Isle of Wight Council

Isle of Wight Junction Assessment and Design

Junction Feasibility Study – Argyll Street / West Street

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1 Introduction

General

1.1 WYG have been appointed by the Isle of Wight (IOW) Council to undertake a feasibility study for a series of highway junctions located throughout the island, with a particular focus on the towns of Newport, Ryde, Shanklin and Sandown. The study has been carried out to identify traffic management issues impacting on all road users and develop proposals that will form part of a package of schemes to be progressed as part of the Council's Local Implementation Plan (LIP) process.

1.2 IOW Council has identified 15 highway junctions which currently experience traffic issues such as congestion and queuing. The study considers where the main issues lie in relation to traffic movement, road safety, bus operation, pedestrian and cycle provision, public realm, parking provision and servicing. Each of the 15 highway junctions are to be supplemented by a feasibility study report, with traffic modelling software used to test the various proposals in order to identify a range of measures aimed at improving the behaviour and movement of traffic at each junction.

1.3 The 15 key junctions identified are summarised in **Table 1.1** below:

Table 1.1 List of Junctions

ID Num	Junction Name	Area	Junction Type
1	St Mary's Roundabout	Newport	4 arm Roundabout
2	Coppins Bridge Gyratory	Newport	Gyratory
3	Hunnyhill/Hunnycross Way	Newport	Signalised Crossroads
4	Hunnycross Way/Riverway	Newport	3x Roundabouts
5	Medina Way/Coppins Bridge Roundabout	Newport	Gyratory
6	Queens Road/West Street	Ryde	5 arm Signalised Jct
7	Argyll St/West St	Ryde	Signalised Crossroads
8	Binstead Road/Pellhurst Road	Ryde	3 arm Signalised Jct
9	Quarr Hill/Newnham Road	Ryde	4 arm Roundabout
10	Marlborough Road/Great Preston Road	Ryde	Signalised Crossroads
11	High Street/Victoria Avenue, Shanklin	Shanklin	3 arm Signalised Jct
12	Newport Road/Industrial Way	Shanklin	4 arm Roundabout
13	Newport Road/Sandown Road	Shanklin	3 arm Signalised Jct
14	Lake Hill/The Fairway	Shanklin	Triangular 3x Priority Jcts
15	Morton Common/Perowne Way	Sandown	3 arm Signalised Jct

Site Location & Background

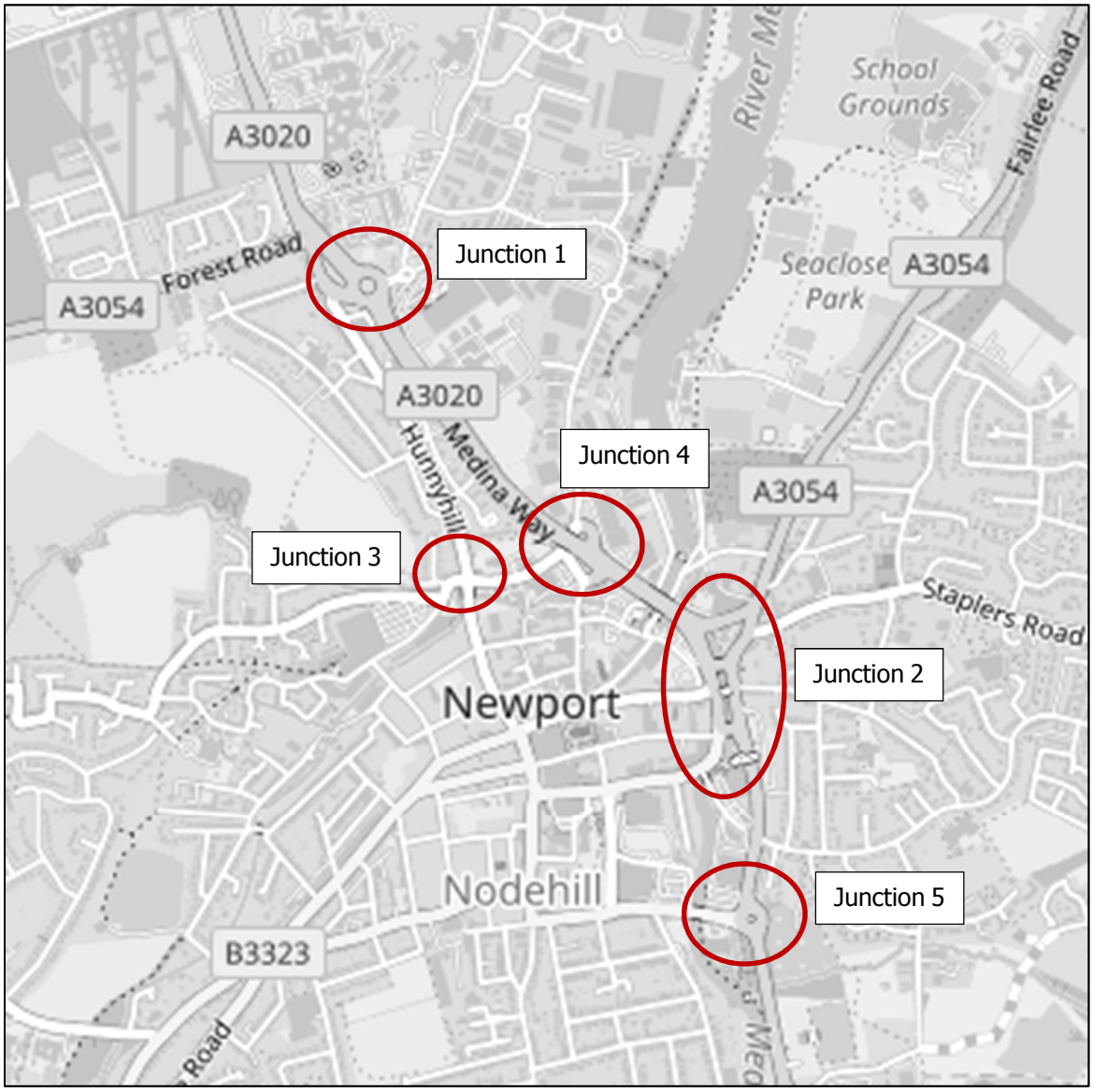
1.4 The Isle of Wight is an island located in the English Channel, approximately 6km off the Hampshire coast. The towns of Newport, Ryde, Shanklin and Sandown comprise the project study area for this feasibility study.

1.5 The town of Newport is the largest town on the IOW and is located in the centre of the island, the town of Ryde is located approximately 10km to the east of Newport, on the north-eastern coast of the island whilst Shanklin and Sandown are located approximately 9km to the south of Ryde and 10km to the south east of Newport.

1.6 The IOW as a whole is characterised by high car ownership levels, with 77.5% of households on the island owning a car or van, as indicated by the 2011 Census. Thus, the private vehicle remains the most convenient and fastest way to travel around the island.

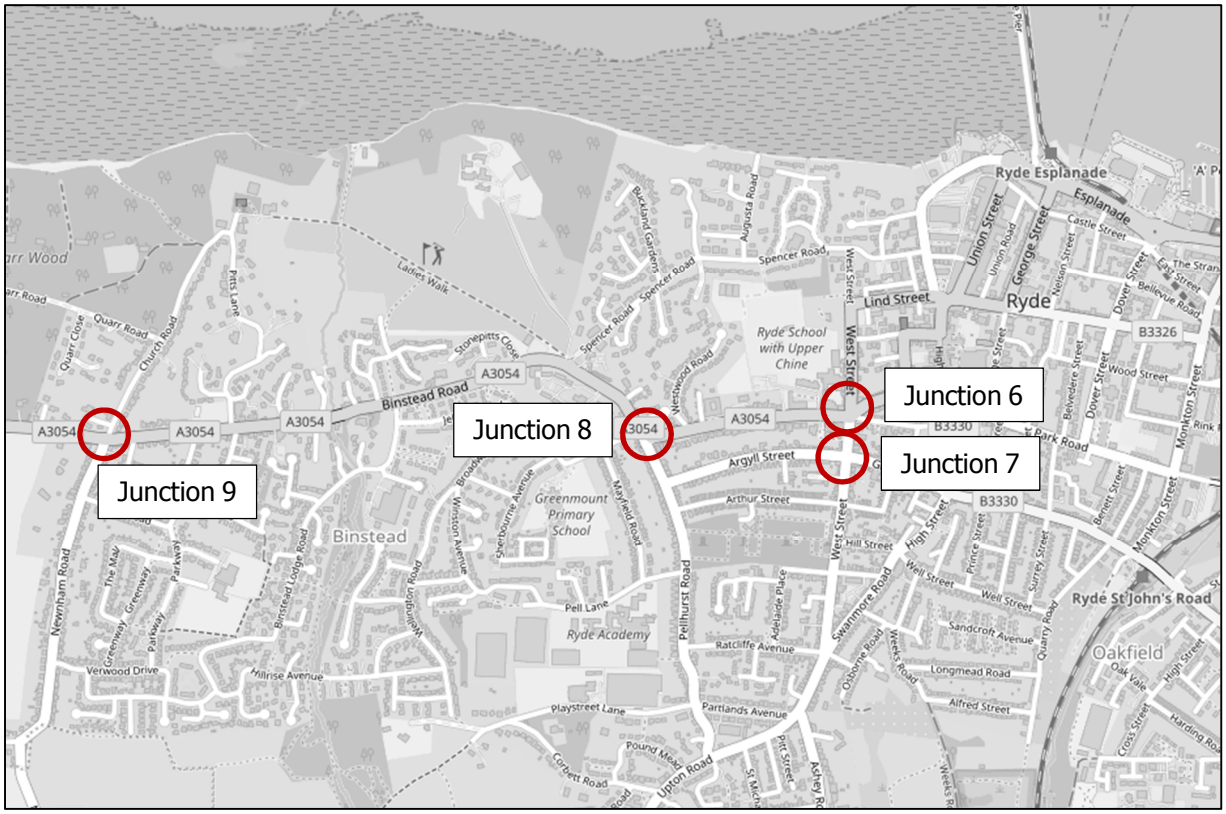
1.7 **Figures 1.1 – 1.3** presents the locations of all 15 junctions within Newport, Ryde and Shanklin & Sandown, which comprise the feasibility study area.

Figure 1.1 Feasibility Study Area – Newport Junctions



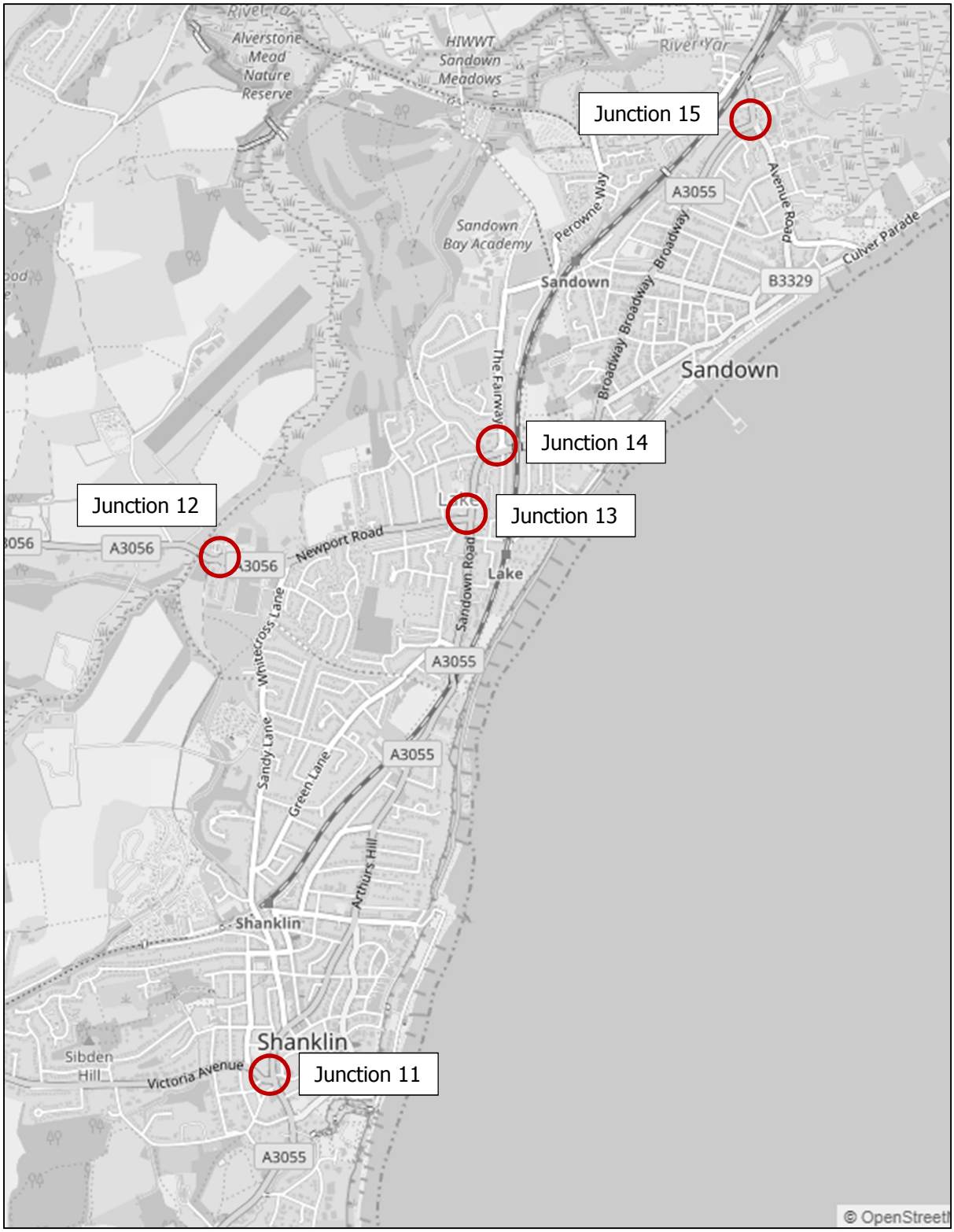
Source: OpenStreetMap with WYG Annotations, September 2017

Figure 1.2 Feasibility Study Area – Ryde Junctions



Source: OpenStreetMap, September 2017

Figure 1.3 Feasibility Study Area – Sandown & Shanklin Junctions



Source: OpenStreetMap, September 2017

1.8 Each of the 15 junctions are to be addressed within an individual feasibility study report. This report focuses on Junction 7, the junction of Argyll Street / West Street / Green Street, which comprises a crossroads signalised junction in Ryde.

