NORMAN ROURKE PRYME

CONSTRUCTION CONSULTANTS
HIGHWAYS AND INFRASTRUCTURE
TRAFFIC AND TRANSPORTATION

High Street Shuttle Signals – Modelling Results

Land at Sodbury Road, Wickwar

Bloor Homes

QA RECORD:

DOCUMENT REF	7909TN03	Rev	0.1
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1 HIGHWAY OPERATIONAL ASSESSMENT

1.1 Baseline traffic survey and future assessment years

1.1.1 The 2023 baseline traffic flows were obtained at the High Street/Station Road/The Downs signalised T-junction in the form of manual classified turning count surveys undertaken on the 20th April 2023. The results of this survey are contained in Appendix A.

1.1.2 The following future year assessments have been identified and remain in line with those previously agreed with SGC:

- Baseline Scenario (2023);
- Future Year Scenario (2027) with no development;
- Future Year Scenario (2027) with Committed Development (CD); and
- Future Year Scenario (2027) with Committed Development (CD) and Proposed Development (PD).

1.1.3 Traffic flow diagrams for the above scenarios are contained at Appendix B.

1.2 Junction Traffic Flows

Growth Factors

1.2.1 The 2023 traffic flows at High Street/Station Road/The Downs signalised T-junction have been growthed to represent the 2027 future year scenario turning movements at the assessed junction. This represents the anticipated year of occupation.

1.2.2 The growth factors were derived from TEMPro V8.0 and the input parameters can be seen at Appendix C. The growth factors are set out in Table 1.1 below.

Table 1.1: TEMPro Growth Factors

	A.M Peak	P.M Peak
2023-2027	1.043	1.042

1.2.3 The growthed traffic flows to the future year of 2027 are shown in Appendix B.

Committed Development

1.2.4 The future year assessments also consider any committed developments within the local area. In this instance only one site has been included and that is the Horwood Lane development site (PK16/4006/O), situated to the south of the proposed development. This site is currently partly built out but remains under construction.

1.2.5 The traffic flows in the future year at the assessment junction has therefore included for this as a 'committed development' and its anticipated future traffic generation extracted from the previously agreed Transport Assessment. As this development is partly built out, some of these trips are likely to have been double counted in the baseline traffic survey and resulting flows. This is considered to offer a more robust assessment by potentially over-estimating the volume of traffic entering and exiting the High Street/Station Road/The Downs signalised T-junction.

1.2.6 These traffic flows do not include the previous committed development south of Poplar Lane (application PK16/4006/O), as this development has been built out and occupied since the last assessment. These flows have been included in the baseline 2023 traffic counts.

1.2.7 The committed development flows are shown diagrammatically in Appendix B.

Proposed Development

1.2.8 The Proposed development traffic flows have been extracted from those previously agreed in the NRP Transport Assessment. These traffic flows can be seen in Appendix B.

1.3 Junction Capacity Analysis

1.3.1 The performance of the High Street/Station Road/The Downs signalised T-junction has been assessed using JCTs LinSig modelling software. The manual turning counts and queue counts, which were undertaken at the signals on 20th April 2023, have been used to provide updated traffic flows for the model.

Methodology

1.3.2 In order to provide an accurate model that represents queuing correctly, the saturation flow has been manually calculated in the AM and PM peak hours for the southbound traffic signals approach on Station Road.

1.3.3 Saturation flows have been measured as the number of passenger car units (PCUs) travelling in a dense flow of traffic from a queued position. Due to the nature of southbound traffic queueing on both Station Road and The Downs, the saturation flow has been taken while both queues clear. This has been achieved by counting the PCUs clearing Station Road during a green period and accounting for vehicles entering from The Downs arm when moving in a constant flow. This saturation flow has then been applied to the model on the Station Road arm to represent the level of queuing on both the Station Road and The Downs. These queues have then been validated against the observed survey queue counts.

1.3.4 Taking site specific saturation flows is considered the most accurate method to represent queuing within the junction, particularly in comparison to using the estimated saturation flows calculated using lane geometry. This is supported with the modelling guidance which states that that:

'Queue predictions are very sensitive to inaccurate saturation flows, the possibly small differences between estimated and true saturation flows can lead to potentially much more significant differences between modelled and surveyed queues'.

1.3.5 Therefore, by inputting site specific saturation flows, combined with the signal timing and operating data provided by South Gloucestershire Council, the junction is considered accurately modelled and validated to base conditions.

1.3.6 The calculated saturation flows can be seen in Appendix D.

1.4 Linsig Modelling Results

1.4.1 The results of the Linsig modelling discussed above are summarised in Table 1.2 overleaf.

Table 1.2: High Street/Station Road/The Downs – Results of LINSIG Modelling

Assessment Year	A.M Peak (07:45-08:45)			P.M Peak (16:30-17:30)		
	Queue[1]	Delay[2]	Sat[3]	Queue[1]	Delay[2]	Sat[3]
2023 Base Traffic						
High Street	10.6	31.3	65.9	10.5	44.9	76.4
Station Road	8.5	31.0	64.5	12.4	28	74.7
The Downs	0.3	5.7	40.9	0.6	7.3	52.6
PRC		36.5			17.8	
2027 Future Year with no development						
High Street	11.3	32.2	68.6	10.9	43.9	76.5
Station Road	9.1	32.1	67.2	13.8	31.7	79.6
The Downs	0.4	6	43.0	0.6	7.8	55.2
PRC		31.1			13.1	
2027 Future Year + CD						
High Street	11.4	31.4	68.7	11.7	48.7	81.1
Station Road	9.6	34.2	70.3	14.1	30.8	79.4
The Downs	0.4	6.1	44.1	0.7	8.2	57.3
PRC		28.1			11	
2027 Future Year + CD + PD						
High Street	13.3	34.3	75.3	14.2	58.7	88.3
Station Road	10.8	37	75.4	17.2	37.9	86.9
The Downs	0.5	6.7	48.9	1	10.6	66.7
PRC (%)[4]		19.4			1.9	

Notes:
1. The maximum mean queue predicted by the model for any 15-minute time period.
2. The maximum mean delay per vehicle predicted by the model for any 15-minute time period.
3. The maximum degree of saturation (%) predicted by the model for any 15-minute time period.
4. The PRC (Practical Reserve Capacity) of the junction.

1.4.2 As discussed in the methodology, queuing for both Station Road at the traffic signal stop line and southbound on The Downs arm has been represented within the Station Road arm within the model. This provides an accurate representation of the queuing and practical reserve capacity in all assessment year scenarios.

1.4.3 The above results demonstrate that the junction currently operates within capacity in the AM and PM peak hours. The minimum PRC for the 2027 future year + CD + PD forecast scenario is 1.9% in the PM peak hour period, whilst the maximum delay is 58.7 seconds in the PM peak on the High Street arm.

1.4.4 It is likely that some trips within the junction have been double counted as a result of the Horwood Lane development (PK16/4006/O) being partially built out. These trips have been counted as committed development trips, and as baseline 2023 traffic flows offering a more robust assessment on the future impact to the junction. It is reasonable to suggest that the actual impact on the High Street/Station Road/The Downs signalised T-junction junction is less than the modelled results indicate as a result of this.

1.4.5 It can therefore be concluded that the High Street/Station Road/The Downs signalised T-junction can accommodate the existing traffic flow levels and those flows factored to 2027 with the addition of the proposed and committed development traffic.

1.4.6 Traffic flow diagrams for the 2023 baseline traffic and 2027 future scenario year at the junction in Passenger Car Units (PCUs) can be seen in Appendix B.

1.4.7 The modelling results can be seen in Appendix E.

1.5 Summary

1.5.1 The update to the Linsig junction modelling undertaken demonstrates that the junction can accommodate both the committed development and proposed development with the junction remaining within capacity, with acceptable levels of queuing and delay, demonstrated within both the AM and PM peak hours.

APPENDIX A: 2023 TRAFFIC COUNTS

Severnside
Transportation Data Collection

SS1079 Wickwar
Thursday 20 April 2023
0700-1000 & 1600-1900
Site 1

	Arm A - Arm A									Arm A - Arm B									Arm A - Arm C									
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Ped	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Ped	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Ped	Total	Arm Total
0700-0715	0	0	0	0	0	0	0	0	**0**	2	0	0	0	0	0	0	0	**2**	24	6	1	0	1	0	0	0	**32**	**34**
0715-0730	0	0	0	0	0	0	0	0	**0**	2	1	0	0	2	0	1	1	**7**	29	11	0	0	0	0	0	0	**40**	**47**
0730-0745	0	0	0	0	0	0	0	0	**0**	4	1	0	0	0	1	0	0	**6**	25	12	1	0	0	0	0	0	**38**	**44**
0745-0800	0	0	0	0	0	0	0	0	**0**	6	0	0	0	0	0	0	0	**6**	35	8	2	0	0	0	0	0	**45**	**51**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**2**	**0**	**0**	**2**	**1**	**1**	**1**	**21**	**113**	**37**	**4**	**0**	**1**	**0**	**0**	**0**	**155**	**176**
0800-0815	0	0	0	0	0	0	0	0	**0**	5	2	1	0	0	0	0	0	**8**	32	7	0	0	0	1	0	0	**40**	**48**
0815-0830	0	0	0	0	0	0	0	0	**0**	11	1	0	0	0	0	0	0	**12**	33	10	0	0	1	0	0	0	**44**	**56**
0830-0845	0	0	0	0	0	0	0	0	**0**	7	2	0	0	0	0	0	0	**9**	37	8	0	1	1	0	0	0	**47**	**56**
0845-0900	0	0	0	0	0	0	0	0	**0**	2	3	0	0	0	0	0	0	**5**	41	9	1	1	0	1	0	0	**53**	**58**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**34**	**143**	**34**	**1**	**2**	**2**	**2**	**0**	**0**	**184**	**218**
0900-0915	0	0	0	0	0	0	0	0	**0**	5	0	0	0	0	0	1	0	**6**	25	7	2	1	0	0	0	0	**35**	**41**
0915-0930	0	0	0	0	0	0	0	0	**0**	3	1	1	0	0	0	0	0	**5**	28	10	1	0	0	0	0	0	**39**	**44**
0930-0945	0	0	0	0	0	0	0	0	**0**	5	1	1	0	0	0	0	0	**7**	36	10	2	0	0	0	0	0	**48**	**55**
0945-1000	0	0	0	0	0	0	0	0	**0**	4	1	0	0	0	0	1	1	**7**	30	3	0	0	0	0	0	0	**33**	**40**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**3**	**2**	**0**	**0**	**0**	**2**	**1**	**25**	**119**	**30**	**5**	**1**	**0**	**0**	**0**	**0**	**155**	**180**
3 Hour Totals (am)	0	0	0	0	0	0	0	0	**0**	56	13	3	0	2	1	3	2	**80**	375	101	10	3	3	2	0	0	**494**	**574**
1600-1615	0	0	0	0	0	0	0	0	**0**	7	0	0	0	0	0	0	0	**7**	46	13	0	0	0	0	0	0	**59**	**66**
1615-1630	0	0	0	0	0	0	0	0	**0**	5	0	0	0	0	3	0	0	**8**	47	8	0	0	0	1	0	0	**56**	**64**
1630-1645	0	0	0	0	0	0	0	0	**0**	7	0	0	0	0	0	0	0	**7**	41	10	0	1	0	1	0	0	**53**	**60**
1645-1700	0	0	0	0	0	0	0	0	**0**	8	1	0	0	0	0	1	0	**10**	52	6	2	0	0	0	0	0	**60**	**70**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**1**	**0**	**0**	**0**	**3**	**1**	**0**	**32**	**186**	**37**	**2**	**1**	**0**	**2**	**0**	**0**	**228**	**260**
1700-1715	0	0	0	0	0	0	0	0	**0**	6	2	1	0	0	1	0	0	**10**	51	12	0	1	0	2	0	0	**66**	**76**
1715-1730	0	0	0	0	0	0	0	0	**0**	9	1	0	0	0	0	0	0	**10**	44	8	0	0	0	1	0	0	**53**	**63**
1730-1745	0	0	0	0	0	0	0	0	**0**	8	0	0	0	0	0	0	0	**8**	53	7	0	2	1	0	0	0	**63**	**71**
1745-1800	0	0	0	0	0	0	0	0	**0**	7	0	0	0	0	0	0	0	**7**	57	3	0	0	1	0	0	0	**61**	**68**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**3**	**1**	**0**	**0**	**1**	**0**	**0**	**35**	**205**	**30**	**0**	**3**	**2**	**3**	**0**	**0**	**243**	**278**
1800-1815	0	0	0	0	0	0	0	0	**0**	10	0	0	0	0	0	0	0	**10**	53	3	1	0	0	0	0	0	**57**	**67**
1815-1830	0	0	0	0	0	0	0	0	**0**	8	0	0	0	0	1	0	0	**9**	41	8	0	0	0	0	0	0	**49**	**58**
1830-1845	0	0	0	0	0	0	0	0	**0**	5	1	0	0	0	0	0	0	**6**	33	0	0	1	0	0	0	0	**34**	**40**
1845-1900	0	0	0	0	0	0	0	0	**0**	3	1	0	0	0	0	0	0	**4**	28	3	0	1	0	1	0	0	**33**	**37**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**29**	**155**	**14**	**1**	**2**	**0**	**1**	**0**	**0**	**173**	**202**
3 Hour Totals (pm)	0	0	0	0	0	0	0	0	**0**	83	6	1	0	0	5	1	0	**96**	546	81	3	6	2	6	0	0	**644**	**740**
Day Total	0	0	0	0	0	0	0	0	**0**	139	19	4	0	2	6	4	2	**176**	921	182	13	9	5	8	0	0	**1138**	**1314**

