Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Applicant's Comments on Local Impact Reports [Appendix B - Link Road Capacity Assessment]

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Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(q)

PROJECT NAME	Hinckley National Rail Freight Interchange		
DOCUMENT NUMBER	HNRFI-BWB-GEN-XX-RP-TR-0034	BWB REF	NTT 2814
AUTHOR	Vibeeshan Devaharan	STATUS	S2
CHECKED	Malcolm Ash	REVISION	P02
APPROVED	Shirley Dumigan	DATE	03/10/2023

1. INTRODUCTION

1.1 BWB Consulting Ltd (BWB) has been commissioned by Tritax Symmetry (Hinckley) Ltd to provide highways and transport advice to support the DCO submission for the proposed National Rail Freight Interchange at Hinckley, Leicestershire (HNRFI).

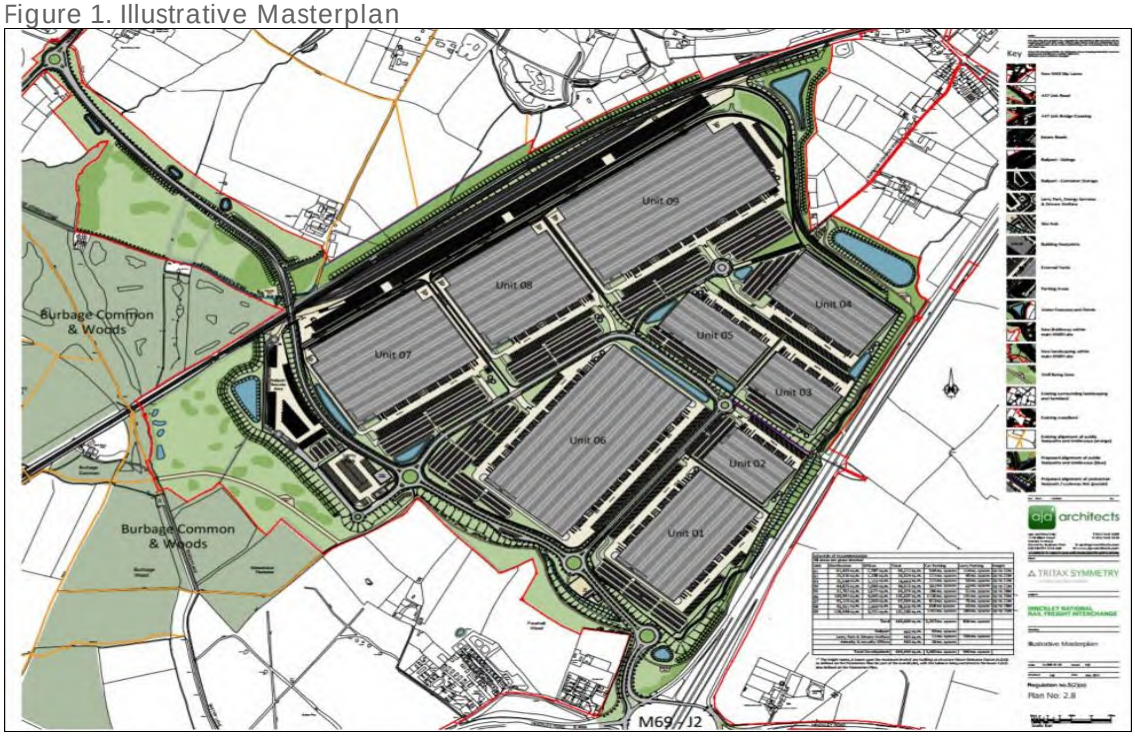
1.2 The scheme includes a new link road between the B4668 and M69 Junction 2 roundabout which provides two vehicular points of access into the site. Along the A47 link road, three roundabouts are proposed, two of which provide access into the development.

1.3 Of the two roundabouts that provide access to the development, the northern provides access into the B8 development units as well as the rail terminal & lorry park; the southern provides access into the B8 development units only.

1.4 Therefore, where the northern and southern roundabouts are mentioned in the remainder of this note, these are referring to these two roundabouts on the A47 link road that development estate roads are taken from.

1.5 An extract of the illustrative masterplan is presented in Figure 1.

Figure 1. Illustrative Masterplan



1.6 This technical note provides a summary of the Lorry Park, Terminal and B8 movements on the link road and the subsequent capacity assessments undertaken for the internal access junctions.

2. Lorry Park and Rail Terminal

2.1 The Lorry Park is intended to provide secure, dedicated HGV parking area including driver welfare facilities to meet the needs of the HGVs visiting the intermodal terminal and the B8 site only.

2.2 The Lorry Park will be controlled by ANPR camera barrier system, which will be controlled by the centralised office in the hub. Vehicles details for Lorries entering the park will be linked to the ANPR systems in place at the Terminal and the B8 units, which already forms part of the HGV Management Plan and Route Strategy document ref 17.4, APP-362.

2.3 There will be signage outside the park on the estate road to let drivers know it is a private park for the use of registered Terminal vehicles and or operator fleets for the warehousing. This will enable any drivers who will not gain access to carry on and utilise a roundabout inside this estate road to undertake a U turn if necessary.

2.4 Similar ancillary facilities have been provided for at Northampton Gateway, East Midlands Gateway, DIRFT3 and at existing terminals at Hams Hall and DIRFT. As the parks are ancillary to the developments no standalone assessments were undertaken.

2.5 The main users of the lorry park are expected to be accessing the Rail Terminal, as the B8 units will all have welfare facilities and sufficient parking in their curtilage. Should any driver wish to use the facilities here before entering the B8 units, a nominal 1% of B8 HGV movements have been allowed for in the modelling presented within this note.

3. ASSESSMENT METHODOLOGY

3.1 2036 PRTM 'With Development' modelling outputs have been utilised to calculate forecast traffic flow matrices for the proposed internal access junctions.

3.2 PRTM assumes all vehicles accessing the site from B4668 and M69 J2 will utilise the northern roundabout and southern roundabout respectively. Traffic flows have been extracted from PRTM and presented in Figure 2 and 3 for the morning and evening peak hours respectively.

B8 Development

3.3 To provide a robust assessment, it has been assumed that both site accesses can be utilised equally regardless of whether development flows route via the B4668 or M69 Junction 2. Therefore, development flow distribution pattern has been calculated utilising the PRTM flows in Figure 2 and 3 to calculate directional distribution to and from the development. These are presented in Figures 4 and 5 for the morning and evening peak hours respectively.

3.4 B8 trip generation has been extracted from the TA and presented in Table 1 below.

Table 1: B8 Trip Generation

Vehicle Type	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
LGV	899	117	1,016	351	922	1,273
HGV	172	184	356	186	209	395
Total	1,071	301	1,372	536	1,131	1,668

3.5 Trip generation outlined in Table 1 has been combined with trip distribution presented in Figures 4 and 5 to calculate the proposed B8 development flows utilising the two internal junctions. These are presented in Figures 6 and 7.

Rail Terminal

3.6 It has been assumed that HGV trips generated by the rail terminal will utilise the directional distribution as above. A copy of the rail terminal trip distribution is presented in Figures 8 and 9.

3.7 Rail terminal trip generation has been extracted from the TA and presented in Table 2.

Table 2: Rail Terminal Trip Generation

Trip Type	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Internal (30%)	15	15	30	22	21	43
External (70%)	36	35	71	50	49	99
Total	51	50	101	71	71	142

3.8 Trip generation values outlined in Table 2 have been combined with trip distribution outlined in Figures 8 and 9 to calculate traffic movements for Rail terminal. These are presented in Figures 10 and 11.

3.9 It has been assumed that all the internal trips generated by the Rail terminal will route between the rail terminal and B8 development across the northern roundabout as a worst-case scenario.

Lorry Park

3.10 The likely need for any drivers going to and from the B8 units will be limited. Welfare facilities and parking will be provided with each unit's curtilage and therefore most users will be those associated with the rail terminal itself. For the purposes of this assessment, an allowance of 1% of all HGV trips for the proposed B8 may utilise the lorry park prior to accessing the B8 units. The movements associated with this are shown in Figures 12 and 13.

Crossing Facilities

3.11 A Pegasus crossing is proposed 160m north of the M69 junction on the link road down to the first roundabout.

3.12 Furthermore, a signalised crossing is proposed on the link road between the two access roundabouts to provide crossing facilities to the main bus terminal. This is 170m south of the Northern roundabout and 230m north of southern roundabout.

3.13 Therefore, Linsig models has been built to understand the level of queues generated by the proposed crossings, details of which are provided in Section 4.

2036 Assessment Flows

3.14 A sum of the total development traffic flow is presented in Figures 14 and 15.

3.15 Background A47 link road flows have been extracted from the 2036 'With Development' PRTM modelling scenario and presented in Figures 16 and 17.

3.16 A sum of the background traffic flows, and total development flows are illustrated in Figures 18 and 19. These have been utilised for the junction assessments.

4. MODELLING RESULTS

4.1 The traffic impact of the internal site access junctions has been assessed using TRL industry-standard modelling software JUNCTIONS 10.

4.2 JUNCTIONS 10 models return results in Ratio to Flow Capacity (RFC) and queueing in each 15-minute time segment, measured in the number of passenger car units (PCUs).

4.3 RFC values between 0.00 and 0.85 indicate satisfactory operating conditions, values of between 0.85 and 1.00 represent variable operation (i.e. queues building at the junction resulting in increased vehicle delay moving through the junction). RFC values in excess of 1.00 represent overloaded conditions.

Internal Link Road Access Roundabouts

4.4 Junction assessment has been undertaken for each access roundabout to utilise 50% of the B8 development traffic and a further sensitivity test has been undertaken for both access roundabouts to accommodate 65% development flows respectively.

4.5 A summary of the junction assessments at the northern and southern roundabouts has been presented Tables 3 and 4, a copy of the outputs are presented in Appendix 1 and 2 respectively.

Table 3: Internal Northern Access Roundabout J10 RFC Output

	50% B8 split scenario		Sensitivity test scenario	
	AM	PM	AM	PM
Site Access	0.25	0.47	0.19	0.34
A47 Link Road south	0.53	0.63	0.59	0.57
Rail Terminal/Lorry Park	0.11	0.18	0.12	0.16
A47 Link Road north	0.80	0.32	0.85	0.28

Table 4: Internal Southern Access Roundabout J10 RFC Output

	50% B8 split scenario		Sensitivity test scenario	
	AM	PM	AM	PM
Site Access	0.22	0.51	0.3	0.73
A47 Link Road East	0.72	0.69	0.84	0.78
A47 Link Road West	0.67	0.5	0.77	0.61

4.6 Table 3 and Table 4 illustrate that both northern and southern roundabouts will operate within capacity in the 2036 modelling scenarios therefore it is considered that the proposed internal site access junctions will satisfactorily cater for future demand.

Signalised Crossings

4.7 A Pegasus crossing is proposed north of M69 Junction 2 down to the first roundabout on the Link Road. Therefore, a Linsig model has been built to understand the level of queues generated by the proposed crossing. To provide a worst-case assessment, it has been assumed that the equestrian/pedestrian and cyclists stage will be called once every minute.

4.8 A summary of the results is presented in Table 5 below and the output is presented in Appendix 3.

Table 5: Pegasus Crossing LinSig Output

		AM	PM
A47 Link Road NB	DoS (%)	80.9	75.4
	MMQ (PCUs)	13.3	11.6
	Avg. Delay (s)	19.8	17.3
A47 Link Road SB	DoS (%)	43.2	47.5
	MMQ (PCUs)	4.8	5.4
	Avg. Delay (s)	11	11.5

4.9 The distance between M69 Junction 2 and the proposed Pegasus crossing is 160m (28 PCUs). Table 5 illustrates that the Pegasus crossing will operate well within capacity and that the queues will not block back onto M69 Junction 2.

4.10 Furthermore, a signalised crossing is proposed on the link road between the two access roundabouts which is located 170m (29 PCUs) south of the northern roundabout and 230m (40 PCUs) north of southern roundabout. To provide a worst-case assessment, it has been assumed that the pedestrian and cyclists stage will be called once every minute.

4.11 A summary of the results is presented in Table 6 below and the output is presented in Appendix 4.

Table 6: Signalised Crossing LinSig Output

		AM	PM
A47 Link Road NB	DoS (%)	46.2	52.9
	MMQ (PCUs)	4.9	6.0
	Avg. Delay (s)	6.5	4.0
A47 Link Road SB	DoS (%)	44.7	35.6
	MMQ (PCUs)	3.8	2.7
	Avg. Delay (s)	7.2	3.5

4.12 Table 6 illustrates that signalised crossing will operate within capacity and will not block back onto the northern and southern roundabouts.

5. SUMMARY & CONCLUSION

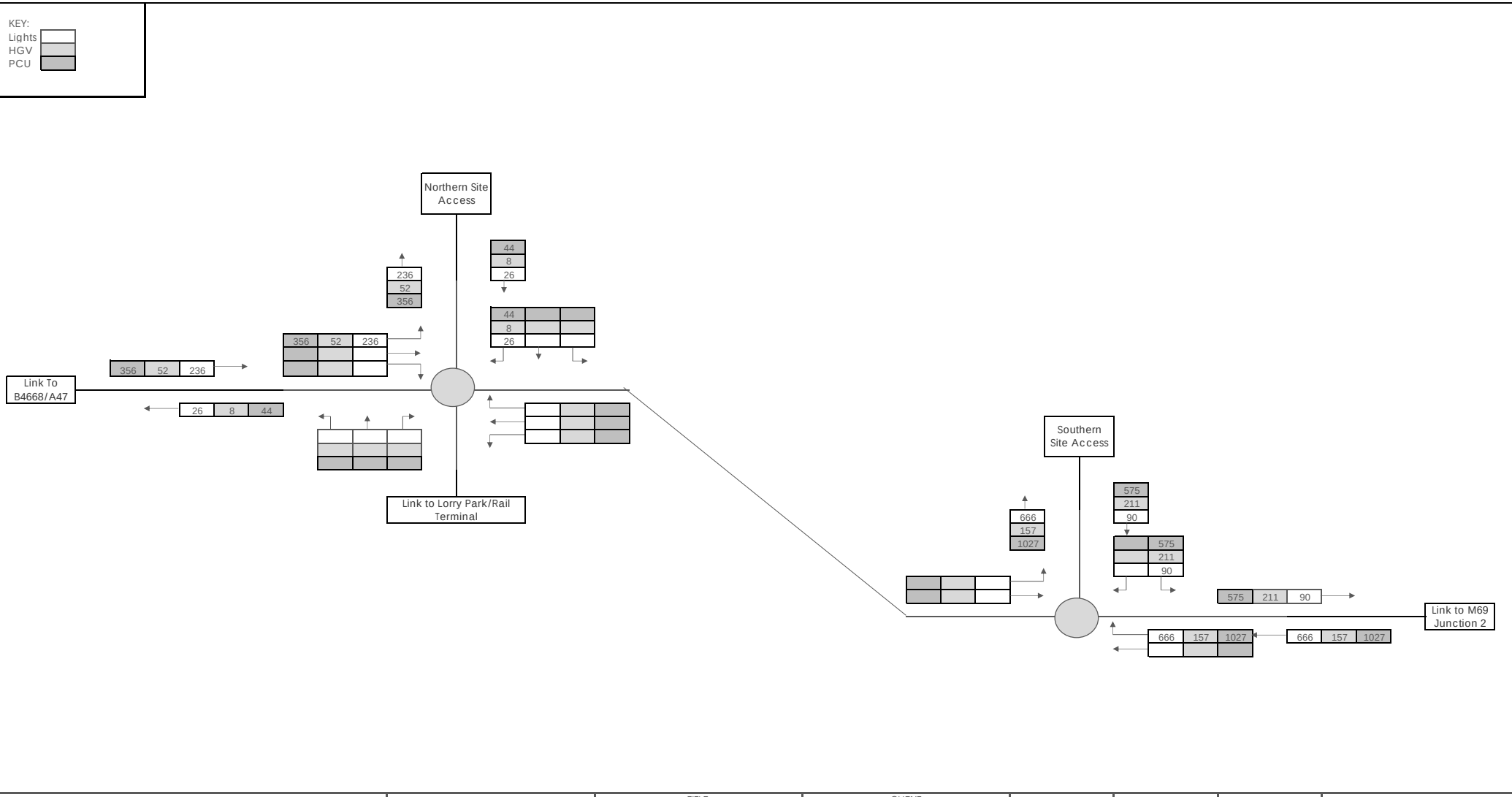
5.1 BWB Consulting Ltd (BWB) has been commissioned by Tritax Symmetry (Hinckley) Ltd to provide highways and transport advice to support the DCO submission for the proposed National Rail Freight Interchange at Hinckley, Leicestershire (HNRFI).

