LDP-EBD-HN1.9.9

S|C|P

Transportation Planning : Infrastructure Design

Transport Assessment

Proposed Residential Development

Wrexham Road, Abermorddu

The Clark Estate

November 2017

Doc Ref: CT/16244/TA/02

Prepared by:	Craig Thomson
Checked by:	Mark Devenish

Document Revision Control

Revision	Date	Status	Prepared By	Approved By
0	07.09.17	Draft	CT	MD
1	30.10.17	Draft	CT	BB
2	13.11.17	Final	CT	BB

Colwyn Chambers
19 York Street
Manchester
M2 3BA

T: 0161 832 4400

E: info@scptransport.co.uk
W: www. scptransport.co.uk

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of SCP being obtained. SCP accepts no responsibility or liability for the consequence of this document being used for a purpose other than the purposes for which it was commissioned. Any person using or relying on the document for such other purposes agrees and will by such use or reliance be taken to confirm his agreement to indemnify SCP for all loss or damage resulting there from. SCP accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

CONTENTS

TRAFFIC FLOW FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 SCP have been instructed by The Clark Estate to provide highways and transportation advice for the proposed construction of up to 80 dwellings on a parcel of land off Wrexham Road, Abermorddu.

1.2 The location of the application site in the context of Abermorddu is shown below in **Figure 1.1**:

Figure 1.1 – Site Location

Source: Google Maps

1.3 This Transport Assessment (TA) has been prepared to support the planning application and has been developed with due regard to the Planning Policy Wales (PPW) and the accompanying Technical Advice Notes.

Structure of Report

1.4 The structure of the TA is set out as follows:-

- Chapter 2 - describes in detail the site location and existing uses, surrounding area, local highway network, existing traffic conditions and road safety record;
- Chapter 3 – defines the development proposals including the proposed access, servicing and car parking arrangements;
- Chapter 4 – summarises the national, regional and local transport policies and describes how the proposed development accords with these;
- Chapter 5 – considers the location of the site with regard to the existing local sustainable transport infrastructure;
- Chapter 6 – describes the future baseline traffic conditions on the local highway network in relation to committed development traffic flows and traffic growth;
- Chapter 7 – estimates the number of multimodal trips generated by the development and distributes and assigns the vehicular trips on the local highway network;
- Chapter 8 – presents an assessment of the impact of the development on the operational performance of the local highway network; and
- Chapter 9 – provides summary and conclusions to this TA derived from the analysis presented in the above Chapters.

2.0 EXISTING CONDITIONS

2.1 This Chapter provides a detailed description of the location of the site, the roads and junctions on the local highway network that lie within the TA study area, the existing traffic conditions within this area and an appraisal of the road safety record.

Site Location

2.2 The site is located on a parcel of land, made up of two fields with direct frontage along the west of Wrexham Road in Abermorddu, as shown on **Figures 1.1** earlier. The site is approximately 3.49 hectares in size and is bound by Wrexham Road to the east, agricultural land to the north and west and school playing fields to the south.

2.3 The site itself is open land used for agricultural purposes and can be accessed by a field-gate access situated approximately centrally along Wrexham Road, and also to the west of the site via other agricultural land.

Local Highway Network

2.4 Wrexham Road runs roughly in a north – south alignment connecting the site to Caergwrle in the north and Cefn-y-bedd in the south. In the vicinity of the site the carriageway measures approximately 9 metres in width and benefits from lit footways either side.

2.5 Along the site frontage Wrexham Road is subject to a 40mph speed limit, changing to 30mph at the southern site boundary, in the vicinity of the primary school and Wrexham Road / A550 / Cymau Lane signalised junction. The speed restrictions are enforced by regular signage along Wrexham Road, including signage indicating speed cameras.

2.6 Double yellow line Traffic Regulation Orders (TROs) are evident on both sides of the carriageway along the southern section of the site frontage. This prevents vehicles from parking on-street.

2.7 Wrexham Road meets the A550 and Cymau Lane in the form of a signalised junction to the south of the development site. This junction is made up of four arms; Wrexham Road north and south, Cymau Lane which serves Cymau to the west and Abermorddu County Primary School more locally, as well as the A550 which connects Abermorddu with Bridge End and Hope to the north. There are pedestrian crossings across each arm with dropped kerbs and tactile paving; signal controlled refuge islands with guard railings on the north and east arms of the junction.

Road Safety

2.8 The now archived DfT document *"Guidance on Transport Assessment"* states that *"Critical locations on the road network with poor accident records should be identified. This is to determine if the proposed development will exacerbate existing problems or, if proposed, whether highway mitigation works or traffic management measures will help to alleviate the problems".*

2.9 In order to identify any critical locations on the network with a poor accident record, the personal injury accident data has been obtained from www.crashmap.co.uk for the most recent five year period. The location and severity of the accidents are shown on **Figure 2.1** below:-

Figure 2.1 – Road Safety Plan

Source: Google Maps

2.10 Along Wrexham Road, across the whole site frontage there was a total of two incidents of 'slight' severity, one at either extent of the site frontage, and in the vicinity of the Wrexham Road / A550 / Cymau Lane signalised junction, there was only one incident during the 5 year study period which also resulted in 'slight' severity injury.

2.11 Therefore, given the access proposals detailed in Chapter 3, road safety does not present a material concern in the context of the proposed development.

Baseline Traffic Survey Data

2.12 Baseline traffic counts of the Wrexham Road / A550 / Cymau Lane signalised junction were commissioned by SCP for the purposes of this TA. The data was collected independently on Wednesday 8th June 2016 between 07:30am-09:30am and 16:00pm-18:00pm. The counts were fully classified and recorded all turning movements.

2.13 The AM and PM peak hours for the network were identified as being between 07:45 to 08:45 and 16:45 to 17:45. The raw traffic survey results are presented in **Appendix A**, with the peak hour traffic flows shown diagrammatically on **Traffic Flow Figure 1**.

3.0 PROPOSED DEVELOPMENT

Overview

3.1 The proposed development is a residential scheme compromising up to 80 dwellings and an area of open space at the south eastern point of the site; the planning application is in outline with all matters reserved except for access.

3.2 The indicative scheme is shown on the site layout plan presented in **Appendix B**.

Proposed Site Access Arrangements

3.3 Vehicular access to the development will be provided through the introduction of 2 no. new priority controlled junctions off Wrexham Road. Both of the site accesses will be designed to residential standards, featuring a 5.5m carriageway and 2m footways on either side of the carriageway. They have been designed so that visibility splays of 2.4m x 120m are achievable, as shown on drawing number SCP/16244/F01 REV A presented in **Appendix C**. This is commensurate with a 40mph design speed, as per the robust guidelines in the Design Manual for Roads and Bridges (DMRB) and TAN 18 Table A, including an allowance for motorists traveling above the speed limit.

3.4 Pedestrian / cycle access to the site will be provided from the same location as the proposed vehicular accesses.

Internal Layout and Servicing Arrangements

3.5 The internal road network will be designed to ensure the movements of service and refuse vehicles can be accommodated.

3.6 Swept path analysis of the internal site layout has been undertaken for a large refuse vehicle and a fire tender vehicle and is shown on drawing numbers SCP/16244/ATR01 REV A and SCP/16244/ATR02 REV A in **Appendix D and Appendix E** respectively. The swept path analysis demonstrates that the scheme can accommodate the movements of both the aforementioned vehicles.

3.7 Car parking will be provided in line with local standards.

Committed Development

3.8 SCP has been made aware that there is a housing scheme for 35 dwellings (Application Reference: 051482) currently being developed on land to the south west of the development site. This has been included within the capacity assessments detailed in Chapter 8.

4.0 TRANSPORT IMPLEMENTATION STRATEGY / POLICY REVIEW

Introduction

4.1 Technical Advice Note 18 (TAN) 18 sets out the need for all TA supporting documents in Wales to include a Transport Implementation Strategy (TIS), which needs to include the following information in respect of each particular development proposal:-

i) How the development and the TIS relate to transport planning policies and strategy. TIS's are intended to incorporate all the elements of a Travel Plan (TP) and ensure that these are integrated with design elements of the new development.

ii) A set of objectives and targets relating to managing travel demand for the development.

iii) A framework for monitoring the objectives and targets, including the future modal split of transport to the development.

iv) Details of measures proposed to improve access by public transport, walking and cycling to reduce the number and impacts of motorised journeys associated with the development.

4.2 This TIS section is therefore prepared having regard to the advice from TAN 18, as outlined above. It is considered that this TIS can be taken forward and used as a framework for a future detailed TIS / Travel Plan that can be secured as part of a planning condition, if considered necessary.

Policy Context - Planning Policy Wales (PPW)

4.3 In terms of the national transport policy that is relevant to the TIS, the latest 9th edition of PPW was published in November 2016 by the Welsh Government and sets out a framework for the Welsh planning authorities to prepare their development plans. Chapter 8 of PPW sets out the approach to Transport.

4.4 Paragraph 8.1.1 of PPW states that *"The Welsh Government aims to extend choice in transport and secure accessibility in a way which supports sustainable development and helps to tackle the causes of climate change by: encouraging a more effective and efficient transport system, with greater use of the more sustainable and healthy forms of travel, and minimising the need to travel. This will be achieved through integration:*

- *within and between different types of transport;*
- *between transport measures and land use planning;*

- *between transport measures and policies to protect and improve the environment; and*
- *between transport measures and policies for education, health, social inclusion and wealth creation."*

4.5 Paragraph 8.1.5 of PPW states that *"Land use planning can help to achieve the Welsh Government's objectives for transport through:*

- *reducing the need to travel, especially by private car, by locating development where there is good access by public transport, walking and cycling;*
- *locating development near other related uses to encourage multi-purpose trips and reduce the length of journeys;*
- *improving accessibility by walking, cycling and public transport;*
- *ensuring that transport is accessible to all, taking into account the needs of disabled and other less mobile people;*
- *promoting walking and cycling;*
- *supporting the provision of high quality public transport;*
- *supporting traffic management measures;*
- *promoting sustainable transport options for freight and commerce;*
- *supporting sustainable travel options in rural areas;*
- *supporting necessary infrastructure improvements; and*
- *ensuring that, as far as possible, transport infrastructure does not contribute to land take, urban sprawl or neighbourhood severance.*

4.6 With reference to the Active Travel (Wales) Act 2013, Paragraph 8.2.2 of PPW states that *"Walking should be promoted for shorter trips. The impact of policies and development on pedestrians should be considered. Planning authorities should, taking into account the requirements of the Active Travel (Wales) Act 2013, promote specific measures to assist pedestrians including the provision of safe, convenient and well-signed routes."*

4.7 It goes on to say in Paragraph 8.2.3 that *"Cycling should also be encouraged for short trips and as a substitute for shorter car journeys or, as part of a longer journey when combined with public transport."*

4.8 In reference to supporting documentation with planning applications, paragraph 8.7.2 of PPW states that *"Transport Assessments are an important mechanism for setting out the scale of anticipated impacts of a proposed development, or redevelopment, is likely to have. They assist in helping to anticipate the impacts of development so that they can be understood and catered for."*

4.9 In terms of the local policy context that TIS's fall under, the current adopted local plan is the Flintshire Unitary Development Plan, adopted September 2011. The following highway related policies from the UDP are considered to be relevant to the proposed development:-

*"**STR2 Transport and Communications -** In order to facilitate a safe, efficient and integrated transport and communications system and improve accessibility throughout the County, new development will be expected to incorporate, wherever practicable, the following requirements:*

a. minimising the number and length of journeys especially by private car;
b. making the best use of existing roads and addressing congestion and safety issues through traffic management and calming measures;
c. enabling the efficient use of and improvements to public transport;
d. enabling alternative means of travel including cycling and walking;
e. facilitating the transfer of freight from road to rail or water; and
f. facilitating the provision and use of telecommunications."

***"AC2 Pedestrian Provision and Public Rights of Way -** Development proposals will be permitted only where:*

a. there is safe, direct, and overlooked foot access to main local pedestrian routes;
b. in the case of major publicly accessible development, there are signs and easily identifiable routes to and from public transport facilities and other local amenities; and
c. any existing public rights of way are retained and integrated sympathetically into the landscaping of the site. Where diversion or alternative provision is deemed necessary, this should be designed and located to provide at least equivalent convenience and enjoyment and the diversion should be completed before the development commences."

***"AC8 Buses -** Development proposals will be permitted only where they are required, where appropriate, to be adequately serviced by public transport either through existing bus services or through the provision of new or extended bus services. Development proposals which would affect existing or proposed bus stations, or other off-street facilities for bus passengers, will be permitted only where it can be demonstrated that:*

a. the existing public transport facility is no longer necessary; or
b. the existing public transport facility is improved; or
c. suitable alternative provision can be made, subject to policy AC5 (New / Improvements to Public Transport Facilities)."

***"AC13 Access and Traffic Impact -** Development proposals will be permitted only if:*

a. approach roads to the site are of an adequate standard to accommodate the traffic likely to be generated by the development without compromising public safety, health and amenity; and
b. safe vehicular access can be provided by the developer both to and from the main highway network. Where considered necessary, the Council will require a transport assessment, incorporating a traffic impact assessment."

***"AC18 Parking Provision and New Development -** All new development, including changes of use, must provide appropriate parking in accordance with Flintshire County Council Parking Standards, which will be applied as a maximum."*

TIS Objectives and Targets

4.10 The objectives of TIS should benefit both the occupiers of a development and the wider community. The objectives will be set out in the following sections and form the basis for a TP for the development. Site specific objectives that are relevant to the proposed development are as follows:-

- Increase opportunities for residents;
- Reduce vehicle use in and around the site;
- Improve the image of the local area;
- Reduce the transport impact of the development upon the environment;
- Promote more sustainable ways of travelling; and
- Support government policy to manage travel demand more effectively.

4.11 In order to achieve the objective of reducing single occupancy vehicle travel, realistic short term annual targets for mode share will be set.

4.12 The proposed development is located in the Caergwrle Ward. The 2011 UK Census shows that single occupancy travel to work by car mode is, on average, broadly similar in the Caergwrle Ward (77%) to Flintshire (76%) and higher than Wales (64%). The existing local single occupancy modal share percentage of 77% will therefore be the initial baseline target for the residential properties on the site. The following table shows the figures obtained from the Census data:-

Table 4.1 – Mode Share from Local, Regional and National Area (2011 Census)

Travel to Work (QS701EW) Census Statistics	Caergwrle Ward	Flintshire County	Wales Country
All Usual Residents Aged 16 to 74	1159	112325	2245166
Work Mainly at or From Home	32	3234	73140
Underground, Metro, Light Rail, Tram	2	45	1175
Train	17	676	27341
Bus, Minibus or Coach	27	2951	62903
Taxi	4	343	6523
Motorcycle, Scooter or Moped	1	533	7694
Driving a Car or Van	540	53927	918645
Passenger in a Car or Van	60	4941	92727
Bicycle	11	1311	19659
On Foot	41	5676	145135
Other Method of Travel to Work	2	412	8673
Total Persons Travelling to Work	**705**	**70815**	**1290475**
Single Occupancy Car Journeys (%)	**77%**	**76%**	**64.0%**
Car Shares (%)	**9%**	**7%**	**14.4%**
Public Transport (%)	**7%**	**5%**	**7.1%**
Walking (%)	**6%**	**8%**	**11.2%**
Bicycle (%)	**2%**	**2%**	**1.5%**
Taxi (%)	**1%**	**0%**	**0.5%**
Motorcycle (%)	**0%**	**1%**	**0.6%**

Achieving the TIS Objectives and the Monitoring Process

4.13 The objectives and monitoring of the TIS will substantially be achieved through the appointment of suitable Travel Plan Co-ordinator/s (TPC). The TPC role for the residential element of the development would most commonly be overseen by a Management Company located on the site, although in time this role could evolve to be overseen by the residents of the site themselves. Appropriate start-up funding will be provided for the TPC to cover the administration costs involved.

4.14 Once appointed, the TPC will act as the main contact for the TIS and will be responsible for implementing the TIS measures, involving new residents, maintaining a database and monitoring the effects of implementation. A full set of duties and responsibilities of the TPC is set out in the sections below.

4.15 The TPC will inform the Local Planning Authority and the appropriate local public transport operators of their contact details. Similarly, the TPC will obtain the contact details of the owners and complete a 'Contact' form to provide easy reference when dealing with relevant matters.

4.16 The TPC will undertake an initial resident travel survey, within three months of 30% occupation of the site, to enable a resident travel database to be set up. The TPC will prepare and distribute a questionnaire to each resident, to collect the following details:

- Postcode area of place of employment;
- Normal working hours;
- Mode of travel to work;
- Car ownership / usage;
- Reasons for not using public transport and other modes;
- The anticipated take-up of a car sharing scheme, the use of public transport or other non-car modes of travel to work; and
- Information relating to potential areas for sustainable travel improvement, upon which the TPC could act and draw up measures to improve the TIS.

4.17 On receipt of the completed questionnaires the TPC will set up a travel database within 3 months of completion of the travel survey.

4.18 The TPC will agree the annual targets with the LPA within 1 month of completion of the travel survey analysis. The initial travel survey results for the proportion of residents travelling by single occupancy vehicles should be recorded along with the agreed short term annual targets.

4.19 The TPC will ensure that any changes to the TIS or any relevant information is passed on to residents on a biannual / annual basis in the form of leaflets.

4.20 The TPC will ensure that residents are provided with information to allow ease of use of the local public transport by providing up-to-date public transport route maps and timetable information in residential 'welcome packs', and updating by leaflet drop, as necessary. Contact details for local taxi firms will also be provided by the TPC.

4.21 The TPC will liaise regularly with local public transport operators to ensure that information remains valid. The TPC will provide details of the websites and telephone advice services, such as www.transportdirect.info to enable residents to obtain details on their individual journey requirements.

4.22 The TPC will also liaise with the local public transport operators and release survey data to the operators to identify travel demands and allow appropriate services to be provided. The TPC will check regularly to ensure that the information supplied to residents remains valid.

4.23 The TPC will encourage walking as a mode of travel to the site by implementing the following initiatives:-

- Raise awareness of the health benefits of walking through promotional material;
- Provide a map showing walking routes, indicating distances and times to the most common destinations near to the site; and,
- Ensure that footpaths on site are well maintained and lit and any defects reported to the highways authority on an annual/biannual basis.

4.24 In conjunction with the pedestrian initiatives, the TPC will investigate the potential to set up a bicycle user group (BUG) to encourage residents to cycle to work.

4.25 The TPC will set up a car sharing scheme, utilising the online website www.liftshare.com, within 3 months of receiving the initial residents travel surveys. Residents will be contacted by the TPC to allow potential car sharers to register an interest and provide details of their journey to and from work along with their contact phone number and work location. The TPC will then identify suitable matches for residents that may be able to share their journeys to and from work or for shopping trips.

4.26 The TPC will make the new residents aware of the existence of the TIS by providing them with a copy of the TIS as part of a welcome pack as they move into their properties. The existence of the TIS would also be highlighted in promotional literature and advertising for the new dwellings.

4.27 The TPC will monitor travel patterns on an annual basis for the first five years of the occupation of the sites and then at suitable intervals as agreed by the Local Planning Authority. The monitoring of the plan is important for the following reasons:-

- It will ensure that the Local Planning Authority can see that the aims and objectives of the TIS are being achieved;
- It justifies the commitment of the TPC and of other resources;
- It maintains support for the plan by reporting successes;
- It identifies any measures that are not working or problems with the approach of the Plan;
- It can be shared with other organisations to refine the development of the Plan.

4.28 Surveys will be used to monitor travel to and from the site. The surveys can be used to monitor the number of residents walking, cycling, using cars and using public transport. The results can then be compared with the mode share targets identified earlier in this framework TIS.

4.29 The TPC will develop the monitoring programme in conjunction with the Local Planning Authority to ensure that the monitoring procedures are appropriate. The TPC will maintain a monitoring table of progress to key TIS targets based on the results of the monitoring travel surveys. This table will be published and distributed by leaflet to residents on the site.

4.30 The TPC will make information on mode share available to the Local Planning Authority as part of the continuous monitoring process, subject to the provisions of the Data Protection Act.

4.31 The TPC will undertake an annual review of the TIS in conjunction with the Local Planning Authority. This review will be important in assessing the effectiveness of the measures implemented and to identify areas where modification may be necessary. In particular the following will be assessed:

- The level of car/non-car usage at the site;
- Comments received from residents.

4.32 When reviewing the effectiveness of the TIS, the following questions will be asked:-

- Which areas offer the greatest potential for change/improvement?
- Was the initiative implemented by the target date?
- How well used is each scheme/initiative?
- How much did it cost to introduce?

4.33 The TPC will compare the mode share statistics obtained from the annual monitoring to the targets set for the development. The TPC will set revised realistic targets for modal shifts to non-car travel modes and investigate the effectiveness of the TIS initiatives being promoted in conjunction with the Local Planning Authority.

4.34 In light of the data collected from the monitoring process, the TPC will adapt the TIS to enable the revised agreed targets to be achieved and submit a review report to be agreed with the Local Planning Authority.

4.35 It is considered that the delivery of the TIS / TP can be secured by planning condition, as appropriate.

5.0 ACCESSIBILITY

General

5.1 This Chapter provides an appraisal of how accessible the site is by the 3 main non-car modes of transport; namely walking, cycling and public transport.

5.2 The accessibility of the site by non-car modes has been assessed by comparison with the following threshold distances, as set out by Alan Davies AM in his foreword to the 2003 *"Walking and Cycling Strategy for Wales"* document:-

Table 5.1 – Walk / Cycle Distance Thresholds

Threshold Distance	Significance	Reference
1 mile	Walking can offer viable and attractive alternatives [to car trips]	Walking and Cycling Strategy for Wales
5 miles	Cycling can offer viable and attractive alternatives [to car trips]	Walking and Cycling Strategy for Wales

Pedestrian Accessibility

5.3 Wrexham Road has footways on either side of the carriageway along the entirety of the site frontage. These footways are lit and benefit from natural surveillance from the properties that abut them. To the north of the site, the footways continue along only the western side of the carriageway. Directly opposite the site, there is a pedestrian footpath that connects Wrexham Road with The Crossways in the east. To the south of the site there is a signalised junction that allows prospective residents to safely cross Wrexham Road, Cymau Lane and the A550.

5.4 The good level of existing pedestrian infrastructure allows easy access to the Caergwrle Local Centre, located 0.4m to the north of the site along Wrexham Road. Located here are a number of public houses, a newsagent, a post office, a pharmacy and fast food outlets. In the other direction on the same side of the carriageway, heading 0.3m south on Wrexham Road there is Abermorddu County Primary School.

5.5 TRACC software has been used to assess the accessibility of the development by foot for a 1 mile walk distance from the site, as shown on Figure 1 in **Appendix F**. The plan shows the local areas and transport links that are within 1 mile of the site and demonstrates that the site is in a favourable location for journeys made on foot.

5.6 A summary of facilities and amenities within the recommended one mile walking distance is presented in **Table 5.2** below:-

Facility	Name	Distance from Site
School/Nursery	Abermorddu County Primary School	0.25 mile
Food Retail	SPAR – Caegwrle High Street	0.4 mile
Transport	Numerous Bus Stops	<0.24 mile
	Caergwrle Rail Station	0.6 mile
	Cefn – y - Bedd Rail Station	0.4 mile
Post Office	Post Office - Caergwrle	0.5 mile
Health	Hope Valley Medical Centre	0.86 mile
	Castle Pharmacy	0.5 mile

5.7 With consideration to the above, it is therefore considered that walking provides an efficient and safe option for journeys under 1 mile.

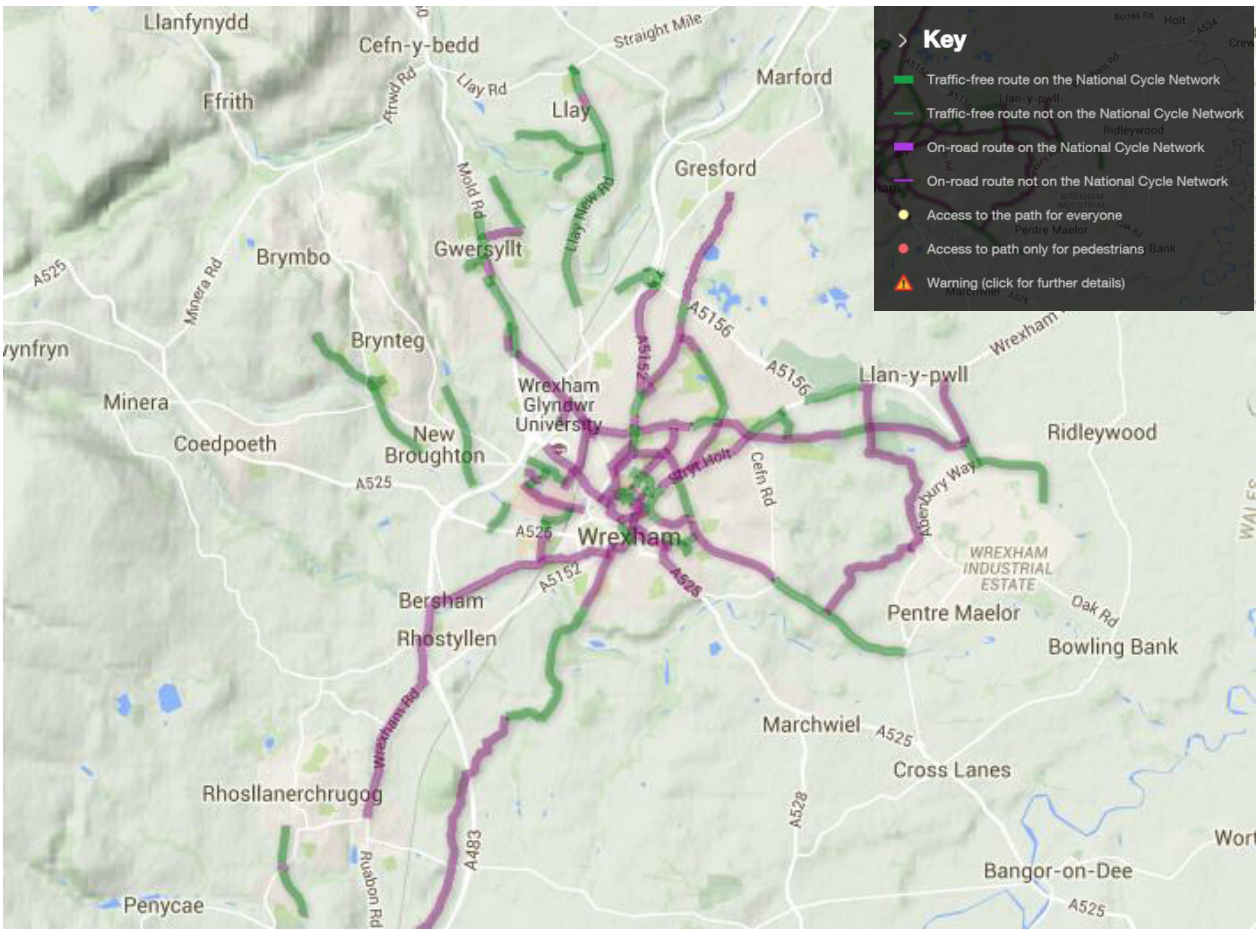
Cycle Accessibility

5.8 PPW identifies that *"Cycling should also be encouraged for short trips and as a substitute for shorter car journeys or, as part of a longer journey when combined with public transport."*

5.9 TRACC software has been used to assess the accessibility of the development by bicycle from the site, as shown on Figure 2 in **Appendix F.** The plan illustrates the 5 mile cycle catchment area around the site and demonstrates that Penymynydd, Hope, Gwersyllt and Wrexham are all within the 5 mile catchment area.

