ARMSTRONG STOKES & CLAYTON LIMITED
Civil & Structural Engineering Consultants

Planning Application
For Residential Development

Land at Crosshill
Codnor
Derbyshire

Technical Note 3
Response to DCC Highways Comments Dated 21/05/26

August 2026

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Introduction

Armstrong Stokes and Clayton (ASC) have been appointed to advise on the access and transport issues associated with an outline planning application for the development of 80 affordable dwellings on land to the west of the A6007 Crosshill in Codnor, Derbyshire.

The local highway authority, Derbyshire County Council (DCC) has reviewed a revised Transport Assessment (TA) that was submitted with the application in May 2026 and subsequently issued comments on 21/05/26. This Technical Note (TN) provides a full response to each issue raised, with the main DCC comments highlighted in italics and the ASC response shown below in bold type in each instance. The TN should be read in conjunction with the submitted Revised Transport Assessment (TA) dated May 2026, which is a revised and expanded version of the previously submitted transport reports.

Transport Assessment (TA)

The correct trip rates, development traffic flows, and development traffic assignments are now adopted in the TA. The development traffic flows confirm the need for capacity assessments at both the A6007/site access and A610/A6007 junctions. The development traffic flows used in the capacity assessments for those junctions are acceptable.

The acceptance of the development traffic flows and assignments is noted. The revised Transport Assessment includes capacity assessments at both the A6007/site access and A610/A6007 junctions.

Site Access

The applicant now shows the access into the site as having a 5.5m wide carriageway, with a 2m wide footway on its northern side and a 1.0m wide margin on its southern side. The margin has been widened from 0.6m as shown on previous versions of the site access scheme drawing.

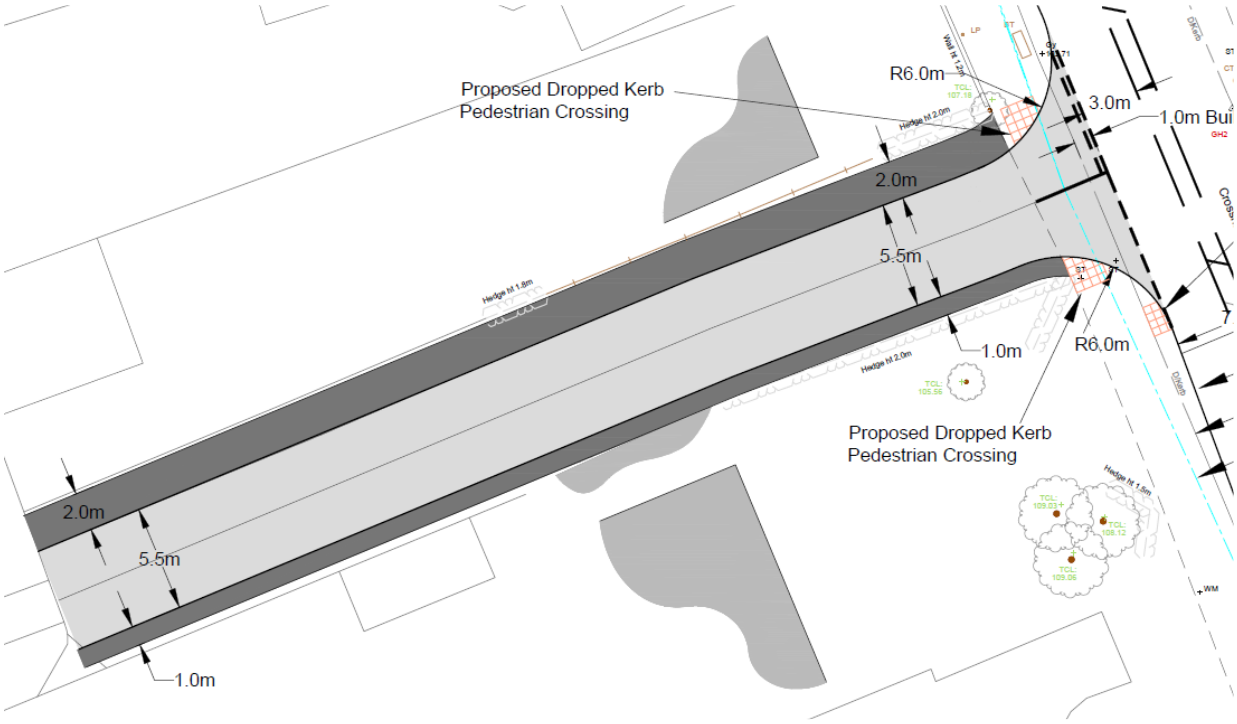
The base survey mapping used in producing the site access scheme (drawing number W153/100B/P in the TA) appears not to extend over the full length of the access track over which the initial length of the site access road is proposed.

The base mapping does not show the location of the dwelling at 17 Crosshill, nor the side extension to the north of that dwelling, as shown on the following Google Earth and Ordnance Survey extracts.





The following extract from drawing W153/100B/P shows part of the southern edge of the proposed 1m wide margin as being coincident with the centre line of the hedge which separates 17 Crosshill and the site access track. To the west of the hedge, the survey base mapping is lacking, and it is not clear where the southern edge of the 1m wide margin would be located relative to the adjacent boundary features.



It is not therefore clear, from a comparison of the above details, that there is sufficient width to accommodate the proposed site access road shown on drawing W153/100B/P, without affecting the extension to 17 Crosshill or without requiring removal of the hedgerow along the boundary between 17 Crosshill and the site access track.

The northern edge of the proposed footway along the northern side of the proposed site access road is close to the hedge which forms the boundary to 21 Crosshill. It is not therefore clear that the site access road shown on drawing W153/100B/P can be constructed without affecting the hedgerow along the boundary between 21 Crosshill and the site access track.

Further details are required to confirm the feasibility of implementing the proposed site access road without affecting third party interests.

The base survey mapping should be extended to include the whole of the site access track and its boundary features between Crosshill and the main body of the application site. Cross-sectional dimensions should be provided to confirm the available widths between the site access track boundaries. The applicant should confirm that the proposed site access road, with its 2m wide northern footway and 1m wide southern margin, can be constructed without adversely affecting adjacent third-party boundary features.

The applicant has obtained additional topographical survey information on the boundaries either side of the new access road. Having assessed the available land between adjacent property boundaries, two alternative access designs were submitted to DCC on the 17th July 26 for their comments. The first option illustrated on drawing W153/100C/P includes a 5.5m wide carriageway with a 2.0m footway to the north and a 0.75m margin to the south.

The second access option within drawing W153/100D/P, illustrates a carriageway junction width of 5.5m as required to accommodate satisfactory vehicle tracking, tapering to 5.0m as the access carriageway approaches the frontage of No. 17 Crosshill, circa 22.0m along the development highway. The 5.0m width is then maintained for the remaining length of the access. A 1.0m wide margin is included on the southern side of the carriageway with a 2.0m footway to the north. The 5.0m carriageway and footway / service margin provision accords with para. 5.7. – Pedestrian Prioritised Streets of PSP, and 5.7.1 with regards to the street's hierarchy for the number of plots proposed for this development. This street promotes carriageway varying widths of 4.1m - 6.2m.

DCC advised within their email correspondence of 29th July 2026 that they preferred a highway compliant with para. 5.7 - Pedestrian Prioritised Streets of PSP and thus access drawing W153/100D/P is to be promoted. A copy is appended to this TN.

A610/A6007 Junction

The A610/A6007 junction operates at or over capacity in peak periods. Any additional traffic may therefore give rise to a disproportionate impact on conditions at that junction.

It is not possible for the highway authority to comment on the results of the capacity assessment work for the A610/A6007 junction because the LINSIG capacity assessment model used to assess development-related traffic impacts at that junction has not been set up correctly.

The LINSIG model used in the TA overestimates capacity and does not properly represent baseline conditions. It cannot be used to determine the impacts arising from the proposed development at the A610/A6007 junction.

The junction model must be set up correctly to provide a proper assessment of development traffic impacts.

The following issues, some of which were referred to in the highway authority's 29/12/25 observations, must be addressed to ensure that the LINSIG modelling for the A610/A6007 junction is accurate:

1. Approach lanes should not all be coded as independent lanes as they do not act as such. Approaches should be set up with a main lane with a short lane of appropriate length attached.
2. The correct lane lengths should be used to represent the short lanes.
3. Right turn indicative arrow and left turn filter facilities should be coded correctly.
4. Prohibited stage moves should be coded correctly.
5. The stage order is primarily 1 – 2 – 4. Stages 3 and 4 are interchangeable but stage 4 will run during the peaks. Stage 2 is also demand dependent but is likely to run in all cycles during the peaks. Stage 5 is demand dependent and runs infrequently so can be omitted from the model.
6. The phase letters for each movement have changed and LINSIG should reflect those changes.
The A610/A6007 junction has recently been refurbished and the signal controller specification used in the applicant's junction modelling is now out of date. Updated details, together with a copy of the latest signal layout plan, to enable accurate measurements of lane lengths on the signal approaches to be determined, will be issued to the applicant's highway consultant under separate cover.

Revised traffic signal capacity assessments are required to allow the traffic impacts arising from the proposed development to be accurately determined. Such calculations should be provided in a technical note.

