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**TRANSPORT ASSESSMENT
PROPOSED McDONALD'S RESTAURANT
LAND AT PLAS COCH RETAIL PARK
WREXHAM
LL11 2BW**

McDonald's Restaurants Ltd
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ADL/CC/4171/18A

September 2019

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REPORT CONTROL

Document: Transport Assessment
Project: Plas Coch, Wrexham
Client: McDonald's Restaurants Ltd
ADL Reference: 4171

Document Checking

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Issue	Date	Status	Checked for Issue
1	18.09.19	Final	CC

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CONTENTS

Page No

1.0 INTRODUCTION

1.1	Purpose of Report	1
1.2	Pre-Application Advice	1
1.3	Scope of Study	1

2.0 BASELINE TRANSPORT INFORMATION

2.1	Site Location and Surrounding Area	3
2.2	Road Network	3
2.3	Existing Use of the Site and Access Arrangements	4
2.4	Relevant Planning History	5
2.5	Accident Analysis	5
2.6	McDonald's Restaurants Within 10km of the Site	5
2.7	Committed Development and Proposed Highway Improvements	6

3.0 ACCESSIBILITY

3.1	Pedestrians/Cyclists	8
3.2	Public Transport	8

4.0 DEVELOPMENT PROPOSALS

4.1	Site Layout	10
4.2	Access Arrangements and Highway Works	10
4.3	Year of Opening	11
4.4	Parking Provision and Assessment of Standards	11
4.5	Servicing/Refuse Provision	12
4.6	Drive Thru Lane	14

5.0 McDONALD'S SURVEY INFORMATION AND TRICS

5.1	Comparable McDonald's Restaurant (Proposed Traffic Generation)	15
5.2	TRICS Assessment	16
5.3	Review of Previous Transport Assessments & Accuracy of Traffic Predictions	18
5.4	Summary	19
5.5	McDonald's Trips By Type	19

6.0 ON SITE ASSESSMENT

6.1	Proposed Pedestrian Trips	22
6.2	Parking Demand	22
6.3	Drive Thru Queue	23

7.0	2019 TRAFFIC SURVEYS	
7.1	Survey Details	25
7.2	Traffic and Queue Surveys	25
7.3	Base Traffic Flows	27
7.4	Retail Park Car Park Survey	28
8.0	MCDONALD'S TRIP DISTRIBUTION AND TOTAL FLOWS	
8.1	Trip Distribution	29
8.2	Total Flows	30
9.0	CAPACITY AND IMPACT ASSESSMENT	
9.1	Retail Park Roundabout	31
9.2	Plas Coch Road Roundabout	31
9.3	Mold Road Roundabout	33
9.4	A483 Roundabout	33
9.5	Summary	
10.0	PARKING IMPACT ASSESSMENT	34
11.0	MITIGATION MEASURES AND OTHER REPORTS	
11.1	Mitigation Measures	35
11.2	Travel Plan	35
11.3	Delivery Management Plan	35
11.4	Construction Management Plan	35
12.0	PLANNING POLICY ASSESSMENT	
12.1	Planning Policy Wales Edition 10 December 2018	36
12.2	Wrexham Unitary Development Plan 1996-2011 (Adopted 2005)	40
12.3	Wrexham Local Development Plan 2013-2028 (Deposit Plan March 2018)	41
13.0	SUMMARY AND CONCLUSIONS	45

APPENDICES

1.0 PRE-APPLICATION DISCUSSIONS

- 1.1 Wrexham Council Highways Advice 03.04.19

2.0 SITE AND SURROUNDING AREA AND EXISTING CAR PARK LAYOUT

- 2.1 Site Location
- 2.2 Site and Surrounding Area
- 2.3 Existing Car Park Layout

3.0 ACCIDENT DATA

- 3.1 Accident Locations
- 3.2 Accident Details

4.0 McDONALD'S RESTAURANTS WITHIN 10KM OF THE SITE

5.0 PROPOSED HIGHWAY IMPROVEMENTS

6.0 ACCESSIBILITY

- 6.1 Cycle Routes
- 6.2 Bus Stop Locations
- 6.3 Bus Routes
- 6.4 Local Rail Network

7.0 ARCHITECT'S SITE LAYOUT AND PARKING LAYOUT

- 7.1 Architects Site Layout
- 7.2 Highway Works
- 7.3 Proposed Car Park Layout

8.0 TRACK ANALYSIS

- 8.1 Delivery Vehicle
- 8.2 Drive Thru Lane

9.0 SUMMARY OF McDONALD'S SURVEY INFORMATION

10.0 GRAPHS SHOWING RELATIONSHIP BETWEEN McDONALD'S TRAFFIC AND STORE FACTORS

11.0 TRICS DATA: McDONALD'S

- 11.1 Weekday
- 11.2 Saturday

12.0 TRAFFIC PREDICTIONS/SURVEY COMPARISONS ANALYSIS

13.0 2019 SURVEYED TRAFFIC FLOWS

14.0 BASE TRAFFIC FLOWS

- 14.1 2021 Base Flows
- 14.2 2026 Base Flows
- 14.3 2036 Base Flows

15.0 PROPOSED McDONALD'S TRAFFIC

- 15.1 Additional Trips
- 15.2 Existing Trips (Pass By and Diverted)
- 15.3 Shared Trips
- 15.4 Total McDonald's Trips

16.0 TOTAL TRAFFIC FLOWS

- 16.1 2021 Total Flows
- 16.2 2026 Total Flows
- 16.3 2036 Total Flows

17.0 ARCADY ANALYSIS: RETAIL PARK ROUNDABOUT

- 17.1 Roundabout Geometry
- 17.2 Output Results

18.0 ARCADY ANALYSIS: PLAS COCH ROAD ROUNDABOUT

- 18.1 Roundabout Geometry
- 18.2 Output Results

1.0 INTRODUCTION

1.1 Purpose of Report

1.1.1 ADL Traffic and Highways Engineering Ltd have been appointed by McDonald's Restaurants Ltd to prepare this Transport Assessment (TA) in support of the planning application for the redevelopment of land at Plas Coch Retail Park, Wrexham, to provide a McDonald's Restaurant with drive thru facility.

1.1.2 The rationale for the development is that the retail park has been identified as having surplus parking for its operational needs and therefore provides the opportunity for redevelopment.

1.2 Pre-Application Advice

1.2.1 Highways pre-application advice was provided by Wrexham Council (Highway Authority) on 3rd April 2019. A copy is included as Appendix 1.1.

1.2.2 The main issues which have been raised by the Highway Authority are:

- 1) Access:
The traffic impact on the network is assessed in Chapter 9.0.
- 2) Parking Provision:
The proposed parking demand and provision is assessed in Chapter 10.0.
- 3) Servicing:
Details of the proposed servicing arrangements are provided in Section 4.5.

1.2.3 The issues which have been raised by the Highway Authority have therefore been considered and addressed in this Transport Assessment.

1.3 Scope of Study

1.3.1 Chapter 2.0 describes the site and surrounding area. This chapter provides a review of the highway safety situation in the vicinity of the site and details of other McDonald's restaurants within 10km of the site.

- 1.3.2 Chapter 3.0 assesses the accessibility of the site by walking, cycling and public transport.
- 1.3.3 Chapter 4.0 describes the development proposals and provides an assessment of the access arrangements, parking provision and servicing/refuse collection facilities.
- 1.3.4 Chapter 5.0 presents the McDonald's survey information and TRICS data.
- 1.3.5 Chapter 6.0 provides an on-site assessment of the site operation including parking demand and drive thru queues.
- 1.3.6 Chapter 7.0 provides the results of the 2019 traffic surveys and presents the baseline traffic flows for 2021, 2026 and 2036.
- 1.3.7 Chapter 8.0 calculates the McDonald's trip distribution and presents the total traffic flows.
- 1.3.8 Chapter 9.0 assesses the impact of the development traffic on the road network.
- 1.3.9 Chapter 10.0 assesses the parking impact of the proposal.
- 1.3.10 Chapter 11.0 reviews the requirement for mitigation measures and other reports.
- 1.3.11 Chapter 12.0 evaluates the national and local planning policy guidance.
- 1.3.12 Chapter 13.0 summarises and concludes the report.
- 1.3.13 The Appendices are included at the rear of this report.

2.0 BASELINE TRANSPORT INFORMATION

2.1 Site Location and Surrounding Area

- 2.1.1 The site is located 1.6km to the northeast of Wrexham town centre. A plan showing the site location is included as Appendix 2.1.
- 2.1.2 The site is triangular in shape located in the eastern corner of the existing Argos/Iceland which forms part of the Plas Coch Retail Park. The site is situated to the south of the Retail Park Roundabout (which serves the Argos, Iceland and the Range and the Retail Park to the north) and the Plas Coch Roundabout. The eastern site boundary is formed by Plas Coch Road (B5101) and the western boundary is the access road into the Argos/Iceland/Range car park. The Retail Park to the north of the Argos/Iceland/Range comprises of a Sainsbury's foodstore and petrol filling station, an Aldi foodstore and a number of non-food retail units. There is also a Frankie and Benny's restaurant and the Plas Coch public house. A plan showing the site and surrounding area is included as Appendix 2.2.

2.2 Road Network

- 2.2.1 The access to the Plas Coch Retail Park is via a four arm roundabout on the B5101 Plas Coch Road with the access to Wrexham Glyndwr University, which will be referred to as the "Plas Coch Road Roundabout" in this report. The main access roundabout to the Retail Park is a four arm roundabout located 50m west of the Plas Coch Road Roundabout.
- 2.2.2 The B5101 Plas Coch Road runs from the roundabout with Mold Road (referred to as the "Mold Road Roundabout" in this report) 158m west of the Plas Coch Roundabout to the junction with the B5425 0.9km to the east of the Plas Coch Road Roundabout.
- 2.2.3 The Mold Road Roundabout is located 87m south of the large five arm A541/A483/Summerhill Road Roundabout. The A483 runs around the western side of Wrexham from Chester to Llandridod Wells.
- 2.2.4 Plas Coch Road and the Retail Park Access Road are subject to 30mph speed limits and street lighting facilities.

2.3 Existing Use of the Site and Access Arrangements

2.3.1 The existing use of the site comprises of part of the car park for the Plas Coch Retail Park which serves the Argos, Iceland and the Range (including Dee Dee's café).

2.3.2 There are 235 total customer spaces in the car park including 6 accessible spaces and 4 parent and child spaces as shown on the plan in Appendix 2.3. The part of the site proposed to be redeveloped comprises of 70 spaces.

2.3.3 Vehicular access to the proposed development site is via the southern arm of the Retail Park Roundabout.

2.3.4 The car park is subject to 3 hours parking maximum stay (1½ hours on match days).

2.3.5 Pedestrian access to the site is also from the southern arm of the Retail Park Roundabout. There is a footway link across the main part of the Argos/Iceland car park to the site across the access road with drop kerbs, tactile paving and informal zebra crossing facilities.

2.3.6 The Argos opening hours are:

- Monday 09:00 – 18:00 hours
- Tuesday-Friday 09:00 – 20:00 hours
- Saturday 09:00 – 18:00 hours
- Sunday 10:00 – 16:00 hours

2.3.7 The Iceland opening hours are:

- Monday to Saturday 08:00 – 20:00 hours
- Sunday 10:00 – 16:00 hours

2.3.8 The Range opening hours are:

- Monday to Saturday 09:00 – 20:00 hours
- Sunday 10:30 – 16:30 hours

2.4 Relevant Planning History

2.4.1 There is no planning history of the site which is relevant to this application.

2.5 Accident Analysis

2.5.1 ADL have obtained details of personal injury traffic accident data from Crashmap for the 60-month period (5 years) from 2014 - 2018 for the area covering the Retail Park Access Roundabout and the Plas Coch Road Roundabout. A plan showing the accident locations and the accident details are included in Appendix 3.0.

2.5.2 There has been 6 personal injury accidents recorded within the study area of which 5 were slight injury accidents and one was a serious injury accident.

2.5.3 One slight injury accident occurred at the Retail Park Roundabout. This accident involved two cars.

2.5.4 Four slight and one serious injury accident has occurred at the Plas Coch Road Roundabout, therefore an average of one accident per year at this junction. The serious injury accident involved a car and a motorcycle, there have been two slight injury accidents involving pedal cycles and two slight injury accidents involving cars only. There does not appear to be any particular pattern to these accidents.

2.5.5 It is concluded that the accident records do not demonstrate any apparent highway safety issues on the existing network, which need to be addressed as part of this planning application.

2.6 McDonald's Restaurants Within 10km of the Site

2.6.1 The existing McDonald's restaurants within 10km of the site are shown on the plan in Appendix 4.0 and are summarised in Table 2A below.

Table 2A Existing McDonald's Restaurants Within 10km of the Site

ADL Ref	Details	
1	Address	30/32 Regent Street, Wrexham, LL11 1SA
	Distance	0.4 miles (0.6km)
	Drive Thru	No

- 2.6.2 Table 2A demonstrates that there is only one existing restaurant within 10km of the site and which does not have drive thru facilities. The proposal would therefore act as a local facility.

2.7 Committed Development and Proposed Highway Improvements

Committed Development

- 2.7.1 No committed developments have been raised by the Highway Authority as requiring assessment as part of the pre-application consultation (see Section 1.2). It is concluded that no other specific developments are relevant in the assessment of this application.

Proposed Highway Improvements

- 2.7.2 Wrexham Strategic Road Network Capacity and Improvement Study (March 2016) was prepared by Capita on behalf of Wrexham County Borough Council to assess the strategic road network in and around Wrexham town centre. This included the A483/Mold Road Roundabout and the Mold Road/Plas Coch Roundabout referred to as "Junction 5" in the Capita report.
- 2.7.3 The A483 Roundabout and Mold Road Roundabout were assessed for future years of 2018, 2023 and 2028,
- 2.7.4 Junction 5 was assessed as being likely to be over capacity in the 2028 base year with the existing arrangement. The results are summarised in Table 2B below.

Table 2B Capacity Assessment Results: Junction 5 (A483 Roundabout/ Mold Rd Roundabout)

Time Period	Year	PRC	Delay PCU/hr
AM Peak	2018	6.8	67
	2023	-3.8	94
	2028	-26.3	188
PM Peak	2018	-13.4	109
	2023	-23.0	185
	2028	-34.2	304

Source: Table 5.1 Capita Report 2016

- 2.7.5 The Capita report proposed improvements to “Junction 5” including the signalisation of the Mold Road northbound approach to the A483 junction, an additional circulatory lane on the roundabout and an extension to the flared lane on Mold Road approaching the Plas Coch Road Roundabout. Drawing CS79387-04 is included as Appendix 5.0.
- 2.7.6 The proposed improvement works were forecast to improve the delay at the junction by 5% in the AM peak and 32% in the PM peak by 2023 and 23% and 40% in the AM/PM peaks respectively by 2028.
- 2.7.7 The report noted that Junction 5 would still however be over capacity and high level improvements (including the widening of Plas Coch Road, Mold Road, Berse Road, A483 southbound and Mold Road north arms and further signalisation) would be required to bring the junction within operational capacity by 2028.
- 2.7.8 The preferred improvements have been identified as costing in the region of £100,000 and funding options have been identified including CIL and European Funding.
- 2.7.9 In summary, the A483 Roundabout/Plas Coch Road Roundabouts have been identified as requiring improvement to improve the baseline situation and this is the Highway Authority issue to resolve in any event.
- 2.7.10 In the context of this application the impact of the proposed McDonald’s traffic will be considered and assessed as far as the impact which is directly related to the restaurant and the scale of the additional traffic compared to the existing flows at the roundabout. As this TA will demonstrate in subsequent chapters, the majority of McDonald’s trips are expected to be existing on the network in any event or shared with the Retail Park. The traffic impact at the A483 Roundabout would be negligible and the traffic impact at the Plas Coch Roundabout would be relatively low compared to the background flows. The proposal would have no material impact on the operation of either of these junctions and therefore no mitigation measures are required.

3.0 ACCESSIBILITY

3.1 Pedestrians/Cyclists

- 3.1.1 The site is located in a mature urban environment. There are footways on both sides of Plas Coch Road and the Retail Park Access.
- 3.1.2 There are pedestrian crossing facilities with drop kerbs and pedestrian refuges on the eastern and southern arms of the Retail Park Roundabout.
- 3.1.3 There is a zebra crossing facility on the western arm of the Retail Park Roundabout 23m from the roundabout. There is a pedestrian crossing facility on the eastern arm of the Plas Coch Roundabout with drop kerbs, tactile paving and a pedestrian refuge.
- 3.1.4 There are signalised pedestrian crossing facilities on the Plas Coch Road approach at the Mold Road Roundabout (the eastbound arm is uncontrolled) and a signalised Toucan crossing on the Mold Road (south) arm of the Mold Road Roundabout (the southbound arm is uncontrolled).
- 3.1.5 Plas Coch Road and Mold Road are advisory cycle routes providing links to Wrexham town centre, Rhosddu to the east and Wrexham hospital and the suburbs to the west. A plan showing the local cycle routes is included as Appendix 6.1.
- 3.1.6 The site is reasonably accessible by walking and cycling.

3.2 Public Transport

Bus

- 3.2.1 The nearest bus stop is located within the Plas Coch Retail Park opposite the Sainsbury's 180m, north of the site. The stop is equipped with a lay by, bus shelter and timetable information. There are also bus stops on Mold Road within 400m of the site in both directions. These stops are equipped with shelters, posts and travel information. A plan showing the bus stop locations is included as Appendix 6.2.

3.2.2 These bus stops are served regularly by bus route numbers 12/12A/14, 21/21A, 27 and X51. The services are summarised in Table 3A below.

Table 3A Bus Services

No	Operator	Route	Daytime Frequency		
			Mon-Fri	Sat	Sun
12/12A/14	Arriva	Wrexham-Brybo via New Broughton	4 trips/hr	4 trips/hr	2/hr
21/21A	Arriva	Wrexham-Summerhill via Maelar Hospital on Plas Coch	1 trip/hr	1 trip/hr	1 every 2hrs
27	Arriva	Wrexham-Mold via Maelar Hospital, Leeswood and Caergwrie	1 trip/hr	1 trip/hr	-
X51	Arriva	Wrexham-Denbigh via Llandegla and Ruthin	1 trip/hr	1 trip/hr	1/hr
Total			7/hr	7/hr	3-4/hr

3.2.3 Table 3A above demonstrates that the bus stops in the vicinity of the site are served by 7 buses per hour Monday-Saturday and 3-4 buses per hour on Sundays. These buses provided frequent links to Wrexham town centre, New Broughton, Mold and Denbigh. A plan showing the local bus routes map is included as Appendix 6.3.

Train

3.2.4 Wrexham General railway station is located 0.8km south of the site. There are regular services to Bidston and local stations including Wrexham General, Hope, Sholton, Heswall and Upton.

3.2.5 A plan showing the local rail network is included as Appendix 6.4.

3.2.6 In conclusion, the site is reasonably accessible by public transport and this would benefit potential customers and staff at the proposed restaurant.

4.0 DEVELOPMENT PROPOSALS

4.1 Site Layout

- 4.1.1 It is proposed to redevelop the site to provide a 440sqm (GIA) two storey McDonald's Restaurant with side-by-side drive thru facilities. The dining area would be 97sqm with 100 seats.
- 4.1.2 It is expected that the restaurant would operate 24 hours Monday to Sunday.
- 4.1.3 Based on data from McDonald's it is expected that up to 20 staff would be on site at any one time.
- 4.1.4 The Architect's layout is included as Appendix 7.1.

4.2 Access Arrangements and Highway Works

- 4.2.1 Customer vehicular access to the proposed restaurant would be via the existing Retail Park Access Road which also serves the Argos/Iceland/Range. The drive thru lane would run clockwise around the building with customers exiting back into the McDonald's car park.
- 4.2.2 Pedestrian access to the restaurant would be provided from the Retail Park Access Road and car park. It is proposed to modify the pedestrian link and informal zebra crossing facility from the Retail Park Access Road to the restaurant entrance. This is because the access into the McDonald's site has been altered to accommodate the delivery vehicle.
- 4.2.4 The delivery vehicle will access the restaurant via the Retail Park Access Road and unload in the car park. Further details are provided in Section 4.5.
- 4.2.5 It is proposed to modify the pedestrian refuge at the Retail Park Roundabout to accommodate the delivery vehicle.
- 4.2.6 The proposed highway works to the zebra crossing and pedestrian refuge are shown on the plan in Appendix 7.2.

4.3 Year of Opening

4.3.1 The proposed year of opening is 2021.

4.4 Parking Provision and Assessment of Standards

4.4.1 It is proposed to provide 31 spaces for the McDonald's including 2 accessible parking spaces close to the restaurant and 2 reserve bays for drive thru customers. McDonald's customers would also have rights to park in the Argos/Iceland/Range car park.

4.4.2 There would be 6 cycle parking spaces (3 Sheffield stands) for staff and customers located close to the restaurant entrance.

4.4.3 There would be a total of 196 spaces to serve the Argos/Iceland/Range and the McDonald's. The overall difference in parking provision compared to the existing situation would be a loss of 39 spaces. The existing 3 hour maximum stay parking restriction (1.5 hours on match days) would apply to the McDonald's car park.

4.4.4 A plan showing the proposed car park layout is included as Appendix 7.3.

4.4.5 Wrexham County Borough Council parking standards are set out in The Local Planning Guidance. An assessment of the vehicle parking standards for the McDonald's is provided in Table 4A below.

Table 4A Assessment of Parking Standards

Land Use	Maximum Parking Standard	Development	Maximum Parking Requirement	Proposed Provision
A1 retail	1 space/20sqm gfa	5,925sqm	296	165
A3 restaurant	1 car space per 4sqm public floor space	97sqm	24	31
Total			320	196

4.4.6 The maximum parking standard for the development would be 320 spaces. The proposal for 196 spaces is therefore below the maximum parking requirement and accords with the Council's standards. The proposed provision is 61% of the maximum standard. However, as the parking surveys will demonstrate in Section 10.0 there is sufficient parking for both uses.

4.4.7 The cycle parking standard for the McDonald's would be 1 cycle space by 40sqm public floor space. The proposed restaurant would require 2 spaces. It is proposed to provide 6 spaces (3 Sheffield stands) in accordance with the Council's standards.

4.5 Servicing/Refuse Provision

4.5.1 McDonald's has been trading in the UK since 1974. The company operates over 1,280 fast service restaurants (+90 ROI) of which around 880 are restaurants with drive thru facilities.

4.5.2 With regard to the 880 restaurants with drive thru facilities, on the assumption that each restaurant is serviced 3 times per week. This is equivalent to 2,640 deliveries per week or 377 per day (7 day week). Assuming restaurants received deliveries between:

- 07:00 and 12:00 5 hours
 - 14:00 and 21:00 7 hours
- } 12 hours per day for deliveries

Therefore, each hour there are 31 deliveries occurring at drive thru McDonald's Restaurants across the UK.

4.5.3 Martin Brower are McDonald's sole distributor for all its products and have a fleet of 150 vehicles. Martin Brower utilise multi-temperature vehicles which allows all of the restaurants requirements for; frozen, chilled and ambient products to be delivered in one visit. This therefore reduces the number of deliveries each restaurant received.

4.5.4 Restaurants typically receive three deliveries per week. Servicing McDonald's restaurants whilst they are open is a common practice and does not present any operational difficulties.

4.5.5 Martin Brower use a sophisticated computerised planning tool (Paragon), which enables requirements of delivery destinations to be set and ensures they are complied with on every occasion the delivery is planned. The restaurant is allocated a 2-hour delivery slot and the delivery will be planned within this. Notification of the planned delivery is emailed to the restaurant two days before delivery.

- 4.5.6 On the day of the delivery the GPS system linked to Paragon will automatically email the restaurant 30-minutes prior to the vehicles arrival. Staff can then prepare for the delivery arrival and cone off the spaces required within the car park.
- 4.5.7 The goods are delivered by articulated lorry, typically 16.5m in length. This is typically parked for between 15 minutes – 1 hour. The duration of the stay depends upon the range and quantity of products to be delivered.
- 4.5.8 The deliveries would be scheduled to arrive during quiet trading periods for both the McDonald's and the Retail Park.
- 4.5.9 It is proposed that servicing will be undertaken on site. The delivery vehicle would use the Retail Park Access Road to access the site.
- 4.5.10 A representative from Martin Brower will visit the site prior to any new restaurant opening and assess the designated delivery area. Any special requirements (although there are none anticipated in this instance) will be communicated to their transport and scheduling department.
- 4.5.11 A TRACK analysis is presented in Appendix 8.1. The analysis demonstrates that a delivery vehicle can enter, manoeuvre around the car park and exit.
- 4.5.12 Refuse collection would be collected by a private contractor 3 times per week and would occur outside of peak hours.
- 4.5.13 Waste minimisation has been achieved through the redesign of tray liners and specifying the use of light-weight bin liners. Food wastage is minimised through the use of a computer system which monitors the amount of food served at given times of day, resulting in more accurate preparation and ordering of stock. This therefore, reduces the quantum of waste and frequency of collection required
- 4.5.14 Service vehicles also collect empty delivery trays and crates which are returned to supplies for reuse.
- 4.5.15 Cooking oil from restaurants is collected by Martin Brower's delivery vehicles and is recycled into bio diesel. The bio diesel is used as fuel by all McDonald's delivery vehicles resulting in a carbon saving of 8,200 tonnes per annum.

4.5.16 The arrangements described above follow a 'tried and tested' methodology used successfully across the UK and there is no reason to suggest why it could not be successfully undertaken at the proposed restaurant.

4.6 Drive Thru Lane

4.6.1 The drive thru lane forms an integral part of the McDonald's operation is shown adjacent to the eastern and southern edges of the building (see Appendix 7.1).

4.6.2 When a customer wishes to purchase a meal without leaving their vehicle, the following steps are taken:

1. Enter the drive thru lane
2. Place an order at one of the Customer Order Display (COD) units
3. Pay at the first booth
4. Collect meal from the second booth (halfway along the southern elevation) and continue out of the drive thru lane

4.6.3 In the event that a customer places a larger or unusual order, which could take longer to prepare (and potentially delay other drivers using the drive thru lane), then a member of staff will divert them to one of two 'reserve bays'. These are situated near the store entrance and once the order is ready, a member of staff will carry the meal from the restaurant, to the customer.

4.6.4 Side by side ordering facilities provide a more efficient drive thru process. The proposals would reduce the time taken to process customers through the drive thru facility and therefore assists in effectively managing the length of the drive thru queue. Drivers waiting for an order would use one of the two COD units within the drive thru lane depending upon how many vehicles are waiting. Both COD units would operate simultaneously at all times and in practice can be likened to a dual pay-barrier arrangement at multi-storey car parks across the country.

4.6.5 A TRACK analysis is presented in Appendix 8.2 which illustrates a vehicle circulating the drive thru lane.

5.0 McDONALD'S SURVEY INFORMATION AND TRICS

5.1 Comparable McDonald's Restaurants (Proposed Traffic Generation)

5.1.1 ADL Traffic & Highways Engineering commissioned Axiom Traffic Ltd to undertake counts and customer interview surveys at three McDonald's restaurants with drive thru facilities located close to foodstores. These restaurants are considered to be the best comparable restaurants for the following reasons:

- The restaurants are similarly located in edge of town areas close to large foodstores;
- The restaurants have a slightly higher level of AADT compared to the proposal;
- The restaurants have a similar level of market share.

5.1.2 Details of the surveyed restaurants are provided in Tables 5A and 5B below.

Table 5A Surveyed Restaurants

Name	Address	Foodstore and Proximity
Darlington	Yarm Road, DL1 4PJ	Within Morrisons foodstore car park
Plymouth	Pomphlett Road, Plymouth, PL9 7BH	Within Morrisons foodstore car park
Bradford	Bradford Road, BD10 8EG	Within Morrisons foodstore car park

Table 5B Proposed McDonald's

Restaurant and Store №	Darlington № 614	Bradford № 820	Plymouth № 896	Average Surveyed	Plas Coch (Proposed)
Restaurant Type	Single Storey	Single Storey	Single Storey	Single Storey	Single Storey
Floor Area	322sqm	352sqm	318sqm	356sqm	440sqm
№ of Seats	91	87	82	87	100
Parking Provision	21	38	29	26	31
Drive Thru Facilities	Side By Side	Side By Side	Single	Side By Side	Side By Side
Population within 5 Km	80,960	242,630	154,305	159,298	88,414
AADT	20,935	22,928	31,436	25,099	17,339
Number of Surrounding McD Restaurants Within 5km (incl. store)	2	7	4	4	2
Located Near to Major Foodstore	Morrisons	Morrisons	Morrisons	Morrisons	Sainsburys
Population per McDonalds Restaurant	40,480	34,661	38,576	39,824	44,207

5.1.3 It should be noted that the proposed restaurant has a slightly higher level of market share (44,207) persons/McDonald's restaurant) compared with the average of the 3 restaurants (39,824) and has a lower AADT (17,339) compared to the average of the 3 restaurants (25,099). Therefore, is it considered that on balance the average of the three restaurants provides a good and robust comparable to the proposal.

5.1.4 The average of the three survey results has been taken as the proposed traffic generation for Wrexham for the Friday evening and Saturday peak. Transaction data for the restaurants has been used to estimate the Friday morning peak traffic. The proposed trips are summarised in Appendix 9.0. The peak hour proposed traffic is summarised in Table 5C below.

Table 5C Proposed Traffic Generation (Averaged Surveyed)

	Peak Hour	Proposed Traffic	
		In	Out
Friday Peak	08:00-09:00	70	60
	17:00-18:00	111	113
Saturday Peak	13:00-14:00	119	128

5.1.5 ADL have undertaken research which has proven that there is no statistically significant relationship between McDonald's traffic and either; floor area, dining area, number of seats or parking provision, as shown on the graphs included in Appendix 10.0. Therefore, the averaged surveyed traffic has not been adjusted for any variable.

5.2 TRICS Assessment

5.2.1 ADL have reviewed the TRICS database for McDonald's surveys within England within the last 8 years which are located close to foodstores. The details of the sites are summarised in Table 5D below.

Table 5D TRICS McDonald's Sites (Most Recent 8 Years)

	Weekday			Saturday	Proposed Wrexham Plas Coch
	Bristol (Store № 0662)	Leytonstone (Store № 268)	Average	Heckmondwike (Store № 1066)	
TRICS Ref	BR-06-D-01	WF-06-D-01	-	WY-06-D-01	-
Date of Survey	08/02/2016	06/04/18	-	14/07/17	-
Postcode	BS3 4EG	E11 1HR	-	WF16 9RL	-
TRICS Location Description	Neighbourhood centre	Town Centre	-	Town Centre	Edge of Town
Restaurant Type	Single storey	Single Storey	-	Single storey	Two storey
Floor Area	210sqm	752sqm	481sqm	420sqm	440sqm
№ of Seats	46	211	128	80	100
Parking Provision	33	87	60	Shared with retail	31
Population Within 5km	293,578	691,684	492,631	169,248	88,414
AADT	10,278	19,390	14,834	10,961	17,339
№ of Surrounding McD restaurants Within 5km (including store)	6	10	8	2	2
Population/McD's restaurant (market share all McD's restaurants)	48,928	69,168	61,579	84,624	44,207
Foodstore Nearby	Lidl	Tesco	-	Lidl	Sainsbury's

5.2.2 As TRICS is the industry standard methodology for traffic generation predictions, ADL have run the TRICS assessment of the weekday and Saturday traffic using an average of both two weekday sites and the Saturday site as a comparison exercise to the assessment in Section 5.1. The TRICS data is included in Appendix 11.0 and the results are shown in Table 5E below.

Table 5E Traffic Generation Based on TRICS

		McDonald's TRICS Sites		ADL Assessment Based on McDonald's Surveys	
		In	Out	In	Out
Friday PM Peak	Trip Rates	8.524	9.252	-	-
	Traffic Generation 440sqm	37	41	111	113
Saturday Peak	Trip Rates	18.571	18.571	-	-
	Traffic Generation 440sqm	82	82	119	128

5.2.3 Table 5E demonstrates that based on TRICS the predicted traffic would be considerably lower than that based on the surveys at the three surveyed restaurants on Friday peak and on a Saturday. Therefore, the assessment in Section 5.1 is robust.

5.3 Review of Previous Transport Assessments & Accuracy of Traffic Predictions

5.3.1 ADL have undertaken surveys at recently built restaurants where ADL also prepared the Transport Assessment for the purposes of reviewing the accuracy of McDonald's traffic predictions. The results are summarised in Appendix 12.0 and Table 5F below.

5.3.2 Where the surveyed traffic matched the prediction this is 100%, a higher value means greater traffic than predicted and lower means less traffic was surveyed than predicted.

Table 5F Summary of Surveyed and Predicted McDonald's Traffic

	Wigan	Monks Cross	Stretford	Norton Park	Brickhill	Average
Friday	87%	76%	92%	88%	96%	88%
Saturday	98%	119%	100%	98%	114%	106%
Total	93%	99%	97%	94%	106%	98%

5.3.3 The results in Table 5F demonstrate that overall ADL traffic predictions have been well matched with actual traffic generation, on average 98%. This demonstrates that ADL traffic predictions are robust.

5.4 Summary

5.4.1 In summary it has been demonstrated that the predicted traffic based on the four restaurant surveys forms a robust basis for carrying forward the assessment of generated traffic by the proposed Wrexham restaurant.

5.5 McDonald's Trips By Type

5.5.1 Interview surveys were undertaken at the three surveyed restaurants on both a Friday and Saturday during the survey periods. The purpose of the customer interview surveys was to establish the type of trips visiting a McDonald's restaurant with drive thru facilities in an edge of town location close to a large food store.

5.5.2 Four primary trip types are referred to in this report as follows:

- Additional Trips:
 - These are specific car journeys to visit the McDonald's whereby customers return to their original location immediately after completing their visit:
 - e.g. Home → McDonald's → Home
 - In the case of the proposed restaurant these are specific car journeys to visit the restaurant.
- Diverted Trips:
 - These are trips where a driver is already on the network and alters their route to visit the McDonald's:
 - e.g. Home → McDonald's → Other Home
 - Work → McDonald's → Home
 - In the case of the proposed restaurant these are existing trips at the Mold Road Roundabout which divert into the site.
- Pass By Trips
 - These are also trips which are already on the network in any event which as the driver passes the site they decide to make a visit.
 - In the case of the proposed restaurant these would be existing trips at the Plas Coch Roundabout passing the site.

