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Appendices

Project:	Newgate Lane, Fareham
Client:	Pegasus Group
Subject:	FL&BH 3.2

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FL&BH 3.2

Appendices to the Proof of Evidence by Miss Martha Hoskins

In Respect of

Outline Planning Application for Land at Newgate Lane (North), Fareham

and

Outline Planning Application for Land at Newgate Lane (South), Fareham

On Behalf of Fareham Land LP and Bargate Homes Limited (appointed by Pegasus Group)

Appendix A

Base VISSIM Technical Note and Addendums

Technical Note

Project – VISSIM Modelling – Newgate Lane
Subject – Base / Future Base / Future Proposed Model Supporting Note

Prepared By – Asif Khan Date – 10th January 2020
Checked By – Arpit Shah Date – 14th January 2020
Approved By – Martha Hoskins Date – 30th January 2020

Contents

1. Introduction

Purpose/Scope

1.1. Red Wilson Associates (RWA) has been appointed by Pegasus Group to provide VISSIM modelling and design services in respect of Newgate Lane East with Newgate Lane in Hampshire.

1.2. The development of the land west of Newgate Lane includes 190 dwellings and will create additional traffic on the road network. This traffic is likely to use the junction of Newgate Lane East with Newgate Lane. Initial assessments of this junction and the proposal of signalising the junction have already been assessed however at the request of Hampshire County Council further assessments are being made.

1.3. The principal objective of Red Wilson Associates involvement in this scheme is to assess the impact of the development with the junction in its current form as a priority junction in VISSIM.

1.4. Hampshire County Council (HCC) do not have any specific modelling guidelines that relate to microsimulation modelling. Industry best practice was used to caveat and demonstrate validation of the modelling in the AM and PM peak periods against recently undertaken traffic turning counts and journey time data (November 2019). The final models developed are in accordance with the Design Manual for Roads and Bridges (DMRB) Modelling Guidelines and Transport for London Modelling Guidelines Version 3.

1.5. The VISSIM Modelling was undertaken in version 10.00-12 (static assignment) to develop base, future base and future proposed scenarios for the AM and PM 1-hour peak periods as part of the future development in the vicinity of Newgate Lane and Newgate Lane East B3385.

1.6. The existing base models were calibrated and validated in accordance with the available modelling guidelines for traffic turning counts and journey times. These models were considered fit for the purpose of being used as a base line for comparison vs. future base and future proposed modelling results.

1.7. The base modelled JYT difference vs. surveyed data was within the acceptable range/limit of under 60sec and/or 15% in both peaks.

1.8. The purpose of the VISSIM base models was to ensure that an accurate representation of the existing traffic network structure and network data have been applied. In addition, these VISSIM base models will form the basis for comparison against scheme proposals.

1.9. This technical note details the development and validation of the Base (2019), Future Base (2024) and Future Proposed (2024) VISSIM Modelling for AM and PM peak periods.

Study Area

1.10. The site is located near B3385 Newgate Lane East / Newgate Lane in Gosport and is shown in Figure 1.0. The study site is comprised of a major/minor priority road junction.

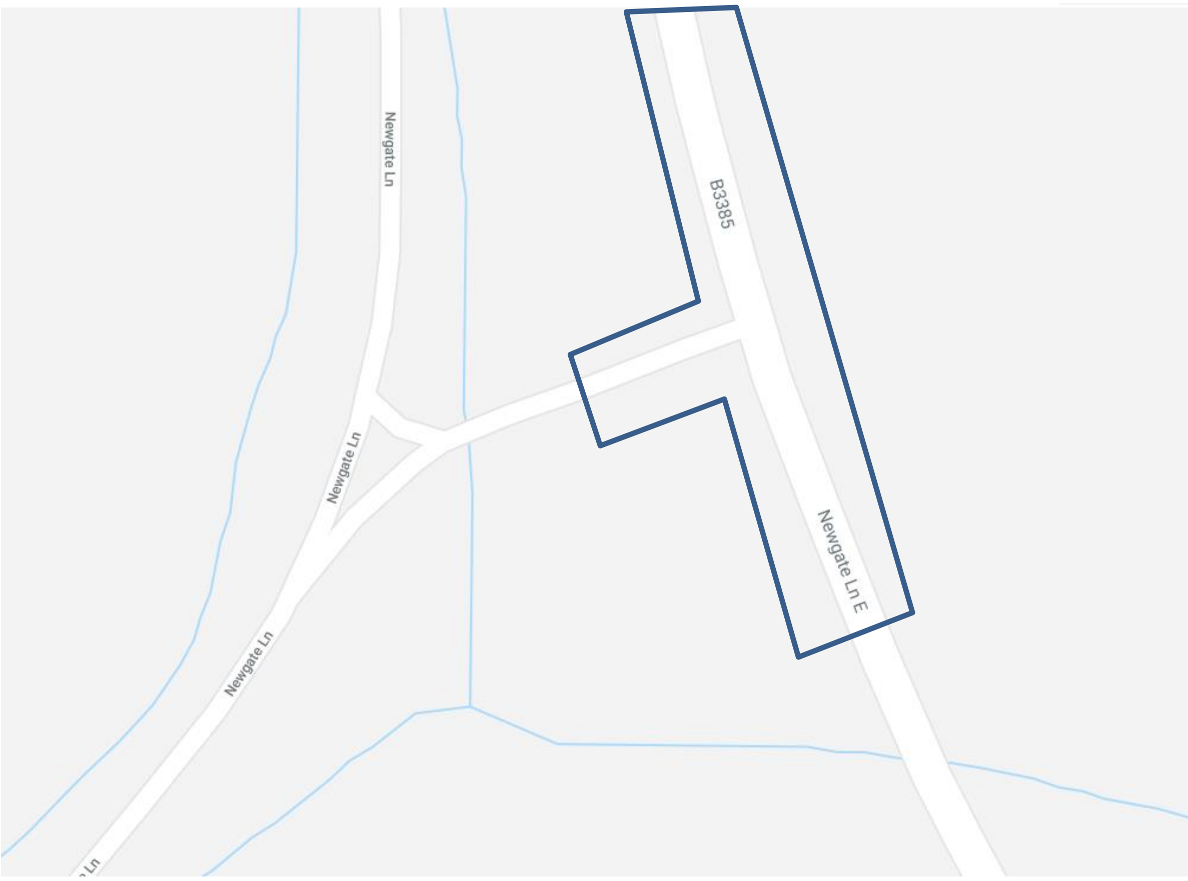


Figure 1.0 – B3385 Newgate Lane East / Newgate Lane (priority junction)

2. Traffic Data Collection

Traffic Flow Survey

2.1. Data collection was undertaken to obtain traffic survey data in the AM and PM peak periods. The main surveys were undertaken on Thursday 28th November 2019 for the site mentioned in Figure 1.0.

2.2. The 1 hour time period for the surveys provided for modelling were as follows:

- AM (Thursday) – 08:00 – 09:00,
- PM (Thursday) – 17:00 – 18:00.

2.3. The vehicle classification in the traffic survey data was as follows:

- Car
- Taxi
- LGV
- Motor Cycle
- Pedal Cycle
- OGV1
- OGV2
- Coaches/Buses.

General Traffic Journey Time Survey

2.4. In-Car journey time data was collected on the same day and for same time periods similar to the traffic survey data for sections shown in Figure 2.1.

2.5. There is a signalised junction and a signalised roundabout located on the north and south side of the study junction respectively. However, the north and southbound traffic has been modelled in free flowing conditions without including these signalised junctions. Hence, the AM & PM surveyed journey times was used as a reference to validate existing base VISSIM modelling journey times as per the modelling guidelines with a difference of 15% or ± 60sec modelled journey time data.

Figure 2.1 – JYT Sections

3. Calibrated Base Modelling

Model Development

3.1. The existing base VISSIM models were developed using the November 2019 traffic data and TfL's VISSIM template, which were then used as a point of reference to test future base and proposed modelling scenarios.

3.2. VISSIM version 10.00-12 was used to code the outlined network in Figure 1.0 to calibrate VISSIM models and validate junction turning counts and journey times (Figure 2.1).

3.3. These base VISSIM models were adjusted with minor tweaks for priority rules to bring them within the acceptable limit for traffic flow and journey time validation against the traffic surveys where applicable.

3.4. An internal audit was undertaken on completion of the model development prior to submission.

Simulation Parameters and Network Parameters

3.5. There were no changes made to the simulation and network parameters in the approved TfL's VISSIM template. The simulation period for the AM and PM peak models includes a 15 minute warm-up period at the start of the simulation and a 15 minute cool-down period at the end with a 1 hour peak period. These warm-up and cool-down periods were used to replicate the existing network conditions/congestion in the models prior to collecting the data for comparison against the surveyed data.

3.6. Details of the simulation periods are presented in Table 3.1.

Peak Period	Start-up	Peak Hour	Cool-down
AM Peak	07:45- 08:00	08:00 - 09:00	09:00 - 09:15
PM Peak	16:45 - 17:00	17:00 - 18:00	18:00 -18:15

Table 3.1 – VISSIM base model simulation periods

Vehicle Types and Classes

3.7. VISSIM uses individual vehicle types instead of Passenger Car Unit (PCU), which are grouped into vehicle classes. The surveyed 1-hour peak period flows were inputted into the model for each type and in 15min intervals. These vehicular types were then grouped into the following classes: -

- Lights = Car + LGV + TAXI,
- Heavies = OGV1 + OGV2,
- Buses.

Route Assignment

3.8. Local routing was used due to the simplicity of the modelled network to validate the traffic flows against the traffic surveyed data.

Public Transport

3.9. Bus route 21 was modelled as per the actual timetables, where bus dwell times were assumed as 20sec..20 seconds has been used in the absence of recorded dwell times as it is typically used as best practice for dwell times in London which is also a worst-case scenario.

3.10. Due to the limited number of buses in the model an amendment to the dwell time is unlikely to affect the modelling results.

<u>Priority Rules/Conflict Areas</u>

3.11. Priority rules at the Newgate Lane East / Newgate Lane were continuously adjusted in order to achieve traffic flow and journey time validation in the base models to reflect on-street behaviour.

3.12. At the far extents of the model on Newgate Lane are signalised junctions. To replicate the fact that vehicles entering the network have just left a signalised junction, Reduced Speed Areas have been used.

3.13. It is important to know that due to the location of the signals, traffic is more likely to arrive at the junction in waves due to the discharge from the junction. The continuous flow that has been modelled in all scenarios can be seen as worst case. In practice there would be gaps in flow, making it easier for vehicles to enter and exit the side road.

3.14. Reduced Speed Areas (RSA) between 20mph to 30mph was used on the start of Newgate Lane East link south and northbound. This is to replicate lower speeds during the signalised discharge rate to calibrate through puts in both directions.

3.15. Network desired speed distribution used was 40mph, which is the existing speed limit at the study area.

4. Validated Base Modelling

Base Model Validation

4.1. The VISSIM modelling results represent an average of 20 random seeds in the AM and PM peak periods.

4.2. Each seed in VISSIM represents different vehicular arrival times in the network, the stochastic variability of their driving behaviour and also selection of a certain distribution value e.g. speeds, dwell times etc. if applicable. None of the SEEDs replicate 'real life' better than another. It's more comparable to the daily changes of the traffic patterns at the same location. The VISSIM Base modelling parameters were reviewed and adjusted continuously to better fit the observed driving behaviour during the calibration and validation process where applicable.

4.3. New counts were conducted at the junction to ensure the journey times and count surveys were undertaken on the same day. In order to validate the model, journey times and traffic counts were undertaken on 28th November 2019.

Traffic Flow GEH Statistic

4.4. The GEH statistic is a standard way of comparing observed and modelled flows as defined in the DMRB Volume 12, Chapter 4. It is used to remove the bias that exists when comparing flows of different magnitudes using percentages. For example, a difference of 10 in a flow of 100 vehicles per hour (VPH) is less significant (GEH = 3.0) than a difference of 100 in a 1000 VPH flow (GEH = 11.5), even though they both show a percentage difference of 10%.

4.5. The GEH statistic is calculated as follows:

$$GEH = \sqrt{\frac{(M-C)^2}{0.5 \times (M+C)}}$$

Where:
GEH...................is the GEH statistic;
M.......................is the modelled flow; and
C.......................is the observed flow.

4.6. In summary, the following set of acceptable ranges and limits have been used to assess model validation based upon all turning movements within the study area:

- GEH value: ≤5.0 in at least 85% of cases (< 3 for all critical links);

4.7. The AM peak modelled traffic flow vs. surveyed data comparison shows that these models meet the validation criteria, where 100% of all the GEH values are less than 5 for all turning movements. Out of 6 turning counts, the highest GEH is 0.3 from Newgate Lane North to Local Access, which is not deemed significant.

4.8. Similarly, the PM peak modelled traffic flow vs. surveyed data comparison shows that it meets the validation criteria, where all the GEH values are less than 5 (100%) for all turning movements. In summary, both models are considered to validate well to the observed traffic flows. GEH comparison for the AM and PM peak periods are shown in Table 4.1 & 4.2.

			General Traffic Hour (0800 - 0900)						
			Survey Data			Base Model			GEH
			Lights	Heavies	Survey Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	27	8	35	25	8	33	0.3
	B3385 Newgate Lane East - South	Ahead (1.5)	858	23	881	859	22	881	0.0
Local Access	B3385 Newgate Lane East - South	Right (1.4)	24	1	25	25	1	26	0.2
	B3385 Newgate Lane East - North	Left (1.3)	28	4	32	28	4	32	0.0
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	1588	22	1610	1582	22	1604	0.1
	Local Access	Left (1.1)	20	2	22	21	1	22	0.0

Figure 4.1 – AM Traffic Flow comparison – Base vs. Survey

			General Traffic Hour (1700 - 1800)						
			Survey Data			Base Model			GEH
			Lights	Heavies	Survey Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	29	1	30	29	1	30	0.0
	B3385 Newgate Lane East - South	Ahead (1.5)	1642	6	1648	1629	6	1635	0.3
Local Access	B3385 Newgate Lane East - South	Right (1.4)	23	0	23	23	0	23	0.0
	B3385 Newgate Lane East - North	Left (1.3)	24	2	26	24	2	26	0.0
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	929	3	932	936	3	939	0.2
	Local Access	Left (1.1)	16	0	16	17	0	17	0.2

Figure 4.2 – PM Traffic Flow comparison – Base vs. Survey

Car Journey Times

4.9. In car Journey Time (JYT) survey data was undertaken on a weekday for the AM & PM peak periods.

4.10. A summary of the Journey Time (JYT) modelled vs. surveyed data comparison for the AM and PM peak periods is shown in Tables 4.3 & 4.4. The JYTs differences for all validated routes between surveyed vs. base modelled is within 60sec.

				Survey (Avg)	Base Model (Ave)	Actual Diff	%age Diff
Route Name	Map	Direction	Length (meter)	JYT (sec)	JYT (sec)	Survey vs. Base	Survey vs. Base
Green Route	C to B	NB	861	105	93	-13	-12%
	B to A	NB	634	63	65	2	4%
	C to A	NB	1495	168	158	-10	-6%
Red Route	A to B	SB	663	101	57	-43	-43%
	B to C	SB	873	85	79	-7	-8%
	A to C	SB	1536	186	136	-50	-27%
Purple Route	A to B	SB	677	77	99	22	29%
	B to D	SB	51	6	5	-2	-25%
	A to D	SB	727	84	104	20	24%
Yellow Route	D to B	SB	72	53	70	16	31%
	B to C	SB	872	69	74	4	6%
	D to C	SB	943	123	143	21	17%

Table 4.3 – AM Base VISSIM JYT validation results comparison vs surveyed data

				Survey (Avg)	Base Model (Ave)	Actual Diff	%age Diff
Route Name	Map	Direction	Length (meter)	JYT (sec)	JYT (sec)	Survey vs. Base	Survey vs. Base
Green Route	C to B	NB	861	54	75	21	40%
	B to A	NB	634	47	62	15	32%
	C to A	NB	1495	100	136	36	36%
Red Route	A to B	SB	664	115	76	-39	-34%
	B to C	SB	873	79	85	6	8%
	A to C	SB	1537	194	161	-33	-17%
Purple Route	A to B	SB	685	101	86	-15	-15%
	B to D	SB	48	9	5	-4	-45%
	A to D	SB	733	110	91	-19	-17%
Yellow Route	D to B	SB	74	26	35	9	34%
	B to C	SB	871	71	82	11	15%
	D to C	SB	945	97	117	20	20%

Table 4.4 – PM Base VISSIM JYT validation results comparison vs surveyed data

Error Logs

4.11. Error logs were produced for both peak periods. There were no critical and/or a significant number of unacceptable errors produced at the end of each simulation run.

5. Summary and Conclusions - Base Models

5.1. The VISSIM Modelling was undertaken in version 10.00-12 (static assignment) to develop calibrated and validated base models for AM and PM 1-hour peak periods as part of the future development in the vicinity of Newgate Lane and Newgate Lane East B3385.

5.2. These models were developed for Pegasus Group against November 2019 traffic survey flows and in-car journey times for the morning and evening peak periods.

5.3. Car Journey Times are validated within 15% or ± 60 seconds when compared to the surveyed journey times for both peak periods, which is in accordance with the DMBR and TfL's Modelling Guidelines.

5.4. The highest journey time difference between modelled vs. surveyed data in the AM peak is from B3385 Newgate Lane East-north to south (actual diff: -50s), followed by B3385 Newgate Lane East-north to Newgate Lane (actual diff: 20s). This difference shows that the model is slightly fast southbound whilst slower from north to Newgate Lane. However, these differences are still within 60s and are not considered significant due to the length of the journey time sections.

5.5. As per the guidelines for traffic flow validation, 85% of all the traffic flows in the network should be validated to less than 5 GEH. Hence, the traffic flow in the network is validated to a limit within 5 GEH compared to the surveyed data for both peak period models.

5.6. The highest difference between base modelled vs. surveyed traffic flow that fails to clear in the AM peak is from B3385 Newgate Lane East-south to north (approx. 6 vehicles, GEH. 0.1) followed by B3385 Newgate Lane East-north to Newgate Lane (approx. 2 vehicles, GEH. 0.3). However, such low GEH values are not considered significant.

5.7. Similarly, the highest difference between modelled flow vs. surveyed flow failing to clear in the PM peak is from B3385 Newgate Lane East-north to south (approx. 13 vehicles, GEH. 0.3), followed by B3385 Newgate Lane East-south to north (approx. 7 vehicles, GEH. 0.2).

5.8. This demonstrates that there is no excessive queuing at the junction with vehicles easily accessing and egressing the minor arm with no significant delay.

5.9. Overall the VISSIM models in both peaks based on the 2019 traffic flows and car journey time information represents that there is no existing significant capacity issue in the network. All vehicles easily access and egress the minor arm and there was no queuing on the main arm.

5.10. These calibrated and validated Base VISSIM models are therefore considered fit to test any future scenario(s).

6. Future Base Models- DS1

Traffic Flows and Routes

6.1. Future Base traffic flows were calculated to include all the development in the vicinity of the study area in 2024 excluding the proposed development in question for the AM and PM peak periods. The Future Base 2024 was used for each peak to build the future base models.

6.2. The percentage change for HGVs was applied to the proportion of MGV & HGV used in the base model to calculate the Future Base heavies (MGV+HGV). In addition, absolute change was applied to lights from Base to Future Base along with routing adjustments as per the calculations to produce future base modelling.

6.3. Therefore, a total number of additional flows was applied to the 2019 to get the 2024 traffic data for each vehicle compositions, except buses which remained unchanged.

6.4. The traffic flow comparison is provided in Appendix A.

6.5. Calibrated and validated Base VISSIM models (in section 5) were used as the basis to model the future base scenario for 2024 incorporating traffic growth and all local committed development flows.

6.6. Vehicle inputs and local routes were updated/amended to reflect the calculated growth in both peak VISSIM models.

Layout Changes

6.7. The network layout remains un-changed in the Future Base modelling.

Modelling Results Comparison

6.8. Traffic flow statistics is provided in Appendix A and shown in Tables 6.1 & 6.2, where traffic flows are compared against future base modelled flows (2024) for the AM & PM peak periods.

Traffic Flow GEH Statistic- DS1

AM Peak

6.9. The highest GEH in the AM future base calculated vs. modelled flow comparison is from Newgate Lane to B3385 Newgate Lane East north and Newgate Lane East north to Newgate Lane (GEH: 0.4, 1 vehicle failed to clear) followed by B3385 Newgate Lane East south to Newgate Lane (GEH: 0.3, 1 vehicle1 failed to clear).

PM Peak

6.10. The highest GEH in the PM future base calculated vs. modelled flow comparison is from B3385 Newgate Lane East south to Newgate Lane (GEH: 0.3) where 1 vehicle failed to clear.

			General Traffic Hour (0800 - 0900)						
			Future Base_SC_9 Calculated Data			Future Base_SC_9 Model			GEH
			Lights	Heavies	Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	23	1	24	21	1	22	0.4
	B3385 Newgate Lane East - South	Ahead (1.5)	731	53	783	728	50	778	0.2
Local Access	B3385 Newgate Lane East - South	Right (1.4)	26	0	26	25	0	25	0.2
	B3385 Newgate Lane East - North	Left (1.3)	18	2	20	17	1	18	0.4
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	1551	48	1599	1544	46	1590	0.2
	Local Access	Left (1.1)	18	1	19	19	1	20	0.3

Table 6.1 – AM Future Base Traffic Flow comparison – Calculated vs. modelled

			General Traffic Hour (1700 - 1800)						
			Future Base_SC_10 Calculated Data			Future Base_SC_10 Model			GEH
			Lights	Heavies	Survey Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	24	0	24	24	0	24	0.0
	B3385 Newgate Lane East - South	Ahead (1.5)	1332	10	1342	1327	8	1335	0.2
Local Access	B3385 Newgate Lane East - South	Right (1.4)	29	0	29	29	0	29	0.0
	B3385 Newgate Lane East - North	Left (1.3)	24	0	24	23	0	23	0.2
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	904	8	913	910	7	917	0.1
	Local Access	Left (1.1)	18	0	18	19	0	19	0.3

Table 6.2 – PM Future Base Traffic Flow comparison – Calculated vs. modelled

Journey times- DS1

6.11. Base vs. future base VISSIM Modelled Journey times comparison is provided in Tables 6.3 & 6.4 for the AM & PM peak periods.

6.12. The AM base and future base journey time result comparison indicates that there will be no significant change in the journey times on B3385 Newgate Lane East and Newgate Lane in all directions. The most notable change will be from Newgate Lane to B3385 Newgate Lane East south (-22s, -15%).

6.13. Similarly, the PM base and future base modelling result comparison indicates that the journey times will have less or no increase to journey time throughout the network. The notable change will be from Newgate Lane to B3385 Newgate Lane East south (-16s, 13%).

Route Name		Map	Direction	Length (meter)	Base Model (Ave) JYT (sec)	Future Base_SC_9 Model (Ave) JYT (sec)	Actual Diff Base vs. FB SC_9	%age Diff Base vs. FB SC_9
Green	Route	C to B	NB	861	93	92	0	-1%
		B to A	NB	634	65	65	0	0%
		C to A	NB	1495	158	158	0	0%
Red	Route	A to B	SB	663	57	56	-1	-2%
		B to C	SB	873	79	77	-1	-1%
		A to C	SB	1536	136	133	-2	-2%
Purple	Route	A to B	SB	677	99	93	-6	-6%
		B to D	SB	51	5	5	0	-1%
		A to D	SB	727	104	98	-6	-6%
Yellow	Route	D to B	SB	72	70	51	-19	-27%
		B to C	SB	872	74	71	-3	-4%
		D to C	SB	943	143	121	-22	-15%

Table 6.3 – AM VISSIM JYT results comparison - Base vs Future Base

Route Name		Map	Direction	Length (meter)	Base Model (Ave) JYT (sec)	Future Base_SC_10 Model (Ave) JYT (sec)	Actual Diff Base vs. FB SC_10	%age Diff Base vs. FB SC_10
Green	Route	C to B	NB	861	75	75	0	0%
		B to A	NB	634	62	62	0	0%
		C to A	NB	1495	136	136	0	0%
Red	Route	A to B	SB	664	76	64	-12	-16%
		B to C	SB	873	85	83	-2	-3%
		A to C	SB	1537	161	147	-14	-9%
Purple	Route	A to B	SB	685	86	72	-14	-16%
		B to D	SB	48	5	5	0	1%
		A to D	SB	733	91	77	-14	-15%
Yellow	Route	D to B	SB	74	35	23	-12	-35%
		B to C	SB	871	82	78	-3	-4%
		D to C	SB	945	117	101	-16	-13%

Table 6.4 – PM VISSIM JYT results comparison – Base vs Future Base

Traffic Flow GEH Statistic- DS2

AM Peak

6.14. The highest GEH in the AM future base calculated vs. modelled flow comparison is from the Newgate Lane to B3385 Newgate Lane East north (GEH: 0.6, 3 vehicles fail to clear) followed by B3385 Newgate Lane East south to north (GEH: 0.2, 9 vehicles fail to clear).

PM Peak

6.15. The highest GEH in the PM future base calculated vs. modelled flow comparison is from B3385 Newgate Lane East south to Newgate Lane (GEH: 0.3) where 1vehicle failed to clear.

			General Traffic Hour (0800 - 0900)						
			Future Base_SC_37 Calculated Data			Future Base_SC_37 Model			GEH
			Lights	Heavies	Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	19	1	20	18	1	19	0.2
	B3385 Newgate Lane East - South	Ahead (1.5)	485	35	520	486	33	519	0.1
Local Access	B3385 Newgate Lane East - South	Right (1.4)	21	0	21	21	0	21	0.1
	B3385 Newgate Lane East - North	Left (1.3)	22	3	25	20	2	22	0.6
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	1553	48	1600	1545	46	1591	0.2
	Local Access	Left (1.1)	21	1	23	22	1	23	0.1

Table 6.5 – AM Future Base Traffic Flow comparison – Calculated vs. modelled

			General Traffic Hour (1700 - 1800)						
			Future Base_SC_38 Calculated Data			Future Base_SC_38 Model			GEH
			Lights	Heavies	Survey Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	20	0	20	19	0	19	0.2
	B3385 Newgate Lane East - South	Ahead (1.5)	811	6	817	810	4	814	0.1
Local Access	B3385 Newgate Lane East - South	Right (1.4)	24	0	24	24	0	24	0.0
	B3385 Newgate Lane East - North	Left (1.3)	32	0	32	31	0	31	0.2
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	882	8	890	887	7	894	0.1
	Local Access	Left (1.1)	23	0	23	22	0	22	0.3

Table 6.6 – PM Future Base Traffic Flow comparison – Calculated vs. modelled

Journey times- DS2

6.16. Base vs. future base VISSIM Modelled Journey times comparison is provided in Tables 6.7 & 6.8 for the AM & PM peak periods.

6.17. The AM base and future base journey time result comparison indicates that there will be no significant change in the journey times on B3385 Newgate Lane East and Newgate Lane in all directions. The most notable change will be from Newgate Lane to B3385 Newgate Lane East south (-31s, 21%).

6.18. Similarly, the PM base and future base modelling result comparison indicates that the journey times will have less or no increase to journey time throughout the network. The most notable change will be from B3385 Newgate Lane East north to Newgate Lane (-23s, -34%).

				Base Model (Ave)	Future Base_SC_37 Model (Ave)	Actual Diff	%age Diff
Route Name	Map	Direction	Length (meter)	JYT (sec)	JYT (sec)	Base vs. FB SC_37	Base vs. FB SC_37
Green Route	C to B	NB	861	93	92	0	0%
	B to A	NB	634	65	65	0	0%
	C to A	NB	1495	158	158	0	0%
Red Route	A to B	SB	663	57	53	-5	-8%
	B to C	SB	873	79	73	-5	-7%
	A to C	SB	1536	136	126	-10	-7%
Purple Route	A to B	SB	677	99	88	-11	-11%
	B to D	SB	51	5	5	0	0%
	A to D	SB	727	104	93	-11	-11%
Yellow Route	D to B	SB	72	70	45	-25	-36%
	B to C	SB	872	74	68	-6	-8%
	D to C	SB	943	143	113	-31	-21%

Table 6.7 – AM VISSIM JYT results comparison - Base vs Future Base

Route Name	Map	Direction	Length (meter)	Base Model (Ave) JYT (sec)	Future Base_SC _38 Model (Ave) JYT (sec)	Actual Diff Base vs. FB SC_38	%age Diff Base vs. FB SC_38
Green Route	C to B	NB	861	75	75	0	-1%
	B to A	NB	634	62	61	0	-1%
	C to A	NB	1495	136	136	-1	-1%
Red Route	A to B	SB	664	76	56	-20	-35%
	B to C	SB	873	85	78	-7	-9%
	A to C	SB	1537	161	134	-27	-20%
Purple Route	A to B	SB	685	86	63	-23	-36%
	B to D	SB	48	5	5	0	1%
	A to D	SB	733	91	68	-23	-34%
Yellow Route	D to B	SB	74	35	16	-19	-118%
	B to C	SB	871	82	72	-9	-13%
	D to C	SB	945	117	89	-28	-32%

Table 6.8 – PM VISSIM JYT results comparison – Base vs Future Base

7. Proposed Modelling

7.1. Traffic flow methodology remained the same as described in Section 6.1 to 6.3.

Layout Changes

7.2. The network layout remains un-changed in the Future Base modelling.

Modelling Results Comparison

7.3. Traffic flow statistics is provided in Appendix A, where traffic flows are compared among base flows (2019), future base flows (2024) and future proposed flows (2024) for the AM & PM peak periods.

Traffic Flow GEH Statistic- DS1

AM Peak

7.4. Traffic flow comparison is shown in Tables 7.1 & 7.2 for the AM & PM peak periods.

7.5. The highest GEH in the AM proposed calculated vs. modelled flow comparison is from B3385 Newgate Lane East south to northbound (GEH: 0.3, 12 vehicles fail to clear), which is not significant. This tells us that all the traffic flow calculated vs. modelled clears out across each arm of the junction.

7.6. It should be noted that the traffic flows in the Future Proposed has increased from B3385 Newgate Lane East-north to south by 58 vehicles and 156 vehicles when compared against base and future base scenarios, followed by 56 vehicles from Newgate lane to B3385 Newgate Lane East-south.

PM Peak

7.7. Similarly, the highest GEH in the PM proposed calculated vs. modelled flow comparison is from B3385 Newgate Lane East-north to Newgate Lane (GEH: 0.3, 2 vehicles fail to clear) and Newgate Lane East south to Newgate Lane (GEH: 0.3, 2 additional vehicles).

7.8. The junction does cope with this additional demand without having any significant impact on journey times.

Journey times- DS1

7.9. Journey time comparison is shown in Tables 7.3 & 7.4 for the AM & PM peak periods.

7.10. The AM future base and proposed modelling result comparison indicates that the journey time will not be affected from south to north (4sec, 2%), and north to south (4sec, 3%) on B3385 Newgate Lane East.

7.11. However, traffic from Newgate Lane to B3385 Newgate Lane East-south would be delayed by approx. 136s.

7.12. The PM future base and proposed modelling result comparison indicates that the journey time will result in less/no significant change throughout the network. The highest difference will be from Newgate Lane to B3385 Newgate Lane East-south (18sec, 18%) followed by B3385 Newgate Lane East-north to Newgate Lane (11sec, 14%).

			General Traffic Hour (0800 - 0900)						
			Future Proposed_SC_21 Calculated Data			Future Proposed_SC_21 Model			GEH
			Lights	Heavies	Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	44	1	45	42	1	43	0.2
	B3385 Newgate Lane East - South	Ahead (1.5)	886	53	939	887	51	938	0.0
Local Access	B3385 Newgate Lane East - South	Right (1.4)	82	0	82	81	0	81	0.1
	B3385 Newgate Lane East - North	Left (1.3)	43	2	45	42	1	43	0.2
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	1587	48	1634	1576	46	1622	0.3
	Local Access	Left (1.1)	28	1	29	30	1	31	0.3

Table 7.1 – AM VISSIM Traffic Flow results comparison Future Base vs Future Proposed

			General Traffic Hour (1700 - 1800)						
			Future Proposed_SC_22 Calculated Data			Future Proposed_SC_22 Model			GEH
			Lights	Heavies	Survey Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	53	0	53	51	0	51	0.3
	B3385 Newgate Lane East - South	Ahead (1.5)	1489	10	1500	1483	8	1491	0.2
Local Access	B3385 Newgate Lane East - South	Right (1.4)	51	0	51	51	0	51	0.0
	B3385 Newgate Lane East - North	Left (1.3)	51	0	51	50	0	50	0.2
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	940	8	948	942	7	949	0.0
	Local Access	Left (1.1)	62	0	62	64	0	64	0.3

Table 7.2 – PM VISSIM Traffic Flow results comparison Future Base vs Future Proposed

				Base Model (Ave)	Future Base_SC_9 Model (Ave)	Future Pro_SC_21 Model (Ave)	Actual Diff	%age Diff
Route Name	**Map**	**Direction**	**Length (meter)**	**JYT (sec)**	**JYT (sec)**	**JYT (sec)**	**FB_SC_9 vs. FP_SC_21**	**FB_SC_9 vs. FP_SC_21**
Green Route	C to B	NB	861	93	92	96	3	4%
	B to A	NB	634	65	65	66	0	0%
	C to A	NB	1495	158	158	161	4	2%
Red Route	A to B	SB	663	57	56	58	2	4%
	B to C	SB	873	79	77	79	2	3%
	A to C	SB	1536	136	133	138	4	3%
Purple Route	A to B	SB	677	99	93	112	19	20%
	B to D	SB	51	5	5	5	0	0%
	A to D	SB	727	104	98	117	19	19%
Yellow Route	D to B	SB	72	70	51	183	132	261%
	B to C	SB	872	74	71	74	4	5%
	D to C	SB	943	143	121	258	136	112%

Table 7.3 – AM VISSIM Journey Time results comparison Future Base vs Future Proposed

				Base Model (Ave)	Future Base_SC_10 Model (Ave)	Future Pro_SC_22 Model (Ave)	Actual Diff	%age Diff
Route Name	Map	Direction	Length (meter)	JYT (sec)	JYT (sec)	JYT (sec)	FB_SC_10 vs. FP_SC_22	FB_SC_10 vs. FP_SC_22
Green Route	C to B	NB	861	75	75	76	2	2%
	B to A	NB	634	62	62	61	-1	-1%
	C to A	NB	1495	136	136	137	1	1%
Red Route	A to B	SB	664	76	64	69	5	8%
	B to C	SB	873	85	83	84	1	1%
	A to C	SB	1537	161	147	153	6	4%
Purple Route	A to B	SB	685	86	72	82	11	15%
	B to D	SB	48	5	5	5	0	0%
	A to D	SB	733	91	77	87	11	14%
Yellow Route	D to B	SB	74	35	23	39	16	72%
	B to C	SB	871	82	78	80	2	2%
	D to C	SB	945	117	101	119	18	18%

Table 7.4 – PM VISSIM Journey Time results comparison Future Base vs Future Proposed

<u>Traffic Flow GEH Statistic- DS2</u>

AM Peak

7.13. Traffic flow comparison is shown in Tables 7.5 & 7.6 for the AM & PM peak periods.

7.14. The highest GEH in the AM proposed calculated vs. modelled flow comparison is from B3385 Newgate Lane East south to northbound (GEH: 0.3, 12 vehicles fail to clear), which is not significant. This tells us that all the traffic flow calculated vs. modelled clears out across each arm of the junction.

7.15. It should be noted that the traffic flows in the Future Proposed has increased from B3385 Newgate Lane East-north to south by 155 vehicles when compared against future base scenarios, followed by 63 vehicles from Newgate lane to B3385 Newgate Lane East-south.

PM Peak

7.16. Similarly, the highest GEH in the PM proposed calculated vs. modelled flow comparison is from B3385 Newgate Lane East-north to Newgate Lane (GEH: 0.4, 2 vehicles fail to clear) and Newgate Lane East South to Newgate Lane (GEH: 0.3, 2 additional vehicles).

7.17. The junction does cope with this additional demand without having any significant impact on journey times.

<u>Journey times- DS2</u>

7.18. Journey time comparison is shown in Tables 7.7 & 7.8 for the AM & PM peak periods.

7.19. The AM future base and proposed modelling result comparison indicates that the journey time will not be affected from south to north (5sec, 4%), and north to southbound (4sec, 3%) on B3385 Newgate Lane East.

7.20. However, traffic from Newgate Lane to B3385 Newgate Lane East-south would be delayed by approx. 121s.

7.21. Similarly, the PM future base and proposed modelling result comparison indicates that the journey time will result in less/no significant change throughout the network. The highest difference will be from B3385 Newgate Lane East-north to Newgate Lane (7sec, 10%) followed by Newgate Lane to B3385 Newgate Lane East-south (6sec, 6%).

			General Traffic Hour (0800 - 0900)						
			Future Proposed_SC_45 Calculated Data			Future Proposed_SC_45 Model			GEH
			Lights	Heavies	Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	40	1	40	40	1	41	0.1
	B3385 Newgate Lane East - South	Ahead (1.5)	640	35	675	638	33	671	0.2
Local Access	B3385 Newgate Lane East - South	Right (1.4)	84	0	84	84	0	84	0.0
	B3385 Newgate Lane East - North	Left (1.3)	47	3	50	47	2	49	0.1
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	1588	48	1636	1578	46	1624	0.3
	Local Access	Left (1.1)	29	1	31	31	1	32	0.2

Table 7.5 – AM VISSIM Traffic Flow results comparison Future Base vs Future Proposed

			General Traffic Hour (1700 - 1800)						
			Future Proposed_SC_46 Calculated Data			Future Proposed_SC_46 Model			GEH
			Lights	Heavies	Survey Total	Lights	Heavies	Model Total	
B3385 Newgate Lane East - North	Local Access	Right (1.6)	49	0	49	47	0	47	0.4
	B3385 Newgate Lane East - South	Ahead (1.5)	967	6	974	968	4	972	0.0
Local Access	B3385 Newgate Lane East - South	Right (1.4)	47	0	47	47	0	47	0.0
	B3385 Newgate Lane East - North	Left (1.3)	60	0	60	59	0	59	0.1
B3385 Newgate Lane East - South	B3385 Newgate Lane East - North	Ahead (1.2)	917	8	925	922	7	929	0.1
	Local Access	Left (1.1)	68	0	68	70	0	70	0.3

Table 7.6 – PM VISSIM Traffic Flow results comparison Future Base vs Future Proposed

Route Name	Map	Direction	Length (meter)	Base Model (Ave) JYT (sec)	Future Base_SC_37 Model (Ave) JYT (sec)	Future Pro_SC_45 Model (Ave) JYT (sec)	Actual Diff FB_SC_37 vs. FP_SC_45	%age Diff FB_SC_37 vs. FP_SC_45
Green Route	C to B	NB	861	93	92	97	4	5%
	B to A	NB	634	65	65	66	0	0%
	C to A	NB	1495	158	158	162	4	3%
Red Route	A to B	SB	663	57	53	55	2	4%
	B to C	SB	873	79	73	76	3	4%
	A to C	SB	1536	136	126	131	5	4%
Purple Route	A to B	SB	677	99	88	108	20	22%
	B to D	SB	51	5	5	5	0	0%
	A to D	SB	727	104	93	113	20	21%
Yellow Route	D to B	SB	72	70	45	162	117	261%
	B to C	SB	872	74	68	71	3	5%
	D to C	SB	943	143	113	233	121	107%

Table 7.7 – AM VISSIM Journey Time results comparison Future Base vs Future Proposed

Route Name	Map	Direction	Length (meter)	Base Model (Ave) JYT (sec)	Future Base_SC_38 Model (Ave) JYT (sec)	Future Pro_SC_46 Model (Ave) JYT (sec)	Actual Diff FB_SC_38 vs. FP_SC_46	%age Diff FB_SC_38 vs. FP_SC_46
Green Route	C to B	NB	861	75	75	76	2	2%
	B to A	NB	634	62	61	61	-1	-1%
	C to A	NB	1495	136	136	137	1	1%
Red Route	A to B	SB	664	76	56	59	2	4%
	B to C	SB	873	85	78	79	2	2%
	A to C	SB	1537	161	134	138	4	3%
Purple Route	A to B	SB	685	86	63	70	7	11%
	B to D	SB	48	5	5	5	0	0%
	A to D	SB	733	91	68	74	7	10%
Yellow Route	D to B	SB	74	35	16	20	4	26%
	B to C	SB	871	82	72	74	2	2%
	D to C	SB	945	117	89	94	6	6%

Table 7.8 – PM VISSIM Journey Time results comparison Future Base vs Future Proposed

8. Option Assessment

8.1. In light of the anticipated increase in journey time as a result of the increase in opposing traffic, amendments to the existing give-way junction have been made in the model.

8.2. The primary purpose of these amendments is to reduce proposed journey times for vehicles utilising the minor arm without significantly compromising the journey times for traffic on Newgate Lane East.

8.3. The amendments to the junction can be found in Appendix B. The design was provided to RWA by Pegasus Group.

8.4. Both option 1 and 2 look to allow right turners from Newgate Lane to give way in two movements.

8.5. Southbound traffic from Newgate Lane East wishing to turn right into Newgate Lane will wait in the middle of junction, keeping clear of a space in the junction to allow right turners from Newgate Lane to continue their journey southbound if a gap becomes available.

8.6. In order to facilitate this there is some widening of the Newgate Lane East carriageway as well as the formalisation of a flare lane on Newgate Lane which is approximately 40 metres in length.

8.7. Both DS1 and DS2 proposed scenarios have been modelled in the proposed layout. The base and future base results have then been compared against those in the proposed layout including the development traffic.

8.8. The results for AM DS1 scenario shown in table 8.1 and figure 8.1 show a significant improvement in the journey time for vehicles travelling southbound from Newgate Lane minor arm. When comparing the proposed flows in the base layout and proposed layout a reduction in journey time of over 1 minute 30 seconds has been observed.

8.9. When comparing the future base and future proposed in the proposed layout, the journey time can be seen to increase by 44 seconds across the whole length of the route. Coupled with the queuing shown in figure 8.1. the junction is perceived to operate well in this proposed layout with no significant queuing or excessive delay.

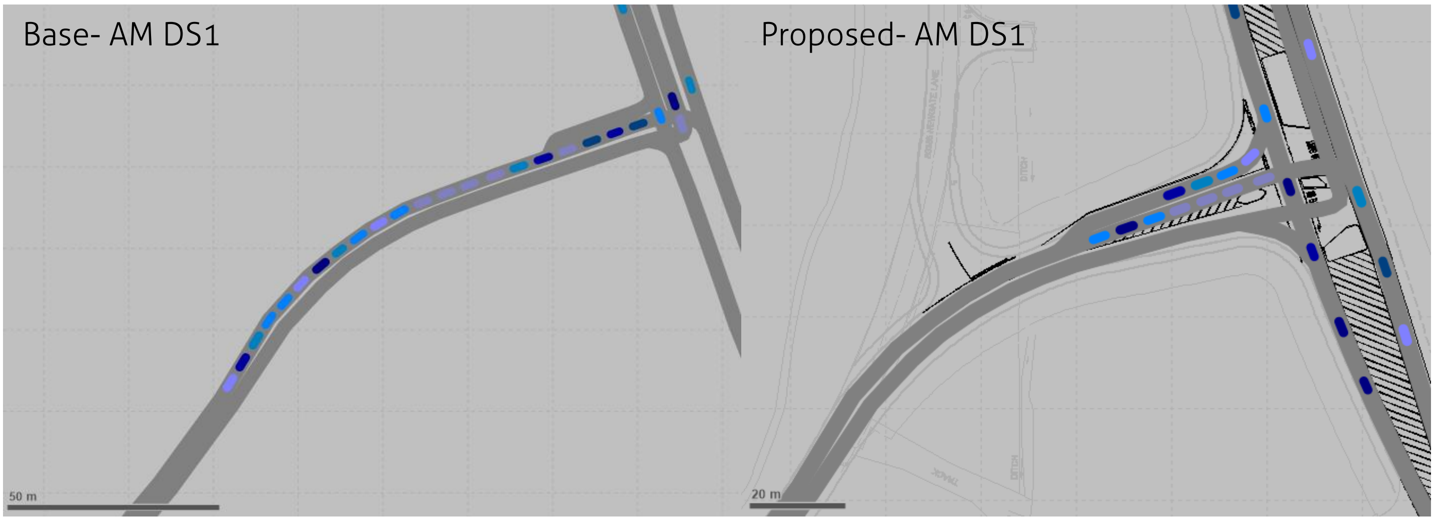
8.10.Table 8.2 and figure 8.2. show a similar pattern in the AM scenario for DS2. When comparing the proposed flows in the base layout and proposed layout a reduction in journey time of just under 1 minute 30 seconds has been observed.

8.11.When comparing the future base and future proposed in the proposed layout, the journey time can be seen to increase by 34 seconds across the whole length of the route. Coupled with the queuing shown in figure 8.2. the modelling shows that the junction will operate well in this proposed layout with no significant queuing or excessive delay.

Route Name	Map	Direction	Length (meter)	Future Base_DS1 (Ave) Base Layout JYT (sec)	Future Pro_DS1 (Ave) Base Layout JYT (sec)	Future Pro_DS1 (Ave) Proposed Layout JYT (sec)	Dif FB and Pro DS1 JYT (sec)	% Difference
Green Route	C to B	Northbound	861	92	96	95	3	3%
	B to A	Northbound	634	65	66	66	0	0%
	C to A	Northbound	1495	158	161	161	3	2%
Red Route	A to B	Southbound	663	56	58	58	2	3%
	B to C	Southbound	873	77	79	79	2	3%
	A to C	Southbound	1536	133	138	137	4	3%
Purple Route	A to B	Southbound	677	93	112	101	8	9%
	B to D	Southbound	51	5	5	4	0	-7%
	A to D	Southbound	727	98	117	105	8	8%
Yellow Route	D to B	Southbound	72	51	183	92	41	81%
	B to C	Southbound	872	71	74	73	3	4%
	D to C	Southbound	943	121	258	166	44	36%

Table 8.1 – AM DS1 VISSIM Journey Time results comparison Future Base vs Future Proposed Proposed Layout

Figure 8.1 – AM DS1 Pro Flows- Base layout vs. Proposed layout VISSIM depiction of queuing



Route Name	Map	Direction	Length (meter)	Future Base_DS2 (Ave) Base Layout JYT (sec)	Future Pro_DS2 (Ave) Base Layout JYT (sec)	Future Pro_DS2 (Ave) Proposed Layout JYT (sec)	Dif FB Base and Pro Pro DS2 JYT (sec)	% Difference
Green Route	C to B	Northbound	861	92	97	96	4	4%
	B to A	Northbound	634	65	66	66	0	0%
	C to A	Northbound	1495	158	162	162	4	2%
Red Route	A to B	Southbound	663	53	55	55	2	4%
	B to C	Southbound	873	73	76	76	3	4%
	A to C	Southbound	1536	126	131	131	5	4%
Purple Route	A to B	Southbound	677	88	108	98	10	11%
	B to D	Southbound	51	5	5	4	0	-7%
	A to D	Southbound	727	93	113	102	9	10%
Yellow Route	D to B	Southbound	72	45	162	76	31	69%
	B to C	Southbound	872	68	71	71	3	4%
	D to C	Southbound	943	113	233	147	34	30%

Table 8.2 – AM DS2 VISSIM Journey Time results comparison Future Base vs Future Proposed Proposed Layout

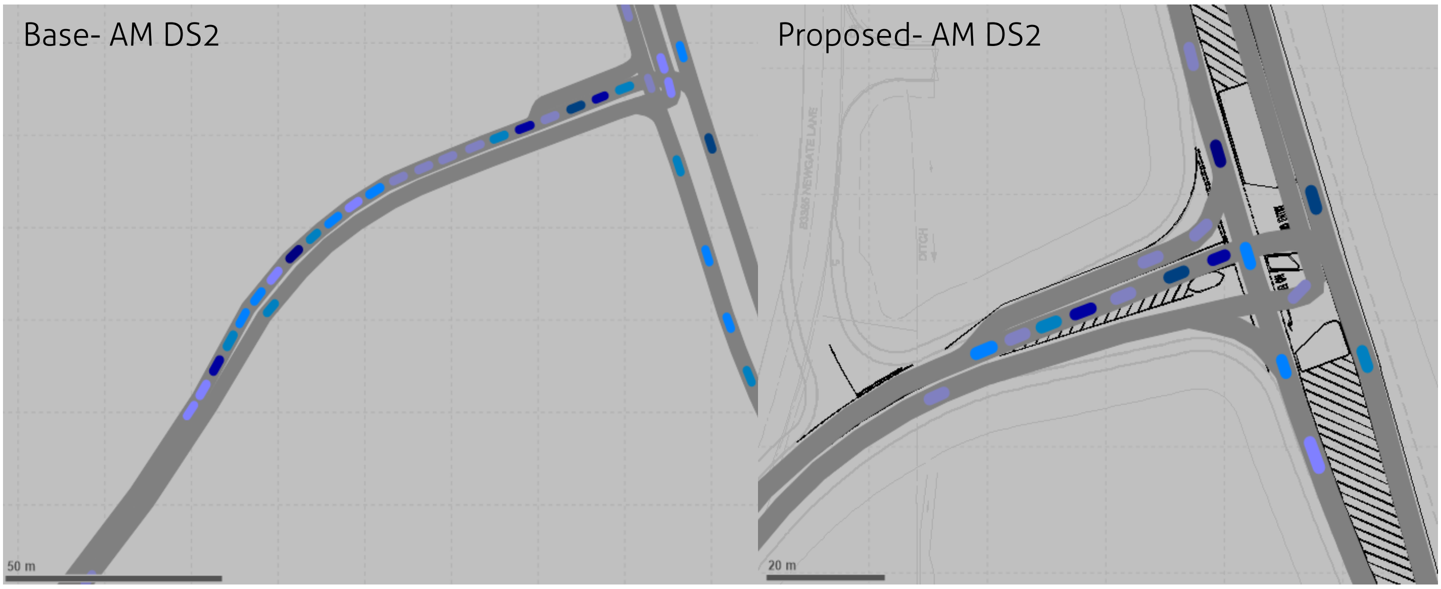


Figure 8.2 – AM DS2 Pro Flows- Base layout vs. Proposed layout VISSIM depiction of queuing

8.12. Although the addition of the development did not appear to have a significant impact in the PM peak, the PM proposed flows for DS1 and DS2 have also been tested in the proposed layout.

8.13. Table 8.3. and Figure 8.3. show the results for the PM DS1 scenario. The journey time changes in the PM are seen to be insignificant. There is a small (6 second) increase in journey time for vehicles travelling from Newgate Lane to Newgate Lane southbound between the base and proposed layout. This can be attributed to traffic now giving way at two points.

8.14. Table 8.4 and Figure 8.4 show the results for the PM DS2 scenario. Similarly to the PM DS1 scenario, the proposed layout does not have a significant impact on the journey times within the network. The impact of journey times within the network are no greater than six seconds.

				Future Base_DS 1 (Ave)	Future Pro_DS1 (Ave)	Future Pro_DS1 (Ave)	Dif FB and Pro DS1	% Difference
				Base Layout	Base Layout	Proposed Layout		
Route Name	Map	Direction	Length (meter)	JYT (sec)	JYT (sec)	JYT (sec)	JYT (sec)	
Green Route	C to B	Northbound	861	75	76	76	1	2%
	B to A	Northbound	634	62	61	61	0	-1%
	C to A	Northbound	1495	136	137	137	1	1%
Red Route	A to B	Southbound	663	64	69	69	5	8%
	B to C	Southbound	873	83	84	84	2	2%
	A to C	Southbound	1536	147	153	153	7	5%
Purple Route	A to B	Southbound	677	72	82	78	7	9%
	B to D	Southbound	51	5	5	4	-1	-12%
	A to D	Southbound	727	77	87	83	6	8%
Yellow Route	D to B	Southbound	72	23	39	45	22	97%
	B to C	Southbound	872	78	80	80	1	2%
	D to C	Southbound	943	101	119	125	24	23%

Table 8.3 – PM DS1 VISSIM Journey Time results comparison Future Base vs Future Proposed Proposed Layout

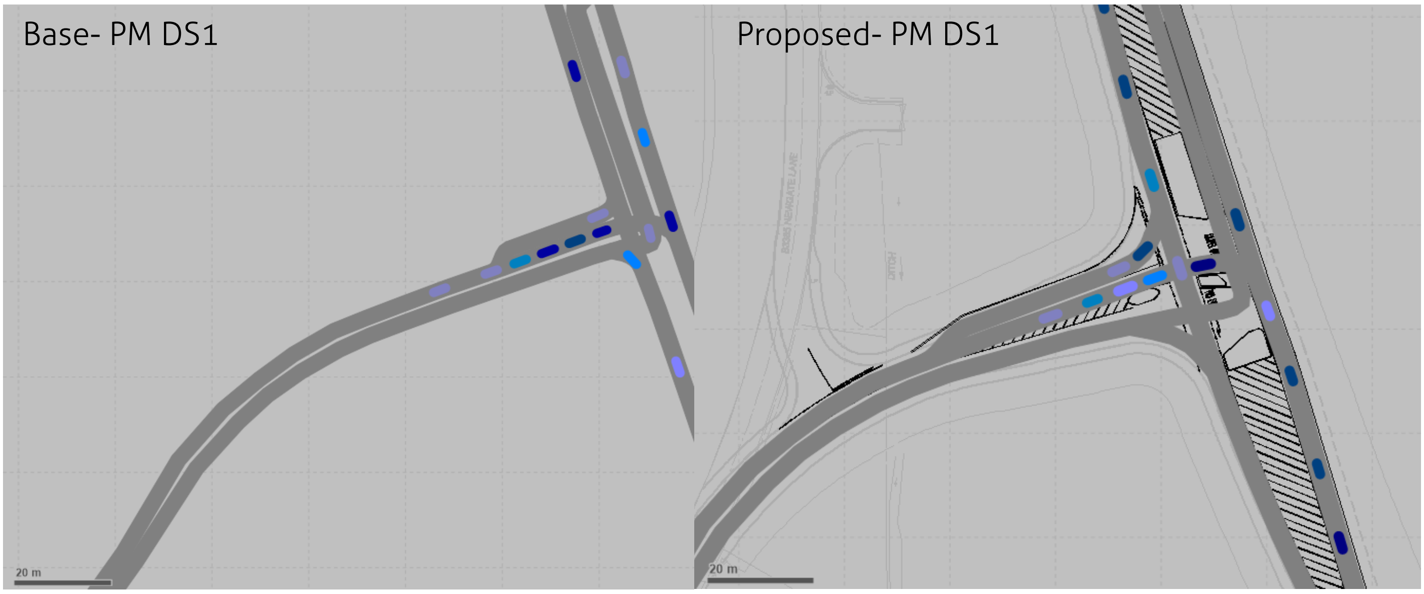


Figure 8.3 – PM DS1 Pro Flows- Base layout vs. Proposed layout VISSIM depiction of queuing

Route Name	Map	Direction	Length (meter)	Future Base_DS2 (Ave) Base Layout JYT (sec)	Future Pro_DS2 (Ave) Base Layout JYT (sec)	Future Pro_DS2 (Ave) Proposed Layout JYT (sec)	Dif FB Base and Pro Pro DS2 JYT (sec)	% Difference
Green Route	C to B	Northbound	861	75	76	76	1	2%
	B to A	Northbound	634	61	61	61	0	-1%
	C to A	Northbound	1495	136	137	137	1	1%
Red Route	A to B	Southbound	663	56	59	58	2	3%
	B to C	Southbound	873	78	79	80	2	2%
	A to C	Southbound	1536	134	138	138	4	3%
Purple Route	A to B	Southbound	677	63	70	67	5	7%
	B to D	Southbound	51	5	5	4	-1	-12%
	A to D	Southbound	727	68	74	72	4	6%
Yellow Route	D to B	Southbound	72	16	20	21	4	27%
	B to C	Southbound	872	72	74	74	1	2%
	D to C	Southbound	943	89	94	94	6	6%

Table 8.4 – PM DS2 VISSIM Journey Time results comparison Future Base vs Future Proposed Proposed Layout

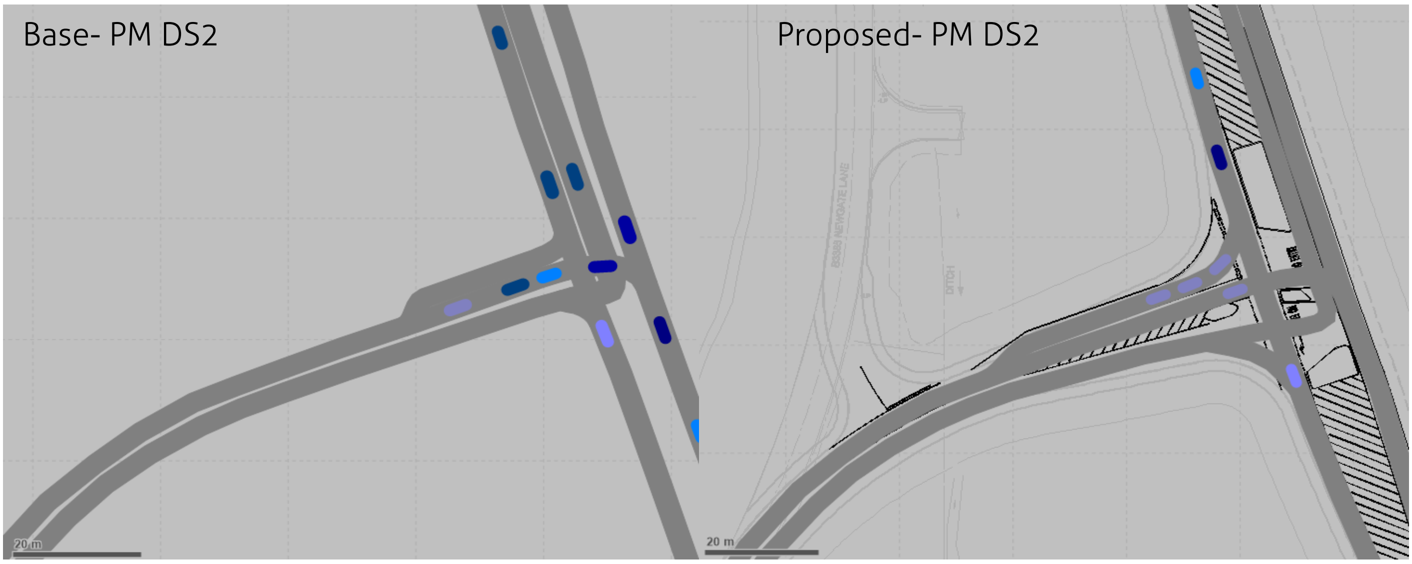


Figure 8.4 – PM DS2 Pro Flows- Base layout vs. Proposed layout VISSIM depiction of queuing

9. Summary and Conclusion

9.1. Existing base VISSIM models were developed in VISSIM version 10.00-12 using November 2019 traffic and journey time data. The difference between surveyed and base modelled journey time were within $\pm$ 60sec as well as GEH well below 5 for all movements as per the DMRB and TfL's modelling guidelines.

