Land known as Bull Field, Warish Hall Farm

Consultation Response Document

Appendix E

Proposed Residential Development – Bull Field, Takeley – Transport Assessment Addendum Rev 1 (Dated: 28/09/2023)..

Proposed Residential Development
Bull Field, Takeley

Transport Assessment Addendum

For

Weston Homes

Document Control Sheet

Proposed Residential Development

Bull Field, Takeley

Weston Homes

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
15/09/2023	Rev 1	CM / JNR	JNR
28/09/2023	Rev 1.1	CM / JNR	JNR

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Contents

Appendices

1.0 Introduction

Preamble

1.1 This transport addendum report is prepared on behalf of Weston Homes (the 'Applicant') in relation to planning application reference S62A/2023/0019/UTT/23/1583/PINS ('the Planning Application').

1.2 The Planning Application, located on land known as Bull Field, Takeley (the 'Application Site') seeks permission for a development (the 'Proposed Development') comprising:

Access to/from Parsonage Road between Weston Group Business Centre and Innovation Centre buildings leading to 96 dwellings on Bulls Field, south of Prior's Wood, including associated parking, landscaping, public open space, land for the expansion of Roseacres Primary School, pedestrian and cycle routes to Smiths Green Lane together with associated infrastructure

1.3 The Planning Application was accompanied by the following documents:

- Proposed Mixed Use Development, Bull Field, Takeley *Transport Assessment Report* dated 1st June 2023 (the 'TAR'); and
- Proposed Mixed Use Development, Bull Field, Takeley *Residential Travel Plan* dated 31st May 2023.

1.4 Following receipt these documents, comments have been received from the following consultees as follows:

- Essex County Council Highway Authority (Dated: 24.08.23);
- Uttlesford District Council (Dated: 04.09.23);
- Takeley Parish Council (Dated: 04.09.23);
- Active Travel England (Dated: 07.09.23); and
- Manchester Airport Group (Dated: 05.09.23).

1.5 In addition National Highways, who, in the vicinity of the Application Site, is responsible for the operation and maintenance of the M11 (including junction 8) to the west of Takeley and the A120 to the north of Takeley responded confirming that they were satisfied the transport assessment work provided and raised neither concerns nor an objection.

Context

1.6 The Proposed Development was the subject of a previous planning application reference UTT/21/1987/FUL (the '2021 Application') which also included land to the west and east of the Application Site. These two further parcels of land have been the subject of separate planning applications as follows:

- Planning application reference UTT/22/2744/FUL - Land known as 7 Acres Warish Hall Farm Parsonage Road Takeley (the '7 Acres Application'). This proposal included the means of access from Parsonage Road that was included in the 2021 Application.
- Planning application reference UTT/23/0902/PINS | S62A/2023/0016 - Land at Warish Hall Farm North Of Jacks Lane Smiths Green Lane Takeley (the 'Jacks Field Application'). It is currently the subject of planning application UTT/22/3126/FUL which is yet to be decided.

1.7 The 2021 Application sought permission, inter alia, for:

Mixed use development including: revised access to/from Parsonage Road between Weston Group Business Centre and Innovation Centre buildings leading to: light industrial/flexible employment units (c.3568sqm) including health care medical facility/flexible employment building (Use Class E); 126

dwellings on Bulls Field, south of Prior's Wood: 24 dwellings west of and with access from Smiths Green Lane;

1.8 The current Planning Application retains the same access proposals from Parsonage Road but reduces the number of dwellings relying on this access from 126 to 96. The 2021 Application also included the same land uses for which the 7 Acres Application sought permission including 3568sqm of light industrial/flexible employment units.

1.9 The 2021 Application highway access proposals from Parsonage Road were the subject a planning application and subsequent planning inquiry. The County Highway Authority (CHA) and the Inspector concluded that the proposed means of access from Parsonage Road for all modes was safe and suitable for the scale of development being proposed.

1.10 As noted above, the 7 Acres Application included the means of access from Parsonage Road that was included in the 2021 Application and found to be suitable for a larger quantum of development than the Planning Application and the 7 Acres Application in combination. The 7 Acres Application has received planning permission and at the time of preparing this report is under construction. The mechanism for constructing the means of access to Parsonage Road is a section 278 [highways Act 1980] agreement entered into with the CHA, requiring, inter alia, technical approval of the detailed design and Stage 1 and Stage 2 Road Safety Audits. Please refer to **Appendix D** (Dwg. No. 2007045-02A), which sets out this application in the context of the approved development on the land known as 7 Acres (Ref. No. UTT/22/2744/FUL) and the proposals currently pending consideration on the land known as Jacks (Ref. No. UTT/22/3126/FUL).

1.11 In short, the primary transport and highway differences between the Proposed Development in combination with the 7 Acres Application / Jacks Field Application and the 2021 Application comprise:

- A reduced number of residential dwellings compared to the 2021 Application resulting in fewer vehicular trips; and
- Removal of driveway accesses to Bull Field from Smiths Green resulting in less development traffic on Smiths Green and lower risk of collisions.

Consultation and Liaison

1.12 The applicant had already undertake significant consultation and liaison with National Highways and the CHA in progressing the above planning applications. This work, agreed as suitable by CHA and NH (as evidenced by no highway objections being raised in relation to the 2021 Application, the 7 Acre Application or the Jacks Field Application), was therefore referred to in the transport assessment work undertaken to assess the Proposed Development. This included forming the basis of Section 5 of the Transport Assessment, with the residential TRICS outputs, traffic distribution and traffic modelling extents replicating the previous assessments.

1.13 In addition the Applicant sought pre-application advice from the CHA specifically in relation to the Proposed Development. This included meetings on 22nd November 2022 and 2nd March 2023 alongside the Local Planning Authority.

Scope of this Addendum

1.14 This addendum is drafted to respond to the comments received from the five consultees referenced in paragraph 1.4 above. No comments were received from National Highways who have no objection.

1.15 The comments have been grouped into 3 main headings comprising:

- Highway access and safety;
- Active Travel; and

- Traffic generation and impacts (including cumulative impacts)

1.16 Each of these is considered in turn below with clarification or additional information provided as required.

2.0 Highway Access and safety

Stage 1 Road Safety Audit

2.1 The access arrangements for the 2021 Application were designed to safely accommodate vehicular and active travel trips primarily arising from:

- 126 dwellings; and
- 3568sqm of light industrial/flexible employment units

2.2 The access arrangements were the subject of a stage 1 Road Safety Audit (RSA1), a copy of which is provided at **Appendix A**. the CHA was satisfied that these access proposals were safe and suitable for this quantum of development.

2.3 The Proposed Development in combination with the 7 Acres Application would result in the access on to Parsonage Road having to accommodate vehicular and active travel trips primarily arising from:

- 96 dwellings; and
- 3568sqm of light industrial/flexible employment units

2.4 This is a lower quantum of development from which fewer trips would be expected compared to the 2021 Application.

2.5 It is further noted that the forming of the access on to Parsonage Road does not form part of the Planning Application. This junction is an existing junction established by planning permission UTT/22/2744/FUL.

2.6 Nonetheless, in response to the request, a further RSA1 has been requested and is provided at **Appendix B**.

Personal Injury Collision Data

2.7 Planning applications:

- UTT/21/1987/FUL
- UTT/22/2744/FUL
- UTT/23/0902/PINS | S62A/2023/0016
- UTT/22/3126/FUL

2.8 All relate either to the Application Site or else adjacent parcels of land. Each application was accompanied by a transport assessment that relied on Crashmap Data. No concerns or objections were raised by CHA officers regarding the use of Crashmap data, which is the Government's interactive portal for accessing details of the STATS19 road collision forms which are completed by the Police on attending a road collision.

2.9 The Governments STATS19 datasets is the same data that is used by Safer Essex Road Partnership (SERP). SERP independently operates a local database called 'Traffweb" which nonetheless draws on the same Government data sources as Crashmap. Indeed both Crashmap and Traffweb are simply GIS tools for displaying the Government's raw road statistics data, which is available from the Department for Transport.

2.10 Nonetheless it is noted that Traffweb has more recent recorded collision data than is available through the Crashmap interface. It also contains more recent recorded collision data than is publicly available from the Department for Transport.

2.11 A review of recorded collisions has therefore been undertaken for the period 1st January 2022 to the most recently available data on Traffweb which is 31st July 2023 and for the same study area as used in the Transport Assessment. This is provided below. Green triangles represent a collision resulting in a slight injury and blue circle a collision resulting in a series injury. Further collision data has also been obtained from Essex for the area which notes an additional collision occurring at the 4 Ashes signal junction.

Figure 2.1 – Traffweb data 1st January 2022 to 31st July 2023

2.12 The collision data reveals that during the study period, there was a total of 5 recorded collisions. No collisions were recorded at the junction of Parsonage Road / Westons Business Centre. No collisions were recorded at the junction of Smiths Green / B1256.

2.13 Two slight collisions and one serious collision were recorded 'near to' at the 4 Ashes signal junction, with the serious collision occurring in August 2018. A review of the Essex data suggests that the serious collision involved a vehicle travelling west on the B1256 collided with a vehicle travelling eastbound and performing a right turn manoeuvre, though failing to give way to the oncoming traffic. This collision occurred in dry conditions during daylight hours and attributed to 'Disobeyed Give Way or Stop Sign or Markings' by the turning vehicle.

2.14 The slight collisions were attributed to 'Failed to Look Properly' as a vehicle collided with a vehicle waiting at the lights in dry daylight conditions and 'Deposit on Road' and 'Poor Turn or Manoeuvre' as a motorcyclists fell performing a right turn into Station Road in daylight hours on a wet road surface.

2.15 It is noted that there are plans to upgrade the signal arrangements at the 4 Ashes junction and CHA has been collecting S106 contributions from development in Takeley for the purpose of delivering these alterations. This is covered by a contribution from the 7 Acres Application.

Adoption of newly formed roads

2.16 The Applicant proposes that the main spine road within the development (up to the turning heads) will be adopted by the Highway Authority. The highway adoption extents are shown in "drawing no. WH202C_10_P_10.41 – Adopted Highway Plan" included at **Appendix C**.

3.0 Active Travel

Provision of Active Travel Network

3.1 The application has been submitted prior to Active Travel England (ATE) becoming a statutory consultee, which came into effect on 1st June 2023. In line with the standing advice offered on applications submitted before this date, ATE provide consultation only on applications submitted since this date.

3.2 The 2021 Application presented a single, comprehensive strategy for the three sites which are currently the subject of individual planning applications. This was based on a route audit of existing active travel infrastructure, a copy of which is provided at **Appendix D**.

3.3 It is recognised therefore that by splitting what was a single strategy between three separate planning applications, it is not immediately clear how the active travel infrastructure being provided by each of these applications individually will relate to each other to form an integrated active travel framework across the three sites.

3.4 A plan (Dwg. No. 2007045-02A) illustrating that these three application sites have been designed in order to provide an integrated active travel network is provided at **Appendix E**. This illustrates the following provision:

- Improvements to the surfacing and lighting on restricted byway 25 between Garden Drive and Jack's Lane;
- New shared footway / cycleway along the northern edge of the Application Site as far as the southwest corner of Prior's Wood (this point is referred to hereafter 'the Prior's Wood Junction'. This will follow the route of Takeley FP40;
- A new shared footway cycleway to extend from the Prior's Wood Junction and connect to Parsonage Road (this is already an approved scheme under planning application UTT/22/2744/FUL);
- Improvements to Takeley FP40 between the Prior's Wood Junction and where it meets Parsonage Road to make it more attractive for pedestrian usage. This will include provision of physical measures to reinforce that cyclists are not permitted to use this route;
- Provision of a shared footway / cycleway along the southern edge of the Application Site connecting Smiths Green and the area of land identified in the Proposed Development for a school extension;
- Provision of a new footway connection along the eastern side of the Application Site connecting Takeley FP40 and Takeley FP41; and
- Retention of Takeley FP40 and FP41 in their current location.

3.5 Some of the above features are also included in planning application UTT/22/2744/FUL and some were included in planning application UTT/23/0902/PINS | S62A/2023/0016, are included in the details for planning application UTT/22/3126/FUL.

3.6 The Applicant is willing to accept a suitably worded condition or obligation to ensure that all the works shown on the plan provided at **Appendix E** are delivered as part of this Planning Application in the event that either the delivery of the 7 Acrea Application permitted works stalls or else the planning application for Jacks Field (current live application UTT/22/3126/FUL) fails.

3.7 The applicant is also willing to contribute towards the provision of a pedestrian crossing facility in the vicinity of the bus stops on Parsonage Road. The exact location and design of this will be agreed with the highway authority and will need to integrate with the emerging proposals for a cycle route along Parsonage Road.

3.8 Specifically turning to the response from Active Travel England, the following conditions are requested to be applied should the Planning Application be permitted:

Pedestrian and cycle access

No development shall commence until details of the site access points for pedestrians and/or cyclists shown in principle on drawing numbers WH202C-10-P-10.20 and 2007045-SK-11 have been submitted to and approved in writing by the planning authority in consultation with the local highway authority and Active Travel England. The accesses should include associated crossings of Smiths Green and Parsonage Road. The development shall not be occupied until the means of access for pedestrians and/or cyclists for the development or phase of development have been constructed in accordance with the approved details which shall thereafter be retained for access purposes only.

Reason: In the interests of highway safety and permeability of the site for pedestrians and cyclists.

Walking and cycling network

No development shall take place until a scheme is submitted to and approved by the planning authority in consultation with the local highway authority and Active Travel England to identify how the treatment of Public Rights of Way (PROW) will deliver the proposed active travel network in the submitted plans. The scheme should identify the required legal mechanisms and details of dimensions, surfacing, lighting, drainage, structures and signage. The approved scheme shall be implemented for the following PROWs:

PROW 40 between Parsonage Road and Smith's Green

PROW 41 between Leyfield and Smith's Green.

Where appropriate they should be offered for adoption as part of the development highway network.

Reason: In the interests of promoting walking, wheeling and cycling within and to and form the development in accordance with the National Planning Policy Framework paragraph 110.

3.9 The Applicant is willing to accept both these conditions with the following exception:

- The details of drawing number 2007045-SK-11 and subsequent revisions have already been submitted to and approved by the CHA. They have obtained technical approval and the Applicant has signed a s278 agreement with CHA to deliver the works. The works are being built at the time of preparing this report. There is therefore no further agreement required to deliver the details shown on drawing number 2007045-SK-11.

3.10 It is suggested therefore that the reference to drawing number 2007045-SK-11 is replaced with "drawing number 2007045-02A" which illustrates all the active travel infrastructure being proposed and how it aligns and is included at **Appendix E** of this report.

Off-site Sustainable Travel improvements

3.11 Planning applications:

- UTT/21/1987/FUL
- UTT/22/2744/FUL
- UTT/23/0902/PINS | S62A/2023/0016
- UTT/22/3126/FUL

3.12 All relate either to the Application Site or else adjacent parcels of land. Having regard to the scale of each of these developments, the Applicant and the CHA reached an agreement regarding a suitable and proportionate financial contribution towards:

- Provision of off-site cycle infrastructure including County plans to provide a new cycle route between Takeley and Stansted Airport; and
- Enhancements to existing bus provision within Takeley.

3.13 The Applicant is willing to enter in to a similar agreement with respect to the Application Site.

Parking Provision

Car Parking

3.14 For clarity the car parking provision referred to in the Planning Statement of 230 spaces including 24 visitor spaces is in accordance with the relevant standards as shown on Dwg. No. WH202C_10_P_10.35 – Parking Strategy. The transport assessment report reference excluded garages.

Cycle Parking

3.15 Cycle parking will be provided in accordance with the adopted cycle parking standards. To ensure this the Applicant is willing to accept the following condition requested by Active Travel England:

Cycle Parking

No development shall commence until details of the proposed cycle parking have been submitted to and approved in writing by the planning authority in consultation with the local highway authority and Active Travel England. The cycle parking provision and design shall accord with the guidance in the Essex Parking Standards (2009). The development shall not be occupied until the cycle parking has been constructed and completed in accordance with the approved details and is available for use, and shall thereafter be kept free of obstruction and permanently available for the parking of cycles only.

Reason: To comply with Policy GEN8 Vehicle Parking Standards of the Uttlesford Local Plan 2005 which adopts the Essex Parking Standards (2009) as Supplementary Planning Guidance.

Travel Plan

3.16 The Planning Application was supported by a residential travel plan (RTP).

3.17 Table 4.1 of the RTP sets out the current forecast mode split arising from the Proposed Development. Table 4.2 of the RTP suggests mode split targets for the RTP.

3.18 Paragraph 3.1 of the RTP states that a Travel Plan Coordinator (TPC) will be appointed to administer the travel plan including liaison with local authorities to agree travel plan details. Table 4.3 confirms that the TPC will be appointed prior to occupation.

3.19 Table 4.3 further identifies that:

- The details of the travel plan (which will include any alterations to the suggested mode split targets) will be agreed prior to occupation;
- Resident surveys will be undertaken post occupation and presented a travel plan monitoring report issued to CHA; and
- The TPC will discuss the outcome of the surveys with officers of CHA and review the programme of measures and / or targets accordingly.

3.20 In essence, the RTP is a starting point from which sustainable and active travel can be managed and monitored.

3.21 The RTP is secured within the draft s106 agreement.

4.0 Highway Impact

Trip generation selection

4.1 The residential traffic generation data used to assess the highway impact of the Proposed Development is presented in table 5.1 of the TAR. As stated in paragraph 5.2 of the TAR, this data is exactly the same as the data used for assessing the Jacks Field Application (as presented in Table 5.1 of the supporting transport assessment to planning application UTT/23/0902/PINS | S62A/2023/0016). The CHA considered the residential traffic generation data used to assess the Jacks Field Application acceptable. CHA continued to raise no concerns regarding the suitability of this data at least until 25th July 2023, the date of the Section 62A hearing for UTT/23/0902/PINS | S62A/2023/0016 at which CHA presented oral evidence.

4.2 The same residential traffic forecasting data was used the transport assessment provided in support of the 7 Acres Application (as presented in Table 5.1 of the supporting transport assessment to planning application UTT/22/2744/FUL). The CHA raised neither concern nor objection regarding this data and the 7 Acres Application received planning permission.

4.3 It is somewhat surprising therefore that the suitability of the traffic generation data is being questioned with regards to this Planning Application.

4.4 Nonetheless, alternative traffic generation rates to those already agreed by the CHA have been considered which exclude sites from the TRICs database which are located in areas with car ownership levels of less than 1.1 vehicle per dwelling. The sites selected are provided at **Appendix F**. A summary of the resulting forecast peak hour traffic volumes arising from the Proposed Development is provided in the table below.

	AM Peak Hour Rate per dwelling	PM Peak Hour Rate per dwelling	AM Peak Hour Traffic Volumes	PM Peak Hour Traffic Volumes
Data accepted by CHA[1]	0.498	0.492	48	47
Alternative Data Assumptions	0.515	0.506	49	49
Difference	0.017	0.014	1.6	1.3

Table 4.1 – Traffic Generation[2] arising from Alternative TRICS Assumptions

4.5 The table above demonstrates that the application of alternative data assumptions could lead to an additional 1.6 vehicular journeys during the morning peak hour and 1.3 during the evening peak hour. Such differences in traffic volumes would be imperceptible on the road network.

Frequency of Pedestrian phase being called

4.6 The Linsig model included in the TAR is the same model used to assess the impacts arising from the 7 Acres Application. No concerns were raised regarding the frequency of the all-red pedestrian stage being called. In total the all-red pedestrian stage is called 26 times during a one hour period. The 7 Acres Application is now approved and under construction.

4.7 Nonetheless in response to the comment from CHA as site visit was undertaken on 12th September 2023 during the morning peak to observe the frequency of use. The enumerators notes are provided at **Appendix G**.

4.8 The survey identified that during the busiest period on the network that was surveyed (07:50 – 08:50) the pedestrian all-red stage was called 26 times. This aligns with the assumptions in the Linsig model.

[1] In relation to planning applications UTT/23/0902/PINS | S62A/2023/0016 & UTT/22/2744/FUL
[2] Based on development amounting to 96 dwellings

4.9 Further observation noted that the pedestrian crossing facilities were in use throughout the survey period with demand arising from the following flow groups (albeit with some overlap – times are approximate and represent what appeared to the enumerator to be the primary user group):

- 7:50 – 08:15:- secondary school pupils;
- 08:15 – 08:30:- people travelling to work / other non-education purposes;
- 08:30 – 08:45:- primary school pupils many of whom were accompanied; and
- 08:45 – 08:50 (and up until 09:00):- primary school pupil escorts returning from dropping off pupils.

4.10 Based on the above it is concluded that the Linsig model included in the TAR suitably reflects the actual usage of the all-red pedestrian stage at the 4 Ashes Junction.

Survey Timing

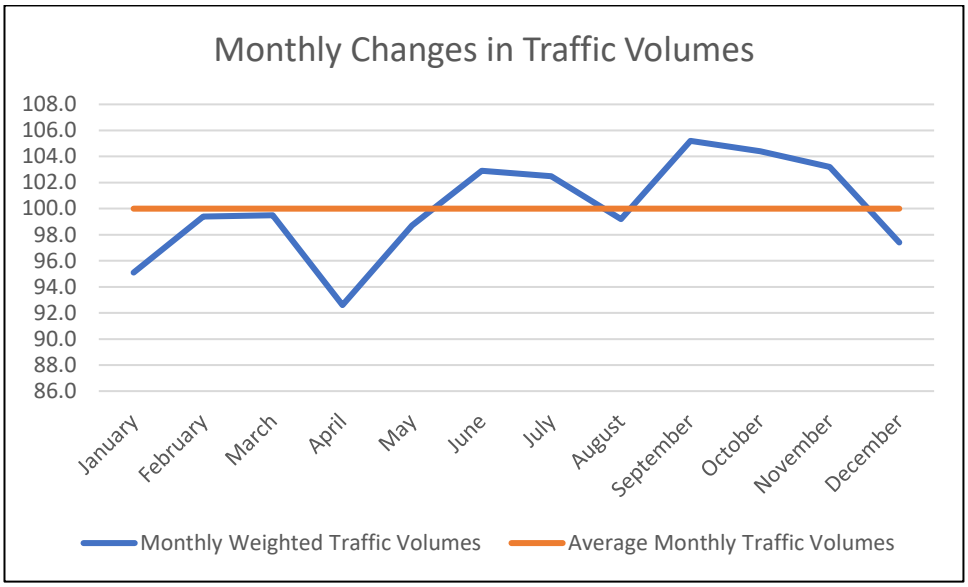
4.11 Key factors to consider when selecting a date for a traffic surveys are set out in TAG Unit 1.2. These include:

- a 'neutral', or representative, month;
- avoid main and local holiday periods;
- avoid local school holidays and half terms;
- avoid any other abnormal traffic periods; and
- avoid Fridays.

4.12 The traffic surveys provided in the TAR were undertaken on 7th February 2023. They were undertaken on a day that had no public or local holidays. There were no circumstances identified that could have led to abnormal traffic – for example prior to the surveys being undertaken a search of road works that might affect traffic flows (including on the A120 around Stansted Airport or on the M11) was undertaken and none identified.

4.13 The point of dispute now raised by the CHA is undertaking them in February which CHA now does not consider to be a neutral month, albeit no such concern was raised by the CHA during the pre-application meeting held on 2nd March 2023 at which CHA were advised that the surveys had been completed in February.

4.14 Nonetheless, so assist reference has been made to the Road Traffic Statistics published by the Department for Transport in their National Road Traffic Survey. Specifically reference has been made to table TRA0305 which provides data on the average daily traffic flows by month in Great Britain. Data for the most recent 5-year period available, 2017 to 2022, has been considered. The data is presented in the chart below.



4.15 The chart above shows that traffic volumes in February and March both align with the average for the year. April, May December and August traffic volumes are below average with the remaining months above average.

4.16 Based on this, it is clear that February represents an average month for the year.

4.17 Notwithstanding this, on a without prejudice basis, a sensitivity test has been undertaken that increases the traffic volume tested at the 4 Ashes junction by 5%. This has been added to all traffic in the future year (2028) Linsig Model including:

- Back ground traffic growth;
- Committed and permitted development traffic forecasts; and
- The Proposed Development Traffic Forecasts.

4.18 The results of the modelling are provided at **Appendix H** and summarised in the table below.

Scenario	AM Peak			PM Peak		
	% Deg Sat	Delay	PRC	% Deg Sat	Delay	PRC
2028 Without Development	79.1	22.09	13.7	85.1	29.55	5.7
2028 With Development	80.0	26.13	12.5	84.2	29.24	6.9

Table 4.1 – B1256 – Four Ashes Modelling Summary

4.19 The results presented above indicate that once development related traffic is added to the highway network the overall performance of junctions will be subject to relatively minor changes in capacity and delays.

4.20 The conclusion of the TAR at paragraph 5.15 therefore remains the same namely that:

'…the Proposed Development will not result in severe or unacceptable impacts in this location.'

Speed survey Data

4.21 Speed Survey Data is provided at **Appendix I**.

Cumulative Impacts

4.22 Cumulative traffic impacts on the road network, including Parsonage Road and Junction 8 of the M11, are considered in paragraphs 5.6 – 5.8 of the TAR.

4.23 TEMPRO growth rates has been applied in order to account background traffic growth. The growth rates are included at Appendix L of the TAR and account for growth between 2023 and 2028. These are the years in which the surveys were conducted and the expected date of completion respectively.

4.24 Traffic associated with the following committed developments is included in all future scenarios:

- Land East of Parsonage Road, including the proposed care home (Refs: UTT/19/0393/OP and UTT/19/0394/OP);
- Land West of Parsonage Road (Ref: UTT/19/0393/OP);
- Land West of Woodside Way (Ref: UTT/13/2107/OP);
- Land East of Elsenham (Ref: UTT/19/0462/FUL);
- Isabel Road, Elsenham (Ref: UTT/19/2470/OP);
- 7 Acres (Ref: UTT/22/2744/FUL); and,
- Jacks (Ref: UTT/22/3126/FUL).

4.25 This approach and list of committed developments was discussed and agreed with the CHA and National Highways. All future year assessment work includes increases in traffic in accordance with the above list of schemes / background traffic growth.

4.26 National Highways raises no concerns regarding the cumulative impact of the Proposed Development on the operational capacity or safety of the M11 (including at junction 8) or the A120.

Appendix A

Initial Stage 1 Road Safety Audit

DEVELOPMENT AT WARISH HALL FARM, TAKELEY

Proposed Development Accesses

INTERIM Stage 1 Road Safety Audit
Requested by Motion
DRAFT

October 2021

Gateway TSP

Road Safety Engineering

Project:	Development at Warish Hall Farm, Takeley Proposed Development Accesses
Client:	Motion
Project Sponsor:	Essex County Council
Document:	INTERIM Stage 1 Road Safety Audit
Gateway TSP ref:	SG/WP/2007045 RSA1 (interim) d1.0
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CONTENTS

Appendices

1 INTRODUCTION

1.1 This report describes a Stage 1 Road Safety Audit (RSA) of development site accesses serving a mixed-use development on the north side of Takeley, in Essex.

1.2 The highway works considered by this Audit comprise one existing and seven new simple priority junctions. The existing access is on the east side of Parsonage Road, some 35 metres north of Garnetts (opposite), and serves the Weston Group Business Centre. As a result of the proposed development, it will provide access to approximately 120 new dwellings in addition to the business centre.

1.3 Parsonage Road is a two-way single carriageway road with no lighting and some parking restrictions at junctions and parking bays. A footway and verge run along each side and to the south there is a bus stop with a shelter but no 'cage' marking. It is subject to a signed 30mph speed limit.

1.4 Two of the new access roads on Smiths Green will form a crossroads junction, serving some 15 new dwellings to the west and 30 to the east. The Audit Team understands that the crossroads solution has been proposed to maintain a rural character and facilitate a cycle route along the desire line. The remaining five accesses will be minor private drives connecting to the west side of Smiths Green, each serving three dwellings.

1.5 Smiths Green is a rural two-way single carriageway without lighting or footways, but it has wide grass verges along much of its length. It is subject to a 30mph speed limit and a 7.5 tonne maximum gross vehicle weight limit, except for access.

1.6 This Road Safety Audit was carried out by Steve Giles and Wendy Palmer. Due to the current fuel distribution problems, it has not yet been possible to visit the site. We have therefore relied on Google Streetview© and it is our intention to visit the site as soon as possible to complete the audit.

1.7 The terms of reference for this RSA are as described in the Design Manual for Roads and Bridges (DMRB) document GG119. The Audit Team is independent of the project design team and has not been involved in the design process in any other capacity. The audit considers only the potential road safety implications of the scheme and has not verified compliance of the design with any other criteria.

1.8 The Audit Team has not been made aware of any Departures from Standard. Whilst reference may be made to design standards, this report is not intended to provide a design check.