- Shared Trips:
 - These are existing trips on the network which are shared with the adjacent foodstore.
 - In the case of the proposed restaurant these are existing trips to the Sainsbury's and Plas Coch Retail Park that would also visit the restaurant.

5.5.3 Additional trips may not necessarily be new trips as those customers may previously have undertaken trips to other hot food takeaways on their route. Collectively, pass by; diverted and shared trips can be referred to as “existing trips” as they represent all existing vehicles on the network.

5.5.4 The data from the customer interview surveys have been analysed and a summary of the analysis is included in Table 5G below.

Table 5G Customer Interview Average Survey Results McDonald's

Trip Type	Definition	Friday	Saturday
		%	%
Additional Trips	Same origin & destination McDonald's sole purpose of trip	46%	23%
Existing Trips	Different origin & destination	29%	59%
	Same origin & destination McDonald's <u>not</u> sole purpose of trip		
	Visit adjacent foodstore before or after McDonald's	25%	18%
Total Surveys		100%	100%

5.5.5 Table 5G demonstrates that on a Friday 46% of trips to McDonald's could be expected to be additional trips to the restaurant and 54% would be existing on the road network. On a Saturday 23% of trips would be additional trips and 77% would be existing on the road network.

5.5.6 The results in Table 5G also demonstrate that 25% of trips on a Friday and 18% of trips on a Saturday could be expected to be shared trips with the adjacent Retail Park and Sainsbury's.

5.5.7 The proportion of McDonald's trips by type on a Friday and Saturday has been calculated in Table 5G. As a result the proposed peak hour traffic has been split between additional, pass by/diverted and shared trips in Table 5H below.

Table 5H Proposed Trips By Type

Trip Type	%	Friday AM Peak		Friday PM Peak		Saturday Peak		
		In	Out	In	Out	%	In	Out
Additional	46%	32	32	51	52	23%	27	29
Pass By/ Diverted	28%	20	20	32	33	59%	70	75
Shared	25%	18	18	28	28	18%	22	24
Total	100%	70	70	111	113	100%	119	128

5.5.8 The proposed additional trips to the network would be as follows:

- Friday AM peak 32 vehicles
- Friday PM Peak 51 vehicles
- Saturday Peak 27 vehicles

6.0 ON SITE ASSESSMENT

6.1 McDonald's Proposed Pedestrian Trips

6.1.1 The proposed McDonald's pedestrian trips are summarised in Table 6A. These are the average surveyed pedestrian trips from the three McDonald's restaurants.

Table 6A Proposed Pedestrian Trips (Average Surveyed)

	Peak Hour	In	Out
Friday	17:00 – 19:00	25	25
Saturday	13:00 – 14:00	33	45

6.1.2 A pedestrian link is provided for customers from the Argos/Iceland car park.

6.2 Parking Demand

6.2.1 The maximum parking demand for the McDonald's (including staff, reserved and accessible parking) has been calculated based on the average of the surveyed restaurants and is expected to be as follows:

- Friday 22 vehicles
- Saturday 28 vehicles

6.2.2 It is proposed that 31 spaces would be contractually retained by McDonald's. The proposed level of parking is therefore sufficient to accommodate the McDonald's level of parking demand. McDonald's customers would also have rights to park in the Argos/Iceland/Range car park.

6.3 Drive Thru Queue

6.3.1 The proposed drive thru queues are based on the average of those surveyed at the three McDonald's restaurants. The results are summarised in Table 6B below. This includes all vehicles waiting in the drive thru lane back from the collection booth.

Table 6B Proposed Drive Thru Queues (Average Surveyed)

	Friday	Saturday
Min Q	2	2
Max Q	11	10
Average	6	6

- 6.3.2 The proposed drive thru lane has capacity to accommodate 13 vehicles and is therefore more than adequate to accommodate the proposed level of demand.
- 6.3.3 The expected drive thru queue frequency is shown in Figures 6A and 6B below and demonstrates the maximum queue is only expected to occur once during the Friday evening 3 hour evening period for 2 minutes. On a Saturday during the four hour lunchtime period the maximum queue of 10 vehicles is only expected to occur for 3, two minute intervals.

Figure 6A

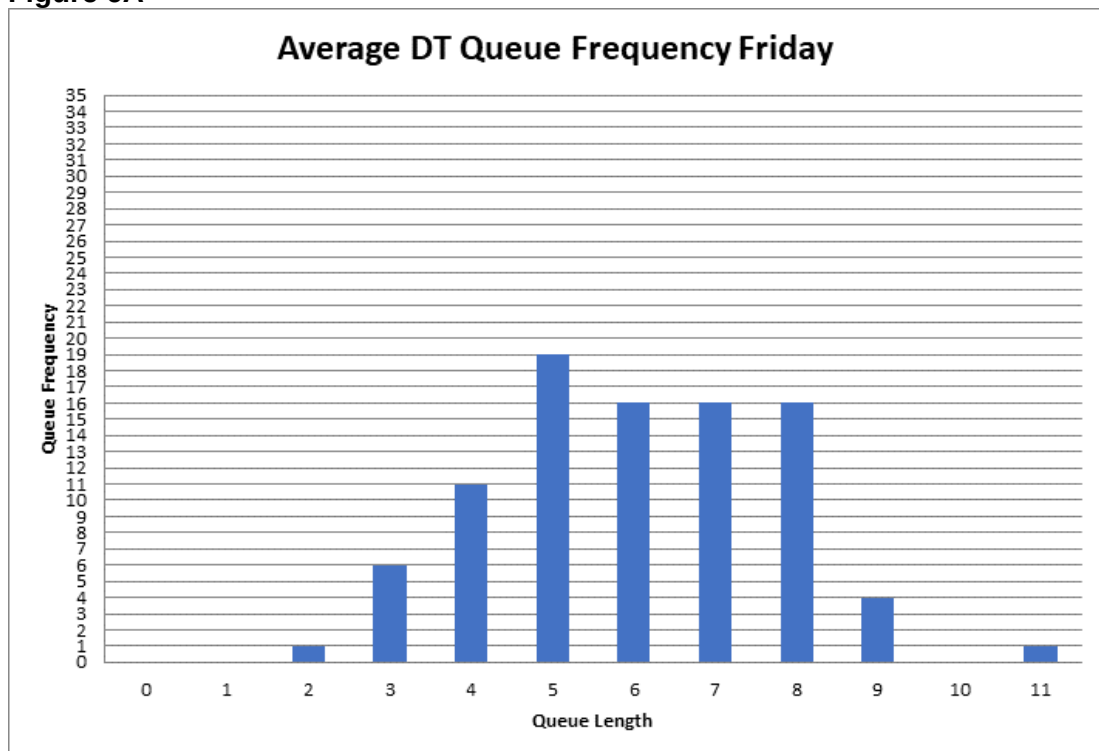
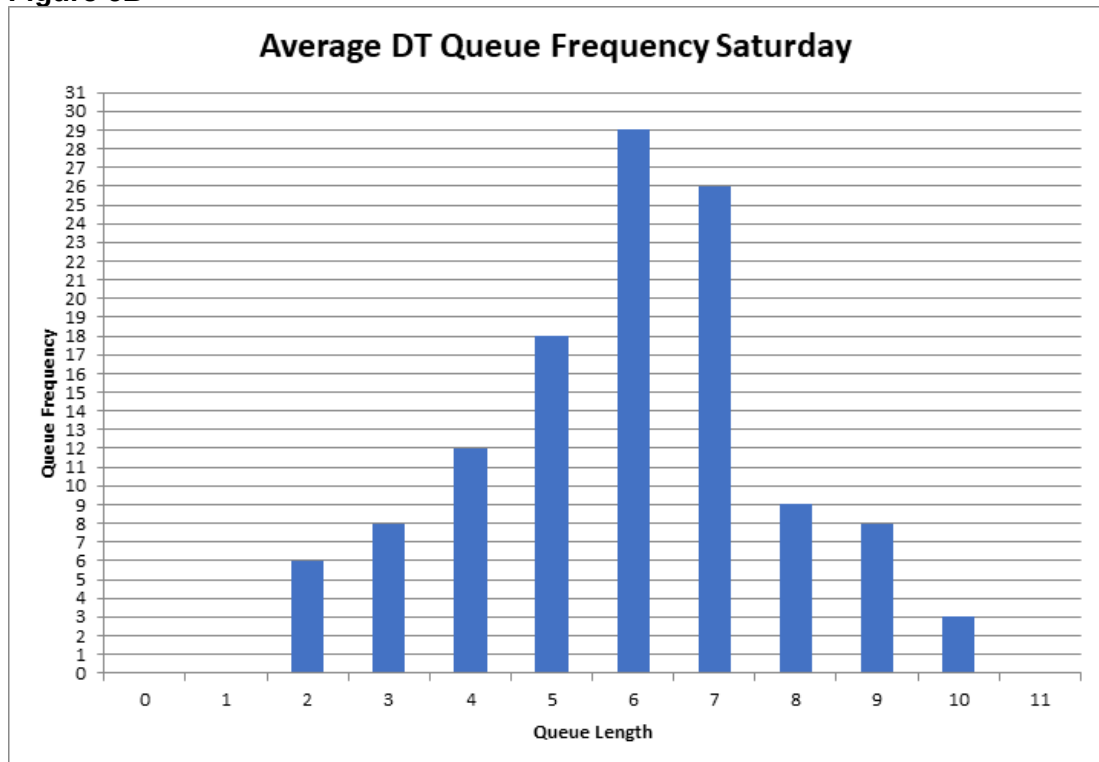


Figure 6B



7.0 2019 TRAFFIC SURVEYS

7.1 Survey Details

7.1.1 ADL appointed Axiom Traffic Ltd to undertake manual traffic counts of the Retail Park Roundabout and the Plas Coch Road Roundabout.

7.1.2 Axiom also undertook a parking beat survey of the Argos/Iceland/Range car park in 15-minute intervals.

7.1.3 Enumerators visited the site to undertake the surveys on Friday 17th May 2019 07:00 – 10:00 and 16:00 – 19:00 hours and Saturday 18th May 2019 11:00 – 15:00 hours.

7.2 Traffic and Queue Surveys

Traffic Surveys

7.2.1 The traffic survey results at the Plas Coch Road Roundabout and the Retail Park Roundabout have been analysed to ascertain the network peak hours. The results are summarised in Table 7A below.

Table 7A Traffic Survey Results: Plas Coch Road Roundabout/Retail Park Roundabout

		Retail Park Roundabout					Plas Coch Road Roundabout					Total
		Arm					Arm					
		Retail Park Access	Sainsbury's Access	Iceland/ Argos Access	Unnamed Road	Sub total	Unnamed Road (west)	Plas Coch Rd South	Unnamed Road (east)	Plas Coch Rd North	Sub-total	
Friday AM	07:00	72	195	3	273	543	243	396	5	228	872	1415
	08:00	104	219	14	460	797	306	788	22	385	1501	2298
	09:00	248	350	83	841	1522	559	940	20	412	1931	3453
Friday PM	16:00	433	510	165	920	2028	956	917	94	517	2484	4512
	17:00	437	535	147	917	2036	968	928	57	489	2442	4478
	18:00	395	520	139	799	1853	908	859	24	395	2186	4039
Saturday	11:00	467	555	211	1127	2360	1010	1098	44	465	2617	4977
	12:00	513	596	264	1123	2496	1161	1089	24	478	2752	5248
	13:00	483	599	261	1055	2398	1100	1044	13	407	2564	4962
	14:00	527	522	269	1041	2359	1069	1015	16	402	2502	4861

7.2.2 Table 7A demonstrates that the network peak hours at the Plas Coch Roundabout are:

- Friday AM 09:00-10:00 hours 1931 vehicles
- Friday PM 16:00-17:00 hours 2484 vehicles
- Saturday 12:00-13:00 hours 2752 vehicles

7.2.3 The 2019 network peak surveyed traffic flows are shown on the diagrams in Appendix 13.0.

7.2.4 The facilitate the distribution of traffic at the A483 Roundabout and Plas Coch Roundabout the 2018 traffic flows from the Capita 2016 report (see section 2.7) have been added to the flow diagrams.

Queue Surveys

7.2.5 The average results of the peak hour queue survey at the Plas Coch Roundabout are summarised in Table 7B.

Table 7B Average Queue Survey Results: Plas Coch Roundabout

		Unnamed Road (west)		Plas Coch Road South		Unnamed Road (east)	Plas Coch Road North	
		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2
Friday AM Peak	Min Q	0	0	0	0	0	0	0
	Max Q	0	4	0	0	1	2	4
	Ave Q	0	0	0	0	0	0	0
Friday PM Peak	Min Q	0	0	0	0	0	0	0
	Max Q	0	0	3	0	6	4	4
	Ave Q	0	0	1	0	1	1	1
Saturday Peak	Min Q	0	0	0	0	0	0	0
	Max Q	1	1	6	0	0	5	4
	Ave Q	0	0	1	0	0	2	2

7.2.6 The average queues are generally only a few vehicles per lane per arm at the Roundabout.

7.2.7 The average results of the peak hour queue survey at the Retail Park Roundabout are summarised in Table 7C below.

Table 7C Average Queue Survey Results: Retail Park Roundabout

		Retail Park Access		Sainsbury's Access	Iceland & Argos Access	Unnamed Road	
		Lane 1	Lane 2	Lane 1	Lane 1	Lane 1	Lane 2
Friday AM Peak	Min Q	0	0	0	0	0	0
	Max Q	2	0	4	0	0	1
	Ave Q	0	0	1	0	0	0
Friday PM Peak	Min Q	0	0	0	0	0	0
	Max Q	5	1	3	2	0	0
	Ave Q	1	0	1	0	0	0
Saturday Peak	Min Q	0	0	0	0	0	0
	Max Q	4	1	4	5	2	1
	Ave Q	1	0	2	1	0	0

7.2.8 The queues at the Retail Park Roundabout are low and suggest no material issue with the capacity of the roundabout.

7.3 Base Traffic Flows

7.3.1 The 2019 surveyed traffic flows have been growthed to 2021 (year of opening) using the following TEMPRO and NTM growth rates for Wrexham:

- Friday AM Peak 1.0242
- Friday PM Peak 1.0238
- Saturday Peak 1.0246

7.3.2 The 2019 surveyed traffic flows have been growthed to 2026 (+5 years opening) using the following TEMPRO and NTM growth rates for Wrexham:

- Friday AM Peak 1.0809
- Friday PM Peak 1.0813
- Saturday Peak 1.0867

7.3.3 The 2019 surveyed traffic flows have been growthed to 2036 (+15 years opening) using the following TEMPRO and NTM growth rates for Wrexham:

- Friday AM Peak 1.1780
- Friday PM Peak 1.1799
- Saturday Peak 1.1902

7.3.4 The base traffic flows are shown on the diagrams included in Appendix 14.0.

7.3.5 It should be noted that the growth factors have not been applied to the Retail Park traffic flows only the network flows. It is considered that the 'growth' in flows at the Retail Park would be a result of the McDonald's development. Given the current situation of the retail market and rise of internet shopping and that trips to retail tend to include an element of passby/diverted trips and that the McDonald's would likely result in some transfer trips from the existing Frankie and Bennys, Plas Coch Pub or Dee Dee's café this approach is considered justified.

7.3.6 Growth factors have also been applied to the 2018 Capita flows to take them to 2021, 2026 and 2036 respectively. The details are provided on the flow diagrams in Appendix 14.0.

7.4 Retail Park Car Park Survey

7.4.1 The existing car park comprises of 235 parking spaces including; 6 accessible and 4 parent and child spaces.

7.4.2 The results of the parking survey are summarised in Table 7D below:

Table 7D Parking Beat Survey Results Retail Park Car Park

Friday			Saturday		
Time	No	% Occupancy	Time	No	% Occupancy
16:00	68	29%	11:00	82	35%
16:15	64	27%	11:15	83	35%
16:30	63	27%	11:30	108	46%
16:45	65	28%	11:45	120	51%
17:00	58	25%	12:00	127	54%
17:15	39	17%	12:15	116	49%
17:30	51	22%	12:30	112	47%
17:45	53	22%	12:45	113	48%
18:00	44	19%	13:00	110	47%
18:15	42	18%	13:15	113	48%
18:30	46	19%	13:30	138	58%
18:45	43	18%	13:45	137	58%
-	-	-	14:00	128	54%
-	-	-	14:15	119	50%
-	-	-	14:30	118	50%
-	-	-	14:45	135	57%

Note: 235 spaces total existing

7.4.3 Table 7D demonstrates that the peak parking demand was as follows:

- Friday 68 vehicles 29% occupied
- Saturday 138 vehicles 58% occupied

7.4.4 There were therefore 167 spaces available during the Friday peak and 97 spaces available during the Saturday peak.

8.0 McDONALD'S TRIP DISTRIBUTION AND TOTAL FLOWS

8.1 Trip Distribution

8.1.1 The proposed McDonald's additional and existing traffic has been distributed onto the road network in proportion with the existing traffic flows at the Plas Coch Road Roundabout and on Berse Road and Mold Road South. These routes provide the primary access to the surrounding residential areas. The results are shown in Table 8A below.

Table 8A McDonald's Additional Trip Distribution

Arm	Friday AM Peak			Friday PM Peak			Saturday Peak		
	2021 Base Flow	%	Additional Trips Inbound	2021 Base Flow	%	Additional Trips Inbound	2021 Base Flow	%	Additional Trips Inbound
Plas Coch Rd East	412	30%	10	524	36%	18	484	31%	8
Plas Coch Rd West	940	70%	22	923	64%	33	1094	69%	19
Total	1352	100%	32	1447	100%	51	1578	100%	27
Berse Road	867	44%	14	1000	30%	15	-	32%*	9
Mold Rd South	515	26%	8	1171	34%	18	-	37%*	10
Total	1382	70%	22	2171	64%	33	-	69%	19

Note * Assume % split on Saturday same as Friday PM Peak at Mold Road Roundabout

8.1.2 The proposed existing traffic has been distributed inbound onto the road network in proportion with the existing traffic flows at the Plas Coch Road Roundabout and Mold Road Roundabout. The outbound trips have been distributed according to their direction of intended travel. The results are shown in Table 8B below.

Table 8B McDonald's Existing Trip Distribution (Pass By/Diverted Trips)

Arm	Friday AM Peak			Friday PM Peak			Saturday Peak		
	2021 Base Flow	%	Passby/ Diverted Trips Inbound	2021 Base Flow	%	Passby/ Diverted Trips Inbound	2021 Base Flow	%*	Passby/ Diverted Trips Inbound
Plas Coch Rd East	418	14%	3	524	16%	5	484	16%	11
Mold Road	1166	39%	8	630	19%	6	-	19%	13
Berse Road	902	30%	6	1000	30%	10	-	30%	21
Mold Road South	536	17%	3	1171	35%	11	-	35%	25
Total	3022	100%	20	3325	100%	32	484	100%	70

Note * Assume % split on Saturday same as Friday PM Peak at Mold Road Roundabout

8.1.3 The proposed shared trips have been distributed in proportion with the existing movements at the Plas Coch Roundabout and at the Retail Park. The potential for transfer trips from the existing Frankie and Benny's has not been included in the analysis and this provides a robust assessment. The results are shown in Table 8C below.

Table 8C McDonald's Shared Trip Distribution

Arm	Friday AM Peak			Friday PM Peak			Saturday Peak		
	2021 Base Flow	%	Shared Trips Inbound	2021 Base Flow	%	Shared Trips Inbound	2021 Base Flow	%	Shared Trips Inbound
Plas Coch Rd East	412	30%	5	524	36%	10	484	31%	5
Plas Coch Rd West	940	70%	13	923	64%	18	1094	69%	17
Total	1352	100%	18	1447	100%	28	1578	100%	22
Argos/Iceland	103	12%	2	127	14%	4	210	19%	4
Sainsbury's	396	47%	8	419	46%	13	491	44%	10
Retail Park	342	41%	8	374	40%	11	422	37%	8
Total	841	100%	18	920	100%	28	1123	100%	22

8.1.4 The proposed McDonald's trips by type and total McDonald's traffic generation are shown on the flow diagrams included in Appendix 15.0.

8.2 Total Flows

8.2.1 The network peak hours have been identified as:

- Friday AM Peak 09:00 – 10:00 hours
- Friday PM Peak 16:00 – 17:00 hours
- Saturday Peak 12:00 – 13:00 hours

The McDonald's peak hours have been identified as:

- Friday AM Peak 08:00 – 08:00 hours
- Friday PM Peak 17:00 – 18:00 hours
- Saturday Peak 13:00 – 14:00 hours

For the purposes of providing a robust assessment it will be assumed that the network and McDonald's peaks would coincide.

8.2.2 The 2021, 2026 and 2036 total flows are included in Appendix 16.0.

9.0 CAPACITY AND IMPACT ASSESSMENTS

9.1 Retail Park Roundabout

9.1.1 ADL have assessed the traffic impact at the Retail Park Roundabout using the computer programme Junctions 9 (ARCADY) for the 2021 base and 2021 total traffic situations for the Friday morning, evening and Saturday peak periods. A plan showing the roundabout geometry is included as Appendix 17.1 and the output results are included as Appendix 17.2. The results are summarised in Table 9A below.

Table 9A ARCADY Analysis Retail Park Roundabout

Arm	Friday AM Peak				Friday PM Peak				Saturday Peak			
	2021 Base		2021 Total		2021 Base		2021 Total		2021 Base		2021 Total	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
East arm (access road)	0.44	1	0.46	1	0.47	1	0.52	1	0.58	2	0.64	2
South arm (site)	0.14	0	0.26	0	0.29	0	0.50	1	0.54	1	0.78	3
West arm (Sainsbury's)	0.38	1	0.40	1	0.59	2	0.64	2	0.76	3	0.84	5
North arm (Retail park)	0.24	0	0.26	0	0.47	1	0.56	1	0.62	2	0.73	3

9.1.2 Table 9A demonstrates that the maximum RFC at the Retail Park Roundabout during the 2021 total traffic situation would be 0.84 during the Saturday peak on the Sainsbury's arm with a queue of 5 vehicles. This is an increase of 2 vehicles. The analysis demonstrates that the Retail Park Roundabout has adequate spare capacity to accommodate the proposed traffic.

9.2 Plas Coch Road Roundabout

9.2.1 The traffic impact at the Plas Coch Road Roundabout has also been assessed using the comp computer programme Junctions 9 (ARCADY) for the 2021, 2026 and 2036 base and 2021, 2026 and 2036 total traffic situations for the Friday morning, evening and Saturday peak periods. A plan showing the roundabout geometry is included as Appendix 18.1 and the output results are included as Appendix 18.2. The results are summarised in Tables 9B and 9C below.

Table 9B **ARCADY Results: Plas Coch Road Roundabout: Friday AM Peak**

	2021 Base		2021 Total		2026 Base		2026 Total		2036 Base		2036 Total	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
University Access	0.04	0	0.04	0	0.05	0	0.05	0	0.05	0	0.05	0
Plas Coch Rd West	0.66	2	0.67	2	0.67	2	0.68	2	0.69	2	0.70	3
Retail Park	0.28	1	0.29	1	0.28	1	0.29	1	0.29	1	0.30	1
Plas Coch Rd East	0.35	1	0.35	1	0.36	1	0.36	1	0.38	1	0.38	1

Table 9C **ARCADY Results: Plas Coch Road Roundabout: Friday PM Peak**

	2021 Base		2021 Total		2026 Base		2026 Total		2036 Base		2036 Total	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
University Access	0.41	1	0.44	1	0.45	1	0.48	1	0.51	1	0.55	2
Plas Coch Rd West	0.66	2	0.68	2	0.68	2	0.69	2	0.69	2	0.70	3
Retail Park	0.58	2	0.60	2	0.58	2	0.60	2	0.58	2	0.60	2
Plas Coch Rd East	0.51	1	0.52	1	0.53	1	0.54	1	0.56	1	0.57	1

9.2.2 Tables 9B and 9C demonstrate that during the Friday AM peak and PM peak maximum RFC would be 0.70 on Plas Coch Road West with a queue of 3 vehicles. The proposed traffic can therefore be accommodated during the Friday peak periods.

Table 9D **ARCADY Results: Plas Coch Road Roundabout: Saturday Peak**

	2021 Base		2021 Total		2026 Base		2026 Total		2036 Base		2036 Total	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
University Access	0.14	0	0.18	0	0.17	0	0.21	0	0.18	0	0.24	0
Plas Coch Rd West	0.79	4	0.82	5	0.80	4	0.83	5	0.81	4	0.85	6
Retail Park	0.57	1	0.60	2	0.57	1	0.60	2	0.57	1	0.61	2
Plas Coch Rd East	0.53	1	0.56	1	0.55	1	0.58	2	0.58	1	0.60	2

9.2.3 Table 9D demonstrates that during the Saturday peak the maximum RFC would be 0.85 on Plas Coch Road West with a queue of 6 vehicles. The propose traffic can therefore also be accommodated during the Saturday peak periods.

9.3 Mold Road Roundabout

9.3.1 The traffic flows in Appendix 15.4 illustrate the traffic impact at the Mold Road Roundabout which is summarised in Table 9E below.

Table 9E McDonald's Traffic Impact at Mold Road Roundabout

Arm	Friday AM Peak	Friday PM Peak	Saturday Peak
Mold Rd North	6	5	10
Berse Road	14	18	9
Mold Rd South	8	18	10
Plas Coch Road	36	55	72
Total	64	96	101

9.3.2 Table 9E demonstrates that the traffic impact would be an extra 1-2 vehicles per minute at the roundabout. This would be primarily due to diverted trips from Mold Road heading outbound in their direction of intended travel being effectively 'new to' Plas Coch Road.

9.3.3 The traffic impact at this roundabout should be considered in the context of the base traffic flows which are in the region of 4000 vehicles during the Friday PM peak. The extra McDonald's traffic during the peak periods would be equivalent to a 2-2.5% increase. It is concluded that this level of traffic would be unlikely to have any material impact on the operation of the roundabout and no further analysis is required.

9.4 A483 Roundabout

9.4.1 The McDonald's traffic impact at the A483 Roundabout is also illustrated on the flow diagrams in Appendix 15.4. The impact would be as follows at the roundabout:

- Friday AM Peak +3 vehicles
- Friday PM Peak +16 vehicles
- Saturday Peak +34 vehicles

9.4.2 The proposed traffic impact would be less than 1 vehicle per minute at the A483 Roundabout. Again in the context that there are in the region of 4000 vehicles circulating the roundabout this level of additional traffic would be imperceptible and would have no material impact on the operation of the roundabout.

9.5 Summary

9.5.1 It is concluded that the proposal would have no material impact on the operation of the road network in the vicinity of the site.

10.0 PARKING IMPACT ASSESSMENT

- 10.1 There would be 196 spaces serving the Argos/Iceland/Range and the McDonald's. The parking impact on the Retail Park car park has been assessed in Table 10A below. During the Friday peak the proposed demand would be 90 spaces (46%) with 106 spaces available. During the Saturday peak the proposed demand would be 166 spaces (85%) with 30 spaces available. There is therefore sufficient car parking for both the Argos/Iceland/Range and McDonald's customers.

Table 10A Parking Demand Assessment Retail Park Car Park

Proposed Parking Provision for Retail Park and McDonald's		Retail Park Peak Demand	McDonald's Peak Demand	Total Demand		Spaces Available
				No	% occupancy	
196	Friday	78	22	90	46%	106
	Saturday	138	28	166	85%	30

11.0 MITIGATION MEASURES AND OTHER REPORTS

11.1 Mitigation Measures

11.1.1 The site is reasonably accessible by walking, cycling and public, therefore no mitigation measures are required with regards to accessibility by non car modes. It has been demonstrated that the proposal would have no impact on the operation of the surrounding road network.

11.1.2 It is concluded that no further mitigation measures are required.

11.2 Travel Plan

11.2.1 If a Travel Plan is required by the Planning Authority then this could be dealt with by condition.

11.3 Delivery Management Plan

11.3.1 A Delivery Management Plan could be dealt with by condition if required.

11.4 Construction Management Plan

11.4.1 A Construction Management Plan could be dealt with by condition if required.

12.0 PLANNING POLICY

12.1 Planning Policy Wales (Edition 10 December 2018)

12.1.1 The Planning Policy Wales Edition 10 (adopted December 2018) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

12.1.2 Chapter 4.0 of PWW covers the theme of 'Active and Social Places' and the transportation components of place making.

12.1.3 The principle of the PWW policy is to encourage sustainable travel as set out in paragraph 4.1.1:

“The planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport. By influencing the location, scale, density, mix of uses and design of new development, the planning system can improve choice in transport and secure accessibility in a way which supports sustainable development, increases physical activity, improves health and helps to tackle the causes of climate change and airborne pollution by:

- *Enabling More Sustainable Travel Choices – measures to increase walking, cycling and public transport, reduce dependency on the car for daily travel;*
- *Network Management – measures to make best use of the available capacity, supported by targeted new infrastructure; and*
- *Demand Management – the application of strategies and policies to reduce travel demand, specifically that of single-occupancy private vehicles.”*

12.1.4 The proposed development site is accessible by walking, cycling and public transport. The majority of vehicle trips to the restaurant would be existing on the network in any event.

12.1.5 As set out in paragraph 4.1.8 The Welsh Government will seek to encourage cycling:

“The Welsh Government is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport’.

12.1.6 It is proposed to provide cycle parking for staff and customers to encourage cycling. The site is located in a mature urban, environment and would link with the existing walking/cycling infrastructure.

12.1.7 The sustainable travel:

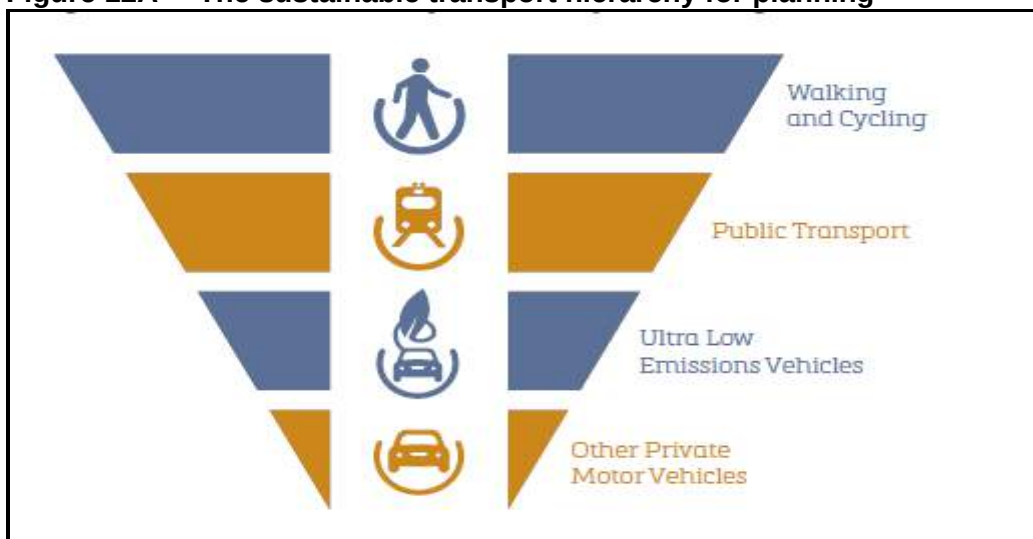
“Development proposals must seek to maximise accessibility by walking, cycling and public transport, by prioritising the provision of appropriate on-site infrastructure and, where necessary, mitigating transport impacts through the provision of off-site measures, such as the development of active travel routes, bus priority infrastructure and financial support for public transport services”.

12.1.8 The proposal would generate a relatively low level of pedestrian trips. It is proposed to improve pedestrian accessibility to the development by providing a footway link between the Retail Park and the restaurant.

12.1.9 The Welsh Government have set out a hierarchy for sustainable transport in relation to new development as follows:

“It is Welsh Government policy to require the use of a sustainable transport hierarchy in relation to new development, which prioritises walking, cycling and public transport ahead of the private motor vehicles. The transport hierarchy recognises that Ultra Low Emission Vehicles also have an important role to play in the decarbonisation of transport, particularly in rural areas with limited public transport services.”

Figure 12A The sustainable transport hierarchy for planning



12.1.10 Pedestrians would be afforded priority through the car park with informal zebra crossing facilities and there are bus stops close to the site. EVCPs could be dealt with by condition if required.

12.1.11 The PPW acknowledges in para 4.1.16 that in rural areas the approach to sustainable transport will be site specific:

“Different approaches to sustainable transport will be required in different parts of Wales, particularly in rural areas, and new development will need to reflect local circumstances.”

12.1.12 This site is located in an urban area and the level of sustainable travel options is considered reasonable for an urban/retail park location.

12.1.13 The PPW promotes Active Travel and sets out that new development should integrate with existing active travel networks;

“New development places additional demand on transport infrastructure and networks, with the location, layout and design of development affecting the distance and way in which people travel. Developing local active travel networks can help to mitigate the impact of new development, by providing an alternative mode of travel to the private car, particularly for shorter journeys. Provision for active travel must be an essential component of development schemes and planning authorities must ensure new developments are designed and integrated with existing settlements and networks, in a way which makes active travel a practical, safe and attractive choice.”

12.1.14 The proposed restaurant is intended to provide a local facility primarily for existing motorists on the network in any event and shared trips with the Retail Park but it is accessible by non-car modes.

12.1.15 The PPW sets out in relation to cycle parking that:

“New development must provide appropriate levels of secure, integrated, convenient and accessible cycle parking and changing facilities. As well as providing cycle parking near destinations, consideration must also be given to where people will leave their bike at home. Guidance on cycle parking is contained within the Active Travel Design Guidance. Planning authorities may alternatively wish to adopt locally specific minimum cycle parking standards and guidance.”