5.10 Within the recommended 5 mile cycling distance of the site, beginning from the centre of Gwersyllt, there are cycle routes that follow Mold Road and Stansty Chain Road into the centre of Wrexham. These are made up of both on-road and traffic free cycle routes and form a cycle route network in Wrexham. An extract from the Sustrans cycle route network map of Wrexham is shown in **Figure 5.1** below:-

Figure 5.1 – Wrexham Cycle Routes



Public Transport

5.11 The development is well placed to encourage travel by bus. Guidance published by the CIHT entitled *"Planning for Public Transport in Developments"* (1999), recommends that the recommended walk distance to a bus stop should be 300m, or a maximum of 400 metres, equating approximately to a five minute walk.

5.12 The nearest bus stop is for southbound services along the site frontage on Wrexham Road. There are stops serving both directions along the A550 that are accessed on foot via the pedestrian footpath that connects with the A550 via The Crossways. A summary of the services at these stops is given in **Table 5.3** below:-

Table 5.3 – Summary of Bus Services within 400m walking distance of the site

Service Number	Bus Stop Locations			Route	Operator	Average Weekday Service Headway (mins)
	Wrexham Road	A550	Cymau Lane			
DB1	✓			Chester to Mold via Higher Kinnerton and Treuddyn	Arriva	120mins
26		✓		Wrexham to Mold via Pendline and Leeswood	Arriva	60mins
27		✓		Wrexham to Mold via Pendline and Leeswood	Arriva	3x services in both AM and PM peaks
28		✓		Wrexham – Flint via Mold	Townlynx	6x services per day

5.13 As can be seen from **Table 5.3** above, there is a good level of frequency of bus services stopping close to the site which provide convenient access to locations including Wrexham, Gwersyllt, Syndallt, Pontblyddyn, Leeswood and Mold as well as other local destinations.

5.14 As part of the above local bus provision, there are 4 services towards Wrexham and 4 services towards Mold over the AM peak hours. This provides an ample amount of opportunity to reach nearby areas of employment, retail and leisure via public transport during the peak hours.

5.15 The development site is also conveniently placed to benefit from local train services. Caergwrle and Cefn-y-Bedd Railway Stations are located within a mile of the site to the north and south respectively. Both stations operate on the same line as one another and are served by trains run by Arriva Trains Wales towards Wrexham in the south and Bidston in the north. Both services operate at a frequency of every 60 minutes and stop at local destinations such as Hope, Penyffordd, Buckely and Shotton amongst others.

5.16 TRACC software has been used to assess the accessibility of the development by public transport from the site, as shown on Figure 3 in **Appendix F.** The plan illustrates the achievable journeys within 60 minutes via public transport and includes the time spent walking to bus stops and railway stations.

Accessibility Summary

5.17 Overall, this Chapter demonstrates that the site is reasonably well accessible by the main non-car modes of transport. The existing pedestrian infrastructure connects the site with the local facilities and there are bus stops close to the site along the A550 as well as railway services also within the recommended walking distance.

6.0 FUTURE BASELINE TRAFFIC CONDITIONS

Overview

6.1 This Chapter describes the future traffic conditions on the local highway network both with and without the scheme in place, including consideration to traffic generated by the committed development.

Future Baseline Traffic Flows - Traffic Growth

6.2 The capacity assessments in this TA are undertaken for the year of registration of the planning application + 5 years. The year of registration of the planning application is 2017 and the future assessment year is therefore 2022.

6.3 In order to quantify the level of background traffic growth that could occur on the local network between the date of the traffic surveys (2016) and the assessment years, National Traffic Model (NTM) growth factors, modified by TEMPRO local growth factors, have been used as summarised in **Table 6.1** below:-

Table 6.1 – Traffic Growth Factors

Period	AM Peak	PM Peak
2016 – 2022	1.0597	1.0602

6.4 The above growth factors have been applied to the surveyed traffic flows to obtain the 2022 future baseline traffic flows, as shown on **Traffic Flow Figure 2.**

Committed Development Traffic Flows

6.5 As mentioned earlier, there is a housing scheme for 35 dwellings (Application Reference: 051482) currently being developed on land to the south west of the development site. The trip rates used later in this TA (**Table 7.1**) have been applied to the 35 dwellings to determine the trip generation for the development, as summarised in **Table 6.2** overleaf:-

Table 6.2 – Committed Development Trip Generation (35 Dwellings)

Mode	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Vehicles	5	12	12	6

6.6 To allow for a robust assessment of the Wrexham Road / A550 / Cymau Lane signalised junction it has been assumed that 100% of the committed development traffic will route east, along Cymau Lane, through the junction with 50% routing northbound along the A541 and 50% routing southbound along Wrexham Road.

6.7 SCP has included the calculated committed development traffic flows as part of the assessment on the impact to the local highway network. These traffic flows are shown diagrammatically on **Traffic Flow Figure 3.**

7.0 TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Overview

7.1 This Chapter provides an estimate of the number of trips generated by the proposed development in the weekday peak hours, along with the distribution and assignment of development-related vehicular traffic on the local highway network.

Trip Generation – Proposed Use of Site

7.2 To estimate the trip generating potential, the industry-standard TRICS (7.4.2) Database has been interrogated for surveys of residential developments similar to that proposed. The criteria for selecting surveys is as follows:-

i) Residential;

ii) Privately Owned Houses;

iii) Multi Modal Trip Rates;

iv) Sites in Greater London and Ireland excluded;

v) Selection by Number of Dwellings (40-160);

vi) Weekday surveys only; and

vii) Only sites in 'suburban area' and 'edge of town' locations selected.

7.3 The TRICS outputs are presented in **Appendix G** with the trip rates summarised in **Table 7.1** below:-

Table 7.1 – Residential Use Trip Rates (Trip Rates per Dwelling)

Mode	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Vehicles	0.134	0.352	0.337	0.162
Cyclists	0.002	0.017	0.021	0.006
Pedestrians	0.033	0.161	0.090	0.036
Public Transport	0.002	0.012	0.015	0.002

7.4 The above trip rates have been applied to the proposed 80 dwellings to determine the multi-modal trip generation forecasts for the development, as summarised in **Table 7.2** below.

Table 7.2 – Proposed Residential Use Trip Generation (80 Dwellings)

Mode	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Vehicles	11	28	27	13
Cyclists	0	1	2	0
Pedestrians	3	13	7	3
Public Transport	0	1	1	0

7.5 As shown above, it is estimated that the scheme will generate in the region of 39-40 two-way vehicle movements in both the AM peak hour and PM peak hours.

7.6 Volumetrically, this is not considered to be onerous and on average represents an additional vehicle movement every 1-2 minutes over the course of each peak hour. It is considered that the effect of this will be barely perceptible on the roads surrounding the site. This level of traffic should not lead to any operational or highway safety issues.

Trip Distribution

7.7 Vehicular trips generated by the proposed residential development are distributed on the local highway network based on travel to work data obtained from the 2011 National census for all "out-moves" for the Middle Super Output Area (MSOA) for where the site is located. The trip distribution percentages are presented in **Table 7.3** below:-

Table 7.3 – Proposed Development-Related Trip Distribution Forecasts

Route Reference	Route Description	Percentage
A	Wrexham Road (N)	44.5%
B	Wrexham Road (S)	55.5%

7.8 Out-moves provide an indication of the numbers and destinations (on a MSOA basis) of people who reside in the local area and who work elsewhere.

7.9 This methodology has been adopted to distribute trips for the proposed development. The percentage distribution of vehicular trips generated by the proposed development is also presented diagrammatically on the **Traffic Flow Figure 4.**

Traffic Assignment

7.10 The forecast level of traffic generated by the proposed development has been assigned pro rata to the routes specified above, as shown diagrammatically in **Traffic Flow Figure 5.**

Assessment Traffic Flows

7.11 The 2022 assessment traffic flows are equal to the sum of the 2022 baseline traffic flows (**Traffic Flow Figure 2**), the committed development traffic flows (**Traffic Flow Figure 3**) and the assigned development traffic flows (**Traffic Flow Figure 5**). These are presented diagrammatically in the TA study area in **Traffic Flow Figure 6.**

8.0 ANTICIPATED HIGHWAY IMPACT

Overview

8.1 This Chapter describes the future traffic conditions on the local highway network both with and without the scheme in place, including consideration to traffic generated by the committed development. The junctions assessed as part of this TA include:

i. Proposed Site Access Junction; and,

ii. Wrexham Road / A550 / Cymau Lane Signal Controlled Junction

Assessment Methodology

8.2 An assessment of the proposed site access junction has been undertaken using Junctions 9 (PICADY) software and the Wrexham Road / A550 / Cymau Lane signal controlled junction has been assessed using LINSIG Software.

8.3 Although there are two proposed site accesses, only the northern access has been assessed, with 100% of development traffic routing through it, as it is assumed the majority of site traffic will utilise this access based on the site layout. This approach is considered to be extremely robust because, although the majority of traffic generated by the development will use the northern access, a proportion of development traffic will use the southern access.

8.4 Junctions 9 models the results generated provide a Ratio to Flow capacity (RFC) along with an estimate of the likely traffic queues. RFC values between 0.00 and 0.85 are generally accepted as representing stable and acceptable operating conditions. Values between 0.85 and one and represents variable operation (i.e. possible queues building up at the junction during the period under consideration and increases in vehicular delay moving through the junction). RFC values in excess of one represents overloaded conditions (i.e. congested conditions).

8.5 LINSIG software presents results as a percentage Degree of Saturation (DoS) and corresponding likely traffic queues for each modelled link at the junction. For Traffic Signals it is generally accepted that DoS of 90% or less on individual links represents satisfactory signal operation. DoS of between 90% and 100% represent variable operation which warrants further investigation and values in excess of 100% represent overloaded conditions.

8.6 Capacity assessments have been undertaken in 2016 'without' development scenarios as well as in 2022 'with' and 'without' development scenarios, which include the traffic generated by the proposed development. The 2022 'with' and 'without' development traffic flows are shown on **Traffic Flow Figures 6** and **2** respectively.

Proposed Site Access

8.7 The PICADY results for the site access junction are presented in **Appendix H** with the results summarised in **Table 8.1** below.

Table 8.1 – Proposed Site Access Junction – 2022 'With Development' PICADY Results

Movement	AM PEAK (0745 to 0845)		PM PEAK (1645 to 1745)	
	RFC	MMQ	RFC	MMQ
Site Access (Left)	0.03	0.0	0.01	0.0
Site Access (Right)	0.06	0.1	0.02	0.0
Wrexham Road North (Ahead/Right)	0.02	0.0	0.04	0.0

8.8 The above results clearly show that the proposed site access junction will operate well within its practical capacity in the robust future assessment year of 2022, with minimal queuing and delay.

Wrexham Road / A550 / Cymau Lane Signalised Junction

8.9 The LINSIG results are contained within **Appendix I** and a summary of the LINSIG capacity assessment results at the Wrexham Road / A550 / Cymau Lane signalised junction are presented in **Table 8.2** overleaf:-

Table 8.2 - Wrexham Road / A550 / Cymau Lane Signalised Junction

	Weekday AM (07:45-08:45)		Weekday PM (16:45-17:45)	
	DoS (%)	Queue (PCU)	DoS (%)	Queue (PCU)
2016 Base 'Without Development' Scenario				
Wrexham Road (S) (Left/Ahead/Right)	83.9	14.7	64.2	7.9
Cymau Lane (Left/Left 2/Right)	80.4	6.9	45.6	2.7
Wrexham Road (Right/U-Turn/Ahead)	63.8	15.5	67.8	14.7
A550 (Right/U-Turn/Ahead)	83.6	11.9	66.9	9.8
PRC	7.3%		32.7%	
2022 Base 'Without Development' Scenario				
Wrexham Road (S) (Left/Ahead/Right)	91.7	18.9	70.2	9.3
Cymau Lane (Left/Left 2/Right)	92.1	9.2	48.1	2.9
Wrexham Road (Right/U-Turn/Ahead)	68.8	17.3	72.0	16.0
A550 (Right/U-Turn/Ahead)	85.7	12.6	70.9	10.5
PRC	-2.4%		25.0%	
2022 Assessment 'With Development' Scenario				
Wrexham Road (S) (Left/Ahead/Right)	94.6	22.2	72.1	11.1
Cymau Lane (Left/Left 2/Right)	91.4	9.5	47.6	3.1
Wrexham Road (Right/U-Turn/Ahead)	68.4	17.4	72.3	16.4
A550 (Right/U-Turn/Ahead)	91.6	14.6	72.5	10.9
PRC	-5.1%		24.2%	

8.10 The above table demonstrates that in the 2022 without development scenario, a number of links are forecast to operate over capacity in the AM peak hour. With the additional traffic generated by the proposed development, the DoS values and queue lengths will not significantly increase, when compared to the without development scenarios. In the PM peak hour, all links operate within capacity in the 2022 with development scenario.

9.0 SUMMARY & CONCLUSIONS

9.1 SCP have been instructed by The Clark Estate to provide highways and transportation advice for the proposed construction of up to 80 dwellings on a parcel of land off Wrexham Road, Abermorddu.

9.2 The proposed development is a residential scheme compromising up to 80 dwellings and an area of open space at the south eastern point of the site, with all matters reserved except for access.

9.3 Vehicular access to the development will be provided through the introduction of no. 2 x new priority controlled junctions off Wrexham Road. Pedestrian / cycle access to the site will be provided from the same location as the proposed vehicular accesses.

9.4 The personal injury accident data for the most recently available five year period for the most recently available five year period has been reviewed and does not represent a material concern in the context of the proposed development.

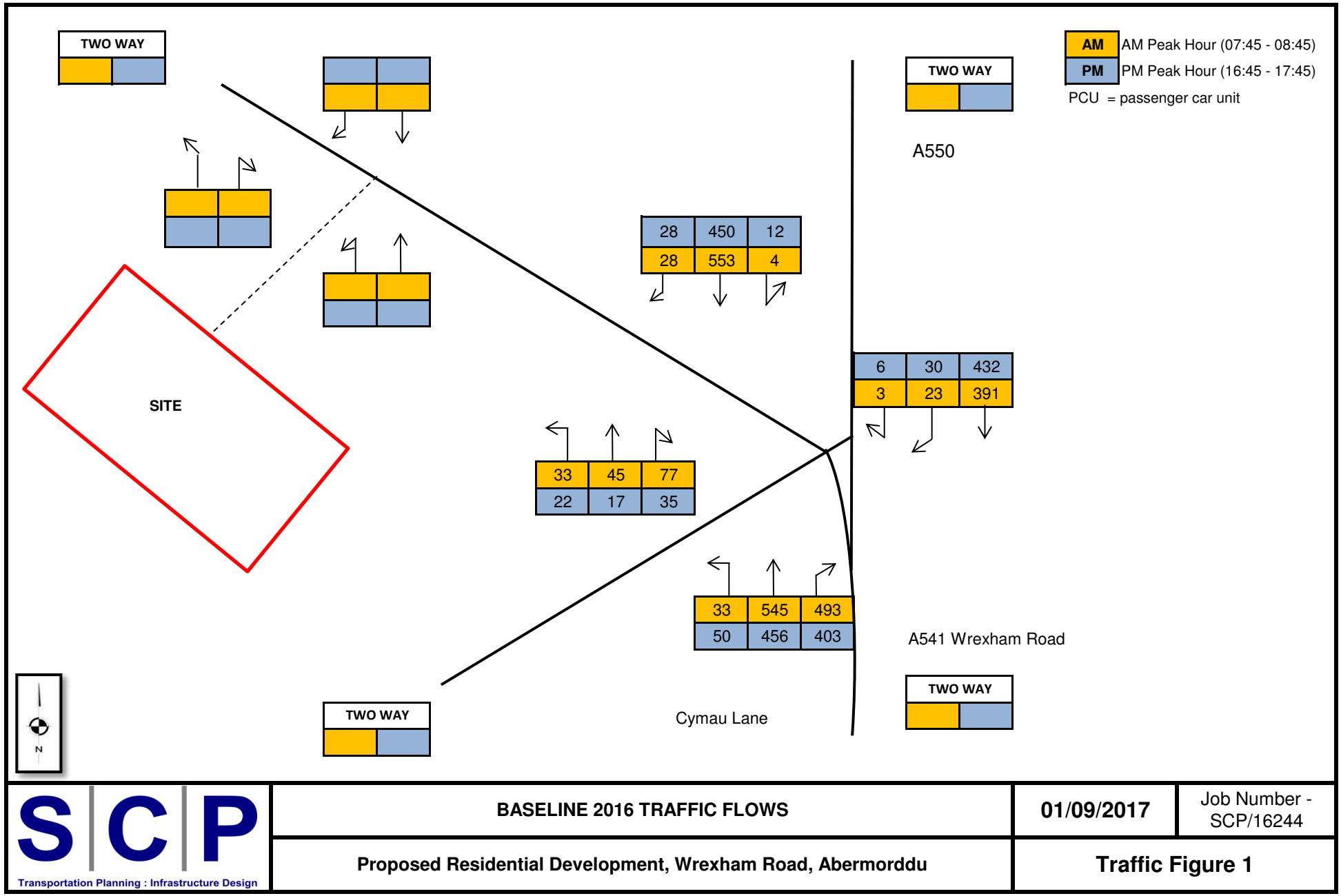
9.5 It has been demonstrated that the development is sustainable with good accessibility to the site provided to those travelling by foot, bicycle and public transport.

9.6 The impact of the additional trips generated by the proposed development on the operation of the local highway network has been assessed. This demonstrates that the site access will operate well within capacity and whilst the Wrexham Road / A550 / Cymau Lane signal controlled junction would operate slightly over capacity in the without development AM scenario, the addition of the development traffic would not have a significant impact. The residual cumulative impact of the development cannot therefore be considered 'severe' and, in accordance with paragraph 8.7.1 of the PPW, there is no reason to prevent or refuse this planning application on transport grounds.

9.7 The proposed development is therefore commended for approval.

S|C|P

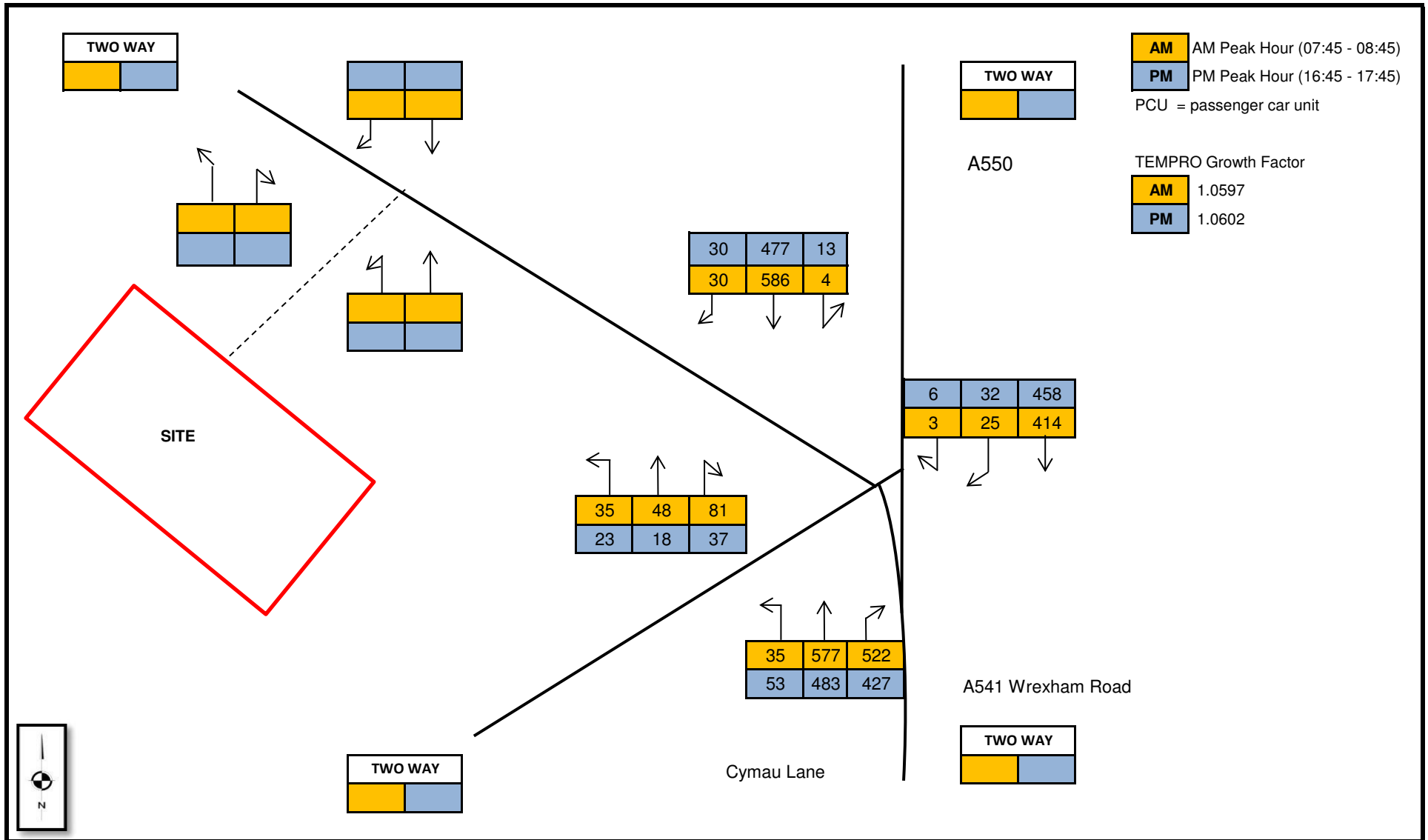
FIGURES



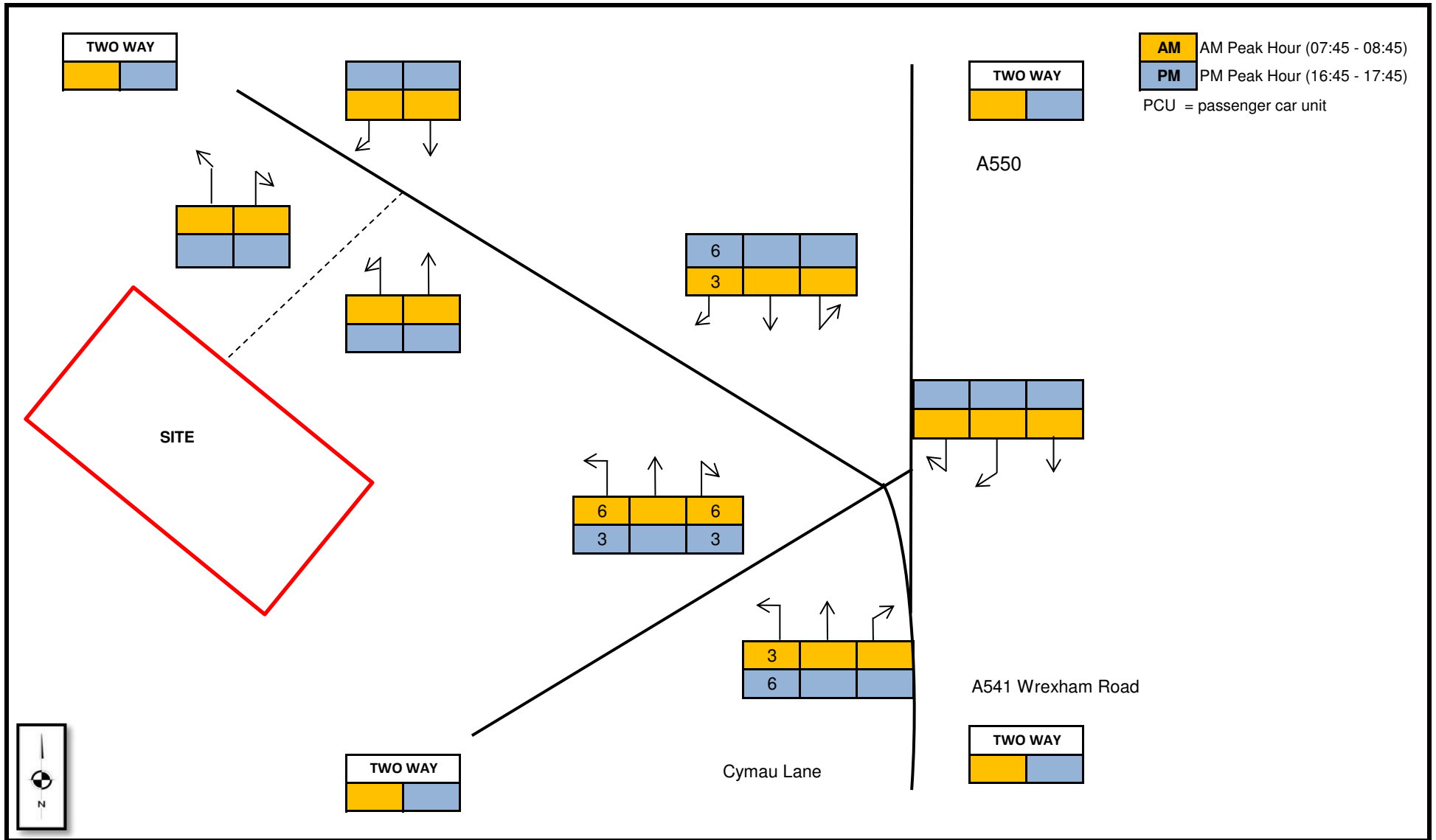
S C P Transportation Planning : Infrastructure Design	**BASELINE 2016 TRAFFIC FLOWS**	**01/09/2017**
	Proposed Residential Development, Wrexham Road, Abermorddu	**Traffic Figure 1**