9.2. These base VISSIM models were therefore considered best fit for the purpose and to provide a benchmark for assessing the impact of the future demand in regards to the scheme and committed development within the vicinity of the study area, as the base modelling results compared to observed values was a close match for both traffic flows and journey times in the AM and PM peak periods.

9.3. Future base and future proposed modelling has been undertaken for both the DS1 and DS2 scenarios for 2024.

9.4. The future base modelling included all the committed developments in the vicinity of the study area in 2024, whilst the future proposed was to test the development of 190 dwellings using the B3385 Newgate Lane East / Newgate Lane priority junction. These tests were initially carried out without any physical network changes but with the calculated/forecasted traffic growth for 2024. This was done to understand the impact of proposed development flows against the base layout.

9.5. It should be noted that there is a reduction in calculated traffic turning counts in the future base, hence resulting in no/reduced journey times for future base vs. base modelling.

9.6. The future base vs. proposed result comparison indicates that there will not be any significant change in the PM peak journey time in both the DS1 and DS2 scenarios, with vehicles experiencing low levels of queuing. This can be attributed to a lower level of traffic travelling northbound when comparing with the AM, making it easier for vehicles leaving Newgate Lane to seek gaps.

9.7. The AM future base and proposed modelling result comparison for both DS1 and DS2 scenarios shows an increase in delay and journey time for those exiting Newgate Lane. The change in journey time for those travelling on B3385 Newgate Lane East however is minimal with the development showing no significant increase in journey time.

9.8. This increase in delay on Newgate Lane results in queues of up to 15 vehicles in DS1 and 20 vehicles in DS2 (scenario 45). As previously mentioned, due to the location of signals either side of the study area, it is likely that the model underestimates the number of gaps available for right turning vehicles. As such the assessment can be seen as robust and a worst-case assumption.

9.9. The GEH flow statistic check demonstrates however that in all AM PM scenarios there is a good level of convergence showing that vehicles clear the junction in the peak hour.

9.10. Following the increase in queuing in the base situation when the development flow is added, we have assessed the impact of the proposed give way design provided to us by Pegasus Group.

9.11. The proposed layout at the junction reduces journey times for vehicles travelling southbound after turning right from the minor arm of Newgate Lane. This intends to alter the give-way parameters as such that vehicles wishing to turn right will give way on to occasions, once to northbound traffic at the give way line of the side road and once to southbound traffic in the centre of the junction.

9.12. The results show a significant improvement in journey time when they the proposed scenarios are compared against the same scenarios in the base layout.

9.13. The proposed layout also significantly reduces the impact that the proposed development will have on the capacity at the junction by only increasing journey times by 44 seconds in AM DS1 and 34 seconds in AM DS2. The images of the VISSIM model also demonstrate that no excessive queuing is expected.

9.14. Across both DS1 and DS2 the PM scenario operates well experiencing no significant increase in journey time in either the base or proposed layout.

9.15. During the first seed the queues were observed on Newgate Lane in the model and their approximate max queue lengths are shown in table 9.1. The results demonstrate that following the introduction of the proposed layout, the maximum queue length is anticipated to half on Newgate Lane.

	Future Base- Base layout	Future Proposed- Base layout	Future Proposed- Proposed layout
AM DS1	3 PCUs	20-21 PCUs	10 PCUs
AM DS2	2 PCUs	20-21 PCUs	7 PCUs
PM DS1	2 PCUs	6 PCUs	4 PCUs
PM DS2	3 PCUs	3 PCUs	3 PCUs

Table 9-1 Approximate maximum queue lengths in the first seed for Newgate Lane

10. Appendix A – Base/Future Base/Future Pro Modelling Results

AM & PM Peak 1 Hour Flow Validation / Comparison

AM & PM Peak 1 Hour Journey Time Validation / Comparison

Technical Note

Project:	RWA-20-21-149
Client:	Pegasus Group
Subject:	VISSIM Technical Note Addendum

Prepared by:	Martha Hoskins	Date:	09/09/2020
Checked by:	Michael Ward	Date:	09/09/2020

1. Introduction

Red Wilson Associates submitted a VISSIM modelling to support the proposals at the junction of Old Newgate Lane with Newgate Lane East in Fareham. The modelling included a base model, future base modelling and future proposed modelling of the proposed give-way layout (option 2). On behalf of Fareham Borough Council, Atkins have reviewed the modelling and provided comments. The purpose of this addendum is to demonstrate the validation of the journey times.

Following the initial response by RWA on 23/07/20 and the subsequent meeting on 17/08/20 the below amendments to the model have been made to ensure the model accurately represents existing conditions.

2. Base Modelling

Give-way Parameters

Give-way parameters have been amended for those turning right out of Old Newgate Lane to ensure they are specific to the vehicle class. HGVs and MGVs have been modelled in such a way that they are required to yield to both northbound and southbound vehicles on Newgate Lane from the give-way markings on Old Newgate Lane. Parameters for light vehicles remain as per the previously submitted model.

Flare Lane Length

On review of the video footage and site geometry by Atkins, the flare lane on the exit of Newgate Lane has been amended to 20 metres. This is to ensure it fits a maximum of three PCUs. This is in accordance with the email exchange on 9th September 2020 in which it was agreed that this link length would be used.

Cool Down Period

A cool down period has been added to all modelled scenarios utilising the same vehicle inputs and routing as the previous 15-minute period.

Journey Time Validation

TomTom journey time data has been obtained from Streetwise for both peak hours as an average between September to November 2019. The data has been collated as an average over all Tuesdays, Wednesdays and Thursdays in this period avoiding public holidays and school holiday periods. The raw data obtained can be found in Appendix A.

For each segment the average travel time has been used. This has been calculated as an average across the 15-minute time periods. Markers were placed in the model for each segment identified by TomTom and the journey times initially compared against the VISSIM model results. In the instance that the journey time did not validate analysis of the vehicle speeds were undertaken.

TomTom additionally provided speed surveys against different percentiles. These were transposed into the Desired Speed Distributions for the relevant segments. The analysis undertaken for the Speed Distributions can be found in Appendix B. The PM southbound journey times were still seen to be lower in the model than the surveyed data owing to the fine tuning of the associated Desired Speed Distributions. This fine tuning can also be found in Appendix B.

TomTom mean average travel time data was used; however, when analysing the data provided for the side road the average appeared to on occasion vary significantly in each 15-minute period. This can be attributed to the lower number of hits for these links resulting in the average travel time being impacted by the travel times of vehicles stopping for short periods of time on this link possibly to enter houses or shops. This skewed the travel time making the surveyed value significantly higher than the modelled. As such the median travel time was used for these segments. Appendix B highlights which segments utilise the median travel time.

Tables 2-1 and 2-2 show a comparison between the modelled and surveyed journey times for the entire route for the AM and PM peak scenarios. The journey times for each segment can be found in Appendix B.

Table 2-1 AM Journey Time Validation

	Surveyed Journey Time (secs)	Modelled Journey Time (secs)	Difference (secs)	Difference (%)
Newgate Lane Northbound	116	121	+5	5%
Newgate Lane Southbound	74	84	+10	13%
Old Newgate Lane Westbound	30	27	-3	10%
Old Newgate Lane Eastbound	51	49	-2	4%

Table 2-2 PM Journey Time Validation

	Surveyed Journey Time (secs)	Modelled Journey Time (secs)	Difference (secs)	Difference (%)
Newgate Lane Northbound	76	88	+6	15%
Newgate Lane Southbound	92	98	+6	7%
Old Newgate Lane Westbound	38	32	-6	18%
Old Newgate Lane Eastbound	32	27	-5	16%

The results demonstrate a good correlation between the surveyed and modelled journey times with all differences being at or below 15% apart from one at 16% and one at 18%. The actual differences for these routes are just five and six seconds; therefore, the model is deemed to have an acceptable level of validation.

3. Conclusion

Following comments received by Atkins, RWA have amended the base VISSIM model and the associated Desired Speed Distributions. The journey times have now been validated and demonstrate a good correlation against surveyed data. Amendments have also been made to the give-way parameters so that HGVs give way in one movement.

The length of the flare lane has been amended to accommodate a maximum of three PCUs. Additionally we have provided cool down periods for all modelled scenarios as a copy of the last 15-minute interval in the peak hour.

A precautionary assessment of the GEH has been undertaken to ensure this has not been affected as a result of the aforementioned changes to the model. The GEH for all movements across both peaks remains below 1.

Therefore, the model represents the existing conditions on street and provides a suitable baseline from which to assess the future flows and proposed scheme.

Technical Note

Project:	RWA-20-21-149
Client:	Pegasus Group
Subject:	VISSIM Technical Note Addendum v1

Prepared by:	Martha Hoskins	Date:	05/10/2020
Checked by:	Spencer Wilson	Date:	05/10/2020

1. Introduction

Red Wilson Associates submitted VISSIM modelling to support the proposals at the junction of Old Newgate Lane with Newgate Lane East in Fareham. The modelling included a base model, future base modelling and future proposed modelling of the proposed give-way layout (option 2). On behalf of Fareham Borough Council, Atkins have reviewed the modelling and provided comments. The purpose of this addendum is to demonstrate the validation of the journey times.

Following the initial response by RWA on 23/07/20 and the subsequent meetings the below amendments to the model have been made to ensure the model accurately represents existing conditions.

2. Base Modelling

Give-way Parameters

Give-way parameters have been amended for those turning right out of Old Newgate Lane to ensure they are specific to the vehicle class. HGVs and MGVs have been modelled in such a way that they are required to yield to both northbound and southbound vehicles on Newgate Lane from the give-way markings on Old Newgate Lane. Parameters for light vehicles remain as per the previously submitted model.

Flare Lane Length

On review of the video footage and site geometry by Atkins, the flare lane on the exit of Newgate Lane has been amended to 20 metres. This is to ensure it fits a maximum of three PCUs. This is in accordance with the email exchange on 9th September 2020 in which it was agreed that this link length would be used.

Cool Down Period

A cool down period has been added to all modelled scenarios utilising the same vehicle inputs and routing as the previous 15-minute period.

Journey Time Validation

TomTom journey time data has been obtained from Streetwise for both peak hours as an average between September to November 2019. The data has been collated as an average over all Tuesdays, Wednesdays and Thursdays in this period avoiding public holidays and school holiday periods. The raw data obtained can be found in Appendix A.

For each segment the average travel time has been used. This has been calculated as an average across the 15-minute time periods. Markers were placed in the model for each segment identified by TomTom and the journey times initially compared against the VISSIM model results. In the instance that the journey time did not validate analysis of the vehicle speeds were undertaken.

Initially TfL Desired Speed Distributions were used to replicate 40mph behaviour. These however resulted in traffic travelling too slowly through the network. As such a Desired Speed Distribution for 40mph has been created using ATC data collected just north of the junction for 8pm. This data was provided by HCC. This is desired speed distribution 31, number 1020 'HCC 40 2' in the model. The use of this Desired Speed Distribution as agreed in correspondence received on 02/09/2020.

Reduced speed areas have been input into the model on the northbound and southbound links. These have been positioned where vehicles approach a bend in the carriageway as well as on the approach to the bus stops where the carriageway narrows and a central island is introduced. These reduced speed areas all reduce speeds to the 30mph Desired Speed Distribution. On the side road, a reduced speed area is similarly used to reduce vehicle speeds on their approach to a bend in the road. In this instance as the speed limit of this link is 30mph, the 20mph Desired Speed Distribution is used.

TomTom mean average travel time data was used; however, when analysing the data provided for the side road the average appeared to on occasion vary significantly in each 15-minute period. This can be attributed to the lower number of hits for these links resulting in the average travel time being impacted by the travel times of vehicles stopping for short periods of time on this link possibly to enter houses or shops. This skewed the travel time making the surveyed value significantly higher than the modelled. As such the median travel time was used for these segments. Appendix B highlights which segments utilise the median travel time.

Tables 2-1 and 2-2 show a comparison between the modelled and surveyed journey times for the entire route for the AM and PM peak scenarios. The journey times for each segment can be found in Appendix B.

Table 2-1 AM Journey Time Validation

	Surveyed Journey Time (secs)	Modelled Journey Time (secs)	Difference (secs)	Difference (%)
Newgate Lane Northbound	116	99	-17	14%
Newgate Lane Southbound	74	85	+11	15%
Old Newgate Lane Westbound	30	29	-1	5%
Old Newgate Lane Eastbound	51	58	+7	14%

Table 2-2 PM Journey Time Validation

	Surveyed Journey Time (secs)	Modelled Journey Time (secs)	Difference (secs)	Difference (%)
Newgate Lane Northbound	76	86	+10	15%
Newgate Lane Southbound	92	94	+2	7%
Old Newgate Lane Westbound	32	29	-3	10%
Old Newgate Lane Eastbound	38	33	-5	14%

The results demonstrate a good correlation between the surveyed and modelled journey times with all differences being at or below 15%. Therefore, the model is deemed to have an acceptable level of validation.

3. Conclusion

Following comments received by Atkins, RWA have amended the base VISSIM model and the associated Desired Speed Distribution for 40mph using ATC data. The journey times have now been validated and demonstrate a good correlation against surveyed data. Amendments have also been made to the give-way parameters so that HGVs give way in one movement.

The length of the flare lane has been amended to accommodate a maximum of three PCUs. Additionally, we have provided cool down periods for all modelled scenarios as a copy of the last 15-minute interval in the peak hour.

A precautionary assessment of the GEH has been undertaken to ensure this has not been affected as a result of the aforementioned changes to the model. The GEH for all movements across both peaks remains below 1.

Therefore, the model represents the existing conditions on street and provides a suitable baseline from which to assess the future flows and proposed scheme.

Appendix B

Future Base and Option 3 VISSIM Results

Technical Note

Project – VISSIM Modelling – Newgate Lane
Subject – Future Base / Future Proposed Model Supporting Note

Prepared By – Martha Hoskins Date – 8th October 2020
Checked By – Spencer Wilson Date – 9th October 2020

Contents

1. Introduction

Purpose/Scope

1.1. Red Wilson Associates (RWA) has been appointed by Pegasus Group to provide VISSIM modelling and design services in respect of Newgate Lane East with Newgate Lane in Hampshire.

1.2. The development of the land west of Newgate Lane is comprised of two housing developments; the north is comprised of 75 dwellings and the south of 115 dwellings. The proposed developments, whether assessed independently of one another or combined will create additional traffic on the road network. This traffic is likely to use the junction of Newgate Lane East with Newgate Lane. Initial assessments of this junction and the proposal of signalising the junction have already been assessed however at the request of Hampshire County Council further assessments are being made.

1.3. The principal objective of Red Wilson Associates involvement in this scheme is to assess the impact of the development with the junction in its current form as a priority junction in VISSIM.

1.4. Hampshire County Council (HCC) do not have any specific modelling guidelines that relate to microsimulation modelling. Industry best practice was used to caveat and demonstrate validation of the modelling in the AM and PM peak periods against recently undertaken traffic turning counts and journey time data (Autumn 2019). The final models developed are in accordance with the Design Manual for Roads and Bridges (DMRB) Modelling Guidelines and Transport for London Modelling Guidelines Version 3.

1.5. The VISSIM Modelling was undertaken in version 10.00-12 (static assignment) to develop base, future base and future proposed scenarios for the AM and PM 1-hour peak periods as part of the future development in the vicinity of Newgate Lane and Newgate Lane East B3385.

1.6. The existing base models were calibrated and validated in accordance with the available modelling guidelines for traffic turning counts and journey times. These models were considered fit for the purpose of being used as a base line for comparison vs. future base and future proposed modelling results.

1.7. The base modelled journey time difference vs. surveyed data was within the acceptable range/limit of 15% in both peaks. HCC are currently in possession of this model.

1.8. The purpose of the VISSIM base models was to ensure that an accurate representation of the existing traffic network structure and network data have been applied. In addition, these VISSIM base models will form the basis for comparison against scheme proposals.

1.9. This technical note details the development of the Future Base (2024) and Future Proposed (2024) VISSIM Modelling for AM and PM peak periods.

1.10. As agreed with HCC, we are only assessing DS2 which accounts for the proposed Stubbington Bypass.

1.11. Journey Time, maximum queue lengths and average delay per light vehicle have been presented in this technical note. Figure 1 shows the locations for the queue and delay results. The journey time routes correlate with those presented in the base model submission.

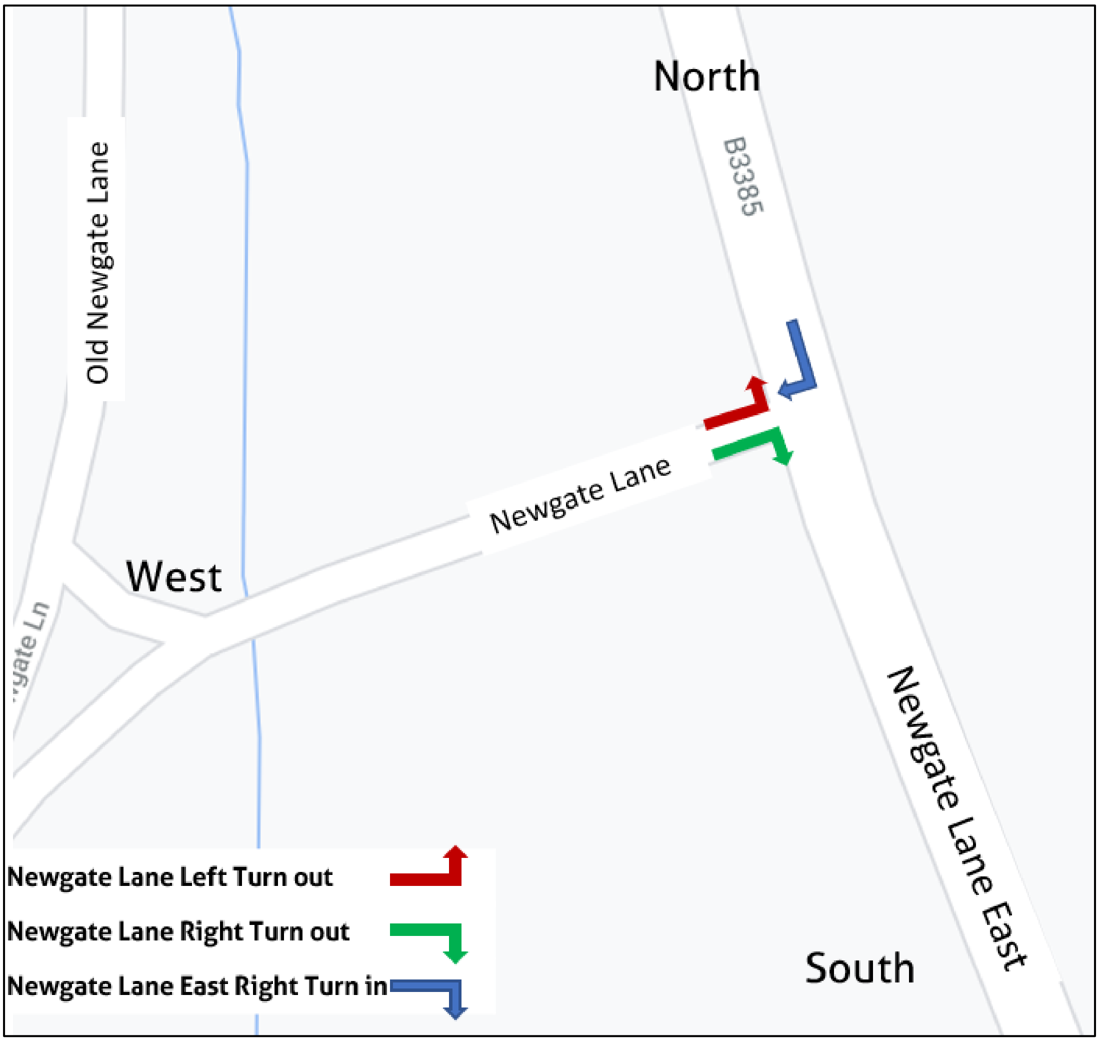


Figure 1 - Queue Length and Delay Results Map

2. Future Base Layout Models- DS2

Traffic Flows and Routes

2.1. Future Base traffic flows were calculated to include all the development in the vicinity of the study area in 2024 excluding the proposed development in question for the AM and PM peak periods. Within the base layout we also assessed the impact of the two developments independently of one another and together.

2.2. Pegasus Group calculated the traffic flows and issued them to RWA for the purpose of traffic modelling. These flows have been approved by HCC as part of the planning application.

2.3. The future flows were provided as an hourly total of lights and HGVs. Vehicle inputs and local routes were updated/amended to reflect the calculated growth in both peak VISSIM models.

2.4. The same input and routing 15-minute proportions were applied to the flows. The split of HGV and MGVs were proportioned as per the base flows.

Layout Changes

2.5. The network layout remains unchanged in the Future Base modelling.

Traffic Flow GEH Statistic- DS2

2.6. A comparison between the Future Base turning counts and modelled turning counts has been undertaken for each modelled scenario to demonstrate the positive correlation between the flows. Flow analysis is detailed in Appendix A and shows all turning movements, across all peaks and scenarios has a GEH below 0.5.

Journey times- DS2

2.7. A comparison of the VISSIM modelled journey times has been undertaken for each modelled assessment to truly understand the impact of the proposed developments on the junction of Newgate Lane East and Newgate Lane. A comparison is provided in Table 2.1 for the AM & PM peak periods.

2.8. The journey time results demonstrate that if no changes were made at the junction, the introduction of the developments will result in an increase in the journey time for those turning out of Newgate Lane onto Newgate Lane East.

2.9. In the PM peak this increase in journey time is negligible. It is more severe in the AM peak when not only is more traffic anticipated to use the side road but there is a greater volume of traffic travelling northbound on Newgate Lane East than in the PM.

2.10. The impact on the journey time of the other assessed routes is negligible.

2.11. Full journey time results can be found in Appendix B.

Table 2-1 - Future Base Layout Journey Time Results (seconds)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings
AM				
Newgate Lane East Northbound	103	103	104	104
Newgate Lane East Southbound	83	83	84	84
Newgate Lane Eastbound	57	75	100	166
Newgate Lane Westbound	29	28	28	29
PM				
Newgate Lane East Northbound	86	86	87	87
Newgate Lane East Southbound	86	85	86	86
Newgate Lane Eastbound	32	32	33	34
Newgate Lane Westbound	28	29	29	29

<u>Queue Lengths- DS2</u>

2.12. A comparison of the VISSIM modelled maximum queue lengths has been undertaken for each modelled assessment to demonstrate the increase in queuing as a result of the proposed developments on the junction of Newgate Lane East and Newgate Lane. A comparison is provided in Table 2.2 for the AM & PM peak periods.

2.13. Queues were measured at the three points that vehicles give-way in the model; turning left out of Newgate Lane, turning right out of Newgate Lane and turning right into Newgate Lane from Newgate Lane East.

2.14. The results demonstrate that if no changes were made at the junction, the introduction of the developments will result in an increase in queue lengths particularly for those turning out of Newgate Lane onto Newgate Lane East.

2.15. Queue lengths increase most significantly for those turning right out of Newgate Lane onto Newgate Lane East. In the AM 115 dwellings scenario queues are expected to reach the junction with Old Newgate Lane and when 190 dwellings were assessed the maximum queue length is anticipated to pass Old Newgate Lane, blocking access in and out of this road.

2.16. In the PM peak the increase in queue lengths is negligible.

Table 2-2 - Future Base Layout Maximum Queue Length Results (metres)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings
AM				
Newgate Lane Left Turn out	20	35	51	112
Newgate Lane Right Turn out	18	42	69	123
Newgate Lane East Right Turn in	17	21	25	34
PM				
Newgate Lane Left Turn out	9	11	13	14
Newgate Lane Right Turn out	10	13	13	17
Newgate Lane East Right Turn in	11	12	14	16

<u>Delay- DS2</u>

2.17. A comparison of the VISSIM modelled average vehicle delays has been undertaken for each modelled scenario to demonstrate the increase in delay as a result of the proposed developments on the junction of Newgate Lane East and Newgate Lane. A comparison is provided in Table 2.3 for the AM & PM peak periods. The results are shown for light vehicles. The results for heavies can be found in Appendix C.

2.18. As anticipated the increase in delay is incremental when additional dwellings are accounted for in the model. The AM peak also shows a greater increase and more severe levels of delay than the PM.

2.19. Delay is only significant and felt by vehicles giving way at the junction with the those turning out of Newgate Lane onto Newgate Lane East being most severely impacted. Of the two movements, the right turners experience the greatest level of delay.

Table 2-3 - Future Base Layout Average Lights Vehicle Delay Results (seconds)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings
AM				
North to West	37	43	48	58
North to South	1	1	1	2
West to South	49	69	98	161
West to North	31	41	57	113
South to North	4	4	4	4
South to West	3	3	3	3
PM				
North to West	5	5	6	7
North to South	2	2	2	2
West to South	8	9	10	11
West to North	4	4	4	5
South to North	2	2	2	2
South to West	2	2	2	2

3. Proposed Layout Modelling- Option 3- DS2

3.1. In light of the anticipated increase in journey time as a result of the increase in opposing traffic, amendments to the existing give-way junction have been made in the model.

3.2. The primary purpose of these amendments is to reduce proposed journey times for vehicles utilising the minor arm without significantly compromising the journey times for traffic on Newgate Lane East.

3.3. Pegasus Group have produced three priority option designs with the aim to mitigate the journey time impacts.

3.4. Option 1 and 2 have since been discounted.

3.5. Option 3 has previously been presented to HCC and incorporates amendments to the priority junction with the aim to increase capacity at the junction and mitigate the impact of the development.

3.6. The option involves widening the centre of the junction to increase the waiting space for vehicles turning right out of Newgate Lane onto Newgate Lane East.

<u>Layout Changes</u>

3.7. The aforementioned widening of the central island is the primary change to the layout in the VISSIM model. Priority models have also been accordingly tweaked to ensure there are no collisions in this central waiting area between the opposing right turn movements.

3.8. Those turning into Newgate Lane from Newgate Lane East have priority over those turning right out. As such those turning right give-way to those turning into Newgate Lane.

3.9. If vehicles waiting to turn out of Newgate Lane onto Newgate Lane East have already progressed through the junction and are filling the central area before a vehicle turning right into Newgate Lane has arrived, then those turning in must give-way as demonstrated with priority rule 7 in the model.

<u>Traffic Flow GEH Statistic- DS2</u>

3.10. A comparison between the Future Base turning counts and modelled turning counts has been undertaken for each modelled scenario to demonstrate the positive correlation between the flows. Flow analysis is detailed in Appendix A and shows all turning movements, across all peaks and scenarios has a GEH below 0.5.

<u>Journey times- DS2</u>

3.11. A comparison of the future base VISSIM modelled journey times has been undertaken against the proposed dwelling scenarios tested in the Option 3 layout.. A comparison is provided in Table 3.1 for the AM & PM peak periods.

3.12. The journey time results demonstrate that even if Option 3 were to be introduced, the developments will still result in an increase in the journey time for those turning out of Newgate Lane onto Newgate Lane East. There is little difference between the journey time results in the future base layout (Table 2.1) and in the option 3 layout (Table 3.1).

3.13. In the PM peak this increase in journey time remains negligible. It is more severe in the AM peak when not only is more traffic anticipated to use the side road but there is a greater volume of traffic travelling northbound on Newgate Lane East than in the PM. It appears that in order to assist vehicles in existing the minor arm, some control of the opposing flows is required.

3.14. The impact on the journey time of the other assessed routes is negligible.

Table 3-1 – Future Base vs. Option 3 Layout Journey Time Results (seconds)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings
AM				
Newgate Lane East Northbound	103	103	104	104
Newgate Lane East Southbound	83	83	88	83
Newgate Lane Eastbound	57	75	83	141
Newgate Lane Westbound	29	28	28	29
PM				
Newgate Lane East Northbound	86	86	87	87
Newgate Lane East Southbound	86	85	85	85
Newgate Lane Eastbound	32	32	33	33
Newgate Lane Westbound	28	29	29	29

<u>Queue Lengths- DS2</u>

3.15. A comparison of the VISSIM modelled maximum queue lengths has been undertaken between the future base and the Option 3 proposed scenarios. The results demonstrate that Option 3 is not able to mitigate the increase in queuing as a result of the proposed developments on the junction of Newgate Lane East and Newgate Lane. A comparison is provided in Table 3.2 for the AM & PM peak periods.

3.16. The when comparing the results in Table 3.2 against the future base layout results in Table 2.2 it demonstrates that the introduction of Option 3 would have little impact on the maximum queuing lengths at the junction.

Table 3-2 - Future Base vs. Option 3 Layout Maximum Queue Length Results (metres)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings
AM				
Newgate Lane Left Turn out	20	33	46	100
Newgate Lane Right Turn out	18	42	65	115
Newgate Lane East Right Turn in	17	22	27	31
PM				
Newgate Lane Left Turn out	9	12	13	14
Newgate Lane Right Turn out	10	11	12	16
Newgate Lane East Right Turn in	11	12	14	16

<u>Delay- DS2</u>

3.17. The delay results shown in Table 3.3 support the queuing and journey time data by demonstrating that an increase in delay at the junction is still expected if Option 3 were to be introduced.

Table 3-3 - Future Base vs. Option 3 Layout Average Lights Vehicle Delay Results (seconds)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings
AM				
North to West	37	44	49	57
North to South	1	1	1	1
West to South	49	68	84	137
West to North	31	41	48	93
South to North	4	4	4	4
South to West	3	3	3	3
PM				
North to West	5	5	6	7
North to South	2	1	1	1
West to South	8	9	9	11
West to North	4	4	4	4
South to North	2	2	2	2
South to West	2	2	2	2

4. Summary and Conclusion

4.1. Existing base VISSIM models have been submitted to HCC and Atkins, the auditing engineer. These base models validate against surveyed journey time data and replicate the existing on-street conditions.

4.2. Future base and future proposed modelling has been undertaken for the DS2 scenarios for 2024 only as agreed with HCC. The flows used in the modelling have been provided to RWA by Pegasus Group and have previously been approved by HCC.

4.3. The future base modelling included all the committed developments in the vicinity of the study area in 2024, whilst the future proposed was to test the impact of the 75 dwellings and 115 dwellings independently of another and as a combined development of 190 dwellings using the B3385 Newgate Lane East / Newgate Lane priority junction. These tests were initially carried out without any physical network changes but with the calculated/forecasted traffic growth for 2024. This was done to understand the impact of proposed development flows against the base layout.

4.4. Assessing the developments in the future base layout demonstrate the development will have an adverse impact on vehicles exiting Newgate Lane. It is anticipated that there would be an increase in maximum queue length, journey time and delay at the junction.

4.5. The junction is most severely impacted when 190 dwellings are introduced and due to excessive queuing on the minor arm the junction will operate over capacity.

4.6. On discussing proposed amendments with HCC it is understood that their preference would be for any mitigation proposed to be in keeping with the existing priority layout.

4.7. Pegasus Group produced a priority layout of the junction, Option 3. This looked to widen the capacity in the centre of the junction, therefore increasing the queuing space for right turners and formalising the two stage give-way movement that vehicles currently undertake at the junction.

4.8. When testing the impact of Option 3 on the junction, the results demonstrate that the proposed development will still have a significant impact on the junction. Due to the heavy northbound flow, not as a result of the development, in the future year it becomes increasingly difficult for vehicles to exit the minor arm onto Newgate Lane East.

4.9. Improvements to the priority junction without controlling the northbound flow will not suffice to mitigate the impact of the development.

5. Appendix A – Flow Analysis

6. Appendix B- Journey Time Analysis

7. Appendix C- Delay Results

Appendix C

Travel Plan Discount VISSIM Results

1. Appendix C- Discounted Trip Rate Results

Table 1-1 - Discounted Trip Rate Journey Time Results (seconds)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings	190 Affordable Housing
AM					
Newgate Lane East Northbound	103	103	104	104	104
Newgate Lane East Southbound	83	83	84	84	84
Newgate Lane Eastbound	57	75	92	146	119
Newgate Lane Westbound	29	29	28	29	29
PM					
Newgate Lane East Northbound	86	86	87	87	87
Newgate Lane East Southbound	86	85	86	86	86
Newgate Lane Eastbound	32	32	33	33	33
Newgate Lane Westbound	28	29	29	29	29

Table 1-2 - Travel Plan Discount Maximum Queue Length Results (metres)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings	190 Affordable Housing
AM					
Newgate Lane Left Turn out	20	34	49	91	72
Newgate Lane Right Turn out	18	41	62	104	83
Newgate Lane East Right Turn in	17	21	24	29	28
PM					
Newgate Lane Left Turn out	9	11	13	14	13
Newgate Lane Right Turn out	10	12	12	16	14
Newgate Lane East Right Turn in	11	13	14	16	14

Table 1-3 - Travel Plan Discount Average Vehicle Delay (lights) (seconds)

	Future Base	75 Dwellings	115 Dwellings	190 Dwellings	190 Affordable Housing
AM					
North to West	37	42	47	55	54
North to South	1	1	1	2	1
West to South	49	69	90	147	120
West to North	31	41	51	91	70
South to North	4	4	4	4	4
South to West	3	3	3	3	3
PM					
North to West	5	5	6	6	6
North to South	2	2	2	2	2
West to South	8	9	9	10	10
West to North	4	4	4	5	4
South to North	2	2	2	2	2
South to West	2	2	2	2	2

Appendix D

Speed Surveys

Speed Bins Report HANTS_ATC 000000008321 2018-09-27 to 2018-10-03

Site Name	B3385 NEWGATE LANE EAST
Site ID	000000008321
Grid	457166103704
Description	NEWGATE LANE EAST
Setup	Setup14340 (13SPD)
Lanes	Each Lane
Show Time	Average
Period	1 hour
Averaged over	All days
Speed units	mph
Exclude data:	None

All directions

	Average Flow	<10.0mph	10.0-15.0mph	15.0-20.0mph	20.0-25.0mph	25.0-30.0mph	30.0-35.0mph	35.0-40.0mph	40.0-45.0mph	45.0-50.0mph	50.0-55.0mph	55.0-60.0mph	60.0-65.0mph	>65.0mph	85^{th} %ile	Mean Speed	Std Dev
00:00:00	51	0	0	0	0	1	2	20	16	8	4	1	0	0	48.2	41.6	6.4
01:00:00	29	0	0	0	0	0	3	7	11	4	3	1	0	0	50.1	42.7	6.6
02:00:00	19	0	0	0	0	0	1	7	4	4	2	1	0	0	49.8	42.7	6.9
03:00:00	28	0	0	0	0	0	2	9	11	5	0	0	0	0	46.8	41.5	5.5
04:00:00	73	0	0	0	0	0	3	21	28	12	5	2	1	0	48.9	42.9	6.1
05:00:00	275	0	0	1	0	0	11	107	105	37	11	2	1	0	46.4	41.4	5
06:00:00	938	0	0	2	30	99	305	339	134	22	6	1	0	0	40.8	35.4	5.5
07:00:00	1156	15	32	74	82	211	399	237	79	21	4	2	0	0	38.6	31.1	8
08:00:00	1111	44	36	53	62	121	271	367	136	16	4	0	0	0	39.9	32.1	9.4
09:00:00	1195	3	7	11	21	39	272	619	204	15	3	0	0	0	41.1	36.4	5.3
10:00:00	1141	17	4	6	9	32	250	632	178	11	2	0	0	0	40.6	36.2	5.8
11:00:00	1094	0	1	0	1	33	239	617	191	11	2	0	0	0	41	37.1	3.8
12:00:00	1077	1	2	3	13	38	226	585	193	15	1	0	0	0	41.3	36.9	4.5
13:00:00	1026	1	2	3	3	16	195	567	225	14	1	0	0	0	41.9	37.5	4.1
14:00:00	933	5	3	4	14	24	158	497	207	19	2	0	0	0	42.1	37.2	5.3
15:00:00	930	0	0	0	2	23	148	508	221	24	3	1	0	0	42.5	37.9	4.1
16:00:00	939	0	1	2	7	21	142	495	239	28	4	0	0	0	42.7	38	4.5
17:00:00	866	0	0	0	0	9	100	455	263	34	4	1	0	0	43.3	38.8	4
18:00:00	773	0	0	0	1	7	88	407	228	33	6	2	0	0	43.4	38.9	4.1
19:00:00	608	0	0	0	0	4	110	344	129	17	3	0	0	0	42.3	38	3.9
20:00:00	354	0	0	0	0	2	42	182	101	19	6	1	1	0	43.7	39.2	4.5
21:00:00	250	0	0	0	0	1	24	126	77	17	4	1	0	1	44	39.5	4.6
22:00:00	179	0	0	0	0	2	21	76	57	15	5	2	0	0	44.6	40	5.4
23:00:00	99	0	0	0	0	0	9	44	30	10	4	1	1	0	45.6	40.6	5.5
07-19	12242	86	87	156	214	575	2488	5985	2363	241	35	8	2	1	41.7	36.3	6.1
06-22	14391	86	88	157	245	682	2969	6975	2804	316	54	11	4	2	41.8	36.5	6
06-24	14669	86	88	158	245	684	2998	7095	2892	340	63	14	5	3	41.9	36.5	6
00-24	15145	86	88	158	245	685	3020	7266	3067	410	88	22	7	4	42.2	36.7	6
am Peak	09:00:00	08:00:00	08:00:00	07:00:00	07:00:00	07:00:00	07:00:00	10:00:00	09:00:00	05:00:00	05:00:00	05:00:00	04:00:00	07:00:00	01:00:00	04:00:00	
Peak Volume	1195	44	36	74	82	211	399	632	204	37	11	2	1	0	50.1	42.9	2710.6
pm Peak	12:00:00	14:00:00	14:00:00	14:00:00	14:00:00	12:00:00	12:00:00	12:00:00	17:00:00	17:00:00	20:00:00	22:00:00	20:00:00	21:00:00	23:00:00	23:00:00	
Peak Volume	1077	5	3	4	14	38	226	585	263	34	6	2	1	1	45.6	40.6	2452.6

NB

	Average Flow	<10.0mph	10.0-15.0mph	15.0-20.0mph	20.0-25.0mph	25.0-30.0mph	30.0-35.0mph	35.0-40.0mph	40.0-45.0mph	45.0-50.0mph	50.0-55.0mph	55.0-60.0mph	60.0-65.0mph	>65.0mph	85^{th} %ile	Mean Speed	Std Dev
00:00:00	51	0	0	0	0	1	2	20	16	8	4	1	0	0	48.2	41.6	6.4
01:00:00	29	0	0	0	0	0	3	7	11	4	3	1	0	0	50.1	42.7	6.6
02:00:00	19	0	0	0	0	0	1	7	4	4	2	1	0	0	49.8	42.7	6.9
03:00:00	28	0	0	0	0	0	2	9	11	5	0	0	0	0	46.8	41.5	5.5
04:00:00	73	0	0	0	0	0	3	21	28	12	5	2	1	0	48.9	42.9	6.1
05:00:00	275	0	0	1	0	0	11	107	105	37	11	2	1	0	46.4	41.4	5
06:00:00	938	0	0	2	30	99	305	339	134	22	6	1	0	0	40.8	35.4	5.5
07:00:00	1156	15	32	74	82	211	399	237	79	21	4	2	0	0	38.6	31.1	8
08:00:00	1111	44	36	53	62	121	271	367	136	16	4	0	0	0	39.9	32.1	9.4
09:00:00	1195	3	7	11	21	39	272	619	204	15	3	0	0	0	41.1	36.4	5.3
10:00:00	1141	17	4	6	9	32	250	632	178	11	2	0	0	0	40.6	36.2	5.8
11:00:00	1094	0	1	0	1	33	239	617	191	11	2	0	0	0	41	37.1	3.8
12:00:00	1077	1	2	3	13	38	226	585	193	15	1	0	0	0	41.3	36.9	4.5
13:00:00	1026	1	2	3	3	16	195	567	225	14	1	0	0	0	41.9	37.5	4.1
14:00:00	933	5	3	4	14	24	158	497	207	19	2	0	0	0	42.1	37.2	5.3
15:00:00	930	0	0	0	2	23	148	508	221	24	3	1	0	0	42.5	37.9	4.1
16:00:00	939	0	1	2	7	21	142	495	239	28	4	0	0	0	42.7	38	4.5
17:00:00	866	0	0	0	0	9	100	455	263	34	4	1	0	0	43.3	38.8	4
18:00:00	773	0	0	0	1	7	88	407	228	33	6	2	0	0	43.4	38.9	4.1
19:00:00	608	0	0	0	0	4	110	344	129	17	3	0	0	0	42.3	38	3.9
20:00:00	354	0	0	0	0	2	42	182	101	19	6	1	1	0	43.7	39.2	4.5
21:00:00	250	0	0	0	0	1	24	126	77	17	4	1	0	1	44	39.5	4.6
22:00:00	179	0	0	0	0	2	21	76	57	15	5	2	0	0	44.6	40	5.4
23:00:00	99	0	0	0	0	0	9	44	30	10	4	1	1	0	45.6	40.6	5.5
07-19	12242	86	87	156	214	575	2488	5985	2363	241	35	8	2	1	41.7	36.3	6.1
06-22	14391	86	88	157	245	682	2969	6975	2804	316	54	11	4	2	41.8	36.5	6
06-24	14669	86	88	158	245	684	2998	7095	2892	340	63	14	5	3	41.9	36.5	6
00-24	15145	86	88	158	245	685	3020	7266	3067	410	88	22	7	4	42.2	36.7	6
am Peak	09:00:00	08:00:00	08:00:00	07:00:00	07:00:00	07:00:00	07:00:00	10:00:00	09:00:00	05:00:00	05:00:00	05:00:00	04:00:00	07:00:00	01:00:00	04:00:00	
Peak Volume	1195	44	36	74	82	211	399	632	204	37	11	2	1	0	50.1	42.9	2710.6
pm Peak	12:00:00	14:00:00	14:00:00	14:00:00	14:00:00	12:00:00	12:00:00	12:00:00	17:00:00	17:00:00	20:00:00	22:00:00	20:00:00	21:00:00	23:00:00	23:00:00	

Peak Volume	1077	5	3	4	14	38	226	585	263	34	6	2	1	1	45.6	40.6	2452.6

NOT ASSIGNED

	Average Flow	<10.0mph	10.0-15.0mph	15.0-20.0mph	20.0-25.0mph	25.0-30.0mph	30.0-35.0mph	35.0-40.0mph	40.0-45.0mph	45.0-50.0mph	50.0-55.0mph	55.0-60.0mph	60.0-65.0mph	>65.0mph	85th %ile	Mean Speed	Std Dev
00:00:00																	
01:00:00																	
02:00:00																	
03:00:00																	
04:00:00																	
05:00:00																	
06:00:00																	
07:00:00																	
08:00:00																	
09:00:00																	
10:00:00																	
11:00:00																	
12:00:00																	
13:00:00																	
14:00:00																	
15:00:00																	
16:00:00																	
17:00:00																	
18:00:00																	
19:00:00																	
20:00:00																	
21:00:00																	
22:00:00																	
23:00:00																	
07-19																	
06-22																	
06-24																	
00-24																	
am Peak																	
Peak Volume																	
pm Peak																	
Peak Volume																	

Event key: QC failure Atypical (QC Events Special Holiday Offline

Weekends and defined holidays

Notes on data:

Averages are calculated as the simple average of values across the period.

Holidays & Events:

None

Speed Bins Report HANTS_RTD 000057030003 2020-02-24 to 2020-03-01

Site Name	57030003
Site ID	000057030003
Grid	457333103180
Description	Newgate Lane Eastern Section
Setup	57030003_Pvr
Lanes	Each Lane
Show daily	Average
Time Period	1 hour
Class	Any
Speed units	mph
Exclude data:	None

All directions

	Average Flow	<10.0mph	10.0-20.0mph	20.0-30.0mph	30.0-40.0mph	40.0-50.0mph	50.0-60.0mph	60.0-70.0mph	>70.0mph	Invalid Reading	85th %ile	Mean Speed	Std Dev
00:00:00	147	0	0	1	62	69	12	2	1	0	48.5	42.4	6.6
01:00:00	68	0	0	1	27	33	6	1	0	0	48.5	42.2	7.2
02:00:00	50	0	0	1	18	23	6	1	1	0	49.7	43.2	7.4
03:00:00	50	0	0	1	21	22	5	1	0	0	48.5	41.9	7.6
04:00:00	94	0	0	1	42	43	7	0	0	0	47.9	41.7	5.7
05:00:00	393	0	0	1	209	162	18	2	1	0	46	40.7	5.5
06:00:00	1208	17	80	347	563	188	11	1	0	0	40.4	32.5	8.7
07:00:00	1769	70	190	711	555	234	7	1	0	1	39.8	29.8	9.6
08:00:00	1960	66	82	388	1113	301	9	0	0	1	40.4	33.2	8.4
09:00:00	1980	37	77	243	1351	267	5	0	0	0	39.8	34.1	7.3
10:00:00	2026	0	4	137	1596	284	5	0	0	0	39.8	36	4.2
11:00:00	2200	1	7	108	1812	267	5	0	0	0	39.8	36	4.1
12:00:00	2311	9	22	115	1869	291	4	1	0	0	39.8	35.9	4.7
13:00:00	2293	1	3	104	1869	310	6	0	0	0	39.8	36.4	3.9
14:00:00	2307	0	1	105	1877	317	7	0	0	0	39.8	36.3	3.9
15:00:00	2403	2	4	153	1914	324	6	0	0	0	39.8	36	4.2
16:00:00	2476	0	7	167	2046	250	5	0	0	0	39.2	35.6	4
17:00:00	2244	4	20	220	1761	232	7	0	0	0	39.2	35	4.8
18:00:00	1795	0	0	94	1438	254	7	1	0	0	39.8	36.2	4.1
19:00:00	1241	0	0	29	890	309	11	1	0	0	41.6	38	4.3
20:00:00	842	0	0	10	509	306	16	1	0	0	43.5	39.4	4.5
21:00:00	599	0	0	6	335	239	15	3	1	0	44.1	40.1	5.1
22:00:00	472	0	0	6	257	192	15	2	0	0	44.1	40.1	4.9
23:00:00	252	0	0	1	118	116	15	2	0	0	46.6	41.4	5.8
07-19	25763	190	417	2545	19201	3331	73	4	0	2	39.8	35.2	5.7
06-22	29653	208	498	2937	21498	4374	127	10	1	2	40.4	35.4	5.9
06-24	30377	208	498	2944	21873	4681	157	14	2	2	40.4	35.5	5.9
00-24	31178	208	498	2949	22251	5034	210	22	4	2	40.4	35.7	6
am Peak	11:00:00	07:00:00	07:00:00	07:00:00	11:00:00	08:00:00	05:00:00	00:00:00	00:00:00	08:00:00	02:00:00	02:00:00	
Peak Volume	2200	70	190	711	1812	301	18	2	1	1	49.7	43.2	7.4
pm Peak	16:00:00	12:00:00	12:00:00	17:00:00	16:00:00	15:00:00	20:00:00	21:00:00	21:00:00		23:00:00	23:00:00	
Peak Volume	2476	9	22	220	2046	324	16	3	1		46.6	41.4	5.8

Southbound

	Average Flow	<10.0mph	10.0-20.0mph	20.0-30.0mph	30.0-40.0mph	40.0-50.0mph	50.0-60.0mph	60.0-70.0mph	>70.0mph	Invalid Reading	85th %ile	Mean Speed	Std Dev
00:00:00	98	0	0	0	37	49	9	2	0	0	48.5	42.8	6.3
01:00:00	42	0	0	0	13	23	4	1	0	0	49.7	43.4	6.8
02:00:00	29	0	0	0	8	16	4	1	0	0	51	44.7	7.3
03:00:00	23	0	0	0	7	11	3	0	0	0	49.7	42.5	8.8
04:00:00	24	0	0	0	7	16	2	0	0	0	48.5	43.3	5.2
05:00:00	78	0	0	0	27	44	6	1	0	0	47.9	42.7	5.6
06:00:00	198	0	0	0	91	100	6	0	0	0	45.4	41	4.4
07:00:00	605	0	0	7	390	202	5	0	0	0	42.9	39.1	3.9
08:00:00	782	0	1	19	533	226	4	0	0	0	41.6	38.2	4.2
09:00:00	803	1	2	18	588	191	3	0	0	0	41.6	37.8	4.1
10:00:00	903	0	4	30	661	204	4	0	0	0	41	37.6	4.2
11:00:00	1084	0	0	17	875	189	3	0	0	0	40.4	37.2	3.6
12:00:00	1194	0	1	32	969	189	2	1	0	0	40.4	36.9	3.7
13:00:00	1222	0	2	27	988	203	2	0	0	0	40.4	37.1	3.7
14:00:00	1345	0	0	62	1091	189	3	0	0	0	39.8	36.4	3.8
15:00:00	1443	2	3	102	1146	188	2	0	0	0	39.8	35.9	4.3
16:00:00	1558	0	5	130	1309	112	1	0	0	0	38.5	35	3.8
17:00:00	1456	4	19	199	1135	96	2	0	0	0	38.5	33.9	4.9
18:00:00	1106	0	0	68	889	146	3	0	0	0	39.8	36	4
19:00:00	726	0	0	12	496	212	5	0	0	0	42.3	38.5	4.1
20:00:00	539	0	0	5	307	219	8	0	0	0	43.5	39.7	4.1
21:00:00	369	0	0	3	193	165	7	1	0	0	44.1	40.4	4.5
22:00:00	320	0	0	4	163	142	9	2	0	0	44.1	40.4	4.8
23:00:00	164	0	0	0	72	82	9	1	0	0	46.6	41.7	5.1
07-19	13501	8	37	711	10574	2134	34	2	0	0	40.4	36.4	4.3
06-22	15333	8	37	731	11661	2831	59	4	1	0	41	36.8	4.4
06-24	15817	8	37	736	11896	3055	77	6	1	0	41	36.9	4.4
00-24	16110	8	38	737	11996	3213	105	10	2	0	41	37	4.6
am Peak	11:00:00	09:00:00	10:00:00	10:00:00	11:00:00	08:00:00	00:00:00	00:00:00	02:00:00	10:00:00	02:00:00	02:00:00	
Peak Volume	1084	1	4	30	875	226	9	2	0	0	51	44.7	7.3
pm Peak	16:00:00	17:00:00	17:00:00	17:00:00	16:00:00	20:00:00	23:00:00	22:00:00	17:00:00		23:00:00	23:00:00	

	Average Flow	<10.0mph	10.0-20.0mph	20.0-30.0mph	30.0-40.0mph	40.0-50.0mph	50.0-60.0mph	60.0-70.0mph	>70.0mph	Invalid Reading	85th %ile	Mean Speed	Std Dev
Peak Volume	1558	4	19	199	1309	219	9	2	0		46.6	41.7	5.1

Nortbound

	Average Flow	<10.0mph	10.0-20.0mph	20.0-30.0mph	30.0-40.0mph	40.0-50.0mph	50.0-60.0mph	60.0-70.0mph	>70.0mph	Invalid Reading	85th %ile	Mean Speed	Std Dev
00:00:00	50	0	0	1	24	20	3	1	0	0	47.9	41.7	7
01:00:00	26	0	0	0	13	10	2	0	0	0	47.9	40.3	7.5
02:00:00	21	0	0	0	11	8	2	0	0	0	47.9	41.2	7
03:00:00	28	0	0	0	13	11	2	0	0	0	47.9	41.4	6.4
04:00:00	69	0	0	1	36	28	5	0	0	0	46.6	41.2	5.8
05:00:00	315	0	0	1	182	117	12	2	0	0	45.4	40.2	5.4
06:00:00	1010	17	80	347	472	88	6	1	0	0	38.5	30.8	8.3
07:00:00	1164	70	190	704	165	32	2	0	0	1	30.5	24.9	7.9
08:00:00	1178	66	81	369	581	75	5	0	0	1	37.9	29.9	8.9
09:00:00	1177	36	75	225	763	76	2	0	0	0	37.9	31.7	7.9
10:00:00	1123	0	0	106	935	79	1	0	0	0	38.5	34.8	3.8
11:00:00	1116	1	7	91	937	78	2	0	0	0	38.5	34.8	4.1
12:00:00	1117	9	21	83	900	102	2	0	0	0	39.2	34.8	5.4
13:00:00	1071	0	2	77	881	108	3	0	0	0	39.2	35.6	4
14:00:00	962	0	1	43	786	129	4	0	0	0	39.8	36.2	4
15:00:00	960	0	1	51	768	136	4	0	0	0	39.8	36.2	4.1
16:00:00	918	0	1	37	737	138	4	0	0	0	40.4	36.6	4.1
17:00:00	789	0	1	21	626	136	5	0	0	0	41	37	4
18:00:00	688	0	0	26	549	108	5	0	0	0	40.4	36.6	4.2
19:00:00	514	0	0	17	394	97	6	1	0	0	41	37.2	4.5
20:00:00	304	0	0	5	202	87	9	1	0	0	43.5	38.8	5
21:00:00	230	0	0	3	142	74	8	2	1	0	44.1	39.6	5.8
22:00:00	152	0	0	2	94	50	6	1	0	0	44.1	39.5	5.2
23:00:00	88	0	0	1	46	34	6	1	0	0	46.6	41	6.9
07-19	12262	183	380	1833	8627	1197	39	2	0	2	39.1	33.8	6.7
06-22	14320	200	460	2205	9837	1542	67	6	1	2	39.1	33.9	6.9
06-24	14560	200	460	2208	9977	1626	79	8	1	2	39.1	34	6.9
00-24	15069	200	461	2212	10256	1820	105	12	2	2	39.8	34.2	7
am Peak	08:00:00	07:00:00	07:00:00	07:00:00	11:00:00	05:00:00	05:00:00	05:00:00	00:00:00	08:00:00	02:00:00	00:00:00	
Peak Volume	1178	70	190	704	937	117	12	2	0	1	47.9	41.7	6.9
pm Peak	12:00:00	12:00:00	12:00:00	12:00:00	12:00:00	16:00:00	20:00:00	21:00:00	21:00:00		23:00:00	23:00:00	
Peak Volume	1117	9	21	83	900	138	9	2	1		46.6	41	6.9

Event key: QC failure Atypical (QC) Events Special Holiday Offline

Weekends and defined holidays

Notes on data:

Averages are calculated as the simple average of values across the period.

