ ] Controller to respond to TC bit.
- [ ] Introduction of UTC to be disabled by Priority a

Non UTC RTC synchronisation input name

RTC Synchronisation Times

Clock Synchronise Time (UTC TS input)

Day	Time
Saturday	00:00:00

Clock Confirm Time (UTC RT output)

Day	Time
Saturday	00:00:00

UTC Control and Reply Data Format

UTC Control and Reply Data Format

Control Words

	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
Word 1	F1	F2	F3	F4	F5	F6		
Word 2								
Word 3								
Word 4								

Reply Words

	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
Word 1	G1	G2	G3	G4	G5	G6	GA	GC
Word 2	GD	GH	GI					
Word 3								
Word 4								
Word 5								
Word 6								
Word 7								
Word 8								
Word 9								
Word 10								
Word 11								
Word 12								
Word 13								
Word 14								

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

UTC Stage and Mode Data Definitions

UTC Stage and Mode Data Definitions

Stage	Force Bit	Green Confirm Bit	Demand Confirm Bit	Stage	Force Bit	Green Confirm Bit	Demand Confirm Bit
0	F6	G6		16			
1	F1	G1		17			
2	F2	G2		18			
3	F3	G3		19			
4	F4	G4		20			
5	F5	G5		21			
6				22			
7				23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			

Mode Data Definitions

Manual Mode Operative:
☐ G1/G2 ☐ RR ☐

Manual Mode Selected:
☐ G1/G2 ☐ RR ☐

No Lamp Power, or Lamps Off due to RLM or Part Time:
☐ G1/G2 ☐ ☐

Detector Fault:
☐ ☐ ☐ DF

Normal NOT selected on the Manual Panel:
☐ G1/G2 ☐ RR ☐

RR Button Selected:
☐ G1/G2 ☐ RR ☐

If UTC Reply Confirms are required for a Controller Fault (CF) OR for separate MC and RR replies, Conditioning must be used.

UTC and MOVA Detectors

UTC and MOVA Detectors

Detector Mapping

☑ Combined

Set Selection

○ ○ ○ ○ ○

1	AIN1	2	AX2	3	AX3	4	ASL4	5	ASL5	6	ASL6	7	IINSINK7	8	BIN8
9	BIN9	10	IX10	11	BX11	12	BX12	13	BXSINK13	14	ISL14	15	BSL15	16	BSL16
17	BSL17	18	CX18	19	EX19	20	CSL20	21	ESL21	22		23		24	FX24
25	DSL25	26	DSL26	27	FSL27	28	GIN28	29	GX29	30	GX30	31	GSL31	32	GSL32
33	HIN33	34	HIN34	35	HX35	36	HX36	37	HSL37	38	HSL38	39		40	
41		42		43		44		45		46		47		48	
49		50		51		52		53		54		55		56	
57		58		59		60		61		62		63		64	

Note - only 32 detectors available on MOVA 4.0

MTC - Time Switch Parameters

MTC - Time Switch Parameters

	Type	Event
0	Alternate Max	MAXSETB
1	Alternate Max	MAXSETC
2	Alternate Max	MAXSETD
3	Alternate DFM	ALTDFMB
4	Alternate DFM	ALTDFMC
5	Alternate DFM	ALTDFMD
6	No Action	
7	No Action	
8	No Action	
9	No Action	
10	No Action	
11	No Action	
12	No Action	
13	No Action	
14	No Action	
15	No Action	

	Type	Event
16	No Action	
17	No Action	
18	No Action	
19	No Action	
20	No Action	
21	No Action	
22	No Action	
23	No Action	
24	No Action	
25	No Action	
26	No Action	
27	No Action	
28	No Action	
29	No Action	
30	No Action	
31	No Action	

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

MTC - Time Switch Parameters Array

Parameters

Events	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MAXSETB		■																														
MAXSETC			■																													
MAXSETD				■																												
ALTDFMB																																
ALTDFMC																																
ALTDFMD																																
Unused																																
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MTC - Day Type

MTC - Day Type

No.	Mon	Tue	Wed	Thu	Fri	Sat	Sun
0	☐	☐	☐	☐	☐	☑	☐
1	☐	☐	☐	☐	☐	☐	☑
2	☑	☐	☐	☐	☐	☐	☐
3	☐	☑	☐	☐	☐	☐	☐
4	☐	☐	☑	☐	☐	☐	☐
5	☐	☐	☐	☑	☐	☐	☐
6	☐	☐	☐	☐	☑	☐	☐
7	☑	☑	☑	☑	☑	☑	☑
8	☑	☑	☑	☑	☑	☑	☐
9	☑	☑	☑	☑	☑	☐	☐
10	☐	☐	☐	☐	☐	☐	☐
11	☐	☐	☐	☐	☐	☐	☐
12	☐	☐	☐	☐	☐	☐	☐
13	☐	☐	☐	☐	☐	☐	☐
14	☐	☐	☐	☐	☐	☐	☐
15	☐	☐	☐	☐	☐	☐	☐

MTC - Timetable

MTC - Timetable

View Timetable Settings

(•) 0 - 15 ( ) 16 - 31 ( ) 32 - 47 ( ) 48 - 63

No.	Day Type	Time	Description	Function Code	Plan/ Parameter
0	9	07:00:00	INTRODUCE MAXSET A	2	0
1	9	09:00:00	INTRODUCE MAXSET B	2	1
2	9	15:00:00	INTRODUCE MAXSET C	2	2
3	9	18:30:00	INTRODUCE MAXSET D	2	3
4	0	07:00:00	INTRODUCE MAXSET A	2	0
5	0	18:30:00	INTRODUCE MAXSET D	2	3
6	1	07:00:00	INTRODUCE MAXSET A	2	0
7	1	18:30:00	INTRODUCE MAXSET D	2	3
8	0			0	0
9	0			0	0
10	0			0	0
11	0			0	0
12	0			0	0
13	0			0	0
14	0			0	0
15	0			0	0

Function Codes:

0 = Isolate From CLF

1 = Introduce a CLF Plan

2 = Introduce a Parameter (Combination of event switches)

3 = Selects an Individual event switch to be set

4 = Selects an Individual event switch to be cleared.

LMU - General

LMU - General

Lamp Monitoring - LMU Voltage

- ○
- ◉ 48
- ○
- ○

Red Lamp Monitoring

Max Red Bulb Wattage

First Red Lamp Fault Speed: 0

- ☐ RLF2 Cancels RLM additional Intergreens
- ☑ RLF2 Only Cleared by RFL = 1
- ☐ RLF1 Only Cleared by RFL = 1

RLM Additional Intergreen Handset Limits

Minimum	Maximum
2	10

Streams with Phase BlackOut on RLF2

☐ 0 ☐ ☐ ☐ ☐ ☐ ☐ ☐

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Integral LMU Onboard Sensors

Integral LMU Onboard Sensors

No. of LSLS cards	HPU Connection
2	1

Sensor Configuration For LSLS 1 (Cabinet 1)

Phase	Aspect	Sensor #	Sensor Type	Phase	Aspect	Sensor #	Sensor Type
A	Red	1	As Seq.	D	Amber	4	As Seq.
A	Red	1	As Seq.	D	Green	4	As Seq.
A	Amber	1	As Seq.	E	Red	5	As Seq.
A	Amber	1	As Seq.	E	Amber	5	As Seq.
A	Green	1	As Seq.	E	Green	5	As Seq.
A	Green	1	As Seq.	F	Red	6	As Seq.
B	Red	2	As Seq.	F	Amber	6	As Seq.
B	Red	2	As Seq.	F	Green	6	As Seq.
B	Amber	2	As Seq.	G	Red	7	As Seq.
B	Amber	2	As Seq.	G	Amber	7	As Seq.
B	Green	2	As Seq.	G	Green	7	As Seq.
B	Green	2	As Seq.	H	Red	8	As Seq.
C	Red	3	As Seq.	H	Amber	8	As Seq.
C	Amber	3	As Seq.	H	Green	8	As Seq.
C	Green	3	As Seq.	I	Red	9	As Seq.
D	Red	4	As Seq.	I	Amber	9	As Seq.

Note : A (*) character next to a sensor number indicates that the sensor would also be available on the External sensors screen. Please be sure you wish to use these sensors here, as they will then become unavailable for Regulatory Signs

Integral LMU Onboard Sensors

Integral LMU Onboard Sensors

No. of LSLS cards	HPU Connection
2	1

Sensor Configuration For LSLS 2 (Cabinet 1)

Phase	Aspect	Sensor #	Sensor Type	Phase	Aspect	Sensor #	Sensor Type
I	Green	9	As Seq.	M	Green	N/A	
J	Red	10	R,G	N/A	N/A		
J	Amber	11	Wait	N/A	N/A		
J	Green	10	R,G	N/A	N/A		
J	Green	N/A		N/A	N/A		
K	Red	12	R,G	N/A	N/A		
K	Amber	13	Wait	N/A	N/A		
K	Green	12	R,G	N/A	N/A		
K	Green	N/A		N/A	N/A		
L	Red	14	R,G	N/A	N/A		
L	Amber	15	Wait	N/A	N/A		
L	Green	14	R,G	N/A	N/A		
L	Green	N/A		N/A	N/A		
M	Red	16	R,G	N/A	N/A		
M	Amber	17	Wait	N/A	N/A		
M	Green	16	R,G	N/A	N/A		

Note : A (*) character next to a sensor number indicates that the sensor would also be available on the External sensors screen. Please be sure you wish to use these sensors here, as they will then become unavailable for Regulatory Signs

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Integral LMU External Sensors for Regulatory Signs

Integral LMU External Sensors for Regulatory Signs

External Sensors (1)

Sensor	Sensor Type
48	Regulatory Sign
47	Regulatory Sign
46	Regulatory Sign
45	Regulatory Sign

External Sensors (4)

Sensor	Sensor Type

External Sensors (2)

Sensor	Sensor Type
44	Regulatory Sign
43	Regulatory Sign
42	Regulatory Sign
41	Regulatory Sign

External Sensors (5)

Sensor	Sensor Type

External Sensors (3)

Sensor	Sensor Type

External Sensors (6)

Sensor	Sensor Type

Note: Sensors which have been used as Onboard sensors will not be available here.

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

LMU Sensor Load Types

LMU Sensor Load Types

Screen Select

1 of 2

Sensor	Phase	Sensor	LED	Load Type	LLF Profile
1	A	As Seq.		1: Siemens Helios ELV	
2	B	As Seq.		1: Siemens Helios ELV	
3	C	As Seq.		1: Siemens Helios ELV	
4	D	As Seq.		1: Siemens Helios ELV	
5	E	As Seq.		1: Siemens Helios ELV	
6	F	As Seq.		1: Siemens Helios ELV	
7	G	As Seq.		1: Siemens Helios ELV	
8	H	As Seq.		1: Siemens Helios ELV	
9	I	As Seq.		1: Siemens Helios ELV	
10	J	R,G		1: Siemens Helios ELV	
11	J	Wait		5: Siemens LED Wait	
12	K	R,G		1: Siemens Helios ELV	
13	K	Wait		5: Siemens LED Wait	
14	L	R,G		1: Siemens Helios ELV	
15	L	Wait		5: Siemens LED Wait	
16	M	R,G		1: Siemens Helios ELV	

LMU Sensor Load Types

LMU Sensor Load Types

Screen Select

2 of 2

Sensor	Phase	Sensor	LED	Load Type	LLF Profile
17	M	Wait		5: Siemens LED Wait	
41	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
42	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
43	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
44	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
45	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
46	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
47	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	
48	N/A	Regulatory Sign		4: Siemens ELV Regulatory Sign	

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

RLM Additional Intergreens

Phases Delayed

Phases with RLF1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A														
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														
M														
N														

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

RLM Phase Inhibits

Phases Inhibited/Blacked-Out

Phases with RLF2	A	B	C	D	E	F	G	H	I	J	K	L	M	N
A												■	■	
B														
C														
D											■			
E										■				
F													■	
G											■		■	
H										■				
I										■				
J														
K														
L														
M														
N														

Hurry Call

Hurry Call

Hurry Call	Stage Called	Call Input Name	Cancel Input Name	Confirm Output Name	Delay Time	Hold Time	Prevent Time
0	2	*ROUGH2			0	2	60
1					0	0	0
2					0	0	0
3					0	0	0
4					0	0	0
5					0	0	0
6					0	0	0
7					0	0	0

Hurry Call Limit Values

	Min.	Max.
Call Delay	0	255
Call Hold	0	255
Call Prevent	0	255

Manual Panel

Manual Panel

Stage Buttons and LEDs

Button No.	Title	Called Stage for Stream 0	1	2	3	4	5	6	7
0	ALL RED	0							
1	A48 EAST + WESTBOUND	1							
2	A48 EASTBOUND AHEAD + RIGHT TURN	2							
3	FIVE MILE LANE + A48 WESTBOUND RIGHT TURN	3							
4	PENDOYLAN + FIVE MILE LANE	4							
5	PEDESTRIAN STAGE	5							
6									
7									

General LEDs

	AUX 1	AUX 2	AUX 3	AUX 4 (Hurry Call)	AUX 5 (Higher Priority)
Conditioned	☑	☑	☑	☑	☑

General Buttons

	None	SW1	SW2	SW3
Momentary		☐	☐	☐
Dim Override	⦿	○	○	○
RR	⦿	○	○	○

Manual Signals On

○ Immediate Signals On
⦿ As Start-Up

Manual Mode Enable

⦿ Always
○ When Handset Plugged in (Note 1)
○ When 'MND' Command Entered

NOTE:
For this to operate Special Conditioning is required.

Mode Select Switches Disabled

☐ VA ☐ Fixed Time ☐ CLF

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Special Conditioning

```
; LAMPS OFF REPLY TO THE OMU (LAMPS OFF RELAY MUST BE FITTED TO ENABLE THIS TO WORK)
; ===================================================================================

LMPON.SWLMPS./(FLF17) = LAMPSON                        ; IF LAMPS ARE SWITCHED OFF OR FAIL SEND REPLY BY
                                                       ; USING AN I/O OUTPUT CALLED "LAMPSON"

; MANUAL PANEL
; ============

CCTO3 = MIL22                                          ; EX19 AFTER THE CALL DELAY LIGHTS AUX 1 LED
(MODE0 EQL<5>) = MIL07                                 ; HURRY CALL LED LIT WHEN RUNNING H/CALL MODE
(MODE0 EQL<6>) = MIL17                                 ; HIGHER PRIORITY LED LIT UNDER MOVA CONTROL


; V/A DETECTION
; =============

ASL6 = +LCPHA                                          ; ASL6 DEMAND AND EXTEND PHASE A
ASL6_EXT: = +EXOA
       * = +EXCA


(BSL15+BSL16+BSL17) = +LCPHB                           ; BSL15,16,17 DEMAND AND EXTEND PHASE B
BSL15_EXT: = +EXOB
        * = +EXCB
BSL16_EXT: = +EXOB
        * = +EXCB
BSL17_EXT: = +EXOB
        * = +EXCB


; STAGE 1
; =======

/(STAGE1)::: = .EXOC                                   ; STAGE 1 NOT TO BE EXTENDED BY C or D's DETECTION
       * = .EXCC
       * = .EXOD
       * = .EXCD

; STAGE 2
; =======

/(STAGE2): = .EXOC                                     ; STAGE 2 NOT TO BE EXTENDED BY PHASE C
       * = .EXCC



; V/A HURRY CALL
; ==============

(MODE0 EQL<2>).CNDTMA4 = ROUGH2                        ; IN V/A EX19 ACTIVE AFTER CALL DELAY
                                                       ; HURRY CALLS STAGE 2
                                                       ; DCL3 = 2 - EX19 (DEFAULT SET TO 255)


; MOVA HURRY CALL
; ===============
IFT CCTO0./(1SCRT0)./CNDTMA1 THN                       ; CX18 AFTER CALL DELAY AND PREVENT TIMER NOT RUNNING
   RUN<0>                                              ; START MOVADET PULSE TIMER
   RUN<1>                                              ; START INHIBIT TIMER
END

CCTO0 = 1SCRT0                                         ; CALL DELAY FLAG
CNDTMA0.CFE45 = MOVADET45                              ; MOVADET PULSE TIMER ACTIVE SETS MOVADET45, ENABLED BY
```

Special Conditioning

```
                                                  ; CFE45 = 1


IFT ((CCTO1./(1SCRT1))+(CCTO2./(1SCRT2)))./CNDTMA3 THN  ; DX22 OR DX 23 AFTER CALL DELAY AND PREVENT TIMER NOT
    RUN<2>                                             ; RUNNING START MOVADET PULSE TIMER
    RUN<3>                                             ; START INHIBIT TIMER
END

CCTO1 = 1SCRT1                                          ; CALL DELAY FLAG
CCTO2 = 1SCRT2                                          ; CALL DELAY FLAG

CNDTMA2.CFE46 = MOVADET46                                ; MOVADET PULSE TIMER ACTIVE SETS MOVADET46
                                                  ; ENABLED BY CFE46 =1

IFT CCTO3./(1SCRT3)./CNDTMA5 THN                          ; EX19 AFTER CALL DELAY AND PREVENT TIMER NOT RUNNING
    RUN<4>                                             ; START MOVADET PULSE TIMER
    RUN<5>                                             ; START INHIBIT TIMER
END

CCTO3 = 1SCRT3                                          ; CALL DELAY FLAG
CNDTMA4.CFE47 = MOVADET47                                ; MOVADET PULSE TIMER ACTIVE SETS MOVADET47
                                                  ; ENABLED BY CFE47 =1

IFT CCTO4./(1SCRT4)./CNDTMA7 THN                          ; FX24 AFTER CALL DELAY AND PREVENT TIMER NOT RUNNING
    RUN<6>                                             ; START MOVADET PULSE TIMER
    RUN<7>                                             ; START INHIBIT TIMER
END

CCTO4 = 1SCRT4                                          ; CALL DELAY FLAG
CNDTMA6.CFE48 = MOVADET48                                ; MOVADET PULSE TIMER ACTIVE SETS MOVADET48
                                                  ; ENABLED BY CFE48 =1


; MOVA BUS PRIORITY INPUTS
; ========================

IFT BUS-EB./1SCRT5./CNDTMA21 THN                          ; BUS INPUT BUS-EB JUST GONE ACTIVE AND INHIBIT
    RUN<20>                                            ; TIME NOT RUNNING, START MOVADET PULSE TIMER
    RUN<21>                                            ; START INIHIBIT TIMER
END

BUS-EB = 1SCRT5                                         ; BUS-EB FLAG
CNDTMA20.CFE51 = MOVADET51                               ; MOVADET PULSE TIMER ACTIVE SETS MOVADET51
                                                  ; ENABLED BY CFE51 =1

IFT BUS-WB./1SCRT6./CNDTMA23 THN                          ; BUS INPUT BUS-WB JUST GONE ACTIVE AND INHIBIT
    RUN<22>                                            ; TIME NOT RUNNING, START MOVADET PULSE TIMER
    RUN<23>                                            ; START INIHIBIT TIMER
END

BUS-WB = 1SCRT6                                         ; BUS-WB FLAG
CNDTMA22.CFE52 = MOVADET52                               ; MOVADET PULSE TIMER ACTIVE SETS MOVADET52
                                                  ; ENABLED BY CFE52 =1

IFT BUS-EBRT./1SCRT7./CNDTMA25 THN                        ; BUS INPUT BUS-EBRT JUST GONE ACTIVE AND INHIBIT
    RUN<24>                                            ; TIME NOT RUNNING, START MOVADET PULSE TIMER
    RUN<25>                                            ; START INIHIBIT TIMER
END

BUS-EBRT = 1SCRT7                                       ; BUS-EBRT FLAG
CNDTMA24.CFE53 = MOVADET53                               ; MOVADET PULSE TIMER ACTIVE SETS MOVADET53
                                                  ; ENABLED BY CFE53 =1

IFT BUS-WBRT./1SCRT8./CNDTMA27 THN                        ; BUS INPUT BUS-WBRT JUST GONE ACTIVE AND INHIBIT
    RUN<26>                                            ; TIME NOT RUNNING, START MOVADET PULSE TIMER
```