5.2 The scheme includes a new distributor link road (A47 Link Road) between the B4668 and M69 Junction 2 roundabout which provides two vehicular points of access into the site. Along the A47 link road, three roundabouts are proposed, two of which provide access into the development.

5.3 An assessment of the northern and southern roundabouts on the A47 Link Road that provide access to the development has been undertaken which demonstrates that the proposed junctions will satisfactorily cater for the proposals.

5.4 In addition to the above, two crossing facilities are proposed. A worst-case assessment was undertaken which assumed the crossings being called once every minute. This illustrated that the crossing operates within capacity and the queues formed on the approaches to the crossing stop lines do not extend back onto the M69 J2 or block any of the roundabouts on the A47 Link Road.

Figures



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TITLE:	Development Flow AM PRTM
PROJECT:	HNRFI
PROJECT REFERANCE:	NTT2814
CLIENT:	Tritax Symmetry (Hinckley) Limited
DRAWN BY:	V.Devaharan
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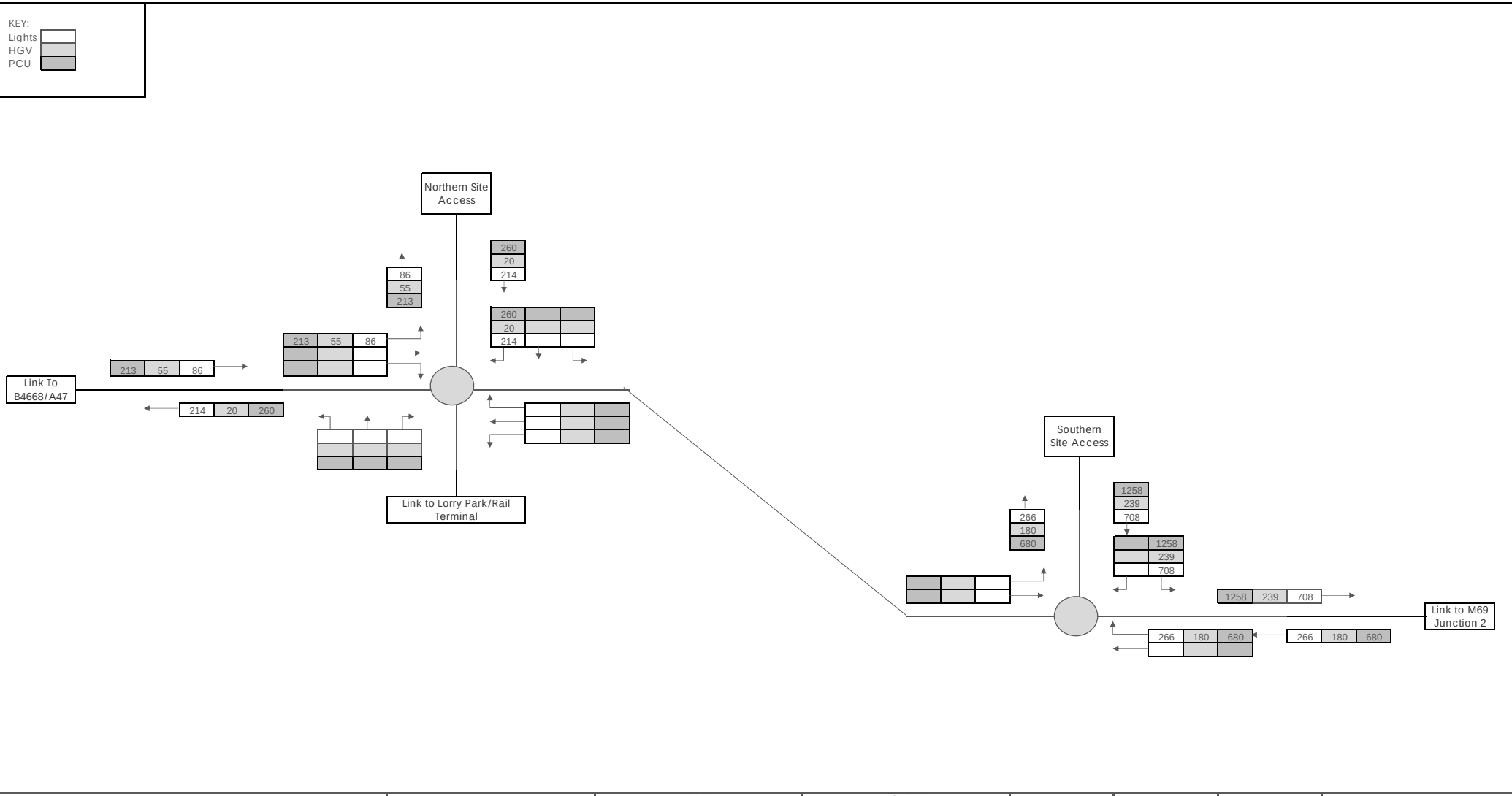
CHECKED BY:	S.Dumigan
DRAWING NO:	Figure 2
APPROVED BY:	S.Dumigan
VERSION:	1



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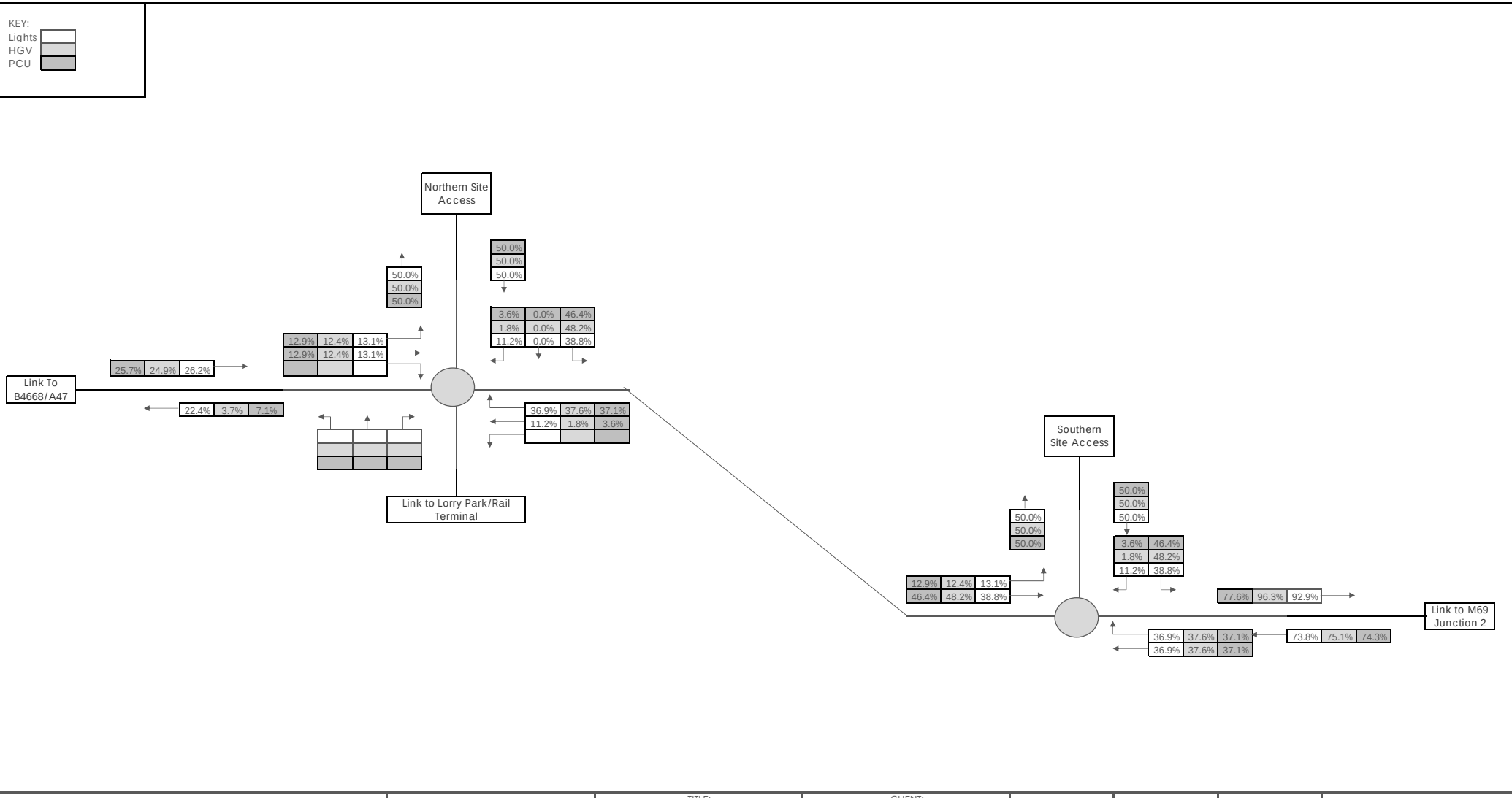

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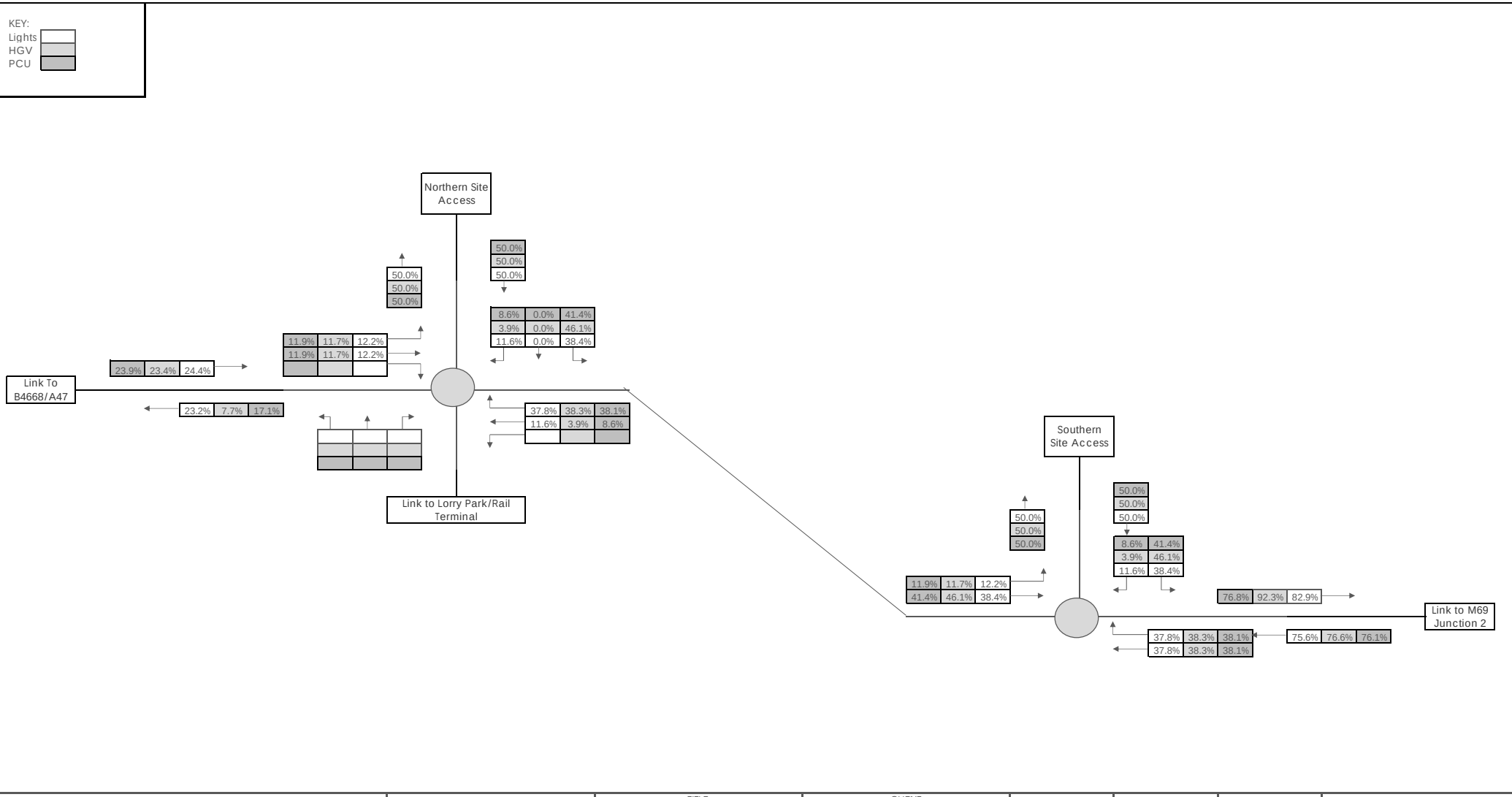

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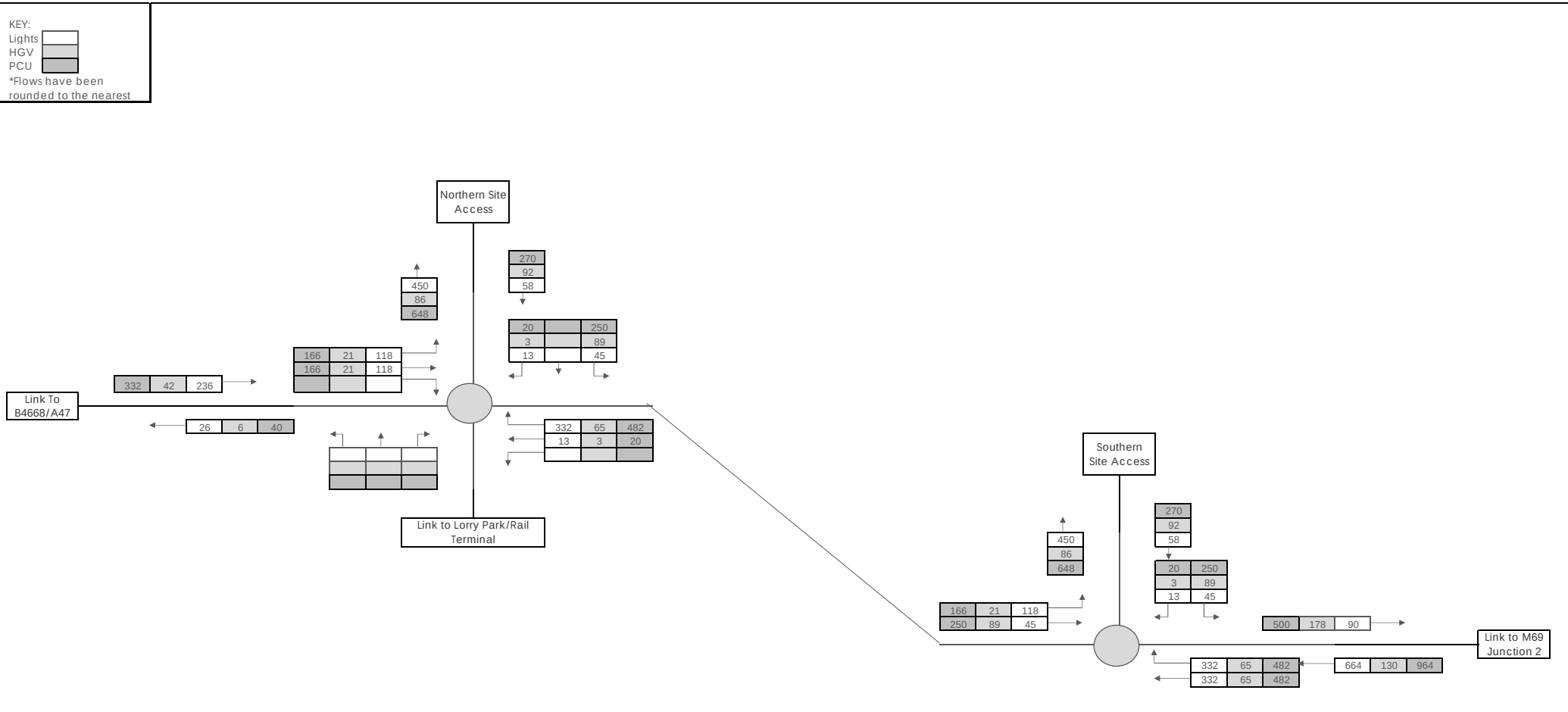