1.9 Recommendations are aimed at addressing the identified potential road safety problems. However, there may be other acceptable ways to overcome a problem, considering wider constraints and opportunities; the Auditors would be pleased to discuss such alternative solutions as appropriate. The recommendations contained herein do not absolve the Designer of his/her responsibilities.

2 ITEMS CONSIDERED BY THIS ROAD SAFETY AUDIT

Document ref.	Rev.	Originator	Title
2007045-SK-11	-	Motion	Visibility Splays – Western Access
2007045-SK-12	-	Motion	Visibility Splays – Smiths Green
2007045-SK-13	-	Motion	Visibility Splays – Smiths Green

Additional/background information provided to the Audit Team

- Transport Assessment dated 08/06/2021 (Motion)

3 PREVIOUS ROAD SAFETY AUDIT

3.1 The Audit Team is not aware of any previous Road Safety Audit having been carried out on these proposals.

4 COLLISION DATA

4.1 Personal Injury Collision (PIC) information was obtained from Crashmap [redacted] which found that no PICs occurred during the latest available three-year period in the vicinity of the proposed access junctions.

5 PROBLEMS IDENTIFIED BY THIS ROAD SAFETY AUDIT

General Matters

5.1 The Audit Team raises no concerns at this Stage 1 RSA in respect of general matters.

Local Alignment

The Audit Team raises no concerns at this Stage 1 RSA in respect of local alignment.

Junctions

5.2 Problem

Lack of signage may lead to vehicle and vehicle/cycle collisions

Location: Proposed crossroads junction on Smiths Green

Drivers unfamiliar with the road layout (e.g. visitors, delivery drivers), when approaching the junction from the side roads, may 'see though' it and fail to give way/overshoot. This could cause them to collide with a cycle or vehicle travelling along Smiths Green. This problem is more likely to arise at night, particularly if the junction is to be unlit.

Recommendation

At the proposed crossroads, provide clear give-way signage/markings on both side roads. Provide street lighting if possible.

Walking, Cycling and Horse Riding

5.3 Problem

Lack of crossing facility may lead to pedestrian/vehicle collisions

Location: Parsonage Road, near site access

The residential development is likely to increase bus patronage and hence walking to the bus stops on Parsonage Road. Use of the northbound bus stop, some 120 metres south of the access road, will require passengers to cross Parsonage Road. If suitable crossing facilities are not provided pedestrians, particularly those with movement or sensory impairments, may be at risk of collisions with passing vehicles.

Recommendation

Provide a crossing facility to assist pedestrians in reaching the northbound bus stop, 120 metres south of the site access on the west side of Parsonage Road.

Traffic Signs, Carriageway Markings and Lighting

5.4 The Audit Team raises no concerns at this Stage 1 RSA in respect of traffic signs, carriageway markings and lighting.

6 AUDIT TEAM STATEMENT

We certify that this Road Safety Audit has been carried out in accordance with DMRB document GG119.

Audit Team Leader

Steve Giles
BEng (Hons),IEng, FIHE, MCIHT, MICE, CMILT, MSoRSA, HE Cert Comp
Director & Senior Road Safety Consultant

Signed: [redacted]

Date: 05/10/2021

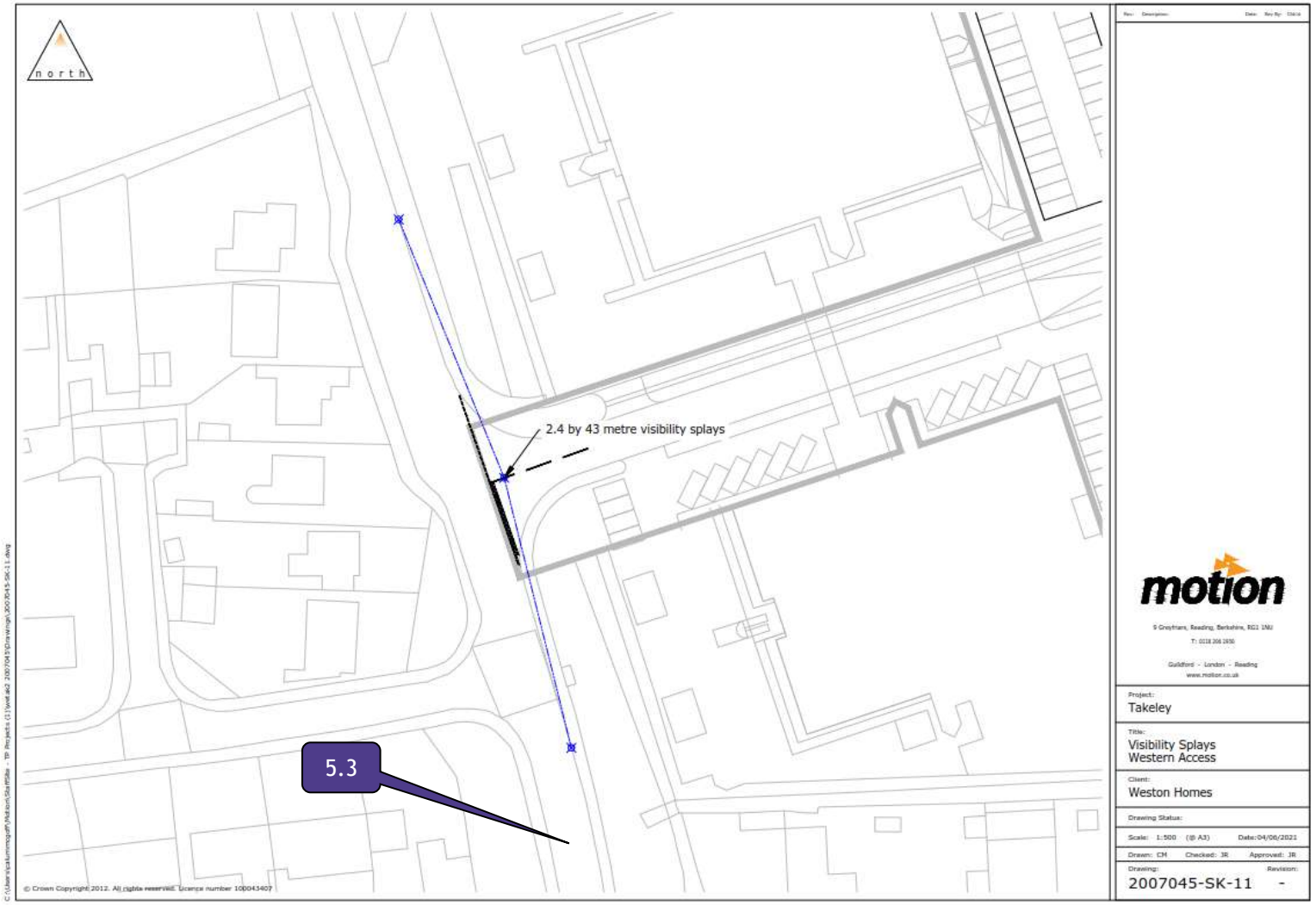
Audit Team Member(s)

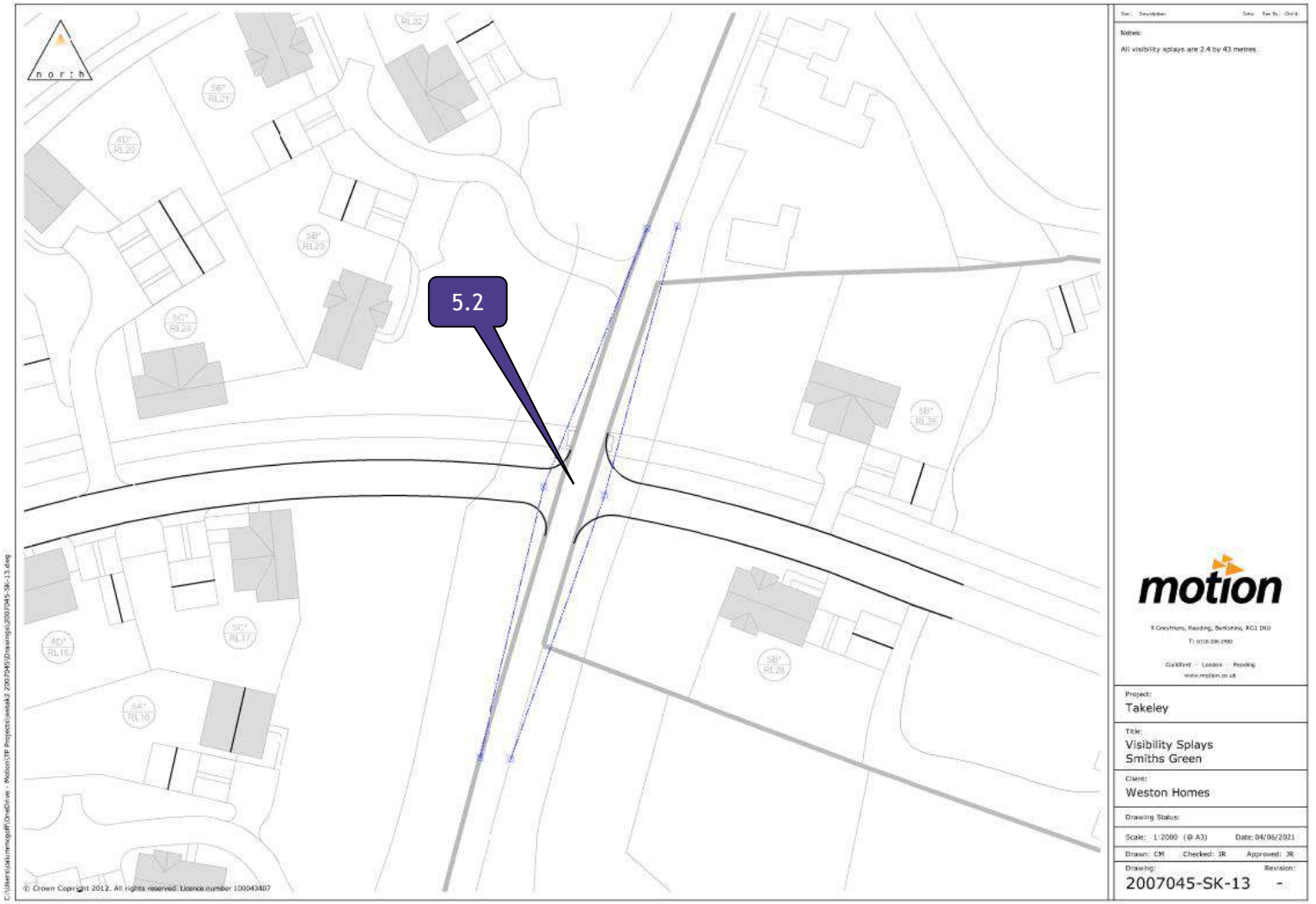
Wendy Palmer
MCIHT, MSoRSA, HE Cert Comp
Road Safety Engineer

Signed: [redacted]

Date: 05/10/2021

APPENDIX A
Location Plan(s)


north
2.4 by 43 metre visibility splays
5.3
© Crown Copyright 2012. All rights reserved. Licence number 100043407
motion
Project:
Takeley
Title:
Visibility Splays
Western Access
Client:
Weston Homes
Drawing Status:
Scale: 1:500 (@ A3)
Date:04/06/2021
Drawn: CH
Checked: JR
Approved: JR
Drawing:
2007045-SK-11
Revision:
-


north
5.2
Notes:
All visibility splays are 2.4 by 43 metres
motion
Project:
Takeley
Title:
Visibility Splays
Smiths Green
Client:
Weston Homes
Drawing Status:
Scale: 1:2000 (@ A3)
Date: 04/06/2021
Drawn: CM
Checked: JR
Approved: JR
Drawing:
2007045-SK-13
Revision:
-
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Appendix B

Updated Stage 1 Road Safety Audit

BULLS FIELD, PARSONAGE ROAD, TAKELEY

Residential Site Access Junction

Stage 1 Road Safety Audit
Prepared on behalf of Weston Homes

September 2023

Gateway RSE

Road Safety Engineering

Project:	Bulls Field, Parsonage Road, Takeley Residential Site Access Junction
Document:	Stage 1 Road Safety Audit
Design Organisation:	Motion
Overseeing Organisation:	Essex County Council
Client:	Weston Homes
Gateway RSE ref:	SG/WP/2309-04a RSA1 v1.0
Issue date:	27/09/2023
Status:	Issued as v1.0
Authorised by:	SG

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Road Safety Engineering

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Registered Office: Cheyenne House, West Street, Farnham GU9 7EQ

CONTENTS

Appendices

1 INTRODUCTION

1.1 This report describes a Stage 1 Road Safety Audit (RSA) of highway works at Takeley, within the District of Uttlesford and the County of Essex. The audit brief, dated 12th September 2023, describes the scheme as 'use of the existing Weston Homes site access on Parsonage Road to provide access to 96 dwellings on 'Bulls Field' to the rear'.

1.2 Parsonage Road is a two-way single carriageway road with no lighting and some parking restrictions at junctions and parking bays. A footway and verge run along each side and to the south there is a bus stop with a shelter but no 'cage' marking. It is subject to a signed 30mph speed limit.

1.3 This Road Safety Audit was carried out by Steve Giles and Wendy Palmer and consisted of a desktop study and a site visit, which was carried out between 14:45 and 15:30 on Monday 25th September 2023, when the weather was fine and the road surface dry. Parsonage Road was closed at the site access for construction works; however, this Audit Team previously visited the site in October 2021, when it was open.

1.4 The terms of reference for this RSA are as described in the Design Manual for Roads and Bridges (DMRB) document GG119. The Audit Team is independent of the project design team and has not been involved in the design process in any other capacity. The audit considers only the potential road safety implications of the scheme and has not verified compliance of the design with any other criteria.

1.5 The Audit Team has not been made aware of any Departures from Standard. Whilst reference may be made to design standards, this report is not intended to provide a design check.

1.6 Recommendations are aimed at addressing the identified potential road safety problems. However, there may be other acceptable ways to overcome a problem, considering wider constraints and opportunities; the Auditors would be pleased to discuss such alternative solutions as appropriate. The recommendations contained herein do not absolve the Designer of his/her responsibilities.

Collision Data

1.7 Personal Injury Collision (PIC) information was obtained from the Crashmap database [redacted]. This indicates that one PIC occurred at or close to the site during the latest five-year period. It was close to the site access in Parsonage Road, in fine/dry/dark conditions and involved a parked car, causing slight injuries.

Previous Road Safety Audit

1.8 In 2021 this Audit Team carried out a Stage 1 RSA of a scheme including a similar access onto Parsonage Road. One relevant problem was raised, which is repeated here.

2 PROBLEMS IDENTIFIED BY THIS ROAD SAFETY AUDIT

General Matters

2.1 The Audit Team raises no concerns in respect of general matters.

Local Alignment

2.2 The Audit Team raises no concerns in respect of local alignment.

Junctions

2.3 The Audit Team raises no concerns in respect of junctions.

Walking, Cycling and Horse Riding

2.4 Problem

Lack of crossing facility may lead to pedestrian/vehicle collisions

Location: Parsonage Road, near site access

The residential development is likely to increase bus patronage and hence walking to the bus stops on Parsonage Road. Use of the northbound bus stop, some 120 metres south of the access road, will require passengers to cross Parsonage Road. If suitable crossing facilities are not provided pedestrians, particularly those with movement or sensory impairments, may be at risk of collisions with passing vehicles.

Recommendation

Provide a crossing facility to assist pedestrians in reaching the northbound bus stop, 120 metres south of the site access on the west side of Parsonage Road.

Road Signs, Carriageway Markings and Lighting

2.5 The Audit Team raises no concerns in respect of road signs, carriageway markings and lighting.

3 AUDIT TEAM STATEMENT

3.1 We certify that this Road Safety Audit has been carried out in accordance with DMRB document GG119.

Audit Team Leader

Steve Giles
BEng (Hons), IEng, FIHE, MCIHT, MICE, CMILT, MSoRSA, HE Cert Comp
Senior Road Safety Engineer

Signed: [redacted]

Date: 27/09/2023

Audit Team Member(s)

Wendy Palmer
MCIHT, MSoRSA, FIHE, HE Cert Comp
Senior Road Safety Engineer

Signed: [redacted]

Date: 27/09/2023

APPENDIX A
Items Considered by this RSA

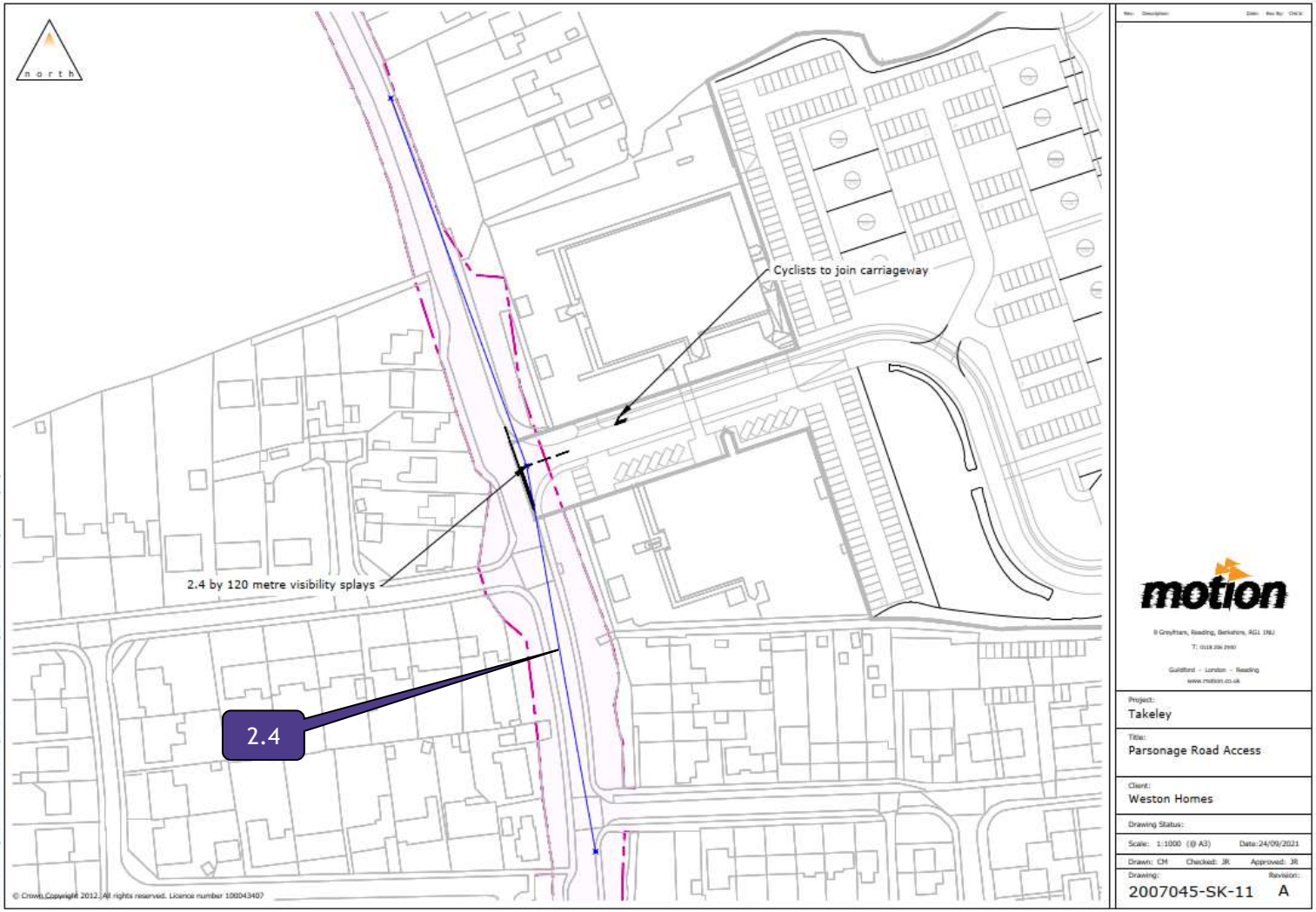
Items Considered by this Road Safety Audit

Document ref.	Rev.	Originator	Title
2007045-SK-11	A	Motion	Parsonage Road Access

Additional/background information provided to the Audit Team

- Audit Brief dated 12th September 2023 (Motion)
- Transport Assessment dated 01/06/2023 (Motion)

APPENDIX B
Location Plan(s)


north
Cyclists to join carriageway
2.4 by 120 metre visibility splays
2.4
© Crown Copyright 2012. All rights reserved. Licence number 100043407
motion
Project:
Takeley
Title:
Parsonage Road Access
Client:
Weston Homes
Drawing Status:
Scale: 1:1000 (@ A3)
Date:24/09/2021
Drawn: CM
Checked: JR
Approved: JR
Drawing:
2007045-SK-11
Revision:
A

ROAD SAFETY AUDIT RESPONSE REPORT

Project Details

Project:	Bulls Field, Parsonage Road, Takeley Residential Site Access Junction
GRSE Ref:	SG/WP/2309-04a RSA1 v1.0
Status:	Issued as v1.0
Issue date:	27/09/2023
Design Organisation:	Motion
Overseeing Organisation:	Essex County Council
Client:	Weston Homes

Authorisation

Prepared by:	
Name:	Mark Fitzgerald
Position:	Principal Transport Planner
Organisation:	Motion
Approved by:	
Name:	John Russell
Position:	Director
Organisation:	Motion
Signed:	

The Scheme

The highway works considered by the Road Safety Audit comprise:

- Use of existing Weston Homes site access to serve 96 dwellings on 'Bulls Field' to the rear

Key Personnel

Overseeing Organisation:	[NAME (press F9)], [TITLE (press F9)] Essex County Council
RSA Team:	Steve Giles, Senior Road Safety Engineer, Gateway RSE
	Wendy Palmer, Senior Road Safety Engineer, Gateway RSE
Design Organisation:	Mark Fitzgerald, Principal Transport Planner, Motion
	John Russell, Director, Motion

RSA Decision Log				
Item No.	**RSA Recommendation**	**Design Organisation Response**	**Overseeing Organisation Response**	**Agreed RSA Action**
2.4	Provide a crossing facility to assist pedestrians in reaching the northbound bus stop, 120 metres south of the site access on the west side of Parsonage Road.	Accepted, a contribution towards a pedestrian crossing has been agreed to provide access across Parsonage Road.		

Design Organisation Statement:

On behalf of the design organisation, I certify that:
The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.

.....

Name: John Russell

Organisation: Motion

Position: Director

Date: 28th September 2023

Overseeing Organisation Statement:

On behalf of the overseeing organisation, I certify that:
The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Design Organisation.
The agreed RSA actions will be progressed.

.....

Name: [NAME (press F9)]

Organisation: Essex County Council

Position: [TITLE (press F9)]

Date: [DATE]

Appendix C

Highway Adoption Drawing

Prior's Wood

Roseacres Primary School

El Sub Sta

Day Centre

PRIORS WOOD ROAD

Sewage Ppg Sta

LEY FIELD

LB

ESS

ROSEACRES

LONGCROFT

BEECH CLOSE

The Beeches

Whitegates House

Pond

Goar Lodge

Bull Cottages

Crown Cottage

Smiths Cottage

South Cottage

Beech Cottage

Westcotts

Moat Cottage

Pump

Homelands

Pippins

Gages

104.3m

Maggott

Pond

104.3m

Woodside

Hollow Elm Cottage

103.8m

The Limes Cottage

The Limes

Appletree Cottage

JACK'S LANE

103.1m

Cherups

The Cottage

Connisbro

Lizzards

Carberry

Kilbirnie

San Michelle

Waverley

WARREN CLOSE

Plason

Kerria

Martelle

103.4m

Wood View

The Laurels

South View

ESS

GOODWINS CLOSE

18 to 24

1 to 19

SPELLER WAY

CHAMPNEYS WAY

FLEMING ROAD

103.1m

Key Plan
1:20000@A1

Key Plan

Adopted Highway

Notes:

Rev
01

10m 20m 30m 40m 50m

PLANNING

Title
Adopted Highway Plan

Site
WH202C Bull Field

Date	Drawn	Checked
Oct 2023	HM	PMR

Scale
1:1000@A1

Drawing No.	Rev
WH202C_10_P_10.41	-

Weston Homes

General Notes

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Appendix D

Active Travel Audit

Key Requirement	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score	Comments	Suggested amendments	Revised Score
Coherence	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1			2
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed - cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	2.Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	0		Proposed seperated cycle route along Parsonage Road (Existing Plan)	1
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	3.Density of routes based on mesh width ie distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 - 1000m	Route contributes to a network density mesh width <250m	1			1
	Distance	Routes should follow the shortest option available and be as near to the 'asthe-crow-flies' distance as possible.	4.Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	2			2
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	5.Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	1			1

Directness	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	6.Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (eg bypass at signals)	1			1
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7.Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	1		Proposed cycle route will allow for this	2
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.	8.Gradient		Route includes sections steeper than the gradients recommended in Figure 4.4	There are no sections of route steeper than the gradients recommended in Figure 4.4	There are no sections of route which steeper than 2%	1			1
	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	9.Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1		Cyclists not mixing with vehicular traffic	2
			10.Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1		Cyclists not mixing with vehicular traffic	2
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	11.Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	1			1

Safety	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Table 6.2. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.	12.Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway - nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	Cyclists in cycle lanes at least 1.8m wide on carriageway; 85th percentile motor traffic speed max 30mph.	Cyclists on route away from motor traffic (off road provision) or in off-carriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	0		Cyclists not mixing with vehicular traffic	2
		A high proportion of collisions involving cyclists occur at junctions. Junctions there-fore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads - cyclist priority and/or speed reduction across side roads Major roads - separation of cyclists from motor traffic through junctions.	13.Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	0			0
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make.	14.Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1			1
	Consider and reduce risk from kerbside activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door.	15.Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/loading	Significant conflict with kerbside activity (eg nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerbside activity - eg less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer.	No/very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m.	0			0

	Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	16.Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	1			1
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/gullies, potholes, poor quality carriageway paint (eg from previous cycle lane)	17.Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2			2
		Pavement or carriageway construction providing smooth and level surface	18.Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface - eg Thin Surfacing, or firm and closelyjointed blocks undisturbed by turning heavy vehicles.	1			1
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19.Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles).		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0			0
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20.Signing		Route signing is poor with signs missing at key decision points.	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0		New Signage will be implemented to aid navigation	2
	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	21.Lighting		Most or all of route is unlit	Short and infrequent unlit/poorly lit sections	Route is lit to highway standards throughout	2			2
			22.Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	2			2

Attractiveness	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well-used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	23.Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 4.7)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2			2
	Minimise street clutter	Signing required to support scheme layout	24.Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	0			1
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate provision in insecure nonoverlooked areas	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	0			0
							Audit Score	22			32
							%	44			64

Key Requirement	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score	Comments	Suggested amendments	Revised Score
Coherence	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1			1
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed - cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	2.Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	1			1
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	3.Density of routes based on mesh width ie distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 - 1000m	Route contributes to a network density mesh width <250m	1			2
	Distance	Routes should follow the shortest option available and be as near to the 'asthe-crow-flies' distance as possible.	4.Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	1			1
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	5.Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	1			1

Directness	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	6.Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (eg bypass at signals)	1			1
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7.Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	1			1
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.	8.Gradient		Route includes sections steeper than the gradients recommended in Figure 4.4	There are no sections of route steeper than the gradients recommended in Figure 4.4	There are no sections of route which steeper than 2%	2			0
	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	9.Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1			1
			10.Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1			1
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	11.Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	0			0

Safety	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Table 6.2. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.	12.Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway - nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	Cyclists in cycle lanes at least 1.8m wide on carriageway; 85th percentile motor traffic speed max 30mph.	Cyclists on route away from motor traffic (off road provision) or in off-carriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	2			2
		A high proportion of collisions involving cyclists occur at junctions. Junctions there-fore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads - cyclist priority and/or speed reduction across side roads Major roads - separation of cyclists from motor traffic through junctions.	13.Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	1			1
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make.	14.Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	2			2
	Consider and reduce risk from kerbside activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door.	15.Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/loading	Significant conflict with kerbside activity (eg nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerbside activity - eg less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer.	No/very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m.	1			1

	Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	16.Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	1			1
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/gullies, potholes, poor quality carriageway paint (eg from previous cycle lane)	17.Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1			1
		Pavement or carriageway construction providing smooth and level surface	18.Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface - eg Thin Surfacing, or firm and closelyjointed blocks undisturbed by turning heavy vehicles.	1			2
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19.Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles).		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	2			2
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20.Signing		Route signing is poor with signs missing at key decision points.	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	2			2
	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	21.Lighting		Most or all of route is unlit	Short and infrequent unlit/poorly lit sections	Route is lit to highway standards throughout	1			1
			22.Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	1			1