Special Conditioning

```
   RUN<27>                                         ; START INHIBIT TIMER
END

BUS-WBRT = 1SCRT8                                   ; BUS-WBRT FLAG
CNDTMA26.CFE54 = MOVADET54                          ; MOVADET PULSE TIMER ACTIVE SETS MOVADET54
                                                  ; ENABLED BY CFE54 =1

IFT BUS-NB./1SCRT9./CNDTMA29 THN                     ; BUS INPUT BUS-NB JUST GONE ACTIVE AND INHIBIT
   RUN<28>                                         ; TIME NOT RUNNING, START MOVADET PULSE TIMER
   RUN<29>                                         ; START INHIBIT TIMER
END

BUS-NB = 1SCRT9                                     ; BUS-NB FLAG
CNDTMA28.CFE55 = MOVADET55                          ; MOVADET PULSE TIMER ACTIVE SETS MOVADET55
                                                  ; ENABLED BY CFE55 =1


; PHASE CONFIRMS TO MOVA
; ======================

/(PHASEA)=GA                                        ; PHASE CONFIRMS
/(PHASEC)=GC
/(PHASED)=GD
/(PHASEH)=GH
/(PHASEI)=GI


; WAIT CONFIRMS TO MOVA
; =====================

PRSLMPAJ./(LMUINHJ)=MOVADET39                       ; WAITS LIT FOR PHSE J
PRSLMPAK./(LMUINHK)=MOVADET40                       ; WAITS LIT FOR PHSE K
PRSLMPAL./(LMUINHL)=MOVADET41                       ; WAITS LIT FOR PHSE L
PRSLMPAM./(LMUINHM)=MOVADET42                       ; WAITS LIT FOR PHSE M

; ADDITIONAL MOVA DETETECTORS
; ===========================

STAGE3:.DX22 = MOVADET22                            ; DX22 TO SET MOVADET 22 IN STAGE 3 ONLY
   *.DX23 = MOVADET23                              ; DX23 TO SET MOVADET 23 IN STAGE 3 ONLY


PHASEE.ASL6 = MOVADET49                             ; ASL6 TO ACTIVATE MOVADET 49 WHEN PHASE E AT ROW
PHASEF.BSL17 = MOVADET50                            ; BSL17 TO ACTIVATE MOVADET 50 WHEN PHASE F AT ROW

IFT STAGE3.PHASEH./PREVH THN                        ; PHASEH JUST GONE TO ROW IN STAGE 3 THN
   RUN<30>                                         ; RUN MOVADET HOLD TIMER
END

CNDTMA30.CFE56 = MOVADET56                          ; MOVADET HOLD TIMER ACTIVE SETS MOVA DET 56
                                                  ; ENABLED BY CFF56 = 1


; MOVA CRB
; ========

IFT (PRSLMPRA+PRSLMPAA+PRSLMPGA) THN                 ; MIN LAMPS OFF TIMER
   RUN<94>
END
IFT NOT(MODE0 EQL<6>).NOT(CNDTMA95).SSNRM THN          ; NOT IN MOVA MODE AND IN NORMAL RUN TIMER
   RUN<95>
END
IFT CNDTER95+((PRVMOD0 EQL<6>).NOT(MODE0 EQL<6>)) THN
   LOD<10> 2SCRTCH31
   TRUE=2SCRT247
```

Special Conditioning

```
END                                                     ; START A 2 SEC INTERNAL TIMER FOR CRB TOGGLE
NOT(2SCRTST31 EQL<0>)=.2SCRT247
IFT (2SCRTST31 GRT<0>) THN
   DEC 2SCRTCH31
END
SSNRM.(NOT(2SCRT247)+(MODE0 EQL<6>)).CNDTMA94=MOVACRB    ; WHEN TIMER TERMINATES TOGGLE CRB



; STAGE PREVENTS
; ==============

(MODE0 EQL<2>)./(LCPHE+UCPHE+LCST2+UCST2) = PRVST2             ; PREVENT STAGE 2 IF NO DEMAND FOR E

(MODE0 EQL<2>)./(LCPHF+UCPHF+LCPHH+UCPHH+LCST3+UCST3) = PRVST3  ; PREVENT STAGE 3 IF NO DEMAND FOR F

(MODE0 EQL<2>)./(LCPHG+UCPHG+LCST4+UCST4) = PRVST4             ; PREVENT STAGE 4 IF NO DEMAND FOR G

; STAGE 3 DEMANDS
; ===============

/(NXTSTG0 EQL<3>.STAGE3.NXTSTG0 EQL<4>.STAGE4).(HIN33+HX35+HSL37).CFE3 = +LCST3


; INTELLIGENT PHASE DELAYS
; ========================


(NXTSTG0 EQL<0>+NXTSTG0 EQL<3>+NXTSTG0 EQL<4>+NXTSTG0 EQL<5>) $
./(CNDTMA9+CNDTMA10).PHASEC = 1AUXCMDC4

IFT PHASEA.(ASL5) THN
   RUN<9>
END

(NXTSTG0 EQL<0>+NXTSTG0 EQL<1>+NXTSTG0 EQL<3>+NXTSTG0 EQL<4>+NXTSTG0 EQL<5>) $
./(CNDTMA9+CNDTER10).PHASEE = 1AUXCMDE4

IFT PHASEA.(ASL6) THN
   RUN<10>
END


(NXTSTG0 EQL<0>+NXTSTG0 EQL<2>+NXTSTG0 EQL<4>+NXTSTG0 EQL<5>) $
./(CNDTMA11).PHASED = 1AUXCMDD4

IFT PHASEB.(BSL15+BSL16) THN
   RUN<11>
END

(NXTSTG0 EQL<0>+NXTSTG0 EQL<1>+NXTSTG0 EQL<2>+NXTSTG0 EQL<4>+NXTSTG0 EQL<5>) $
./(CNDTMA12).PHASEF = 1AUXCMDF4

IFT PHASEH.(HSL37) THN
   RUN<12>
END


; 2 STEP REVERT, STAGE 1 THEN STAGE 0
; ===================================
; REVERT TO STAGE 1
; ------------------------
VRDMNDE+VRDMNDF+VRDMNDG+VRDMNDH+VRDMNDJ+VRDMNDK+VRDMNDL+VRDMNDM = 2SCRT0    ; DEMANDS OUTSIDE 1
EXTAE+EXOE+EXTAF+EXOF+EXTAG+EXOG+EXTAH+EXOH = +2SCRT0                     ; EXTENSIONS OUTSIDE 1
GIN28_EXT+HIN33_EXT+HIN34_EXT = +2SCRT0                                 ; IN LOOPS OUTSIDE 1
```

Special Conditioning

```
LCST2+UCST2+LCST3+UCST3+LCST4+UCST4+LCST5+UCST5 = +2SCRT0                  ; STAGE DEMANDS OUTSIDE 1
/((MODE0 EQL<2>)+(MODE0 EQL<6>)) = +2SCRT0                                 ; REVERT IN MOVA OR VA ONLY

MINE+MINF+MING+MINH+MINJ+MINK+MINL+MINM = 2SCRT1                           ; MIN GREEN TIMES TO EXPIRE
                                                                           ; BEFORE REVERT CAN TRIGGER

IFT 2SCRT0 THN                                                             ; RUN DELAY TIMER WHILE INPUTS
    RUN<16>                                                                ; ACTIVE
    TRUE = 2SCRT2
END
IFT /(2SCRT0+2SCRT1+CNDTMA16) THN                                          ; DELAY TIMER EXPIRED
    IFT 2SCRT2 THN                                                         ; START MOVADET PULSE TIMER
        RUN<17>
        FALSE = 2SCRT2
    END
    (MODE0 EQL<2>).(STAGE2+STAGE3+STAGE4+STAGE5) = +UCST1                  ; REQUEST STAGE 1
END

CNDTMA17 = MOVADET43                                                       ; PULSE TIMER ACTIVE SETS MOVADET

; Revert to all-red secondly
; -------------------------
VRDMNDA+VRDMNDB+VRDMNDC+VRDMNDD+VRDMNDI = +2SCRT0                          ; NO DEMAND IN STAGE 1
EXTAA+EXOA+EXTAB+EXOB+EXTAC+EXOC+EXTAD+EXOD+EXTAI+EXOI = +2SCRT0           ; NO EXTENSIONS IN STAGE 1
AIN1_EXT+BIN8_EXT+BIN9_EXT = +2SCRT0                                       ; NO IN LOOPS IN STAGE 1
LCST1+UCST1 = +2SCRT0                                                      ; NO DEMANDS FOR STAGE 1
((NXTSTG0 EQL<1>)./STAGE1)+STAGE2+STAGE3+STAGE4+STAGE5 = +2SCRT0           ; NO GOING TO STAGE 1
MINA+MINB+MINC+MIND+MINI = +2SCRT1                                         ; MIN GREEN TIMES TO EXPIRE

IFT 2SCRT0 THN                                                             ; RUN DELAY TIMER
    RUN<18>
    TRUE = 2SCRT3
END
IFT /(2SCRT0+2SCRT1+CNDTMA18) THN
    IFT 2SCRT3 THN
        RUN<19>
        FALSE = 2SCRT3
    END
    /CNDTMA18.(MODE0 EQL<2>) = +UCST0
END
CNDTMA19 = MOVADET44
```

Special Conditioning Timers

Special Conditioning Timers

Timers

0-31

No	Value	Min	Max	200ms	Description	No	Value	Min	Max	200ms	Description
0	2	0	255	☐	O/P PULSE MOVADET45	16	0	0	255	☐	Delayed Revert to stage 1
1	60	0	255	☐	MOVADET45 PREVENT TIMER	17	1	0	255	☐	MOVADET43 pulse
2	2	0	255	☐	O/P PULSE MOVADET46	18	20	0	255	☐	Delayed Revert to All Red
3	60	0	255	☐	MOVADET46 PREVENT TIMER	19	1	0	255	☐	MOVADET44 pulse
4	2	0	255	☐	O/P PULSE MOVADET47	20	2	0	255	☐	BUS-EB pulse MOVAdet51
5	60	0	255	☐	MOVADET47 PREVENT TIMER	21	60	0	255	☐	MOVADET51 INHIBIT
6	2	0	255	☐	O/P PULSE MOVADET48	22	2	0	255	☐	BUS-WB PULSE MOVADET52
7	60	0	255	☐	MOVADET48 PREVENT TIMER	23	60	0	255	☐	MOVADET52 INHIBIT
8		0	255	☐		24	2	0	255	☐	BUS-EBRT PULSE MOVADET53
9	2.8	0	31.8	☑	Phase C intelligent phase delay	25	60	0	255	☐	MOVADET53 INHIBIT
10	3.8	0	31.8	☑	Phase E intelligent phase delay	26	2	0	255	☐	BUS-WBRT PULSE
11	2.8	0	31.8	☑	Phase D intelligent phase delay	27	60	0	255	☐	MOVADET54 INHIBIT
12	3.8	0	31.8	☑	Phase F intelligent phase delay	28	2	0	255	☐	BUS-NB PULSE MOVADET55
13		0	255	☐		29	60	0	255	☐	MOVADET55 INHIBIT
14		0	255	☐		30	5	0	255	☐	MOVADET56 HOLD
15		0	255	☐		31		0	255	☐	

Special Conditioning Timers

Special Conditioning Timers

Timers

64-95

No	Value	Min	Max	200ms	Description	No	Value	Min	Max	200ms	Description
64		0	255	☐		80		0	255	☐	
65		0	255	☐		81		0	255	☐	
66		0	255	☐		82		0	255	☐	
67		0	255	☐		83		0	255	☐	
68		0	255	☐		84		0	255	☐	
69		0	255	☐		85		0	255	☐	
70		0	255	☐		86		0	255	☐	
71		0	255	☐		87		0	255	☐	
72		0	255	☐		88		0	255	☐	
73		0	255	☐		89		0	255	☐	
74		0	255	☐		90		0	255	☐	
75		0	255	☐		91		0	255	☐	
76		0	255	☐		92		0	255	☐	
77		0	255	☐		93		0	255	☐	
78		0	255	☐		94	1	1	5	☐	MIN LAMPS OFF TIMER
79		0	255	☐		95	120	0	255	☐	MOVA CRB TOGGLE BIT

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Special Instructions

EPR199

Card Type	Rack Posn	Addr.	Port	Type	Line	Term Posn
Intelligent Backplane 16/0	Rack	01	0	I	000 - 007	2 LT1
Intelligent Backplane 16/0	Rack	01	1	I	008 - 015	2 LT1
Intelligent Backplane 16/0	Rack	02	2	I	016 - 023	2 LT2
Intelligent Backplane 16/0	Rack	02	3	I	024 - 031	2 LT2
Intelligent Backplane 16/0	Rack	03	4	I	032 - 039	2 LT3
Intelligent Backplane 16/0	Rack	03	5	I	040 - 047	2 LT3
Serial IO 24/4	1 I/O1	04	6	I	048 - 055	1 I/O1
Serial IO 24/4	1 I/O1	04	7	I	056 - 063	1 I/O1
Serial IO 24/4	1 I/O1	04	8	I	064 - 071	1 I/O1
Serial IO 24/4	1 I/O1	04	9	O	072 - 075	1 I/O1
CPU	A					

Works Order :
EM Number : gg0002
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Special Instructions

ST900 ELV CONTROLLER ITEMS LIST SHEET 1 (*I*L*)

ITEM	DRAWING NUMBER	DESCRIPTION	QTY	TOT	REMARKS
1					
2	667/1/32900/020	ST900 ELV Cabinet UK 20A 1 LSLS - Grey	1		
3	667/1/32900/040	ST900 ELV Cabinet UK 40A 1 LSLS - Grey			
4	667/1/32900/021	ST900 ELV Cabinet UK 20A 1 LSLS - Black			
5	667/1/32900/041	ST900 ELV Cabinet UK 40A 1 LSLS - Black			
6	667/1/32900/520	ST900ELV 20A SGL LSLS LOW INRUSH - Grey			
7	667/1/32900/521	ST900ELV 20A SGL LSLS LOW INRUSH - Black			
8					
9	667/1/32943/001	ELV Lamp switch (LSLS) kit	1		
10	667/1/32960/001	ELV Lamp switch (LSLS) backplane kit	1		
11	667/1/32995/002	ST900 I/O card kit (4 outputs)	1		
12	667/1/32995/001	ST900 I/O card kit (16 outputs)			
13					
14					
15					
16	667/1/27004/000	Integral TC12 OTU kit			
17	667/1/27005/000	SDE Facility kit			
18	667/1/32910/000	ST900 Intelligent detector backplane kit	3		
19	667/1/33002/000	ELV detector 6U rack expansion kit	1		
20	667/1/33074/000	ST900 ELV 24 V detector supply Kit (6A)			
21	667/1/20690/001	19" Detector Rack			
22					
23	667/1/32985/000	ELV 20A to 40A upgrade kit			
24					
25					
26	667/1/33070/000	ELV Regulatory Sign expansion kit			
27	667/1/32950/000	ELV Audible supply kit			
28	667/1/33009/000	ST900 300mA RCD kit			
29					
30	667/1/32900/001	Expansion cabinet kit - Black			
31	667/1/32900/000	Expansion cabinet kit - Grey			
32	667/1/33072/000	Cabinet mounted cut-out connection kit			
33					
34					
35					
36	667/1/27056/001	Manual Panel Full kit			
37	667/1/27110/000	Manual Panel RS232 kit			
38					
39					
40	667/1/16700/199	Configuration Eprom (Issue 4. 0)	1		

Note 1:
Please refer to special instruction pages for additional information on items marked with an '*'.

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Special Instructions

ST900 ELV CONTROLLER ITEMS LIST SHEET 2 (*I*L*)

ITEM	DRAWING NUMBER	DESCRIPTION	QTY	TOT	REMARKS
41					
42	667/1/32900/920	ST900 ELV cuckoo Kit - T200			
43	667/1/32900/921	ST900 ELV cuckoo Kit - T400			
44	667/1/32900/922	ST900 ELV cuckoo Kit - T800			
45	667/1/32900/923	ST900 ELV cuckoo Kit - Microsense			
46	667/1/32900/925	ST900 ELV cuckoo Kit - Peek			
47					
48					
49					
50					
51					
52	667/1/33073/000	ST900 Isolator locking kit			
53	667/2/20234/000	Screw Lock Key			
54					
55					
56	667/1/27104/000	ST800 / ST900 DFM Lens Kit			
57	667/1/21150/002	ST800 / ST900 Gas Plinth			
58	667/2/27096/000	ST800 / ST900 Mounting Stool			
59					
60					
61					
62	667/1/26271/000	Telephone Kit (Lightning protection)			
63	667/1/27118/000	Surge Arrester (Lightning protection)			
64					
65					
66					
67	667/1/32900/120	ST900 ELV Cabinet Export 20A 1 LSLS - Grey			
68	667/1/32900/140	ST900 ELV Cabinet Export 40A 1 LSLS - Grey			
69	667/1/32900/121	ST900 ELV Cabinet Export 20A 1 LSLS - Black			
70	667/1/32900/141	ST900 ELV Cabinet Export 40A 1 LSLS - Black			
71					
72					
73	667/1/32900/900	ST900 ELV export rack Kit			
74	667/1/32945/000	ST900 ELV additional LSLS rack wiring kit			
75					
76	667/1/27007/000	IRM Facility			
77					
78					
79					
80					

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Special Instructions

SIEMENS ST900 ELV INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET

LOOP TERMINATION BOARD LT1 = DETECTOR BACKPLANE ADDRESS: 01

LOOP DESIGNATION AND CONNECTIONS

DET CARD A		DET CARD B		DET CARD C		DET CARD D	
No.	LOOP ID	No.	LOOP ID	No.	LOOP ID	No.	LOOP ID
1	AIN1	1	ASL4	1	BIN7	1	BSL10
2	AX2	2	ASL5	2	BX8	2	BSL11
3	AX3	3	ASL6	3	BX9	3	BSL12
4	SPARE1	4	SPARE2	4	SPARE3	4	SPARE4

[Template - Internal Detectors.txt Issue 1.0]

SIEMENS ST900 ELV INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET

LOOP TERMINATION BOARD LT2 = DETECTOR BACKPLANE ADDRESS: 02

LOOP DESIGNATION AND CONNECTIONS

DET CARD A		DET CARD B		DET CARD C		DET CARD D	
No.	LOOP ID	No.	LOOP ID	No.	LOOP ID	No.	LOOP ID
1	CX13	1	DX17	1	GIN21	1	GSL24
2	EX14	2	FX18	2	GX22	2	GSL25
3	CSL15	3	DSL19	3	GX23	3	HIN26
4	ESL16	4	FSL20	4	SPARE5	4	IIN27

[Template - Internal Detectors.txt Issue 1.0]

Special Instructions

SIEMENS ST900 ELV INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET

LOOP TERMINATION BOARD LT3 = DETECTOR BACKPLANE ADDRESS: 03

LOOP DESIGNATION AND CONNECTIONS

DET CARD A No.	LOOP ID	DET CARD B No.	LOOP ID	DET CARD C No.	LOOP ID	DET CARD D No.	LOOP ID
1	HX28	1		1		1	
2	IX29	2		2		2	
3	HSL30	3		3		3	
4	ISL31	4		4		4	

[Template - Internal Detectors.txt Issue 1.0]

Call Cancel

Call Cancel

Unit No.	Input Name	Call Delay	Cancel Delay	Phase Demanded (Unlatched Demand)
0	CX18	255	2	
1	DX22	255	2	
2	DX23	255	2	
3	EX19	255	2	
4	FX24	255	2	
5		0	0	
6		0	0	
7		0	0	

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 0

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Intelligent Backplane 16/0
Card Address: 1

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	0	0	I	AIN1	☑	☑	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	A1
○	1	1	I	AX2	☑	☑	☐	☐	☐	A	0	4.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	A2
○	2	2	I	AX3	☑	☑	☐	☐	☐	A	0	4.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	A3
○	3	3	I	SPARE1	☑	☑	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	A4
○	4	4	I	ASL4	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	B1
○	5	5	I	ASL5	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	B2
○	6	6	I	ASL6	☑	☑	☐	☐	☐	A	0	0.6	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	B3
○	7	7	I	SPARE2	☑	☑	☐		☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	B4

[Add] [Delete] [Move] [Clear Used By] [Move to/from backplane]

[Manual Map Optimisation]

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 1

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Intelligent Backplane 16/0
Card Address: 1

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	8	0	I	IINSINK7	☑	☑	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	C1
○	9	1	I	BIN8	☑	☑	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	C2
○	10	2	I	BIN9	☑	☑	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	C3
○	11	3	I	SPARE3	☑	☑	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	C4
○	12	4	I	IX10	☑	☑	☐	☐	☐	A	0	4.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	D1
○	13	5	I	BX11	☑	☑	☐	☐	☐	A	0	4.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	D2
○	14	6	I	BX12	☑	☑	☐	☐	☐	A	0	4.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	D3
○	15	7	I	BXSINK13	☑	☑	☐		☐	A	0	3.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT1	D4