12.1.16 Cycle parking will be provided in accordance with the Council's Standard.

12.1.17 The PPW sets out in relation to public transport that:

“Planning authorities must direct development to locations most accessible by public transport. They should ensure that development sites which are well served by public transport are used for travel intensive uses, such as housing, jobs, shopping, leisure and services, reallocating their use if necessary. In rural areas, planning authorities should designate local service centres, or clusters of settlements where a sustainable functional linkage can be demonstrated, as the preferred locations for new development.”

12.1.18 The site is reasonably accessible by public transport.

12.1.19 The PPW policy regarding Electric Vehicle Charging Points is as follows:

“To encourage the use of Ultra Low Emission Vehicles (ULEVs), the planning system should encourage and support the provision of ULEV charging points as part of new development. Where car parking is provided for new non-residential development, planning authorities should seek a minimum of 10% of car parking spaces to have ULEV charging points. Planning authorities should ensure the level, location and type of charging provision is appropriate to the scheme and local circumstances. Consideration should be given to:

- the time users are likely to be present at the site;*
- the number of vehicles accessing the site;*
- the number of existing charging points in the immediate and wider area; and*
- other proposed emission mitigation measures.”*

12.1.20 EVCPs could be dealt with by condition if required.

12.1.21 Paragraphs 4.1.50, 4.1.51, 4.1.53 and 4.1.54 outline the Welsh policy regarding car parking provision:

“Car parking provision is a major influence on how people choose to travel and the pattern of development.

A design-led approach to the provision of car parking should be taken, which ensures an appropriate level of car parking is integrated in a way which does not dominate the development. Parking provision should be informed by the local context, including public transport accessibility, urban design principles and the objective of reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Planning authorities must support schemes which keep parking levels down, especially off-street parking, when well designed. The needs of disabled people must be recognised and adequate parking provided for them.

Local authorities should develop an integrated strategy on parking to support the overall transport and locational policies of the development plan. Local authorities should consider parking issues on a joint basis with neighbouring authorities. They should jointly establish maximum levels of parking for broad classes of development, together with a threshold size of development above which such levels will apply. These maximum standards should be set in collaboration with interested organisations. Local authorities will need to ensure that their parking standards reflect local transport provision, are adopted by individual authorities as supplementary planning guidance, and are kept under review. Parking standards should be applied flexibly and allow for the provision of lower levels of parking and the creation of high-quality places.

Private non-residential parking can be a significant component of parking provision in town centres. Authorities should, where appropriate, seek to encourage appropriate redevelopment or re-use of existing private parking sites to bring the provision down, and should refuse planning permission for public and private car parks which do not meet the strategic aims of the development plan and LTP."

12.1.22 An appropriate level of parking is proposed which is sufficient to accommodate the expected level of demand by customers of both the restaurant and the Retail Park.

12.1.23 PPW regarding Transport Assessments, sets out that:

"Transport Assessments are an important mechanism for setting out the scale of anticipated impacts 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 appropriately."

12.1.24 A Transport Assessment has been prepared to support the planning application.

12.1.25 The proposal accords with the Welsh National Guidance.

12.2 Wrexham Unitary Development Plan 1996 – 2011 (Adopted 2005)

12.2.1 The Wrexham Unitary Development Plan (UDP) was adopted in February 2005. Chapter 10.0 sets out the Council's transport policies. The relevant text is considered below.

12.2.2 Policy T8 relates to the Council's parking standards.

“Policy T8 Development granted planning permission will be required to provide vehicle parking spaces either on site or nearby, in accordance with the Council's current parking standards.”

12.2.3 The proposal provides parking spaces on site and accords with the Council's maximum parking standards.

12.2.4 Policy T9 relates to walking and cycling and states:

“Policy T9 Development proposals will be required to provide walking and cycling routes, where feasible and appropriate, that link with existing or proposed walking and cycling routes, and integrate with the public transport system. Opportunities for horse riding along these routes will be secured where appropriate.”

12.2.5 The proposal links with the existing pedestrian infrastructure. Cycle parking will be provided.

12.2.6 The proposal accords with the adopted local planning policy guidance. Wrexham Local Development Plan (2013-2028) which is currently in consultation.

12.3 Wrexham Local Development Plan 2013-2028 (Deposit Plan March 2018)

12.3.1 The Wrexham Local Development Plan (2013-2028) Deposit Plan March 2018 sets out the Council's proposed strategic approach for the development of Wrexham up to 2028. The following proposed LDP policies concern transport, the relevant texts are considered below.

12.3.2 Policy SP12 relates to transport and accessibility as follows.

“Wrexham's transport network will be developed in a safe, efficient and sustainable manner through the following measures:

i. Restricting development that would have an unacceptable impact on the safe and efficient operation of the transport network,

vi. Ensure adequate levels of car parking taking into consideration the location and accessibility of new developments to existing public transport facilities and walking and cycling network,

viii. Deliver capacity and safety enhancements to the local highway network where considered appropriate to facilitate existing and forecast traffic demands.”

12.3.3 The proposal would have no material impact on the operation of the road network. There would be sufficient car parking for the Retail Park and McDonald's. No mitigation measures are required.

12.3.4 Policy TP1 relates to managing transport impacts.

“Proposals for new development will be supported where they:

- i. Facilitate increased journeys by more sustainable modes of travel first by walking and cycling, then by public transport and finally by private motor vehicle;***
- ii. Mitigate any significant adverse effects upon the transport network that arise from the proposed development including improvements to transport infrastructure where required;***
- iii. Do not compromise the safe, effective and efficient use of the highway network and do not have an adverse impact on highway safety or create unacceptable levels of traffic generation;***
- iv. Provide appropriate levels of parking and ensure access arrangements for the site to allow for safe manoeuvring;***
- v. Make provision for people with restricted mobility including those with characteristics as defined by the Equality Act 2010.***

Developments that would generate significant amounts of movement should be accompanied by a Transport Assessment and Travel Plan.”

12.3.5 In response:

- i) The proposal facilities shared trips with the Retail Park and Sainsbury's. Cycle parking would be provided for staff and customers.
- ii) There would be no significant adverse effects. No mitigation measures are required.
- iii) There are no existing highway safety issues at the Plas Coch Roundabout or Retail Park Roundabout and there would be no highway safety impact with the McDonald's. The majority of McDonald's trips would be existing on the network in any event. The level of proposed traffic generation is acceptable.
- iv) It has been demonstrated that the parking provision and access arrangements are appropriate.
- v) Access for disabled customers would be provided.

12.3.6 Policy T2 relates to active travel as follows:

“To enable people to access employment, education, healthcare and other essential services, new development will be supported where:

- i. Walking and cycling infrastructure is an integral part of the overall design of the scheme and makes a positive contribution to the distinctiveness of communities and places,*
- ii. Facilities that encourage and promote Active Travel including but not limited to appropriate signing, lighting, secure and convenient cycle parking and where appropriate shower and changing facilities are provided,*
- iii. The development and enhancement of the Active Travel routes identified on the Integrated Network Map connecting communities to essential services including public transport, employment and education opportunities,*
- iv. Provision of appropriate travel choice information including reference to the benefits of cycling and walking for all or part of journeys is made available,*
- v. Measures that work to reduce the dominance and speed of vehicles affording increased priority to pedestrians and cycle movements.”*

12.3.7 The site is accessible by walking and cycling. The Highway Authority have advised that a Travel Plan would not be required but this could be dealt with by condition if necessary.

12.3.8 Policy T3 relates to passenger transport and states:

“To reduce dependency on the private car, developments which provide for and promote the use of passenger transport services will be supported where:

- i. Enhanced or new passenger transport services connecting communities to areas of opportunity including employment, education, health facilities, retail, leisure and social activities are proposed,*
- ii. Appropriate new highway infrastructure improvements that afford priority to bus based passenger transport over the private car,*
- iii. Infrastructure improvements to existing rail and bus interchanges including measures which; promote the opportunity for Park and Ride; improve taxi and community transport provision; and improves accessibility including meeting the needs of people with restricted mobility,*
- iv. Appropriate pedestrian and cycling investment that improves connectivity to and from the rail and bus stations,*
- v. Strategically sited park and ride infrastructure where appropriate, supported by attractive, frequent and reliable bus services on key bus routes, and*
- vi. Enhanced promotion and marketing of public transport alternatives through travel plans.”*

12.3.9 The site is located close to the existing bus services within the Retail Park and on Mold Road. As outlined above a Travel Plan could be dealt with by condition if required.

12.3.10 The proposal accords with the proposed draft local planning policy guidance.

13.0 SUMMARY AND CONCLUSIONS

- 13.1 ADL Traffic & Highways Engineering have been appointed by McDonald's Restaurants Ltd to prepare this Transport Assessment in support of the planning application for the redevelopment of part of the Argos/Iceland/Range car park at Plas Coch Retail Park, Wrexham to provide a McDonald's Restaurant with drive thru facility.
- 13.2 The existing Retail Park car park comprises of a total of 235 parking spaces.
- 13.3 It is concluded that the accident records do not indicate any highway safety issues on the existing network, which need to be addressed as part of this planning application.
- 13.4 It has been demonstrated that there is 1 existing restaurants within 10km of the site of which does not have drive thru facilities. The proposal would therefore act as a local facility.
- 13.5 The site is reasonably accessible by walking, cycling and public transport.
- 13.6 It is proposed to redevelop the site to provide a 440sqm McDonald's Restaurant with side-by-side drive thru facilities. Access to the proposed restaurant would be via the southern arm of the Retail Park Roundabout which currently serves the Argos/Iceland/Range. There would be 196 spaces to serve the existing retail units and the McDonald's restaurant.
- 13.7 Appropriate arrangements are proposed for the servicing of the restaurant.
- 13.8 The restaurant would generate the following traffic:
- AM Peak 70 vehicles
 - PM Peak 111 vehicles
 - Saturday Peak 119 vehicles
- 13.9 It has been demonstrated that on a Friday 46% of trips to McDonald's could be expected to be additional trips to the restaurant and 54% would be existing on the road network. On a Saturday 23% of trips would be additional trips and 77% would be existing on the road network.

13.10 The number of additional trips to the network would therefore be:

- AM Peak 32 vehicles
- PM Peak 51 vehicles
- Saturday Peak 27 vehicles

13.11 The proposed development would have no material impact on the operation of the road network.

13.12 The overall difference in parking provision would be a loss of 39 spaces. The total proposed parking provision for the Argos/Iceland and McDonald's would be 196 spaces. The surveys of the Retail Park car park have demonstrated that even with the loss of parking and the McDonald's, the car park would be 85% occupied during the Saturday peak with 30 spaces available. There is therefore sufficient parking available for both uses.

13.13 The proposed drive thru has sufficient capacity to accommodate the expected demand.

13.14 The proposal accords with the national and local planning policy guidance.

13.15 It is concluded that there are no justifiable, traffic, transportation or highways reasons for refusing this application.

PRE-APPLICATION DISCUSSIONS

- 1.1 Wrexham Council Advice 03.04.19

MEMORANDUM

From:	Planning Control Manager	To:	Chief Officer – Planning & Regulatory
		FAO:	Sharon Holman
Our Ref:	EP/PP/Pre/2019/019	Your Ref:	ENQ/2019/0079
Date:	3 rd April 2019		

Proposed Free Standing McDonalds Restaurant with Drive Thru Lane, Car Parking and Associated Works.

Plas Coch Retail Park, Plas Coch Road, Wrexham.

I refer to your consultation / email dated 02/04/2019 including layout plan (Drg. No. 7894-SA-XXXX-SK01) in respect of the above.

Access

The proposed development site is located on the Plas Coch Retail Park off Plas Coch Road. The existing road network leading to / serving the retail park already suffers from capacity issues during weekday peak times and at the weekend when significant queuing / delays are experienced.

The existing A483 / A541 junction, Plas Coch roundabout(s) and New Road / Stansty Road junction suffer from capacity issues and would not benefit from any significant increase in vehicle movements.

The proposed McDonalds Restaurant including drive-thru facility is considered likely to result in a significant increase in vehicle movements at the existing retail park which is considered unacceptable. I would be unable to support any proposed development that will result in any significant increase in vehicle movements at the Plas Coch Retail Park.

Parking Provision

Parking provision at the existing retail park is considered adequate to cater for the existing retail units in this location ie/ Argos, The Range (incorporating Iceland Food). The existing car park in this location appears to provide a total of 231 spaces which includes 66 spaces in the area proposed for the McDonalds Restaurant.

The proposed development would appear to displace 66 no. existing parking spaces in this area of the car park. The loss of these spaces is considered unacceptable and will leave the existing retail park in this location short of parking provision.

Based on LPGN 16 Class A3 Use, the proposed restaurant / drive-thru would require a maximum of 1 car space per 4m² public floor space. This would equate to the maximum requirement of an additional 110 spaces (based on a total public floor space of 440m²). However, it is not clear as to whether the suggested total floor space of 440m² is public floor space.

The submitted layout plan only appears to indicate the provision of 31 spaces which is considered inadequate.

Turning Provision

I assume that large delivery vehicles & refuse wagons will need to service the proposed development site. However, it is unclear from the submitted information, how such vehicles will maneuver within the development site should the proposed restaurant be supported.

In conclusion, I would not wish to support any proposed development at the existing retail park which is likely to result in any significant increase in vehicle movements.

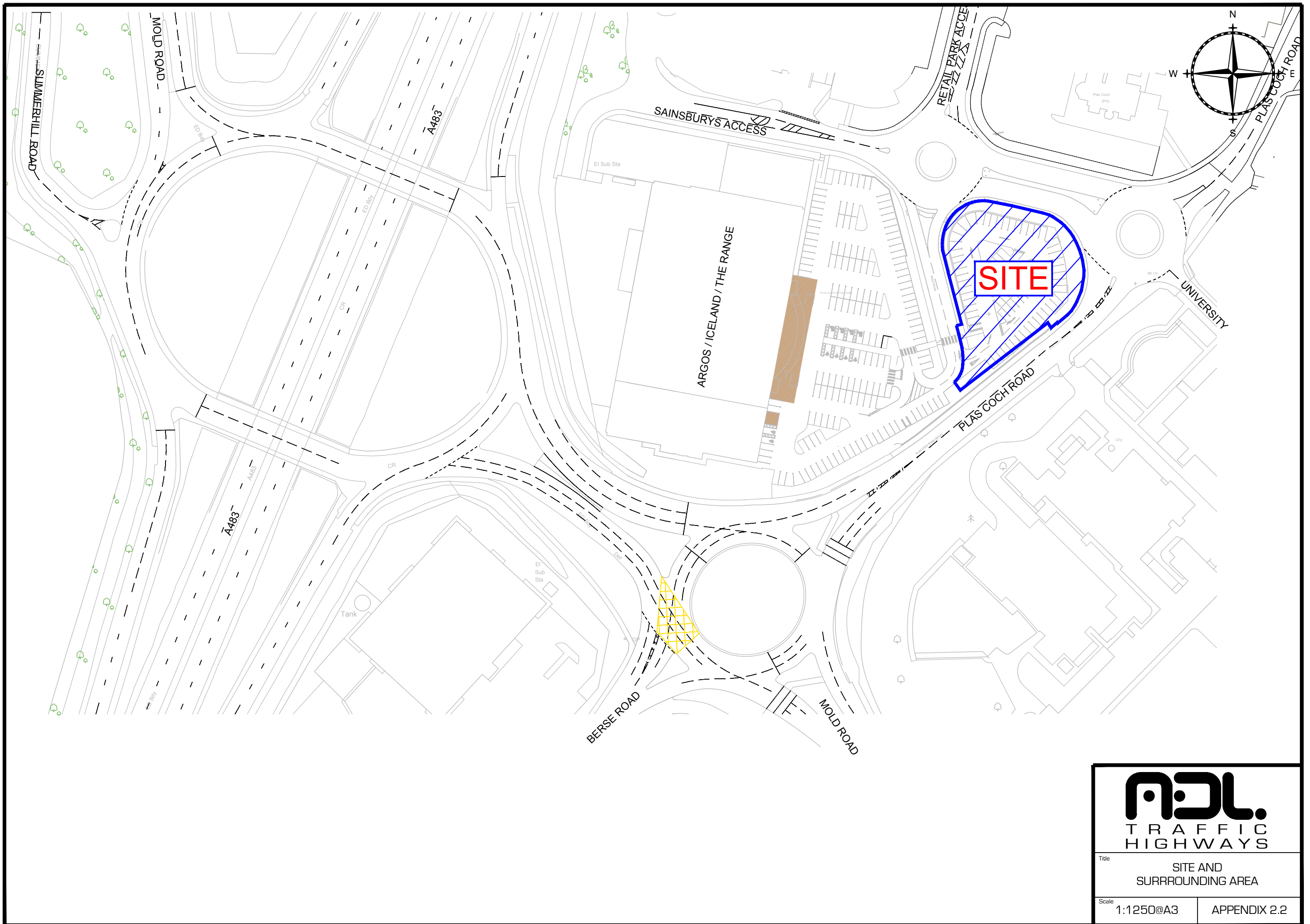
Peter Do Amarante

du Planning Control Manager

SITE AND SURROUNDING AREA AND EXISTING CAR PARK LAYOUT

2.1	Site Location
2.2	Site and Surrounding Area
2.3	Existing Car Park Layout



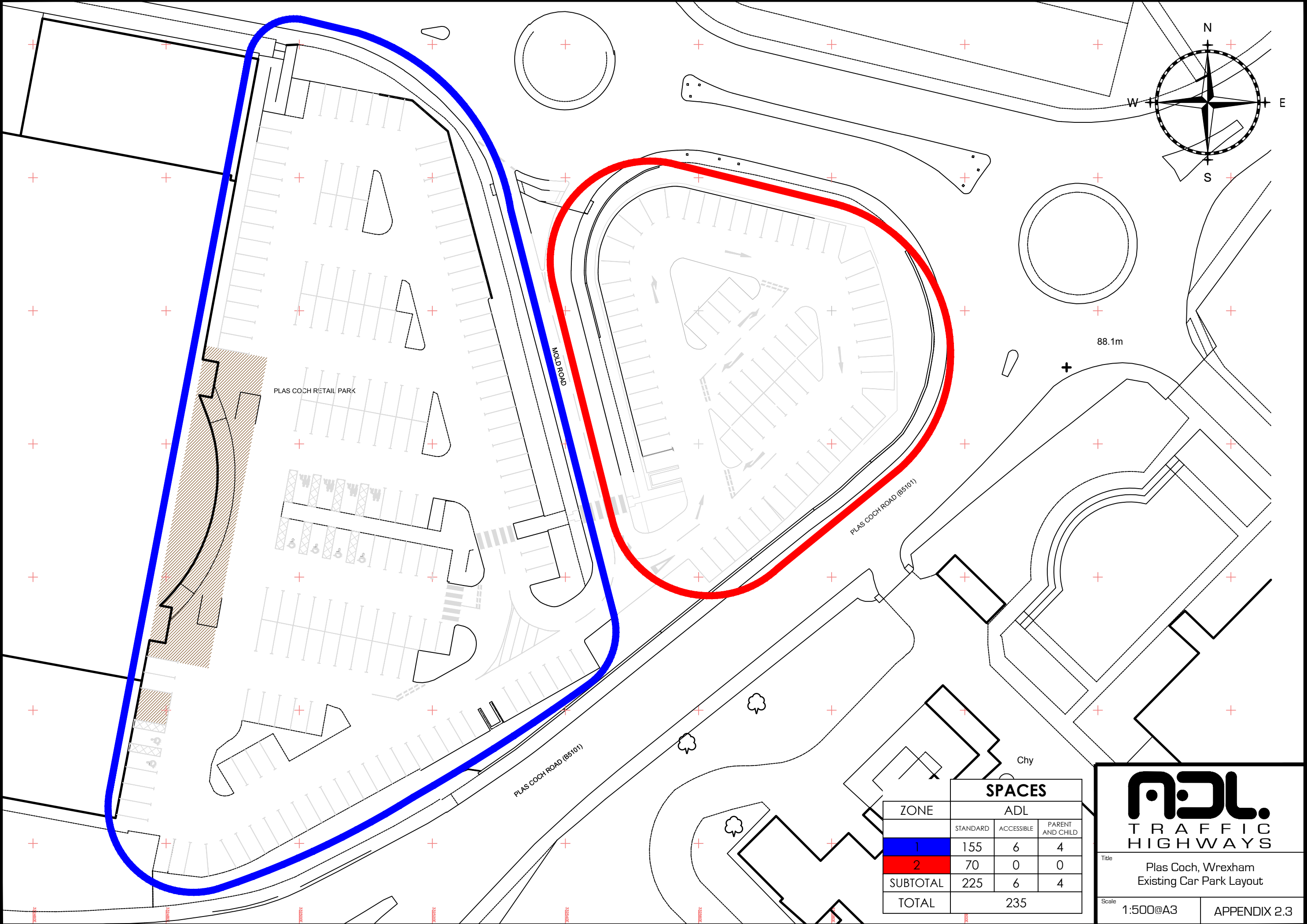


ADL
TRAFFIC
HIGHWAYS

Title
SITE AND
SURROUNDING AREA

Scale
1:1250@A3

APPENDIX 2.2



ZONE	SPACES		
	STANDARD	ACCESSIBLE	PARENT AND CHILD
1	155	6	4
2	70	0	0
SUBTOTAL	225	6	4
TOTAL	235		



ADL
TRAFFIC
HIGHWAYS

Title

Plas Coch, Wrexham
Existing Car Park Layout

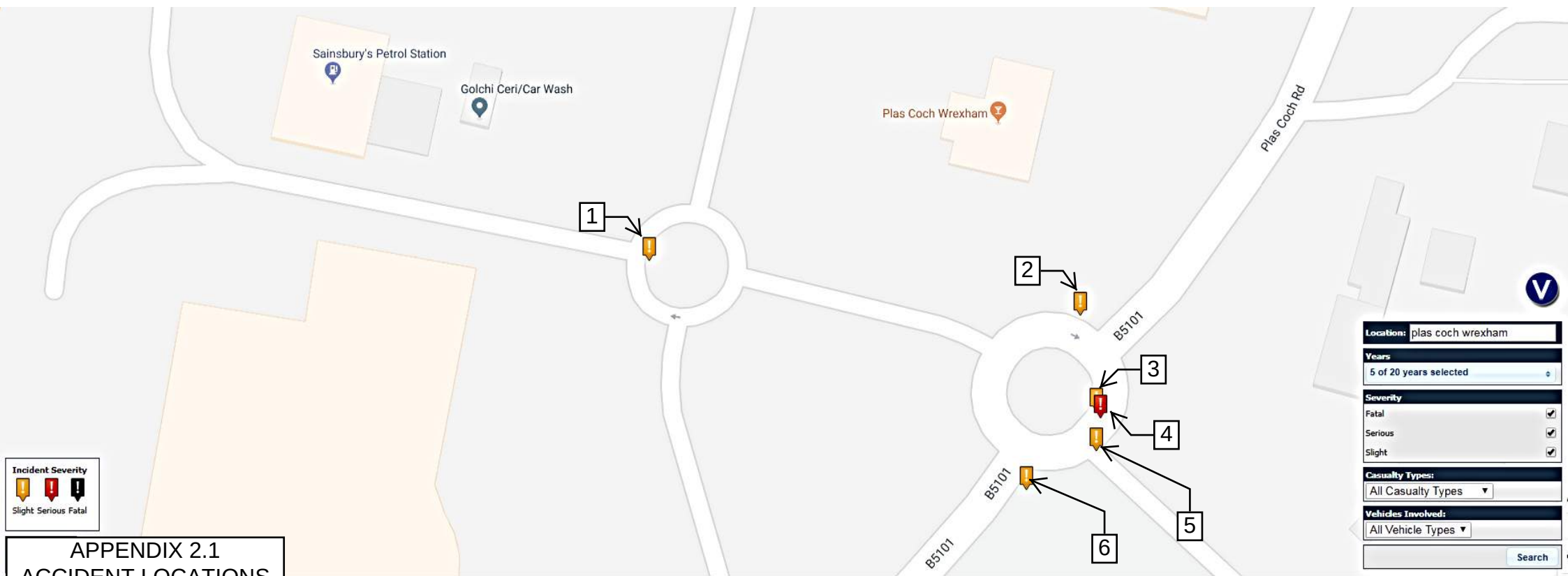
Scale

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APPENDIX 2.3

ACCIDENT DATA

3.1	Accident Locations
3.2	Accident Details

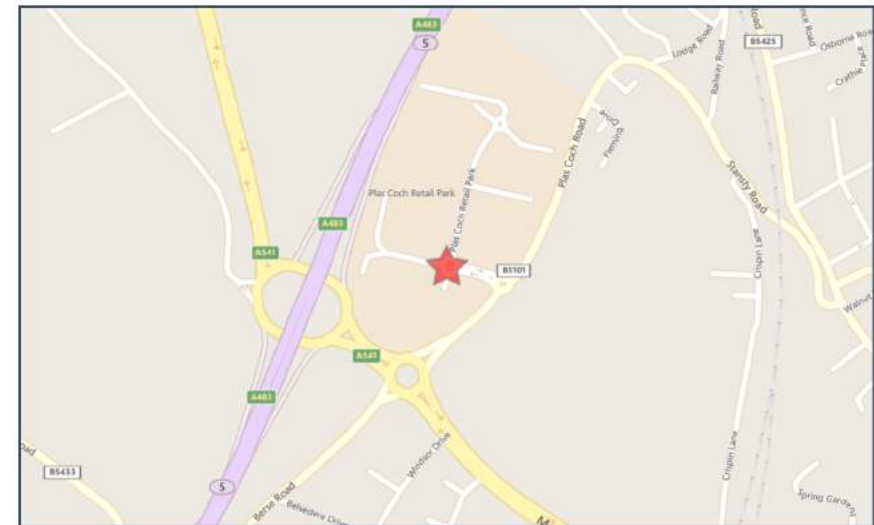


APPENDIX 2.1
ACCIDENT LOCATIONS



Crash Date: Thursday, September 28, 2017 **Time of Crash:** 6:56:00 PM **Crash Reference:** 201760V147986

Highest Injury Severity:	Slight	Road Number:	U0	Number of Casualties:	1
Highway Authority:	Wrexham			Number of Vehicles:	2
Local Authority:	Wrexham County Borough			OS Grid Reference:	332532 351377
Weather Description:	Fine without high winds				
Road Surface Description:	Wet or Damp				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Manoeuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Car (excluding private hire)	-1	Male	26 - 35	Vehicle is in the act of turning right	Nearside	Other	None	None
1	Car (excluding private hire)	-1	Unknown	Unknown	Vehicle proceeding normally along the carriageway, not on a bend	Offside	Other	None	None

Casualties

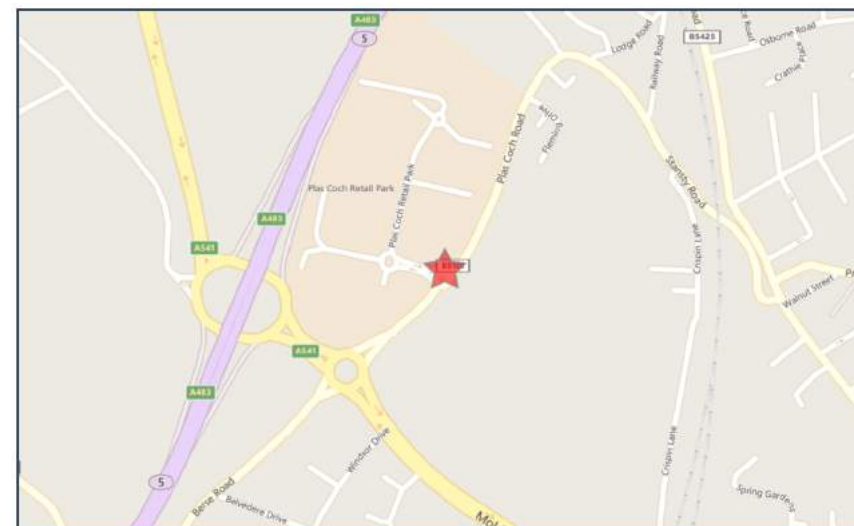
Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Crash Date: Thursday, November 30, 2017 **Time of Crash:** 2:20:00 PM **Crash Reference:** 201760V180889

Highest Injury Severity:	Slight	Road Number:	U0	Number of Casualties:	1
Highway Authority:	Wrexham	Number of Vehicles:	2	OS Grid Reference:	332624 351364
Local Authority:	Wrexham County Borough				
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Manoeuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Car (excluding private hire)	-1	Female	36 - 45	Vehicle proceeding normally along the carriageway, not on a bend	Back	Other	None	None
1	Car (excluding private hire)	-1	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

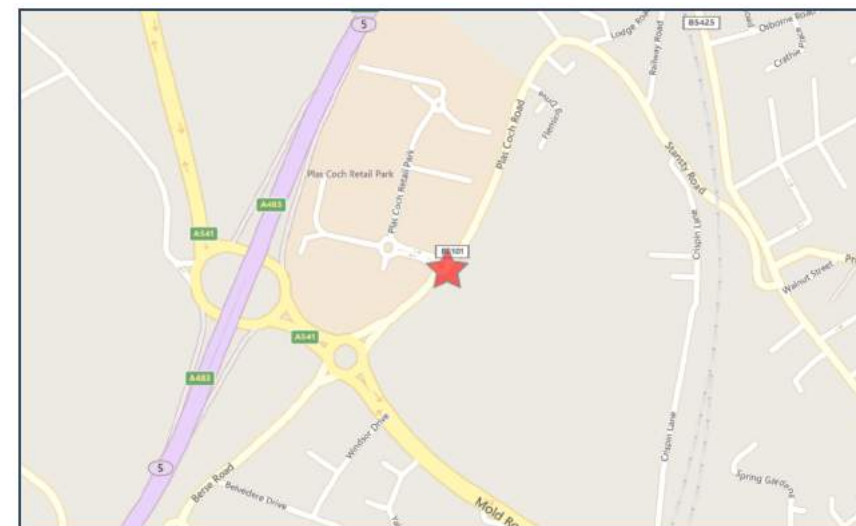
Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Female	36 - 45	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Crash Date:	Thursday, March 13, 2014	Time of Crash:	7:55:00 AM	Crash Reference:	201460R037281
Highest Injury Severity:	Slight	Road Number:	B5101	Number of Casualties:	1
Highway Authority:	Wrexham			Number of Vehicles:	2
Local Authority:	Wrexham			OS Grid Reference:	332629 351347
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Give way or uncontrolled				



For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Pedal cycle	-1	Male	56 - 65	Vehicle is in the act of turning right	Front	Commuting to/from work	None	None
1	Car (excluding private hire)	-1	Unknown	Unknown	Vehicle proceeding normally along the carriageway, not on a bend	Offside	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Male	56 - 65	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Crash Date: Wednesday, August 10, 2016 **Time of Crash:** 7:41:00 AM **Crash Reference:** 201660U118980

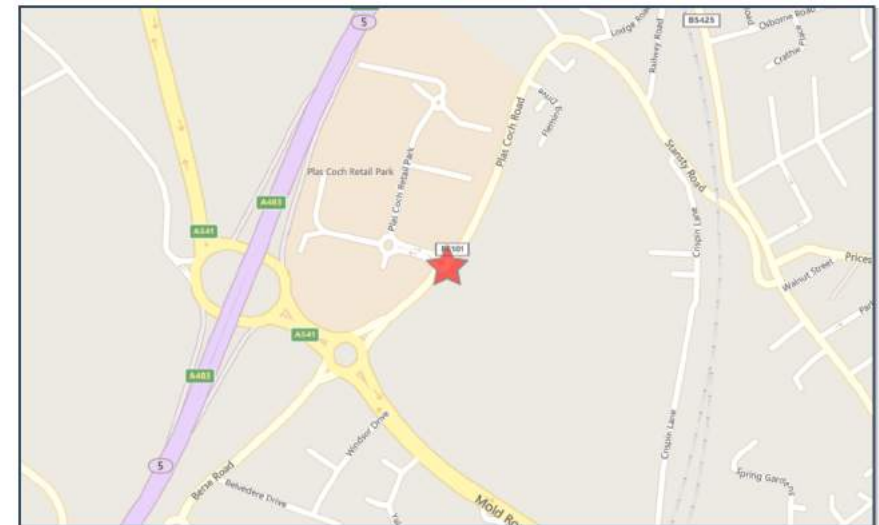
Highest Injury Severity: Serious
Highway Authority: Wrexham
Local Authority: Wrexham County Borough
Weather Description: Fine without high winds
Road Surface Description: Dry
Speed Limit: 30
Light Conditions: Daylight: regardless of presence of streetlights
Carriageway Hazards: None
Junction Detail: Roundabout
Junction Pedestrian Crossing: No physical crossing facility within 50 metres
Road Type: Roundabout
Junction Control: Give way or uncontrolled

Road Number: B5101

Number of Casualties: 1

Number of Vehicles: 2

OS Grid Reference: 332628 351344



For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Car (excluding private hire)	-1	Male	21 - 25	Vehicle proceeding normally along the carriageway, not on a bend	Nearside	Commuting to/from work	None	None
1	Motorcycle over 50cc and up to 125cc	-1	Male	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Front	Commuting to/from work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Crash Date: Friday, June 19, 2015 **Time of Crash:** 4:30:00 PM **Crash Reference:** 201560S089218