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DRAWN BY:	V.Devaharan
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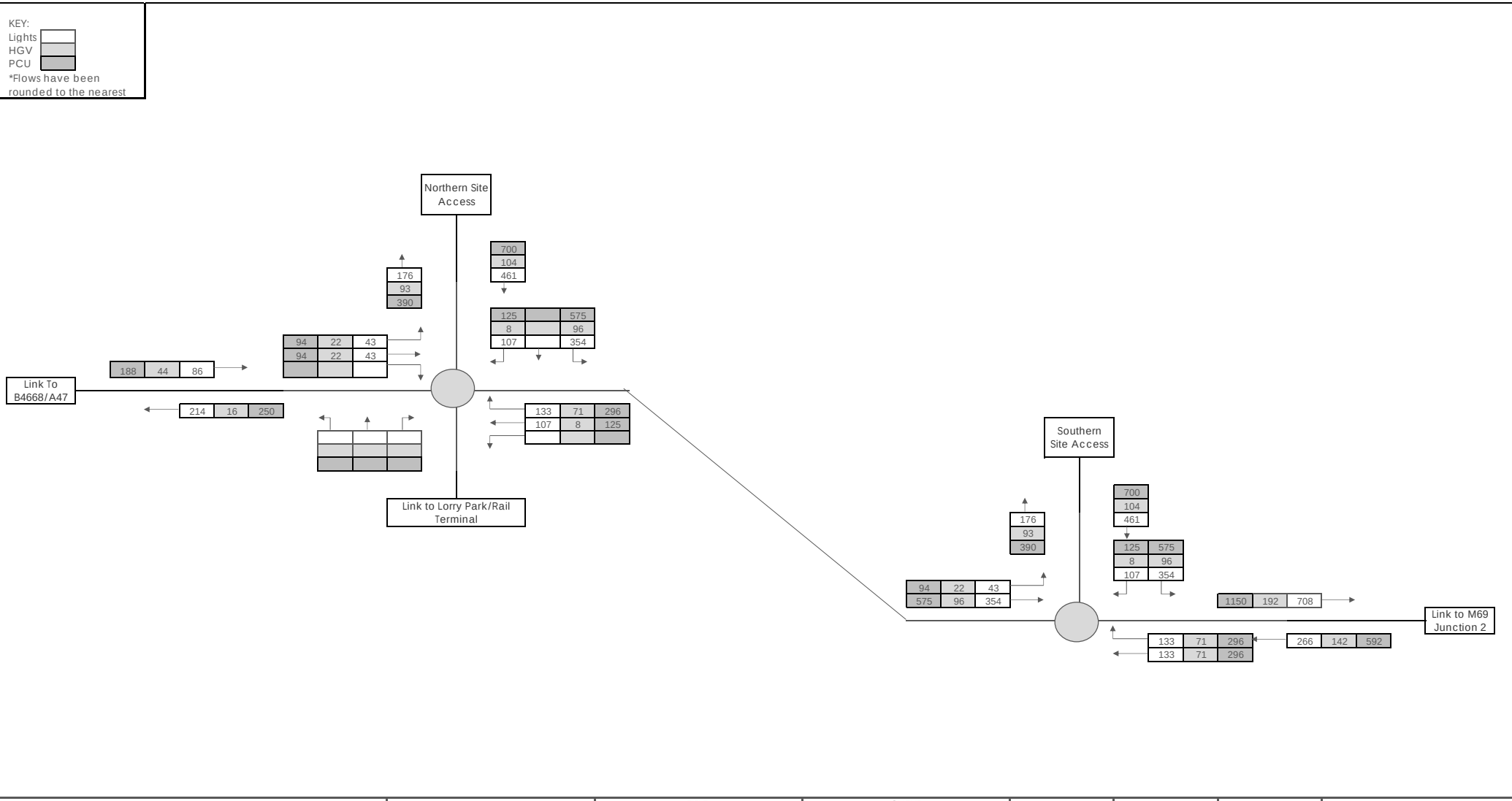

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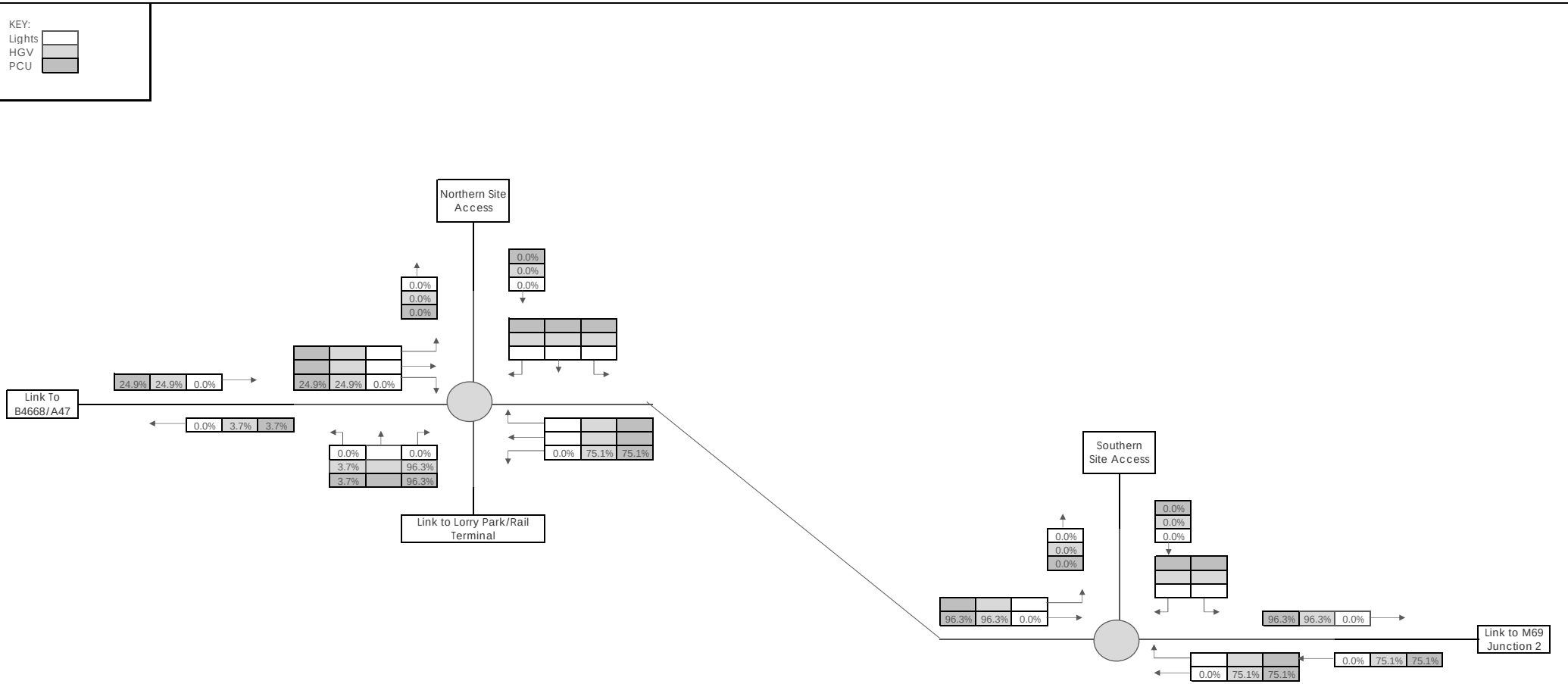

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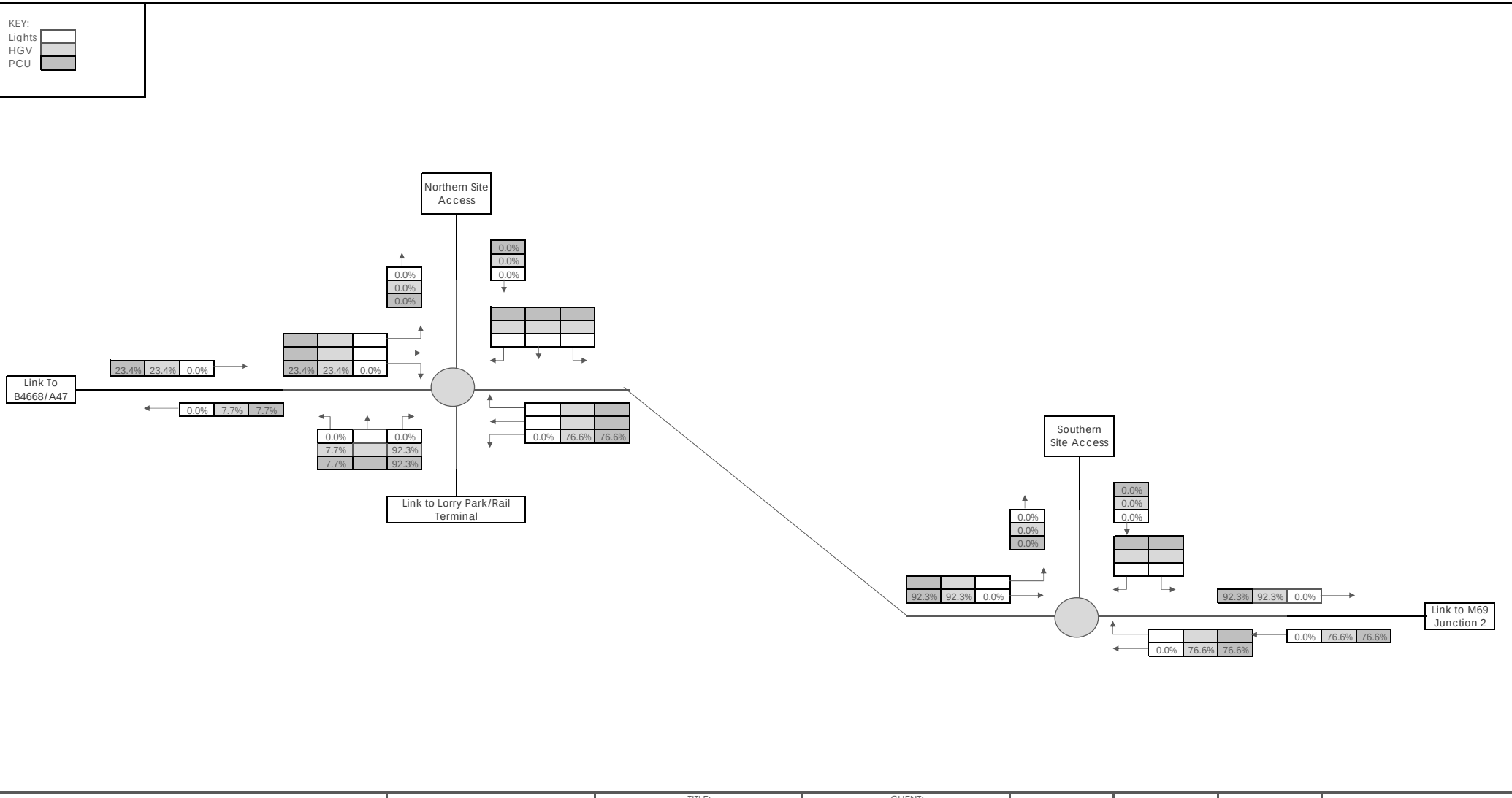

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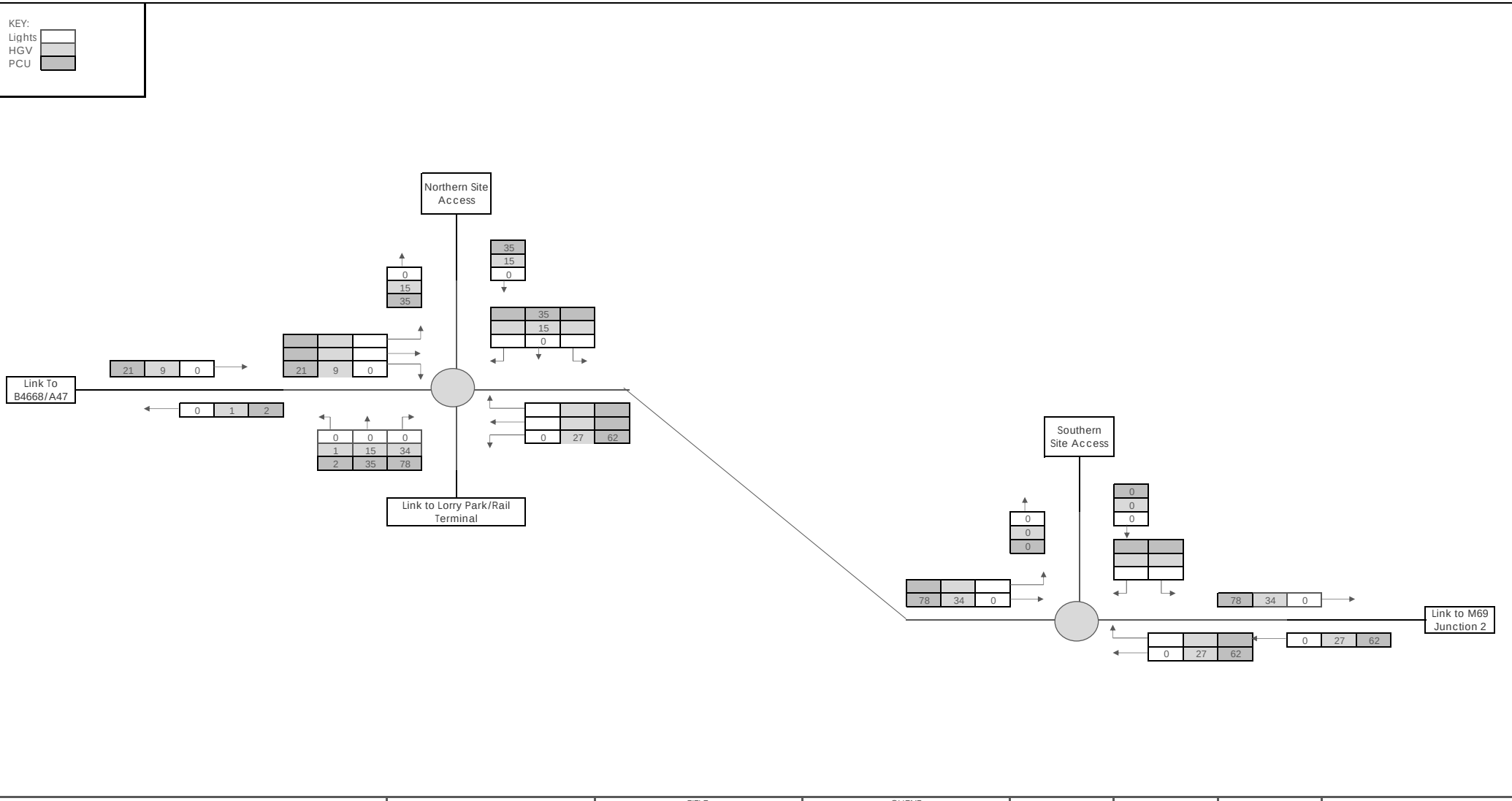