Holidays & Events:

None

Appendix E

Merging Traffic at Signalled Junctions

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Merging Traffic at Signalled Junctions

Introduction

Back in 2012, at the JCT Symposium, I presented a paper 'Modelling Merges at Signalled Junctions'. In that paper I showed that lanes merging after a junction affects driver lane choice approaching the junction. Using data from three different sites, I showed that the share of traffic between merging lanes was biased towards the nearside lane, was predictable and results were statistically significant. This in turn, made it possible to model the effect using Linsig, although some changes were needed; in particular, a modified version of the Linsig give-way model was used.

This approach provided a breakthrough in predicting and modelling traffic flows where lanes merge after a junction, however the paper did not explore the details of the sites, or try to understand the driver behaviour.

Scope

This paper looks into the detail behind the original statistical observations and predictions; we try to explain how and why drivers are reacting to merging lanes. We will also examine the differences between the data from the sites, using a subjective analysis to explore differences and similarities, to build on confidence in the original paper. Finally, more data, from a wider range of sites is presented in addition to the original results.

Methodologies

To discover and explore potential differences between data from sites, and to examine the reliability of the original data, a wide range of data collection methods have been used. Video surveys and on site observations have provided key qualitative information, while MOVA flows have been collected to provide raw data. From MOVA flow logs, both the cumulative lane flows and the X detector flows have been collected. Although this does not provide a firm base for statistical analysis between sites, it does allow us to confirm the same trends can be seen, regardless of the method of data collection. This is helpful in establishing that a single methodology does not overly influence the result.

In total, data was collected from seven new sites not originally included in the original paper. Amongst these seven sites, there were 12 approaches that merged. All were examined and appeared to follow similar trends, consistent with the original findings. Eight of the approaches were discounted from the study though, as the count data could not be verified to relate to a specific merge on an exit, as opposed to other exit lanes.

Key Questions

Several key questions arose as a result of the original paper. These predominantly relate to driver behaviour in differing circumstances, and therefore the general application and relevance of the results. Broken down into simple questions, they are:

1. Why do drivers appear to prefer the nearside lane, when lanes merge after a junction?
2. Although all sites show a statistically consistent trend, there are small differences between datasets collected by different methodologies. What explains these differences?
3. How do different geometries and interventions affect driver behaviour?

Why do driver prefer the nearside lane?

The original paper hypothesised that some drivers will be willing to take higher risks and use the offside lane. As the perceived benefit of the offside lane increases (I.e. delay increases in the nearside lane), proportionally more people will accept the higher risks and use the offside lane.

Figure 1. A5/A47 Longshoot Junction, Nuneaton

This does seem to support and be borne out by the results established, however there is little evidence to demonstrate that drivers do perceive an increased risk in the offside lane. Standard methods for testing this hypothesis would include interviewing drivers, however that is beyond the resources available for this research. Instead, clues as to the perceived risk can be inferred from watching driver behaviour.

Using a video survey of a site in Plymouth, driver behaviour could be examined in detail. Observing the video over several time periods and several days, the site was first of all confirmed to follow the originally established trend. A difficulty in measurement became apparent though.

The video showed the approach to the signals and the exit, looking forward in the direction of travel. All drivers using the offside lane to go ahead clearly must merge, however it is clear that drivers change lanes from Lane 2 to Lane 1 at many different points. Focusing on drivers in Lane 2, during quiet periods, many drivers tend to merge to Lane 1 earlier, often before the stop line. In some cases, vehicles are even moving between lanes as they come into the frame, some 50 metres before the stop line.

At busier times though, drivers tend to stay in Lane 2 longer, crossing the stop line and either merging in the junction, or using the merge on the exit to re-join Lane 1. In mid and high flow situations, several drivers can even be seen moving out of Lane 1 late, or starting to change lanes before moving back. This late-weaving behaviour can be seen to be attributable to perceived delay – drivers in a free flowing Lane 1 rarely move across late. Likewise, drivers in Lane 2 rarely join Lane 1 early if Lane 1 is not free-flowing.

Figure 2. A46/A607, Hobby Horse Roundabout, Leicester

Figure 3. A1101 / Weasenham Lane, Wisbech

It is quite clear therefore that delay is one of the factors affecting driver choice, as Lane choice can be seen to be influenced by perception of delay in both lanes. Inferring perception of risk is more difficult. Despite this however, there is clearly a bias towards Lane 1 – drivers sometimes weave from Lane 1 towards 2 and back to Lane 1, but the opposite is never true. Drivers using Lane 2 also appear to tend to drive slightly faster and during low traffic conditions, the later they merge, the faster they tend to drive. This does not prove that risk perception is a second primary factor, but it does support the idea.

Figure 4. A46/A607, Hobby Horse Roundabout, Leicester.

What explains the differences in the data?

The unexpected behaviour observed above, quickly became apparent as a likely cause of differences between recording methodologies.

When modelling traffic using a program such as Linsig, we do not tend to consider the location of vehicles in a lane; they are either in one lane, or another. Sometimes an allowance may be made to allow flows to be automatically balanced by allowing traffic to 'move' between lanes in between junctions, however the exact location of this is never considered in detail.

What appears to be happening in practice though, is that the measured lane flow changes depending on three factors: overall flow, the longitudinal position on the carriageway at which flow is being measured, and the geometry of the road itself.

Leaving the geometry for the last 'question', the flow and point of measurement together pose a significant problem for standardised data collection. If drivers do tend to change lanes (both to Lane 2 and back to Lane 1) later as flow increases, the measured flow in each lane will vary depending on where the measurement is taken. Measurements taken 40 - 50 metres away from the stop line (MOVA X loops for example) may under-represent the number of vehicles actually crossing the stop line in Lane 2 in busy periods.

Measuring at the stop line though, (such as in a typical manual survey) may be likely to miss the drivers who merge into Lane 1 in advance of the stop line, particularly during mid – low flow periods. This may also depend on the exact methods and consistency of each individual person conducting a manual survey – some may choose to count vehicles merging shortly before the stop line, whereas others may not. Both count positions are therefore likely to give slightly varying trends.

The alternative to a manual survey of course is an automatic vehicle count. Automated surveys, collecting data constantly will collect a much larger sample of low-flow data. They may be affected by loop-clipping though, as vehicles straddling or changing lanes may be counted in both. Manual counts may be more accurate (subject to caveats above) but due to cost, tend to under-sample low flow conditions. This may exacerbate discrepancies and errors in the trend during low flow conditions.

As a result, there is no clear “best method” for taking a representative measurement of lane flow. Generally speaking though, there is no clear benefit (or loss) to capacity from a vehicle changing lanes shortly before the stop line, compared to after it. An automated lane flow measurement between 12m and 50m from the stop line over a 24 hour period is likely to give the most reliable measurement.

On balance, it may be necessary to tacitly accept these differences between methodologies. By compiling data from these different sources, the trend will be an aggregate of both and results of modelling based upon it should be suitable for all circumstances, within reasonable error bands.

How does the geometry effect the result?

At first glance, the results obtained from a wide range of sites, with substantial differences in geometry, follow a remarkably consistent trend. The following geometric traits are all included within the cumulative data samples:

- T-Junction, cross-roads and gyratory layouts
- Rural minor, inter-urban strategic and urban road networks
- Geographic spread of sites including Plymouth, Cambridgeshire, Norfolk, Peterborough, Nottingham, Leicestershire and Derbyshire.
- Lane 2 approach lane lengths from infinite (i.e. dual carriageway) to 60m flared lane
- Merge lengths between 60m and 100m beyond junction
- Various signage and road markings to indicate drivers should merge.
- Various radii (ahead and right turns) through junction.

There is insufficient sample data available to specifically analyse the wide range of differing geometric traits. Since all the sites fit with the general trend, it is fair to assume that no one of these traits makes a significance difference to the lane flows. What does seem more likely from the observations made, is that they do play an important part in establishing the point at which drivers are likely to merge.

A short flared approach lane will only allow a late movement to Lane 2, whereas a short merge on the exit is likely to encourage drivers to merge earlier. This may have an effect on the measurable traffic flow, depending on how the data is collected.

From this it could be expected that a site with short flare and short merge would not fit the general trend of lane use. The short distance available would minimise the benefit in delay but increase the risk. If all this holds true, then fewer drivers should use Lane 2 in almost all circumstances. Unfortunately no data from sites of this design was available.

Other traits that may have an effect could include signage of various types. From the observations made, primarily of a site in Norfolk, signage appears to be potentially effective in encouraging drivers to merge slightly later.

Figure 5. Dereham Road / Longwater Road, Norwich.

Theoretical Capacity of Merges

Drivers merging later is not the same as an increase in capacity. As was mentioned in the introduction of my original paper, any exit lane after the merge has a finite capacity – which can be calculated by well established methods. The maximum capacity achieved by the two merging lanes logically cannot be higher than the capacity of the exit lane.

Of course the traffic flow at the point of merge is not constant, as the traffic signals disrupt the flow between Stages. Even if both merging lanes are saturated at the point of the merge, lost time in the junction *may* provide sufficient time for the traffic to merge and dissipate, without the resulting queue from the slowing/merging traffic impacting upon the junction. In this sense, with traffic at or near capacity, and a relatively high amount of lost time, a merge may be effective in creating an increase in capacity from a dual carriageway or flared approach.

Where the flow exceeds the capacity of the exit lane, the result is each vehicle slowing down, with (normally) the nearside lane allowing the offside to merge by leaving larger gaps between vehicles. This initially sacrifices nearside lane capacity due to the increase in headway between vehicles. From this point of view, regardless of where traffic merges, once the exit lanes become saturated, there is no longer a capacity benefit from the merge - flare. Encouraging late merging may initially help to keep a queue clear of the junction, but it gains little or no capacity advantage in these conditions.

Figure 6. Dereham Road / Longwater Road, Norwich. Traffic merging shortly after start of green.

In the above photo, traffic can be seen merging shortly after the start of green. At this point, there is a much higher number of drivers in the offside lane than the nearside, and drivers in the nearside can be seen to be leaving large gaps. From this viewpoint, for a short while after the start of the stage, the flow in the offside lane exceeds the nearside.

As we have already established though, regardless of the point at which traffic actually merges, the proportion of vehicles in each lane remains the same. Looking at the same lanes of traffic, but as the lanes approach the signals, a different flow composition can be seen.

Figure 7. Dereham Road / Longwater Road, Norwich. Queue shortly after start of green.

From this viewpoint, it is clear that the demand for the offside lane is much lower than the view at the merge would suggest.

Accuracy and Variations in Trend

Using the ideas and theories above, we can go back and look again at the data we collected from various sites. As previously discussed above, there are differences in the trend lines between different sites. Looking at the data presented in graphs, on some, the trend line does not fit as well. There is no polynomial trend line that fits consistently across all sites. Instead, the data points appear to be linear (with a higher coefficient) up to a point, after which variation increases and coefficient decreases.

In this example, from The Long Shoot Junction near Nuneaton, nearside lane flow can clearly be seen to drop compared to total flow after about 700 vehicles (in a one hour period). During periods of lower flow though, the trend appears very consistent and slightly higher. One immediate reaction would be to assume that the trend line is a cubic curve, arcing as flow increases. This does not fit though, and no cubic trend line can be found that describes the flow better than the linear expression.

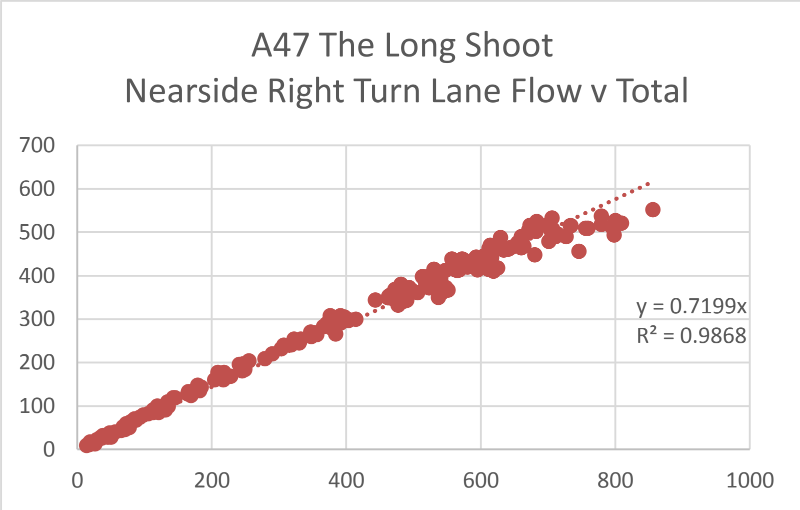


Figure 8. A5/A47 Longshoot Junction, All Data

Instead, if we hypothesise that the maximum saturation flow of the exit merge may be reached between 600 and 700 vehicles, the pattern becomes easier to understand. As the exit becomes saturated, traffic in the nearside lane slows down, to allow the offside lane to merge. The effect of this slowing is to create a longer, slower queue in the nearside lane. At this point though, the offside lane may still be relatively free-flowing, as was seen in the Norfolk videos. The important point to note is that the data above only shows vehicles that were able to pass over the relevant detector – it does not represent the demand in each lane, once a queue has formed.

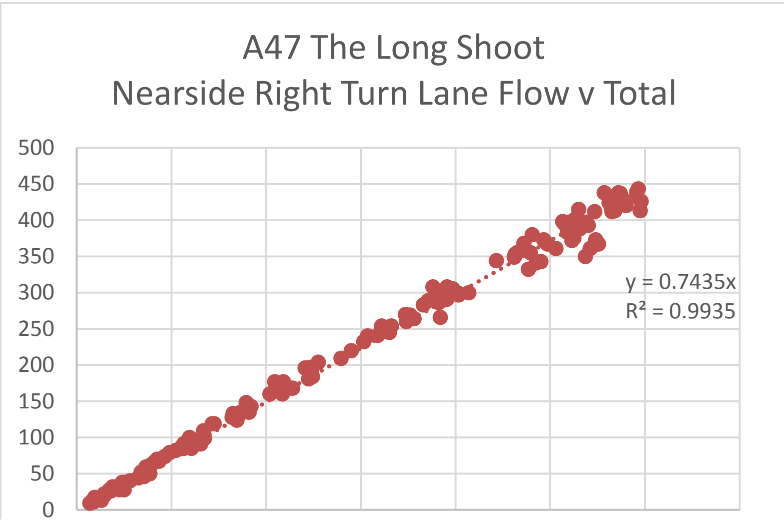


Figure 9. A5/A47 Longshoot Junction, Excluding saturated flows

If we exclude the data relating to flows at or near our assumed exit saturation, the trend line becomes a very close fit.

Correcting the data as I did in the original paper, we can once again aggregate the data to compare, and to look at the overall fit of our trend as a general predictor of traffic distribution between lanes. This does not exclude any high-flow data points, however the significance of the highest flow data points reduces, as there are comparatively fewer of them.

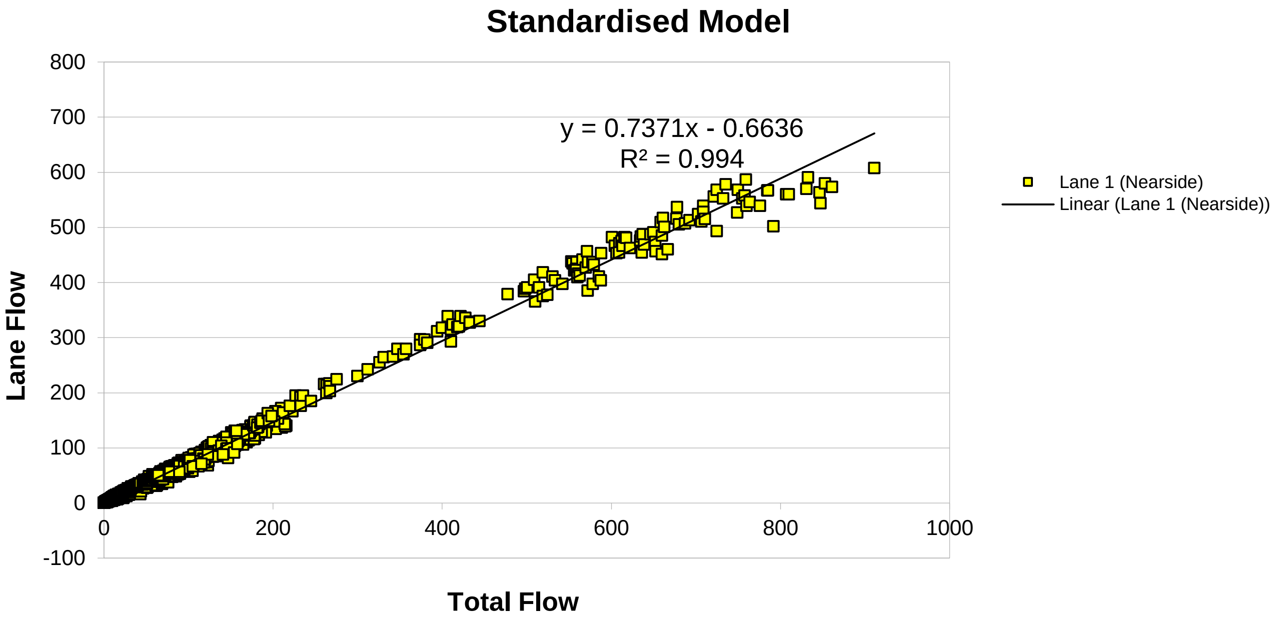


Figure 10. Corrected and Standardised Data, All Sites

Previously, we have simply examined the data to check for a trend and to measure the fit of the trend line to the data points. With this amount of data, we can look in more detail to establish the level of precision, and therefore how good the trend may be for prediction through modelling. Using basic statistical analysis techniques, the trend line (the "linear regression"), can be examined.

Input

The data series above contains aggregated data from 8 different merging approaches, sampled from 6 sites across Cambridgeshire, Peterborough, Norfolk, Nottinghamshire and Plymouth. There is variation in the number of samples from each site. There are a total of 1696 measurements.

Data Analysis

The measured coefficient is 0.7370 with an intercept of -0.6658, which is close to the original findings. The flow can obviously never be below 0 in practice, although there could be a number of different reasons that explain this small difference. The R Square value of the linear regression (how well the trend matches the data) is 0.9939. The standard deviation of the error of the regression is 8.4935 and the "t Statistic" value is 528.1711. The "P-value", is 0.0000. This indicates that the linear regression (the trend) is a very strong fit, with a very high probability of predicting the traffic distribution in the nearside lane. The actual confidence boundaries of the regression are: Lower 99.0%, 0.7343; Upper 99.0%, 0.7398; Lower 95.0%, 0.7343; Upper 95.0%, 0.7398. For the Intercept, the t-Stat value of -2.63 and P-value of 0.00859 indicate that there is less certainty in the result, although it is likely to be close (possibly 0, as hypothesised).

If we set the Y-intercept at 0, there is a slight variation in the coefficient to 0.735, with no appreciable decrease in any of the above indicators of consistency for the regression.

Limitations

Although the fundamental premise is supported with a significant amount of data (old and new), this paper has deliberately concentrated on discussing and analysing the theory as to why this may be true. Although this feature is reasonably widespread, there is simply insufficient data for the wide range of geometric variables to prove the impact of each feature, and therefore explain the slight differences between sites. That does not cast any doubt on the underlying findings though, which have remained strongly consistent, regardless of the variables.

The original paper did note that even with the merge modelled, the results did not follow the measured flows accurately. This now appears likely to be the result of the point of merge not being accurately reflected. It is possible that this can be improved on, but more work will be needed with Linsig to incorporate a model and refine it.

Although the ultimate capacity of the exit is constrained by the saturation flow of the lane after the merge, the junction still benefits from an increase in capacity from the dual lane approach or flared lanes. The capacity can only be modelled with reasonable accuracy if the proportional division of flow between the two lanes is accurately reflected.

We must remember in interpreting the result, that there are many other factors influencing the results of a traffic count at any given time. Short sample periods will always tend to have a greater divergence from any model of the same period, however long sample periods may become less relevant. This is true of all modelling. All other features such as bus stops, lane alignment and the upstream road network should be taken fully into account, as well as considering any merge.

Conclusion

The new data collected reinforces the findings of the earlier paper; that traffic flow in lanes approaching a merge is predictable and can be modelled. Furthermore, there is a consistent bias towards the nearside lane.

This gives us confidence that traffic flow in the nearside lane can be reasonably predicted by the expression:

$$\mathbf{F_n = 0.735 * F_T}$$

Where F_n is the nearside lane flow and F_T is the total flow.

The new observations and analysis go some way to explaining why this happens and how it works in practice. Although the bias in the proportions of traffic flows between lanes is consistent, the point at which drivers choose to use a lane, or merge back is widely variable, depending on conditions and geometry. Indeed many of the features previously considered to ‘increase capacity’ actually just change the point of merge, with little or no difference to actual capacity.

Some sites do still seem to show trends of slightly different proportional flows in the nearside lane. These tend to be sites from which a smaller sample size was gathered and have a higher variance, indicating these results are less sound.

Acknowledgements

With thanks to the many people who have helped by providing data or access to sites, including colleagues at Norfolk and Cambridgeshire County Councils, Peterborough and Plymouth City Councils, the Highways Agency, A-One+ and Amey.

Photos and video from Google Street View and from CCTV and direct recording on sites.

Appendix F

LinSig Results

AM 75 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.3	10.6	8.7
Newgate Lane	37.1	1.8	64.8
Newgate Lane East SB	56.7	5.1	6.3
60:40			
Newgate Lane East NB	85.3	13.3	8.8
Newgate Lane	37.1	1.8	64.8
Newgate Lane East SB	56.7	5.1	6.3
70:30			
Newgate Lane East NB	88.2	18	10.9
Newgate Lane	37.1	1.8	64.8
Newgate Lane East SB	56.7	5.1	6.3
80:20			
Newgate Lane East NB	92.8	32.2	16.9
Newgate Lane	37.1	1.8	64.8
Newgate Lane East SB	56.7	5.1	6.3
90:10			
Newgate Lane East NB	96.8	53.9	29.9
Newgate Lane	37.1	1.8	64.8
Newgate Lane East SB	56.7	5.7	6.8

AM 75 Private Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.3	10.6	8.7
Newgate Lane	35.6	1.8	64.3
Newgate Lane East SB	55	5.1	6.2
60:40			
Newgate Lane East NB	85.3	13.3	8.8
Newgate Lane	35.6	1.8	64.3
Newgate Lane East SB	55	5.1	6.2
70:30			
Newgate Lane East NB	88.2	18	10.9
Newgate Lane	35.6	1.8	64.3
Newgate Lane East SB	55	5.1	6.2
80:20			
Newgate Lane East NB	92.8	32.2	16.9
Newgate Lane	35.6	1.8	64.3
Newgate Lane East SB	55	5.1	6.2
90:10			
Newgate Lane East NB	96.8	53.9	29.9
Newgate Lane	35.6	1.8	64.3
Newgate Lane East SB	55	5.7	6.8

PM 75 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	49.5	4	3.8
Newgate Lane	34.9	1.7	64.6
Newgate Lane East SB	56.8	9.3	4.6
60:40			
Newgate Lane East NB	49.5	4.5	3.8
Newgate Lane	34.9	1.7	64.6
Newgate Lane East SB	56.8	9.3	4.6
70:30			
Newgate Lane East NB	50.6	5.6	4
Newgate Lane	34.9	1.7	64.6
Newgate Lane East SB	56.8	9.3	4.7
80:20			
Newgate Lane East NB	53.3	6.8	4.4
Newgate Lane	34.9	1.7	64.6
Newgate Lane East SB	56.8	9.3	4.7
90:10			
Newgate Lane East NB	55.6	8.3	4.8
Newgate Lane	34.9	1.7	64.6
Newgate Lane East SB	57.9	10.5	5.4

PM 75 Private Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	49.4	4	3.8
Newgate Lane	34.1	1.6	64.5
Newgate Lane East SB	56.7	9.3	4.6
60:40			
Newgate Lane East NB	49.4	4.5	3.8
Newgate Lane	34.1	1.6	64.5
Newgate Lane East SB	56.7	9.3	4.6
70:30			
Newgate Lane East NB	50.5	5.6	4
Newgate Lane	34.1	1.6	64.5
Newgate Lane East SB	56.7	9.3	4.6
80:20			
Newgate Lane East NB	53.2	6.8	4.4
Newgate Lane	34.1	1.6	64.5
Newgate Lane East SB	56.7	9.3	4.7
90:10			
Newgate Lane East NB	55.5	8.3	4.8
Newgate Lane	34.1	1.6	64.5
Newgate Lane East SB	57.8	10.5	5.4

AM 115 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.4	10.7	8.8
Newgate Lane	47	2.4	67.8
Newgate Lane East SB	65	5.1	6.7
60:40			
Newgate Lane East NB	85.4	13.3	8.9
Newgate Lane	47	2.4	67.8
Newgate Lane East SB	65	5.1	6.7
70:30			
Newgate Lane East NB	88.2	18	11
Newgate Lane	47	2.4	67.8
Newgate Lane East SB	65	5.1	6.7
80:20			
Newgate Lane East NB	92.9	32.2	17
Newgate Lane	47	2.4	67.8
Newgate Lane East SB	65	5.1	6.7
90:10			
Newgate Lane East NB	96.9	54.1	30.3
Newgate Lane	47	2.4	67.8
Newgate Lane East SB	65	5.7	7.3

AM 115 Private Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.3	10.7	8.8
Newgate Lane	44.7	2.3	67.1
Newgate Lane East SB	61.7	5.1	6.5
60:40			
Newgate Lane East NB	85.3	13.3	8.9
Newgate Lane	44.7	2.3	67.1
Newgate Lane East SB	61.7	5.1	6.5
70:30			
Newgate Lane East NB	88.2	18	10.9
Newgate Lane	44.7	2.3	67.1
Newgate Lane East SB	61.7	5.1	6.5
80:20			
Newgate Lane East NB	92.9	32.2	16.9
Newgate Lane	44.7	2.3	67.1
Newgate Lane East SB	61.7	5.1	6.5
90:10			
Newgate Lane East NB	96.9	54	30.1
Newgate Lane	44.7	2.3	67.1
Newgate Lane East SB	61.7	5.7	7.1

PM 115 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	50	4.1	3.6
Newgate Lane	39.5	1.9	1.6
Newgate Lane East SB	57.1	9.3	8.6
60:40			
Newgate Lane East NB	50	4.5	3.9
Newgate Lane	39.5	1.9	65.8
Newgate Lane East SB	57.1	9.3	4.7
70:30			
Newgate Lane East NB	50.9	5.6	4
Newgate Lane	39.5	1.9	65.8
Newgate Lane East SB	57.1	9.3	4.7
80:20			
Newgate Lane East NB	53.6	6.8	4.4
Newgate Lane	39.5	1.9	65.8
Newgate Lane East SB	57.1	9.3	4.7
90:10			
Newgate Lane East NB	56	8.3	4.8
Newgate Lane	39.5	1.9	65.8
Newgate Lane East SB	58.3	10.5	5.4

PM 115 Private Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	49.8	4	3.8
Newgate Lane	38	1.9	65.3
Newgate Lane East SB	57	9.3	4.7
60:40			
Newgate Lane East NB	49.8	4.5	3.9
Newgate Lane	38	1.9	65.3
Newgate Lane East SB	57	9.3	4.7
70:30			
Newgate Lane East NB	50.8	5.6	4
Newgate Lane	38	1.9	65.3
Newgate Lane East SB	57	9.3	4.7
80:20			
Newgate Lane East NB	53.5	6.8	4.4
Newgate Lane	38	1.9	65.3
Newgate Lane East SB	57	9.3	4.7
90:10			
Newgate Lane East NB	55.9	8.3	4.8
Newgate Lane	38	1.9	65.3
Newgate Lane East SB	58.2	10.5	5.4

AM 190 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.6	10.8	8.9
Newgate Lane	63.7	3.6	75.7
Newgate Lane East SB	80	5.1	7.4
60:40			
Newgate Lane East NB	85.6	13.3	9
Newgate Lane	63.7	3.6	75.7
Newgate Lane East SB	80	5.1	7.4
70:30			
Newgate Lane East NB	88.4	18.1	11
Newgate Lane	63.7	3.6	75.7
Newgate Lane East SB	80	5.1	7.4
80:20			
Newgate Lane East NB	93.1	32.4	17.2
Newgate Lane	63.7	3.6	75.7
Newgate Lane East SB	80	5.1	7.4
90:10			
Newgate Lane East NB	97.1	55	31
Newgate Lane	63.7	3.6	75.7
Newgate Lane East SB	80	5.7	8

AM 190 Private Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.5	10.7	8.8
Newgate Lane	59.1	3.2	73.1
Newgate Lane East SB	76.7	5.1	7.3
60:40			
Newgate Lane East NB	85.5	13.3	8.9
Newgate Lane	59.1	3.2	73.1
Newgate Lane East SB	76.7	5.1	7.3
70:30			
Newgate Lane East NB	88.3	18.1	11
Newgate Lane	59.1	3.2	73.1
Newgate Lane East SB	76.7	5.1	7.3
80:20			
Newgate Lane East NB	93	32.3	17.1
Newgate Lane	59.1	3.2	73.1
Newgate Lane East SB	76.7	5.1	7.3
90:10			
Newgate Lane East NB	97	54.8	30.6
Newgate Lane	59.1	3.2	73.1
Newgate Lane East SB	76.7	5.7	7.9

AM 190 Affordable Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.4	10.7	8.8
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
60:40			
Newgate Lane East NB	85.5	13.3	8.9
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
70:30			
Newgate Lane East NB	88.3	18	11
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
80:20			
Newgate Lane East NB	93	32.3	17.1
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
90:10			
Newgate Lane East NB	97	54.2	14.2
Newgate Lane	51.5	2.7	2.2
Newgate Lane East SB	71.7	5.7	1.5

PM 190 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	50.9	4.4	3.9
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.7
60:40			
Newgate Lane East NB	50.9	4.5	3.9
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.7
70:30			
Newgate Lane East NB	51.4	5.6	4
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.7
80:20			
Newgate Lane East NB	54.2	6.8	4.4
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.8
90:10			
Newgate Lane East NB	56.7	8.3	4.8
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	58.9	10.6	5.5

AM 190 Affordable Dwellings + Travel Plan Discounts			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	85.4	10.7	8.8
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
60:40			
Newgate Lane East NB	85.5	13.3	8.9
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
70:30			
Newgate Lane East NB	88.3	18	11
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
80:20			
Newgate Lane East NB	93	32.3	17.1
Newgate Lane	51.5	2.7	69.5
Newgate Lane East SB	71.7	5.1	7
90:10			
Newgate Lane East NB	97	54.2	14.2
Newgate Lane	51.5	2.7	2.2
Newgate Lane East SB	71.7	5.7	1.5

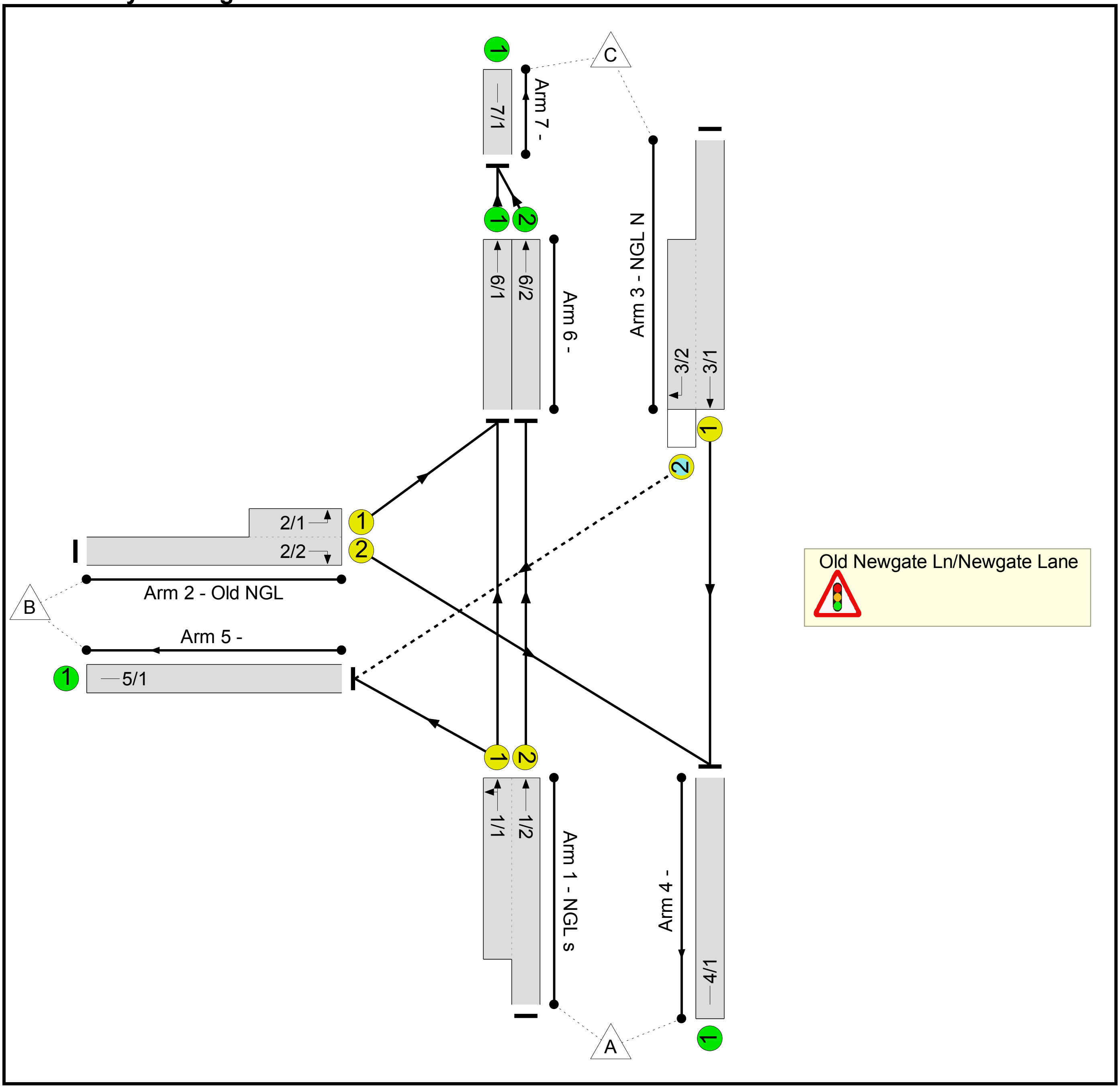
PM 190 Private Dwellings			
	Degree of Saturation	Queue Length	Average Delay per PCU
50:50			
Newgate Lane East NB	50.9	4.4	3.9
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.7
60:40			
Newgate Lane East NB	50.9	4.5	3.9
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.7
70:30			
Newgate Lane East NB	51.4	5.6	4
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.7
80:20			
Newgate Lane East NB	54.2	6.8	4.4
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	57.7	9.3	4.8
90:10			
Newgate Lane East NB	56.7	8.3	4.8
Newgate Lane	48.8	2.5	68.7
Newgate Lane East SB	58.9	10.6	5.5

Full Input Data And Results

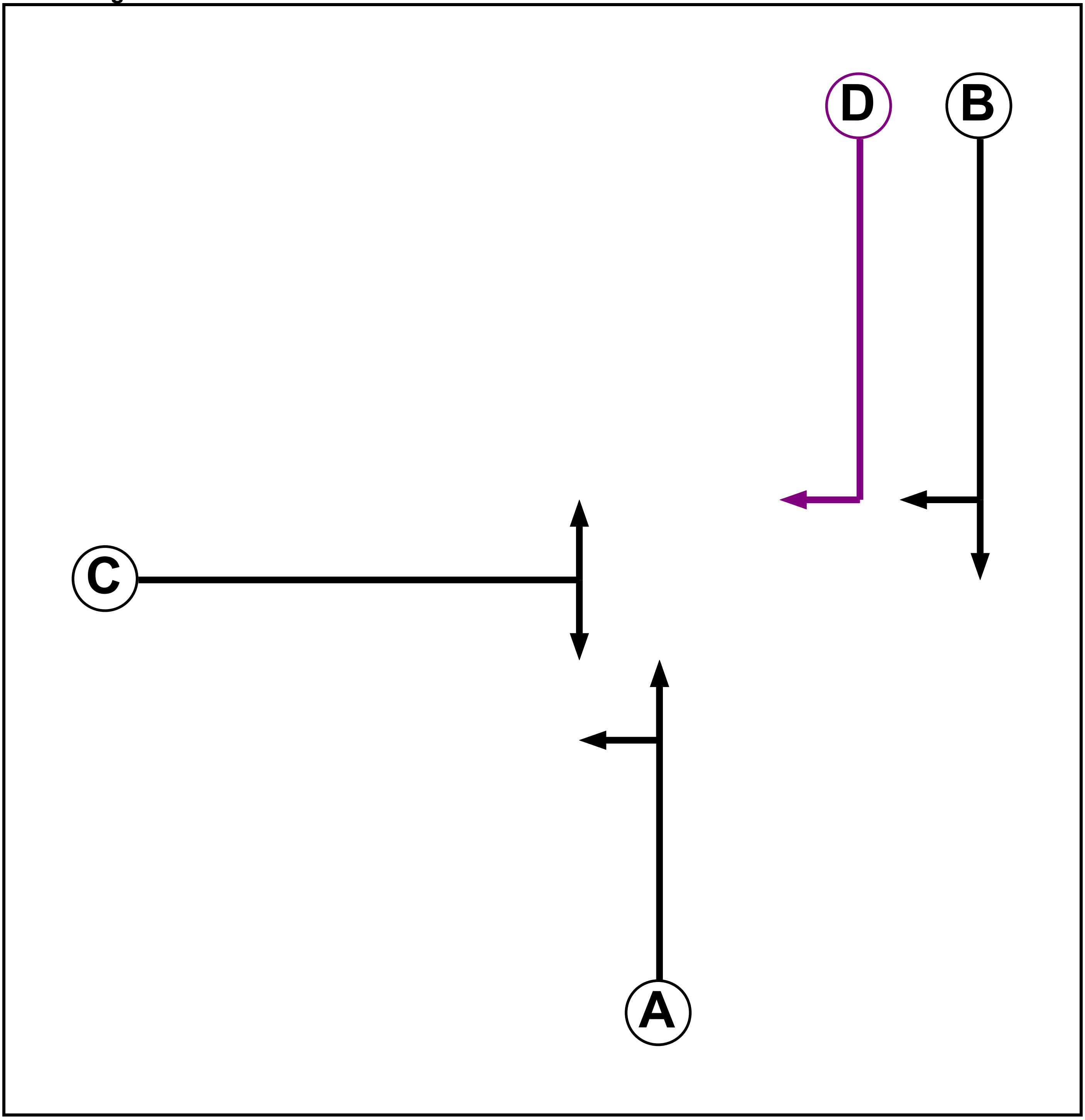
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Indicative Arrow 50 50.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4

Full Input Data And Results

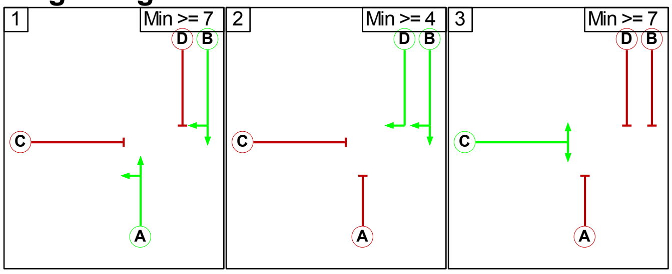
Phase Intergreens Matrix

	Starting Phase			
Terminating Phase	A	B	C	D
A		-	7	5
B	-		5	-
C	5	5		5
D	5	-	5	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	B	Losing	2	2

Prohibited Stage Change

	To Stage		
From Stage	1	2	3
1		5	7
2	5		5
3	5	X	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Old Newgate Ln/Newgate Lane											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
3/2 (NGL N)	5/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Old Newgate Ln/Newgate Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (NGL s)	U	A	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
1/2 (NGL s)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
2/1 (Old NGL)	U	C	2	3	4.9	Geom	-	3.20	0.00	Y	Arm 6 Left	12.00
2/2 (Old NGL)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Right	15.00
3/1 (NGL N)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 4 Ahead	Inf
3/2 (NGL N)	O	B D	2	3	9.0	Geom	-	3.50	0.00	Y	Arm 5 Right	15.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
6/2	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM DS2 75'	08:00	09:00	01:00	
2: '2024 PM DS2 75'	17:00	18:00	01:00	
3: '2024 AM DS2 115'	08:00	09:00	01:00	
4: '2024 PM DS2 115'	17:00	18:00	01:00	
5: '2024 AM DS2 190'	08:00	09:00	01:00	
6: '2024 PM DS2 190'	17:00	18:00	01:00	

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	28	1645	1673
	B	49	0	39	88
	C	687	34	0	721
	Tot.	736	62	1684	2482

Traffic Lane Flows

Lane	Scenario 1: 2024 AM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	851
1/2 (with short)	1673(In) 822(Out)
2/1 (short)	39
2/2 (with short)	88(In) 49(Out)
3/1 (with short)	721(In) 687(Out)
3/2 (short)	34
4/1	736
5/1	62
6/1	862
6/2	822
7/1	1684

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	3.3 %	1959	1959
				Arm 6 Ahead	Inf	96.7 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	42	926	968
	B	35	0	45	80
	C	971	33	0	1004
	Tot.	1006	75	971	2052

Traffic Lane Flows

Lane	Scenario 2: 2024 PM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	505
1/2 (with short)	968(In) 463(Out)
2/1 (short)	45
2/2 (with short)	80(In) 35(Out)
3/1 (with short)	1004(In) 971(Out)
3/2 (short)	33
4/1	1006
5/1	75
6/1	508
6/2	463
7/1	971

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	8.3 %	1949	1949
				Arm 6 Ahead	Inf	91.7 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	30	1645	1675
	B	62	0	45	107
	C	687	39	0	726
	Tot.	749	69	1690	2508

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2024 AM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	853
1/2 (with short)	1675(In) 822(Out)
2/1 (short)	45
2/2 (with short)	107(In) 62(Out)
3/1 (with short)	726(In) 687(Out)
3/2 (short)	39
4/1	749
5/1	69
6/1	868
6/2	822
7/1	1690

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	3.5 %	1958	1958
				Arm 6 Ahead	Inf	96.5 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	51	926	977
	B	39	0	51	90
	C	971	40	0	1011
	Tot.	1010	91	977	2078

Traffic Lane Flows

Lane	Scenario 4: 2024 PM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	514
1/2 (with short)	977(In) 463(Out)
2/1 (short)	51
2/2 (with short)	90(In) 39(Out)
3/1 (with short)	1011(In) 971(Out)
3/2 (short)	40
4/1	1010
5/1	91
6/1	514
6/2	463
7/1	977

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	9.9 %	1946	1946
				Arm 6 Ahead	Inf	90.1 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	34	1645	1679
	B	84	0	56	140
	C	687	48	0	735
	Tot.	771	82	1701	2554

Traffic Lane Flows

Lane	Scenario 5: 2024 AM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	857
1/2 (with short)	1679(In) 822(Out)
2/1 (short)	56
2/2 (with short)	140(In) 84(Out)
3/1 (with short)	735(In) 687(Out)
3/2 (short)	48
4/1	771
5/1	82
6/1	879
6/2	822
7/1	1701

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	4.0 %	1957	1957
				Arm 6 Ahead	Inf	96.0 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
Origin		A	B	C	Tot.
	A	0	68	926	994
	B	46	0	63	109
	C	971	51	0	1022
	Tot.	1017	119	989	2125

Traffic Lane Flows

Lane	Scenario 6: 2024 PM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	531
1/2 (with short)	994(In) 463(Out)
2/1 (short)	63
2/2 (with short)	109(In) 46(Out)
3/1 (with short)	1022(In) 971(Out)
3/2 (short)	51
4/1	1017
5/1	119
6/1	526
6/2	463
7/1	989

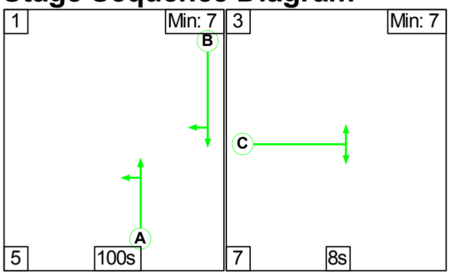
Full Input Data And Results

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	12.8 %	1940	1940
				Arm 6 Ahead	Inf	87.2 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

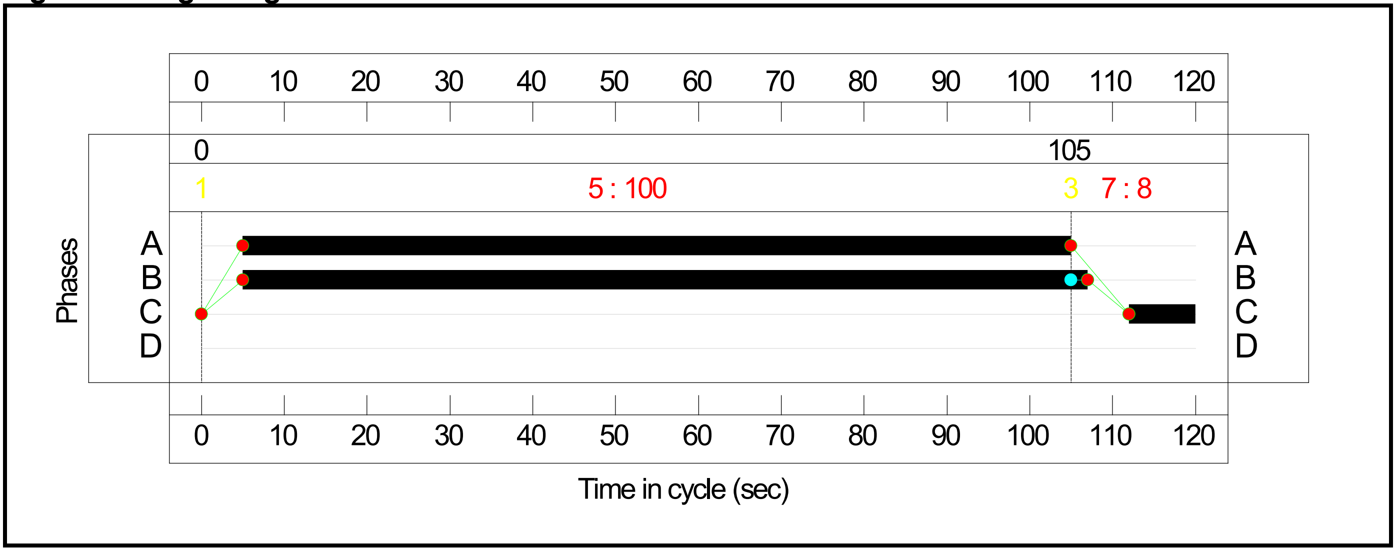
Stage Sequence Diagram



Stage Timings

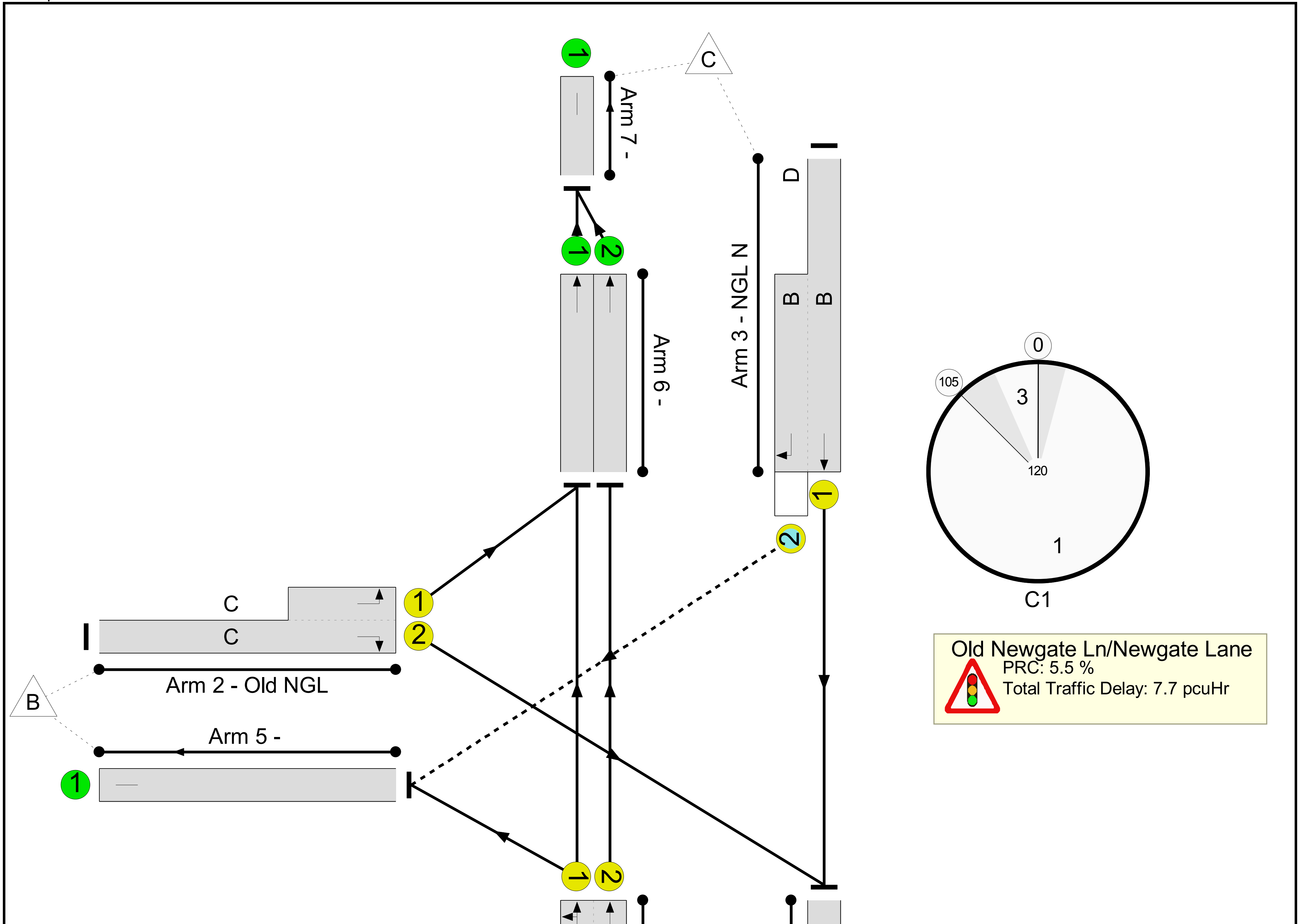
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 5.5 %
Total Traffic Delay: 7.7 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.3%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.3%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1673	1965:1959	964+998	85.3 : 85.3%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	88	1759:1720	132+105	37.1 : 37.1%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	721	2065:1786	1686+60	40.7 : 56.7%
4/1		U	N/A	N/A	-		-	-	-	736	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	62	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	862	1940	1940	44.4%
6/2	Ahead	U	N/A	N/A	-		-	-	-	822	1940	1940	42.4%
7/1		U	N/A	N/A	-		-	-	-	1684	Inf	Inf	0.0%

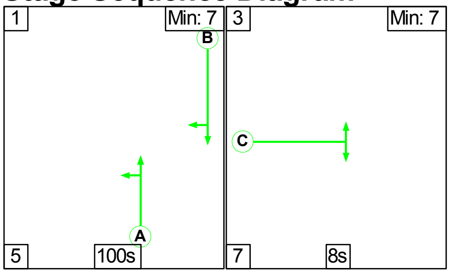
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**34**	**2.9**	**4.3**	**0.5**	**7.7**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**34**	**2.9**	**4.3**	**0.5**	**7.7**	**-**	**-**	**-**	**-**
1/2+1/1	1673	1673	-	-	-	1.2	2.8	-	4.1	8.7	7.8	2.8	10.6
2/2+2/1	88	88	-	-	-	1.3	0.3	-	1.6	64.8	1.6	0.3	1.8
3/1+3/2	721	721	0	0	34	0.4	0.4	0.5	1.3	6.3	4.8	0.4	5.1
4/1	736	736	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	62	62	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	862	862	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
6/2	822	822	-	-	-	0.0	0.4	-	0.4	1.6	2.7	0.4	3.1
7/1	1684	1684	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.5 Total Delay for Signalled Lanes (pcuHr): 6.90 Cycle Time (s): 120
PRC Over All Lanes (%): 5.5 Total Delay Over All Lanes(pcuHr): 7.66

Full Input Data And Results
Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

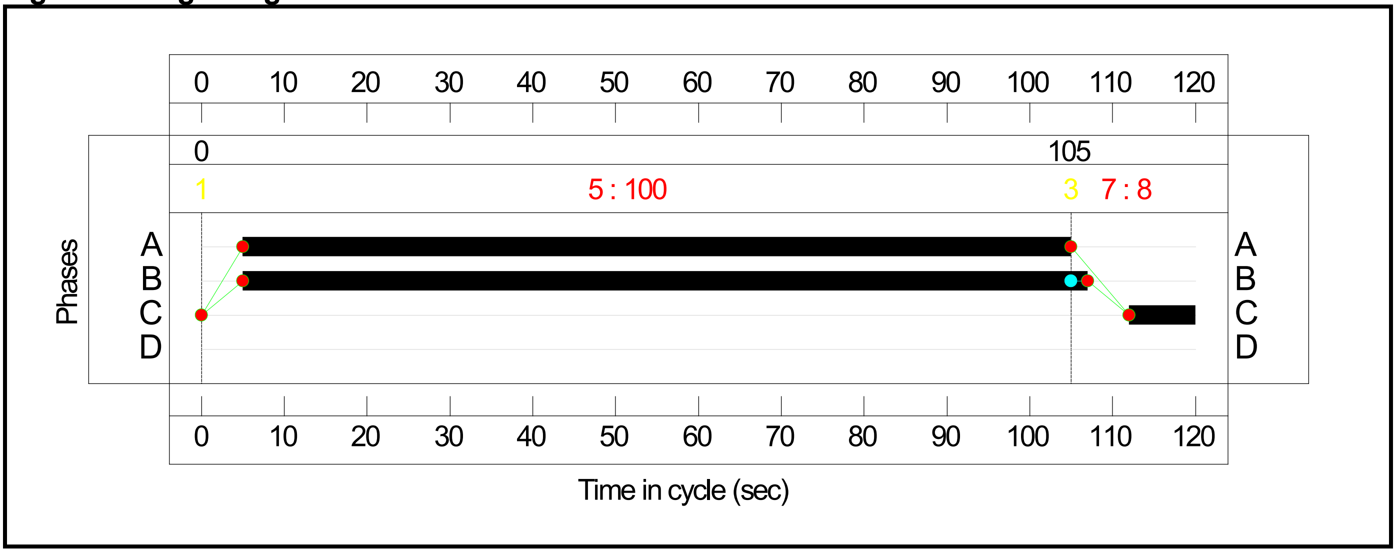
Stage Sequence Diagram



Stage Timings

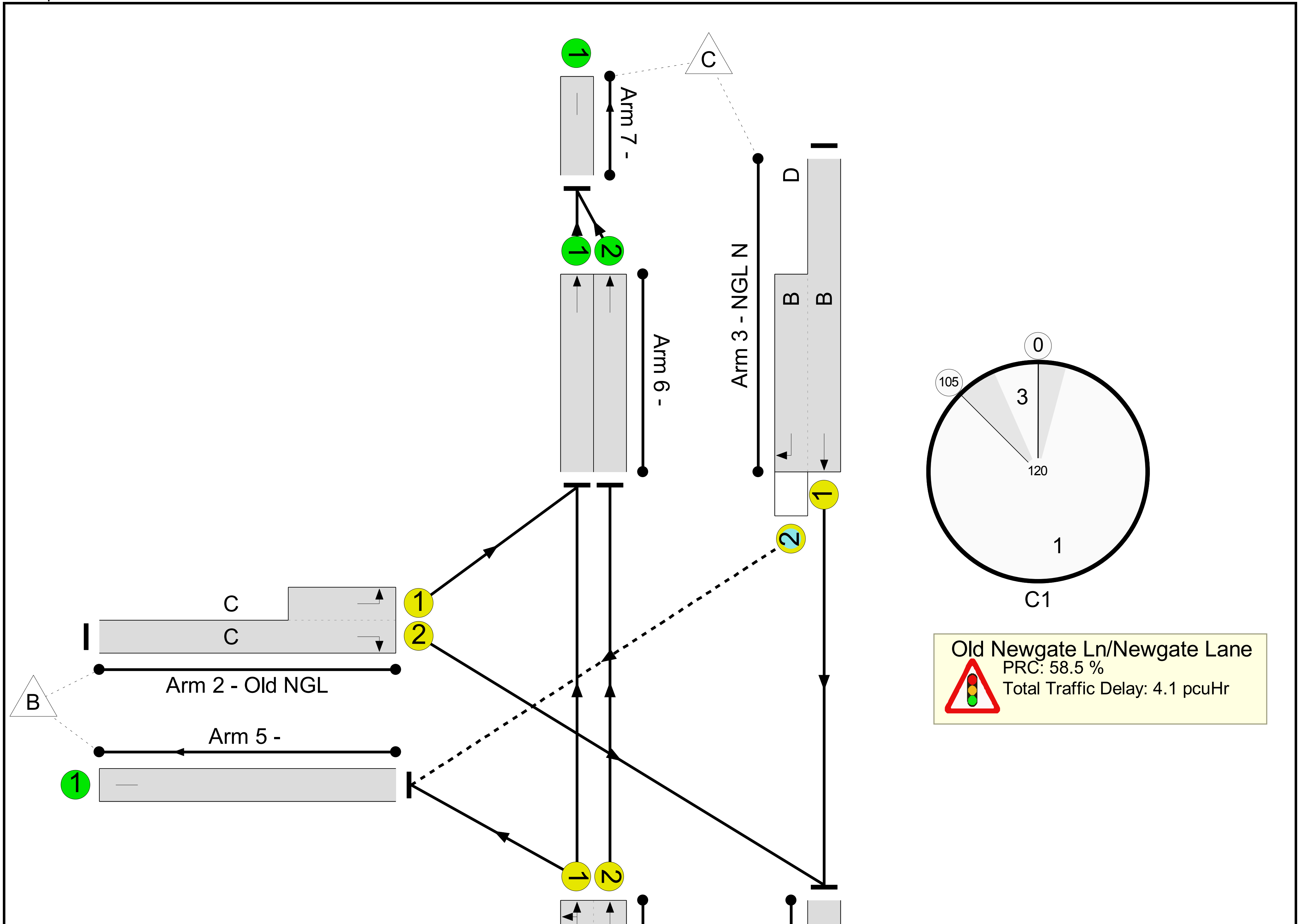
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 58.5 %
Total Traffic Delay: 4.1 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	968	1965:1949	936+1021	49.5 : 49.5%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	80	1759:1720	100+129	34.9 : 34.9%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1004	2065:1786	1711+58	56.8 : 56.8%
4/1		U	N/A	N/A	-		-	-	-	1006	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	508	1940	1940	26.2%
6/2	Ahead	U	N/A	N/A	-		-	-	-	463	1940	1940	23.9%
7/1		U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%