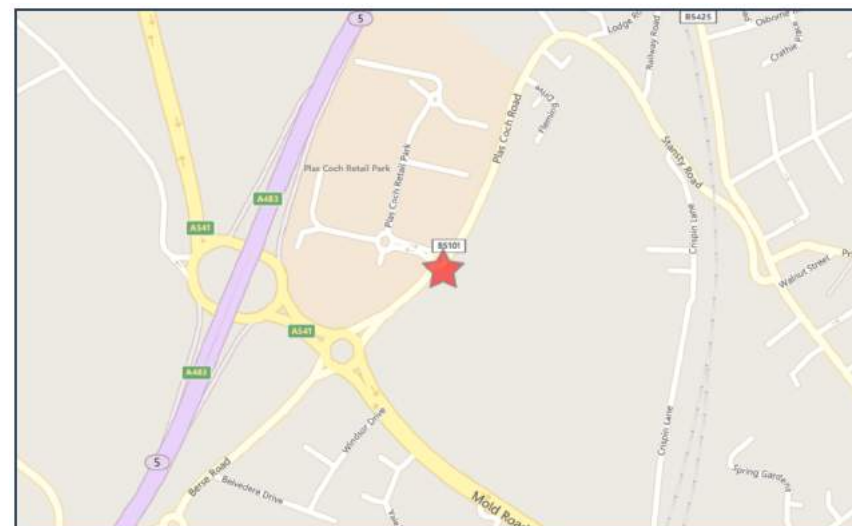
Highest Injury Severity: Slight
Highway Authority: Wrexham
Local Authority: Wrexham
Weather Description: Fine without high winds
Road Surface Description: Dry
Speed Limit: 30
Light Conditions: Daylight: regardless of presence of streetlights
Carriageway Hazards: None
Junction Detail: Roundabout
Junction Pedestrian Crossing: No physical crossing facility within 50 metres
Road Type: Roundabout
Junction Control: Give way or uncontrolled

Road Number: B5101

Number of Casualties: 1

Number of Vehicles: 2

OS Grid Reference: 332627 351337



For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Manoeuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
2	Pedal cycle	-1	Female	21 - 25	Vehicle proceeding normally along the carriageway, not on a bend	Back	Other	None	None
1	Car (excluding private hire)	-1	Unknown	Unknown	Vehicle proceeding normally along the carriageway, not on a bend	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
2	1	Slight	Driver or rider	Female	21 - 25	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Crash Date: Thursday, August 20, 2015 **Time of Crash:** 8:40:00 PM **Crash Reference:** 201560S126738

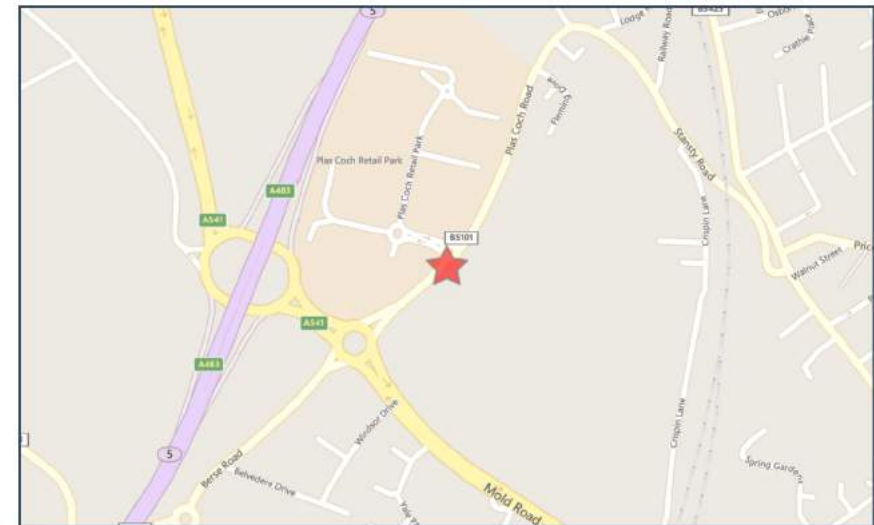
Highest Injury Severity: Slight
Highway Authority: Wrexham
Local Authority: Wrexham
Weather Description: Fine without high winds
Road Surface Description: Wet or Damp
Speed Limit: 30
Light Conditions: Darkness: street lights present but unlit
Carriageway Hazards: None
Junction Detail: Roundabout
Junction Pedestrian Crossing: No physical crossing facility within 50 metres
Road Type: Roundabout
Junction Control: Give way or uncontrolled

Road Number: B5101

Number of Casualties: 1

Number of Vehicles: 3

OS Grid Reference: 332612 351329



For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions



Vehicles involved

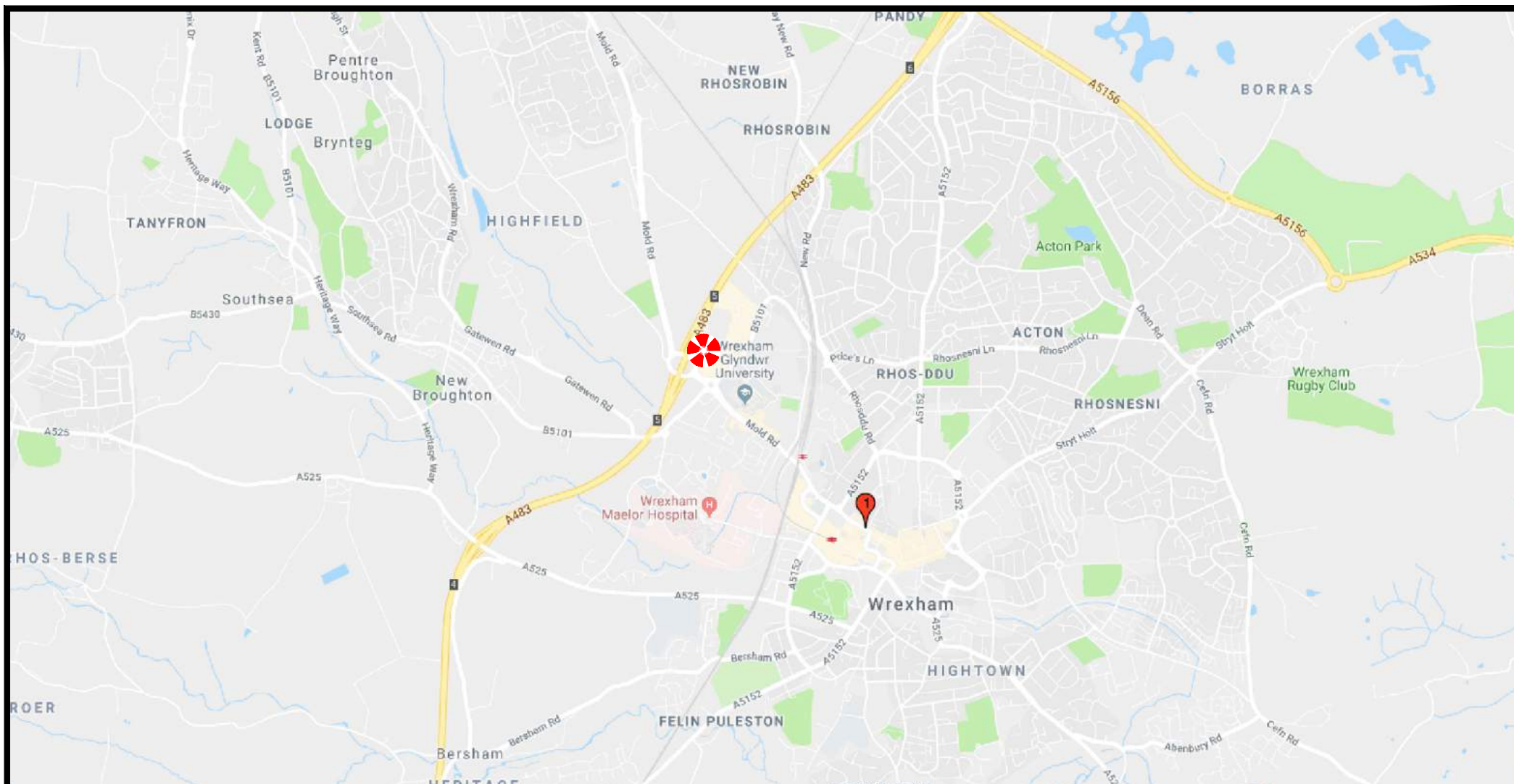
Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneuvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
3	Car (excluding private hire)	-1	Male	66 - 75	Vehicle is waiting to proceed normally but is held up	Back	Other	None	None
2	Car (excluding private hire)	-1	Male	36 - 45	Vehicle is waiting to proceed normally but is held up	Back	Other	None	None
1	Car (excluding private hire)	-1	Male	26 - 35	Vehicle is in the act of turning right	Front	Other	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
3	1	Slight	Vehicle or pillion passenger	Female	56 - 65	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/aboutthedata and www.crashmap.co.uk/home/definitions

MCDONALD'S RESTAURANTS WITHIN 10KM OF THE SITE



SITE

PLAS COCH RETAIL PARK
PLASCOCH ROAD
WREXHAM
LL11 2BA

1. WREXHAM

30/32 REGENT STREET
WREXHAM
LL11 1SA
1.3KM FROM SITE
DRIVE THRU: NO



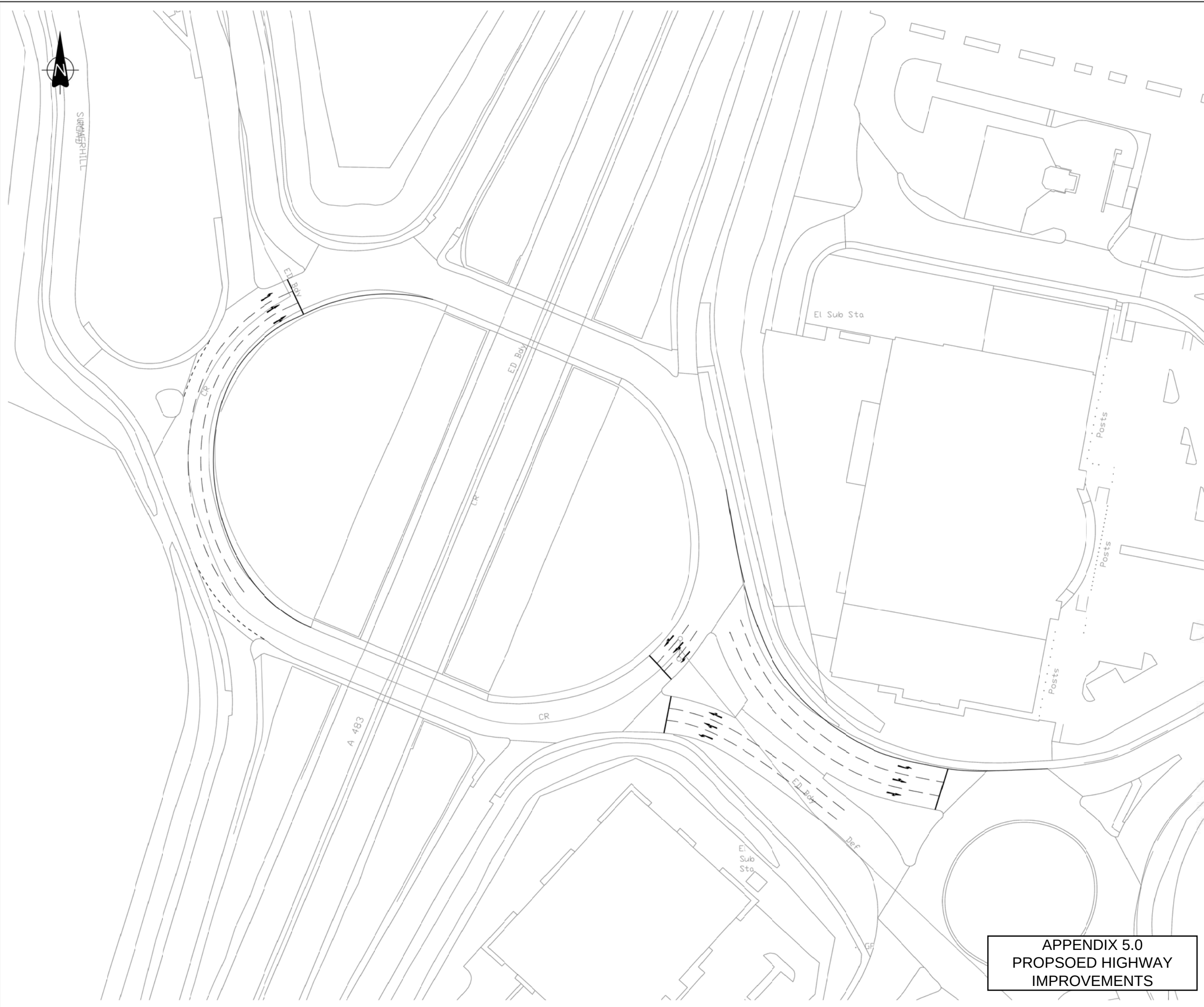
Title

McDONALD'S RESTAURANTS
WITHIN 10KM OF THE SITE

Scale

APPENDIX 4.0

PROPOSED HIGHWAY IMPROVEMENTS



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HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

NOTE:
IT IS ASSUMED THAT THE WORKS WILL BE UNDERTAKEN BY A COMPETENT CONTRACTOR, WHO IS AWARE OF ALL GENERIC RISKS ASSOCIATED WITH THE WORKS. LISTED BELOW ARE 'SIGNIFICANT' RISKS RELATING TO THE WORKS.

If no significant risks have been identified, delete this text and enter 'NONE IDENTIFIED' here.

ISSUE	AMENDMENTS	DRAWN	CHECKED	DATE	
CLIENT	 wrexham COUNTY BOROUGH COUNCIL YNGOIR BAYDIES FRY SIOB wrecsam				
PROJECT	WREXHAM STRATEGIC ROAD NETWORK CAPACITY AND IMPROVEMENT STUDY				
TITLE	A483 JUNCTION 5 IMPROVEMENT				
PURPOSE	INFORMATION				
CAPITA Property and Infrastructure St Davids House, Pascal Close, St Mellons, Cardiff, CF3 0LW T: 02920 803500 w: www.capita.co.uk/infrastructure Capita Property and Infrastructure Ltd.					
DRAWN	M. HASSAN	DATE	JUNE 2015	SCALE	1:500 @A1
CHECKED	G. B. WILLIAMS	DATE	JUNE 2015	PROJECT No.	CS079387
DRG. No.	CS079387-04			REVISION REF.	

**APPENDIX 5.0
PROPOSED HIGHWAY
IMPROVEMENTS**

APPENDIX 6.0

ACCESSIBILITY

- 6.1 Cycle Routes
- 6.2 Bus Stop Locations
- 6.3 Bus Routes
- 6.4 Local Rail Network





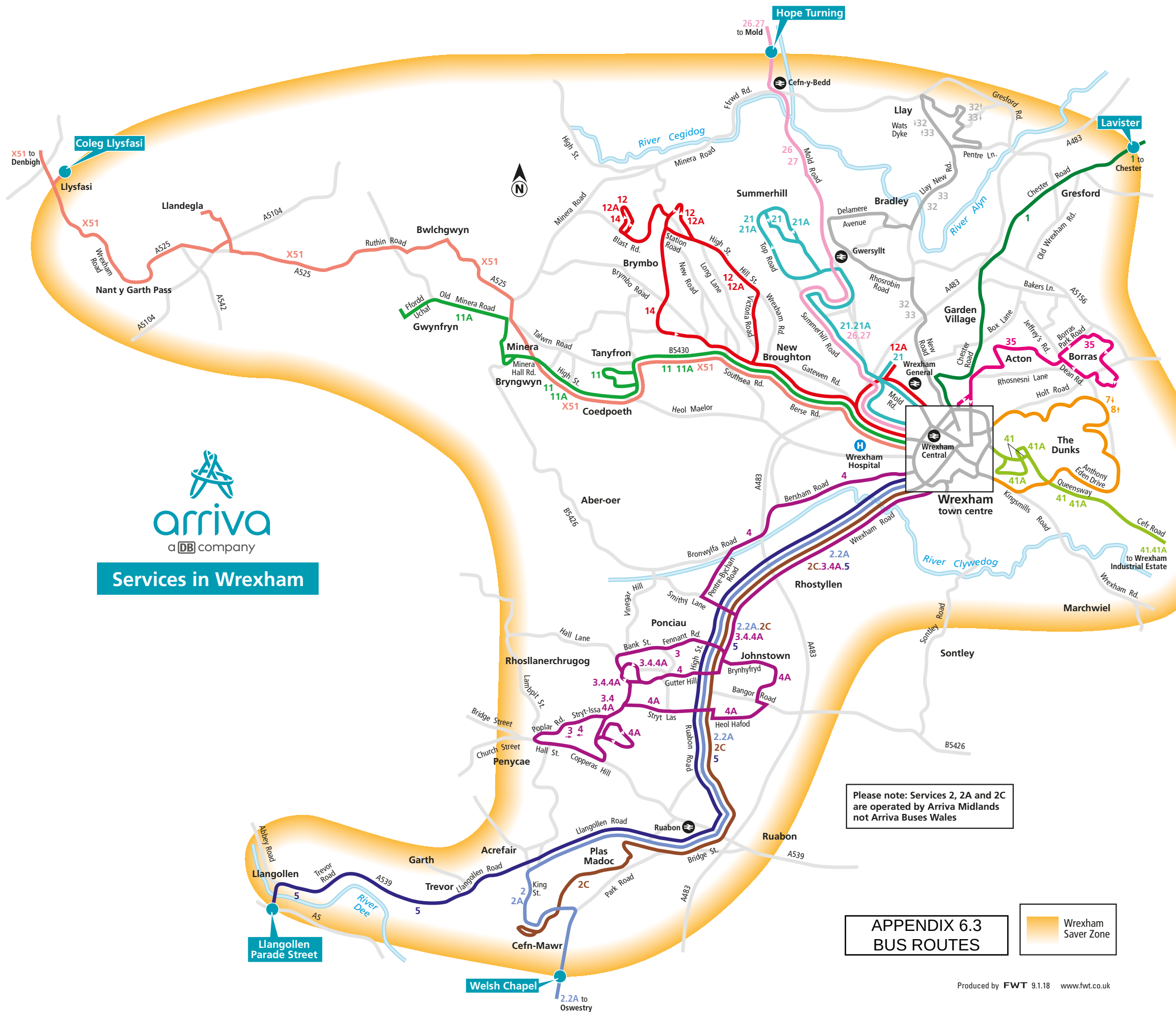
SITE

APPENDIX 6.2
BUS STOP LOCATIONS

Japanese Knotweed



Services in Wrexham



MAP O'R RHWYDWAITH

NETWORK MAP

Mynediad heb stepiau'n bosib i bob platform. Mae'n bosib fod rampiau sy'n cydymffurfio a / neu lifftiau ar gael.
Step free access to all platforms, compliant access ramps and/or lifts may also be available.

Mynediad rhannol: Mae'n bosib fod mynediad i rai platformau drwy ddefnyddio rampiau sydd â graddiant bas i gymedrol; grisiau, croesfan droed ar draws y rheilffordd neu ddargyfeiriad hir rhwng y platformau. Efallai y bydd graddiant y ramp rhwng y tren a'r platform yn rhy serth hefyd i gael ei ddefnyddio. Dim parcio neu barcio cyfyngedig ar gael.

Partial access. Access to some platforms may involve ramps with shallow to moderate gradients, involve steps, use of a foot crossing across the railway or a long detour between platforms. The gradient of the ramp between the train and the platform may also be too steep to be deployed. No or limited parking available.

Nid yw'r orsaf yn addas i ddefnyddwyr cadeiriau olwyn, defnyddwyr sgwter symudol neu bobl sydd â lefel symudedd is. Mae mynediad i'r platform(au) drwy risiau neu rampiau serth.

The station is not suitable for wheelchair users, powered mobility scooter users or persons with reduced mobility. Access to the platform(s) is via steps or steep access ramp(s).

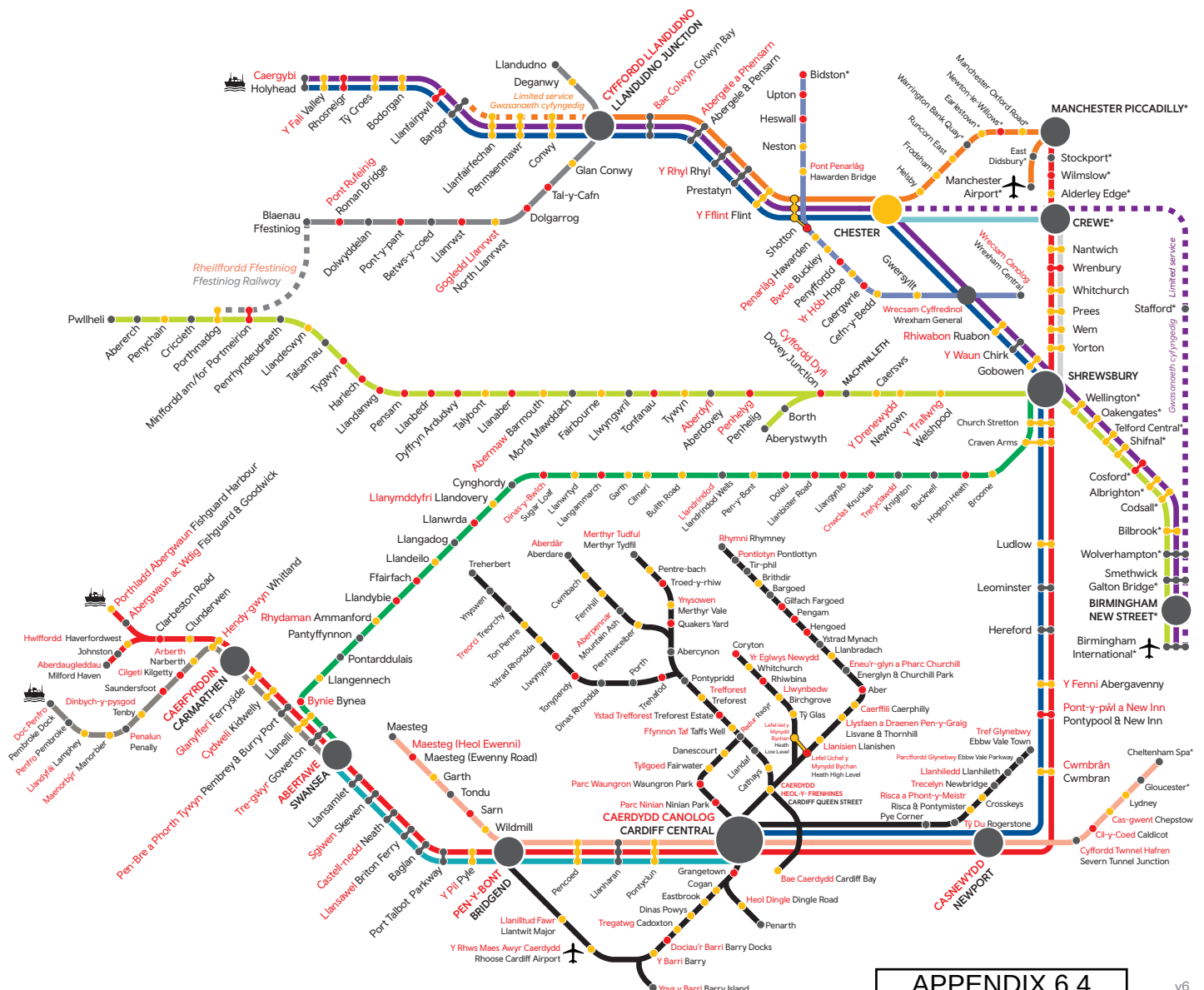
Nid yw Gwasanaethau Rheilffyrdd Trafnidiaeth Cymru yn derbyn unrhyw gyfrifoldeb am gamgymeriadau neu hepgoriadau yn y wybodaeth a gyhoeddwyd. Mae Gwasanaethau Rheilffyrdd Trafnidiaeth Cymru yn cadw'r hawl i wneud newidiadau i'r gwasanaethau a'r cyfleusterau amlinellir.

Transport for Wales Rail Services accepts no liability for any errors or omissions in the information published. Transport for Wales Rail Services reserves the right to make changes to the services and facilities outlined.

*Nid yw gorsafodedd a seren yn cael eu gweithredu gan Trafnidiaeth Cymru.

*Stations marked with an asterisk are not operated by Transport for Wales.

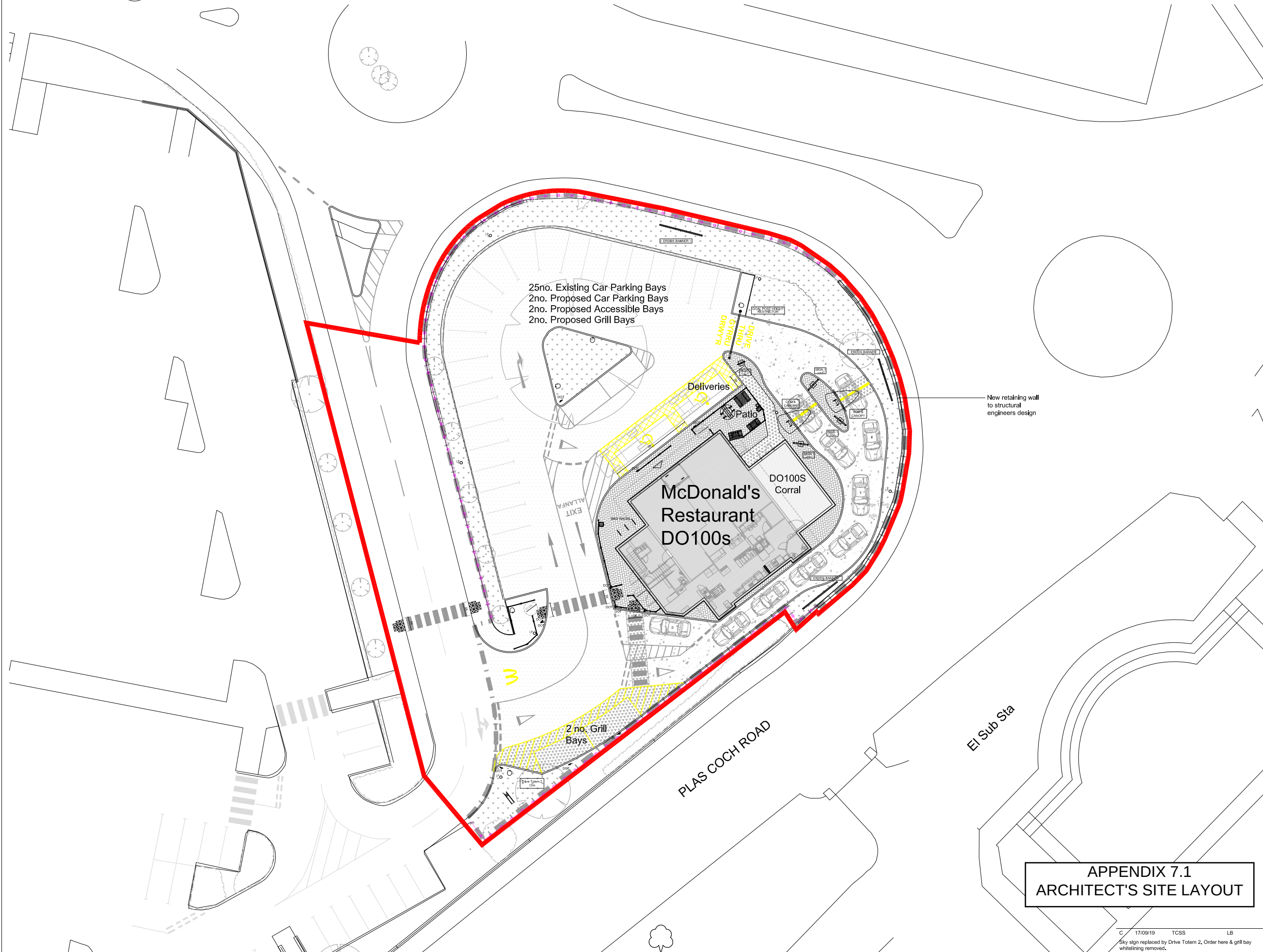
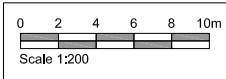
- Gwasanaeth rhwng Gogledd a De Cymru
North Wales South Wales Service
- Llinell y Mers Marches Line
- Llinell Arfordir y Cambrian Cambrian Line
- Llinell Calon Cymru Heart of Wales Line
- Llinell Arfordir Gogledd Cymru North Wales Coast Line
- Llinell Dyffryn Conwy Conwy Valley Line
- Llinell y Gororau Borderlands Line
- Llandudno i Manceinion Llandudno to Manchester
- Llinell Gorllewin Cymru West Wales Line
- Swanline Swanline
- Maesteg i Cheltenham Spa Maesteg to Cheltenham Spa
- Caer i Crewe Chester to Crewe
- Crewe i Amwythig Crewe to Shrewsbury
- Cymoedd y De Cymru South Wales Valleys



APPENDIX 6.4
LOCAL RAIL
NETWORK MAP

ARCHITECT'S SITE LAYOUT AND PARKING LAYOUT

7.1	Architects Site Layout
7.2	Highway Works
7.3	Proposed Car Park Layout



- NOTES**
- All dimensions and levels are to be checked on site.
 - Any discrepancies are to be reported to the architect before any work commences.
 - This drawing shall not be scaled to ascertain any dimensions. Work to figured dims only.
 - This drawing shall not be reproduced without express written permission from AEW.
 - Title overlay drawings and ownership boundaries are produced using all reasonable endeavours. AEW cannot be responsible for the accuracy or scale discrepancy of base plans supplied to them.
 - All works are to be undertaken in accordance with Building Regulations and the latest British Standards.
 - All proprietary materials and products are to be used strictly in accordance with the manufacturers recommendations.

CDM 2015

Client notified of duties: **at design workshops.**

Principal Designer: **TBC**

Unless noted below, all known hazards have been highlighted on the drawing:

- Drawing Based on Glamville's Survey drawing no. 61901104101 dated January 2019 and OS Promap
- Scale for planning purposes only.
- Extent of McDonald's Demise Indicated thus: [Symbol]
- Extent of McDonald's Application indicated thus: [Symbol]

Proposed Schedule of Parking	
Accessible Bays	02
Grill Bays	02
General Bays	02
Existing Parking Bays	25
Total Parking Bays	31

Schedule of Areas	
Proposed Site Area (Hectares)	0.237
Proposed Building (GSA / m ²) (Excluding Corral)	240.4

Proposed Site Finishes	
Tarmacadam - Car Park	[Symbol]
Paved Concrete - Drive Thru	[Symbol]
Marshall's 200mm x 100mm Charcoal Keylock Paving - Pads	[Symbol]
Tarmacadam - Footpaths	[Symbol]
Turf & Low Level Shrubs - Soft Landscaping	[Symbol]
Brushed Concrete - Drive Thru Lanes w/ Road Markings and Delivery Route	[Symbol]
6m Indicative Lighting Column - Positions subject to confirmation by M&E consultant	[Symbol]
600mm High Timber Post & Rail Fence	[Symbol]
Target Bin	[Symbol]

Parks Aurilium Furniture Schedule	
Circular Table - 4 Seat 1500mm Ø (H 750mm), Galvanneal steel frame with laminated timber effect finish	[Symbol]
Rectangular Table - 8 Seat 600mm x 2070mm (H 750mm), Galvanneal steel frame with laminated timber effect finish	[Symbol]
Rectangular Table - 4 Seat 1250mm x 1450mm (H 750mm), Galvanneal steel frame with laminated timber effect finish	[Symbol]
Rectangular Table - 2 Seat 700mm x 1450mm (H 750mm), Galvanneal steel frame with laminated timber effect finish	[Symbol]
Town Bin 492 x 492mm (H 1217mm), Galvanneal steel frame with laminated timber effect finish	[Symbol]
Bin Bin 287 x 287mm (H 880mm), Galvanneal steel frame with laminated timber effect finish	[Symbol]

General Site Proposal Notes:

DOT denotes Department of Transport Signs. For Signage type refer to AEW drawing no. 7391_AEW_8903_0008

DK denotes drop kerb to be installed

All drive thru related road markings to be in yellow thermoplastic material

Car park related road markings to be in white thermoplastic material

Standard parking bays to be finished in white thermoplastic material

All junction road markings to be finished in white thermoplastic material

Accessible parking bays to be finished in yellow thermoplastic material to current Part M standards with relevant DOT signage and drop kerbs as indicated

Parked order bays and numbers to be finished in yellow thermoplastic material with relevant DOT signage

All pedestrian crossings set out in white thermoplastic material. Tactile paving where crossing leads to safe destination

Drop kerbs to be installed along delivery routes

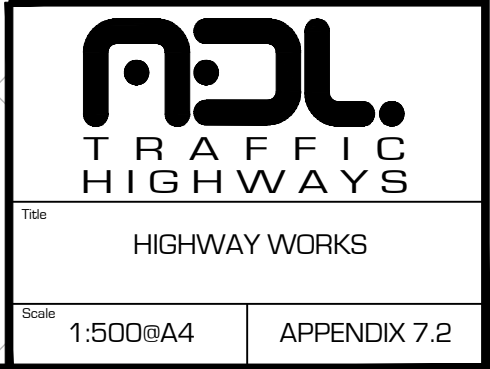
B	10/06/19	RC	EOH
Red line boundary amended			
A	05/06/19	TCSS	LB
3 x cycle hoops shown.			
REV	Date	Drawn by:-	Checked by:-

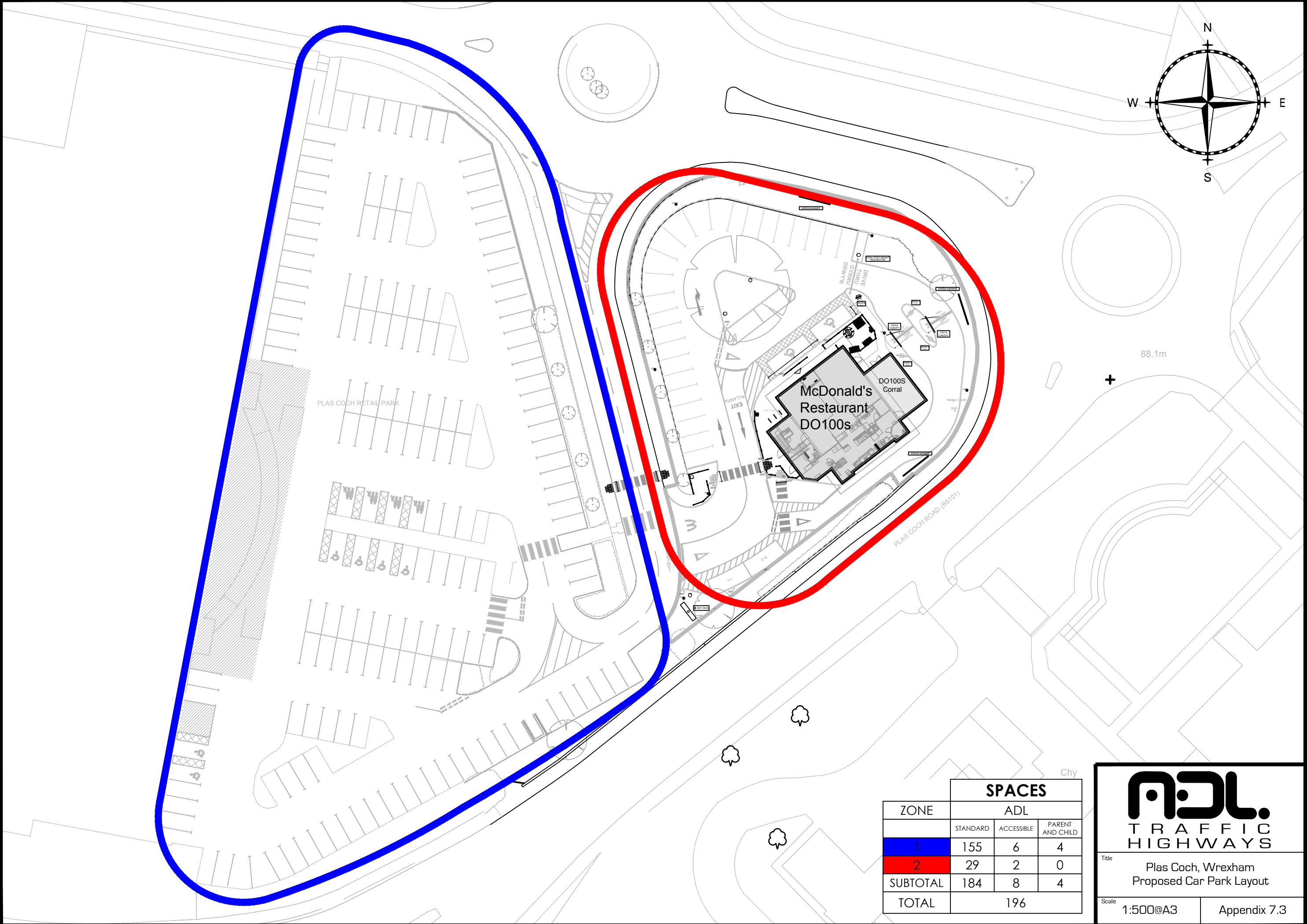
Status	Purpose of Issue
S2	For Information
drawing stage	Planning
client	
McDonald's Restaurants Ltd	
project	store
Plas Coch Retail Park Wrexham	8903
drawing title	
Proposed Site Plan	
date	28/05/2019
scale@A1	1:200
drawn	RC
checked	TSS

**APPENDIX 7.1
ARCHITECT'S SITE LAYOUT**

C 17/09/19 TCSS LB
Sky sign replaced by Drive Totem 2, Order here & grill bay
whitelineing removed.