As requested, revised signal capacity (Linsig) assessments have been undertaken for the A610/A6007 junction using the signal timing, phasing, staging, intergreens and approach lane layout data supplied by DCC. As recommended by the 21/05/26 DCC comments the following has been incorporated within the modelling:

- **Each approach arm coded as single long lane with a short lane attached and revised lane lengths calculated.**
- **Right turn indicative arrow and left turn filter facilities coded correctly. Both have now been input as short lanes with their own separate phases as these are separately signalled on the Market Place and Heanor Road approach arms.**
- **Prohibited stage moves coded as per the latest signal timings data supplied by DCC.**
- **A 1 – 2 – 4 stage order adopted.**
- **Phase lettering reflecting the latest phasing data supplied by DCC.**

The revised Linsig assessments have been undertaken for weekday AM and PM peak hours during a 2032 assessment year for the baseline traffic scenario and with the addition of development traffic. The traffic flows input to the modelling are those outlined within the May 2026 Revised TA which have been accepted by DCC as outlined above.

The full Linsig output can be seen at Appendix A of this TN. The summary results for the baseline traffic situation in 2032 are shown within Table TN01. Table TN02, taken from the Revised TA illustrates the average maximum queues in vehicles recorded at each arm of the junction during each peak hour by surveys undertaken in October 2025. The recorded average maximum queues are shown in the same format as those calculated by the Linsig program i.e. the average

maximum queue at the end of the red period on each junction approach over each one hour modelling period. It should also be noted that for the Linsig output, coding the junction approaches as a single long lane with a short lane attached results in the vehicle queues being shown for each approach arm as a whole rather than within each lane.

Table TN01: Year 2032, A6007 / A610 Junction, Linsig Assessment Without Development

Arm	AM Peak Hour		PM Peak Hour	
	Mean Max Queue (PCU)	Degree of Saturation	Mean Max Queue (PCU)	Degree of Saturation
A610 Market Place	9.2	81.9%	7.2	74.8%
A610 Nottingham Road	14.8	80.6%	13.0	74.6%
A6007 Heanor Road	9.1	79.8%	10.2	73.6%
Junction PRC	9.9%		20.3%	

Table TN02: A6007 / A610 Signals, Recorded Average Maximum Queue Lengths (Veh)

Peak Hour	A610 Market Place	A610 Nottingham Road	A6007 Heanor Road
07.45 – 08.45	8	17	16
16.15 – 17.15	4	7	8

Within its 21/05/26 comments DCC has suggested that the A610/A6007 junction operates at or over capacity in peak periods based on a 'snapshot' view of the junction taken from google maps. The recorded average maximum vehicle queues at this junction shown within Table TN02 do not suggest any excessive vehicle queues or capacity issues. A comparison of the recorded vehicle queues with those modelled by Linsig for the baseline 'without development' traffic situation in 2032 illustrates that during the AM peak hour the queues are broadly similar for the A610 Market Place and Nottingham Road approaches with the Linsig model underestimating vehicle queues to a degree at the Heanor Road approach. During the PM peak hour the Linsig model overestimates queues on

each approach arm when compared with those recorded. Over both peak hours as a whole it is evident that the modelled vehicle queues are in excess of those recently recorded on site i.e. the Linsig model has underestimated rather than overestimated junction capacity before development traffic is considered. The model, using inputs recommended by DCC, is therefore a robust basis for assessing the potential impact of development traffic. The Linsig assessments demonstrate that A610 / A6007 junction is predicted to operate within capacity for the year 2032 baseline situation during the AM and PM peak hours with a reasonable degree of reserve capacity.

The Linsig summary results for the 'with development' traffic situation in 2032 are shown within Table TN03.

Table TN03: Year 2032, A6007 / A610 Junction, Linsig Assessment With Development

Arm	AM Peak Hour		PM Peak Hour	
	Mean Max Queue (PCU)	Degree of Saturation	Mean Max Queue (PCU)	Degree of Saturation
A610 Market Place	9.6	82.6%	7.7	77.1%
A610 Nottingham Road	15.5	83.0%	13.7	77.3%
A6007 Heanor Road	9.1	74.1%	10.6	75.4%
Junction PRC	8.5%		16.4%	

The Linsig results confirm that the addition of development traffic does not significantly affect the junction performance with negligible changes in vehicle queues and saturation values during the AM and PM peak hours when compared with the 2032 baseline traffic situation. The junction continues to operate with a reasonable degree of reserve capacity.