Job Number - SCP/16244

Z:\Job Library\2016\16244 - Wrexham Road, Abermorddu\Traffic Data\SCP 16244 Traffic Model_CT

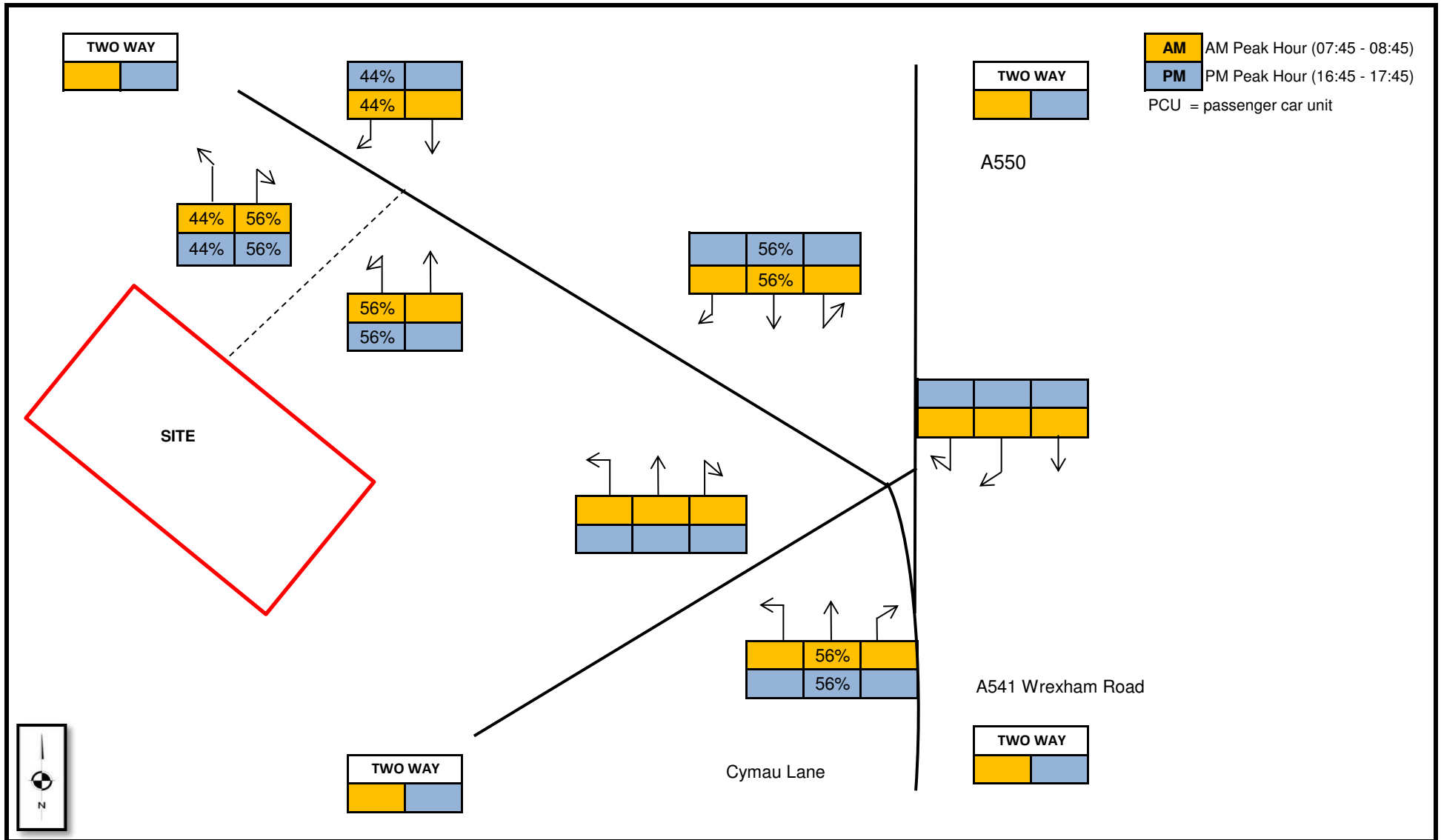


S C P Transportation Planning : Infrastructure Design	**BASELINE 2022 TRAFFIC FLOWS**	**01/09/2017**	Job Number - SCP/16244
	Proposed Residential Development, Wrexham Road, Abermorddu	**Traffic Figure 2**	

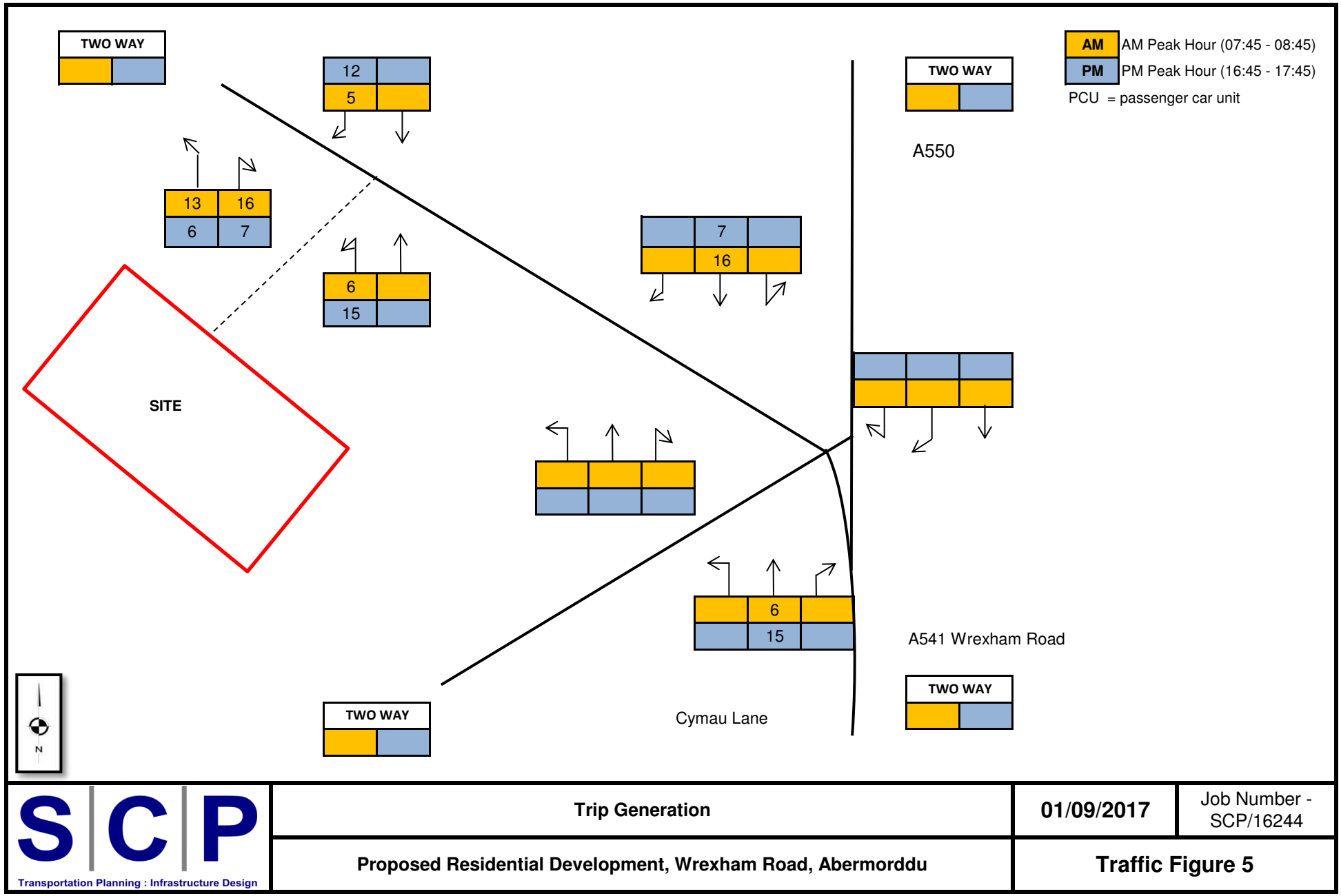


SCP Transportation Planning : Infrastructure Design	**COMMITTED DEVELOPMENT TRAFFIC FLOWS**	**01/09/2017**	Job Number - SCP/16244
	Proposed Residential Development, Wrexham Road, Abermorddu		**Traffic Figure 3**

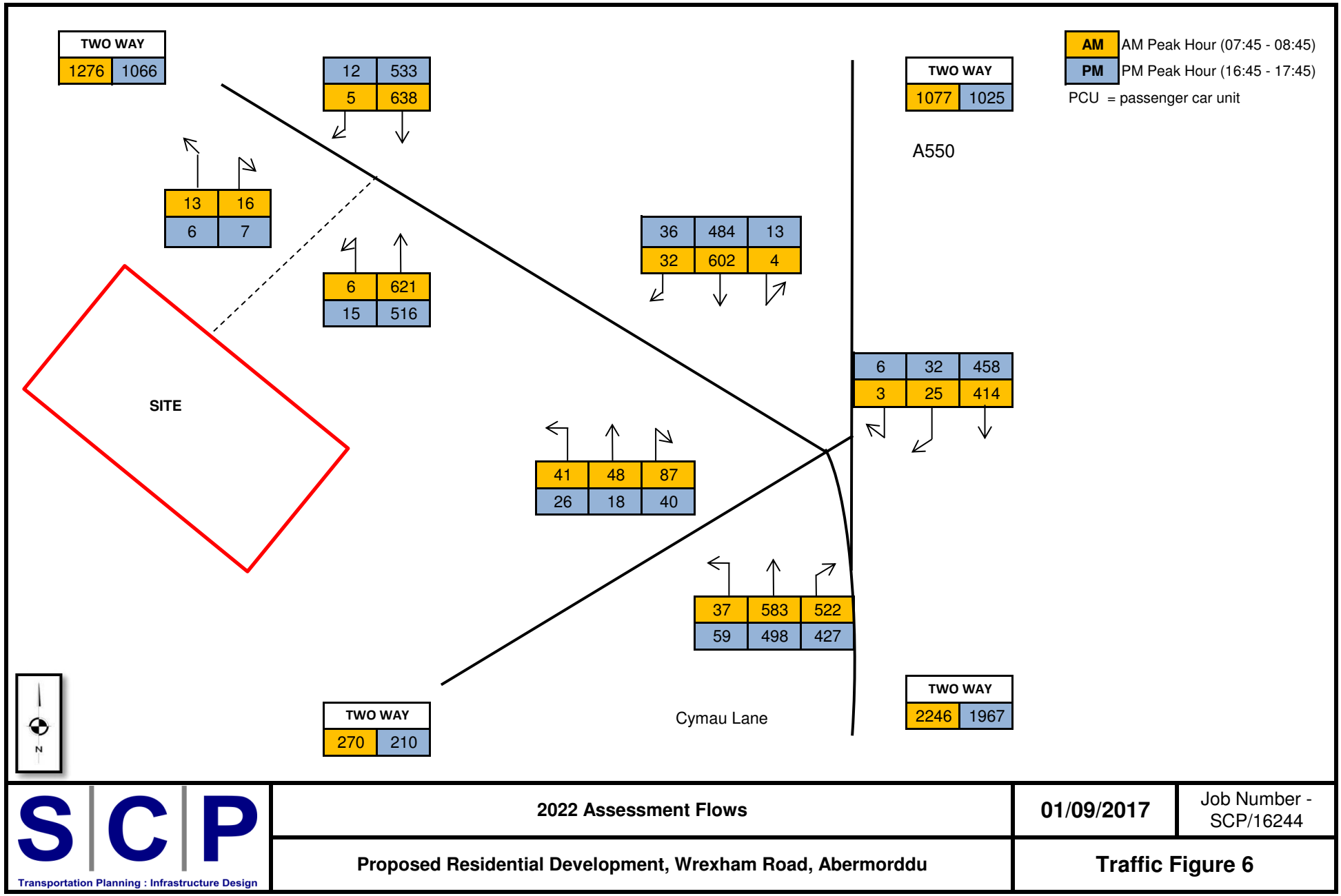
Z:\Job Library\2016\16244 - Wrexham Road, Abermorddu\Traffic Data\SCP 16244 Traffic Model_CT



S C P Transportation Planning : Infrastructure Design	**Trip Distribution**	**01/09/2017**	Job Number - SCP/16244
	Proposed Residential Development, Wrexham Road, Abermorddu		**Traffic Figure 4**



S C P Transportation Planning : Infrastructure Design	**Trip Generation**	**01/09/2017**	Job Number - SCP/16244
	Proposed Residential Development, Wrexham Road, Abermorddu		**Traffic Figure 5**



S C P Transportation Planning : Infrastructure Design	**2022 Assessment Flows**	**01/09/2017**
	Proposed Residential Development, Wrexham Road, Abermorddu	Job Number - SCP/16244
		Traffic Figure 6

S|C|P

APPENDIX A

TRANSPORT Data Collection

DATE: WEDNESDAY 8th JUNE 2016

TURNING COUNT LOCATION: A541 WREXHAM ROAD / A550 / CYMAU LANE

APPROACHING FROM: A541 WREXHAM ROAD (NORTH)

TIME / CLASS	LEFT TO A550								STRAIGHT TO A541 WREXHAM ROAD (SOUTH)								RIGHT TO CYMAU LANE								U-TURN TO A541 WREXHAM ROAD (NORTH)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:30 - 07:45	0	0	1	0	0	0	0	1	0	0	103	11	1	2	0	117	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	122
07:45 - 08:00	0	0	1	0	0	0	0	1	0	1	101	11	1	3	0	117	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	121
08:00 - 08:15	0	0	0	1	0	0	0	1	1	0	125	12	0	3	3	143	0	0	6	1	0	0	0	7	0	0	0	0	0	0	0	0	151
08:15 - 08:30	0	0	2	0	0	0	0	2	0	1	121	12	4	1	0	139	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	146
HOURLY TOTAL	0	0	4	1	0	0	0	5	1	2	450	46	6	9	3	516	0	0	17	2	0	0	0	19	0	0	0	0	0	0	0	0	540
08:30 - 08:45	0	0	0	0	0	0	0	0	1	0	118	11	3	3	0	135	0	0	12	1	0	0	0	13	0	0	0	0	0	0	0	0	148
08:45 - 09:00	0	0	3	0	0	0	0	3	1	0	90	11	2	0	2	105	0	0	21	0	0	1	0	22	0	0	0	0	0	0	0	0	130
09:00 - 09:15	0	0	1	2	0	0	0	3	0	1	80	5	6	3	0	95	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	99
09:15 - 09:30	0	0	1	1	1	0	0	3	0	0	54	11	5	4	1	75	0	0	1	1	2	0	0	4	0	0	0	0	0	0	0	0	82
HOURLY TOTAL	0	0	5	3	1	0	0	9	2	1	342	38	16	10	3	410	0	0	34	2	3	1	0	40	0	0	0	0	0	0	0	0	459
PERIOD TOTAL	0	0	9	4	1	0	0	14	3	3	792	84	22	19	6	926	0	0	51	4	3	1	0	59	0	0	0	0	0	0	0	0	999
16:00 - 16:15	0	0	2	0	0	0	0	2	0	2	77	15	2	3	0	99	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	105
16:15 - 16:30	0	0	2	1	0	0	0	3	0	2	77	15	4	0	2	100	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	110
16:30 - 16:45	0	0	2	0	0	0	0	2	0	1	79	16	1	0	1	98	0	0	4	1	0	0	0	5	0	0	0	0	0	0	0	0	105
16:45 - 17:00	0	0	1	0	0	0	0	1	0	0	79	14	1	0	0	94	0	1	2	1	0	0	0	4	0	0	0	0	0	0	0	0	99
HOURLY TOTAL	0	0	7	1	0	0	0	8	0	5	312	60	8	3	3	391	0	1	17	2	0	0	0	20	0	0	0	0	0	0	0	0	419
17:00 - 17:15	0	0	2	0	0	0	0	2	0	0	89	10	1	3	2	105	0	0	4	0	1	0	0	5	0	0	0	0	0	0	0	0	112
17:15 - 17:30	0	0	5	0	0	0	0	5	0	2	113	19	1	1	0	136	0	0	9	2	0	0	0	11	0	0	0	0	0	0	0	0	152
17:30 - 17:45	0	0	4	0	0	0	0	4	0	0	100	6	1	0	0	107	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	119
17:45 - 18:00	0	0	1	0	1	0	0	2	0	0	86	7	1	1	1	96	0	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	100
HOURLY TOTAL	0	0	12	0	1	0	0	13	0	2	388	42	4	5	3	444	0	0	22	2	1	0	1	26	0	0	0	0	0	0	0	0	483
PERIOD TOTAL	0	0	19	1	1	0	0	21	0	7	700	102	12	8	6	835	0	1	39	4	1	0	1	46	0	0	0	0	0	0	0	0	902

TRANSPORT Data Collection

DATE: WEDNESDAY 8th JUNE 2016

TURNING COUNT LOCATION: A541 WREXHAM ROAD / A550 / CYMAU LANE

APPROACHING FROM: A550

TIME / CLASS	LEFT TO A541 WREXHAM ROAD (SOUTH)								STRAIGHT TO CYMAU LANE								RIGHT TO A541 WREXHAM ROAD (NORTH)								U-TURN TO A550								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:30 - 07:45	0	0	69	15	0	0	1	85	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87
07:45 - 08:00	0	0	64	14	2	1	0	81	0	0	3	0	0	1	0	4	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	86
08:00 - 08:15	0	1	86	8	1	0	2	98	0	0	4	1	1	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104
08:15 - 08:30	0	0	89	8	2	0	0	99	0	0	2	1	1	0	0	4	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	104
HOURLY TOTAL	0	1	308	45	5	1	3	363	0	0	11	2	2	1	0	16	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	381
08:30 - 08:45	0	0	94	8	2	1	0	105	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112
08:45 - 09:00	0	0	72	8	5	0	1	86	0	0	7	1	0	0	0	8	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	96
09:00 - 09:15	0	0	64	11	1	0	0	76	0	0	2	1	0	0	0	3	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	80
09:15 - 09:30	1	1	71	5	1	1	1	80	0	0	0	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83
HOURLY TOTAL	1	1	301	32	9	2	2	347	0	0	16	4	0	1	0	21	0	0	2	0	1	0	0	3	0	0	0	0	0	0	0	0	371
PERIOD TOTAL	1	2	609	77	14	3	5	710	0	0	27	6	2	2	0	37	0	0	3	0	2	0	0	5	0	0	0	0	0	0	0	0	752
16:00 - 16:15	0	2	60	8	1	2	1	74	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
16:15 - 16:30	0	2	71	20	0	0	2	95	0	0	8	2	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105
16:30 - 16:45	1	1	90	16	3	0	0	110	0	0	7	4	0	0	0	11	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	122
16:45 - 17:00	1	1	101	17	0	0	1	120	0	0	4	0	0	0	0	4	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	127
HOURLY TOTAL	2	6	322	61	4	2	4	399	0	0	23	6	0	0	0	29	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	0	432
17:00 - 17:15	0	0	77	14	0	0	2	93	0	0	8	0	0	0	0	8	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	102
17:15 - 17:30	0	1	84	19	0	0	1	105	0	0	11	1	0	0	0	12	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	119
17:30 - 17:45	0	0	97	14	0	0	0	111	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	117
17:45 - 18:00	0	1	96	17	1	0	1	116	0	0	12	0	0	0	0	12	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	129
HOURLY TOTAL	0	2	354	64	1	0	4	425	0	0	37	1	0	0	0	38	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	467
PERIOD TOTAL	2	8	676	125	5	2	8	824	0	0	60	7	0	0	0	67	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0	899

TRANSPORT Data Collection

DATE: WEDNESDAY 8th JUNE 2016

TURNING COUNT LOCATION: A541 WREXHAM ROAD / A550 / CYMAU LANE

APPROACHING FROM: A541 WREXHAM ROAD (SOUTH)

TIME / CLASS	LEFT TO CYMAU LANE								STRAIGHT TO A541 WREXHAM ROAD (NORTH)								RIGHT TO A550								U-TURN TO A541 WREXHAM ROAD (SOUTH)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:30 - 07:45	0	0	6	3	0	0	0	9	0	0	56	16	5	2	3	82	0	2	89	23	0	0	1	115	0	0	0	0	0	0	0	0	206
07:45 - 08:00	0	0	6	3	1	0	0	10	0	0	93	19	2	1	4	119	0	0	100	21	0	1	1	123	0	0	0	0	0	0	0	0	252
08:00 - 08:15	0	0	5	1	0	1	1	8	0	2	101	14	2	4	1	124	0	1	94	15	3	0	5	118	0	0	0	0	0	0	0	0	250
08:15 - 08:30	0	0	4	2	0	0	0	6	0	2	130	16	2	3	0	153	0	1	117	14	2	0	0	134	0	0	0	0	0	0	0	0	293
HOURLY TOTAL	0	0	21	9	1	1	1	33	0	4	380	65	11	10	8	478	0	4	400	73	5	1	7	490	0	0	0	0	0	0	0	0	1001
08:30 - 08:45	0	0	5	1	0	0	0	6	0	1	104	14	2	5	0	126	0	1	86	20	2	0	0	109	0	0	0	0	0	0	0	0	241
08:45 - 09:00	0	0	8	1	0	0	0	9	0	1	73	10	6	3	0	93	0	0	56	13	2	1	0	72	0	0	0	0	0	0	0	0	174
09:00 - 09:15	0	0	3	0	0	0	1	4	0	0	75	9	1	3	0	88	0	0	65	10	2	1	1	79	0	0	0	0	0	0	0	0	171
09:15 - 09:30	0	0	6	2	0	0	0	8	0	0	48	12	6	2	0	68	0	0	38	11	4	0	0	53	0	0	0	0	0	0	0	0	129
HOURLY TOTAL	0	0	22	4	0	0	1	27	0	2	300	45	15	13	0	375	0	1	245	54	10	2	1	313	0	0	0	0	0	0	0	0	715
PERIOD TOTAL	0	0	43	13	1	1	2	60	0	6	680	110	26	23	8	853	0	5	645	127	15	3	8	803	0	0	0	0	0	0	0	0	1716
16:00 - 16:15	0	1	6	0	1	0	1	9	0	0	97	7	1	1	0	106	0	0	68	12	1	0	1	82	0	0	0	0	0	0	0	0	197
16:15 - 16:30	0	0	12	1	0	0	0	13	0	1	96	15	1	1	1	115	1	0	76	12	0	1	0	89	0	0	0	0	0	0	0	0	217
16:30 - 16:45	0	0	8	0	0	0	0	8	1	1	98	15	3	1	1	119	1	0	62	12	1	0	1	76	0	0	0	0	0	0	0	0	203
16:45 - 17:00	0	0	6	0	0	0	1	7	0	0	88	13	0	0	1	102	0	0	94	11	2	0	0	107	0	0	1	0	0	0	0	1	217
HOURLY TOTAL	0	1	32	1	1	0	2	37	1	2	379	50	5	3	3	442	2	0	300	47	4	1	2	354	0	0	1	0	0	0	0	1	834
17:00 - 17:15	0	0	17	2	0	0	1	20	1	0	112	10	1	0	0	123	0	1	81	13	2	0	1	98	0	0	0	0	0	0	0	0	241
17:15 - 17:30	0	0	12	2	0	0	0	14	0	0	86	15	6	0	0	107	1	0	87	7	0	0	0	94	0	0	0	0	0	0	0	0	215
17:30 - 17:45	0	0	7	0	0	0	0	7	1	0	110	5	1	1	0	117	0	0	89	9	1	0	1	100	0	0	0	0	0	0	0	0	224
17:45 - 18:00	0	0	13	1	0	0	0	14	0	4	89	7	0	0	0	100	1	0	77	5	0	0	0	82	0	0	0	0	0	0	0	0	196
HOURLY TOTAL	0	0	49	5	0	0	1	55	2	4	397	37	8	1	0	447	2	1	334	34	3	0	2	374	0	0	0	0	0	0	0	0	876
PERIOD TOTAL	0	1	81	6	1	0	3	92	3	6	776	87	13	4	3	889	4	1	634	81	7	1	4	728	0	0	1	0	0	0	0	1	1710