[Add] [Delete] [Move] [Clear Used By] [Move to/from backplane]

[Manual Map Optimisation]

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 2

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Intelligent Backplane 16/0
Card Address: 2

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	16	0	I	ISL14	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	A1
○	17	1	I	BSL15	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	A2
○	18	2	I	BSL16	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	A3
○	19	3	I	BSL17	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	A4
○	20	4	I	CX18	☑	☑	☐	☐	☐	A	0	2.6	☑	☐	☐	☐	☐	☑	☐	☐	☐	2 LT2	B1
○	21	5	I	EX19	☑	☑	☐	☐	☐	A	0	2.6	☑	☐	☐	☐	☐	☑	☐	☐	☐	2 LT2	B2
○	22	6	I	CSL20	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	B3
○	23	7	I	ESL21	☑	☑	☐		☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	B4

Add | Delete | Move | Clear Used By | Move to/from backplane

Manual Map Optimisation

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 3

○ Inputs ○ Outputs

⦿ Inputs & Outputs

Card Type & Address

Intelligent Backplane 16/0
Card Address: 2

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	24	0	I	DX22	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☑	☐	☐	☐	2 LT2	C1
○	25	1	I	DX23	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☑	☐	☐	☐	2 LT2	C2
○	26	2	I	FX24	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☑	☐	☐	☐	2 LT2	C3
○	27	3	I	SPARE4	☑	☑	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	C4
○	28	4	I	DSL25	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	D1
○	29	5	I	DSL26	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	D2
○	30	6	I	FSL27	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	D3
○	31	7	I	SPARE5	☑	☑	☐		☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT2	D4

Add | Delete | Move | Clear Used By | Move to/from backplane

Manual Map Optimisation

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 4

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Intelligent Backplane 16/0
Card Address: 3

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	32	0	I	GIN28	☑	☑	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	A1
○	33	1	I	GX29	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	A2
○	34	2	I	GX30	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	A3
○	35	3	I	SPARE6	☑	☑	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	A4
○	36	4	I	GSL31	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	B1
○	37	5	I	GSL32	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	B2
○	38	6	I	HIN33	☑	☑	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	B3
○	39	7	I	HIN34	☑	☑	☐		☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	B4

Add | Delete | Move | Clear Used By | Move to/from backplane

Manual Map Optimisation

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 5

○ Inputs ○ Outputs

⦿ Inputs & Outputs

Card Type & Address

Intelligent Backplane 16/0
Card Address: 3

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Terminal No
○	40	0	I	HX35	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	C1
○	41	1	I	HX36	☑	☑	☐	☐	☐	A	0	3.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	C2
○	42	2	I	HSL37	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	C3
○	43	3	I	HSL38	☑	☑	☐	☐	☐	A	0	0.6	☑	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	C4
○	44	4	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	D1
○	45	5	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	D2
○	46	6	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	D3
○	47	7	I		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	2 LT3	D4

Add | Delete | Move | Clear Used By | Move to/from backplane

Manual Map Optimisation

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 6

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Serial IO 24/4
Card Address: 4

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Line No
○	48	0	I	PEDJ1	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-0
○	49	1	I	OCDJ1	☐	☐	☑	☐	☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-1
○	50	2	I	PEDJ2	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-2
○	51	3	I	OCDJ2	☐	☐	☑	☐	☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-3
○	52	4	I	PEDK1	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-4
○	53	5	I	OCDK1	☐	☐	☑	☐	☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-5
○	54	6	I	PEDK2	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-6
○	55	7	I	OCDK2	☐	☐	☑		☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-7

[Add] [Delete] [Move] [Clear Used By] [Move to/from backplane]

[Manual Map Optimisation]

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 7

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Serial IO 24/4
Card Address: 4

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Line No
○	56	0	I	PEDL1	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-8
○	57	1	I	OCDL1	☐	☐	☑	☐	☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-9
○	58	2	I	PEDL2	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-10
○	59	3	I	OCDL2	☐	☐	☑	☐	☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-11
○	60	4	I	PEDM1	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-12
○	61	5	I	OCDM1	☐	☐	☑	☐	☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-13
○	62	6	I	PEDM2	☑	☐	☐	☐	☐	Y	1	0.0	☑	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-14
○	63	7	I	OCDM2	☐	☐	☑		☐	N		0.4	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-15

Add | Delete | Move | Clear Used By | Move to/from backplane

Manual Map Optimisation

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 8

○ Inputs ○ Outputs

◉ Inputs & Outputs

Card Type & Address

Serial IO 24/4
Card Address: 4

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Line No
○	64	0	I	BUS-EB	☐	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-16
○	65	1	I	BUS-WB	☐	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-17
○	66	2	I	BUS-EBRT	☐	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-18
○	67	3	I	BUS-WBRT	☐	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-19
○	68	4	I	BUS-NB	☐	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-20
○	69	5	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-21
○	70	6	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-22
○	71	7	I		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	I-23

Add | Delete | Move | Clear Used By | Move to/from backplane

Manual Map Optimisation

Inputs and Outputs

Inputs and Outputs

☐ Enable Signal Required Check boxes

☐ Manual Allocation

Port Number & Type

Port: 9

○ Inputs ○ Outputs

⦿ Inputs & Outputs

Card Type & Address

Serial IO 24/4
Card Address: 4

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	IG	UD	LRT	Term Block	Line No
○	72	0	O	LAMPSON	☑	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-0
○	73	1	O		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-1
○	74	2	O		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-2
○	75	3	O		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-3
○	76	4	O		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-4
○	77	5	O		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-5
○	78	6	O		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-6
○	79	7	O		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	☐	1I/O1	O-7

[Add] [Delete] [Move] [Clear Used By] [Move to/from backplane]

[Manual Map Optimisation]

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Aspect Drives (ELV Controllers)

Aspect Drives (ELV Controllers)

☐ Card Reversed

HPU Connection 1

Aspect Drive Configuration for LSLS 1 of 2 cards (Cabinet 1)

Output	Phase	Aspect	Use	Output	Phase	Aspect	Use
32	A	Red	Phase	16	D	Amber	Phase
31	A	Red	Phase	15	D	Green	Phase
30	A	Amber	Phase	14	E	Red	Phase
29	A	Amber	Phase	13	E	Amber	Phase
28	A	Green	Phase	12	E	Green	Phase
27	A	Green	Phase	11	F	Red	Phase
26	B	Red	Phase	10	F	Amber	Phase
25	B	Red	Phase	9	F	Green	Phase
24	B	Amber	Phase	8	G	Red	Phase
23	B	Amber	Phase	7	G	Amber	Phase
22	B	Green	Phase	6	G	Green	Phase
21	B	Green	Phase	5	H	Red	Phase
20	C	Red	Phase	4	H	Amber	Phase
19	C	Amber	Phase	3	H	Green	Phase
18	C	Green	Phase	2	I	Red	Phase
17	D	Red	Phase	1	I	Amber	Phase

Works Order :
EM Number : gg0002
Engineer : Nick Rule
Intersection : SYCAMORE CROSSROADS A48 - PENDOYLAN

Aspect Drives (ELV Controllers)

Aspect Drives (ELV Controllers)

☐ Card Reversed

HPU Connection: 1

Aspect Drive Configuration for LSLS 2 of 2 cards (Cabinet 1)

Output	Phase	Aspect	Use	Output	Phase	Aspect	Use
32	I	Green	Phase	16	M	Green	Phase
31	J	Red	Phase	15	N/A	N/A	N/A
30	J	Amber	Phase	14	N/A	N/A	N/A
29	J	Green	Phase	13	N/A	N/A	N/A
28	J	Green	Phase	12	N/A	N/A	N/A
27	K	Red	Phase	11	N/A	N/A	N/A
26	K	Amber	Phase	10	N/A	N/A	N/A
25	K	Green	Phase	9	N/A	N/A	N/A
24	K	Green	Phase	8	N/A	N/A	N/A
23	L	Red	Phase	7	N/A	N/A	N/A
22	L	Amber	Phase	6	N/A	N/A	N/A
21	L	Green	Phase	5	N/A	N/A	N/A
20	L	Green	Phase	4	N/A	N/A	N/A
19	M	Red	Phase	3	N/A	N/A	N/A
18	M	Amber	Phase	2	N/A	N/A	N/A
17	M	Green	Phase	1	N/A	N/A	N/A

I/O - DFM Group Timings

I/O - DFM Group Timings

Input	State	SET A	SET	SET	SET
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group	Active (Mins)	10	10	10	10
	InActive (Hrs)				
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18

Note - 255 or blank disables DFM monitoring of that state (active or inactive) during that timeset (A to D)

Handset Limiting Values

State	Min	Max
Active (Mins)	0	254
InActive (Hrs)	0	254

Index

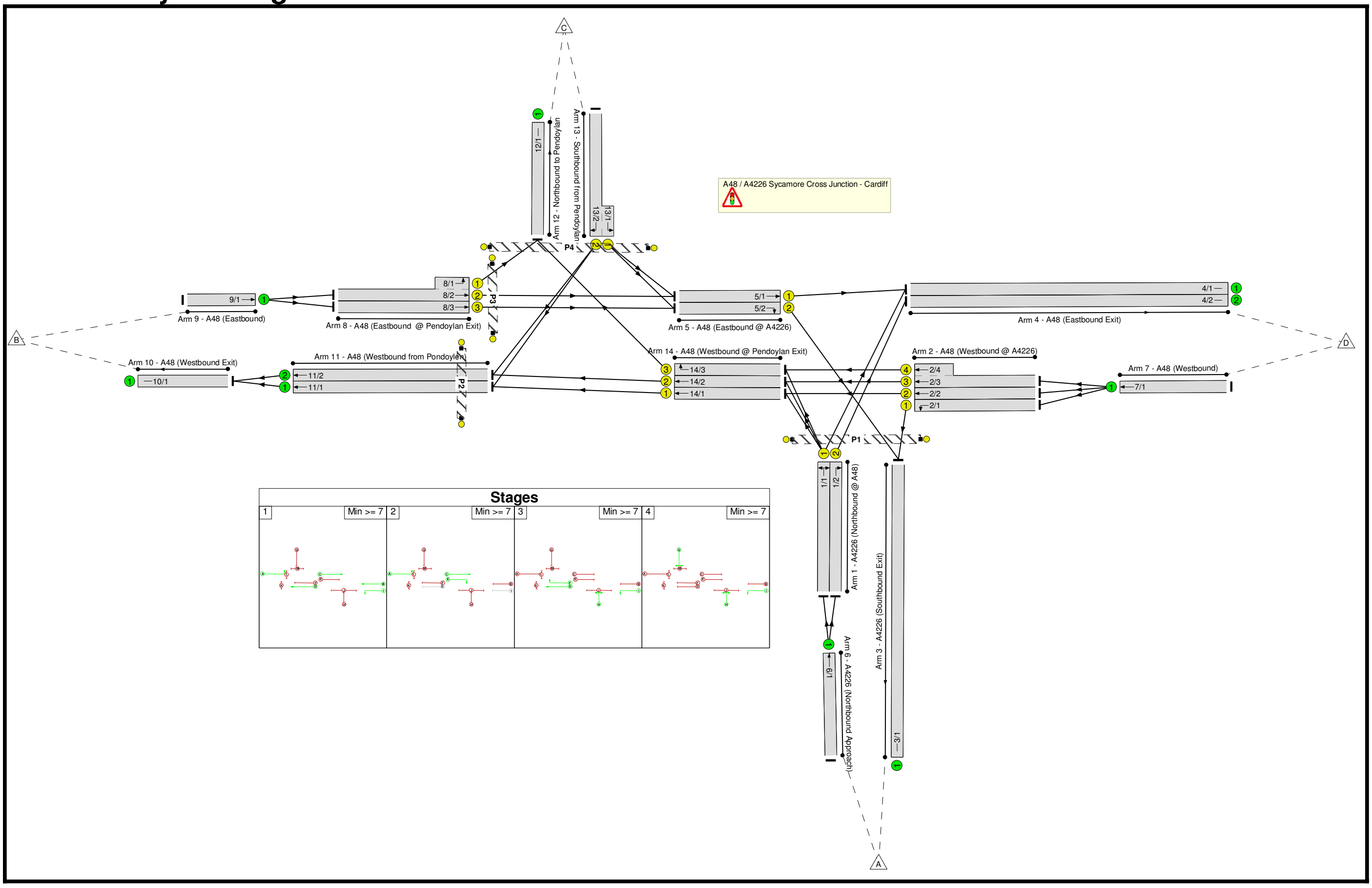
Appendix D – Sycamore Cross LinSig Modelling Output Reports

Full Input Data And Results

User and Project Details

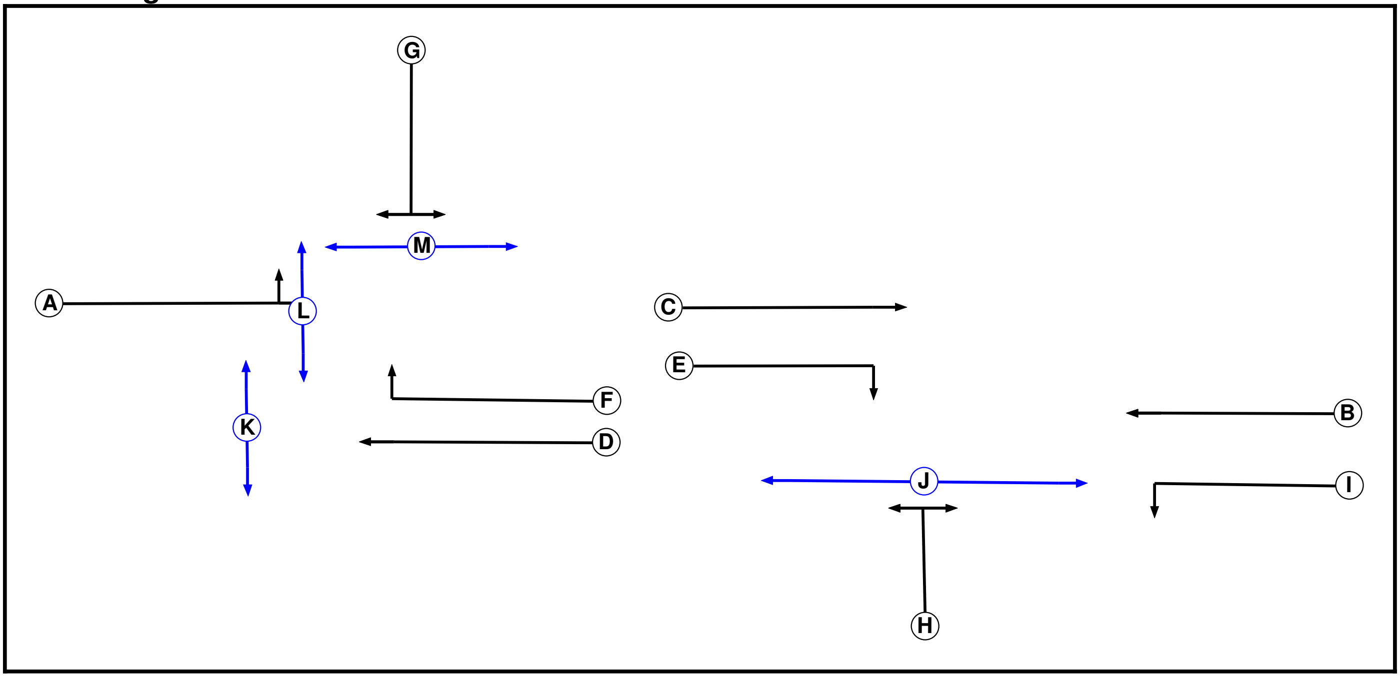
Project:	**JNY9624 – Model Farm**
Title:	**As Built Junction Layout & Signal Timings**
Location:	
File name:	JNY9624 - Sycamore Cross Junction - Revised v3.lsg3x
Author:	P Warner
Company:	RPS
Address:	
Notes:	

Network Layout Diagram



Full Input Data And Results

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	Traffic		7	7
H	Traffic		7	7
I	Traffic		7	7
J	Pedestrian		17	17
K	Pedestrian		7	7
L	Pedestrian		7	7
M	Pedestrian		7	7

Full Input Data And Results

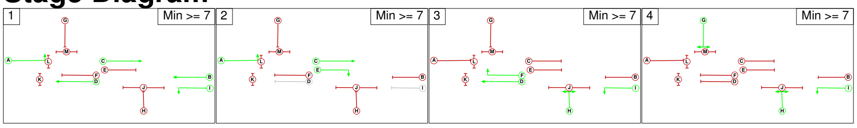
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

		To Stage			
From Stage		1	2	3	4
	1		6	6	6
	2	5		6	6
	3	6	6		6
	4	6	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff												
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 (A4226 (Northbound @ A48))	U	H	2	3	7.7	Geom	-	3.65	0.00	Y	Arm 4 Right	Inf
											Arm 14 Left	11.00
1/2 (A4226 (Northbound @ A48))	U	H	2	3	7.7	Geom	-	3.65	0.00	Y	Arm 4 Right	Inf
2/1 (A48 (Westbound @ A4226))	U	I	2	3	14.3	Geom	-	3.65	0.00	Y	Arm 3 Left	18.00
2/2 (A48 (Westbound @ A4226))	U	B	2	3	14.3	Geom	-	3.65	0.00	N	Arm 14 Ahead	Inf
2/3 (A48 (Westbound @ A4226))	U	B	2	3	14.3	Geom	-	3.65	0.00	N	Arm 14 Ahead	Inf
2/4 (A48 (Westbound @ A4226))	U	B	2	3	4.9	Geom	-	3.65	0.00	N	Arm 14 Ahead	Inf
3/1 (A4226 (Southbound Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (A48 (Eastbound Exit))	U		2	3	17.4	Geom	-	3.65	0.00	Y		
4/2 (A48 (Eastbound Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A48 (Eastbound @ A4226))	U	C	2	3	7.3	Geom	-	3.65	0.00	Y	Arm 4 Ahead	Inf
5/2 (A48 (Eastbound @ A4226))	U	E	2	3	7.1	Geom	-	3.65	0.00	N	Arm 3 Right	12.00
6/1 (A4226 (Northbound Approach))	U		2	3	17.4	Geom	-	3.65	0.00	Y	Arm 1 Ahead	Inf
7/1 (A48 (Westbound))	U		2	3	17.4	Geom	-	3.65	0.00	Y	Arm 2 Ahead	Inf

Full Input Data And Results

8/1 (A48 (Eastbound @ Pendoylan Exit))	U	A	2	3	4.3	Geom	-	3.65	0.00	Y	Arm 12 Left	15.30
8/2 (A48 (Eastbound @ Pendoylan Exit))	U	A	2	3	12.5	Geom	-	3.65	0.00	N	Arm 5 Ahead	Inf
8/3 (A48 (Eastbound @ Pendoylan Exit))	U	A	2	3	12.5	Geom	-	3.65	0.00	N	Arm 5 Ahead	Inf
9/1 (A48 (Eastbound))	U		2	3	17.4	Geom	-	3.65	0.00	Y	Arm 8 Ahead	Inf
10/1 (A48 (Westbound Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (A48 (Westbound from Pondoylen))	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2 (A48 (Westbound from Pondoylen))	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1 (Northbound to Pendoylan)	U		2	3	34.8	Geom	-	3.65	0.00	Y		
13/1 (Southbound from Pendoylan)	U	G	2	3	3.8	Geom	-	3.65	0.00	Y	Arm 5 Left	15.00
13/2 (Southbound from Pendoylan)	U	G	2	3	17.4	Geom	-	3.65	0.00	Y	Arm 11 Right	Inf
14/1 (A48 (Westbound @ Pendoylan Exit))	U	D	2	3	8.0	Geom	-	3.65	0.00	Y	Arm 11 Ahead	Inf
14/2 (A48 (Westbound @ Pendoylan Exit))	U	D	2	3	8.0	Geom	-	3.65	0.00	N	Arm 11 Ahead	Inf
14/3 (A48 (Westbound @ Pendoylan Exit))	U	F	2	3	8.0	Geom	-	3.65	0.00	N	Arm 12 Right	7.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM Base'	07:45	08:45	01:00	
2: '2026 PM Base'	16:30	17:30	01:00	
3: '2029 AM Base'	07:45	08:45	01:00	
4: '2029 PM Base'	16:30	17:30	01:00	
5: '2026 AM Base + Dev'	07:45	08:45	01:00	
6: '2026 PM Base + Dev'	16:30	17:30	01:00	
7: '2029 AM Base + Dev'	07:45	08:45	01:00	
8: '2029 PM Base + Dev'	16:30	17:30	01:00	