Attractiveness	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well-used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	23.Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 4.7)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1			1
	Minimise street clutter	Signing required to support scheme layout	24.Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	2			2
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate provision in insecure nonoverlooked areas	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	1			1
							Audit Score	30			30
							%	60			60

Key Requirement	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score	Comments	Suggested amendments	Revised Score
Coherence	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	2			2
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed - cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	2.Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	0			1
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	3.Density of routes based on mesh width ie distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 - 1000m	Route contributes to a network density mesh width <250m	1			1
	Distance	Routes should follow the shortest option available and be as near to the 'asthe-crow-flies' distance as possible.	4.Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	2		Route follows Smiths Green alignment	2
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	5.Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	2			2

Directness	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	6.Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (eg bypass at signals)	1			1
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7.Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	1			1
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.	8.Gradient		Route includes sections steeper than the gradients recommended in Figure 4.4	There are no sections of route steeper than the gradients recommended in Figure 4.4	There are no sections of route which steeper than 2%	2			2
	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	9.Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2			2
			10.Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2			2
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	11.Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	2			2

Safety	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Table 6.2. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.	12.Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway - nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	Cyclists in cycle lanes at least 1.8m wide on carriageway; 85th percentile motor traffic speed max 30mph.	Cyclists on route away from motor traffic (off road provision) or in off-carriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	0			0
		A high proportion of collisions involving cyclists occur at junctions. Junctions there-fore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads - cyclist priority and/or speed reduction across side roads Major roads - separation of cyclists from motor traffic through junctions.	13.Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	1			1
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make.	14.Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	0			0
	Consider and reduce risk from kerbside activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door.	15.Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/loading	Significant conflict with kerbside activity (eg nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerbside activity - eg less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer.	No/very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m.	1		Limited kerbside activity	1

	Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	16.Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	2			2
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/gullies, potholes, poor quality carriageway paint (eg from previous cycle lane)	17.Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1			1
		Pavement or carriageway construction providing smooth and level surface	18.Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface - eg Thin Surfacing, or firm and closelyjointed blocks undisturbed by turning heavy vehicles.	1			1
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19.Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles).		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0			0
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20.Signing		Route signing is poor with signs missing at key decision points.	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0			2
	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	21.Lighting		Most or all of route is unlit	Short and infrequent unlit/poorly lit sections	Route is lit to highway standards throughout	0			0
			22.Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	0		Limited surveillance due to route location	0

Attractiveness	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well-used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	23.Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 4.7)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1			1
	Minimise street clutter	Signing required to support scheme layout	24.Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	0		Additional signange needed to aid navigation	2
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate provision in insecure nonoverlooked areas	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	0			0
							Audit Score	24			29
							%	48			58

Key Requirement	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Coherence	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	2
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed - cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	2.Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	2
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	3.Density of routes based on mesh width ie distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 - 1000m	Route contributes to a network density mesh width <250m	1
	Distance	Routes should follow the shortest option available and be as near to the 'asthe-crow-flies' distance as possible.	4.Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	2

Directness	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	5.Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	2
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	6.Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (eg bypass at signals)	2
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7.Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	2
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.	8.Gradient		Route includes sections steeper than the gradients recommended in Figure 4.4	There are no sections of route steeper than the gradients recommended in Figure 4.4	There are no sections of route which steeper than 2%	2

	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	9.Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2
			10.Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	11.Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	2
	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Table 6.2. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.	12.Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway - nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	Cyclists in cycle lanes at least 1.8m wide on carriageway; 85th percentile motor traffic speed max 30mph.	Cyclists on route away from motor traffic (off road provision) or in off-carriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	1

x

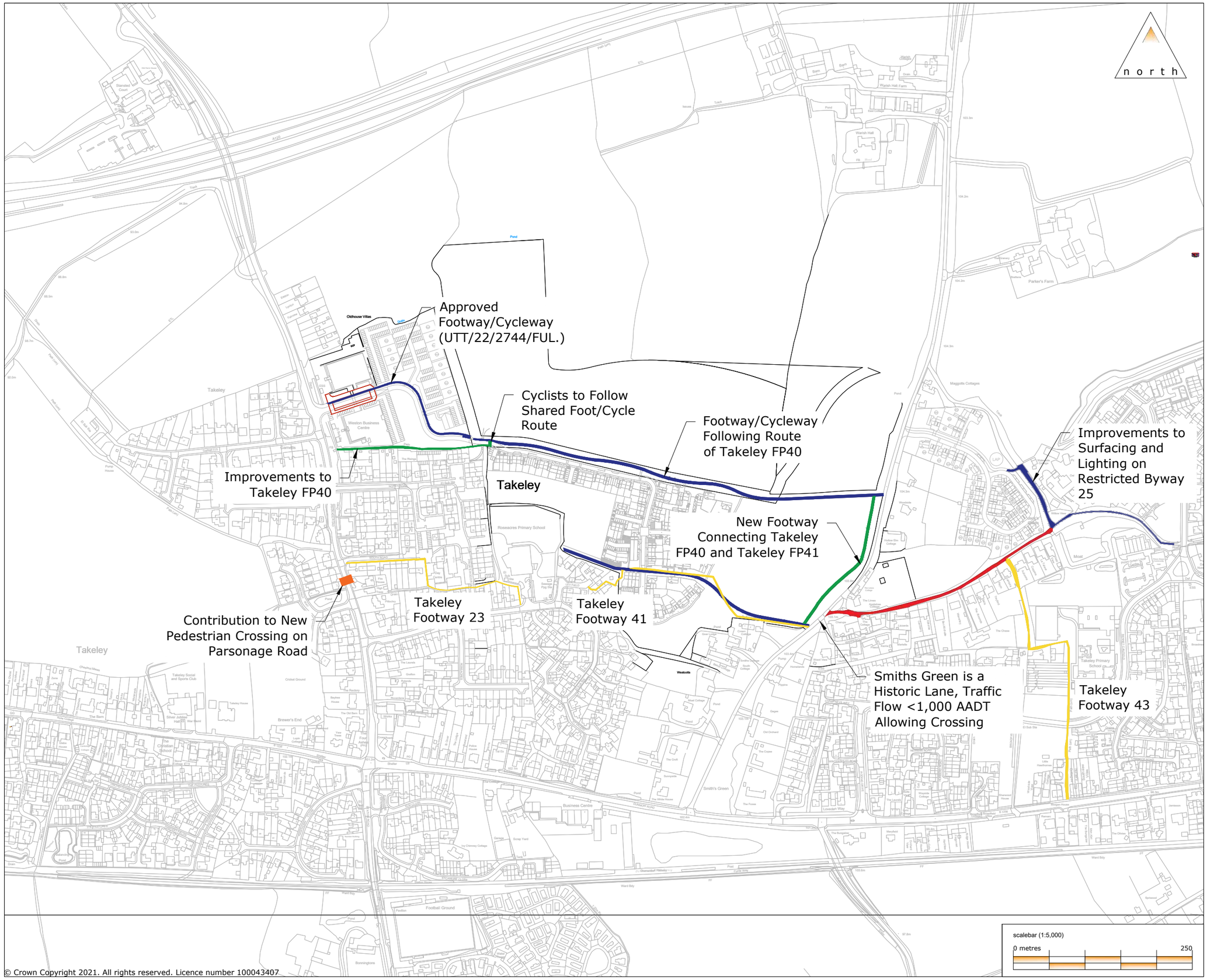
Safety		A high proportion of collisions involving cyclists occur at junctions. Junctions there-fore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads - cyclist priority and/or speed reduction across side roads Major roads - separation of cyclists from motor traffic through junctions.	13.Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	1
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make.	14.Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	2
	Consider and reduce risk from kerbside activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door.	15.Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/loading	Significant conflict with kerbside activity (eg nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerbside activity - eg less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer.	No/very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m.	2

	Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	16.Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	2
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/gullies, potholes, poor quality carriageway paint (eg from previous cycle lane)	17.Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2
		Pavement or carriageway construction providing smooth and level surface	18.Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface - eg Thin Surfacing, or firm and closelyjointed blocks undisturbed by turning heavy vehicles.	2
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19.Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles).		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	1
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20.Signing		Route signing is poor with signs missing at key decision points.	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	2

Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	21.Lighting		Most or all of route is unlit	Short and infrequent unlit/poorly lit sections	Route is lit to highway standards throughout	1
			22.Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	1
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well-used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	23.Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 4.7)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2
	Minimise street clutter	Signing required to support scheme layout	24.Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	2
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate provision in insecure nonoverlooked areas	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	0
							Audit Score	42
							%	84

Appendix E

Integrated Active Travel Network



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Rev:	Description:	Date:	Rev By:	Chk'd:
A	Added Development	27/09/23	DR	MF

KEY

- Shared footway / cycleway route
- Footway
- Existing Public Right of Way Network (Not subject to Improvements)
- Quiet Lane

motion
Guildford - London - Reading
www.motion.co.uk

Project:
Warish Hall Farm, Takeley

Title:
Active Travel Network

Client:
Weston Homes Plc

Drawing Status:

Scale: 1:5,000 (@ A3) Date: 27/09/23

Drawn: DR Checked: MF Approved: MF

Drawing: 2007045-02 Revision: A

C:\Users\droddy\Motion\StaffSite - TP Projects\wetak2 2007045\Drawings\2007045-02A.dwg

Appendix F

TRICS Outputs

Calculation Reference: AUDIT-734001-230919-0934

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	BO	BEDFORD	1 days
	CT	CENTRAL BEDFORDSHIRE	1 days
	ES	EAST SUSSEX	5 days
	HC	HAMPSHIRE	7 days
	HF	HERTFORDSHIRE	1 days
	IW	ISLE OF WIGHT	1 days
	KC	KENT	5 days
	MW	MEDWAY	1 days
	SC	SURREY	4 days
	SP	SOUTHAMPTON	1 days
	WS	WEST SUSSEX	8 days
03	SOUTH WEST		
	DC	DORSET	1 days
	DV	DEVON	1 days
	SD	SWINDON	1 days
	SM	SOMERSET	3 days
	TB	TORBAY	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	2 days
	NF	NORFOLK	16 days
	PB	PETERBOROUGH	1 days
	SF	SUFFOLK	2 days
05	EAST MIDLANDS		
	LE	LEICESTERSHIRE	1 days
	NM	WEST NORTHAMPTONSHIRE	1 days
06	WEST MIDLANDS		
	ST	STAFFORDSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	LS	LEEDS	1 days
	SE	SHEFFIELD	1 days
08	NORTH WEST		
	AC	CHESHIRE WEST & CHESTER	1 days
09	NORTH		
	FU	WESTMORLAND & FURNESS	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 12 to 1882 (units:)
Range Selected by User: 6 to 4334 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/15 to 01/03/23

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	6 days
Tuesday	19 days
Wednesday	27 days
Thursday	19 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	64 days
Directional ATC Count	7 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	9
Edge of Town	42
Neighbourhood Centre (PPS6 Local Centre)	18
Free Standing (PPS6 Out of Town)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	48
Village	17
Out of Town	5
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	31 days - Selected
Servicing vehicles Excluded	116 days - Selected

Secondary Filtering selection:

Use Class:

C3	71 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	16 days
5,001 to 10,000	19 days
10,001 to 15,000	16 days
15,001 to 20,000	7 days
20,001 to 25,000	8 days
25,001 to 50,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	11 days
25,001 to 50,000	14 days
50,001 to 75,000	9 days
75,001 to 100,000	7 days
100,001 to 125,000	4 days
125,001 to 250,000	23 days
250,001 to 500,000	2 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5	64 days
1.6 to 2.0	7 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	46 days
No	25 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	71 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1 AC-03-A-04 TOWN HOUSES CHESHIRE WEST & CHESTER
LONDON ROAD
NORTHWICH
LEFTWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 24
Survey date: THURSDAY *06/06/19* *Survey Type: MANUAL*

2 BO-03-A-01 DETACHED HOUSES BEDFORD
CARNOUSTIE DRIVE
BEDFORD
GREAT DENHAM
Edge of Town
Residential Zone
Total No of Dwellings: 30
Survey date: THURSDAY *15/10/20* *Survey Type: MANUAL*

3 CA-03-A-07 MIXED HOUSES CAMBRIDGESHIRE
FIELD END
NEAR ELY
WITCHFORD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 32
Survey date: THURSDAY *27/05/21* *Survey Type: MANUAL*

4 CA-03-A-08 DETACHED & SEMI-DETACHED CAMBRIDGESHIRE
GIDDING ROAD
SAWTRY

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 83
Survey date: THURSDAY *13/10/22* *Survey Type: MANUAL*

5 CT-03-A-01 MIXED HOUSES CENTRAL BEDFORDSHIRE
ARLESEY ROAD
STOTFOLD

Edge of Town
Residential Zone
Total No of Dwellings: 46
Survey date: WEDNESDAY *22/06/22* *Survey Type: MANUAL*

6 DC-03-A-10 MIXED HOUSES DORSET
ADDISON CLOSE
GILLINGHAM

Edge of Town
Residential Zone
Total No of Dwellings: 26
Survey date: WEDNESDAY *09/11/22* *Survey Type: MANUAL*

7 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 70
Survey date: MONDAY *28/09/15* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 ES-03-A-03 MIXED HOUSES & FLATS EAST SUSSEX
SHEPHAM LANE
POLEGATE

Edge of Town
Residential Zone
Total No of Dwellings: 212
Survey date: MONDAY *11/07/16* *Survey Type: MANUAL*

9 ES-03-A-05 MIXED HOUSES & FLATS EAST SUSSEX
RATTLE ROAD
NEAR EASTBOURNE
STONE CROSS
Edge of Town
Residential Zone
Total No of Dwellings: 99
Survey date: WEDNESDAY *05/06/19* *Survey Type: MANUAL*

10 ES-03-A-06 MIXED HOUSES EAST SUSSEX
BISHOPS LANE
RINGMER

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 12
Survey date: WEDNESDAY *16/06/21* *Survey Type: MANUAL*

11 ES-03-A-07 MIXED HOUSES & FLATS EAST SUSSEX
NEW ROAD
HAILSHAM
HELLINGLY
Edge of Town
Residential Zone
Total No of Dwellings: 91
Survey date: THURSDAY *07/11/19* *Survey Type: MANUAL*

12 ES-03-A-08 MIXED HOUSES & FLATS EAST SUSSEX
WRESTWOOD ROAD
BEXHILL

Edge of Town
Residential Zone
Total No of Dwellings: 110
Survey date: WEDNESDAY *12/10/22* *Survey Type: MANUAL*

13 FU-03-A-02 DETACHED/TERRACED HOUSING WESTMORLAND & FURNESS
MACADAM WAY
PENRITH

Edge of Town Centre
Residential Zone
Total No of Dwellings: 50
Survey date: TUESDAY *21/06/16* *Survey Type: MANUAL*

14 HC-03-A-21 TERRACED & SEMI-DETACHED HAMPSHIRE
PRIESTLEY ROAD
BASINGSTOKE
HOUNDMILLS
Edge of Town
Residential Zone
Total No of Dwellings: 39
Survey date: TUESDAY *13/11/18* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

15 HC-03-A-22 MIXED HOUSES HAMPSHIRE
BOW LAKE GARDENS
NEAR EASTLEIGH
BISHOPSTOKE
Edge of Town
Residential Zone
Total No of Dwellings: 40
Survey date: WEDNESDAY 31/10/18 Survey Type: MANUAL

16 HC-03-A-23 HOUSES & FLATS HAMPSHIRE
CANADA WAY
LIPHOOK

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 62
Survey date: TUESDAY 19/11/19 Survey Type: MANUAL

17 HC-03-A-24 MIXED HOUSES & FLATS HAMPSHIRE
STONEHAM LANE
EASTLEIGH

Edge of Town
Residential Zone
Total No of Dwellings: 243
Survey date: WEDNESDAY 10/11/21 Survey Type: MANUAL

18 HC-03-A-26 MIXED HOUSES & FLATS HAMPSHIRE
BOTLEY ROAD
WHITELEY

Edge of Town
Out of Town
Total No of Dwellings: 270
Survey date: THURSDAY 24/06/21 Survey Type: MANUAL

19 HC-03-A-27 MIXED HOUSES HAMPSHIRE
DAIRY ROAD
ANDOVER

Edge of Town
Residential Zone
Total No of Dwellings: 73
Survey date: TUESDAY 16/11/21 Survey Type: MANUAL

20 HC-03-A-28 MIXED HOUSES & FLATS HAMPSHIRE
EAGLE AVENUE
WATERLOOVILLE
LOVEDEAN
Edge of Town
Residential Zone
Total No of Dwellings: 125
Survey date: MONDAY 08/11/21 Survey Type: MANUAL

21 HF-03-A-03 MIXED HOUSES HERTFORDSHIRE
HARE STREET ROAD
BUNTINGFORD

Edge of Town
Residential Zone
Total No of Dwellings: 160
Survey date: MONDAY 08/07/19 Survey Type: MANUAL

22 IW-03-A-01 DETACHED HOUSES ISLE OF WIGHT
MEDHAM FARM LANE
NEAR COWES
MEDHAM
Free Standing (PPS6 Out of Town)
Out of Town
Total No of Dwellings: 72
Survey date: TUESDAY 25/06/19 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

23 KC-03-A-03 MIXED HOUSES & FLATS KENT
HYTHE ROAD
ASHFORD
WILLESBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 51
Survey date: THURSDAY 14/07/16 Survey Type: MANUAL

24 KC-03-A-06 MIXED HOUSES & FLATS KENT
MARGATE ROAD
HERNE BAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 363
Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL

25 KC-03-A-07 MIXED HOUSES KENT
RECULVER ROAD
HERNE BAY

Edge of Town
Residential Zone
Total No of Dwellings: 288
Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL

26 KC-03-A-08 MIXED HOUSES KENT
MAIDSTONE ROAD
CHARING

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 159
Survey date: TUESDAY 22/05/18 Survey Type: MANUAL

27 KC-03-A-09 MIXED HOUSES & FLATS KENT
WESTERN LINK
FAVERSHAM
DAVINGTON
Edge of Town
Residential Zone
Total No of Dwellings: 14
Survey date: WEDNESDAY 09/06/21 Survey Type: MANUAL

28 LE-03-A-02 DETACHED & OTHERS LEICESTERSHIRE
MELBOURNE ROAD
IBSTOCK

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 85
Survey date: THURSDAY 28/06/18 Survey Type: MANUAL

29 LS-03-A-01 MIXED HOUSING LEEDS
SPRING VALLEY CRESCENT
LEEDS
BRAMLEY
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 46
Survey date: WEDNESDAY 21/09/16 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

30 MW-03-A-02 MIXED HOUSES MEDWAY
OTTERHAM QUAY LANE
RAINHAM

Edge of Town
Residential Zone
Total No of Dwellings: 19
Survey date: MONDAY 06/06/22 Survey Type: MANUAL

31 NF-03-A-10 MIXED HOUSES & FLATS NORFOLK
HUNSTANTON ROAD
HUNSTANTON

Edge of Town
Residential Zone
Total No of Dwellings: 17
Survey date: WEDNESDAY 12/09/18 Survey Type: DIRECTIONAL ATC COUNT

32 NF-03-A-16 MIXED HOUSES & FLATS NORFOLK
NORWICH COMMON
WYMONDHAM

Edge of Town
Residential Zone
Total No of Dwellings: 138
Survey date: TUESDAY 20/10/15 Survey Type: DIRECTIONAL ATC COUNT

33 NF-03-A-21 MIXED HOUSES & FLATS NORFOLK
SIR ALFRED MUNNINGS RD
NEAR NORWICH
COSTESSEY
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 1882
Survey date: TUESDAY 13/10/20 Survey Type: DIRECTIONAL ATC COUNT

34 NF-03-A-23 MIXED HOUSES & FLATS NORFOLK
SILFIELD ROAD
WYMONDHAM

Edge of Town
Out of Town
Total No of Dwellings: 514
Survey date: WEDNESDAY 22/09/21 Survey Type: MANUAL

35 NF-03-A-27 MIXED HOUSES & FLATS NORFOLK
YARMOUTH ROAD
NEAR NORWICH
BLOFIELD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 93
Survey date: THURSDAY 16/09/21 Survey Type: MANUAL

36 NF-03-A-28 MIXED HOUSES & FLATS NORFOLK
ATLANTIC AVENUE
NORWICH
SPROWSTON
Edge of Town
Residential Zone
Total No of Dwellings: 1146
Survey date: THURSDAY 22/09/22 Survey Type: MANUAL

37 NF-03-A-31 MIXED HOUSES NORFOLK
BRANDON ROAD
SWAFFHAM

Edge of Town
Residential Zone
Total No of Dwellings: 321
Survey date: THURSDAY 22/09/22 Survey Type: DIRECTIONAL ATC COUNT

38 NF-03-A-32 MIXED HOUSES & FLATS NORFOLK
HUNSTANTON ROAD
HUNSTANTON

Edge of Town
Residential Zone
Total No of Dwellings: 164
Survey date: WEDNESDAY 21/09/22 Survey Type: DIRECTIONAL ATC COUNT

LIST OF SITES relevant to selection parameters (Cont.)

39 NF-03-A-33 MIXED HOUSES NORFOLK
LONDON ROAD
ATTLEBOROUGH

Edge of Town
Residential Zone
Total No of Dwellings: 143
Survey date: THURSDAY *29/09/22* *Survey Type: MANUAL*

40 NF-03-A-34 MIXED HOUSES NORFOLK
NORWICH ROAD
SWAFFHAM

Edge of Town
Out of Town
Total No of Dwellings: 80
Survey date: TUESDAY *27/09/22* *Survey Type: MANUAL*

41 NF-03-A-35 MIXED HOUSES & FLATS NORFOLK
REPTON AVENUE
NORWICH

Edge of Town
Residential Zone
Total No of Dwellings: 116
Survey date: WEDNESDAY *28/09/22* *Survey Type: MANUAL*

42 NF-03-A-36 MIXED HOUSES NORFOLK
LONDON ROAD
WYMONDHAM

Edge of Town
No Sub Category
Total No of Dwellings: 75
Survey date: THURSDAY *29/09/22* *Survey Type: MANUAL*

43 NF-03-A-37 MIXED HOUSES NORFOLK
GREENFIELDS ROAD
DEREHAM

Edge of Town
Residential Zone
Total No of Dwellings: 44
Survey date: TUESDAY *27/09/22* *Survey Type: MANUAL*

44 NF-03-A-39 MIXED HOUSES NORFOLK
HEATH DRIVE
HOLT

Edge of Town
Residential Zone
Total No of Dwellings: 212
Survey date: TUESDAY *27/09/22* *Survey Type: MANUAL*

45 NF-03-A-44 MIXED HOUSES NORFOLK
MILL LANE
NEAR NORWICH
HORSFORD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 125
Survey date: WEDNESDAY *21/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

46 NF-03-A-47 MIXED HOUSES & FLATS NORFOLK
BURGH ROAD
AYLSHAM

Edge of Town
Residential Zone
Total No of Dwellings: 300
Survey date: WEDNESDAY *21/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

LIST OF SITES relevant to selection parameters (Cont.)

47 NM-03-A-02 DETACHED & SEMI-DETACHED WEST NORTHAMPTONSHIRE
HARLESTONE ROAD
NEAR NORTHAMPTON
CHAPEL BRAMPTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 47
Survey date: TUESDAY *20/10/20* *Survey Type: MANUAL*

48 PB-03-A-04 DETACHED HOUSES PETERBOROUGH
EASTFIELD ROAD
PETERBOROUGH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 28
Survey date: MONDAY *17/10/16* *Survey Type: MANUAL*

49 SC-03-A-07 MIXED HOUSES SURREY
FOLLY HILL
FARNHAM

Edge of Town
Residential Zone
Total No of Dwellings: 41
Survey date: WEDNESDAY *11/05/22* *Survey Type: MANUAL*

50 SC-03-A-08 MIXED HOUSES SURREY
REIGATE ROAD
HORLEY

Edge of Town
Residential Zone
Total No of Dwellings: 790
Survey date: WEDNESDAY *04/05/22* *Survey Type: MANUAL*

51 SC-03-A-09 MIXED HOUSES & FLATS SURREY
AMLETS LANE
CRANLEIGH

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 136
Survey date: TUESDAY *24/05/22* *Survey Type: MANUAL*

52 SC-03-A-10 MIXED HOUSES SURREY
GUILDFORD ROAD
ASH

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 32
Survey date: WEDNESDAY *14/09/22* *Survey Type: MANUAL*

53 SD-03-A-01 SEMI DETACHED SWINDON
HEADLANDS GROVE
SWINDON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 27
Survey date: THURSDAY *22/09/16* *Survey Type: MANUAL*

54 SE-03-A-01 DETACHED & BUNGALOWS SHEFFIELD
MANOR ROAD
NEAR SHEFFIELD
WALES
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 25
Survey date: THURSDAY *10/09/20* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

55 SF-03-A-09 MIXED HOUSES & FLATS SUFFOLK
FOXHALL ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 179
Survey date: THURSDAY *24/06/21* *Survey Type: MANUAL*

56 SF-03-A-10 TERRACED & SEMI-DETACHED SUFFOLK
LOVETOFTS DRIVE
IPSWICH
WHITEHOUSE
Edge of Town
Residential Zone
Total No of Dwellings: 149
Survey date: TUESDAY *22/06/21* *Survey Type: MANUAL*

57 SM-03-A-01 DETACHED & SEMI SOMERSET
WEMBDON ROAD
BRIDGWATER
NORTHFIELD
Edge of Town
Residential Zone
Total No of Dwellings: 33
Survey date: THURSDAY *24/09/15* *Survey Type: MANUAL*

58 SM-03-A-02 MIXED HOUSES SOMERSET
HYDE LANE
NEAR TAUNTON
CREECH SAINT MICHAEL
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 42
Survey date: TUESDAY *25/09/18* *Survey Type: MANUAL*

59 SM-03-A-03 MIXED HOUSES SOMERSET
HYDE LANE
NEAR TAUNTON
CREECH ST MICHAEL
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 41
Survey date: TUESDAY *25/09/18* *Survey Type: MANUAL*

60 SP-03-A-02 MIXED HOUSES & FLATS SOUTHAMPTON
BARNFIELD WAY
NEAR SOUTHAMPTON
HEDGE END
Edge of Town
Out of Town
Total No of Dwellings: 250
Survey date: TUESDAY *12/10/21* *Survey Type: MANUAL*

61 ST-03-A-07 DETACHED & SEMI-DETACHED STAFFORDSHIRE
BEACONSIDE
STAFFORD
MARSTON GATE
Edge of Town
Residential Zone
Total No of Dwellings: 248
Survey date: WEDNESDAY *22/11/17* *Survey Type: MANUAL*

62 ST-03-A-08 DETACHED HOUSES STAFFORDSHIRE
SILKMORE CRESCENT
STAFFORD
MEADOWCROFT PARK
Edge of Town
Residential Zone
Total No of Dwellings: 26
Survey date: WEDNESDAY *22/11/17* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

63 TB-03-A-01 TERRACED HOUSES TORBAY
BRONSHILL ROAD
TORQUAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 37
Survey date: WEDNESDAY *30/09/15* *Survey Type: MANUAL*

64 WS-03-A-07 BUNGALOWS WEST SUSSEX
EMMS LANE
NEAR HORSHAM
BROOKS GREEN
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 57
Survey date: THURSDAY *19/10/17* *Survey Type: MANUAL*

65 WS-03-A-08 MIXED HOUSES WEST SUSSEX
ROUNDSTONE LANE
ANGMERING

Edge of Town
Residential Zone
Total No of Dwellings: 180
Survey date: THURSDAY *19/04/18* *Survey Type: MANUAL*

66 WS-03-A-11 MIXED HOUSES WEST SUSSEX
ELLIS ROAD
WEST HORSHAM
S BROADBRIDGE HEATH
Edge of Town
Residential Zone
Total No of Dwellings: 918
Survey date: TUESDAY *02/04/19* *Survey Type: MANUAL*

67 WS-03-A-13 MIXED HOUSES & FLATS WEST SUSSEX
LITTLEHAMPTON ROAD
WORTHING
WEST DURRINGTON
Edge of Town
Residential Zone
Total No of Dwellings: 197
Survey date: WEDNESDAY *23/06/21* *Survey Type: MANUAL*

68 WS-03-A-14 MIXED HOUSES WEST SUSSEX
TODDINGTON LANE
LITTLEHAMPTON
WICK
Edge of Town
Residential Zone
Total No of Dwellings: 117
Survey date: WEDNESDAY *20/10/21* *Survey Type: MANUAL*

69 WS-03-A-15 MIXED HOUSES WEST SUSSEX
HILLAND ROAD
BILLINGSHURST

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 380
Survey date: TUESDAY *23/11/21* *Survey Type: MANUAL*

70 WS-03-A-16 DETACHED & SEMI-DETACHED WEST SUSSEX
BRACKLESHAM LANE
BRACKLESHAM BAY

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 58
Survey date: WEDNESDAY *09/11/22* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