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DATE:	29/09/2023
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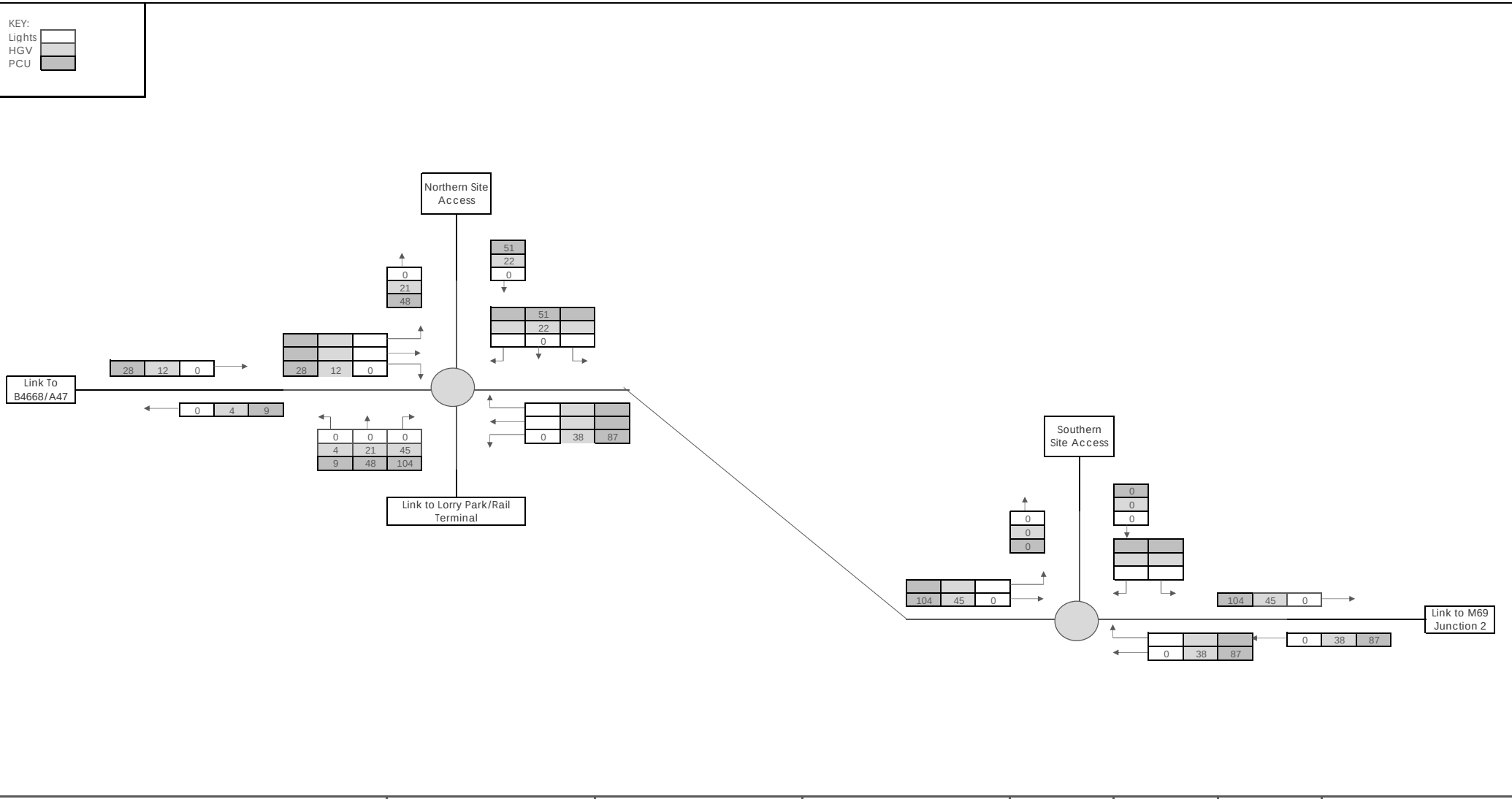
VERSION:	1



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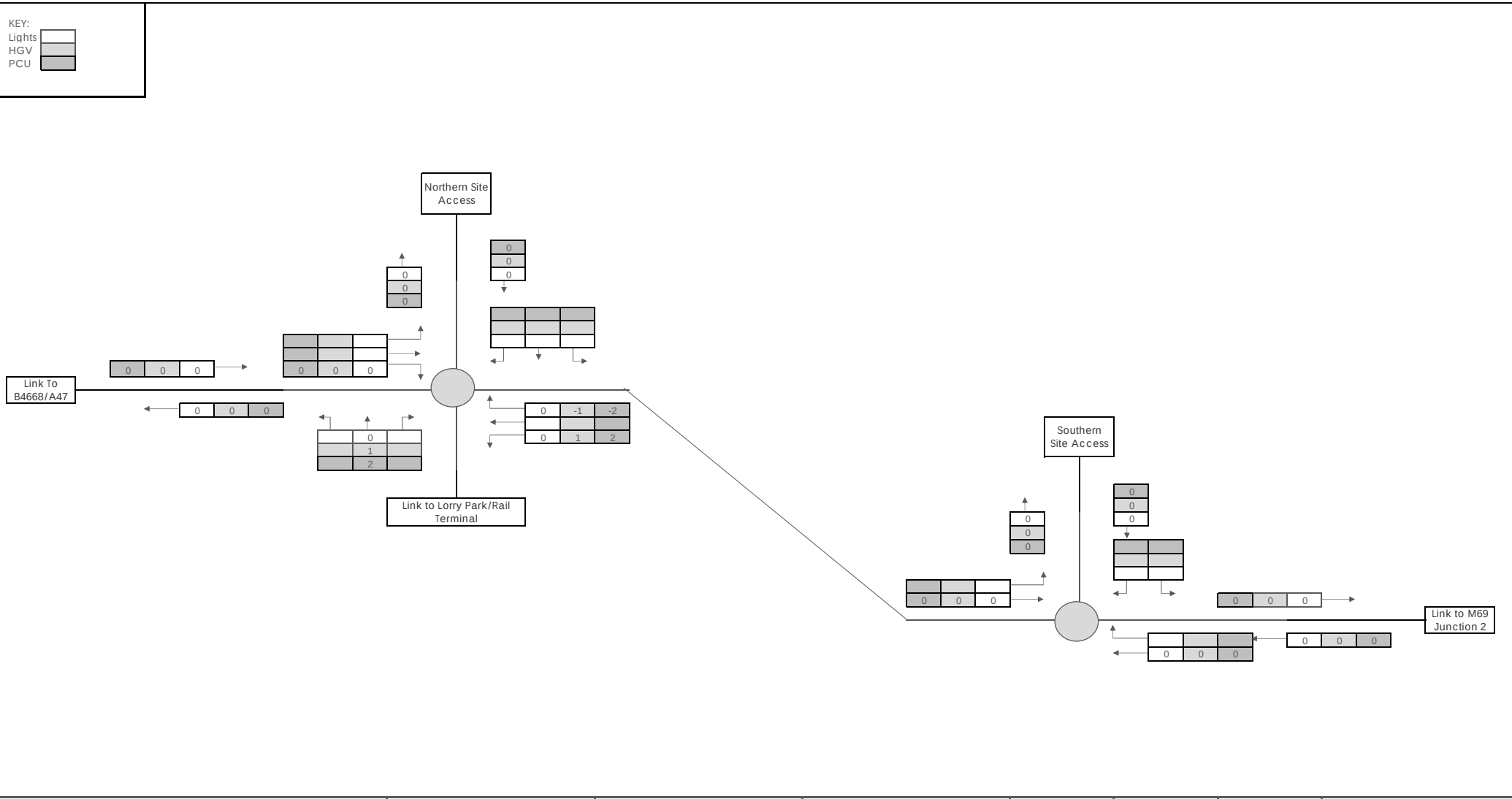
APPROVED BY:	S.Dumigan	VERSION:	1



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TITLE:	Redistribution of B8 HGV movements into/out of Lorry Park AM
PROJECT:	HNRFI
PROJECT REFERANCE:	NTT2814
CLIENT:	Tritax Symmetry (Hinckley) Limited
DRAWN BY:	V.Devaharan
DATE:	29/09/2023
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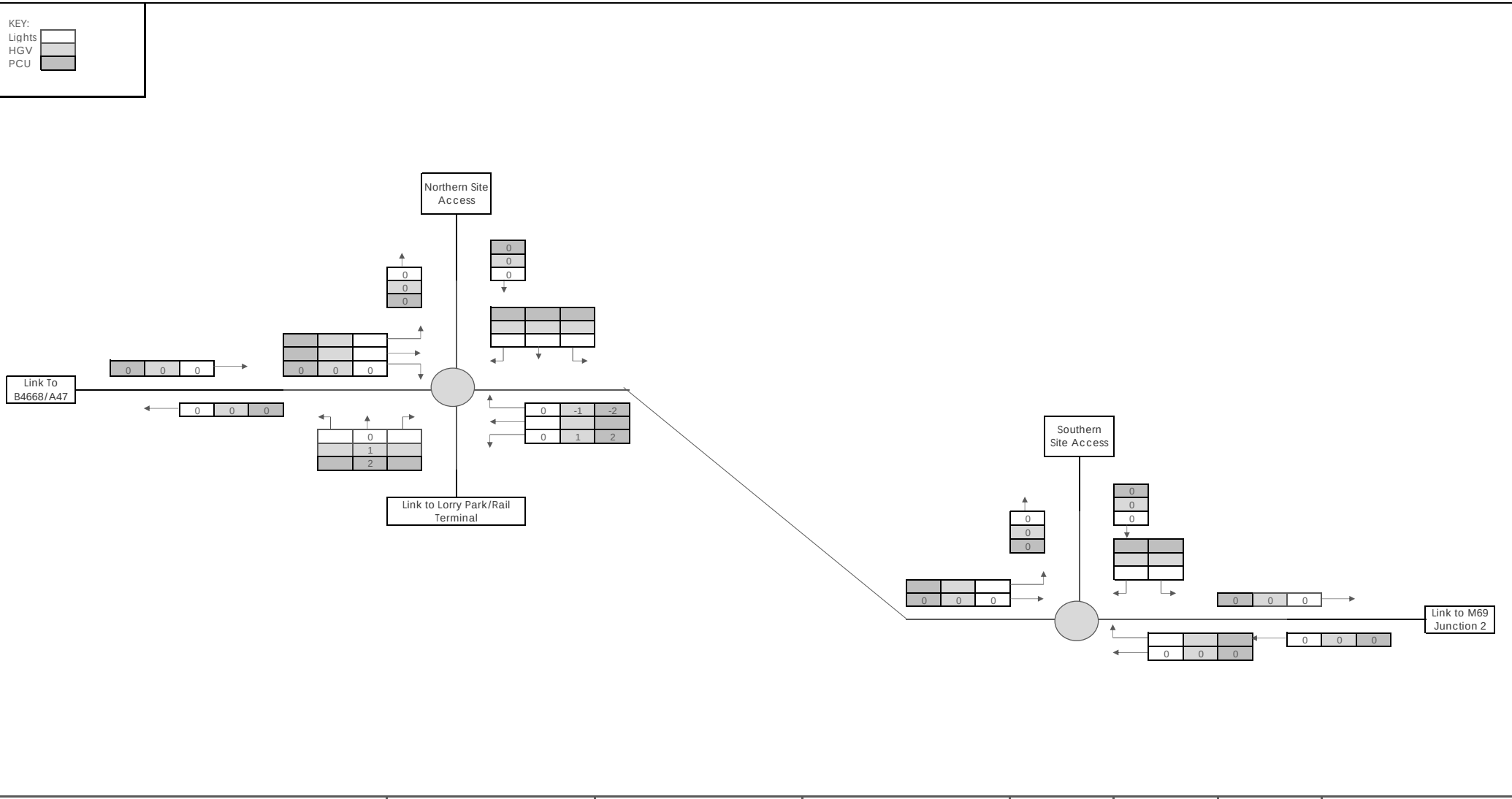

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Redistribution of B8 HGV movements into/out of Lorry Park PM	Tritax Symmetry (Hinckley) Limited	CHECKED BY:	S.Dumigan	DRAWING NO:	Figure 13
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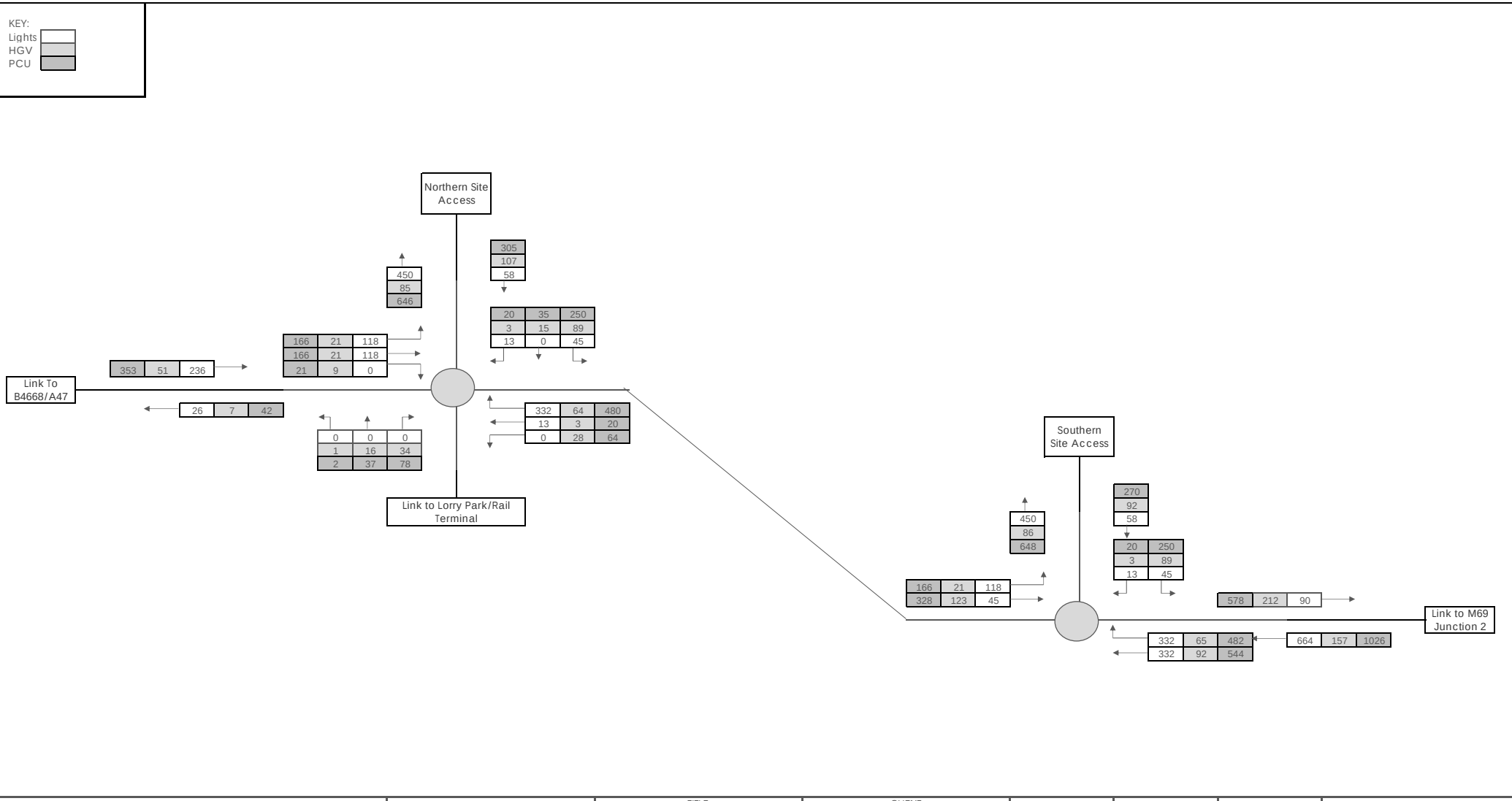