1.9 **Figure 1.4** presents a site location plan of the junction.

Figure 1.4 Junction Location Plan

Source: Google Satellite Image, August 2017

Scope/Purpose of Study

1.10 The purpose of the study is to identify, through the use of traffic modelling software, where the main issues lie in terms of capacity, congestion and queuing at the junction; the traffic modelling will inform the type of highway improvements and design required at each junction.

Report Structure

1.11 The remainder of this document is structured as follows:

- **Chapter 2: Existing Conditions** - summarising the existing conditions at the junction, providing background to the junction, local highway network and detailing the current traffic issues experienced at the junction;
- **Chapter 3: Modelling Methodology** - setting-out details of tasks undertaken to build traffic models of the study area using specialist software, including results of option testing for the junction of interest;
- **Chapter 4: Summary and Conclusions** - summarising the feasibility study process and outlining the key findings of the assessment.

1.12 All Appendices are included at the end of this report for information.

2 Existing Conditions

General

2.1 This chapter establishes the existing, or 'baseline', highway conditions which currently prevail in the area surrounding the junction. It describes the existing local highway network and any traffic issues present at the junction.

2.2 Baseline studies have been informed by detailed site visits and desk-based research carried out between August and September 2017.

2.3 This report focuses on the crossroads junction at Argyll Street / West Street / Green Street in Ryde.

Data Collection

2.4 Traffic flow surveys were undertaken by MHC Traffic Ltd on Thursday 20th July 2017 to establish the baseline traffic conditions for the local highway network on the IOW. A range of surveys were undertaken including:

- Manual Classified Counts (MCC) for turning flow information at 15 key junctions on the IOW;
- Automatic Traffic Counts (ATCs) were placed at strategic locations on the network allowing the speeds to be obtained at each of these junctions;
- Queue length surveys at stop lines of all 15 junctions; and
- Traffic video surveys at each of the 15 junctions.

2.5 The surveys allowed for the identification of turning movements at all key junctions as well as routing within the IOW. Signal timing data was additionally supplied by the IOW Council for use for the correct modelling of signal timing data.

2.6 The data collected as part of the surveys was used directly for calibrating and validating the base scenario for both the Junctions 9 and LinSig models. Video footage of the surveyed junctions was additionally reviewed to ensure that the base models reflect the on-street road conditions as closely as possible.

Study Area/Junction Background

2.7 The Argyll Street / West Street / Green Street signalised crossroads junction is located in the centre of Ryde approximately 250 metres to the west of Ryde's High Street. Argyll Street and Green Street form the western and eastern arms, whilst West Street forms the northern and southern arms.

2.8 The junction provides access to Ryde High Street to the north and east, the A3054 located approximately 400 metres to the west and Swanmore Road to the south. The A3054 forms the major route to Newport. A plan of the junction is provided in **Figure 2.1**.

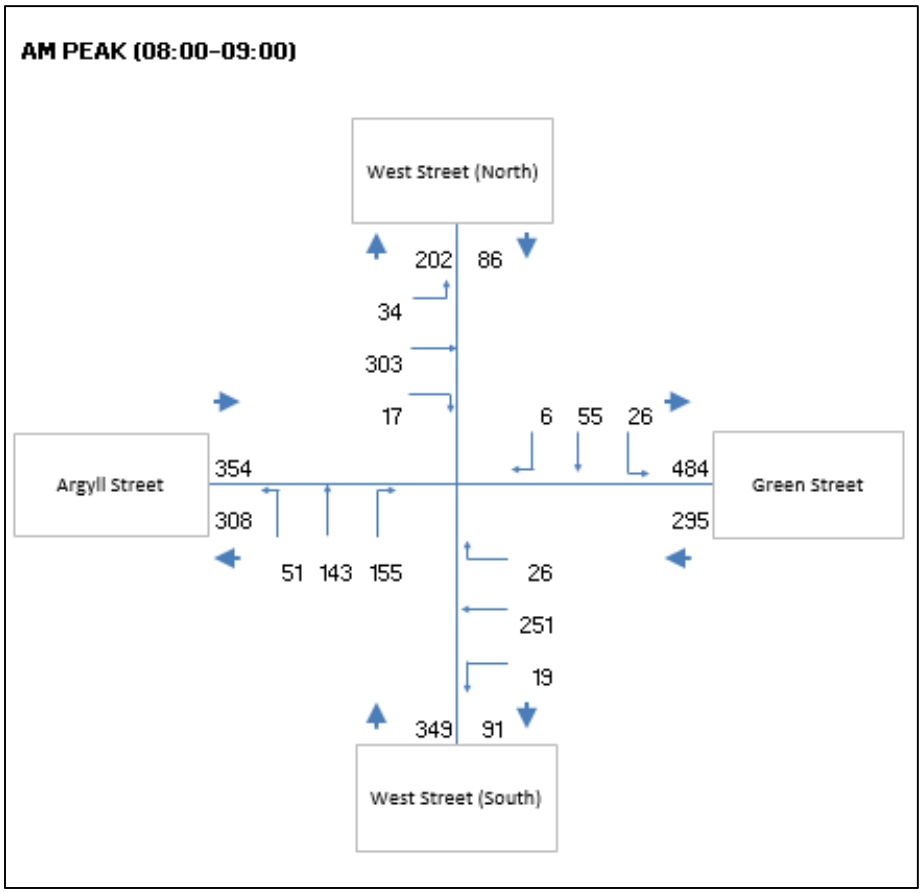
Figure 2.1 Junction Location Plan

Source: Google Satellite Image, August 2017

Base Traffic Flows

2.9 This section details the current traffic flows and queuing at the junction, determined by the survey data. These are shown in **Figures 2.2** and **2.3**.

Figure 2.2 AM Traffic Flows (PCUs)

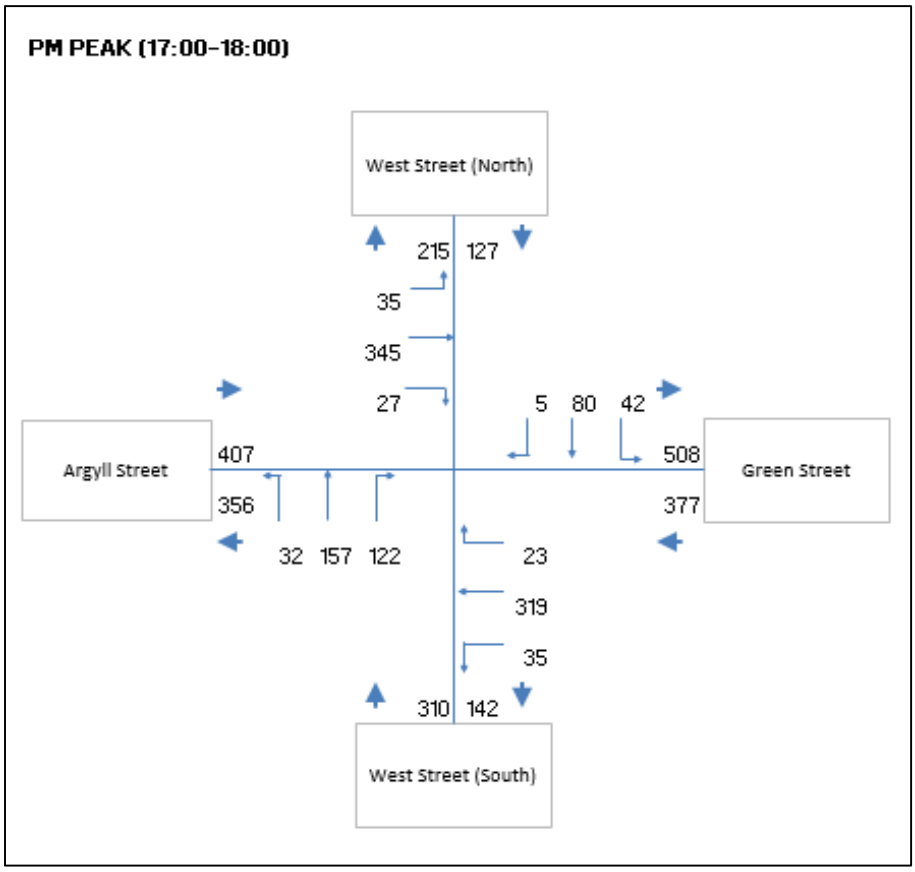


2.10 As shown in **Figure 2.2**, the highest traffic flows are those travelling eastbound and westbound on Argyll Street / Green Street in the AM peak (08:00-09:00) with 303 PCUs eastbound and 251 PCUs westbound.

2.11 Westbound traffic is likely to be predominantly generated by those commuting to Newport for work, whilst eastbound traffic is likely to be those travelling to Ryde town centre or beyond to Brading, Sandown and Shanklin. The majority of queuing occurs on Argyll Street and Green Street, with some degree of queuing observed throughout much of the hour. The maximum observed queue recorded on Green Street was 11 vehicles, whilst this was recorded as 16 vehicles on Argyll Street.

2.12 **Figure 2.3** below shows the traffic flows for the PM peak (17:00-18:00).

Figure 2.3 PM Traffic Flows (PCUs)



2.13 As shown in **Figure 2.3**, the highest traffic flows are those travelling eastbound and westbound in the PM peak (17:00-18:00), as is the case in the AM peak. The eastbound and westbound flows are broadly similar in each direction, with 345 PCUs travelling eastbound and 319 PCUs travelling westbound.

2.14 The longest queues occur on Argyll Street and Green Street. The maximum observed queue recorded on Argyll Street was 12 vehicles, whilst the maximum queue recorded on Green Street was 16 vehicles.

Existing Traffic Issues

2.15 At present, the junction is known to experience congestion and queuing, which has been observed during site visits and traffic video surveys at the junction. It was observed that congestion and queuing is particularly evident on the Argyll Street and Green Street arms.

Argyll Street

2.16 Argyll Street forms the western arm of the junction. It has been observed that queuing occurs during both the AM and PM peaks, due to relatively high eastbound flows towards Green Street. The arm currently comprises a single lane for traffic on the approach to the junction.

Green Street

2.17 Green Street forms the eastern arm of the junction. It has been observed that queuing occurs during both the AM and PM peaks, due to high westbound flows to Argyll Street. This arm currently comprises a single traffic lane on the approach to the junction.

HGVs

2.18 At present, it is particularly difficult for HGVs to undertake left and right turn manoeuvres at this junction due to the constrained geometry of the junction. However, when examining the traffic flows at the junction, it was noted that there were very few HGVs which undertook these manoeuvres; for instance, there were two HGVs recorded during the AM peak and no HGVs recorded in the PM peak.

Collisions

2.19 A collision data review for the most recent five years was undertaken at the junction, using the website crashmap.co.uk. It was found that three 'slight' collisions were recorded within the vicinity of the junction during this time period. It is therefore concluded that there are no significant highway safety issues in relation to the highway junction.

Local Highway Network

Argyll Street

2.20 Argyll Street is a two-way single carriageway road and is residential in nature, running in an east-west alignment. The road is located between Pellhurst Road to the west and West Street to the east. The road is subject to a 30mph speed limit with double yellow parking restrictions present on its northern side, whilst parking is largely unrestricted on its southern side. Footways are provided on both sides of the carriageway. A puffin crossing is provided across Argyll Street at the crossroads.

Green Street

2.21 Green Street is a two-way single carriageway road and is residential in nature, running in an east-west alignment. The road is located between West Street to the west and High Street to the east. The road is subject to a 30mph speed limit, with parking restrictions on either side. A section of the road between West Street and Station Street on its northern side provides unrestricted parking. Footways are provided on both sides of the carriageway along the entire length of the road. A pedestrian puffin crossing is provided across Green Street at the crossroads junction.

West Street

2.22 West Street is a two-way single carriageway road and is residential in nature, running in a north-south alignment. The road is located between Swanmore Road to the south and Spencer Road to the north. It is a two-way street from Swanmore Road to Newport Street, whilst north of Newport Street it is a one-way road open to northbound traffic only. Between Swanmore Road and Newport Street, parking restrictions are present on its western side whereas parking is largely unrestricted on its eastern side.