Proposed Site Plan





ZONE	SPACES		
	ADL		
	STANDARD	ACCESSIBLE	PARENT AND CHILD
1	155	6	4
2	29	2	0
SUBTOTAL	184	8	4
TOTAL	196		



ADL
TRAFFIC
HIGHWAYS

Title

Plas Coch, Wrexham
Proposed Car Park Layout

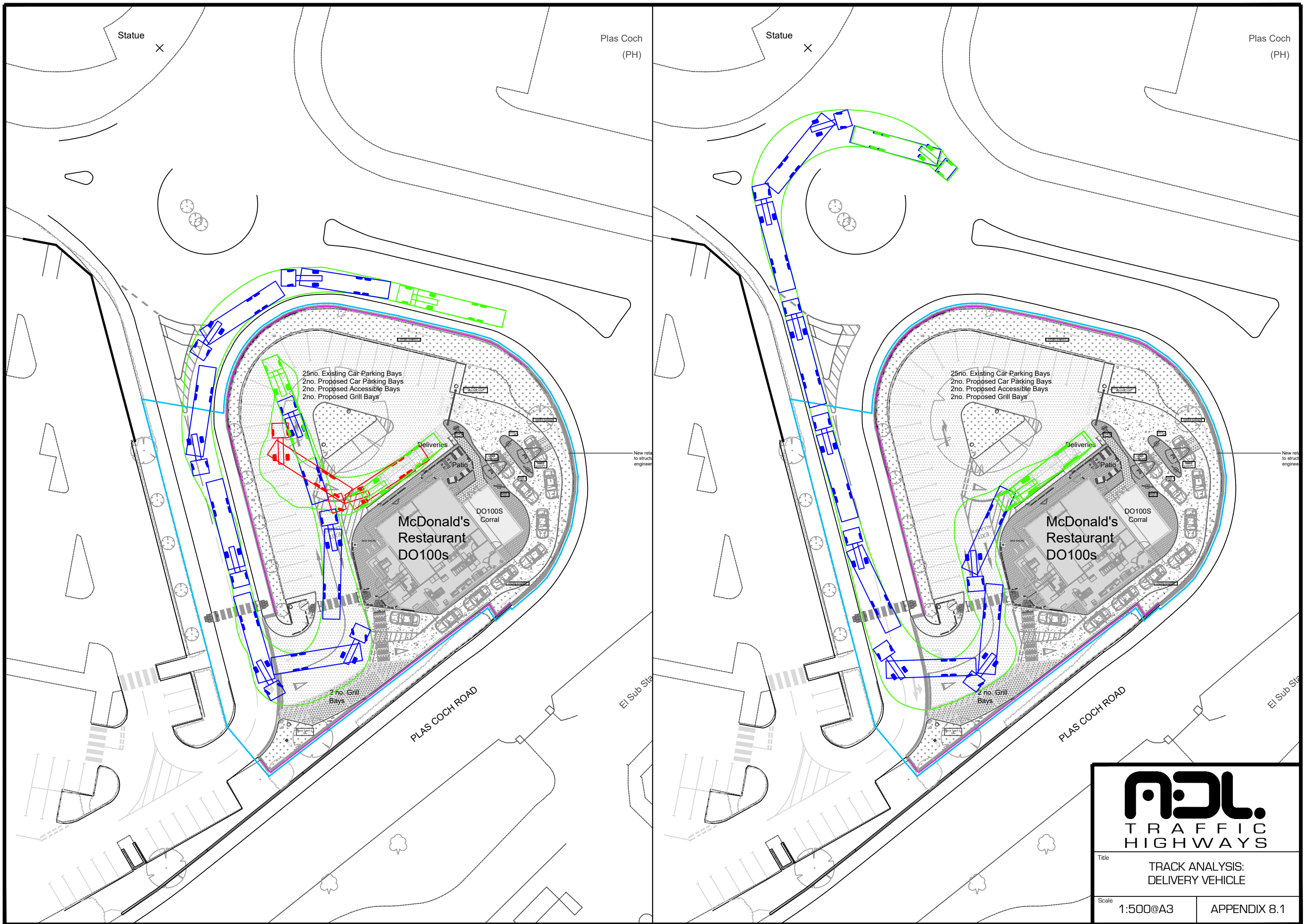
Scale

1:500@A3

Appendix 7.3

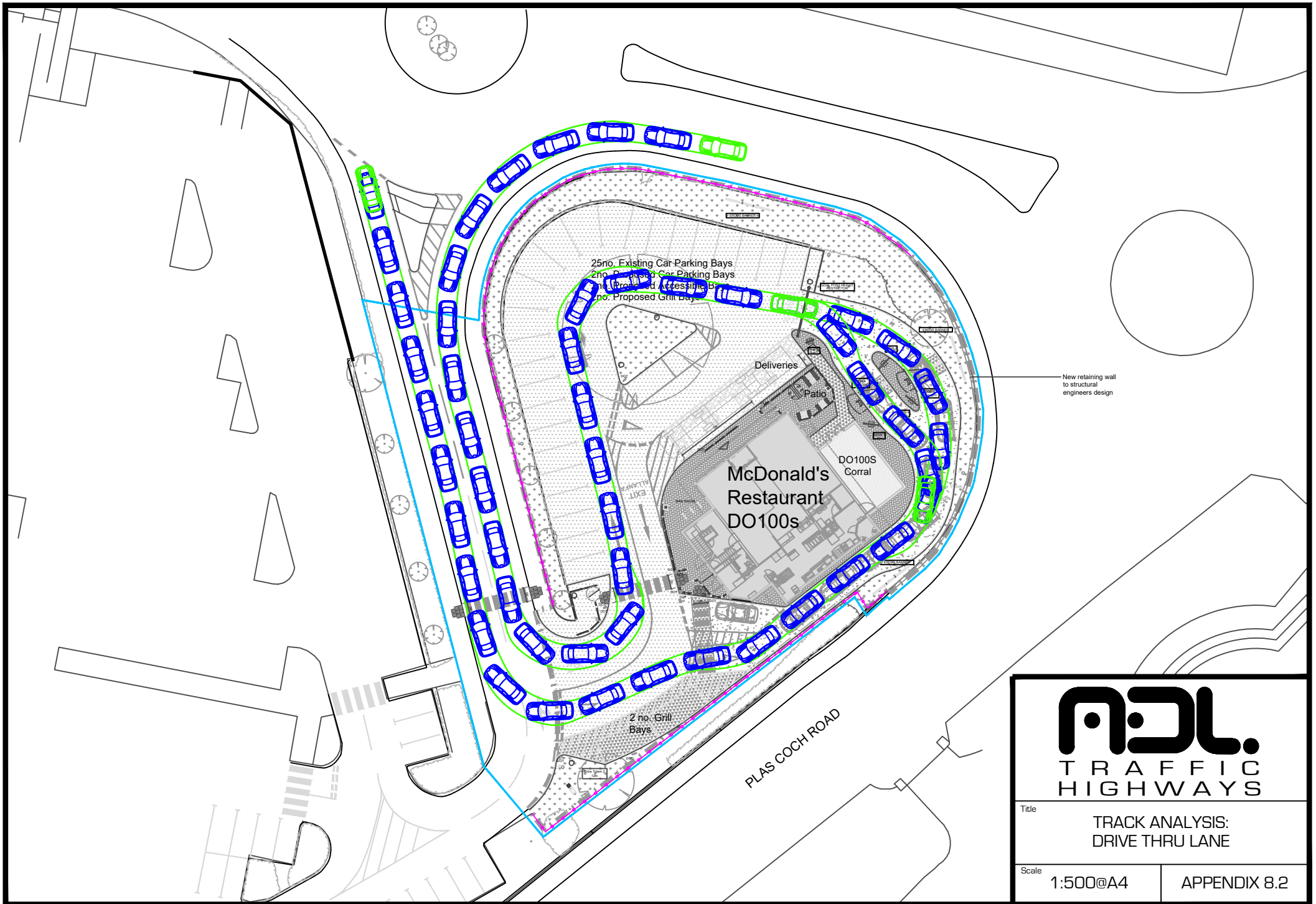
TRACK ANALYSIS

8.1	Delivery Vehicle
8.2	Drive Thru Lane



ADL
TRAFFIC
HIGHWAYS

Title		TRACK ANALYSIS: DELIVERY VEHICLE	
Scale		1:500@A3	APPENDIX 8.1



ADL.
TRAFFIC
HIGHWAYS

Title

TRACK ANALYSIS:
DRIVE THRU LANE

Scale

1:500@A4

APPENDIX 8.2

SUMMARY OF McDONALD'S SURVEY INFORMATION

McDonald's survey data - Restaurants near foodstores: Vehicle and Pedestrian counts

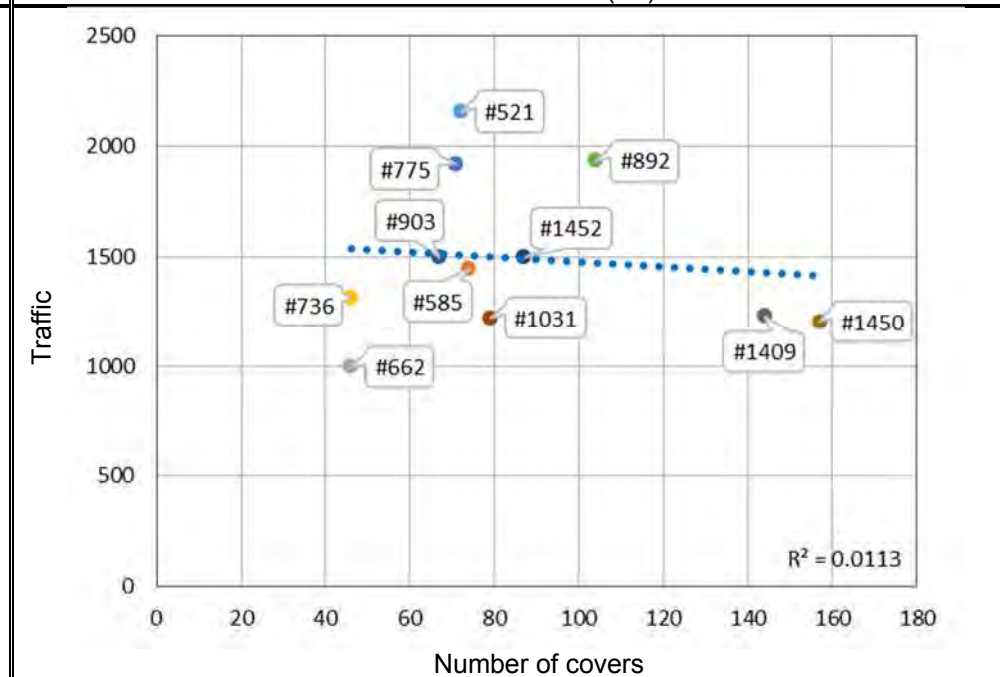
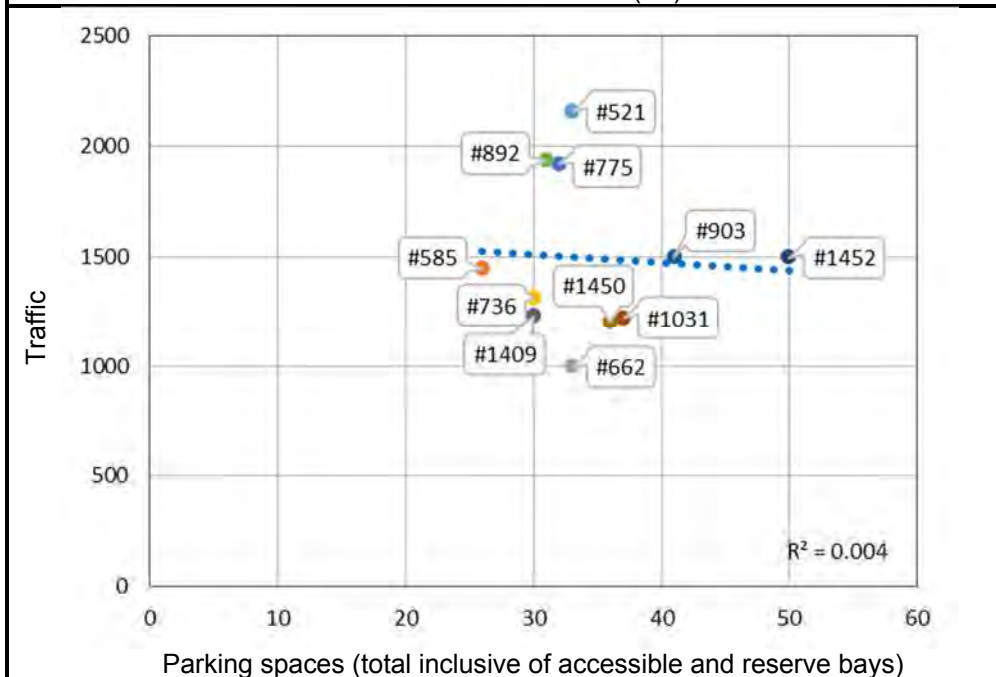
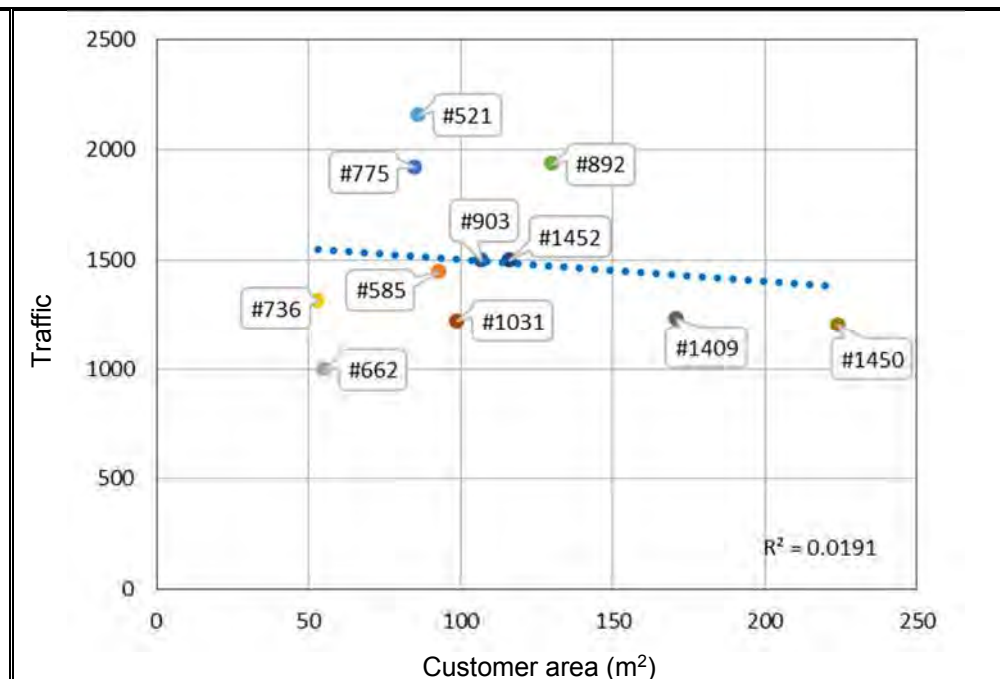
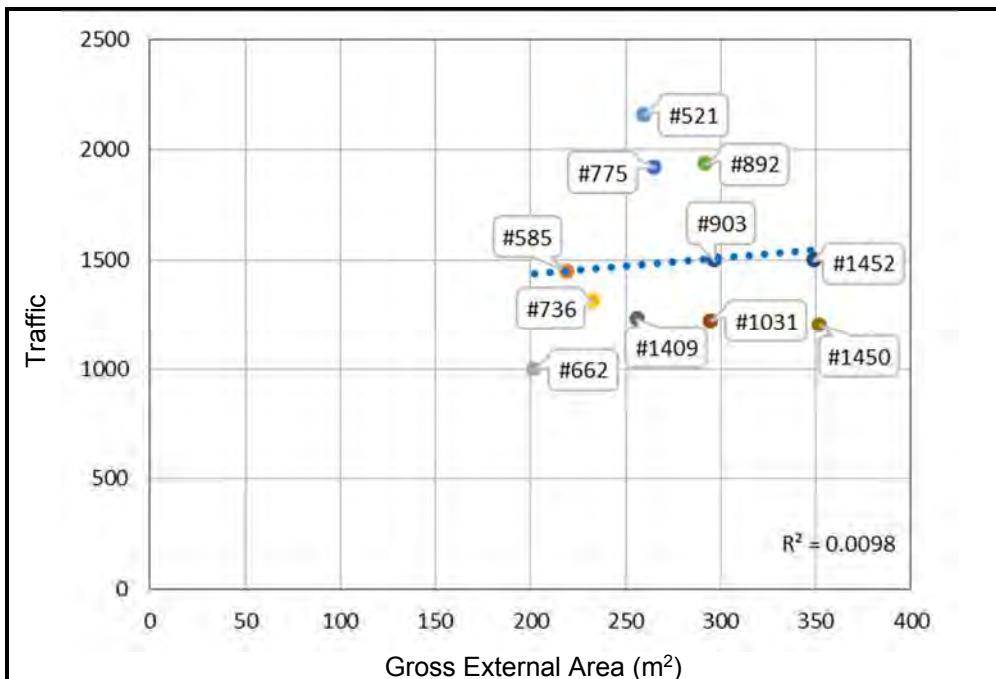
	Darlington			Plymouth		Bradford		Average		
Traffic flows	Friday									
	Time	In	Out	In	Out	In	Out	In	Out	
	16:00 - 17:00	81	84	84	71	134	130	100	95	
	17:00 - 18:00	92	86	87	93	155	159	111	113	
	18:00 - 19:00	96	104	106	106	112	119	105	110	
	Total	269	274	277	270	401	408	316	318	
	Saturday									
	Time	In	Out	In	Out	In	Out	In	Out	
	11:00 - 12:00	86	75	69	65	84	70	80	70	
	12:00 - 13:00	126	122	110	101	144	129	127	117	
	13:00 - 14:00	125	127	108	116	123	142	119	128	
	14:00 - 15:00	139	134	98	109	112	115	116	119	
	Total	476	458	385	391	463	456	442	434	
Pedestrians	Friday									
	Time	In	Out	In	Out	In	Out	In	Out	
	16:00	4	3	9	29	46	66	15	25	
	17:00	8	5	16	20	74	73	25	25	
	18:00	16	18	17	26	71	68	26	28	
	Total	28	26	42	75	191	207	66	78	
	Saturday									
	Time	In	Out	In	Out	In	Out	In	Out	
	11:00	5	5	32	18	83	49	30	24	
	12:00	10	6	50	45	59	62	30	38	
	13:00	6	9	57	66	69	59	33	45	
	14:00	29	7	11	26	48	61	22	31	
	Total	50	27	150	155	259	231	115	138	
Parking Spaces occupied (Recorded by beat survey)	Friday									
	Time	Occupied		Occupied		Occupied		Occupied		
	16:00	13		12		24		16		
	16:15	13		10		23		15		
	16:30	12		13		28		18		
	16:45	15		18		32		22		
	17:00	11		19		22		17		
	17:15	14		18		28		20		
	17:30	21		18		27		22		
	17:45	19		15		17		17		
	18:00	14		15		17		15		
	18:15	13		20		19		17		
	18:30	16		19		10		15		
	18:45	13		21		10		15		
	19:00	8		15		17		13		
		Saturday								
		Time	Occupied		Occupied		Occupied		Occupied	
		11:00	11		19		10		13	
		11:15	10		12		13		12	
		11:30	13		18		16		16	
	11:45	17		19		18		18		
	12:00	24		22		23		23		
	12:15	24		23		20		22		
	12:30	27		27		20		25		
	12:45	27		23		22		24		
	13:00	26		27		31		28		
	13:15	19		21		29		23		
	13:30	20		23		23		22		
	13:45	24		22		29		25		
	14:00	30		23		19		24		
	14:15	32		21		19		24		
	14:30	19		23		20		21		
	14:45	16		17		20		18		
	15:00	7		13		18		13		

McDonald's survey data - Restaurants near foodstores: Customer Activity and Trip Type analysis

		Darlington		Plymouth		Bradford		Total			
<u>Customer activity types</u>		Friday	Saturday	Friday	Saturday	Friday	Saturday	Friday	Saturday	Friday	Saturday
1	Drive in, park, use restaurant, drive out	51	73	71	83	55	95	177	251	19%	20%
2	Drive in, park, use restaurant, eat in vehicle, drive out	4	17	3	23	7	9	14	49	2%	4%
3	Drive in, drive thru, drive out	192	344	140	172	284	291	616	807	62%	55%
4	Drive in, use drive thru, park, eat in vehicle, drive out	12	9	41	88	35	31	88	128	10%	10%
5/6/7	Other	4	8	7	8	5	20	16	36	2%	3%
Total		263	451	262	374	386	446	911	1271	100%	100%
<u>Customer Trips</u>		Friday	Saturday	Friday	Saturday	Friday	Saturday	Friday	Saturday	Friday	Saturday
Additional	Same origin/destination	42	39	14	11	26	2	82	52	46%	23%
Existing	Different O/D or Same O/D McDonald's not sole purpose	7	37	30	50	15	44	52	131	29%	59%
Shared	Shared with foodstore	21	12	16	19	7	9	44	40	25%	18%
Total		70	88	60	80	48	55	178	223	100%	100%

APPENDIX 9.0
SUMMARY OF McDONALD'S SURVEY INFORMATION

**GRAPHS SHOWING RELATIONSHIP BETWEEN
McDONALD'S TRAFFIC AND STORE FACTORS**



APPENDIX 10.0
 GRAPHS SHOWING RELATIONSHIP BETWEEN McDONALD'S TRAFFIC AND STORE FACTORS

Key to store numbers:

521	Leamington Spa, Warwickshire
585	Burgess Hill, West Sussex
662	Sheene Road, Bristol
736	Hamilton, South Lanarkshire
775	Folkstone, Kent
892	North Cheam, London Borough of Sutton
903	Fenton, Staffordshire
1031	Arbroath, Angus
1409	Milton Keynes
1580	Stretford, Trafford
1452	Norton Park, Staffordshire

TRICS DATA: McDONALD'S

11.1	Weekday
11.2	Saturday

Calculation Reference: AUDIT-733701-190128-0134

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
 Category : D - FAST FOOD - DRIVE THROUGH
 VEHICLES

Selected regions and areas:

01	GREATER LONDON	
	WF WALTHAM FOREST	1 days
03	SOUTH WEST	
	BR BRISTOL CITY	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: Gross floor area
 Actual Range: 210 to 752 (units: sqm)
 Range Selected by User: 123 to 752 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 01/12/17

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	1 days
Friday	1 days

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

Selected survey types:

Manual count	2 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 undertaken using machines.

Selected Locations:

Town Centre	1
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

High Street	2
-------------	---

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:

A3	1 days
A5	1 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000 2 days

*This data displays the number of selected surveys within stated 1-mile radii of population.*Population within 5 miles:

500,001 or More 2 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 1 days

1.1 to 1.5 1 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:

No 2 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 1 days

5 Very Good 1 days

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

LIST OF SITES relevant to selection parameters

- | | | | |
|---|--|------------|---------------------|
| 1 | BR-06-D-01 | MCDONALD'S | BRISTOL CITY |
| | SHEENE ROAD | | |
| | BRISTOL | | |
| | BEDMINSTER | | |
| | Neighbourhood Centre (PPS6 Local Centre) | | |
| | High Street | | |
| | Total Gross floor area: | 210 sqm | |
| | Survey date: MONDAY | 21/09/15 | Survey Type: MANUAL |
| 2 | WF-06-D-01 | MCDONALD'S | WALTHAM FOREST |
| | HIGH ROAD | | |
| | LEYTONSTONE | | |
| | Town Centre | | |
| | High Street | | |
| | Total Gross floor area: | 752 sqm | |
| | Survey date: FRIDAY | 01/12/17 | 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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
EG-06-D-01	Not near foodstore
HO-06-D-01	Not near foodstore

OFF-LINE VERSION ADL Armstrong Way Yate

Licence No: 733701

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/D - FAST FOOD - DRIVE THROUGH
VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1	752	1.729	1	752	0.931	1	752	2.660
07:00 - 08:00	2	481	6.757	2	481	5.717	2	481	12.474
08:00 - 09:00	2	481	8.316	2	481	8.524	2	481	16.840
09:00 - 10:00	2	481	8.836	2	481	9.563	2	481	18.399
10:00 - 11:00	2	481	9.252	2	481	9.356	2	481	18.608
11:00 - 12:00	2	481	11.123	2	481	11.227	2	481	22.350
12:00 - 13:00	2	481	11.850	2	481	11.954	2	481	23.804
13:00 - 14:00	2	481	11.123	2	481	11.435	2	481	22.558
14:00 - 15:00	2	481	9.979	2	481	9.667	2	481	19.646
15:00 - 16:00	2	481	11.850	2	481	11.331	2	481	23.181
16:00 - 17:00	2	481	9.252	2	481	8.108	2	481	17.360
17:00 - 18:00	2	481	8.108	2	481	8.732	2	481	16.840
18:00 - 19:00	2	481	8.524	2	481	9.252	2	481	17.776
19:00 - 20:00	2	481	6.965	2	481	7.173	2	481	14.138
20:00 - 21:00	2	481	6.029	2	481	5.821	2	481	11.850
21:00 - 22:00	2	481	5.094	2	481	5.198	2	481	10.292
22:00 - 23:00	1	752	2.128	1	752	1.995	1	752	4.123
23:00 - 24:00	1	752	1.596	1	752	1.330	1	752	2.926
Total Rates:			138.511			137.314			275.825

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.

Calculation Reference: AUDIT-733701-190128-0151

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
 Category : D - FAST FOOD - DRIVE THROUGH
 VEHICLES

Selected regions and areas:

07 YORKSHIRE & NORTH LINCOLNSHIRE
 WY WEST YORKSHIRE 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: Gross floor area
 Actual Range: 420 to 420 (units: sqm)
 Range Selected by User: 360 to 420 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 20/05/17

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:

Saturday 1 days

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

Selected survey types:

Manual count 1 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 undertaken using machines.

Selected Locations:

Town Centre 1

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

Selected Location Sub Categories:

Built-Up Zone 1

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

Secondary Filtering selection:

Use Class:

A3 1 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:

20,001 to 25,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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 1 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:

No 1 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 1 days

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

LIST OF SITES relevant to selection parameters

1	WY-06-D-01 NORTHGATE HECKMONDWIKE	MCDONALD'S	WEST YORKSHIRE
---	---	------------	----------------

Town Centre
Built-Up Zone

Total Gross floor area: 420 sqm

Survey date: SATURDAY

20/05/17

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.

OFF-LINE VERSION ADL Armstrong Way Yate

Licence No: 733701

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/D - FAST FOOD - DRIVE THROUGH VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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									
08:00 - 09:00									
09:00 - 10:00									
10:00 - 11:00	1	420	12.619	1	420	12.143	1	420	24.762
11:00 - 12:00	1	420	13.571	1	420	13.333	1	420	26.904
12:00 - 13:00	1	420	17.857	1	420	17.857	1	420	35.714
13:00 - 14:00	1	420	18.571	1	420	18.571	1	420	37.142
14:00 - 15:00	1	420	15.714	1	420	15.476	1	420	31.190
15:00 - 16:00	1	420	14.286	1	420	14.524	1	420	28.810
16:00 - 17:00	1	420	15.714	1	420	15.714	1	420	31.428
17:00 - 18:00	1	420	16.667	1	420	16.905	1	420	33.572
18:00 - 19:00	1	420	16.190	1	420	16.429	1	420	32.619
19:00 - 20:00	1	420	8.810	1	420	9.048	1	420	17.858
20:00 - 21:00	1	420	9.286	1	420	9.286	1	420	18.572
21:00 - 22:00	1	420	5.476	1	420	5.476	1	420	10.952
22:00 - 23:00	1	420	3.333	1	420	3.095	1	420	6.428
23:00 - 24:00	1	420	0.714	1	420	0.952	1	420	1.666
Total Rates:			168.808			168.809			337.617

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.

TRAFFIC PREDICTIONS/SURVEY COMPARISONS ANALYSIS

APPENDIX 12.0

Store #1432, Wigan

ADL prepared and supplied a Transport Assessment dated January 2013 in respect of store #1432. The key data in terms of traffic flows are shown in Table A.

Table A #1432 Wigan Traffic Comparison

		Predicted		Surveyed		Difference relative to prediction		
		In	Out	In	Out	In	Out	2-way
Friday	16:00-17:00	98	85	76	79	-22	-6	-28
	17:00-18:00	89	103	93	96	+4	-7	-3
	18:00-19:00	<i>109</i>	<i>106</i>	88	91	-21	-15	-36
	Total	296	294	257	266	-39	-28	-67
Saturday	11:00-12:00	68	61	62	56	-6	-5	-11
	12:00-13:00	81	81	94	77	+13	-4	+9
	13:00-14:00	<i>101</i>	93	104	115	+3	+22	+25
	14:00-15:00	98	<i>115</i>	85	88	-13	-27	-40
	Total	348	350	345	336	-3	-14	-17
Grand Total		644	644	602	602	-42	-42	-84

Figures in italics not supplied at planning

The difference in predicted and surveyed traffic has been calculated, with the total surveyed two-way traffic as a percentage of that which was predicted and provides the following results shown relative to 100%, i.e. a figure less than 100% indicates a lower amount of surveyed traffic than predicted and a figure above 100% shows a greater amount of surveyed traffic than was predicated:

- Friday $\frac{257 + 266}{296 + 294} = \frac{523}{590} = 87\%$
- Saturday $\frac{345 + 336}{348 + 350} = \frac{681}{698} = 98\%$
- Friday + Saturday $\frac{523 + 681}{590 + 698} = \frac{1204}{1288} = 93\%$

Store #1446, Monks Cross

ADL prepared and supplied a Transport Assessment dated November 2013 in respect of store #1446. The key data in terms of traffic flows and parking demand are shown in Table B.

Table B #1446 Monks Cross Traffic Comparison

		Predicted		Surveyed		Difference relative to predicted		
		In	Out	In	Out	In	Out	2-way
Friday	16:00-17:00	93	91	64	62	-29	-29	-58
	17:00-18:00	108	104	85	84	-23	-20	-43
	18:00-19:00	112	114	91	88	-21	-26	-47
	Total	313	309	240	234	-73	-75	-148
Saturday	11:00-12:00	74	70	89	72	+15	+2	+17
	12:00-13:00	123	110	154	140	+31	+30	+61
	13:00-14:00	149	144	178	187	+29	+43	+72
	14:00-15:00	126	132	113	126	-13	-6	-19
	Total	472	456	534	525	+62	+69	+131
Grand Total		785	765	774	759	-11	-6	-17

The difference in predicated and surveyed traffic has been calculated as the total surveyed two-way traffic as a percentage of that which was predicted and provides the following results:

- Friday = 76%
- Saturday = 114%
- Friday + Saturday = 99%

Store #1450, Stretford

ADL prepared and supplied a Transport Assessment dated July 2013 in respect of store #1450. The key data in terms of traffic flows and parking demand are shown in Table C.