Scenario 1: '2026 AM Peak Base' (FG1: '2026 AM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	300	37	615	952
	B	383	0	30	505	918
	C	24	17	0	65	106
	D	374	259	102	0	735
	Tot.	781	576	169	1185	2711

Traffic Lane Flows

Lane	Scenario 1: 2026 AM Peak Base
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	426
1/2	526
2/1	374
2/2	122
2/3 (with short)	239(In) 137(Out)
2/4 (short)	102
3/1	781
4/1	659
4/2	526
5/1	570
5/2	407
6/1	952
7/1	735
8/1 (short)	30
8/2 (with short)	535(In) 505(Out)
8/3	383
9/1	918
10/1	576
11/1	251
11/2	325
12/1	169
13/1 (short)	89
13/2 (with short)	106(In) 17(Out)
14/1	251
14/2	308
14/3	139

Lane Saturation Flows

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
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 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	20.9 %	1787	1787
				Arm 14 Left	11.00	79.1 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 2: '2026 PM Peak Base' (FG2: '2026 PM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	390	28	467	885
	B	333	0	18	222	573
	C	43	23	0	91	157
	D	634	564	109	0	1307
	Tot.	1010	977	155	780	2922

Traffic Lane Flows

Lane	Scenario 2: 2026 PM Peak Base
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	418
1/2	467
2/1	634
2/2	297
2/3 (with short)	376(In) 267(Out)
2/4 (short)	109
3/1	1010
4/1	313
4/2	467
5/1	313
5/2	376
6/1	885
7/1	1307
8/1 (short)	18
8/2 (with short)	240(In) 222(Out)
8/3	333
9/1	573
10/1	977
11/1	453
11/2	524
12/1	155
13/1 (short)	134
13/2 (with short)	157(In) 23(Out)
14/1	453
14/2	501
14/3	137

Lane Saturation Flows

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
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 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	0.0 %	1742	1742
				Arm 14 Left	11.00	100.0 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 3: '2029 AM Peak Base' (FG3: '2029 AM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	302	38	617	957
	B	391	0	30	507	928
	C	25	22	0	65	112
	D	386	259	105	0	750
	Tot.	802	583	173	1189	2747

Traffic Lane Flows

Lane	Scenario 3: 2029 AM Peak Base
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	430
1/2	527
2/1	386
2/2	122
2/3 (with short)	242(In) 137(Out)
2/4 (short)	105
3/1	802
4/1	662
4/2	527
5/1	572
5/2	416
6/1	957
7/1	750
8/1 (short)	30
8/2 (with short)	537(In) 507(Out)
8/3	391
9/1	928
10/1	583
11/1	252
11/2	331
12/1	173
13/1 (short)	90
13/2 (with short)	112(In) 22(Out)
14/1	252
14/2	309
14/3	143

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
1/1 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	20.9 %	1787	1787
				Arm 14 Left	11.00	79.1 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 4: '2029 PM Peak Base' (FG4: '2029 PM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	393	31	468	892
	B	339	0	19	227	585
	C	44	24	0	94	162
	D	659	549	112	0	1320
	Tot.	1042	966	162	789	2959

Traffic Lane Flows

Lane	Scenario 4: 2029 PM Peak Base
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	424
1/2	468
2/1	659
2/2	289
2/3 (with short)	372(In) 260(Out)
2/4 (short)	112
3/1	1042
4/1	321
4/2	468
5/1	321
5/2	383
6/1	892
7/1	1320
8/1 (short)	19
8/2 (with short)	246(In) 227(Out)
8/3	339
9/1	585
10/1	966
11/1	448
11/2	518
12/1	162
13/1 (short)	138
13/2 (with short)	162(In) 24(Out)
14/1	448
14/2	494
14/3	143

Lane Saturation Flows

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
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 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	0.0 %	1742	1742
				Arm 14 Left	11.00	100.0 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 5: '2026 AM Base + Dev' (FG5: '2026 AM Base + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	284	38	676	998
	B	386	0	28	495	909
	C	32	16	0	62	110
	D	617	254	91	0	962
	Tot.	1035	554	157	1233	2979

Traffic Lane Flows

Lane	Scenario 5: 2026 AM Base + Dev
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	452
1/2	546
2/1	617
2/2	120
2/3 (with short)	225(In) 134(Out)
2/4 (short)	91
3/1	1035
4/1	687
4/2	546
5/1	557
5/2	418
6/1	998
7/1	962
8/1 (short)	28
8/2 (with short)	523(In) 495(Out)
8/3	386
9/1	909
10/1	554
11/1	243
11/2	311
12/1	157
13/1 (short)	94
13/2 (with short)	110(In) 16(Out)
14/1	243
14/2	295
14/3	129

Lane Saturation Flows

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
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 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	28.8 %	1805	1805
				Arm 14 Left	11.00	71.2 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 6: '2026 PM Base + Dev' (FG6: '2026 PM Base + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	365	25	577	967
	B	308	0	23	261	592
	C	39	22	0	89	150
	D	634	564	109	0	1307
	Tot.	981	951	157	927	3016

Traffic Lane Flows

Lane	Scenario 6: 2026 PM Base + Dev
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	440
1/2	527
2/1	634
2/2	294
2/3 (with short)	379(In) 270(Out)
2/4 (short)	109
3/1	981
4/1	400
4/2	527
5/1	350
5/2	347
6/1	967
7/1	1307
8/1 (short)	23
8/2 (with short)	284(In) 261(Out)
8/3	308
9/1	592
10/1	951
11/1	435
11/2	516
12/1	157
13/1 (short)	128
13/2 (with short)	150(In) 22(Out)
14/1	435
14/2	494
14/3	134

Lane Saturation Flows

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
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 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	11.4 %	1766	1766
				Arm 14 Left	11.00	88.6 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 7: '2029 AM Base + Dev' (FG7: '2029 AM Base + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	290	38	672	1000
	B	384	0	28	500	912
	C	43	22	0	63	128
	D	608	256	94	0	958
	Tot.	1035	568	160	1235	2998

Traffic Lane Flows

Lane	Scenario 7: 2029 AM Base + Dev
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	454
1/2	546
2/1	608
2/2	121
2/3 (with short)	229(In) 135(Out)
2/4 (short)	94
3/1	1035
4/1	689
4/2	546
5/1	563
5/2	427
6/1	1000
7/1	958
8/1 (short)	28
8/2 (with short)	528(In) 500(Out)
8/3	384
9/1	912
10/1	568
11/1	246
11/2	322
12/1	160
13/1 (short)	106
13/2 (with short)	128(In) 22(Out)
14/1	246
14/2	300
14/3	132

Lane Saturation Flows

Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
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 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	27.8 %	1802	1802
				Arm 14 Left	11.00	72.2 %		
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 8: '2029 PM Base + Dev' (FG8: '2029 PM Base + Dev', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	366	29	584	979
	B	319	0	24	247	590
	C	38	26	0	92	156
	D	634	572	110	0	1316
	Tot.	991	964	163	923	3041

Traffic Lane Flows

Lane	Scenario 8: 2029 PM Base + Dev
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff	
1/1	447
1/2	532
2/1	634
2/2	299
2/3 (with short)	383(In) 273(Out)
2/4 (short)	110
3/1	991
4/1	391
4/2	532
5/1	339
5/2	357
6/1	979
7/1	1316
8/1 (short)	24
8/2 (with short)	271(In) 247(Out)
8/3	319
9/1	590
10/1	964
11/1	443
11/2	521
12/1	163
13/1 (short)	130
13/2 (with short)	156(In) 26(Out)
14/1	443
14/2	495
14/3	139

Lane Saturation Flows

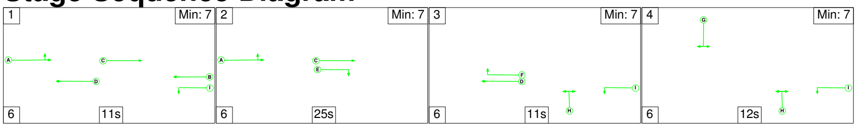
Junction: A48 / A4226 Sycamore Cross Junction - Cardiff								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right Arm 14 Left	Inf 11.00	11.6 % 88.4 %	1767	1767
1/2 (A4226 (Northbound @ A48))	3.65	0.00	Y	Arm 4 Right	Inf	100.0 %	1980	1980
2/1 (A48 (Westbound @ A4226))	3.65	0.00	Y	Arm 3 Left	18.00	100.0 %	1828	1828
2/2 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/3 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
2/4 (A48 (Westbound @ A4226))	3.65	0.00	N	Arm 14 Ahead	Inf	100.0 %	2120	2120
3/1 (A4226 (Southbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/1 (A48 (Eastbound Exit))	3.65	0.00	Y				1980	1980
4/2 (A48 (Eastbound Exit) Lane 2)	Infinite Saturation Flow						Inf	Inf
5/1 (A48 (Eastbound @ A4226))	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
5/2 (A48 (Eastbound @ A4226))	3.65	0.00	N	Arm 3 Right	12.00	100.0 %	1884	1884
6/1 (A4226 (Northbound Approach))	3.65	0.00	Y	Arm 1 Ahead	Inf	100.0 %	1980	1980
7/1 (A48 (Westbound))	3.65	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1980	1980
8/1 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 12 Left	15.30	100.0 %	1803	1803
8/2 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
8/3 (A48 (Eastbound @ Pendoylan Exit))	3.65	0.00	N	Arm 5 Ahead	Inf	100.0 %	2120	2120
9/1 (A48 (Eastbound))	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
10/1 (A48 (Westbound Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/1 (A48 (Westbound from Pondoylen) Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (A48 (Westbound from Pondoylen) Lane 2)	Infinite Saturation Flow						Inf	Inf
12/1 (Northbound to Pendoylan)	3.65	0.00	Y				1980	1980

Full Input Data And Results

13/1 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 5 Left	15.00	100.0 %	1800	1800
13/2 (Southbound from Pendoylan)	3.65	0.00	Y	Arm 11 Right	Inf	100.0 %	1980	1980
14/1 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1980	1980
14/2 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 11 Ahead	Inf	100.0 %	2120	2120
14/3 (A48 (Westbound @ Pendoylan Exit))	3.65	0.00	N	Arm 12 Right	7.00	100.0 %	1746	1746

Scenario 1: '2026 AM Peak Base' (FG1: '2026 AM Base', Plan 1: 'Network Control Plan 1')

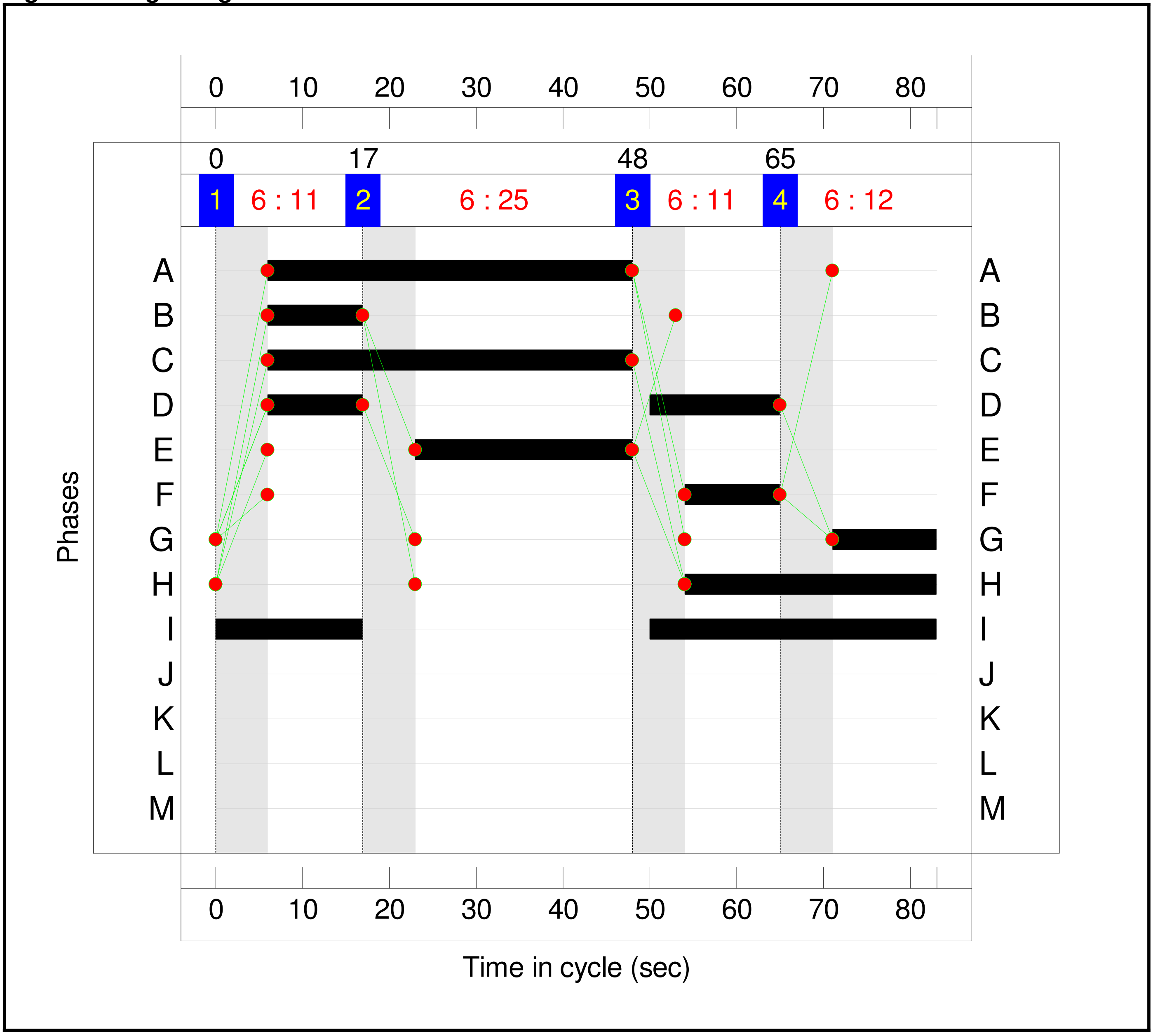
Stage Sequence Diagram



Stage Timings

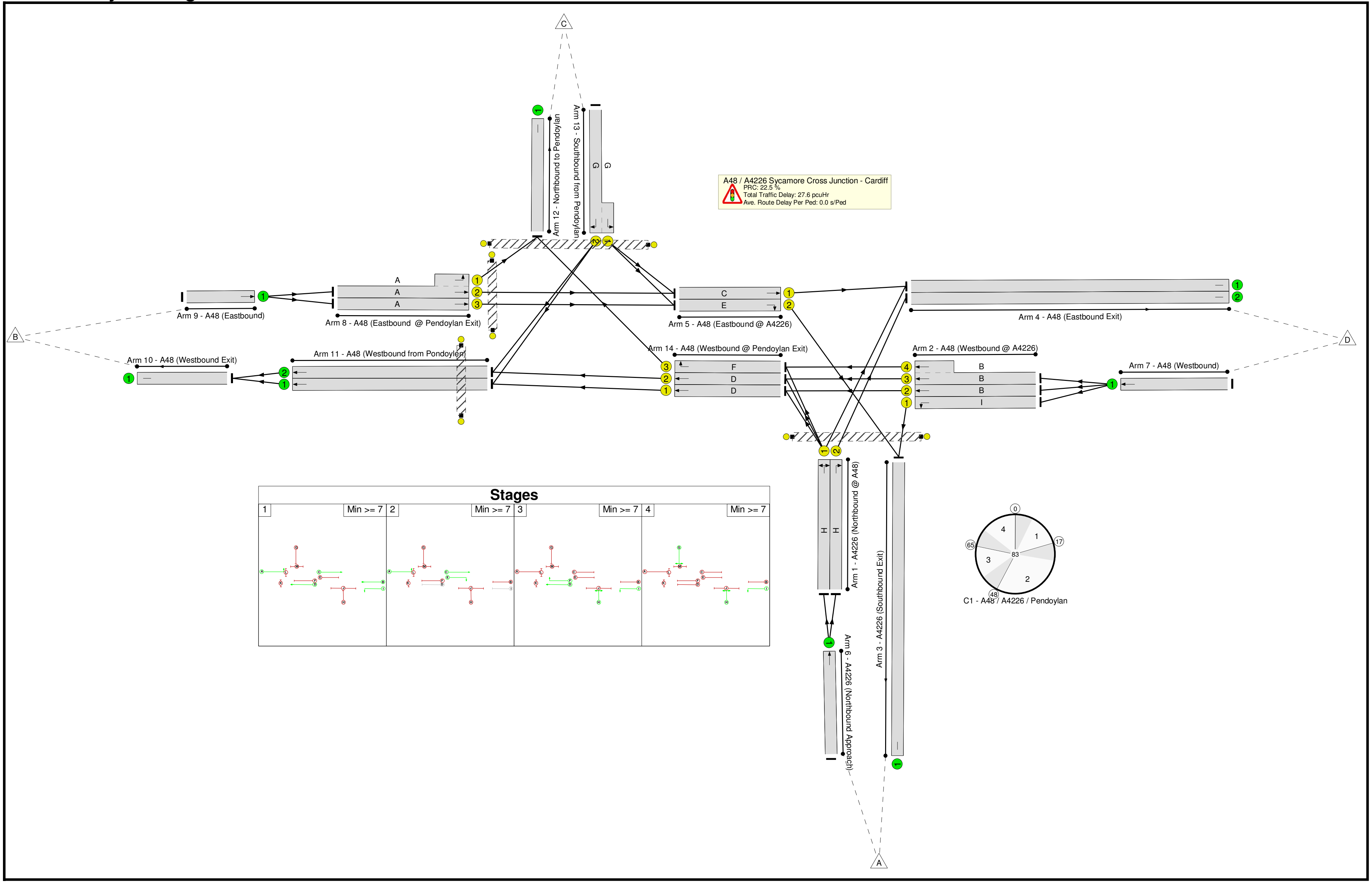
Stage	1	2	3	4
Duration	11	25	11	12
Change Point	0	17	48	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	29	-	426	1787	646	66.0%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	29	-	526	1980	716	73.5%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	50	-	374	1828	1123	33.3%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	122	2120	307	39.8%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	239	2120:2120	273+204	50.1 : 50.1%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	781	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	659	1980	1980	33.3%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	526	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	42	-	570	1980	1026	55.6%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	25	-	407	1884	590	69.0%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	952	1980	1980	48.1%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	735	1980	1980	37.1%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	42	-	535	2120:1803	1039+62	48.6 : 48.6%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	42	-	383	2120	1098	34.9%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	918	1980	1980	46.4%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	576	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	251	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	325	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	169	1980	1980	8.5%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	12	-	106	1980:1800	53+280	31.8 : 31.8%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	251	1980	668	37.6%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	308	2120	715	43.1%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	11	-	139	1746	252	55.1%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**18.7**	**8.9**	**0.0**	**27.6**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**18.7**	**8.9**	**0.0**	**27.6**	**-**	**-**	**-**	**-**
1/1	426	426	-	-	-	2.6	1.0	-	3.6	30.3	8.2	1.0	9.1
1/2	526	526	-	-	-	3.4	1.4	-	4.7	32.4	10.5	1.4	11.9
2/1	374	374	-	-	-	0.8	0.2	-	1.1	10.2	4.2	0.2	4.4
2/2	122	122	-	-	-	1.1	0.3	-	1.4	42.0	2.5	0.3	2.9
2/3+2/4	239	239	-	-	-	2.1	0.5	-	2.6	39.8	2.9	0.5	3.4
3/1	781	781	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	659	659	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
4/2	526	526	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	570	570	-	-	-	0.6	0.6	-	1.2	7.5	9.4	0.6	10.1
5/2	407	407	-	-	-	1.7	1.1	-	2.8	24.5	8.2	1.1	9.3
6/1	952	952	-	-	-	0.0	0.5	-	0.5	1.7	0.0	0.5	0.5
7/1	735	735	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
8/2+8/1	535	535	-	-	-	1.9	0.5	-	2.4	15.8	7.5	0.5	7.9
8/3	383	383	-	-	-	1.3	0.3	-	1.5	14.3	5.1	0.3	5.4
9/1	918	918	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
10/1	576	576	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	251	251	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	325	325	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	169	169	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	106	106	-	-	-	0.9	0.2	-	1.1	38.8	1.8	0.2	2.0
14/1	251	251	-	-	-	0.3	0.3	-	0.6	9.1	3.3	0.3	3.6
14/2	308	308	-	-	-	0.5	0.4	-	0.8	9.7	4.3	0.4	4.7
14/3	139	139	-	-	-	1.6	0.6	-	2.2	57.7	2.9	0.6	3.6