2.23 North of Newport Street, the road narrows to a single lane of traffic and becomes one-way. Parking bays are provided on the western side of the carriageway for much of its length northwards to Spencer Road. The road is subject to a 30mph speed limit, with footways provided on both sides of the carriageway. Pedestrian crossings are provided at several points north of Argyll Street / Green Street.

Utilities Assessment

2.24 A utilities assessment has been carried out at the junction as an indication of which utilities are present within the vicinity of the junction. The following utilities which may be affected by improvements at the junction are listed below:

- Isle of Wight Council
- Openreach – (British Telecommunications)
- Scottish and Southern Electricity – Gas
- Scottish and Southern Electricity – High Voltage

- Scottish and Southern Electricity – Low Voltage
- SGN – Southern Gas Networks
- Southern Water – Sewer
- Southern Water – Water

3 Modelling Methodology

Introduction

3.1 Traffic modelling has been undertaken as part of the feasibility study, identifying how the local highway network on the Isle of Wight currently operates and how it might operate following the proposed improvements to the identified junctions. LinSig v3 is the latest version of JCT's industry-standard software for modelling signalised junctions and urban road networks and has therefore been used to model this junction.

3.2 The modelling has been undertaken for two weekday periods considered to be the network peaks in terms of traffic volumes, with the AM peak between 08:00 and 09:00 and the PM peak between 17:00 and 18:00. These peaks were identified through analysis of traffic count data. Initially, Base Year modelling was using survey data collected in July 2017. Future Year modelling was subsequently carried out in order to test the proposed changes to the network and assess the scale of impact on road traffic.

Explanation of Results

3.3 Queue lengths at junction approaches are usually expressed in terms of 'Passenger Car Equivalent' (PCE) or 'Passenger Car Unit' (PCU). A standard car typically has a PCE/PCU value of 1.0; larger vehicles, such as goods vehicles, typically have PCE/PCU values greater than 1.0 and smaller vehicles, such as motorcycles, typically have PCE/PCU values less than 1.0.

3.4 The Degree of Saturation (DoS) is a ratio of demand to capacity on each approach to a signalised junction, with a value of 100% meaning that demand and capacity are equal and no further traffic is able to progress through the junction. Values over 85% are typically regarded as suffering from traffic congestion, with queues of vehicles beginning to form. The term Practical Reserve Capacity (PRC) is often used to refer to the available spare capacity at a junction. A negative PRC indicates that the junction is over capacity.

3.5 It is noted that a DoS of 90% or over recorded on an approach to the junction is deemed as approaching capacity and therefore a DoS of under 90% is considered acceptable.

Base Year Modelling

3.6 Data was collected as part of the surveys was compared to the base year outputs to match modelled flows and queue patterns to those observed, within acceptable variations. The results for the Argyll Street / West Street signalised crossroads junction are summarised in **Table 3.1**, with full output results included in **Appendix A**.

LinSig Modelling Results – 2017 Base Year

Table 3.1 Base Year LinSig Modelling Results

Arm Cycle time 50 secs (Existing)	AM peak			PM peak		
	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)
A - West Street (N)	17.6%	1.0	18.2	30.8%	1.7	21.9
B - Green Street	87.6%	7.0	56.3	91.4%	9.3	58.9
C - West Street (S)	83.9%	7.0	42.7	98.0%	11.6	105.2
D - Argyll Street	121.2%	39.3	372.6	139.7%	67.0	566.9
PRC	-34.7%			-55.3%		
Total Delay (pcu/hr)	45.69			79.89		

3.7 The base year results as shown in **Table 3.1** indicate that the junction currently operates over capacity during the AM and PM peaks. Argyll Street is the worst performing arm in the AM peak, with a DoS of 121.2% recorded. It is shown that the PM peak performs worse in comparison to the AM peak; in particular, the Argyll Street arm records the worst DoS of 139.7%. Green Street and West Street (S) are also shown to experience a DoS of over 90% in the PM peak.

Future Year Modelling

3.8 The Future Year 2034 was assessed as part of this scenario and thus TEMPRO growth factors were applied to the 2017 traffic survey data in order to calculate the 2034 traffic flows.

3.9 A comparison of TEMPRO growth factors was undertaken for each of the three study areas; Newport, Ryde, Shanklin and Sandown, using local Super Output Areas. It was found that the TEMPRO growth factors for each of the study areas were broadly similar to the TEMPRO growth factors for the Isle of Wight as a whole. As a result, the 'Isle of Wight' as a whole was selected as the geographical area. Also, as all highway junctions within the study area are located in urban areas, it has therefore been deemed more robust that only 'Urban Road Types' were selected as part of this assessment.

3.10 These TEMPRO growth factors are shown in **Table 3.2**.

Table 3.2 2017-2034 TEMPRO Growth Factors – All Urban Road Types

Time Period	TEMPRO Growth Factors (2017-2034)
AM peak	1.2229
PM peak	1.2188

3.11 For comparison purposes, the existing junction has been tested in the future year scenario (2034) to determine how the junction would operate without any alterations. The results of this are shown in **Table 3.3**.

LinSig Modelling Results – 2034 Future Year

Table 3.3 Future Year LinSig Modelling Results

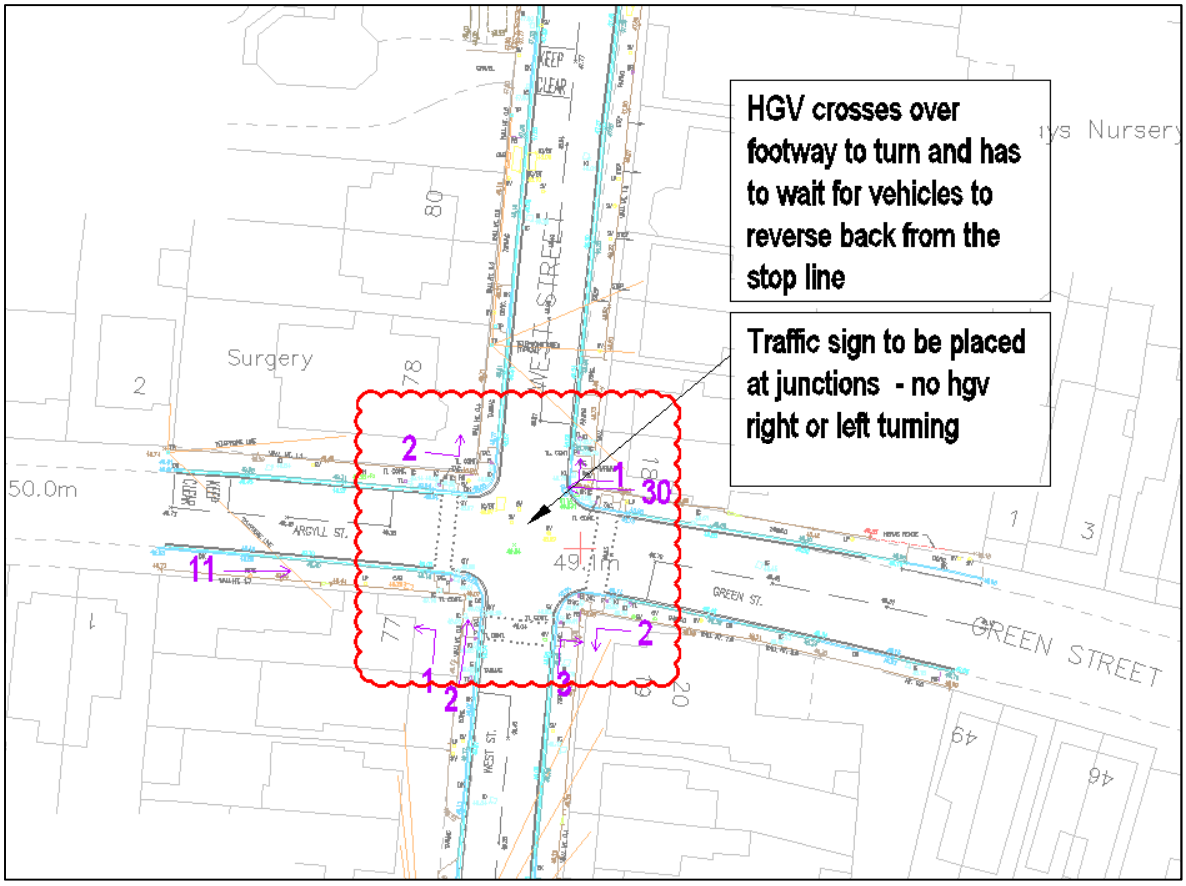
Arm Cycle time 50 secs (Existing)	AM peak			PM peak		
	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)
A - West Street (N)	21.7%	1.2	18.6	37.6%	2.1	22.9
B - Green Street	107.3%	22.8	198.2	111.6%	35.0	244.9
C - West Street (S)	102.7%	19.5	134.8	135.1%	57.6	526.4
D - Argyll Street	148.8%	81.1	648.9	170.8%	115.0	809.9
PRC	-65.3%			-89.7%		
Total Delay (pcu/hr)	114.36			199.08		

3.12 As shown in **Table 3.3**, in the Future Year 2034, the existing signalised crossroads junction is shown to further worsen in capacity in both peak periods, with an overall PRC of -65.3% in the AM peak and -89.7% in the PM peak. The arms which are particularly affected include West Street (S), Green Street and Argyll Street, all recording a DoS of over 100%. Therefore, this shows that without any alterations the junction would operate over maximum capacity in both the AM and PM peak.

Proposed Scheme Options

3.13 The junction is heavily constrained due to the limited space surrounding it. As a result, the initial proposals involve providing signage to prevent HGVs turning at the junction as space for HGVs is restricted. This scheme is shown in **Figure 3.1** below.

Figure 3.1 Initial Junction Design



Source: WYG Drawing A90129-60 SK04

3.14 However, after further review, this initial scheme was discarded as it was noted that very few HGVs undertook a turning manoeuvre at the junction and thus due to this being a rare occurrence, it would not be worth prohibiting these manoeuvres. It also indicated that the impact of HGVs on the capacity was minimal, due to the infrequent nature of the movement.

3.15 A more substantial scheme was also considered, involving a two-lane approach on each of the arms, which would effectively give the junction the desired capacity improvements, but this would require considerable third party land acquisition from several nearby properties. As a result, this scheme was also discarded as it was not deemed feasible or economical.

3.16 It was considered that due to physical alterations not being possible due to space constraints, non-physical alterations such as extending the cycle time should be tested as part of the modelling scenarios to determine whether such a change would provide additional junction capacity. A longer cycle time was also tested for the 2017 Base Year as to determine whether there are any immediate benefits as a result.

3.17 The Base Year and Future Year results for the amended cycle times (90 & 120 Seconds) are summarised in **Tables 3.4-3.7**, with full output results included in **Appendix A**.

Table 3.4 Base Year LinSig Modelling Results (90 seconds)

Arm Cycle time 90 secs (Proposed)	AM peak			PM peak		
	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)
A - West Street (N)	16.2%	1.6	26.6	26.6%	2.7	30.5
B - Green Street	64.4%	6.2	30.2	82.5%	9.0	39.6
C - West Street (S)	74.3%	9.2	43.8	80.3%	9.2	54.8
D - Argyll Street	69.5%	8.7	34.5	79.5%	10.9	40.1
PRC	21.2%			9.1%		
Total Delay (pcu/hr)	10.72			14.44		

Table 3.5 Future Year LinSig Modelling Results (90 seconds)

Arm Cycle time 90 secs (Proposed)	AM peak			PM peak		
	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)
A - West Street (N)	19.4%	2.0	26.1	32.5%	3.3	31.4
B - Green Street	92.3%	11.5	67.2	101.4%	22.0	121.5
C - West Street (S)	91.1%	14.4	67.1	106.1%	26.6	201.9
D - Argyll Street	91.7%	14.9	65.3	109.8%	40.2	232.7
PRC	-2.6%			-22.0%		
Total Delay (pcu/hr)	23.28			70.11		

3.17 As shown in Tables 3.4 and 3.5, with a 90 second cycle time tested, the junction is expected to operate with much greater capacity in comparison to the existing 50 second cycle time. In the Base Year, there are immediate benefits as a result, showing the junction operating within capacity for both peak periods, with a PRC of 21.2% recorded in the AM and 9.1% in the PM.

3.18 In the Future Year, during the AM peak, the overall PRC at the junction improves from -65.3% to -2.6%, whilst during the PM peak the PRC improves from -89.7% to -22.0%. Despite these improvements, the junction would still operate over capacity in the Future Year, however this would be to a lesser extent, in comparison to the existing cycle time of 50 seconds.

Table 3.6 Base Year LinSig Modelling Results (120 seconds)

Arm Cycle time 120 secs (Proposed)	AM peak			PM peak		
	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)
A - West Street (N)	14.3%	2.0	29.5	24.3%	3.3	35.6
B - Green Street	56.3%	7.3	31.6	68.6%	9.3	31.5
C - West Street (S)	65.5%	10.7	43.8	72.9%	10.7	55.3
D - Argyll Street	64.1%	10.7	38.7	71.9%	12.4	39.2
PRC	37.5%			23.4%		
Total Delay (pcu/hr)	11.31			13.72		

Table 3.7 Future Year LinSig Modelling Results (120 seconds)

Arm Cycle time 120 secs (Proposed)	AM peak			PM peak		
	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Av. Delay Per PCU (s/pcu)
A - West Street (N)	18.4%	2.5	30.9	31.2%	4.2	38.4
B - Green Street	85.7%	11.2	52.0	101.9%	24.5	130.6
C - West Street (S)	84.9%	15.8	60.6	102.3%	24.9	165.0
D - Argyll Street	84.0%	15.5	53.9	88.2%	18.5	57.2
PRC	5.0%			-13.6%		
Total Delay (pcu/hr)	19.75			43.51		

3.19 As shown in Tables 3.6 and 3.7, with a 120 second cycle time tested, the junction provides much more additional capacity, in comparison to a 90 second cycle time. In the Base Year, the modelling results record a PRC of 37.5% in the AM and 23.4% in the PM. This equates to a 16% increase in capacity in the AM and a 14.3% increase in the PM, compared to the 90 second cycle time.