Table C #1450 Stretford Traffic Comparison

		Predicted		Surveyed		Difference relative to predicted		
		In	Out	In	Out	In	Out	2-way
Friday	16:00-17:00	84	80	67	67	-17	-13	-30
	17:00-18:00	93	94	87	84	-6	-10	-16
	18:00-19:00	73	76	76	80	-3	4	7
	Total	250	250	230	231	-20	-19	-39
Saturday	11:00-12:00	84	69	65	60	-19	-9	-28
	12:00-13:00	103	109	111	105	+8	-4	+4
	13:00-14:00	101	99	112	108	+11	+9	+20
	14:00-15:00	88	93	87	96	-1	+3	+2
	Total	376	370	375	369	-1	-1	-2
Grand Total		626	620	605	600	-21	-20	-41

The difference in predicted and surveyed traffic has been calculated as the total surveyed two-way traffic as a percentage of that which was predicted and provides the following results:

- Friday = 92%
- Saturday = 100%
- Friday + Saturday = 97%

Store #1452, Norton Park

ADL prepared and supplied a Transport Assessment dated March 2104 in respect of store #1452. The key data in terms of traffic flows and parking demand are shown in Table D.

Table D #1452 Norton Park Traffic Comparison

		Predicted		Surveyed		Difference relative to predicated		
		In	Out	In	Out	In	Out	2-way
Friday	16:00-17:00	101	99	89	81	-12	-18	-30
	17:00-18:00	116	110	107	99	-9	-11	-20
	18:00-19:00	107	116	94	103	-13	-13	-26
	Total	324	325	290	283	-34	-42	-76
Saturday	11:00-12:00	69	57	74	57	+5	0	+5
	12:00-13:00	136	131	133	130	-3	-1	-4
	13:00-14:00	139	139	147	141	+8	+2	+10
	14:00-15:00	136	136	117	126	-19	-10	-29
	Total	480	463	471	454	-10	-9	-19
Grand Total		804	788	761	737	-44	-51	-95

The difference in predicated and surveyed traffic has been calculated as the total surveyed two-way traffic as a percentage of that which was predicted and provides the following results:

- Friday = 88%
- Saturday = 98%
- Friday + Saturday = 94%

Store #1409, Brickhill

ADL prepared and supplied a Transport Assessment dated May 2012. The key data in terms of traffic flows and parking demand are shown in Table E below.

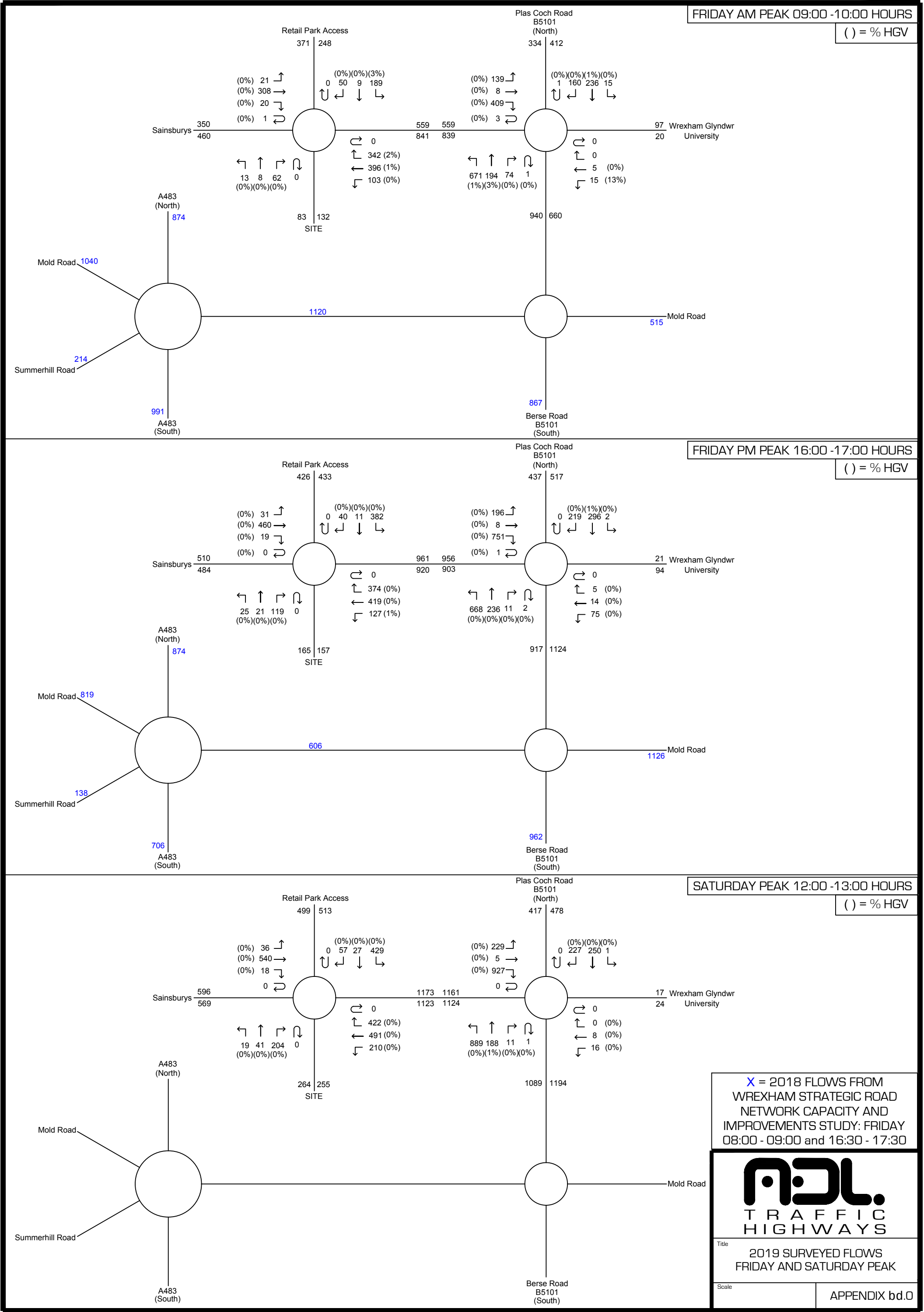
Table D #1409 Brickhill Traffic Comparison

		Predicted		Surveyed		Difference relative to predicated		
		In	Out	In	Out	In	Out	2-way
Friday	16:00	71	67	75	74	+4	+7	11
	17:00	90	94	77	80	-13	-6	-19
	18:00	84	81	79	84	-5	+3	-2
	Total	245	242	231	238	-14	-4	-18
Saturday	11:00	72	60	57	47	-15	-13	-28
	12:00	102	95	122	118	+20	+23	+43
	13:00	101	111	121	116	+20	+5	+25
	14:00	63	61	84	99	+21	+38	+59
	Total	338	332	384	380	+46	+48	+94

The difference in predicated and surveyed traffic has been calculated as the total surveyed two-way traffic as a percentage of that which was predicted and provides the following results:

- Friday = 96%
- Saturday = 114%
- Friday + Saturday = 106%

2019 SURVEYED TRAFFIC FLOWS



BASE TRAFFIC FLOWS

14.1	2021 Base Flows
14.2	2026 Base Flows
14.3	2036 Base Flows

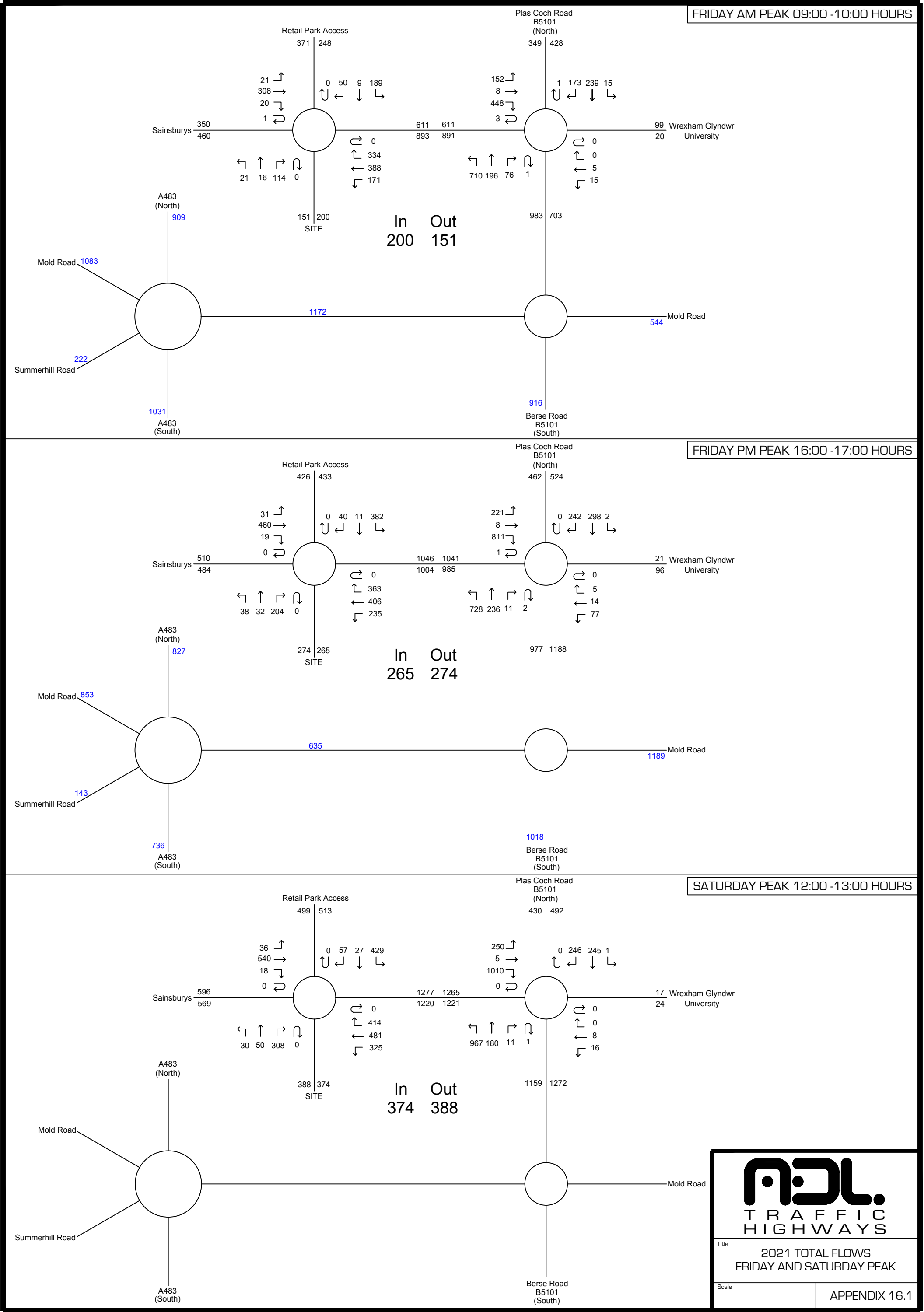
PROPOSED McDONALD'S TRAFFIC

15.1	Additional Trips
15.2	Existing Trips (Pass By and Diverted)
15.3	Shared Trips
15.4	Total McDonald's Trips

APPENDIX 16.0

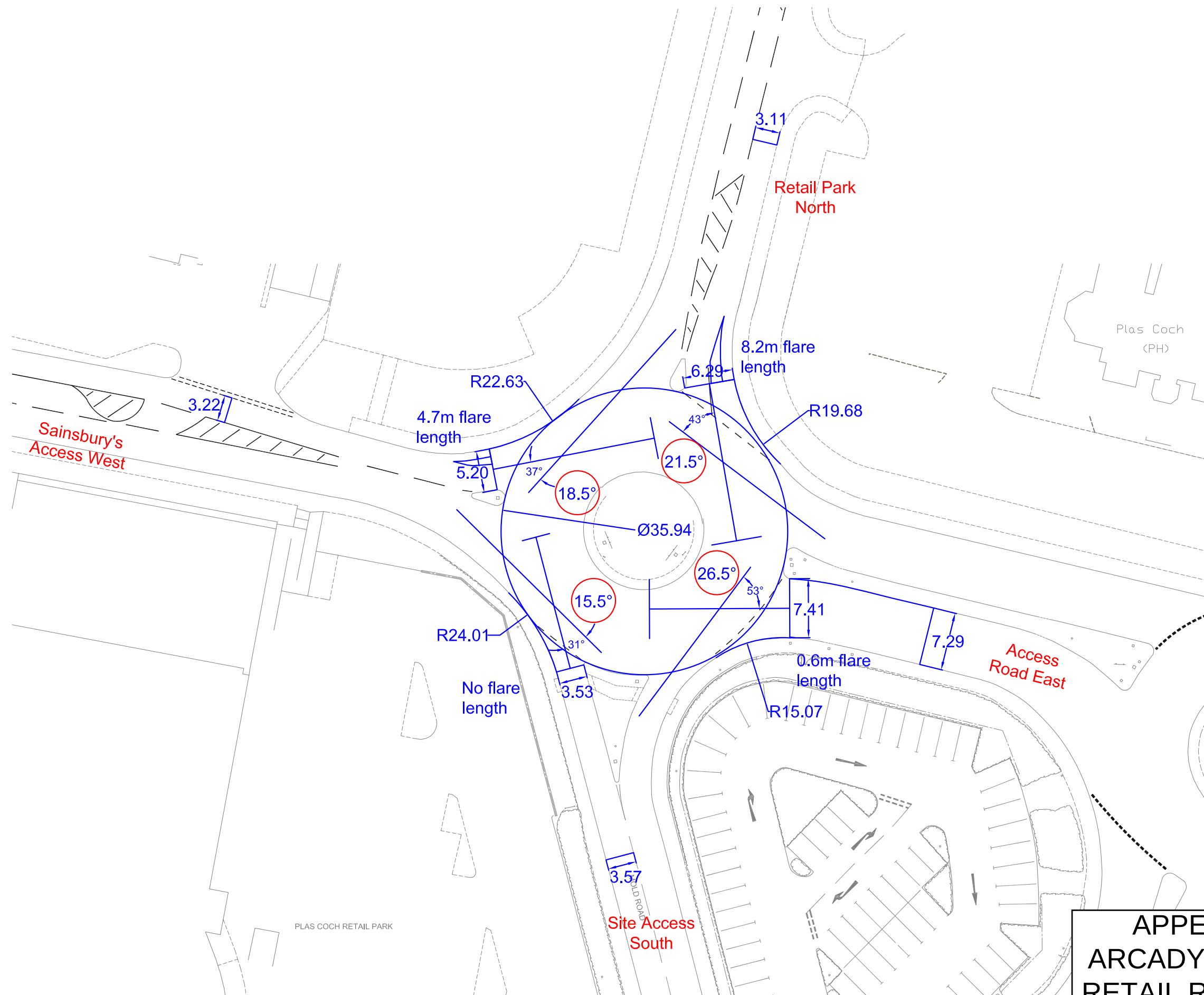
TOTAL TRAFFIC FLOWS

16.1	2021 Total Flows
16.2	2026 Total Flows
16.3	2036 Total Flows



ARCADY ANALYSIS: RETAIL PARK ROUNDABOUT

17.1	Roundabout Geometry
17.2	Output Results



APPENDIX 17.1
ARCADY GEOMETRY:
RETAIL ROUNDABOUT
1:500@A3

Junctions 9		
ARCADY 9 - Roundabout Module		
Version: 9.0.2.5947 © Copyright TRL Limited, 2017		
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 software@trl.co.uk 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: Retail Park Roundabout - Existing.j9

Path: \\SVR-SBS-ADL\\Traffic\\4100-4199\\4171 McD's Plas Coch Road, Wrexham\\ARCADY

Report generation date: 06/06/2019 10:27:38

- »2021 Base, Friday AM
- »2021 Base, Friday PM
- »2021 Base, Saturday Peak
- »2021 Totals, Friday AM
- »2021 Totals, Friday PM
- »2021 Totals, Saturday Peak

Summary of junction performance

	Friday AM			Friday PM			Saturday Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2021 Base									
1 - EAST ARM	0.8	2.99	0.44	0.9	3.13	0.47	1.4	3.99	0.58
2 - SOUTH ARM	0.2	6.50	0.14	0.4	8.12	0.29	1.1	14.34	0.54
3 - WEST ARM	0.6	5.68	0.38	1.4	9.06	0.59	3.0	17.26	0.76
4 - NORTH ARM	0.3	4.21	0.24	0.9	6.67	0.47	1.6	10.47	0.62
2021 Totals									
1 - EAST ARM	0.9	3.14	0.46	1.1	3.54	0.52	1.7	4.69	0.64
2 - SOUTH ARM	0.3	7.41	0.26	1.0	11.64	0.50	3.3	29.13	0.78
3 - WEST ARM	0.7	6.10	0.40	1.7	11.03	0.64	4.8	27.54	0.84
4 - NORTH ARM	0.3	4.47	0.26	1.3	8.65	0.56	2.6	15.81	0.73

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	05/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADLUK\\Junction
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	Veh	Veh	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	Relationship type	Relationship
D1	2019 Surveyed	Friday AM	ONE HOUR	08:45	10:15	15			
D2	2019 Surveyed	Friday PM	ONE HOUR	15:45	17:15	15			
D3	2019 Surveyed	Saturday Peak	ONE HOUR	11:45	13:15	15			
D4	2021 Base	Friday AM	ONE HOUR	08:45	10:15	15	✓		
D5	2021 Base	Friday PM	ONE HOUR	15:45	17:15	15	✓		
D6	2021 Base	Saturday Peak	ONE HOUR	11:45	13:15	15	✓		
D7	2026 Base	Friday AM	ONE HOUR	08:45	10:15	15			
D8	2026 Base	Friday PM	ONE HOUR	15:45	17:15	15			
D9	2026 Base	Saturday Peak	ONE HOUR	11:45	13:15	15			
D10	2036 Base	Friday AM	ONE HOUR	08:45	10:15	15			
D11	2036 Base	Friday PM	ONE HOUR	15:45	17:15	15			
D12	2036 Base	Saturday Peak	ONE HOUR	11:45	13:15	15			
D13	McD's	Friday AM	ONE HOUR	08:45	10:15	15			
D14	McD's	Friday PM	ONE HOUR	15:45	17:15	15			
D15	McD's	Saturday Peak	ONE HOUR	11:45	13:15	15			
D16	2021 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D4 + D13
D17	2021 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D5 + D14
D18	2021 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D6 + D15
D19	2026 Totals	Friday AM	ONE HOUR	08:45	10:15	15		Simple	D7 + D13
D20	2026 Totals	Friday PM	ONE HOUR	15:45	17:15	15		Simple	D8 + D14
D21	2026 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15		Simple	D9 + D15
D22	2036 Totals	Friday AM	ONE HOUR	08:45	10:15	15		Simple	D10 + D13
D23	2036 Totals	Friday PM	ONE HOUR	15:45	17:15	15		Simple	D11 + D14
D24	2036 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15		Simple	D12 + D15

Analysis Set Details

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

2021 Base, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	3.99	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	EAST ARM	
2	SOUTH ARM	
3	WEST ARM	
4	NORTH ARM	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - EAST ARM	7.29	7.41	0.6	15.1	35.9	26.5	
2 - SOUTH ARM	3.53	3.53	0.0	24.0	35.9	15.5	
3 - WEST ARM	3.22	5.20	4.7	22.6	35.9	18.5	
4 - NORTH ARM	3.11	6.29	8.2	19.7	35.9	21.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - EAST ARM	0.754	2222
2 - SOUTH ARM	0.553	1132
3 - WEST ARM	0.581	1287
4 - NORTH ARM	0.601	1412

The slope and intercept shown above include any corrections and adjustments.

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
D4	2021 Base	Friday AM	ONE HOUR	08:45	10:15	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 (Veh/hr)	Scaling Factor (%)
1 - EAST ARM		ONE HOUR	✓	841	100.000
2 - SOUTH ARM		ONE HOUR	✓	83	100.000
3 - WEST ARM		ONE HOUR	✓	350	100.000
4 - NORTH ARM		ONE HOUR	✓	248	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
From	1 - EAST ARM	0	103	396	342
	2 - SOUTH ARM	62	0	13	8
	3 - WEST ARM	308	20	1	21
	4 - NORTH ARM	189	9	50	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
From	1 - EAST ARM	0	0	1	2
	2 - SOUTH ARM	0	0	0	0
	3 - WEST ARM	0	0	0	0
	4 - NORTH ARM	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - EAST ARM	0.44	2.99	0.8	A	772	1158
2 - SOUTH ARM	0.14	6.50	0.2	A	76	114
3 - WEST ARM	0.38	5.68	0.6	A	321	482
4 - NORTH ARM	0.24	4.21	0.3	A	228	341

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	633	158	60	2150	0.295	631	419	0.0	0.4	2.369	A
2 - SOUTH ARM	62	16	592	800	0.078	62	99	0.0	0.1	4.877	A
3 - WEST ARM	263	66	309	1105	0.239	262	345	0.0	0.3	4.267	A
4 - NORTH ARM	187	47	293	1208	0.155	186	279	0.0	0.2	3.520	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	756	189	72	2141	0.353	756	502	0.4	0.5	2.599	A
2 - SOUTH ARM	75	19	709	735	0.102	75	119	0.1	0.1	5.453	A
3 - WEST ARM	315	79	370	1069	0.294	314	413	0.3	0.4	4.768	A
4 - NORTH ARM	223	56	351	1174	0.190	223	333	0.2	0.2	3.784	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	926	231	88	2129	0.435	925	614	0.5	0.8	2.990	A
2 - SOUTH ARM	91	23	868	646	0.142	91	145	0.1	0.2	6.493	A
3 - WEST ARM	385	96	453	1020	0.378	385	506	0.4	0.6	5.659	A
4 - NORTH ARM	273	68	430	1128	0.242	273	408	0.2	0.3	4.206	A

09:30 - 09:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	926	231	88	2129	0.435	926	615	0.8	0.8	2.992	A
2 - SOUTH ARM	91	23	869	645	0.142	91	145	0.2	0.2	6.501	A
3 - WEST ARM	385	96	454	1020	0.378	385	506	0.6	0.6	5.675	A
4 - NORTH ARM	273	68	430	1127	0.242	273	408	0.3	0.3	4.213	A

09:45 - 10:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	756	189	72	2141	0.353	757	504	0.8	0.5	2.604	A
2 - SOUTH ARM	75	19	710	734	0.102	75	119	0.2	0.1	5.464	A
3 - WEST ARM	315	79	371	1068	0.295	315	414	0.6	0.4	4.785	A
4 - NORTH ARM	223	56	352	1173	0.190	223	334	0.3	0.2	3.789	A

10:00 - 10:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	633	158	60	2149	0.295	634	421	0.5	0.4	2.377	A
2 - SOUTH ARM	62	16	594	799	0.078	63	99	0.1	0.1	4.890	A
3 - WEST ARM	263	66	310	1104	0.239	264	347	0.4	0.3	4.286	A
4 - NORTH ARM	187	47	295	1207	0.155	187	280	0.2	0.2	3.531	A

2021 Base, Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	5.78	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
D5	2021 Base	Friday PM	ONE HOUR	15:45	17:15	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 (Veh/hr)	Scaling Factor (%)
1 - EAST ARM		ONE HOUR	✓	920	100.000
2 - SOUTH ARM		ONE HOUR	✓	165	100.000
3 - WEST ARM		ONE HOUR	✓	510	100.000
4 - NORTH ARM		ONE HOUR	✓	433	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	127	419	374
	2 - SOUTH ARM	119	0	25	21
	3 - WEST ARM	460	19	0	31
	4 - NORTH ARM	382	11	40	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	1	0	0
	2 - SOUTH ARM	0	0	0	0
	3 - WEST ARM	0	0	0	0
	4 - NORTH ARM	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - EAST ARM	0.47	3.13	0.9	A	844	1266
2 - SOUTH ARM	0.29	8.12	0.4	A	151	227
3 - WEST ARM	0.59	9.06	1.4	A	468	702
4 - NORTH ARM	0.47	6.67	0.9	A	397	596

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	693	173	52	2180	0.318	691	720	0.0	0.5	2.414	A
2 - SOUTH ARM	124	31	625	786	0.158	123	118	0.0	0.2	5.426	A
3 - WEST ARM	384	96	386	1063	0.361	382	363	0.0	0.6	5.264	A
4 - NORTH ARM	326	81	448	1143	0.285	324	320	0.0	0.4	4.390	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	827	207	63	2172	0.381	826	862	0.5	0.6	2.673	A
2 - SOUTH ARM	148	37	748	718	0.207	148	141	0.2	0.3	6.311	A
3 - WEST ARM	458	115	462	1019	0.450	457	435	0.6	0.8	6.395	A
4 - NORTH ARM	389	97	536	1090	0.357	389	383	0.4	0.6	5.132	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1013	253	77	2161	0.469	1012	1054	0.6	0.9	3.128	A
2 - SOUTH ARM	182	45	916	625	0.290	181	173	0.3	0.4	8.091	A
3 - WEST ARM	562	140	565	959	0.585	559	532	0.8	1.4	8.947	A
4 - NORTH ARM	477	119	656	1018	0.468	475	468	0.6	0.9	6.621	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1013	253	77	2161	0.469	1013	1058	0.9	0.9	3.134	A
2 - SOUTH ARM	182	45	917	625	0.291	182	173	0.4	0.4	8.122	A
3 - WEST ARM	562	140	566	959	0.586	561	533	1.4	1.4	9.057	A
4 - NORTH ARM	477	119	658	1016	0.469	477	469	0.9	0.9	6.670	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	827	207	63	2172	0.381	828	867	0.9	0.6	2.682	A
2 - SOUTH ARM	148	37	750	717	0.207	149	141	0.4	0.3	6.338	A
3 - WEST ARM	458	115	463	1018	0.450	461	436	1.4	0.8	6.479	A
4 - NORTH ARM	389	97	540	1087	0.358	391	384	0.9	0.6	5.175	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	693	173	53	2180	0.318	693	725	0.6	0.5	2.422	A
2 - SOUTH ARM	124	31	628	785	0.158	125	118	0.3	0.2	5.452	A
3 - WEST ARM	384	96	387	1062	0.361	385	365	0.8	0.6	5.324	A
4 - NORTH ARM	326	81	451	1141	0.286	327	321	0.6	0.4	4.427	A

2021 Base, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	9.58	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
D6	2021 Base	Saturday Peak	ONE HOUR	11:45	13:15	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 (Veh/hr)	Scaling Factor (%)
1 - EAST ARM		ONE HOUR	✓	1123	100.000
2 - SOUTH ARM		ONE HOUR	✓	264	100.000
3 - WEST ARM		ONE HOUR	✓	594	100.000
4 - NORTH ARM		ONE HOUR	✓	513	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
From	1 - EAST ARM	0	210	491	422
	2 - SOUTH ARM	204	0	19	41
	3 - WEST ARM	540	18	0	36
	4 - NORTH ARM	429	27	57	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	0	0	0
	2 - SOUTH ARM	0	0	0	0
	3 - WEST ARM	0	0	0	0
	4 - NORTH ARM	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - EAST ARM	0.58	3.99	1.4	A	1030	1546
2 - SOUTH ARM	0.54	14.34	1.1	B	242	363
3 - WEST ARM	0.76	17.26	3.0	C	545	818
4 - NORTH ARM	0.62	10.47	1.6	B	471	706

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	845	211	76	2165	0.391	843	877	0.0	0.6	2.719	A
2 - SOUTH ARM	199	50	728	729	0.272	197	191	0.0	0.4	6.745	A
3 - WEST ARM	447	112	500	997	0.448	444	425	0.0	0.8	6.471	A
4 - NORTH ARM	386	97	570	1070	0.361	384	374	0.0	0.6	5.233	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1010	252	91	2153	0.469	1009	1051	0.6	0.9	3.141	A
2 - SOUTH ARM	237	59	871	650	0.365	237	229	0.4	0.6	8.684	A
3 - WEST ARM	534	133	599	940	0.568	532	509	0.8	1.3	8.785	A
4 - NORTH ARM	461	115	683	1002	0.460	460	448	0.6	0.8	6.632	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1236	309	112	2138	0.578	1235	1281	0.9	1.4	3.976	A
2 - SOUTH ARM	291	73	1066	542	0.536	288	280	0.6	1.1	14.051	B
3 - WEST ARM	654	164	732	863	0.758	647	623	1.3	2.9	16.260	C
4 - NORTH ARM	565	141	831	913	0.619	562	548	0.8	1.6	10.180	B

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1236	309	112	2138	0.578	1236	1291	1.4	1.4	3.993	A
2 - SOUTH ARM	291	73	1068	541	0.537	291	281	1.1	1.1	14.338	B
3 - WEST ARM	654	164	734	861	0.760	654	624	2.9	3.0	17.255	C
4 - NORTH ARM	565	141	838	908	0.622	565	549	1.6	1.6	10.470	B

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1010	252	92	2153	0.469	1011	1065	1.4	0.9	3.161	A
2 - SOUTH ARM	237	59	874	649	0.366	240	230	1.1	0.6	8.844	A
3 - WEST ARM	534	133	602	938	0.570	541	511	3.0	1.4	9.218	A
4 - NORTH ARM	461	115	693	995	0.463	464	450	1.6	0.9	6.814	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	845	211	77	2164	0.391	846	887	0.9	0.6	2.733	A
2 - SOUTH ARM	199	50	731	728	0.273	200	192	0.6	0.4	6.826	A
3 - WEST ARM	447	112	503	995	0.449	449	427	1.4	0.8	6.620	A
4 - NORTH ARM	386	97	576	1066	0.362	387	376	0.9	0.6	5.317	A

2021 Totals, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	4.37	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	Relationship type	Relationship
D16	2021 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D4 + D13

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 (Veh/hr)	Scaling Factor (%)
1 - EAST ARM		ONE HOUR	✓	895	100.000
2 - SOUTH ARM		ONE HOUR	✓	153	100.000
3 - WEST ARM		ONE HOUR	✓	359	100.000
4 - NORTH ARM		ONE HOUR	✓	256	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
From	1 - EAST ARM	0	173	388	334
	2 - SOUTH ARM	116	0	21	16
	3 - WEST ARM	316	20	2	21
	4 - NORTH ARM	197	9	50	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
From	1 - EAST ARM	0	0	1	2
	2 - SOUTH ARM	0	0	0	0
	3 - WEST ARM	0	0	0	0
	4 - NORTH ARM	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - EAST ARM	0.46	3.14	0.9	A	821	1232
2 - SOUTH ARM	0.26	7.41	0.3	A	140	211
3 - WEST ARM	0.40	6.10	0.7	A	329	494
4 - NORTH ARM	0.26	4.47	0.3	A	235	352

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	674	168	61	2151	0.313	672	471	0.0	0.5	2.430	A
2 - SOUTH ARM	115	29	581	806	0.143	115	152	0.0	0.2	5.200	A
3 - WEST ARM	270	68	350	1081	0.250	269	346	0.0	0.3	4.423	A
4 - NORTH ARM	193	48	340	1180	0.163	192	278	0.0	0.2	3.637	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	805	201	73	2142	0.376	804	565	0.5	0.6	2.688	A
2 - SOUTH ARM	138	34	695	742	0.185	137	181	0.2	0.2	5.947	A
3 - WEST ARM	323	81	419	1041	0.310	322	414	0.3	0.4	5.006	A
4 - NORTH ARM	230	58	408	1141	0.202	230	333	0.2	0.3	3.952	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	985	246	89	2130	0.463	984	691	0.6	0.9	3.139	A
2 - SOUTH ARM	168	42	851	655	0.257	168	222	0.2	0.3	7.388	A
3 - WEST ARM	395	99	512	986	0.401	394	507	0.4	0.7	6.080	A
4 - NORTH ARM	282	70	499	1087	0.259	281	408	0.3	0.3	4.466	A

09:30 - 09:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	985	246	89	2130	0.463	985	693	0.9	0.9	3.144	A
2 - SOUTH ARM	168	42	852	654	0.257	168	222	0.3	0.3	7.408	A
3 - WEST ARM	395	99	513	985	0.401	395	508	0.7	0.7	6.102	A
4 - NORTH ARM	282	70	500	1086	0.259	282	408	0.3	0.3	4.474	A

09:45 - 10:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	805	201	73	2142	0.376	806	567	0.9	0.6	2.697	A
2 - SOUTH ARM	138	34	697	742	0.185	138	182	0.3	0.2	5.971	A
3 - WEST ARM	323	81	420	1040	0.310	324	415	0.7	0.5	5.031	A
4 - NORTH ARM	230	58	409	1140	0.202	231	334	0.3	0.3	3.961	A

10:00 - 10:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	674	168	61	2151	0.313	674	474	0.6	0.5	2.440	A
2 - SOUTH ARM	115	29	583	805	0.143	115	152	0.2	0.2	5.223	A
3 - WEST ARM	270	68	351	1080	0.250	271	347	0.5	0.3	4.450	A
4 - NORTH ARM	193	48	342	1179	0.163	193	280	0.3	0.2	3.651	A

2021 Totals, Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.30	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	Relationship type	Relationship
D17	2021 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D5 + D14

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 (Veh/hr)	Scaling Factor (%)
1 - EAST ARM		ONE HOUR	✓	1008	100.000
2 - SOUTH ARM		ONE HOUR	✓	278	100.000
3 - WEST ARM		ONE HOUR	✓	523	100.000
4 - NORTH ARM		ONE HOUR	✓	484	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	239	406	363
	2 - SOUTH ARM	208	0	38	32
	3 - WEST ARM	473	19	0	31
	4 - NORTH ARM	393	11	80	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	1	0	0
	2 - SOUTH ARM	0	0	0	0
	3 - WEST ARM	0	0	0	0
	4 - NORTH ARM	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - EAST ARM	0.52	3.54	1.1	A	925	1387
2 - SOUTH ARM	0.50	11.64	1.0	B	255	383
3 - WEST ARM	0.64	11.03	1.7	B	480	720
4 - NORTH ARM	0.56	8.65	1.3	A	444	666