TRANSPORT Data Collection

DATE: WEDNESDAY 8th JUNE 2016

TURNING COUNT LOCATION: A541 WREXHAM ROAD / A550 / CYMAU LANE

APPROACHING FROM: CYMAU LANE

TIME / CLASS	LEFT TO A541 WREXHAM ROAD (NORTH)								STRAIGHT TO A550								RIGHT TO A541 WREXHAM ROAD (SOUTH)								U-TURN TO CYMAU LANE								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:30 - 07:45	0	0	6	0	0	0	0	6	0	0	12	1	0	0	0	13	0	1	15	2	0	0	0	18	0	0	0	0	0	0	0	0	37
07:45 - 08:00	0	0	6	1	0	1	0	8	0	0	10	1	0	0	0	11	0	0	13	2	0	0	0	15	0	0	0	0	0	0	0	0	34
08:00 - 08:15	0	0	3	1	1	0	0	5	0	1	10	0	0	0	0	11	0	0	17	0	0	1	0	18	0	0	0	0	0	0	0	0	34
08:15 - 08:30	0	0	12	0	0	0	1	13	0	0	10	1	1	0	0	12	0	0	13	0	0	0	1	14	0	0	0	0	0	0	0	0	39
HOURLY TOTAL	0	0	27	2	1	1	1	32	0	1	42	3	1	0	0	47	0	1	58	4	0	1	1	65	0	0	0	0	0	0	0	0	144
08:30 - 08:45	0	0	4	0	0	0	0	4	0	1	11	0	0	0	0	12	0	0	24	2	1	0	0	27	0	0	0	0	0	0	0	0	43
08:45 - 09:00	0	0	10	0	0	0	0	10	0	0	9	0	0	0	0	9	0	0	16	0	1	0	0	17	0	0	0	0	0	0	0	0	36
09:00 - 09:15	0	0	8	0	0	1	0	9	0	0	2	1	0	0	0	3	0	0	11	2	0	0	0	13	0	0	0	0	0	0	0	0	25
09:15 - 09:30	0	0	4	0	1	0	1	6	0	0	2	1	0	0	0	3	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0	0	18
HOURLY TOTAL	0	0	26	0	1	1	1	29	0	1	24	2	0	0	0	27	0	0	60	4	2	0	0	66	0	0	0	0	0	0	0	0	122
PERIOD TOTAL	0	0	53	2	2	2	2	61	0	2	66	5	1	0	0	74	0	1	118	8	2	1	1	131	0	0	0	0	0	0	0	0	266
16:00 - 16:15	0	0	3	0	0	0	0	3	0	0	5	0	1	0	0	6	0	0	12	0	0	0	1	13	0	0	0	0	0	0	0	0	22
16:15 - 16:30	0	0	2	1	0	0	0	3	0	0	4	0	0	0	0	4	0	0	10	3	0	0	0	13	0	0	0	0	0	0	0	0	20
16:30 - 16:45	0	0	5	0	0	0	0	5	0	0	6	1	1	0	0	8	0	0	2	2	0	1	0	5	0	0	0	0	0	0	0	0	18
16:45 - 17:00	0	0	6	0	0	0	0	6	0	0	4	0	0	0	0	4	0	0	8	2	0	0	0	10	0	0	0	0	0	0	0	0	20
HOURLY TOTAL	0	0	16	1	0	0	0	17	0	0	19	1	2	0	0	22	0	0	32	7	0	1	1	41	0	0	0	0	0	0	0	0	80
17:00 - 17:15	0	0	5	1	1	0	0	7	0	0	1	0	0	0	0	1	0	0	9	1	0	0	1	11	0	0	0	0	0	0	0	0	19
17:15 - 17:30	0	0	3	1	0	0	1	5	0	0	4	1	0	2	0	7	0	0	6	1	0	0	0	7	0	0	0	0	0	0	0	0	19
17:30 - 17:45	1	0	2	0	0	0	0	2	0	0	2	0	0	0	0	2	0	0	5	1	0	0	0	6	0	0	0	0	0	0	0	0	10
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	6	0	0	9	1	0	0	0	10	0	0	0	0	0	0	0	0	16
HOURLY TOTAL	1	0	10	2	1	0	1	14	0	0	12	2	0	2	0	16	0	0	29	4	0	0	1	34	0	0	0	0	0	0	0	0	64
PERIOD TOTAL	1	0	26	3	1	0	1	31	0	0	31	3	2	2	0	38	0	0	61	11	0	1	2	75	0	0	0	0	0	0	0	0	144

S|C|P

APPENDIX B

KEY

- POS AND PLAY AREA
- STREAM WITH CLEAR ZONE
- PEDESTRIAN WAY
- EXISTING TREES RETAINED
- ROAD OVER STREAM CONCRETE BOX CULVERT INDICATIVE SIZE 1000 X 500 MM
- OVERHEAD POWER LINE
- GREEN LINK
- PLOT FRONTAGE
- VEHICLE ENTRANCE
- AREA REFERENCE
- PLANTING AND ATTENUATION AREA SURFACE WATER
- PROPOSED POND
- PROPOSED GABION BANK REINFORCEMENT TO INCREASE BED OF STREAM TO 1.5M, 10M EITHER SIDE OF STRUCTURE
- OTHER LAND IN OWNERSHIP SITE LIMITS
- + 89.200 PROPOSED LEVELS
- DEVELOPABLE AREA
- HIGHWAY & PEDESTRIAN

ARCHITECTS / URBAN DESIGNERS
CHAPEL HOUSE, CITY ROAD, CHESTER CH1 3AE
Tel : 01244 310388 Fax : 01244 325643
E-mail : enquiries@tnw-architecture.co.uk
Web : www.tnw-architecture.co.uk

SCALEBAR: 0 20m 40m 60m 80m 100m 1:1000

ALL DIMENSIONS TO BE CHECKED ON SITE AND NOT SCALED FROM THIS DRAWING.
ALL ERRORS AND OMISSIONS TO BE REPORTED TO THE ARCHITECT. © COPYRIGHT

REV:	DATE:	BY:	DESCRIPTION:
A	20/12/16	BWL	Flood storage area indicated and housing omitted in area "F"
B	6/02/17	BWL	Flood storage area indicated and housing altered to avoid flood plain
C	13/03/17	BWL	Flood storage and surface water area indicated and housing layout altered
D	06/04/17	BWL	Structure 2 proposal altered
E	06/04/17	BWL	Attenuation Areas Added and units reduced in numbers
F	17/07/17		Layout of parking and footway altered
G	29/08/17		Layout of entrance roads and housing layout to north
H	30/08/17		Amendment to green areas and turning head
I	06/10/17		Amendment turning head

CLIENT/PROJECT:
THE CLARK ESTATE

LAND AT ABERMORDDU

DRAWING TITLE:
INDICATIVE SITE PLAN

NORTH: N

SCALE: 1:1000/250 1:2000/500@A3 A1

DATE: 17.10.17

DRAWN BY:

CHECKED BY:

JOB/DRAWING NUMBER: 1610 :SK05

REVISION: I

STATUS: DRAFT

S|C|P

APPENDIX C

© Crown Copyright, All Rights Reserved. 2017 Licence Number 0100031673

2.4 x 120m
VISIBILITY SPLAY

WREXHAM ROAD

2.4 x 120m
VISIBILITY SPLAY

2.4 x VISIBILITY SPLAY
TO TANGENT

Abermorddu

2.4 x 120m
VISIBILITY SPLAY

2.4 x 120m
VISIBILITY SPLAY

REVISIONS			
Rev	Description	Date	By
A	-NEW SITE LAYOUT UNDERLAID	24.10.17	WD
-	-	-	-
-	-	-	-

S|C|P
Transportation Planning : Infrastructure Design
Colwyn Chambers, 19 York Street, Manchester, M2 3BA, Tel 0161 832 4400,
www.scptransport.co.uk, Email Info@scptransport.co.uk

Client: THE CLARK ESTATE	Drawing Title: VISIBILITY SPLAYS	Scale: 1:1000 @ A3	By: WD	Drawing No.: SCP/16244/F01
Project Title: WREXHAM ROAD, ABERMORDDU		Date: 04.09.2017	Checked: CT / PT	
		Approved/ Unapproved: -	Status: PLANNING	Revision: A

© This drawing is the property of SCP and should not be copied, used or its contents divulged without prior written consent

S|C|P

APPENDIX D

SEE INSET 1

SEE INSET 2

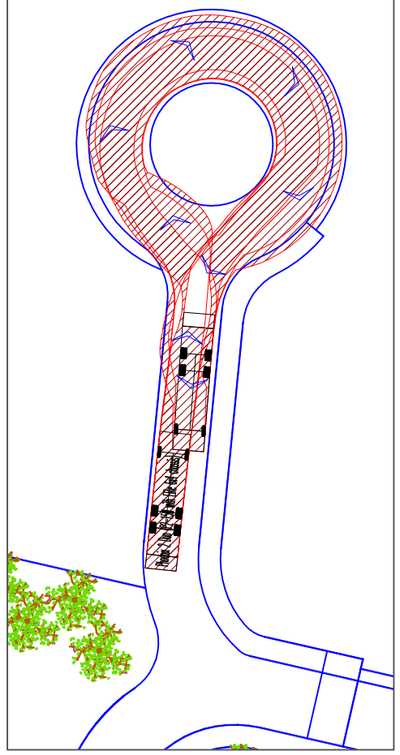
SEE INSET 3

SEE INSET 4

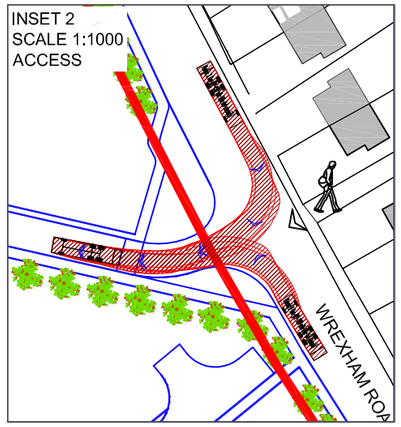
SEE INSET 5

WREXHAM ROAD

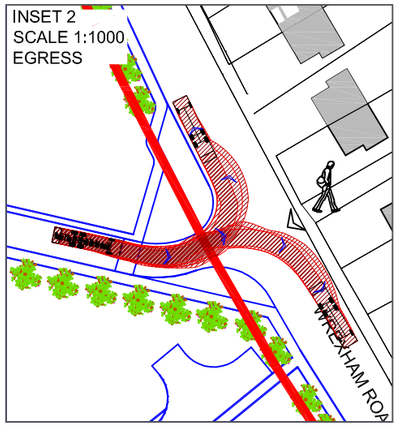
INSET 1
SCALE 1:500



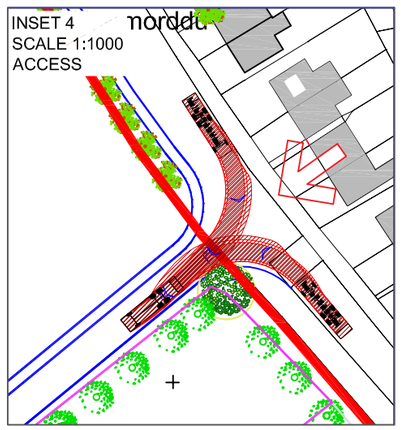
INSET 2
SCALE 1:1000
ACCESS



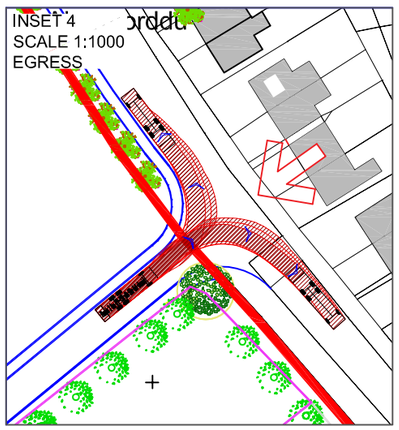
INSET 2
SCALE 1:1000
EGRESS



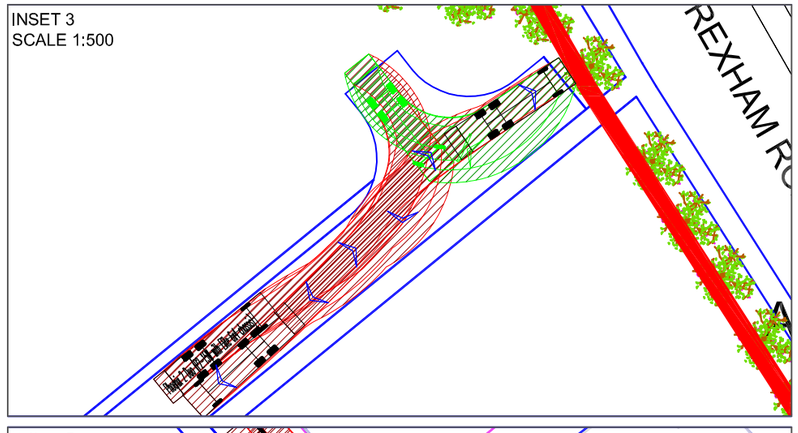
INSET 4
SCALE 1:1000
ACCESS



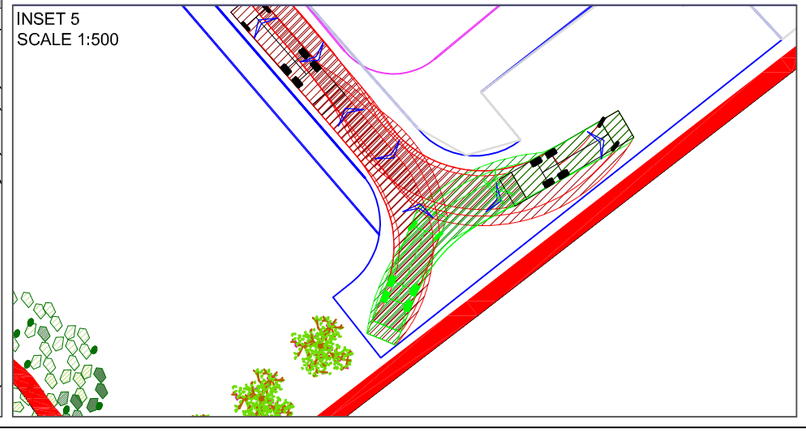
INSET 4
SCALE 1:1000
EGRESS



INSET 3
SCALE 1:500

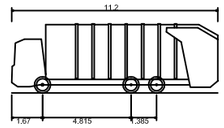


INSET 5
SCALE 1:500



© Crown Copyright, All Rights Reserved. 2017 Licence Number 0100031673

NOTES



Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)

Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	9.500m

REVISIONS

REV	DESCRIPTION	DATE	BY
A	-NEW SITE LAYOUT UNDERLAID AND SWEPT PATHS UPDATED	24.10.17	WD

S|C|P
Transportation Planning : Infrastructure Design
Colwyn Chambers, 19 York Street, Manchester, M2 3BA, Tel 0161 832 4400, www.scptransport.co.uk, Email info@scptransport.co.uk

Client Name:
THE CLARK ESTATE

Project Title:
WELSH ROAD,
LEDSHAM

Drawing Title:
SWEPT PATH ANALYSIS
REFUSE VEHICLE

Drawn By: WD	Date: 01.09.2017
Checked: CT / PT	Scale: AS SHOWN @ A3
Status: PLANNING	Approved/Unapproved: -
Drawing No. SCP/16224/ATR01	Rev. A

S|C|P

APPENDIX E

SEE INSET 1

SEE INSET 2

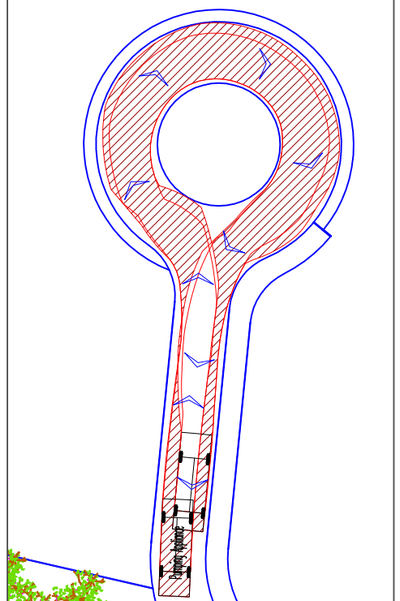
SEE INSET 3

SEE INSET 4

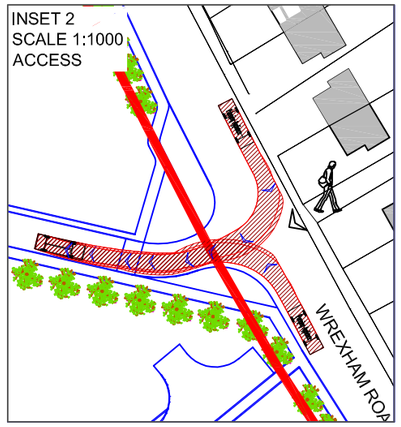
SEE INSET 5

WREXHAM ROAD

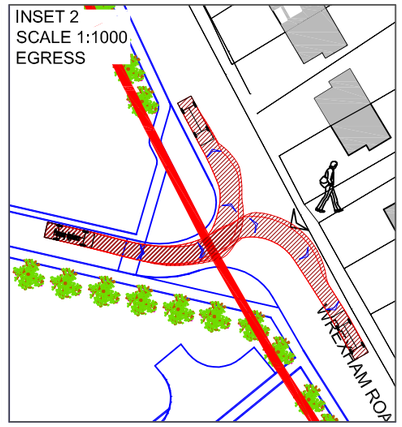
INSET 1
SCALE 1:500



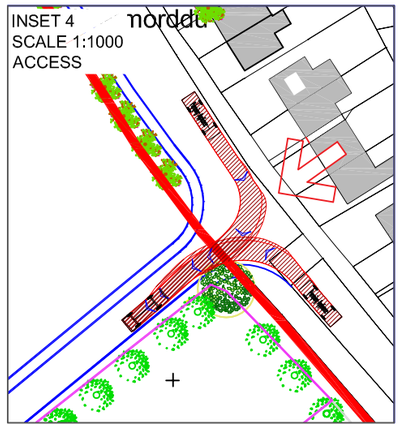
INSET 2
SCALE 1:1000
ACCESS



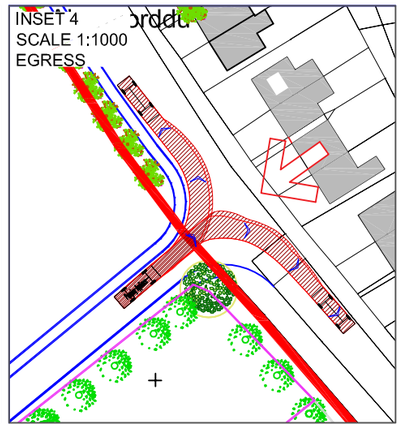
INSET 2
SCALE 1:1000
EGRESS



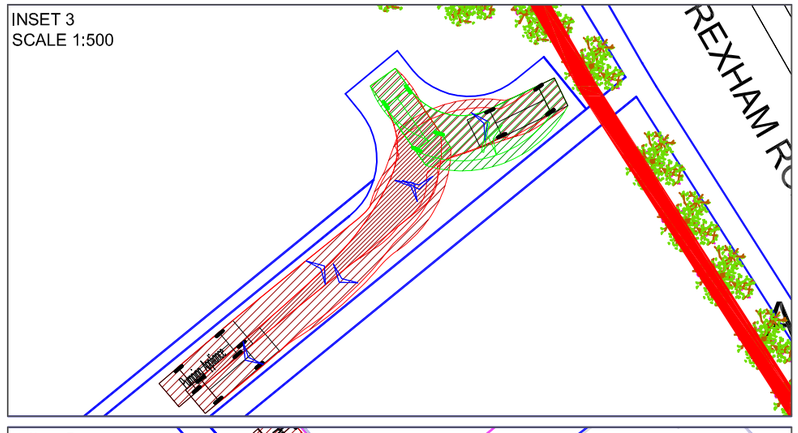
INSET 4
SCALE 1:1000
ACCESS



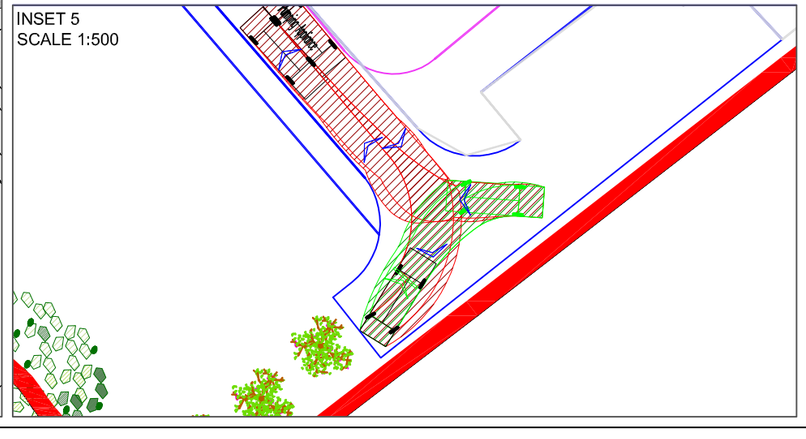
INSET 4
SCALE 1:1000
EGRESS



INSET 3
SCALE 1:500

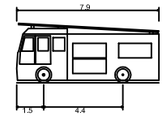


INSET 5
SCALE 1:500



© Crown Copyright, All Rights Reserved. 2017 Licence Number 0100031673

NOTES



Pumping Appliance	
Overall Length	7.900m
Overall Width	2.500m
Overall Body Height	3.300m
Min Body Ground Clearance	0.140m
Track Width	2.500m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	7.750m

REVISIONS

REV	DESCRIPTION	DATE	BY
A	-NEW SITE LAYOUT UNDERLAID AND SWEPT PATHS UPDATED	24.10.17	WD

S|C|P
Transportation Planning : Infrastructure Design
Colwyn Chambers, 19 York Street, Manchester, M2 3BA, Tel 0161 832 4400, www.scptransport.co.uk, Email Info@scptransport.co.uk

Client Name:
THE CLARK ESTATE

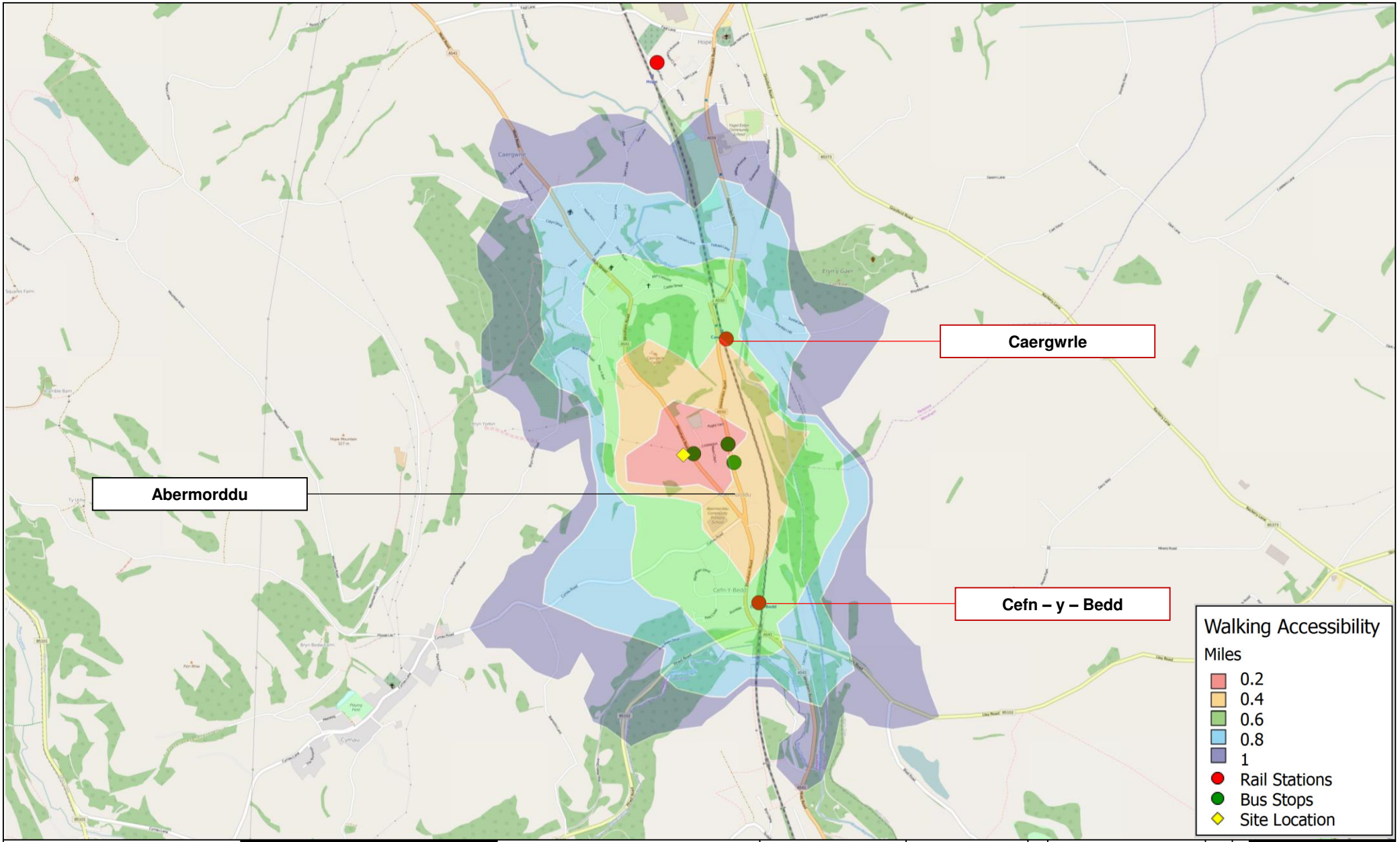
Project Title:
WREXHAM ROAD, ABERMORDDU

Drawing Title:
SWEPT PATH ANALYSIS
FIRE TENDER

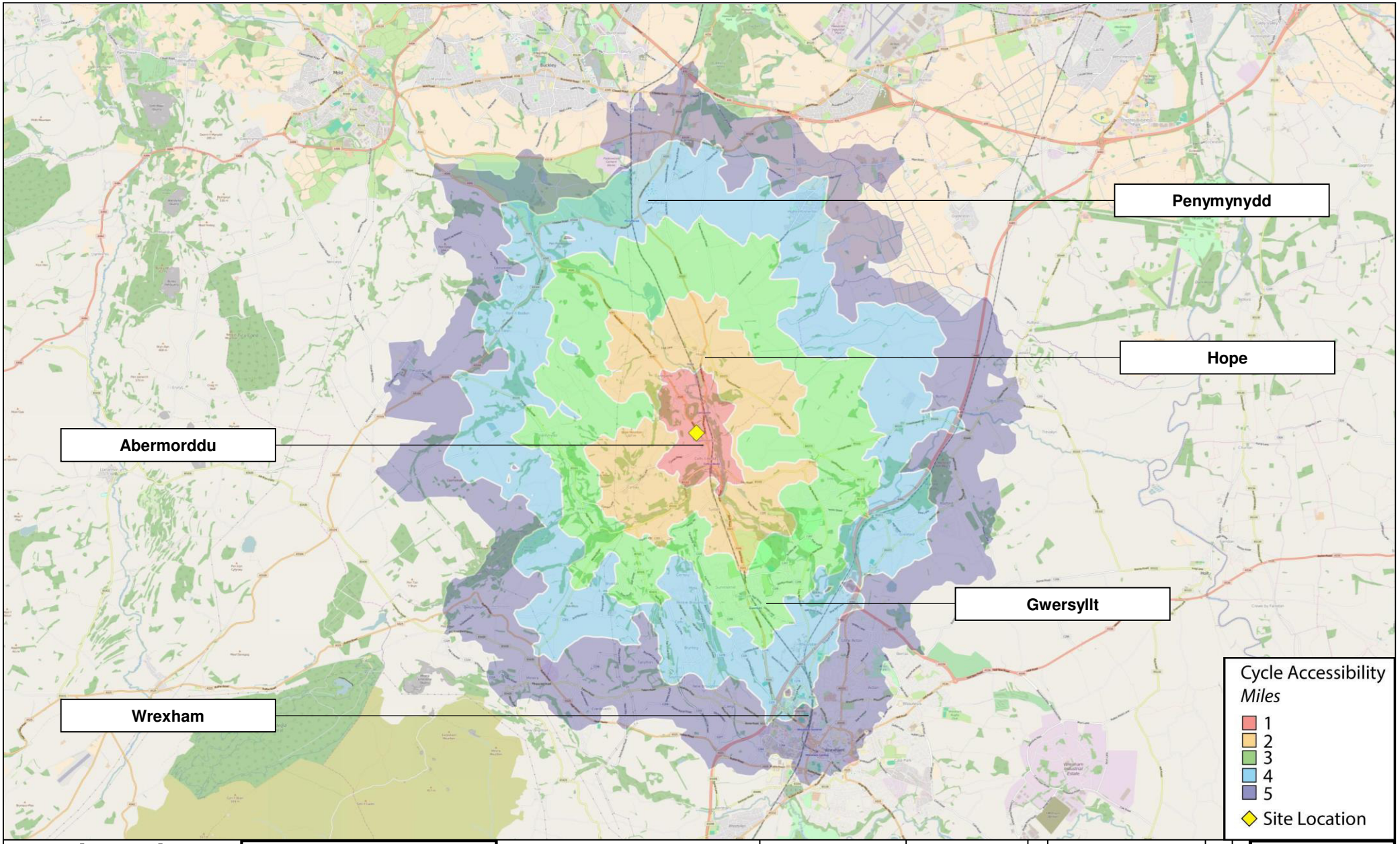
Drawn By: WD	Date: 04.09.2017
Checked: CT / PT	Scale: AS SHOWN @ A3
Status: PLANNING	Approved/Unapproved: -
Drawing No. SCP/16224/ATR02	Rev. A