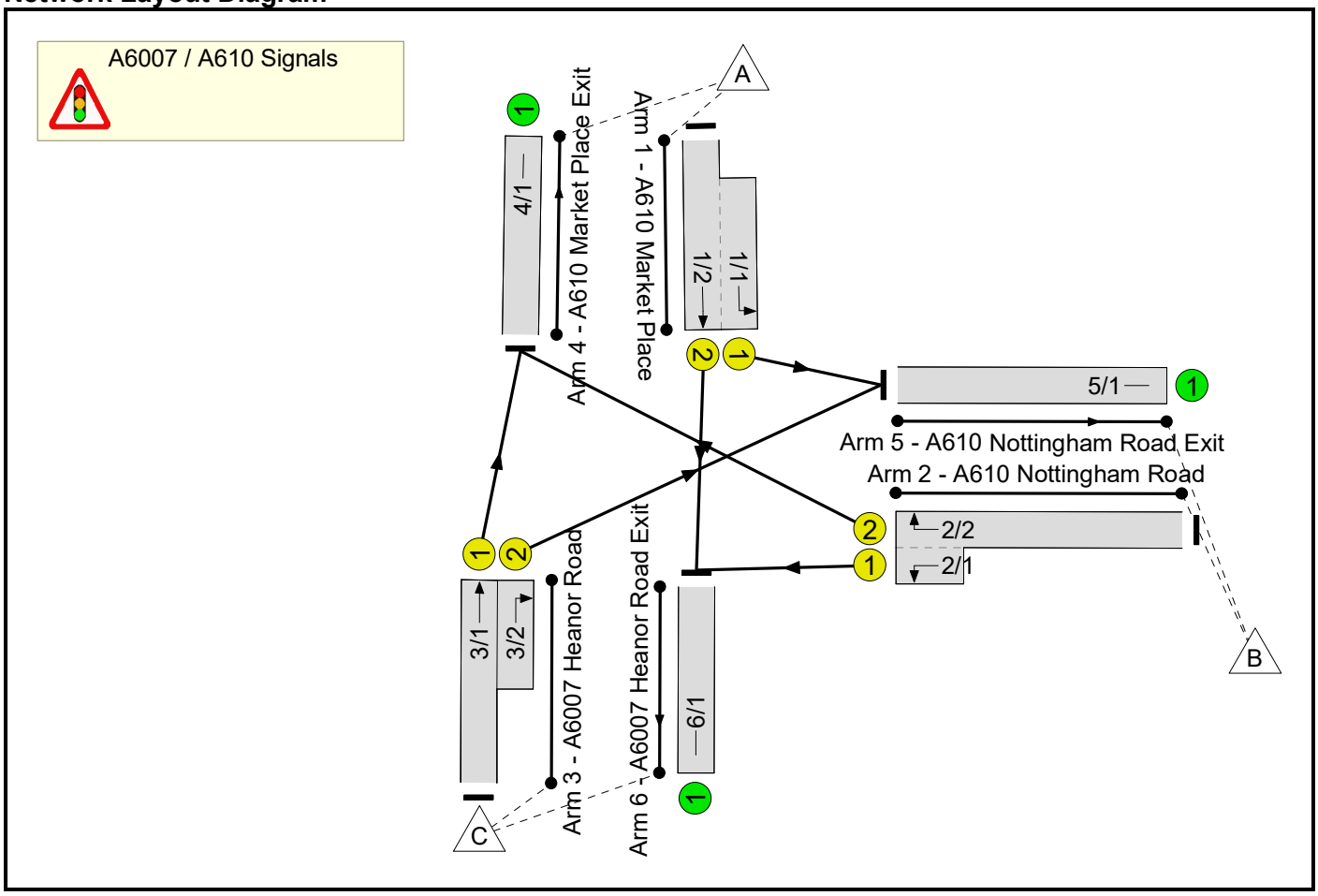
Appendix A
Linsig Output

A6007 / A610 Junction Model 2032 Rev B

User and Project Details

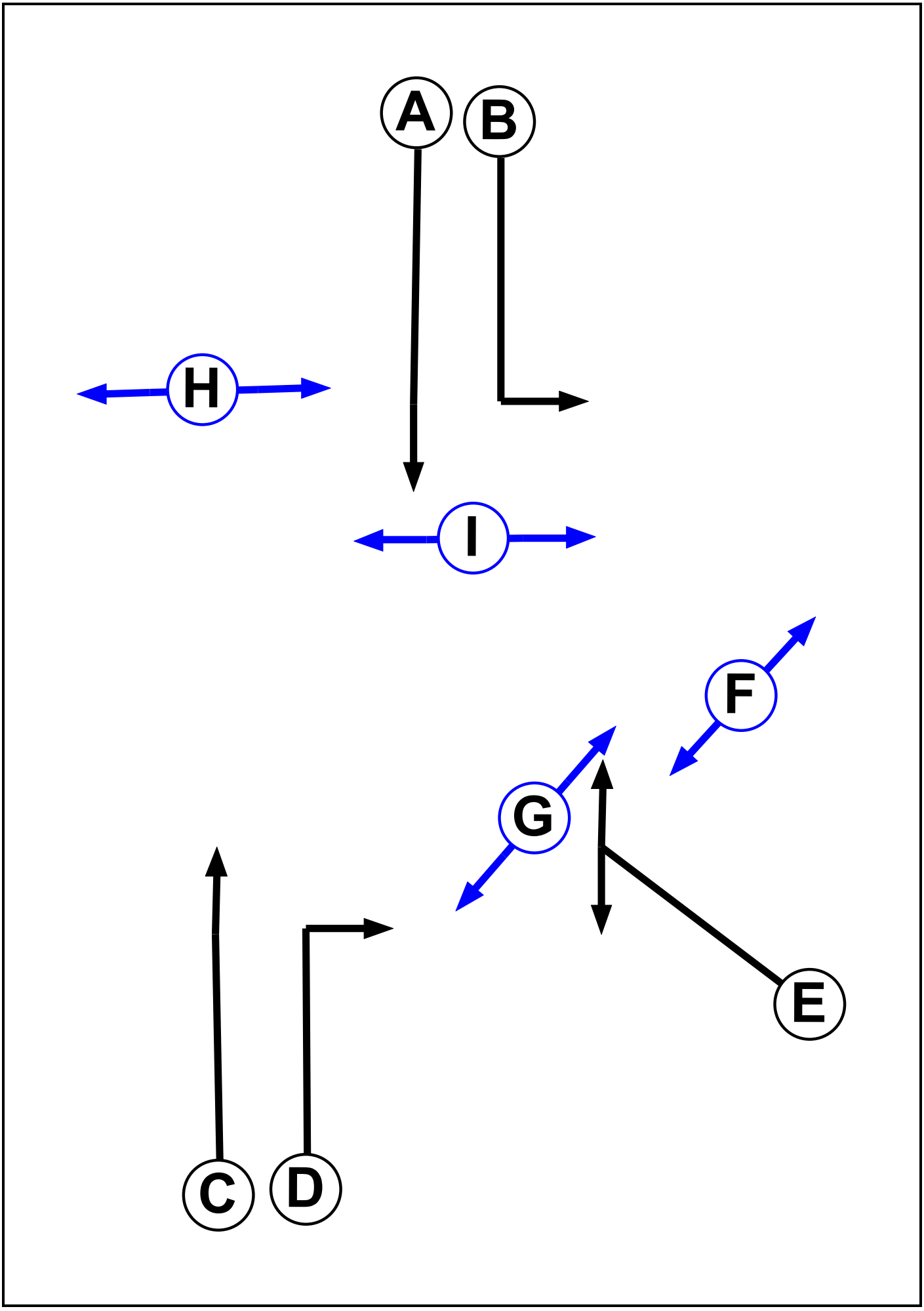
Project:	
Title:	
Location:	
Additional detail:	
File name:	A6007-A610 Junction Model Rev B.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



A6007 / A610 Junction Model 2032 Rev B

Phase Diagram


A
B
H
I
F
G
E
C
D

Phase Input Data

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

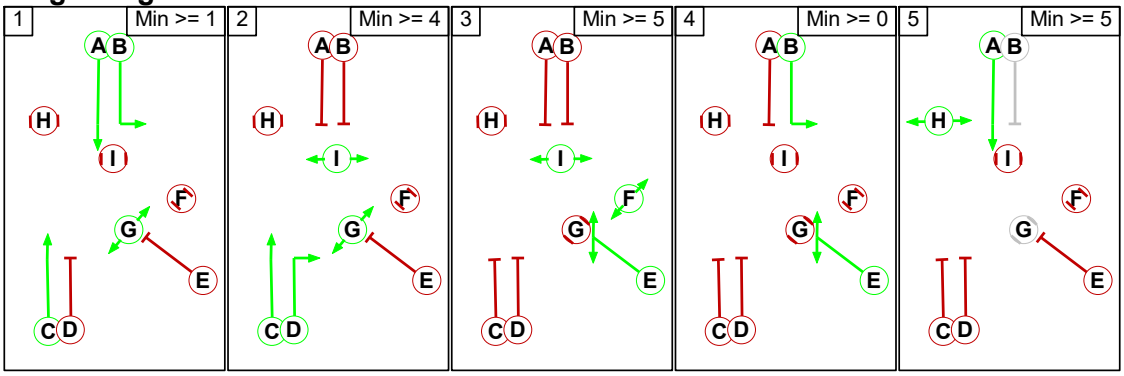
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

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

A6007 / A610 Junction Model 2032 Rev B

Give-Way Lane Input Data

Junction: A6007 / A610 Signals
There are no Opposed Lanes in this Junction

Lane Input Data

Junction: A6007 / A610 Signals												
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 (A610 Market Place)	U	B	2	3	7.0	Geom	-	3.00	0.00	Y	Arm 5 Left	50.00
1/2 (A610 Market Place)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Ahead	Inf
2/1 (A610 Nottingham Road)	U	E	2	3	2.8	Geom	-	3.00	0.00	Y	Arm 6 Left	14.00
2/2 (A610 Nottingham Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	N	Arm 4 Right	12.00
3/1 (A6007 Heanor Road)	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
3/2 (A6007 Heanor Road)	U	D	2	3	4.5	Geom	-	3.00	0.00	N	Arm 5 Right	15.00
4/1 (A610 Market Place Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A610 Nottingham Road Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (A6007 Heanor Road Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2032 AM Without Development'	07:45	08:45	01:00	
2: '2032 PM Without Development'	16:15	17:15	01:00	
3: '2032 AM With Development'	07:45	08:45	01:00	
4: '2032 PM With Development'	16:15	17:15	01:00	

Scenario 1: 'Scenario 1' (FG1: '2032 AM Without Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	593	358	951
	B	509	0	106	615
	C	401	116	0	517
	Tot.	910	709	464	2083

Traffic Lane Flows

Lane	Scenario 1: Scenario 1
Junction: A6007 / A610 Signals	
1/1 (short)	593
1/2 (with short)	951(In) 358(Out)
2/1 (short)	106
2/2 (with short)	615(In) 509(Out)
3/1 (with short)	517(In) 401(Out)
3/2 (short)	116
4/1	910
5/1	709
6/1	464

Lane Saturation Flows

Junction: A6007 / A610 Signals								
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 (A610 Market Place)	3.00	0.00	Y	Arm 5 Left	50.00	100.0 %	1859	1859
1/2 (A610 Market Place)	3.00	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1915	1915
2/1 (A610 Nottingham Road)	3.00	0.00	Y	Arm 6 Left	14.00	100.0 %	1730	1730
2/2 (A610 Nottingham Road)	3.00	0.00	N	Arm 4 Right	12.00	100.0 %	1827	1827
3/1 (A6007 Heanor Road)	3.00	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1915	1915
3/2 (A6007 Heanor Road)	3.00	0.00	N	Arm 5 Right	15.00	100.0 %	1868	1868
4/1 (A610 Market Place Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A610 Nottingham Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A6007 Heanor Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'New Scenario' (FG2: '2032 PM Without Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	521	274	795
	B	475	0	111	586
	C	441	156	0	597
	Tot.	916	677	385	1978

Traffic Lane Flows

Lane	Scenario 2: New Scenario
Junction: A6007 / A610 Signals	
1/1 (short)	521
1/2 (with short)	795(In) 274(Out)
2/1 (short)	111
2/2 (with short)	586(In) 475(Out)
3/1 (with short)	597(In) 441(Out)
3/2 (short)	156
4/1	916
5/1	677
6/1	385

Lane Saturation Flows

Junction: A6007 / A610 Signals								
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 (A610 Market Place)	3.00	0.00	Y	Arm 5 Left	50.00	100.0 %	1859	1859
1/2 (A610 Market Place)	3.00	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1915	1915
2/1 (A610 Nottingham Road)	3.00	0.00	Y	Arm 6 Left	14.00	100.0 %	1730	1730
2/2 (A610 Nottingham Road)	3.00	0.00	N	Arm 4 Right	12.00	100.0 %	1827	1827
3/1 (A6007 Heanor Road)	3.00	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1915	1915
3/2 (A6007 Heanor Road)	3.00	0.00	N	Arm 5 Right	15.00	100.0 %	1868	1868
4/1 (A610 Market Place Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A610 Nottingham Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A6007 Heanor Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'New Scenario' (FG3: '2032 AM With Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	593	362	955
	B	509	0	108	617
	C	424	123	0	547
	Tot.	933	716	470	2119

Traffic Lane Flows

Lane	Scenario 3: New Scenario
Junction: A6007 / A610 Signals	
1/1 (short)	593
1/2 (with short)	955(In) 362(Out)
2/1 (short)	108
2/2 (with short)	617(In) 509(Out)
3/1 (with short)	547(In) 424(Out)
3/2 (short)	123
4/1	933
5/1	716
6/1	470

Lane Saturation Flows

Junction: A6007 / A610 Signals								
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 (A610 Market Place)	3.00	0.00	Y	Arm 5 Left	50.00	100.0 %	1859	1859
1/2 (A610 Market Place)	3.00	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1915	1915
2/1 (A610 Nottingham Road)	3.00	0.00	Y	Arm 6 Left	14.00	100.0 %	1730	1730
2/2 (A610 Nottingham Road)	3.00	0.00	N	Arm 4 Right	12.00	100.0 %	1827	1827
3/1 (A6007 Heanor Road)	3.00	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1915	1915
3/2 (A6007 Heanor Road)	3.00	0.00	N	Arm 5 Right	15.00	100.0 %	1868	1868
4/1 (A610 Market Place Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A610 Nottingham Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A6007 Heanor Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'New Scenario' (FG4: '2032 PM With Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	521	291	812
	B	475	0	118	593
	C	449	160	0	609
	Tot.	924	681	409	2014