Full Input Data And Results

Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

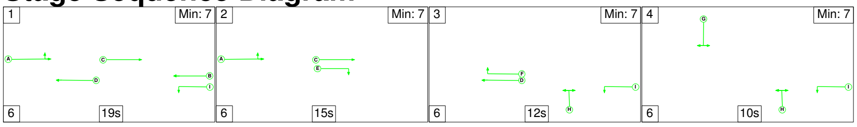
C1 - A48 / A4226 / Pendoylan

PRC for Signalled Lanes (%): 22.5
PRC Over All Lanes (%): 22.5
Total Delay for Signalled Lanes (pcuHr): 26.11
Total Delay Over All Lanes(pcuHr): 27.59
Cycle Time (s): 83

Full Input Data And Results

Scenario 2: '2026 PM Peak Base' (FG2: '2026 PM Base', Plan 1: 'Network Control Plan 1')

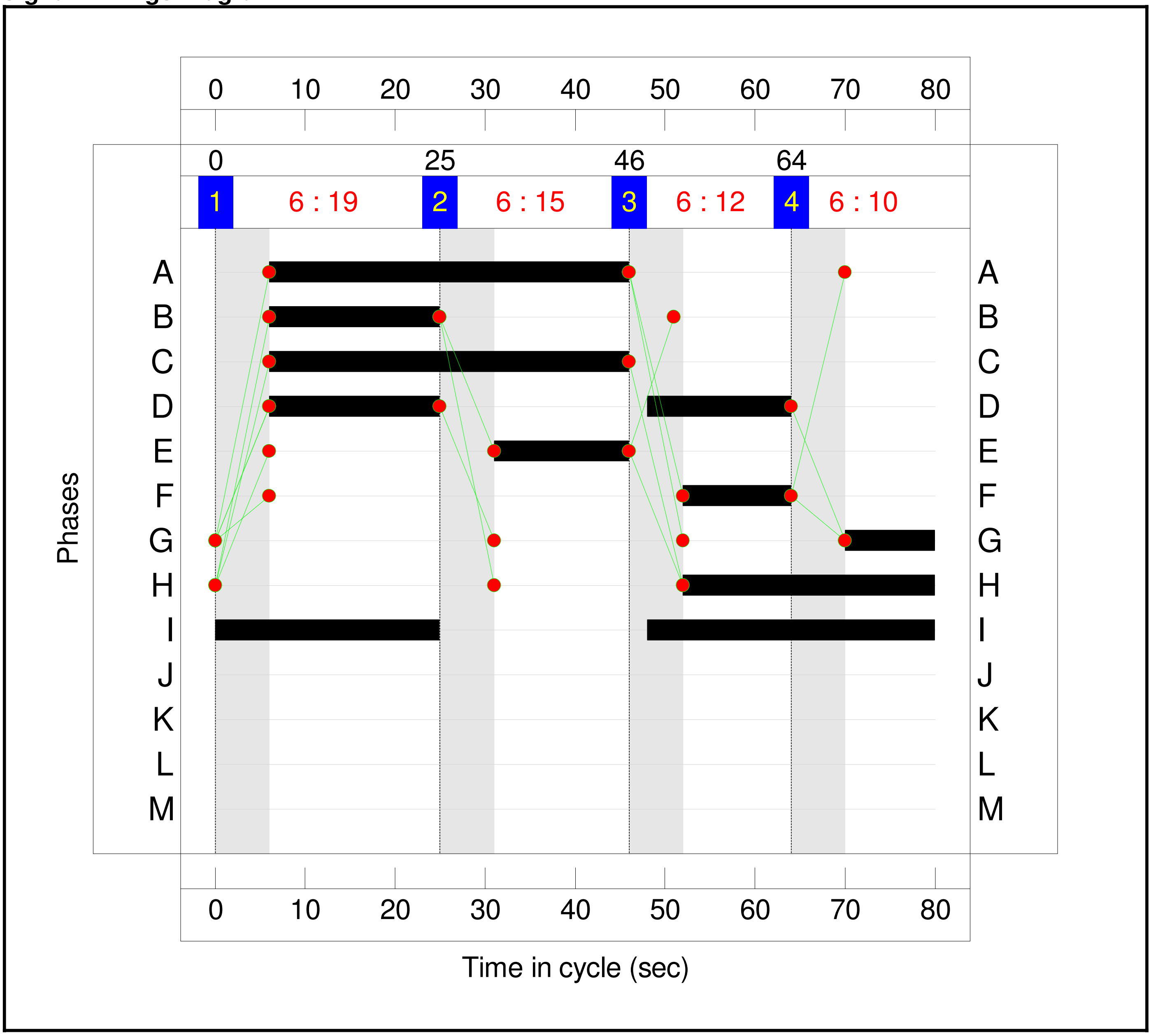
Stage Sequence Diagram



Stage Timings

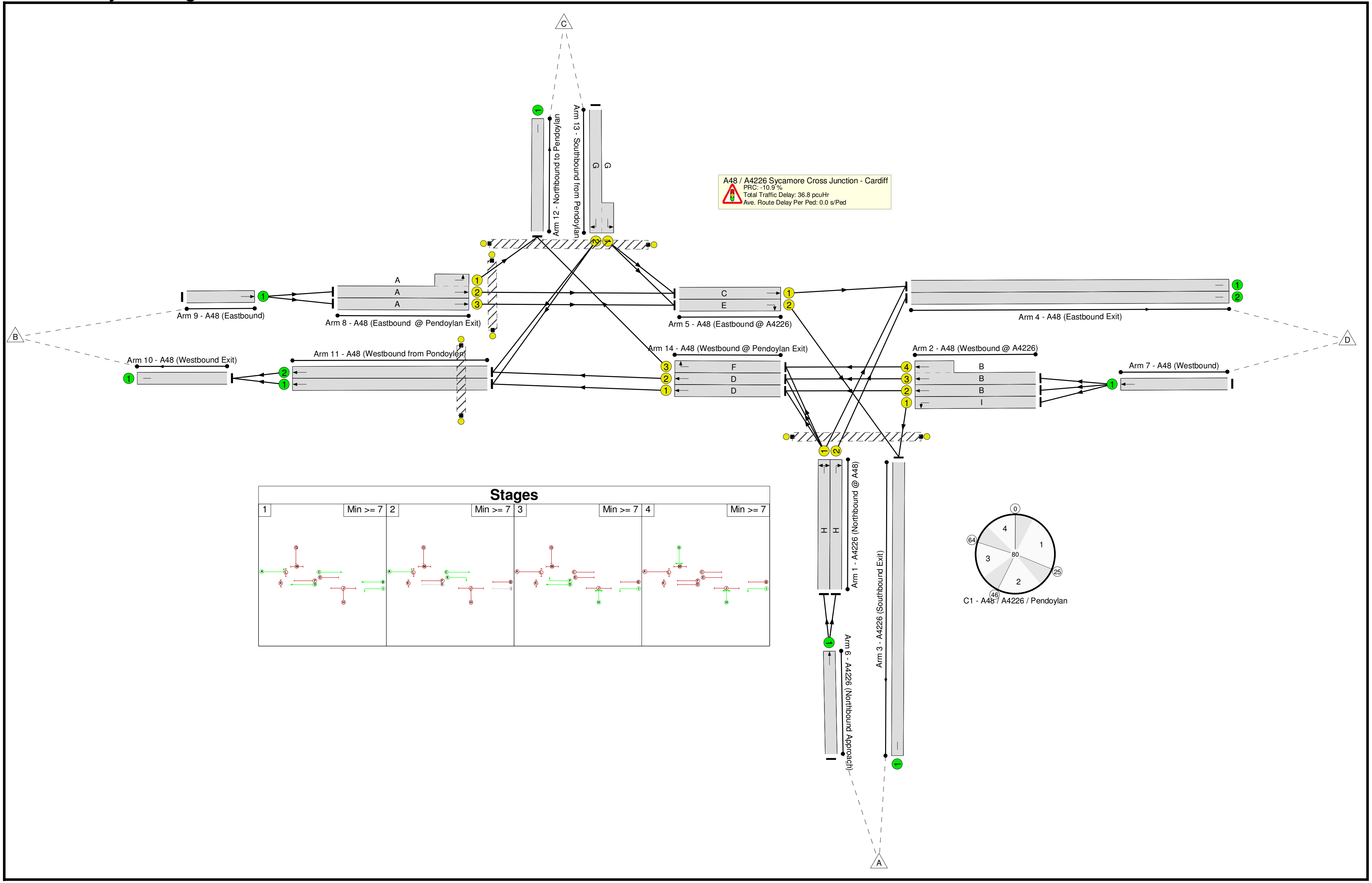
Stage	1	2	3	4
Duration	19	15	12	10
Change Point	0	25	46	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.8%**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.8%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	28	-	418	1742	631	66.2%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	28	-	467	1980	718	65.1%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	57	-	634	1828	1325	47.8%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	297	2120	530	56.0%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	376	2120:2120	449+183	59.5 : 59.5%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	313	1980	1980	15.8%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	467	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	40	-	313	1980	1015	30.8%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	15	-	376	1884	377	99.8%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	885	1980	1980	44.7%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	1307	1980	1980	66.0%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	40	-	240	2120:1803	1009+82	22.0 : 22.0%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	40	-	333	2120	1087	30.6%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	573	1980	1980	28.9%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	453	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	524	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	155	1980	1980	7.8%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	10	-	157	1980:1800	42+248	54.1 : 54.1%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	453	1980	916	49.5%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	501	2120	980	51.1%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	12	-	137	1746	284	48.3%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**19.3**	**17.6**	**0.0**	**36.8**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**19.3**	**17.6**	**0.0**	**36.8**	**-**	**-**	**-**	**-**
1/1	418	418	-	-	-	2.5	1.0	-	3.5	29.7	7.8	1.0	8.7
1/2	467	467	-	-	-	2.8	0.9	-	3.7	28.4	8.6	0.9	9.5
2/1	634	634	-	-	-	0.8	0.5	-	1.3	7.2	5.8	0.5	6.3
2/2	297	297	-	-	-	2.2	0.6	-	2.8	33.9	5.7	0.6	6.3
2/3+2/4	376	376	-	-	-	2.6	0.7	-	3.4	32.2	5.1	0.7	5.8
3/1	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	313	313	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	467	467	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	313	313	-	-	-	0.5	0.2	-	0.7	8.0	4.8	0.2	5.0
5/2	376	376	-	-	-	2.4	9.5	-	11.9	114.4	8.3	9.5	17.8
6/1	885	885	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
7/1	1307	1307	-	-	-	0.0	1.0	-	1.0	2.7	0.0	1.0	1.0
8/2+8/1	240	240	-	-	-	0.7	0.1	-	0.8	12.7	2.7	0.1	2.8
8/3	333	333	-	-	-	1.0	0.2	-	1.3	13.7	4.3	0.2	4.5
9/1	573	573	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
10/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	453	453	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	524	524	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	155	155	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	157	157	-	-	-	1.4	0.6	-	2.0	45.3	2.8	0.6	3.3
14/1	453	453	-	-	-	0.4	0.5	-	0.8	6.7	4.0	0.5	4.5
14/2	501	501	-	-	-	0.5	0.5	-	1.1	7.6	6.8	0.5	7.3
14/3	137	137	-	-	-	1.5	0.5	-	1.9	51.1	2.8	0.5	3.2

Full Input Data And Results

Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan

PRC for Signalled Lanes (%): -10.9
PRC Over All Lanes (%): -10.9

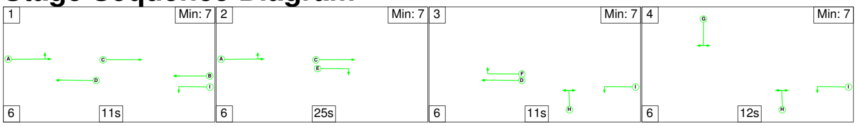
Total Delay for Signalled Lanes (pcuHr): 35.13
Total Delay Over All Lanes(pcuHr): 36.84

Cycle Time (s): 80

Full Input Data And Results

Scenario 3: '2029 AM Peak Base' (FG3: '2029 AM Base', Plan 1: 'Network Control Plan 1')

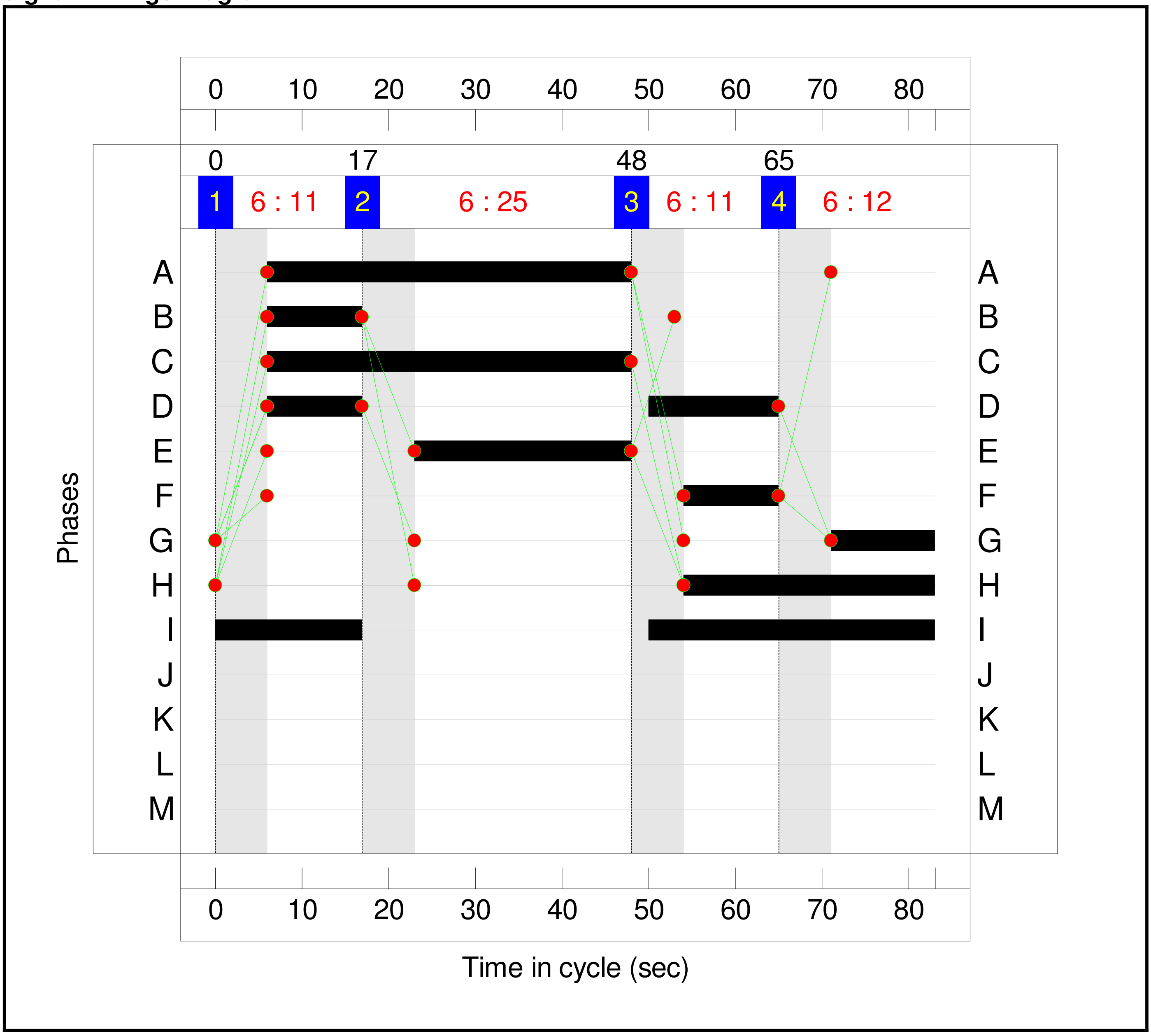
Stage Sequence Diagram



Stage Timings

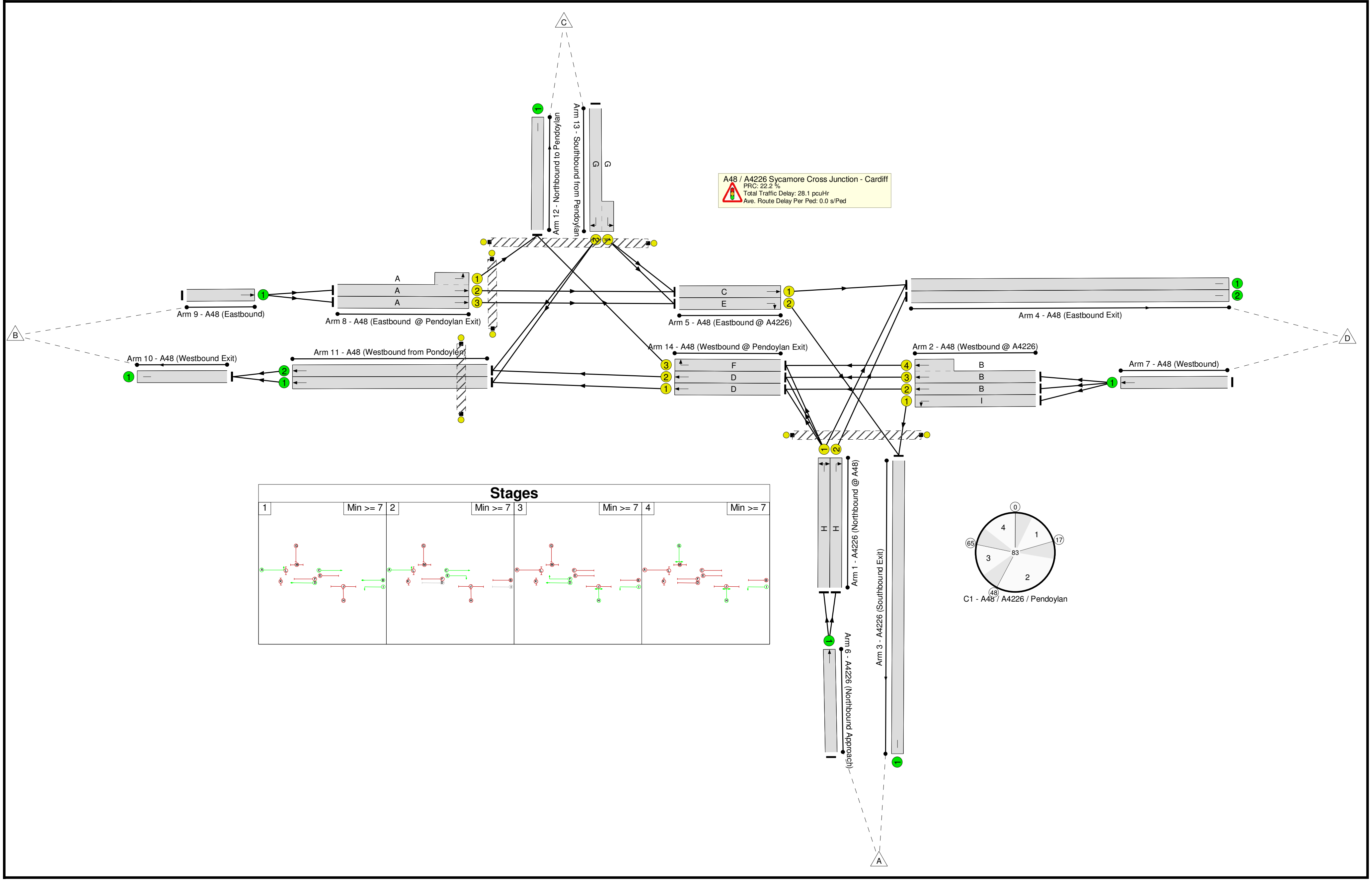
Stage	1	2	3	4
Duration	11	25	11	12
Change Point	0	17	48	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.6%**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.6%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	29	-	430	1787	646	66.6%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	29	-	527	1980	716	73.6%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	50	-	386	1828	1123	34.4%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	122	2120	307	39.8%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	242	2120:2120	273+209	50.2 : 50.2%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	802	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	662	1980	1980	33.4%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	527	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	42	-	572	1980	1026	55.8%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	25	-	416	1884	590	70.5%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	957	1980	1980	48.3%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	750	1980	1980	37.9%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	42	-	537	2120:1803	1039+62	48.8 : 48.8%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	42	-	391	2120	1098	35.6%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	928	1980	1980	46.9%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	583	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	331	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	173	1980	1980	8.7%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	12	-	112	1980:1800	67+275	32.7 : 32.7%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	252	1980	668	37.7%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	309	2120	715	43.2%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	11	-	143	1746	252	56.6%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**19.0**	**9.1**	**0.0**	**28.1**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**19.0**	**9.1**	**0.0**	**28.1**	**-**	**-**	**-**	**-**
1/1	430	430	-	-	-	2.7	1.0	-	3.6	30.5	8.2	1.0	9.2
1/2	527	527	-	-	-	3.4	1.4	-	4.8	32.5	10.5	1.4	11.9
2/1	386	386	-	-	-	0.8	0.3	-	1.1	10.3	4.3	0.3	4.6
2/2	122	122	-	-	-	1.1	0.3	-	1.4	42.0	2.5	0.3	2.9
2/3+2/4	242	242	-	-	-	2.2	0.5	-	2.7	39.7	2.9	0.5	3.4
3/1	802	802	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	662	662	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
4/2	527	527	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	572	572	-	-	-	0.6	0.6	-	1.2	7.5	9.5	0.6	10.1
5/2	416	416	-	-	-	1.7	1.2	-	2.9	25.1	8.5	1.2	9.7
6/1	957	957	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
7/1	750	750	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
8/2+8/1	537	537	-	-	-	1.9	0.5	-	2.4	15.8	7.7	0.5	8.1
8/3	391	391	-	-	-	1.3	0.3	-	1.6	14.4	5.3	0.3	5.6
9/1	928	928	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
10/1	583	583	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	331	331	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	173	173	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	112	112	-	-	-	1.0	0.2	-	1.2	38.7	1.8	0.2	2.1
14/1	252	252	-	-	-	0.3	0.3	-	0.6	9.2	3.4	0.3	3.7
14/2	309	309	-	-	-	0.5	0.4	-	0.8	9.8	4.4	0.4	4.7
14/3	143	143	-	-	-	1.7	0.6	-	2.3	58.4	3.0	0.6	3.7