S|C|P

APPENDIX F



S|C|P Transportation Planning : Infrastructure Design www.scptransport.co.uk	Project Title: Wrexham Road, Abermorddu	Drawing Title: Walking Accessibility: 1 Mile Isochrones	Scale: NTS	By: SB	Rev	Description	Date	By	Appendix F
			Date: 18.07.2016	Checked: WB	-	-	-	-	
			Approved/Unapproved: APPROVED	Status: PLANNING	-	-	-	-	Figure 1
					-	-	-	-	
					-	-	-	-	



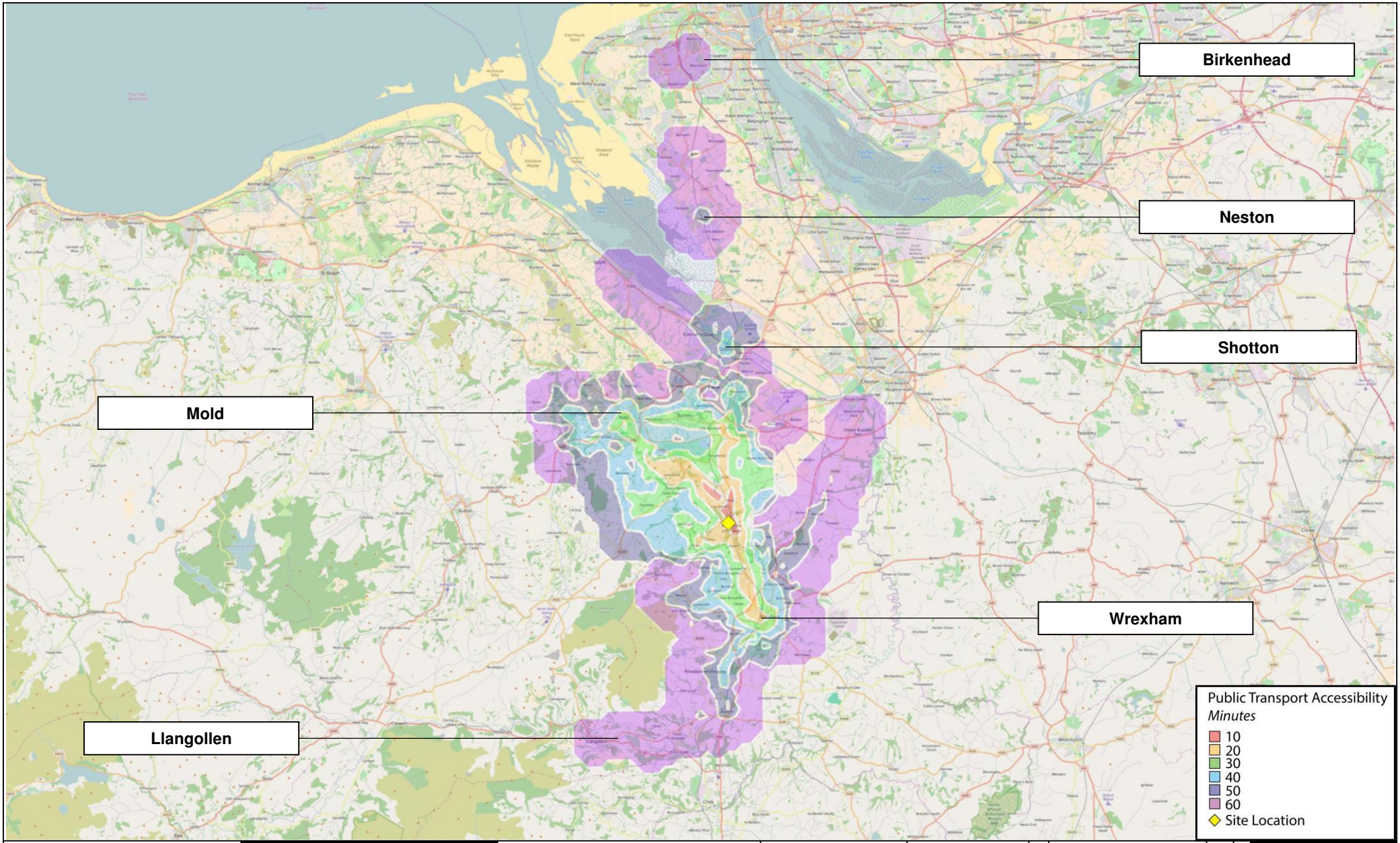
S|C|P
Transportation Planning : Infrastructure Design
www.scptransport.co.uk

Project Title	Wrexham Road, Abermorddu
Drawing Title	Cycling Accessibility: 5 Mile Isochrones
Scale	NTS
By	SB
Date	18.07.2016
Checked	WB
Approved/Unapproved	APPROVED
Status	PLANNING

Rev	Description	Date	By
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Appendix F

Figure 2



S C P
Transportation Planning : Infrastructure Design
www.scptransport.co.uk

Project Title	Wrexham Road, Abermorddu
Drawing Title	Public Transport Accessibility: 60 Minute Isochrones
Scale	NTS
By	SB
Date	18.07.2016
Checked	WB
Approved/Unapproved	APPROVED
Status	PLANNING

Rev	Description	Date	By
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Appendix F

Figure 3

S|C|P

APPENDIX G

Calculation Reference: AUDIT-726001-170830-0838

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	**SOUTH EAST**		
	HC	HAMPSHIRE	1 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	2 days
03	**SOUTH WEST**		
	DV	DEVON	2 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
06	**WEST MIDLANDS**		
	SH	SHROPSHIRE	2 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	3 days
	SY	SOUTH YORKSHIRE	1 days
09	**NORTH**		
	CB	CUMBRIA	1 days
	DH	DURHAM	1 days
11	**SCOTLAND**		
	HI	HIGHLAND	1 days

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

Secondary 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: Number of dwellings
Actual Range: 40 to 151 (units:)
Range Selected by User: 40 to 160 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 28/03/17

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	3 days
Tuesday	3 days
Wednesday	3 days
Thursday	4 days
Friday	3 days

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

Selected survey types:

Manual count	16 days
Directional ATC Count	0 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:

Suburban Area (PPS6 Out of Centre)	11
Edge of Town	5

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.

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.

Secondary Filtering selection:

Use Class:

C3	16 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS® .

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	6 days
10,001 to 15,000	4 days
15,001 to 20,000	2 days
20,001 to 25,000	2 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	3 days
25,001 to 50,000	3 days
50,001 to 75,000	1 days
75,001 to 100,000	5 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	14 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	3 days
No	13 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	16 days

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

LIST OF SITES relevant to selection parameters

1 **CB-03-A-04** **SEMI DETACHED** **CUMBRIA**
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 82
Survey date: FRIDAY *24/04/09* *Survey Type: MANUAL*

2 **DH-03-A-01** **SEMI DETACHED** **DURHAM**
GREENFIELDS ROAD

BISHOP AUCKLAND
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 50
Survey date: TUESDAY *28/03/17* *Survey Type: MANUAL*

3 **DV-03-A-02** **HOUSES & BUNGALOWS** **DEVON**
MILLHEAD ROAD

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 116
Survey date: FRIDAY *25/09/15* *Survey Type: MANUAL*

4 **DV-03-A-03** **TERRACED & SEMI DETACHED** **DEVON**
LOWER BRAND LANE

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 70
Survey date: MONDAY *28/09/15* *Survey Type: MANUAL*

5 **HC-03-A-18** **HOUSES & FLATS** **HAMPSHIRE**
CANADA WAY

LIPHOOK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 62
Survey date: TUESDAY *29/11/16* *Survey Type: MANUAL*

6 **HI-03-A-14** **SEMI-DETACHED & TERRACED** **HIGHLAND**
KING BRUDE ROAD
SCORGUIE
INVERNESS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 40
Survey date: WEDNESDAY *23/03/16* *Survey Type: MANUAL*

7 **NF-03-A-02** **HOUSES & FLATS** **NORFOLK**
DEREHAM ROAD

NORWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 98
Survey date: MONDAY *22/10/12* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 **NY-03-A-06** **BUNGALOWS & SEMI DET.** **NORTH YORKSHIRE**
HORSEFAIR

BOROUGHBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: FRIDAY *14/10/11* *Survey Type: MANUAL*

9 **NY-03-A-09** **MIXED HOUSING** **NORTH YORKSHIRE**
GRAMMAR SCHOOL LANE

NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52
Survey date: MONDAY *16/09/13* *Survey Type: MANUAL*

10 **NY-03-A-10** **HOUSES AND FLATS** **NORTH YORKSHIRE**
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY *17/09/13* *Survey Type: MANUAL*

11 **SC-03-A-04** **DETACHED & TERRACED** **SURREY**
HIGH ROAD

BYFLEET
Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY *23/01/14* *Survey Type: MANUAL*

12 **SH-03-A-04** **TERRACED** **SHROPSHIRE**
ST MICHAEL'S STREET

SHREWSBURY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 108
Survey date: THURSDAY *11/06/09* *Survey Type: MANUAL*

13 **SH-03-A-05** **SEMI-DETACHED/ TERRACED** **SHROPSHIRE**
SANDCROFT
SUTTON HILL
TELFORD
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY *24/10/13* *Survey Type: MANUAL*

14 **SY-03-A-01** **SEMI DETACHED HOUSES** **SOUTH YORKSHIRE**
A19 BENTLEY ROAD
BENTLEY RISE
DONCASTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54
Survey date: WEDNESDAY *18/09/13* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

15 WS-03-A-04 MIXED HOUSES WEST SUSSEX
HILLS FARM LANE
BROADBRIDGE HEATH
HORSHAM
Edge of Town
Residential Zone
Total Number of dwellings: 151
Survey date: THURSDAY *11/12/14* *Survey Type: MANUAL*

16 WS-03-A-05 TERRACED & FLATS WEST SUSSEX
UPPER SHOREHAM ROAD

SHOREHAM BY SEA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 48
Survey date: WEDNESDAY *18/04/12* *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

MULTI-MODAL 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	16	78	0.074	16	78	0.290	16	78	0.364
08:00 - 09:00	16	78	0.134	**16**	**78**	**0.352**	16	78	0.486
09:00 - 10:00	16	78	0.144	16	78	0.163	16	78	0.307
10:00 - 11:00	16	78	0.134	16	78	0.170	16	78	0.304
11:00 - 12:00	16	78	0.143	16	78	0.151	16	78	0.294
12:00 - 13:00	16	78	0.159	16	78	0.153	16	78	0.312
13:00 - 14:00	16	78	0.164	16	78	0.146	16	78	0.310
14:00 - 15:00	16	78	0.143	16	78	0.164	16	78	0.307
15:00 - 16:00	16	78	0.217	16	78	0.149	16	78	0.366
16:00 - 17:00	16	78	0.249	16	78	0.160	16	78	0.409
17:00 - 18:00	**16**	**78**	**0.337**	16	78	0.162	**16**	**78**	**0.499**
18:00 - 19:00	16	78	0.220	16	78	0.155	16	78	0.375
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.118			2.215			4.333

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.*

Parameter summary

Trip rate parameter range selected:	40 - 151 (units:)
Survey date date range:	01/01/09 - 28/03/17
Number of weekdays (Monday-Friday):	16
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

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	16	78	0.004	16	78	0.011	16	78	0.015
08:00 - 09:00	16	78	0.002	**16**	**78**	**0.017**	16	78	0.019
09:00 - 10:00	16	78	0.001	16	78	0.008	16	78	0.009
10:00 - 11:00	16	78	0.006	16	78	0.008	16	78	0.014
11:00 - 12:00	16	78	0.003	16	78	0.003	16	78	0.006
12:00 - 13:00	16	78	0.006	16	78	0.004	16	78	0.010
13:00 - 14:00	16	78	0.005	16	78	0.002	16	78	0.007
14:00 - 15:00	16	78	0.003	16	78	0.004	16	78	0.007
15:00 - 16:00	16	78	0.014	16	78	0.005	16	78	0.019
16:00 - 17:00	16	78	0.012	16	78	0.006	16	78	0.018
17:00 - 18:00	**16**	**78**	**0.021**	16	78	0.006	**16**	**78**	**0.027**
18:00 - 19:00	16	78	0.007	16	78	0.006	16	78	0.013
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.084			0.080			0.164

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.*

Parameter summary

Trip rate parameter range selected:	40 - 151 (units:)
Survey date date range:	01/01/09 - 28/03/17
Number of weekdays (Monday-Friday):	16
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS

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	16	78	0.023	16	78	0.063	16	78	0.086
08:00 - 09:00	16	78	0.033	**16**	**78**	**0.161**	16	78	0.194
09:00 - 10:00	16	78	0.056	16	78	0.064	16	78	0.120
10:00 - 11:00	16	78	0.055	16	78	0.052	16	78	0.107
11:00 - 12:00	16	78	0.034	16	78	0.042	16	78	0.076
12:00 - 13:00	16	78	0.045	16	78	0.037	16	78	0.082
13:00 - 14:00	16	78	0.041	16	78	0.051	16	78	0.092
14:00 - 15:00	16	78	0.045	16	78	0.054	16	78	0.099
15:00 - 16:00	**16**	**78**	**0.133**	16	78	0.074	**16**	**78**	**0.207**
16:00 - 17:00	16	78	0.110	16	78	0.052	16	78	0.162
17:00 - 18:00	16	78	0.090	16	78	0.036	16	78	0.126
18:00 - 19:00	16	78	0.055	16	78	0.040	16	78	0.095
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.720			0.726			1.446

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.*

Parameter summary

Trip rate parameter range selected:	40 - 151 (units:)
Survey date date range:	01/01/09 - 28/03/17
Number of weekdays (Monday-Friday):	16
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS

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	16	78	0.001	**16**	**78**	**0.021**	16	78	0.022
08:00 - 09:00	16	78	0.002	16	78	0.012	16	78	0.014
09:00 - 10:00	16	78	0.001	16	78	0.006	16	78	0.007
10:00 - 11:00	16	78	0.002	16	78	0.006	16	78	0.008
11:00 - 12:00	16	78	0.003	16	78	0.003	16	78	0.006
12:00 - 13:00	16	78	0.004	16	78	0.005	16	78	0.009
13:00 - 14:00	16	78	0.003	16	78	0.001	16	78	0.004
14:00 - 15:00	16	78	0.005	16	78	0.005	16	78	0.010
15:00 - 16:00	16	78	0.005	16	78	0.005	16	78	0.010
16:00 - 17:00	16	78	0.006	16	78	0.004	16	78	0.010
17:00 - 18:00	16	78	0.015	16	78	0.002	16	78	0.017
18:00 - 19:00	**16**	**78**	**0.021**	16	78	0.002	**16**	**78**	**0.023**
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.068			0.072			0.140

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.*

Parameter summary

Trip rate parameter range selected:	40 - 151 (units:)
Survey date date range:	01/01/09 - 28/03/17
Number of weekdays (Monday-Friday):	16
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.

S|C|P

APPENDIX H

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
© Copyright TRL Limited, 2017

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: SITE ACCESS.j9
Path: Z:\Job Library\2016\16244 - Wrexham Road, Abermorddu\Traffic Data\PICADY
Report generation date: 12/09/2017 15:53:36

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2022							
Stream B-C	0.0	7.08	0.03	A	0.0	6.52	0.01	A
Stream B-A	0.1	13.68	0.06	B	0.0	11.75	0.02	B
Stream C-AB	0.0	4.03	0.02	A	0.0	4.27	0.04	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	01/09/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	SCP\craig.thomson
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	07:30	09:00	15	✓
D2	2022	PM	ONE HOUR	16:30	18:00	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	WREXHAM ROAD SOUTH		Major
B	SITE ACCESS		Minor
C	WREXHAM ROAD NORTH		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.50			180.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	8.50	3.20	2.75	2.75	2.75		1.00	20	18

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	504	0.078	0.197	0.124	0.281
1	B-C	687	0.089	0.226	-	-
1	C-B	678	0.223	0.223	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	627	100.000
B		ONE HOUR	✓	29	100.000
C		ONE HOUR	✓	643	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	6	621
	B	16	0	13
	C	638	5	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.03	7.08	0.0	A	12	18
B-A	0.06	13.68	0.1	B	15	22
C-AB	0.02	4.03	0.0	A	12	19
C-A					578	866
A-B					6	8
A-C					570	855

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	10	2	576	0.017	10	0.0	0.0	6.357	A
B-A	12	3	351	0.034	12	0.0	0.0	10.601	B
C-AB	8	2	900	0.009	8	0.0	0.0	4.033	A
C-A	476	119			476				
A-B	5	1			5				
A-C	468	117			468				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	12	3	554	0.021	12	0.0	0.0	6.642	A
B-A	14	4	322	0.045	14	0.0	0.0	11.711	B
C-AB	11	3	950	0.012	11	0.0	0.0	3.833	A
C-A	567	142			567				
A-B	5	1			5				
A-C	558	140			558				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	14	4	523	0.027	14	0.0	0.0	7.076	A
B-A	18	4	281	0.063	18	0.0	0.1	13.676	B
C-AB	18	4	1022	0.017	18	0.0	0.0	3.582	A
C-A	690	173			690				
A-B	7	2			7				
A-C	684	171			684				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	14	4	523	0.027	14	0.0	0.0	7.080	A
B-A	18	4	281	0.063	18	0.1	0.1	13.683	B
C-AB	18	4	1022	0.017	18	0.0	0.0	3.585	A
C-A	690	173			690				
A-B	7	2			7				
A-C	684	171			684				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	12	3	553	0.021	12	0.0	0.0	6.650	A
B-A	14	4	322	0.045	14	0.1	0.0	11.719	B
C-AB	11	3	950	0.012	11	0.0	0.0	3.834	A
C-A	567	142			567				
A-B	5	1			5				
A-C	558	140			558				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	10	2	575	0.017	10	0.0	0.0	6.370	A
B-A	12	3	351	0.034	12	0.0	0.0	10.610	B
C-AB	8	2	900	0.009	8	0.0	0.0	4.034	A
C-A	476	119			476				
A-B	5	1			5				
A-C	468	117			468				

2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022	PM	ONE HOUR	16:30	18:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	531	100.000
B		ONE HOUR	✓	13	100.000
C		ONE HOUR	✓	545	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	15	516
	B	7	0	6
	C	533	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.52	0.0	A	6	8
B-A	0.02	11.75	0.0	B	6	10
C-AB	0.04	4.27	0.0	A	25	37
C-A					475	713
A-B					14	21
A-C					473	710

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	602	0.008	4	0.0	0.0	6.021	A
B-A	5	1	374	0.014	5	0.0	0.0	9.765	A
C-AB	17	4	859	0.020	17	0.0	0.0	4.274	A
C-A	393	98			393				
A-B	11	3			11				
A-C	388	97			388				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	584	0.009	5	0.0	0.0	6.221	A
B-A	6	2	349	0.018	6	0.0	0.0	10.510	B
C-AB	23	6	899	0.026	23	0.0	0.0	4.110	A
C-A	467	117			467				
A-B	13	3			13				
A-C	464	116			464				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	559	0.012	7	0.0	0.0	6.515	A
B-A	8	2	314	0.025	8	0.0	0.0	11.749	B
C-AB	34	9	956	0.036	34	0.0	0.0	3.904	A
C-A	566	141			566				
A-B	17	4			17				
A-C	568	142			568				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	7	2	559	0.012	7	0.0	0.0	6.517	A
B-A	8	2	314	0.025	8	0.0	0.0	11.749	B
C-AB	34	9	956	0.036	34	0.0	0.0	3.905	A
C-A	566	141			566				
A-B	17	4			17				
A-C	568	142			568				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	584	0.009	5	0.0	0.0	6.228	A
B-A	6	2	349	0.018	6	0.0	0.0	10.511	B
C-AB	23	6	899	0.026	23	0.0	0.0	4.113	A
C-A	467	117			467				
A-B	13	3			13				
A-C	464	116			464				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	5	1	602	0.008	5	0.0	0.0	6.031	A
B-A	5	1	374	0.014	5	0.0	0.0	9.768	A
C-AB	17	4	859	0.020	17	0.0	0.0	4.275	A
C-A	393	98			393				
A-B	11	3			11				
A-C	388	97			388				

S|C|P

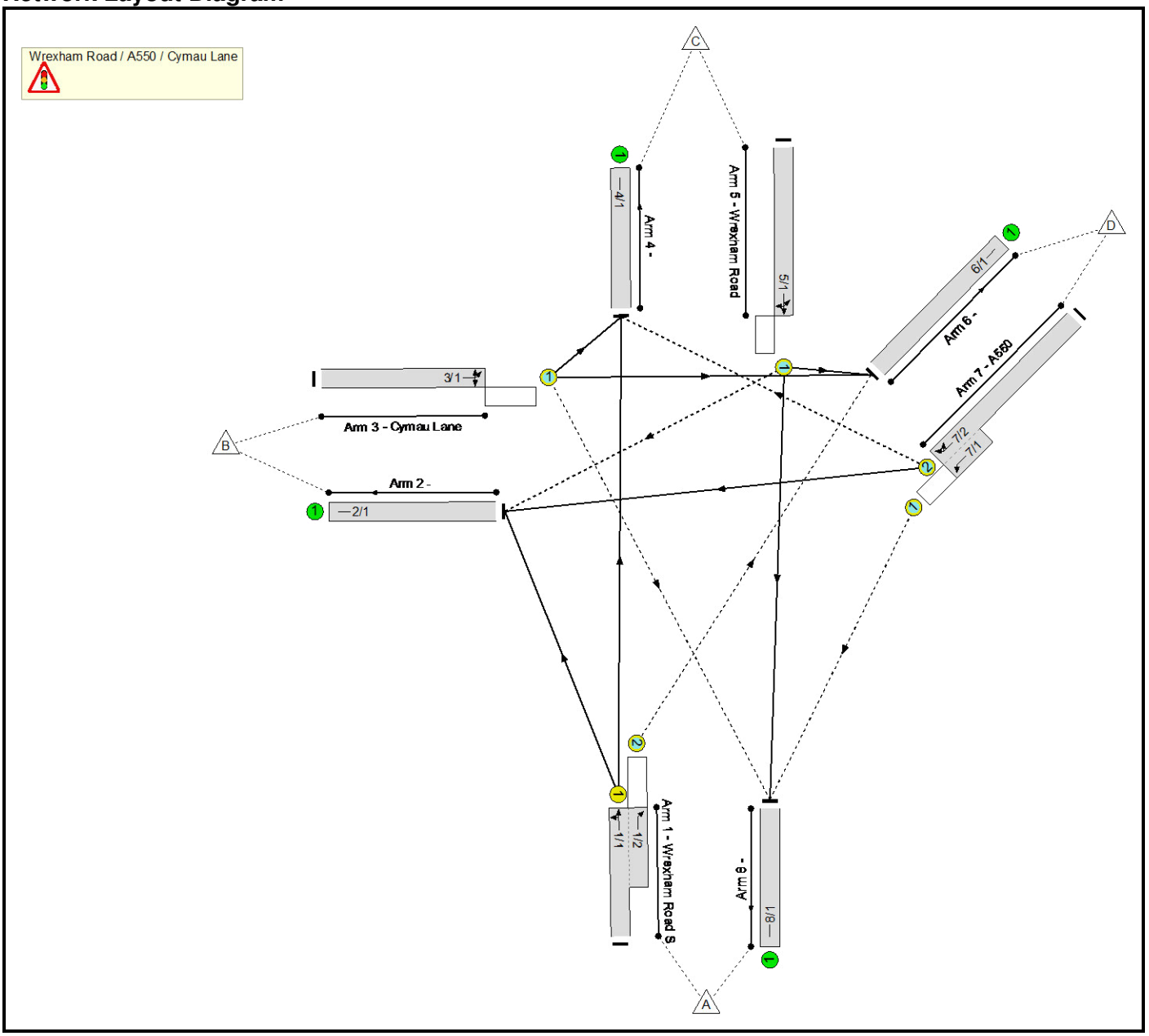
APPENDIX I

Full Input Data And Results

User and Project Details

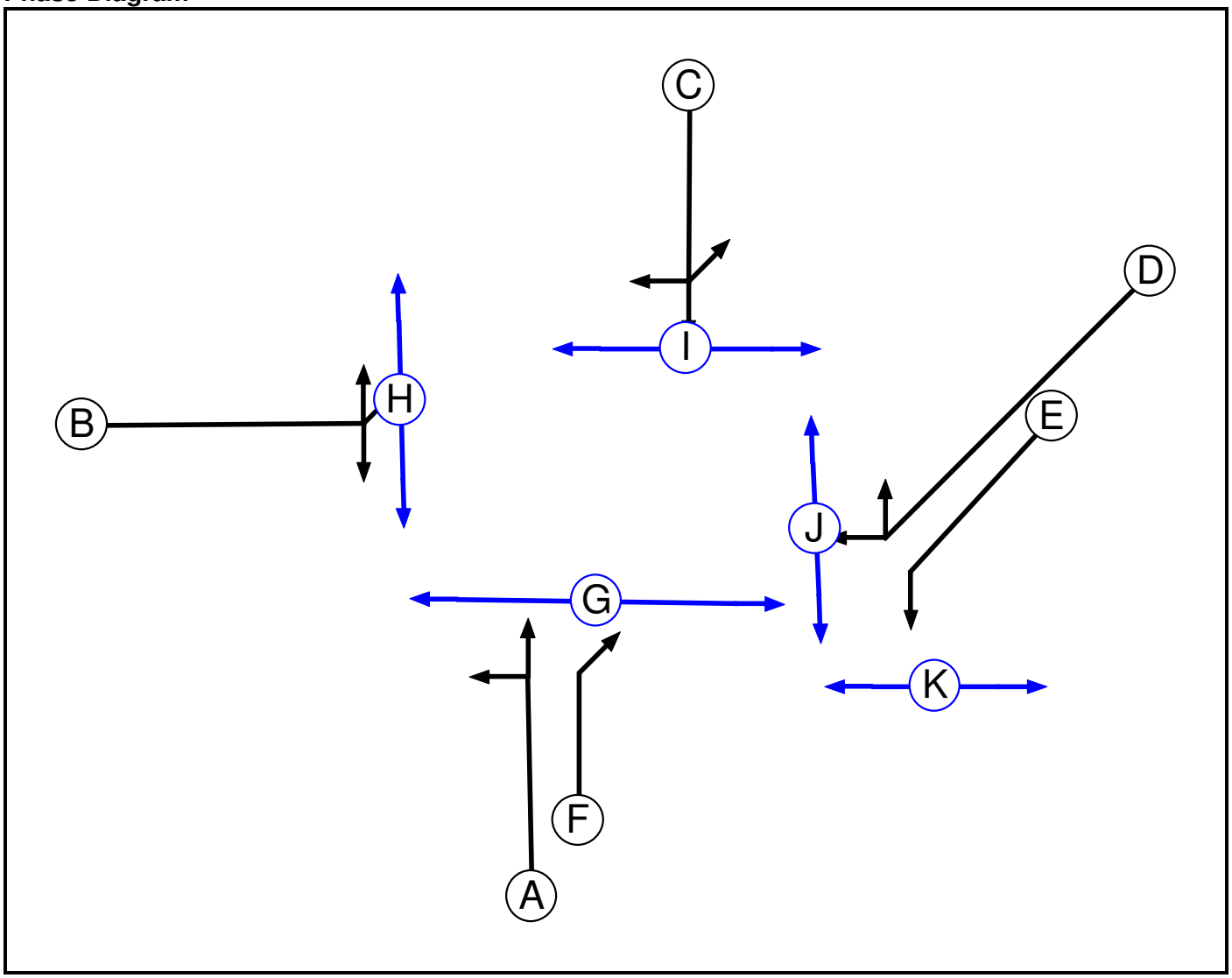
Project:	**Wrexham Road, Abermorddu**
Title:	
Location:	
File name:	Wrexham Road_A550_Cymau Lane_LB.lsg3x
Author:	Sam Beckett
Company:	SCP
Address:	Colwyn Chambers, 19 York Street, Manchester, M20 4BT
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