Traffic Lane Flows

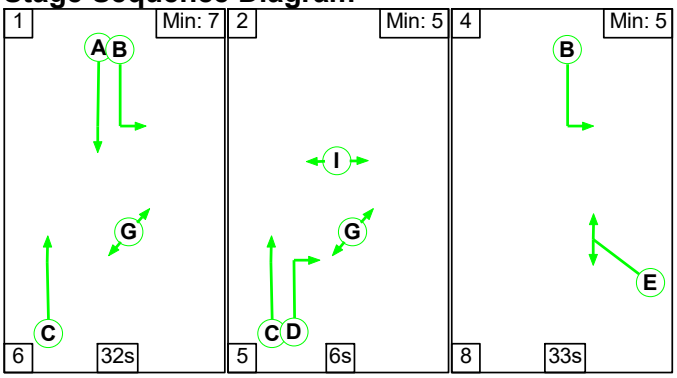
Lane	Scenario 4: New Scenario
Junction: A6007 / A610 Signals	
1/1 (short)	521
1/2 (with short)	812(In) 291(Out)
2/1 (short)	118
2/2 (with short)	593(In) 475(Out)
3/1 (with short)	609(In) 449(Out)
3/2 (short)	160
4/1	924
5/1	681
6/1	409

Lane Saturation Flows

Junction: A6007 / A610 Signals								
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 (A610 Market Place)	3.00	0.00	Y	Arm 5 Left	50.00	100.0 %	1859	1859
1/2 (A610 Market Place)	3.00	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1915	1915
2/1 (A610 Nottingham Road)	3.00	0.00	Y	Arm 6 Left	14.00	100.0 %	1730	1730
2/2 (A610 Nottingham Road)	3.00	0.00	N	Arm 4 Right	12.00	100.0 %	1827	1827
3/1 (A6007 Heanor Road)	3.00	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1915	1915
3/2 (A6007 Heanor Road)	3.00	0.00	N	Arm 5 Right	15.00	100.0 %	1868	1868
4/1 (A610 Market Place Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A610 Nottingham Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (A6007 Heanor Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'Scenario 1' (FG1: '2032 AM Without Development', Plan 1: 'Network Control Plan 1')