3.20 In the Future Year, during the AM peak, the overall PRC at the junction improves from -2.6% to 5.0%, whilst during the PM peak the PRC improves from -22.0% to -13.6%. As result, the AM peak would operate within capacity with a 120 second cycle time, whilst the PM peak would still remain over capacity, but to a lesser extent. In comparison to the 90 second cycle time, the DoS reduces to below the 90% threshold in the AM peak across all arms, and there are improvements on the Argyll Street arm in the PM.

Outcome / Conclusions

3.21 Due to the constrained space at the junction, a non-physical alteration such as lengthening the cycle was tested as part of the Future Year scenario. As a result, longer cycle times of 90 and 120 seconds were tested and compared with the existing junction cycle time of 50 seconds. It was found that by lengthening the cycle time, this provided additional junction capacity for both the 2017 Base Year and 2034 Future Year scenarios, and therefore for the greatest improvements in capacity, it is

recommended that an optimised 120 second cycle should be introduced as a junction improvement measure.

3.23 In terms of physical amendments to the junction, it is considered that two-lane approaches on each of the arms would allow the junction to perform within capacity in both peak periods, however this would involve considerable third party land acquisition from several nearby properties, and therefore was not deemed feasible or economical.

Cost/Time Savings Analysis

3.24 A cost savings analysis has been undertaken for the junction based on the delay/time savings as a result of lengthening the cycle time (120 seconds) at the junction. In order to calculate the cost savings, fuel cost values were extracted for the average car (per km) (petrol / diesel) from the Department for Transport (DfT) document 'Values of Time and Vehicle Operating Costs' Transport Analysis Guidance (TAG), January 2014. The average fuel cost for an average car was extracted as £0.79 per kilometre.

3.25 To calculate the total cost savings, the average speed at the junction was recorded as 28mph (45kph) (based on ATC data collected by MHC Traffic Ltd), which was then applied to the total time savings to both the AM (07:00-10:00) and PM Peak periods (16:00-19:00). As a result, this determined the total distance saved. The average fuel cost per kilometre was then applied to the total distance, giving a total cost saving per Peak period, for an average weekday. For the annual cost savings, the total AM and PM Peak cost savings were applied to a total of 253 days (excluding weekends and Bank Holidays), seeing as this assessment only takes into account an average weekday. The results of this assessment are summarised in **Table 3.6** below.

Table 3.8 Estimated Cost/Time Savings Analysis of Junction 7

Time Period	Average Existing Delay per PCU (secs)	Estimated Average Delay per PCU (secs)	Average Journey Time Savings (secs)	Assumed Length of Time Period (Hours)	Average No. of PCUs per hour	Time Savings for All Vehicles During Period (secs)	Value of Time Savings Per Period (£)	Value of Time Savings Per Annum
AM Peak (07:00-10:00)	46	11	35*	3	969	101,658	£1,003.87	£253,979.28
PM Peak (16:00-19:00)	80	14	65*	3	1097	215,396	£2,127.04	£538,139.86
TOTAL						**317,054**	**£3,130.91**	**£792,119.14**

Note: *based on time savings in the 2017 Base Year

3.26 As shown in Table 3.6, the estimated cost savings per peak period were £1,003.87 in the AM Peak and £2,127.04 in the PM Peak, and thus the overall annual fuel cost savings was estimated to be £792,119.14.

4 Summary and Conclusions

Summary

4.1 WYG have been appointed by the Isle of Wight (IOW) Council to undertake a feasibility study for a series of highway junctions located throughout the island, with a particular focus on the towns of Newport, Ryde, Shanklin and Sandown. The study has been carried out to identify traffic management issues impacting on all road users and develop proposals that will form part of a package of schemes to be progressed as part of the Council's Local Implementation Plan (LIP) process.

4.2 IOW Council has identified 15 highway junctions which currently experience traffic issues such as congestion and queuing. The study considers where the main issues lie in relation to traffic movement, road safety, bus operation, pedestrian and cycle provision, public realm, parking provision and servicing. Each of the 15 highway junctions is subject to a feasibility study report, with traffic modelling software used to test various proposals in order to identify a range of measures aimed at improving the behaviour and movement of traffic at each junction.

4.3 The Argyll Street / West Street / Green Street signalised crossroads is located in the centre of Ryde approximately 250 metres to the west of High Street. Argyll Street and Green Street form the western and eastern arms, whilst West Street forms the northern and southern arms.

4.4 The junction provides access to Ryde High Street to the north and east, the A3054 located approximately 400 metres to the west and Swanmore Road to the south. The A3054 is the principal route to the Newport from Ryde. At present, the junction is known to experience congestion and queuing. It has been observed that congestion and queuing is particularly evident on the Argyll Street and Green Street arms.

4.5 The LinSig v3 modelling software was used to model this signalised crossroads junction. The modelling has been undertaken for two weekday periods considered to be the network peaks in terms of traffic volumes, with the AM peak between 08:00 and 09:00 and the PM peak between 17:00 and 18:00. The Base Year results indicate that the junction currently operates over capacity during the AM and PM peaks. It is shown that the PM peak performs worse in comparison to the AM peak; in particular, the Argyll Street arm records the worst DoS of 139.7%. Green Street and West Street (S) are also shown to experience a DoS of over 90% in the PM peak.

4.6 For comparison purposes, the existing junction was tested in the Future Year scenario (2034) to determine how the junction would operate without any alterations. The junction would further worsen in capacity in both peak periods, with an overall PRC of -65.3% in the AM peak and -89.7% in the PM peak. The arms which are particularly affected include West Street (S), Green Street and Argyll Street, all recording a DoS of over 100%. Due to the constrained space around the junction, physical alterations to the junction are not possible and therefore non-physical alterations such as extending the cycle time were tested as part of the Future Year scenario to see if this provided additional capacity. A longer cycle time was also tested for the 2017 Base Year as to determine whether there are any immediate benefits as a result.

4.7 It was found that the junction would operate with much greater capacity with a 120 second cycle time, in comparison to the existing 50 second cycle time. In the Base Year scenario, there are immediate benefits as a result, showing that the junction would operate within capacity for the both peak periods, with a PRC of 37.5% recorded in the AM and 23.4% in the PM. In the Future Year scenario, there were improvements recorded, with the overall PRC improving from -65.3% to 5.0% in the AM peak, and from -89.7% to -13.6% in the PM peak. Despite these improvements, the junction would still operate over capacity in the PM peak, however this would be to a lesser extent, in comparison to the existing cycle time of 50 seconds.

Conclusions

4.8 Physical alterations to the junction were not possible, and it has been determined from the modelling that by increasing the cycle time to an optimised 120 second cycle, significant improvements in capacity are predicted in both the AM and PM peaks. As a result, this improvement is deemed most appropriate to provide additional capacity in the Base Year and Future Year.

Appendix A
MODELLING OUTPUT RESULTS

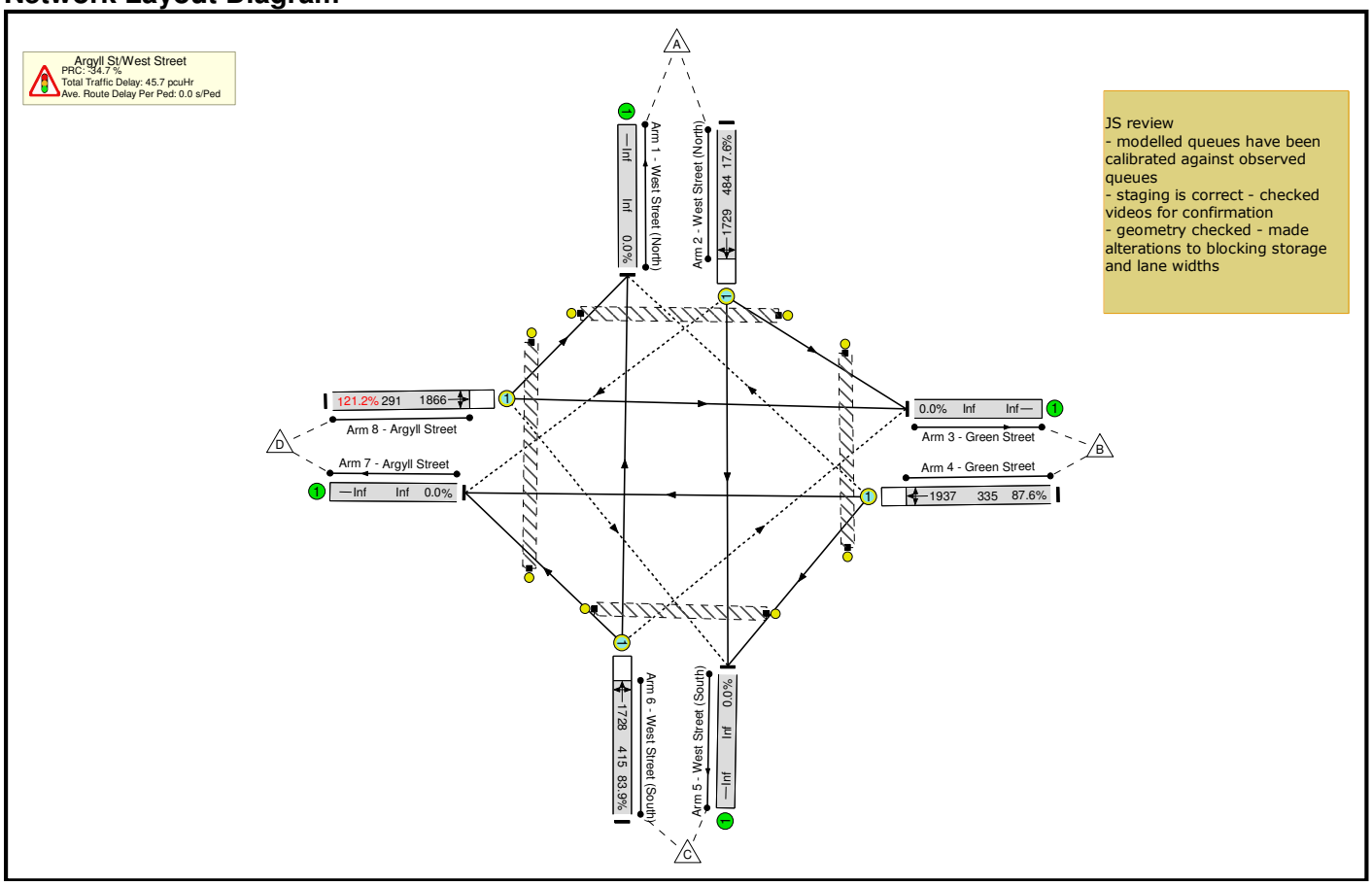
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Junction 7 Argyll Street West Street.lsg3x
Author:	
Company:	
Address:	

Scenario 1: 'AM BASE 2017 (50 secs)' (FG1: 'AM Base 2017', 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	-	-	-		-	-	-	-	-	-	**121.2%**	**173**	**0**	**27**	**45.7**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**121.2%**	**173**	**0**	**27**	**45.7**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	13	-	85	1729	484	17.6%	6	0	0	0.4	18.2	1.0
4/1	Green Street Right Left Ahead	O	D		1	10	-	294	1937	335	87.6%	22	0	3	4.6	56.3	7.0
6/1	West Street (South) Ahead Right Left	O	B	E	1	13	0	348	1728	415	83.9%	138	0	17	4.1	42.7	7.0
8/1	Argyll Street Left Ahead Right	O	C		1	10	-	353	1866	291	121.2%	7	0	7	36.5	372.6	39.3
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -34.7
PRC Over All Lanes (%): -34.7