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Total Development Flow AM	Tritax Symmetry (Hinckley) Limited	CHECKED BY:	S.Dumigan	DRAWING NO:	Figure 14
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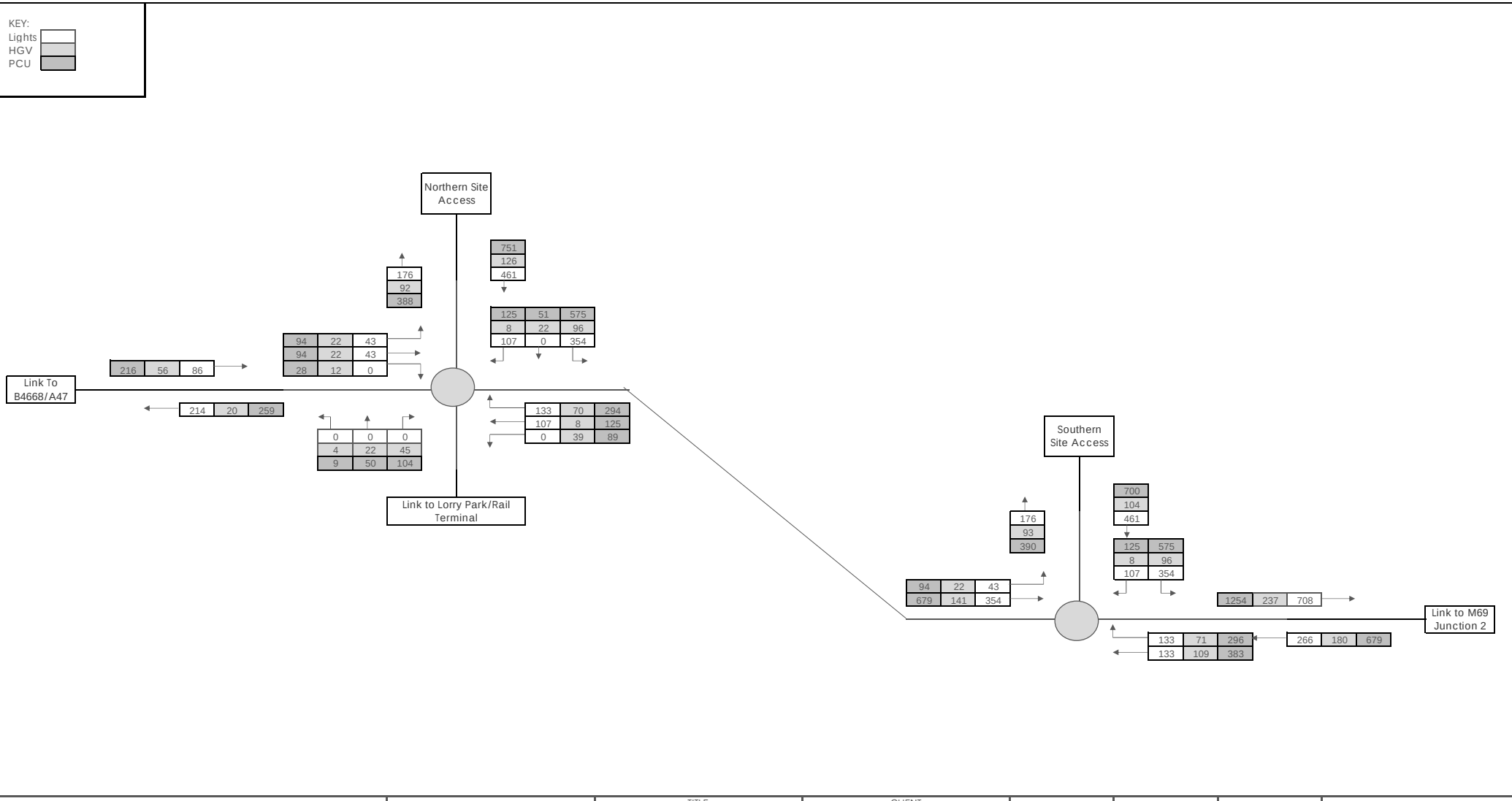

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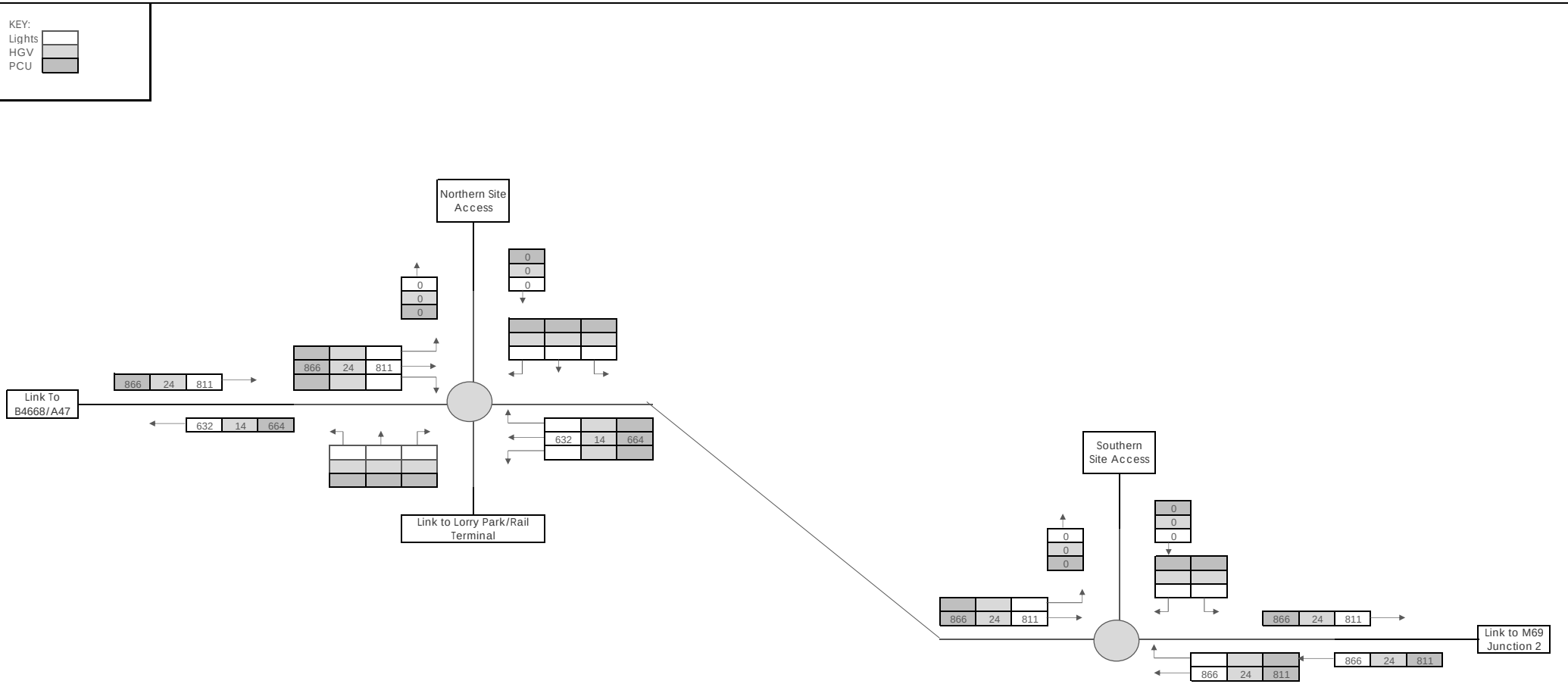

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2036 Background Flow (AM)	Tritax Symmetry (Hinckley) Limited	CHECKED BY:	S.Dumigan	DRAWING NO:	Figure 16
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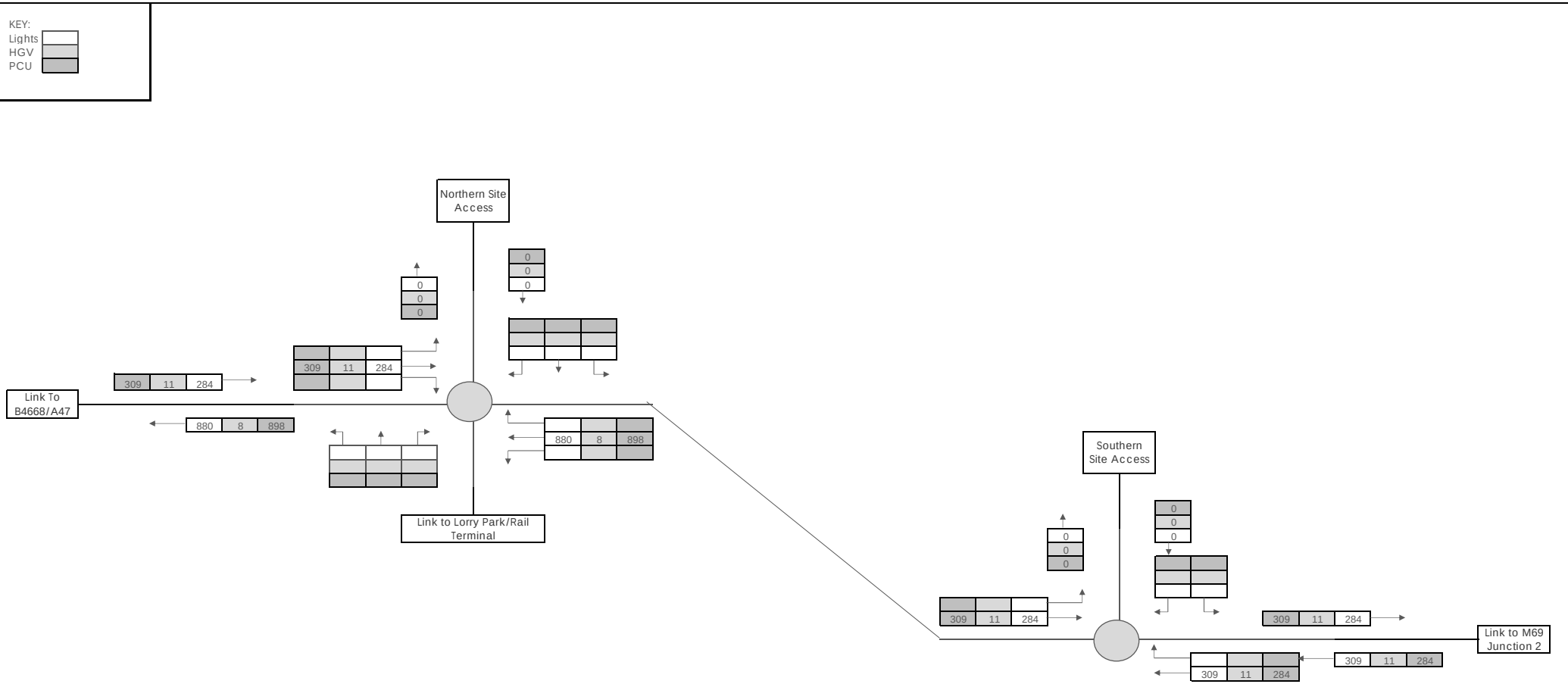

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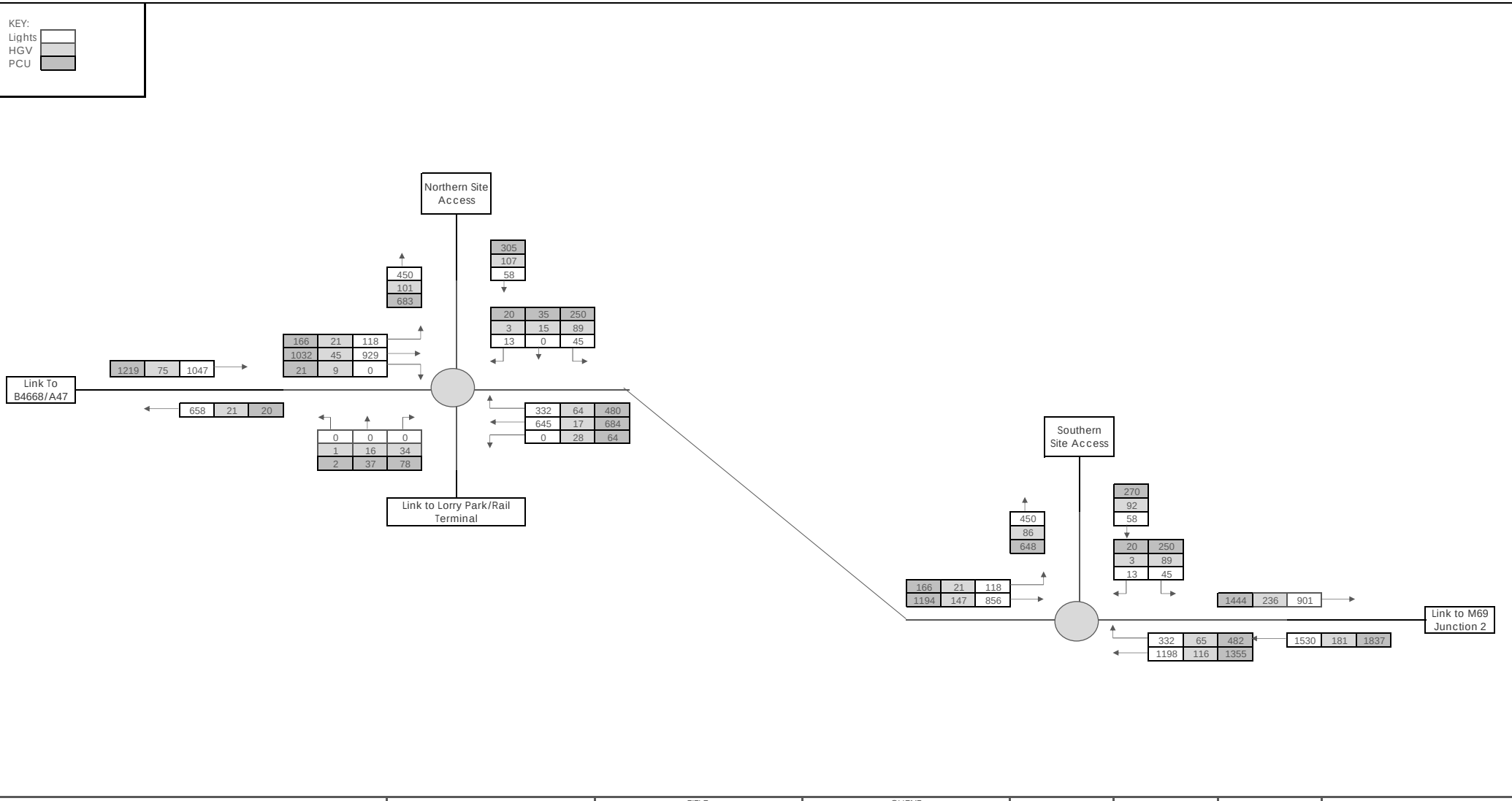
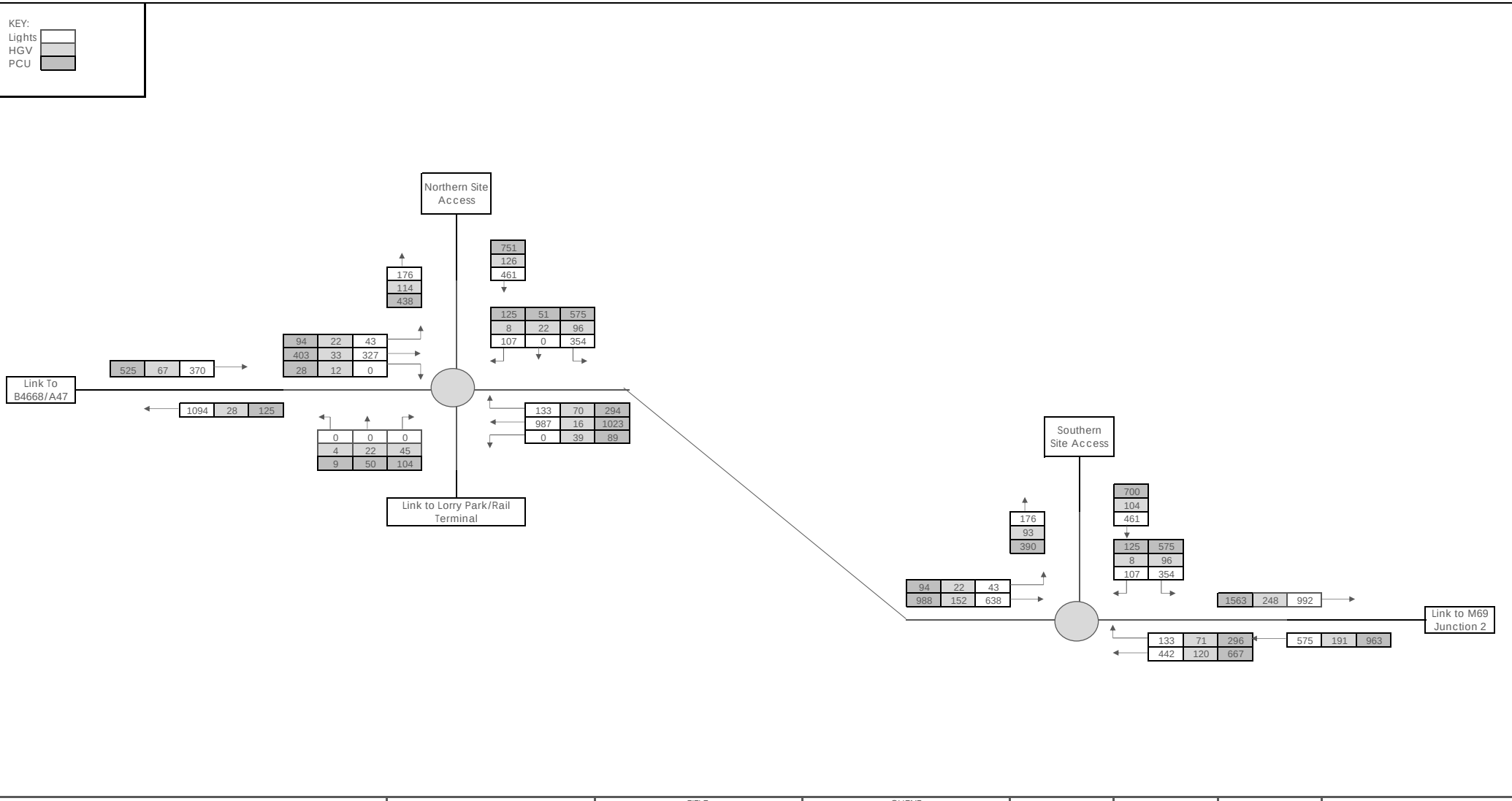
2036 Background Flow (PM)	Tritax Symmetry (Hinckley) Limited	CHECKED BY:	S.Dumigan	DRAWING NO:	Figure 17
PROJECT: HNRFI		APPROVED BY:	S.Dumigan	VERSION:	1
PROJECT REFERANCE: NTT2814					



BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED	BWB Consulting Ltd 35 Livery Street Colmore Business District Birmingham B3 2PB TEL + 121 233 3322 www.bwbconsulting.com	TITLE:	CLIENT:	DRAWN BY:	V.Devaharan	DATE:	29/09/2023
		2036 Total Flow AM	Tritax Symmetry (Hinckley) Limited	CHECKED BY:	S.Dumigan	DRAWING NO:	Figure 18
		PROJECT: HNRFI		APPROVED BY:	S.Dumigan	VERSION:	1
		PROJECT REFERANCE: NTT2814					



BWB Consulting Ltd 35 Livery Street Colmore Business District Birmingham B3 2PB TEL + 121 233 3322 www.bwbconsulting.com	TITLE: 2036 Total Flow PM PROJECT: HNRFI PROJECT REFERANCE: NTT2814	CLIENT: Tritax Symmetry (Hinckley) Limited	DRAWN BY:	V.Devaharan	DATE:	29/09/2023
			CHECKED BY:	S.Dumigan	DRAWING NO:	Figure 19
			APPROVED BY:	S.Dumigan	VERSION:	1

Appendices

Appendix 1: Northern Roundabout J10 Output

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Internal Northern Roundabout.j10
Path: C:\Users\Charlie.Cresswell\Documents\For Vibi\Hinckley\Junction Models
Report generation date: 28/09/2023 16:03:19

»2036 (50%), AM
»2036 (50%), PM
»2036 (65%), AM
»2036 (65%), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2036 (50%)									
1 - Site Access	D1	0.3	3.66	0.25	A	D2	0.9	3.94	0.47	A
2 - A47 Link Road South		1.1	2.97	0.53	A		1.7	3.94	0.63	A
3 - Rail Terminal/Lorry Park		0.1	3.51	0.11	A		0.2	4.51	0.18	A
4 - A47 Link Road North		3.8	10.47	0.80	B		0.5	2.97	0.32	A
	2036 (65%)									
1 - Site Access	D3	0.2	3.47	0.19	A	D4	0.5	3.10	0.34	A
2 - A47 Link Road South		1.4	3.41	0.59	A		1.3	3.34	0.57	A
3 - Rail Terminal/Lorry Park		0.1	3.88	0.12	A		0.2	3.97	0.16	A
4 - A47 Link Road North		5.3	14.81	0.85	B		0.4	2.69	0.28	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	Internal Junction 1
Location	Hinckley
Site number	
Date	18/09/2023
Version	
Status	(new file)
Identifier	Charlie Cresswell
Client	
Jobnumber	NTT2814
Enumerator	BWB\Charlie.Cresswell
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2036 (50%)	AM	ONE HOUR	07:45	09:15	15
D2	2036 (50%)	PM	ONE HOUR	16:45	18:15	15
D3	2036 (65%)	AM	ONE HOUR	07:45	09:15	15
D4	2036 (65%)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2036 (50%), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	4 - A47 Link Road North - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.26	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.26	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Site Access		
2	A47 Link Road South		
3	Rail Terminal/Lorry Park		
4	A47 Link Road North		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Site Access	5.10	8.40	9.9	20.0	60.0	17.3		
2 - A47 Link Road South	7.30	8.90	5.8	20.0	60.0	11.8		
3 - Rail Terminal/Lorry Park	4.50	8.40	8.6	40.0	60.0	19.7		
4 - A47 Link Road North	3.65	6.90	95.0	20.0	60.0	13.9		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Site Access	0.641	2119
2 - A47 Link Road South	0.734	2625
3 - Rail Terminal/Lorry Park	0.617	1957
4 - A47 Link Road North	0.642	2105

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2036 (50%)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	305	100.000
2 - A47 Link Road South		✓	1228	100.000
3 - Rail Terminal/Lorry Park		✓	115	100.000
4 - A47 Link Road North		✓	1219	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	250	35	20
	2 - A47 Link Road South	482	0	62	684
	3 - Rail Terminal/Lorry Park	35	78	0	2
	4 - A47 Link Road North	166	1032	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Rail Terminal/Lorry Park	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.25	3.66	0.3	A
2 - A47 Link Road South	0.53	2.97	1.1	A
3 - Rail Terminal/Lorry Park	0.11	3.51	0.1	A
4 - A47 Link Road North	0.80	10.47	3.8	B

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	230	848	1575	0.146	229	0.2	2.673	A
2 - A47 Link Road South	925	57	2583	0.358	922	0.6	2.164	A
3 - Rail Terminal/Lorry Park	87	891	1407	0.062	86	0.1	2.726	A
4 - A47 Link Road North	918	447	1818	0.505	914	1.0	3.963	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	274	1015	1468	0.187	274	0.2	3.014	A
2 - A47 Link Road South	1104	68	2575	0.429	1103	0.7	2.444	A
3 - Rail Terminal/Lorry Park	103	1065	1299	0.080	103	0.1	3.010	A
4 - A47 Link Road North	1096	535	1762	0.622	1093	1.6	5.367	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	336	1238	1325	0.253	335	0.3	3.636	A
2 - A47 Link Road South	1352	83	2564	0.527	1351	1.1	2.962	A
3 - Rail Terminal/Lorry Park	127	1304	1151	0.110	126	0.1	3.511	A
4 - A47 Link Road North	1342	654	1685	0.797	1334	3.7	10.021	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	336	1245	1320	0.254	336	0.3	3.655	A
2 - A47 Link Road South	1352	84	2564	0.527	1352	1.1	2.969	A
3 - Rail Terminal/Lorry Park	127	1306	1151	0.110	127	0.1	3.514	A
4 - A47 Link Road North	1342	655	1684	0.797	1342	3.8	10.474	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	274	1024	1462	0.188	275	0.2	3.035	A
2 - A47 Link Road South	1104	69	2575	0.429	1105	0.8	2.451	A
3 - Rail Terminal/Lorry Park	103	1068	1298	0.080	104	0.1	3.016	A
4 - A47 Link Road North	1096	536	1761	0.622	1104	1.7	5.550	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	230	854	1571	0.146	230	0.2	2.685	A
2 - A47 Link Road South	925	57	2583	0.358	925	0.6	2.171	A
3 - Rail Terminal/Lorry Park	87	894	1405	0.062	87	0.1	2.730	A
4 - A47 Link Road North	918	448	1817	0.505	920	1.0	4.026	A

2036 (50%), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	4 - A47 Link Road North - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.80	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.80	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2036 (50%)	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	751	100.000
2 - A47 Link Road South		✓	1406	100.000
3 - Rail Terminal/Lorry Park		✓	161	100.000
4 - A47 Link Road North		✓	525	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	575	51	125
	2 - A47 Link Road South	296	0	87	1023
	3 - Rail Terminal/Lorry Park	48	104	0	9
	4 - A47 Link Road North	94	403	28	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Rail Terminal/Lorry Park	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.47	3.94	0.9	A
2 - A47 Link Road South	0.63	3.94	1.7	A
3 - Rail Terminal/Lorry Park	0.18	4.51	0.2	A
4 - A47 Link Road North	0.32	2.97	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	565	402	1861	0.304	564	0.4	2.771	A
2 - A47 Link Road South	1059	153	2513	0.421	1056	0.7	2.465	A
3 - Rail Terminal/Lorry Park	121	1084	1287	0.094	121	0.1	3.086	A
4 - A47 Link Road North	395	336	1889	0.209	394	0.3	2.407	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	675	481	1810	0.373	675	0.6	3.167	A
2 - A47 Link Road South	1264	183	2491	0.507	1263	1.0	2.928	A
3 - Rail Terminal/Lorry Park	145	1297	1156	0.125	145	0.1	3.558	A
4 - A47 Link Road North	472	402	1847	0.256	472	0.3	2.618	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	827	588	1741	0.475	826	0.9	3.927	A
2 - A47 Link Road South	1548	224	2461	0.629	1545	1.7	3.922	A
3 - Rail Terminal/Lorry Park	177	1587	977	0.181	177	0.2	4.497	A
4 - A47 Link Road North	578	492	1789	0.323	578	0.5	2.970	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	827	589	1741	0.475	827	0.9	3.938	A
2 - A47 Link Road South	1548	225	2460	0.629	1548	1.7	3.945	A
3 - Rail Terminal/Lorry Park	177	1590	975	0.182	177	0.2	4.511	A
4 - A47 Link Road North	578	493	1788	0.323	578	0.5	2.973	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	675	482	1810	0.373	676	0.6	3.181	A
2 - A47 Link Road South	1264	184	2491	0.508	1267	1.0	2.949	A
3 - Rail Terminal/Lorry Park	145	1301	1154	0.125	145	0.1	3.572	A
4 - A47 Link Road North	472	404	1846	0.256	472	0.3	2.623	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	565	403	1860	0.304	566	0.4	2.784	A
2 - A47 Link Road South	1059	154	2513	0.421	1060	0.7	2.479	A
3 - Rail Terminal/Lorry Park	121	1088	1285	0.094	121	0.1	3.096	A
4 - A47 Link Road North	395	338	1888	0.209	396	0.3	2.411	A

2036 (65%), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	4 - A47 Link Road North - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.18	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	8.18	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2036 (65%)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	224	100.000
2 - A47 Link Road South		✓	1376	100.000
3 - Rail Terminal/Lorry Park		✓	115	100.000
4 - A47 Link Road North		✓	1221	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	175	35	14
	2 - A47 Link Road South	624	0	62	690
	3 - Rail Terminal/Lorry Park	35	78	0	2
	4 - A47 Link Road North	117	1083	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Rail Terminal/Lorry Park	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.19	3.47	0.2	A
2 - A47 Link Road South	0.59	3.41	1.4	A
3 - Rail Terminal/Lorry Park	0.12	3.88	0.1	A
4 - A47 Link Road North	0.85	14.81	5.3	B

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	169	886	1551	0.109	168	0.1	2.604	A
2 - A47 Link Road South	1036	53	2587	0.400	1033	0.7	2.313	A
3 - Rail Terminal/Lorry Park	87	997	1341	0.065	86	0.1	2.869	A
4 - A47 Link Road North	919	553	1750	0.525	915	1.1	4.290	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	201	1060	1439	0.140	201	0.2	2.908	A
2 - A47 Link Road South	1237	63	2579	0.480	1236	0.9	2.679	A
3 - Rail Terminal/Lorry Park	103	1193	1220	0.085	103	0.1	3.222	A
4 - A47 Link Road North	1098	662	1680	0.653	1095	1.8	6.118	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	247	1290	1292	0.191	246	0.2	3.443	A
2 - A47 Link Road South	1515	77	2569	0.590	1513	1.4	3.404	A
3 - Rail Terminal/Lorry Park	127	1460	1055	0.120	126	0.1	3.876	A
4 - A47 Link Road North	1344	810	1585	0.848	1331	5.1	13.566	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	247	1301	1285	0.192	247	0.2	3.467	A
2 - A47 Link Road South	1515	77	2569	0.590	1515	1.4	3.415	A
3 - Rail Terminal/Lorry Park	127	1462	1054	0.120	127	0.1	3.881	A
4 - A47 Link Road North	1344	811	1584	0.849	1343	5.3	14.808	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	201	1075	1429	0.141	202	0.2	2.932	A
2 - A47 Link Road South	1237	63	2579	0.480	1239	0.9	2.690	A
3 - Rail Terminal/Lorry Park	103	1196	1218	0.085	104	0.1	3.231	A
4 - A47 Link Road North	1098	664	1679	0.654	1111	1.9	6.489	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	169	893	1546	0.109	169	0.1	2.615	A
2 - A47 Link Road South	1036	53	2587	0.401	1037	0.7	2.324	A
3 - Rail Terminal/Lorry Park	87	1001	1339	0.065	87	0.1	2.874	A
4 - A47 Link Road North	919	555	1748	0.526	922	1.1	4.376	A

2036 (65%), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	4 - A47 Link Road North - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.20	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.20	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2036 (65%)	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	544	100.000
2 - A47 Link Road South		✓	1282	100.000
3 - Rail Terminal/Lorry Park		✓	161	100.000
4 - A47 Link Road North		✓	467	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	404	51	89
	2 - A47 Link Road South	208	0	87	987
	3 - Rail Terminal/Lorry Park	48	104	0	9
	4 - A47 Link Road North	65	374	28	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Rail Terminal/Lorry Park	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Rail Terminal/Lorry Park	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.34	3.10	0.5	A
2 - A47 Link Road South	0.57	3.34	1.3	A
3 - Rail Terminal/Lorry Park	0.16	3.97	0.2	A
4 - A47 Link Road North	0.28	2.69	0.4	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	410	380	1875	0.218	408	0.3	2.454	A
2 - A47 Link Road South	965	126	2533	0.381	963	0.6	2.290	A
3 - Rail Terminal/Lorry Park	121	964	1361	0.089	121	0.1	2.902	A
4 - A47 Link Road North	352	270	1931	0.182	351	0.2	2.276	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	489	455	1827	0.268	489	0.4	2.689	A
2 - A47 Link Road South	1152	151	2515	0.458	1152	0.8	2.640	A
3 - Rail Terminal/Lorry Park	145	1153	1245	0.116	145	0.1	3.272	A
4 - A47 Link Road North	420	323	1897	0.221	420	0.3	2.436	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	599	557	1762	0.340	598	0.5	3.093	A
2 - A47 Link Road South	1412	185	2490	0.567	1410	1.3	3.327	A
3 - Rail Terminal/Lorry Park	177	1412	1085	0.163	177	0.2	3.963	A
4 - A47 Link Road North	514	396	1851	0.278	514	0.4	2.692	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	599	557	1761	0.340	599	0.5	3.096	A
2 - A47 Link Road South	1412	185	2490	0.567	1411	1.3	3.338	A
3 - Rail Terminal/Lorry Park	177	1414	1084	0.164	177	0.2	3.970	A
4 - A47 Link Road North	514	396	1850	0.278	514	0.4	2.693	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	489	455	1827	0.268	490	0.4	2.695	A
2 - A47 Link Road South	1152	151	2514	0.458	1154	0.9	2.649	A
3 - Rail Terminal/Lorry Park	145	1156	1243	0.116	145	0.1	3.281	A
4 - A47 Link Road North	420	324	1897	0.221	420	0.3	2.438	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	410	381	1874	0.219	410	0.3	2.460	A
2 - A47 Link Road South	965	127	2532	0.381	966	0.6	2.301	A
3 - Rail Terminal/Lorry Park	121	968	1359	0.089	121	0.1	2.909	A
4 - A47 Link Road North	352	271	1931	0.182	352	0.2	2.281	A