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	759	190	82	2155	0.352	757	804	0.0	0.5	2.571	A
2 - SOUTH ARM	209	52	637	780	0.268	208	202	0.0	0.4	6.281	A
3 - WEST ARM	394	98	452	1025	0.384	391	393	0.0	0.6	5.660	A
4 - NORTH ARM	364	91	524	1097	0.332	362	320	0.0	0.5	4.886	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	906	227	99	2143	0.423	905	963	0.5	0.7	2.907	A
2 - SOUTH ARM	250	62	763	710	0.352	249	242	0.4	0.5	7.795	A
3 - WEST ARM	470	118	541	973	0.483	469	471	0.6	0.9	7.123	A
4 - NORTH ARM	435	109	628	1035	0.420	434	383	0.5	0.7	5.986	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1110	277	121	2126	0.522	1108	1177	0.7	1.1	3.532	A
2 - SOUTH ARM	306	77	933	616	0.497	304	296	0.5	1.0	11.492	B
3 - WEST ARM	576	144	662	903	0.638	573	576	0.9	1.7	10.796	B
4 - NORTH ARM	533	133	766	951	0.560	531	468	0.7	1.2	8.516	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1110	277	121	2126	0.522	1110	1182	1.1	1.1	3.541	A
2 - SOUTH ARM	306	77	935	615	0.498	306	296	1.0	1.0	11.642	B
3 - WEST ARM	576	144	664	902	0.638	576	577	1.7	1.7	11.025	B
4 - NORTH ARM	533	133	771	949	0.562	533	469	1.2	1.3	8.647	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	906	227	99	2142	0.423	908	971	1.1	0.7	2.918	A
2 - SOUTH ARM	250	62	765	709	0.352	252	242	1.0	0.6	7.896	A
3 - WEST ARM	470	118	544	971	0.484	473	472	1.7	1.0	7.273	A
4 - NORTH ARM	435	109	634	1031	0.422	437	384	1.3	0.7	6.083	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	759	190	83	2155	0.352	760	811	0.7	0.5	2.581	A
2 - SOUTH ARM	209	52	640	778	0.269	210	203	0.6	0.4	6.343	A
3 - WEST ARM	394	98	455	1023	0.385	395	395	1.0	0.6	5.741	A
4 - NORTH ARM	364	91	529	1094	0.333	365	321	0.7	0.5	4.945	A

2021 Totals, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	15.34	C

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	Relationship type	Relationship
D18	2021 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D6 + D15

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 (Veh/hr)	Scaling Factor (%)
1 - EAST ARM		ONE HOUR	✓	1224	100.000
2 - SOUTH ARM		ONE HOUR	✓	392	100.000
3 - WEST ARM		ONE HOUR	✓	605	100.000
4 - NORTH ARM		ONE HOUR	✓	549	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	329	481	414
	2 - SOUTH ARM	312	0	30	50
	3 - WEST ARM	551	18	0	36
	4 - NORTH ARM	438	54	57	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - EAST ARM	2 - SOUTH ARM	3 - WEST ARM	4 - NORTH ARM
	1 - EAST ARM	0	0	0	0
	2 - SOUTH ARM	0	0	0	0
	3 - WEST ARM	0	0	0	0
	4 - NORTH ARM	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - EAST ARM	0.64	4.69	1.7	A	1123	1685
2 - SOUTH ARM	0.78	29.13	3.3	D	360	540
3 - WEST ARM	0.84	27.54	4.8	D	555	833
4 - NORTH ARM	0.73	15.81	2.6	C	504	756

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	921	230	96	2150	0.429	919	972	0.0	0.7	2.916	A
2 - SOUTH ARM	295	74	714	737	0.400	292	301	0.0	0.7	8.051	A
3 - WEST ARM	455	114	581	950	0.479	452	426	0.0	0.9	7.174	A
4 - NORTH ARM	413	103	658	1017	0.407	411	375	0.0	0.7	5.914	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1100	275	116	2135	0.515	1099	1164	0.7	1.1	3.469	A
2 - SOUTH ARM	352	88	855	659	0.534	351	360	0.7	1.1	11.587	B
3 - WEST ARM	544	136	695	884	0.616	541	510	0.9	1.6	10.439	B
4 - NORTH ARM	494	123	788	938	0.526	492	449	0.7	1.1	8.031	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1348	337	141	2116	0.637	1345	1411	1.1	1.7	4.651	A
2 - SOUTH ARM	432	108	1046	554	0.779	424	440	1.1	3.1	26.192	D
3 - WEST ARM	666	167	846	796	0.837	655	623	1.6	4.4	23.754	C
4 - NORTH ARM	604	151	953	839	0.720	599	548	1.1	2.4	14.657	B

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1348	337	142	2115	0.637	1348	1430	1.7	1.7	4.688	A
2 - SOUTH ARM	432	108	1048	552	0.781	431	441	3.1	3.3	29.128	D
3 - WEST ARM	666	167	854	792	0.841	664	625	4.4	4.8	27.536	D
4 - NORTH ARM	604	151	968	830	0.728	604	550	2.4	2.6	15.809	C

12:45 - 13:00

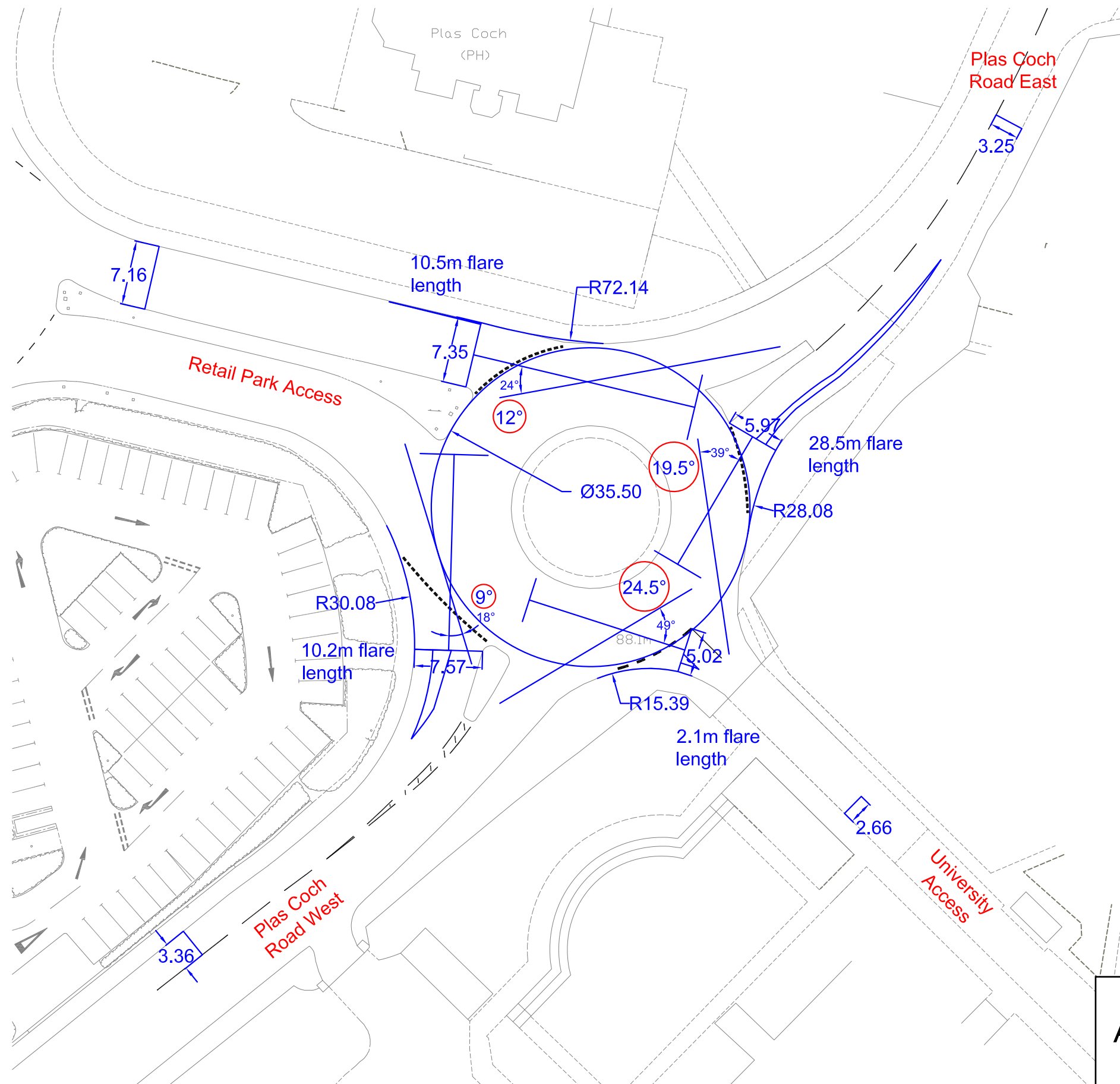
Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	1100	275	117	2134	0.516	1103	1192	1.7	1.1	3.500	A
2 - SOUTH ARM	352	88	858	657	0.536	361	362	3.3	1.2	12.477	B
3 - WEST ARM	544	136	706	877	0.620	556	513	4.8	1.7	11.634	B
4 - NORTH ARM	494	123	811	925	0.534	499	452	2.6	1.2	8.565	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - EAST ARM	921	230	98	2149	0.429	923	985	1.1	0.8	2.940	A
2 - SOUTH ARM	295	74	718	735	0.401	297	303	1.2	0.7	8.257	A
3 - WEST ARM	455	114	587	947	0.481	458	428	1.7	0.9	7.417	A
4 - NORTH ARM	413	103	668	1011	0.409	415	377	1.2	0.7	6.063	A

ARCADY ANALYSIS: PLAS COCH ROAD ROUNDABOUT

18.1	Roundabout Geometry
18.2	Output Results



APPENDIX 18.1
ARCADY GEOMETRY:
PLAS COCH ROAD
ROUNDAABOUT
1:500@A3

Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.0.2.5947 © Copyright TRL Limited, 2017	
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 software@trl.co.uk 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: Plas Coch Rd Roundabout - Existing.j9

Path: \\SVR-SBS-ADL\Traffic\4100-4199\4171 McD's Plas Coch Road, Wrexham\ARCADY

Report generation date: 06/06/2019 10:31:04

»2019 Surveyed , Friday AM
 »2019 Surveyed , Friday PM
 »2019 Surveyed, Saturday Peak
 »2021 Base, Friday AM
 »2021 Base, Friday PM
 »2021 Base, Saturday Peak
 »2026 Base, Friday AM
 »2026 Base, Friday PM
 »2026 Base, Saturday Peak
 »2036 Base, Friday AM
 »2036 Base, Friday PM
 »2036 Base, Saturday Peak
 »2021 Totals, Friday AM
 »2021 Totals, Friday PM
 »2021 Totals, Saturday Peak
 »2026 Totals, Friday AM
 »2026 Totals, Friday PM
 »2026 Totals, Saturday Peak
 »2036 Totals, Friday AM
 »2036 Totals, Friday PM
 »2036 Totals, Saturday Peak

Summary of junction performance

	Friday AM			Friday PM			Saturday Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2019 Surveyed									
1 - Wrexham Glyndwr Uni	0.0	8.06	0.05	0.6	22.93	0.40	0.2	22.42	0.14
2 - Plas Coch Road West	1.9	6.85	0.66	1.9	6.93	0.66	3.5	10.77	0.78
3 - Retail Park	0.4	2.29	0.28	1.4	4.73	0.58	1.3	3.67	0.57
4 - B5101 Plas Coch Road East	0.5	4.12	0.34	1.0	6.41	0.50	1.1	7.51	0.52
2021 Base									
1 - Wrexham Glyndwr Uni	0.0	7.34	0.04	0.7	23.85	0.41	0.2	22.89	0.14
2 - Plas Coch Road West	1.9	6.68	0.66	2.0	7.02	0.66	3.6	10.95	0.79
3 - Retail Park	0.4	2.29	0.28	1.4	4.73	0.58	1.3	3.69	0.57
4 - B5101 Plas Coch Road East	0.5	4.13	0.35	1.0	6.50	0.51	1.1	7.61	0.53
2026 Base									
1 - Wrexham Glyndwr Uni	0.0	7.47	0.05	0.8	26.26	0.45	0.2	25.00	0.17
2 - Plas Coch Road West	2.0	6.89	0.67	2.1	7.24	0.68	3.8	11.43	0.80
3 - Retail Park	0.4	2.31	0.28	1.4	4.73	0.58	1.3	3.73	0.57
4 - B5101 Plas Coch Road East	0.6	4.22	0.36	1.1	6.73	0.53	1.2	7.99	0.55
2036 Base									
1 - Wrexham Glyndwr Uni	0.1	7.73	0.05	1.0	31.93	0.51	0.2	27.43	0.18
2 - Plas Coch Road West	2.2	7.28	0.69	2.2	7.49	0.69	4.1	12.35	0.81
3 - Retail Park	0.4	2.34	0.29	1.4	4.73	0.58	1.3	3.81	0.57
4 - B5101 Plas Coch Road East	0.6	4.37	0.38	1.2	7.16	0.56	1.3	8.44	0.58
2021 Totals									
1 - Wrexham Glyndwr Uni	0.0	7.49	0.04	0.8	26.43	0.44	0.2	29.42	0.18
2 - Plas Coch Road West	2.0	6.95	0.67	2.1	7.40	0.68	4.5	13.29	0.82
3 - Retail Park	0.4	2.32	0.29	1.5	4.93	0.60	1.5	3.98	0.60
4 - B5101 Plas Coch Road East	0.5	4.19	0.35	1.1	6.74	0.52	1.2	8.43	0.56
2026 Totals									
1 - Wrexham Glyndwr Uni	0.0	7.62	0.05	0.9	29.45	0.48	0.3	32.99	0.21
2 - Plas Coch Road West	2.1	7.18	0.68	2.2	7.66	0.69	4.8	14.00	0.83
3 - Retail Park	0.4	2.34	0.29	1.5	4.93	0.60	1.5	4.03	0.60
4 - B5101 Plas Coch Road East	0.6	4.28	0.36	1.1	6.99	0.54	1.4	8.91	0.58
2036 Totals									
1 - Wrexham Glyndwr Uni	0.1	7.89	0.05	1.2	36.69	0.55	0.3	37.34	0.24
2 - Plas Coch Road West	2.3	7.61	0.70	2.3	7.94	0.70	5.3	15.38	0.85
3 - Retail Park	0.4	2.37	0.30	1.5	4.93	0.60	1.5	4.11	0.61
4 - B5101 Plas Coch Road East	0.6	4.44	0.38	1.3	7.45	0.57	1.5	9.46	0.60

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	05/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADLUK\Junction
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	Veh	Veh	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	Relationship type	Relationship
D1	2019 Surveyed	Friday AM	ONE HOUR	08:45	10:15	15	✓		
D2	2019 Surveyed	Friday PM	ONE HOUR	15:45	17:15	15	✓		
D3	2019 Surveyed	Saturday Peak	ONE HOUR	11:45	13:15	15	✓		
D4	2021 Base	Friday AM	ONE HOUR	08:45	10:15	15	✓		
D5	2021 Base	Friday PM	ONE HOUR	15:45	17:15	15	✓		
D6	2021 Base	Saturday Peak	ONE HOUR	11:45	13:15	15	✓		
D7	2026 Base	Friday AM	ONE HOUR	08:45	10:15	15	✓		
D8	2026 Base	Friday PM	ONE HOUR	15:45	17:15	15	✓		
D9	2026 Base	Saturday Peak	ONE HOUR	11:45	13:15	15	✓		
D10	2036 Base	Friday AM	ONE HOUR	08:45	10:15	15	✓		
D11	2036 Base	Friday PM	ONE HOUR	15:45	17:15	15	✓		
D12	2036 Base	Saturday Peak	ONE HOUR	11:45	13:15	15	✓		
D13	McD's	Friday AM	ONE HOUR	08:45	10:15	15			
D14	McD's	Friday PM	ONE HOUR	15:45	17:15	15			
D15	McD's	Saturday Peak	ONE HOUR	11:45	13:15	15			
D16	2021 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D4 + D13
D17	2021 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D5 + D14
D18	2021 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D6 + D15
D19	2026 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D7 + D13
D20	2026 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D8 + D14
D21	2026 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D9 + D15
D22	2036 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D10 + D13
D23	2036 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D11 + D14
D24	2036 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D12 + D15

Analysis Set Details

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

2019 Surveyed , Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	4.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Wrexham Glyndwr Uni	
2	Plas Coch Road West	
3	Retail Park	
4	B5101 Plas Coch Road East	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Wrexham Glyndwr Uni	2.66	5.02	2.1	15.4	35.5	24.5	
2 - Plas Coch Road West	3.36	7.57	10.2	30.1	35.5	9.0	
3 - Retail Park	7.16	7.35	10.5	72.1	35.5	12.0	
4 - B5101 Plas Coch Road East	3.25	5.97	28.5	28.1	35.5	19.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Wrexham Glyndwr Uni	0.504	966
2 - Plas Coch Road West	0.680	1708
3 - Retail Park	0.831	2441
4 - B5101 Plas Coch Road East	0.666	1698

The slope and intercept shown above include any corrections and adjustments.

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	2019 Surveyed	Friday AM	ONE HOUR	08:45	10:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	20	100.000
2 - Plas Coch Road West		ONE HOUR	✓	940	100.000
3 - Retail Park		ONE HOUR	✓	559	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	412	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	15	5	0
	2 - Plas Coch Road West	74	1	671	194
	3 - Retail Park	8	409	3	139
	4 - B5101 Plas Coch Road East	15	236	160	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	13	1	0
	2 - Plas Coch Road West	0	1	1	3
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.05	8.06	0.0	A	18	28
2 - Plas Coch Road West	0.66	6.85	1.9	A	863	1294
3 - Retail Park	0.28	2.29	0.4	A	513	769
4 - B5101 Plas Coch Road East	0.34	4.12	0.5	A	378	567

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	15	4	608	599	0.025	15	73	0.0	0.0	6.165	A
2 - Plas Coch Road West	708	177	127	1600	0.442	705	496	0.0	0.8	4.006	A
3 - Retail Park	421	105	202	2270	0.185	420	629	0.0	0.2	1.945	A
4 - B5101 Plas Coch Road East	310	78	372	1442	0.215	309	251	0.0	0.3	3.175	A

09:00 - 09:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	4	728	544	0.033	18	87	0.0	0.0	6.843	A
2 - Plas Coch Road West	845	211	152	1583	0.534	844	594	0.8	1.1	4.858	A
3 - Retail Park	503	126	242	2236	0.225	502	753	0.2	0.3	2.076	A
4 - B5101 Plas Coch Road East	370	93	445	1394	0.266	370	300	0.3	0.4	3.517	A

09:15 - 09:30

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	6	891	469	0.047	22	107	0.0	0.0	8.051	A
2 - Plas Coch Road West	1035	259	186	1561	0.663	1032	727	1.1	1.9	6.768	A
3 - Retail Park	615	154	296	2190	0.281	615	921	0.3	0.4	2.286	A
4 - B5101 Plas Coch Road East	454	113	544	1328	0.342	453	367	0.4	0.5	4.113	A

09:30 - 09:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	6	892	469	0.047	22	107	0.0	0.0	8.060	A
2 - Plas Coch Road West	1035	259	186	1560	0.663	1035	728	1.9	1.9	6.848	A
3 - Retail Park	615	154	297	2189	0.281	615	924	0.4	0.4	2.287	A
4 - B5101 Plas Coch Road East	454	113	545	1327	0.342	454	368	0.5	0.5	4.120	A

09:45 - 10:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	4	729	543	0.033	18	87	0.0	0.0	6.853	A
2 - Plas Coch Road West	845	211	152	1583	0.534	848	595	1.9	1.2	4.921	A
3 - Retail Park	503	126	244	2235	0.225	503	757	0.4	0.3	2.079	A
4 - B5101 Plas Coch Road East	370	93	446	1393	0.266	371	301	0.5	0.4	3.523	A

10:00 - 10:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	15	4	610	598	0.025	15	73	0.0	0.0	6.179	A
2 - Plas Coch Road West	708	177	127	1600	0.442	709	498	1.2	0.8	4.050	A
3 - Retail Park	421	105	204	2269	0.186	421	633	0.3	0.2	1.950	A
4 - B5101 Plas Coch Road East	310	78	373	1441	0.215	311	252	0.4	0.3	3.184	A

2019 Surveyed , Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	6.58	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	2019 Surveyed	Friday PM	ONE HOUR	15:45	17:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	94	100.000
2 - Plas Coch Road West		ONE HOUR	✓	917	100.000
3 - Retail Park		ONE HOUR	✓	956	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	517	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	75	14	5
	2 - Plas Coch Road West	11	2	236	668
	3 - Retail Park	8	751	1	196
	4 - B5101 Plas Coch Road East	2	296	219	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	1	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.40	22.93	0.6	C	86	129
2 - Plas Coch Road West	0.66	6.93	1.9	A	841	1262
3 - Retail Park	0.58	4.73	1.4	A	877	1316
4 - B5101 Plas Coch Road East	0.50	6.41	1.0	A	474	712

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	71	18	952	483	0.147	70	16	0.0	0.2	8.712	A
2 - Plas Coch Road West	690	173	179	1586	0.435	687	843	0.0	0.8	3.992	A
3 - Retail Park	720	180	514	2014	0.357	718	352	0.0	0.6	2.771	A
4 - B5101 Plas Coch Road East	389	97	580	1311	0.297	388	652	0.0	0.4	3.889	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	85	21	1139	389	0.217	84	19	0.2	0.3	11.791	B
2 - Plas Coch Road West	824	206	214	1562	0.528	823	1009	0.8	1.1	4.863	A
3 - Retail Park	859	215	616	1930	0.445	858	422	0.6	0.8	3.356	A
4 - B5101 Plas Coch Road East	465	116	694	1236	0.376	464	780	0.4	0.6	4.662	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	103	26	1394	262	0.395	102	23	0.3	0.6	22.328	C
2 - Plas Coch Road West	1010	252	262	1529	0.660	1006	1234	1.1	1.9	6.840	A
3 - Retail Park	1053	263	753	1816	0.580	1050	516	0.8	1.4	4.688	A
4 - B5101 Plas Coch Road East	569	142	849	1132	0.503	568	954	0.6	1.0	6.357	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	103	26	1397	260	0.398	103	23	0.6	0.6	22.928	C
2 - Plas Coch Road West	1010	252	263	1529	0.660	1010	1237	1.9	1.9	6.930	A
3 - Retail Park	1053	263	755	1814	0.580	1053	517	1.4	1.4	4.727	A
4 - B5101 Plas Coch Road East	569	142	851	1131	0.503	569	957	1.0	1.0	6.406	A

16:45 - 17:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	85	21	1144	387	0.219	86	19	0.6	0.3	12.027	B
2 - Plas Coch Road West	824	206	216	1561	0.528	828	1014	1.9	1.1	4.928	A
3 - Retail Park	859	215	619	1927	0.446	862	424	1.4	0.8	3.388	A
4 - B5101 Plas Coch Road East	465	116	697	1234	0.377	466	784	1.0	0.6	4.699	A

17:00 - 17:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	71	18	957	480	0.147	71	16	0.3	0.2	8.813	A
2 - Plas Coch Road West	690	173	180	1585	0.436	692	848	1.1	0.8	4.037	A
3 - Retail Park	720	180	518	2011	0.358	721	355	0.8	0.6	2.792	A
4 - B5101 Plas Coch Road East	389	97	583	1310	0.297	390	655	0.6	0.4	3.916	A

2019 Surveyed, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.31	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
D3	2019 Surveyed	Saturday Peak	ONE HOUR	11:45	13:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	24	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1089	100.000
3 - Retail Park		ONE HOUR	✓	1161	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	478	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
From		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	16	8	0
	2 - Plas Coch Road West	11	1	889	188
	3 - Retail Park	5	927	0	229
	4 - B5101 Plas Coch Road East	1	250	227	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.14	22.42	0.2	C	22	33
2 - Plas Coch Road West	0.78	10.77	3.5	B	999	1499
3 - Retail Park	0.57	3.67	1.3	A	1065	1598
4 - B5101 Plas Coch Road East	0.52	7.51	1.1	A	439	658

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	1054	435	0.042	18	13	0.0	0.0	8.626	A
2 - Plas Coch Road West	820	205	176	1588	0.516	816	896	0.0	1.1	4.636	A
3 - Retail Park	874	219	150	2317	0.377	872	842	0.0	0.6	2.486	A
4 - B5101 Plas Coch Road East	360	90	709	1226	0.294	358	313	0.0	0.4	4.142	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	1262	331	0.065	21	15	0.0	0.1	11.641	B
2 - Plas Coch Road West	979	245	211	1564	0.626	977	1072	1.1	1.6	6.101	A
3 - Retail Park	1044	261	179	2292	0.455	1043	1008	0.6	0.8	2.880	A
4 - B5101 Plas Coch Road East	430	107	848	1133	0.379	429	374	0.4	0.6	5.106	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	1544	189	0.140	26	19	0.1	0.2	22.101	C
2 - Plas Coch Road West	1199	300	258	1532	0.782	1192	1312	1.6	3.4	10.340	B
3 - Retail Park	1278	320	219	2260	0.566	1276	1231	0.8	1.3	3.656	A
4 - B5101 Plas Coch Road East	526	132	1038	1007	0.523	524	458	0.6	1.1	7.433	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	1547	187	0.141	26	19	0.2	0.2	22.421	C
2 - Plas Coch Road West	1199	300	259	1532	0.783	1199	1315	3.4	3.5	10.774	B
3 - Retail Park	1278	320	220	2259	0.566	1278	1237	1.3	1.3	3.671	A
4 - B5101 Plas Coch Road East	526	132	1039	1006	0.523	526	459	1.1	1.1	7.507	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	1266	328	0.066	22	15	0.2	0.1	11.768	B
2 - Plas Coch Road West	979	245	212	1563	0.626	986	1076	3.5	1.7	6.314	A
3 - Retail Park	1044	261	181	2291	0.456	1046	1017	1.3	0.8	2.896	A
4 - B5101 Plas Coch Road East	430	107	850	1132	0.380	432	376	1.1	0.6	5.155	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	1059	432	0.042	18	13	0.1	0.0	8.693	A
2 - Plas Coch Road West	820	205	177	1587	0.517	822	900	1.7	1.1	4.724	A
3 - Retail Park	874	219	151	2316	0.377	875	849	0.8	0.6	2.501	A
4 - B5101 Plas Coch Road East	360	90	711	1224	0.294	361	315	0.6	0.4	4.174	A

2021 Base, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	4.88	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
D4	2021 Base	Friday AM	ONE HOUR	08:45	10:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	20	100.000
2 - Plas Coch Road West		ONE HOUR	✓	947	100.000
3 - Retail Park		ONE HOUR	✓	559	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	418	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	15	5	0
	2 - Plas Coch Road West	76	1	671	199
	3 - Retail Park	8	409	3	139
	4 - B5101 Plas Coch Road East	15	242	160	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	0	1	2
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.04	7.34	0.0	A	18	28
2 - Plas Coch Road West	0.66	6.68	1.9	A	869	1303
3 - Retail Park	0.28	2.29	0.4	A	513	769
4 - B5101 Plas Coch Road East	0.35	4.13	0.5	A	384	575

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	15	4	613	656	0.023	15	74	0.0	0.0	5.618	A
2 - Plas Coch Road West	713	178	127	1621	0.440	710	501	0.0	0.8	3.935	A
3 - Retail Park	421	105	208	2269	0.185	420	629	0.0	0.2	1.946	A
4 - B5101 Plas Coch Road East	315	79	373	1448	0.217	314	254	0.0	0.3	3.171	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	4	733	595	0.030	18	89	0.0	0.0	6.235	A
2 - Plas Coch Road West	851	213	152	1604	0.531	850	599	0.8	1.1	4.762	A
3 - Retail Park	503	126	249	2235	0.225	502	753	0.2	0.3	2.077	A
4 - B5101 Plas Coch Road East	376	94	446	1399	0.269	375	304	0.3	0.4	3.517	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	6	898	513	0.043	22	109	0.0	0.0	7.336	A
2 - Plas Coch Road West	1043	261	186	1581	0.659	1040	734	1.1	1.9	6.606	A
3 - Retail Park	615	154	304	2189	0.281	615	921	0.3	0.4	2.287	A
4 - B5101 Plas Coch Road East	460	115	547	1332	0.345	460	372	0.4	0.5	4.122	A

09:30 - 09:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	6	898	512	0.043	22	109	0.0	0.0	7.343	A
2 - Plas Coch Road West	1043	261	186	1581	0.659	1043	734	1.9	1.9	6.681	A
3 - Retail Park	615	154	305	2188	0.281	615	924	0.4	0.4	2.288	A
4 - B5101 Plas Coch Road East	460	115	547	1332	0.346	460	373	0.5	0.5	4.129	A

09:45 - 10:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	4	734	595	0.030	18	89	0.0	0.0	6.247	A
2 - Plas Coch Road West	851	213	152	1604	0.531	854	600	1.9	1.1	4.820	A
3 - Retail Park	503	126	250	2234	0.225	503	757	0.4	0.3	2.081	A
4 - B5101 Plas Coch Road East	376	94	447	1398	0.269	376	306	0.5	0.4	3.523	A

10:00 - 10:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	15	4	615	655	0.023	15	75	0.0	0.0	5.629	A
2 - Plas Coch Road West	713	178	127	1621	0.440	714	503	1.1	0.8	3.977	A
3 - Retail Park	421	105	209	2268	0.186	421	633	0.3	0.2	1.950	A
4 - B5101 Plas Coch Road East	315	79	374	1447	0.218	315	256	0.4	0.3	3.183	A

2021 Base, Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	6.68	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
D5	2021 Base	Friday PM	ONE HOUR	15:45	17:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	96	100.000
2 - Plas Coch Road West		ONE HOUR	✓	923	100.000
3 - Retail Park		ONE HOUR	✓	956	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	524	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	77	14	5
	2 - Plas Coch Road West	11	2	242	668
	3 - Retail Park	8	751	1	196
	4 - B5101 Plas Coch Road East	2	303	219	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	1	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.41	23.85	0.7	C	88	132
2 - Plas Coch Road West	0.66	7.02	2.0	A	847	1270
3 - Retail Park	0.58	4.73	1.4	A	877	1316
4 - B5101 Plas Coch Road East	0.51	6.50	1.0	A	481	721

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	72	18	957	480	0.151	72	16	0.0	0.2	8.799	A
2 - Plas Coch Road West	695	174	179	1586	0.438	692	850	0.0	0.8	4.012	A
3 - Retail Park	720	180	514	2014	0.357	718	357	0.0	0.6	2.771	A
4 - B5101 Plas Coch Road East	394	99	580	1311	0.301	393	651	0.0	0.4	3.911	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	86	22	1146	386	0.224	86	19	0.2	0.3	11.982	B
2 - Plas Coch Road West	830	207	214	1562	0.531	828	1017	0.8	1.1	4.899	A
3 - Retail Park	859	215	616	1930	0.445	858	427	0.6	0.8	3.356	A
4 - B5101 Plas Coch Road East	471	118	694	1236	0.381	470	780	0.4	0.6	4.701	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	106	26	1401	258	0.410	104	23	0.3	0.7	23.166	C
2 - Plas Coch Road West	1016	254	262	1529	0.664	1013	1243	1.1	1.9	6.925	A
3 - Retail Park	1053	263	753	1816	0.580	1050	522	0.8	1.4	4.687	A
4 - B5101 Plas Coch Road East	577	144	849	1132	0.510	575	954	0.6	1.0	6.443	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	106	26	1405	256	0.412	106	23	0.7	0.7	23.847	C
2 - Plas Coch Road West	1016	254	263	1529	0.665	1016	1247	1.9	2.0	7.019	A
3 - Retail Park	1053	263	755	1814	0.580	1053	524	1.4	1.4	4.727	A
4 - B5101 Plas Coch Road East	577	144	851	1131	0.510	577	957	1.0	1.0	6.495	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	86	22	1151	383	0.225	88	19	0.7	0.3	12.242	B
2 - Plas Coch Road West	830	207	216	1561	0.532	833	1023	2.0	1.1	4.966	A
3 - Retail Park	859	215	619	1927	0.446	862	430	1.4	0.8	3.388	A
4 - B5101 Plas Coch Road East	471	118	697	1234	0.382	473	784	1.0	0.6	4.739	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	72	18	962	478	0.151	73	16	0.3	0.2	8.905	A
2 - Plas Coch Road West	695	174	180	1585	0.438	696	855	1.1	0.8	4.056	A
3 - Retail Park	720	180	518	2011	0.358	721	359	0.8	0.6	2.792	A
4 - B5101 Plas Coch Road East	394	99	583	1310	0.301	395	656	0.6	0.4	3.941	A

2021 Base, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.42	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
D6	2021 Base	Saturday Peak	ONE HOUR	11:45	13:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	24	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1094	100.000
3 - Retail Park		ONE HOUR	✓	1161	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	484	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	16	8	0
	2 - Plas Coch Road West	11	1	889	193
	3 - Retail Park	5	927	0	229
	4 - B5101 Plas Coch Road East	1	256	227	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.14	22.89	0.2	C	22	33
2 - Plas Coch Road West	0.79	10.95	3.6	B	1004	1506
3 - Retail Park	0.57	3.69	1.3	A	1065	1598
4 - B5101 Plas Coch Road East	0.53	7.61	1.1	A	444	666