	Arm B - Arm A									Arm B - Arm B									Arm B - Arm C									
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Ped	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Ped	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Ped	Total	Arm Total
0700-0715	6	0	0	0	0	0	3	0	**9**	0	0	0	0	0	0	0	0	**0**	16	5	0	0	0	0	1	0	**22**	**31**
0715-0730	5	1	0	0	0	0	0	0	**6**	0	0	0	0	0	0	0	0	**0**	24	7	1	0	0	1	0	0	**33**	**39**
0730-0745	5	1	0	0	0	0	1	0	**7**	0	0	0	0	0	0	0	0	**0**	19	2	0	0	0	0	0	0	**21**	**28**
0745-0800	11	2	0	0	0	0	1	0	**14**	0	0	0	0	0	0	0	0	**0**	33	7	1	0	0	0	0	0	**41**	**55**

Hourly Total	**27**	**4**	**0**	**0**	**0**	**0**	**5**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**92**	**21**	**2**	**0**	**0**	**1**	**1**	**0**	**117**	**153**
0800-0815	3	1	0	0	0	0	0	0	**4**	0	0	0	0	0	0	0	0	**0**	41	4	1	0	1	0	0	0	**47**	**51**
0815-0830	12	1	1	0	0	1	0	0	**15**	0	0	0	0	0	0	0	0	**0**	51	4	1	0	1	0	0	0	**57**	**72**
0830-0845	6	1	0	0	0	0	1	0	**8**	0	0	0	0	0	0	0	0	**0**	42	3	0	0	0	0	0	0	**45**	**53**
0845-0900	4	2	3	0	0	0	0	0	**9**	0	0	0	0	0	0	0	0	**0**	27	4	0	0	0	0	0	0	**31**	**40**
Hourly Total	**25**	**5**	**4**	**0**	**0**	**1**	**1**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**161**	**15**	**2**	**0**	**2**	**0**	**0**	**0**	**180**	**216**
0900-0915	7	1	1	0	0	0	0	0	**9**	0	0	0	0	0	0	0	0	**0**	36	4	1	0	2	0	0	0	**43**	**52**
0915-0930	1	3	0	0	0	0	0	1	**5**	0	0	0	0	0	0	0	0	**0**	22	3	0	0	0	0	0	1	**26**	**31**
0930-0945	2	1	0	0	0	0	0	0	**3**	0	0	0	0	0	0	0	0	**0**	24	6	1	0	0	0	0	0	**31**	**34**
0945-1000	4	0	0	0	0	0	0	0	**4**	0	0	0	0	0	0	0	0	**0**	24	2	0	0	0	0	0	0	**26**	**30**
Hourly Total	**14**	**5**	**1**	**0**	**0**	**0**	**0**	**1**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**106**	**15**	**2**	**0**	**2**	**0**	**0**	**1**	**126**	**147**
3 Hour Totals (am)	66	14	5	0	0	1	6	1	**93**	0	0	0	0	0	0	0	0	**0**	359	51	6	0	4	1	1	1	**423**	**516**
1600-1615	8	1	0	0	1	0	0	0	**10**	0	0	0	0	0	0	0	0	**0**	49	8	0	0	0	0	0	0	**57**	**67**
1615-1630	9	0	0	0	0	1	0	0	**10**	0	0	0	0	0	0	0	0	**0**	47	5	0	0	0	2	0	0	**54**	**64**
1630-1645	3	1	1	0	0	0	1	0	**6**	0	0	0	0	0	0	0	0	**0**	45	8	0	0	0	0	0	0	**53**	**59**
1645-1700	3	0	0	0	0	0	0	0	**3**	0	0	0	0	0	0	0	0	**0**	41	4	0	0	0	3	0	2	**50**	**53**
Hourly Total	**23**	**2**	**1**	**0**	**1**	**1**	**1**	**0**	**29**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**182**	**25**	**0**	**0**	**0**	**5**	**0**	**2**	**214**	**243**
1700-1715	3	2	0	0	0	0	0	0	**5**	0	0	0	0	0	0	0	0	**0**	24	3	0	0	0	1	0	0	**28**	**33**
1715-1730	7	1	0	0	0	0	0	0	**8**	0	0	0	0	0	0	0	0	**0**	42	6	0	0	0	0	1	1	**50**	**58**
1730-1745	0	1	0	0	0	0	0	0	**1**	0	0	0	0	0	0	0	0	**0**	39	7	1	0	0	0	0	0	**47**	**48**
1745-1800	2	0	1	0	0	0	0	0	**3**	0	0	0	0	0	0	0	0	**0**	32	1	0	0	0	0	1	7	**41**	**44**
Hourly Total	**12**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**137**	**17**	**1**	**0**	**0**	**1**	**2**	**8**	**166**	**183**
1800-1815	4	0	0	0	1	1	0	0	**6**	0	0	0	0	0	0	0	0	**0**	24	3	0	0	0	1	0	0	**28**	**34**
1815-1830	6	1	0	0	0	0	1	3	**11**	0	0	0	0	0	0	0	0	**0**	24	3	0	0	0	0	0	1	**28**	**39**
1830-1845	5	0	0	0	0	0	0	1	**6**	0	0	0	0	0	0	0	0	**0**	21	3	0	0	0	0	0	0	**24**	**30**
1845-1900	6	0	1	0	0	0	0	0	**7**	0	0	0	0	0	0	0	0	**0**	27	1	0	0	0	0	0	2	**30**	**37**
Hourly Total	**21**	**1**	**1**	**0**	**1**	**1**	**1**	**4**	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**96**	**10**	**0**	**0**	**0**	**1**	**0**	**3**	**110**	**140**
3 Hour Totals (pm)	56	7	3	0	2	2	2	4	**76**	0	0	0	0	0	0	0	0	**0**	415	52	1	0	0	7	2	13	**490**	**566**
Day Total	122	21	8	0	2	3	8	5	**169**	0	0	0	0	0	0	0	0	**0**	774	103	7	0	4	8	3	14	**913**	**1082**

	Arm C - Arm A									Arm C - Arm B									Arm C - Arm C									
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Car**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Car**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Arm Total**
0700-0715	42	11	1	0	0	0	1	0	**55**	17	4	0	0	0	0	0	0	**21**	0	0	0	0	0	0	0	0	**0**	**76**
0715-0730	50	14	1	0	0	1	0	0	**66**	27	5	0	0	0	0	0	1	**33**	0	0	0	0	0	0	0	0	**0**	**99**
0730-0745	43	10	3	0	0	0	1	0	**57**	25	5	0	0	0	0	0	0	**30**	0	0	0	0	0	0	0	0	**0**	**87**
0745-0800	52	12	1	0	1	0	0	0	**66**	51	4	1	0	1	0	0	0	**57**	0	0	0	0	0	0	0	0	**0**	**123**
Hourly Total	**187**	**47**	**6**	**0**	**1**	**1**	**2**	**0**	**244**	**120**	**18**	**1**	**0**	**1**	**0**	**0**	**1**	**141**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**385**
0800-0815	46	5	2	0	0	1	0	0	**54**	60	3	0	0	0	0	0	0	**63**	0	0	0	0	0	0	0	0	**0**	**117**
0815-0830	67	5	3	1	0	0	0	0	**76**	48	4	0	0	0	1	0	1	**54**	0	0	0	0	0	0	0	0	**0**	**130**
0830-0845	41	10	0	0	1	0	0	2	**54**	15	5	3	0	1	0	0	3	**27**	0	0	0	0	0	0	0	0	**0**	**81**
0845-0900	51	3	1	0	0	0	0	2	**57**	38	2	0	2	0	1	0	0	**43**	0	0	0	0	0	0	0	0	**0**	**100**
Hourly Total	**205**	**23**	**6**	**1**	**1**	**1**	**0**	**4**	**241**	**161**	**14**	**3**	**2**	**1**	**2**	**0**	**4**	**187**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**428**
0900-0915	37	7	1	0	0	0	0	2	**47**	17	4	0	0	0	0	0	0	**21**	0	0	0	0	0	0	0	0	**0**	**68**
0915-0930	30	2	1	0	0	0	1	0	**34**	18	3	0	0	0	0	0	0	**21**	0	0	0	0	0	0	0	0	**0**	**55**
0930-0945	30	5	0	0	0	0	1	0	**36**	21	4	1	0	0	0	0	0	**26**	0	0	0	0	0	0	0	0	**0**	**62**
0945-1000	21	5	1	0	0	1	0	0	**28**	20	3	1	0	0	0	0	0	**24**	0	0	0	0	0	0	0	0	**0**	**52**

Hourly Total	**118**	**19**	**3**	**0**	**0**	**1**	**2**	**2**	**145**	**76**	**14**	**2**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**237**
3 Hour Totals (am)	510	89	15	1	2	3	4	6	**630**	357	46	6	2	2	2	0	5	**420**	0	0	0	0	0	0	0	**0**	**1050**
1600-1615	38	6	0	0	1	0	0	1	**46**	26	1	0	0	0	1	0	0	**28**	0	0	0	0	0	0	0	**0**	**74**
1615-1630	38	6	1	1	1	1	0	0	**48**	30	2	0	0	1	1	1	0	**35**	0	0	0	0	0	0	0	**0**	**83**
1630-1645	48	13	1	0	0	1	3	2	**68**	30	5	1	0	1	0	1	7	**45**	0	0	0	0	0	0	0	**0**	**113**
1645-1700	48	7	1	2	0	3	0	2	**63**	35	3	1	0	0	0	1	3	**43**	0	0	0	0	0	0	0	**0**	**106**
Hourly Total	**172**	**32**	**3**	**3**	**2**	**5**	**3**	**5**	**225**	**121**	**11**	**2**	**0**	**2**	**2**	**3**	**10**	**151**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**376**
1700-1715	49	4	0	0	0	1	1	2	**57**	33	2	1	0	1	1	1	1	**40**	0	0	0	0	0	0	0	**0**	**97**
1715-1730	43	5	0	1	0	1	1	1	**52**	38	0	0	0	0	0	1	0	**39**	0	0	0	0	0	0	0	**0**	**91**
1730-1745	40	7	0	0	1	1	1	0	**50**	28	6	1	0	0	0	1	7	**43**	0	0	0	0	0	0	0	**0**	**93**
1745-1800	40	5	0	0	0	0	2	0	**47**	33	4	0	0	0	1	1	0	**39**	0	0	0	0	0	0	0	**0**	**86**
Hourly Total	**172**	**21**	**0**	**1**	**1**	**3**	**5**	**3**	**206**	**132**	**12**	**2**	**0**	**1**	**2**	**4**	**8**	**161**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**367**
1800-1815	32	4	1	1	0	1	0	0	**39**	31	4	0	0	0	1	0	5	**41**	0	0	0	0	0	0	0	**0**	**80**
1815-1830	33	1	0	1	0	0	0	0	**35**	32	3	0	0	0	0	0	4	**39**	0	0	0	0	0	0	0	**0**	**74**
1830-1845	37	2	0	0	0	0	2	1	**42**	22	3	0	0	0	0	0	1	**26**	0	0	0	0	0	0	0	**0**	**68**
1845-1900	32	1	0	1	0	0	0	4	**38**	26	1	0	0	0	0	0	0	**27**	0	0	0	0	0	0	0	**0**	**65**
Hourly Total	**134**	**8**	**1**	**3**	**0**	**1**	**2**	**5**	**154**	**111**	**11**	**0**	**0**	**0**	**1**	**0**	**10**	**133**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**287**
3 Hour Totals (pm)	478	61	4	7	3	9	10	13	**585**	364	34	4	0	3	5	7	28	**445**	0	0	0	0	0	0	0	**0**	**1030**
Day Total	988	150	19	8	5	12	14	19	**1215**	721	80	10	2	5	7	7	33	**865**	0	0	0	0	0	0	0	**0**	**2080**

	Origin - Arm A									Origin - Arm B									Origin - Arm C									
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Car**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Car**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Arm Total**
0700-0715	26	6	1	0	1	0	0	0	**34**	22	5	0	0	0	0	4	0	**31**	59	15	1	0	0	0	1	0	**76**	**141**
0715-0730	31	12	0	0	2	0	1	1	**47**	29	8	1	0	0	1	0	0	**39**	77	19	1	0	0	1	0	1	**99**	**185**
0730-0745	29	13	1	0	0	1	0	0	**44**	24	3	0	0	0	0	1	0	**28**	68	15	3	0	0	0	1	0	**87**	**159**
0745-0800	41	8	2	0	0	0	0	0	**51**	44	9	1	0	0	0	1	0	**55**	103	16	2	0	2	0	0	0	**123**	**229**
Hourly Total	**127**	**39**	**4**	**0**	**3**	**1**	**1**	**1**	**176**	**119**	**25**	**2**	**0**	**0**	**1**	**6**	**0**	**153**	**307**	**65**	**7**	**0**	**2**	**1**	**2**	**1**	**385**	**714**
0800-0815	37	9	1	0	0	1	0	0	**48**	44	5	1	0	1	0	0	0	**51**	106	8	2	0	0	1	0	0	**117**	**216**
0815-0830	44	11	0	0	1	0	0	0	**56**	63	5	2	0	1	1	0	0	**72**	115	9	3	1	0	1	0	1	**130**	**258**
0830-0845	44	10	0	1	1	0	0	0	**56**	48	4	0	0	0	0	1	0	**53**	56	15	3	0	2	0	0	5	**81**	**190**
0845-0900	43	12	1	1	0	1	0	0	**58**	31	6	3	0	0	0	0	0	**40**	89	5	1	2	0	1	0	2	**100**	**198**
Hourly Total	**168**	**42**	**2**	**2**	**2**	**2**	**0**	**0**	**218**	**186**	**20**	**6**	**0**	**2**	**1**	**1**	**0**	**216**	**366**	**37**	**9**	**3**	**2**	**3**	**0**	**8**	**428**	**862**
0900-0915	30	7	2	1	0	0	1	0	**41**	43	5	2	0	2	0	0	0	**52**	54	11	1	0	0	0	0	2	**68**	**161**
0915-0930	31	11	2	0	0	0	0	0	**44**	23	6	0	0	0	0	0	2	**31**	48	5	1	0	0	0	1	0	**55**	**130**
0930-0945	41	11	3	0	0	0	0	0	**55**	26	7	1	0	0	0	0	0	**34**	51	9	1	0	0	0	1	0	**62**	**151**
0945-1000	34	4	0	0	0	0	1	1	**40**	28	2	0	0	0	0	0	0	**30**	41	8	2	0	0	1	0	0	**52**	**122**
Hourly Total	**136**	**33**	**7**	**1**	**0**	**0**	**2**	**1**	**180**	**120**	**20**	**3**	**0**	**2**	**0**	**0**	**2**	**147**	**194**	**33**	**5**	**0**	**0**	**1**	**2**	**2**	**237**	**564**
3 Hour Totals (am)	431	114	13	3	5	3	3	2	**574**	425	65	11	0	4	2	7	2	**516**	867	135	21	3	4	5	4	11	**1050**	**2140**
1600-1615	53	13	0	0	0	0	0	0	**66**	57	9	0	0	1	0	0	0	**67**	64	7	0	0	1	1	0	1	**74**	**207**
1615-1630	52	8	0	0	0	4	0	0	**64**	56	5	0	0	0	3	0	0	**64**	68	8	1	1	2	2	1	0	**83**	**211**
1630-1645	48	10	0	1	0	1	0	0	**60**	48	9	1	0	0	0	1	0	**59**	78	18	2	0	1	1	4	9	**113**	**232**
1645-1700	60	7	2	0	0	0	1	0	**70**	44	4	0	0	0	3	0	2	**53**	83	10	2	2	0	3	1	5	**106**	**229**
Hourly Total	**213**	**38**	**2**	**1**	**0**	**5**	**1**	**0**	**260**	**205**	**27**	**1**	**0**	**1**	**6**	**1**	**2**	**243**	**293**	**43**	**5**	**3**	**4**	**7**	**6**	**15**	**376**	**879**