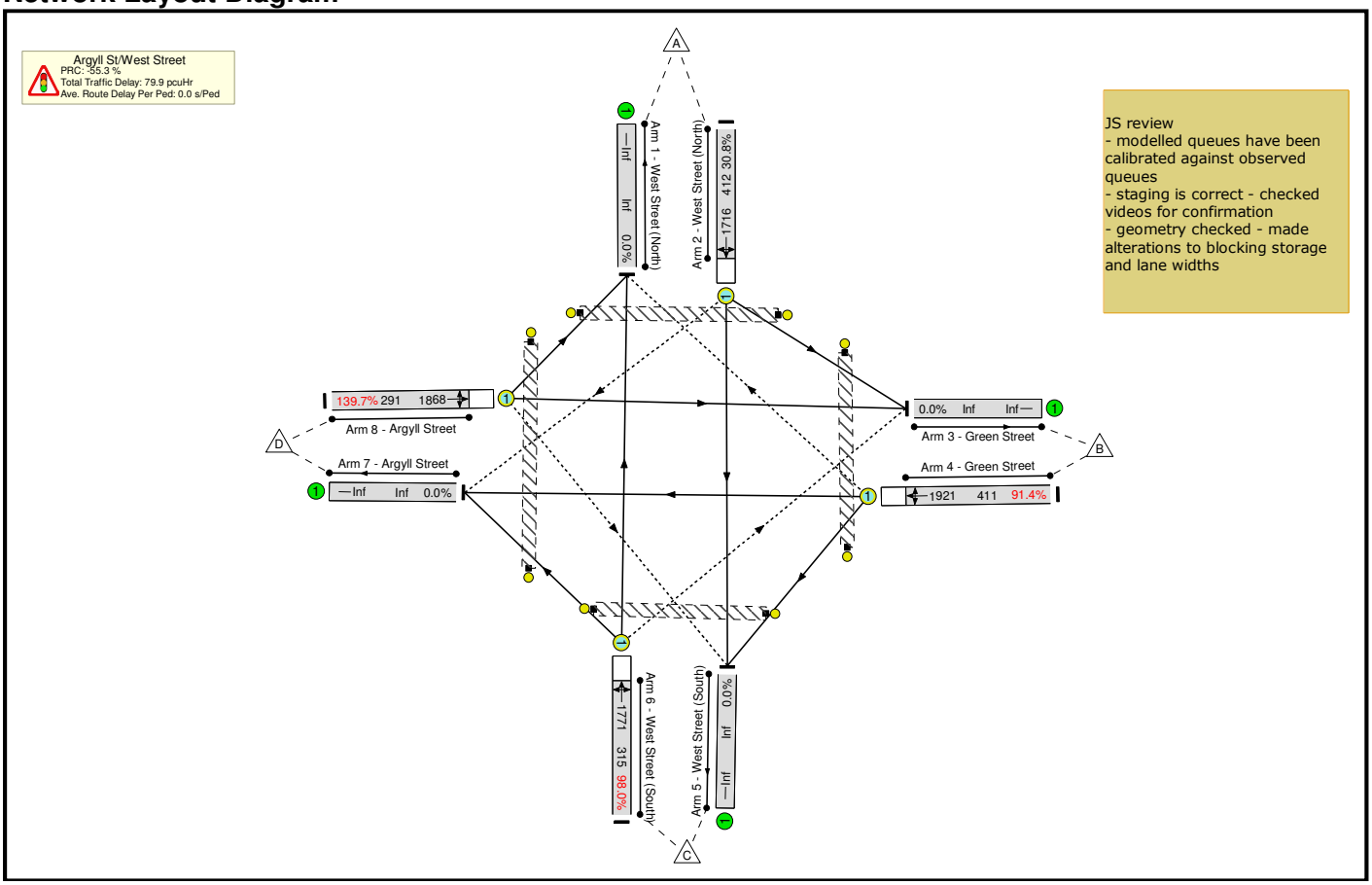
Total Delay for Signalled Lanes (pcuHr): 45.69
Total Delay Over All Lanes(pcuHr): 45.69

Cycle Time (s): 50

Basic Results Summary

Scenario 2: 'PM BASE 2017 (50 secs)' (FG2: 'PM Base 2017', 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	-	-	-		-	-	-	-	-	-	**139.7%**	**120**	**0**	**49**	**79.9**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**139.7%**	**120**	**0**	**49**	**79.9**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	11	-	127	1716	412	30.8%	5	0	0	0.8	21.9	1.7
4/1	Green Street Right Left Ahead	O	D		1	12	-	376	1921	411	91.4%	20	0	3	6.2	58.9	9.3
6/1	West Street (South) Ahead Right Left	O	B	E	1	11	0	309	1771	315	98.0%	85	0	36	9.0	105.2	11.6
8/1	Argyll Street Left Ahead Right	O	C		1	12	-	406	1868	291	139.7%	10	0	10	63.9	566.9	67.0
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -55.3
PRC Over All Lanes (%): -55.3

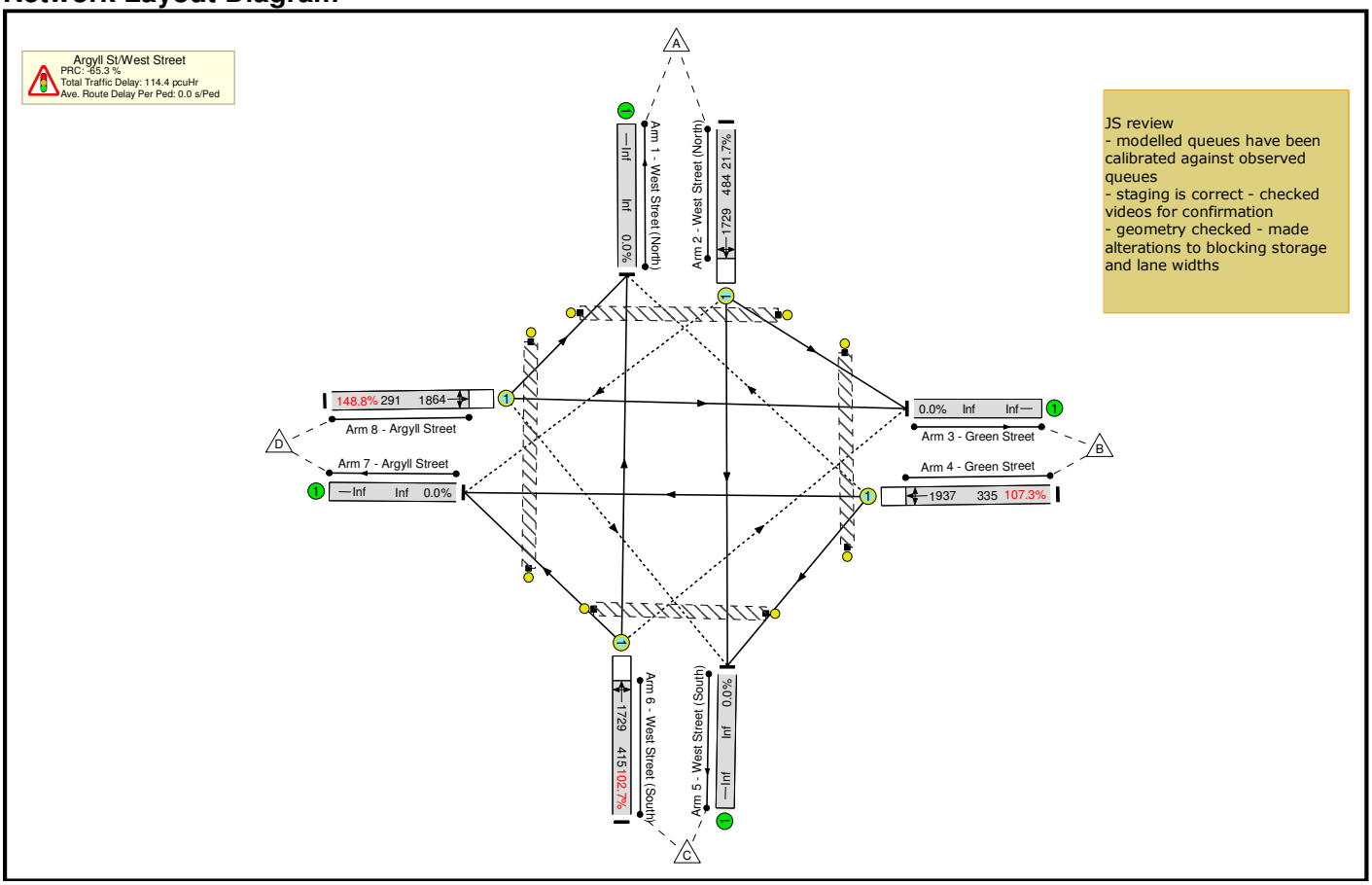
Total Delay for Signalled Lanes (pcuHr): 79.89
Total Delay Over All Lanes(pcuHr): 79.89

Cycle Time (s): 50

Basic Results Summary

Scenario 3: 'AM DN 2034 (50 secs)' (FG3: 'AM DN 2034', 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	-	-	-		-	-	-	-	-	-	**148.8%**	**169**	**0**	**66**	**114.4**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**148.8%**	**169**	**0**	**66**	**114.4**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	13	-	105	1729	484	21.7%	7	0	0	0.5	18.6	1.2
4/1	Green Street Right Left Ahead	O	D		1	10	-	360	1937	335	107.3%	22	0	7	19.8	198.2	22.8
6/1	West Street (South) Ahead Right Left	O	B	E	1	13	0	426	1729	415	102.7%	133	0	52	15.9	134.8	19.5
8/1	Argyll Street Left Ahead Right	O	C		1	10	-	433	1864	291	148.8%	7	0	7	78.1	648.9	81.1
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -65.3
PRC Over All Lanes (%): -65.3

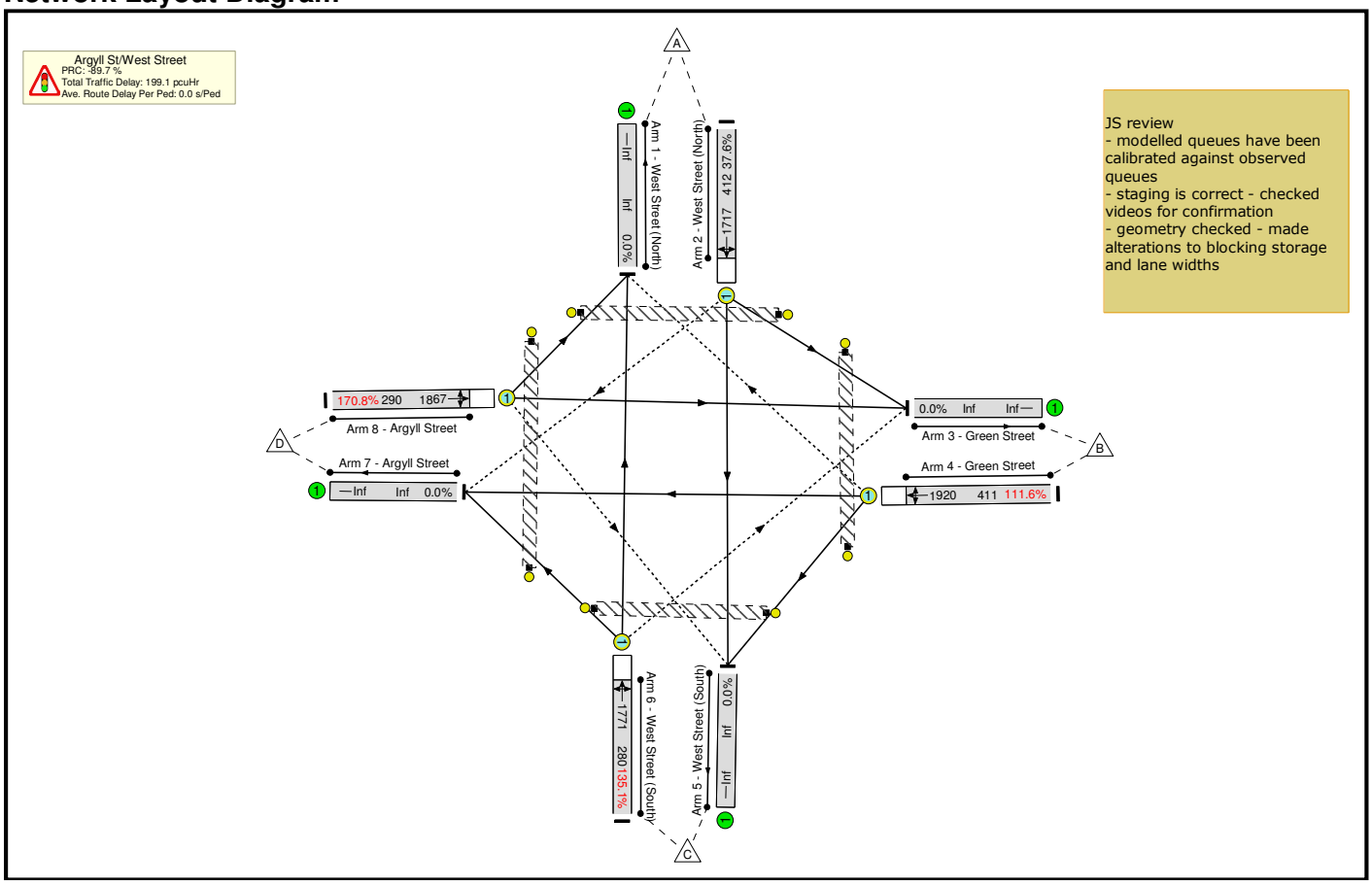
Total Delay for Signalled Lanes (pcuHr): 114.36
Total Delay Over All Lanes(pcuHr): 114.36

Cycle Time (s): 50

Basic Results Summary

Scenario 4: 'PM DN 2034 (50 secs)' (FG4: 'PM DN 2034', 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	-	-	-		-	-	-	-	-	-	**170.8%**	**109**	**0**	**51**	**199.1**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**170.8%**	**109**	**0**	**51**	**199.1**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	11	-	155	1717	412	37.6%	6	0	0	1.0	22.9	2.1
4/1	Green Street Right Left Ahead	O	D		1	12	-	459	1920	411	111.6%	20	0	5	31.2	244.9	35.0
6/1	West Street (South) Ahead Right Left	O	B	E	1	11	0	378	1771	280	135.1%	73	0	36	55.3	526.4	57.6
8/1	Argyll Street Left Ahead Right	O	C		1	12	-	496	1867	290	170.8%	10	0	10	111.6	809.9	115.0
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -89.7
PRC Over All Lanes (%): -89.7