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

Full Input Data And Results

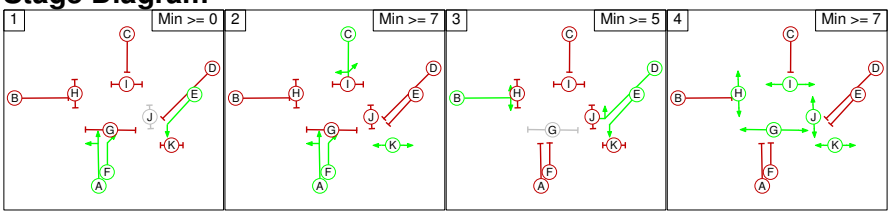
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		8	6	6
2	8		8	9
3	6	8		8
4	6	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Wrexham Road / A550 / Cymau Lane											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/2 (Wrexham Road S)	6/1 (Right)	1440	0	5/1	1.09	To 6/1 (U-Turn) To 8/1 (Ahead)	4.00	-	0.50	4	4.00
3/1 (Cymau Lane)	8/1 (Right)	1440	0	7/2	1.09	To 2/1 (Right)	4.00	4.00	0.50	4	4.00
5/1 (Wrexham Road)	2/1 (Right)	1440	0	1/1	1.09	All	3.00	3.00	0.50	3	3.00
7/1 (A550)	8/1 (Ahead)	1440	0	5/1	0.22	To 8/1 (Ahead)	3.00	-	0.50	3	3.00
				3/1	0.22	To 8/1 (Right)					
7/2 (A550)	4/1 (Right)	1440	0	3/1	1.09	To 4/1 (Left) To 6/1 (Left)	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: Wrexham Road / A550 / Cymau Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Wrexham Road S)	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Left	12.00
											Arm 4 Ahead	Inf
1/2 (Wrexham Road S)	O	F	2	3	6.3	Geom	-	3.25	0.00	N	Arm 6 Right	23.00
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Cymau Lane)	O	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Left	14.00
											Arm 6 Left	Inf
											Arm 8 Right	14.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (Wrexham Road)	O	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Right	20.00
											Arm 6 U-Turn	12.00
											Arm 8 Ahead	Inf
6/1	U		2	3	60.0	Geom	-	3.25	0.00	Y		
7/1 (A550)	O	E	2	3	4.0	Geom	-	3.50	0.00	Y	Arm 8 Ahead	Inf
7/2 (A550)	O	D	2	3	60.0	Geom	-	3.75	0.00	N	Arm 2 Right	Inf
											Arm 4 Right	12.00
8/1	U		2	3	60.0	Geom	-	2.75	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Base 2016 AM'	07:45	08:45	01:00	
2: 'Base 2016 PM'	17:15	18:15	01:00	
3: 'Base 2022 AM'	07:45	08:45	01:00	
4: 'Base 2022 PM'	17:15	18:15	01:00	
5: 'Base + Development 2022 AM'	07:45	08:45	01:00	
6: 'Base + Development 2022 PM'	17:15	18:15	01:00	

Scenario 1: 'Base 2016 AM' (FG1: 'Base 2016 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	33	545	493	1071
	B	77	0	33	45	155
	C	553	28	0	4	585
	D	391	23	3	0	417
	Tot.	1021	84	581	542	2228

Traffic Lane Flows

Lane	Scenario 1: Base 2016 AM
Junction: Wrexham Road / A550 / Cymau Lane	
1/1 (with short)	1071(In) 578(Out)
1/2 (short)	493
2/1	84
3/1	155
4/1	581
5/1	585
6/1	542
7/1 (short)	391
7/2 (with short)	417(In) 26(Out)
8/1	1021

Full Input Data And Results

Lane Saturation Flows

Junction: Wrexham Road / A550 / Cymau Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wrexham Road S)	3.50	0.00	Y	Arm 2 Left	12.00	5.7 %	1951	1951
				Arm 4 Ahead	Inf	94.3 %		
1/2 (Wrexham Road S)	3.25	0.00	N	Arm 6 Right	23.00	100.0 %	1953	1953
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Cymau Lane)	3.00	0.00	Y	Arm 4 Left	14.00	21.3 %	1780	1780
				Arm 6 Left	Inf	29.0 %		
				Arm 8 Right	14.00	49.7 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (Wrexham Road)	3.25	0.00	Y	Arm 2 Right	20.00	4.8 %	1931	1931
				Arm 6 U-Turn	12.00	0.7 %		
				Arm 8 Ahead	Inf	94.5 %		
6/1	3.25	0.00	Y				1940	1940
7/1 (A550)	3.50	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1965	1965
7/2 (A550)	3.75	0.00	N	Arm 2 Right	Inf	88.5 %	2100	2100
				Arm 4 Right	12.00	11.5 %		
8/1	2.75	0.00	Y				1890	1890

Scenario 2: 'Base 2016 PM' (FG2: 'Base 2016 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	50	456	403	909
	B	35	0	22	17	74
	C	450	28	0	12	490
	D	432	30	6	0	468
	Tot.	917	108	484	432	1941

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: Base 2016 PM
Junction: Wrexham Road / A550 / Cymau Lane	
1/1 (with short)	909(In) 506(Out)
1/2 (short)	403
2/1	108
3/1	74
4/1	484
5/1	490
6/1	432
7/1 (short)	432
7/2 (with short)	468(In) 36(Out)
8/1	917

Lane Saturation Flows

Junction: Wrexham Road / A550 / Cymau Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wrexham Road S)	3.50	0.00	Y	Arm 2 Left	12.00	9.9 %	1941	1941
				Arm 4 Ahead	Inf	90.1 %		
1/2 (Wrexham Road S)	3.25	0.00	N	Arm 6 Right	23.00	100.0 %	1953	1953
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Cymau Lane)	3.00	0.00	Y	Arm 4 Left	14.00	29.7 %	1769	1769
				Arm 6 Left	Inf	23.0 %		
				Arm 8 Right	14.00	47.3 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (Wrexham Road)	3.25	0.00	Y	Arm 2 Right	20.00	5.7 %	1926	1926
				Arm 6 U-Turn	12.00	2.4 %		
				Arm 8 Ahead	Inf	91.8 %		
6/1	3.25	0.00	Y				1940	1940
7/1 (A550)	3.50	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1965	1965
7/2 (A550)	3.75	0.00	N	Arm 2 Right	Inf	83.3 %	2087	2087
				Arm 4 Right	12.00	16.7 %		
8/1	2.75	0.00	Y				1890	1890

Full Input Data And Results

Scenario 3: 'Base 2022 AM' (FG3: 'Base 2022 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	35	577	522	1134
	B	81	0	35	48	164
	C	586	30	0	4	620
	D	414	25	3	0	442
	Tot.	1081	90	615	574	2360

Traffic Lane Flows

Lane	Scenario 3: Base 2022 AM
Junction: Wrexham Road / A550 / Cymau Lane	
1/1 (with short)	1134(In) 612(Out)
1/2 (short)	522
2/1	90
3/1	164
4/1	615
5/1	620
6/1	574
7/1 (short)	414
7/2 (with short)	442(In) 28(Out)
8/1	1081

Full Input Data And Results

Lane Saturation Flows

Junction: Wrexham Road / A550 / Cymau Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wrexham Road S)	3.50	0.00	Y	Arm 2 Left	12.00	5.7 %	1951	1951
				Arm 4 Ahead	Inf	94.3 %		
1/2 (Wrexham Road S)	3.25	0.00	N	Arm 6 Right	23.00	100.0 %	1953	1953
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Cymau Lane)	3.00	0.00	Y	Arm 4 Left	14.00	21.3 %	1780	1780
				Arm 6 Left	Inf	29.3 %		
				Arm 8 Right	14.00	49.4 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (Wrexham Road)	3.25	0.00	Y	Arm 2 Right	20.00	4.8 %	1931	1931
				Arm 6 U-Turn	12.00	0.6 %		
				Arm 8 Ahead	Inf	94.5 %		
6/1	3.25	0.00	Y				1940	1940
7/1 (A550)	3.50	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1965	1965
7/2 (A550)	3.75	0.00	N	Arm 2 Right	Inf	89.3 %	2102	2102
				Arm 4 Right	12.00	10.7 %		
8/1	2.75	0.00	Y				1890	1890

Scenario 4: 'Base 2022 PM' (FG4: 'Base 2022 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	53	483	427	963
	B	37	0	23	18	78
	C	477	30	0	13	520
	D	458	32	6	0	496
	Tot.	972	115	512	458	2057

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: Base 2022 PM
Junction: Wrexham Road / A550 / Cymau Lane	
1/1 (with short)	963(In) 536(Out)
1/2 (short)	427
2/1	115
3/1	78
4/1	512
5/1	520
6/1	458
7/1 (short)	458
7/2 (with short)	496(In) 38(Out)
8/1	972

Lane Saturation Flows

Junction: Wrexham Road / A550 / Cymau Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wrexham Road S)	3.50	0.00	Y	Arm 2 Left	12.00	9.9 %	1941	1941
				Arm 4 Ahead	Inf	90.1 %		
1/2 (Wrexham Road S)	3.25	0.00	N	Arm 6 Right	23.00	100.0 %	1953	1953
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Cymau Lane)	3.00	0.00	Y	Arm 4 Left	14.00	29.5 %	1769	1769
				Arm 6 Left	Inf	23.1 %		
				Arm 8 Right	14.00	47.4 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (Wrexham Road)	3.25	0.00	Y	Arm 2 Right	20.00	5.8 %	1926	1926
				Arm 6 U-Turn	12.00	2.5 %		
				Arm 8 Ahead	Inf	91.7 %		
6/1	3.25	0.00	Y				1940	1940
7/1 (A550)	3.50	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1965	1965
7/2 (A550)	3.75	0.00	N	Arm 2 Right	Inf	84.2 %	2089	2089
				Arm 4 Right	12.00	15.8 %		
8/1	2.75	0.00	Y				1890	1890

Full Input Data And Results

Scenario 5: 'Base + Development 2022 AM' (FG5: 'Base + Development 2022 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	37	583	522	1142
	B	87	0	41	48	176
	C	602	32	0	4	638
	D	414	25	3	0	442
	Tot.	1103	94	627	574	2398

Traffic Lane Flows

Lane	Scenario 5: Base + Development 2022 AM
Junction: Wrexham Road / A550 / Cymau Lane	
1/1 (with short)	1142(In) 620(Out)
1/2 (short)	522
2/1	94
3/1	176
4/1	627
5/1	638
6/1	574
7/1 (short)	414
7/2 (with short)	442(In) 28(Out)
8/1	1103

Full Input Data And Results

Lane Saturation Flows

Junction: Wrexham Road / A550 / Cymau Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wrexham Road S)	3.50	0.00	Y	Arm 2 Left	12.00	6.0 %	1950	1950
				Arm 4 Ahead	Inf	94.0 %		
1/2 (Wrexham Road S)	3.25	0.00	N	Arm 6 Right	23.00	100.0 %	1953	1953
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Cymau Lane)	3.00	0.00	Y	Arm 4 Left	14.00	23.3 %	1777	1777
				Arm 6 Left	Inf	27.3 %		
				Arm 8 Right	14.00	49.4 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (Wrexham Road)	3.25	0.00	Y	Arm 2 Right	20.00	5.0 %	1931	1931
				Arm 6 U-Turn	12.00	0.6 %		
				Arm 8 Ahead	Inf	94.4 %		
6/1	3.25	0.00	Y				1940	1940
7/1 (A550)	3.50	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1965	1965
7/2 (A550)	3.75	0.00	N	Arm 2 Right	Inf	89.3 %	2102	2102
				Arm 4 Right	12.00	10.7 %		
8/1	2.75	0.00	Y				1890	1890

Scenario 6: 'Base + Development 2022 PM' (FG6: 'Base + Development 2022 PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	59	498	427	984
	B	40	0	26	18	84
	C	484	36	0	13	533
	D	458	32	6	0	496
	Tot.	982	127	530	458	2097

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: Base + Development 2022 PM
Junction: Wrexham Road / A550 / Cymau Lane	
1/1 (with short)	984(In) 557(Out)
1/2 (short)	427
2/1	127
3/1	84
4/1	530
5/1	533
6/1	458
7/1 (short)	458
7/2 (with short)	496(In) 38(Out)
8/1	982

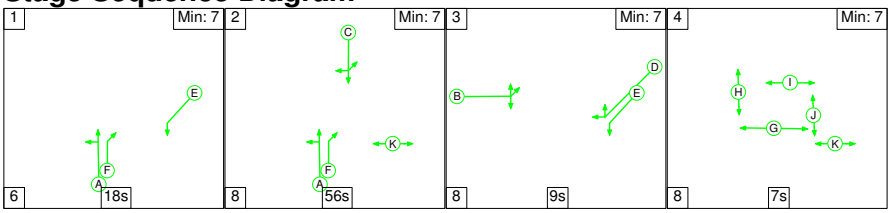
Lane Saturation Flows

Junction: Wrexham Road / A550 / Cymau Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Wrexham Road S)	3.50	0.00	Y	Arm 2 Left	12.00	10.6 %	1939	1939
				Arm 4 Ahead	Inf	89.4 %		
1/2 (Wrexham Road S)	3.25	0.00	N	Arm 6 Right	23.00	100.0 %	1953	1953
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Cymau Lane)	3.00	0.00	Y	Arm 4 Left	14.00	31.0 %	1766	1766
				Arm 6 Left	Inf	21.4 %		
				Arm 8 Right	14.00	47.6 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (Wrexham Road)	3.25	0.00	Y	Arm 2 Right	20.00	6.8 %	1924	1924
				Arm 6 U-Turn	12.00	2.4 %		
				Arm 8 Ahead	Inf	90.8 %		
6/1	3.25	0.00	Y				1940	1940
7/1 (A550)	3.50	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1965	1965
7/2 (A550)	3.75	0.00	N	Arm 2 Right	Inf	84.2 %	2089	2089
				Arm 4 Right	12.00	15.8 %		
8/1	2.75	0.00	Y				1890	1890

Full Input Data And Results

Scenario 1: 'Base 2016 AM' (FG1: 'Base 2016 AM', Plan 1: 'Network Control Plan 1')

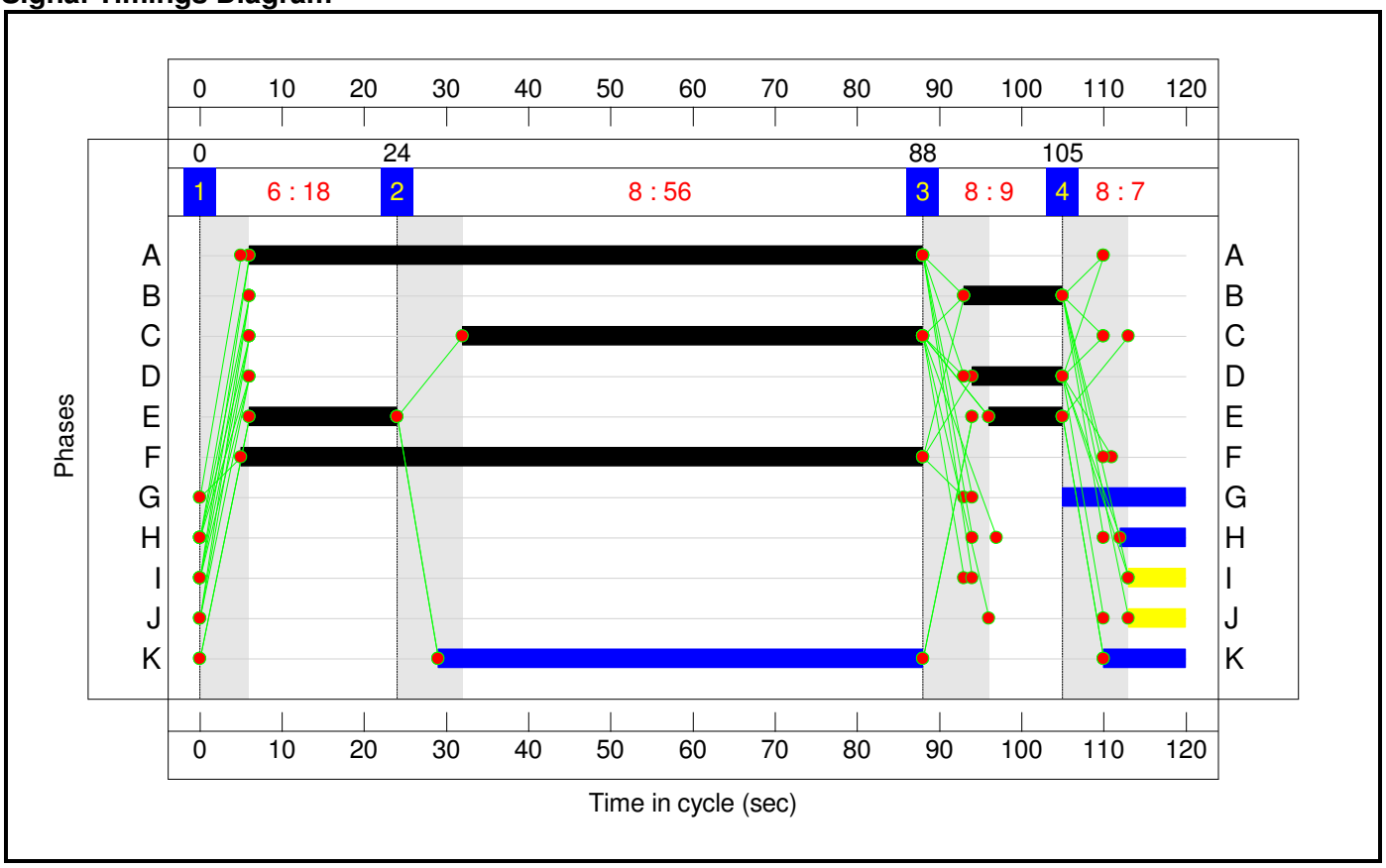
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	18	56	9	7
Change Point	0	24	88	105

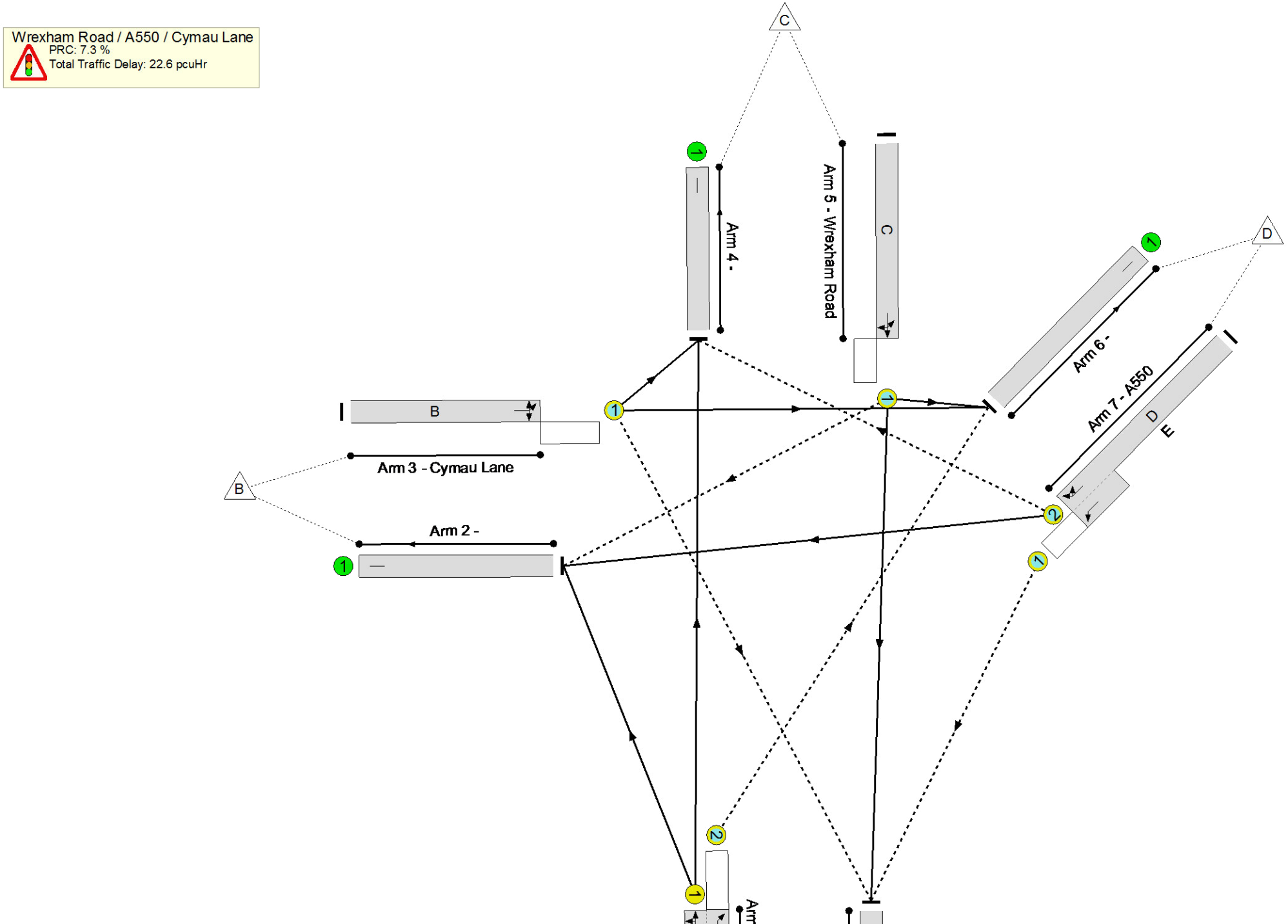
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.9%**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.9%**
1/1+1/2	Wrexham Road S Left Ahead Right	U+O	N/A	N/A	A F		1	82:83	-	1071	1951:1953	1276	83.9%
2/1		U	N/A	N/A	-		-	-	-	84	Inf	Inf	0.0%
3/1	Cymau Lane Left Left2 Right	O	N/A	N/A	B		1	12	-	155	1780	193	80.4%
4/1		U	N/A	N/A	-		-	-	-	581	Inf	Inf	0.0%
5/1	Wrexham Road Right U-Turn Ahead	O	N/A	N/A	C		1	56	-	585	1931	917	63.8%
6/1		U	N/A	N/A	-		-	-	-	542	1940	1940	27.9%
7/2+7/1	A550 Right Right2 Ahead	O	N/A	N/A	D E		1:2	11:27	-	417	2100:1965	499	83.6%
8/1		U	N/A	N/A	-		-	-	-	1021	1890	1890	54.0%

Full Input Data And Results

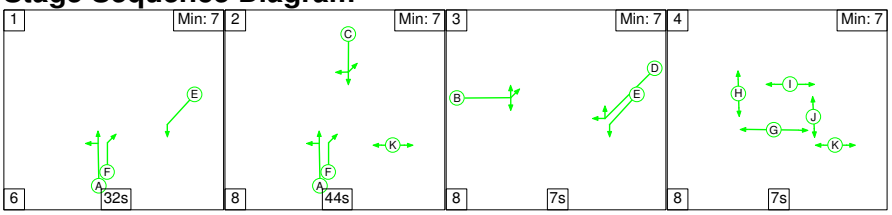
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**500**	**679**	**207**	**12.9**	**8.5**	**1.2**	**22.6**	**-**	**-**	**-**	**-**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**500**	**679**	**207**	**12.9**	**8.5**	**1.2**	**22.6**	**-**	**-**	**-**	**-**
1/1+1/2	1071	1071	204	242	47	2.4	2.5	1.1	6.1	20.6	12.2	2.5	14.7
2/1	84	84	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	155	155	76	0	1	2.3	1.9	0.0	4.1	95.8	5.0	1.9	6.9
4/1	581	581	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	585	585	28	0	0	3.9	0.9	0.0	4.7	29.1	14.6	0.9	15.5
6/1	542	542	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/2+7/1	417	417	193	437	158	4.4	2.4	0.1	6.9	59.4	9.5	2.4	11.9
8/1	1021	1021	-	-	-	0.0	0.6	-	0.6	2.1	4.7	0.6	5.3