Appendix 2: Southern Roundabout J10 Output

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Internal Southern Roundabout.j10
Path: C:\Users\Charlie.Cresswell\Documents\For Vibi\Hinckley\Junction Models
Report generation date: 28/09/2023 16:07:19

»2036 (50%), AM
»2036 (50%), PM
»2036 (65%), AM
»2036 (65%), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2036 (50%)									
1 - Site Access	D1	0.3	3.41	0.22	A	D2	1.0	4.93	0.51	A
2 - A47 Link Road South		2.5	4.85	0.72	A		2.2	4.60	0.69	A
3 - Un-named Road		0.0	0.00	0.00	A		0.0	0.00	0.00	A
4 - A47 Link Road North		2.0	4.89	0.67	A		1.0	3.02	0.50	A
	2036 (65%)									
1 - Site Access	D3	0.4	3.95	0.30	A	D4	2.6	9.62	0.73	A
2 - A47 Link Road South		5.0	8.45	0.84	A		3.4	6.47	0.78	A
3 - Un-named Road		0.0	0.00	0.00	A		0.0	0.00	0.00	A
4 - A47 Link Road North		3.3	7.40	0.77	A		1.6	4.00	0.61	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	Internal Roundabout 2
Location	Hinckley
Site number	
Date	19/09/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BWB\Charlie.Cresswell
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2036 (50%)	AM	ONE HOUR	07:45	09:15	15
D2	2036 (50%)	PM	ONE HOUR	16:45	18:15	15
D3	2036 (65%)	AM	ONE HOUR	07:45	09:15	15
D4	2036 (65%)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2036 (50%), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.75	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.75	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Site Access		
2	A47 Link Road South		
3	Un-named Road		
4	A47 Link Road North		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Site Access	5.30	8.50	11.2	20.0	60.0	15.4		
2 - A47 Link Road South	7.30	9.00	16.4	20.0	60.0	27.9		
3 - Un-named Road	2.40	4.30	3.6	20.0	60.0	33.4		
4 - A47 Link Road North	7.30	8.90	8.3	20.0	60.0	17.6		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Site Access	0.660	2219
2 - A47 Link Road South	0.718	2618
3 - Un-named Road	0.421	930
4 - A47 Link Road North	0.728	2620

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2036 (50%)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	270	100.000
2 - A47 Link Road South		✓	1690	100.000
3 - Un-named Road		✓	0	100.000
4 - A47 Link Road North		✓	1360	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	250	0	20
	2 - A47 Link Road South	482	0	0	1208
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	166	1194	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.22	3.41	0.3	A
2 - A47 Link Road South	0.72	4.85	2.5	A
3 - Un-named Road	0.00	0.00	0.0	A
4 - A47 Link Road North	0.67	4.89	2.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	203	896	1628	0.125	203	0.1	2.525	A
2 - A47 Link Road South	1272	15	2607	0.488	1269	0.9	2.681	A
3 - Un-named Road	0	1284	390	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1024	362	2357	0.434	1021	0.8	2.689	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	243	1072	1511	0.161	243	0.2	2.836	A
2 - A47 Link Road South	1519	18	2605	0.583	1518	1.4	3.304	A
3 - Un-named Road	0	1535	284	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1223	433	2305	0.530	1221	1.1	3.316	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	297	1312	1353	0.220	297	0.3	3.408	A
2 - A47 Link Road South	1861	22	2602	0.715	1856	2.5	4.799	A
3 - Un-named Road	0	1878	140	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1497	529	2235	0.670	1494	2.0	4.835	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	297	1315	1351	0.220	297	0.3	3.414	A
2 - A47 Link Road South	1861	22	2602	0.715	1861	2.5	4.852	A
3 - Un-named Road	0	1883	138	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1497	531	2234	0.670	1497	2.0	4.886	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	243	1076	1509	0.161	243	0.2	2.847	A
2 - A47 Link Road South	1519	18	2605	0.583	1524	1.4	3.340	A
3 - Un-named Road	0	1542	282	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1223	435	2304	0.531	1226	1.1	3.352	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	203	900	1625	0.125	203	0.1	2.534	A
2 - A47 Link Road South	1272	15	2607	0.488	1274	1.0	2.705	A
3 - Un-named Road	0	1289	388	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1024	363	2356	0.435	1025	0.8	2.708	A

2036 (50%), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.16	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.16	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2036 (50%)	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	700	100.000
2 - A47 Link Road South		✓	1577	100.000
3 - Un-named Road		✓	0	100.000
4 - A47 Link Road North		✓	1082	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	575	0	125
	2 - A47 Link Road South	296	0	0	1281
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	94	988	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.51	4.93	1.0	A
2 - A47 Link Road South	0.69	4.60	2.2	A
3 - Un-named Road	0.00	0.00	0.0	A
4 - A47 Link Road North	0.50	3.02	1.0	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	527	742	1729	0.305	525	0.4	2.986	A
2 - A47 Link Road South	1187	94	2551	0.465	1184	0.9	2.627	A
3 - Un-named Road	0	1278	393	0.000	0	0.0	0.000	A
4 - A47 Link Road North	815	222	2459	0.331	813	0.5	2.184	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	629	888	1633	0.385	629	0.6	3.581	A
2 - A47 Link Road South	1418	112	2537	0.559	1416	1.3	3.206	A
3 - Un-named Road	0	1528	287	0.000	0	0.0	0.000	A
4 - A47 Link Road North	973	266	2427	0.401	972	0.7	2.473	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	771	1087	1502	0.513	769	1.0	4.902	A
2 - A47 Link Road South	1736	137	2519	0.689	1733	2.2	4.553	A
3 - Un-named Road	0	1870	144	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1191	325	2384	0.500	1190	1.0	3.014	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	771	1088	1501	0.513	771	1.0	4.928	A
2 - A47 Link Road South	1736	138	2519	0.689	1736	2.2	4.597	A
3 - Un-named Road	0	1874	142	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1191	326	2383	0.500	1191	1.0	3.020	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	629	889	1632	0.386	631	0.6	3.603	A
2 - A47 Link Road South	1418	113	2537	0.559	1421	1.3	3.238	A
3 - Un-named Road	0	1534	285	0.000	0	0.0	0.000	A
4 - A47 Link Road North	973	267	2426	0.401	974	0.7	2.482	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	527	744	1728	0.305	528	0.4	3.003	A
2 - A47 Link Road South	1187	94	2550	0.466	1189	0.9	2.646	A
3 - Un-named Road	0	1283	391	0.000	0	0.0	0.000	A
4 - A47 Link Road North	815	223	2458	0.331	815	0.5	2.194	A

2036 (65%), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.63	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.63	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2036 (65%)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	350	100.000
2 - A47 Link Road South		✓	1974	100.000
3 - Un-named Road		✓	0	100.000
4 - A47 Link Road North		✓	1485	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	324	0	26
	2 - A47 Link Road South	624	0	0	1350
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	217	1268	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.30	3.95	0.4	A
2 - A47 Link Road South	0.84	8.45	5.0	A
3 - Un-named Road	0.00	0.00	0.0	A
4 - A47 Link Road North	0.77	7.40	3.3	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	263	951	1591	0.166	263	0.2	2.708	A
2 - A47 Link Road South	1486	20	2604	0.571	1481	1.3	3.191	A
3 - Un-named Road	0	1500	299	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1118	468	2280	0.490	1114	1.0	3.079	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	315	1138	1468	0.214	314	0.3	3.120	A
2 - A47 Link Road South	1775	23	2601	0.682	1771	2.1	4.321	A
3 - Un-named Road	0	1795	175	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1335	560	2213	0.603	1333	1.5	4.082	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	385	1390	1301	0.296	385	0.4	3.924	A
2 - A47 Link Road South	2173	29	2598	0.837	2162	4.9	8.074	A
3 - Un-named Road	0	2191	9	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1635	684	2123	0.770	1628	3.2	7.178	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	385	1396	1298	0.297	385	0.4	3.945	A
2 - A47 Link Road South	2173	29	2598	0.837	2173	5.0	8.451	A
3 - Un-named Road	0	2202	4	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1635	687	2120	0.771	1635	3.3	7.402	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	315	1146	1463	0.215	315	0.3	3.140	A
2 - A47 Link Road South	1775	23	2601	0.682	1786	2.2	4.475	A
3 - Un-named Road	0	1809	169	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1335	565	2209	0.604	1342	1.5	4.185	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	263	957	1588	0.166	264	0.2	2.719	A
2 - A47 Link Road South	1486	20	2604	0.571	1489	1.3	3.238	A
3 - Un-named Road	0	1509	296	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1118	471	2278	0.491	1120	1.0	3.118	A

2036 (65%), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.39	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.39	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2036 (65%)	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Site Access		✓	910	100.000
2 - A47 Link Road South		✓	1757	100.000
3 - Un-named Road		✓	0	100.000
4 - A47 Link Road North		✓	1281	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	748	0	162
	2 - A47 Link Road South	386	0	0	1371
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	120	1161	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Site Access	2 - A47 Link Road South	3 - Un-named Road	4 - A47 Link Road North
From	1 - Site Access	0	0	0	0
	2 - A47 Link Road South	0	0	0	0
	3 - Un-named Road	0	0	0	0
	4 - A47 Link Road North	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Site Access	0.73	9.62	2.6	A
2 - A47 Link Road South	0.78	6.47	3.4	A
3 - Un-named Road	0.00	0.00	0.0	A
4 - A47 Link Road North	0.61	4.00	1.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	685	872	1644	0.417	682	0.7	3.733	A
2 - A47 Link Road South	1323	121	2531	0.523	1318	1.1	2.958	A
3 - Un-named Road	0	1440	325	0.000	0	0.0	0.000	A
4 - A47 Link Road North	964	290	2409	0.400	962	0.7	2.483	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	818	1043	1531	0.534	816	1.1	5.026	A
2 - A47 Link Road South	1580	145	2514	0.628	1577	1.7	3.835	A
3 - Un-named Road	0	1723	206	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1152	346	2368	0.486	1150	0.9	2.954	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	1002	1276	1377	0.728	996	2.6	9.320	A
2 - A47 Link Road South	1934	177	2491	0.777	1928	3.4	6.316	A
3 - Un-named Road	0	2105	45	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1410	423	2312	0.610	1408	1.5	3.972	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	1002	1278	1375	0.729	1002	2.6	9.621	A
2 - A47 Link Road South	1934	178	2490	0.777	1934	3.4	6.471	A
3 - Un-named Road	0	2113	42	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1410	425	2311	0.610	1410	1.6	3.997	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	818	1046	1529	0.535	824	1.2	5.148	A
2 - A47 Link Road South	1580	147	2513	0.629	1586	1.7	3.915	A
3 - Un-named Road	0	1733	201	0.000	0	0.0	0.000	A
4 - A47 Link Road North	1152	349	2367	0.487	1154	1.0	2.974	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Site Access	685	875	1642	0.417	687	0.7	3.779	A
2 - A47 Link Road South	1323	122	2530	0.523	1325	1.1	2.995	A
3 - Un-named Road	0	1447	321	0.000	0	0.0	0.000	A
4 - A47 Link Road North	964	291	2408	0.400	966	0.7	2.498	A

Appendix 3: Pegasus Crossing LinSig Output

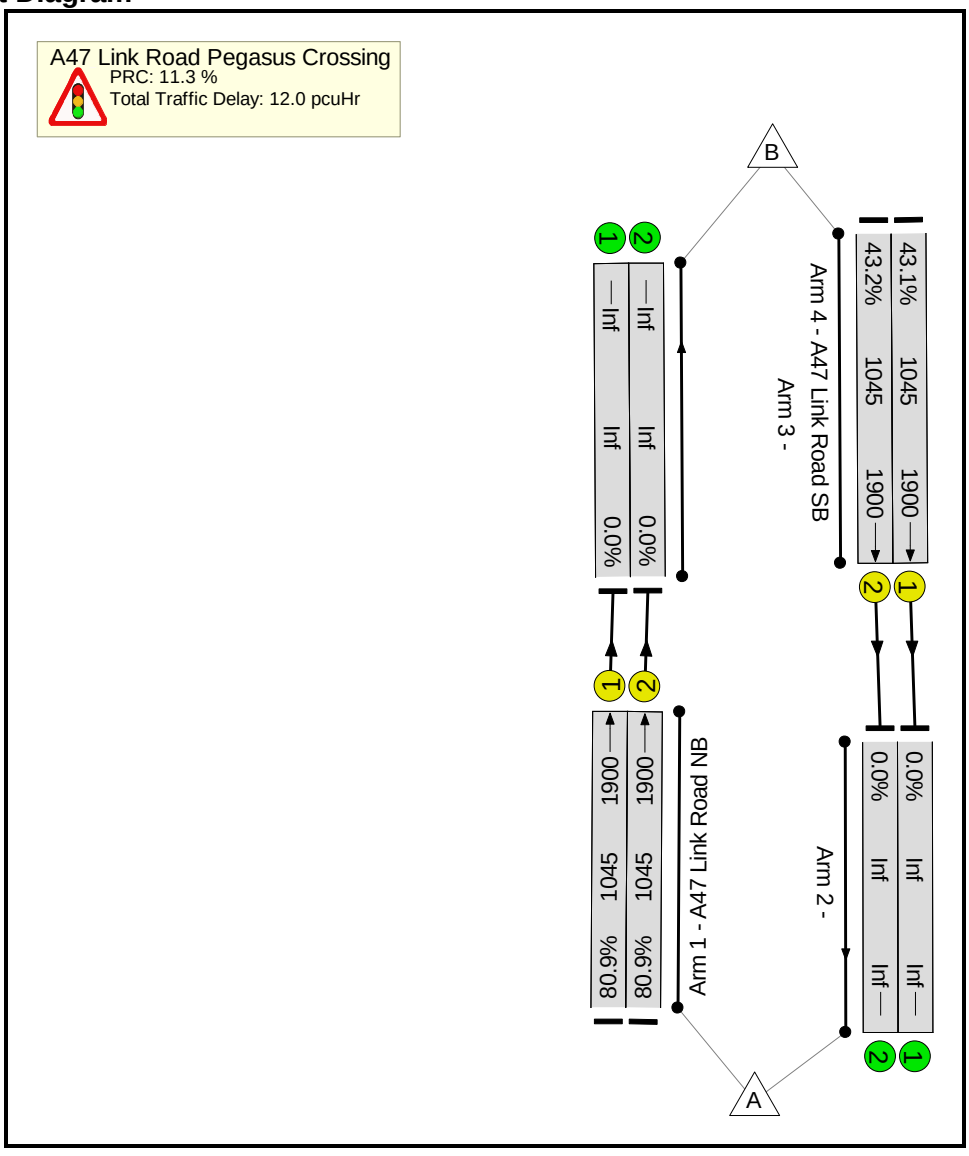
Basic Results Summary

User and Project Details

Project:	**HNRFI**
Title:	**A47 Link Road Pegasus Crossing**
Location:	
Client:	Tritax Symmetry (Hinckley) Limited
Additional detail:	
File name:	230928_A47_Link_Road_Pelican_Crossing.lsg3x
Author:	Vibeeshan Devaharan
Company:	BWB Consulting Ltd
Address:	