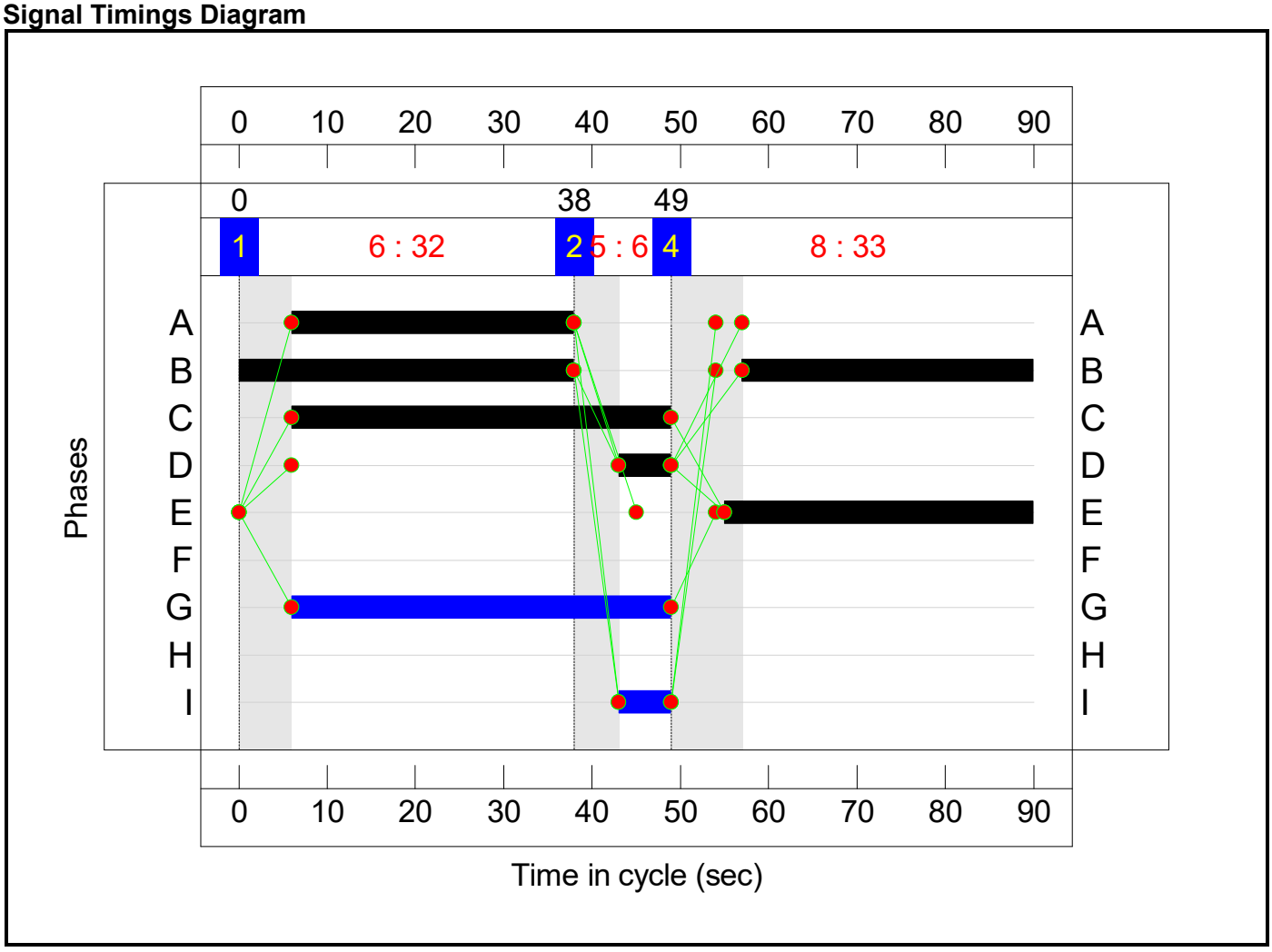
Stage Sequence Diagram



Stage Timings

Stage	1	2	4
Duration	32	6	33
Change Point	0	38	49

Signal Timings Diagram



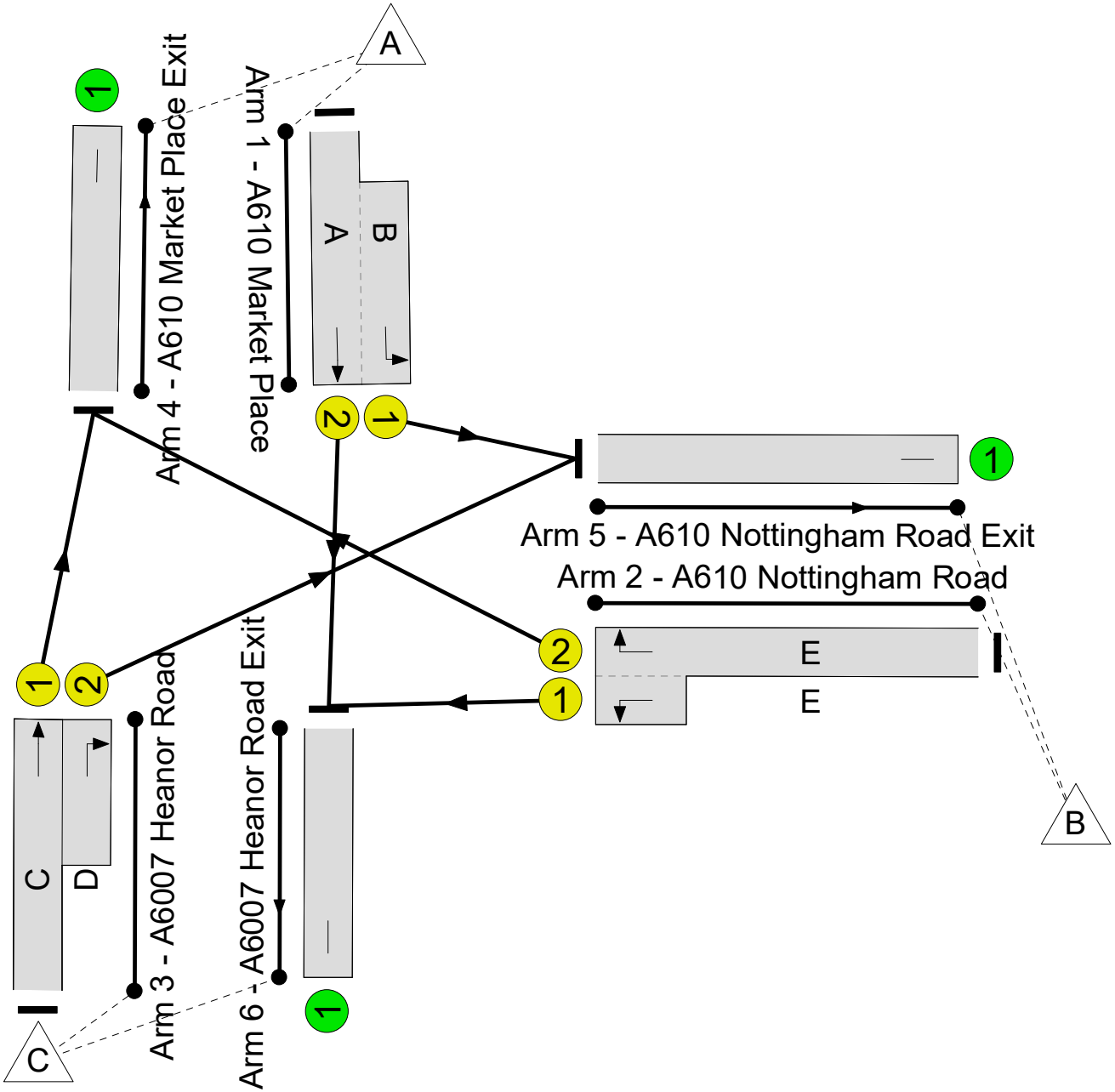
A6007 / A610 Junction Model 2032 Rev B

Network Layout Diagram

A6007 / A610 Signals

PRC: 9.9 %

Total Traffic Delay: 15.7 pcuHr



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.9%**
A6007 / A610 Signals	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.9%**
1/2+1/1	A610 Market Place Left Ahead	U	N/A	N/A	A B		1	32:71	-	951	1915:1859	437+724	81.9 : 81.9%
2/2+2/1	A610 Nottingham Road Right Left	U	N/A	N/A	E		1	35	-	615	1827:1730	632+132	80.6 : 80.6%
3/1+3/2	A6007 Heanor Road Ahead Right	U	N/A	N/A	C D		1	43:6	-	517	1915:1868	502+145	79.8 : 79.8%
4/1	A610 Market Place Exit	U	N/A	N/A	-		-	-	-	910	Inf	Inf	0.0%
5/1	A610 Nottingham Road Exit	U	N/A	N/A	-		-	-	-	709	Inf	Inf	0.0%
6/1	A6007 Heanor Road Exit	U	N/A	N/A	-		-	-	-	464	Inf	Inf	0.0%

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**	**9.6**	**6.2**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
A6007 / A610 Signals	**-**	**-**	**0**	**0**	**0**	**9.6**	**6.2**	**0.0**	**15.7**	**-**	**-**	**-**	**-**
1/2+1/1	951	951	-	-	-	2.6	2.2	-	4.9	18.4	7.0	2.2	9.2
2/2+2/1	615	615	-	-	-	3.9	2.0	-	6.0	34.9	12.7	2.0	14.8
3/1+3/2	517	517	-	-	-	3.0	1.9	-	4.9	34.2	7.2	1.9	9.1
4/1	910	910	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	709	709	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	464	464	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

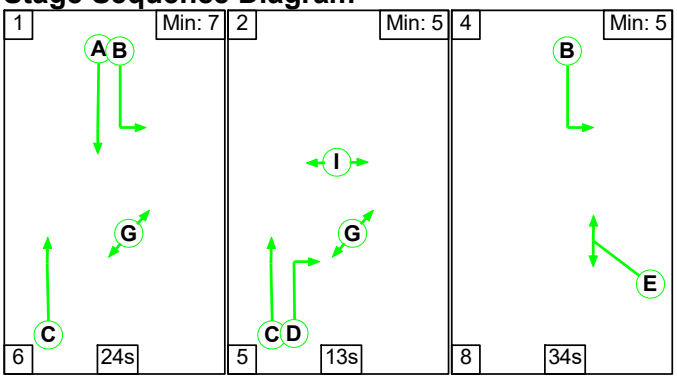
A6007 / A610 Junction Model 2032 Rev B

C1	PRC for Signalled Lanes (%):	9.9	Total Delay for Signalled Lanes (pcuHr):	15.72	Cycle Time (s):	90
	PRC Over All Lanes (%):	9.9	Total Delay Over All Lanes(pcuHr):	15.72		

A6007 / A610 Junction Model 2032 Rev B

Scenario 2: 'New Scenario' (FG2: '2032 PM Without Development', Plan 1: 'Network Control Plan 1')