71 WS-03-A-17 MIXED HOUSES & FLATS WEST SUSSEX
SHOPWHYKE ROAD
CHICHESTER

Edge of Town
Residential Zone
Total No of Dwellings: 86
Survey date: WEDNESDAY *01/03/23* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	71	176	0.083	71	176	0.300	71	176	0.383
08:00 - 09:00	71	176	0.145	71	176	0.370	71	176	0.515
09:00 - 10:00	71	176	0.133	71	176	0.152	71	176	0.285
10:00 - 11:00	71	176	0.115	71	176	0.137	71	176	0.252
11:00 - 12:00	71	176	0.127	71	176	0.137	71	176	0.264
12:00 - 13:00	71	176	0.144	71	176	0.143	71	176	0.287
13:00 - 14:00	71	176	0.151	71	176	0.142	71	176	0.293
14:00 - 15:00	71	176	0.154	71	176	0.176	71	176	0.330
15:00 - 16:00	71	176	0.244	71	176	0.162	71	176	0.406
16:00 - 17:00	71	176	0.264	71	176	0.159	71	176	0.423
17:00 - 18:00	71	176	0.344	71	176	0.162	71	176	0.506
18:00 - 19:00	71	176	0.277	71	176	0.158	71	176	0.435
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.181			2.198			4.379

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

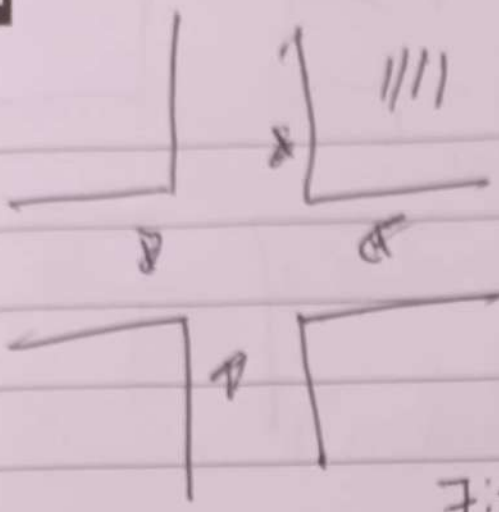
Trip rate parameter range selected:	12 - 1882 (units:)
Survey date date range:	01/01/15 - 01/03/23
Number of weekdays (Monday-Friday):	71
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	40
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix G

Site Observation Notes

12/09/23



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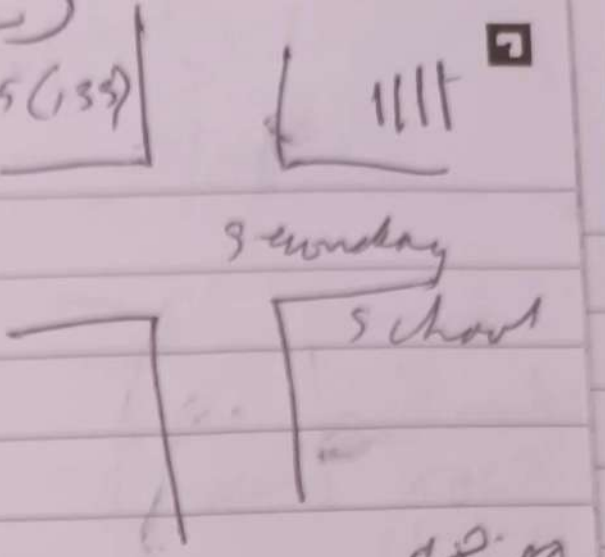

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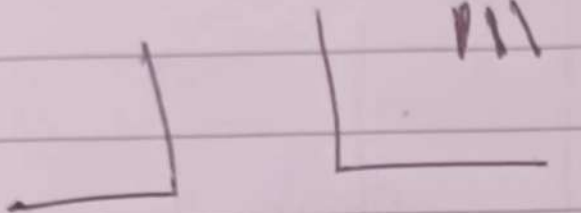

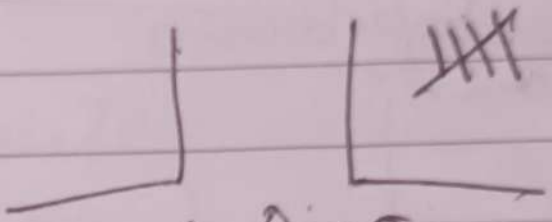

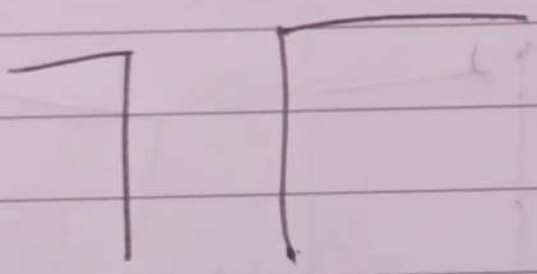

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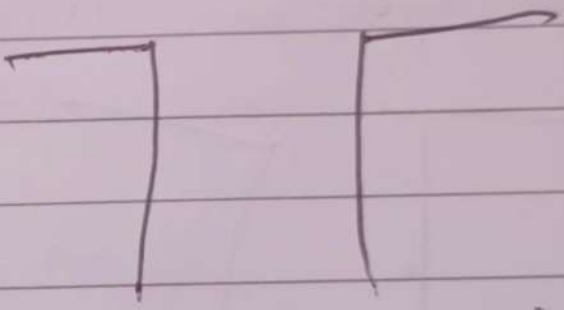

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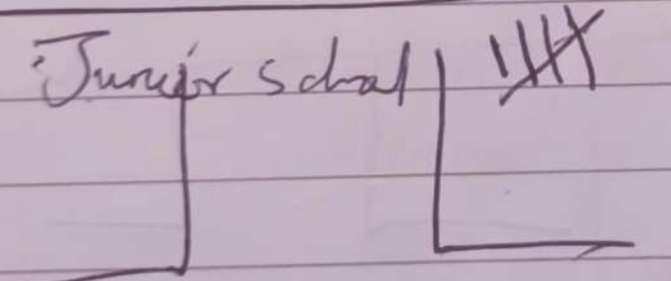

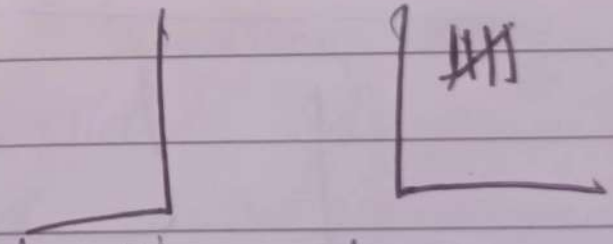

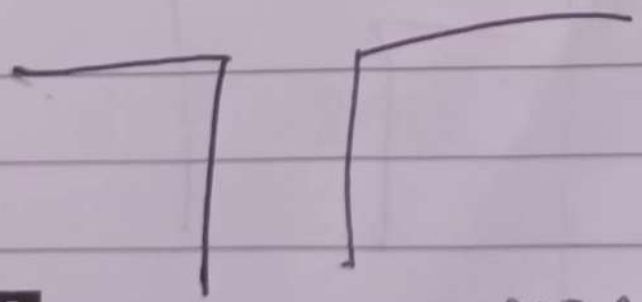

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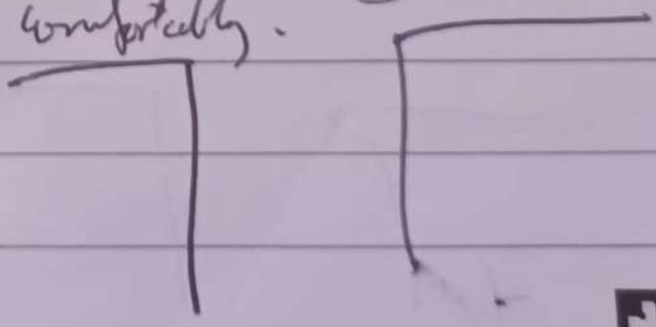

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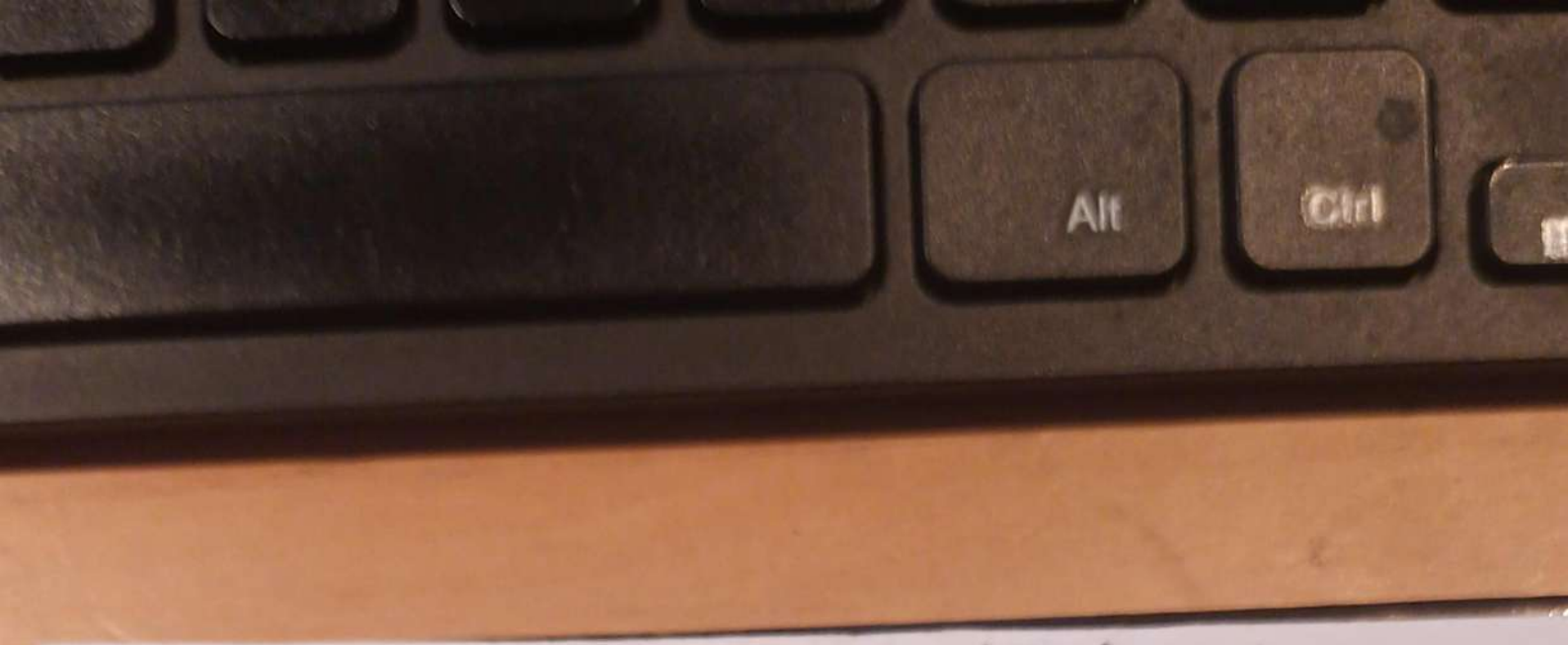


12/09/23

Arriva Bus
SN58 VENX
Parked half in
bus bay/blocking
lane.

08:50

Appendix H

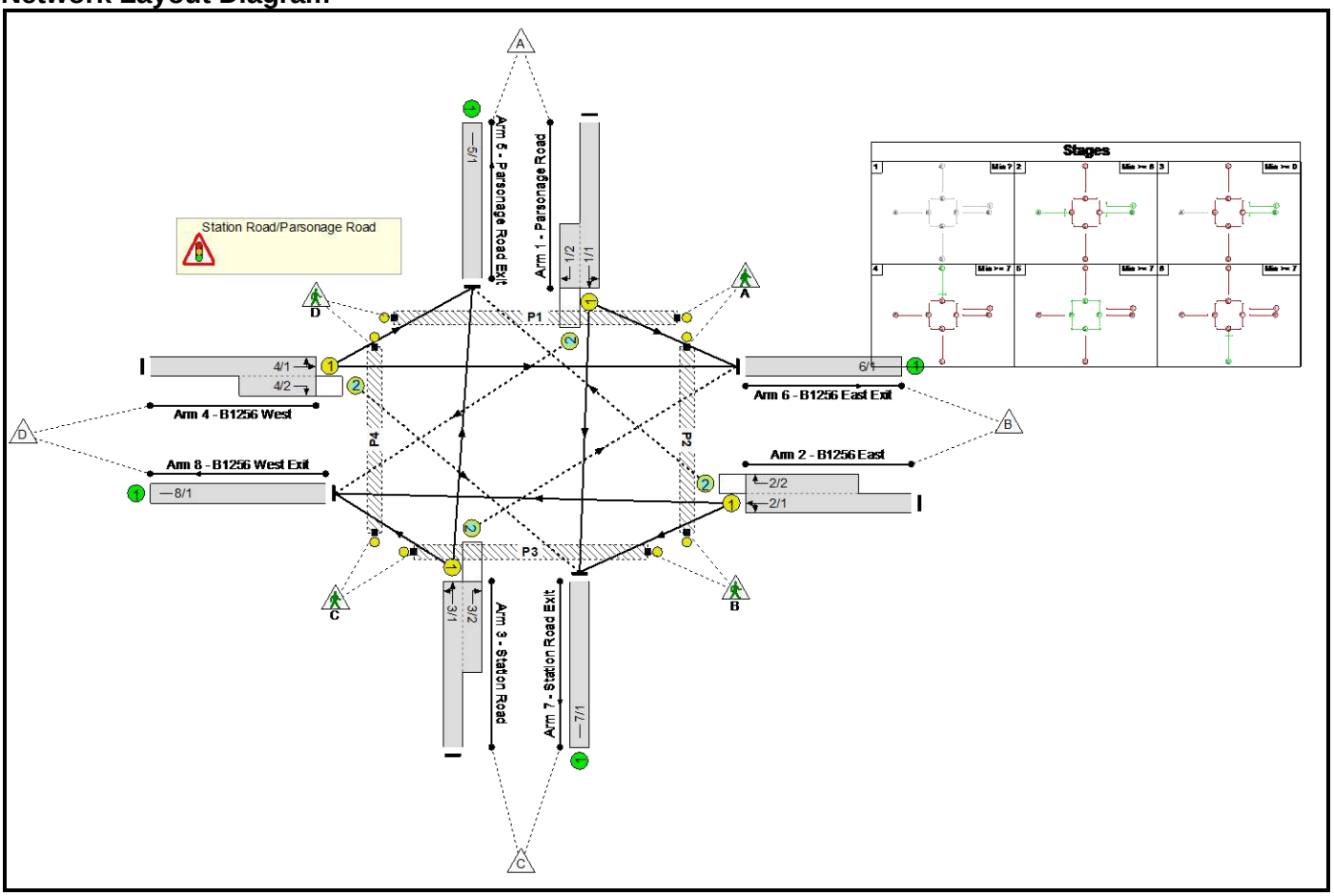
Linsig Output

Full Input Data And Results

User and Project Details

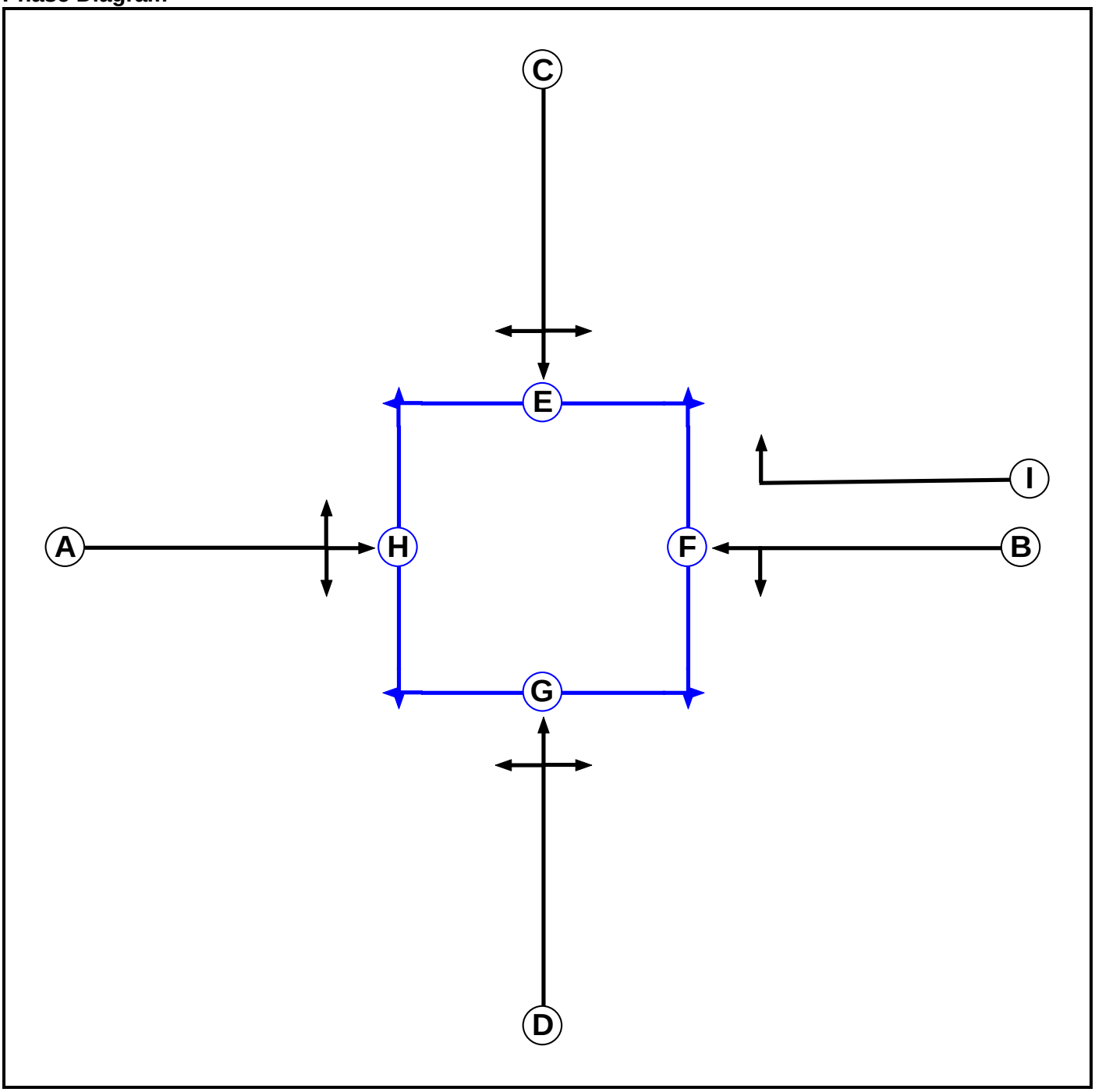
Project:	
Title:	
Location:	
Model Assumptions:	Junction has been set up using signal controller info provided by LHA. Onsite observation indicate that the pedestrian stage is not called every cycle. As such the staging sequence has been designed to reflect a ped stage every other cycle.
Additional detail:	
File name:	Four Ashes X-road RTIGA Sensitivity Test 2023-09-18.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Traffic		4	4

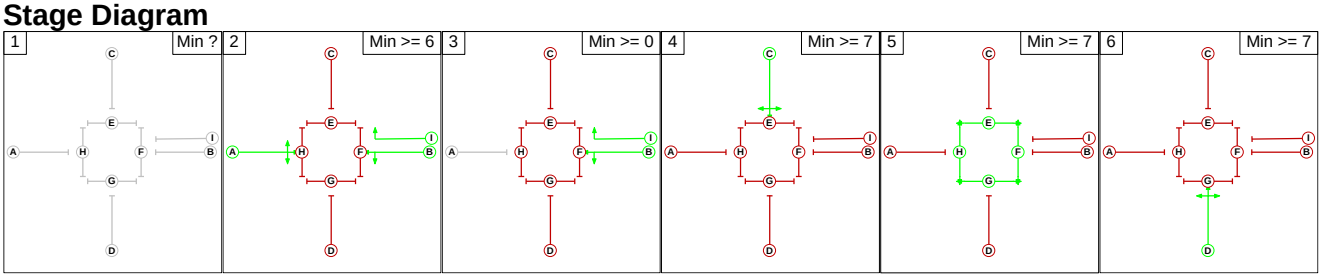
Phase Intergreens Matrix

		Starting Phase								
		A	B	C	D	E	F	G	H	I
Terminating Phase	A		-	6	5	8	5	9	8	-
	B	-		6	6	9	8	8	5	-
	C	5	6		7	6	10	8	7	6
	D	6	6	6		8	8	5	9	6
	E	12	12	12	12		-	-	-	12
	F	12	12	12	12	-		-	-	12
	G	12	12	12	12	-	-		-	12
	H	13	13	13	13	-	-	-		12
	I	-	-	6	6	9	8	8	5	

Phases in Stage

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

Stage Diagram



Full Input Data And Results

Phase Delays

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

Prohibited Stage Change

		To Stage					
		1	2	3	4	5	6
From Stage	1		X	X	X	X	X
	2	X		0	6	9	6
	3	X	2		6	9	6
	4	X	6	6		10	7
	5	X	13	13	13		13
	6	X	6	6	6	9	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Station Road/Parsonage Road											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/2 (Parsonage Road)	8/1 (Right)	1439	0	3/1	1.09	All	3.00	-	0.50	3	3.00
2/2 (B1256 East)	5/1 (Right)	1439	0	4/1	1.09	All	2.00	-	0.50	2	2.00
3/2 (Station Road)	6/1 (Right)	1439	0	1/1	1.09	All	3.00	-	0.50	3	3.00
4/2 (B1256 West)	7/1 (Right)	1439	0	2/1	1.09	All	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Station Road/Parsonage Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Parsonage Road)	U	C	2	3	60.0	Geom	-	2.80	0.00	Y	Arm 6 Left	14.00
											Arm 7 Ahead	Inf
1/2 (Parsonage Road)	O	C	2	3	5.0	Geom	-	2.80	0.00	N	Arm 8 Right	15.00
2/1 (B1256 East)	U	B	2	3	60.0	Geom	-	2.70	0.00	Y	Arm 7 Left	10.00
											Arm 8 Ahead	Inf
2/2 (B1256 East)	O	I	2	3	8.7	Geom	-	2.80	0.00	N	Arm 5 Right	17.00
3/1 (Station Road)	U	D	2	3	60.0	Geom	-	2.90	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	13.00
3/2 (Station Road)	O	D	2	3	7.0	Geom	-	2.90	0.00	N	Arm 6 Right	18.00
4/1 (B1256 West)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	11.00
											Arm 6 Ahead	Inf
4/2 (B1256 West)	O	A	2	3	5.9	Geom	-	3.00	0.00	N	Arm 7 Right	16.00
5/1 (Parsonage Road Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (B1256 East Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Station Road Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (B1256 West Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2028 Without Development AM'	08:00	09:00	01:00	
2: '2028 Without Development PM'	17:00	18:00	01:00	
3: '2028 With Development AM'	08:00	09:00	01:00	
4: '2028 With Development PM'	17:00	18:00	01:00	
5: '2028 without Development AM + 5% Sensitivity Test'	08:00	09:00	01:00	F1*1.05
6: '2028 without Development PM + 5% Sensitivity Test'	17:00	18:00	01:00	F2*1.05

7: '2028 with Development AM + 5% Sensitivity Test'	08:00	09:00	01:00	F3*1.05
8: '2028 with Development PM + 5% Sensitivity Test'	17:00	18:00	01:00	F4*1.05
9: '2028 with Development AM + 10% Sensitivity Test'	08:00	09:00	01:00	F3*1.1
10: '2028 with Development PM + 10% Sensitivity Test'	17:00	18:00	01:00	F4*1.1

Scenario 1: '2028 Without Development AM' (FG1: '2028 Without Development AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	134	81	103	318
	B	254	0	172	334	760
	C	56	129	0	35	220
	D	209	184	21	0	414
	Tot.	519	447	274	472	1712

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2028 Without Development AM
Junction: Station Road/Parsonage Road	
1/1 (with short)	318(In) 215(Out)
1/2 (short)	103
2/1 (with short)	760(In) 506(Out)
2/2 (short)	254
3/1 (with short)	220(In) 91(Out)
3/2 (short)	129
4/1 (with short)	414(In) 393(Out)
4/2 (short)	21
5/1	519
6/1	447
7/1	274
8/1	472

Lane Saturation Flows

Junction: Station Road/Parsonage Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	62.3 %	1776	1776
				Arm 7 Ahead	Inf	37.7 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.0 %	1794	1794
				Arm 8 Ahead	Inf	66.0 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	61.5 %	1824	1824
				Arm 8 Left	13.00	38.5 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	53.2 %	1786	1786
				Arm 6 Ahead	Inf	46.8 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 2: '2028 Without Development PM' (FG2: '2028 Without Development PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	219	78	123	420
	B	106	0	112	209	427
	C	177	82	0	37	296
	D	125	385	45	0	555
	Tot.	408	686	235	369	1698

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2028 Without Development PM
Junction: Station Road/Parsonage Road	
1/1 (with short)	420(In) 297(Out)
1/2 (short)	123
2/1 (with short)	427(In) 321(Out)
2/2 (short)	106
3/1 (with short)	296(In) 214(Out)
3/2 (short)	82
4/1 (with short)	555(In) 510(Out)
4/2 (short)	45
5/1	408
6/1	686
7/1	235
8/1	369

Lane Saturation Flows

Junction: Station Road/Parsonage Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	73.7 %	1756	1756
				Arm 7 Ahead	Inf	26.3 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.9 %	1791	1791
				Arm 8 Ahead	Inf	65.1 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	82.7 %	1868	1868
				Arm 8 Left	13.00	17.3 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	24.5 %	1853	1853
				Arm 6 Ahead	Inf	75.5 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 3: '2028 With Development AM' (FG3: '2028 With Development AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	140	83	119	342
	B	263	0	172	331	766
	C	59	129	0	35	223
	D	234	184	21	0	439
	Tot.	556	453	276	485	1770

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2028 With Development AM
Junction: Station Road/Parsonage Road	
1/1 (with short)	342(In) 223(Out)
1/2 (short)	119
2/1 (with short)	766(In) 503(Out)
2/2 (short)	263
3/1 (with short)	223(In) 94(Out)
3/2 (short)	129
4/1 (with short)	439(In) 418(Out)
4/2 (short)	21
5/1	556
6/1	453
7/1	276
8/1	485

Lane Saturation Flows

Junction: Station Road/Parsonage Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	62.8 %	1776	1776
				Arm 7 Ahead	Inf	37.2 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.2 %	1793	1793
				Arm 8 Ahead	Inf	65.8 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	62.8 %	1827	1827
				Arm 8 Left	13.00	37.2 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	56.0 %	1779	1779
				Arm 6 Ahead	Inf	44.0 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 4: '2028 With Development PM' (FG4: '2028 With Development PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	226	80	142	448
	B	109	0	112	209	430
	C	83	177	0	37	297
	D	134	385	45	0	564
	Tot.	326	788	237	388	1739

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2028 With Development PM
Junction: Station Road/Parsonage Road	
1/1 (with short)	448(In) 306(Out)
1/2 (short)	142
2/1 (with short)	430(In) 321(Out)
2/2 (short)	109
3/1 (with short)	297(In) 120(Out)
3/2 (short)	177
4/1 (with short)	564(In) 519(Out)
4/2 (short)	45
5/1	326
6/1	788
7/1	237
8/1	388

Lane Saturation Flows

Junction: Station Road/Parsonage Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	73.9 %	1756	1756
				Arm 7 Ahead	Inf	26.1 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.9 %	1791	1791
				Arm 8 Ahead	Inf	65.1 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	69.2 %	1840	1840
				Arm 8 Left	13.00	30.8 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	25.8 %	1850	1850
				Arm 6 Ahead	Inf	74.2 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 5: '2028 Without Development AM + 5% Sensitivity Test' (FG5: '2028 without Development AM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	141	85	108	334
	B	267	0	181	351	799
	C	59	135	0	37	231
	D	219	193	22	0	434
	Tot.	545	469	288	496	1798

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2028 Without Development AM + 5% Sensitivity Test
Junction: Station Road/Parsonage Road	
1/1 (with short)	334(In) 226(Out)
1/2 (short)	108
2/1 (with short)	799(In) 532(Out)
2/2 (short)	267
3/1 (with short)	231(In) 96(Out)
3/2 (short)	135
4/1 (with short)	434(In) 412(Out)
4/2 (short)	22
5/1	545
6/1	469
7/1	288
8/1	496