1700-1715	57	14	1	1	0	3	0	0	**76**	27	5	0	0	0	1	0	0	**33**	82	6	1	0	1	2	2	3	**97**	**206**
1715-1730	53	9	0	0	0	1	0	0	**63**	49	7	0	0	0	0	1	1	**58**	81	5	0	1	0	1	2	1	**91**	**212**
1730-1745	61	7	0	2	1	0	0	0	**71**	39	8	1	0	0	0	0	0	**48**	68	13	1	0	1	1	2	7	**93**	**212**
1745-1800	64	3	0	0	1	0	0	0	**68**	34	1	1	0	0	0	1	7	**44**	73	9	0	0	0	1	3	0	**86**	**198**
Hourly Total	**235**	**33**	**1**	**3**	**2**	**4**	**0**	**0**	**278**	**149**	**21**	**2**	**0**	**0**	**1**	**2**	**8**	**183**	**304**	**33**	**2**	**1**	**2**	**5**	**9**	**11**	**367**	**828**
1800-1815	63	3	1	0	0	0	0	0	**67**	28	3	0	0	1	2	0	0	**34**	63	8	1	1	0	2	0	5	**80**	**181**
1815-1830	49	8	0	0	0	1	0	0	**58**	30	4	0	0	0	0	1	4	**39**	65	4	0	1	0	0	0	4	**74**	**171**
1830-1845	38	1	0	1	0	0	0	0	**40**	26	3	0	0	0	0	0	1	**30**	59	5	0	0	0	0	2	2	**68**	**138**
1845-1900	31	4	0	1	0	1	0	0	**37**	33	1	1	0	0	0	0	2	**37**	58	2	0	1	0	0	0	4	**65**	**139**
Hourly Total	**181**	**16**	**1**	**2**	**0**	**2**	**0**	**0**	**202**	**117**	**11**	**1**	**0**	**1**	**2**	**1**	**7**	**140**	**245**	**19**	**1**	**3**	**0**	**2**	**2**	**15**	**287**	**629**
3 Hour Totals (pm)	629	87	4	6	2	11	1	0	**740**	471	59	4	0	2	9	4	17	**566**	842	95	8	7	6	14	17	41	**1030**	**2336**
Day Total	1060	201	17	9	7	14	4	2	**1314**	896	124	15	0	6	11	11	19	**1082**	1709	230	29	10	10	19	21	52	**2080**	**4476**

	Destination - Arm A									Destination - Arm B									Destination - Arm C									
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Car**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Car**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Ped**	**Total**	**Arm Total**
0700-0715	48	11	1	0	0	0	4	0	**64**	19	4	0	0	0	0	0	0	**23**	40	11	1	0	1	0	1	0	**54**	**141**
0715-0730	55	15	1	0	0	1	0	0	**72**	29	6	0	0	2	0	1	2	**40**	53	18	1	0	0	1	0	0	**73**	**185**
0730-0745	48	11	3	0	0	0	2	0	**64**	29	6	0	0	0	1	0	0	**36**	44	14	1	0	0	0	0	0	**59**	**159**
0745-0800	63	14	1	0	1	0	1	0	**80**	57	4	1	0	1	0	0	0	**63**	68	15	3	0	0	0	0	0	**86**	**229**
Hourly Total	**214**	**51**	**6**	**0**	**1**	**1**	**7**	**0**	**280**	**134**	**20**	**1**	**0**	**3**	**1**	**1**	**2**	**162**	**205**	**58**	**6**	**0**	**1**	**1**	**1**	**0**	**272**	**714**
0800-0815	49	6	2	0	0	1	0	0	**58**	65	5	1	0	0	0	0	0	**71**	73	11	1	0	1	1	0	0	**87**	**216**
0815-0830	79	6	4	1	0	1	0	0	**91**	59	5	0	0	0	1	0	1	**66**	84	14	1	0	2	0	0	0	**101**	**258**
0830-0845	47	11	0	0	1	0	1	2	**62**	22	7	3	0	1	0	0	3	**36**	79	11	0	1	1	0	0	0	**92**	**190**
0845-0900	55	5	4	0	0	0	0	2	**66**	40	5	0	2	0	1	0	0	**48**	68	13	1	1	0	1	0	0	**84**	**198**
Hourly Total	**230**	**28**	**10**	**1**	**1**	**2**	**1**	**4**	**277**	**186**	**22**	**4**	**2**	**1**	**2**	**0**	**4**	**221**	**304**	**49**	**3**	**2**	**4**	**2**	**0**	**0**	**364**	**862**
0900-0915	44	8	2	0	0	0	0	2	**56**	22	4	0	0	0	0	1	0	**27**	61	11	3	1	2	0	0	0	**78**	**161**
0915-0930	31	5	1	0	0	0	1	1	**39**	21	4	1	0	0	0	0	0	**26**	50	13	1	0	0	0	0	1	**65**	**130**
0930-0945	32	6	0	0	0	0	1	0	**39**	26	5	2	0	0	0	0	0	**33**	60	16	3	0	0	0	0	0	**79**	**151**
0945-1000	25	5	1	0	0	1	0	0	**32**	24	4	1	0	0	0	1	1	**31**	54	5	0	0	0	0	0	0	**59**	**122**
Hourly Total	**132**	**24**	**4**	**0**	**0**	**1**	**2**	**3**	**166**	**93**	**17**	**4**	**0**	**0**	**0**	**2**	**1**	**117**	**225**	**45**	**7**	**1**	**2**	**0**	**0**	**1**	**281**	**564**
3 Hour Totals (am)	576	103	20	1	2	4	10	7	**723**	413	59	9	2	4	3	3	7	**500**	734	152	16	3	7	3	1	1	**917**	**2140**
1600-1615	46	7	0	0	2	0	0	1	**56**	33	1	0	0	0	1	0	0	**35**	95	21	0	0	0	0	0	0	**116**	**207**
1615-1630	47	6	1	1	1	2	0	0	**58**	35	2	0	0	1	4	1	0	**43**	94	13	0	0	0	3	0	0	**110**	**211**
1630-1645	51	14	2	0	0	1	4	2	**74**	37	5	1	0	1	0	1	7	**52**	86	18	0	1	0	1	0	0	**106**	**232**
1645-1700	51	7	1	2	0	3	0	2	**66**	43	4	1	0	0	0	2	3	**53**	93	10	2	0	0	3	0	2	**110**	**229**
Hourly Total	**195**	**34**	**4**	**3**	**3**	**6**	**4**	**5**	**254**	**148**	**12**	**2**	**0**	**2**	**5**	**4**	**10**	**183**	**368**	**62**	**2**	**1**	**0**	**7**	**0**	**2**	**442**	**879**
1700-1715	52	6	0	0	0	1	1	2	**62**	39	4	2	0	1	2	1	1	**50**	75	15	0	1	0	3	0	0	**94**	**206**
1715-1730	50	6	0	1	0	1	1	1	**60**	47	1	0	0	0	0	1	0	**49**	86	14	0	0	0	1	1	1	**103**	**212**
1730-1745	40	8	0	0	1	1	1	0	**51**	36	6	1	0	0	0	1	7	**51**	92	14	1	2	1	0	0	0	**110**	**212**
1745-1800	42	5	1	0	0	0	2	0	**50**	40	4	0	0	0	1	1	0	**46**	89	4	0	0	1	0	1	7	**102**	**198**
Hourly Total	**184**	**25**	**1**	**1**	**1**	**3**	**5**	**3**	**223**	**162**	**15**	**3**	**0**	**1**	**3**	**4**	**8**	**196**	**342**	**47**	**1**	**3**	**2**	**4**	**2**	**8**	**409**	**828**
1800-1815	36	4	1	1	1	2	0	0	**45**	41	4	0	0	0	1	0	5	**51**	77	6	1	0	0	1	0	0	**85**	**181**
1815-1830	39	2	0	1	0	0	1	3	**46**	40	3	0	0	0	1	0	4	**48**	65	11	0	0	0	0	0	1	**77**	**171**
1830-1845	42	2	0	0	0	0	2	2	**48**	27	4	0	0	0	0	0	1	**32**	54	3	0	1	0	0	0	0	**58**	**138**
1845-1900	38	1	1	1	0	0	0	4	**45**	29	2	0	0	0	0	0	0	**31**	55	4	0	1	0	1	0	2	**63**	**139**
Hourly Total	**155**	**9**	**2**	**3**	**1**	**2**	**3**	**9**	**184**	**137**	**13**	**0**	**0**	**0**	**2**	**0**	**10**	**162**	**251**	**24**	**1**	**2**	**0**	**2**	**0**	**3**	**283**	**629**

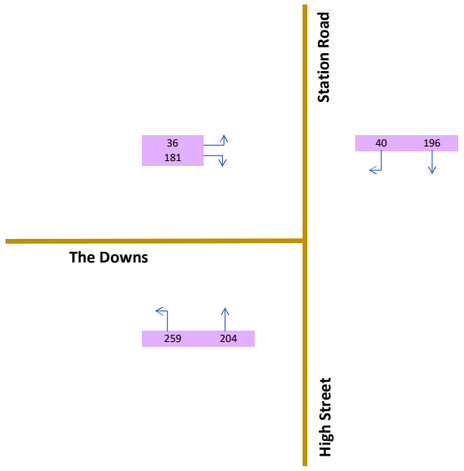
3 Hour Totals (pm)	534	68	7	7	5	11	12	17	**661**	447	40	5	0	3	10	8	28	**541**	961	133	4	6	2	13	2	13	**1134**	**2336**
Day Total	1110	171	27	8	7	15	22	24	**1384**	860	99	14	2	7	13	11	35	**1041**	1695	285	20	9	9	16	3	14	**2051**	**4476**

APPENDIX B: TRAFFIC FLOW DIAGRAMS

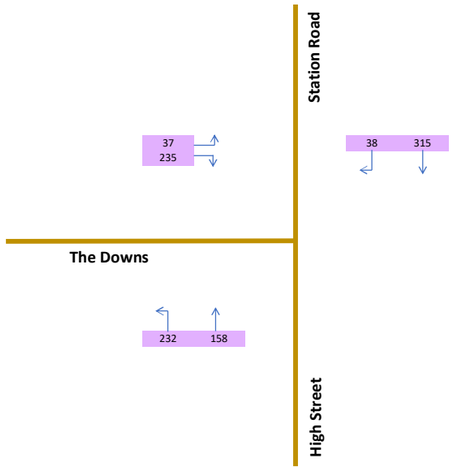
Growth Years 2023-2027

Growth Factor (AM)	1.0434
Growth Factor (PM)	1.0422

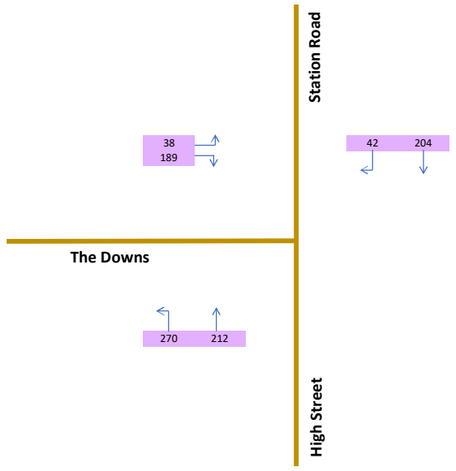
Baseline AM (2023)



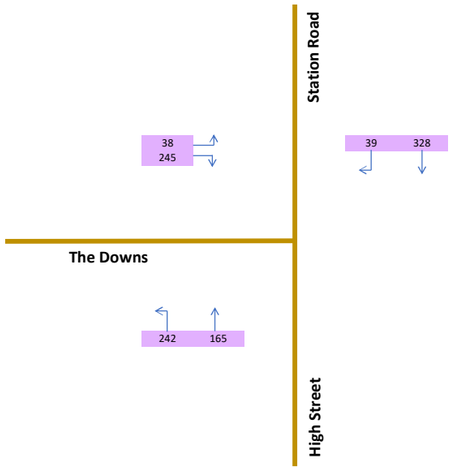
Baseline PM (2023)