Full Input Data And Results

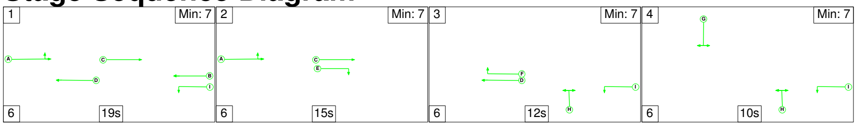
Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan	PRC for Signalled Lanes (%):	22.2	Total Delay for Signalled Lanes (pcuHr):	26.63	Cycle Time (s):	83
	PRC Over All Lanes (%):	22.2	Total Delay Over All Lanes(pcuHr):	28.14		

Full Input Data And Results

Scenario 4: '2029 PM Peak Base' (FG4: '2029 PM Base', Plan 1: 'Network Control Plan 1')

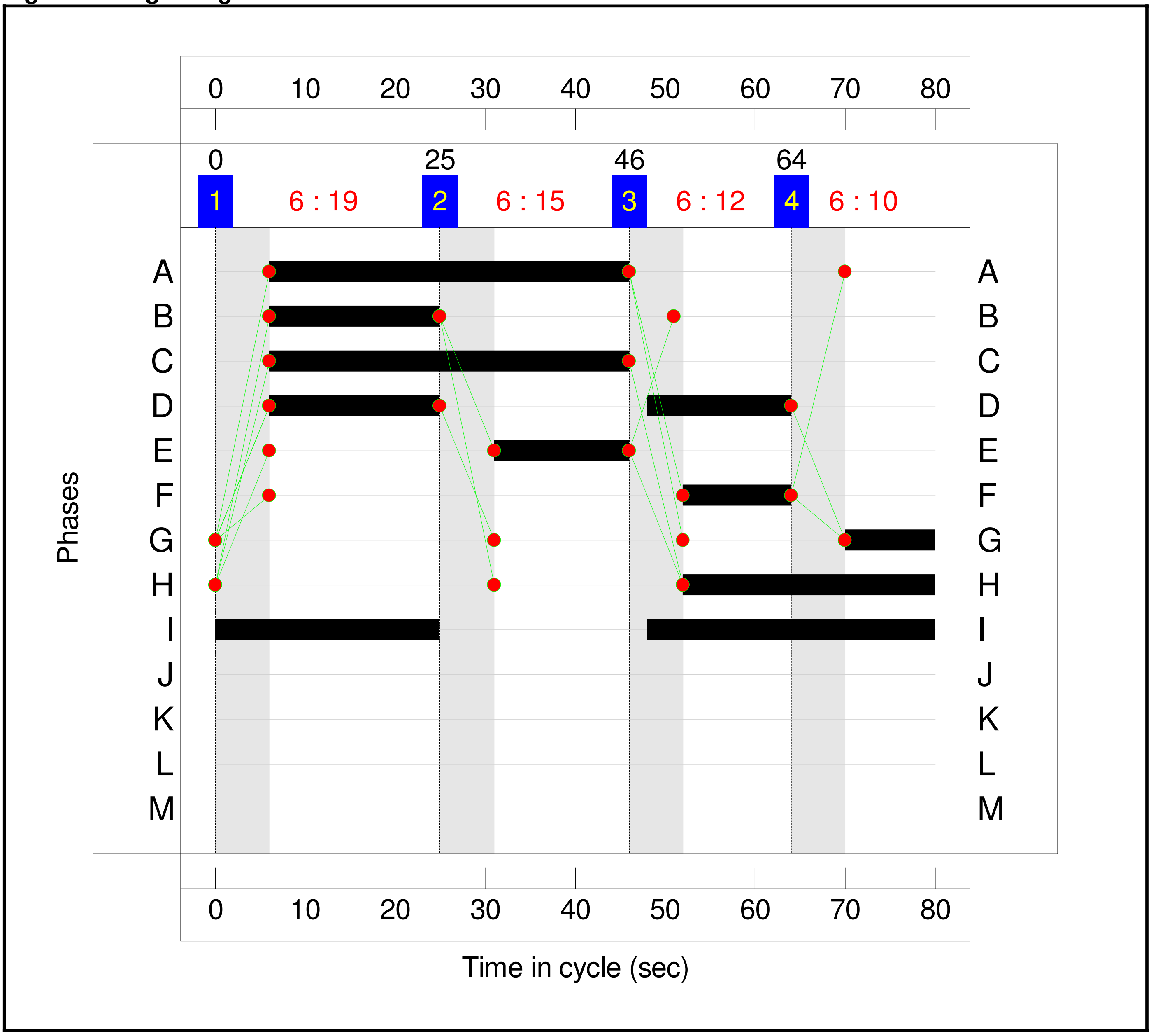
Stage Sequence Diagram



Stage Timings

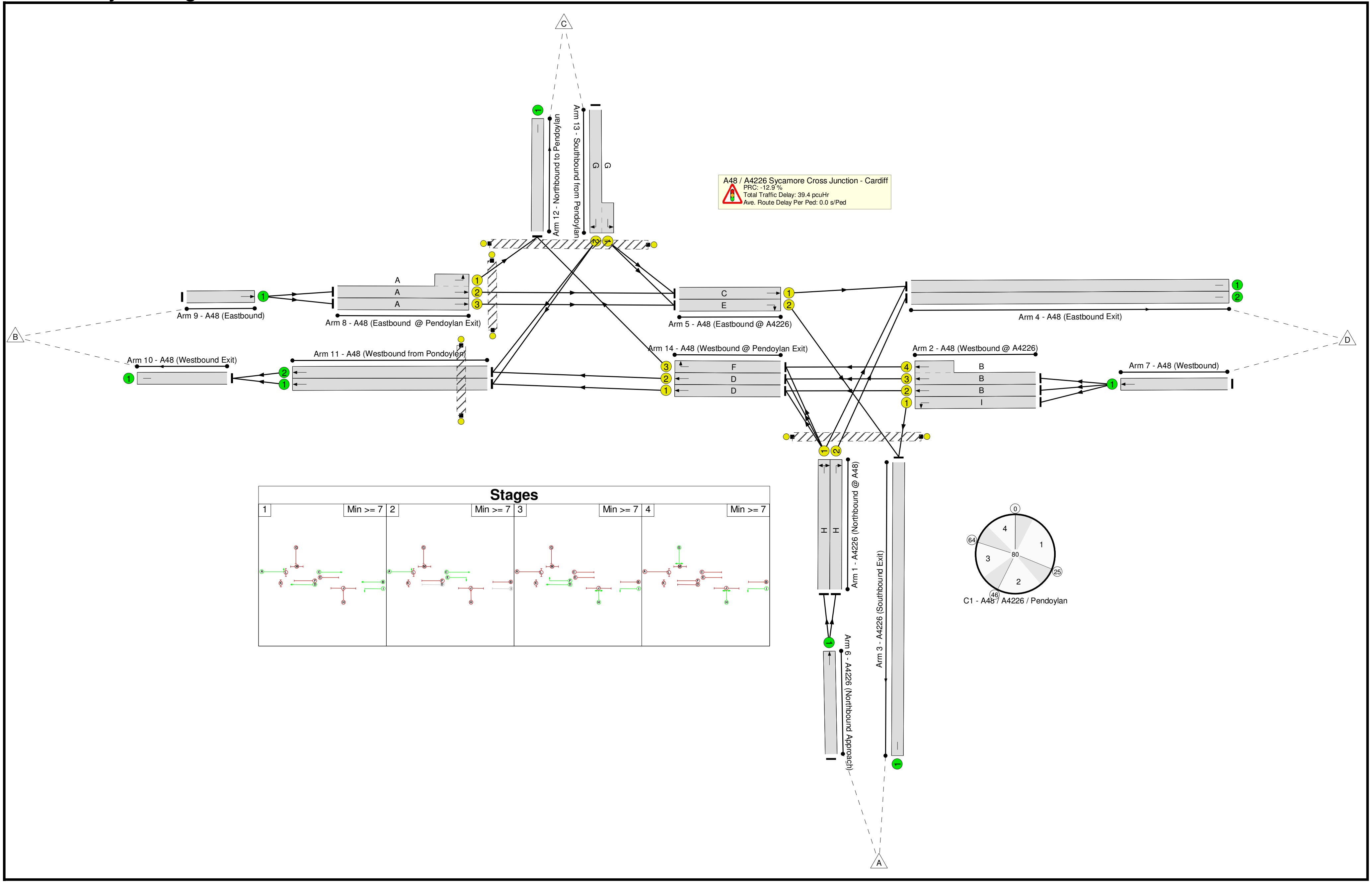
Stage	1	2	3	4
Duration	19	15	12	10
Change Point	0	25	46	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**101.6%**
A48 / A4226 Sycamore Cross Junction - Cardiff	-	-	**N/A**	-	-		-	-	-	-	-	-	**101.6%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	28	-	424	1742	631	67.1%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	28	-	468	1980	718	65.2%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	57	-	659	1828	1325	49.7%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	289	2120	530	54.5%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	372	2120:2120	445+192	58.4 : 58.4%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	1042	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	321	1980	1980	16.2%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	468	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	40	-	321	1980	1015	31.6%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	15	-	383	1884	377	101.6%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	892	1980	1980	45.1%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	1320	1980	1980	66.7%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	40	-	246	2120:1803	1007+84	22.5 : 22.5%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	40	-	339	2120	1087	31.2%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	585	1980	1980	29.5%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	966	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	448	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	518	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	162	1980	1980	8.2%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	10	-	162	1980:1800	43+248	55.8 : 55.8%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	448	1980	916	48.9%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	494	2120	980	50.4%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	12	-	143	1746	284	50.4%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**19.7**	**19.7**	**0.0**	**39.4**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**19.7**	**19.7**	**0.0**	**39.4**	**-**	**-**	**-**	**-**
1/1	424	424	-	-	-	2.5	1.0	-	3.5	30.1	7.9	1.0	8.9
1/2	468	468	-	-	-	2.8	0.9	-	3.7	28.4	8.6	0.9	9.5
2/1	659	659	-	-	-	0.9	0.5	-	1.4	7.4	6.2	0.5	6.7
2/2	289	289	-	-	-	2.1	0.6	-	2.7	33.5	5.5	0.6	6.1
2/3+2/4	372	372	-	-	-	2.6	0.7	-	3.3	31.8	4.9	0.7	5.6
3/1	1036	1036	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	321	321	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	468	468	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	321	321	-	-	-	0.5	0.2	-	0.7	8.1	5.1	0.2	5.3
5/2	383	377	-	-	-	2.7	11.5	-	14.2	133.0	8.6	11.5	20.1
6/1	892	892	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
7/1	1320	1320	-	-	-	0.0	1.0	-	1.0	2.7	0.0	1.0	1.0
8/2+8/1	246	246	-	-	-	0.7	0.1	-	0.9	12.7	2.7	0.1	2.9
8/3	339	339	-	-	-	1.1	0.2	-	1.3	13.7	4.3	0.2	4.6
9/1	585	585	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
10/1	966	966	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	448	448	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	518	518	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	162	162	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	162	162	-	-	-	1.4	0.6	-	2.1	45.8	2.8	0.6	3.5
14/1	448	448	-	-	-	0.4	0.5	-	0.8	6.8	6.7	0.5	7.2
14/2	494	494	-	-	-	0.5	0.5	-	1.1	7.7	6.8	0.5	7.3
14/3	143	143	-	-	-	1.5	0.5	-	2.0	51.6	2.9	0.5	3.4

Full Input Data And Results

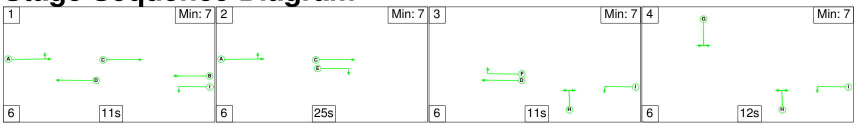
Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan	PRC for Signalled Lanes (%):	-12.9	Total Delay for Signalled Lanes (pcuHr):	37.63	Cycle Time (s):	80
	PRC Over All Lanes (%):	-12.9	Total Delay Over All Lanes(pcuHr):	39.39		

Full Input Data And Results

Scenario 5: '2026 AM Base + Dev' (FG5: '2026 AM Base + Dev', Plan 1: 'Network Control Plan 1')