Full Input Data And Results

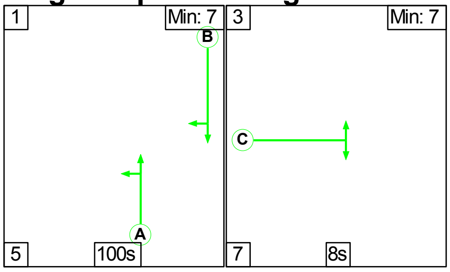
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**32**	**0**	**1**	**2.3**	**1.7**	**0.0**	**4.1**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**32**	**0**	**1**	**2.3**	**1.7**	**0.0**	**4.1**	**-**	**-**	**-**	**-**
1/2+1/1	968	968	-	-	-	0.5	0.5	-	1.0	3.8	3.5	0.5	4.0
2/2+2/1	80	80	-	-	-	1.2	0.3	-	1.4	64.6	1.4	0.3	1.7
3/1+3/2	1004	1004	32	0	1	0.6	0.7	0.0	1.3	4.6	8.6	0.7	9.3
4/1	1006	1006	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	75	75	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	508	508	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/2	463	463	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 58.5 Total Delay for Signalled Lanes (pcuHr): 3.76 Cycle Time (s): 120
PRC Over All Lanes (%): 58.5 Total Delay Over All Lanes(pcuHr): 4.09

Full Input Data And Results

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

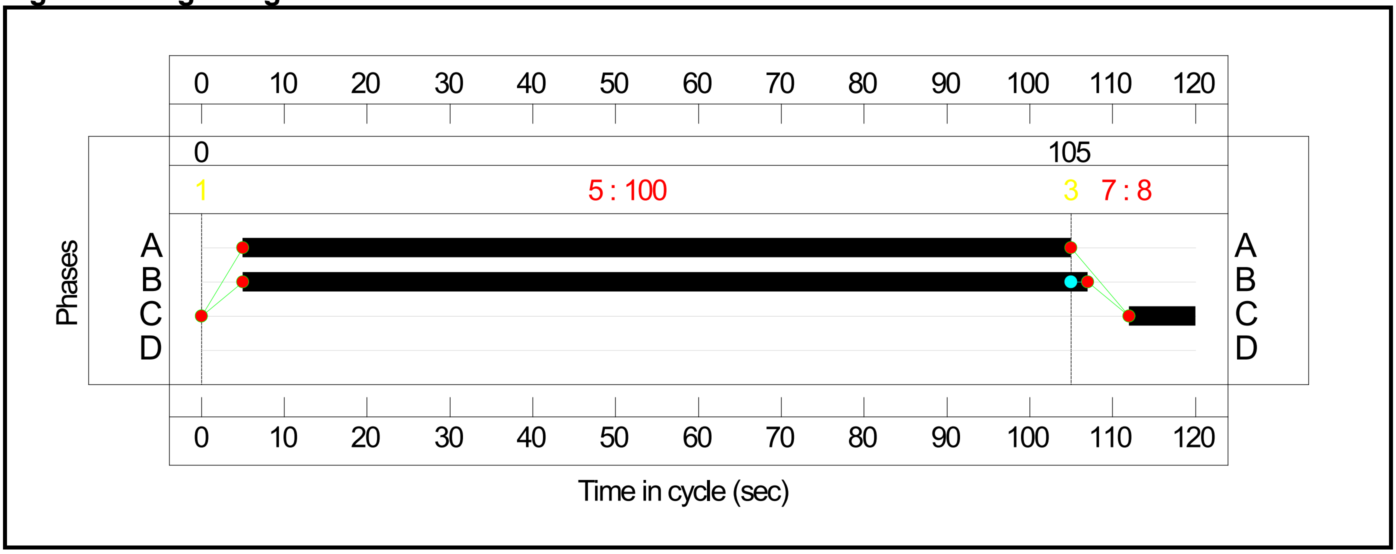
Stage Sequence Diagram



Stage Timings

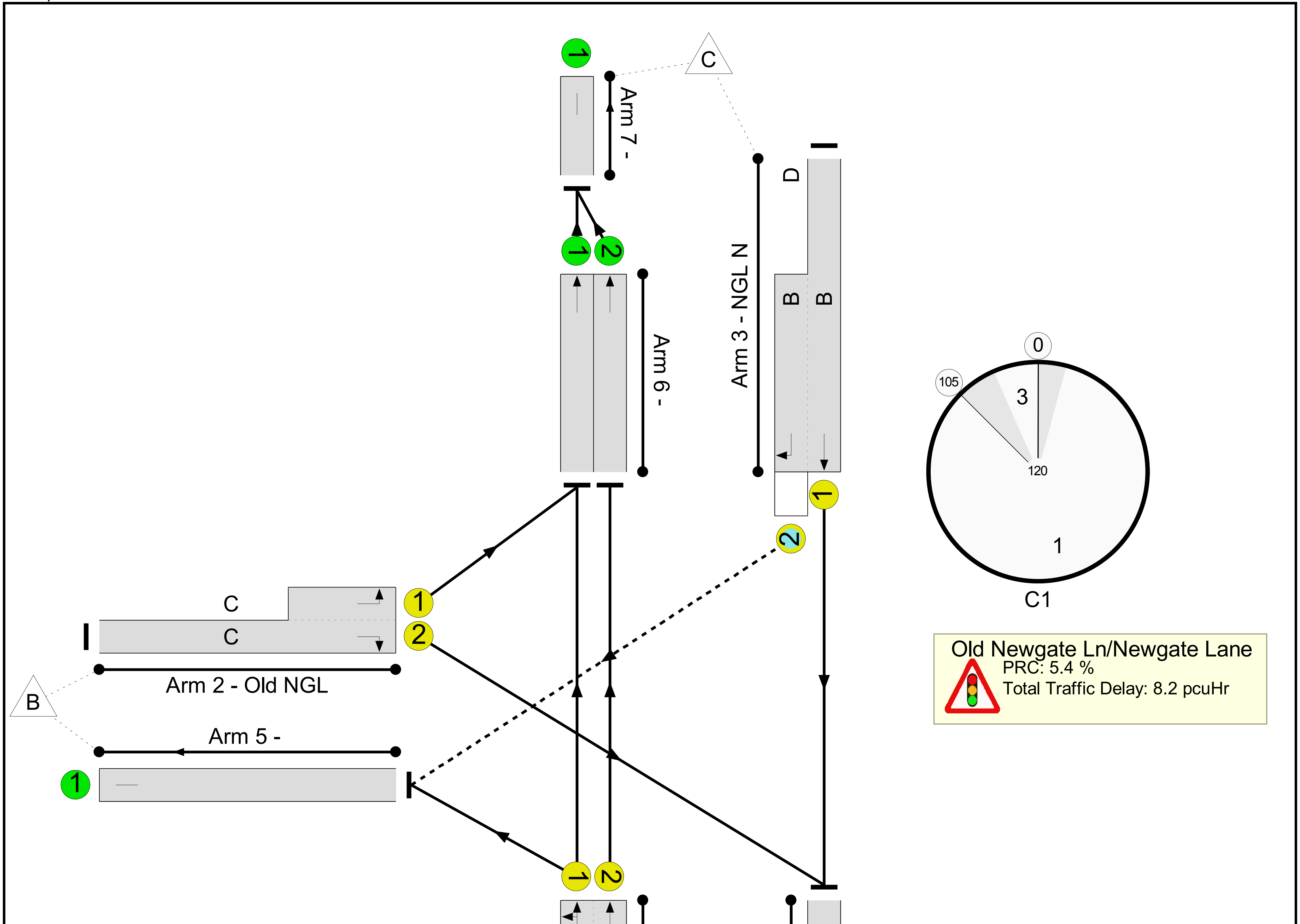
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Arm 7 -
Arm 6 -
Arm 3 - NGL N
Arm 2 - Old NGL
Arm 5 -
C
B
D
0
105
120
3
1
C1
Old Newgate Ln/Newgate Lane
PRC: 5.4 %
Total Traffic Delay: 8.2 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.4%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.4%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1675	1965:1958	963+999	85.4 : 85.4%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	107	1759:1720	132+96	47.0 : 47.0%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	726	2065:1786	1675+60	41.0 : 65.0%
4/1		U	N/A	N/A	-		-	-	-	749	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	69	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	868	1940	1940	44.7%
6/2	Ahead	U	N/A	N/A	-		-	-	-	822	1940	1940	42.4%
7/1		U	N/A	N/A	-		-	-	-	1690	Inf	Inf	0.0%

Full Input Data And Results

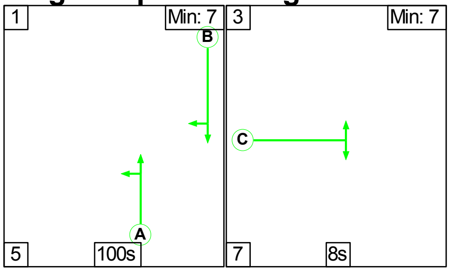
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**39**	**3.2**	**4.4**	**0.6**	**8.2**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**39**	**3.2**	**4.4**	**0.6**	**8.2**	**-**	**-**	**-**	**-**
1/2+1/1	1675	1675	-	-	-	1.2	2.9	-	4.1	8.8	7.8	2.9	10.7
2/2+2/1	107	107	-	-	-	1.6	0.4	-	2.0	67.8	2.0	0.4	2.4
3/1+3/2	726	726	0	0	39	0.4	0.4	0.6	1.3	6.7	4.8	0.4	5.1
4/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	868	868	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
6/2	822	822	-	-	-	0.0	0.4	-	0.4	1.6	2.7	0.4	3.1
7/1	1690	1690	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.4 Total Delay for Signalled Lanes (pcuHr): 7.45 Cycle Time (s): 120
PRC Over All Lanes (%): 5.4 Total Delay Over All Lanes(pcuHr): 8.22

Full Input Data And Results

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

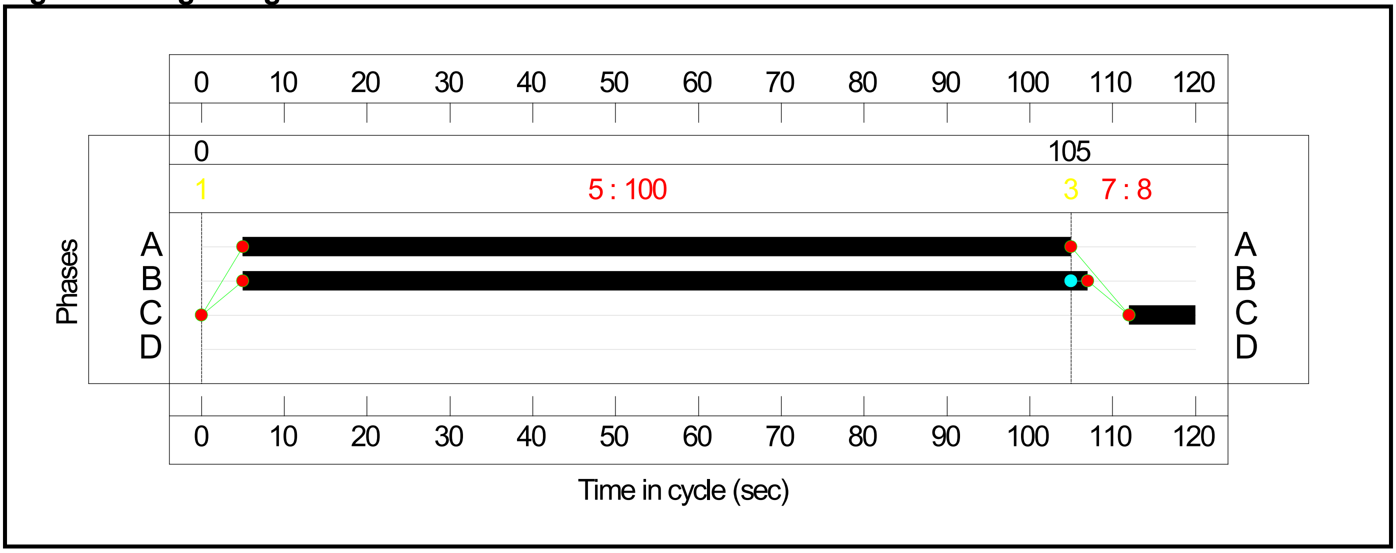
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

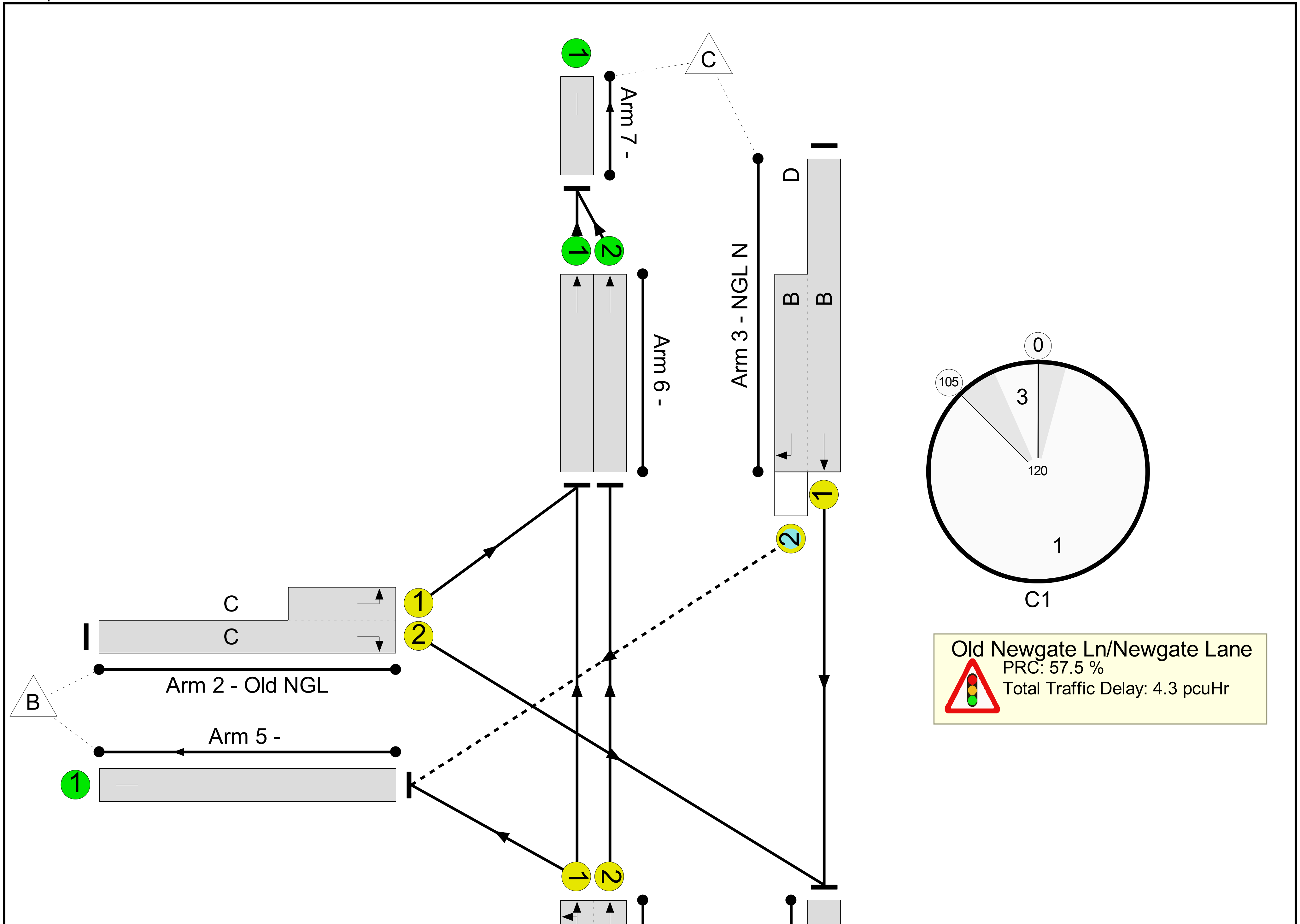
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**57.1%**
Old Newgate Ln/Newgate Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**57.1%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	977	1965:1946	926+1029	50.0 : 50.0%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	90	1759:1720	99+129	39.5 : 39.5%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1011	2065:1786	1699+70	57.1 : 57.1%
4/1		U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	514	1940	1940	26.5%
6/2	Ahead	U	N/A	N/A	-		-	-	-	463	1940	1940	23.9%
7/1		U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%

Full Input Data And Results

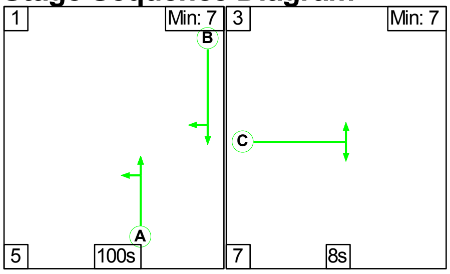
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**39**	**0**	**1**	**2.5**	**1.8**	**0.0**	**4.3**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**39**	**0**	**1**	**2.5**	**1.8**	**0.0**	**4.3**	**-**	**-**	**-**	**-**
1/2+1/1	977	977	-	-	-	0.5	0.5	-	1.0	3.8	3.6	0.5	4.1
2/2+2/1	90	90	-	-	-	1.3	0.3	-	1.6	65.8	1.6	0.3	1.9
3/1+3/2	1011	1011	39	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	514	514	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/2	463	463	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 57.5 Total Delay for Signalled Lanes (pcuHr): 4.00 Cycle Time (s): 120
PRC Over All Lanes (%): 57.5 Total Delay Over All Lanes(pcuHr): 4.33

Full Input Data And Results

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

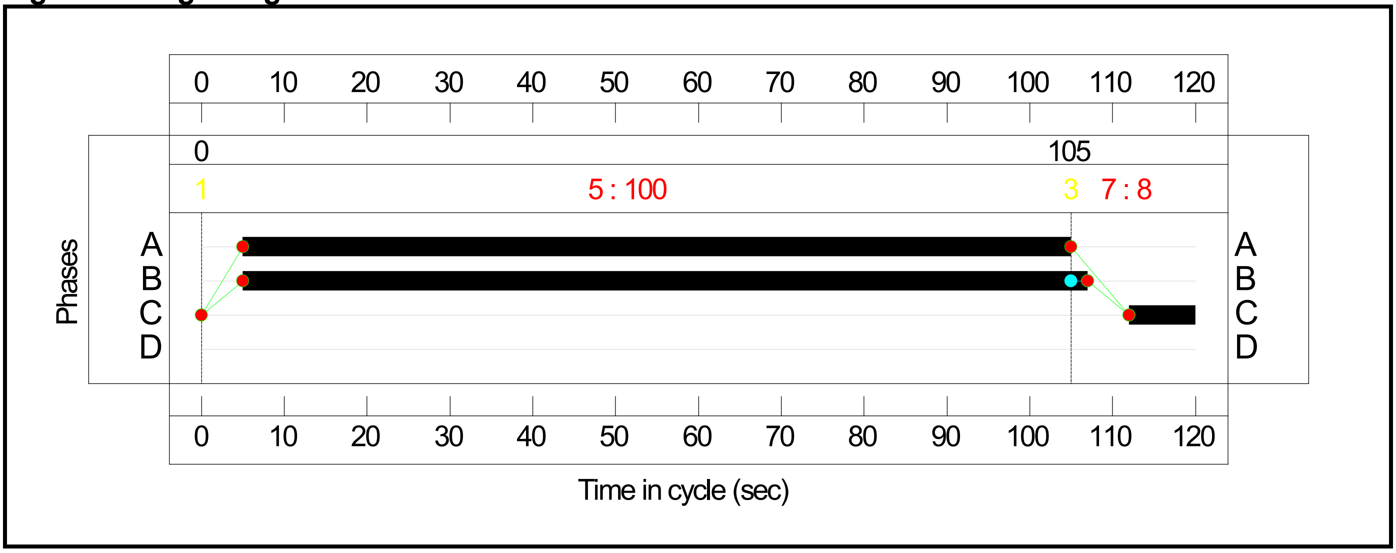
Stage Sequence Diagram



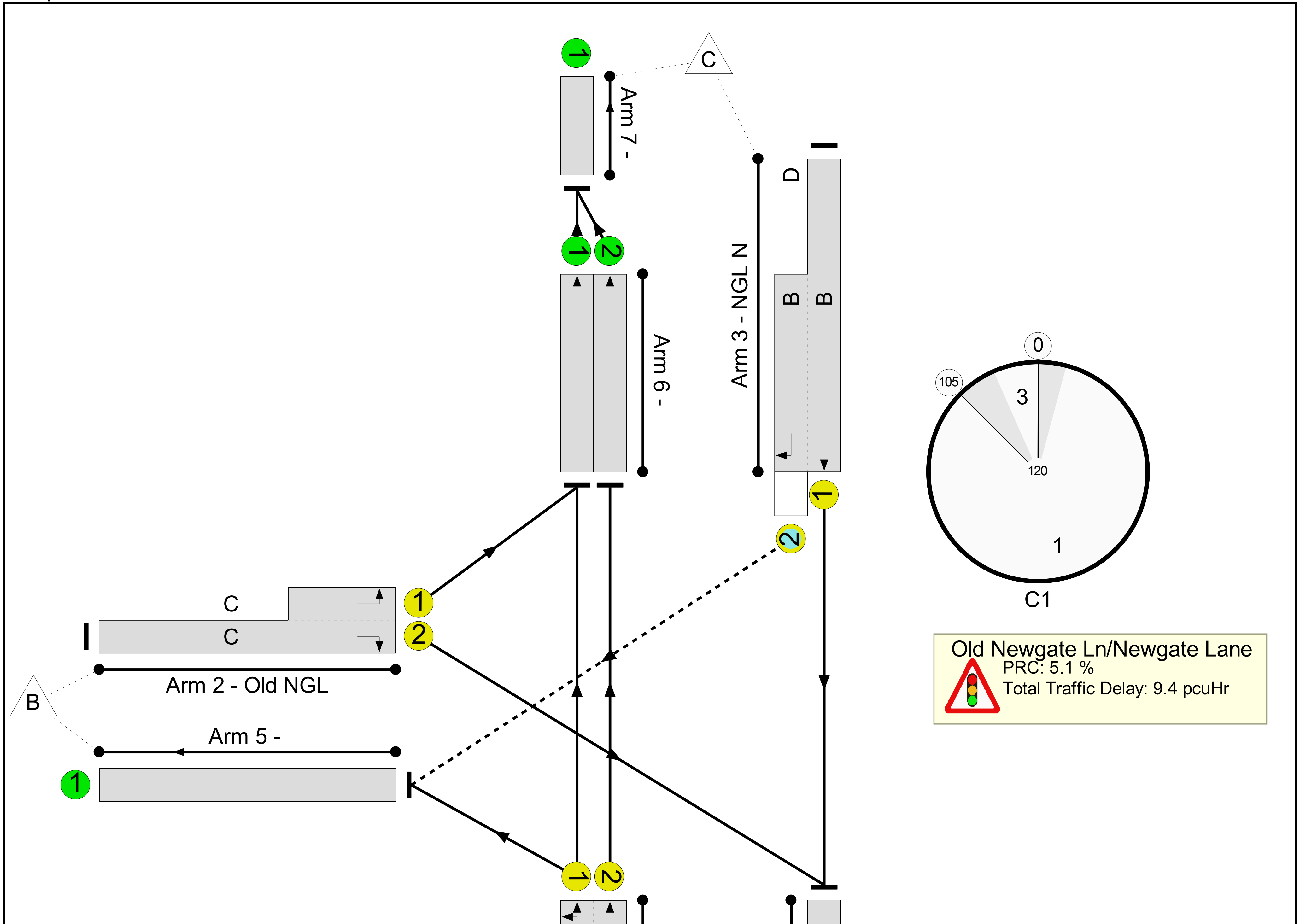
Stage Timings

Stage	**1**	**3**
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 5.1 %
Total Traffic Delay: 9.4 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1679	1965:1957	960+1001	85.6 : 85.6%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	140	1759:1720	132+88	63.7 : 63.7%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	735	2065:1786	1655+60	41.5 : 80.0%
4/1		U	N/A	N/A	-		-	-	-	771	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	879	1940	1940	45.3%
6/2	Ahead	U	N/A	N/A	-		-	-	-	822	1940	1940	42.4%
7/1		U	N/A	N/A	-		-	-	-	1701	Inf	Inf	0.0%

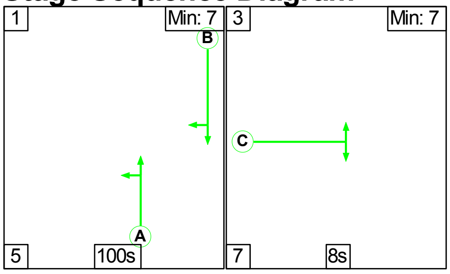
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**48**	**3.7**	**4.9**	**0.8**	**9.4**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**48**	**3.7**	**4.9**	**0.8**	**9.4**	**-**	**-**	**-**	**-**
1/2+1/1	1679	1679	-	-	-	1.2	2.9	-	4.1	8.9	7.9	2.9	10.8
2/2+2/1	140	140	-	-	-	2.1	0.9	-	2.9	75.7	2.7	0.9	3.6
3/1+3/2	735	735	0	0	48	0.4	0.4	0.8	1.5	7.4	4.8	0.4	5.1
4/1	771	771	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	879	879	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
6/2	822	822	-	-	-	0.0	0.4	-	0.4	1.6	2.7	0.4	3.1
7/1	1701	1701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.1 Total Delay for Signalled Lanes (pcuHr): 8.60 Cycle Time (s): 120
PRC Over All Lanes (%): 5.1 Total Delay Over All Lanes(pcuHr): 9.38

Full Input Data And Results
Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

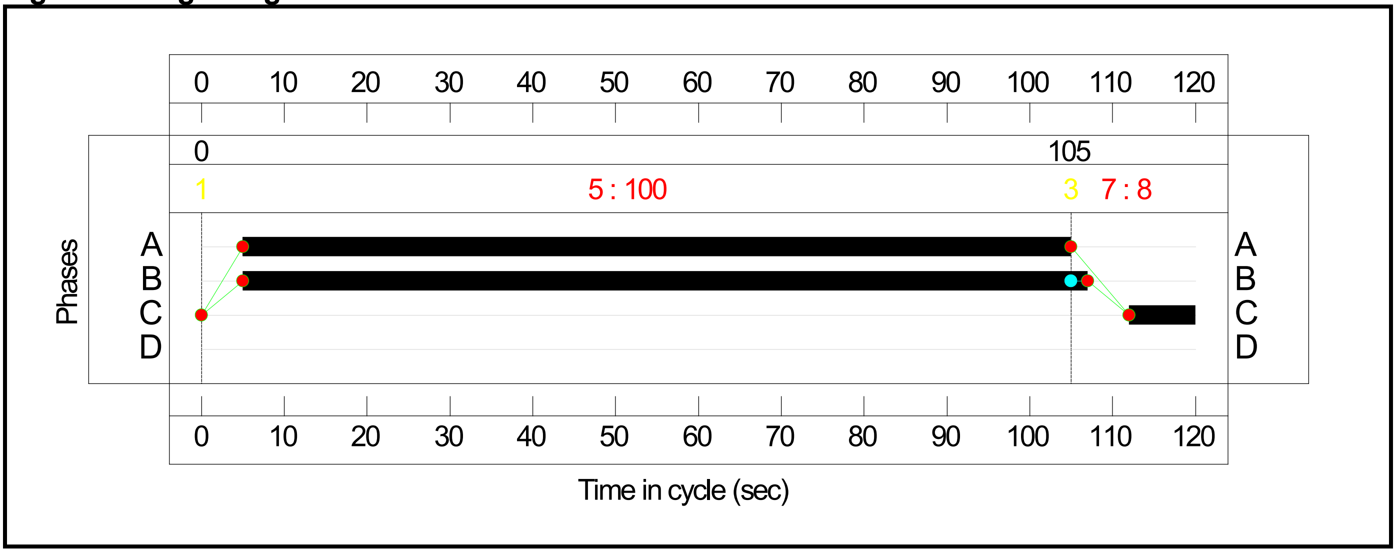
Stage Sequence Diagram



Stage Timings

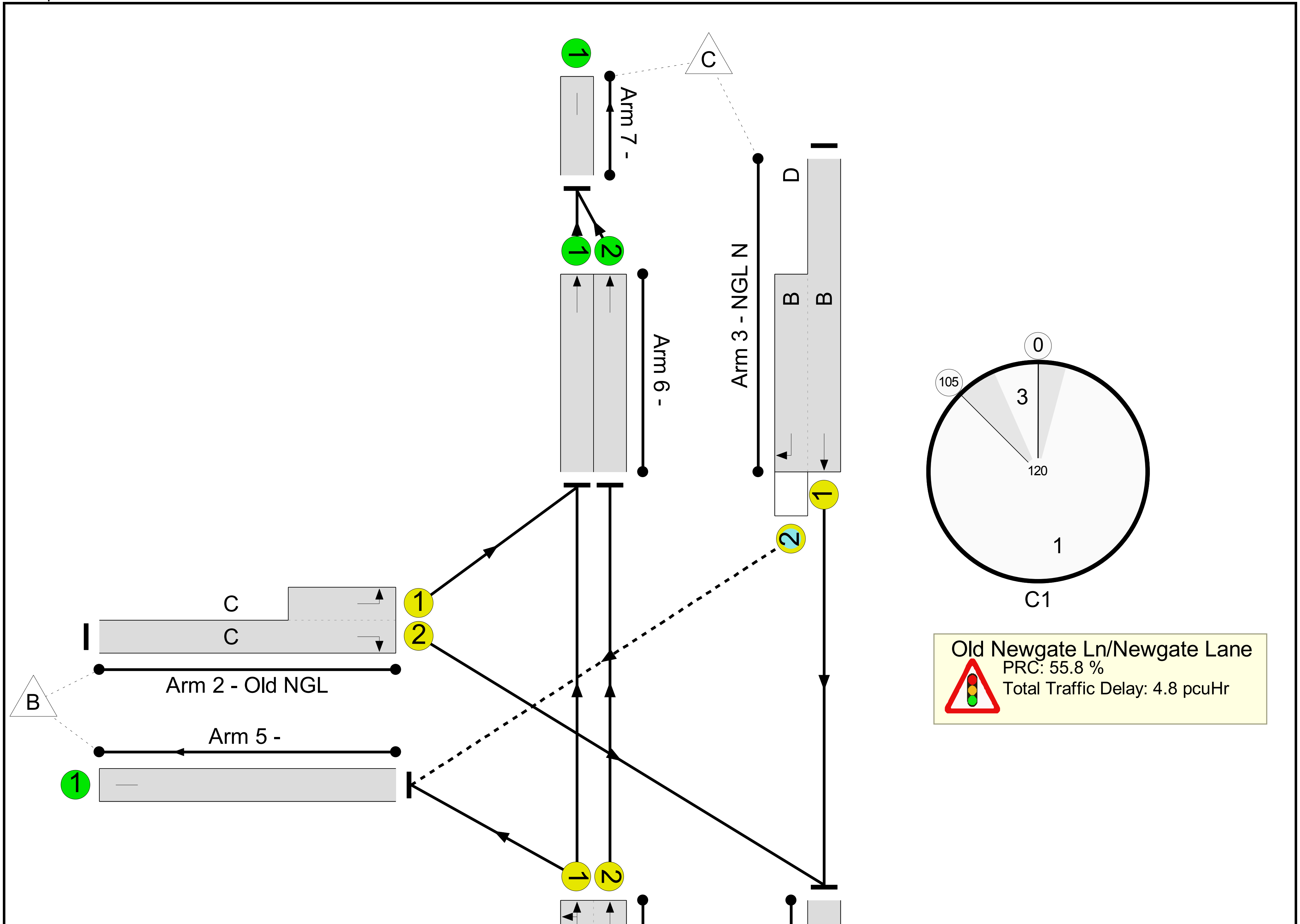
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 55.8 %
Total Traffic Delay: 4.8 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	994	1965:1940	909+1043	50.9 : 50.9%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	109	1759:1720	94+129	48.8 : 48.8%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1022	2065:1786	1681+88	57.7 : 57.7%
4/1		U	N/A	N/A	-		-	-	-	1017	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	119	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	526	1940	1940	27.1%
6/2	Ahead	U	N/A	N/A	-		-	-	-	463	1940	1940	23.9%
7/1		U	N/A	N/A	-		-	-	-	989	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**50**	**0**	**1**	**2.8**	**2.0**	**0.0**	**4.8**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**50**	**0**	**1**	**2.8**	**2.0**	**0.0**	**4.8**	**-**	**-**	**-**	**-**
1/2+1/1	994	994	-	-	-	0.6	0.5	-	1.1	3.9	3.8	0.5	4.4
2/2+2/1	109	109	-	-	-	1.6	0.5	-	2.1	68.7	2.0	0.5	2.5
3/1+3/2	1022	1022	50	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1017	1017	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	119	119	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	526	526	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/2	463	463	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/1	989	989	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 55.8 Total Delay for Signalled Lanes (pcuHr): 4.49 Cycle Time (s): 120
PRC Over All Lanes (%): 55.8 Total Delay Over All Lanes(pcuHr): 4.84

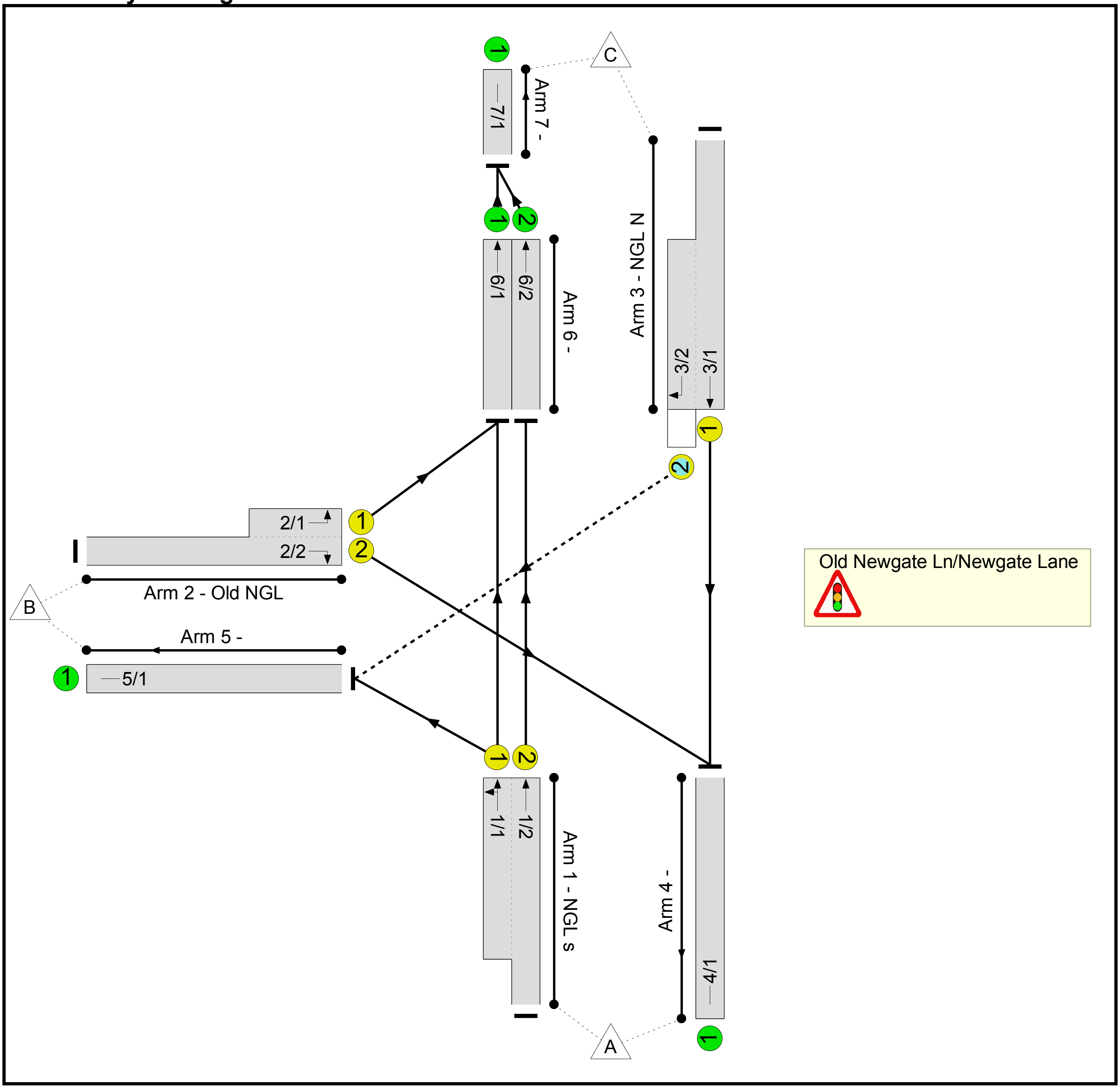
Full Input Data And Results

Full Input Data And Results

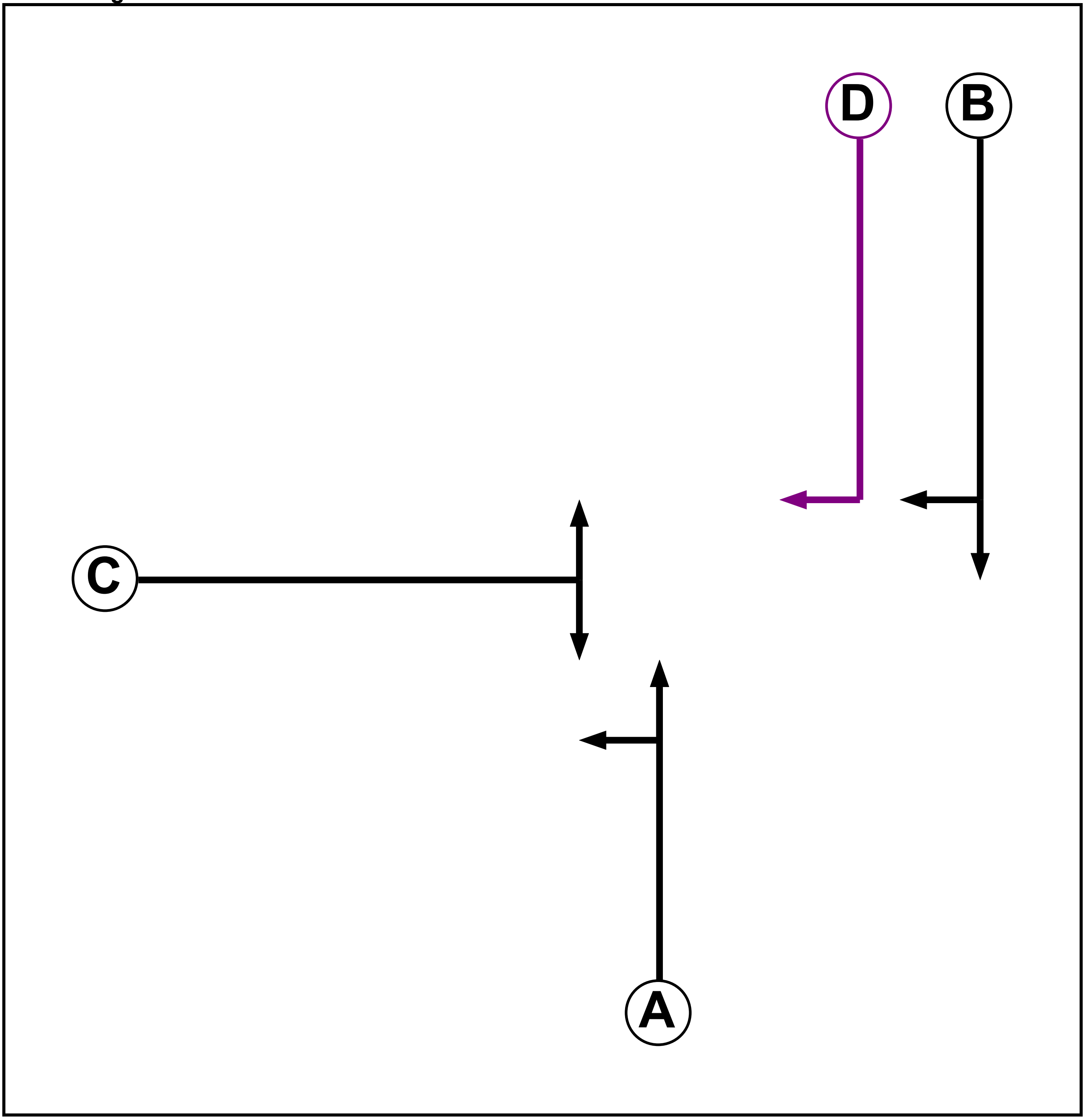
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Indicative Arrow 60 40.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4

Full Input Data And Results

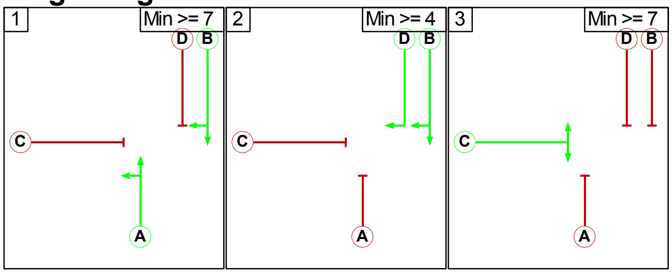
Phase Intergreens Matrix

	Starting Phase				
		A	B	C	D
Terminating Phase	A		-	7	5
	B	-		5	-
	C	5	5		5
	D	5	-	5	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	B	Losing	2	2

Prohibited Stage Change

	To Stage			
		1	2	3
From Stage	1		5	7
	2	5		5
	3	5	X	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Old Newgate Ln/Newgate Lane											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
3/2 (NGL N)	5/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Old Newgate Ln/Newgate Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (NGL s)	U	A	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
1/2 (NGL s)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
2/1 (Old NGL)	U	C	2	3	4.9	Geom	-	3.20	0.00	Y	Arm 6 Left	12.00
2/2 (Old NGL)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Right	15.00
3/1 (NGL N)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 4 Ahead	Inf
3/2 (NGL N)	O	B D	2	3	9.0	Geom	-	3.50	0.00	Y	Arm 5 Right	15.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
6/2	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM DS2 75'	08:00	09:00	01:00	
2: '2024 PM DS2 75'	17:00	18:00	01:00	
3: '2024 AM DS2 115'	08:00	09:00	01:00	
4: '2024 PM DS2 115'	17:00	18:00	01:00	
5: '2024 AM DS2 190'	08:00	09:00	01:00	
6: '2024 PM DS2 190'	17:00	18:00	01:00	

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	28	1645	1673
	B	49	0	39	88
	C	687	34	0	721
	Tot.	736	62	1684	2482

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2024 AM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	686
1/2 (with short)	1673(In) 987(Out)
2/1 (short)	39
2/2 (with short)	88(In) 49(Out)
3/1 (with short)	721(In) 687(Out)
3/2 (short)	34
4/1	736
5/1	62
6/1	697
6/2	987
7/1	1684

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	4.1 %	1957	1957
				Arm 6 Ahead	Inf	95.9 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	42	926	968
	B	35	0	45	80
	C	971	33	0	1004
	Tot.	1006	75	971	2052

Traffic Lane Flows

Lane	Scenario 2: 2024 PM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	412
1/2 (with short)	968(In) 556(Out)
2/1 (short)	45
2/2 (with short)	80(In) 35(Out)
3/1 (with short)	1004(In) 971(Out)
3/2 (short)	33
4/1	1006
5/1	75
6/1	415
6/2	556
7/1	971

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	10.2 %	1945	1945
				Arm 6 Ahead	Inf	89.8 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	30	1645	1675
	B	62	0	45	107
	C	687	39	0	726
	Tot.	749	69	1690	2508

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2024 AM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	688
1/2 (with short)	1675(In) 987(Out)
2/1 (short)	45
2/2 (with short)	107(In) 62(Out)
3/1 (with short)	726(In) 687(Out)
3/2 (short)	39
4/1	749
5/1	69
6/1	703
6/2	987
7/1	1690

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	4.4 %	1956	1956
				Arm 6 Ahead	Inf	95.6 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	51	926	977
	B	39	0	51	90
	C	971	40	0	1011
	Tot.	1010	91	977	2078

Traffic Lane Flows

Lane	Scenario 4: 2024 PM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	421
1/2 (with short)	977(In) 556(Out)
2/1 (short)	51
2/2 (with short)	90(In) 39(Out)
3/1 (with short)	1011(In) 971(Out)
3/2 (short)	40
4/1	1010
5/1	91
6/1	421
6/2	556
7/1	977

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	12.1 %	1941	1941
				Arm 6 Ahead	Inf	87.9 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	34	1645	1679
	B	84	0	56	140
	C	687	48	0	735
	Tot.	771	82	1701	2554

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2024 AM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	692
1/2 (with short)	1679(In) 987(Out)
2/1 (short)	56
2/2 (with short)	140(In) 84(Out)
3/1 (with short)	735(In) 687(Out)
3/2 (short)	48
4/1	771
5/1	82
6/1	714
6/2	987
7/1	1701

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Old Newgate Ln/Newgate Lane								
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	4.9 %	1955	1955
				Arm 6 Ahead	Inf	95.1 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	68	926	994
	B	46	0	63	109
	C	971	51	0	1022
	Tot.	1017	119	989	2125

Traffic Lane Flows

Lane	Scenario 6: 2024 PM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	438
1/2 (with short)	994(In) 556(Out)
2/1 (short)	63
2/2 (with short)	109(In) 46(Out)
3/1 (with short)	1022(In) 971(Out)
3/2 (short)	51
4/1	1017
5/1	119
6/1	433
6/2	556
7/1	989

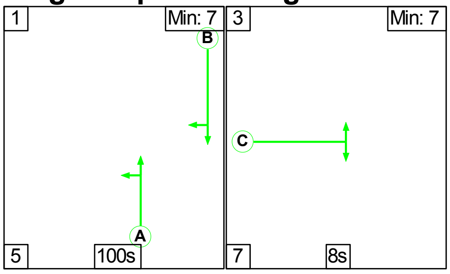
Full Input Data And Results

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	15.5 %	1935	1935
				Arm 6 Ahead	Inf	84.5 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

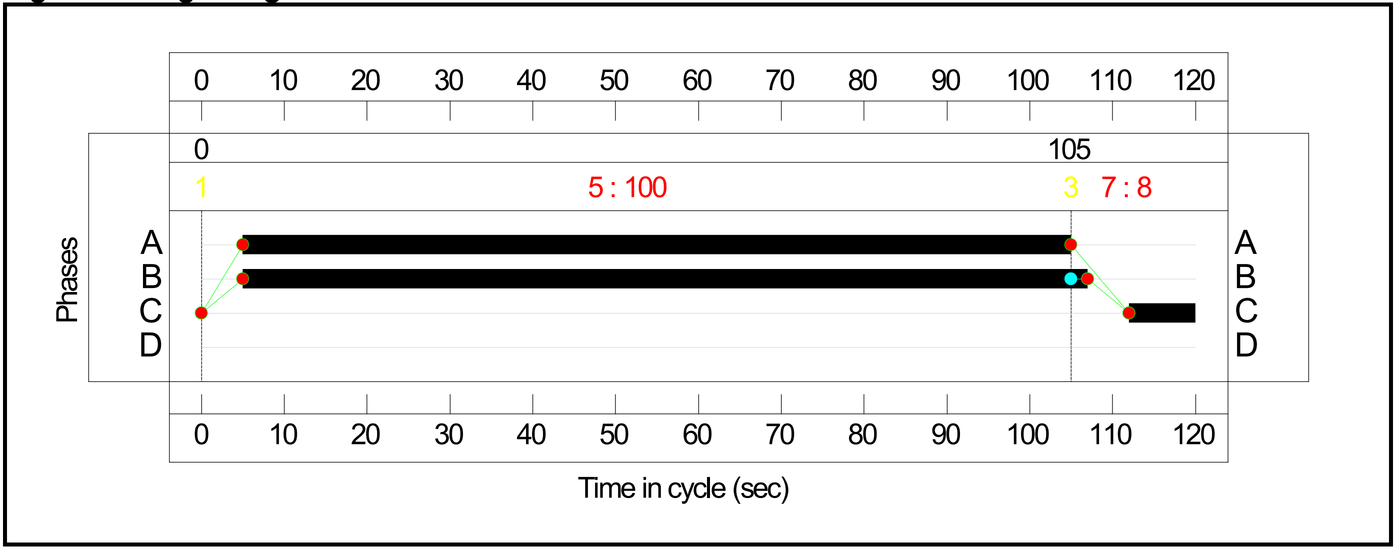
Stage Sequence Diagram



Stage Timings

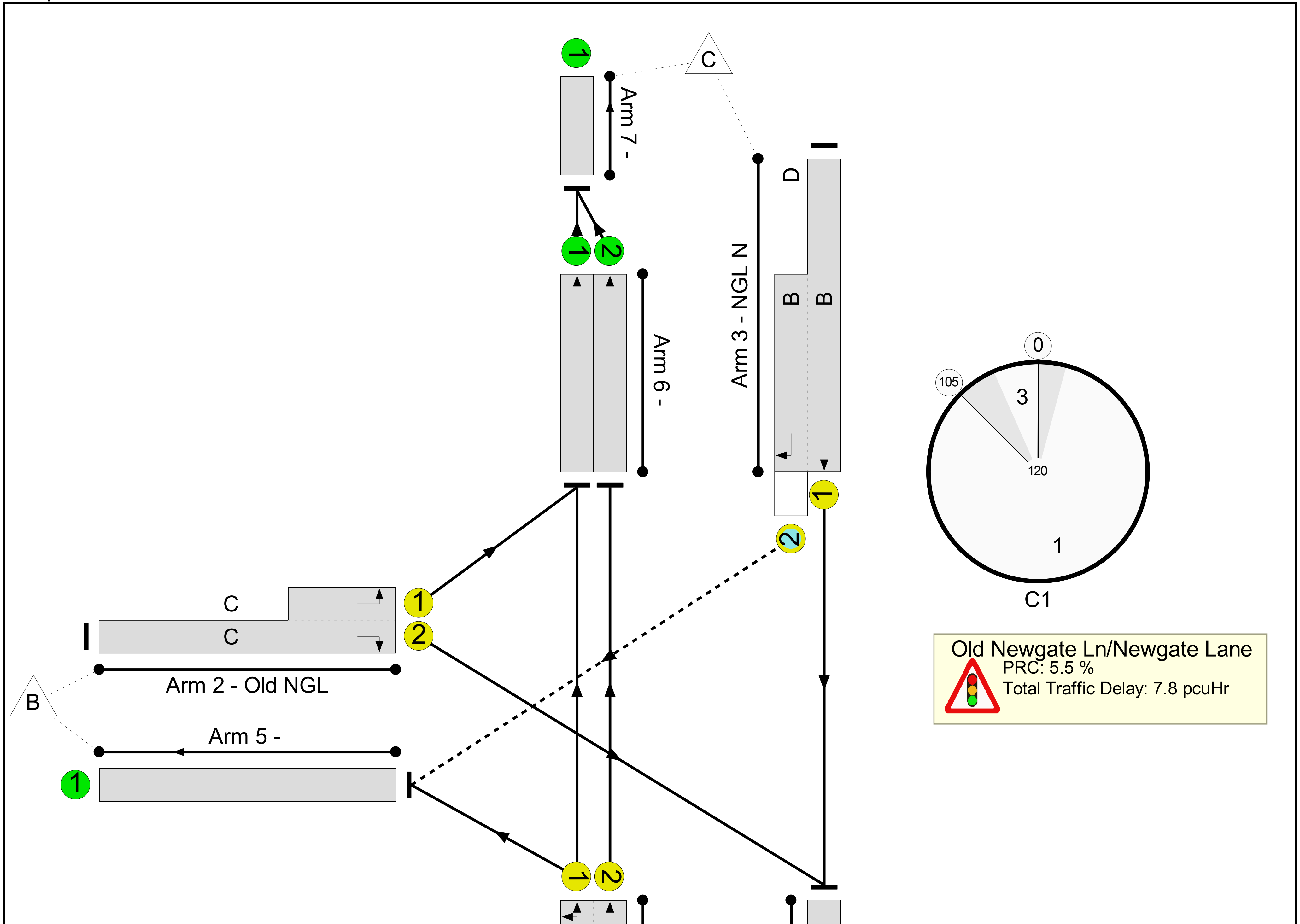
Stage	**1**	**3**
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 5.5 %
Total Traffic Delay: 7.8 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.3%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.3%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1673	1965:1957	1157+804	85.3 : 85.3%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	88	1759:1720	132+105	37.1 : 37.1%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	721	2065:1786	1686+60	40.7 : 56.7%
4/1		U	N/A	N/A	-		-	-	-	736	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	62	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	697	1940	1940	35.9%
6/2	Ahead	U	N/A	N/A	-		-	-	-	987	1940	1940	50.9%
7/1		U	N/A	N/A	-		-	-	-	1684	Inf	Inf	0.0%

Full Input Data And Results

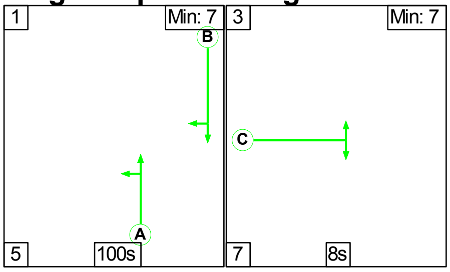
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**34**	**2.9**	**4.3**	**0.5**	**7.8**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**34**	**2.9**	**4.3**	**0.5**	**7.8**	**-**	**-**	**-**	**-**
1/2+1/1	1673	1673	-	-	-	1.3	2.8	-	4.1	8.8	10.4	2.8	13.3
2/2+2/1	88	88	-	-	-	1.3	0.3	-	1.6	64.8	1.6	0.3	1.8
3/1+3/2	721	721	0	0	34	0.4	0.4	0.5	1.3	6.3	4.8	0.4	5.1
4/1	736	736	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	62	62	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	697	697	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
6/2	987	987	-	-	-	0.0	0.5	-	0.5	1.9	6.0	0.5	6.5
7/1	1684	1684	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.5 Total Delay for Signalled Lanes (pcuHr): 6.95 Cycle Time (s): 120
PRC Over All Lanes (%): 5.5 Total Delay Over All Lanes(pcuHr): 7.75