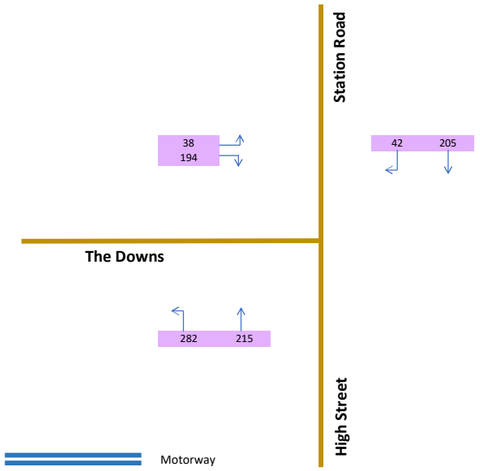
2027 Growthed without development AM



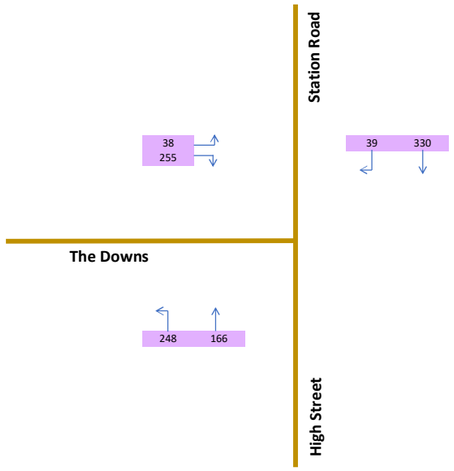
2027 Growthed without development PM



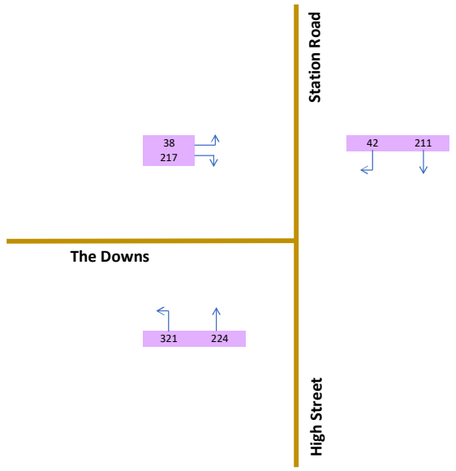
2027 Growthed + CD (AM)



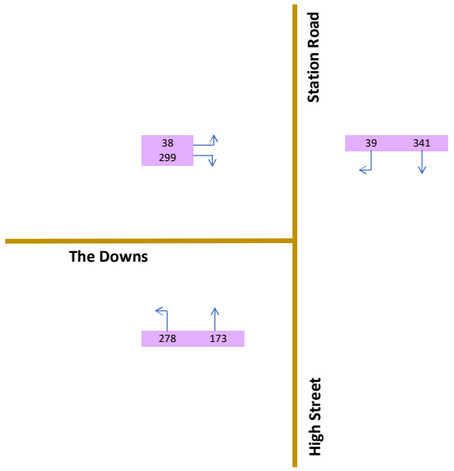
2027 Growthed + CD (PM)



2027 Growthed + CD + PD (AM)



2027 Growthed + CD + PD (PM)



Motorway
A-road (primary)
A-road (secondary)
B-road
Unclassified Road
No through Road
Vehicles (PCU)

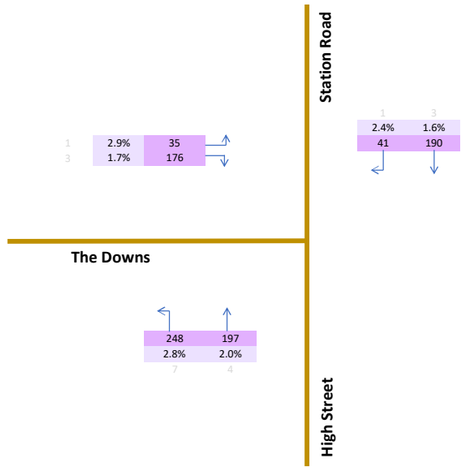
Drawing Title	BASELINE AND FUTURE YEAR SCENARIO TRAFFIC FLOWS AM + PM PEAK HOURS	DRAWING NUMBER		DRAWN BY	MC
Project	LAND AT SODBURY ROAD, WICKWAR	PROJECT NUMBER	7909	CHECKED BY	CB
		CLIENT	Bloor Homes	DATE	21.04.23

NRP NORMAN ROURKE PRYME
4 Colston Avenue, Bristol, BS1 4ST
Tel: +44 (0)1173 878910
Email: bristol @nrpltd.com

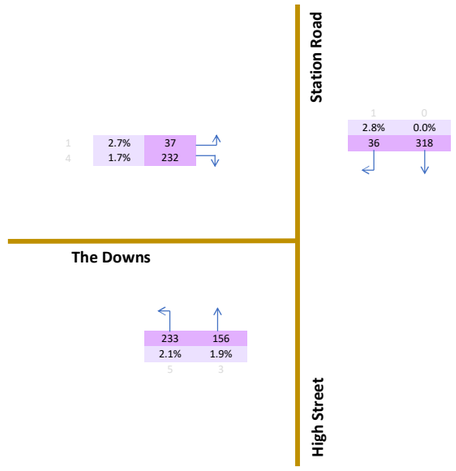
Growth Years 2023-2027

Growth Factor (AM)	1.0434
Growth Factor (PM)	1.0422

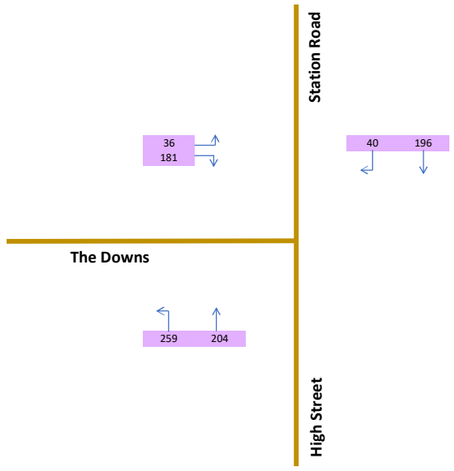
Baseline AM (Vehicles)



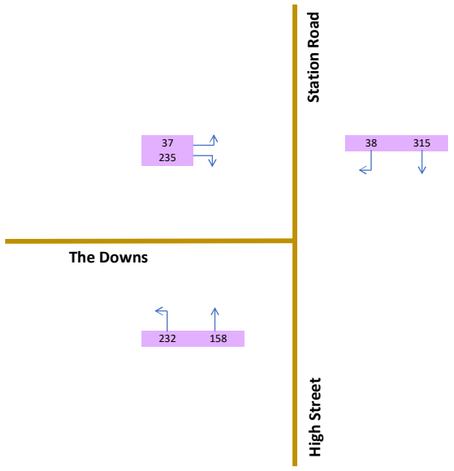
Baseline PM (Vehicles)



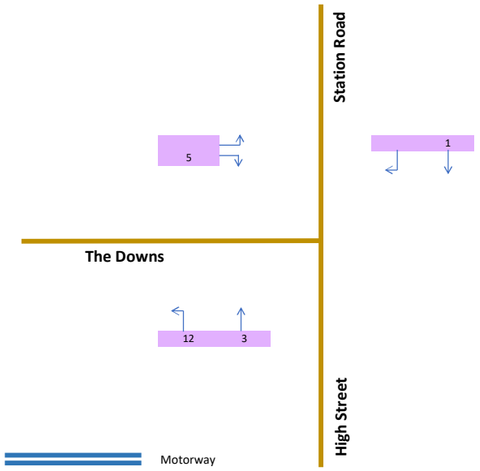
Baseline AM (PCU)



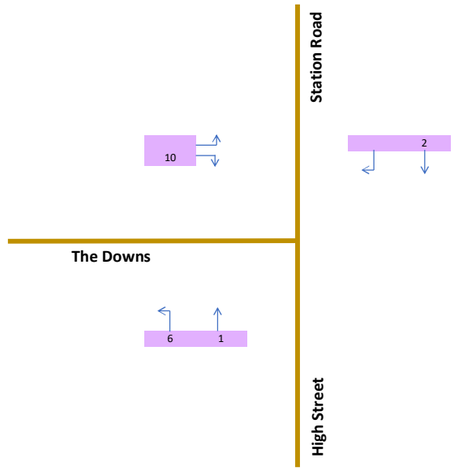
Baseline PM (PCU)



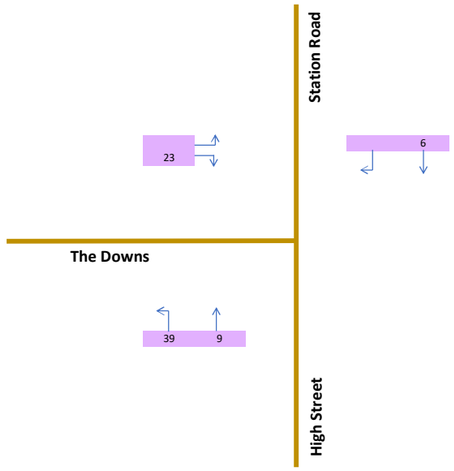
CD (AM)



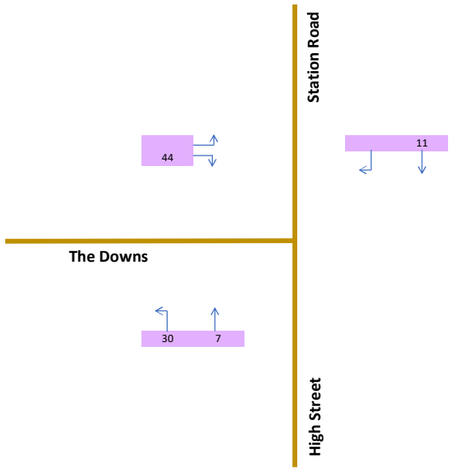
CD (PM)



PD (AM)



PD (PM)



Motorway

A-road (primary)

A-road (secondary)

B-road

Unclassified Road

No through Road

Vehicles with %HGV

Drawing Title	BASELINE TRAFFIC FLOWS AM + PM PEAK HOURS	DRAWING NUMBER		DRAWN BY	MC
Project	LAND AT SODBURY ROAD, WICKWAR	PROJECT NUMBER	7909	CHECKED BY	CB
		CLIENT	Bloor Homes	DATE	21.04.23