Scenario 1: '2036 AM Peak' (FG1: '2036 AM Peak', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: A47 Link Road Pegasus Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.9%**	**0**	**0**	**0**	**12.0**	**-**	**-**
A47 Link Road Pegasus Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.9%**	**0**	**0**	**0**	**12.0**	**-**	**-**
1/1	A47 Link Road NB Ahead	U	A		1	32	-	845	1900	1045	80.9%	-	-	-	4.6	19.8	13.3
1/2	A47 Link Road NB Ahead	U	A		1	32	-	845	1900	1045	80.9%	-	-	-	4.6	19.8	13.3
4/1	A47 Link Road SB Ahead	U	B		1	32	-	450	1900	1045	43.1%	-	-	-	1.4	11.0	4.8
4/2	A47 Link Road SB Ahead	U	B		1	32	-	451	1900	1045	43.2%	-	-	-	1.4	11.0	4.8

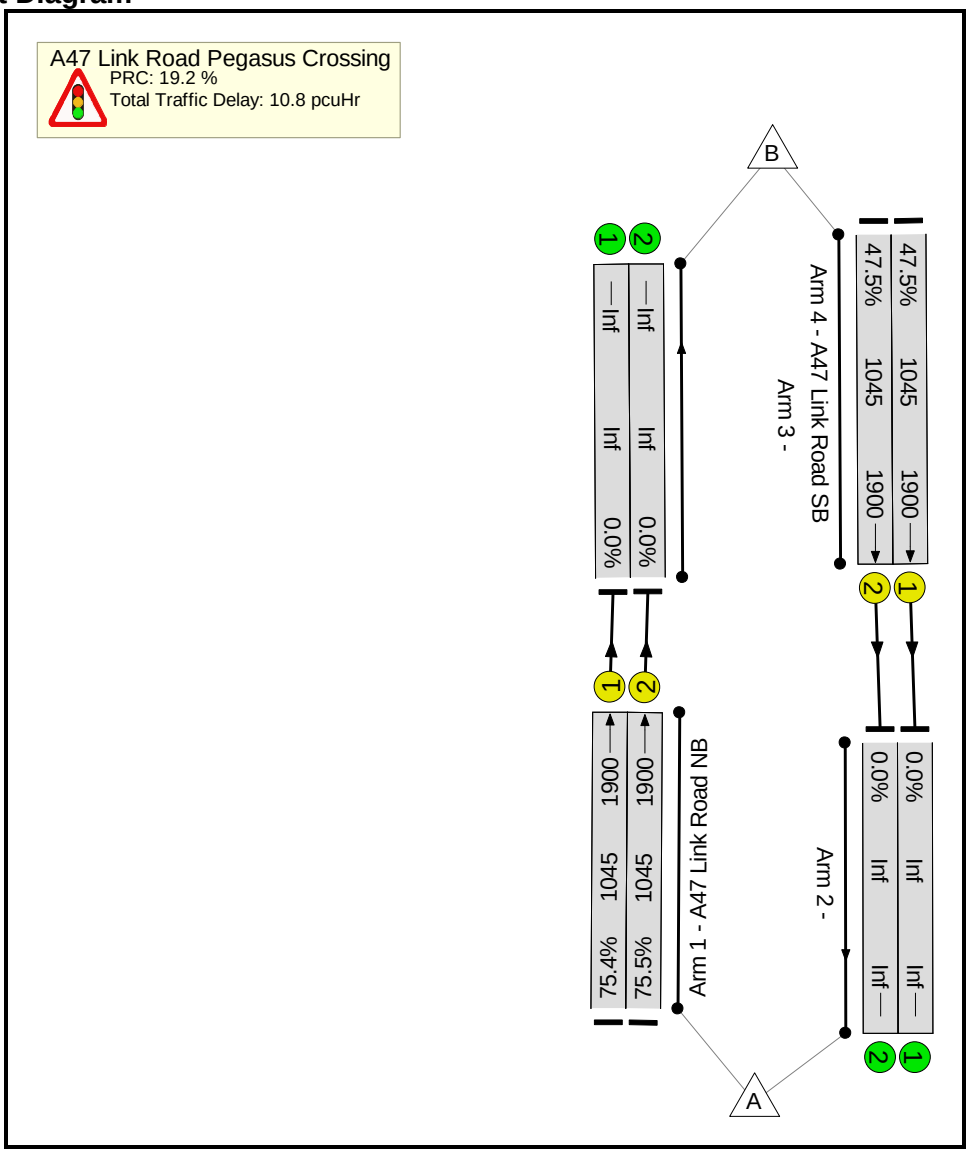
C1 PRC for Signalled Lanes (%): 11.3 Total Delay for Signalled Lanes (pcuHr): 12.03 Cycle Time (s): 60

PRC Over All Lanes (%): 11.3 Total Delay Over All Lanes(pcuHr): 12.03

Basic Results Summary

Scenario 2: '2036 PM Peak' (FG2: '2036 PM Peak', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: A47 Link Road Pegasus Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.5%**	**0**	**0**	**0**	**10.8**	**-**	**-**
A47 Link Road Pegasus Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.5%**	**0**	**0**	**0**	**10.8**	**-**	**-**
1/1	A47 Link Road NB Ahead	U	A		1	32	-	788	1900	1045	75.4%	-	-	-	3.8	17.3	11.6
1/2	A47 Link Road NB Ahead	U	A		1	32	-	789	1900	1045	75.5%	-	-	-	3.8	17.3	11.6
4/1	A47 Link Road SB Ahead	U	B		1	32	-	496	1900	1045	47.5%	-	-	-	1.6	11.5	5.4
4/2	A47 Link Road SB Ahead	U	B		1	32	-	496	1900	1045	47.5%	-	-	-	1.6	11.5	5.4

C1 PRC for Signalled Lanes (%): 19.2 Total Delay for Signalled Lanes (pcuHr): 10.76 Cycle Time (s): 60

PRC Over All Lanes (%): 19.2 Total Delay Over All Lanes(pcuHr): 10.76

Appendix 4: Signalised Crossing LinSig Output

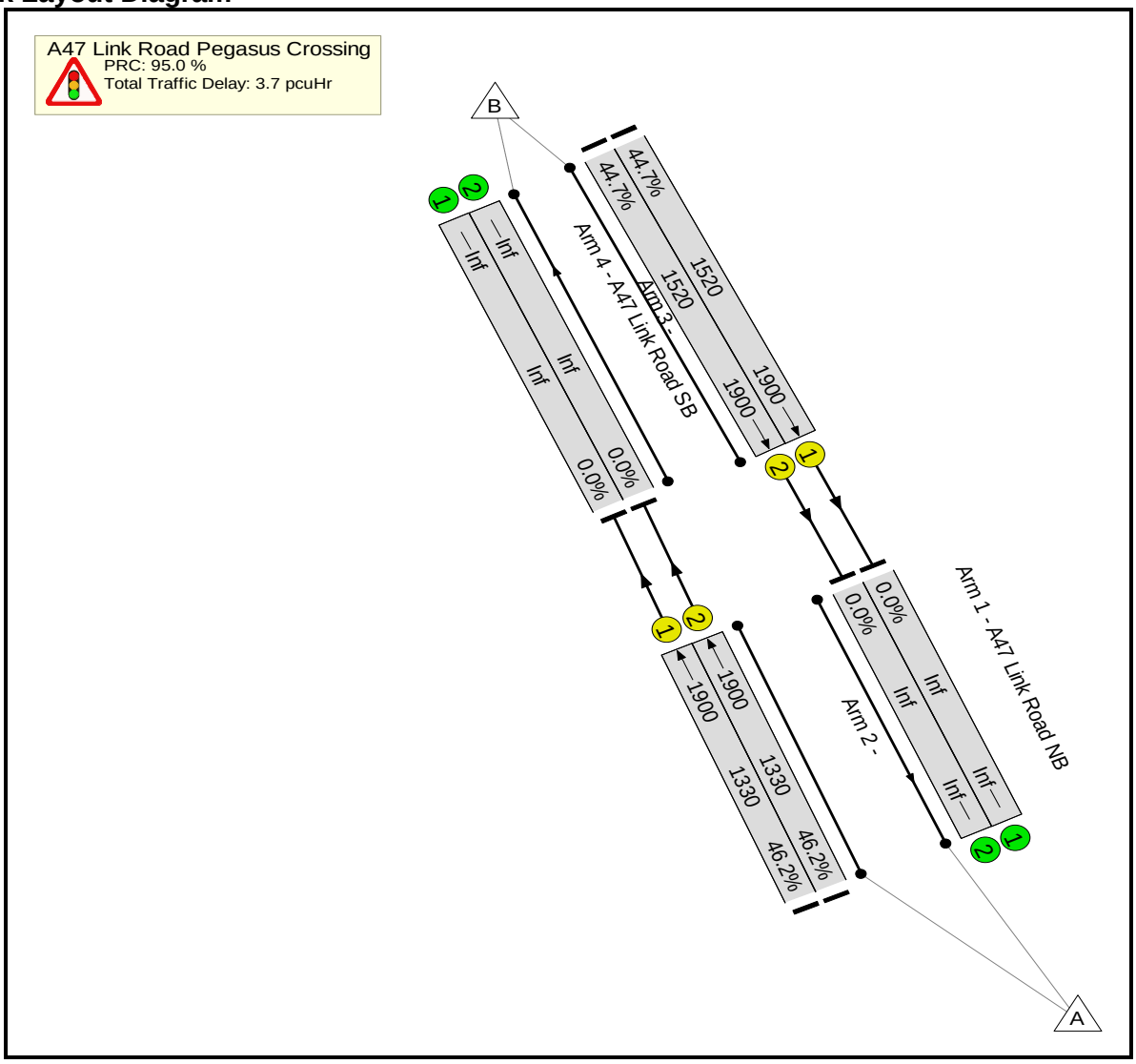
Basic Results Summary

User and Project Details

Project:	**HNRFI**
Title:	**A47 Link Road Signalised Crossing**
Location:	
Client:	Tritax Symmetry (Hinckley) Limited
Additional detail:	
File name:	230929_A47_Link_Road_Toucan_Crossing.lsg3x
Author:	Vibeeshan Devaharan
Company:	BWB Consulting Ltd
Address:	

Scenario 1: '2036 AM Peak' (FG1: '2036 AM Peak', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: A47 Link Road Toucan Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**46.2%**	**0**	**0**	**0**	**3.7**	**-**	**-**
A47 Link Road Pegasus Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**46.2%**	**0**	**0**	**0**	**3.7**	**-**	**-**
1/1	A47 Link Road NB Ahead	U	A		1	41	-	614	1900	1330	46.2%	-	-	-	1.1	6.5	4.9
1/2	A47 Link Road NB Ahead	U	A		1	41	-	614	1900	1330	46.2%	-	-	-	1.1	6.5	4.9
4/1	A47 Link Road SB Ahead	U	B		1	47	-	680	1900	1520	44.7%	-	-	-	0.8	4.0	3.8
4/2	A47 Link Road SB Ahead	U	B		1	47	-	680	1900	1520	44.7%	-	-	-	0.8	4.0	3.8

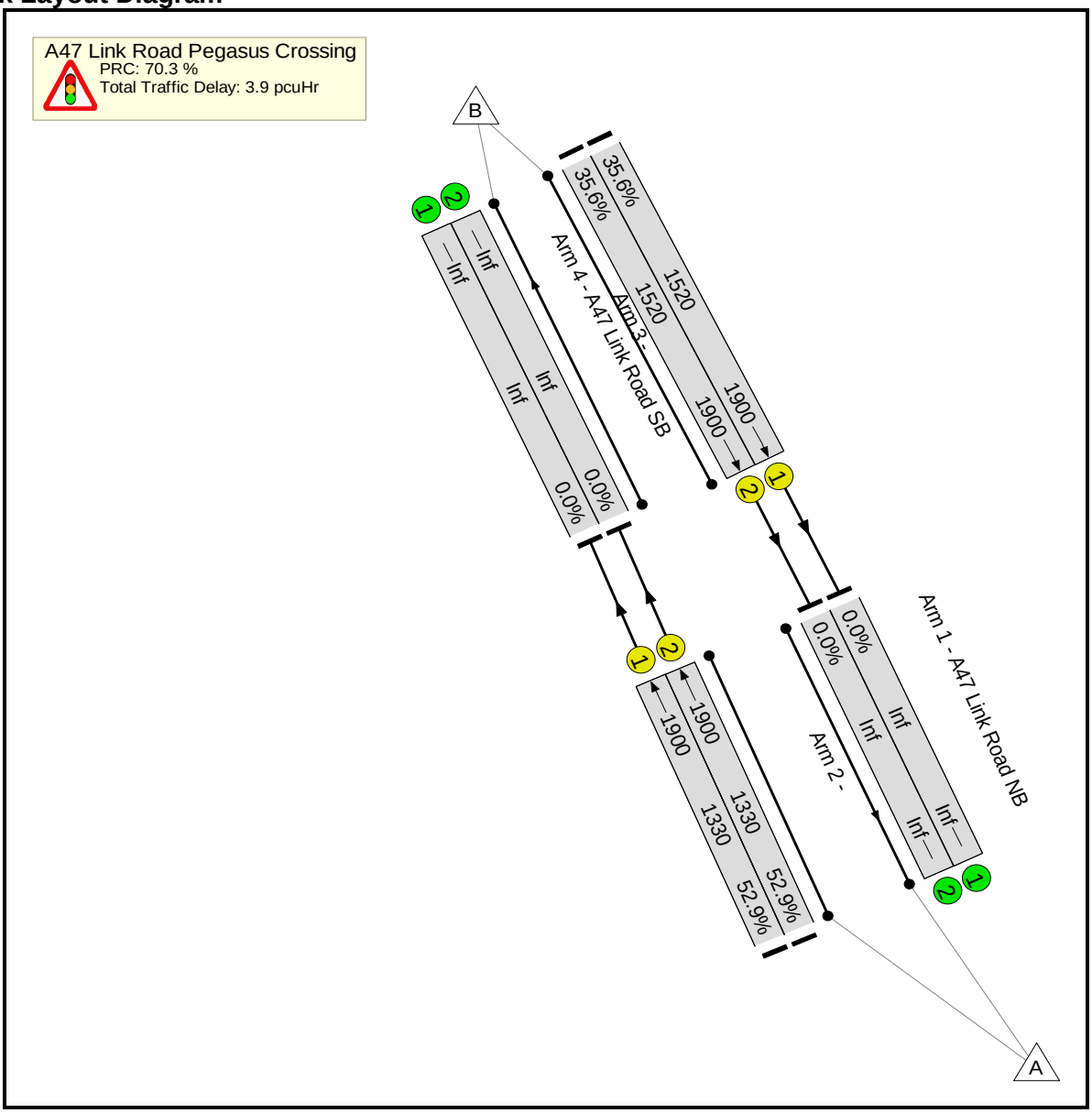
C1 PRC for Signalled Lanes (%): 95.0 Total Delay for Signalled Lanes (pcuHr): 3.73 Cycle Time (s): 60

PRC Over All Lanes (%): 95.0 Total Delay Over All Lanes(pcuHr): 3.73

Basic Results Summary

Scenario 2: '2036 PM Peak' (FG2: '2036 PM Peak', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: A47 Link Road Toucan Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**52.9%**	**0**	**0**	**0**	**3.9**	**-**	**-**
A47 Link Road Pegasus Crossing	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**52.9%**	**0**	**0**	**0**	**3.9**	**-**	**-**
1/1	A47 Link Road NB Ahead	U	A		1	41	-	703	1900	1330	52.9%	-	-	-	1.4	7.2	6.0
1/2	A47 Link Road NB Ahead	U	A		1	41	-	703	1900	1330	52.9%	-	-	-	1.4	7.2	6.0
4/1	A47 Link Road SB Ahead	U	B		1	47	-	541	1900	1520	35.6%	-	-	-	0.5	3.5	2.7
4/2	A47 Link Road SB Ahead	U	B		1	47	-	541	1900	1520	35.6%	-	-	-	0.5	3.5	2.7

C1

PRC for Signalled Lanes (%): 70.3
PRC Over All Lanes (%): 70.3

Total Delay for Signalled Lanes (pcuHr): 3.85
Total Delay Over All Lanes(pcuHr): 3.85

Cycle Time (s): 60