Full Input Data And Results

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

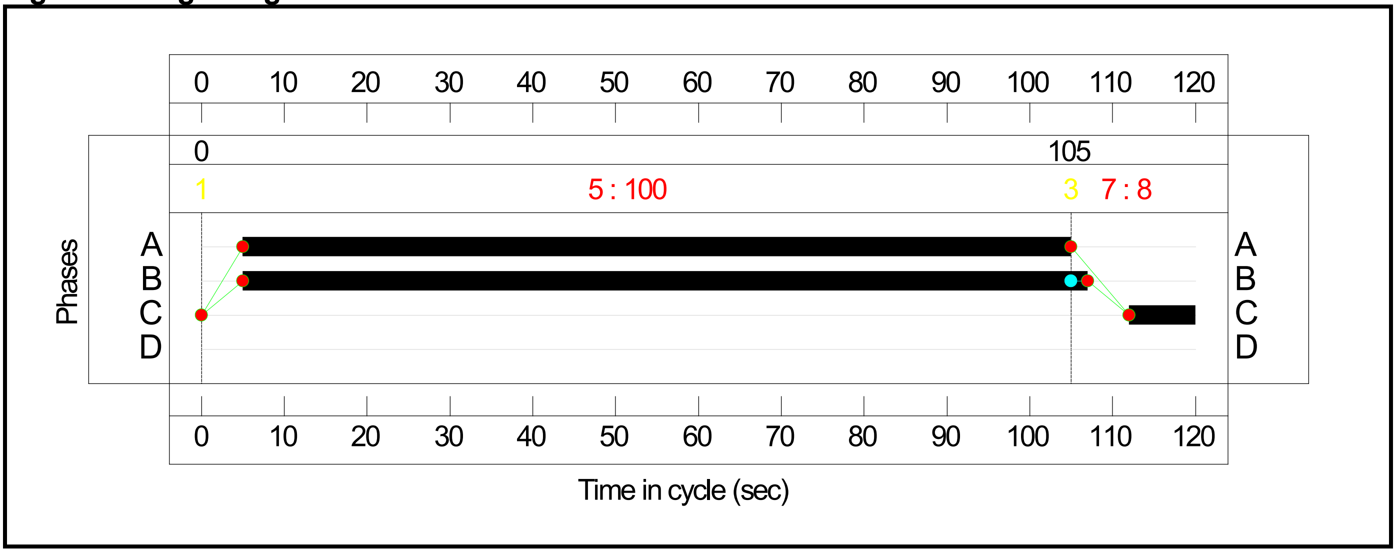
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

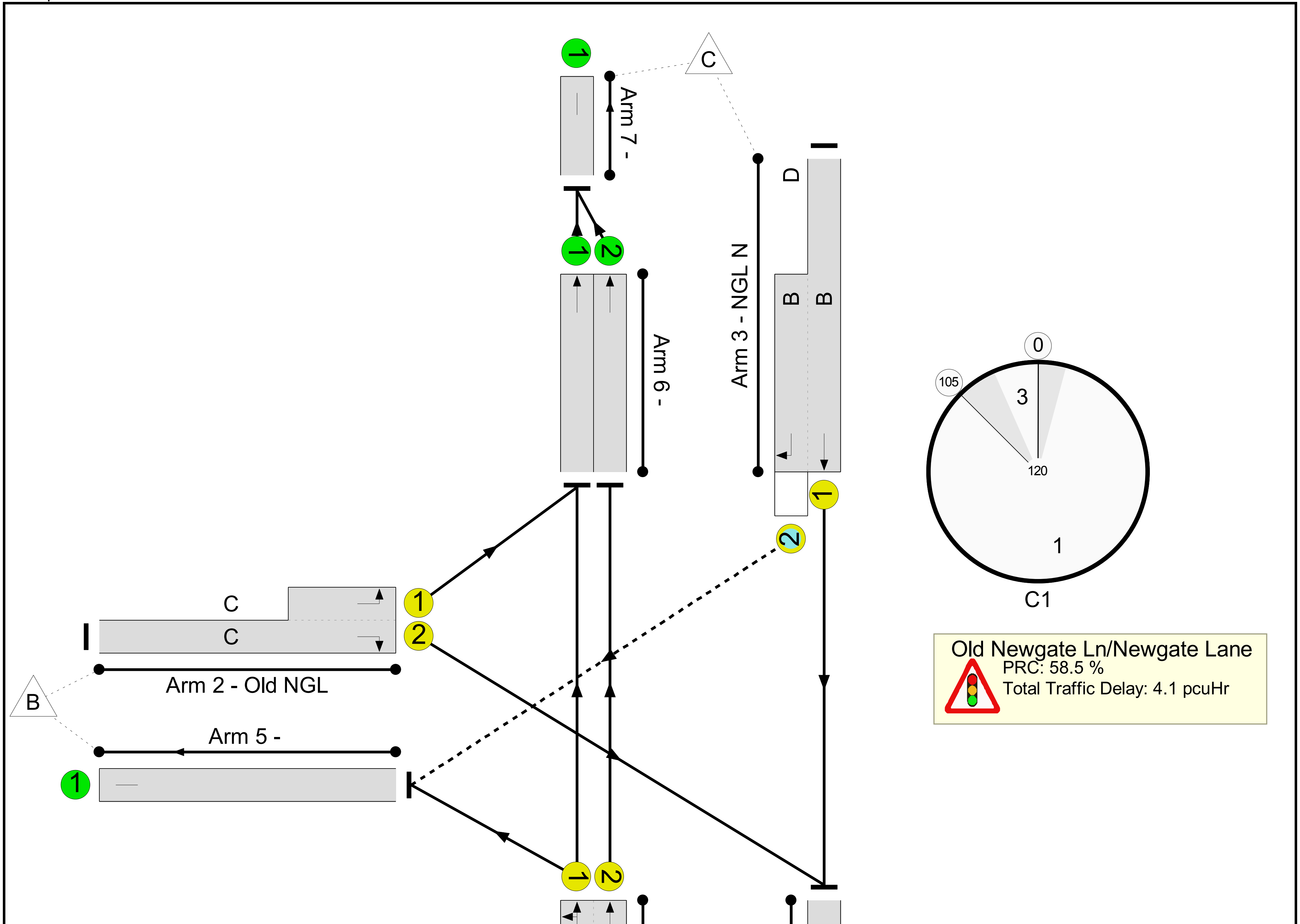
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	968	1965:1945	1124+833	49.5 : 49.5%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	80	1759:1720	100+129	34.9 : 34.9%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1004	2065:1786	1711+58	56.8 : 56.8%
4/1		U	N/A	N/A	-		-	-	-	1006	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	415	1940	1940	21.4%
6/2	Ahead	U	N/A	N/A	-		-	-	-	556	1940	1940	28.7%
7/1		U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%

Full Input Data And Results

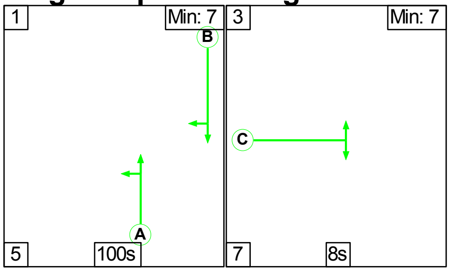
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**32**	**0**	**1**	**2.3**	**1.7**	**0.0**	**4.1**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**32**	**0**	**1**	**2.3**	**1.7**	**0.0**	**4.1**	**-**	**-**	**-**	**-**
1/2+1/1	968	968	-	-	-	0.5	0.5	-	1.0	3.8	4.0	0.5	4.5
2/2+2/1	80	80	-	-	-	1.2	0.3	-	1.4	64.6	1.4	0.3	1.7
3/1+3/2	1004	1004	32	0	1	0.6	0.7	0.0	1.3	4.6	8.6	0.7	9.3
4/1	1006	1006	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	75	75	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	415	415	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
6/2	556	556	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 58.5 Total Delay for Signalled Lanes (pcuHr): 3.76 Cycle Time (s): 120
PRC Over All Lanes (%): 58.5 Total Delay Over All Lanes(pcuHr): 4.10

Full Input Data And Results

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

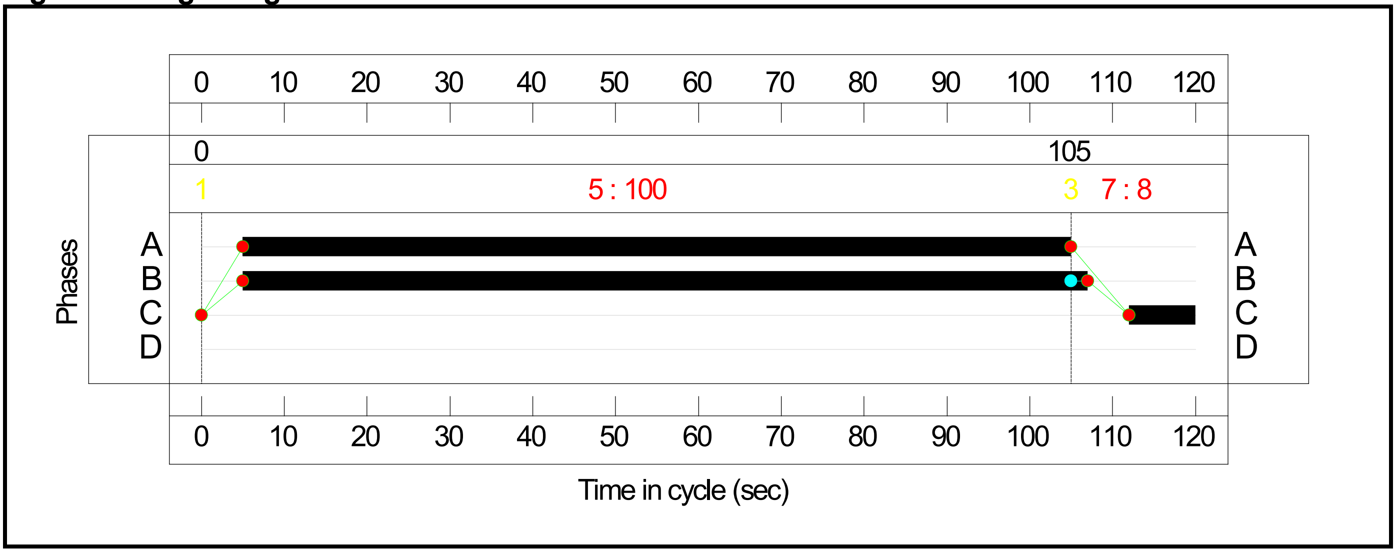
Stage Sequence Diagram



Stage Timings

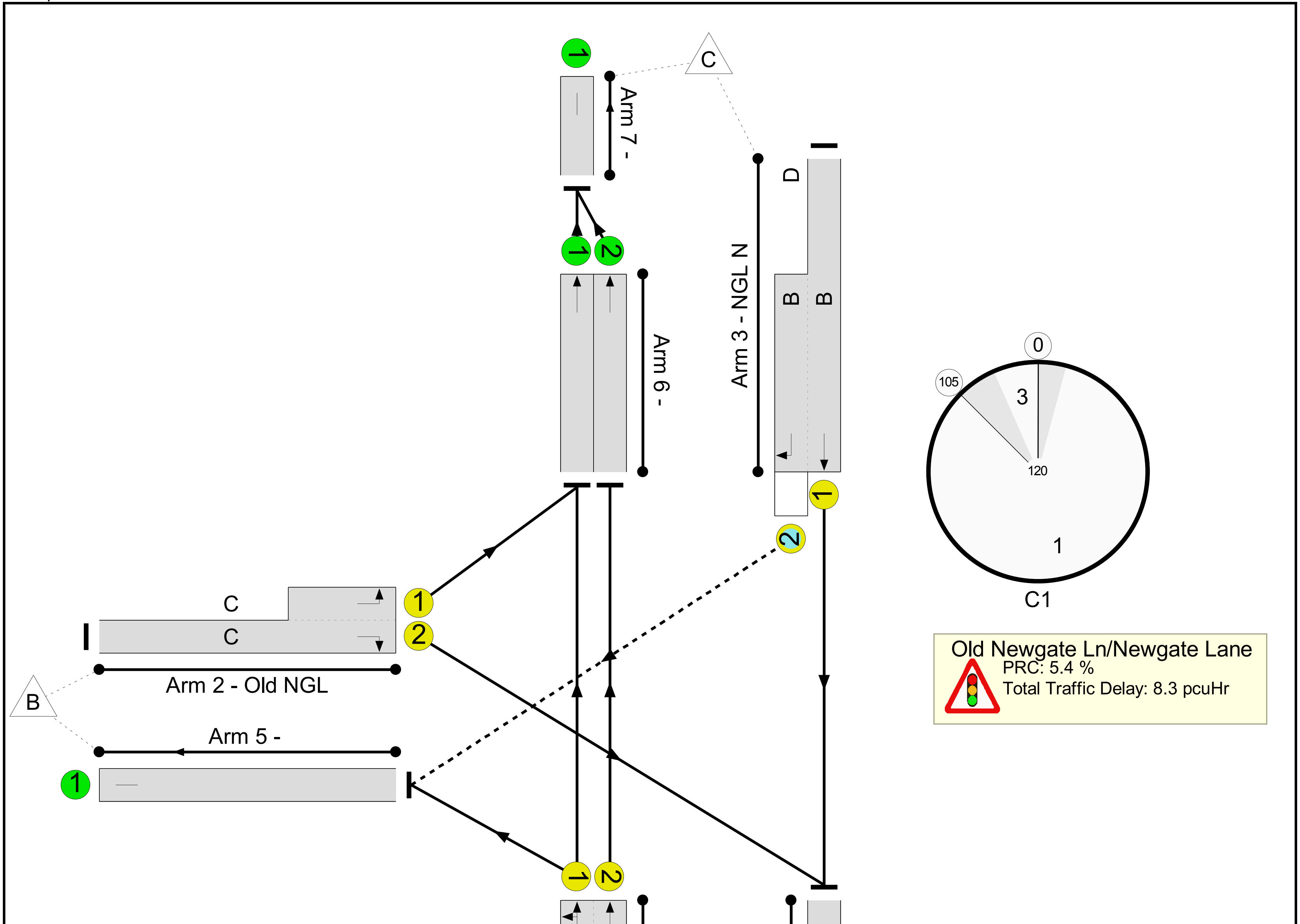
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 5.4 %
Total Traffic Delay: 8.3 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.4%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.4%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1675	1965:1956	1156+806	85.4 : 85.4%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	107	1759:1720	132+96	47.0 : 47.0%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	726	2065:1786	1675+60	41.0 : 65.0%
4/1		U	N/A	N/A	-		-	-	-	749	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	69	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	703	1940	1940	36.2%
6/2	Ahead	U	N/A	N/A	-		-	-	-	987	1940	1940	50.9%
7/1		U	N/A	N/A	-		-	-	-	1690	Inf	Inf	0.0%

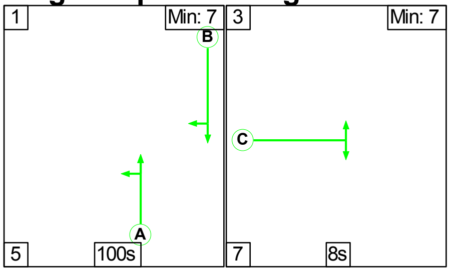
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**39**	**3.2**	**4.5**	**0.6**	**8.3**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**39**	**3.2**	**4.5**	**0.6**	**8.3**	**-**	**-**	**-**	**-**
1/2+1/1	1675	1675	-	-	-	1.3	2.9	-	4.1	8.9	10.4	2.9	13.3
2/2+2/1	107	107	-	-	-	1.6	0.4	-	2.0	67.8	2.0	0.4	2.4
3/1+3/2	726	726	0	0	39	0.4	0.4	0.6	1.3	6.7	4.8	0.4	5.1
4/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	703	703	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
6/2	987	987	-	-	-	0.0	0.5	-	0.5	1.9	6.0	0.5	6.5
7/1	1690	1690	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.4 Total Delay for Signalled Lanes (pcuHr): 7.50 Cycle Time (s): 120
PRC Over All Lanes (%): 5.4 Total Delay Over All Lanes(pcuHr): 8.31

Full Input Data And Results
Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

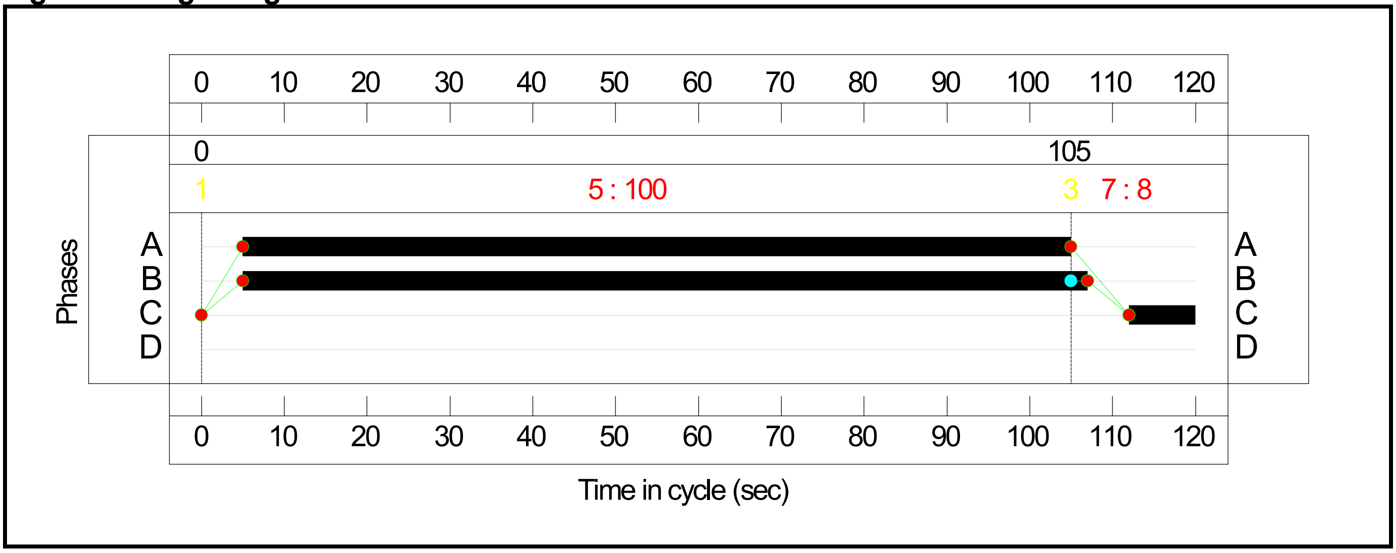
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

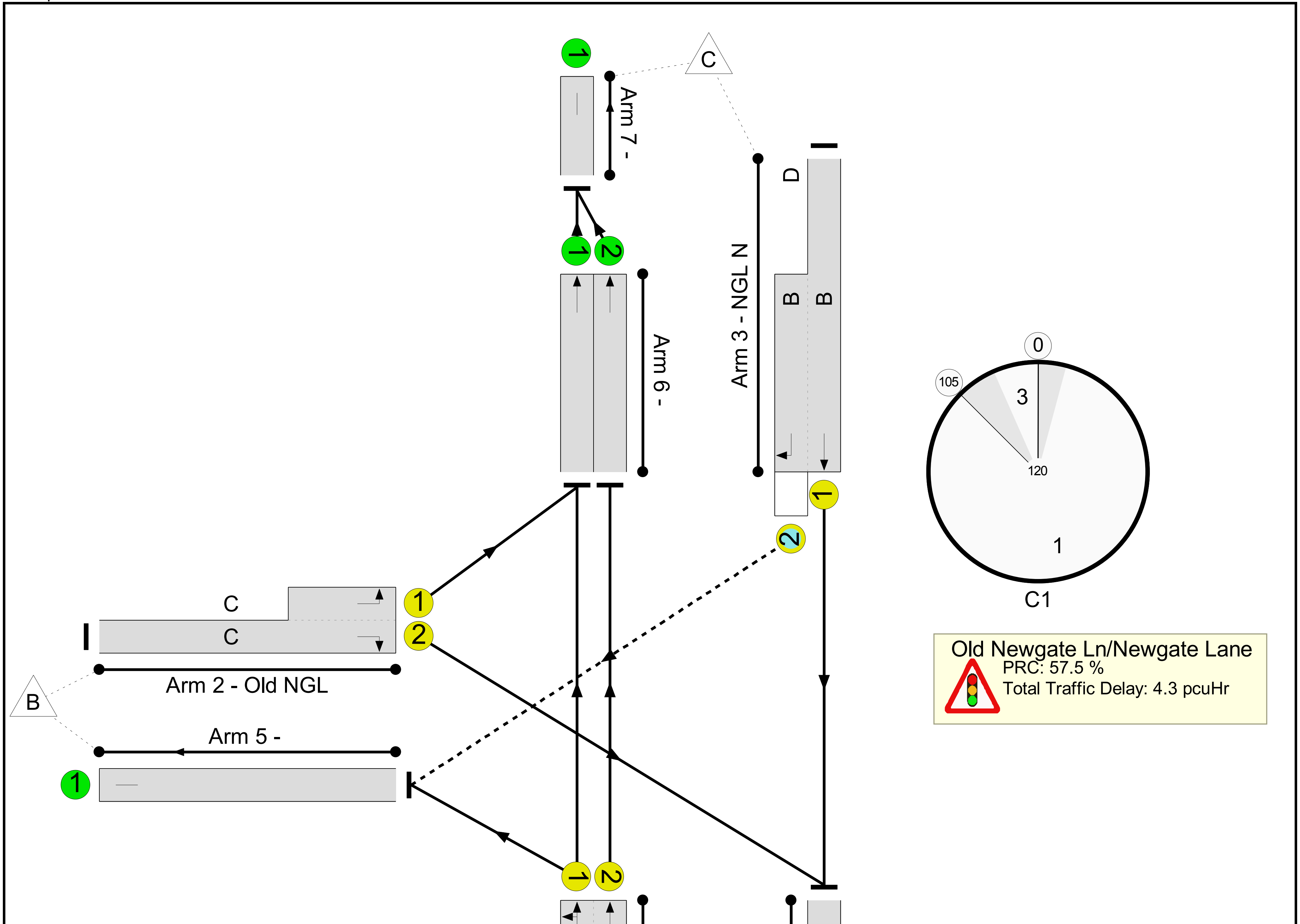
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.1%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.1%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	977	1965:1941	1112+842	50.0 : 50.0%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	90	1759:1720	99+129	39.5 : 39.5%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1011	2065:1786	1699+70	57.1 : 57.1%
4/1		U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	421	1940	1940	21.7%
6/2	Ahead	U	N/A	N/A	-		-	-	-	556	1940	1940	28.7%
7/1		U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%

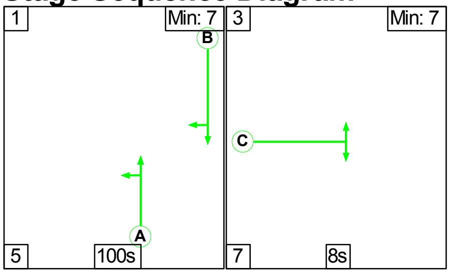
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**39**	**0**	**1**	**2.5**	**1.8**	**0.0**	**4.3**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**39**	**0**	**1**	**2.5**	**1.8**	**0.0**	**4.3**	**-**	**-**	**-**	**-**
1/2+1/1	977	977	-	-	-	0.5	0.5	-	1.0	3.9	4.0	0.5	4.5
2/2+2/1	90	90	-	-	-	1.3	0.3	-	1.6	65.8	1.6	0.3	1.9
3/1+3/2	1011	1011	39	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	421	421	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
6/2	556	556	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 57.5 Total Delay for Signalled Lanes (pcuHr): 4.00 Cycle Time (s): 120
PRC Over All Lanes (%): 57.5 Total Delay Over All Lanes(pcuHr): 4.34

Full Input Data And Results
Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

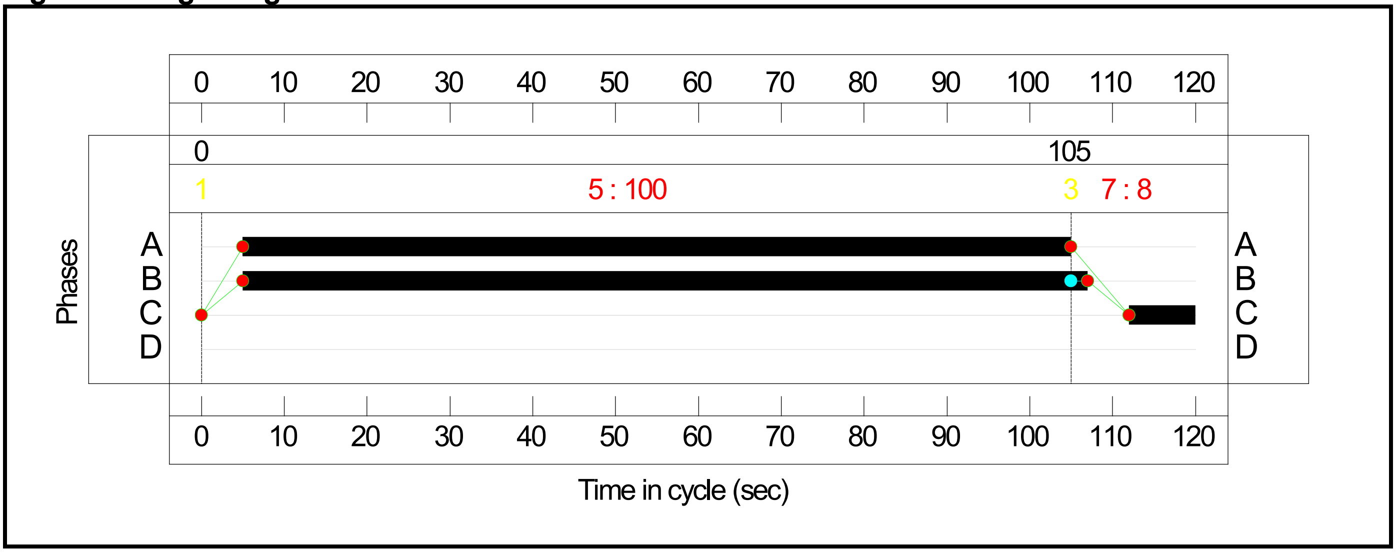
Stage Sequence Diagram



Stage Timings

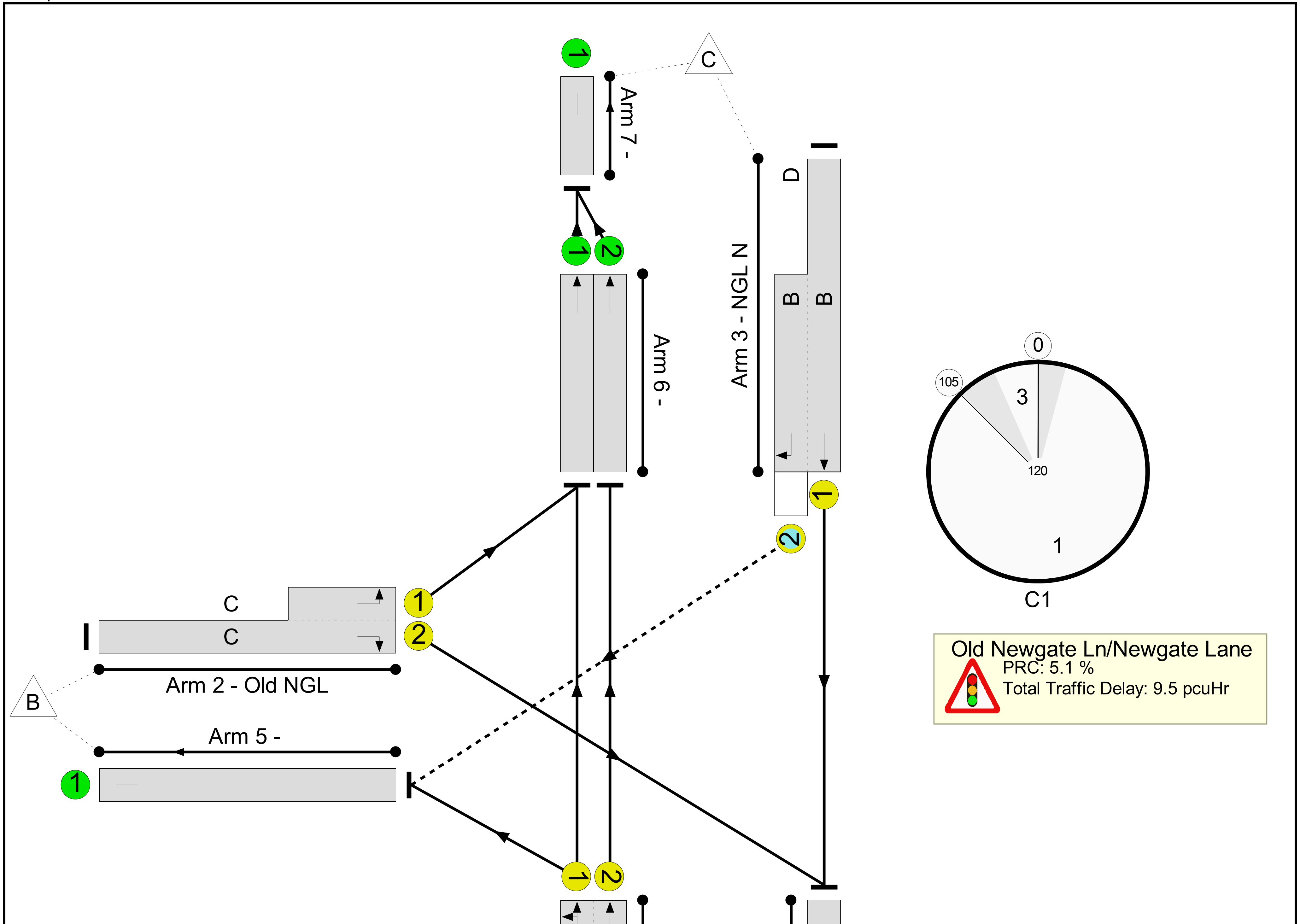
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
C
C
Arm 2 - Old NGL
B
Arm 5 -
0
105
3
120
1
C1
Old Newgate Ln/Newgate Lane
PRC: 5.1 %
Total Traffic Delay: 9.5 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1679	1965:1955	1153+808	85.6 : 85.6%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	140	1759:1720	132+88	63.7 : 63.7%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	735	2065:1786	1655+60	41.5 : 80.0%
4/1		U	N/A	N/A	-		-	-	-	771	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	714	1940	1940	36.8%
6/2	Ahead	U	N/A	N/A	-		-	-	-	987	1940	1940	50.9%
7/1		U	N/A	N/A	-		-	-	-	1701	Inf	Inf	0.0%

Full Input Data And Results

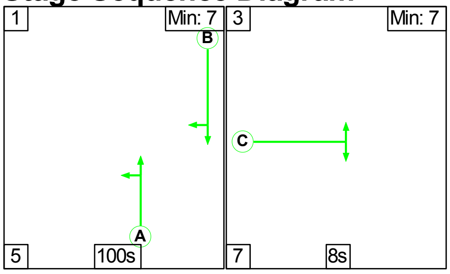
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**48**	**3.7**	**5.0**	**0.8**	**9.5**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**48**	**3.7**	**5.0**	**0.8**	**9.5**	**-**	**-**	**-**	**-**
1/2+1/1	1679	1679	-	-	-	1.3	2.9	-	4.2	9.0	10.4	2.9	13.3
2/2+2/1	140	140	-	-	-	2.1	0.9	-	2.9	75.7	2.7	0.9	3.6
3/1+3/2	735	735	0	0	48	0.4	0.4	0.8	1.5	7.4	4.8	0.4	5.1
4/1	771	771	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	714	714	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
6/2	987	987	-	-	-	0.0	0.5	-	0.5	1.9	6.0	0.5	6.5
7/1	1701	1701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.1 Total Delay for Signalled Lanes (pcuHr): 8.65 Cycle Time (s): 120
PRC Over All Lanes (%): 5.1 Total Delay Over All Lanes(pcuHr): 9.46

Full Input Data And Results

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

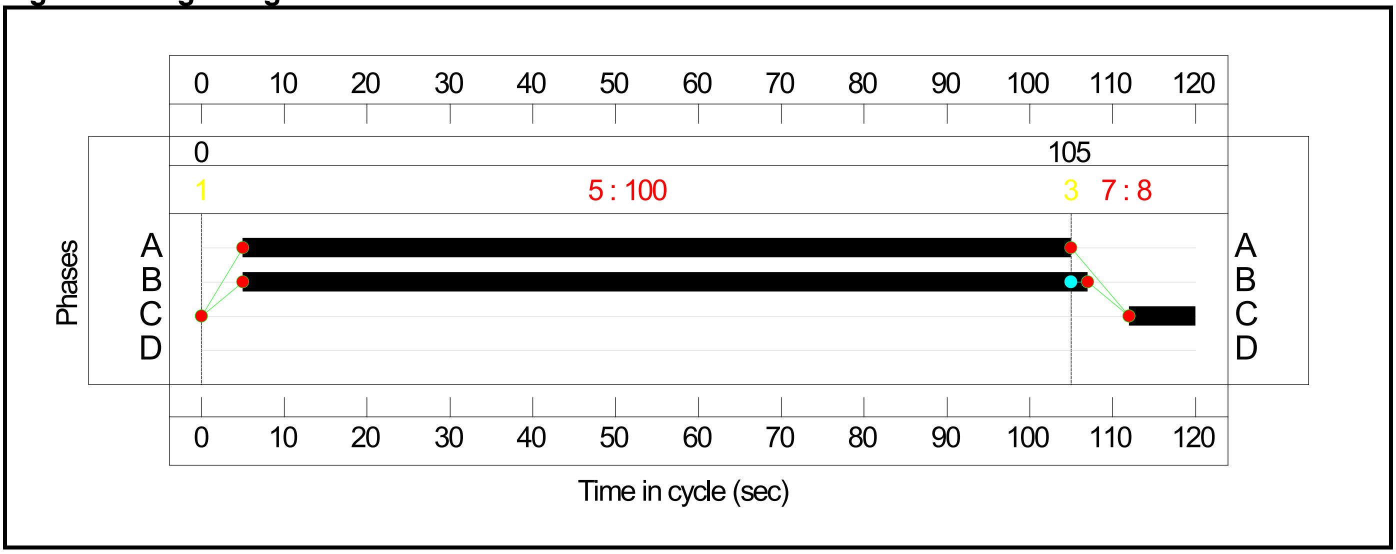
Stage Sequence Diagram



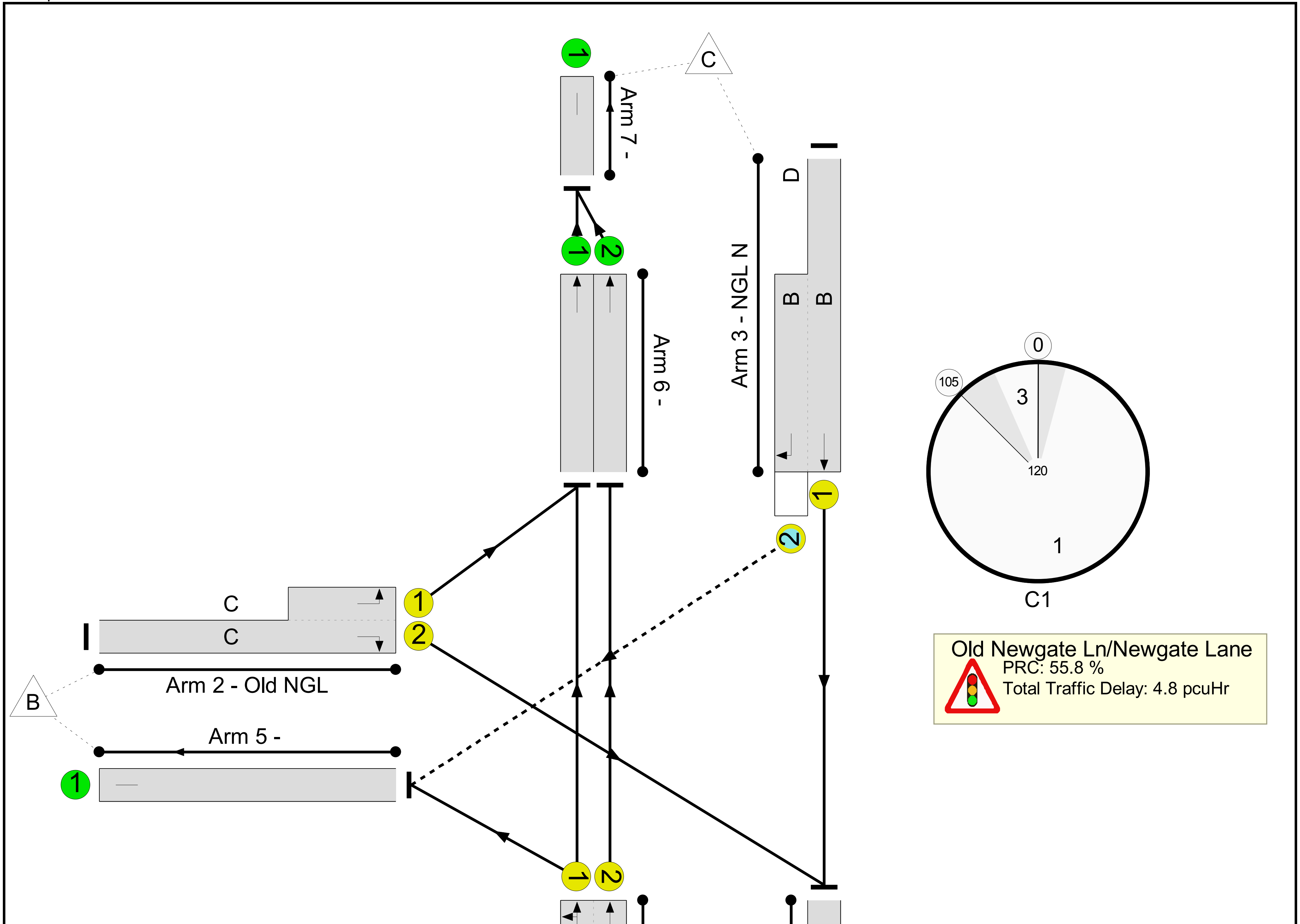
Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 55.8 %
Total Traffic Delay: 4.8 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	994	1965:1935	1092+860	50.9 : 50.9%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	109	1759:1720	94+129	48.8 : 48.8%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1022	2065:1786	1681+88	57.7 : 57.7%
4/1		U	N/A	N/A	-		-	-	-	1017	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	119	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	433	1940	1940	22.3%
6/2	Ahead	U	N/A	N/A	-		-	-	-	556	1940	1940	28.7%
7/1		U	N/A	N/A	-		-	-	-	989	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**50**	**0**	**1**	**2.8**	**2.0**	**0.0**	**4.8**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**50**	**0**	**1**	**2.8**	**2.0**	**0.0**	**4.8**	**-**	**-**	**-**	**-**
1/2+1/1	994	994	-	-	-	0.6	0.5	-	1.1	3.9	4.0	0.5	4.5
2/2+2/1	109	109	-	-	-	1.6	0.5	-	2.1	68.7	2.0	0.5	2.5
3/1+3/2	1022	1022	50	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1017	1017	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	119	119	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	433	433	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
6/2	556	556	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/1	989	989	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 55.8 Total Delay for Signalled Lanes (pcuHr): 4.50 Cycle Time (s): 120
PRC Over All Lanes (%): 55.8 Total Delay Over All Lanes(pcuHr): 4.84

Full Input Data And Results

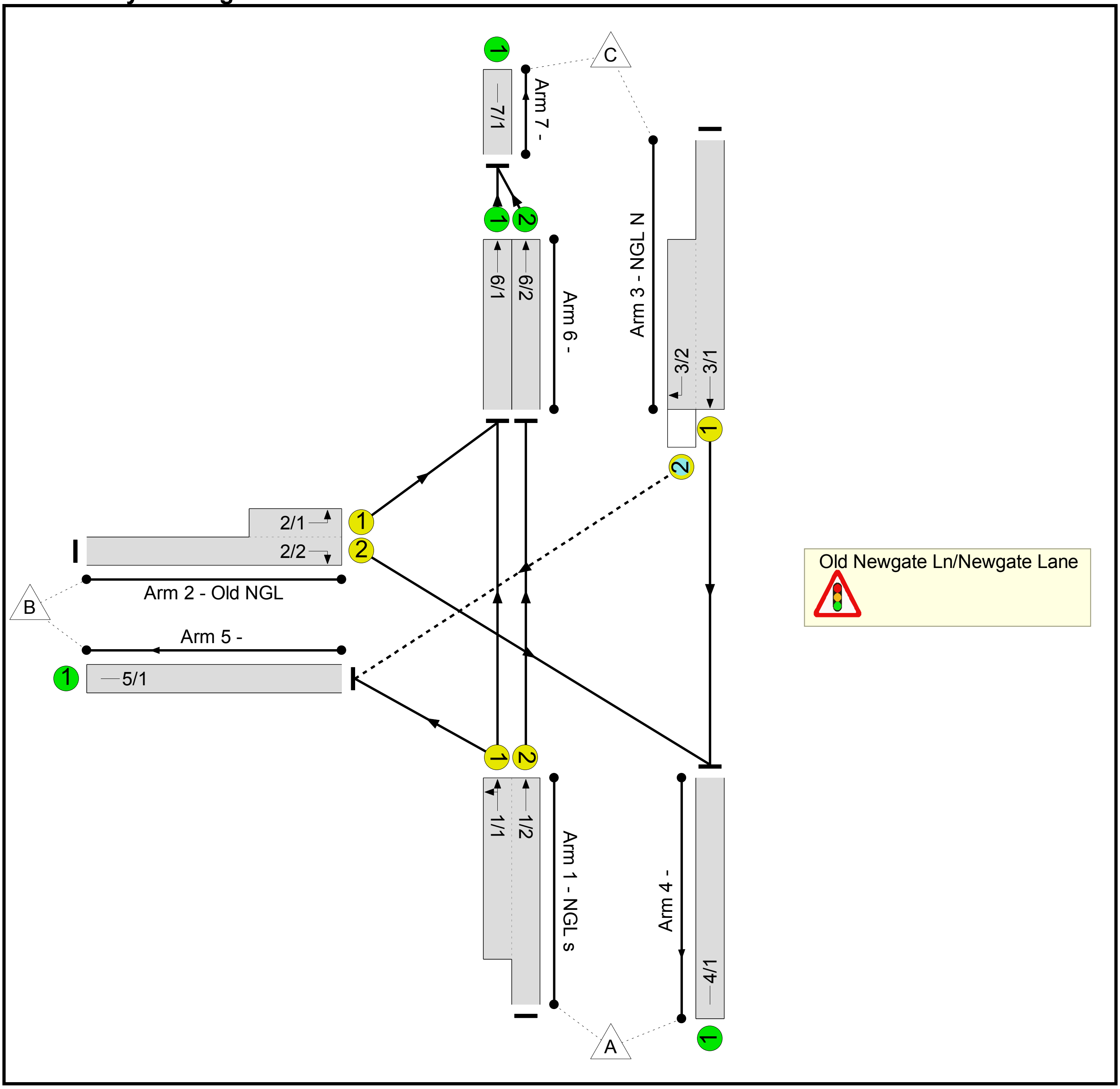
Full Input Data And Results

Full Input Data And Results

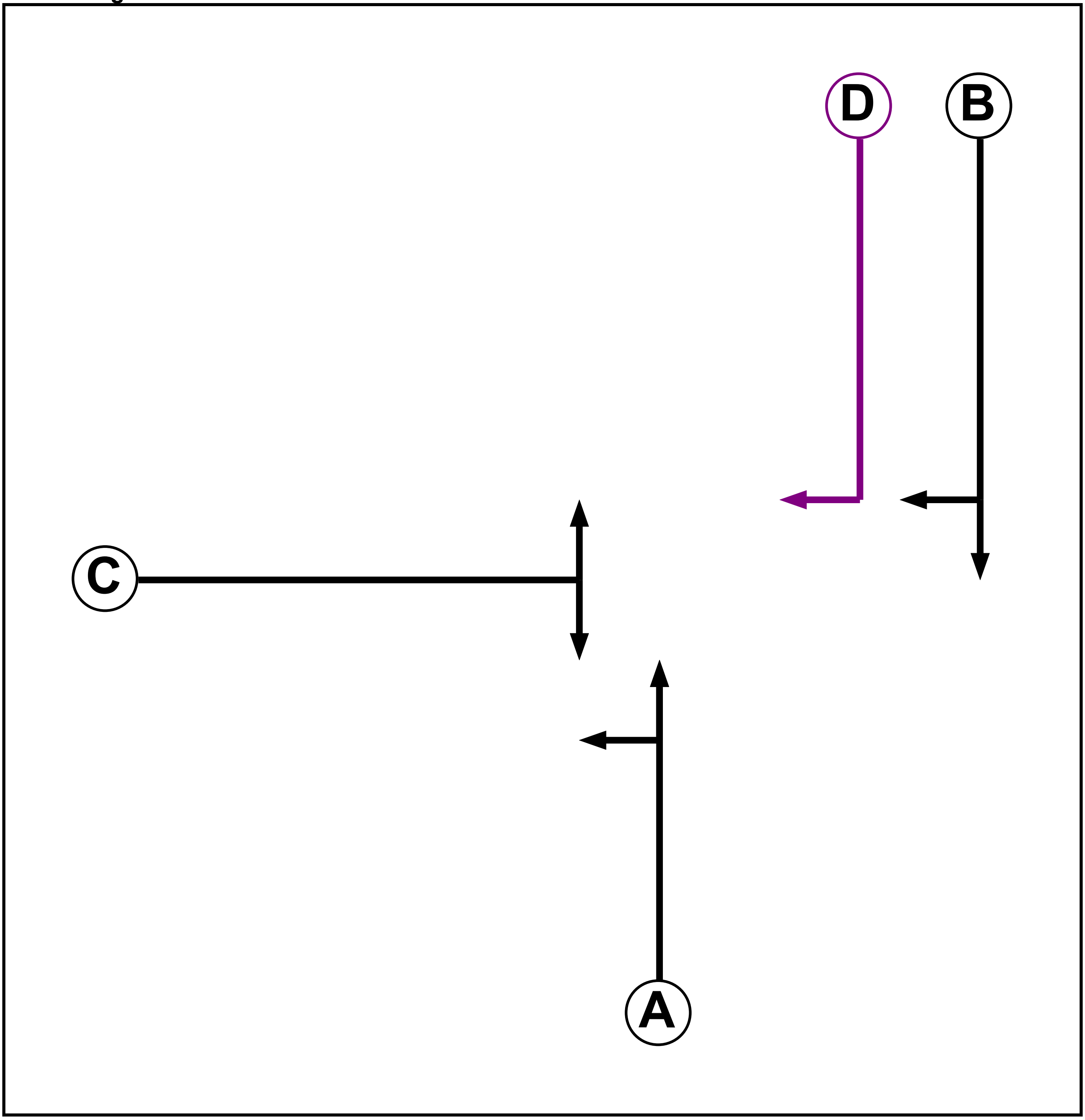
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Indicative Arrow 70 30.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4

Full Input Data And Results

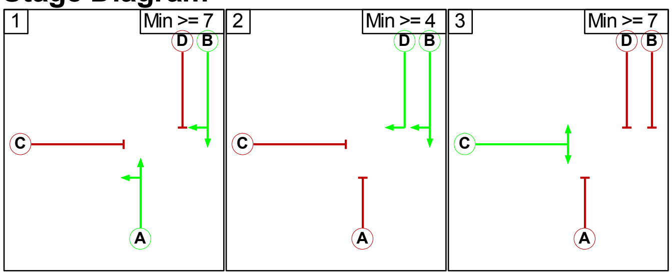
Phase Intergreens Matrix

		Starting Phase			
		A	B	C	D
Terminating Phase	A		-	7	5
	B	-		5	-
	C	5	5		5
	D	5	-	5	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	B	Losing	2	2

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		5	7
	2	5		5
	3	5	X	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Old Newgate Ln/Newgate Lane											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
3/2 (NGL N)	5/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Old Newgate Ln/Newgate Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (NGL s)	U	A	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
1/2 (NGL s)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
2/1 (Old NGL)	U	C	2	3	4.9	Geom	-	3.20	0.00	Y	Arm 6 Left	12.00
2/2 (Old NGL)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Right	15.00
3/1 (NGL N)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 4 Ahead	Inf
3/2 (NGL N)	O	B D	2	3	9.0	Geom	-	3.50	0.00	Y	Arm 5 Right	15.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
6/2	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM DS2 75'	08:00	09:00	01:00	
2: '2024 PM DS2 75'	17:00	18:00	01:00	
3: '2024 AM DS2 115'	08:00	09:00	01:00	
4: '2024 PM DS2 115'	17:00	18:00	01:00	
5: '2024 AM DS2 190'	08:00	09:00	01:00	
6: '2024 PM DS2 190'	17:00	18:00	01:00	

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	28	1645	1673
	B	49	0	39	88
	C	687	34	0	721
	Tot.	736	62	1684	2482

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2024 AM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	521
1/2 (with short)	1673(In) 1152(Out)
2/1 (short)	39
2/2 (with short)	88(In) 49(Out)
3/1 (with short)	721(In) 687(Out)
3/2 (short)	34
4/1	736
5/1	62
6/1	532
6/2	1152
7/1	1684

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	5.4 %	1954	1954
				Arm 6 Ahead	Inf	94.6 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	42	926	968
	B	35	0	45	80
	C	971	33	0	1004
	Tot.	1006	75	971	2052

Traffic Lane Flows

Lane	Scenario 2: 2024 PM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	319
1/2 (with short)	968(In) 649(Out)
2/1 (short)	45
2/2 (with short)	80(In) 35(Out)
3/1 (with short)	1004(In) 971(Out)
3/2 (short)	33
4/1	1006
5/1	75
6/1	322
6/2	649
7/1	971

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	13.2 %	1939	1939
				Arm 6 Ahead	Inf	86.8 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	30	1645	1675
	B	62	0	45	107
	C	687	39	0	726
	Tot.	749	69	1690	2508

Traffic Lane Flows

Lane	Scenario 3: 2024 AM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	523
1/2 (with short)	1675(In) 1152(Out)
2/1 (short)	45
2/2 (with short)	107(In) 62(Out)
3/1 (with short)	726(In) 687(Out)
3/2 (short)	39
4/1	749
5/1	69
6/1	538
6/2	1152
7/1	1690

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	5.7 %	1954	1954
				Arm 6 Ahead	Inf	94.3 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	51	926	977
	B	39	0	51	90
	C	971	40	0	1011
	Tot.	1010	91	977	2078

Traffic Lane Flows

Lane	Scenario 4: 2024 PM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	328
1/2 (with short)	977(In) 649(Out)
2/1 (short)	51
2/2 (with short)	90(In) 39(Out)
3/1 (with short)	1011(In) 971(Out)
3/2 (short)	40
4/1	1010
5/1	91
6/1	328
6/2	649
7/1	977

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	15.5 %	1935	1935
				Arm 6 Ahead	Inf	84.5 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	34	1645	1679
	B	84	0	56	140
	C	687	48	0	735
	Tot.	771	82	1701	2554

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2024 AM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	527
1/2 (with short)	1679(In) 1152(Out)
2/1 (short)	56
2/2 (with short)	140(In) 84(Out)
3/1 (with short)	735(In) 687(Out)
3/2 (short)	48
4/1	771
5/1	82
6/1	549
6/2	1152
7/1	1701

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	6.5 %	1952	1952
				Arm 6 Ahead	Inf	93.5 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	68	926	994
	B	46	0	63	109
	C	971	51	0	1022
	Tot.	1017	119	989	2125

Traffic Lane Flows

Lane	Scenario 6: 2024 PM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	345
1/2 (with short)	994(In) 649(Out)
2/1 (short)	63
2/2 (with short)	109(In) 46(Out)
3/1 (with short)	1022(In) 971(Out)
3/2 (short)	51
4/1	1017
5/1	119
6/1	340
6/2	649
7/1	989

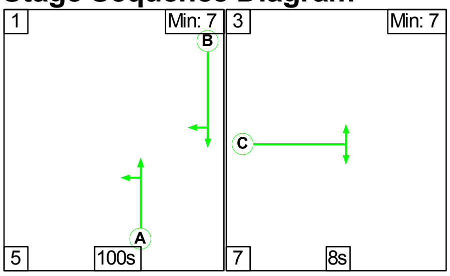
Full Input Data And Results

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	19.7 %	1927	1927
				Arm 6 Ahead	Inf	80.3 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