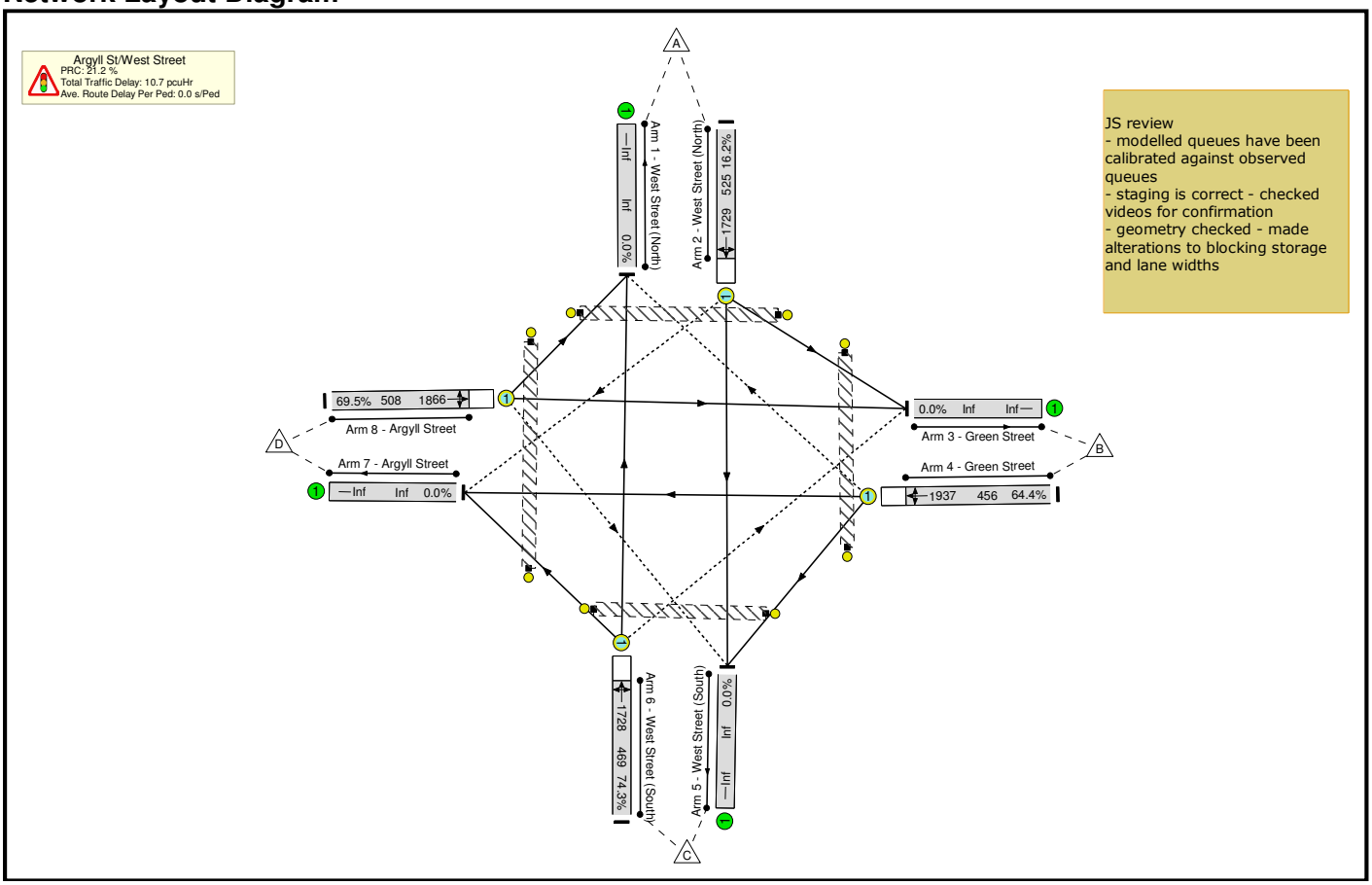
Total Delay for Signalled Lanes (pcuHr): 199.08
Total Delay Over All Lanes(pcuHr): 199.08

Cycle Time (s): 50

Basic Results Summary

Scenario 5: 'AM BASE 2017 (90 secs)' (FG1: 'AM Base 2017', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.3%**	**198**	**0**	**5**	**10.7**	**-**	**-**
Argyll St/West Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.3%**	**198**	**0**	**5**	**10.7**	**-**	**-**
2/1	West Street (North) Left Ahead Right	O	A		1	27	-	85	1729	525	16.2%	6	0	0	0.6	26.6	1.6
4/1	Green Street Right Left Ahead	O	D		1	36	-	294	1937	456	64.4%	24	0	1	2.5	30.2	6.2
6/1	West Street (South) Ahead Right Left	O	B	E	1	27	0	348	1728	469	74.3%	152	0	3	4.2	43.8	9.2
8/1	Argyll Street Left Ahead Right	O	C		1	36	-	353	1866	508	69.5%	17	0	0	3.4	34.5	8.7
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

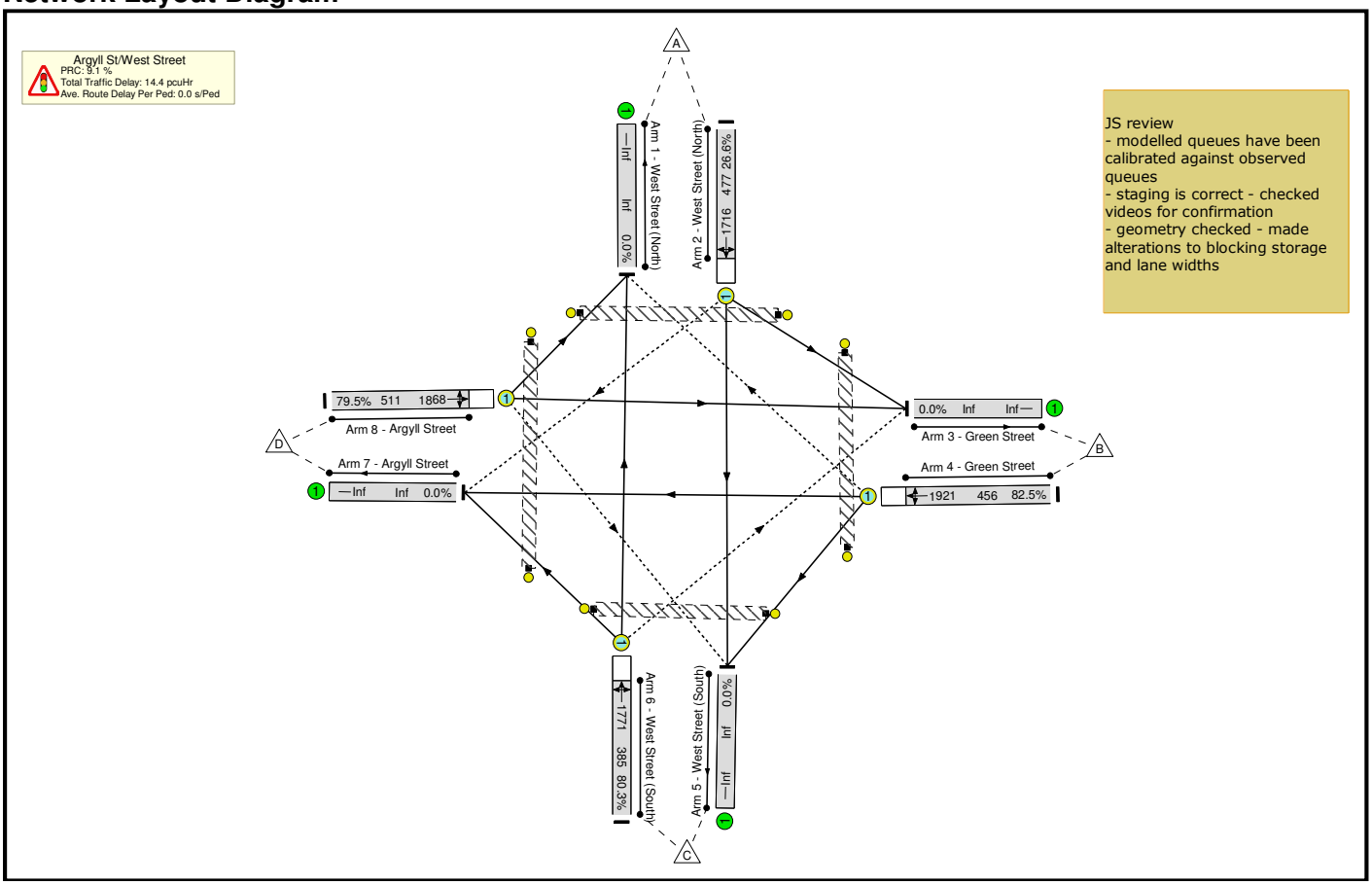
C1 PRC for Signalled Lanes (%): 21.2 Total Delay for Signalled Lanes (pcuHr): 10.72 Cycle Time (s): 90

PRC Over All Lanes (%): 21.2 Total Delay Over All Lanes(pcuHr): 10.72

Basic Results Summary

Scenario 6: 'PM BASE 2017 (90 secs)' (FG2: 'PM Base 2017', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.5%**	**171**	**0**	**5**	**14.4**	**-**	**-**
Argyll St/West Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.5%**	**171**	**0**	**5**	**14.4**	**-**	**-**
2/1	West Street (North) Left Ahead Right	O	A		1	24	-	127	1716	477	26.6%	5	0	0	1.1	30.5	2.7
4/1	Green Street Right Left Ahead	O	D		1	39	-	376	1921	456	82.5%	22	0	1	4.1	39.6	9.0
6/1	West Street (South) Ahead Right Left	O	B	E	1	24	0	309	1771	385	80.3%	118	0	3	4.7	54.8	9.2
8/1	Argyll Street Left Ahead Right	O	C		1	39	-	406	1868	511	79.5%	25	0	2	4.5	40.1	10.9
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

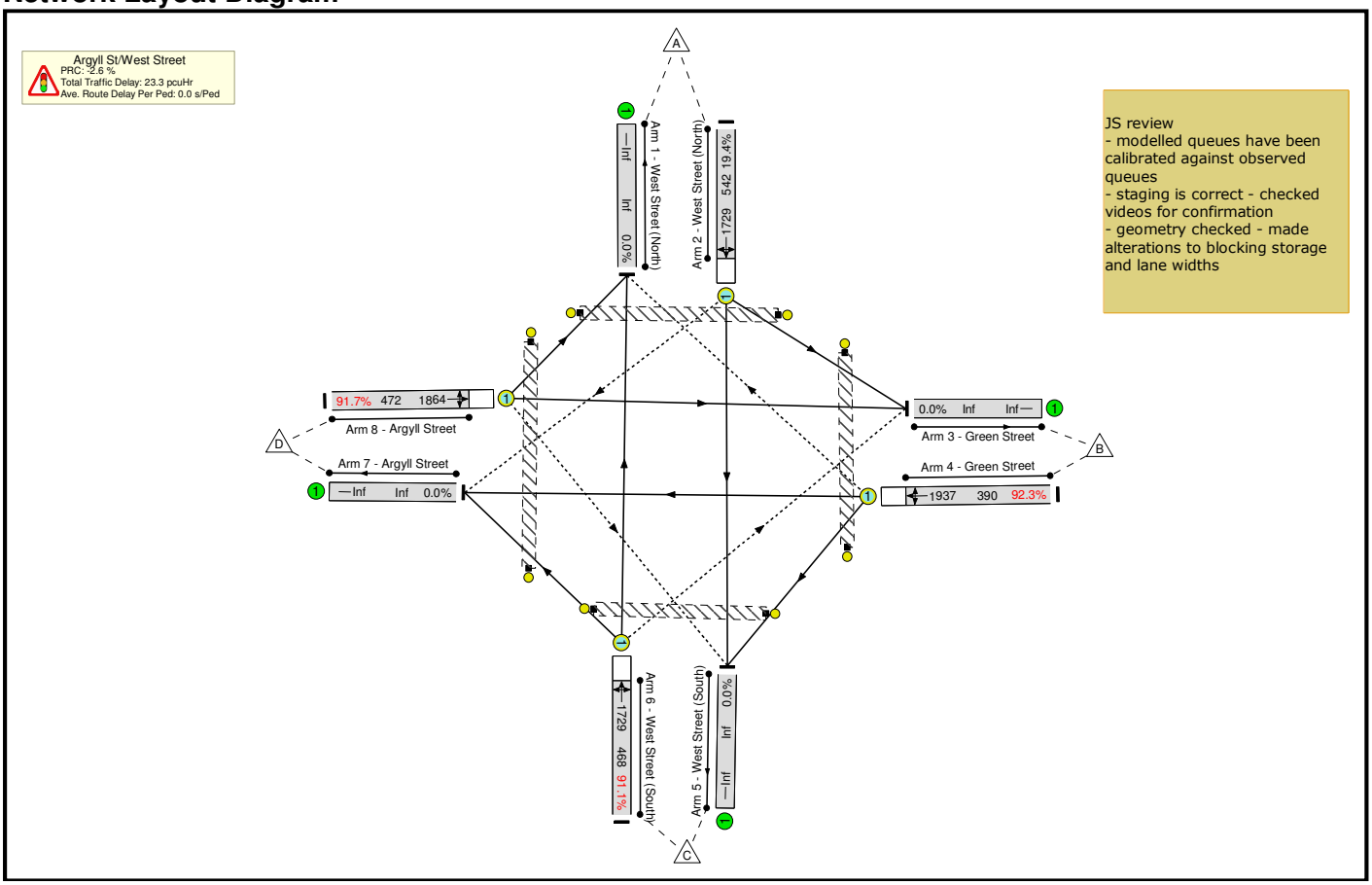
C1 PRC for Signalled Lanes (%): 9.1 Total Delay for Signalled Lanes (pcuHr): 14.44 Cycle Time (s): 90