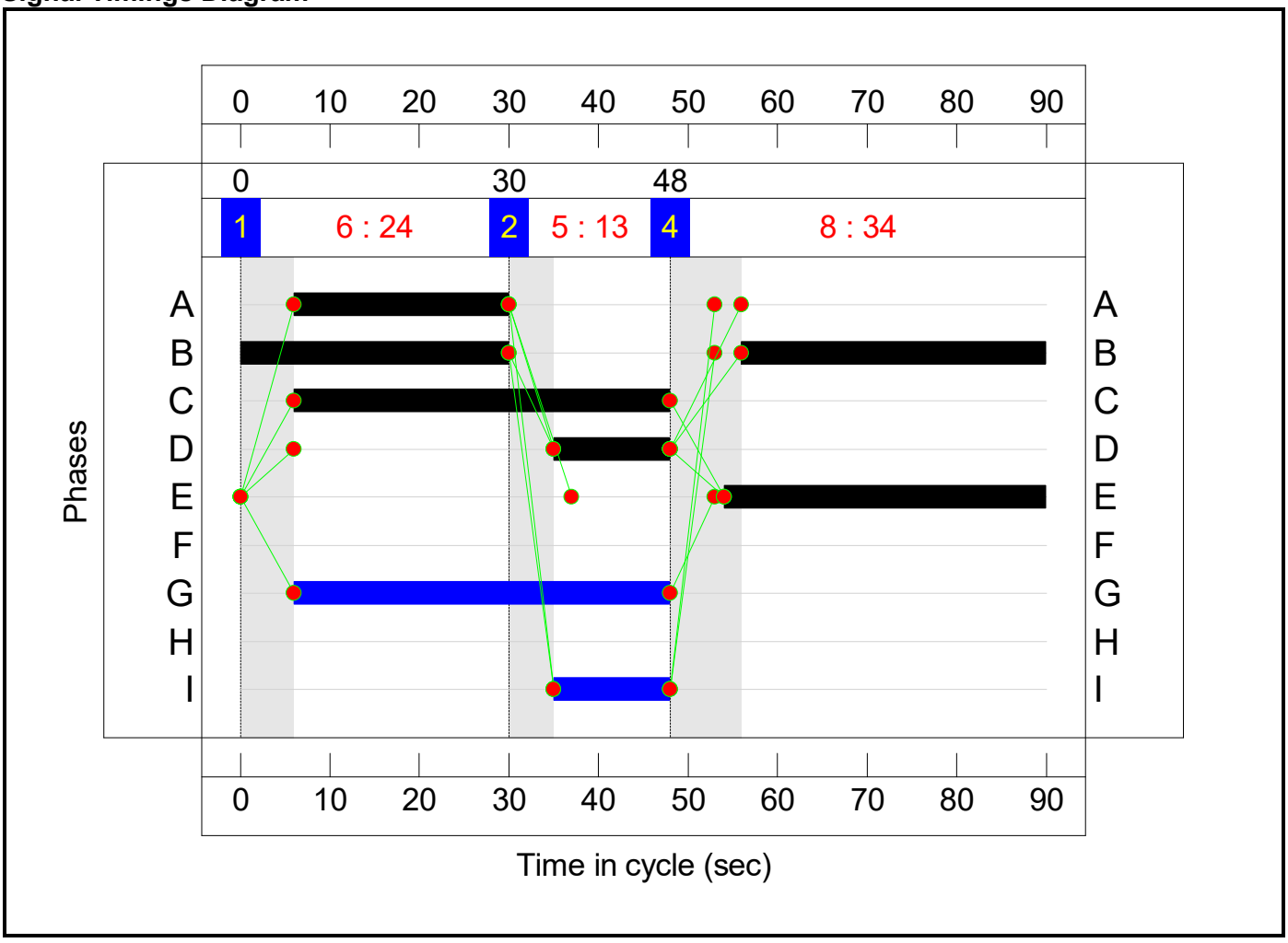
Stage Sequence Diagram



Stage Timings

Stage	1	2	4
Duration	24	13	34
Change Point	0	30	48

Signal Timings Diagram



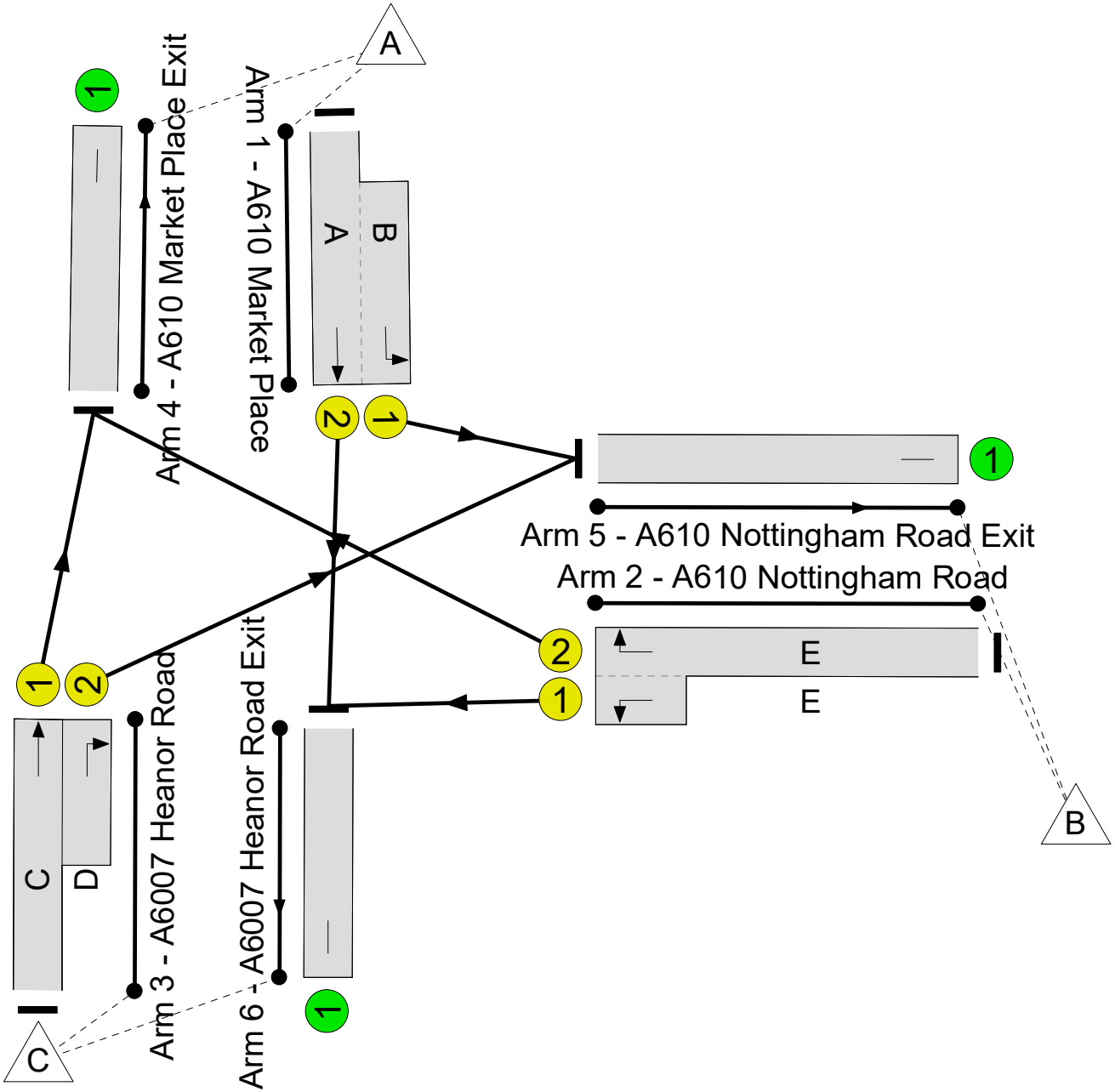
A6007 / A610 Junction Model 2032 Rev B

Network Layout Diagram

A6007 / A610 Signals

PRC: 20.3 %

Total Traffic Delay: 14.1 pcuHr



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.8%**
A6007 / A610 Signals	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.8%**
1/2+1/1	A610 Market Place Left Ahead	U	N/A	N/A	A B		1	24:64	-	795	1915:1859	366+697	74.8 : 74.8%
2/2+2/1	A610 Nottingham Road Right Left	U	N/A	N/A	E		1	36	-	586	1827:1730	637+149	74.6 : 74.6%
3/1+3/2	A6007 Heanor Road Ahead Right	U	N/A	N/A	C D		1	42:13	-	597	1915:1868	599+212	73.6 : 73.6%
4/1	A610 Market Place Exit	U	N/A	N/A	-		-	-	-	916	Inf	Inf	0.0%
5/1	A610 Nottingham Road Exit	U	N/A	N/A	-		-	-	-	677	Inf	Inf	0.0%
6/1	A6007 Heanor Road Exit	U	N/A	N/A	-		-	-	-	385	Inf	Inf	0.0%

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**	**9.8**	**4.3**	**0.0**	**14.1**	**-**	**-**	**-**	**-**
A6007 / A610 Signals	**-**	**-**	**0**	**0**	**0**	**9.8**	**4.3**	**0.0**	**14.1**	**-**	**-**	**-**	**-**
1/2+1/1	795	795	-	-	-	2.8	1.5	-	4.3	19.3	5.7	1.5	7.2
2/2+2/1	586	586	-	-	-	3.5	1.4	-	5.0	30.5	11.6	1.4	13.0
3/1+3/2	597	597	-	-	-	3.5	1.4	-	4.9	29.4	8.9	1.4	10.2
4/1	916	916	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	677	677	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	385	385	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

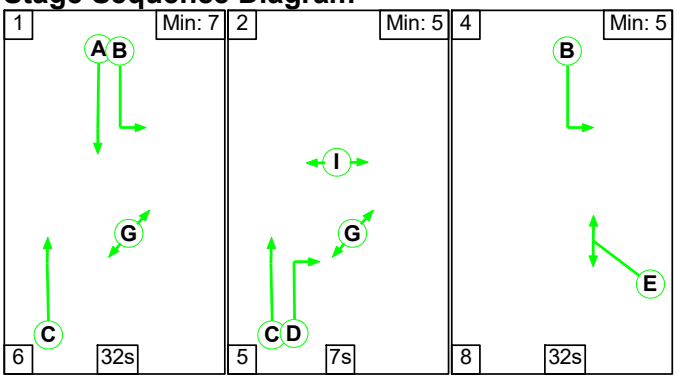
A6007 / A610 Junction Model 2032 Rev B

C1	PRC for Signalled Lanes (%):	20.3	Total Delay for Signalled Lanes (pcuHr):	14.09	Cycle Time (s):	90
	PRC Over All Lanes (%):	20.3	Total Delay Over All Lanes(pcuHr):	14.09		

A6007 / A610 Junction Model 2032 Rev B

Scenario 3: 'New Scenario' (FG3: '2032 AM With Development', Plan 1: 'Network Control Plan 1')