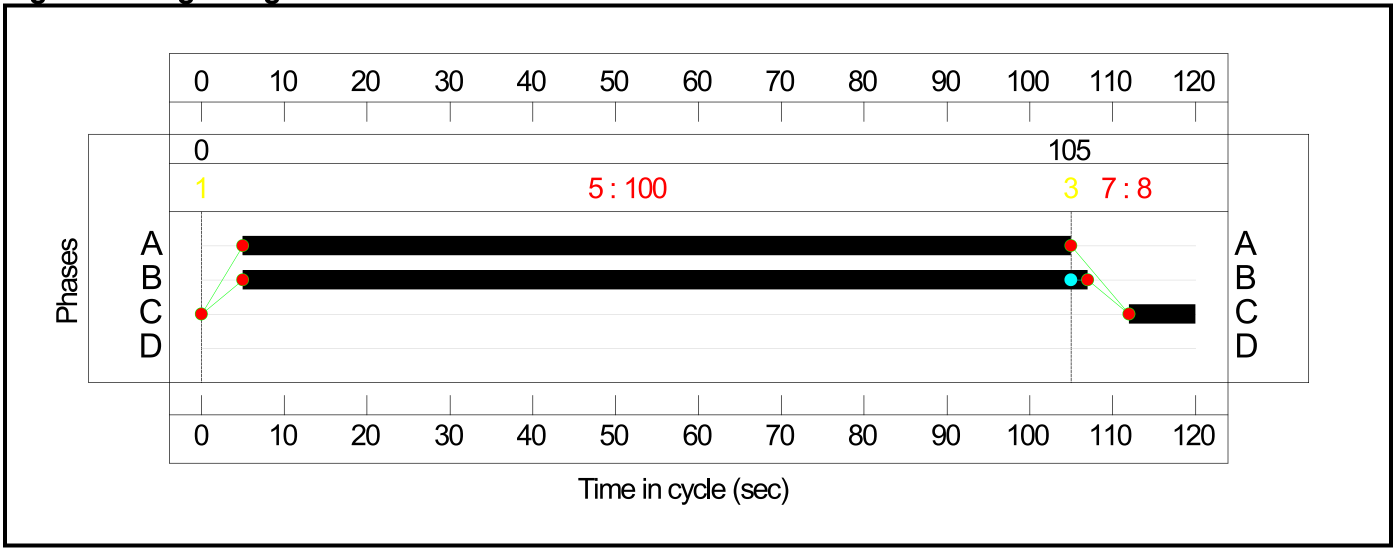


Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

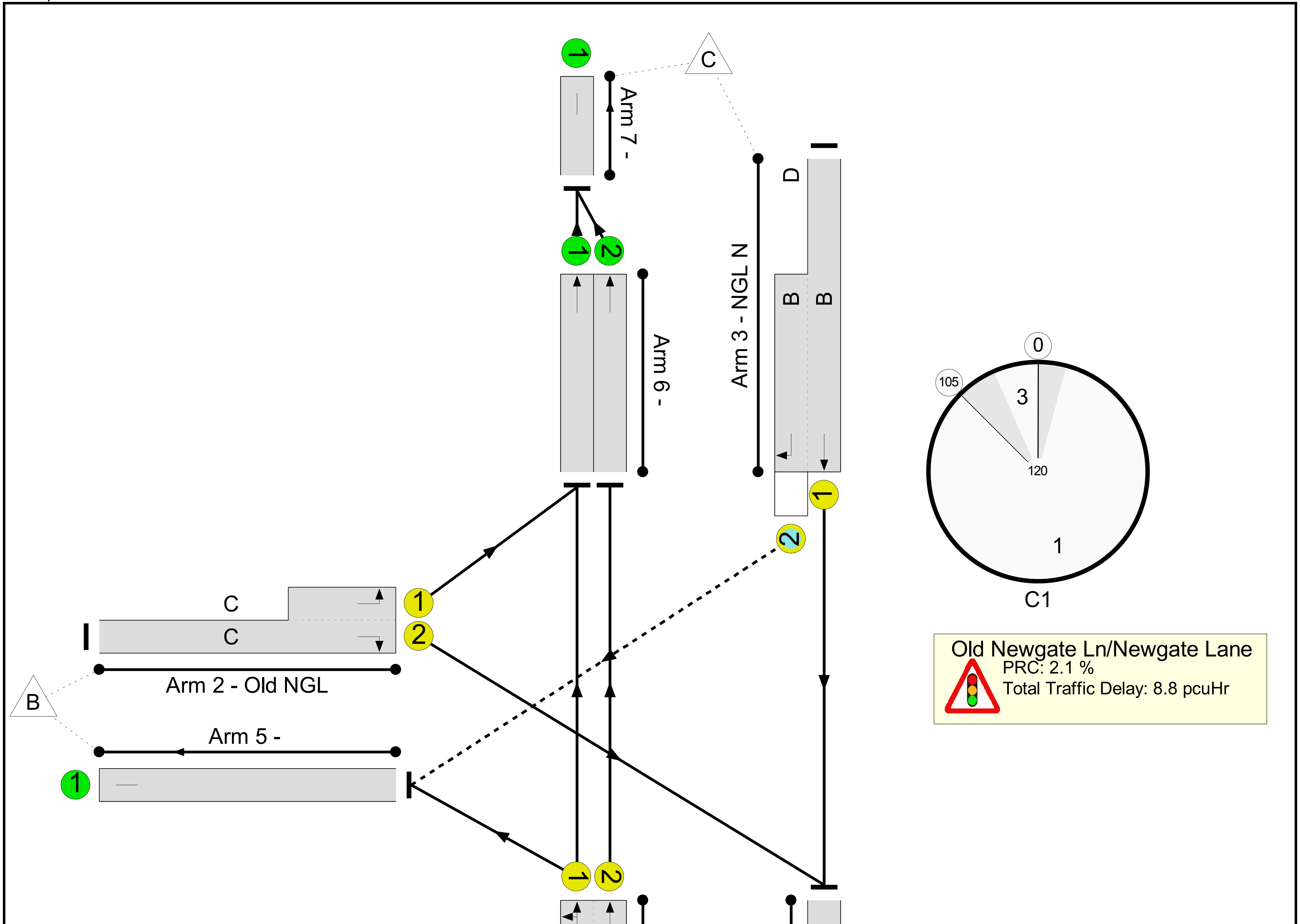
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
C
C
Arm 2 - Old NGL
B
Arm 5 -
0
105
3
120
1
C1
Old Newgate Ln/Newgate Lane
PRC: 2.1 %
Total Traffic Delay: 8.8 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.2%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.2%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1673	1965:1954	1306+591	88.2 : 88.2%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	88	1759:1720	132+105	37.1 : 37.1%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	721	2065:1786	1686+60	40.7 : 56.7%
4/1		U	N/A	N/A	-		-	-	-	736	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	62	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	532	1940	1940	27.4%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1152	1940	1940	59.4%
7/1		U	N/A	N/A	-		-	-	-	1684	Inf	Inf	0.0%

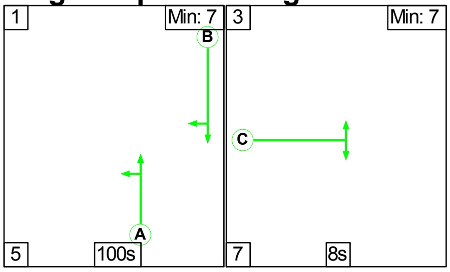
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**34**	**3.1**	**5.2**	**0.5**	**8.8**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**34**	**3.1**	**5.2**	**0.5**	**8.8**	**-**	**-**	**-**	**-**
1/2+1/1	1673	1673	-	-	-	1.5	3.6	-	5.1	10.9	14.4	3.6	18.0
2/2+2/1	88	88	-	-	-	1.3	0.3	-	1.6	64.8	1.6	0.3	1.8
3/1+3/2	721	721	0	0	34	0.4	0.4	0.5	1.3	6.3	4.8	0.4	5.1
4/1	736	736	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	62	62	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	532	532	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/2	1152	1152	-	-	-	0.0	0.7	-	0.7	2.3	10.8	0.7	11.5
7/1	1684	1684	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 2.1 Total Delay for Signalled Lanes (pcuHr): 7.91 Cycle Time (s): 120
PRC Over All Lanes (%): 2.1 Total Delay Over All Lanes(pcuHr): 8.84

Full Input Data And Results
Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

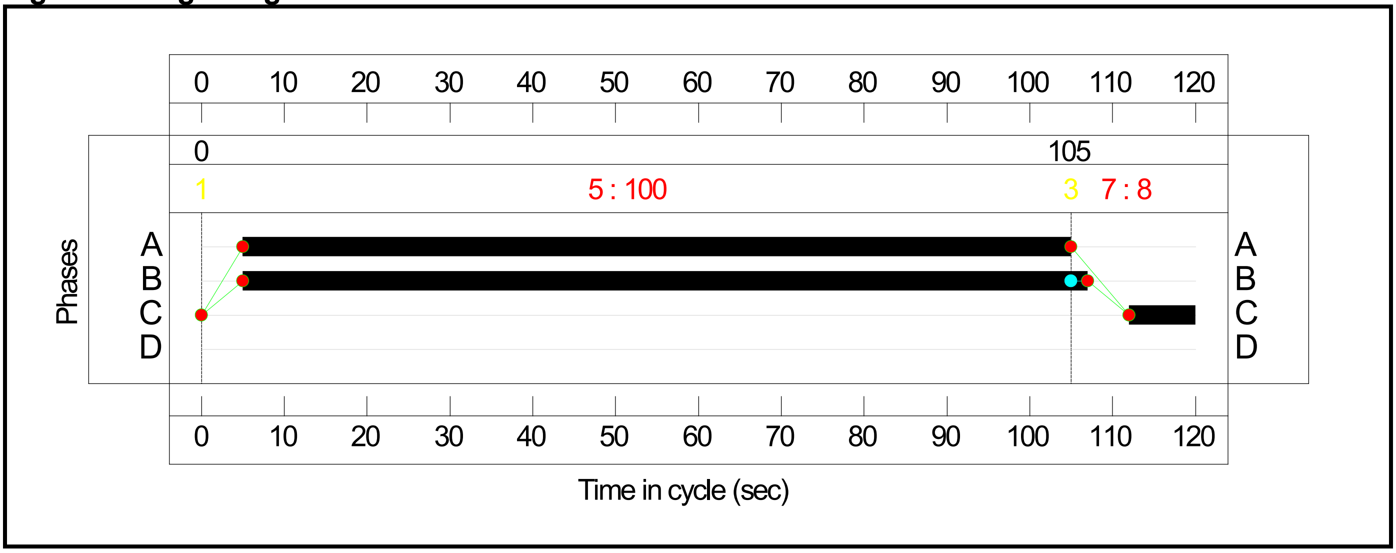
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

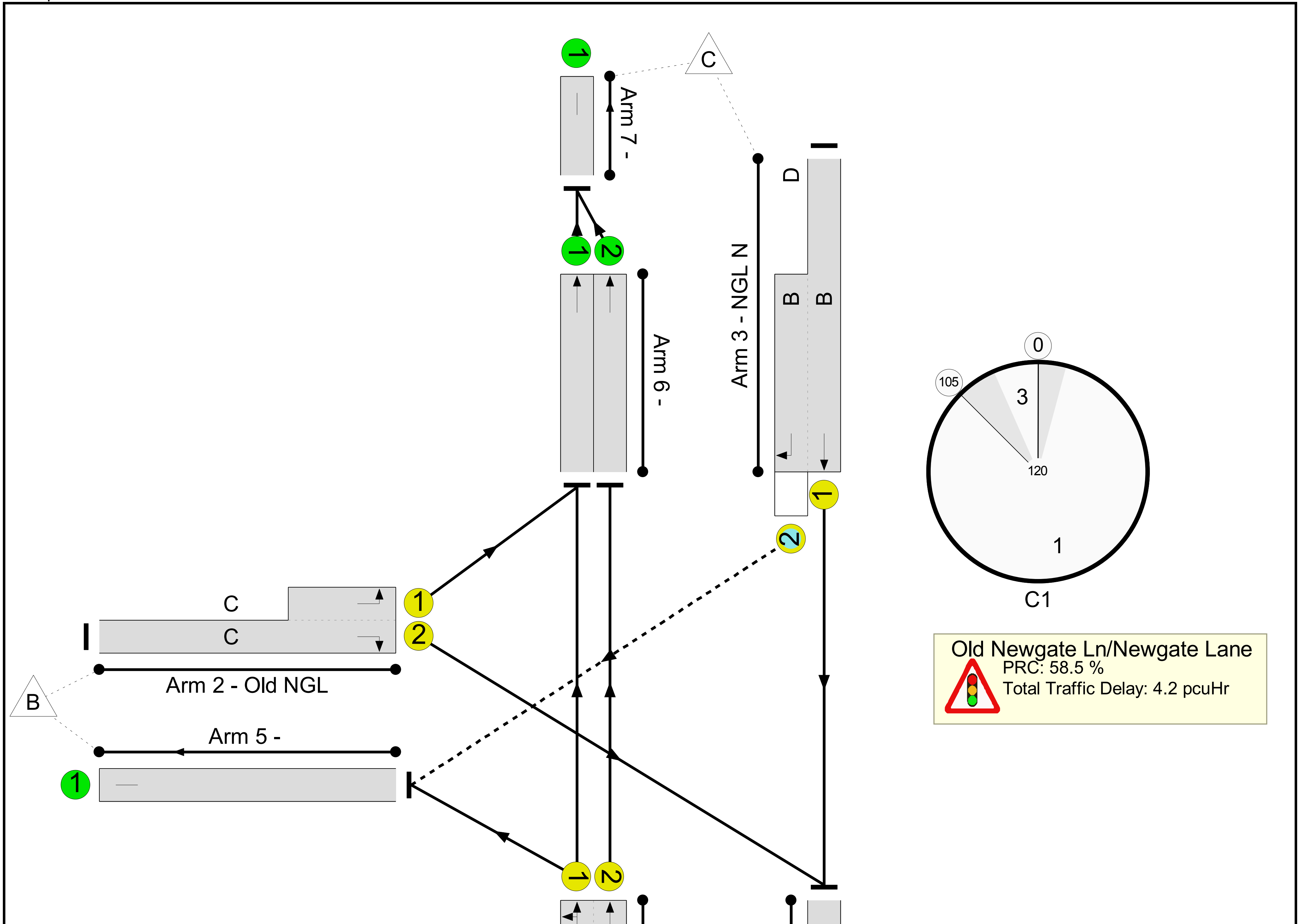
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	968	1965:1939	1284+631	50.6 : 50.6%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	80	1759:1720	100+129	34.9 : 34.9%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1004	2065:1786	1711+58	56.8 : 56.8%
4/1		U	N/A	N/A	-		-	-	-	1006	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	322	1940	1940	16.6%
6/2	Ahead	U	N/A	N/A	-		-	-	-	649	1940	1940	33.5%
7/1		U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%

Full Input Data And Results

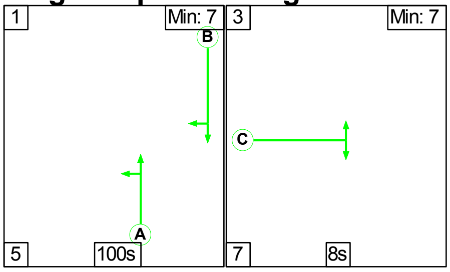
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**32**	**0**	**1**	**2.4**	**1.8**	**0.0**	**4.2**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**32**	**0**	**1**	**2.4**	**1.8**	**0.0**	**4.2**	**-**	**-**	**-**	**-**
1/2+1/1	968	968	-	-	-	0.6	0.5	-	1.1	4.0	5.0	0.5	5.6
2/2+2/1	80	80	-	-	-	1.2	0.3	-	1.4	64.6	1.4	0.3	1.7
3/1+3/2	1004	1004	32	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1006	1006	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	75	75	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	322	322	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	649	649	-	-	-	0.0	0.3	-	0.3	1.4	0.5	0.3	0.8
7/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 58.5 Total Delay for Signalled Lanes (pcuHr): 3.81 Cycle Time (s): 120
PRC Over All Lanes (%): 58.5 Total Delay Over All Lanes(pcuHr): 4.16

Full Input Data And Results

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

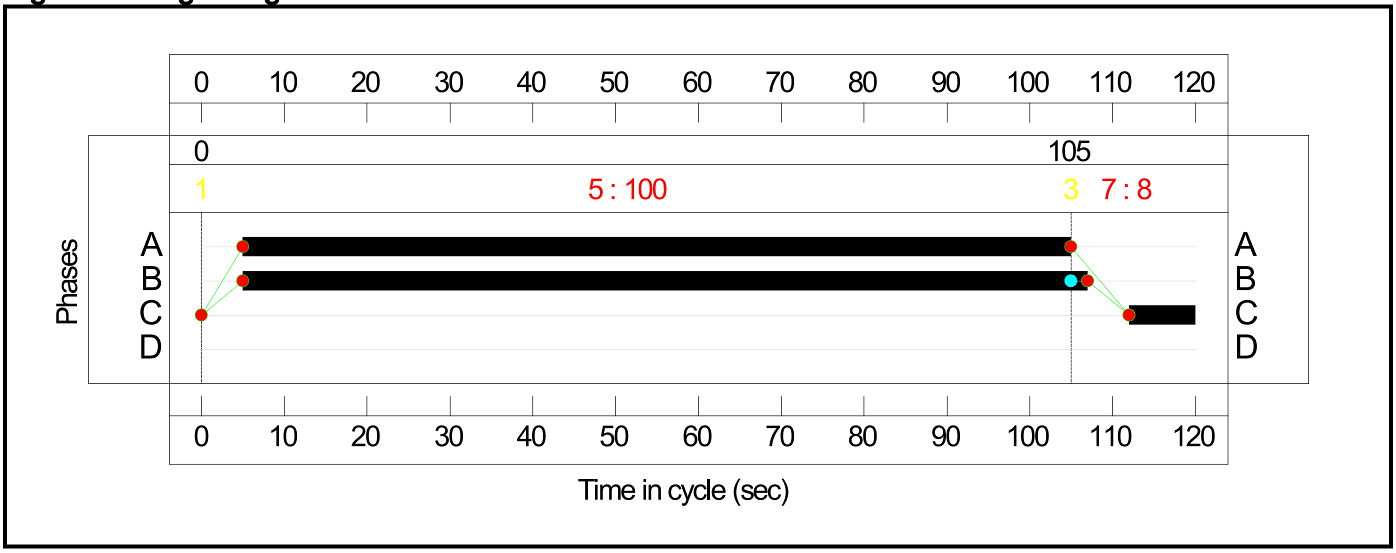
Stage Sequence Diagram



Stage Timings

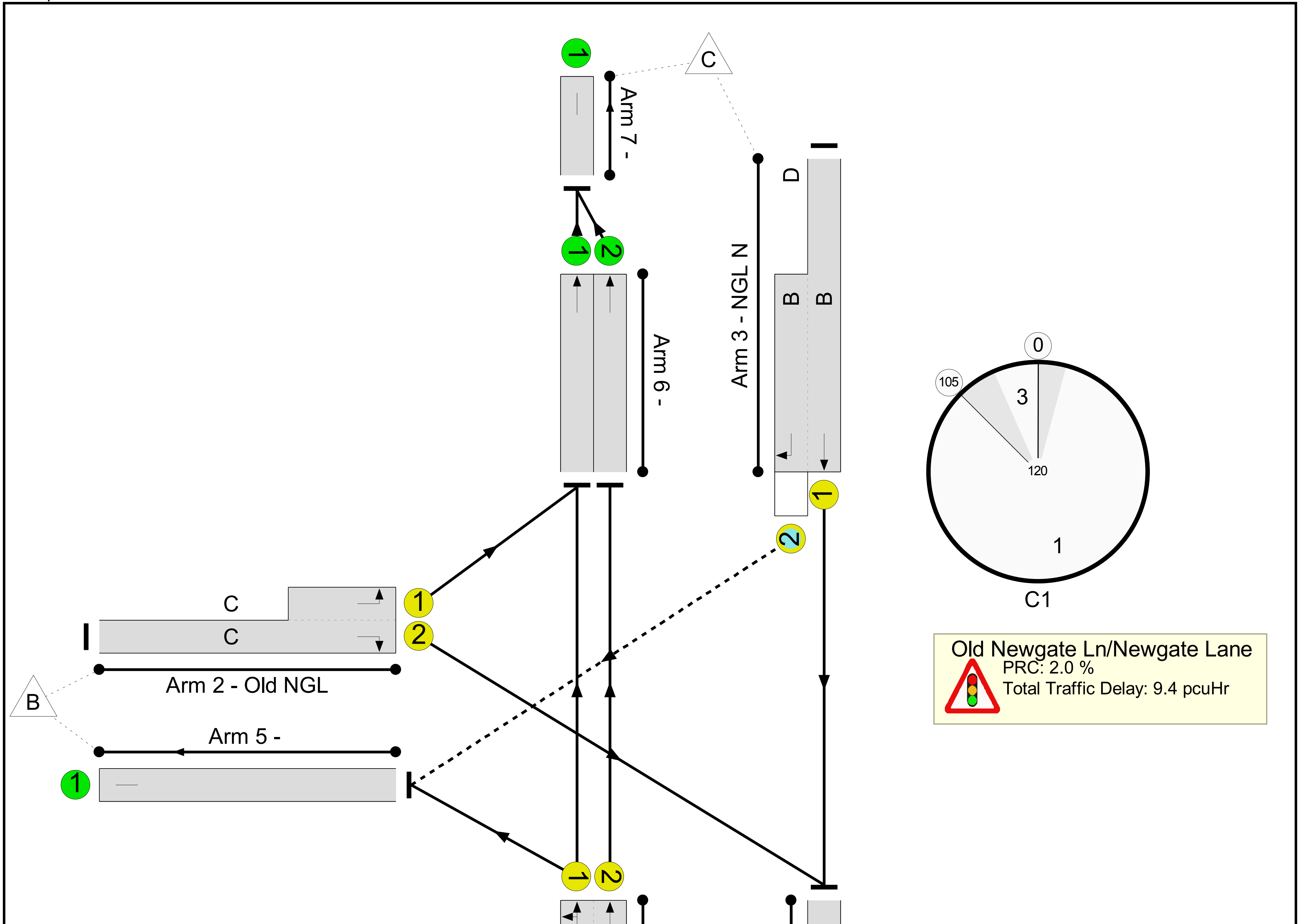
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
D
B B
Arm 3 - NGL N
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 2.0 %
Total Traffic Delay: 9.4 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.2%**
Old Newgate Ln/Newgate Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.2%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1675	1965:1954	1305+593	88.2 : 88.2%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	107	1759:1720	132+96	47.0 : 47.0%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	726	2065:1786	1675+60	41.0 : 65.0%
4/1		U	N/A	N/A	-		-	-	-	749	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	69	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	538	1940	1940	27.7%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1152	1940	1940	59.4%
7/1		U	N/A	N/A	-		-	-	-	1690	Inf	Inf	0.0%

Full Input Data And Results

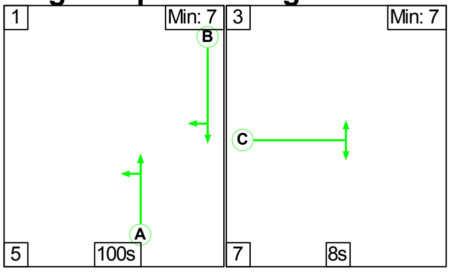
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**39**	**3.4**	**5.4**	**0.6**	**9.4**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**39**	**3.4**	**5.4**	**0.6**	**9.4**	**-**	**-**	**-**	**-**
1/2+1/1	1675	1675	-	-	-	1.5	3.6	-	5.1	11.0	14.4	3.6	18.0
2/2+2/1	107	107	-	-	-	1.6	0.4	-	2.0	67.8	2.0	0.4	2.4
3/1+3/2	726	726	0	0	39	0.4	0.4	0.6	1.3	6.7	4.8	0.4	5.1
4/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	538	538	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/2	1152	1152	-	-	-	0.0	0.7	-	0.7	2.3	10.8	0.7	11.5
7/1	1690	1690	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 2.0 Total Delay for Signalled Lanes (pcuHr): 8.46 Cycle Time (s): 120
PRC Over All Lanes (%): 2.0 Total Delay Over All Lanes(pcuHr): 9.39

Full Input Data And Results

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

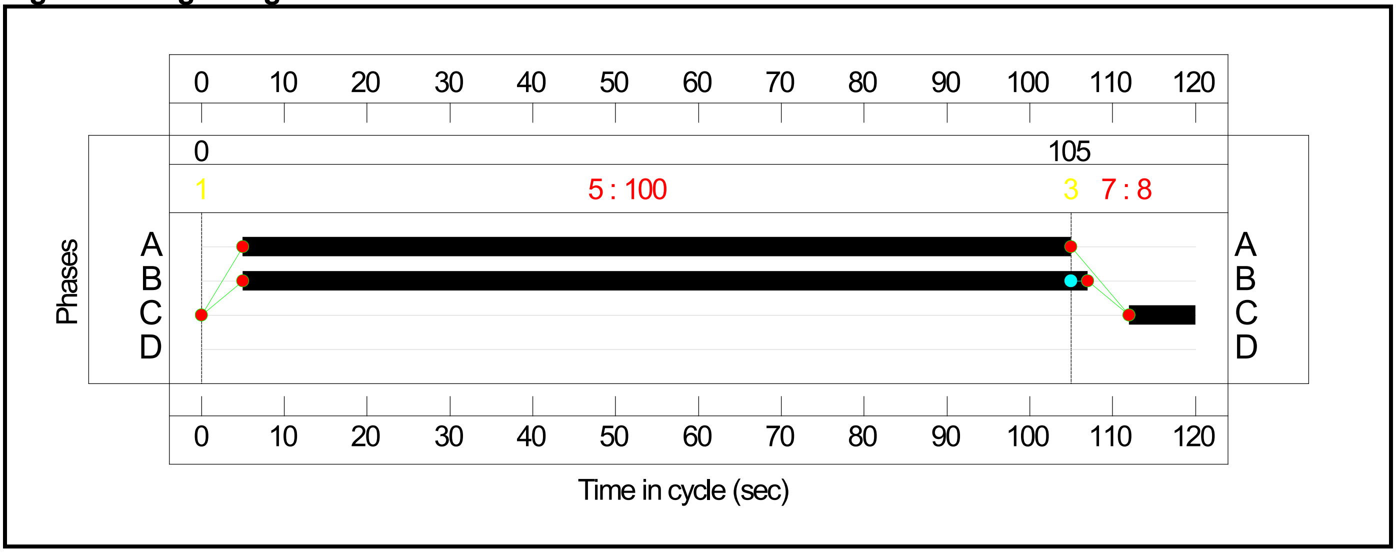
Stage Sequence Diagram



Stage Timings

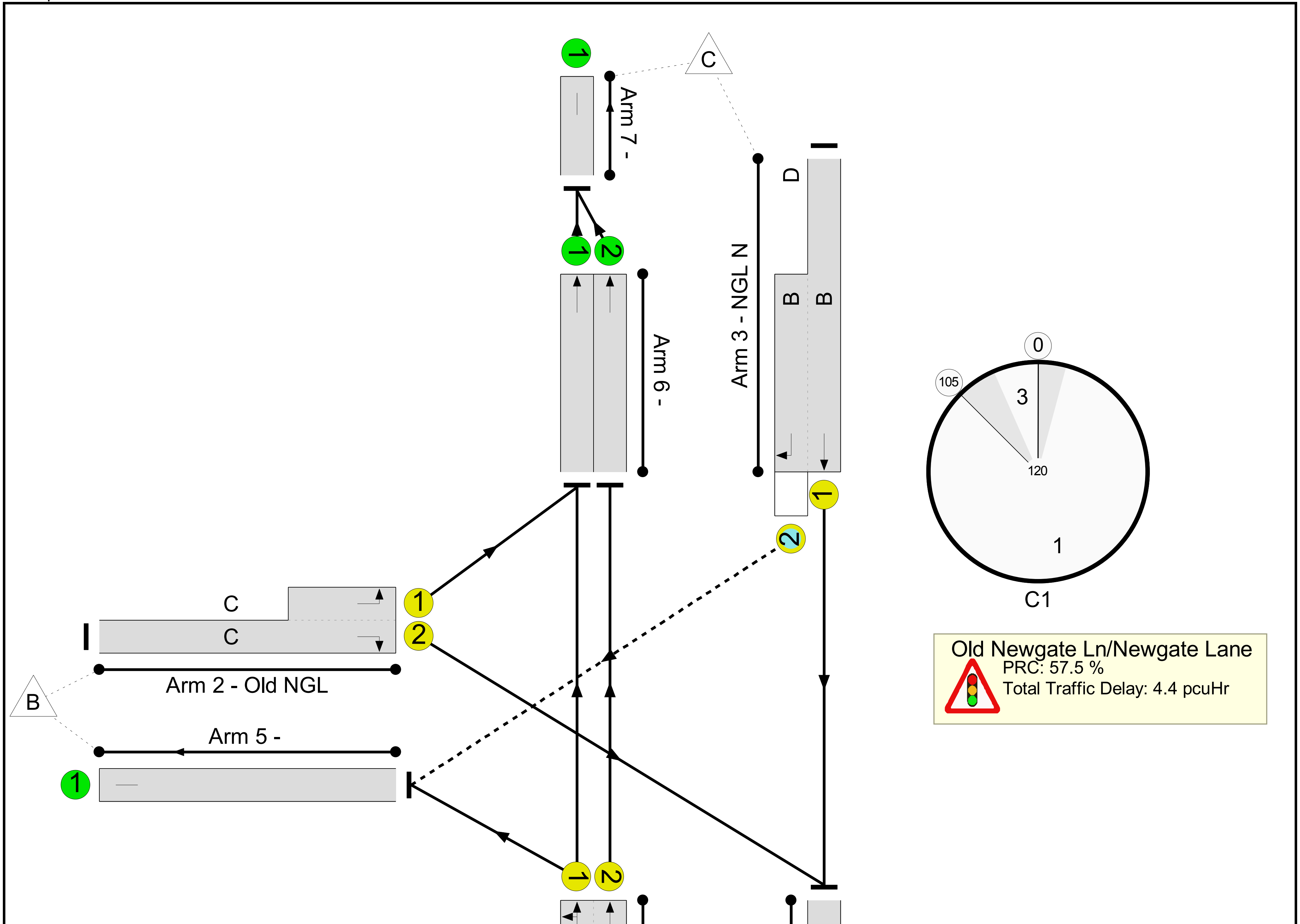
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
Arm 6 -
D
B
B
Arm 3 - NGL N
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 57.5 %
Total Traffic Delay: 4.4 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**	-	-		-	-	-	-	-	-	**57.1%**
Old Newgate Ln/Newgate Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**57.1%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	977	1965:1935	1276+645	50.9 : 50.9%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	90	1759:1720	99+129	39.5 : 39.5%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1011	2065:1786	1699+70	57.1 : 57.1%
4/1		U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	328	1940	1940	16.9%
6/2	Ahead	U	N/A	N/A	-		-	-	-	649	1940	1940	33.5%
7/1		U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%

Full Input Data And Results

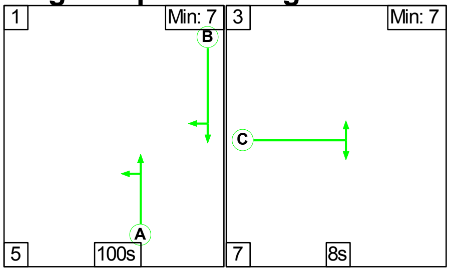
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**39**	**0**	**1**	**2.5**	**1.9**	**0.0**	**4.4**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**39**	**0**	**1**	**2.5**	**1.9**	**0.0**	**4.4**	**-**	**-**	**-**	**-**
1/2+1/1	977	977	-	-	-	0.6	0.5	-	1.1	4.0	5.0	0.5	5.6
2/2+2/1	90	90	-	-	-	1.3	0.3	-	1.6	65.8	1.6	0.3	1.9
3/1+3/2	1011	1011	39	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	328	328	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	649	649	-	-	-	0.0	0.3	-	0.3	1.4	0.5	0.3	0.8
7/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 57.5 Total Delay for Signalled Lanes (pcuHr): 4.05 Cycle Time (s): 120
PRC Over All Lanes (%): 57.5 Total Delay Over All Lanes(pcuHr): 4.40

Full Input Data And Results

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

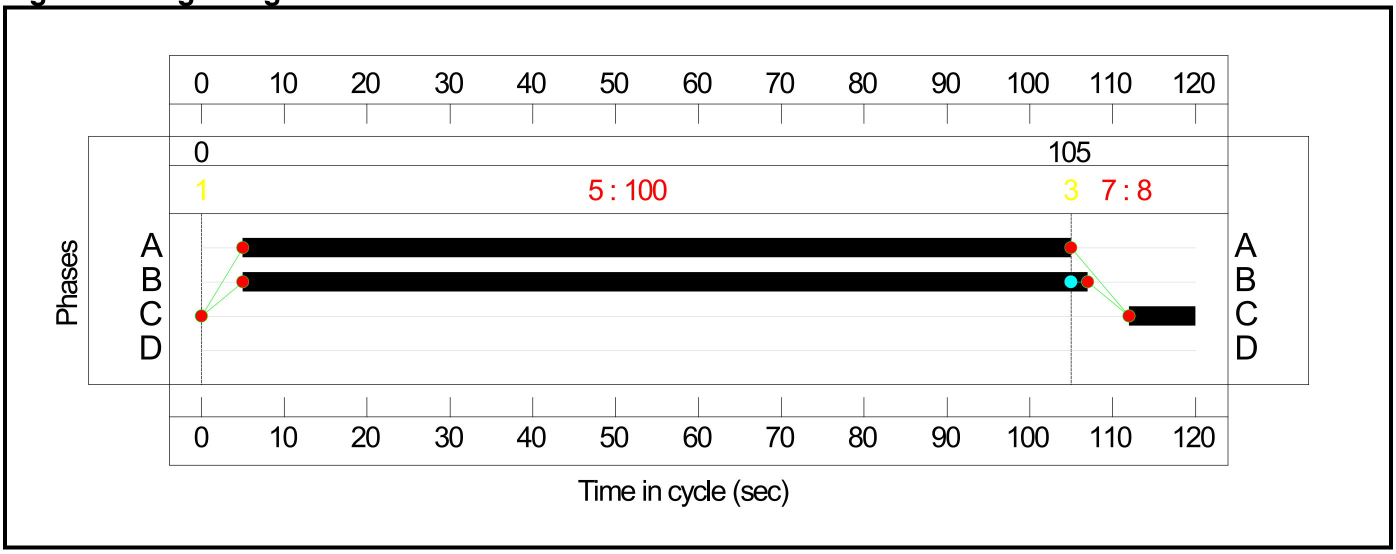
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

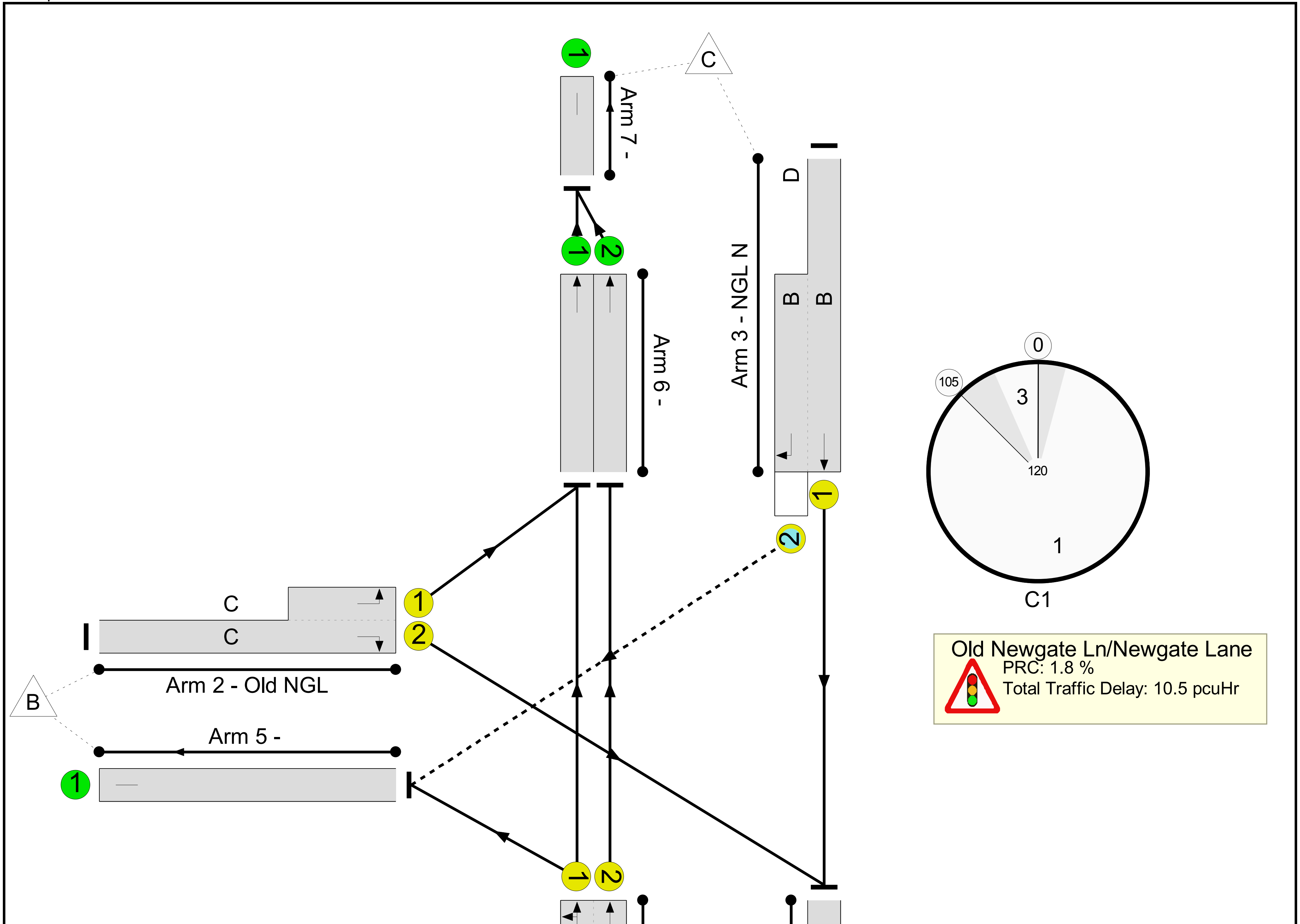
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.4%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.4%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1679	1965:1952	1303+596	88.4 : 88.4%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	140	1759:1720	132+88	63.7 : 63.7%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	735	2065:1786	1655+60	41.5 : 80.0%
4/1		U	N/A	N/A	-		-	-	-	771	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	549	1940	1940	28.3%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1152	1940	1940	59.4%
7/1		U	N/A	N/A	-		-	-	-	1701	Inf	Inf	0.0%

Full Input Data And Results

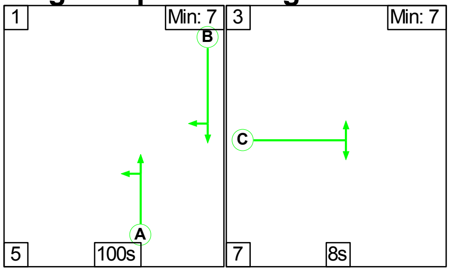
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**48**	**3.9**	**5.8**	**0.8**	**10.5**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**48**	**3.9**	**5.8**	**0.8**	**10.5**	**-**	**-**	**-**	**-**
1/2+1/1	1679	1679	-	-	-	1.5	3.7	-	5.1	11.0	14.4	3.7	18.1
2/2+2/1	140	140	-	-	-	2.1	0.9	-	2.9	75.7	2.7	0.9	3.6
3/1+3/2	735	735	0	0	48	0.4	0.4	0.8	1.5	7.4	4.8	0.4	5.1
4/1	771	771	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	549	549	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/2	1152	1152	-	-	-	0.0	0.7	-	0.7	2.3	10.8	0.7	11.5
7/1	1701	1701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 1.8 Total Delay for Signalled Lanes (pcuHr): 9.61 Cycle Time (s): 120
PRC Over All Lanes (%): 1.8 Total Delay Over All Lanes(pcuHr): 10.54

Full Input Data And Results

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

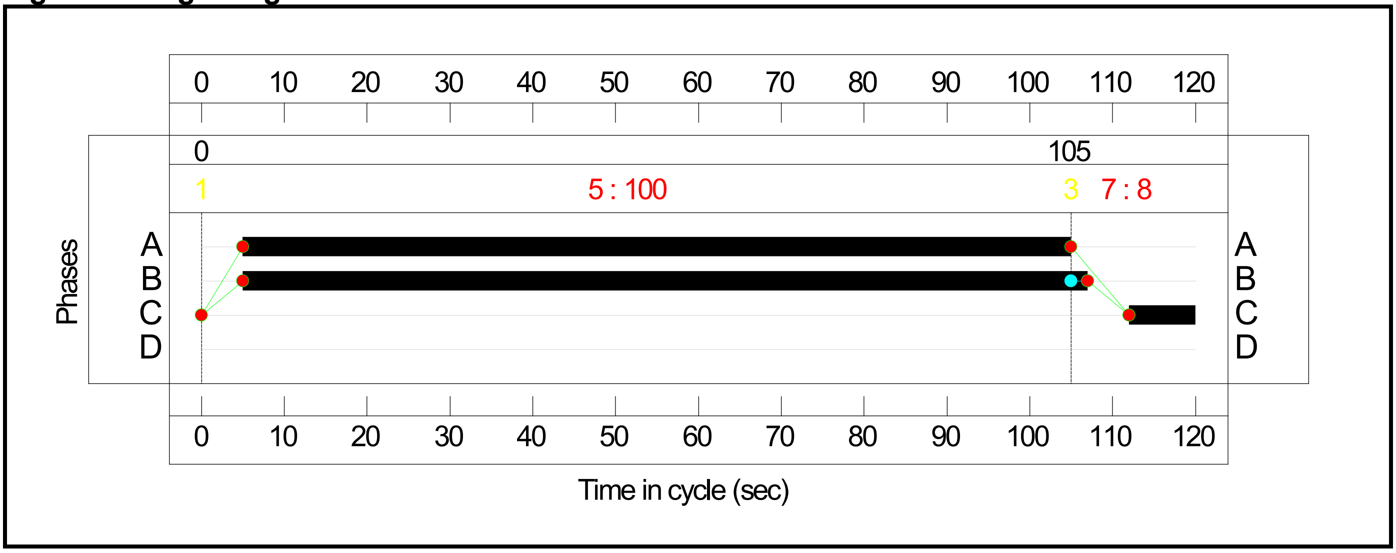
Stage Sequence Diagram



Stage Timings

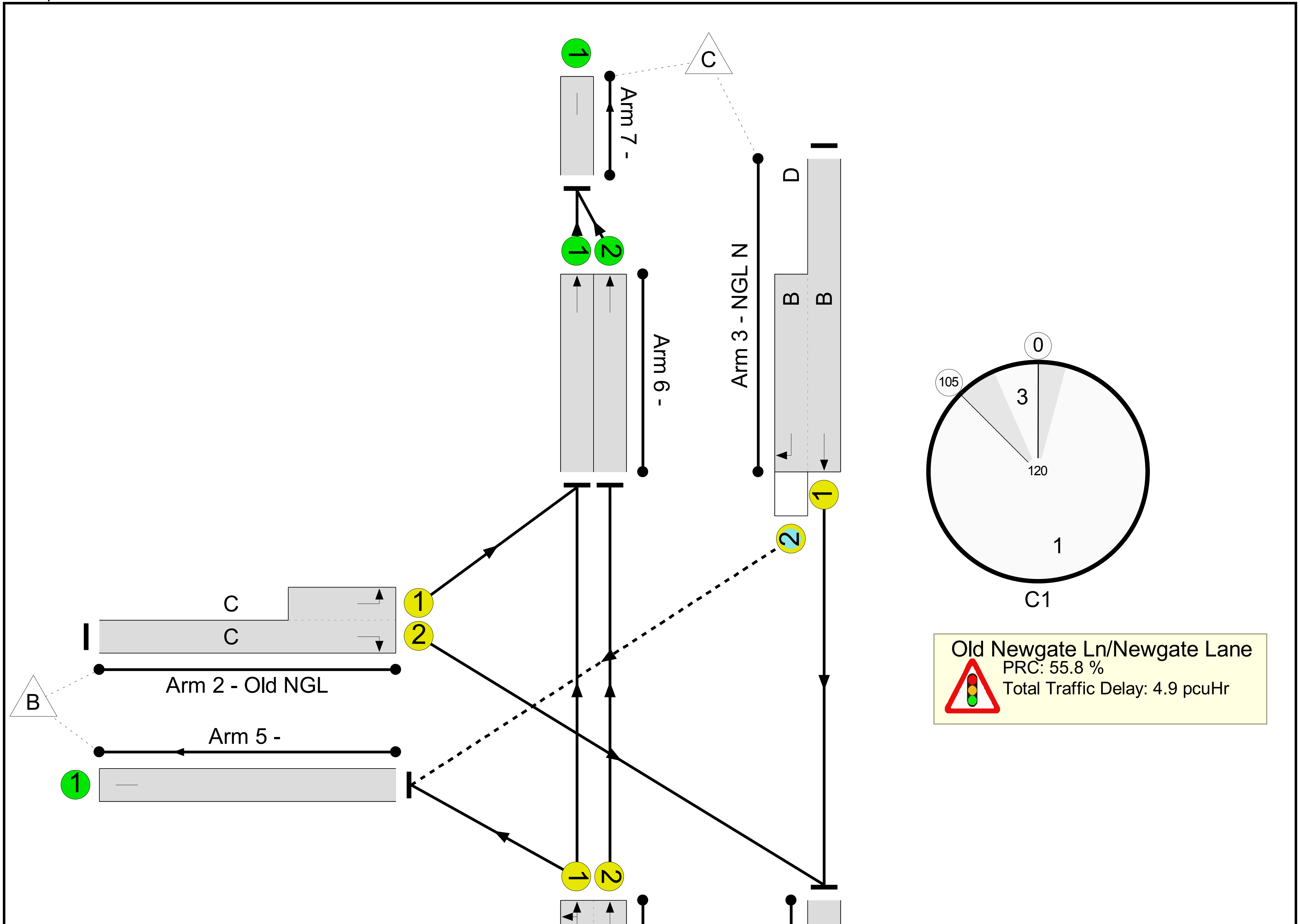
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 55.8 %
Total Traffic Delay: 4.9 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	994	1965:1927	1262+671	51.4 : 51.4%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	109	1759:1720	94+129	48.8 : 48.8%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1022	2065:1786	1681+88	57.7 : 57.7%
4/1		U	N/A	N/A	-		-	-	-	1017	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	119	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	340	1940	1940	17.5%
6/2	Ahead	U	N/A	N/A	-		-	-	-	649	1940	1940	33.5%
7/1		U	N/A	N/A	-		-	-	-	989	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**50**	**0**	**1**	**2.8**	**2.0**	**0.0**	**4.9**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**50**	**0**	**1**	**2.8**	**2.0**	**0.0**	**4.9**	**-**	**-**	**-**	**-**
1/2+1/1	994	994	-	-	-	0.6	0.5	-	1.1	4.0	5.0	0.5	5.6
2/2+2/1	109	109	-	-	-	1.6	0.5	-	2.1	68.7	2.0	0.5	2.5
3/1+3/2	1022	1022	50	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1017	1017	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	119	119	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	340	340	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	649	649	-	-	-	0.0	0.3	-	0.3	1.4	0.5	0.3	0.8
7/1	989	989	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 55.8 Total Delay for Signalled Lanes (pcuHr): 4.54 Cycle Time (s): 120
PRC Over All Lanes (%): 55.8 Total Delay Over All Lanes(pcuHr): 4.89

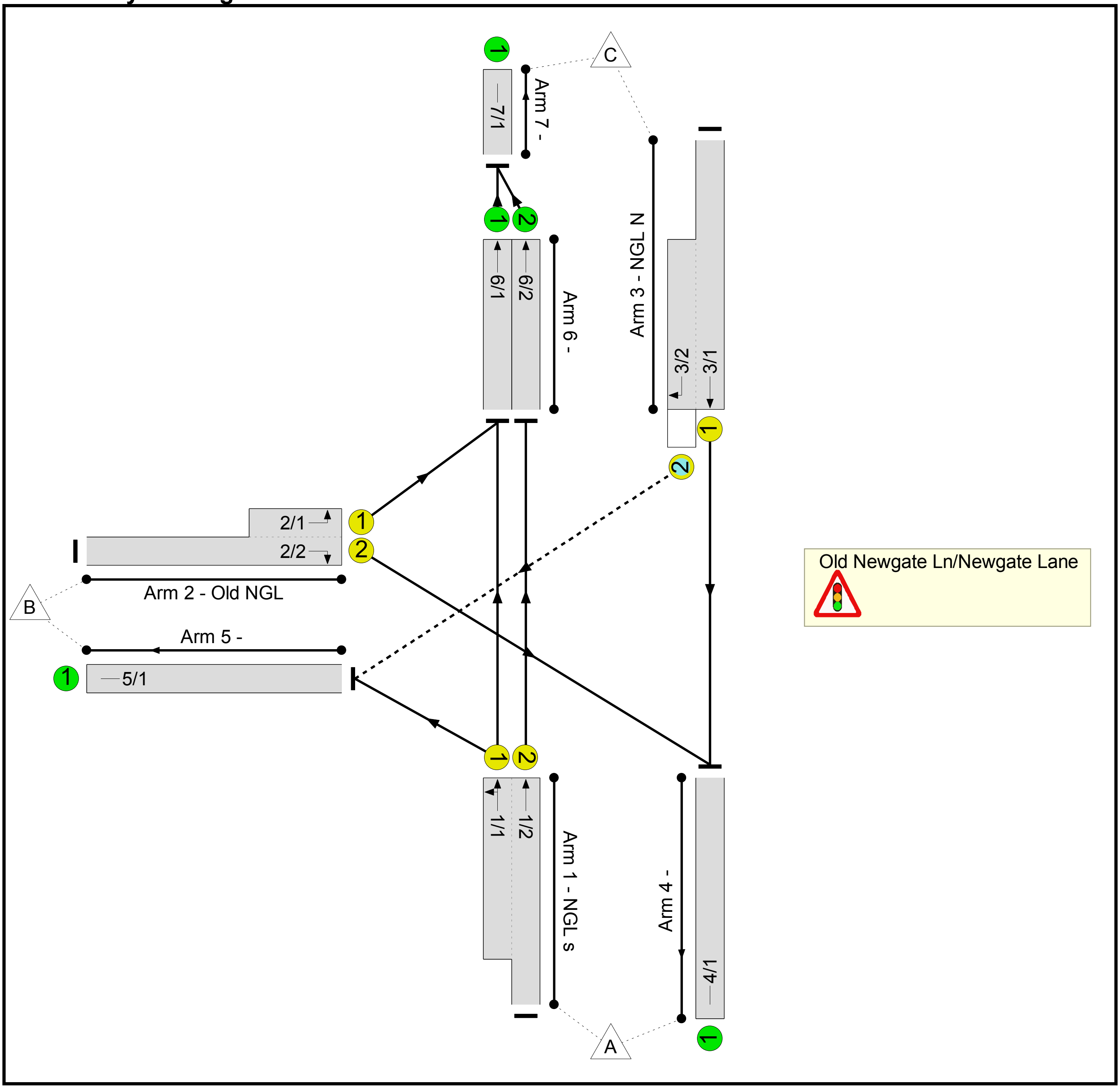
Full Input Data And Results

Full Input Data And Results

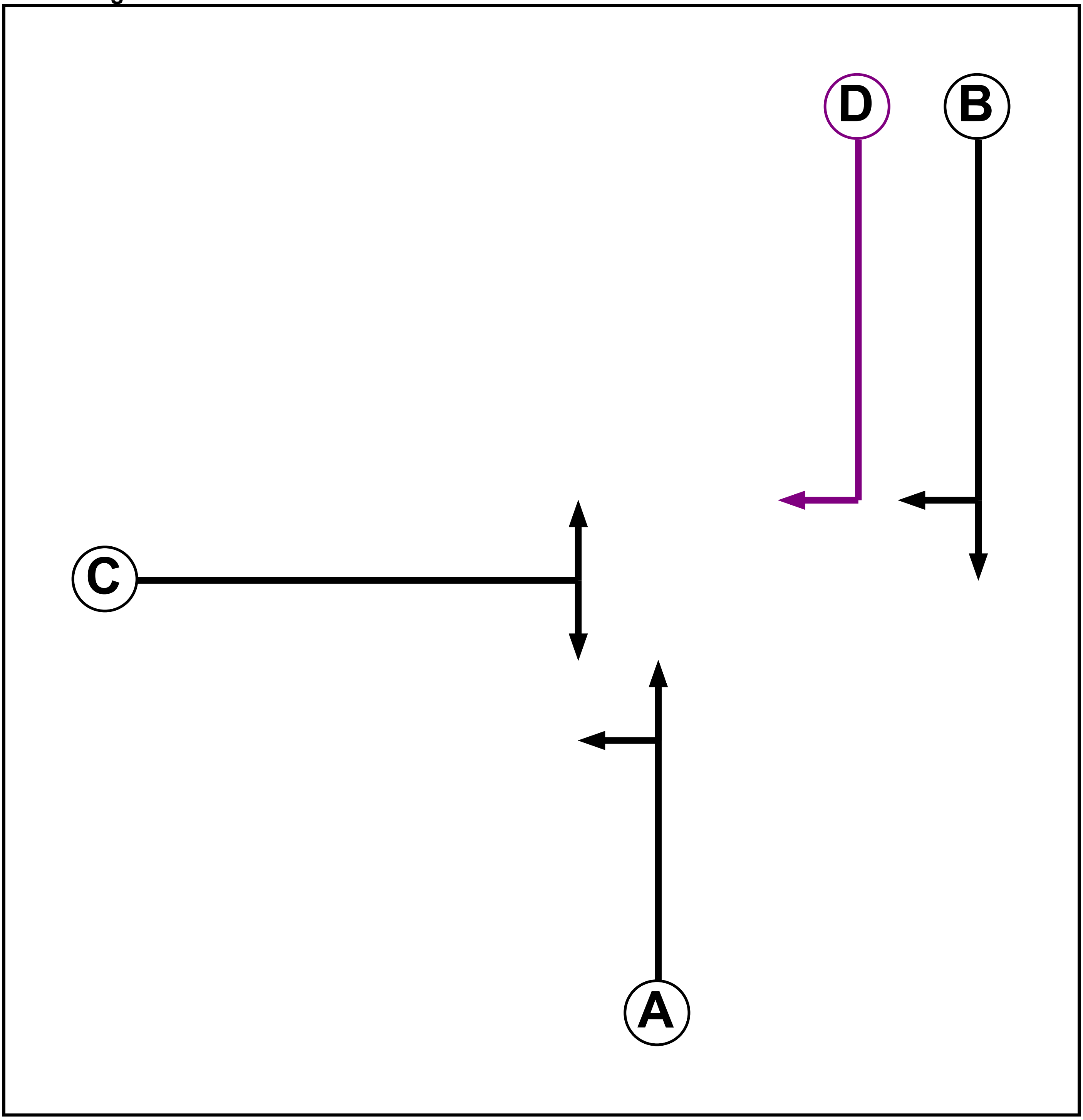
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Indicative Arrow 80 20.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4

Full Input Data And Results

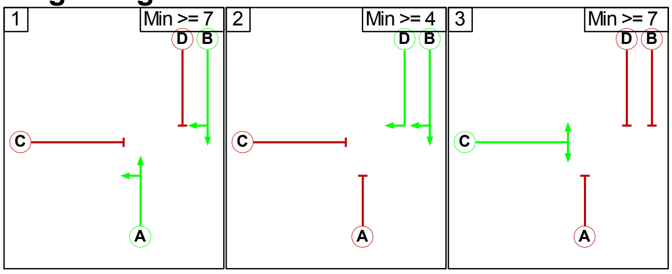
Phase Intergreens Matrix

		Starting Phase			
		A	B	C	D
Terminating Phase	A		-	7	5
	B	-		5	-
	C	5	5		5
	D	5	-	5	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	B	Losing	2	2

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		5	7
	2	5		5
	3	5	X	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Old Newgate Ln/Newgate Lane											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
3/2 (NGL N)	5/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Old Newgate Ln/Newgate Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (NGL s)	U	A	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
1/2 (NGL s)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
2/1 (Old NGL)	U	C	2	3	4.9	Geom	-	3.20	0.00	Y	Arm 6 Left	12.00
2/2 (Old NGL)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Right	15.00
3/1 (NGL N)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 4 Ahead	Inf
3/2 (NGL N)	O	B D	2	3	9.0	Geom	-	3.50	0.00	Y	Arm 5 Right	15.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
6/2	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM DS2 75'	08:00	09:00	01:00	
2: '2024 PM DS2 75'	17:00	18:00	01:00	
3: '2024 AM DS2 115'	08:00	09:00	01:00	
4: '2024 PM DS2 115'	17:00	18:00	01:00	
5: '2024 AM DS2 190'	08:00	09:00	01:00	
6: '2024 PM DS2 190'	17:00	18:00	01:00	

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	28	1645	1673
	B	49	0	39	88
	C	687	34	0	721
	Tot.	736	62	1684	2482

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2024 AM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	356
1/2 (with short)	1673(In) 1317(Out)
2/1 (short)	39
2/2 (with short)	88(In) 49(Out)
3/1 (with short)	721(In) 687(Out)
3/2 (short)	34
4/1	736
5/1	62
6/1	367
6/2	1317
7/1	1684

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	7.9 %	1950	1950
				Arm 6 Ahead	Inf	92.1 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
Origin		A	B	C	Tot.
	A	0	42	926	968
	B	35	0	45	80
	C	971	33	0	1004
	Tot.	1006	75	971	2052

Traffic Lane Flows

Lane	Scenario 2: 2024 PM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	226
1/2 (with short)	968(In) 742(Out)
2/1 (short)	45
2/2 (with short)	80(In) 35(Out)
3/1 (with short)	1004(In) 971(Out)
3/2 (short)	33
4/1	1006
5/1	75
6/1	229
6/2	742
7/1	971

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	18.6 %	1929	1929
				Arm 6 Ahead	Inf	81.4 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	30	1645	1675
	B	62	0	45	107
	C	687	39	0	726
	Tot.	749	69	1690	2508

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2024 AM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	358
1/2 (with short)	1675(In) 1317(Out)
2/1 (short)	45
2/2 (with short)	107(In) 62(Out)
3/1 (with short)	726(In) 687(Out)
3/2 (short)	39
4/1	749
5/1	69
6/1	373
6/2	1317
7/1	1690

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	8.4 %	1949	1949
				Arm 6 Ahead	Inf	91.6 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	51	926	977
	B	39	0	51	90
	C	971	40	0	1011
	Tot.	1010	91	977	2078

Traffic Lane Flows

Lane	Scenario 4: 2024 PM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	235
1/2 (with short)	977(In) 742(Out)
2/1 (short)	51
2/2 (with short)	90(In) 39(Out)
3/1 (with short)	1011(In) 971(Out)
3/2 (short)	40
4/1	1010
5/1	91
6/1	235
6/2	742
7/1	977

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	21.7 %	1923	1923
				Arm 6 Ahead	Inf	78.3 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	34	1645	1679
	B	84	0	56	140
	C	687	48	0	735
	Tot.	771	82	1701	2554

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2024 AM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	362
1/2 (with short)	1679(In) 1317(Out)
2/1 (short)	56
2/2 (with short)	140(In) 84(Out)
3/1 (with short)	735(In) 687(Out)
3/2 (short)	48
4/1	771
5/1	82
6/1	384
6/2	1317
7/1	1701