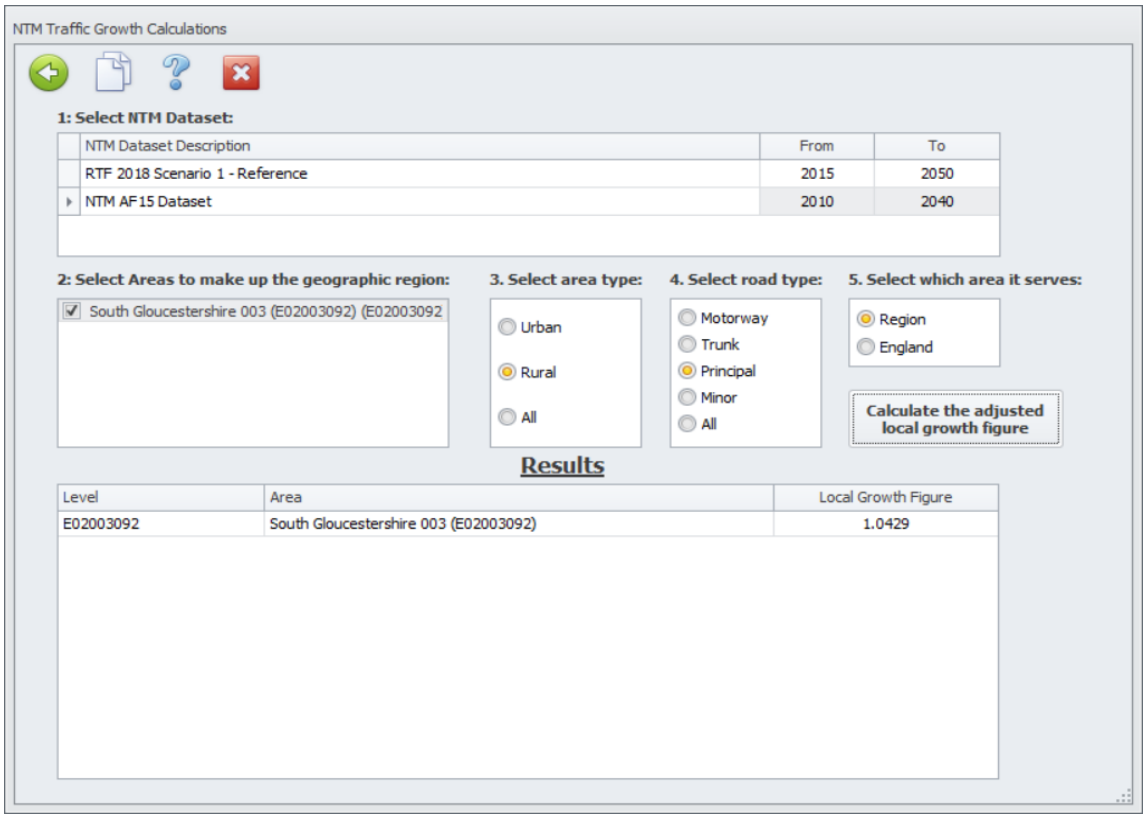
NORMAN ROURKE PRYME

4 Colston Avenue, Bristol, BS1 4ST
Tel: +44 (0)1173 878910
Email: bristol @nrpltd.com

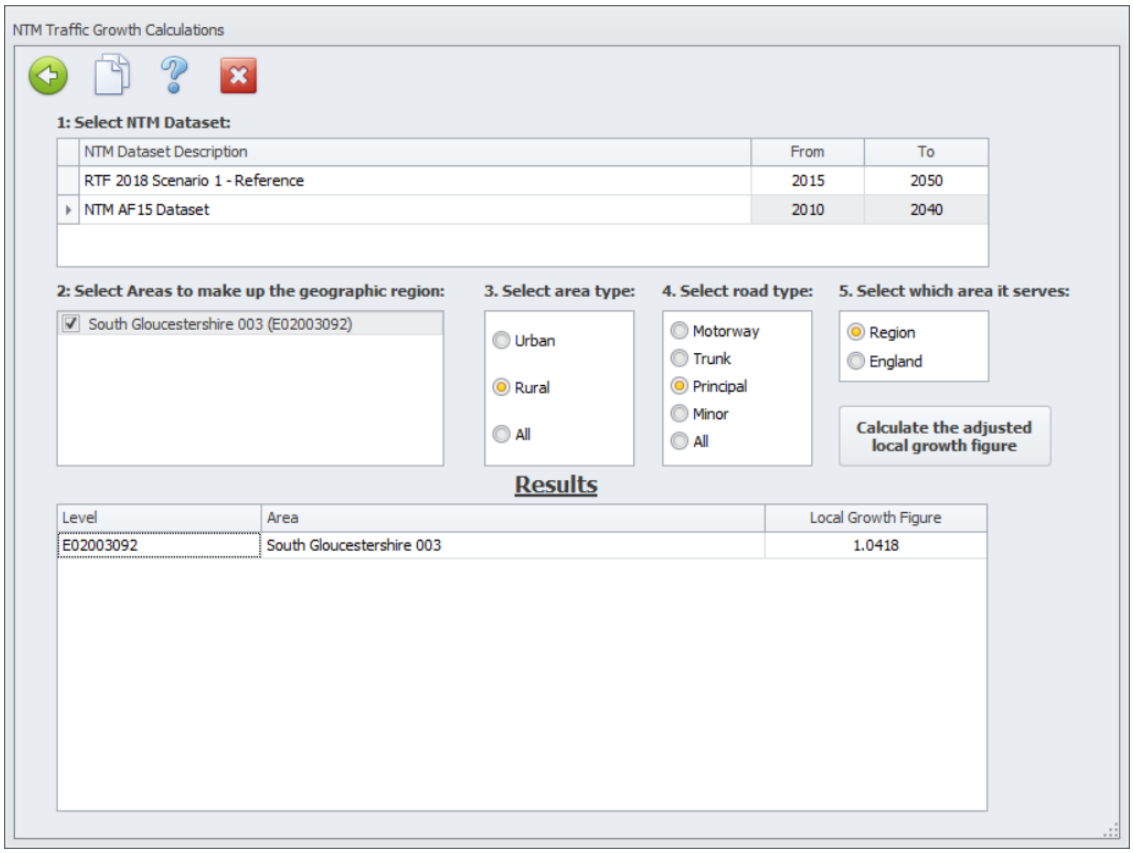
APPENDIX C: GROWTH FACTORS

NTM Traffic Growth Calcs

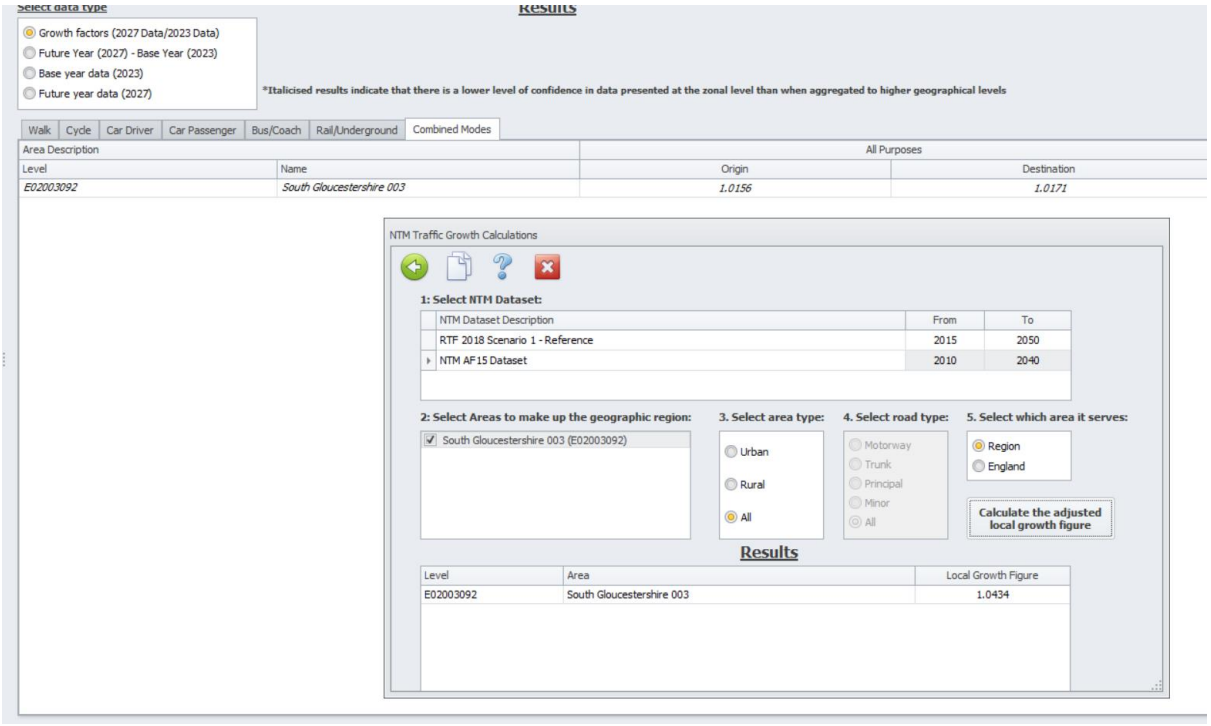
Weekday AM



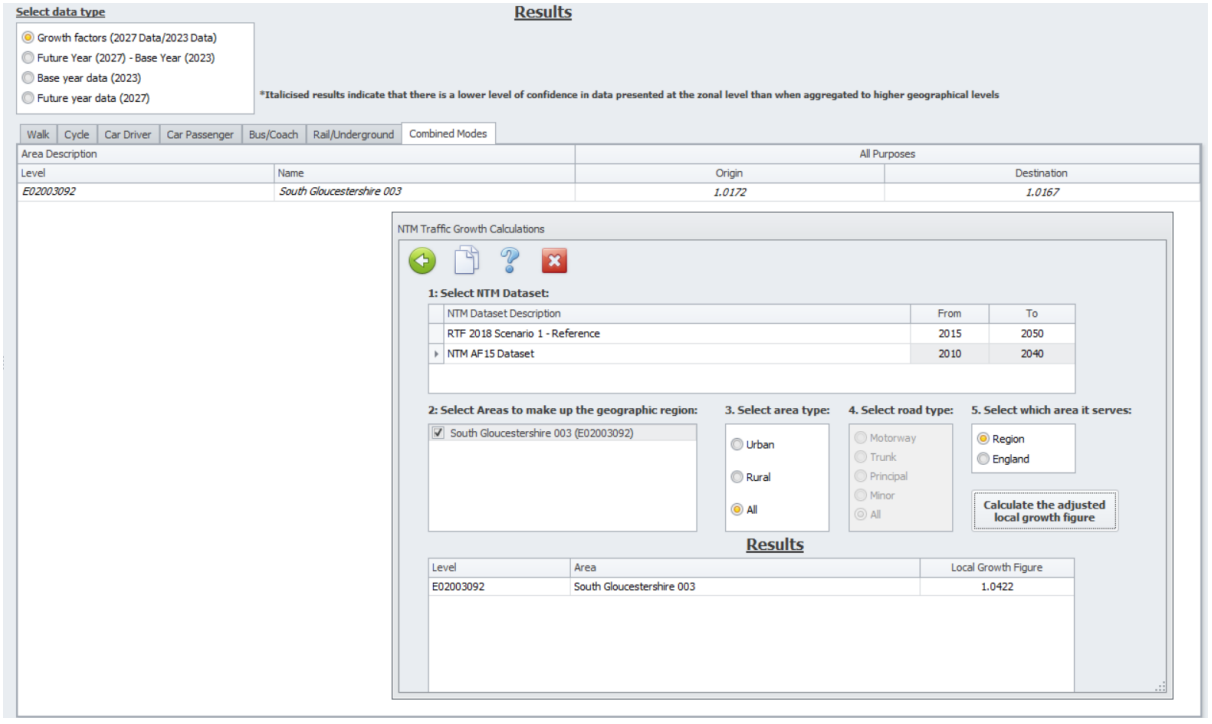
Weekday PM



Weekday AM



Weekday PM



APPENDIX D: SATURATION FLOWS

High Street Signals Southbound Sat Flow PM Peak Hour - PM Peak **Ave Sat Flow** 1507

		0.2	0.4	1	1	1.5	2	2.3		
Time Period	**Time (s)**	**P Cycles**	**M Cycles**	**Cars/Van**	**LGV**	**MGV**	**Bus**	**HGV**	**PCU**	**Sat Flow**
42:33-42:47	14			4		2			7	1800
43:41-44:19	38			12	1				13	1232
45:38-45:49	11			4	1				5	1636
47:00-47:30	30			11	1				12	1440
48:20-48:31	11		3	4					5.2	1702
50-12-50:48	36	1	1	11		1			13.1	1310
52-05-52:44	39			13	2				15	1385
53-46-54:25	40			16	1				17	1530
55:30-56:18	48			13	1	1			15.5	1163
57-26-58:01	35			10	2			1	14.3	1471
58:48-59:32	44			14	1			1	17.3	1415
00:35-00:51	16			6	1				7	1575
01:53 - 02:12	19			6	3				9	1705
03:16 - 03:29	13			5					5	1385
04:36 - 04:43	7			3					3	1543
05:38 - 05:58	20			6	2				8	1440
07:15 - 07:27	12		1	4	1				5.4	1620
08:42 - 09:13	31			7	2			1	11.3	1312
10:07 - 10:56	50			14	4			1	20.3	1462
11:55 - 12:09	14		1	4	1				5.4	1389
12:56 - 13:11	15			6					6	1440
14:24 -14:44	20		1	8					8.4	1512
15:37 - 16:06	29			10	2				12	1490
17:02 - 17:06	4			2					2	1800
17:52 - 18:11	19			8	1				9	1705
19:15- 19:46	31			9	3				12	1394
21:05 - 21:44	39		1	14	1				15.4	1422
22:44 - 23:00	16			7	1				8	1800
24:00 - 24:03	3			1					1	1200
24:48 - 24:53	5			1	1				2	1440
26:08 - 26:18	10			5					5	1800
27:37 - 28:16	39			14	3				17	1569
29:19 - 29:49	30			10	3				13	1560
30:58 - 31:25	27			6	1	1	1		10.5	1400
32:14-32:28	14			4	1				5	1286
33-08-33:39	31			12	1				13	1510
34:33-34:57	23			6	1	2		1	12.3	1925
36-14-36:45	31			12	1				13	1510
37-48-38:20	32			10	3				13	1463
39:22-39:39	17			7	1				8	1694
40:49-41:07	18			8					8	1600
41-53-42:20	27			8	2				10	1333
43-18-46	28			7	2			1	11.3	1453

High Street Signals Southbound Sat Flow AM Peak Hour - AM Peak

Ave Sat Flow 1503

		0.2	0.4	1	1	1.5	2	2.3		
Time Period	**Time (s)**	**P Cycles**	**M Cycles**	**Cars/Van**	**LGV**	**MGV**	**Bus**	**HGV**	**PCU**	**Sat Flow**
45:47 - 46:00	13			2	1				3	831
47:00 - 47:22	22			7	1			1	10.3	1685
48:06 - 48:25	19			10					10	1895
49:40 - 49:58	18			6	2				8	1600
50:56 - 51:11	15			5	2				7	1680
52:23 - 52:50	17			6	1			1	9.3	1969
53:59 - 54:24	25			8	1	1			10.5	1512
55:45 - 56:10	25			9	2				11	1584
57:27 - 57:46	19			6	3				9	1705
59:06 - 59:20	14			4	1				5	1286
00:00 - 00:13	13			3	1				4	1108
01:30 - 01:38	8			4					4	1800
02:27 - 02:41	14			5	1				6	1543
03:27 - 03:57	30			11	2				13	1560
05:23 - 05:42	19			5	2				7	1326
06:47 - 07:19	32			12	2				14	1575
08:30 - 08:49	19			4	1				5	947
10:00 - 10:24	24			8	2				10	1500
11:37 - 12:00	23			8	2				10	1565
12:57 - 13:28	31		1	10	1		1		13.4	1556
14:14 - 14:17	3					1			1.5	1800
15:42 - 16:06	24			5	2				7	1050
17:17 - 17:56	39			11	2	2			16	1477
19:05 -19:44	39			11	2		1		15	1385
20:53 - 21:12	19			6	1		1		9	1705
22:27 - 22:41	14			4	3				7	1800
23:57 - 24:33	36			12	2				14	1400
25:46 - 25:56	10			3	1				4	1440
27:19 - 27:58	39			15	2				17	1569
29:08 - 29:47	39			10	3	1			14.5	1338
31:08 - 31:47	39			9	2				11	1015
32:56 - 33:26	30			11	2				13	1560
34:23 - 34:37	14			5	1				6	1543
35:30 - 36:06	36			10	3		1		15	1500
37:01 - 37:09	8			4					4	1800
38:07 - 38:12	5			2					2	1440
39:01 - 39:22	21			8	1				9	1543
40:20 - 40:34	14			6	1				7	1800
41:27 - 41:36	9			4					4	1600
41:50 - 41:55	5			2					2	1440
42:38 - 42:50	12			3				1	5.3	1590
43:44 - 43:57	13			3	1				4	1108
44:53 - 45:22	29			10	2				12	1490