Lane Saturation Flows

Junction: Station Road/Parsonage Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	62.4 %	1776	1776
				Arm 7 Ahead	Inf	37.6 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.0 %	1793	1793
				Arm 8 Ahead	Inf	66.0 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	61.5 %	1824	1824
				Arm 8 Left	13.00	38.5 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	53.2 %	1786	1786
				Arm 6 Ahead	Inf	46.8 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 6: '2028 Without Development PM + 5% Sensitivity Test' (FG6: '2028 without Development PM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	230	82	129	441
	B	111	0	118	219	448
	C	186	86	0	39	311
	D	131	404	47	0	582
	Tot.	428	720	247	387	1782

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2028 Without Development PM + 5% Sensitivity Test
Junction: Station Road/Parsonage Road	
1/1 (with short)	441(In) 312(Out)
1/2 (short)	129
2/1 (with short)	448(In) 337(Out)
2/2 (short)	111
3/1 (with short)	311(In) 225(Out)
3/2 (short)	86
4/1 (with short)	582(In) 535(Out)
4/2 (short)	47
5/1	428
6/1	720
7/1	247
8/1	387

Lane Saturation Flows

Junction: Station Road/Parsonage Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	73.7 %	1756	1756
				Arm 7 Ahead	Inf	26.3 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	35.0 %	1791	1791
				Arm 8 Ahead	Inf	65.0 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	82.7 %	1868	1868
				Arm 8 Left	13.00	17.3 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	24.5 %	1853	1853
				Arm 6 Ahead	Inf	75.5 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 7: '2028 With Development AM + 5% Sensitivity Test' (FG7: '2028 with Development AM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	147	87	125	359
	B	276	0	181	348	805
	C	62	135	0	37	234
	D	246	193	22	0	461
	Tot.	584	475	290	510	1859

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2028 With Development AM + 5% Sensitivity Test
Junction: Station Road/Parsonage Road	
1/1 (with short)	359(In) 234(Out)
1/2 (short)	125
2/1 (with short)	805(In) 529(Out)
2/2 (short)	276
3/1 (with short)	234(In) 99(Out)
3/2 (short)	135
4/1 (with short)	461(In) 439(Out)
4/2 (short)	22
5/1	584
6/1	475
7/1	290
8/1	510

Lane Saturation Flows

Junction: Station Road/Parsonage Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	62.8 %	1775	1775
				Arm 7 Ahead	Inf	37.2 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.2 %	1793	1793
				Arm 8 Ahead	Inf	65.8 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	62.6 %	1826	1826
				Arm 8 Left	13.00	37.4 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	56.0 %	1779	1779
				Arm 6 Ahead	Inf	44.0 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 8: '2028 With Development PM + 5% Sensitivity Test' (FG8: '2028 with Development PM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	237	84	149	470
	B	114	0	118	219	451
	C	87	186	0	39	312
	D	141	404	47	0	592
	Tot.	342	827	249	407	1825

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2028 With Development PM + 5% Sensitivity Test
Junction: Station Road/Parsonage Road	
1/1 (with short)	470(In) 321(Out)
1/2 (short)	149
2/1 (with short)	451(In) 337(Out)
2/2 (short)	114
3/1 (with short)	312(In) 126(Out)
3/2 (short)	186
4/1 (with short)	592(In) 545(Out)
4/2 (short)	47
5/1	342
6/1	827
7/1	249
8/1	407

Lane Saturation Flows

Junction: Station Road/Parsonage Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	73.8 %	1756	1756
				Arm 7 Ahead	Inf	26.2 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	35.0 %	1791	1791
				Arm 8 Ahead	Inf	65.0 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	69.0 %	1839	1839
				Arm 8 Left	13.00	31.0 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	25.9 %	1850	1850
				Arm 6 Ahead	Inf	74.1 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 9: '2028 With Development AM + 10% Sensitivity Test' (FG9: '2028 with Development AM + 10% Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	154	91	131	376
	B	289	0	189	364	842
	C	65	142	0	39	246
	D	257	202	23	0	482
	Tot.	611	498	303	534	1946

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 9: 2028 With Development AM + 10% Sensitivity Test
Junction: Station Road/Parsonage Road	
1/1 (with short)	376(In) 245(Out)
1/2 (short)	131
2/1 (with short)	842(In) 553(Out)
2/2 (short)	289
3/1 (with short)	246(In) 104(Out)
3/2 (short)	142
4/1 (with short)	482(In) 459(Out)
4/2 (short)	23
5/1	611
6/1	498
7/1	303
8/1	534

Lane Saturation Flows

Junction: Station Road/Parsonage Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	62.9 %	1775	1775
				Arm 7 Ahead	Inf	37.1 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.2 %	1793	1793
				Arm 8 Ahead	Inf	65.8 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	62.5 %	1826	1826
				Arm 8 Left	13.00	37.5 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	56.0 %	1779	1779
				Arm 6 Ahead	Inf	44.0 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 10: '2028 With Development PM + 10% Sensitivity Test' (FG10: '2028 with Development PM + 10% Sensitivity Test', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	249	88	156	493
	B	120	0	123	230	473
	C	91	195	0	41	327
	D	147	424	50	0	621
	Tot.	358	868	261	427	1914

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 10: 2028 With Development PM + 10% Sensitivity Test
Junction: Station Road/Parsonage Road	
1/1 (with short)	493(In) 337(Out)
1/2 (short)	156
2/1 (with short)	473(In) 353(Out)
2/2 (short)	120
3/1 (with short)	327(In) 132(Out)
3/2 (short)	195
4/1 (with short)	621(In) 571(Out)
4/2 (short)	50
5/1	358
6/1	868
7/1	261
8/1	427

Lane Saturation Flows

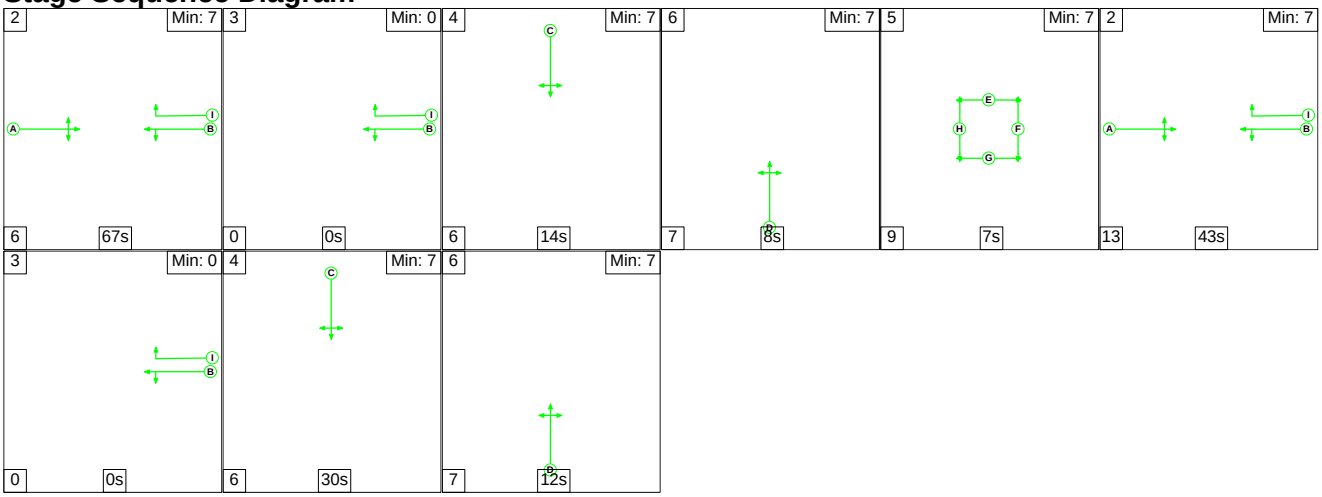
Junction: Station Road/Parsonage Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Parsonage Road)	2.80	0.00	Y	Arm 6 Left	14.00	73.9 %	1756	1756
				Arm 7 Ahead	Inf	26.1 %		
1/2 (Parsonage Road)	2.80	0.00	N	Arm 8 Right	15.00	100.0 %	1850	1850
2/1 (B1256 East)	2.70	0.00	Y	Arm 7 Left	10.00	34.8 %	1791	1791
				Arm 8 Ahead	Inf	65.2 %		
2/2 (B1256 East)	2.80	0.00	N	Arm 5 Right	17.00	100.0 %	1870	1870
3/1 (Station Road)	2.90	0.00	Y	Arm 5 Ahead	Inf	68.9 %	1839	1839
				Arm 8 Left	13.00	31.1 %		
3/2 (Station Road)	2.90	0.00	N	Arm 6 Right	18.00	100.0 %	1888	1888
4/1 (B1256 West)	3.00	0.00	Y	Arm 5 Left	11.00	25.7 %	1850	1850
				Arm 6 Ahead	Inf	74.3 %		
4/2 (B1256 West)	3.00	0.00	N	Arm 7 Right	16.00	100.0 %	1879	1879
5/1 (Parsonage Road Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

6/1 (B1256 East Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
7/1 (Station Road Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
8/1 (B1256 West Exit Lane 1)	Infinite Saturation Flow	Inf	Inf

Scenario 1: '2028 Without Development AM' (FG1: '2028 Without Development AM', Plan 1: 'Network Control Plan 1')

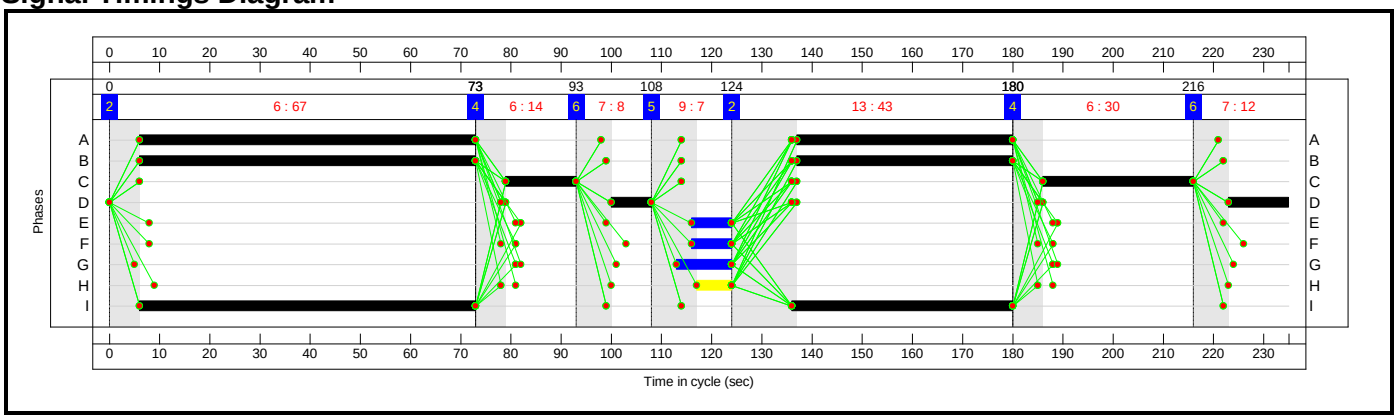
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	67	0	14	8	7	43	0	30	12
Change Point	0	73	73	93	108	124	180	180	216

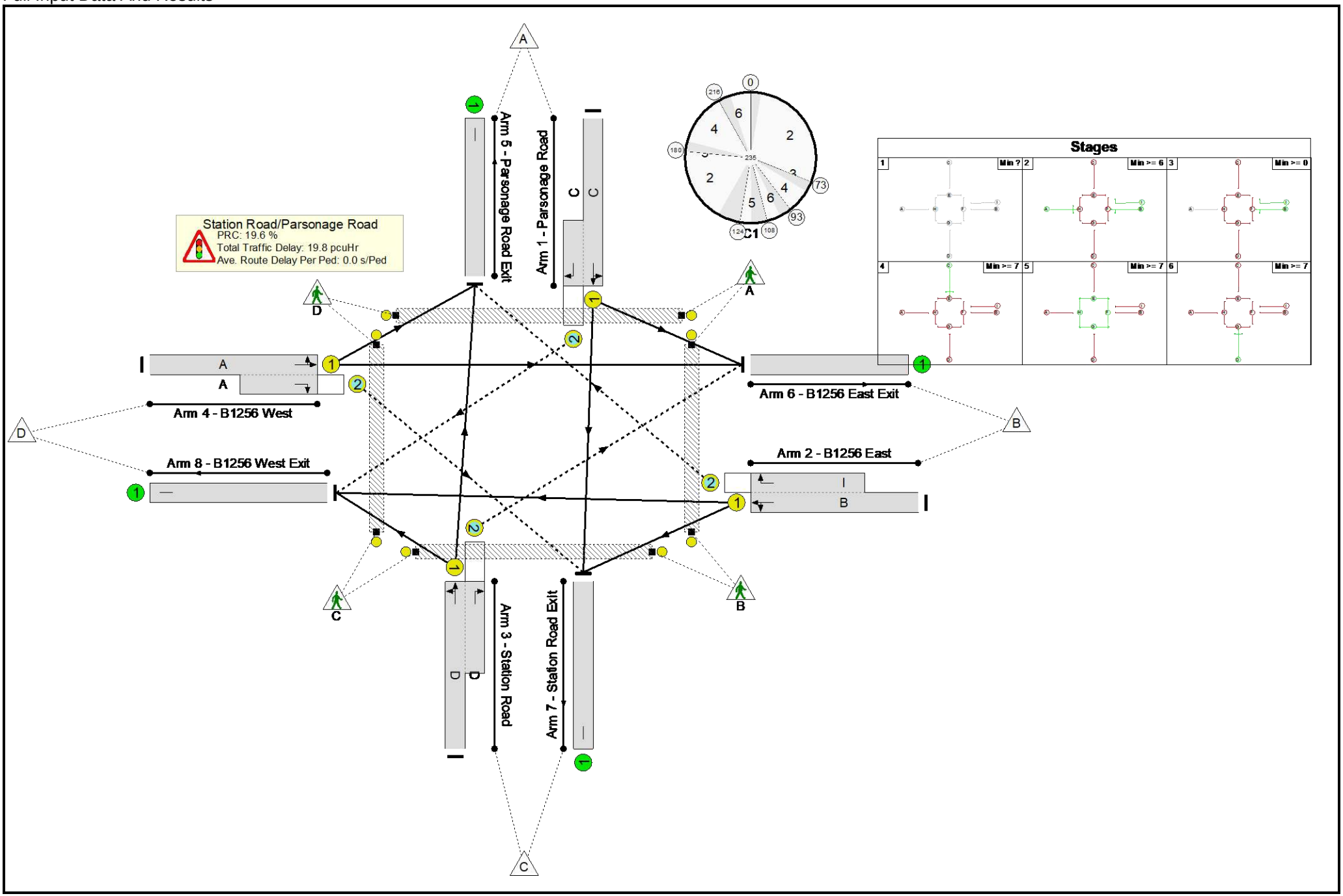
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.2%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.2%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	44	-	318	1776:1850	288+138	74.7 : 74.7%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	110:111	-	760	1794:1870	672+338	75.2 : 75.2%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	20	-	220	1824:1888	125+177	73.0 : 73.0%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	110	-	414	1786:1879	833+45	47.2 : 47.2%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	519	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	274	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	472	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

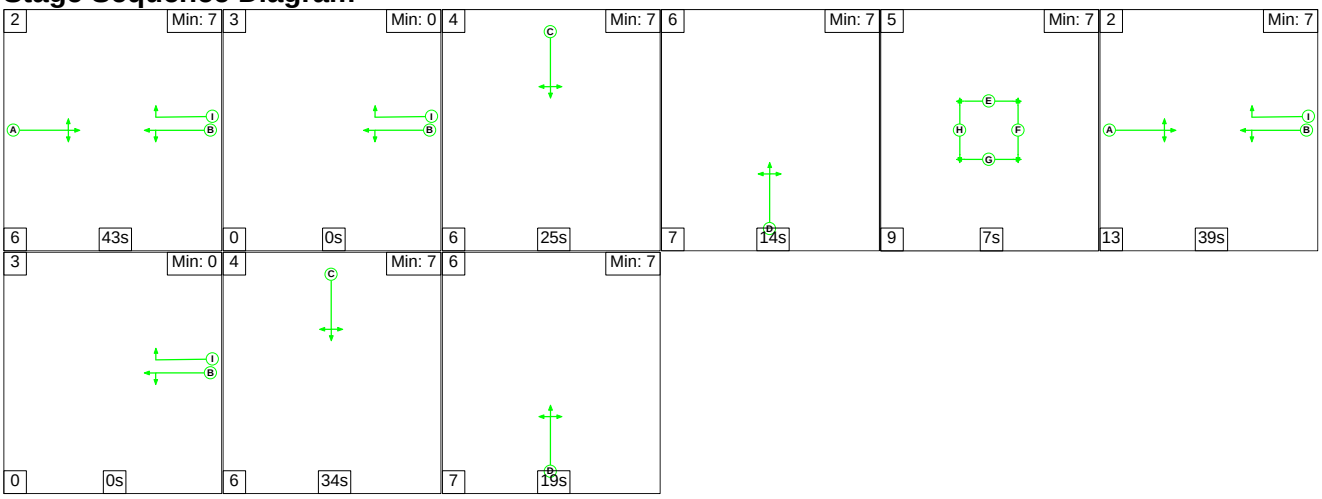
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**271**	**192**	**44**	**14.4**	**4.7**	**0.7**	**19.8**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**271**	**192**	**44**	**14.4**	**4.7**	**0.7**	**19.8**	**-**	**-**	**-**	**-**
1/1+1/2	318	318	0	94	9	3.8	1.4	0.0	5.2	59.2	7.4	1.4	8.8
2/1+2/2	760	760	250	0	4	5.1	1.5	0.6	7.2	34.1	15.1	1.5	16.6
3/1+3/2	220	220	0	98	31	3.2	1.3	0.0	4.5	73.8	4.4	1.3	5.7
4/1+4/2	414	414	21	0	0	2.4	0.4	0.1	2.9	25.1	8.8	0.4	9.2
5/1	519	519	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	274	274	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	472	472	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 19.6 Total Delay for Signalled Lanes (pcuHr): 19.82 Cycle Time (s): 235
PRC Over All Lanes (%): 19.6 Total Delay Over All Lanes(pcuHr): 19.82

Full Input Data And Results

Scenario 2: '2028 Without Development PM' (FG2: '2028 Without Development PM', Plan 1: 'Network Control Plan 1')

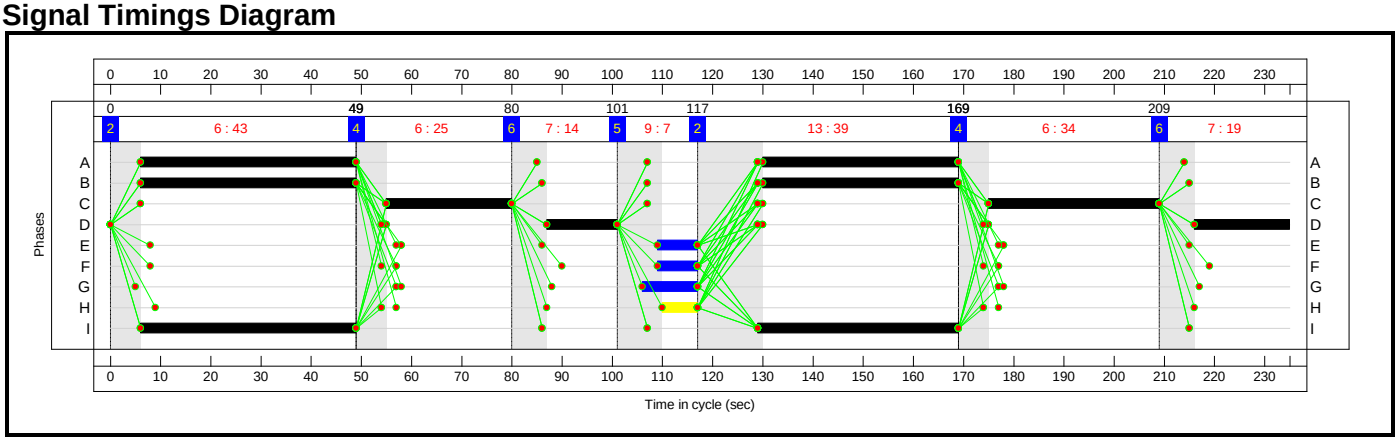
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	43	0	25	14	7	39	0	34	19
Change Point	0	49	49	80	101	117	169	169	209

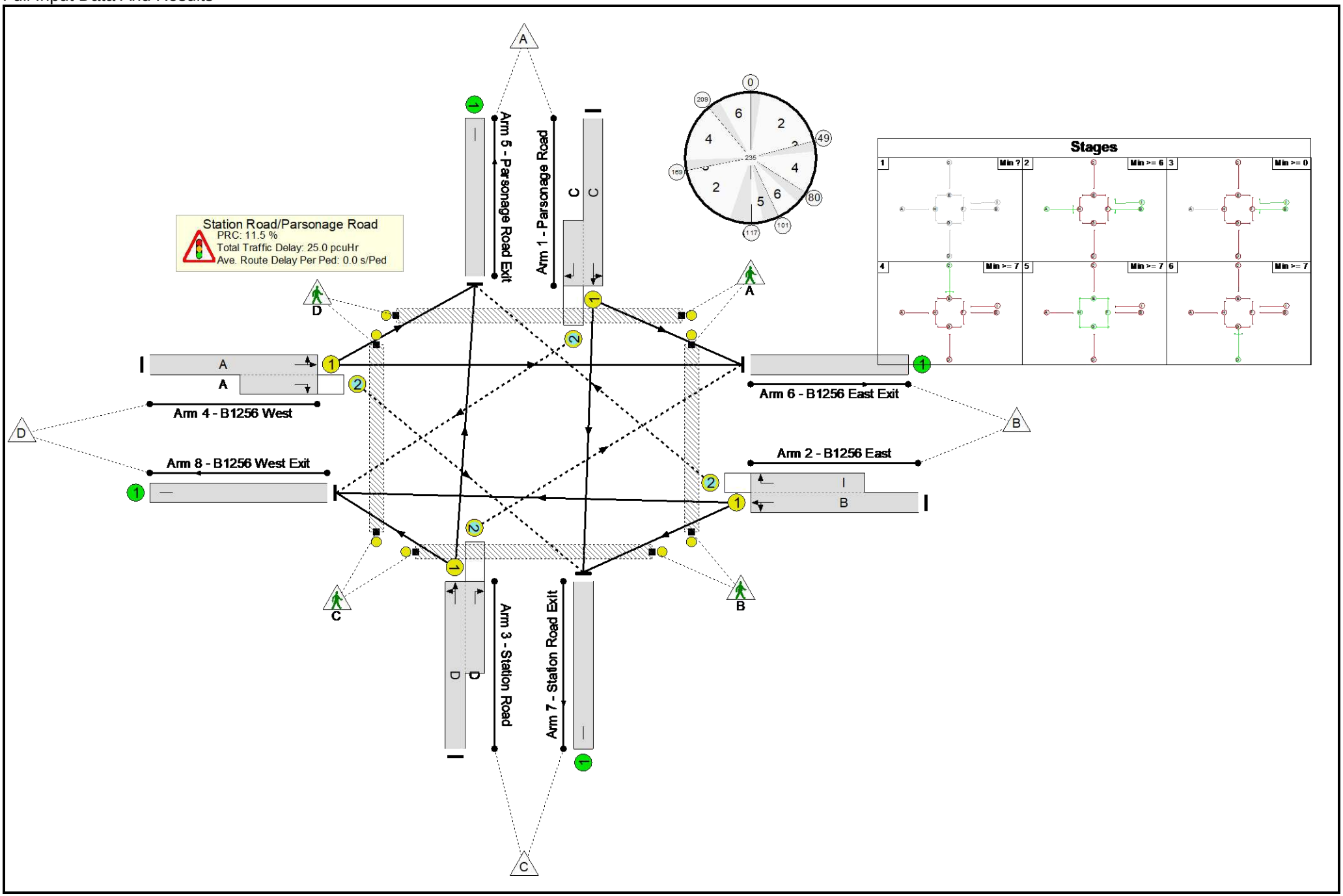
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	59	-	420	1756:1850	373+155	79.6 : 79.6%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	82:83	-	427	1791:1870	488+136	65.8 : 77.9%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	33	-	296	1868:1888	266+102	80.3 : 80.3%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	82	-	555	1853:1879	632+56	80.7 : 80.7%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	408	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	686	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	235	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

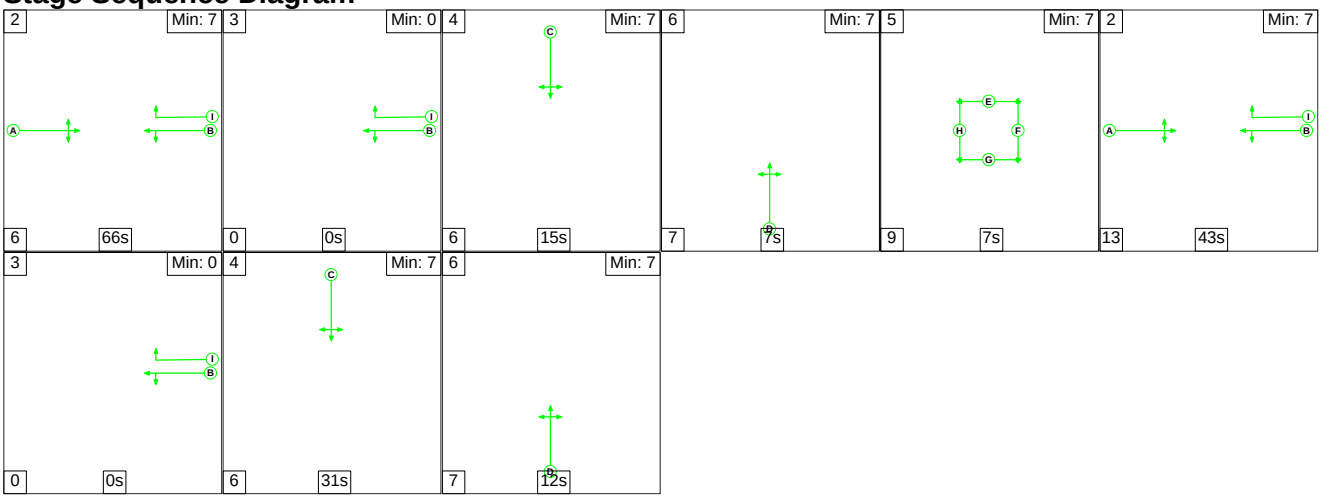
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**128**	**200**	**28**	**17.3**	**6.9**	**0.7**	**25.0**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**128**	**200**	**28**	**17.3**	**6.9**	**0.7**	**25.0**	**-**	**-**	**-**	**-**
1/1+1/2	420	420	0	120	3	4.6	1.9	0.0	6.5	55.3	11.6	1.9	13.5
2/1+2/2	427	427	83	0	23	3.6	1.1	0.6	5.3	44.9	8.6	1.1	9.7
3/1+3/2	296	296	0	80	2	4.0	1.9	0.0	5.9	71.8	7.8	1.9	9.8
4/1+4/2	555	555	45	0	0	5.2	2.0	0.1	7.3	47.3	16.6	2.0	18.6
5/1	408	408	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	686	686	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	235	235	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 11.5 Total Delay for Signalled Lanes (pcuHr): 24.98 Cycle Time (s): 235
PRC Over All Lanes (%): 11.5 Total Delay Over All Lanes(pcuHr): 24.98

Full Input Data And Results

Scenario 3: '2028 With Development AM' (FG3: '2028 With Development AM', Plan 1: 'Network Control Plan 1')

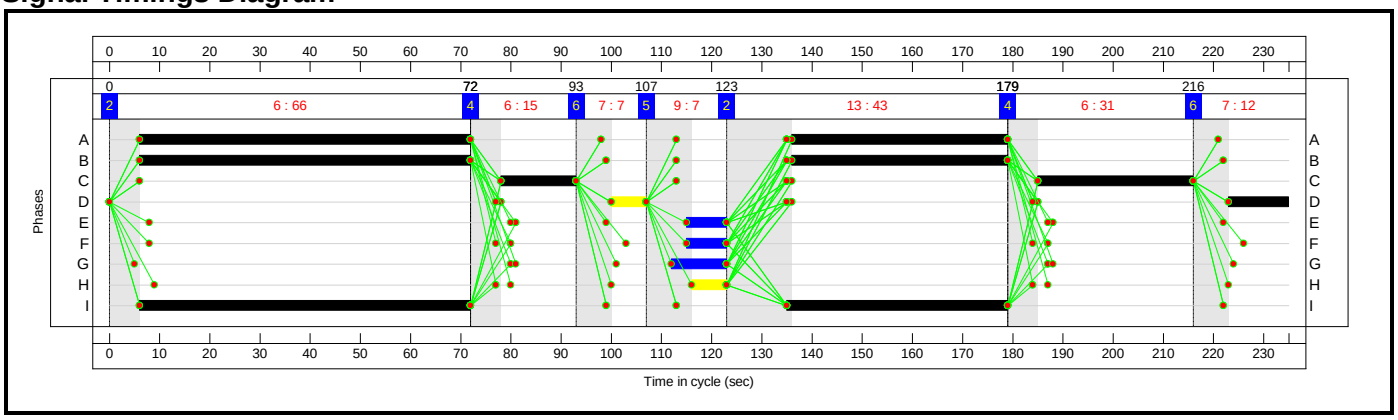
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	66	0	15	7	7	43	0	31	12
Change Point	0	72	72	93	107	123	179	179	216