PRC Over All Lanes (%): 9.1 Total Delay Over All Lanes(pcuHr): 14.44

Basic Results Summary

Scenario 7: 'AM DN 2034 (90 secs)' (FG3: 'AM DN 2034', 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	-	-	-		-	-	-	-	-	-	**92.3%**	**225**	**0**	**24**	**23.3**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**92.3%**	**225**	**0**	**24**	**23.3**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	28	-	105	1729	542	19.4%	7	0	0	0.8	26.1	2.0
4/1	Green Street Right Left Ahead	O	D		1	35	-	360	1937	390	92.3%	24	0	7	6.7	67.2	11.5
6/1	West Street (South) Ahead Right Left	O	B	E	1	28	0	426	1729	468	91.1%	173	0	17	7.9	67.1	14.4
8/1	Argyll Street Left Ahead Right	O	C		1	35	-	433	1864	472	91.7%	21	0	0	7.9	65.3	14.9
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -2.6

PRC Over All Lanes (%): -2.6

Total Delay for Signalled Lanes (pcuHr): 23.28

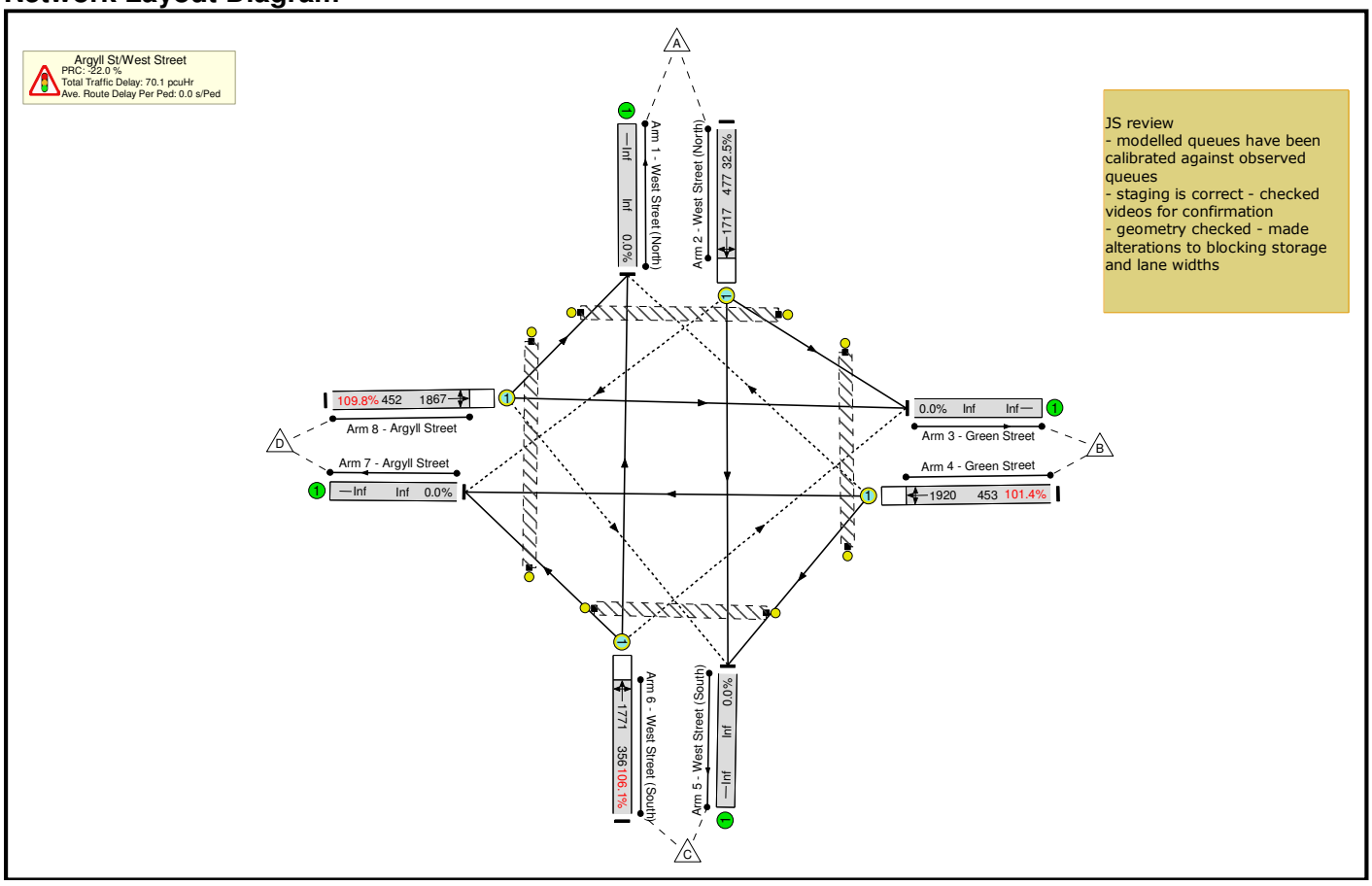
Total Delay Over All Lanes(pcuHr): 23.28

Cycle Time (s): 90

Basic Results Summary

Scenario 8: 'PM DN 2034 (90 secs)' (FG4: 'PM DN 2034', 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	-	-	-		-	-	-	-	-	-	**109.8%**	**164**	**0**	**39**	**70.1**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**109.8%**	**164**	**0**	**39**	**70.1**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	24	-	155	1717	477	32.5%	6	0	0	1.4	31.4	3.3
4/1	Green Street Right Left Ahead	O	D		1	39	-	459	1920	453	101.4%	23	0	5	15.5	121.5	22.0
6/1	West Street (South) Ahead Right Left	O	B	E	1	24	0	378	1771	356	106.1%	108	0	31	21.2	201.9	26.6
8/1	Argyll Street Left Ahead Right	O	C		1	39	-	496	1867	452	109.8%	27	0	3	32.1	232.7	40.2
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -22.0
PRC Over All Lanes (%): -22.0

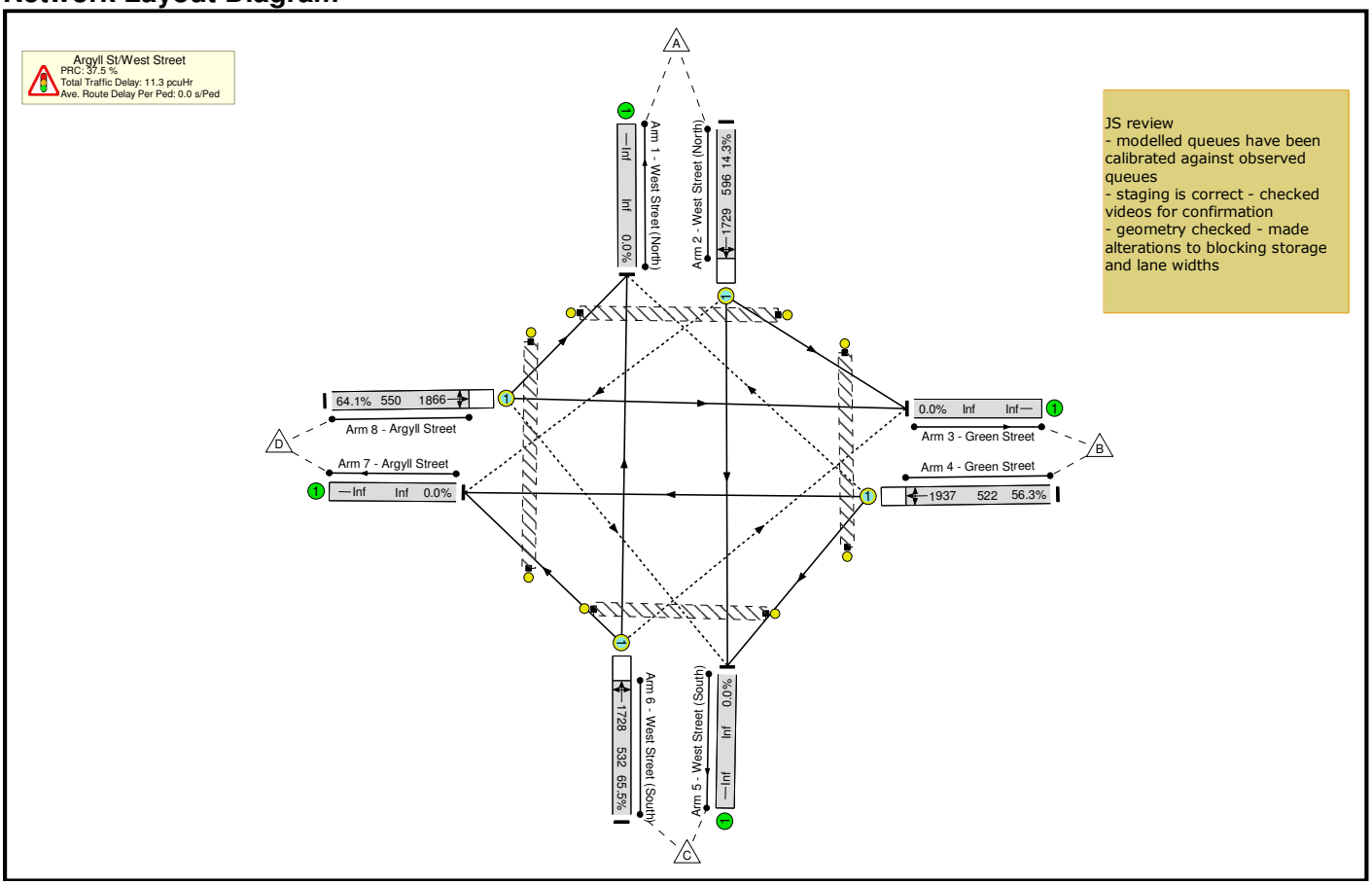
Total Delay for Signalled Lanes (pcuHr): 70.11
Total Delay Over All Lanes(pcuHr): 70.11

Cycle Time (s): 90

Basic Results Summary

Scenario 9: 'AM BASE 2017 (120 secs)' (FG1: 'AM Base 2017', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**65.5%**	**200**	**0**	**3**	**11.3**	**-**	**-**
Argyll St/West Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**65.5%**	**200**	**0**	**3**	**11.3**	**-**	**-**
2/1	West Street (North) Left Ahead Right	O	A		1	42	-	85	1729	596	14.3%	6	0	0	0.7	29.5	2.0
4/1	Green Street Right Left Ahead	O	D		1	51	-	294	1937	522	56.3%	25	0	0	2.6	31.6	7.3
6/1	West Street (South) Ahead Right Left	O	B	E	1	42	0	348	1728	532	65.5%	152	0	3	4.2	43.8	10.7
8/1	Argyll Street Left Ahead Right	O	C		1	51	-	353	1866	550	64.1%	17	0	0	3.8	38.7	10.7
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

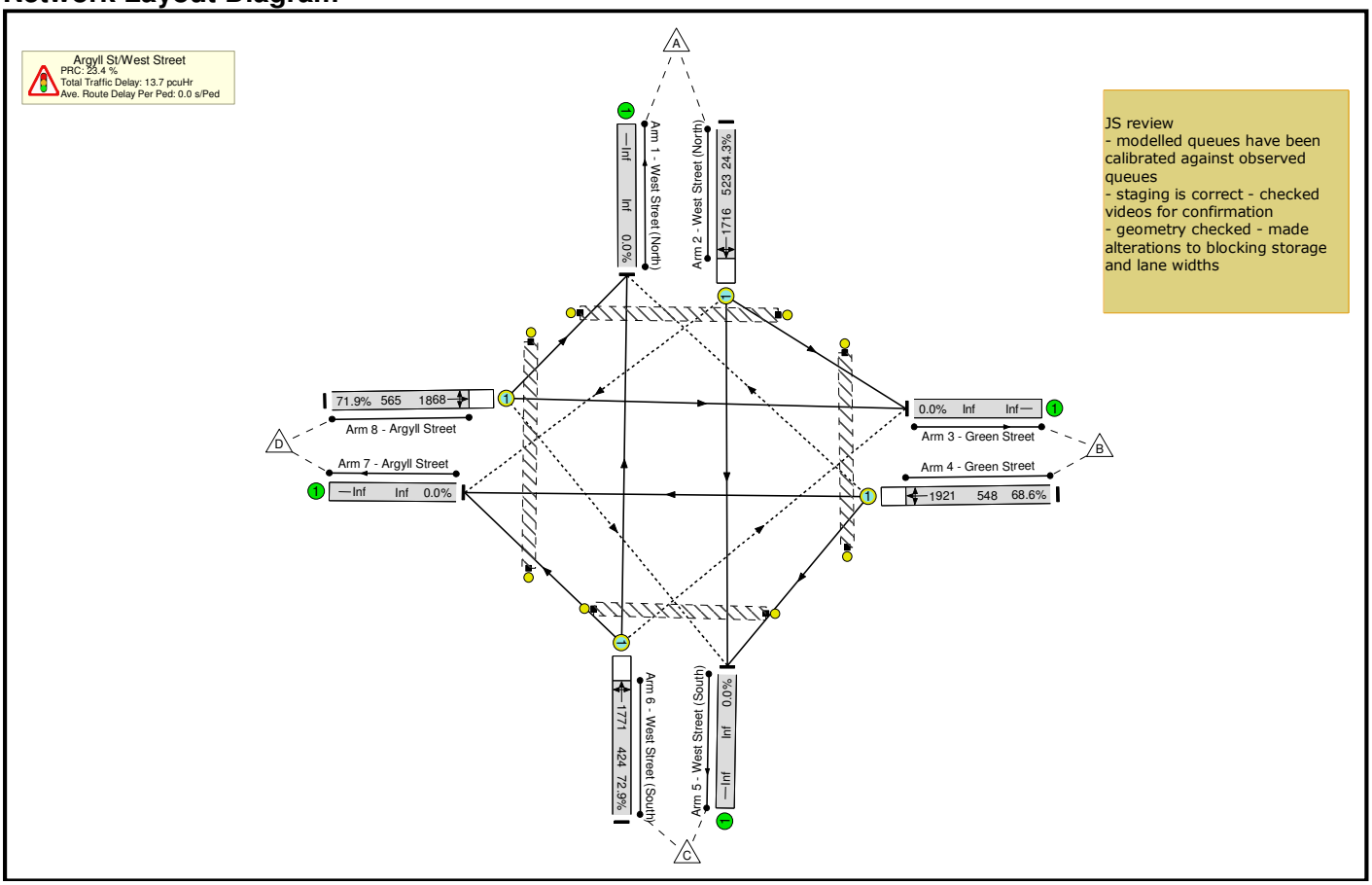
C1 PRC for Signalled Lanes (%): 37.5 Total Delay for Signalled Lanes (pcuHr): 11.31 Cycle Time (s): 120