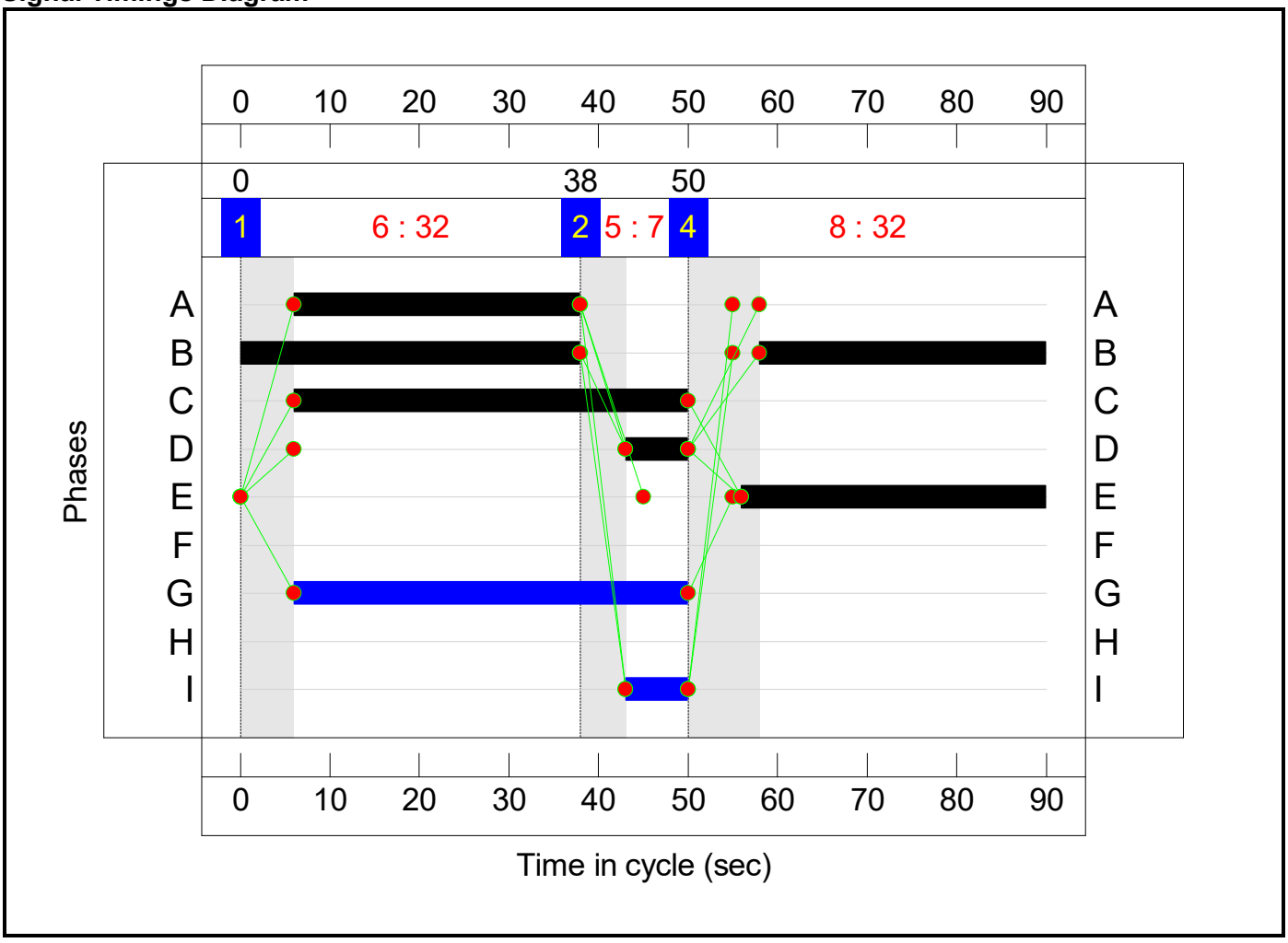
Stage Sequence Diagram



Stage Timings

Stage	1	2	4
Duration	32	7	32
Change Point	0	38	50

Signal Timings Diagram



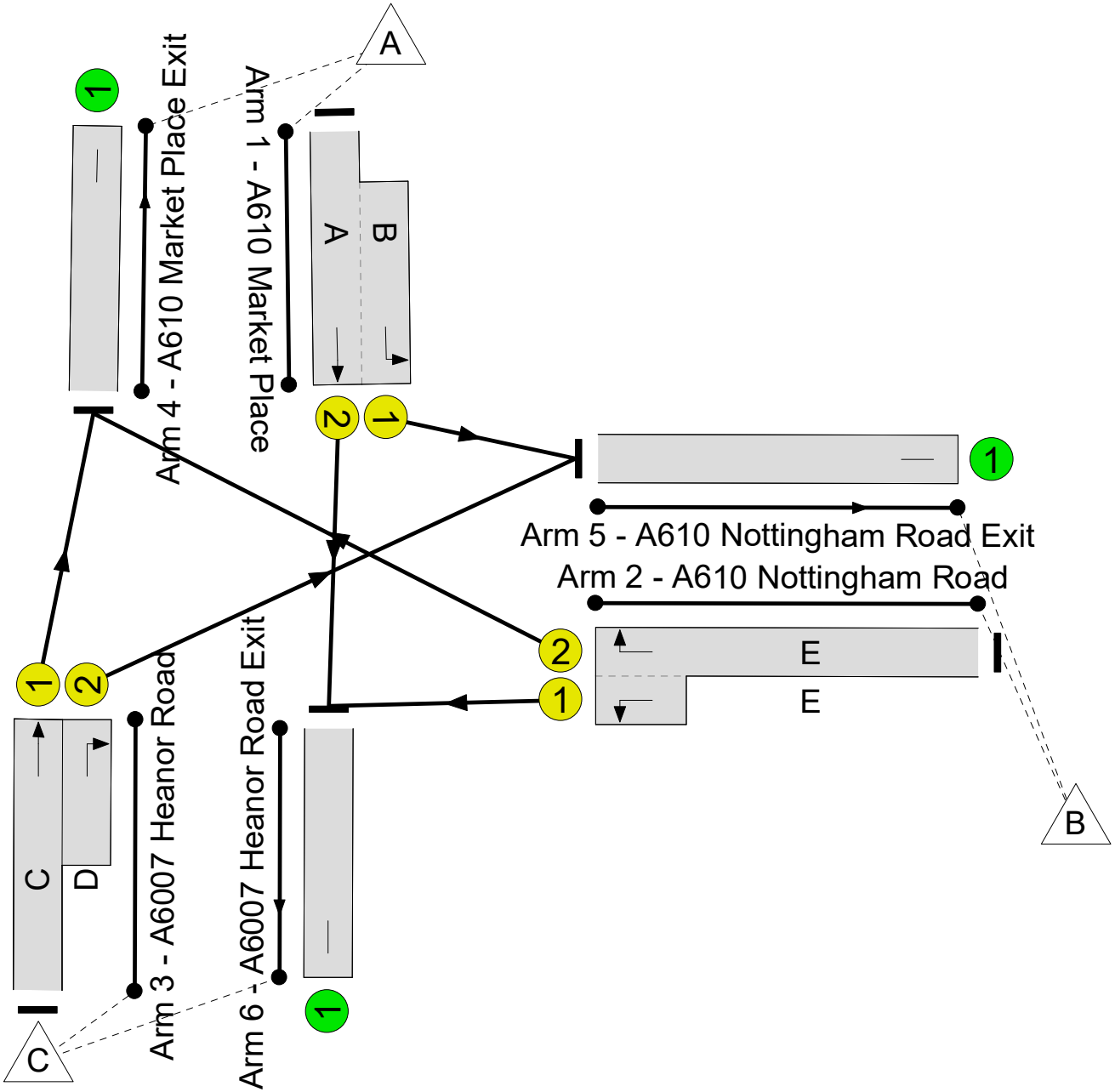
A6007 / A610 Junction Model 2032 Rev B

Network Layout Diagram

A6007 / A610 Signals

PRC: 8.5 %

Total Traffic Delay: 16.0 pcuHr



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
A6007 / A610 Signals	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
1/2+1/1	A610 Market Place Left Ahead	U	N/A	N/A	A B		1	32:70	-	955	1915:1859	438+718	82.6 : 82.6%
2/2+2/1	A610 Nottingham Road Right Left	U	N/A	N/A	E		1	34	-	617	1827:1730	613+130	83.0 : 83.0%
3/1+3/2	A6007 Heanor Road Ahead Right	U	N/A	N/A	C D		1	44:7	-	547	1915:1868	572+166	74.1 : 74.1%
4/1	A610 Market Place Exit	U	N/A	N/A	-		-	-	-	933	Inf	Inf	0.0%
5/1	A610 Nottingham Road Exit	U	N/A	N/A	-		-	-	-	716	Inf	Inf	0.0%
6/1	A6007 Heanor Road Exit	U	N/A	N/A	-		-	-	-	470	Inf	Inf	0.0%

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**	**9.9**	**6.1**	**0.0**	**16.0**	**-**	**-**	**-**	**-**
A6007 / A610 Signals	**-**	**-**	**0**	**0**	**0**	**9.9**	**6.1**	**0.0**	**16.0**	**-**	**-**	**-**	**-**
1/2+1/1	955	955	-	-	-	2.7	2.3	-	5.0	19.0	7.3	2.3	9.6
2/2+2/1	617	617	-	-	-	4.1	2.4	-	6.5	37.7	13.1	2.4	15.5
3/1+3/2	547	547	-	-	-	3.1	1.4	-	4.5	29.6	7.7	1.4	9.1
4/1	933	933	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	716	716	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	470	470	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

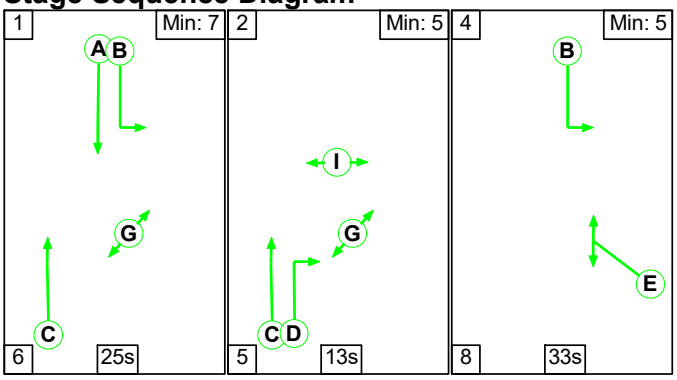
A6007 / A610 Junction Model 2032 Rev B

C1	PRC for Signalled Lanes (%):	8.5	Total Delay for Signalled Lanes (pcuHr):	15.99	Cycle Time (s):	90
	PRC Over All Lanes (%):	8.5	Total Delay Over All Lanes(pcuHr):	15.99		

A6007 / A610 Junction Model 2032 Rev B

Scenario 4: 'New Scenario' (FG4: '2032 PM With Development', Plan 1: 'Network Control Plan 1')