APPENDIX E: MODELLING RESULTS

Basic Results Summary

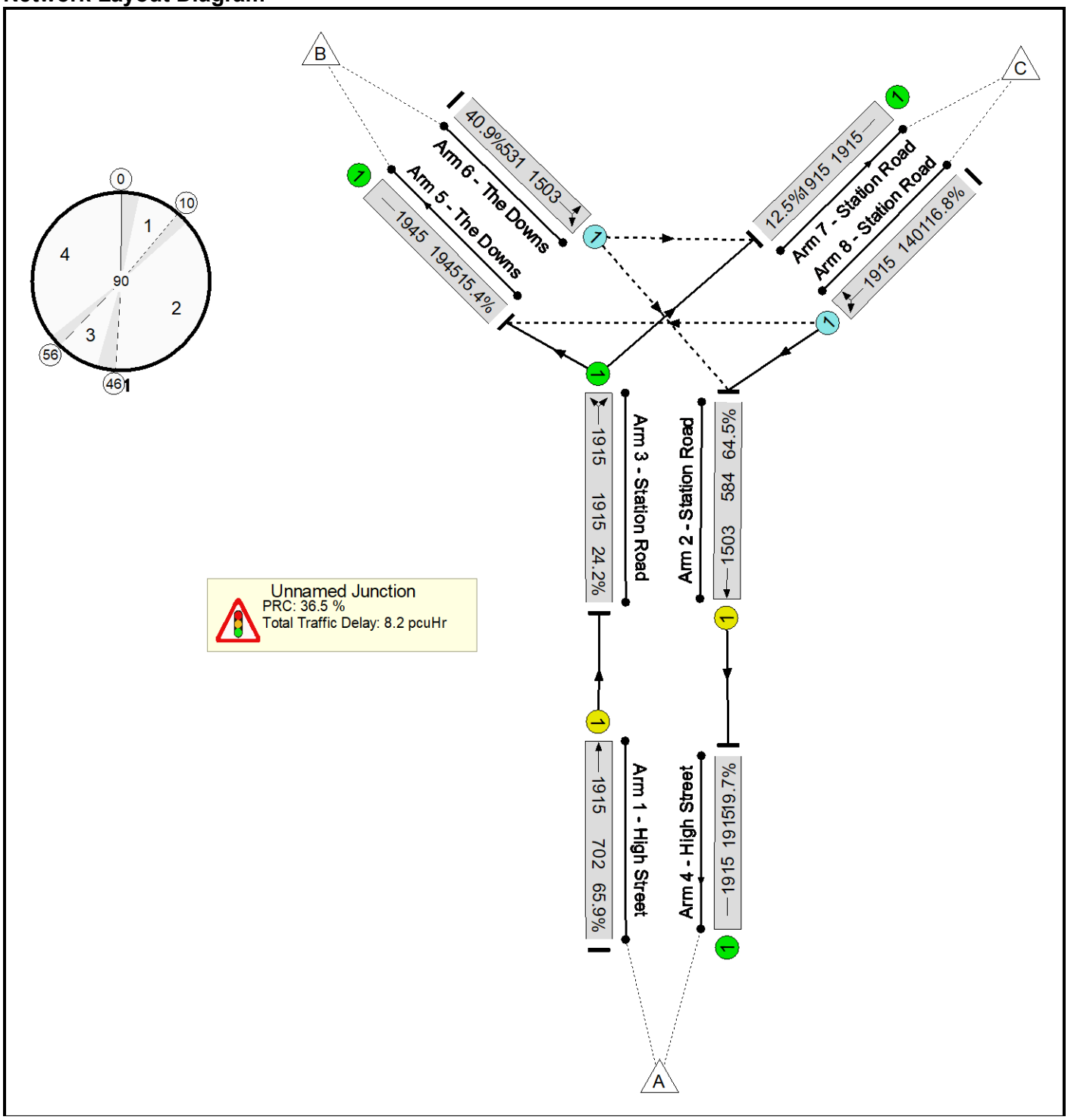
User and Project Details

Project:	**Wickwar**
Title:	**High Street (B4060)**
Location:	
Additional detail:	
File name:	High Street Shuttle Signals - Wickwar V2 (unvalidated).lsg3x
Author:	
Company:	
Address:	

Basic Results Summary

Scenario 1: 'AM Flows' (FG1: 'Baseline AM Flows', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

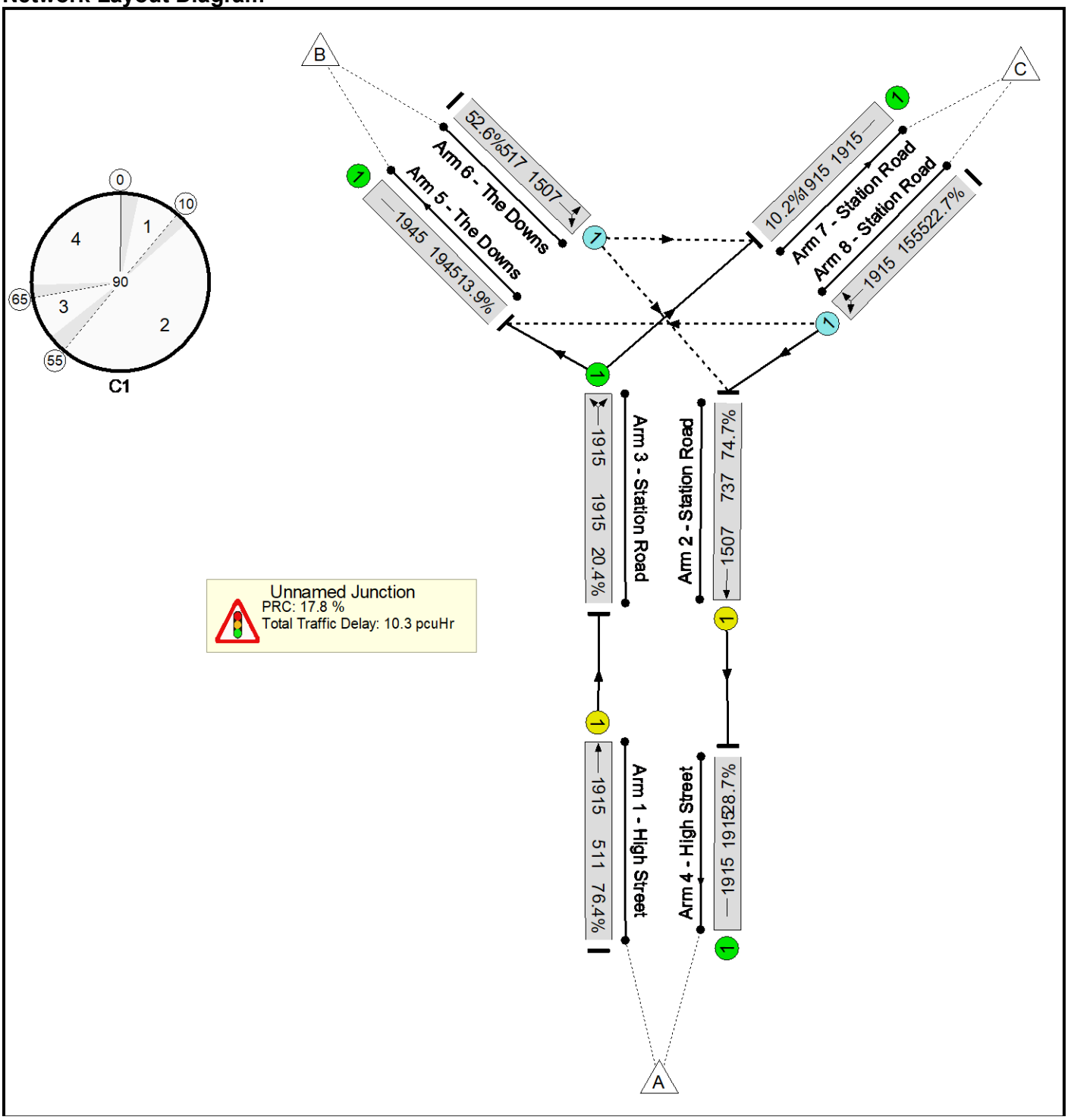
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**65.9%**	**257**	**0**	**0**	**8.2**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**65.9%**	**257**	**0**	**0**	**8.2**	-	-
1/1	High Street Ahead	U	B		1	32	-	463	1915	702	65.9%	-	-	-	4.0	31.3	10.6
2/1	Station Road Ahead	U	A		1	34	-	377	1503	584	64.5%	-	-	-	3.3	31.0	8.5
3/1	Station Road Ahead Right	U	-		-	-	-	463	1915	1915	24.2%	-	-	-	0.2	1.2	0.2
4/1	High Street	U	-		-	-	-	377	1915	1915	19.7%	-	-	-	0.1	1.2	0.1
5/1	The Downs	U	-		-	-	-	299	1945	1945	15.4%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	217	1503	531	40.9%	217	0	0	0.3	5.7	0.3
7/1	Station Road	U	-		-	-	-	240	1915	1915	12.5%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	236	1915	1401	16.8%	40	0	0	0.1	1.5	0.1

C1 PRC for Signalled Lanes (%): 36.5 Total Delay for Signalled Lanes (pcuHr): 7.27 Cycle Time (s): 90
PRC Over All Lanes (%): 36.5 Total Delay Over All Lanes(pcuHr): 8.16

Basic Results Summary

Scenario 2: 'PM Flows' (FG2: 'Baseline PM Flows', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

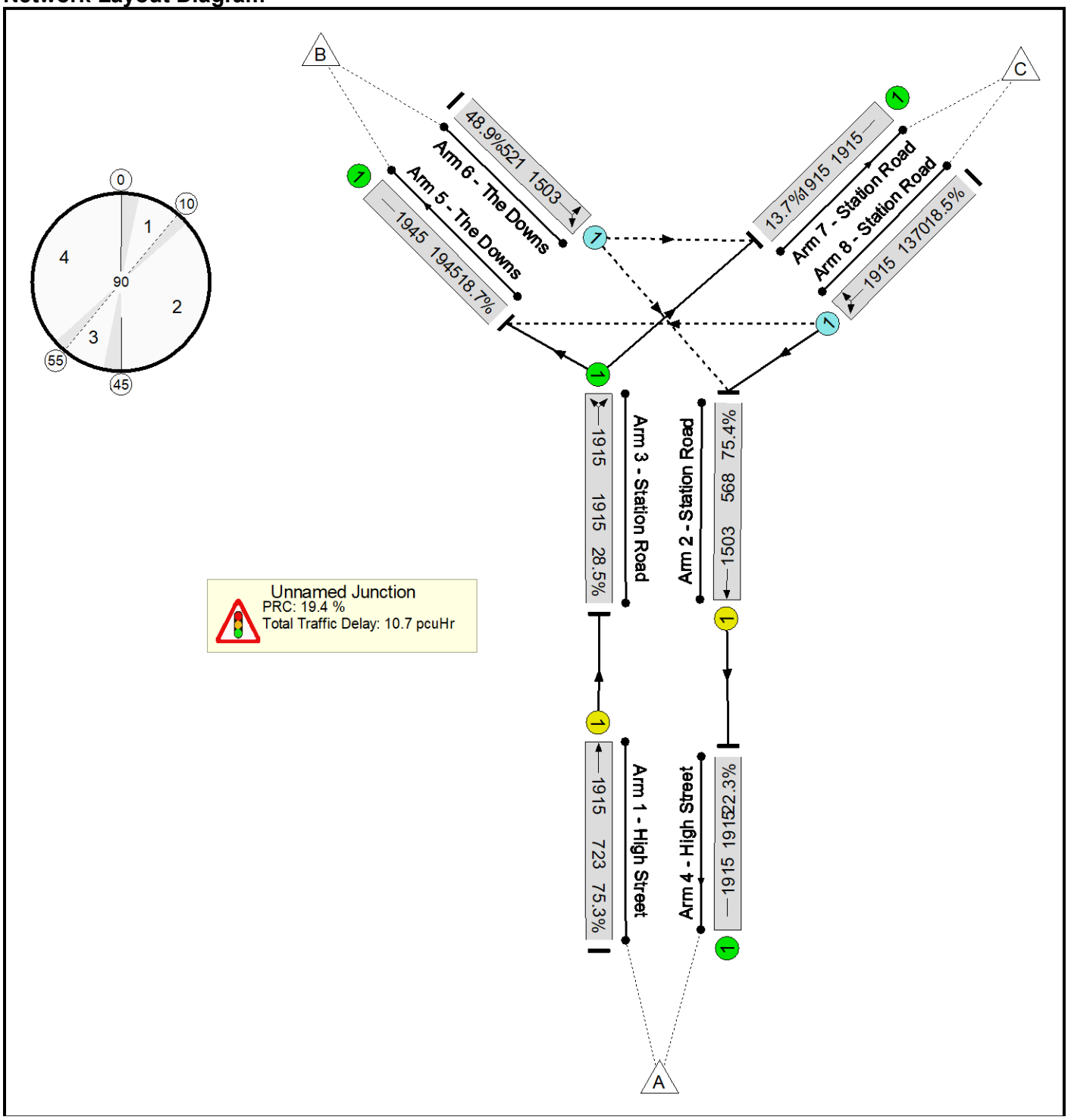
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**76.4%**	**310**	**0**	**0**	**10.3**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**76.4%**	**310**	**0**	**0**	**10.3**	-	-
1/1	High Street Ahead	U	B		1	23	-	390	1915	511	76.4%	-	-	-	4.9	44.9	10.5
2/1	Station Road Ahead	U	A		1	43	-	550	1507	737	74.7%	-	-	-	4.3	28.0	12.4
3/1	Station Road Ahead Right	U	-		-	-	-	390	1915	1915	20.4%	-	-	-	0.1	1.2	0.1
4/1	High Street	U	-		-	-	-	550	1915	1915	28.7%	-	-	-	0.2	1.3	0.2
5/1	The Downs	U	-		-	-	-	270	1945	1945	13.9%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	272	1507	517	52.6%	272	0	0	0.6	7.3	0.6
7/1	Station Road	U	-		-	-	-	195	1915	1915	10.2%	-	-	-	0.1	1.0	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	353	1915	1555	22.7%	38	0	0	0.1	1.5	0.1