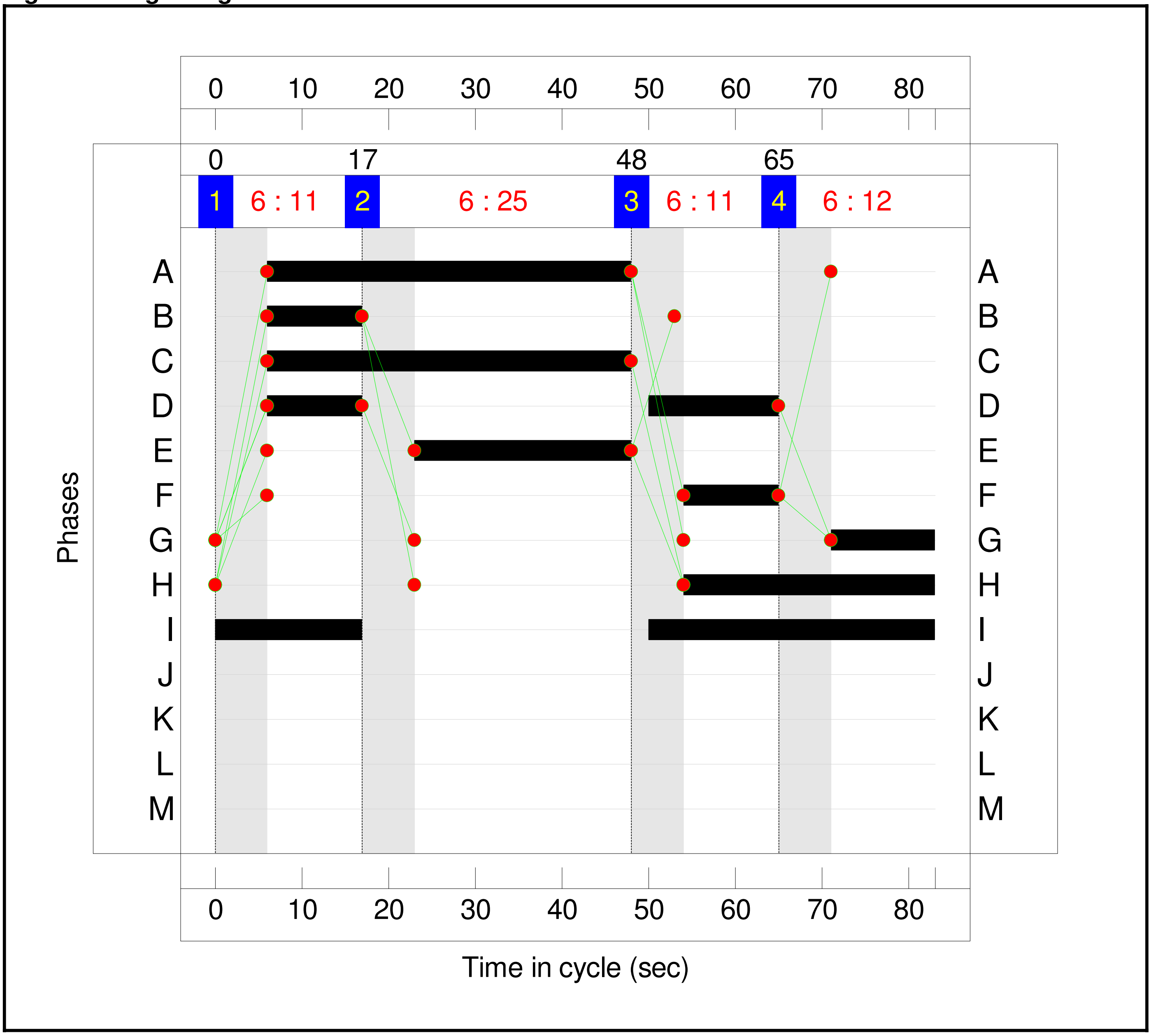
Stage Sequence Diagram



Stage Timings

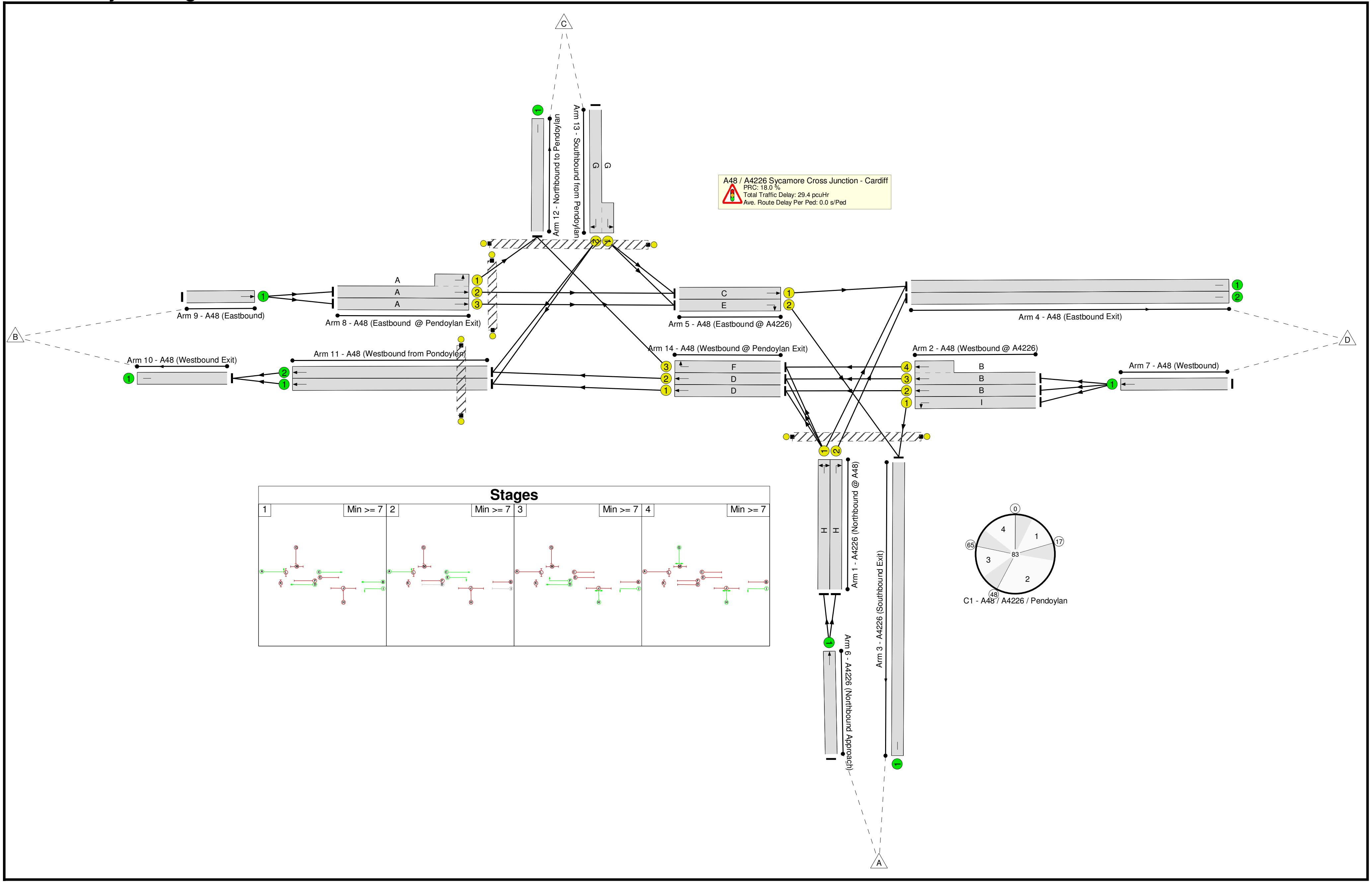
Stage	1	2	3	4
Duration	11	25	11	12
Change Point	0	17	48	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.3%**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.3%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	29	-	452	1805	652	69.3%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	29	-	546	1980	716	76.3%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	50	-	617	1828	1123	54.9%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	120	2120	307	39.2%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	225	2120:2120	276+187	48.6 : 48.6%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	1035	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	687	1980	1980	34.7%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	546	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	42	-	557	1980	1026	54.3%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	25	-	418	1884	590	70.8%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	998	1980	1980	50.4%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	962	1980	1980	48.6%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	42	-	523	2120:1803	1042+59	47.5 : 47.5%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	42	-	386	2120	1098	35.1%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	909	1980	1980	45.9%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	243	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	311	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	157	1980	1980	7.9%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	12	-	110	1980:1800	48+282	33.4 : 33.4%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	243	1980	668	36.4%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	295	2120	715	41.2%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	11	-	129	1746	252	51.1%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**19.7**	**9.7**	**0.0**	**29.4**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**19.7**	**9.7**	**0.0**	**29.4**	**-**	**-**	**-**	**-**
1/1	452	452	-	-	-	2.8	1.1	-	4.0	31.5	8.8	1.1	9.9
1/2	546	546	-	-	-	3.5	1.6	-	5.1	33.8	11.1	1.6	12.7
2/1	617	617	-	-	-	1.6	0.6	-	2.2	12.9	8.2	0.6	8.8
2/2	120	120	-	-	-	1.1	0.3	-	1.4	41.8	2.5	0.3	2.8
2/3+2/4	225	225	-	-	-	2.0	0.5	-	2.5	39.7	2.8	0.5	3.3
3/1	1035	1035	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	687	687	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
4/2	546	546	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	557	557	-	-	-	0.5	0.6	-	1.1	7.3	9.0	0.6	9.6
5/2	418	418	-	-	-	1.8	1.2	-	3.0	25.7	8.6	1.2	9.8
6/1	998	998	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
7/1	962	962	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
8/2+8/1	523	523	-	-	-	1.8	0.5	-	2.3	15.7	7.3	0.5	7.8
8/3	386	386	-	-	-	1.3	0.3	-	1.5	14.3	5.1	0.3	5.4
9/1	909	909	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
10/1	554	554	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	243	243	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	311	311	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	157	157	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	110	110	-	-	-	0.9	0.2	-	1.2	39.2	1.9	0.2	2.2
14/1	243	243	-	-	-	0.3	0.3	-	0.6	9.2	3.3	0.3	3.6
14/2	295	295	-	-	-	0.4	0.4	-	0.8	9.7	4.3	0.4	4.6
14/3	129	129	-	-	-	1.5	0.5	-	2.0	56.4	2.7	0.5	3.2

Full Input Data And Results

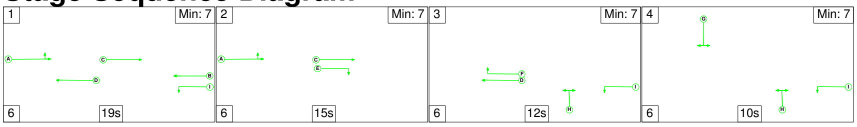
Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan	PRC for Signalled Lanes (%):	18.0	Total Delay for Signalled Lanes (pcuHr):	27.71	Cycle Time (s):	83
	PRC Over All Lanes (%):	18.0	Total Delay Over All Lanes(pcuHr):	29.43		

Full Input Data And Results

Scenario 6: '2026 PM Base + Dev' (FG6: '2026 PM Base + Dev', Plan 1: 'Network Control Plan 1')

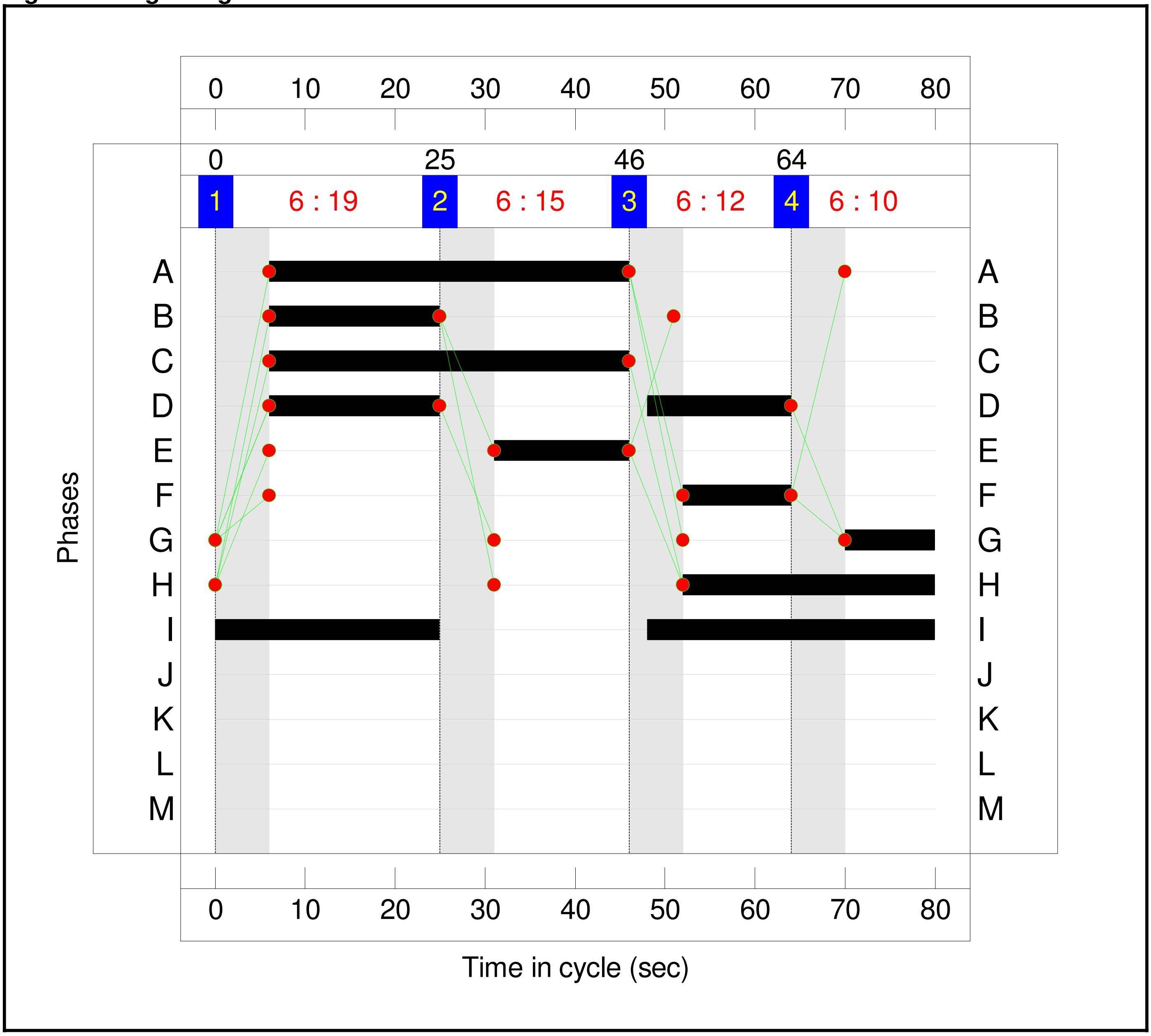
Stage Sequence Diagram



Stage Timings

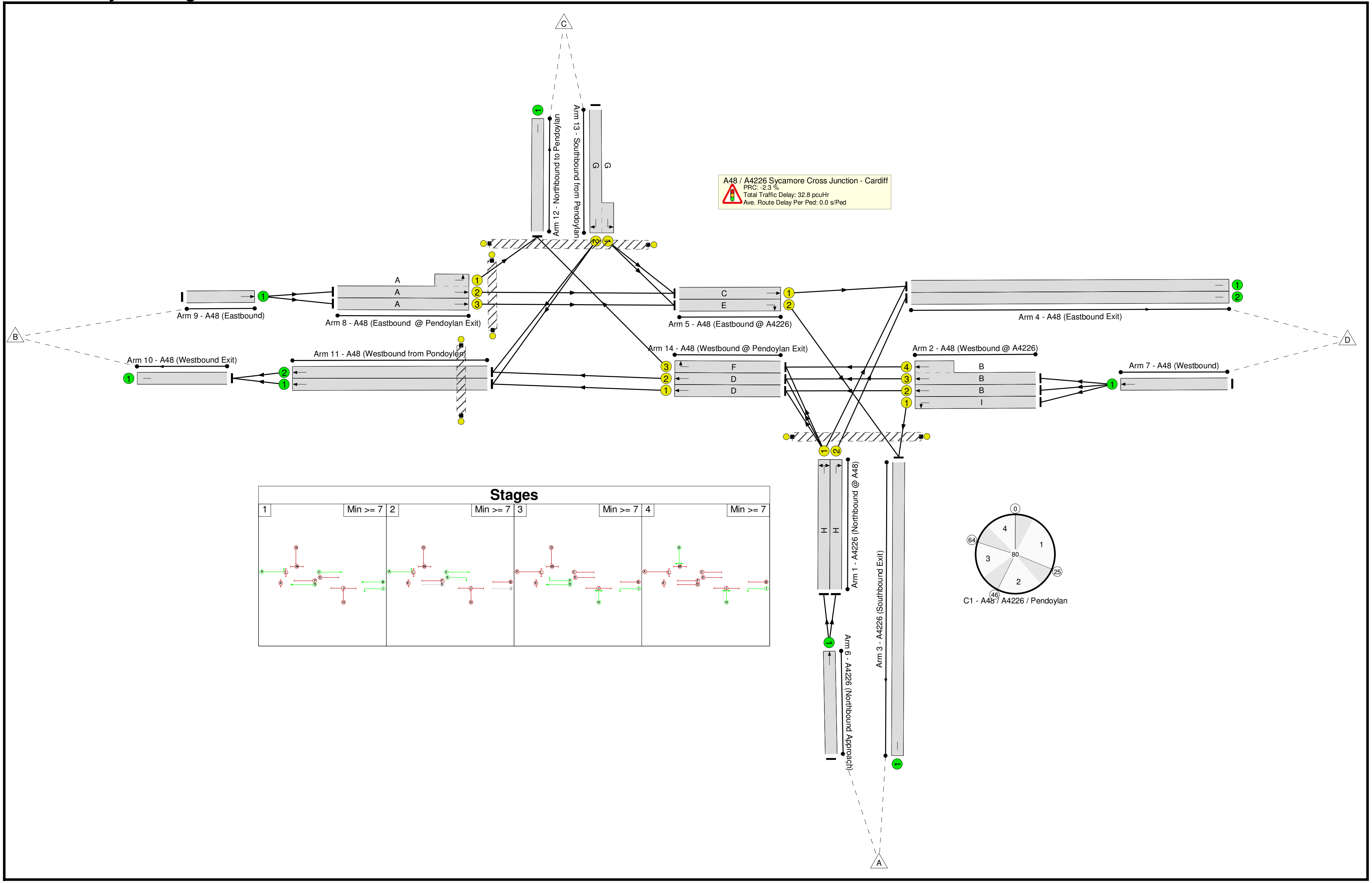
Stage	1	2	3	4
Duration	19	15	12	10
Change Point	0	25	46	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.1%**
A48 / A4226 Sycamore Cross Junction - Cardiff	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.1%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	28	-	440	1766	640	68.7%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	28	-	527	1980	718	73.4%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	57	-	634	1828	1325	47.8%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	294	2120	530	55.5%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	379	2120:2120	450+182	60.1 : 60.1%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	981	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	400	1980	1980	20.2%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	527	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	40	-	350	1980	1015	34.5%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	15	-	347	1884	377	92.1%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	967	1980	1980	48.8%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	1307	1980	1980	66.0%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	40	-	284	2120:1803	1003+88	26.0 : 26.0%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	40	-	308	2120	1087	28.3%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	592	1980	1980	29.9%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	951	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	435	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	516	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	157	1980	1980	7.9%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	10	-	150	1980:1800	43+248	51.7 : 51.7%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	435	1980	916	47.5%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	494	2120	980	50.4%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	12	-	134	1746	284	47.2%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**19.7**	**13.2**	**0.0**	**32.8**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**19.7**	**13.2**	**0.0**	**32.8**	**-**	**-**	**-**	**-**
1/1	440	440	-	-	-	2.6	1.1	-	3.7	30.5	8.2	1.1	9.3
1/2	527	527	-	-	-	3.2	1.4	-	4.6	31.5	10.1	1.4	11.5
2/1	634	634	-	-	-	0.8	0.5	-	1.3	7.2	5.8	0.5	6.3
2/2	294	294	-	-	-	2.1	0.6	-	2.8	33.7	5.6	0.6	6.3
2/3+2/4	379	379	-	-	-	2.7	0.7	-	3.4	32.3	5.2	0.7	6.0
3/1	981	981	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	400	400	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	527	527	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	350	350	-	-	-	0.5	0.3	-	0.8	7.8	5.4	0.3	5.6
5/2	347	347	-	-	-	2.2	4.5	-	6.7	69.4	7.5	4.5	12.0
6/1	967	967	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
7/1	1307	1307	-	-	-	0.0	1.0	-	1.0	2.7	0.0	1.0	1.0
8/2+8/1	284	284	-	-	-	0.8	0.2	-	1.0	13.0	3.2	0.2	3.4
8/3	308	308	-	-	-	1.0	0.2	-	1.2	13.4	3.8	0.2	4.0
9/1	592	592	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
10/1	951	951	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	435	435	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	516	516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	157	157	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	150	150	-	-	-	1.3	0.5	-	1.9	44.5	2.6	0.5	3.2
14/1	435	435	-	-	-	0.3	0.5	-	0.8	6.5	4.0	0.5	4.4
14/2	494	494	-	-	-	0.5	0.5	-	1.1	7.7	7.1	0.5	7.6
14/3	134	134	-	-	-	1.5	0.4	-	1.9	51.4	2.8	0.4	3.2

Full Input Data And Results

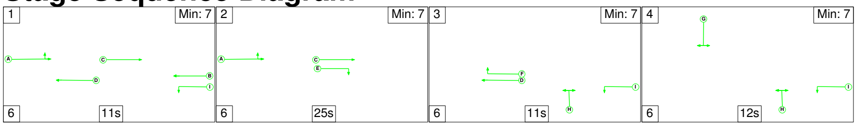
Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan
PRC for Signalled Lanes (%): -2.3
PRC Over All Lanes (%): -2.3
Total Delay for Signalled Lanes (pcuHr): 30.99
Total Delay Over All Lanes(pcuHr): 32.82
Cycle Time (s): 80

Full Input Data And Results

Scenario 7: '2029 AM Base + Dev' (FG7: '2029 AM Base + Dev', Plan 1: 'Network Control Plan 1')