C1 PRC for Signalled Lanes (%): 7.3 Total Delay for Signalled Lanes (pcuHr): 21.85 Cycle Time (s): 120
PRC Over All Lanes (%): 7.3 Total Delay Over All Lanes(pcuHr): 22.63

Full Input Data And Results

Scenario 2: 'Base 2016 PM' (FG2: 'Base 2016 PM', Plan 1: 'Network Control Plan 1')

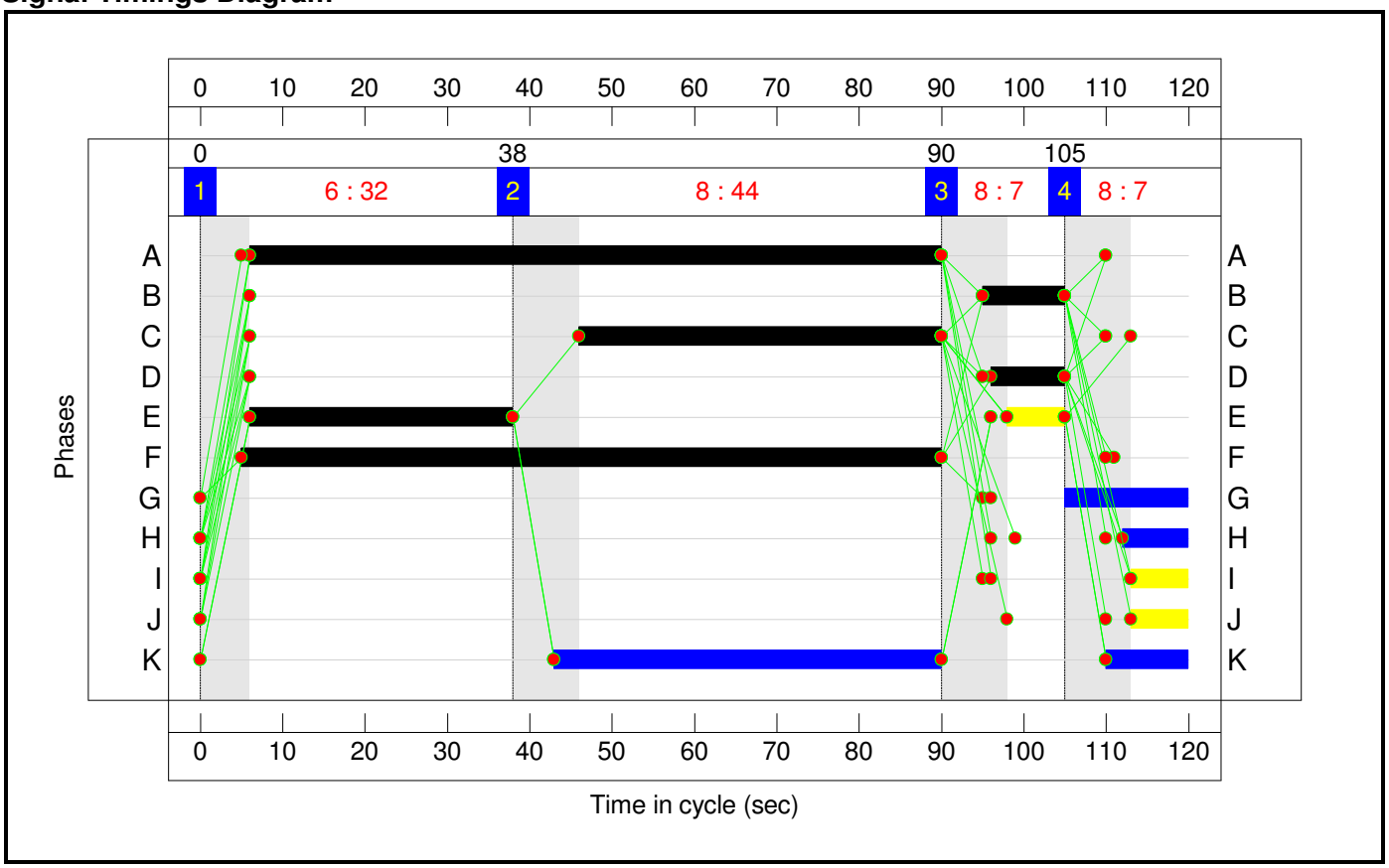
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	32	44	7	7
Change Point	0	38	90	105

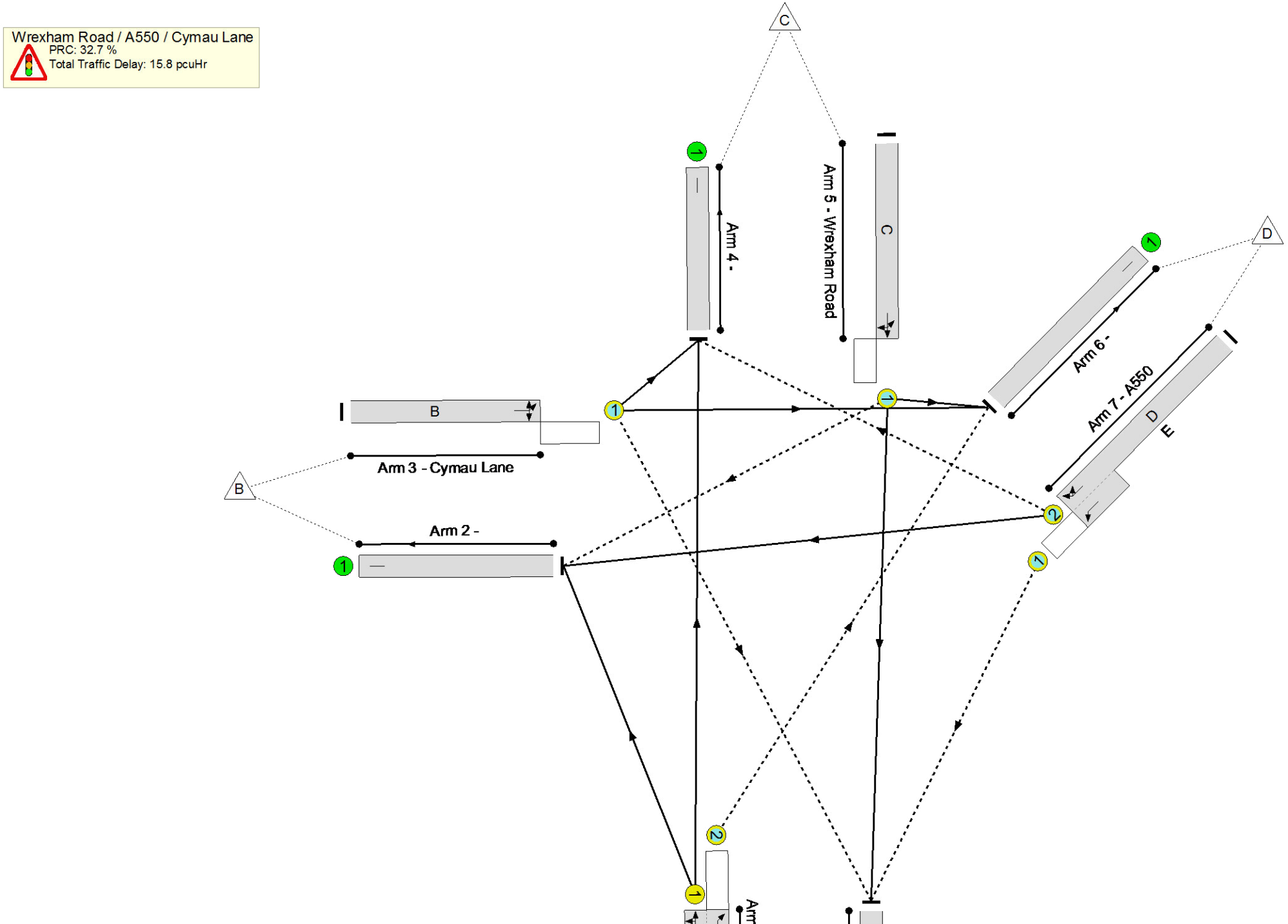
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.8%**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.8%**
1/1+1/2	Wrexham Road S Left Ahead Right	U+O	N/A	N/A	A F		1	84:85	-	909	1941:1953	1416	64.2%
2/1		U	N/A	N/A	-		-	-	-	108	Inf	Inf	0.0%
3/1	Cymau Lane Left Left2 Right	O	N/A	N/A	B		1	10	-	74	1769	162	45.6%
4/1		U	N/A	N/A	-		-	-	-	484	Inf	Inf	0.0%
5/1	Wrexham Road Right U-Turn Ahead	O	N/A	N/A	C		1	44	-	490	1926	722	67.8%
6/1		U	N/A	N/A	-		-	-	-	432	1940	1940	22.3%
7/2+7/1	A550 Right Right2 Ahead	O	N/A	N/A	D E		1:2	9:39	-	468	2087:1965	700	66.9%
8/1		U	N/A	N/A	-		-	-	-	917	1890	1890	48.5%

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	**-**	**-**	**376**	**819**	**147**	**11.1**	**4.0**	**0.7**	**15.8**	**-**	**-**	**-**	**-**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**376**	**819**	**147**	**11.1**	**4.0**	**0.7**	**15.8**	**-**	**-**	**-**	**-**
1/1+1/2	909	909	149	238	16	1.7	0.9	0.6	3.2	12.6	7.1	0.9	7.9
2/1	108	108	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	74	74	34	0	1	1.1	0.4	0.0	1.5	72.5	2.3	0.4	2.7
4/1	484	484	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	490	490	28	0	0	4.3	1.0	0.0	5.3	39.1	13.6	1.0	14.7
6/1	432	432	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
7/2+7/1	468	468	165	580	130	4.1	1.0	0.1	5.2	39.7	8.8	1.0	9.8
8/1	917	917	-	-	-	0.0	0.5	-	0.5	1.8	1.6	0.5	2.0

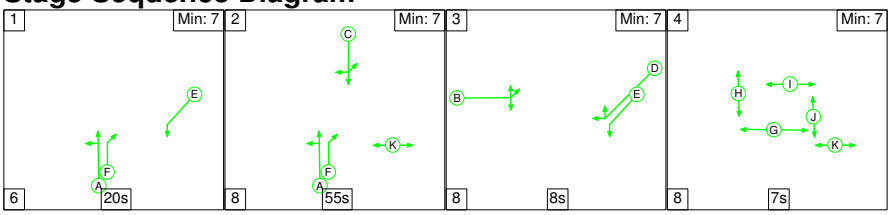
C1 PRC for Signalled Lanes (%): 32.7 Total Delay for Signalled Lanes (pcuHr): 15.16 Cycle Time (s): 120

PRC Over All Lanes (%): 32.7 Total Delay Over All Lanes(pcuHr): 15.77

Full Input Data And Results

Scenario 3: 'Base 2022 AM' (FG3: 'Base 2022 AM', Plan 1: 'Network Control Plan 1')

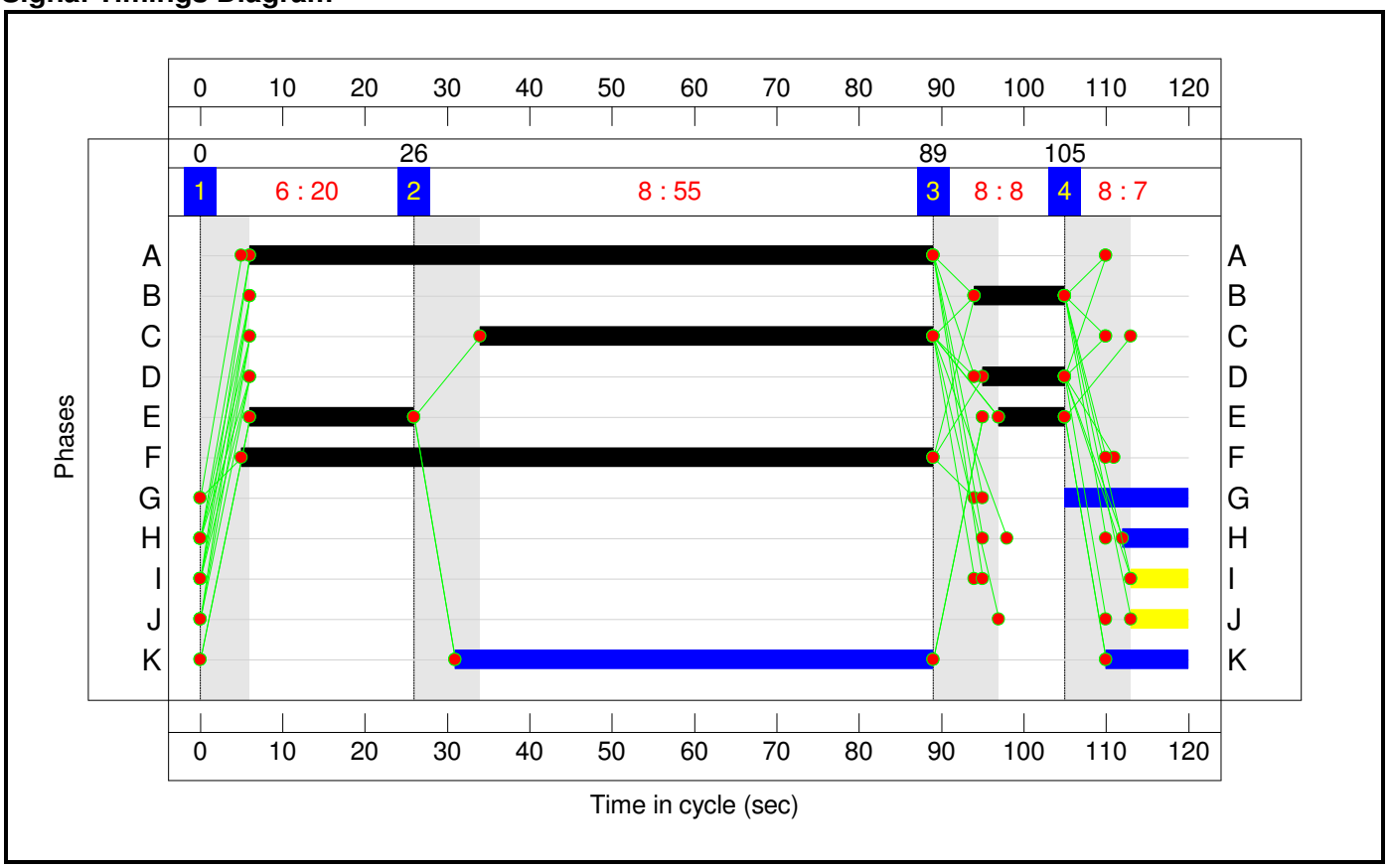
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	20	55	8	7
Change Point	0	26	89	105

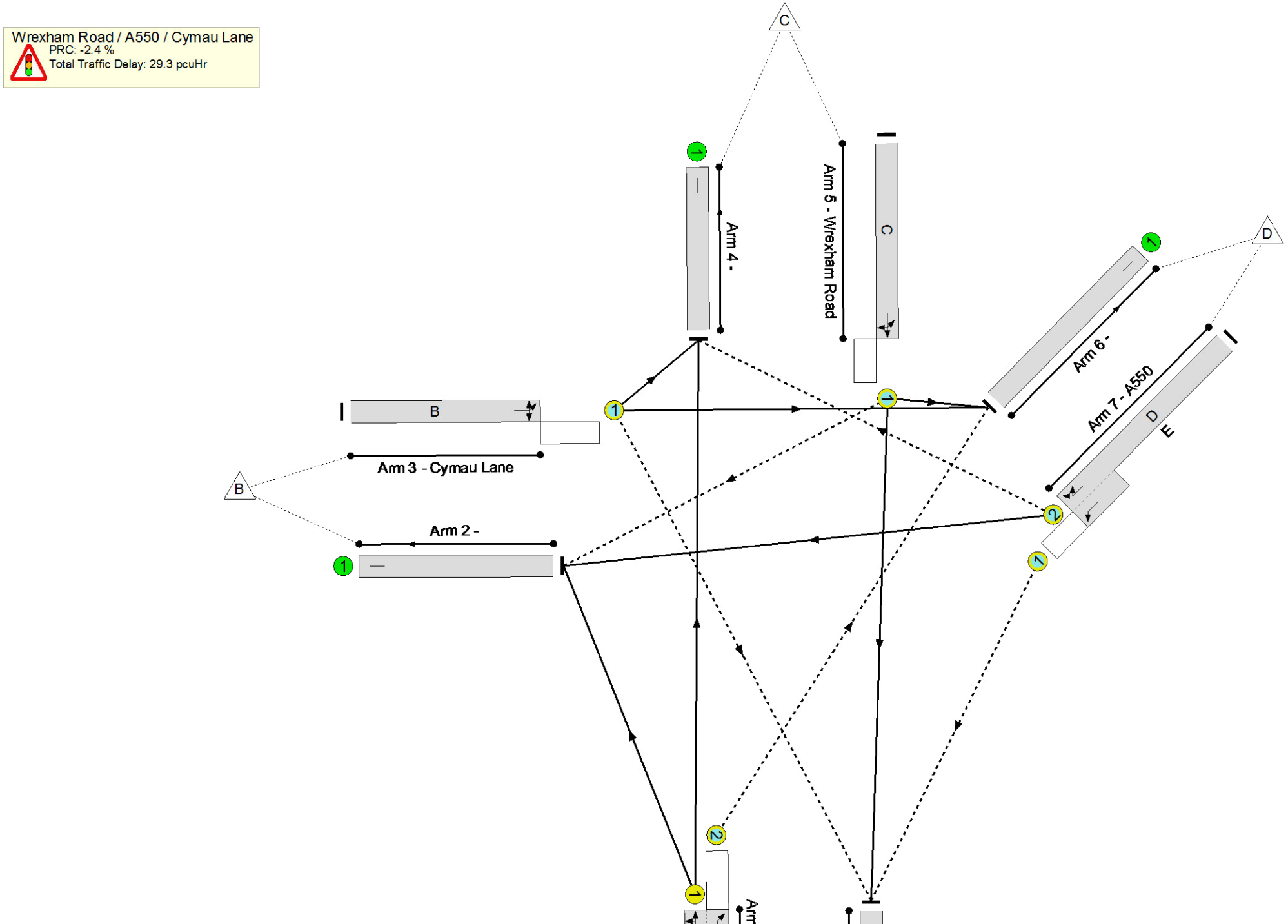
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.1%**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.1%**
1/1+1/2	Wrexham Road S Left Ahead Right	U+O	N/A	N/A	A F		1	83:84	-	1134	1951:1953	1236	91.7%
2/1		U	N/A	N/A	-		-	-	-	90	Inf	Inf	0.0%
3/1	Cymau Lane Left Left2 Right	O	N/A	N/A	B		1	11	-	164	1780	178	92.1%
4/1		U	N/A	N/A	-		-	-	-	615	Inf	Inf	0.0%
5/1	Wrexham Road Right U-Turn Ahead	O	N/A	N/A	C		1	55	-	620	1931	901	68.8%
6/1		U	N/A	N/A	-		-	-	-	574	1940	1940	29.6%
7/2+7/1	A550 Right Right2 Ahead	O	N/A	N/A	D E		1:2	10:28	-	442	2102:1965	516	85.7%
8/1		U	N/A	N/A	-		-	-	-	1081	1890	1890	57.2%

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	**-**	**-**	**445**	**770**	**252**	**14.2**	**13.6**	**1.5**	**29.3**	**-**	**-**	**-**	**-**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**445**	**770**	**252**	**14.2**	**13.6**	**1.5**	**29.3**	**-**	**-**	**-**	**-**
1/1+1/2	1134	1134	170	257	95	2.7	5.1	1.4	9.1	29.0	13.8	5.1	18.9
2/1	90	90	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	164	164	73	0	8	2.4	3.8	0.0	6.2	137.1	5.4	3.8	9.2
4/1	615	615	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	620	620	30	0	0	4.3	1.1	0.0	5.4	31.5	16.2	1.1	17.3
6/1	574	574	-	-	-	0.0	0.2	-	0.2	1.3	1.1	0.2	1.3
7/2+7/1	442	442	172	513	149	4.8	2.8	0.1	7.6	62.3	9.8	2.8	12.6
8/1	1081	1081	-	-	-	0.0	0.7	-	0.7	2.3	4.7	0.7	5.4

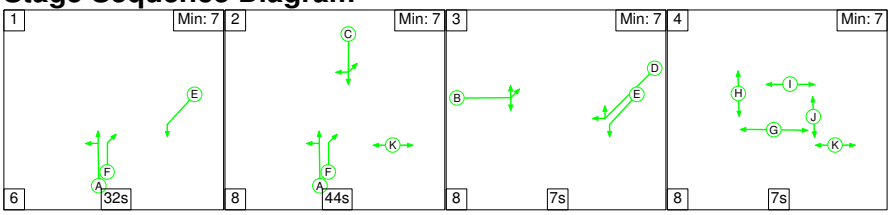
C1 PRC for Signalled Lanes (%): -2.4 Total Delay for Signalled Lanes (pcuHr): 28.45 Cycle Time (s): 120

PRC Over All Lanes (%): -2.4 Total Delay Over All Lanes(pcuHr): 29.34

Full Input Data And Results

Scenario 4: 'Base 2022 PM' (FG4: 'Base 2022 PM', Plan 1: 'Network Control Plan 1')

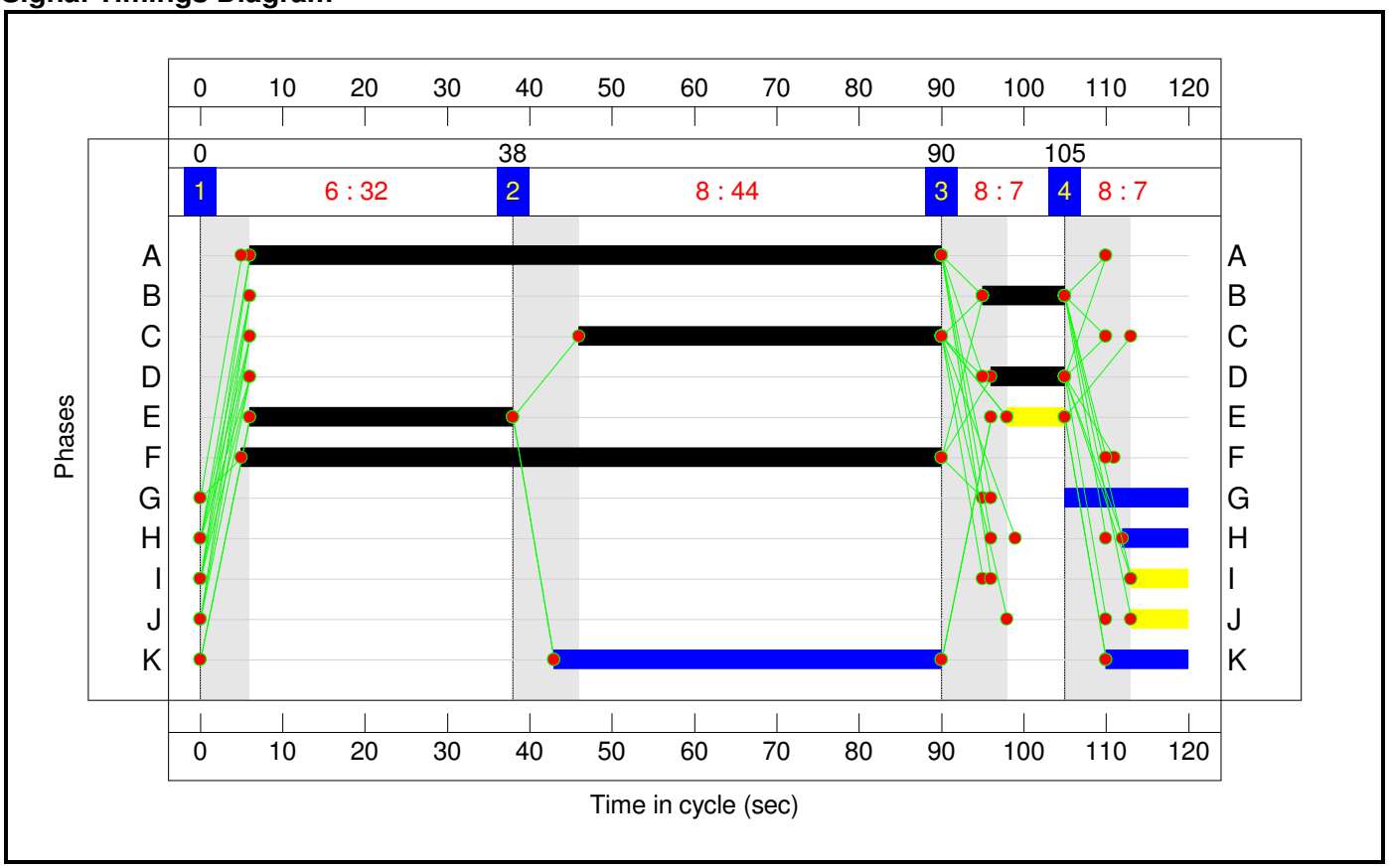
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	32	44	7	7
Change Point	0	38	90	105