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	9.4 %	1947	1947
				Arm 6 Ahead	Inf	90.6 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	68	926	994
	B	46	0	63	109
	C	971	51	0	1022
	Tot.	1017	119	989	2125

Traffic Lane Flows

Lane	Scenario 6: 2024 PM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	252
1/2 (with short)	994(In) 742(Out)
2/1 (short)	63
2/2 (with short)	109(In) 46(Out)
3/1 (with short)	1022(In) 971(Out)
3/2 (short)	51
4/1	1017
5/1	119
6/1	247
6/2	742
7/1	989

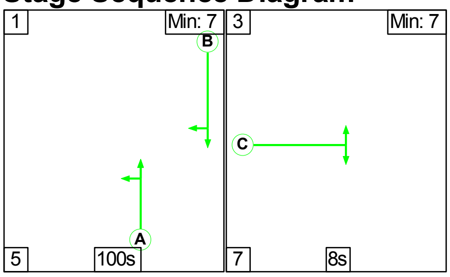
Full Input Data And Results

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	27.0 %	1913	1913
				Arm 6 Ahead	Inf	73.0 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

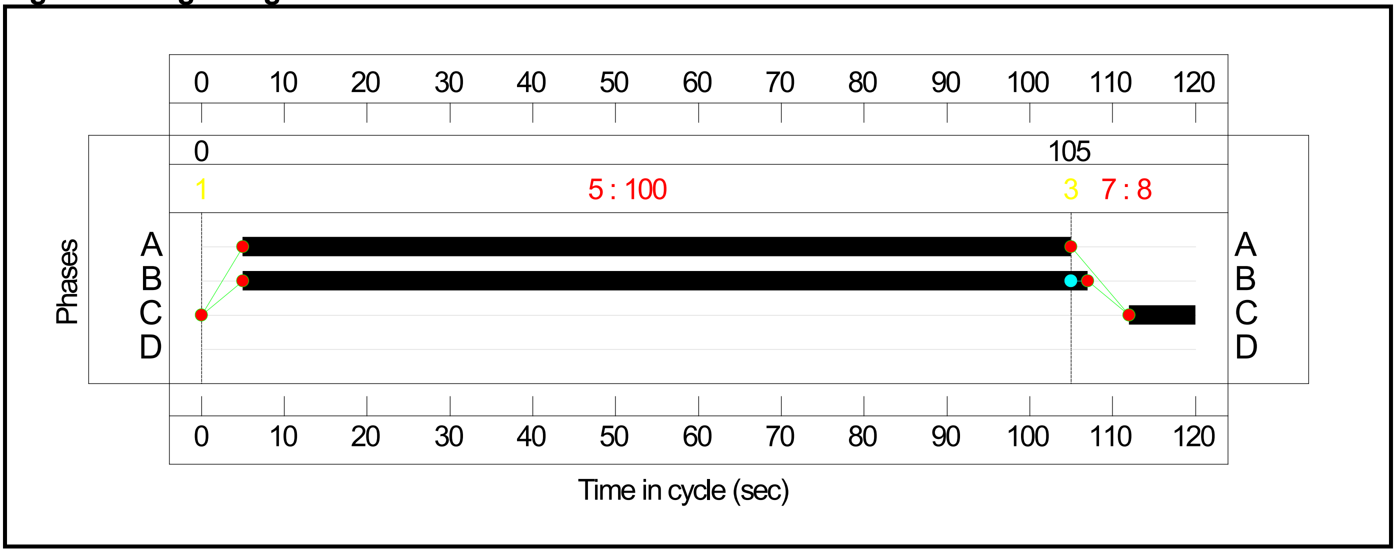
Stage Sequence Diagram



Stage Timings

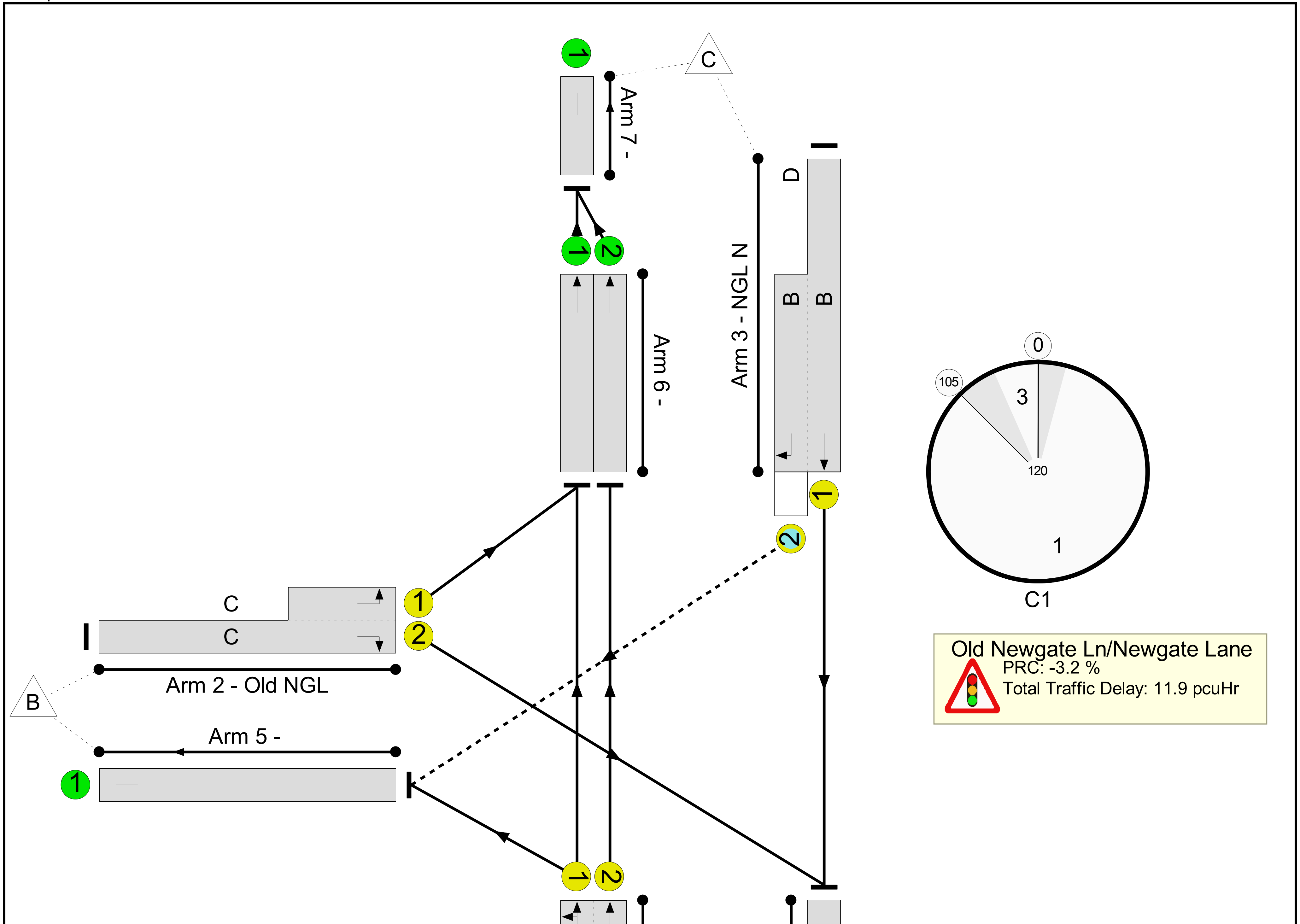
Stage	**1**	**3**
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
C
C
Arm 2 - Old NGL
B
Arm 5 -
0
105
3
120
1
C1
Old Newgate Ln/Newgate Lane
PRC: -3.2 %
Total Traffic Delay: 11.9 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.8%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.8%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1673	1965:1950	1418+383	92.8 : 92.8%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	88	1759:1720	132+105	37.1 : 37.1%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	721	2065:1786	1686+60	40.7 : 56.7%
4/1		U	N/A	N/A	-		-	-	-	736	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	62	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	367	1940	1940	18.9%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1317	1940	1940	67.9%
7/1		U	N/A	N/A	-		-	-	-	1684	Inf	Inf	0.0%

Full Input Data And Results

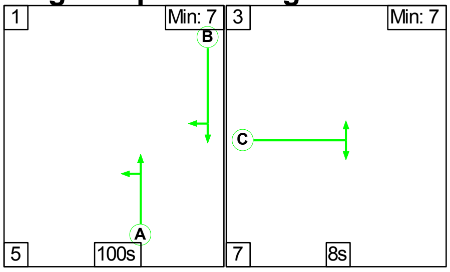
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**34**	**3.6**	**7.8**	**0.5**	**11.9**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**34**	**3.6**	**7.8**	**0.5**	**11.9**	**-**	**-**	**-**	**-**
1/2+1/1	1673	1673	-	-	-	1.9	5.9	-	7.8	16.9	26.2	5.9	32.2
2/2+2/1	88	88	-	-	-	1.3	0.3	-	1.6	64.8	1.6	0.3	1.8
3/1+3/2	721	721	0	0	34	0.4	0.4	0.5	1.3	6.3	4.8	0.4	5.1
4/1	736	736	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	62	62	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	367	367	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	1317	1317	-	-	-	0.0	1.1	-	1.1	2.9	15.1	1.1	16.2
7/1	1684	1684	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -3.2 Total Delay for Signalled Lanes (pcuHr): 10.69 Cycle Time (s): 120
PRC Over All Lanes (%): -3.2 Total Delay Over All Lanes(pcuHr): 11.88

Full Input Data And Results

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

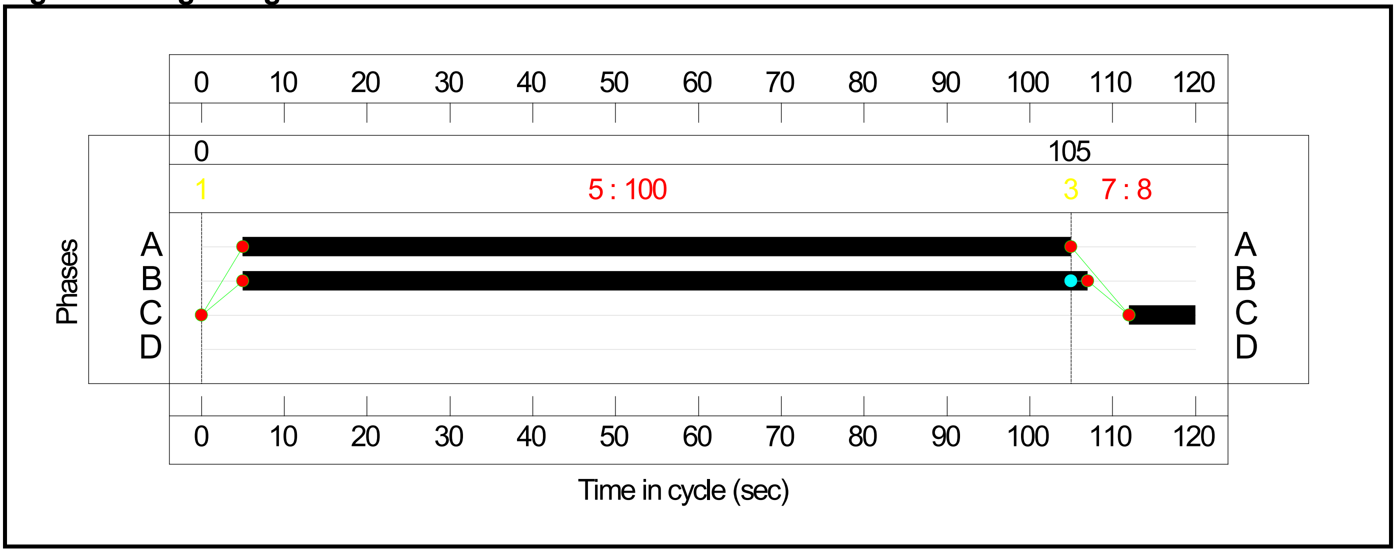
Stage Sequence Diagram



Stage Timings

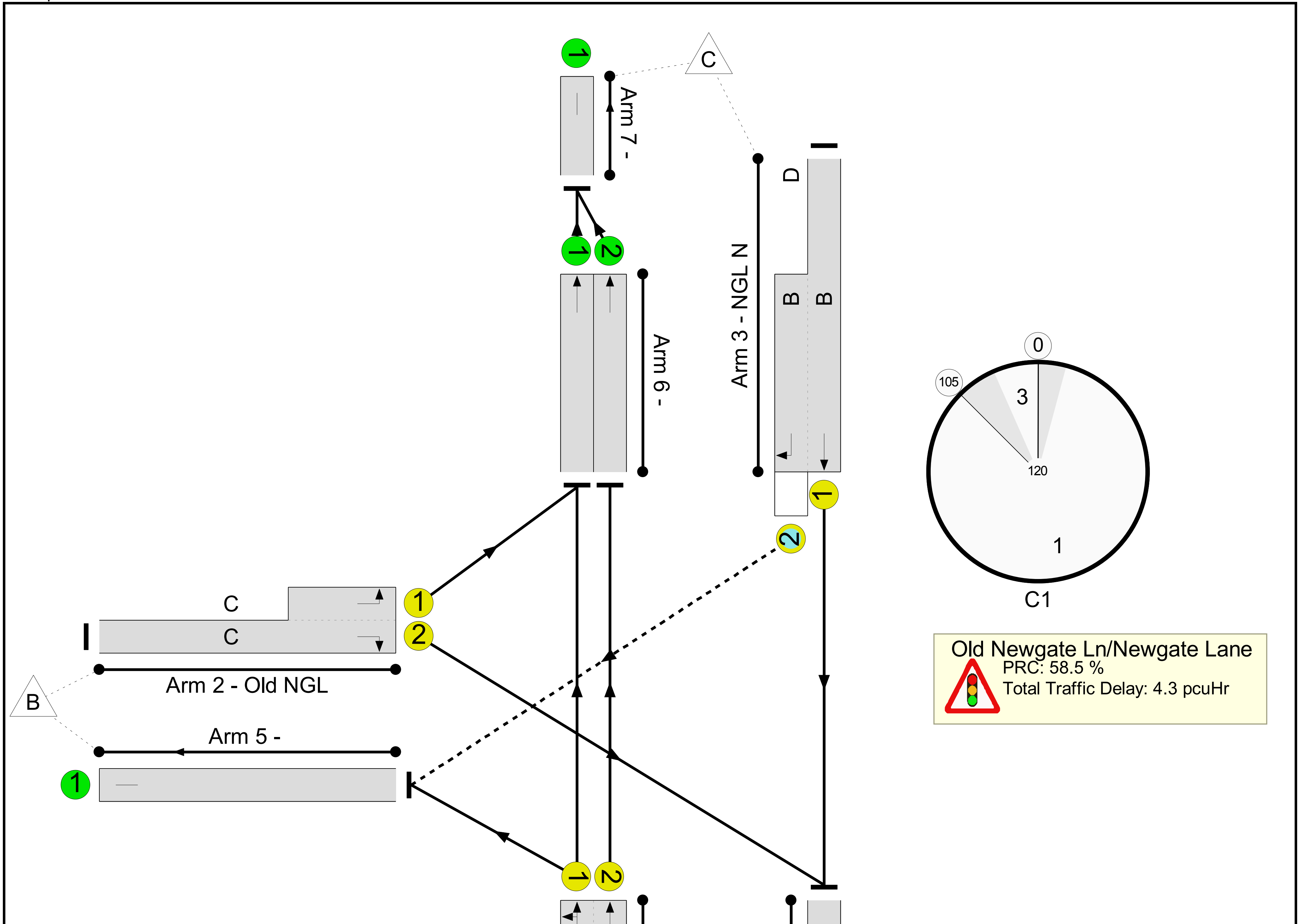
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 58.5 %
Total Traffic Delay: 4.3 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	968	1965:1929	1393+424	53.3 : 53.3%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	80	1759:1720	100+129	34.9 : 34.9%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1004	2065:1786	1711+58	56.8 : 56.8%
4/1		U	N/A	N/A	-		-	-	-	1006	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	229	1940	1940	11.8%
6/2	Ahead	U	N/A	N/A	-		-	-	-	742	1940	1940	38.2%
7/1		U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%

Full Input Data And Results

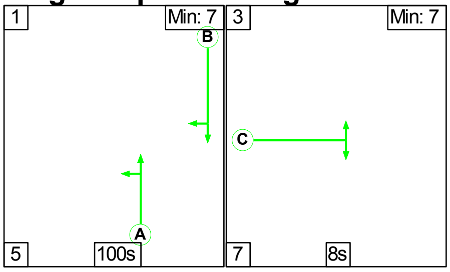
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**32**	**0**	**1**	**2.4**	**1.9**	**0.0**	**4.3**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**32**	**0**	**1**	**2.4**	**1.9**	**0.0**	**4.3**	**-**	**-**	**-**	**-**
1/2+1/1	968	968	-	-	-	0.6	0.6	-	1.2	4.4	6.2	0.6	6.8
2/2+2/1	80	80	-	-	-	1.2	0.3	-	1.4	64.6	1.4	0.3	1.7
3/1+3/2	1004	1004	32	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1006	1006	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	75	75	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	229	229	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	742	742	-	-	-	0.0	0.3	-	0.3	1.5	1.6	0.3	1.9
7/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 58.5 Total Delay for Signalled Lanes (pcuHr): 3.91 Cycle Time (s): 120
PRC Over All Lanes (%): 58.5 Total Delay Over All Lanes(pcuHr): 4.29

Full Input Data And Results

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

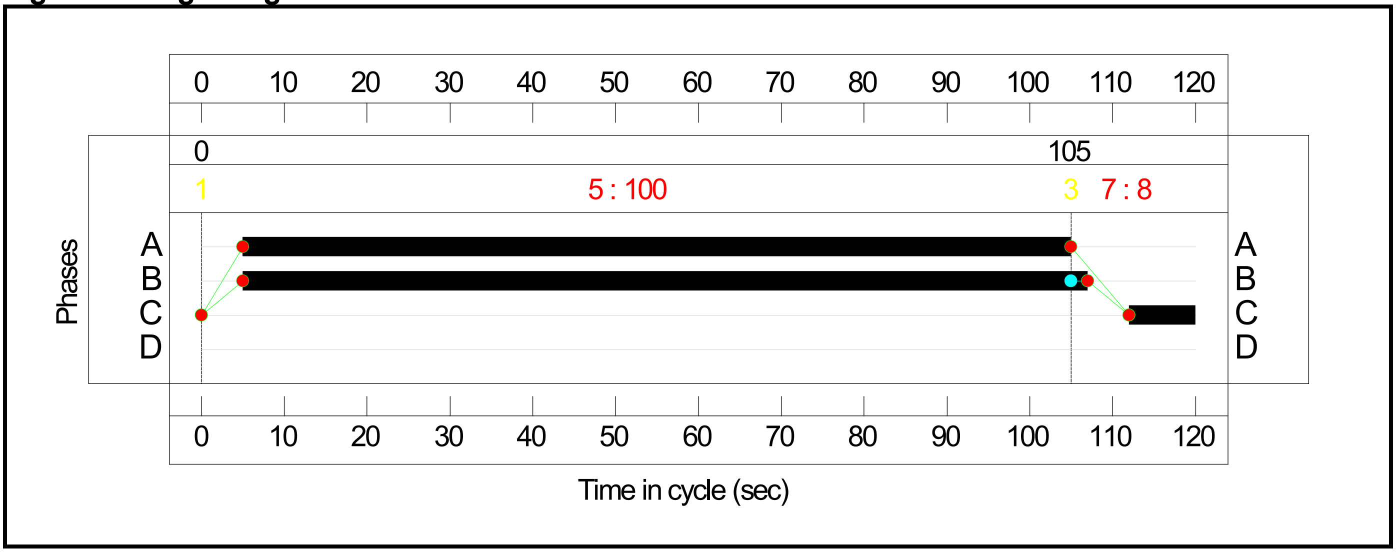
Stage Sequence Diagram



Stage Timings

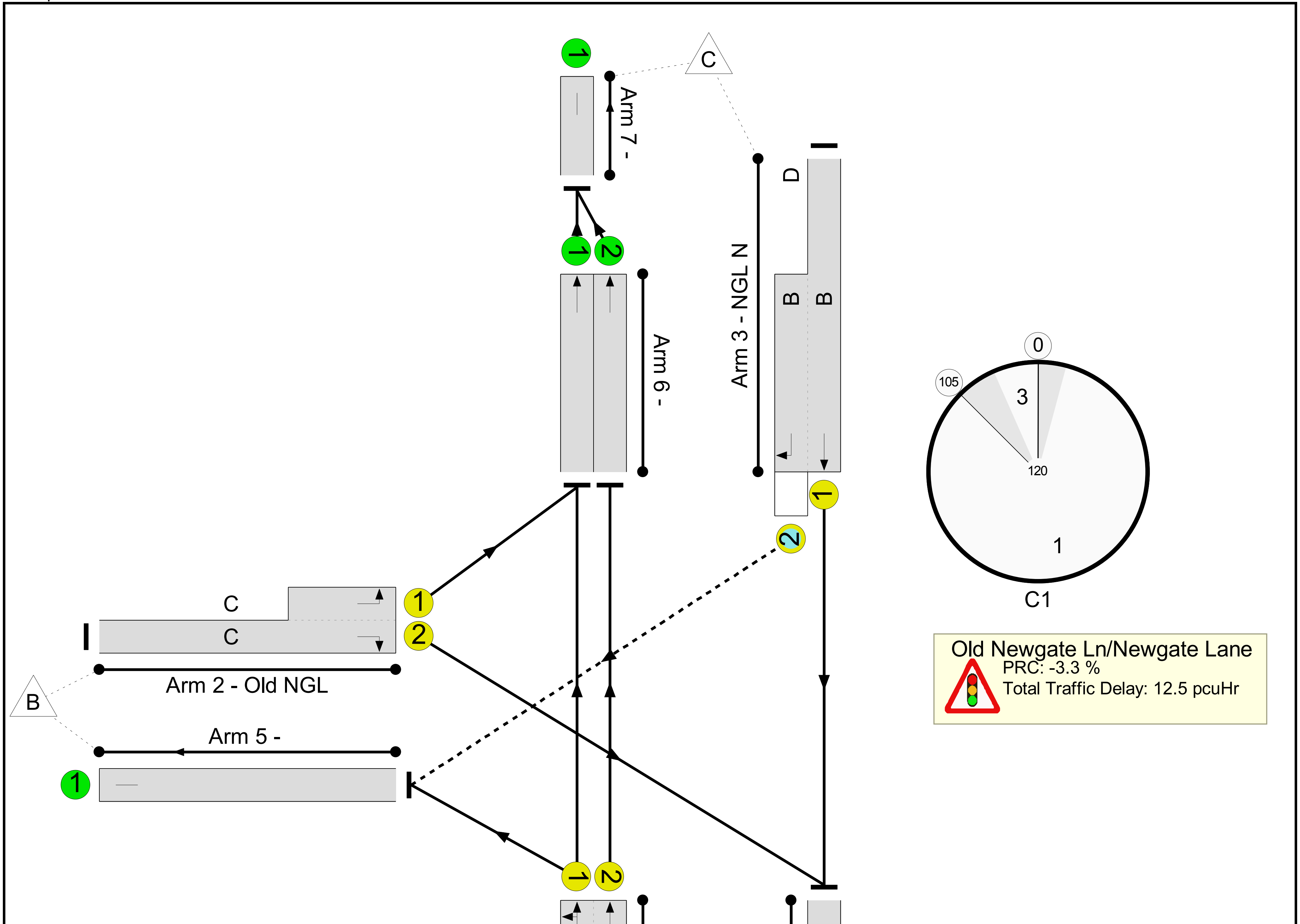
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: -3.3 %
Total Traffic Delay: 12.5 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.9%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.9%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1675	1965:1949	1417+385	92.9 : 92.9%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	107	1759:1720	132+96	47.0 : 47.0%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	726	2065:1786	1675+60	41.0 : 65.0%
4/1		U	N/A	N/A	-		-	-	-	749	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	69	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	373	1940	1940	19.2%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1317	1940	1940	67.9%
7/1		U	N/A	N/A	-		-	-	-	1690	Inf	Inf	0.0%

Full Input Data And Results

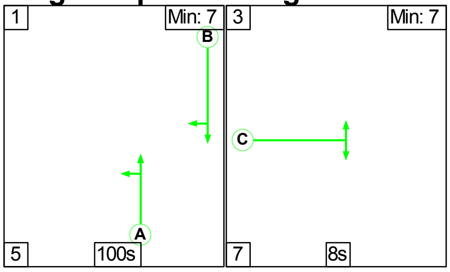
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**39**	**3.9**	**8.0**	**0.6**	**12.5**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**39**	**3.9**	**8.0**	**0.6**	**12.5**	**-**	**-**	**-**	**-**
1/2+1/1	1675	1675	-	-	-	1.9	6.0	-	7.9	17.0	26.2	6.0	32.2
2/2+2/1	107	107	-	-	-	1.6	0.4	-	2.0	67.8	2.0	0.4	2.4
3/1+3/2	726	726	0	0	39	0.4	0.4	0.6	1.3	6.7	4.8	0.4	5.1
4/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	373	373	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	1317	1317	-	-	-	0.0	1.1	-	1.1	2.9	15.1	1.1	16.2
7/1	1690	1690	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -3.3 Total Delay for Signalled Lanes (pcuHr): 11.27 Cycle Time (s): 120
PRC Over All Lanes (%): -3.3 Total Delay Over All Lanes(pcuHr): 12.46

Full Input Data And Results

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

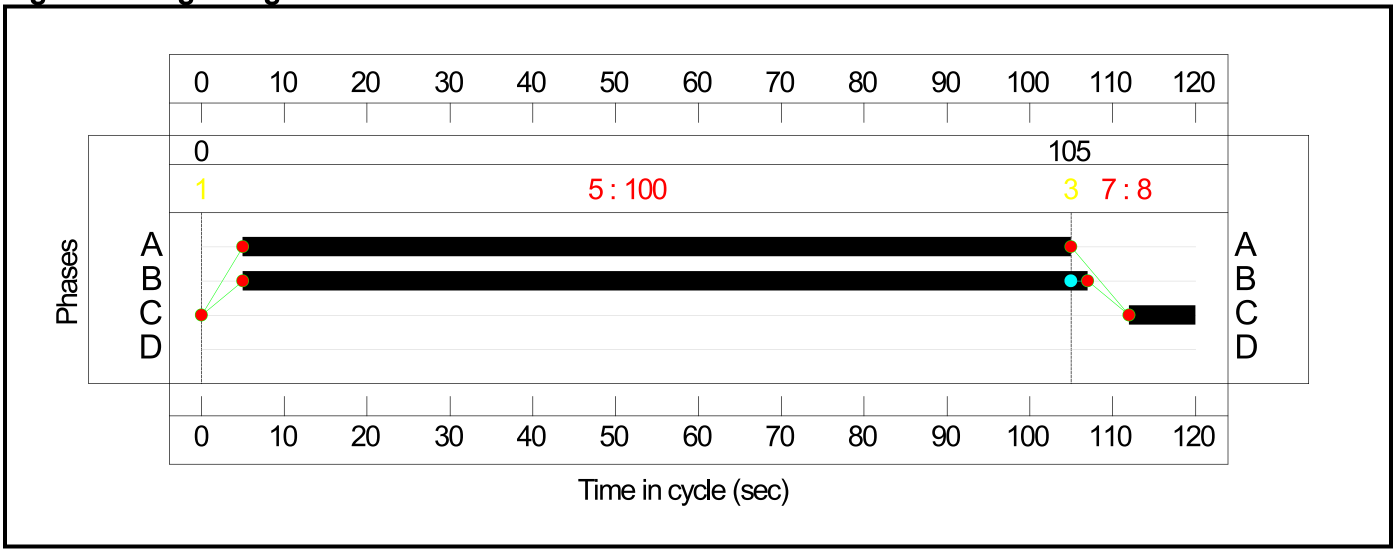
Stage Sequence Diagram



Stage Timings

Stage	**1**	**3**
Duration	100	8
Change Point	0	105

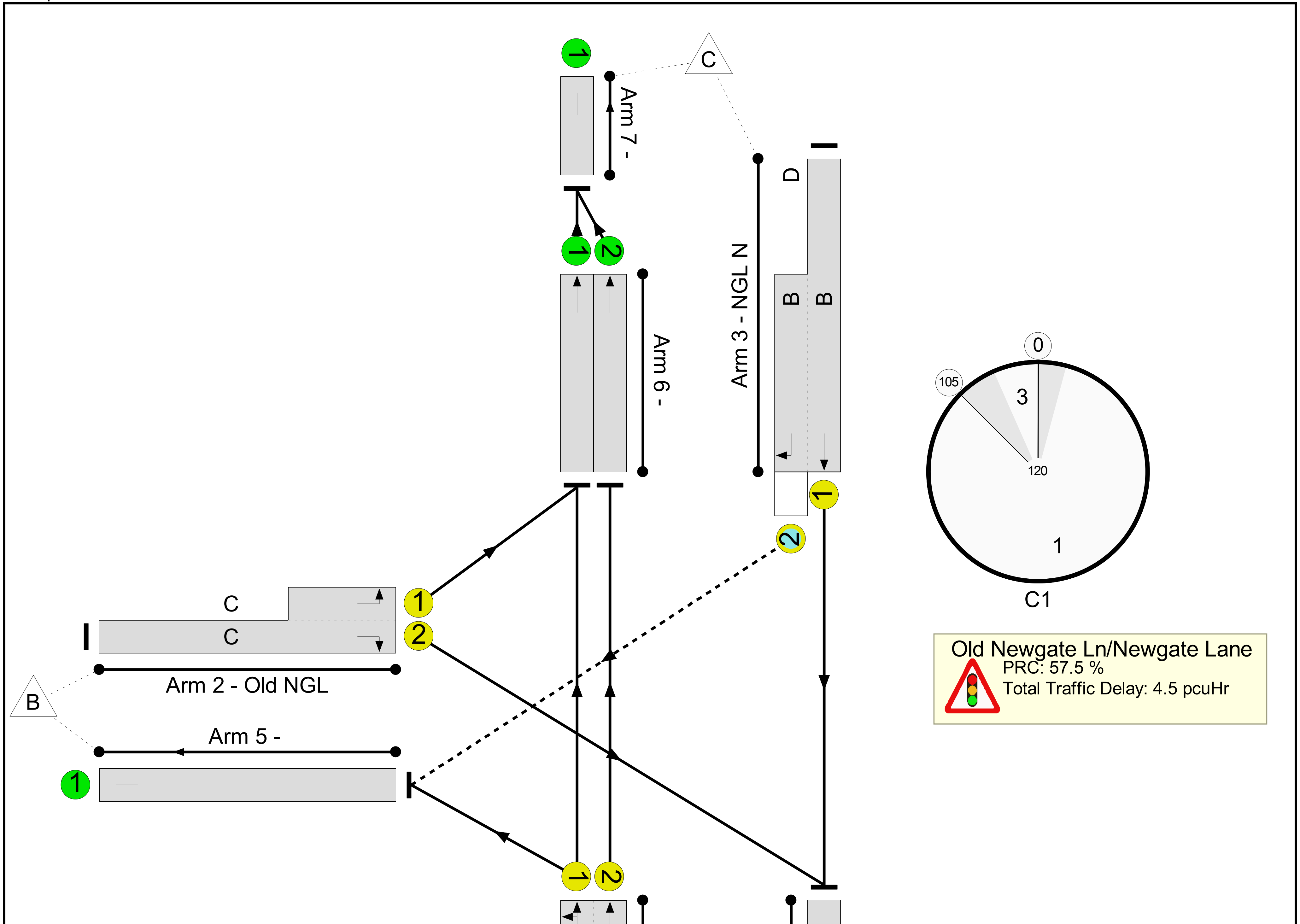
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



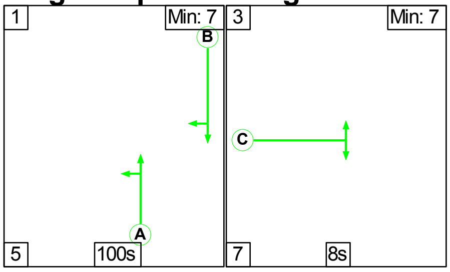
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**57.1%**
Old Newgate Ln/Newgate Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**57.1%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	977	1965:1923	1384+438	53.6 : 53.6%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	90	1759:1720	99+129	39.5 : 39.5%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1011	2065:1786	1699+70	57.1 : 57.1%
4/1		U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	235	1940	1940	12.1%
6/2	Ahead	U	N/A	N/A	-		-	-	-	742	1940	1940	38.2%
7/1		U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%

Full Input Data And Results

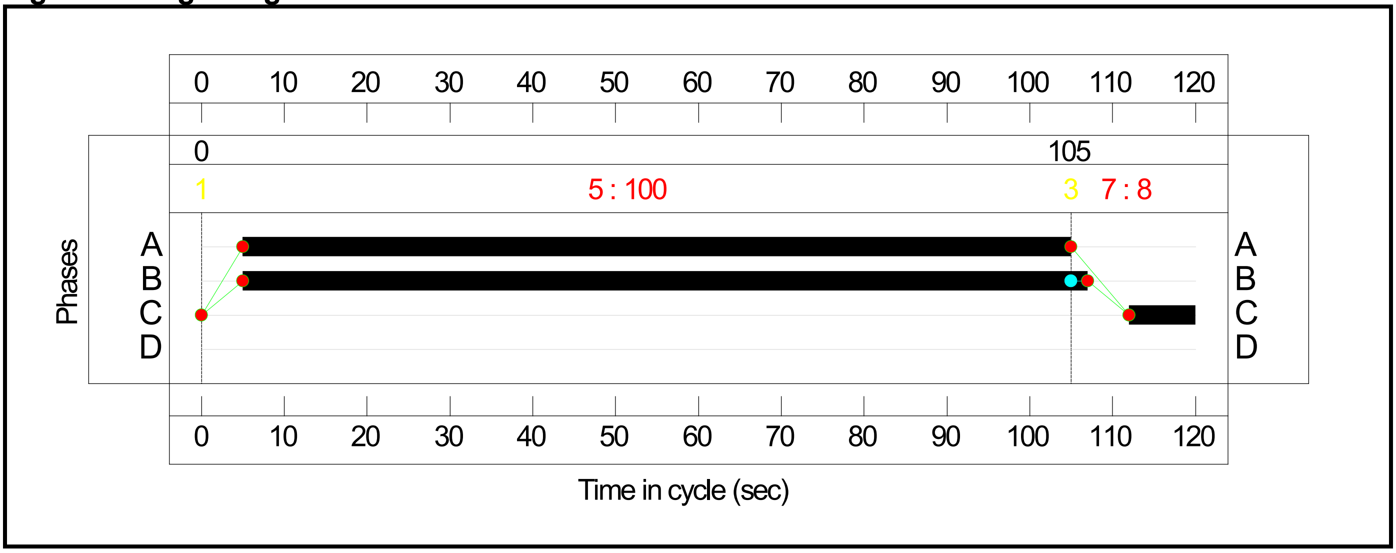
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**39**	**0**	**1**	**2.6**	**1.9**	**0.0**	**4.5**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**39**	**0**	**1**	**2.6**	**1.9**	**0.0**	**4.5**	**-**	**-**	**-**	**-**
1/2+1/1	977	977	-	-	-	0.6	0.6	-	1.2	4.4	6.2	0.6	6.8
2/2+2/1	90	90	-	-	-	1.3	0.3	-	1.6	65.8	1.6	0.3	1.9
3/1+3/2	1011	1011	39	0	1	0.6	0.7	0.0	1.3	4.7	8.6	0.7	9.3
4/1	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	235	235	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	742	742	-	-	-	0.0	0.3	-	0.3	1.5	1.6	0.3	1.9
7/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 57.5 Total Delay for Signalled Lanes (pcuHr): 4.16 Cycle Time (s): 120
PRC Over All Lanes (%): 57.5 Total Delay Over All Lanes(pcuHr): 4.53

Full Input Data And Results
Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')
Stage Sequence Diagram


Stage Timings

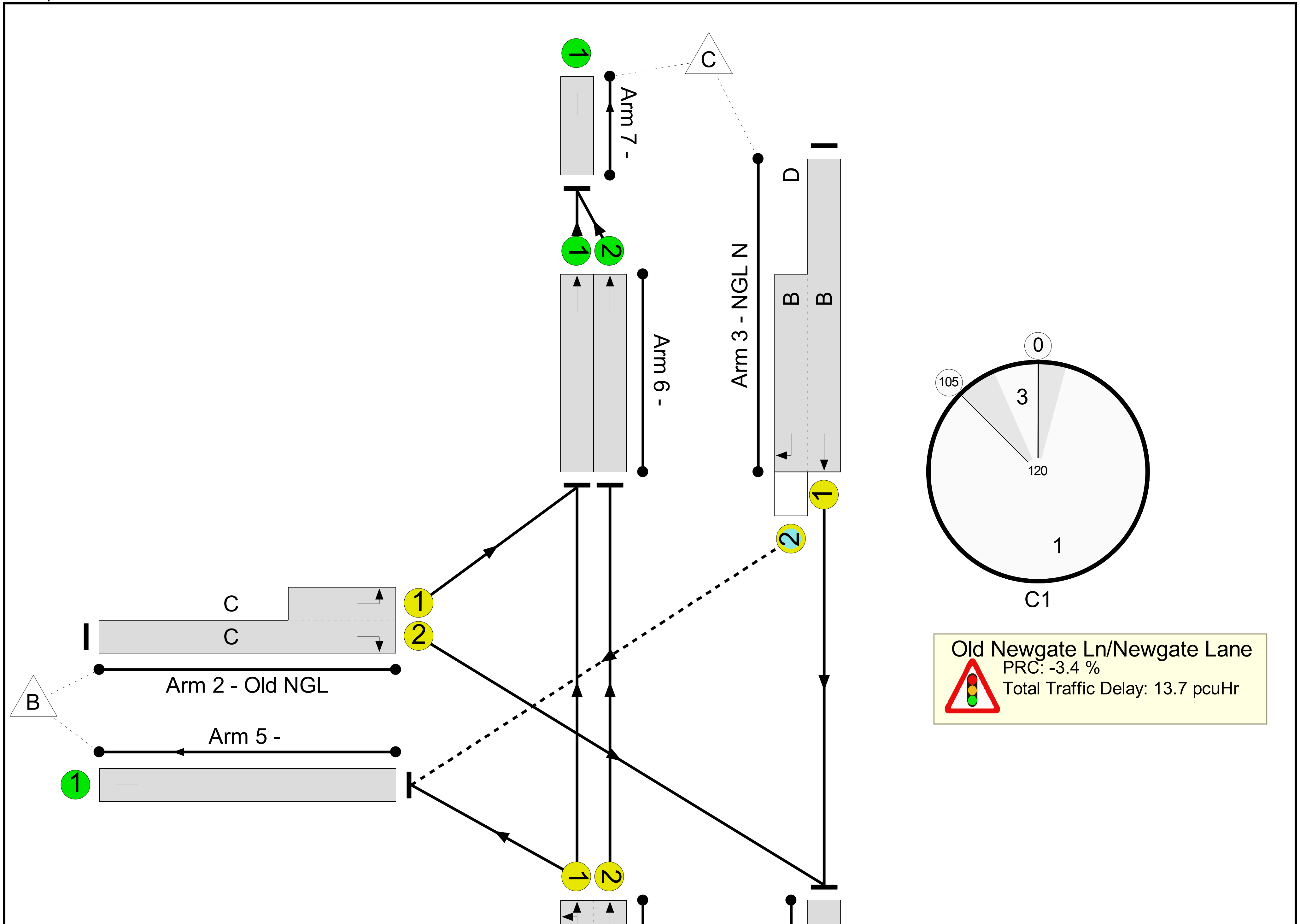
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram


Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

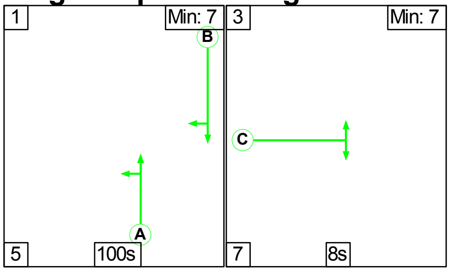
Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**93.1%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**93.1%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1679	1965:1947	1415+389	93.1 : 93.1%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	140	1759:1720	132+88	63.7 : 63.7%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	735	2065:1786	1655+60	41.5 : 80.0%
4/1		U	N/A	N/A	-		-	-	-	771	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	384	1940	1940	19.8%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1317	1940	1940	67.9%
7/1		U	N/A	N/A	-		-	-	-	1701	Inf	Inf	0.0%

Full Input Data And Results

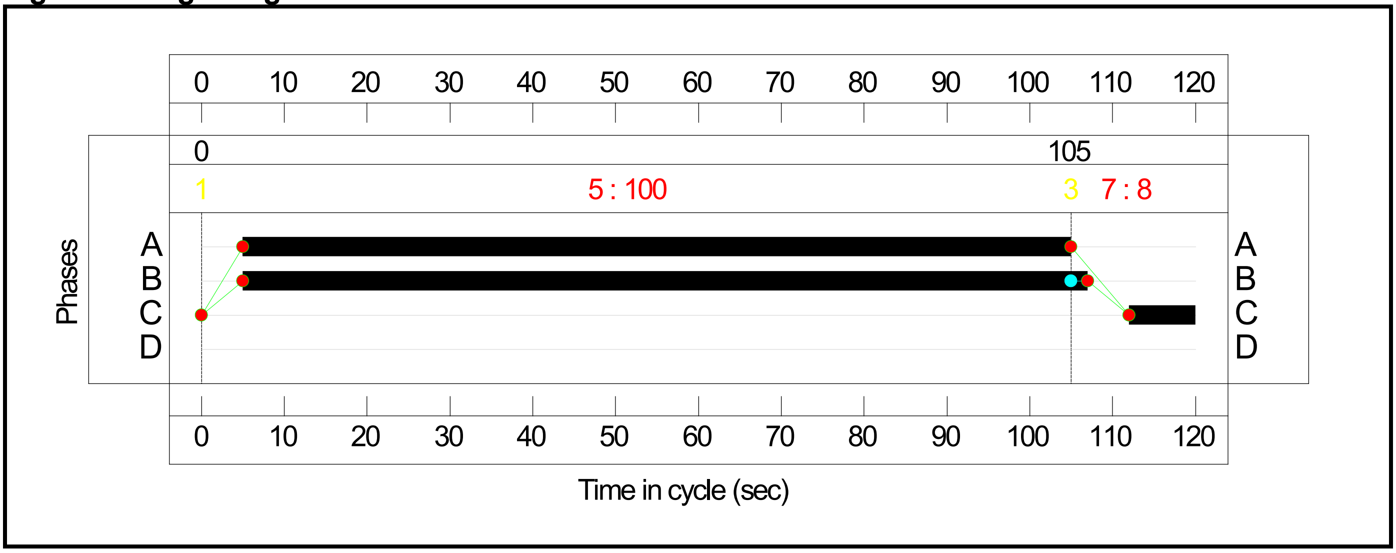
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**48**	**4.4**	**8.5**	**0.8**	**13.7**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**48**	**4.4**	**8.5**	**0.8**	**13.7**	**-**	**-**	**-**	**-**
1/2+1/1	1679	1679	-	-	-	1.9	6.1	-	8.0	17.2	26.3	6.1	32.4
2/2+2/1	140	140	-	-	-	2.1	0.9	-	2.9	75.7	2.7	0.9	3.6
3/1+3/2	735	735	0	0	48	0.4	0.4	0.8	1.5	7.4	4.8	0.4	5.1
4/1	771	771	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	384	384	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
6/2	1317	1317	-	-	-	0.0	1.1	-	1.1	2.9	15.1	1.1	16.2
7/1	1701	1701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -3.4 Total Delay for Signalled Lanes (pcuHr): 12.49 Cycle Time (s): 120
PRC Over All Lanes (%): -3.4 Total Delay Over All Lanes(pcuHr): 13.69

Full Input Data And Results
Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')
Stage Sequence Diagram


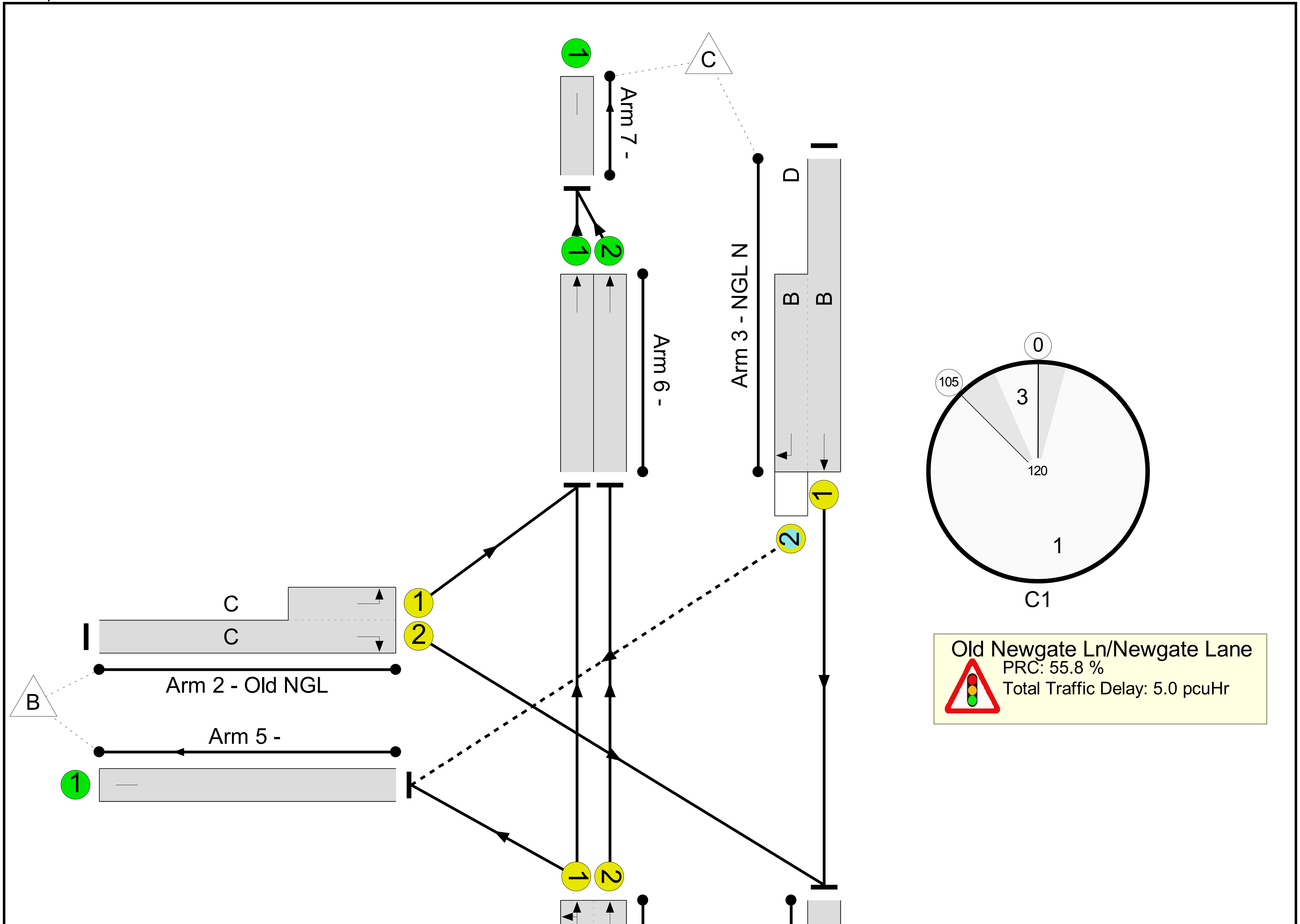
Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram


Full Input Data And Results

Network Layout Diagram



C
Arm 7 -
Arm 6 -
Arm 3 - NGL N
D
B
B
C
C
Arm 2 - Old NGL
B
Arm 5 -
0
105
3
120
1
C1
Old Newgate Ln/Newgate Lane
PRC: 55.8 %
Total Traffic Delay: 5.0 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.7%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	994	1965:1913	1368+465	54.2 : 54.2%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	109	1759:1720	94+129	48.8 : 48.8%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	102	0	1022	2065:1786	1681+88	57.7 : 57.7%
4/1		U	N/A	N/A	-		-	-	-	1017	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	119	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	247	1940	1940	12.7%
6/2	Ahead	U	N/A	N/A	-		-	-	-	742	1940	1940	38.2%
7/1		U	N/A	N/A	-		-	-	-	989	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**50**	**0**	**1**	**2.9**	**2.1**	**0.0**	**5.0**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**50**	**0**	**1**	**2.9**	**2.1**	**0.0**	**5.0**	**-**	**-**	**-**	**-**
1/2+1/1	994	994	-	-	-	0.6	0.6	-	1.2	4.4	6.2	0.6	6.8
2/2+2/1	109	109	-	-	-	1.6	0.5	-	2.1	68.7	2.0	0.5	2.5
3/1+3/2	1022	1022	50	0	1	0.6	0.7	0.0	1.4	4.8	8.6	0.7	9.3
4/1	1017	1017	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	119	119	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	247	247	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/2	742	742	-	-	-	0.0	0.3	-	0.3	1.5	1.6	0.3	1.9
7/1	989	989	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 55.8 Total Delay for Signalled Lanes (pcuHr): 4.65 Cycle Time (s): 120
PRC Over All Lanes (%): 55.8 Total Delay Over All Lanes(pcuHr): 5.03

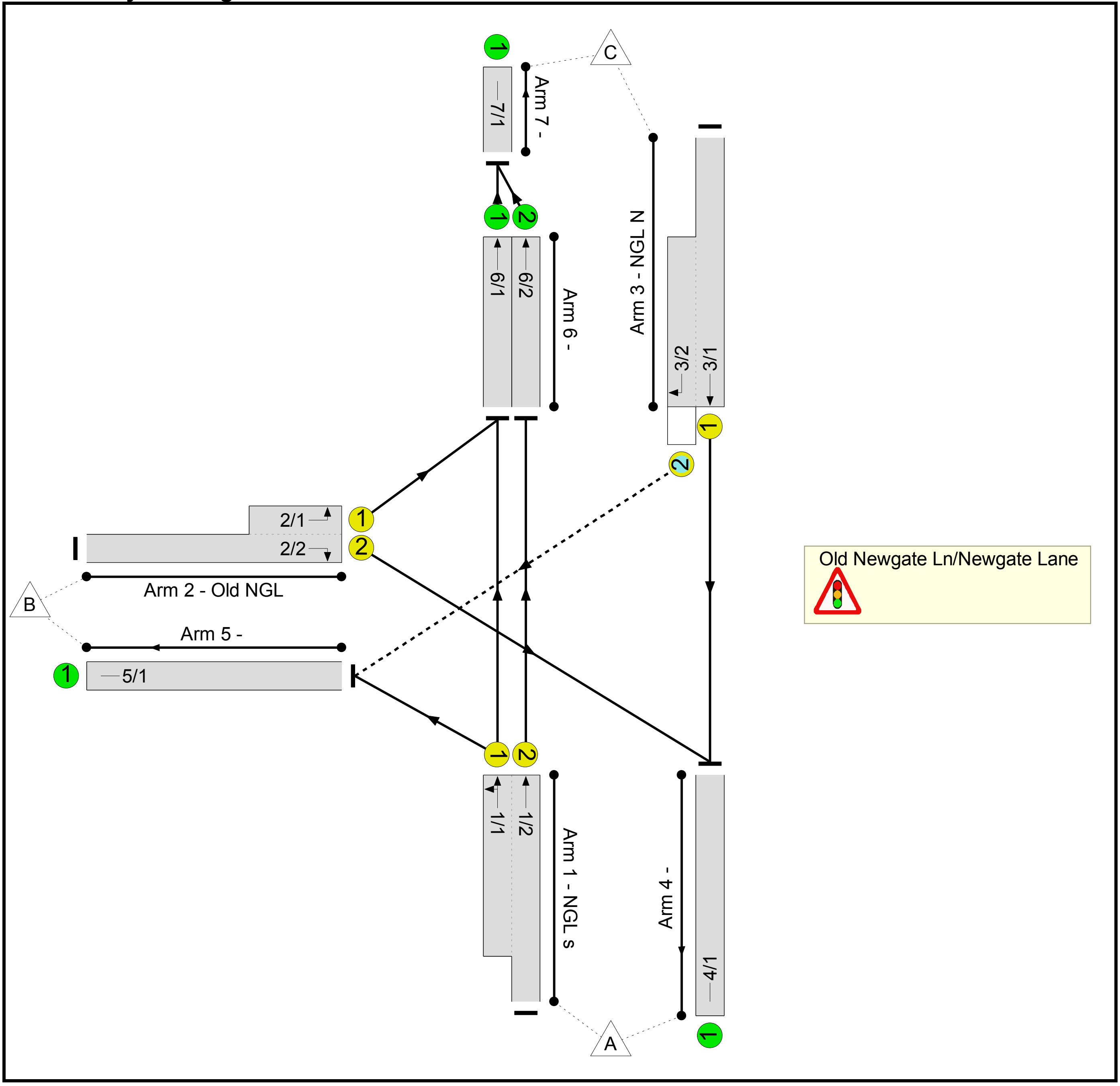
Full Input Data And Results

Full Input Data And Results
Full Input Data And Results

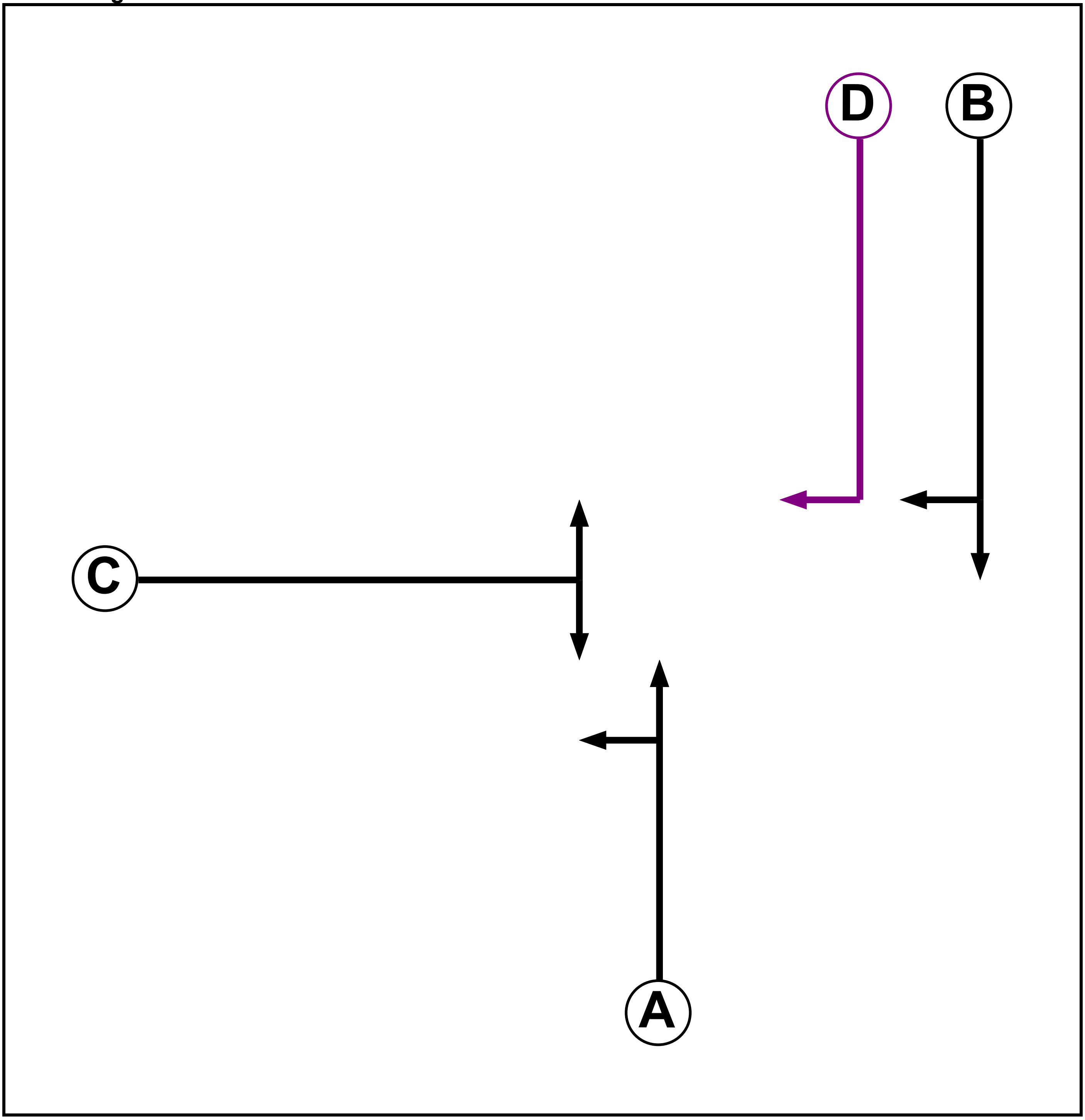
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Indicative Arrow 90 10.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4