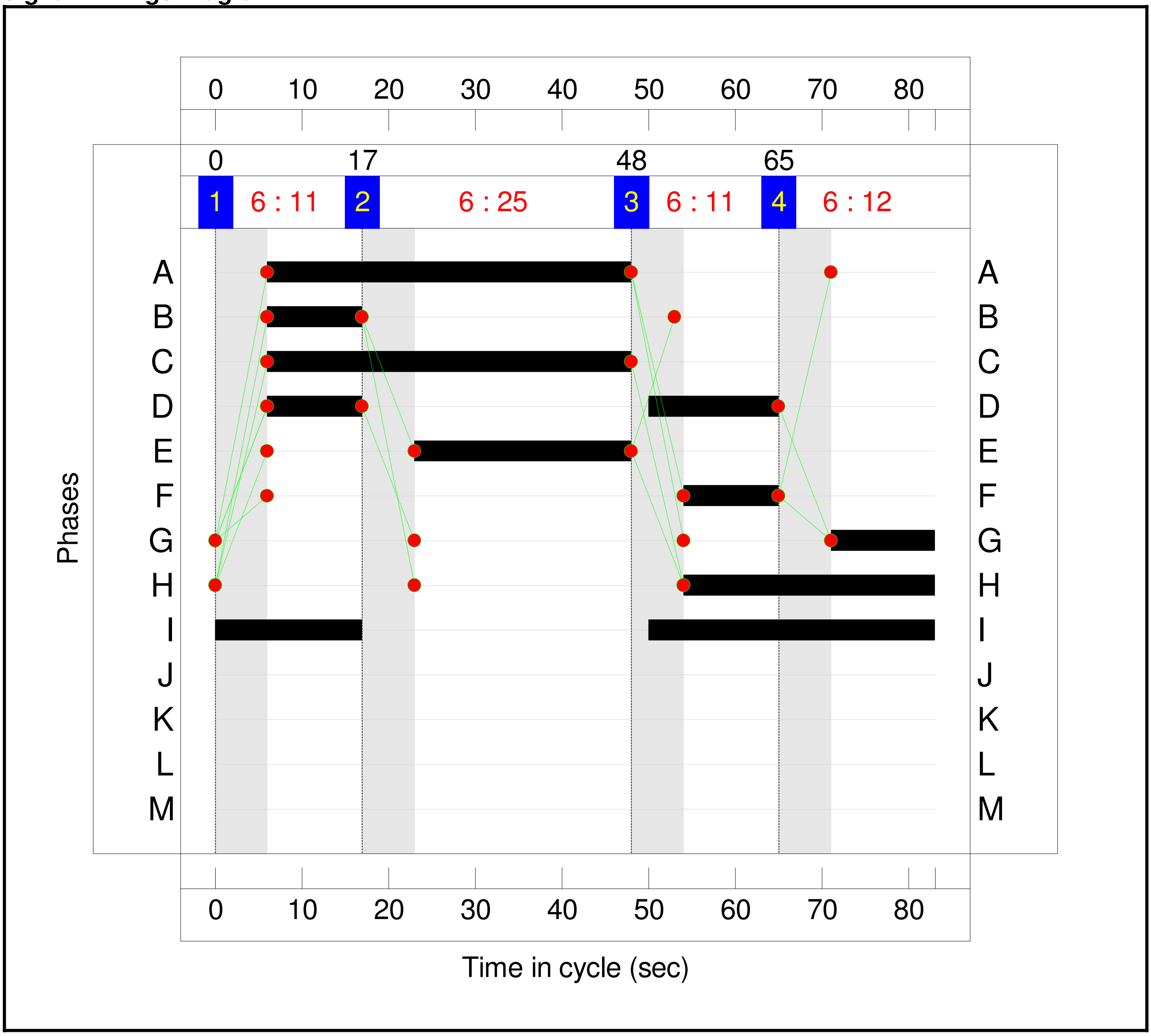
Stage Sequence Diagram



Stage Timings

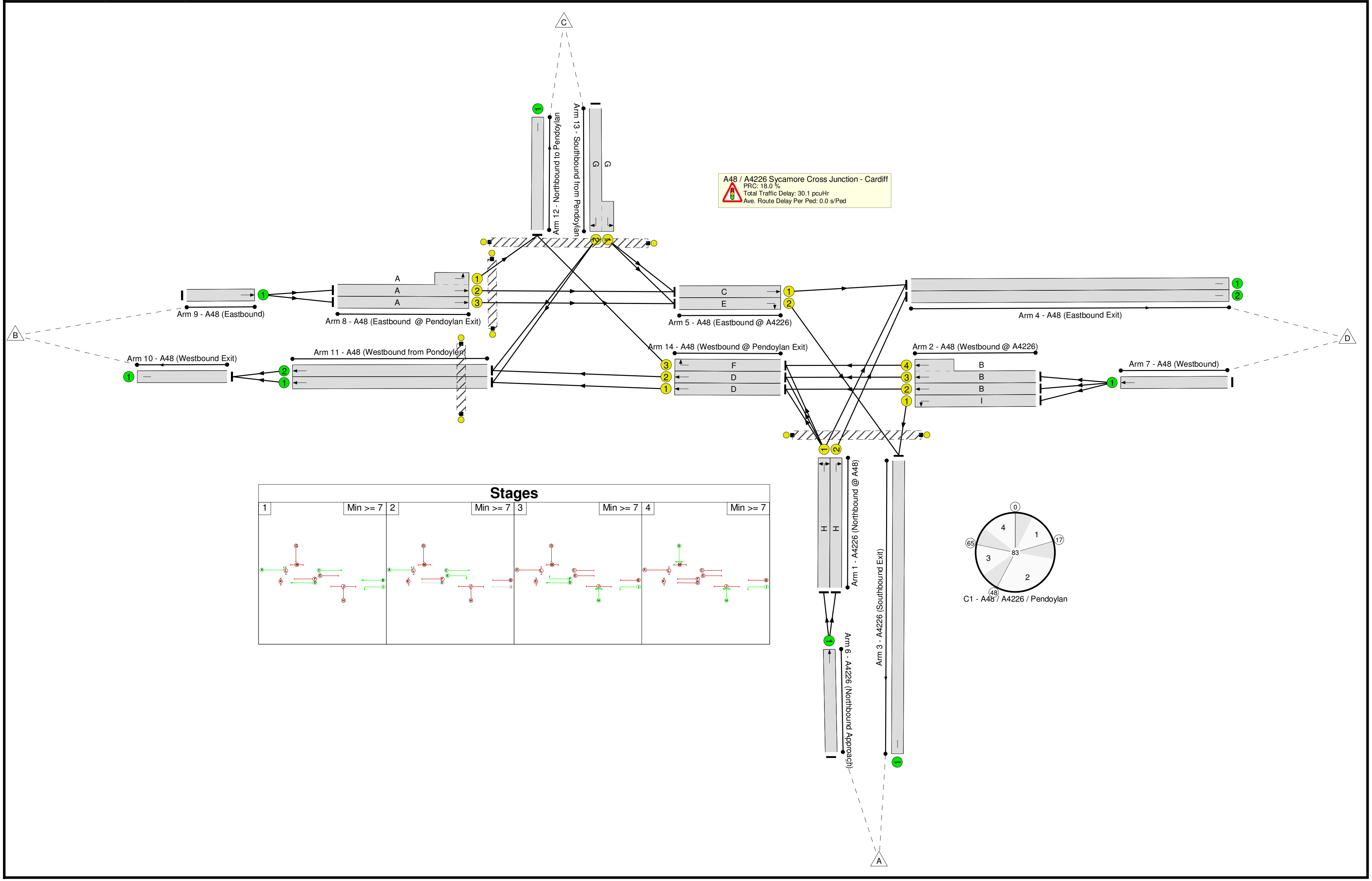
Stage	1	2	3	4
Duration	11	25	11	12
Change Point	0	17	48	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.3%**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.3%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	29	-	454	1802	651	69.7%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	29	-	546	1980	716	76.3%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	50	-	608	1828	1123	54.1%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	121	2120	307	39.5%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	11	-	229	2120:2120	275+192	49.1 : 49.1%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	1035	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	689	1980	1980	34.8%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	546	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	42	-	563	1980	1026	54.9%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	25	-	427	1884	590	72.4%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	1000	1980	1980	50.5%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	958	1980	1980	48.4%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	42	-	528	2120:1803	1042+58	48.0 : 48.0%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	42	-	384	2120	1098	35.0%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	912	1980	1980	46.1%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	568	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	246	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	322	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	160	1980	1980	8.1%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	12	-	128	1980:1800	58+278	38.1 : 38.1%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	246	1980	668	36.8%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	26	-	300	2120	715	41.9%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	11	-	132	1746	252	52.3%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**20.1**	**10.0**	**0.0**	**30.1**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**20.1**	**10.0**	**0.0**	**30.1**	**-**	**-**	**-**	**-**
1/1	454	454	-	-	-	2.9	1.1	-	4.0	31.6	8.8	1.1	10.0
1/2	546	546	-	-	-	3.5	1.6	-	5.1	33.8	11.1	1.6	12.7
2/1	608	608	-	-	-	1.6	0.6	-	2.1	12.7	7.9	0.6	8.5
2/2	121	121	-	-	-	1.1	0.3	-	1.4	41.9	2.5	0.3	2.8
2/3+2/4	229	229	-	-	-	2.0	0.5	-	2.5	39.7	2.8	0.5	3.3
3/1	1035	1035	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	689	689	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
4/2	546	546	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	563	563	-	-	-	0.5	0.6	-	1.1	7.3	9.1	0.6	9.7
5/2	427	427	-	-	-	1.9	1.3	-	3.2	27.1	8.8	1.3	10.1
6/1	1000	1000	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
7/1	958	958	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
8/2+8/1	528	528	-	-	-	1.8	0.5	-	2.3	15.7	7.4	0.5	7.8
8/3	384	384	-	-	-	1.3	0.3	-	1.5	14.3	5.1	0.3	5.4
9/1	912	912	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
10/1	568	568	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	246	246	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	322	322	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	160	160	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	128	128	-	-	-	1.1	0.3	-	1.4	39.8	2.2	0.3	2.5
14/1	246	246	-	-	-	0.3	0.3	-	0.6	9.3	3.4	0.3	3.7
14/2	300	300	-	-	-	0.5	0.4	-	0.8	9.9	4.3	0.4	4.7
14/3	132	132	-	-	-	1.5	0.5	-	2.1	57.0	2.8	0.5	3.3

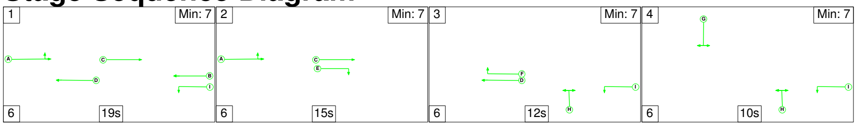
Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan	PRC for Signalled Lanes (%):	18.0	Total Delay for Signalled Lanes (pcuHr):	28.35	Cycle Time (s):	83
	PRC Over All Lanes (%):	18.0	Total Delay Over All Lanes(pcuHr):	30.07		

Full Input Data And Results

Scenario 8: '2029 PM Base + Dev' (FG8: '2029 PM Base + Dev', Plan 1: 'Network Control Plan 1')

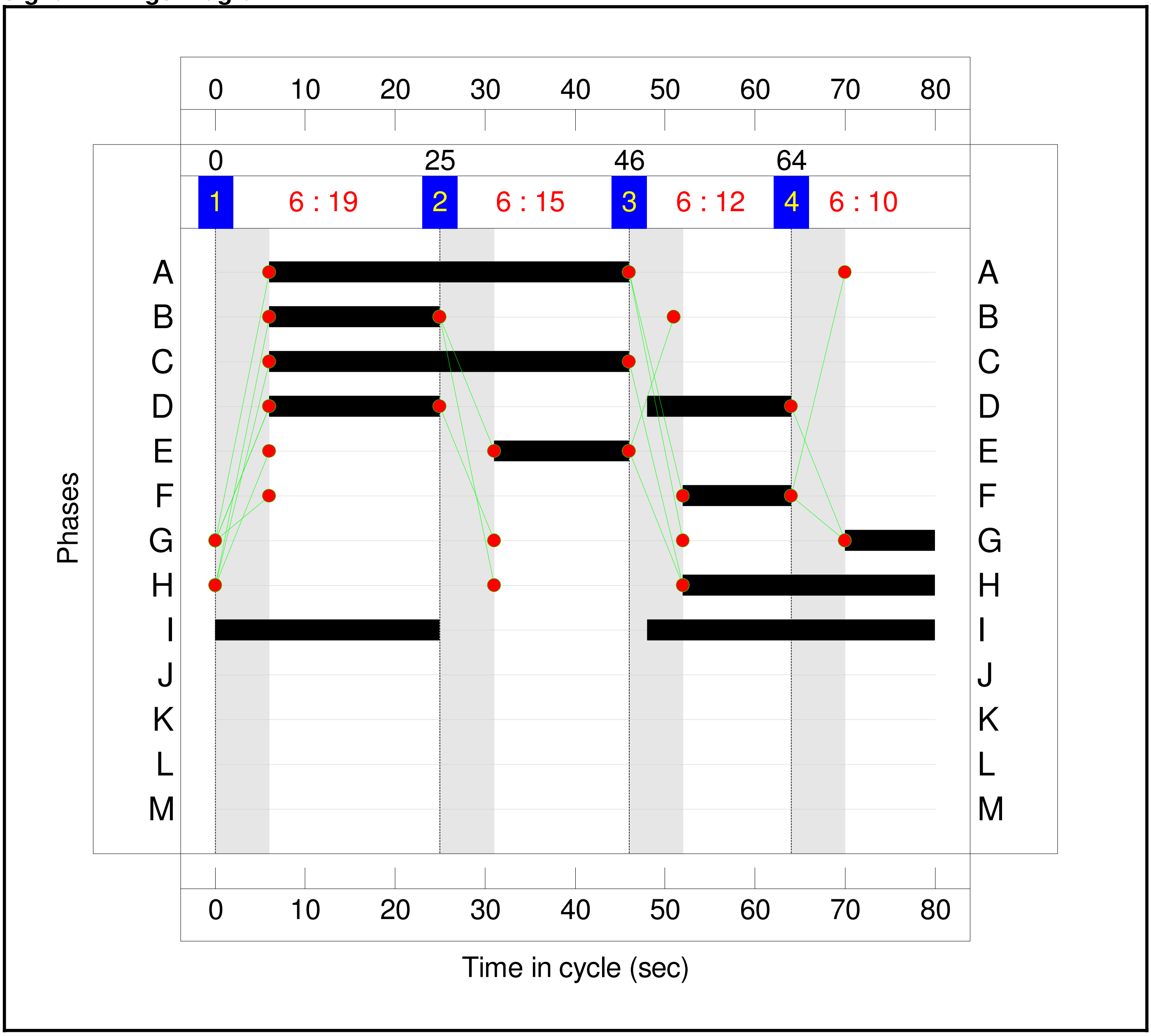
Stage Sequence Diagram



Stage Timings

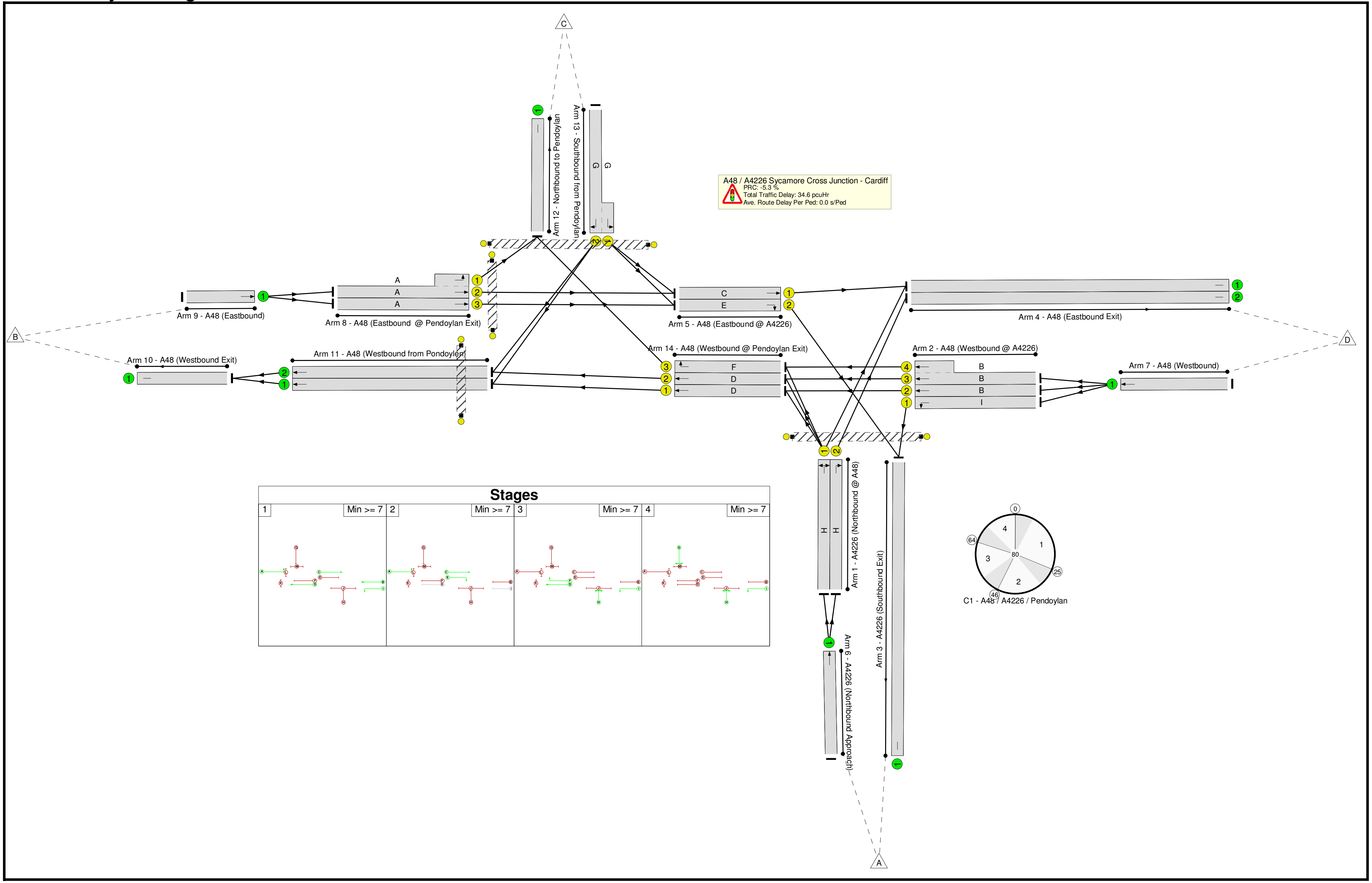
Stage	1	2	3	4
Duration	19	15	12	10
Change Point	0	25	46	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.7%**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.7%**
1/1	A4226 (Northbound @ A48) Right Left	U	N/A	N/A	H		1	28	-	447	1767	641	69.8%
1/2	A4226 (Northbound @ A48) Right	U	N/A	N/A	H		1	28	-	532	1980	718	74.1%
2/1	A48 (Westbound @ A4226) Left	U	N/A	N/A	I		1	57	-	634	1828	1325	47.8%
2/2	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	299	2120	530	56.4%
2/3+2/4	A48 (Westbound @ A4226) Ahead	U	N/A	N/A	B		1	19	-	383	2120:2120	450+181	60.7 : 60.7%
3/1	A4226 (Southbound Exit)	U	N/A	N/A	-		-	-	-	991	Inf	Inf	0.0%
4/1	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	391	1980	1980	19.7%
4/2	A48 (Eastbound Exit)	U	N/A	N/A	-		-	-	-	532	Inf	Inf	0.0%
5/1	A48 (Eastbound @ A4226) Ahead	U	N/A	N/A	C		1	40	-	339	1980	1015	33.4%
5/2	A48 (Eastbound @ A4226) Right	U	N/A	N/A	E		1	15	-	357	1884	377	94.7%
6/1	A4226 (Northbound Approach) Ahead	U	N/A	N/A	-		-	-	-	979	1980	1980	49.4%
7/1	A48 (Westbound) Ahead	U	N/A	N/A	-		-	-	-	1316	1980	1980	66.5%
8/2+8/1	A48 (Eastbound @ Pendoylan Exit) Ahead Left	U	N/A	N/A	A		1	40	-	271	2120:1803	996+97	24.8 : 24.8%

Full Input Data And Results

8/3	A48 (Eastbound @ Pendoylan Exit) Ahead	U	N/A	N/A	A		1	40	-	319	2120	1087	29.4%
9/1	A48 (Eastbound) Ahead	U	N/A	N/A	-		-	-	-	590	1980	1980	29.8%
10/1	A48 (Westbound Exit)	U	N/A	N/A	-		-	-	-	964	Inf	Inf	0.0%
11/1	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	443	Inf	Inf	0.0%
11/2	A48 (Westbound from Pondoylen) Ahead	U	N/A	N/A	-		-	-	-	521	Inf	Inf	0.0%
12/1	Northbound to Pendoylan	U	N/A	N/A	-		-	-	-	163	1980	1980	8.2%
13/2+13/1	Southbound from Pendoylan Left Right	U	N/A	N/A	G		1	10	-	156	1980:1800	50+248	52.5 : 52.5%
14/1	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	443	1980	916	48.4%
14/2	A48 (Westbound @ Pendoylan Exit) Ahead	U	N/A	N/A	D		2	35	-	495	2120	980	50.5%
14/3	A48 (Westbound @ Pendoylan Exit) Right	U	N/A	N/A	F		1	12	-	139	1746	284	49.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	J		0	0	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	K		0	0	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	L		0	0	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	M		0	0	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**20.0**	**14.6**	**0.0**	**34.6**	**-**	**-**	**-**	**-**
A48 / A4226 Sycamore Cross Junction - Cardiff	**-**	**-**	**0**	**0**	**0**	**20.0**	**14.6**	**0.0**	**34.6**	**-**	**-**	**-**	**-**
1/1	447	447	-	-	-	2.7	1.1	-	3.8	31.0	8.4	1.1	9.6
1/2	532	532	-	-	-	3.3	1.4	-	4.7	31.8	10.2	1.4	11.6
2/1	634	634	-	-	-	0.8	0.5	-	1.3	7.2	5.8	0.5	6.3
2/2	299	299	-	-	-	2.2	0.6	-	2.8	33.9	5.7	0.6	6.4
2/3+2/4	383	383	-	-	-	2.7	0.8	-	3.5	32.5	5.3	0.8	6.1
3/1	991	991	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	391	391	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	532	532	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	339	339	-	-	-	0.5	0.3	-	0.8	8.0	5.3	0.3	5.5
5/2	357	357	-	-	-	2.3	5.7	-	8.0	80.6	7.8	5.7	13.5
6/1	979	979	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
7/1	1316	1316	-	-	-	0.0	1.0	-	1.0	2.7	0.0	1.0	1.0
8/2+8/1	271	271	-	-	-	0.8	0.2	-	1.0	12.9	3.0	0.2	3.2
8/3	319	319	-	-	-	1.0	0.2	-	1.2	13.5	4.0	0.2	4.2
9/1	590	590	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
10/1	964	964	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	443	443	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	521	521	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	163	163	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
13/2+13/1	156	156	-	-	-	1.4	0.5	-	1.9	44.4	2.7	0.5	3.2
14/1	443	443	-	-	-	0.3	0.5	-	0.8	6.6	4.0	0.5	4.5
14/2	495	495	-	-	-	0.6	0.5	-	1.1	7.7	7.2	0.5	7.7
14/3	139	139	-	-	-	1.5	0.5	-	2.0	51.6	2.8	0.5	3.3

Full Input Data And Results

Ped Link: P1	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P2	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P3	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf
Ped Link: P4	0	0	-	-	-	-	-	-	Inf	Inf	-	-	Inf

C1 - A48 / A4226 / Pendoylan

PRC for Signalled Lanes (%): -5.3
PRC Over All Lanes (%): -5.3

Total Delay for Signalled Lanes (pcuHr): 32.79
Total Delay Over All Lanes(pcuHr): 34.65

Cycle Time (s): 80