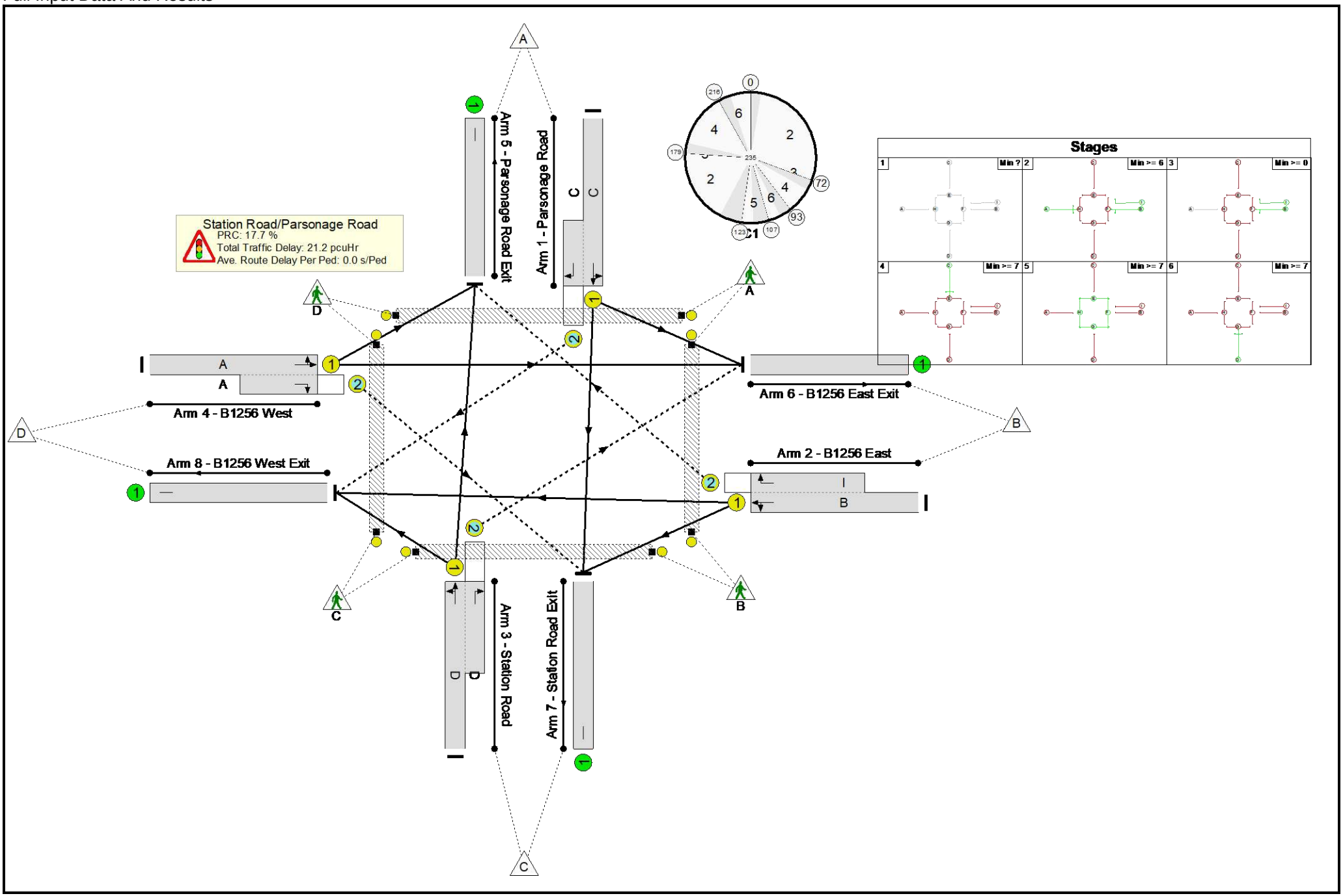
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.5%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.5%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	46	-	342	1776:1850	293+156	76.1 : 76.1%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	109:110	-	766	1793:1870	662+346	76.0 : 76.0%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	19	-	223	1827:1888	123+169	76.5 : 76.5%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	109	-	439	1779:1879	825+41	50.6 : 50.6%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	556	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	453	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	276	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	485	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

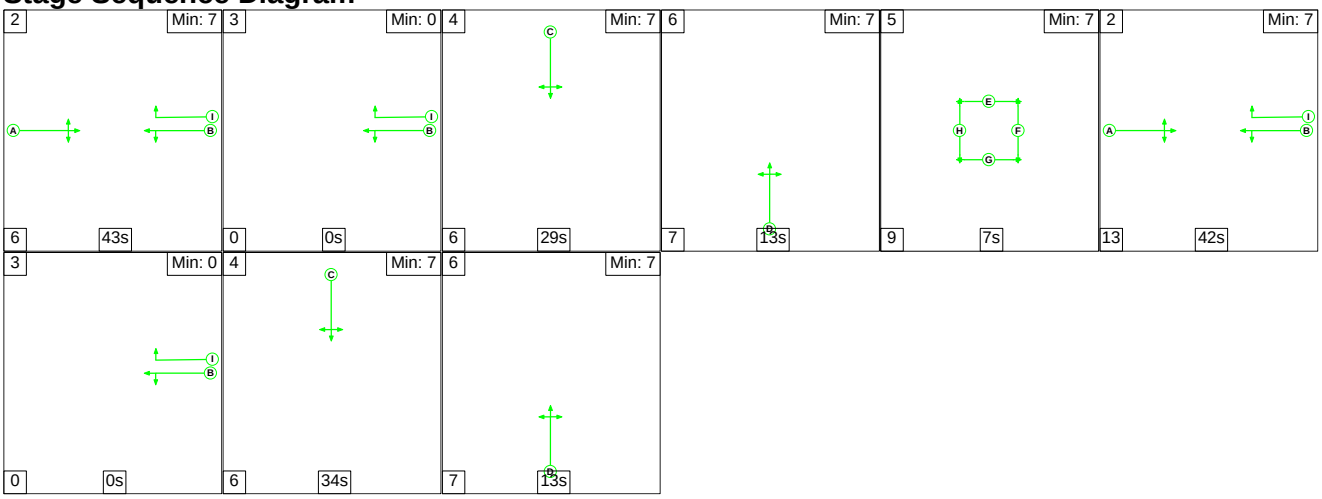
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**267**	**201**	**64**	**15.2**	**5.2**	**0.8**	**21.2**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**267**	**201**	**64**	**15.2**	**5.2**	**0.8**	**21.2**	**-**	**-**	**-**	**-**
1/1+1/2	342	342	0	110	9	4.0	1.5	0.0	5.6	58.6	7.9	1.5	9.4
2/1+2/2	766	766	246	0	17	5.4	1.6	0.6	7.6	35.6	15.0	1.6	16.6
3/1+3/2	223	223	0	92	37	3.2	1.6	0.0	4.8	78.0	4.4	1.6	6.0
4/1+4/2	439	439	21	0	0	2.6	0.5	0.1	3.2	26.1	9.6	0.5	10.1
5/1	556	556	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	453	453	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	276	276	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	485	485	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 17.7 Total Delay for Signalled Lanes (pcuHr): 21.16 Cycle Time (s): 235
PRC Over All Lanes (%): 17.7 Total Delay Over All Lanes(pcuHr): 21.16

Full Input Data And Results

Scenario 4: '2028 With Development PM' (FG4: '2028 With Development PM', Plan 1: 'Network Control Plan 1')

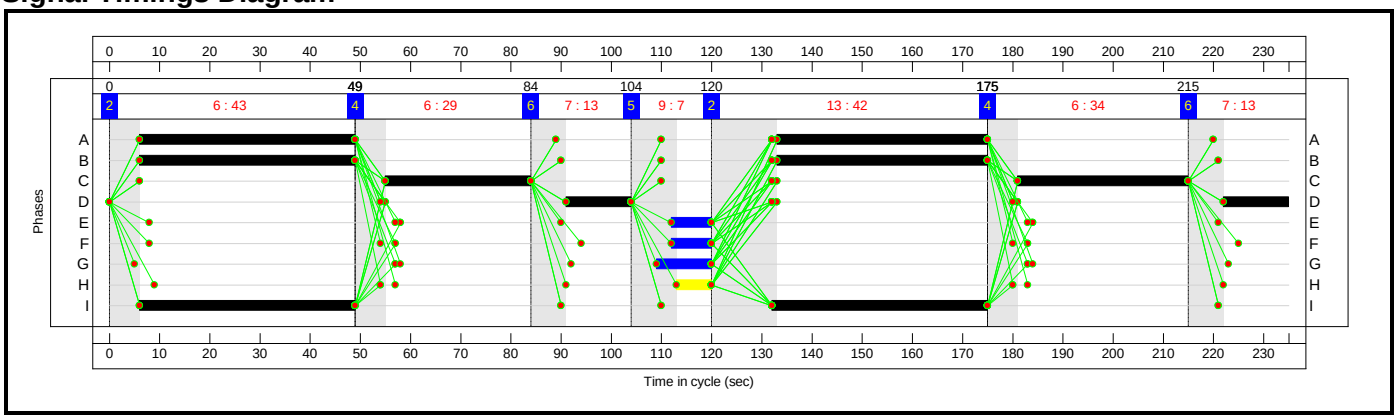
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	43	0	29	13	7	42	0	34	13
Change Point	0	49	49	84	104	120	175	175	215

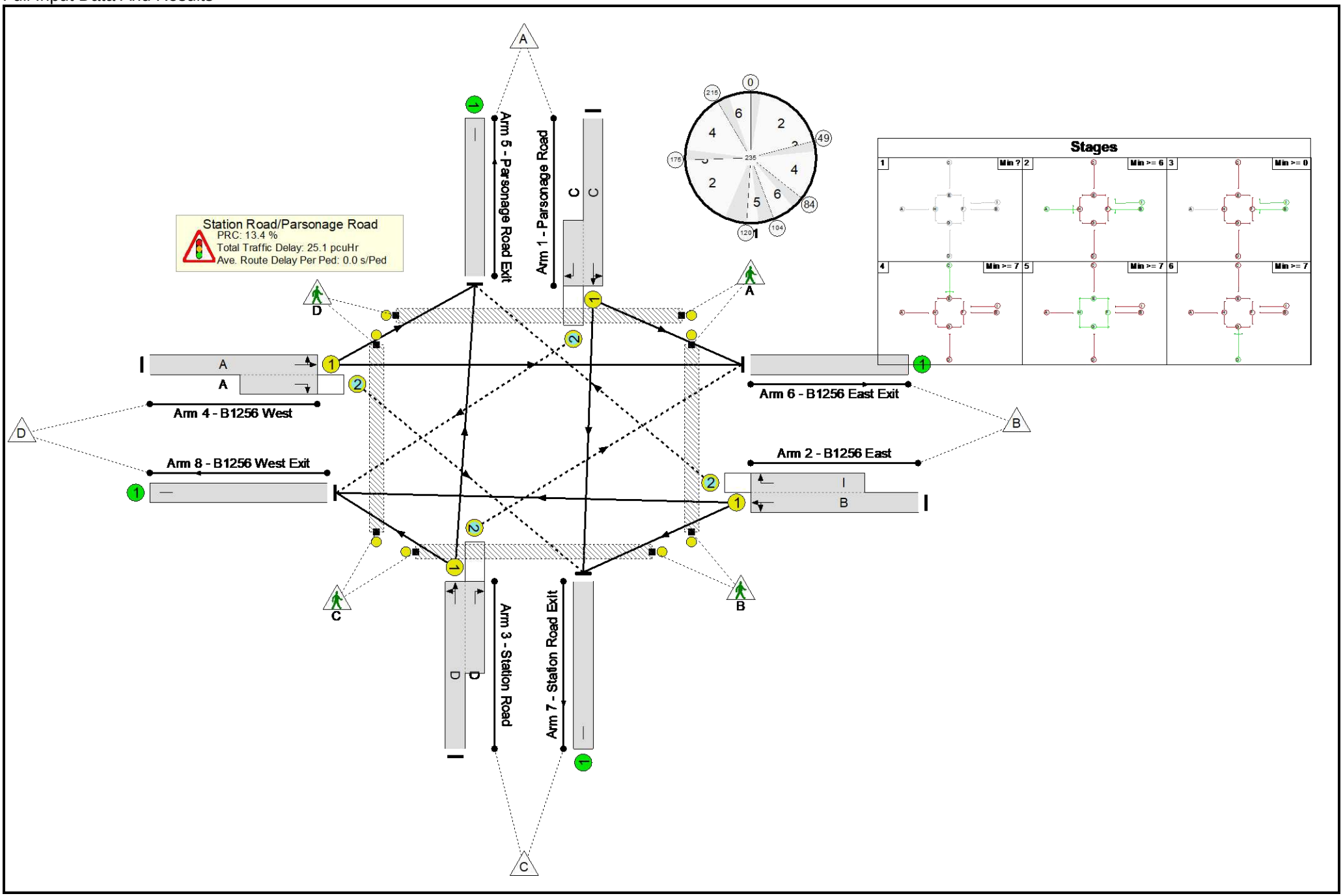
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.4%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.4%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	63	-	448	1756:1850	387+179	79.1 : 79.1%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	85:86	-	430	1791:1870	483+145	66.4 : 75.1%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	26	-	297	1840:1888	152+224	79.0 : 79.0%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	85	-	564	1850:1879	654+57	79.4 : 79.4%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	326	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	788	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	237	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	388	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

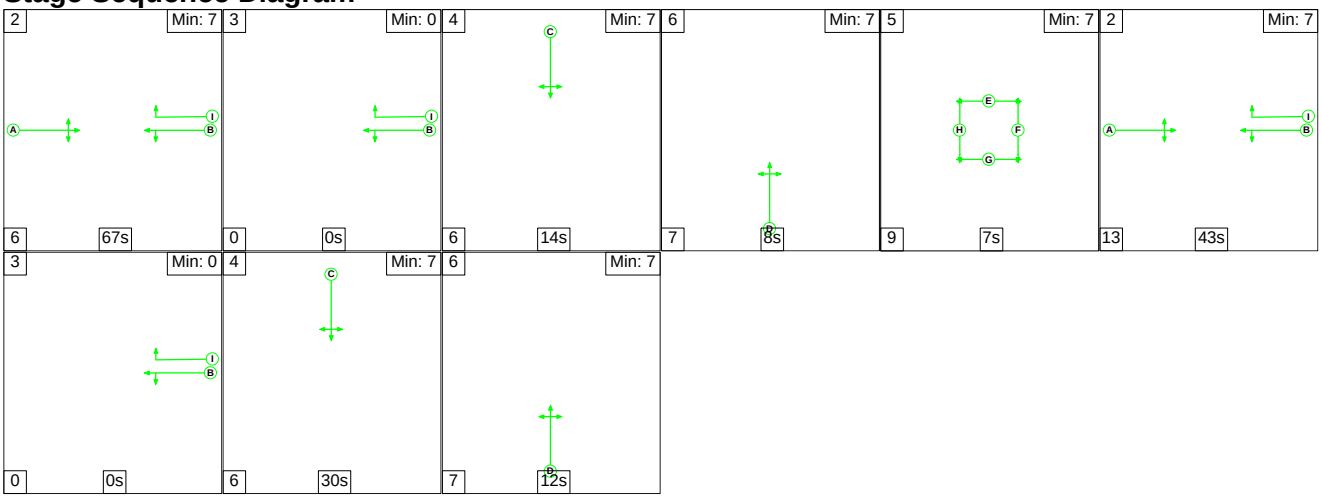
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**131**	**273**	**69**	**17.7**	**6.6**	**0.8**	**25.1**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**131**	**273**	**69**	**17.7**	**6.6**	**0.8**	**25.1**	**-**	**-**	**-**	**-**
1/1+1/2	448	448	0	138	4	4.7	1.8	0.0	6.6	53.0	12.7	1.8	14.6
2/1+2/2	430	430	86	0	23	3.6	1.1	0.6	5.3	44.5	9.1	1.1	10.1
3/1+3/2	297	297	0	135	42	4.2	1.8	0.1	6.1	73.4	6.3	1.8	8.1
4/1+4/2	564	564	45	0	0	5.2	1.9	0.1	7.1	45.4	17.8	1.9	19.7
5/1	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	788	788	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	237	237	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	388	388	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 13.4 Total Delay for Signalled Lanes (pcuHr): 25.07 Cycle Time (s): 235
PRC Over All Lanes (%): 13.4 Total Delay Over All Lanes(pcuHr): 25.07

Full Input Data And Results

Scenario 5: '2028 Without Development AM + 5% Sensitivity Test' (FG5: '2028 without Development AM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

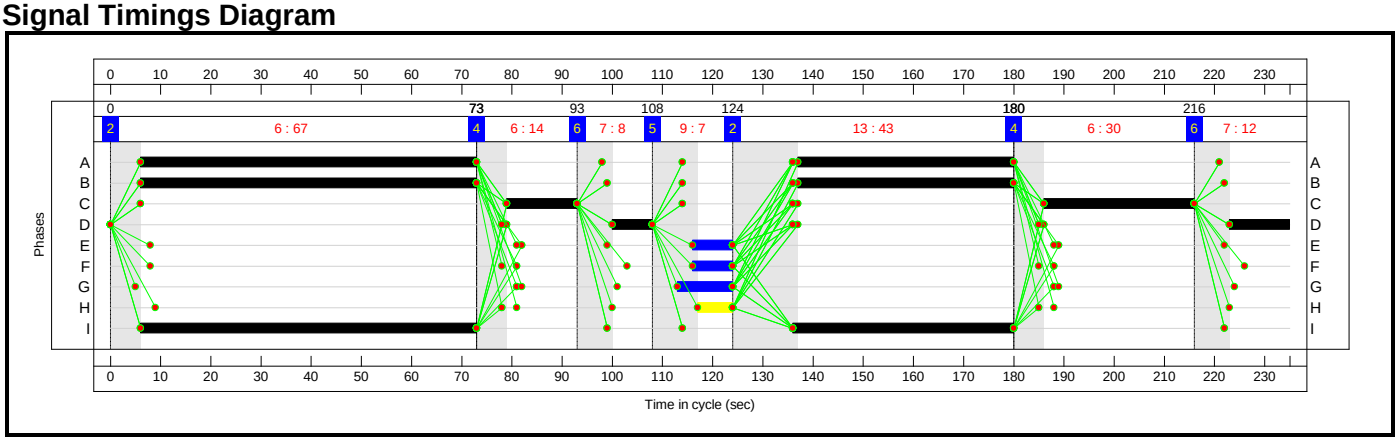
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	67	0	14	8	7	43	0	30	12
Change Point	0	73	73	93	108	124	180	180	216

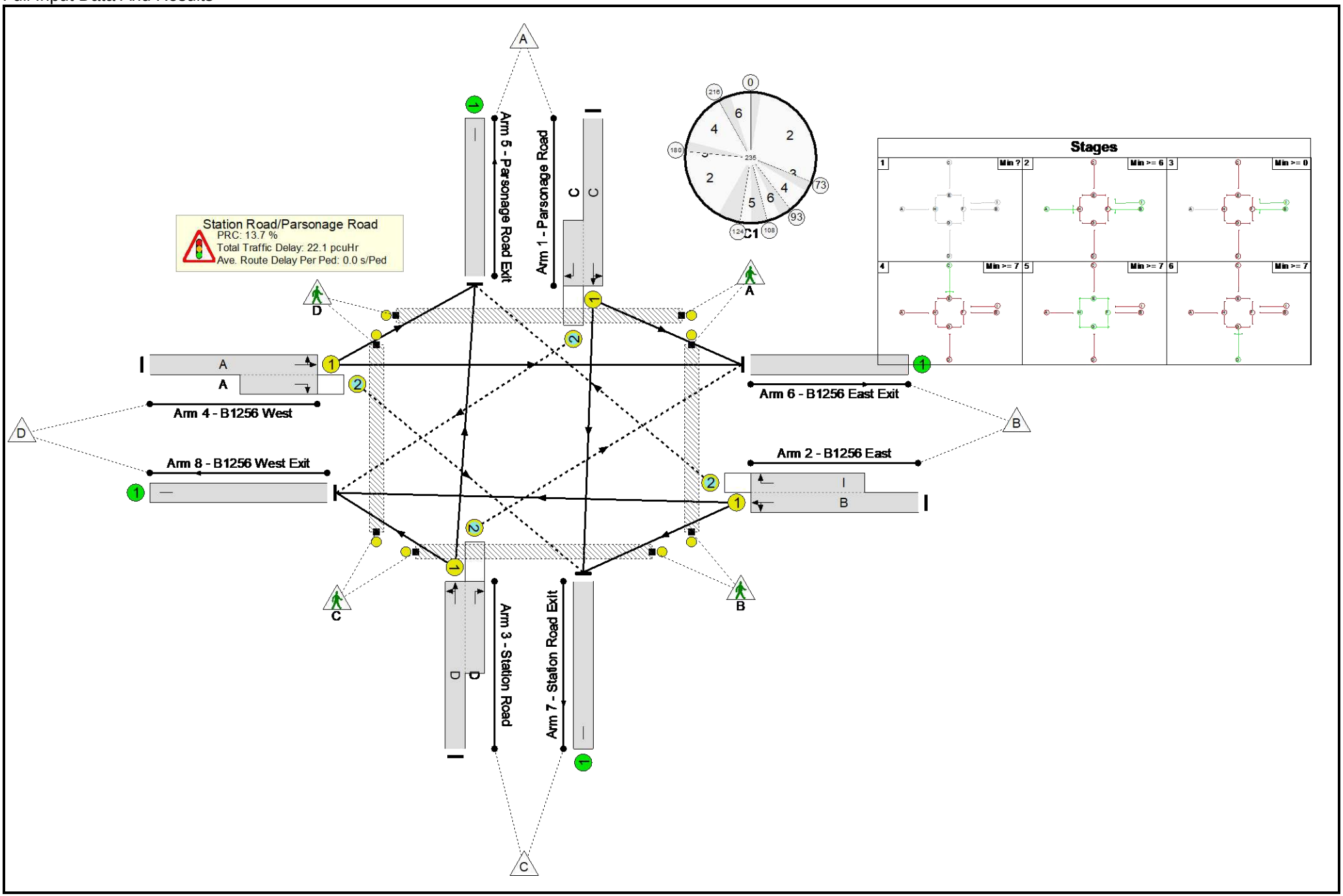
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.1%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.1%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	44	-	334	1776:1850	288+138	78.5 : 78.5%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	110:111	-	799	1793:1870	672+337	79.1 : 79.1%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	20	-	231	1824:1888	126+177	76.4 : 76.4%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	110	-	434	1786:1879	833+44	49.4 : 49.4%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	545	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	469	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	288	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	496	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

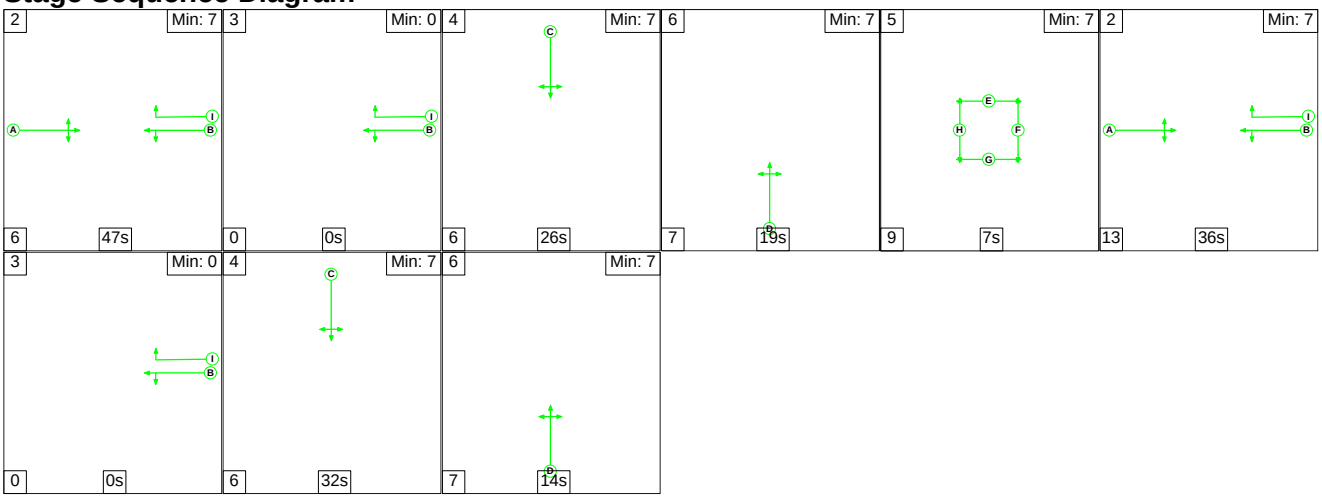
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**273**	**197**	**62**	**15.7**	**5.7**	**0.8**	**22.1**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**273**	**197**	**62**	**15.7**	**5.7**	**0.8**	**22.1**	**-**	**-**	**-**	**-**
1/1+1/2	334	334	0	99	9	4.2	1.8	0.0	6.0	64.7	8.1	1.8	9.9
2/1+2/2	799	799	251	0	16	5.6	1.9	0.6	8.1	36.3	16.7	1.9	18.6
3/1+3/2	231	231	0	98	37	3.3	1.5	0.0	4.9	76.7	4.6	1.5	6.1
4/1+4/2	434	434	22	0	0	2.5	0.5	0.1	3.1	25.6	9.4	0.5	9.9
5/1	545	545	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	469	469	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	288	288	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	496	496	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 13.7 Total Delay for Signalled Lanes (pcuHr): 22.09 Cycle Time (s): 235
PRC Over All Lanes (%): 13.7 Total Delay Over All Lanes(pcuHr): 22.09

Full Input Data And Results

Scenario 6: '2028 Without Development PM + 5% Sensitivity Test' (FG6: '2028 without Development PM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

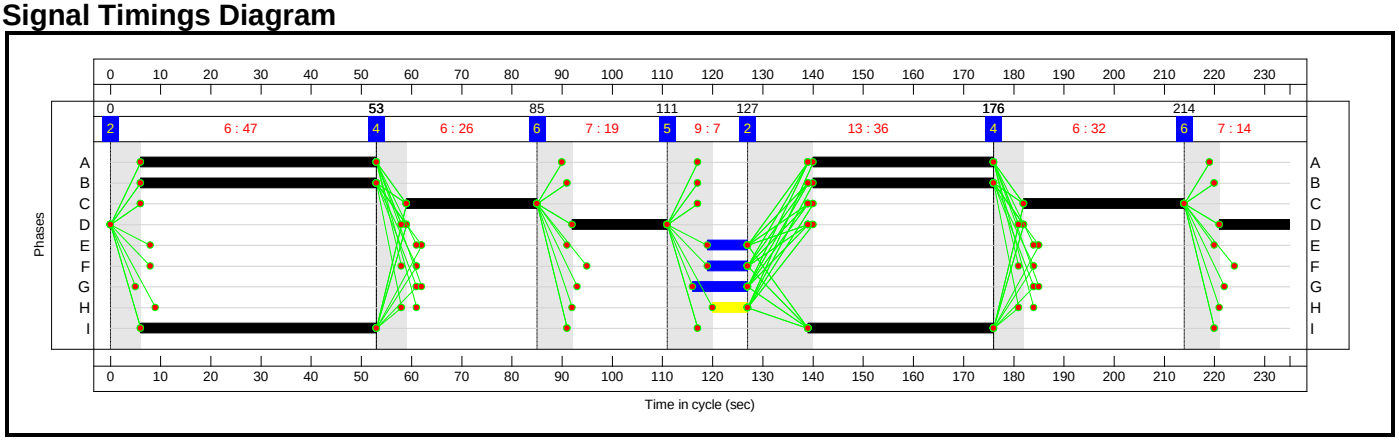
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	47	0	26	19	7	36	0	32	14
Change Point	0	53	53	85	111	127	176	176	214