C1 PRC for Signalled Lanes (%): 17.8 Total Delay for Signalled Lanes (pcuHr): 9.15 Cycle Time (s): 90
PRC Over All Lanes (%): 17.8 Total Delay Over All Lanes(pcuHr): 10.31

Basic Results Summary

Scenario 3: '2027 + CD + PD (AM)' (FG3: '2027 + CD + PD (AM)', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

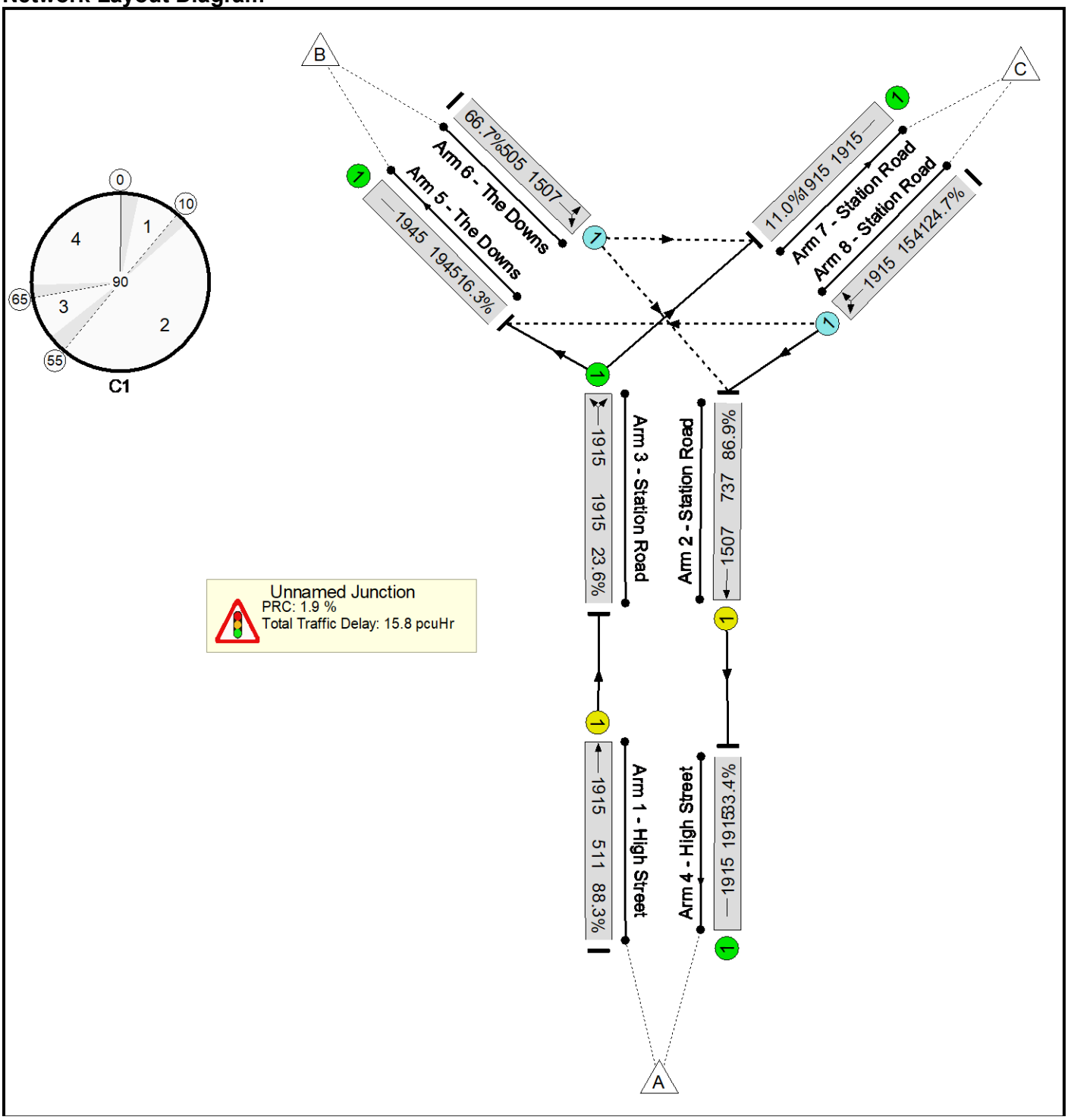
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**75.4%**	**297**	**0**	**0**	**10.7**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**75.4%**	**297**	**0**	**0**	**10.7**	-	-
1/1	High Street Ahead	U	B		1	33	-	545	1915	723	75.3%	-	-	-	5.2	34.3	13.3
2/1	Station Road Ahead	U	A		1	33	-	428	1503	568	75.4%	-	-	-	4.4	37.0	10.8
3/1	Station Road Ahead Right	U	-		-	-	-	545	1915	1915	28.5%	-	-	-	0.2	1.3	0.2
4/1	High Street	U	-		-	-	-	428	1915	1915	22.3%	-	-	-	0.1	1.2	0.1
5/1	The Downs	U	-		-	-	-	363	1945	1945	18.7%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	255	1503	521	48.9%	255	0	0	0.5	6.7	0.5
7/1	Station Road	U	-		-	-	-	262	1915	1915	13.7%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	253	1915	1370	18.5%	42	0	0	0.1	1.6	0.1

C1 PRC for Signalled Lanes (%): 19.4 Total Delay for Signalled Lanes (pcuHr): 9.58 Cycle Time (s): 90
PRC Over All Lanes (%): 19.4 Total Delay Over All Lanes(pcuHr): 10.71

Basic Results Summary

Scenario 4: '2027 + CD + PD (PM)' (FG4: '2027 + CD + PD (PM) ', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

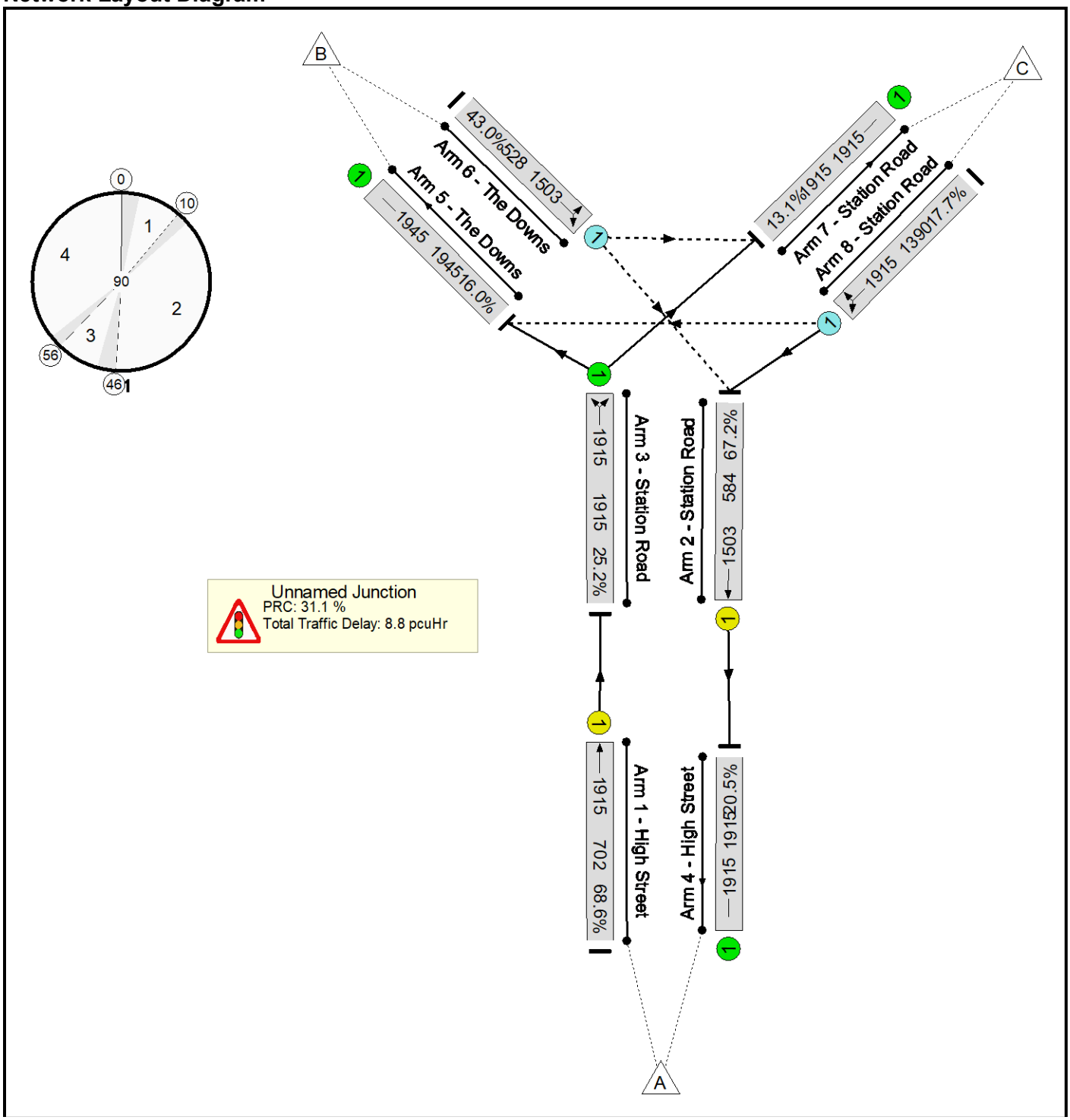
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**88.3%**	**376**	**0**	**0**	**15.8**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**88.3%**	**376**	**0**	**0**	**15.8**	-	-
1/1	High Street Ahead	U	B		1	23	-	451	1915	511	88.3%	-	-	-	7.4	58.7	14.2
2/1	Station Road Ahead	U	A		1	43	-	640	1507	737	86.9%	-	-	-	6.7	37.9	17.2
3/1	Station Road Ahead Right	U	-		-	-	-	451	1915	1915	23.6%	-	-	-	0.2	1.2	0.2
4/1	High Street	U	-		-	-	-	640	1915	1915	33.4%	-	-	-	0.3	1.4	0.3
5/1	The Downs	U	-		-	-	-	317	1945	1945	16.3%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	337	1507	505	66.7%	337	0	0	1.0	10.6	1.0
7/1	Station Road	U	-		-	-	-	211	1915	1915	11.0%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	380	1915	1541	24.7%	39	0	0	0.2	1.5	0.2

C1 PRC for Signalled Lanes (%): 1.9 Total Delay for Signalled Lanes (pcuHr): 14.10 Cycle Time (s): 90
PRC Over All Lanes (%): 1.9 Total Delay Over All Lanes(pcuHr): 15.82

Basic Results Summary

Scenario 5: '2027 without development (AM) ' (FG5: '2027 without development (AM)', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

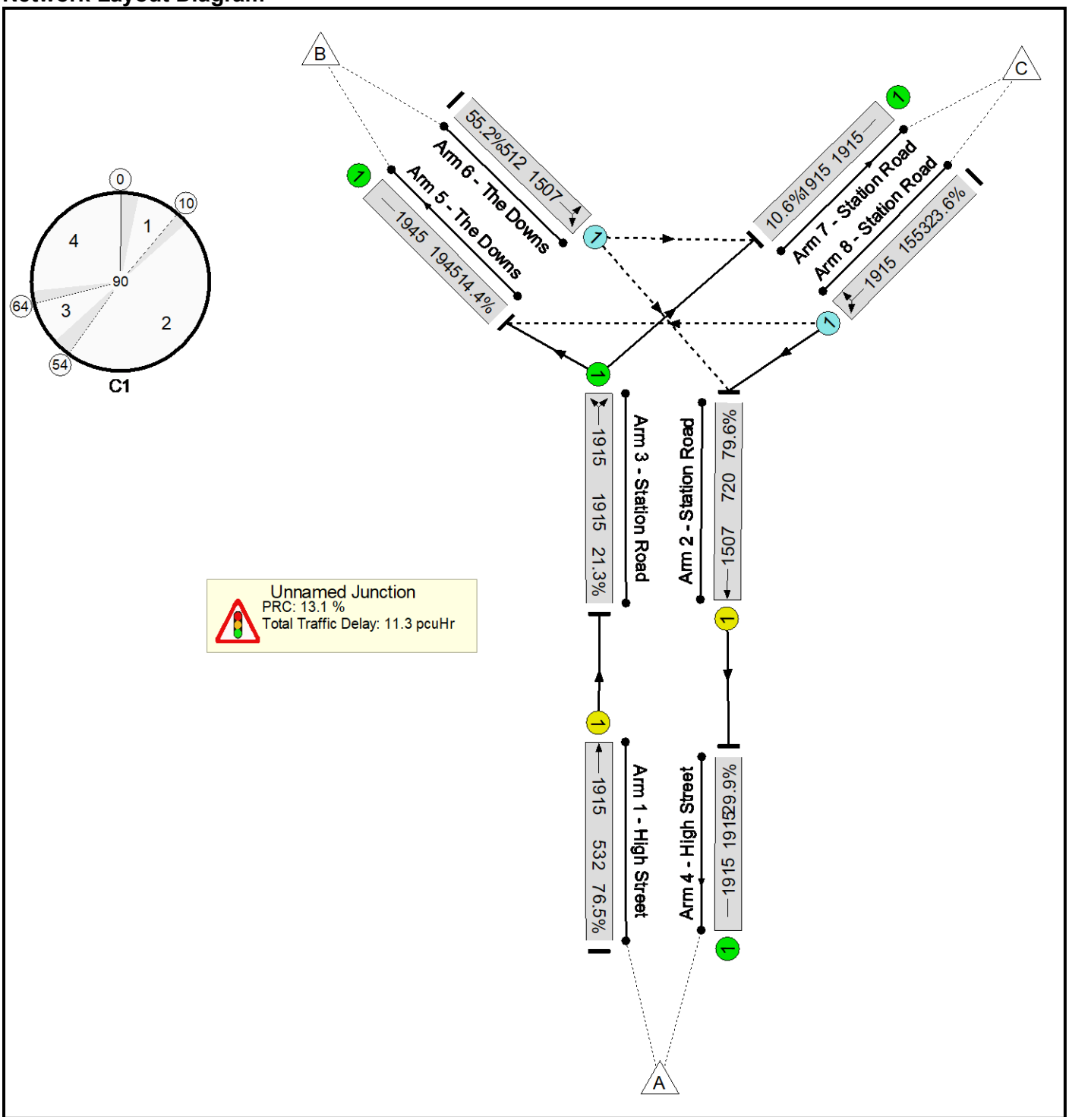
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**68.6%**	**269**	**0**	**0**	**8.8**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**68.6%**	**269**	**0**	**0**	**8.8**	-	-
1/1	High Street Ahead	U	B		1	32	-	482	1915	702	68.6%	-	-	-	4.3	32.2	11.3
2/1	Station Road Ahead	U	A		1	34	-	393	1503	584	67.2%	-	-	-	3.5	32.1	9.1
3/1	Station Road Ahead Right	U	-		-	-	-	482	1915	1915	25.2%	-	-	-	0.2	1.3	0.2
4/1	High Street	U	-		-	-	-	393	1915	1915	20.5%	-	-	-	0.1	1.2	0.1
5/1	The Downs	U	-		-	-	-	312	1945	1945	16.0%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	227	1503	528	43.0%	227	0	0	0.4	6.0	0.4
7/1	Station Road	U	-		-	-	-	250	1915	1915	13.1%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	246	1915	1390	17.7%	42	0	0	0.1	1.6	0.1