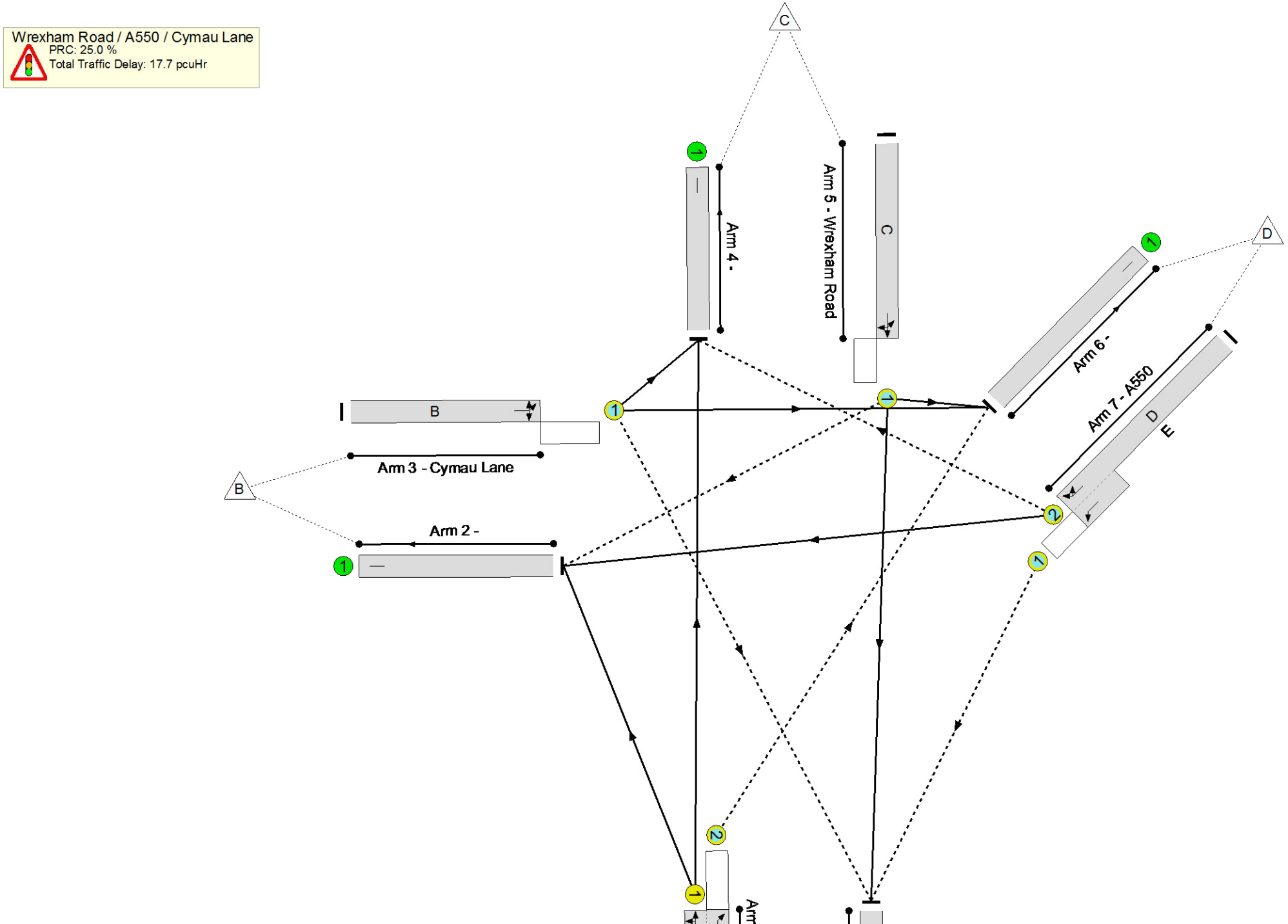
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.0%**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.0%**
1/1+1/2	Wrexham Road S Left Ahead Right	U+O	N/A	N/A	A F		1	84:85	-	963	1941:1953	1371	70.2%
2/1		U	N/A	N/A	-		-	-	-	115	Inf	Inf	0.0%
3/1	Cymau Lane Left Left2 Right	O	N/A	N/A	B		1	10	-	78	1769	162	48.1%
4/1		U	N/A	N/A	-		-	-	-	512	Inf	Inf	0.0%
5/1	Wrexham Road Right U-Turn Ahead	O	N/A	N/A	C		1	44	-	520	1926	722	72.0%
6/1		U	N/A	N/A	-		-	-	-	458	1940	1940	23.6%
7/2+7/1	A550 Right Right2 Ahead	O	N/A	N/A	D E		1:2	9:39	-	496	2089:1965	700	70.9%
8/1		U	N/A	N/A	-		-	-	-	972	1890	1890	51.4%

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	**-**	**-**	**359**	**884**	**180**	**12.1**	**4.8**	**0.9**	**17.7**	**-**	**-**	**-**	**-**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**359**	**884**	**180**	**12.1**	**4.8**	**0.9**	**17.7**	**-**	**-**	**-**	**-**
1/1+1/2	963	963	128	253	46	1.8	1.2	0.8	3.8	14.1	8.2	1.2	9.3
2/1	115	115	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	78	78	36	0	1	1.1	0.5	0.0	1.6	73.6	2.5	0.5	2.9
4/1	512	512	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	520	520	30	0	0	4.6	1.3	0.0	5.9	40.9	14.7	1.3	16.0
6/1	458	458	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/2+7/1	496	496	164	631	133	4.5	1.2	0.1	5.7	41.7	9.3	1.2	10.5
8/1	972	972	-	-	-	0.0	0.5	-	0.5	2.0	1.6	0.5	2.1

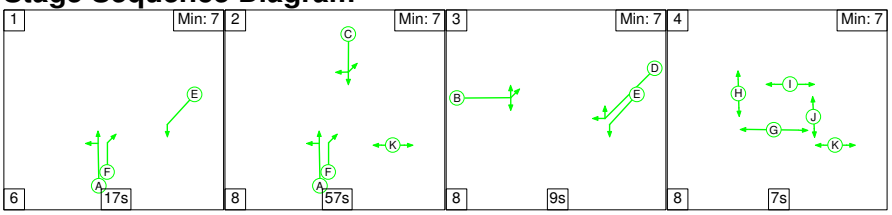
C1 PRC for Signalled Lanes (%): 25.0 Total Delay for Signalled Lanes (pcuHr): 17.03 Cycle Time (s): 120

PRC Over All Lanes (%): 25.0 Total Delay Over All Lanes(pcuHr): 17.71

Full Input Data And Results

Scenario 5: 'Base + Development 2022 AM' (FG5: 'Base + Development 2022 AM', Plan 1: 'Network Control Plan 1')

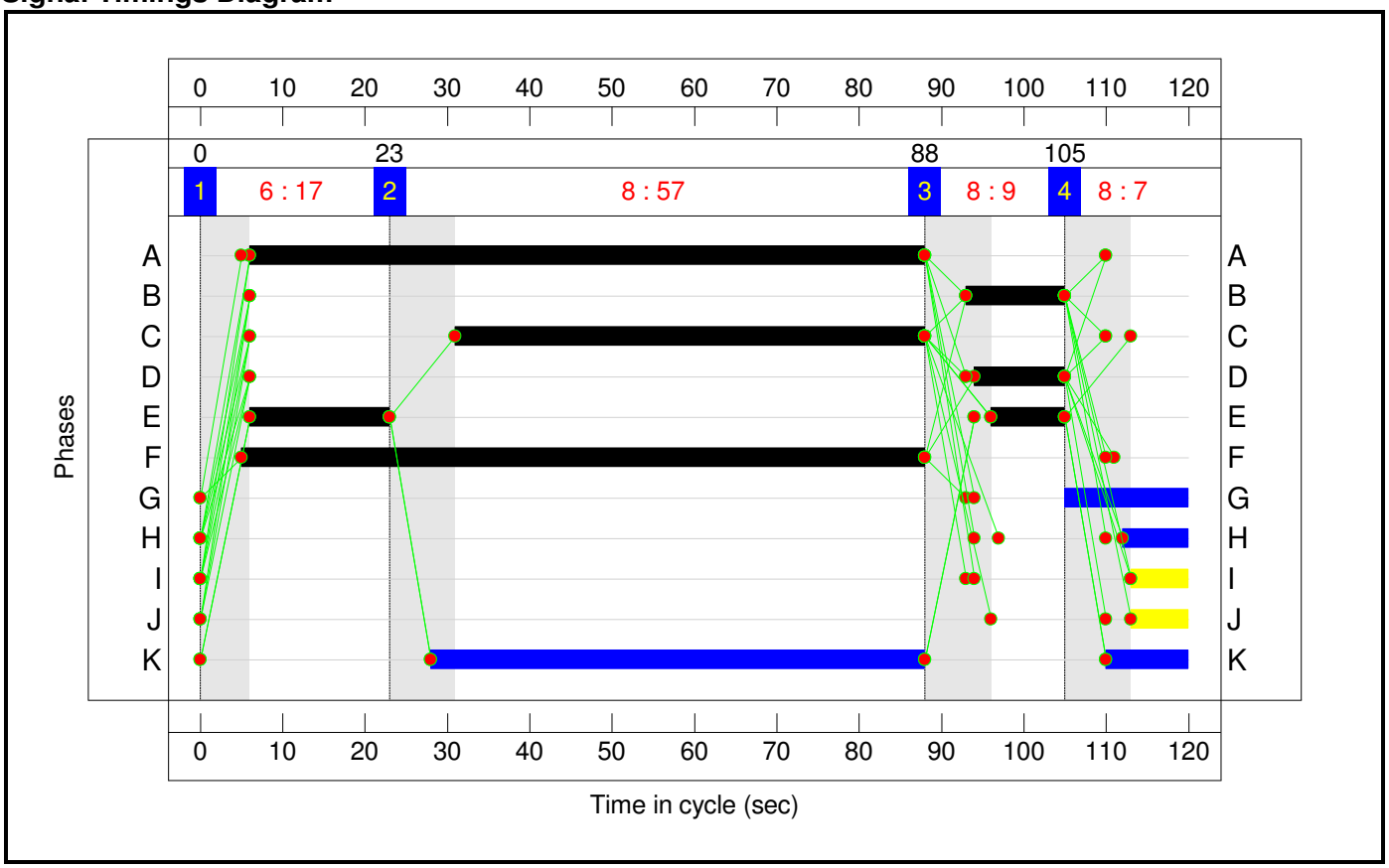
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	57	9	7
Change Point	0	23	88	105

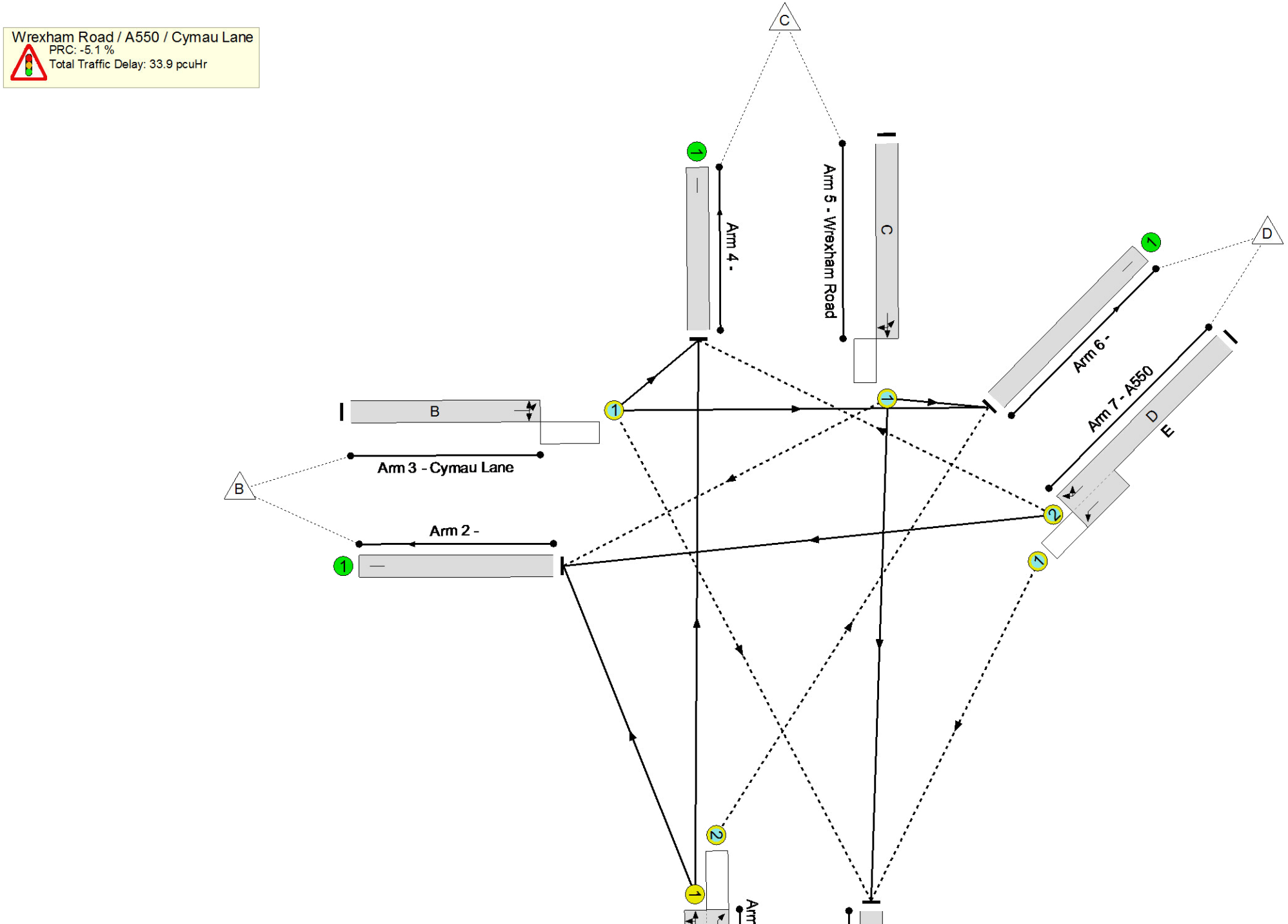
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.6%**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.6%**
1/1+1/2	Wrexham Road S Left Ahead Right	U+O	N/A	N/A	A F		1	82:83	-	1142	1950:1953	1207	94.6%
2/1		U	N/A	N/A	-		-	-	-	94	Inf	Inf	0.0%
3/1	Cymau Lane Left Left2 Right	O	N/A	N/A	B		1	12	-	176	1777	193	91.4%
4/1		U	N/A	N/A	-		-	-	-	627	Inf	Inf	0.0%
5/1	Wrexham Road Right U-Turn Ahead	O	N/A	N/A	C		1	57	-	638	1931	933	68.4%
6/1		U	N/A	N/A	-		-	-	-	574	1940	1940	29.6%
7/2+7/1	A550 Right Right2 Ahead	O	N/A	N/A	D E		1:2	11:26	-	442	2102:1965	483	91.6%
8/1		U	N/A	N/A	-		-	-	-	1103	1890	1890	58.4%

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	**-**	**-**	**481**	**721**	**273**	**14.9**	**17.3**	**1.7**	**33.9**	**-**	**-**	**-**	**-**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**481**	**721**	**273**	**14.9**	**17.3**	**1.7**	**33.9**	**-**	**-**	**-**	**-**
1/1+1/2	1142	1142	175	240	107	3.2	7.2	1.6	11.9	37.5	15.0	7.2	22.2
2/1	94	94	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	176	176	81	0	6	2.6	3.7	0.0	6.3	128.5	5.8	3.7	9.5
4/1	627	627	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	638	638	32	0	0	4.2	1.1	0.0	5.3	30.0	16.3	1.1	17.4
6/1	574	574	-	-	-	0.0	0.2	-	0.2	1.3	1.7	0.2	1.9
7/2+7/1	442	442	193	482	159	4.9	4.5	0.1	9.5	77.0	10.2	4.5	14.6
8/1	1103	1103	-	-	-	0.0	0.7	-	0.7	2.3	5.4	0.7	6.1

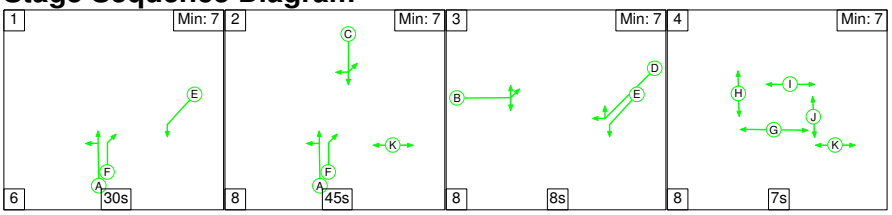
C1 PRC for Signalled Lanes (%): -5.1 Total Delay for Signalled Lanes (pcuHr): 32.96 Cycle Time (s): 120

PRC Over All Lanes (%): -5.1 Total Delay Over All Lanes(pcuHr): 33.88

Full Input Data And Results

Scenario 6: 'Base + Development 2022 PM' (FG6: 'Base + Development 2022 PM', Plan 1: 'Network Control Plan 1')

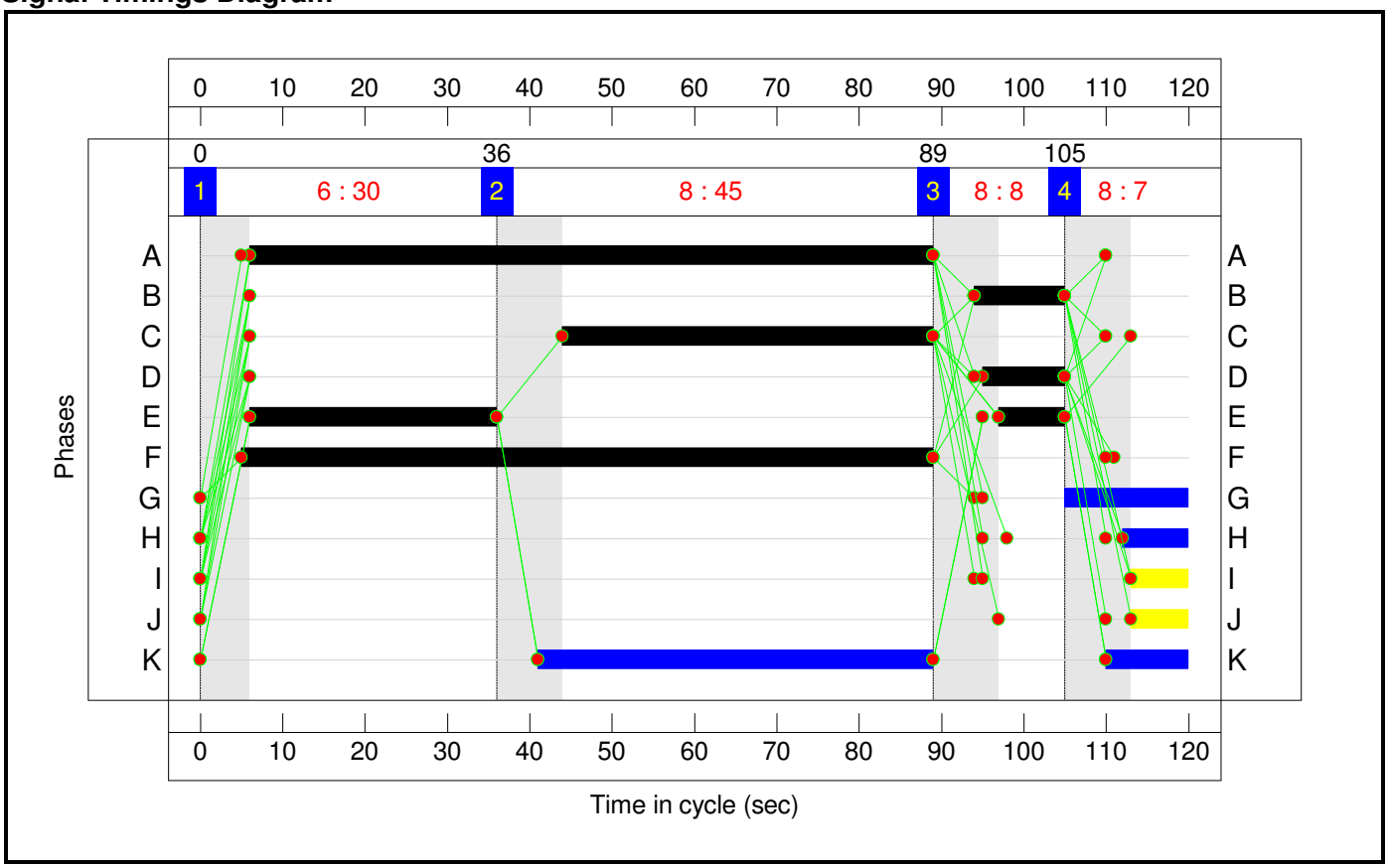
Stage Sequence Diagram



Stage Timings

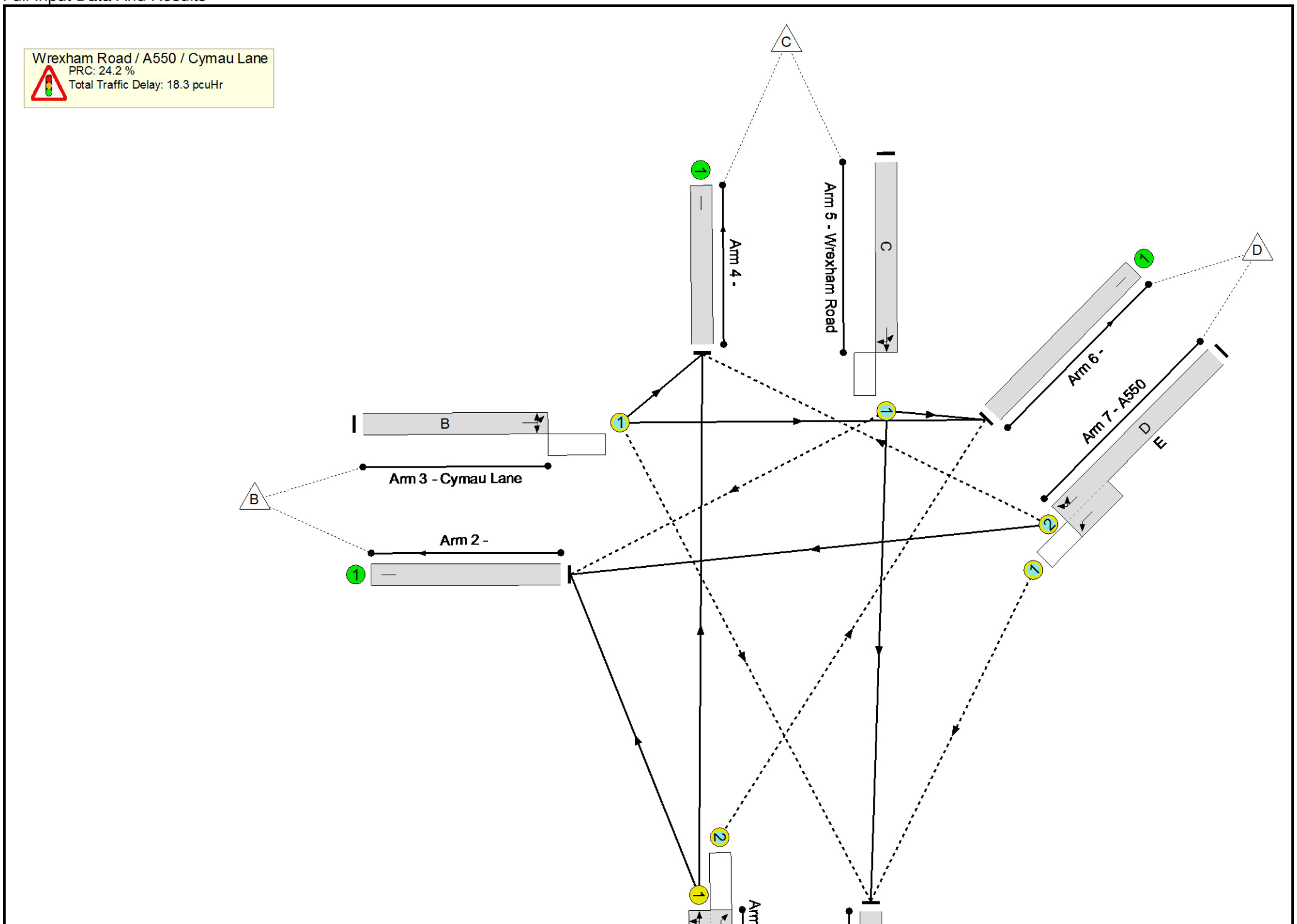
Stage	1	2	3	4
Duration	30	45	8	7
Change Point	0	36	89	105

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Wrexham Road / A550 / Cymau Lane
PRC: 24.2 %
Total Traffic Delay: 18.3 pcuHr
C
Arm 4 -
Arm 5 - Wrexham Road
C
D
Arm 6 -
Arm 7 - A550
D
E
B
Arm 3 - Cymau Lane
B
Arm 2 -
1
2

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.5%**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.5%**
1/1+1/2	Wrexham Road S Left Ahead Right	U+O	N/A	N/A	A F		1	83:84	-	984	1939:1953	1365	72.1%
2/1		U	N/A	N/A	-		-	-	-	127	Inf	Inf	0.0%
3/1	Cymau Lane Left Left2 Right	O	N/A	N/A	B		1	11	-	84	1766	177	47.6%
4/1		U	N/A	N/A	-		-	-	-	530	Inf	Inf	0.0%
5/1	Wrexham Road Right U-Turn Ahead	O	N/A	N/A	C		1	45	-	533	1924	738	72.3%
6/1		U	N/A	N/A	-		-	-	-	458	1940	1940	23.6%
7/2+7/1	A550 Right Right2 Ahead	O	N/A	N/A	D E		1:2	10:38	-	496	2089:1965	684	72.5%
8/1		U	N/A	N/A	-		-	-	-	982	1890	1890	52.0%

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	**-**	**-**	**393**	**847**	**191**	**12.3**	**5.0**	**0.9**	**18.3**	**-**	**-**	**-**	**-**
Wrexham Road / A550 / Cymau Lane	**-**	**-**	**393**	**847**	**191**	**12.3**	**5.0**	**0.9**	**18.3**	**-**	**-**	**-**	**-**
1/1+1/2	984	984	131	249	47	2.0	1.3	0.8	4.1	15.1	9.9	1.3	11.1
2/1	127	127	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	84	84	39	0	1	1.2	0.4	0.0	1.7	70.9	2.6	0.4	3.1
4/1	530	530	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	533	533	36	0	0	4.7	1.3	0.0	6.0	40.3	15.1	1.3	16.4
6/1	458	458	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/2+7/1	496	496	187	598	143	4.5	1.3	0.1	5.8	42.4	9.6	1.3	10.9
8/1	982	982	-	-	-	0.0	0.5	-	0.5	2.0	1.6	0.5	2.1

C1 PRC for Signalled Lanes (%): 24.2 Total Delay for Signalled Lanes (pcuHr): 17.58 Cycle Time (s): 120
PRC Over All Lanes (%): 24.2 Total Delay Over All Lanes(pcuHr): 18.27