PRC Over All Lanes (%): 37.5 Total Delay Over All Lanes(pcuHr): 11.31

Basic Results Summary

Scenario 10: 'PM BASE 2017 (120 secs)' (FG2: 'PM Base 2017', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.9%**	**173**	**0**	**3**	**13.7**	**-**	**-**
Argyll St/West Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.9%**	**173**	**0**	**3**	**13.7**	**-**	**-**
2/1	West Street (North) Left Ahead Right	O	A		1	36	-	127	1716	523	24.3%	5	0	0	1.3	35.6	3.3
4/1	Green Street Right Left Ahead	O	D		1	57	-	376	1921	548	68.6%	23	0	0	3.3	31.5	9.3
6/1	West Street (South) Ahead Right Left	O	B	E	1	36	0	309	1771	424	72.9%	119	0	2	4.7	55.3	10.7
8/1	Argyll Street Left Ahead Right	O	C		1	57	-	406	1868	565	71.9%	27	0	0	4.4	39.2	12.4
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

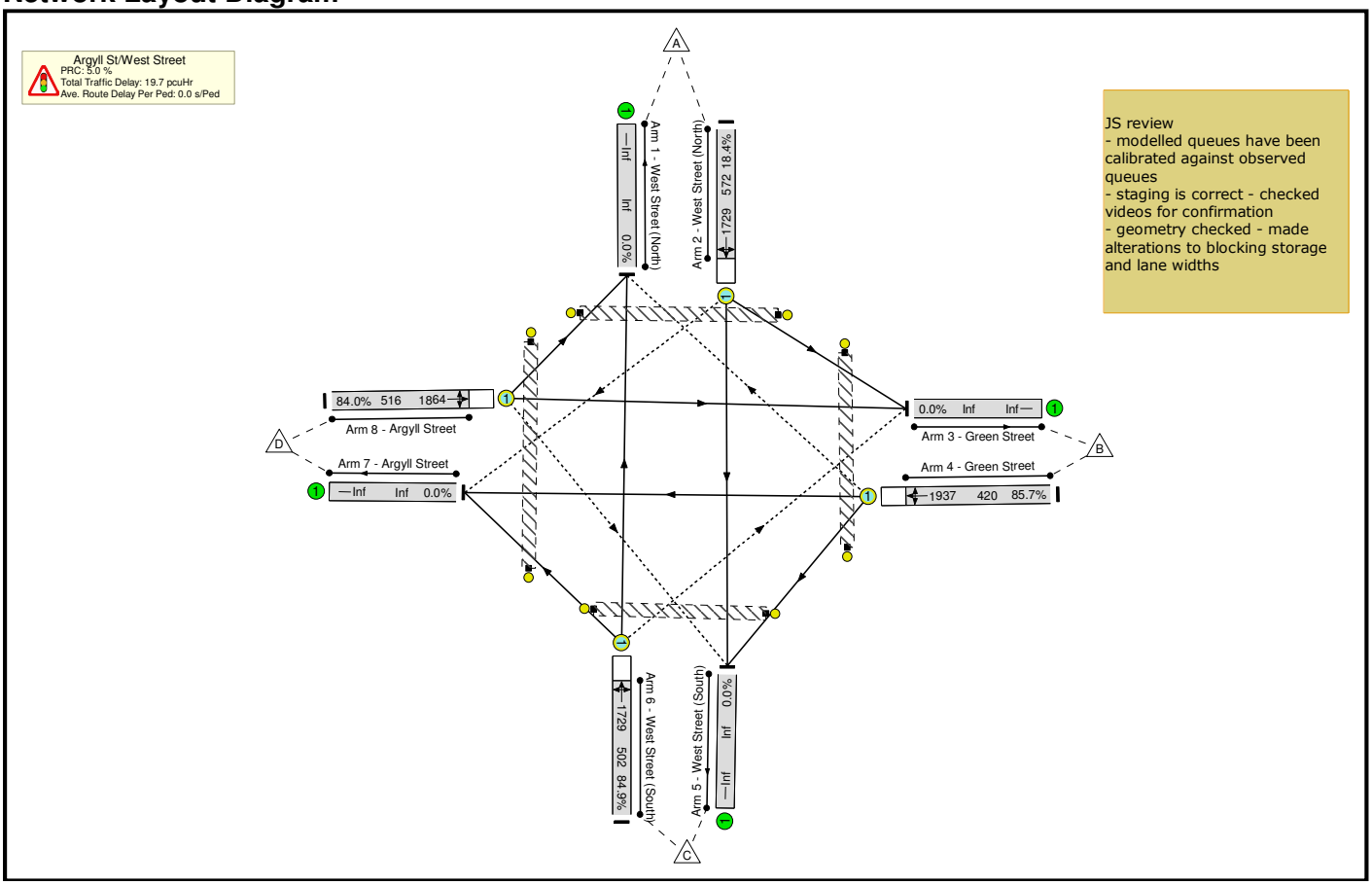
C1 PRC for Signalled Lanes (%): 23.4 Total Delay for Signalled Lanes (pcuHr): 13.72 Cycle Time (s): 120

PRC Over All Lanes (%): 23.4 Total Delay Over All Lanes(pcuHr): 13.72

Basic Results Summary

Scenario 11: 'AM DN 2034 (120 secs)' (FG3: 'AM DN 2034', 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	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.7%**	**244**	**0**	**5**	**19.7**	**-**	**-**
Argyll St/West Street	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.7%**	**244**	**0**	**5**	**19.7**	**-**	**-**
2/1	West Street (North) Left Ahead Right	O	A		1	41	-	105	1729	572	18.4%	7	0	0	0.9	30.9	2.5
4/1	Green Street Right Left Ahead	O	D		1	52	-	360	1937	420	85.7%	30	0	1	5.2	52.0	11.2
6/1	West Street (South) Ahead Right Left	O	B	E	1	41	0	426	1729	502	84.9%	187	0	3	7.2	60.6	15.8
8/1	Argyll Street Left Ahead Right	O	C		1	52	-	433	1864	516	84.0%	20	0	1	6.5	53.9	15.5
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

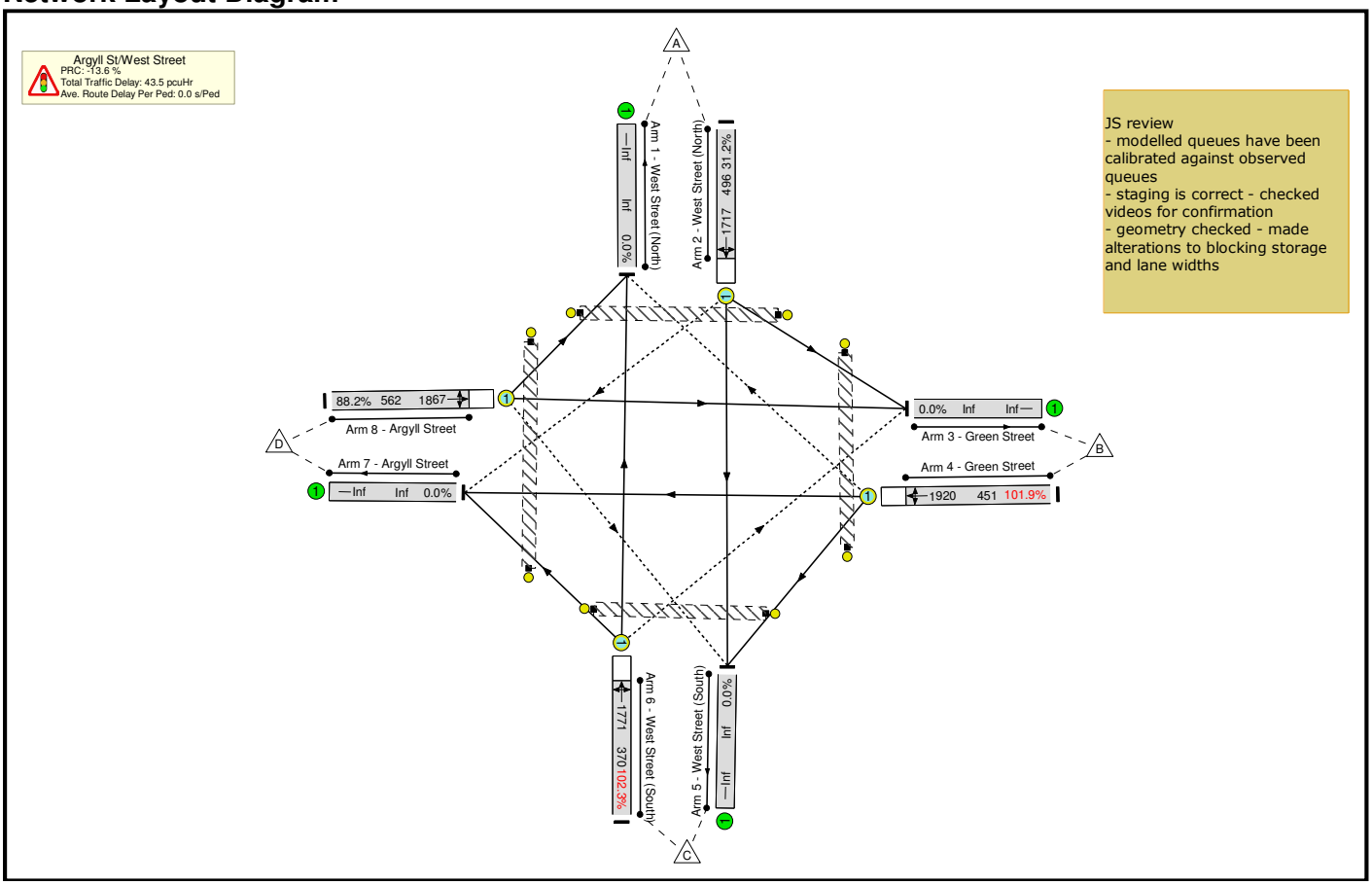
C1 PRC for Signalled Lanes (%): 5.0 Total Delay for Signalled Lanes (pcuHr): 19.75 Cycle Time (s): 120

PRC Over All Lanes (%): 5.0 Total Delay Over All Lanes(pcuHr): 19.75

Basic Results Summary

Scenario 12: 'PM DN 2034 (120 secs)' (FG4: 'PM DN 2034', 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	-	-	-		-	-	-	-	-	-	**102.3%**	**184**	**0**	**27**	**43.5**	-	-
Argyll St/West Street	-	-	-		-	-	-	-	-	-	**102.3%**	**184**	**0**	**27**	**43.5**	-	-
2/1	West Street (North) Left Ahead Right	O	A		1	34	-	155	1717	496	31.2%	6	0	0	1.7	38.4	4.2
4/1	Green Street Right Left Ahead	O	D		1	59	-	459	1920	451	101.9%	25	0	2	16.7	130.6	24.5
6/1	West Street (South) Ahead Right Left	O	B	E	1	34	0	378	1771	370	102.3%	121	0	23	17.3	165.0	24.9
8/1	Argyll Street Left Ahead Right	O	C		1	59	-	496	1867	562	88.2%	31	0	2	7.9	57.2	18.5
Ped Link: P1	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	F		1	6	-	0	-	0	0.0%	-	-	-	-	-	-

C1

PRC for Signalled Lanes (%): -13.6
PRC Over All Lanes (%): -13.6

Total Delay for Signalled Lanes (pcuHr): 43.51
Total Delay Over All Lanes(pcuHr): 43.51

Cycle Time (s): 120