Full Input Data And Results

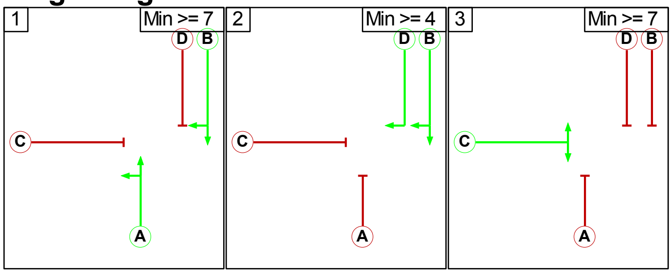
Phase Intergreens Matrix

	Starting Phase				
Terminating Phase		A	B	C	D
	A		-	7	5
	B	-		5	-
	C	5	5		5
	D	5	-	5	

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

	To Stage			
From Stage		1	2	3
	1		5	7
	2	5		5
	3	5	X	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Old Newgate Ln/Newgate Lane											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
3/2 (NGL N)	5/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Old Newgate Ln/Newgate Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (NGL s)	U	A	2	3	17.4	Geom	-	3.50	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
1/2 (NGL s)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
2/1 (Old NGL)	U	C	2	3	4.9	Geom	-	3.20	0.00	Y	Arm 6 Left	12.00
2/2 (Old NGL)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Right	15.00
3/1 (NGL N)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 4 Ahead	Inf
3/2 (NGL N)	O	B D	2	3	9.0	Geom	-	3.50	0.00	Y	Arm 5 Right	15.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
6/2	U		2	3	40.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM DS2 75'	08:00	09:00	01:00	
2: '2024 PM DS2 75'	17:00	18:00	01:00	
3: '2024 AM DS2 115'	08:00	09:00	01:00	
4: '2024 PM DS2 115'	17:00	18:00	01:00	
5: '2024 AM DS2 190'	08:00	09:00	01:00	
6: '2024 PM DS2 190'	17:00	18:00	01:00	

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	28	1645	1673
	B	49	0	39	88
	C	687	34	0	721
	Tot.	736	62	1684	2482

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2024 AM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	191
1/2 (with short)	1673(In) 1482(Out)
2/1 (short)	39
2/2 (with short)	88(In) 49(Out)
3/1 (with short)	721(In) 687(Out)
3/2 (short)	34
4/1	736
5/1	62
6/1	202
6/2	1482
7/1	1684

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	14.7 %	1937	1937
				Arm 6 Ahead	Inf	85.3 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	42	926	968
	B	35	0	45	80
	C	971	33	0	1004
	Tot.	1006	75	971	2052

Traffic Lane Flows

Lane	Scenario 2: 2024 PM DS2 75
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	133
1/2 (with short)	968(In) 835(Out)
2/1 (short)	45
2/2 (with short)	80(In) 35(Out)
3/1 (with short)	1004(In) 971(Out)
3/2 (short)	33
4/1	1006
5/1	75
6/1	136
6/2	835
7/1	971

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	31.6 %	1905	1905
				Arm 6 Ahead	Inf	68.4 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	30	1645	1675
	B	62	0	45	107
	C	687	39	0	726
	Tot.	749	69	1690	2508

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2024 AM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	193
1/2 (with short)	1675(In) 1482(Out)
2/1 (short)	45
2/2 (with short)	107(In) 62(Out)
3/1 (with short)	726(In) 687(Out)
3/2 (short)	39
4/1	749
5/1	69
6/1	208
6/2	1482
7/1	1690

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	15.5 %	1935	1935
				Arm 6 Ahead	Inf	84.5 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	51	926	977
	B	39	0	51	90
	C	971	40	0	1011
	Tot.	1010	91	977	2078

Traffic Lane Flows

Lane	Scenario 4: 2024 PM DS2 115
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	142
1/2 (with short)	977(In) 835(Out)
2/1 (short)	51
2/2 (with short)	90(In) 39(Out)
3/1 (with short)	1011(In) 971(Out)
3/2 (short)	40
4/1	1010
5/1	91
6/1	142
6/2	835
7/1	977

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	35.9 %	1897	1897
				Arm 6 Ahead	Inf	64.1 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	34	1645	1679
	B	84	0	56	140
	C	687	48	0	735
	Tot.	771	82	1701	2554

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2024 AM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	197
1/2 (with short)	1679(In) 1482(Out)
2/1 (short)	56
2/2 (with short)	140(In) 84(Out)
3/1 (with short)	735(In) 687(Out)
3/2 (short)	48
4/1	771
5/1	82
6/1	219
6/2	1482
7/1	1701

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	17.3 %	1932	1932
				Arm 6 Ahead	Inf	82.7 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	68	926	994
	B	46	0	63	109
	C	971	51	0	1022
	Tot.	1017	119	989	2125

Traffic Lane Flows

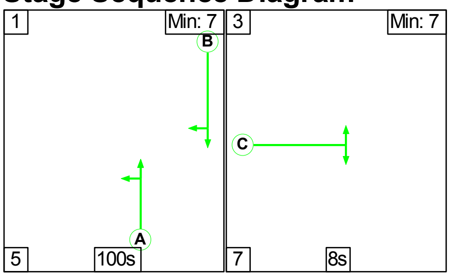
Lane	Scenario 6: 2024 PM DS2 190
Junction: Old Newgate Ln/Newgate Lane	
1/1 (short)	159
1/2 (with short)	994(In) 835(Out)
2/1 (short)	63
2/2 (with short)	109(In) 46(Out)
3/1 (with short)	1022(In) 971(Out)
3/2 (short)	51
4/1	1017
5/1	119
6/1	154
6/2	835
7/1	989

Lane Saturation Flows

Junction: Old Newgate Ln/Newgate Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (NGL s)	3.50	0.00	Y	Arm 5 Left	15.00	42.8 %	1884	1884
				Arm 6 Ahead	Inf	57.2 %		
1/2 (NGL s)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1 (Old NGL)	3.20	0.00	Y	Arm 6 Left	12.00	100.0 %	1720	1720
2/2 (Old NGL)	3.20	0.00	Y	Arm 4 Right	15.00	100.0 %	1759	1759
3/1 (NGL N)	4.50	0.00	Y	Arm 4 Ahead	Inf	100.0 %	2065	2065
3/2 (NGL N)	3.50	0.00	Y	Arm 5 Right	15.00	100.0 %	1786	1786
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
6/2	3.25	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1940	1940
7/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2024 AM DS2 75' (FG1: '2024 AM DS2 75', Plan 1: 'Network Control Plan 1')

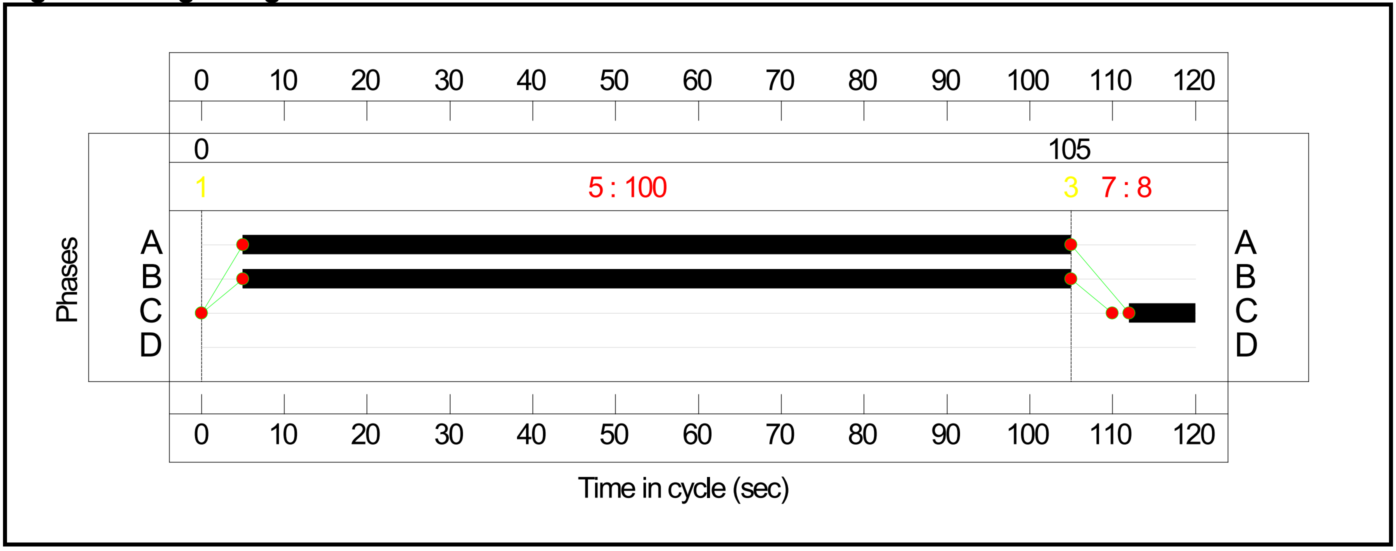
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

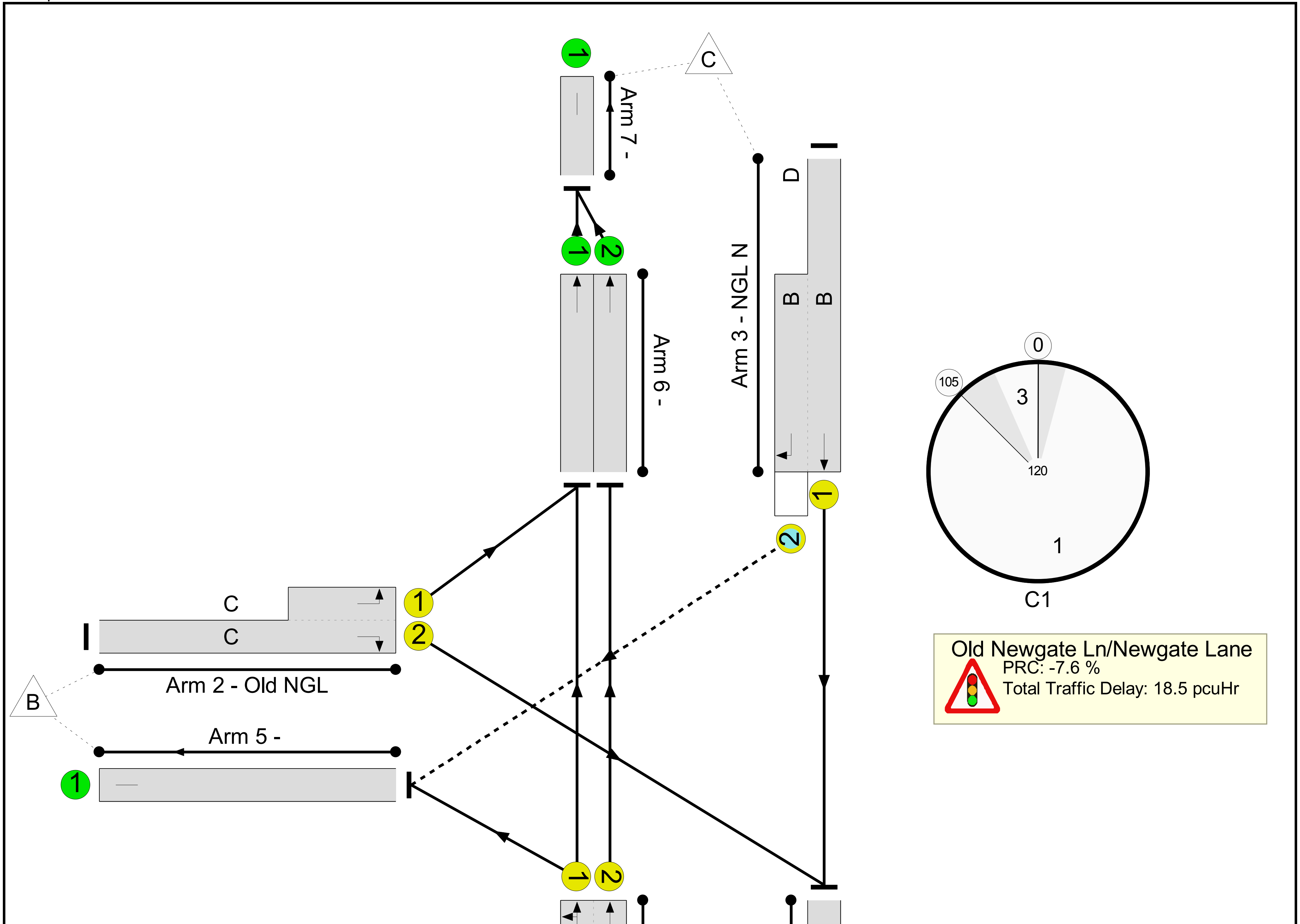
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.8%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.8%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1673	1965:1937	1530+197	96.8 : 96.8%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	88	1759:1720	132+105	37.1 : 37.1%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	100	0	721	2065:1786	1654+60	41.5 : 56.7%
4/1		U	N/A	N/A	-		-	-	-	736	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	62	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	202	1940	1940	10.4%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1482	1940	1940	76.4%
7/1		U	N/A	N/A	-		-	-	-	1684	Inf	Inf	0.0%

Full Input Data And Results

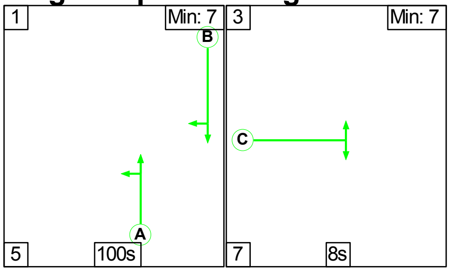
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**34**	**4.7**	**13.3**	**0.6**	**18.5**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**34**	**4.7**	**13.3**	**0.6**	**18.5**	**-**	**-**	**-**	**-**
1/2+1/1	1673	1673	-	-	-	3.0	10.9	-	13.9	29.9	43.0	10.9	53.9
2/2+2/1	88	88	-	-	-	1.3	0.3	-	1.6	64.8	1.6	0.3	1.8
3/1+3/2	721	721	0	0	34	0.4	0.4	0.6	1.4	6.8	5.3	0.4	5.7
4/1	736	736	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	62	62	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	202	202	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/2	1482	1482	-	-	-	0.0	1.6	-	1.6	4.0	17.3	1.6	18.9
7/1	1684	1684	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -7.6 Total Delay for Signalled Lanes (pcuHr): 16.85 Cycle Time (s): 120
PRC Over All Lanes (%): -7.6 Total Delay Over All Lanes(pcuHr): 18.54

Full Input Data And Results

Scenario 2: '2024 PM DS2 75' (FG2: '2024 PM DS2 75', Plan 1: 'Network Control Plan 1')

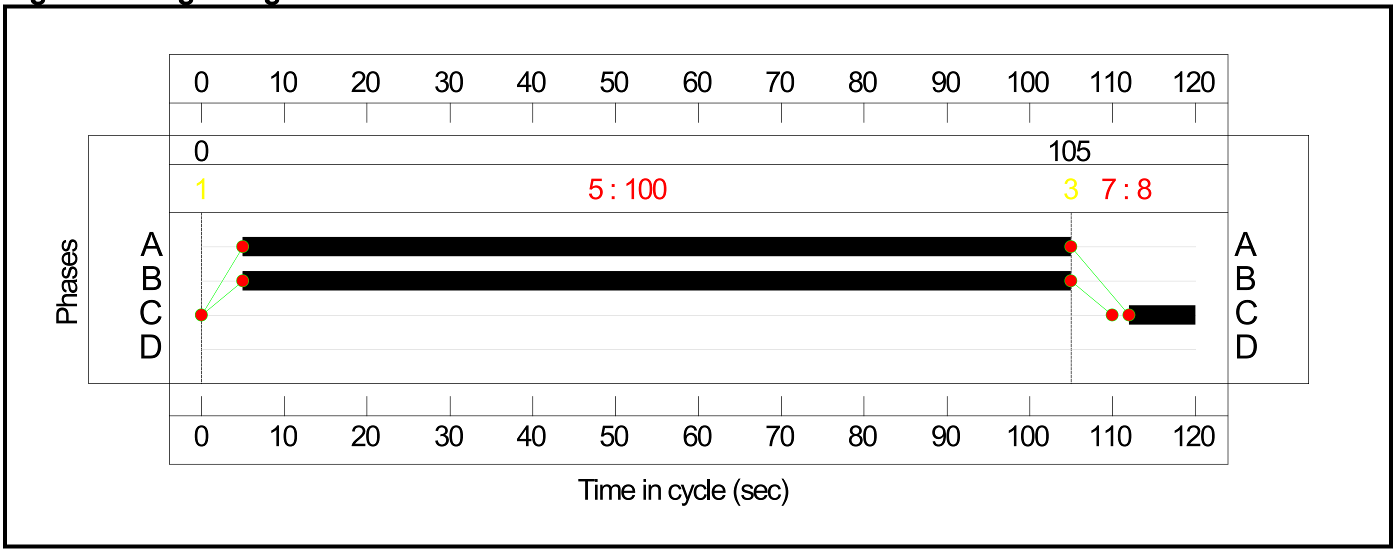
Stage Sequence Diagram



Stage Timings

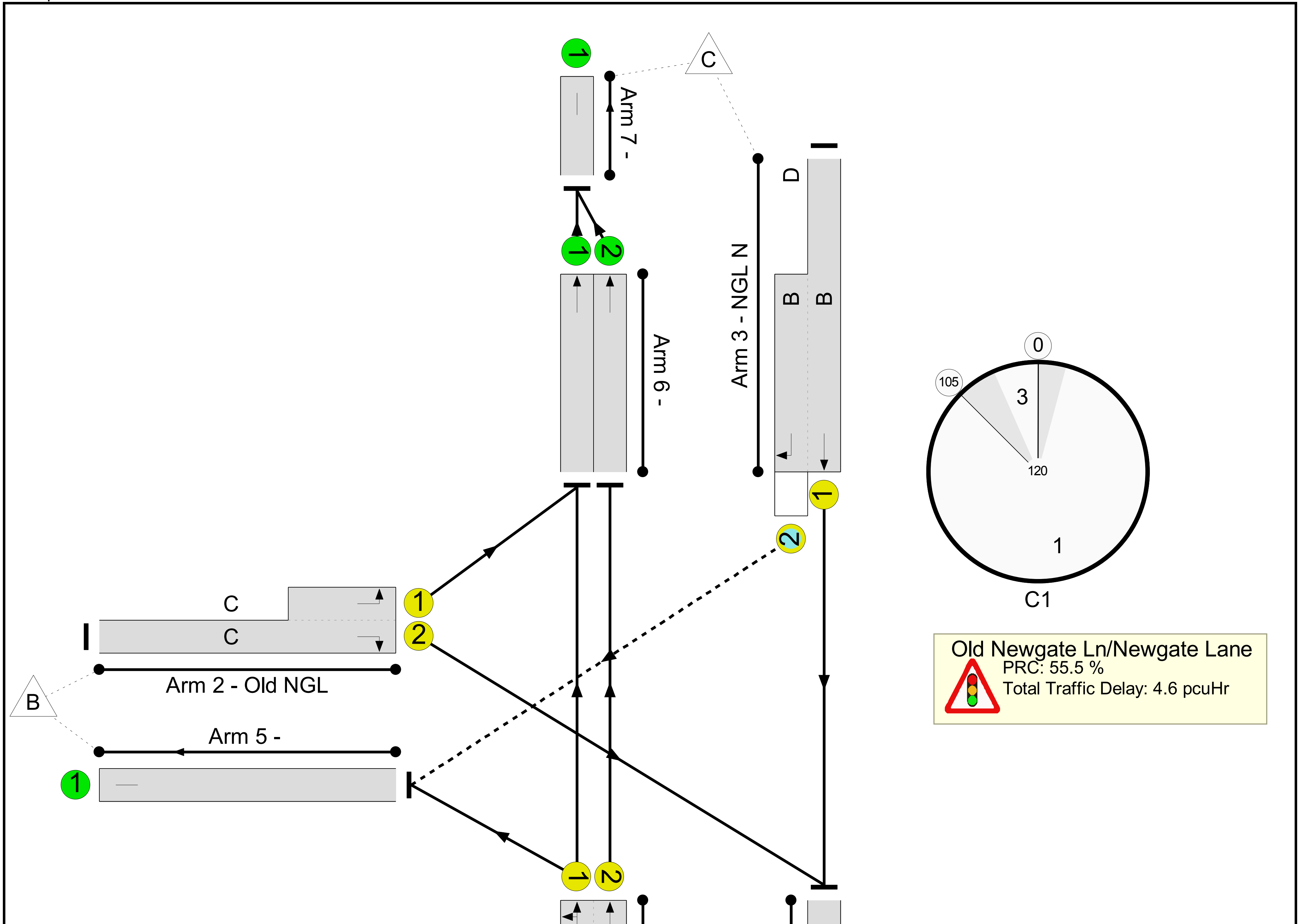
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 55.5 %
Total Traffic Delay: 4.6 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.9%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.9%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	968	1965:1905	1501+239	55.6 : 55.6%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	80	1759:1720	100+129	34.9 : 34.9%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	100	0	1004	2065:1786	1677+57	57.9 : 57.9%
4/1		U	N/A	N/A	-		-	-	-	1006	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	75	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	136	1940	1940	7.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	835	1940	1940	43.0%
7/1		U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%

Full Input Data And Results

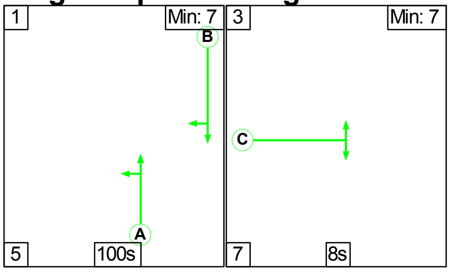
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**33**	**0**	**0**	**2.6**	**2.0**	**0.0**	**4.6**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**33**	**0**	**0**	**2.6**	**2.0**	**0.0**	**4.6**	**-**	**-**	**-**	**-**
1/2+1/1	968	968	-	-	-	0.7	0.6	-	1.3	4.8	7.7	0.6	8.3
2/2+2/1	80	80	-	-	-	1.2	0.3	-	1.4	64.6	1.4	0.3	1.7
3/1+3/2	1004	1004	33	0	0	0.8	0.7	0.0	1.5	5.4	9.8	0.7	10.5
4/1	1006	1006	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	75	75	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	136	136	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/2	835	835	-	-	-	0.0	0.4	-	0.4	1.6	3.3	0.4	3.6
7/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 55.5 Total Delay for Signalled Lanes (pcuHr): 4.23 Cycle Time (s): 120
PRC Over All Lanes (%): 55.5 Total Delay Over All Lanes(pcuHr): 4.64

Full Input Data And Results

Scenario 3: '2024 AM DS2 115' (FG3: '2024 AM DS2 115', Plan 1: 'Network Control Plan 1')

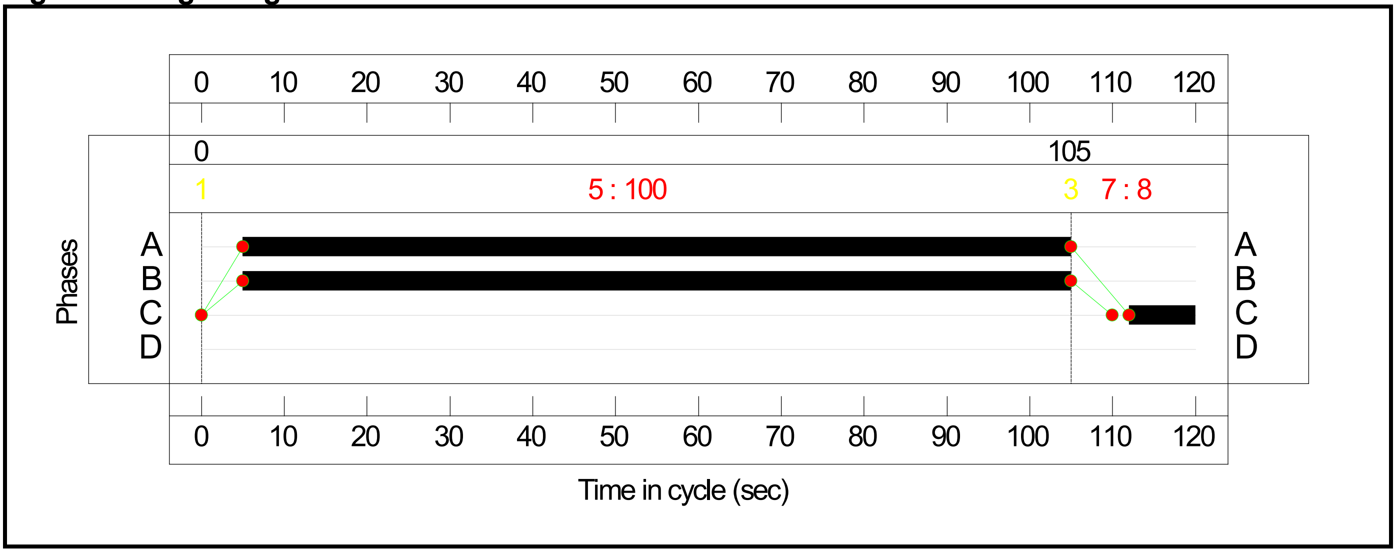
Stage Sequence Diagram



Stage Timings

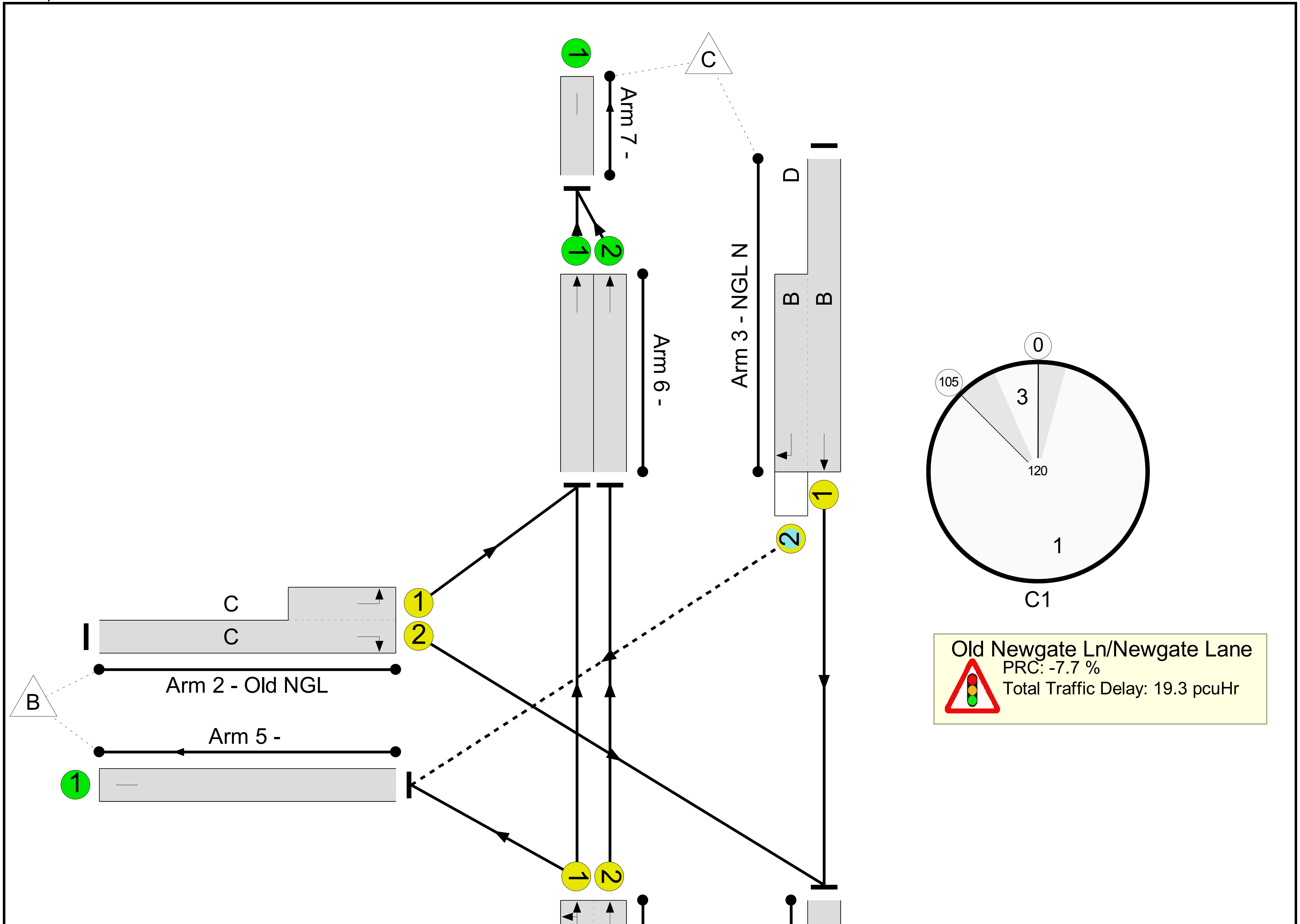
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Arm 7 -
C
Arm 6 -
Arm 3 - NGL N
D
B
B
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: -7.7 %
Total Traffic Delay: 19.3 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.9%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.9%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1675	1965:1935	1529+199	96.9 : 96.9%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	107	1759:1720	132+96	47.0 : 47.0%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	100	0	726	2065:1786	1643+60	41.8 : 65.0%
4/1		U	N/A	N/A	-		-	-	-	749	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	69	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	208	1940	1940	10.7%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1482	1940	1940	76.4%
7/1		U	N/A	N/A	-		-	-	-	1690	Inf	Inf	0.0%

Full Input Data And Results

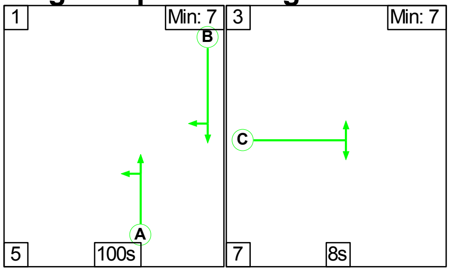
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**39**	**5.0**	**13.6**	**0.6**	**19.3**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**39**	**5.0**	**13.6**	**0.6**	**19.3**	**-**	**-**	**-**	**-**
1/2+1/1	1675	1675	-	-	-	3.0	11.1	-	14.1	30.3	43.0	11.1	54.1
2/2+2/1	107	107	-	-	-	1.6	0.4	-	2.0	67.8	2.0	0.4	2.4
3/1+3/2	726	726	0	0	39	0.4	0.4	0.6	1.5	7.3	5.3	0.4	5.7
4/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	208	208	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/2	1482	1482	-	-	-	0.0	1.6	-	1.6	4.0	17.3	1.6	18.9
7/1	1690	1690	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -7.7 Total Delay for Signalled Lanes (pcuHr): 17.56 Cycle Time (s): 120
PRC Over All Lanes (%): -7.7 Total Delay Over All Lanes(pcuHr): 19.25

Full Input Data And Results

Scenario 4: '2024 PM DS2 115' (FG4: '2024 PM DS2 115', Plan 1: 'Network Control Plan 1')

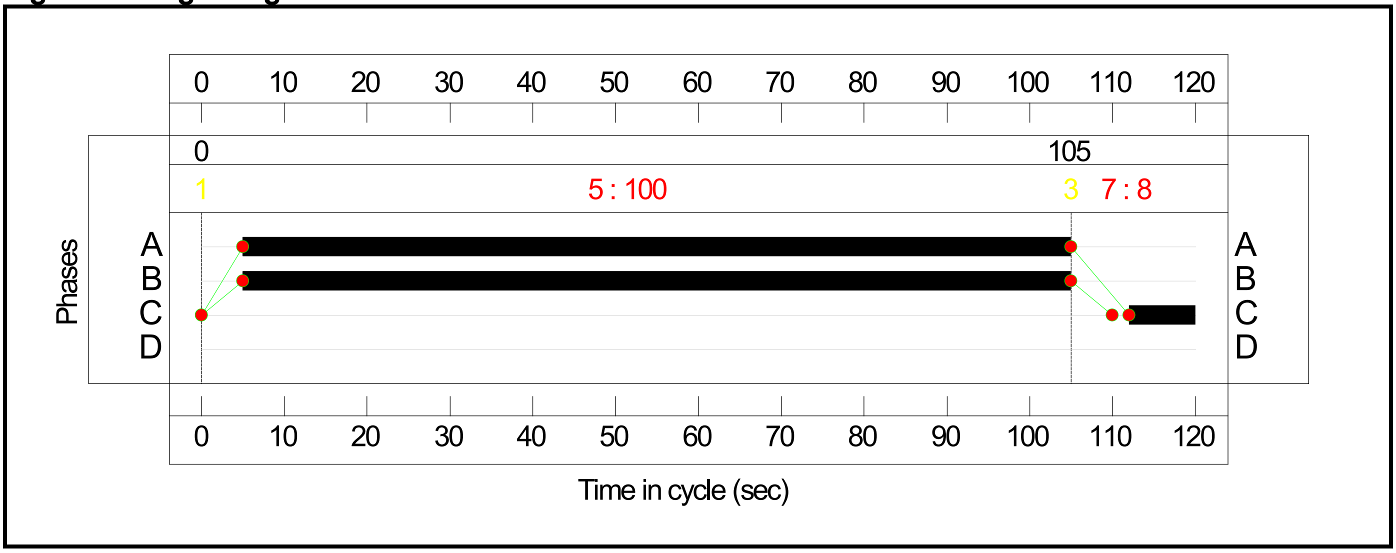
Stage Sequence Diagram



Stage Timings

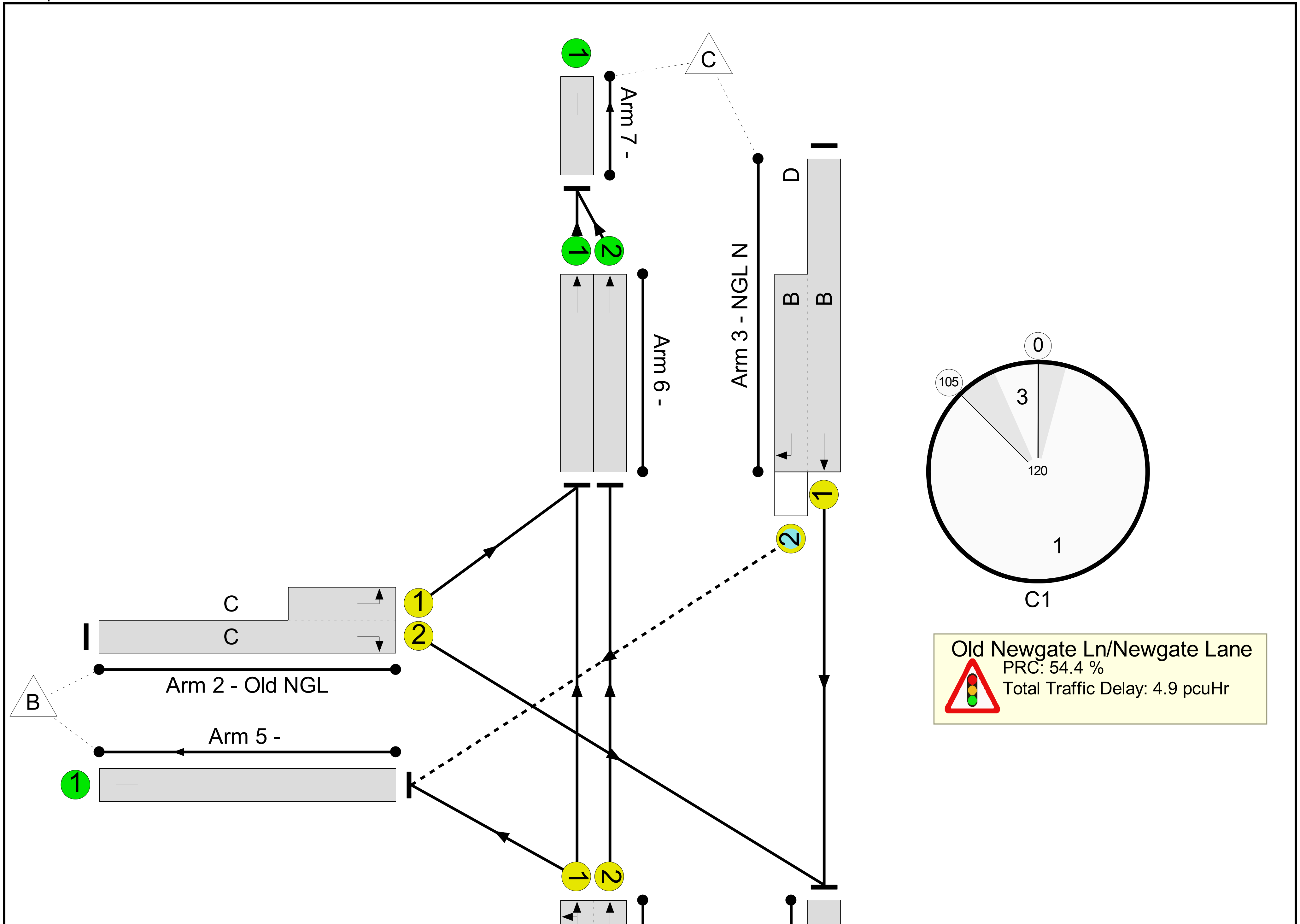
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 54.4 %
Total Traffic Delay: 4.9 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**58.3%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**58.3%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	977	1965:1897	1492+254	56.0 : 56.0%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	90	1759:1720	99+129	39.5 : 39.5%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	100	0	1011	2065:1786	1666+69	58.3 : 58.3%
4/1		U	N/A	N/A	-		-	-	-	1010	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	142	1940	1940	7.3%
6/2	Ahead	U	N/A	N/A	-		-	-	-	835	1940	1940	43.0%
7/1		U	N/A	N/A	-		-	-	-	977	Inf	Inf	0.0%

Full Input Data And Results

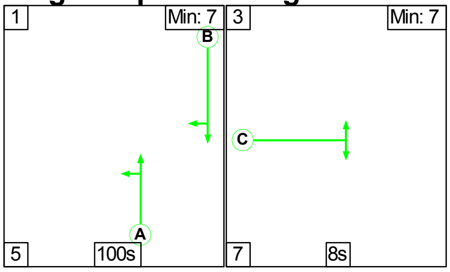
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**40**	**0**	**0**	**2.8**	**2.1**	**0.0**	**4.9**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**40**	**0**	**0**	**2.8**	**2.1**	**0.0**	**4.9**	**-**	**-**	**-**	**-**
1/2+1/1	977	977	-	-	-	0.7	0.6	-	1.3	4.8	7.7	0.6	8.3
2/2+2/1	90	90	-	-	-	1.3	0.3	-	1.6	65.8	1.6	0.3	1.9
3/1+3/2	1011	1011	40	0	0	0.8	0.7	0.0	1.5	5.4	9.8	0.7	10.5
4/1	1010	1010	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	142	142	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/2	835	835	-	-	-	0.0	0.4	-	0.4	1.6	3.3	0.4	3.6
7/1	977	977	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 54.4 Total Delay for Signalled Lanes (pcuHr): 4.47 Cycle Time (s): 120
PRC Over All Lanes (%): 54.4 Total Delay Over All Lanes(pcuHr): 4.89

Full Input Data And Results

Scenario 5: '2024 AM DS2 190' (FG5: '2024 AM DS2 190', Plan 1: 'Network Control Plan 1')

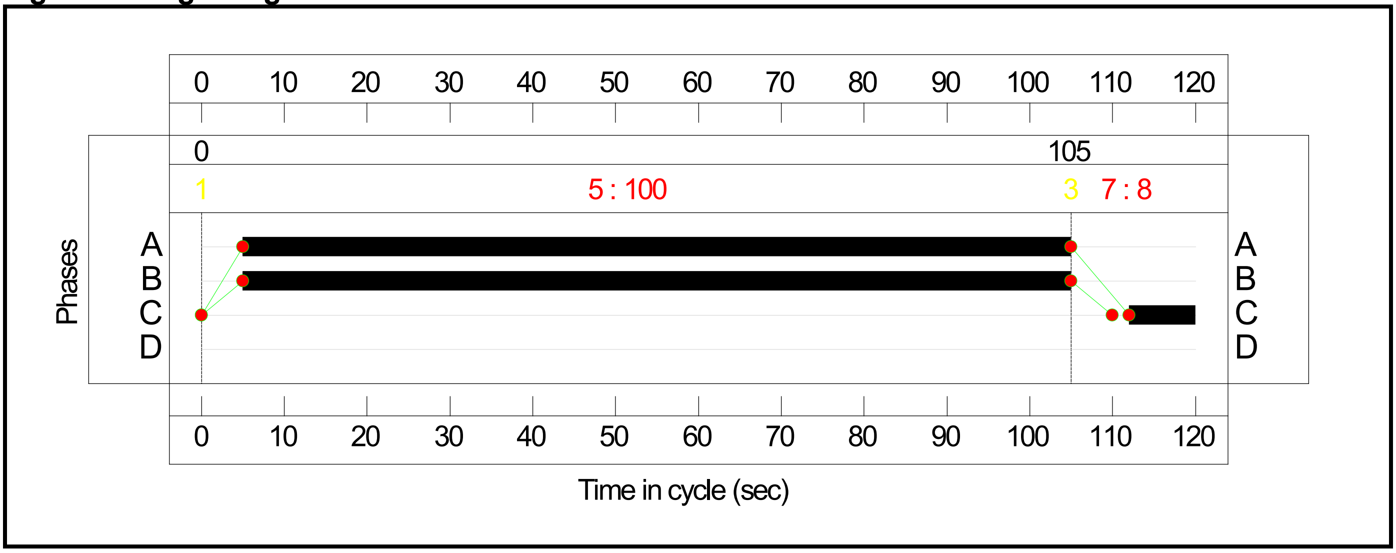
Stage Sequence Diagram



Stage Timings

Stage	1	3
Duration	100	8
Change Point	0	105

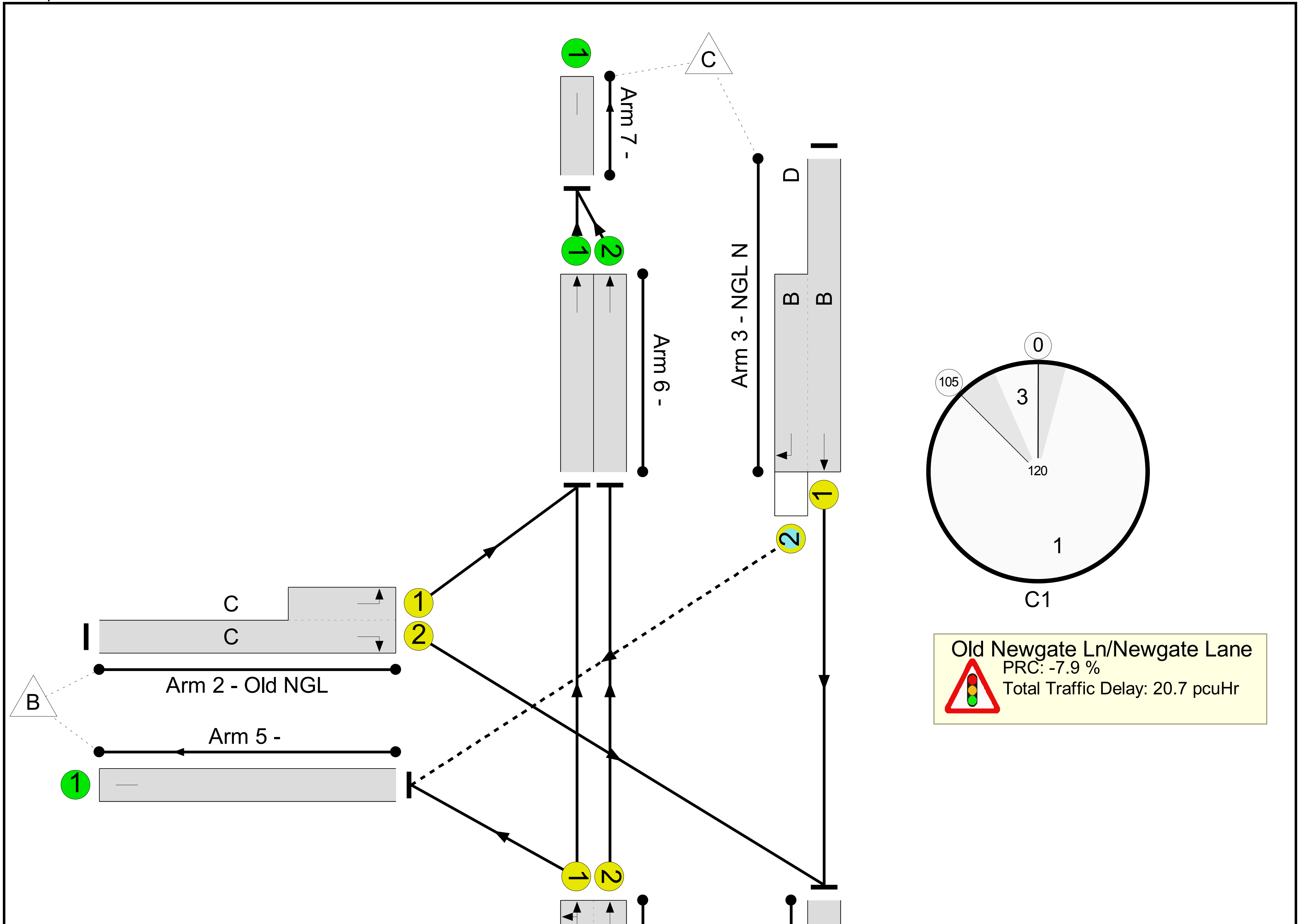
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**97.1%**
Old Newgate Ln/Newgate Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**97.1%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	1679	1965:1932	1526+203	97.1 : 97.1%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	140	1759:1720	132+88	63.7 : 63.7%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	100	0	735	2065:1786	1623+60	42.3 : 80.0%
4/1		U	N/A	N/A	-		-	-	-	771	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	219	1940	1940	11.3%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1482	1940	1940	76.4%
7/1		U	N/A	N/A	-		-	-	-	1701	Inf	Inf	0.0%

Full Input Data And Results

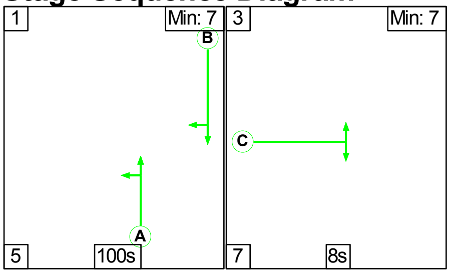
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**48**	**5.5**	**14.4**	**0.8**	**20.7**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**0**	**0**	**48**	**5.5**	**14.4**	**0.8**	**20.7**	**-**	**-**	**-**	**-**
1/2+1/1	1679	1679	-	-	-	3.0	11.5	-	14.4	31.0	43.5	11.5	55.0
2/2+2/1	140	140	-	-	-	2.1	0.9	-	2.9	75.7	2.7	0.9	3.6
3/1+3/2	735	735	0	0	48	0.5	0.4	0.8	1.6	8.0	5.3	0.4	5.7
4/1	771	771	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	219	219	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/2	1482	1482	-	-	-	0.0	1.6	-	1.6	4.0	17.3	1.6	18.9
7/1	1701	1701	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -7.9 Total Delay for Signalled Lanes (pcuHr): 19.03 Cycle Time (s): 120
PRC Over All Lanes (%): -7.9 Total Delay Over All Lanes(pcuHr): 20.73

Full Input Data And Results

Scenario 6: '2024 PM DS2 190' (FG6: '2024 PM DS2 190', Plan 1: 'Network Control Plan 1')

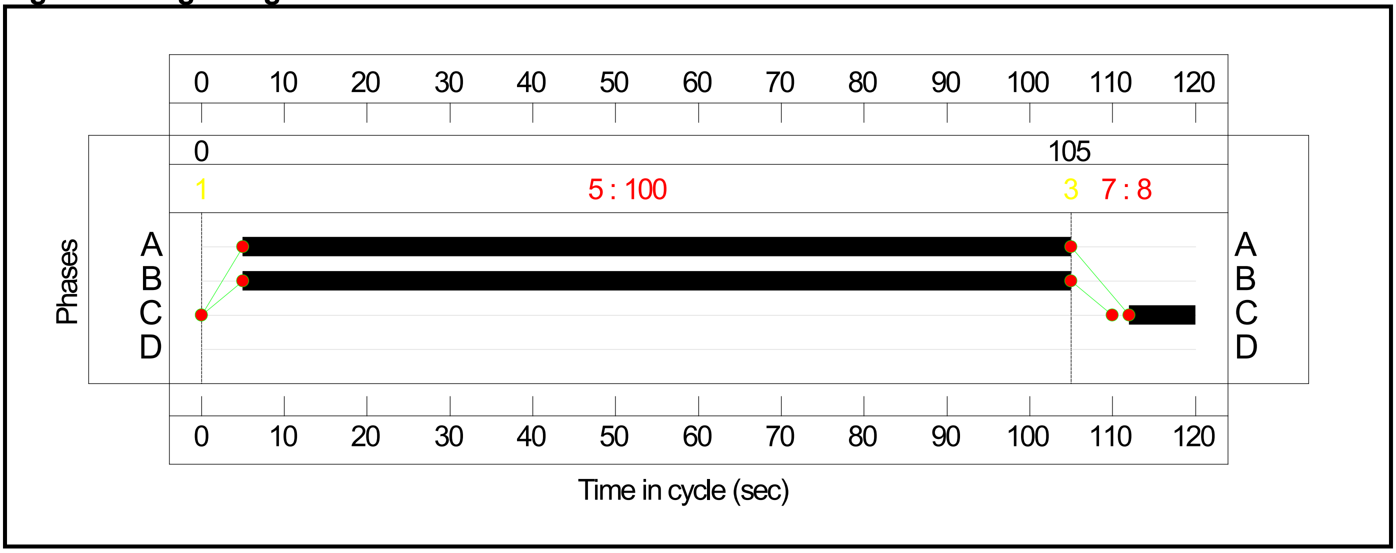
Stage Sequence Diagram



Stage Timings

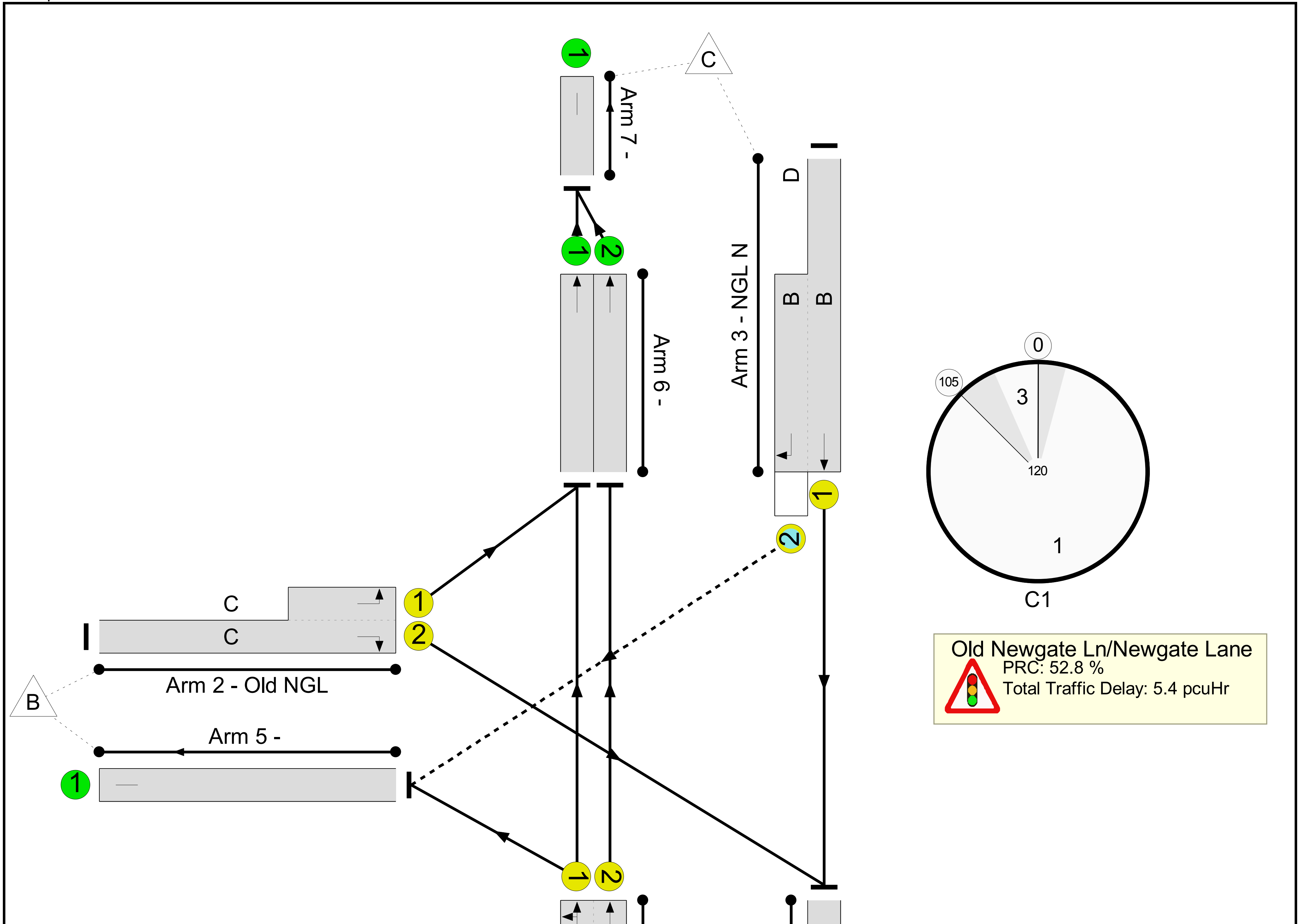
Stage	1	3
Duration	100	8
Change Point	0	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


C
Arm 7 -
D
Arm 3 - NGL N
B
B
Arm 6 -
0
105
3
120
1
C1
C
C
Arm 2 - Old NGL
B
Arm 5 -
Old Newgate Ln/Newgate Lane
PRC: 52.8 %
Total Traffic Delay: 5.4 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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**58.9%**
Old Newgate Ln/Newgate Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**58.9%**
1/2+1/1	NGL s Left Ahead	U	N/A	N/A	A		1	100	-	994	1965:1884	1473+281	56.7 : 56.7%
2/2+2/1	Old NGL Right Left	U	N/A	N/A	C		1	8	-	109	1759:1720	94+129	48.8 : 48.8%
3/1+3/2	NGL N Ahead Right	U+O	N/A	N/A	B	D	1	100	0	1022	2065:1786	1649+87	58.9 : 58.9%
4/1		U	N/A	N/A	-		-	-	-	1017	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	119	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	154	1940	1940	7.9%
6/2	Ahead	U	N/A	N/A	-		-	-	-	835	1940	1940	43.0%
7/1		U	N/A	N/A	-		-	-	-	989	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**51**	**0**	**0**	**3.1**	**2.3**	**0.1**	**5.4**	**-**	**-**	**-**	**-**
Old Newgate Ln/Newgate Lane	**-**	**-**	**51**	**0**	**0**	**3.1**	**2.3**	**0.1**	**5.4**	**-**	**-**	**-**	**-**
1/2+1/1	994	994	-	-	-	0.7	0.7	-	1.3	4.8	7.7	0.7	8.3
2/2+2/1	109	109	-	-	-	1.6	0.5	-	2.1	68.7	2.0	0.5	2.5
3/1+3/2	1022	1022	51	0	0	0.8	0.7	0.1	1.6	5.5	9.9	0.7	10.6
4/1	1017	1017	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	119	119	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	154	154	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/2	835	835	-	-	-	0.0	0.4	-	0.4	1.6	3.3	0.4	3.6
7/1	989	989	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 52.8 Total Delay for Signalled Lanes (pcuHr): 4.97 Cycle Time (s): 120
PRC Over All Lanes (%): 52.8 Total Delay Over All Lanes(pcuHr): 5.39

Full Input Data And Results