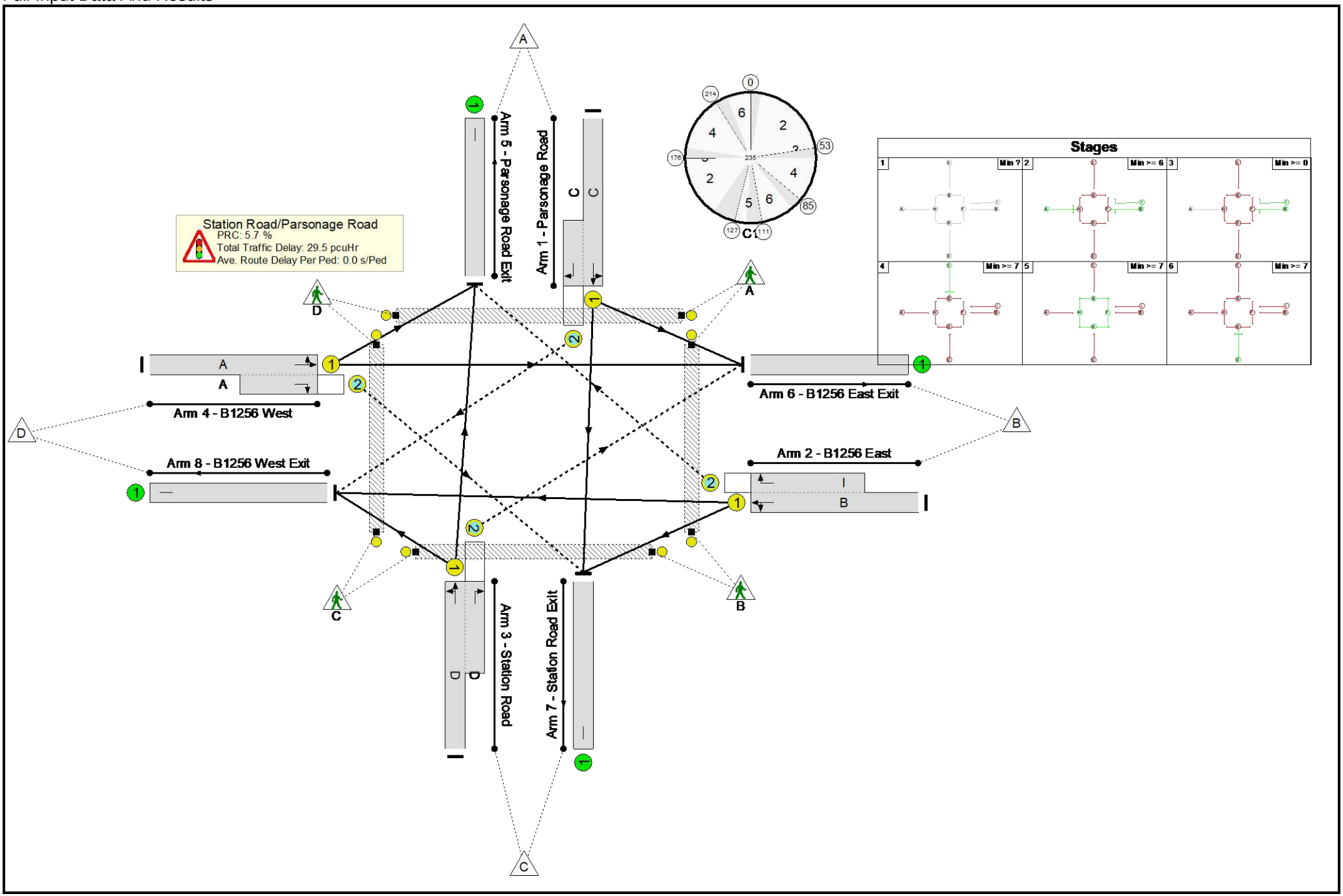
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.1%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.1%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	58	-	441	1756:1850	368+152	84.8 : 84.8%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	83:84	-	448	1791:1870	430+130	78.4 : 85.1%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	33	-	311	1868:1888	266+102	84.5 : 84.5%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	83	-	582	1853:1879	639+56	83.7 : 83.7%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	428	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	720	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	247	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	387	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**123**	**206**	**43**	**19.3**	**9.5**	**0.8**	**29.5**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**123**	**206**	**43**	**19.3**	**9.5**	**0.8**	**29.5**	**-**	**-**	**-**	**-**
1/1+1/2	441	441	0	126	3	4.9	2.6	0.0	7.6	61.7	12.8	2.6	15.4
2/1+2/2	448	448	76	0	35	4.6	1.9	0.7	7.2	58.0	10.2	1.9	12.1
3/1+3/2	311	311	0	81	5	4.1	2.5	0.0	6.6	76.9	8.0	2.5	10.5
4/1+4/2	582	582	47	0	0	5.6	2.5	0.1	8.1	50.3	19.4	2.5	21.8
5/1	428	428	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	720	720	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	247	247	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	387	387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

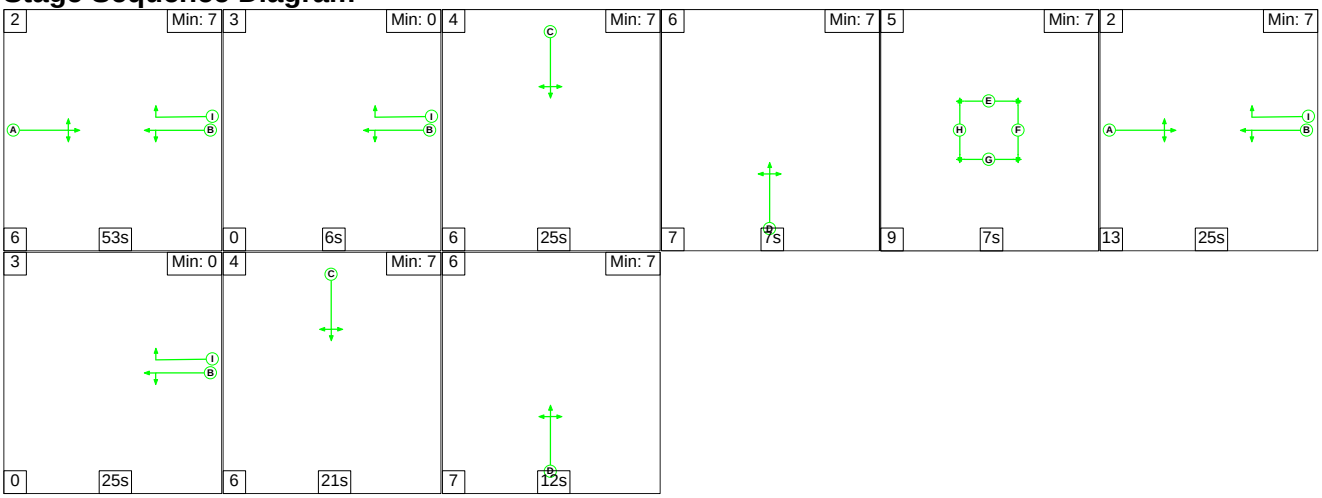
C1 PRC for Signalled Lanes (%): 5.7 Total Delay for Signalled Lanes (pcuHr): 29.55 Cycle Time (s): 235

PRC Over All Lanes (%): 5.7 Total Delay Over All Lanes(pcuHr): 29.55

Full Input Data And Results

Scenario 7: '2028 With Development AM + 5% Sensitivity Test' (FG7: '2028 with Development AM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

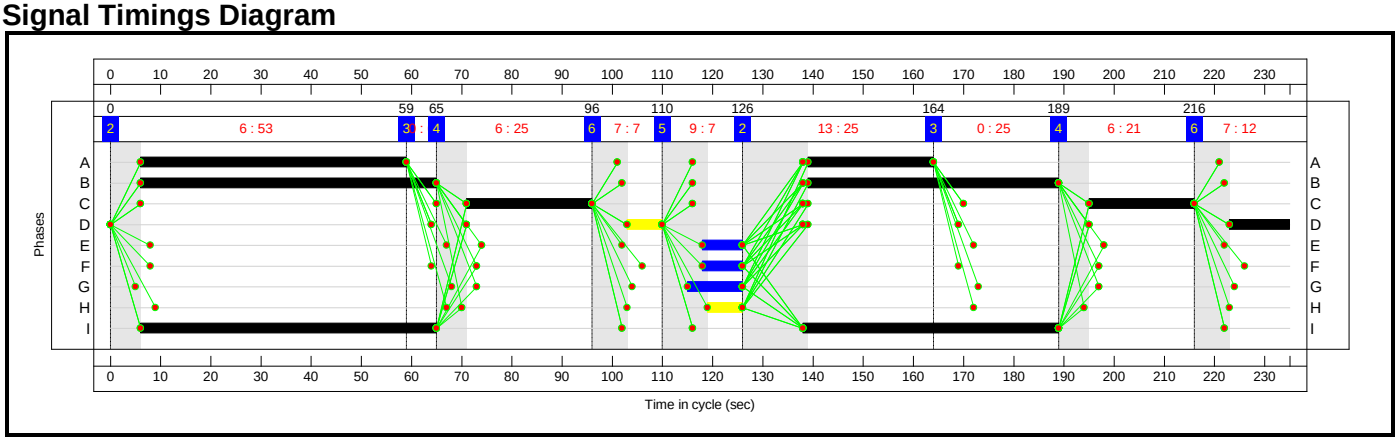
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	53	6	25	7	7	25	25	21	12
Change Point	0	59	65	96	110	126	164	189	216

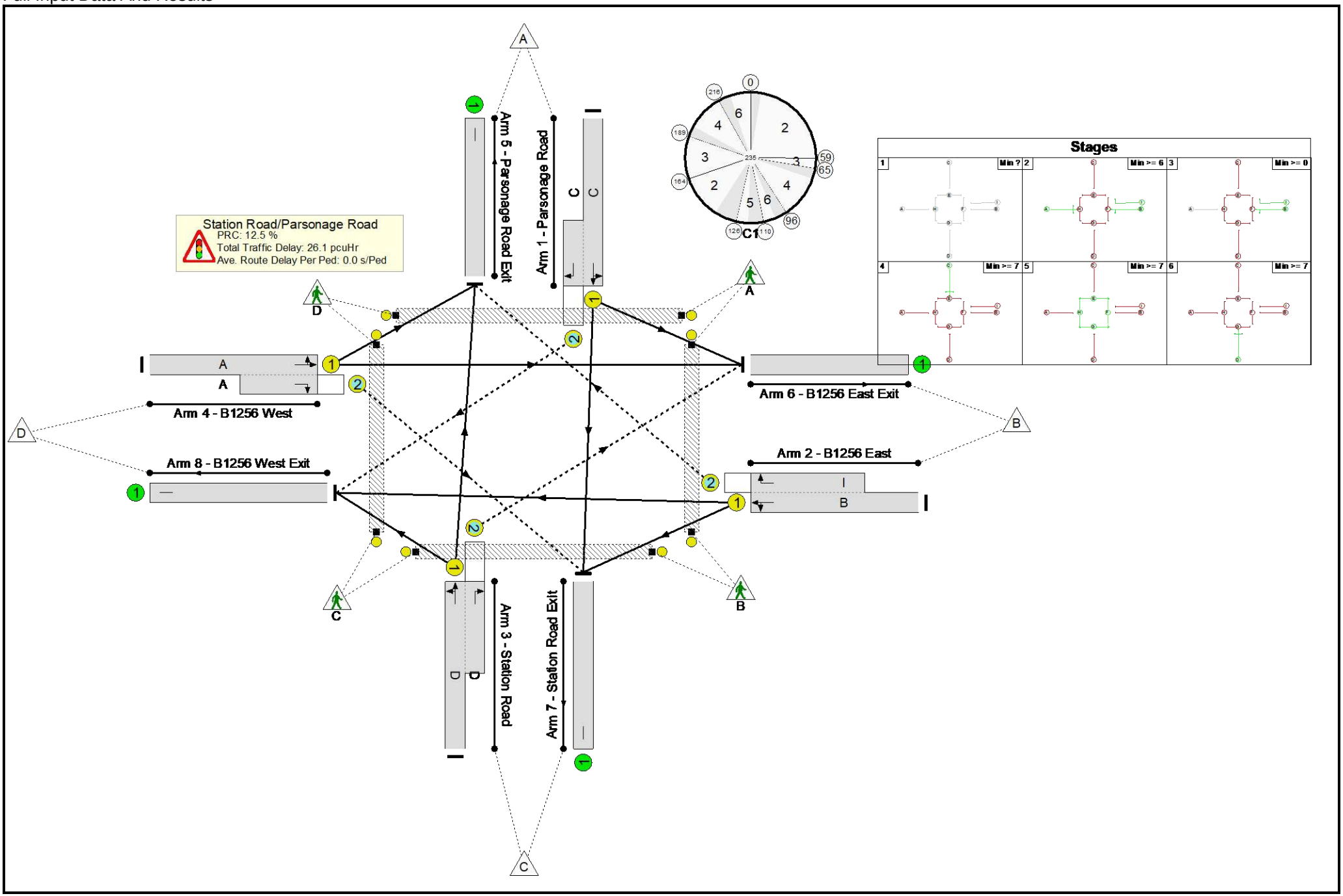
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.0%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.0%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	46	-	359	1775:1850	293+157	79.9 : 79.9%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	109:110	-	805	1793:1870	662+345	79.9 : 80.0%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	19	-	234	1826:1888	124+169	80.0 : 80.0%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	78	-	461	1779:1879	599+30	73.3 : 73.3%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	584	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	475	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	290	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	510	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

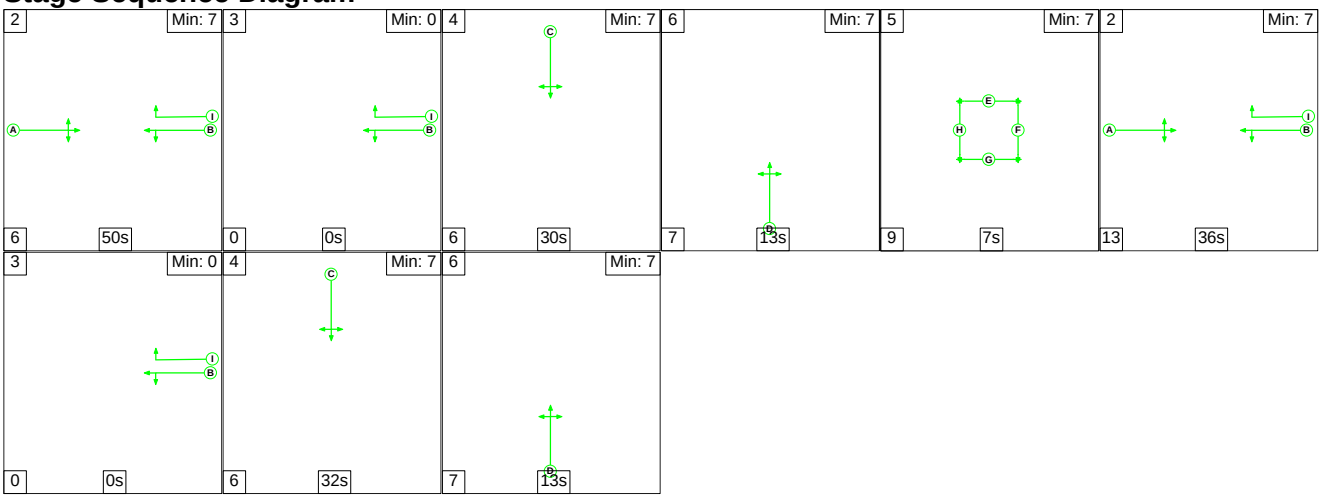
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**141**	**364**	**53**	**18.2**	**7.1**	**0.8**	**26.1**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**141**	**364**	**53**	**18.2**	**7.1**	**0.8**	**26.1**	**-**	**-**	**-**	**-**
1/1+1/2	359	359	0	122	3	4.3	1.9	0.0	6.2	61.9	8.8	1.9	10.7
2/1+2/2	805	805	119	150	7	6.2	2.0	0.7	8.9	39.6	20.7	2.0	22.7
3/1+3/2	234	234	0	92	43	3.4	1.9	0.0	5.3	81.9	4.5	1.9	6.4
4/1+4/2	461	461	22	0	0	4.3	1.4	0.1	5.8	45.1	13.0	1.4	14.4
5/1	584	584	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	475	475	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	290	290	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	510	510	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 12.5 Total Delay for Signalled Lanes (pcuHr): 26.13 Cycle Time (s): 235
PRC Over All Lanes (%): 12.5 Total Delay Over All Lanes(pcuHr): 26.13

Full Input Data And Results

Scenario 8: '2028 With Development PM + 5% Sensitivity Test' (FG8: '2028 with Development PM + 5% Sensitivity Test', Plan 1: 'Network Control Plan 1')

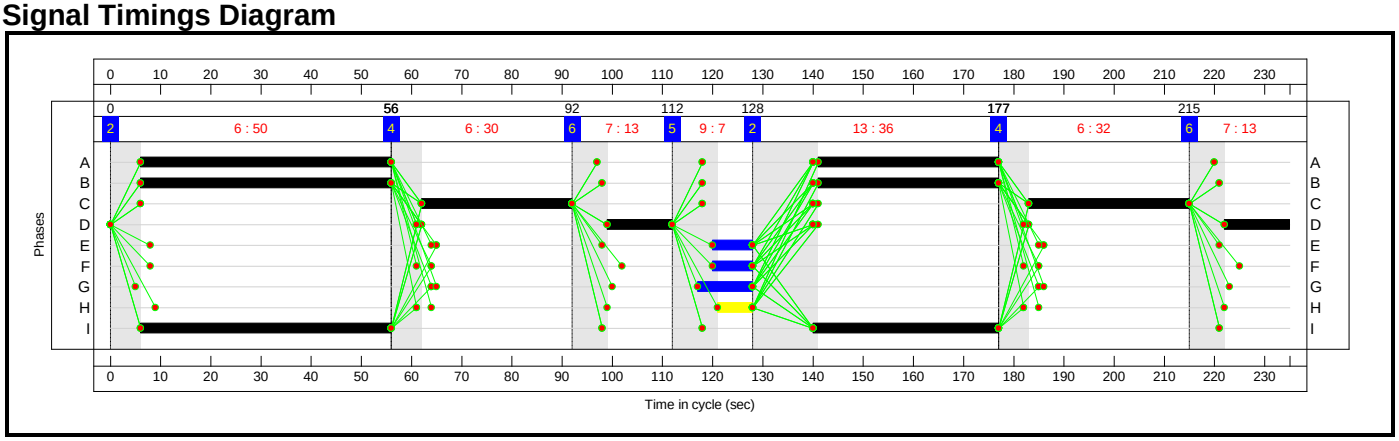
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	50	0	30	13	7	36	0	32	13
Change Point	0	56	56	92	112	128	177	177	215

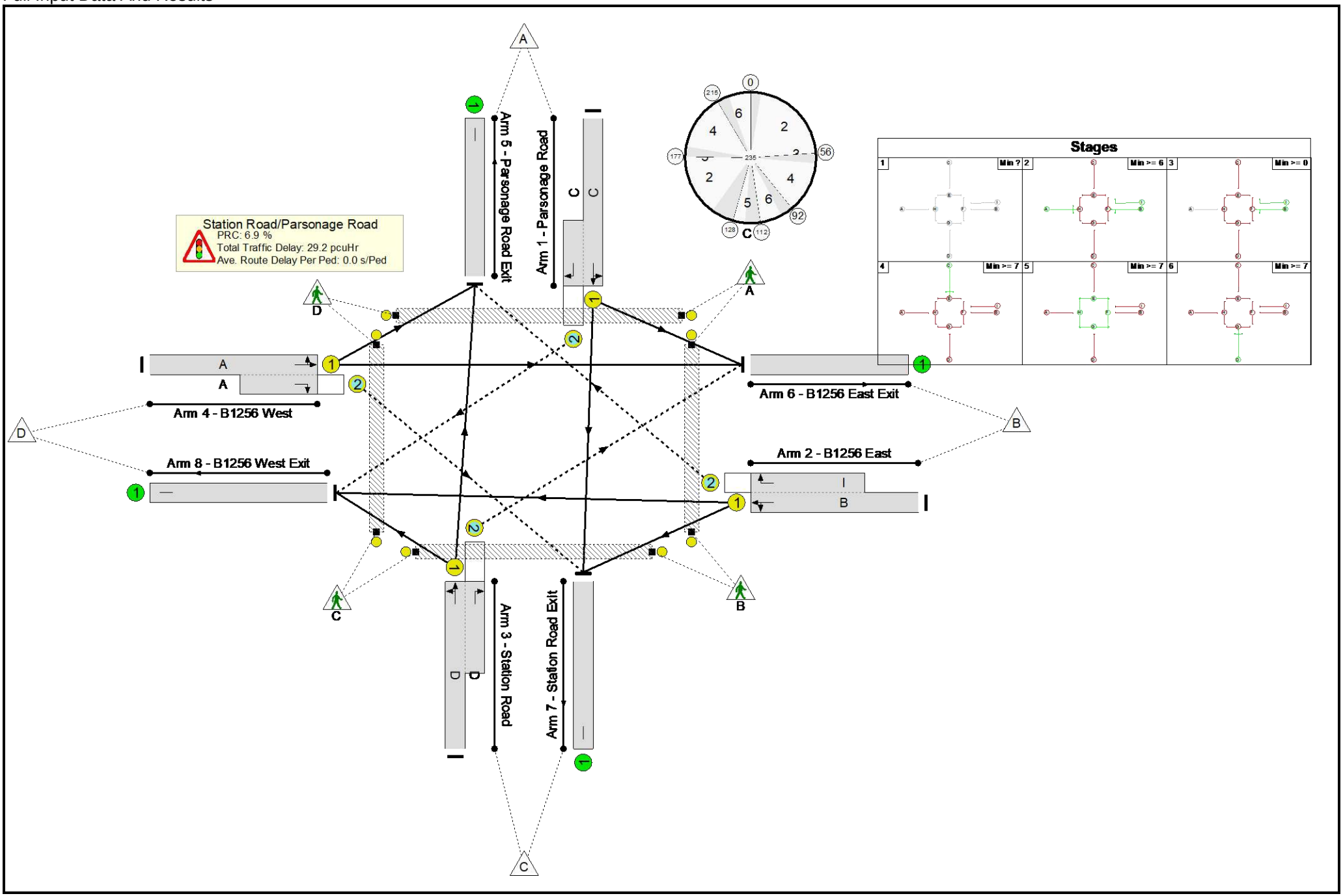
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.2%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.2%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	62	-	470	1756:1850	381+177	84.2 : 84.2%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	86:87	-	451	1791:1870	428+138	78.7 : 82.7%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	26	-	312	1839:1888	152+224	83.1 : 83.1%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	86	-	592	1850:1879	661+57	82.4 : 82.4%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	342	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	827	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	249	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	407	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

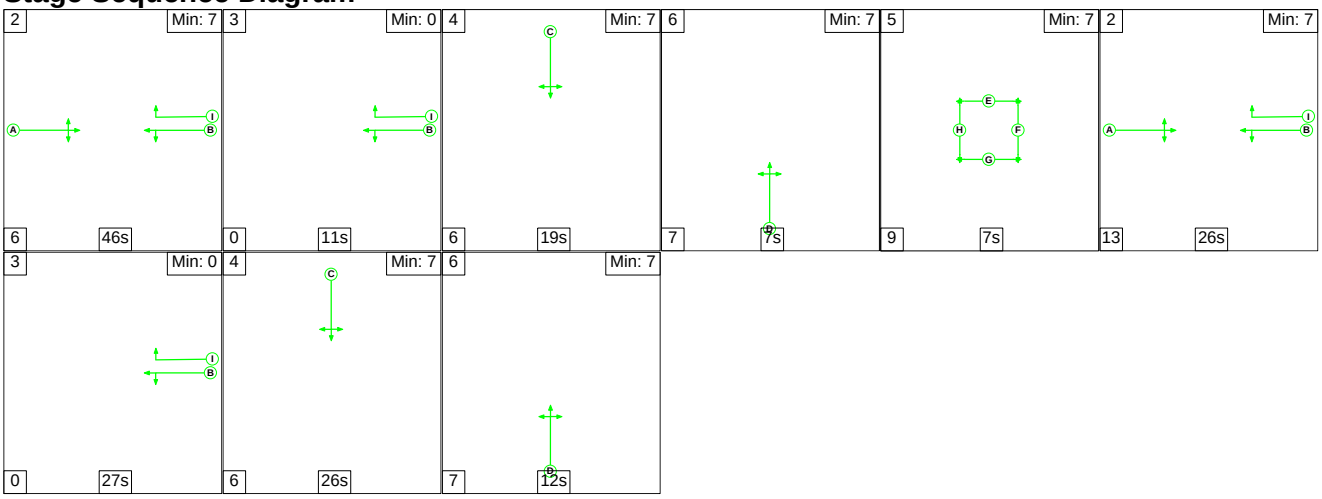
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**130**	**280**	**86**	**19.4**	**9.0**	**0.9**	**29.2**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**130**	**280**	**86**	**19.4**	**9.0**	**0.9**	**29.2**	**-**	**-**	**-**	**-**
1/1+1/2	470	470	0	145	4	5.0	2.5	0.0	7.6	57.9	12.7	2.5	15.2
2/1+2/2	451	451	83	0	31	4.5	1.9	0.7	7.1	56.7	10.1	1.9	12.0
3/1+3/2	312	312	0	135	51	4.3	2.3	0.1	6.7	77.5	6.2	2.3	8.5
4/1+4/2	592	592	47	0	0	5.5	2.3	0.1	7.9	47.8	19.4	2.3	21.7
5/1	342	342	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	827	827	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	249	249	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	407	407	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 6.9 Total Delay for Signalled Lanes (pcuHr): 29.24 Cycle Time (s): 235
PRC Over All Lanes (%): 6.9 Total Delay Over All Lanes(pcuHr): 29.24

Full Input Data And Results

Scenario 9: '2028 With Development AM + 10% Sensitivity Test' (FG9: '2028 with Development AM + 10% Sensitivity Test', Plan 1: 'Network Control Plan 1')

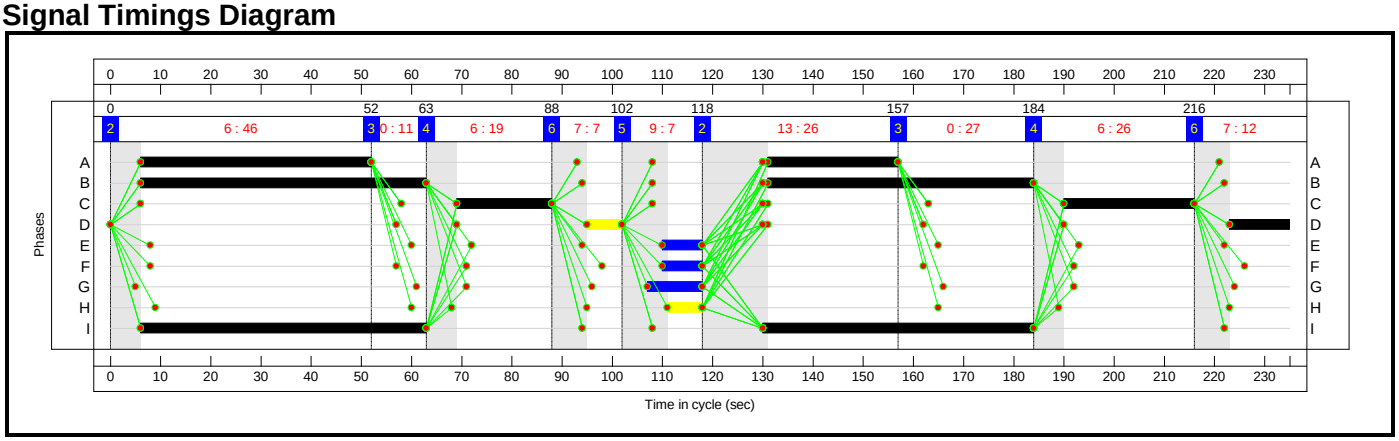
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	46	11	19	7	7	26	27	26	12
Change Point	0	52	63	88	102	118	157	184	216