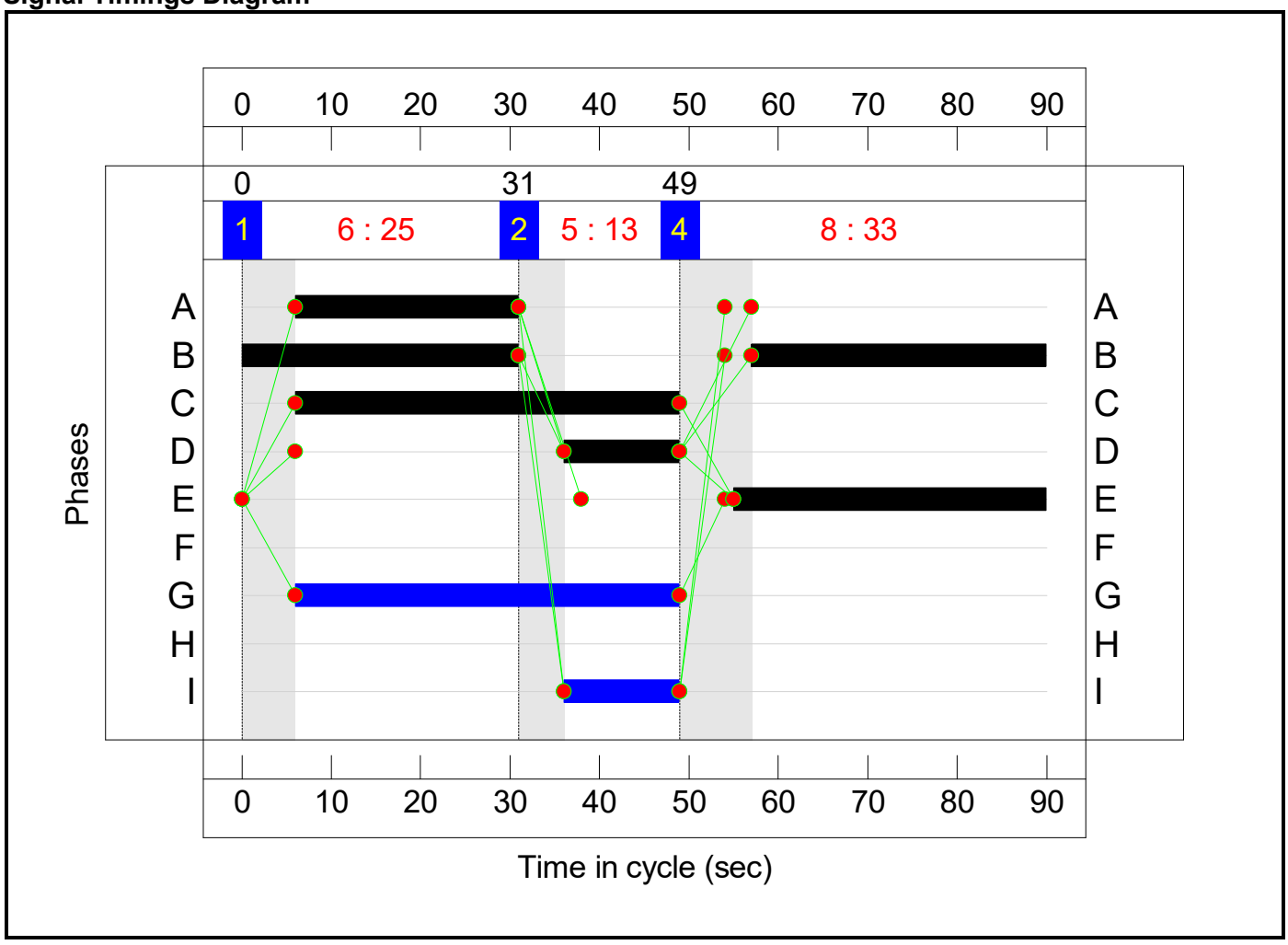
Stage Sequence Diagram



Stage Timings

Stage	1	2	4
Duration	25	13	33
Change Point	0	31	49

Signal Timings Diagram



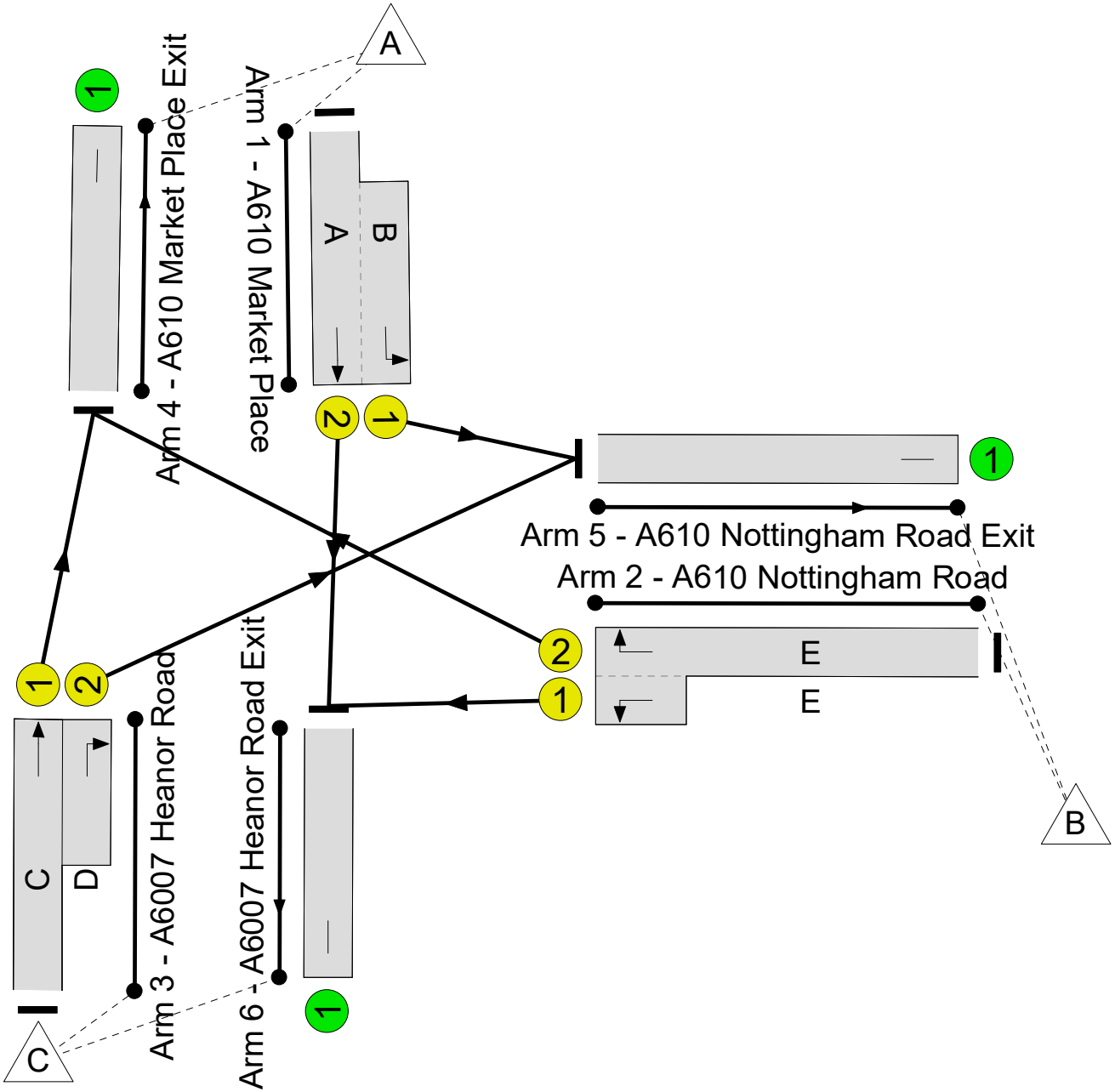
A6007 / A610 Junction Model 2032 Rev B

Network Layout Diagram

A6007 / A610 Signals

PRC: 16.4 %

Total Traffic Delay: 14.9 pcuHr



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.3%**
A6007 / A610 Signals	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.3%**
1/2+1/1	A610 Market Place Left Ahead	U	N/A	N/A	A B		1	25:64	-	812	1915:1859	377+675	77.1 : 77.1%
2/2+2/1	A610 Nottingham Road Right Left	U	N/A	N/A	E		1	35	-	593	1827:1730	614+153	77.3 : 77.3%
3/1+3/2	A6007 Heanor Road Ahead Right	U	N/A	N/A	C D		1	43:13	-	609	1915:1868	595+212	75.4 : 75.4%
4/1	A610 Market Place Exit	U	N/A	N/A	-		-	-	-	924	Inf	Inf	0.0%
5/1	A610 Nottingham Road Exit	U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%
6/1	A6007 Heanor Road Exit	U	N/A	N/A	-		-	-	-	409	Inf	Inf	0.0%

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**	**10.1**	**4.8**	**0.0**	**14.9**	**-**	**-**	**-**	**-**
A6007 / A610 Signals	**-**	**-**	**0**	**0**	**0**	**10.1**	**4.8**	**0.0**	**14.9**	**-**	**-**	**-**	**-**
1/2+1/1	812	812	-	-	-	2.9	1.7	-	4.5	20.1	6.1	1.7	7.7
2/2+2/1	593	593	-	-	-	3.7	1.7	-	5.4	32.6	12.0	1.7	13.7
3/1+3/2	609	609	-	-	-	3.5	1.5	-	5.0	29.7	9.1	1.5	10.6
4/1	924	924	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	409	409	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

A6007 / A610 Junction Model 2032 Rev B

C1	PRC for Signalled Lanes (%):	16.4	Total Delay for Signalled Lanes (pcuHr):	14.93	Cycle Time (s):	90
	PRC Over All Lanes (%):	16.4	Total Delay Over All Lanes(pcuHr):	14.93		

Appendix B

Access General Arrangement W153/100D/P

348480N
348460N
348440N
348420N
348400N
348380N
348360N

2.4m x 47.0m Visibility Splay to Tangent

2.4m x 47.0m Visibility Splay

Proposed Dropped Kerb
Pedestrian Crossing

R6.0m

3.0m

1.0m Buildout

2.0m

5.5m

5.0m

1.0m

Proposed Dropped Kerb
Pedestrian Crossing
(to be clear of existing driveways)

4.2m

Existing Kerb Line

2.4m x 47.0m Visibility Splay

Proposed Kerb Line

Proposed Dropped Kerb
Pedestrian Crossing

Dropped Kerb for Driveway
to No.17 Crosshill
(as existing length)

BUS STOP

Track

Crosshill Hou
Farm

Armstrong
Stokes &
Clayton Limited

N

NOTES

DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/VERIFIED ON SITE

D	Carriageway width reduced to 5.0m with 1.0m southern margin	July 26
C	Southern margin reduced to 0.75m width	July 26
B	Pedestrian crossing locations adjusted	Apr 26
A	Pedestrian crossings added	Nov 25

Armstrong Stokes & Clayton Limited

Civil & Structural Engineering Consultants

Regus House, Herald Way, Pegasus Business Park, Castle Donington, Derbyshire, DE74 2TZ

Tel: 01332 473 844

Client:

Wheeldon Brothers Ltd

Job Title:

Proposed Development at
Crosshill
Codnor
Derbyshire

Drawing Title:

Access General Arrangement - Option 1

Drawing number:

W153/100D/P

Drawn:	Date:	Scale:	
JS	Jun 25	1:250	A1

Preliminary	Detailed	Tender	As Built
■	□	□	□