C1 PRC for Signalled Lanes (%): 31.1 Total Delay for Signalled Lanes (pcuHr): 7.81 Cycle Time (s): 90
PRC Over All Lanes (%): 31.1 Total Delay Over All Lanes(pcuHr): 8.77

Basic Results Summary

Scenario 6: '2027 without development (PM)' (FG6: '2027 without development (PM)', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

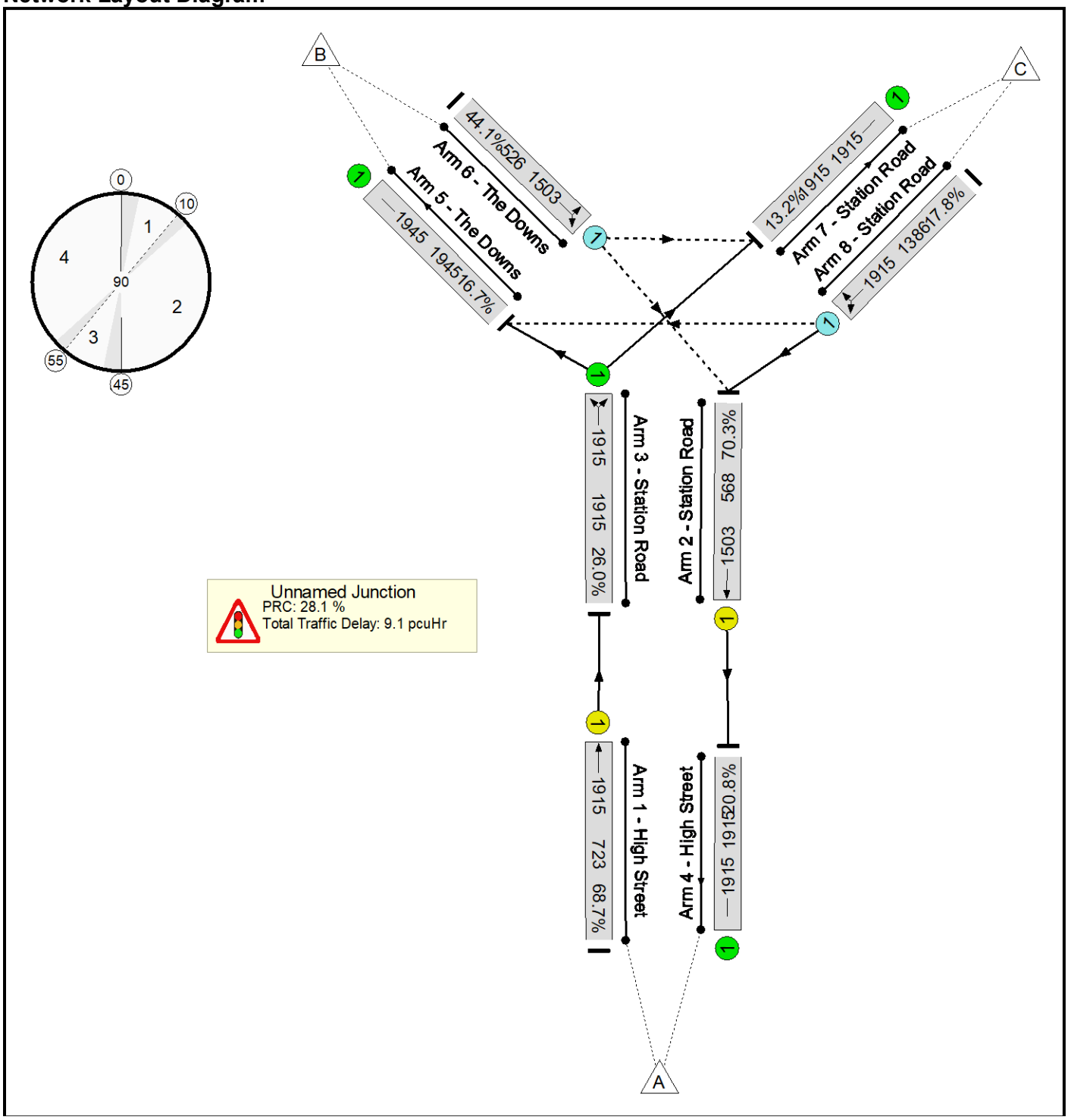
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**79.6%**	**322**	**0**	**0**	**11.3**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**79.6%**	**322**	**0**	**0**	**11.3**	-	-
1/1	High Street Ahead	U	B		1	24	-	407	1915	532	76.5%	-	-	-	5.0	43.9	10.9
2/1	Station Road Ahead	U	A		1	42	-	573	1507	720	79.6%	-	-	-	5.1	31.7	13.8
3/1	Station Road Ahead Right	U	-		-	-	-	407	1915	1915	21.3%	-	-	-	0.1	1.2	0.1
4/1	High Street	U	-		-	-	-	573	1915	1915	29.9%	-	-	-	0.2	1.3	0.2
5/1	The Downs	U	-		-	-	-	281	1945	1945	14.4%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	283	1507	512	55.2%	283	0	0	0.6	7.8	0.6
7/1	Station Road	U	-		-	-	-	203	1915	1915	10.6%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	367	1915	1553	23.6%	39	0	0	0.2	1.5	0.2

C1 PRC for Signalled Lanes (%): 13.1 Total Delay for Signalled Lanes (pcuHr): 10.01 Cycle Time (s): 90
PRC Over All Lanes (%): 13.1 Total Delay Over All Lanes(pcuHr): 11.27

Basic Results Summary

Scenario 7: '2027 + CD (AM)' (FG7: '2027 + CD (AM)', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**70.3%**	**274**	**0**	**0**	**9.1**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**70.3%**	**274**	**0**	**0**	**9.1**	-	-
1/1	High Street Ahead	U	B		1	33	-	497	1915	723	68.7%	-	-	-	4.3	31.4	11.4
2/1	Station Road Ahead	U	A		1	33	-	399	1503	568	70.3%	-	-	-	3.8	34.2	9.6
3/1	Station Road Ahead Right	U	-		-	-	-	497	1915	1915	26.0%	-	-	-	0.2	1.3	0.2
4/1	High Street	U	-		-	-	-	399	1915	1915	20.8%	-	-	-	0.1	1.2	0.1
5/1	The Downs	U	-		-	-	-	324	1945	1945	16.7%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	232	1503	526	44.1%	232	0	0	0.4	6.1	0.4
7/1	Station Road	U	-		-	-	-	253	1915	1915	13.2%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	247	1915	1386	17.8%	42	0	0	0.1	1.6	0.1

C1

PRC for Signalled Lanes (%): 28.1
PRC Over All Lanes (%): 28.1

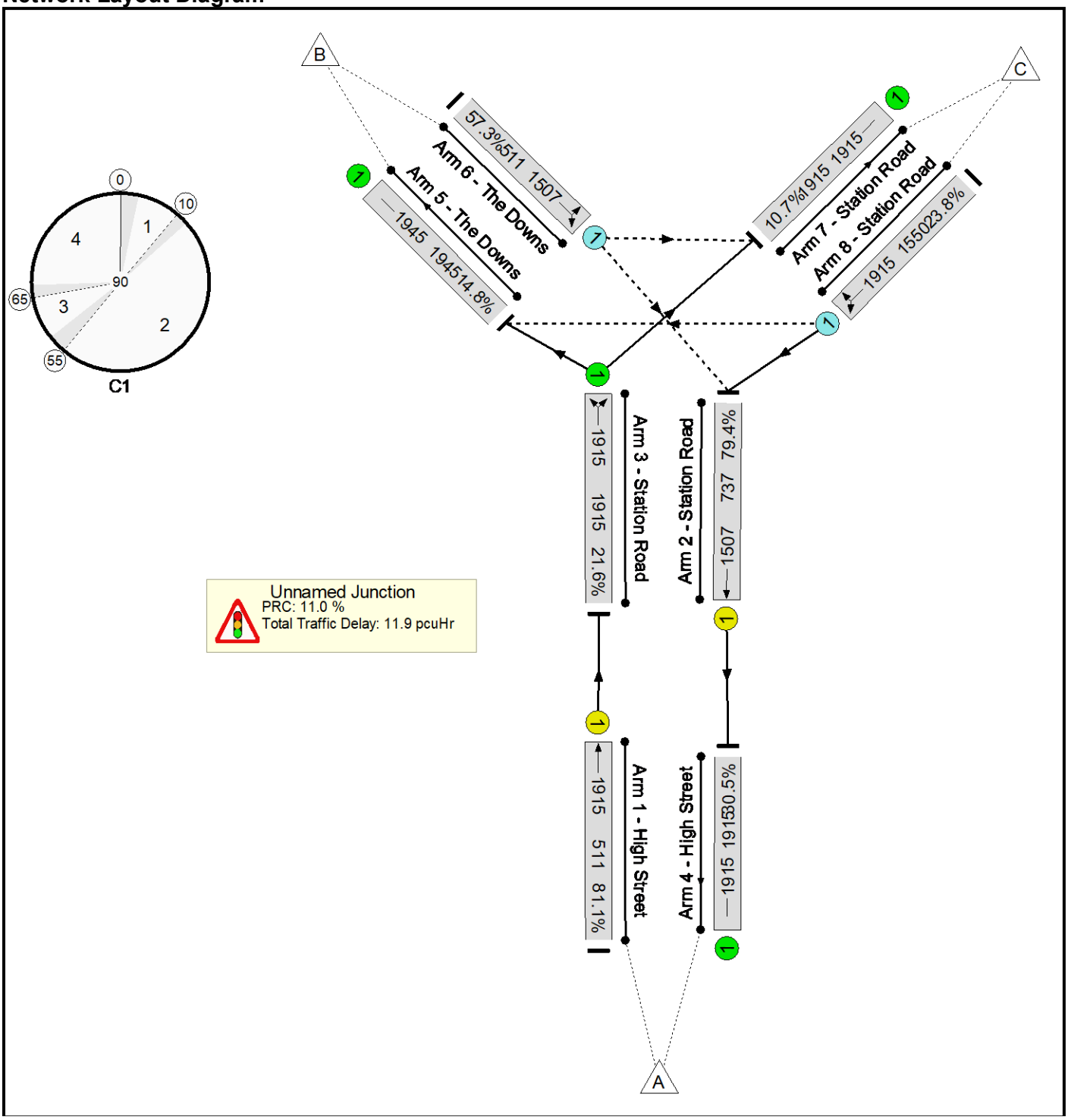
Total Delay for Signalled Lanes (pcuHr): 8.13
Total Delay Over All Lanes(pcuHr): 9.11

Cycle Time (s): 90

Basic Results Summary

Scenario 8: '2027 + CD (PM)' (FG8: '2027 + CD (PM)', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: High Street (B4060)	-	-	-		-	-	-	-	-	-	**81.1%**	**332**	**0**	**0**	**11.9**	-	-
Unnamed Junction	-	-	-		-	-	-	-	-	-	**81.1%**	**332**	**0**	**0**	**11.9**	-	-
1/1	High Street Ahead	U	B		1	23	-	414	1915	511	81.1%	-	-	-	5.6	48.7	11.7
2/1	Station Road Ahead	U	A		1	43	-	585	1507	737	79.4%	-	-	-	5.0	30.8	14.1
3/1	Station Road Ahead Right	U	-		-	-	-	414	1915	1915	21.6%	-	-	-	0.1	1.2	0.1
4/1	High Street	U	-		-	-	-	585	1915	1915	30.5%	-	-	-	0.2	1.4	0.2
5/1	The Downs	U	-		-	-	-	287	1945	1945	14.8%	-	-	-	0.1	1.1	0.1
6/1	The Downs Right Left	O	-		-	-	-	293	1507	511	57.3%	293	0	0	0.7	8.2	0.7
7/1	Station Road	U	-		-	-	-	204	1915	1915	10.7%	-	-	-	0.1	1.1	0.1
8/1	Station Road Ahead Right	O	-		-	-	-	369	1915	1550	23.8%	39	0	0	0.2	1.5	0.2

C1 PRC for Signalled Lanes (%): 11.0 Total Delay for Signalled Lanes (pcuHr): 10.61 Cycle Time (s): 90
PRC Over All Lanes (%): 11.0 Total Delay Over All Lanes(pcuHr): 11.94