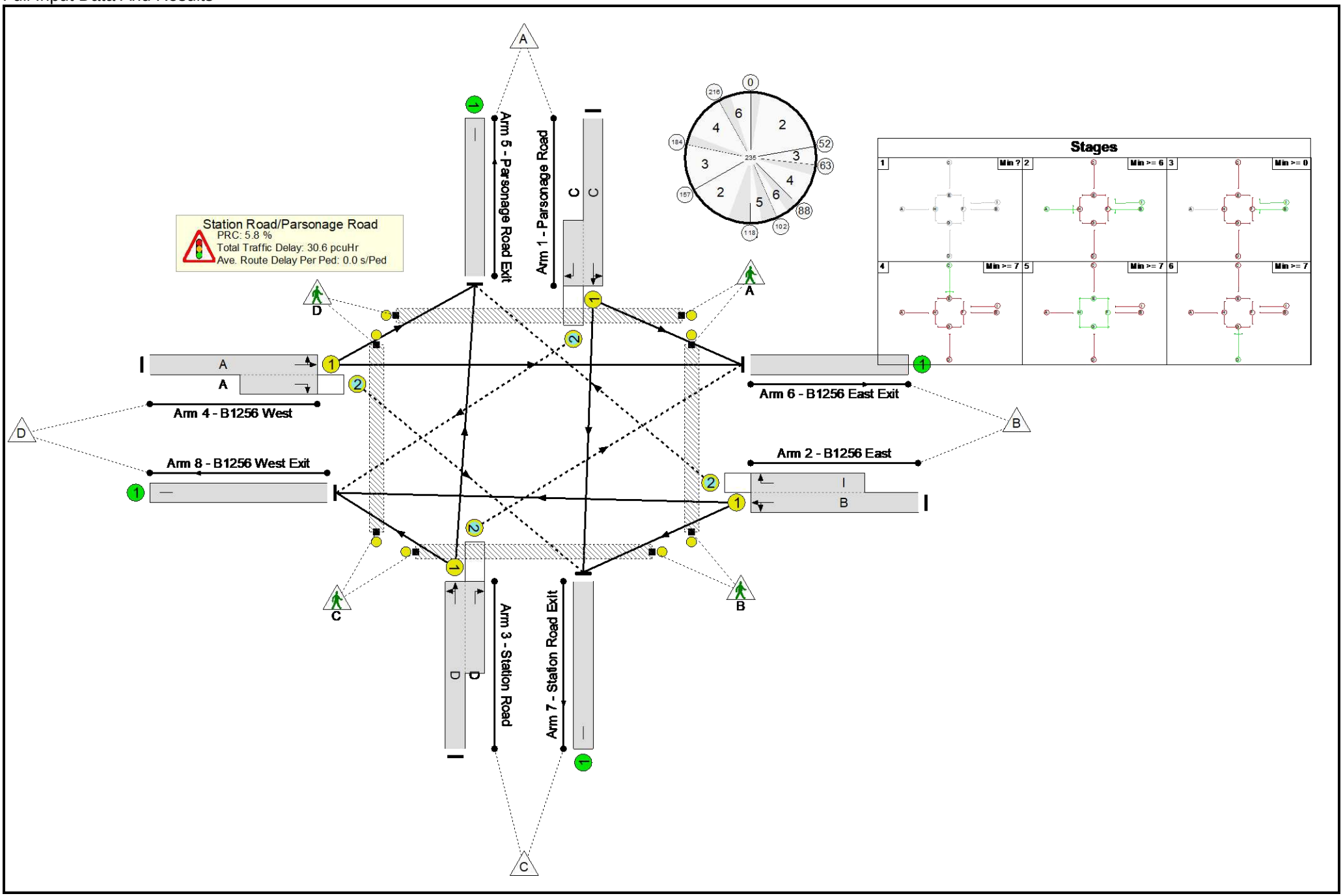
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.1%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.1%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	45	-	376	1775:1850	288+154	85.1 : 85.1%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	110:111	-	842	1793:1870	653+341	84.7 : 84.7%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	19	-	246	1826:1888	124+169	84.2 : 84.2%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	72	-	482	1779:1879	556+28	82.6 : 82.6%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	611	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	498	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	303	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	534	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

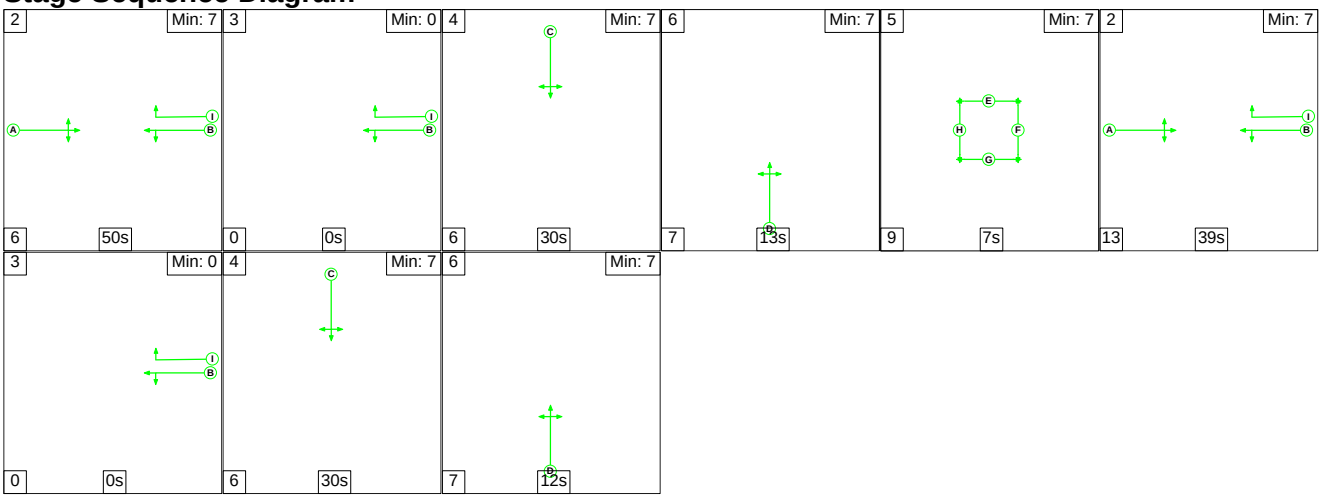
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**95**	**421**	**69**	**19.8**	**10.0**	**0.9**	**30.6**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**95**	**421**	**69**	**19.8**	**10.0**	**0.9**	**30.6**	**-**	**-**	**-**	**-**
1/1+1/2	376	376	0	128	3	4.6	2.6	0.0	7.2	69.2	9.9	2.6	12.5
2/1+2/2	842	842	72	201	16	6.6	2.7	0.7	10.0	42.7	20.2	2.7	22.9
3/1+3/2	246	246	0	92	50	3.6	2.4	0.1	6.1	89.1	5.1	2.4	7.5
4/1+4/2	482	482	23	0	0	5.0	2.3	0.1	7.4	55.0	14.6	2.3	16.9
5/1	611	611	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	498	498	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	303	303	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	534	534	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): 5.8 Total Delay for Signalled Lanes (pcuHr): 30.64 Cycle Time (s): 235
PRC Over All Lanes (%): 5.8 Total Delay Over All Lanes(pcuHr): 30.64

Full Input Data And Results

Scenario 10: '2028 With Development PM + 10% Sensitivity Test' (FG10: '2028 with Development PM + 10% Sensitivity Test', Plan 1: 'Network Control Plan 1')

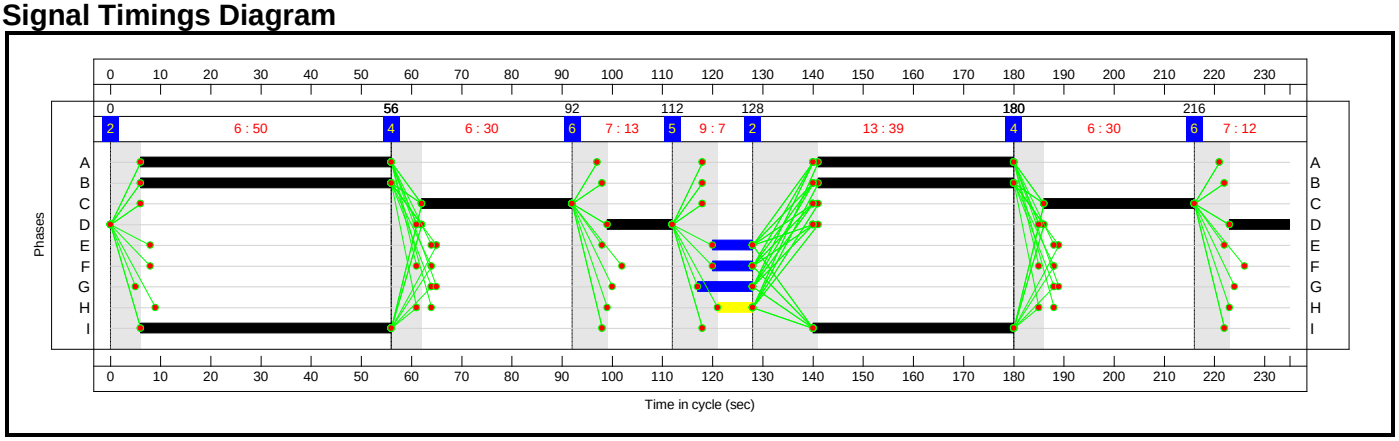
Stage Sequence Diagram



Stage Timings

Stage	2	3	4	6	5	2	3	4	6
Duration	50	0	30	13	7	39	0	30	12
Change Point	0	56	56	92	112	128	180	180	216

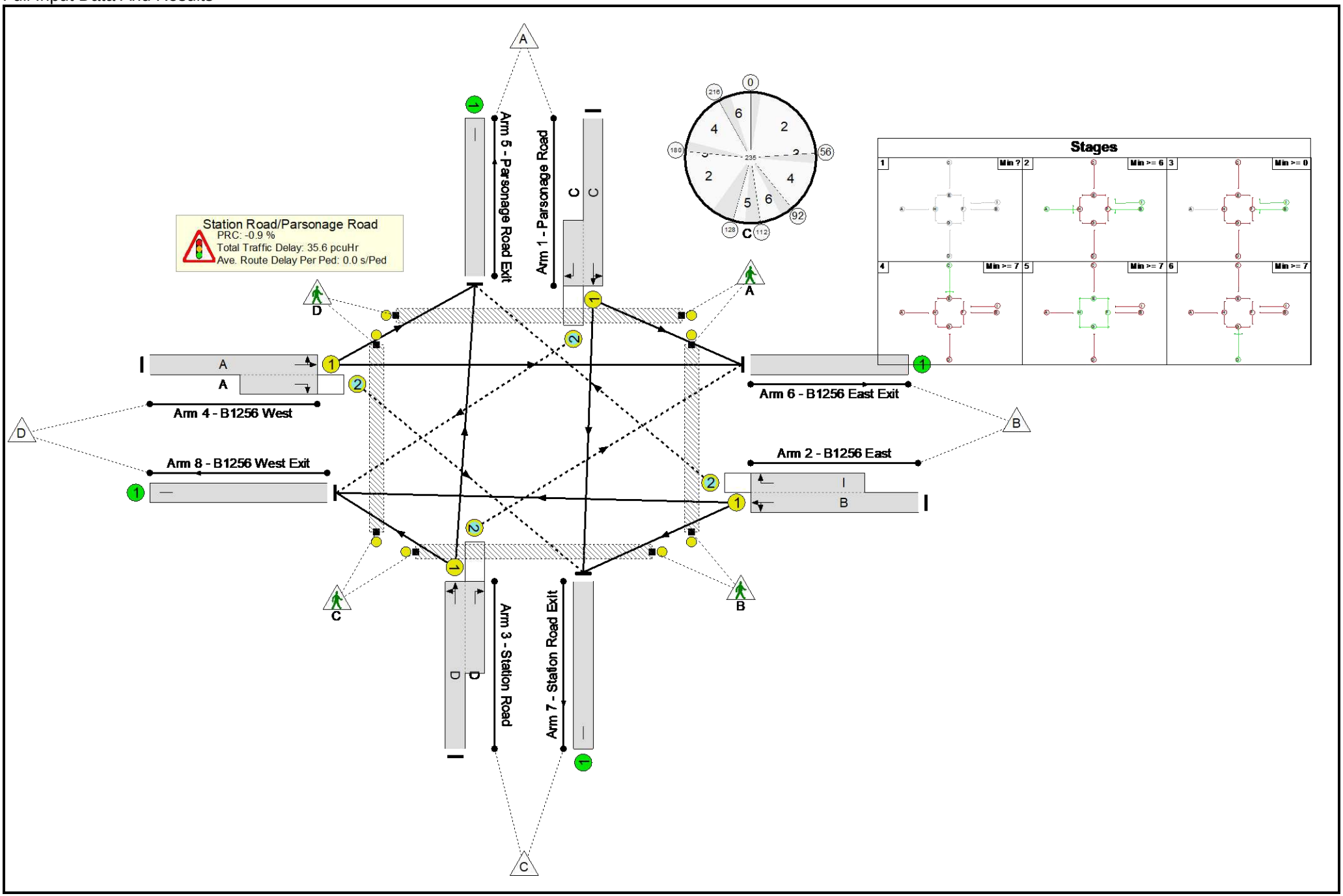
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**90.8%**
Station Road/Parsonage Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**90.8%**
1/1+1/2	Parsonage Road Left Ahead Right	U+O	N/A	N/A	C		2	60	-	493	1756:1850	371+172	90.8 : 90.8%
2/1+2/2	B1256 East Right Left Ahead	U+O	N/A	N/A	B I		2	89:90	-	473	1791:1870	396+134	89.1 : 89.4%
3/1+3/2	Station Road Ahead Right Left	U+O	N/A	N/A	D		2	25	-	327	1839:1888	146+216	90.1 : 90.1%
4/1+4/2	B1256 West Left Ahead Right	U+O	N/A	N/A	A		2	89	-	621	1850:1879	682+60	83.7 : 83.7%
5/1	Parsonage Road Exit	U	N/A	N/A	-		-	-	-	358	Inf	Inf	0.0%
6/1	B1256 East Exit	U	N/A	N/A	-		-	-	-	868	Inf	Inf	0.0%
7/1	Station Road Exit	U	N/A	N/A	-		-	-	-	261	Inf	Inf	0.0%
8/1	B1256 West Exit	U	N/A	N/A	-		-	-	-	427	Inf	Inf	0.0%
Ped Link: P1	Parsonage Road Crossing	-	N/A	-	E		1	8	-	0	-	2451	0.0%
Ped Link: P2	B1256 East Crossing	-	N/A	-	F		1	8	-	0	-	2451	0.0%
Ped Link: P3	Station Road Crossing	-	N/A	-	G		1	11	-	0	-	3370	0.0%
Ped Link: P4	B1256 West Crossing	-	N/A	-	H		1	7	-	0	-	2145	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**130**	**279**	**112**	**20.6**	**14.1**	**0.9**	**35.6**	**-**	**-**	**-**	**-**
Station Road/Parsonage Road	**-**	**-**	**130**	**279**	**112**	**20.6**	**14.1**	**0.9**	**35.6**	**-**	**-**	**-**	**-**
1/1+1/2	493	493	0	150	6	5.5	4.2	0.0	9.7	71.1	14.3	4.2	18.5
2/1+2/2	473	473	80	0	40	4.8	3.6	0.7	9.2	69.7	10.7	3.6	14.4
3/1+3/2	327	327	0	129	66	4.6	3.8	0.1	8.5	93.4	6.6	3.8	10.4
4/1+4/2	621	621	50	0	0	5.7	2.5	0.1	8.2	47.8	20.7	2.5	23.2
5/1	358	358	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	868	868	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	261	261	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	427	427	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0

C1 PRC for Signalled Lanes (%): -0.9 Total Delay for Signalled Lanes (pcuHr): 35.62 Cycle Time (s): 235
PRC Over All Lanes (%): -0.9 Total Delay Over All Lanes(pcuHr): 35.62

Appendix I

Speed Survey Data

ATC SUMMARY REPORT

PROJECT	34507 Takeley, Essex
LOCATION	34507-001 - Parsonage Road
LOC. DESC.	Parsonage Road
START DATE	Sun 05 Feb, 2023
END DATE	Sat 11 Feb, 2023
SPEED LIMIT	30mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Parsonage Road, commencing Sun 05 Feb 2023, recorded a total of 37,871 vehicles. The posted speed limit of 30mph was exceeded by 51.4% of vehicles, and the seasonally adjusted, combined AADT value is 5,461 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**37,871**
Avg daily volume (based on 7 days)	5,410.1
Average daily speed (7 days)	30.3mph
Average daily 85%ile (7 days)	35.6mph
AADT (annual average daily traffic)	5,461
Avg weekday volume (Mon-Fri, 24hrs)	5,293.4
Avg weekday speed (Mon-Fri, 24hrs)	30.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	4,351.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	30.3mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 31mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

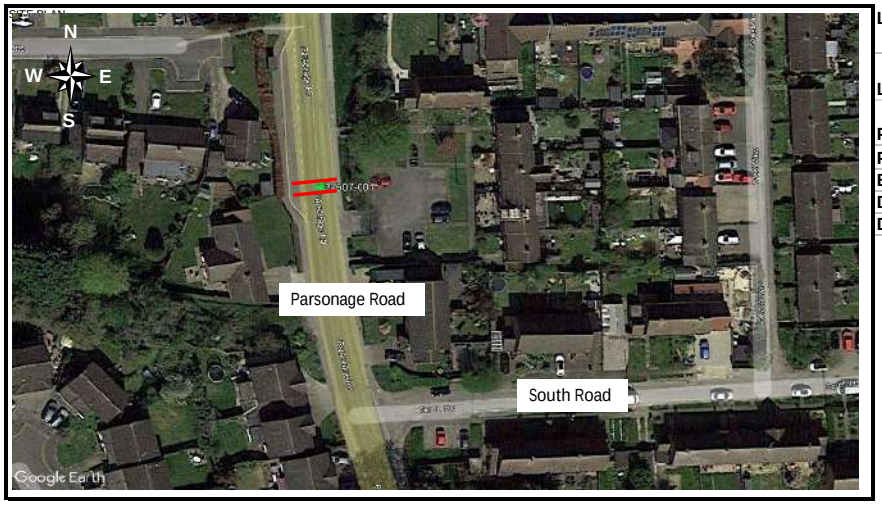
NORTHBOUND ↑

Total recorded volume	**16,444**
Avg daily volume (based on 7 days)	2,349.1
Average daily speed (7 days)	30.3mph
Average daily 85%ile (7 days)	35.2mph
% of vehicles exceeding 30mph	49.8%
Avg weekday volume (Mon-Fri, 24hrs)	2,617.2
Avg weekday speed (Mon-Fri, 24hrs)	30.2mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,176.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	30.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	34.5mph

SOUTHBOUND ↓

Total recorded volume	**21,427**
Avg daily volume (based on 7 days)	3,061.0
Average daily speed (7 days)	30.4mph
Average daily 85%ile (7 days)	35.9mph
% of vehicles exceeding 30mph	53.1%
Avg weekday volume (Mon-Fri, 24hrs)	2,676.2
Avg weekday speed (Mon-Fri, 24hrs)	31.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,175.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	30.7mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	35.3mph

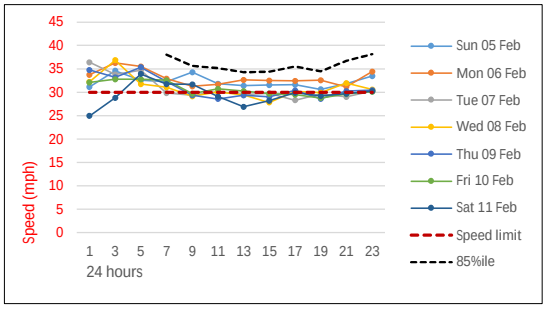
SITE LOCATION



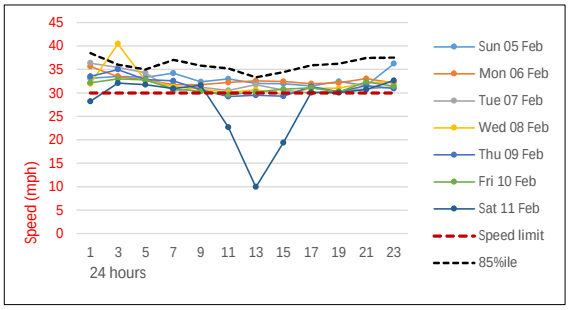
Location	Parsonage Road
Lat, lng.	51°52'14.85"N, 0°15'56.95"E
Project & site	34507-001
PSL	30mph
Bus route	Yes
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

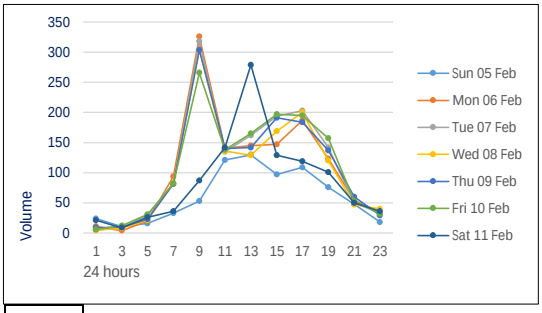


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 30mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 37mph at 07:15 on Sun 05 Feb, whilst the peak average southbound speed was 38.7mph at 07:00 on Sun 05 Feb (based on 15min averages between 0700 & 1900).

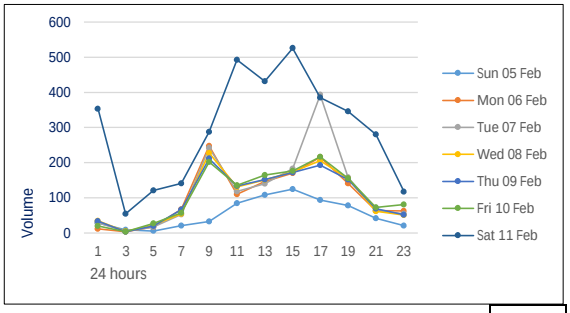
HOURLY VOLUMES

NORTHBOUND ↑



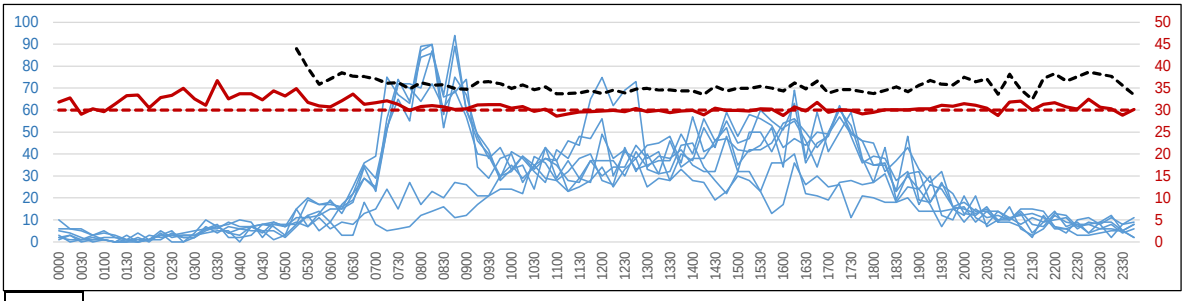
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

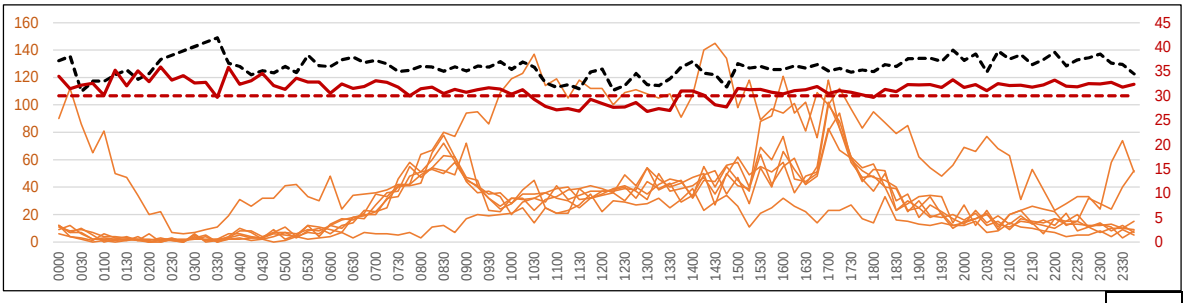


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



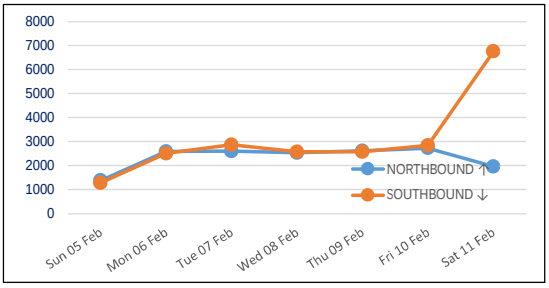
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Saturday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

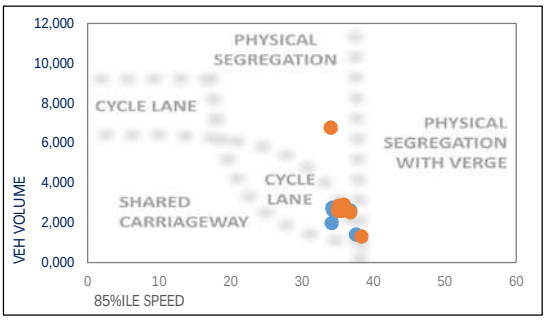
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.1	10.9	0.6	0.0	0.0	**11.6**
0100	0.0	5.0	0.1	0.0	0.0	**5.1**
0200	0.0	9.0	0.0	0.0	0.0	**9.0**
0300	0.1	19.9	0.0	0.1	1.0	**21.1**
0400	0.1	23.4	0.0	0.1	0.0	**23.7**
0500	0.7	38.9	0.1	0.3	1.0	**41.0**
0600	2.3	64.7	0.1	2.1	1.0	**70.3**
0700	0.7	156.9	4.1	9.3	1.3	**172.3**
0800	1.0	217.6	7.1	8.9	2.3	**236.9**
0900	0.4	135.6	3.0	10.4	2.4	**151.9**
1000	4.3	111.3	4.4	12.9	3.3	**136.1**
1100	1.7	122.4	2.9	10.4	3.1	**140.6**
1200	1.7	146.9	3.0	10.4	2.6	**164.6**
1300	1.3	130.1	2.3	12.6	1.9	**148.1**
1400	1.4	137.9	3.7	16.1	1.4	**160.6**
1500	1.0	145.4	3.0	14.6	1.0	**165.0**
1600	1.3	160.1	3.7	3.9	2.0	**171.0**
1700	0.6	158.1	4.9	1.7	2.1	**167.4**
1800	0.6	118.4	1.4	0.4	1.4	**122.3**
1900	0.3	79.0	0.7	0.1	0.6	**80.7**
2000	0.0	49.7	1.3	0.0	0.7	**51.7**
2100	0.0	39.3	0.1	0.0	0.0	**39.4**
2200	0.1	30.6	0.4	0.4	0.1	**31.7**
2300	0.0	26.9	0.0	0.1	0.0	**27.0**
12hr TTL	**16.0**	**1740.7**	**43.6**	**111.6**	**24.9**	**1936.7**
24hr TTL	**19.9**	**2137.9**	**47.1**	**115.0**	**29.3**	**2349.1**
	1%	91%	2%	5%	1%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.4	70.9	1.6	0.0	0.1	**73.0**
0100	0.0	37.7	0.0	0.0	0.1	**37.9**
0200	0.1	12.1	0.0	0.0	0.0	**12.3**
0300	0.0	15.0	0.3	0.0	0.0	**15.3**
0400	0.1	30.9	0.9	0.1	1.0	**33.0**
0500	0.0	40.9	0.6	1.0	0.0	**42.4**
0600	0.3	59.3	1.6	3.1	1.4	**65.7**
0700	0.3	117.7	2.9	6.3	2.3	**129.4**
0800	0.6	190.3	8.6	6.1	2.0	**207.6**
0900	0.9	156.3	5.0	8.7	3.0	**173.9**
1000	0.4	151.1	6.1	12.0	2.7	**172.4**
1100	1.3	157.1	5.0	8.9	3.1	**175.4**
1200	1.7	166.7	3.1	10.7	2.7	**185.0**
1300	1.9	175.4	3.4	12.9	2.0	**195.6**
1400	2.7	194.9	5.1	13.0	2.4	**218.1**
1500	0.3	204.0	3.6	11.4	1.6	**220.9**
1600	1.3	230.9	3.7	5.0	2.6	**243.4**
1700	1.3	265.4	4.7	1.9	2.0	**275.3**
1800	1.7	162.7	2.3	0.6	2.1	**169.4**
1900	0.1	101.6	1.1	0.0	0.0	**102.9**
2000	0.6	90.9	1.3	0.0	0.7	**93.4**
2100	0.6	77.4	0.9	0.0	0.0	**78.9**
2200	0.6	60.6	1.7	0.0	0.0	**62.9**
2300	0.9	75.3	0.9	0.0	0.0	**77.0**
12hr TTL	**14.3**	**2172.6**	**53.6**	**97.4**	**28.6**	**2366.4**
24hr TTL	**18.0**	**2845.0**	**64.3**	**101.7**	**32.0**	**3061.0**
	1%	93%	2%	3%	1%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.