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	1059	433	0.042	18	13	0.0	0.0	8.673	A
2 - Plas Coch Road West	824	206	176	1588	0.519	819	900	0.0	1.1	4.659	A
3 - Retail Park	874	219	154	2314	0.378	872	842	0.0	0.6	2.492	A
4 - B5101 Plas Coch Road East	364	91	709	1226	0.297	363	316	0.0	0.4	4.163	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	1267	328	0.066	21	15	0.0	0.1	11.744	B
2 - Plas Coch Road West	983	246	211	1564	0.629	981	1078	1.1	1.7	6.146	A
3 - Retail Park	1044	261	184	2289	0.456	1043	1008	0.6	0.8	2.888	A
4 - B5101 Plas Coch Road East	435	109	848	1133	0.384	434	379	0.4	0.6	5.146	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	1550	185	0.143	26	19	0.1	0.2	22.554	C
2 - Plas Coch Road West	1205	301	258	1533	0.786	1197	1318	1.7	3.5	10.512	B
3 - Retail Park	1278	320	224	2255	0.567	1276	1231	0.8	1.3	3.673	A
4 - B5101 Plas Coch Road East	533	133	1038	1007	0.529	531	463	0.6	1.1	7.536	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	1553	184	0.144	26	19	0.2	0.2	22.893	C
2 - Plas Coch Road West	1205	301	259	1532	0.786	1204	1321	3.5	3.6	10.953	B
3 - Retail Park	1278	320	226	2254	0.567	1278	1237	1.3	1.3	3.688	A
4 - B5101 Plas Coch Road East	533	133	1039	1006	0.530	533	465	1.1	1.1	7.612	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	1272	325	0.066	22	15	0.2	0.1	11.878	B
2 - Plas Coch Road West	983	246	212	1563	0.629	991	1082	3.6	1.7	6.369	A
3 - Retail Park	1044	261	186	2287	0.456	1046	1018	1.3	0.8	2.905	A
4 - B5101 Plas Coch Road East	435	109	850	1132	0.384	437	381	1.1	0.6	5.198	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	1064	430	0.042	18	13	0.1	0.0	8.741	A
2 - Plas Coch Road West	824	206	177	1587	0.519	826	905	1.7	1.1	4.746	A
3 - Retail Park	874	219	155	2313	0.378	875	849	0.8	0.6	2.506	A
4 - B5101 Plas Coch Road East	364	91	711	1224	0.298	365	318	0.6	0.4	4.195	A

2026 Base, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	5.02	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
D7	2026 Base	Friday AM	ONE HOUR	08:45	10:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	21	100.000
2 - Plas Coch Road West		ONE HOUR	✓	962	100.000
3 - Retail Park		ONE HOUR	✓	559	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	432	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	16	5	0
	2 - Plas Coch Road West	80	1	671	210
	3 - Retail Park	8	409	3	139
	4 - B5101 Plas Coch Road East	16	255	160	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	0	1	2
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.05	7.47	0.0	A	19	29
2 - Plas Coch Road West	0.67	6.89	2.0	A	883	1324
3 - Retail Park	0.28	2.31	0.4	A	513	769
4 - B5101 Plas Coch Road East	0.36	4.22	0.6	A	396	595

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	16	4	622	651	0.024	16	78	0.0	0.0	5.667	A
2 - Plas Coch Road West	724	181	127	1621	0.447	721	511	0.0	0.8	3.983	A
3 - Retail Park	421	105	219	2260	0.186	420	629	0.0	0.2	1.956	A
4 - B5101 Plas Coch Road East	325	81	376	1446	0.225	324	263	0.0	0.3	3.207	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	19	5	745	589	0.032	19	93	0.0	0.0	6.308	A
2 - Plas Coch Road West	865	216	152	1604	0.539	863	612	0.8	1.2	4.849	A
3 - Retail Park	503	126	262	2224	0.226	502	753	0.2	0.3	2.091	A
4 - B5101 Plas Coch Road East	388	97	450	1397	0.278	388	314	0.3	0.4	3.570	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	912	506	0.046	23	114	0.0	0.0	7.461	A
2 - Plas Coch Road West	1059	265	186	1581	0.670	1056	749	1.2	2.0	6.807	A
3 - Retail Park	615	154	320	2175	0.283	615	921	0.3	0.4	2.307	A
4 - B5101 Plas Coch Road East	476	119	551	1329	0.358	475	385	0.4	0.6	4.209	A

09:30 - 09:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	913	505	0.046	23	114	0.0	0.0	7.469	A
2 - Plas Coch Road West	1059	265	186	1581	0.670	1059	750	2.0	2.0	6.893	A
3 - Retail Park	615	154	321	2174	0.283	615	924	0.4	0.4	2.309	A
4 - B5101 Plas Coch Road East	476	119	552	1329	0.358	476	385	0.6	0.6	4.218	A

09:45 - 10:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	19	5	746	589	0.032	19	94	0.0	0.0	6.318	A
2 - Plas Coch Road West	865	216	152	1604	0.539	868	613	2.0	1.2	4.911	A
3 - Retail Park	503	126	263	2222	0.226	503	757	0.4	0.3	2.095	A
4 - B5101 Plas Coch Road East	388	97	451	1396	0.278	389	315	0.6	0.4	3.576	A

10:00 - 10:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	16	4	625	650	0.024	16	78	0.0	0.0	5.681	A
2 - Plas Coch Road West	724	181	127	1621	0.447	726	513	1.2	0.8	4.027	A
3 - Retail Park	421	105	220	2258	0.186	421	633	0.3	0.2	1.959	A
4 - B5101 Plas Coch Road East	325	81	377	1445	0.225	326	264	0.4	0.3	3.217	A

2026 Base, Friday 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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	6.95	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
D8	2026 Base	Friday PM	ONE HOUR	15:45	17:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	102	100.000
2 - Plas Coch Road West		ONE HOUR	✓	937	100.000
3 - Retail Park		ONE HOUR	✓	956	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	541	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	82	15	5
	2 - Plas Coch Road West	12	2	255	668
	3 - Retail Park	8	751	1	196
	4 - B5101 Plas Coch Road East	2	320	219	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.45	26.26	0.8	D	94	140
2 - Plas Coch Road West	0.68	7.24	2.1	A	860	1290
3 - Retail Park	0.58	4.73	1.4	A	877	1316
4 - B5101 Plas Coch Road East	0.53	6.73	1.1	A	496	745

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	77	19	970	477	0.161	76	16	0.0	0.2	8.951	A
2 - Plas Coch Road West	705	176	180	1585	0.445	702	866	0.0	0.8	4.061	A
3 - Retail Park	720	180	515	2014	0.357	718	367	0.0	0.6	2.772	A
4 - B5101 Plas Coch Road East	407	102	581	1311	0.311	406	651	0.0	0.4	3.967	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	92	23	1161	381	0.240	91	20	0.2	0.3	12.387	B
2 - Plas Coch Road West	842	211	215	1561	0.540	841	1037	0.8	1.2	4.987	A
3 - Retail Park	859	215	617	1929	0.445	858	440	0.6	0.8	3.359	A
4 - B5101 Plas Coch Road East	486	122	695	1235	0.394	486	780	0.4	0.6	4.798	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	112	28	1420	251	0.448	110	24	0.3	0.8	25.328	D
2 - Plas Coch Road West	1032	258	263	1529	0.675	1028	1267	1.2	2.0	7.141	A
3 - Retail Park	1053	263	754	1815	0.580	1050	538	0.8	1.4	4.692	A
4 - B5101 Plas Coch Road East	596	149	850	1132	0.526	594	954	0.6	1.1	6.672	A

16:30 - 16:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	112	28	1424	249	0.451	112	24	0.8	0.8	26.259	D
2 - Plas Coch Road West	1032	258	264	1528	0.675	1032	1272	2.0	2.1	7.243	A
3 - Retail Park	1053	263	756	1813	0.581	1053	539	1.4	1.4	4.733	A
4 - B5101 Plas Coch Road East	596	149	852	1130	0.527	596	957	1.1	1.1	6.731	A

16:45 - 17:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	92	23	1166	379	0.242	94	20	0.8	0.3	12.706	B
2 - Plas Coch Road West	842	211	217	1560	0.540	846	1043	2.1	1.2	5.062	A
3 - Retail Park	859	215	620	1926	0.446	862	442	1.4	0.8	3.388	A
4 - B5101 Plas Coch Road East	486	122	698	1233	0.394	488	784	1.1	0.7	4.844	A

17:00 - 17:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	77	19	975	475	0.162	77	17	0.3	0.2	9.068	A
2 - Plas Coch Road West	705	176	181	1585	0.445	707	871	1.2	0.8	4.108	A
3 - Retail Park	720	180	518	2011	0.358	721	370	0.8	0.6	2.794	A
4 - B5101 Plas Coch Road East	407	102	584	1309	0.311	408	656	0.7	0.5	3.998	A

2026 Base, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.74	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
D9	2026 Base	Saturday Peak	ONE HOUR	11:45	13:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	26	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1106	100.000
3 - Retail Park		ONE HOUR	✓	1161	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	504	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
From		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	17	9	0
	2 - Plas Coch Road West	12	1	889	204
	3 - Retail Park	5	927	0	229
	4 - B5101 Plas Coch Road East	1	276	227	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.17	25.00	0.2	D	24	36
2 - Plas Coch Road West	0.80	11.43	3.8	B	1015	1522
3 - Retail Park	0.57	3.73	1.3	A	1065	1598
4 - B5101 Plas Coch Road East	0.55	7.99	1.2	A	462	694

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1074	425	0.046	19	13	0.0	0.0	8.866	A
2 - Plas Coch Road West	833	208	177	1587	0.525	828	916	0.0	1.1	4.716	A
3 - Retail Park	874	219	163	2306	0.379	872	843	0.0	0.6	2.505	A
4 - B5101 Plas Coch Road East	379	95	709	1225	0.310	378	325	0.0	0.4	4.238	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	1285	319	0.073	23	16	0.0	0.1	12.172	B
2 - Plas Coch Road West	994	249	212	1564	0.636	992	1096	1.1	1.7	6.266	A
3 - Retail Park	1044	261	195	2280	0.458	1043	1009	0.6	0.8	2.909	A
4 - B5101 Plas Coch Road East	453	113	849	1133	0.400	452	389	0.4	0.7	5.284	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	29	7	1572	174	0.164	28	20	0.1	0.2	24.550	C
2 - Plas Coch Road West	1218	304	259	1532	0.795	1210	1341	1.7	3.7	10.923	B
3 - Retail Park	1278	320	237	2244	0.570	1276	1231	0.8	1.3	3.711	A
4 - B5101 Plas Coch Road East	555	139	1039	1006	0.552	553	475	0.7	1.2	7.903	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	29	7	1575	173	0.166	29	20	0.2	0.2	25.004	D
2 - Plas Coch Road West	1218	304	260	1531	0.795	1217	1344	3.7	3.8	11.432	B
3 - Retail Park	1278	320	239	2243	0.570	1278	1238	1.3	1.3	3.730	A
4 - B5101 Plas Coch Road East	555	139	1040	1005	0.552	555	477	1.2	1.2	7.994	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	1290	316	0.074	24	16	0.2	0.1	12.329	B
2 - Plas Coch Road West	994	249	213	1563	0.636	1002	1101	3.8	1.8	6.510	A
3 - Retail Park	1044	261	197	2278	0.458	1046	1019	1.3	0.9	2.924	A
4 - B5101 Plas Coch Road East	453	113	851	1131	0.401	455	391	1.2	0.7	5.345	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1079	423	0.046	20	14	0.1	0.0	8.939	A
2 - Plas Coch Road West	833	208	178	1587	0.525	835	921	1.8	1.1	4.808	A
3 - Retail Park	874	219	164	2305	0.379	875	850	0.9	0.6	2.520	A
4 - B5101 Plas Coch Road East	379	95	712	1224	0.310	380	327	0.7	0.5	4.273	A

2036 Base, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	5.27	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
D10	2036 Base	Friday AM	ONE HOUR	08:45	10:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	24	100.000
2 - Plas Coch Road West		ONE HOUR	✓	987	100.000
3 - Retail Park		ONE HOUR	✓	559	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	455	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	18	6	0
	2 - Plas Coch Road West	87	1	671	228
	3 - Retail Park	8	409	3	139
	4 - B5101 Plas Coch Road East	16	278	160	1

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	0	1	2
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.05	7.73	0.1	A	22	33
2 - Plas Coch Road West	0.69	7.28	2.2	A	906	1359
3 - Retail Park	0.29	2.34	0.4	A	513	769
4 - B5101 Plas Coch Road East	0.38	4.37	0.6	A	418	626

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	640	642	0.028	18	83	0.0	0.0	5.767	A
2 - Plas Coch Road West	743	186	128	1621	0.458	740	530	0.0	0.8	4.069	A
3 - Retail Park	421	105	238	2244	0.188	420	630	0.0	0.2	1.972	A
4 - B5101 Plas Coch Road East	343	86	381	1442	0.238	341	276	0.0	0.3	3.267	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	765	579	0.037	22	100	0.0	0.0	6.457	A
2 - Plas Coch Road West	887	222	153	1604	0.553	886	634	0.8	1.2	5.001	A
3 - Retail Park	503	126	284	2205	0.228	502	754	0.2	0.3	2.114	A
4 - B5101 Plas Coch Road East	409	102	456	1392	0.294	409	330	0.3	0.4	3.657	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	937	493	0.054	26	122	0.0	0.1	7.717	A
2 - Plas Coch Road West	1087	272	187	1581	0.688	1083	776	1.2	2.1	7.182	A
3 - Retail Park	615	154	348	2152	0.286	615	922	0.3	0.4	2.341	A
4 - B5101 Plas Coch Road East	501	125	559	1324	0.378	500	404	0.4	0.6	4.364	A

09:30 - 09:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	938	492	0.054	26	122	0.1	0.1	7.727	A
2 - Plas Coch Road West	1087	272	187	1580	0.688	1087	777	2.1	2.2	7.285	A
3 - Retail Park	615	154	349	2151	0.286	615	925	0.4	0.4	2.343	A
4 - B5101 Plas Coch Road East	501	125	559	1324	0.378	501	405	0.6	0.6	4.374	A

09:45 - 10:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	767	578	0.037	22	100	0.1	0.0	6.470	A
2 - Plas Coch Road West	887	222	153	1604	0.553	891	635	2.2	1.3	5.077	A
3 - Retail Park	503	126	286	2204	0.228	503	758	0.4	0.3	2.116	A
4 - B5101 Plas Coch Road East	409	102	457	1392	0.294	410	332	0.6	0.4	3.670	A

10:00 - 10:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	642	641	0.028	18	84	0.0	0.0	5.779	A
2 - Plas Coch Road West	743	186	128	1621	0.459	745	532	1.3	0.9	4.117	A
3 - Retail Park	421	105	239	2243	0.188	421	634	0.3	0.2	1.976	A
4 - B5101 Plas Coch Road East	343	86	383	1441	0.238	343	277	0.4	0.3	3.280	A

2036 Base, Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.43	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
D11	2036 Base	Friday PM	ONE HOUR	15:45	17:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	108	100.000
2 - Plas Coch Road West		ONE HOUR	✓	952	100.000
3 - Retail Park		ONE HOUR	✓	956	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	570	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	88	15	5
	2 - Plas Coch Road West	12	2	270	668
	3 - Retail Park	8	751	1	196
	4 - B5101 Plas Coch Road East	2	349	219	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	1	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.51	31.93	1.0	D	99	149
2 - Plas Coch Road West	0.69	7.49	2.2	A	874	1310
3 - Retail Park	0.58	4.73	1.4	A	877	1316
4 - B5101 Plas Coch Road East	0.56	7.16	1.2	A	523	785

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	81	20	992	463	0.176	80	16	0.0	0.2	9.396	A
2 - Plas Coch Road West	717	179	180	1585	0.452	713	892	0.0	0.8	4.114	A
3 - Retail Park	720	180	515	2014	0.357	718	378	0.0	0.6	2.772	A
4 - B5101 Plas Coch Road East	429	107	581	1311	0.327	427	651	0.0	0.5	4.064	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	97	24	1187	365	0.266	97	20	0.2	0.4	13.365	B
2 - Plas Coch Road West	856	214	215	1561	0.548	854	1068	0.8	1.2	5.080	A
3 - Retail Park	859	215	616	1929	0.445	858	453	0.6	0.8	3.359	A
4 - B5101 Plas Coch Road East	512	128	695	1235	0.415	512	780	0.5	0.7	4.970	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	119	30	1452	233	0.510	116	24	0.4	1.0	30.277	D
2 - Plas Coch Road West	1048	262	263	1529	0.686	1044	1305	1.2	2.1	7.373	A
3 - Retail Park	1053	263	754	1815	0.580	1050	554	0.8	1.4	4.692	A
4 - B5101 Plas Coch Road East	628	157	850	1132	0.555	625	954	0.7	1.2	7.083	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	119	30	1455	231	0.515	119	24	1.0	1.0	31.927	D
2 - Plas Coch Road West	1048	262	264	1528	0.686	1048	1310	2.1	2.2	7.494	A
3 - Retail Park	1053	263	756	1813	0.581	1053	556	1.4	1.4	4.733	A
4 - B5101 Plas Coch Road East	628	157	852	1130	0.555	628	957	1.2	1.2	7.159	A

16:45 - 17:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	97	24	1192	363	0.268	100	20	1.0	0.4	13.823	B
2 - Plas Coch Road West	856	214	217	1560	0.549	860	1075	2.2	1.2	5.166	A
3 - Retail Park	859	215	620	1926	0.446	862	456	1.4	0.8	3.388	A
4 - B5101 Plas Coch Road East	512	128	698	1233	0.416	514	784	1.2	0.7	5.022	A

17:00 - 17:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	81	20	997	460	0.177	82	17	0.4	0.2	9.536	A
2 - Plas Coch Road West	717	179	181	1585	0.452	718	898	1.2	0.8	4.163	A
3 - Retail Park	720	180	518	2011	0.358	721	381	0.8	0.6	2.792	A
4 - B5101 Plas Coch Road East	429	107	584	1309	0.328	430	656	0.7	0.5	4.100	A

2036 Base, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	8.28	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
D12	2036 Base	Saturday Peak	ONE HOUR	11:45	13:15	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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	27	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1127	100.000
3 - Retail Park		ONE HOUR	✓	1161	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	525	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	17	10	0
	2 - Plas Coch Road West	13	1	889	224
	3 - Retail Park	5	927	0	229
	4 - B5101 Plas Coch Road East	1	297	227	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.18	27.43	0.2	D	25	37
2 - Plas Coch Road West	0.81	12.35	4.1	B	1034	1551
3 - Retail Park	0.57	3.81	1.3	A	1065	1598
4 - B5101 Plas Coch Road East	0.58	8.44	1.3	A	482	723

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1089	417	0.049	20	14	0.0	0.1	9.058	A
2 - Plas Coch Road West	848	212	178	1587	0.535	844	932	0.0	1.1	4.816	A
3 - Retail Park	874	219	178	2293	0.381	872	843	0.0	0.6	2.528	A
4 - B5101 Plas Coch Road East	395	99	710	1225	0.323	393	340	0.0	0.5	4.320	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	24	6	1304	309	0.078	24	17	0.1	0.1	12.614	B
2 - Plas Coch Road West	1013	253	213	1563	0.648	1010	1115	1.1	1.8	6.480	A
3 - Retail Park	1044	261	213	2264	0.461	1043	1010	0.6	0.9	2.943	A
4 - B5101 Plas Coch Road East	472	118	850	1132	0.417	471	407	0.5	0.7	5.438	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	30	7	1595	163	0.183	29	21	0.1	0.2	26.826	D
2 - Plas Coch Road West	1241	310	260	1531	0.810	1232	1364	1.8	4.0	11.702	B
3 - Retail Park	1278	320	260	2225	0.574	1276	1232	0.9	1.3	3.785	A
4 - B5101 Plas Coch Road East	578	145	1040	1005	0.575	576	497	0.7	1.3	8.328	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	30	7	1599	161	0.185	30	21	0.2	0.2	27.426	D
2 - Plas Coch Road West	1241	310	261	1530	0.811	1240	1367	4.0	4.1	12.352	B
3 - Retail Park	1278	320	262	2224	0.575	1278	1239	1.3	1.3	3.806	A
4 - B5101 Plas Coch Road East	578	145	1042	1004	0.576	578	499	1.3	1.3	8.442	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	24	6	1309	307	0.079	25	17	0.2	0.1	12.800	B
2 - Plas Coch Road West	1013	253	214	1562	0.649	1022	1120	4.1	1.9	6.778	A
3 - Retail Park	1044	261	216	2262	0.461	1046	1021	1.3	0.9	2.963	A
4 - B5101 Plas Coch Road East	472	118	852	1130	0.418	474	409	1.3	0.7	5.509	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1095	415	0.049	20	14	0.1	0.1	9.138	A
2 - Plas Coch Road West	848	212	179	1586	0.535	851	936	1.9	1.2	4.920	A
3 - Retail Park	874	219	180	2292	0.381	875	850	0.9	0.6	2.543	A
4 - B5101 Plas Coch Road East	395	99	713	1223	0.323	396	342	0.7	0.5	4.359	A

2021 Totals, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	5.02	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	Relationship type	Relationship
D16	2021 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D4 + D13

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	20	100.000
2 - Plas Coch Road West		ONE HOUR	✓	964	100.000
3 - Retail Park		ONE HOUR	✓	579	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	418	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	15	5	0
	2 - Plas Coch Road West	76	1	691	196
	3 - Retail Park	8	426	3	142
	4 - B5101 Plas Coch Road East	15	239	163	1

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	1	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.04	7.49	0.0	A	18	28
2 - Plas Coch Road West	0.67	6.95	2.0	A	885	1327
3 - Retail Park	0.29	2.32	0.4	A	531	797
4 - B5101 Plas Coch Road East	0.35	4.19	0.5	A	384	575

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	15	4	625	649	0.023	15	74	0.0	0.0	5.675	A
2 - Plas Coch Road West	726	181	129	1620	0.448	723	511	0.0	0.8	3.997	A
3 - Retail Park	436	109	205	2271	0.192	435	646	0.0	0.2	1.960	A
4 - B5101 Plas Coch Road East	315	79	386	1439	0.219	314	254	0.0	0.3	3.195	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	4	748	588	0.031	18	89	0.0	0.0	6.319	A
2 - Plas Coch Road West	867	217	154	1603	0.541	865	612	0.8	1.2	4.871	A
3 - Retail Park	521	130	246	2237	0.233	520	774	0.2	0.3	2.096	A
4 - B5101 Plas Coch Road East	376	94	462	1389	0.271	375	304	0.3	0.4	3.552	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	6	916	503	0.044	22	109	0.0	0.0	7.479	A
2 - Plas Coch Road West	1061	265	189	1579	0.672	1058	749	1.2	2.0	6.863	A
3 - Retail Park	637	159	301	2192	0.291	637	946	0.3	0.4	2.316	A
4 - B5101 Plas Coch Road East	460	115	565	1320	0.349	460	372	0.4	0.5	4.182	A

09:30 - 09:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	6	917	503	0.044	22	109	0.0	0.0	7.487	A
2 - Plas Coch Road West	1061	265	189	1579	0.672	1061	750	2.0	2.0	6.952	A
3 - Retail Park	637	159	302	2191	0.291	637	949	0.4	0.4	2.317	A
4 - B5101 Plas Coch Road East	460	115	566	1320	0.349	460	373	0.5	0.5	4.189	A

09:45 - 10:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	4	750	587	0.031	18	89	0.0	0.0	6.329	A
2 - Plas Coch Road West	867	217	155	1602	0.541	870	613	2.0	1.2	4.939	A
3 - Retail Park	521	130	247	2236	0.233	521	778	0.4	0.3	2.100	A
4 - B5101 Plas Coch Road East	376	94	463	1388	0.271	376	306	0.5	0.4	3.562	A

10:00 - 10:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	15	4	628	648	0.023	15	75	0.0	0.0	5.688	A
2 - Plas Coch Road West	726	181	130	1620	0.448	727	513	1.2	0.8	4.042	A
3 - Retail Park	436	109	207	2270	0.192	436	650	0.3	0.2	1.965	A
4 - B5101 Plas Coch Road East	315	79	387	1438	0.219	315	256	0.4	0.3	3.207	A

2021 Totals, Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.03	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	Relationship type	Relationship
D17	2021 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D5 + D14

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	96	100.000
2 - Plas Coch Road West		ONE HOUR	✓	944	100.000
3 - Retail Park		ONE HOUR	✓	989	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	524	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	77	14	5
	2 - Plas Coch Road West	11	2	269	662
	3 - Retail Park	8	778	1	202
	4 - B5101 Plas Coch Road East	2	298	224	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	1	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.44	26.43	0.8	D	88	132
2 - Plas Coch Road West	0.68	7.40	2.1	A	866	1299
3 - Retail Park	0.60	4.93	1.5	A	908	1361
4 - B5101 Plas Coch Road East	0.52	6.74	1.1	A	481	721

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	72	18	977	470	0.154	72	16	0.0	0.2	9.021	A
2 - Plas Coch Road West	711	178	183	1583	0.449	707	866	0.0	0.8	4.095	A
3 - Retail Park	745	186	510	2018	0.369	742	381	0.0	0.6	2.817	A
4 - B5101 Plas Coch Road East	394	99	600	1298	0.304	393	651	0.0	0.4	3.970	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	86	22	1170	374	0.231	86	19	0.2	0.3	12.481	B
2 - Plas Coch Road West	849	212	219	1559	0.544	847	1037	0.8	1.2	5.048	A
3 - Retail Park	889	222	610	1934	0.460	888	456	0.6	0.8	3.437	A
4 - B5101 Plas Coch Road East	471	118	718	1219	0.386	470	780	0.4	0.6	4.800	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	106	26	1431	243	0.434	104	23	0.3	0.7	25.511	D
2 - Plas Coch Road West	1039	260	268	1526	0.681	1036	1267	1.2	2.1	7.292	A
3 - Retail Park	1089	272	746	1822	0.598	1086	557	0.8	1.5	4.880	A
4 - B5101 Plas Coch Road East	577	144	879	1113	0.519	575	954	0.6	1.1	6.677	A

16:30 - 16:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	106	26	1435	242	0.438	106	23	0.7	0.8	26.430	D
2 - Plas Coch Road West	1039	260	269	1525	0.682	1039	1272	2.1	2.1	7.404	A
3 - Retail Park	1089	272	749	1819	0.598	1089	559	1.5	1.5	4.927	A
4 - B5101 Plas Coch Road East	577	144	881	1111	0.519	577	957	1.1	1.1	6.736	A

16:45 - 17:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	86	22	1175	371	0.233	88	19	0.8	0.3	12.793	B
2 - Plas Coch Road West	849	212	220	1558	0.545	852	1043	2.1	1.2	5.129	A
3 - Retail Park	889	222	614	1931	0.460	892	459	1.5	0.9	3.472	A
4 - B5101 Plas Coch Road East	471	118	721	1218	0.387	473	784	1.1	0.6	4.844	A

17:00 - 17:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	72	18	983	467	0.155	73	16	0.3	0.2	9.136	A
2 - Plas Coch Road West	711	178	184	1583	0.449	712	871	1.2	0.8	4.145	A
3 - Retail Park	745	186	513	2015	0.369	746	383	0.9	0.6	2.839	A
4 - B5101 Plas Coch Road East	394	99	603	1296	0.304	395	656	0.6	0.4	3.999	A

2021 Totals, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	8.62	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	Relationship type	Relationship
D18	2021 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D6 + D15

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	24	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1140	100.000
3 - Retail Park		ONE HOUR	✓	1236	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	484	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	16	8	0
	2 - Plas Coch Road West	11	1	948	180
	3 - Retail Park	5	990	0	241
	4 - B5101 Plas Coch Road East	1	245	238	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.18	29.42	0.2	D	22	33
2 - Plas Coch Road West	0.82	13.29	4.5	B	1046	1569
3 - Retail Park	0.60	3.98	1.5	A	1134	1701
4 - B5101 Plas Coch Road East	0.56	8.43	1.2	A	444	666

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	1106	409	0.044	18	13	0.0	0.0	9.200	A
2 - Plas Coch Road West	858	215	184	1582	0.542	854	939	0.0	1.2	4.908	A
3 - Retail Park	931	233	144	2322	0.401	928	894	0.0	0.7	2.578	A
4 - B5101 Plas Coch Road East	364	91	756	1194	0.305	363	316	0.0	0.4	4.319	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	1323	299	0.072	21	15	0.0	0.1	12.943	B
2 - Plas Coch Road West	1025	256	221	1558	0.658	1022	1124	1.2	1.9	6.684	A
3 - Retail Park	1111	278	172	2298	0.483	1110	1071	0.7	0.9	3.026	A
4 - B5101 Plas Coch Road East	435	109	904	1096	0.397	434	378	0.4	0.7	5.437	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	1619	151	0.175	26	19	0.1	0.2	28.733	D
2 - Plas Coch Road West	1255	314	270	1524	0.823	1245	1375	1.9	4.3	12.480	B
3 - Retail Park	1361	340	210	2267	0.600	1359	1305	0.9	1.5	3.953	A
4 - B5101 Plas Coch Road East	533	133	1107	961	0.555	531	462	0.7	1.2	8.325	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	1623	149	0.178	26	19	0.2	0.2	29.421	D
2 - Plas Coch Road West	1255	314	271	1524	0.824	1255	1378	4.3	4.5	13.292	B
3 - Retail Park	1361	340	211	2266	0.601	1361	1314	1.5	1.5	3.977	A
4 - B5101 Plas Coch Road East	533	133	1109	960	0.555	533	463	1.2	1.2	8.433	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	1329	297	0.073	22	15	0.2	0.1	13.141	B
2 - Plas Coch Road West	1025	256	222	1556	0.658	1035	1129	4.5	2.0	7.032	A
3 - Retail Park	1111	278	174	2297	0.484	1113	1083	1.5	0.9	3.049	A
4 - B5101 Plas Coch Road East	435	109	907	1094	0.398	437	380	1.2	0.7	5.502	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	1111	406	0.044	18	13	0.1	0.0	9.283	A
2 - Plas Coch Road West	858	215	186	1581	0.543	861	944	2.0	1.2	5.021	A
3 - Retail Park	931	233	145	2321	0.401	932	902	0.9	0.7	2.594	A
4 - B5101 Plas Coch Road East	364	91	759	1192	0.306	365	318	0.7	0.4	4.358	A

2026 Totals, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	5.17	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	Relationship type	Relationship
D19	2026 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D7 + D13

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	21	100.000
2 - Plas Coch Road West		ONE HOUR	✓	979	100.000
3 - Retail Park		ONE HOUR	✓	579	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	432	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	16	5	0
	2 - Plas Coch Road West	80	1	691	207
	3 - Retail Park	8	426	3	142
	4 - B5101 Plas Coch Road East	16	252	163	1

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	1	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.05	7.62	0.0	A	19	29
2 - Plas Coch Road West	0.68	7.18	2.1	A	898	1348
3 - Retail Park	0.29	2.34	0.4	A	531	797
4 - B5101 Plas Coch Road East	0.36	4.28	0.6	A	396	595

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	16	4	635	645	0.025	16	78	0.0	0.0	5.725	A
2 - Plas Coch Road West	737	184	129	1620	0.455	734	522	0.0	0.8	4.048	A
3 - Retail Park	436	109	217	2261	0.193	435	646	0.0	0.2	1.970	A
4 - B5101 Plas Coch Road East	325	81	389	1437	0.226	324	263	0.0	0.3	3.231	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	19	5	760	582	0.032	19	93	0.0	0.0	6.394	A
2 - Plas Coch Road West	880	220	154	1603	0.549	879	624	0.8	1.2	4.962	A
3 - Retail Park	521	130	259	2226	0.234	520	774	0.2	0.3	2.110	A
4 - B5101 Plas Coch Road East	388	97	465	1386	0.280	388	314	0.3	0.4	3.606	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	930	496	0.047	23	114	0.0	0.0	7.609	A
2 - Plas Coch Road West	1078	269	189	1579	0.683	1074	764	1.2	2.1	7.080	A
3 - Retail Park	637	159	317	2178	0.293	637	946	0.3	0.4	2.336	A
4 - B5101 Plas Coch Road East	476	119	570	1317	0.361	475	384	0.4	0.6	4.272	A

09:30 - 09:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	931	496	0.047	23	114	0.0	0.0	7.617	A
2 - Plas Coch Road West	1078	269	189	1579	0.683	1078	765	2.1	2.1	7.177	A
3 - Retail Park	637	159	318	2177	0.293	637	949	0.4	0.4	2.337	A
4 - B5101 Plas Coch Road East	476	119	570	1317	0.361	476	385	0.6	0.6	4.280	A

09:45 - 10:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	19	5	762	581	0.032	19	94	0.0	0.0	6.404	A
2 - Plas Coch Road West	880	220	155	1602	0.549	884	626	2.1	1.2	5.035	A
3 - Retail Park	521	130	261	2225	0.234	521	778	0.4	0.3	2.113	A
4 - B5101 Plas Coch Road East	388	97	466	1386	0.280	389	316	0.6	0.4	3.616	A

10:00 - 10:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	16	4	637	643	0.025	16	78	0.0	0.0	5.737	A
2 - Plas Coch Road West	737	184	130	1620	0.455	739	524	1.2	0.8	4.093	A
3 - Retail Park	436	109	218	2260	0.193	436	650	0.3	0.2	1.973	A
4 - B5101 Plas Coch Road East	325	81	390	1436	0.226	326	264	0.4	0.3	3.241	A

2026 Totals, Friday 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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.34	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	Relationship type	Relationship
D20	2026 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D8 + D14

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	102	100.000
2 - Plas Coch Road West		ONE HOUR	✓	958	100.000
3 - Retail Park		ONE HOUR	✓	989	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	541	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	82	15	5
	2 - Plas Coch Road West	12	2	282	662
	3 - Retail Park	8	778	1	202
	4 - B5101 Plas Coch Road East	2	315	224	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.48	29.45	0.9	D	94	140
2 - Plas Coch Road West	0.69	7.66	2.2	A	879	1319
3 - Retail Park	0.60	4.93	1.5	A	908	1361
4 - B5101 Plas Coch Road East	0.54	6.99	1.1	A	496	745

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	77	19	990	467	0.164	76	16	0.0	0.2	9.179	A
2 - Plas Coch Road West	721	180	184	1583	0.456	718	883	0.0	0.8	4.146	A
3 - Retail Park	745	186	510	2017	0.369	742	391	0.0	0.6	2.818	A
4 - B5101 Plas Coch Road East	407	102	601	1297	0.314	405	651	0.0	0.5	4.027	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	92	23	1185	369	0.248	91	20	0.2	0.3	12.926	B
2 - Plas Coch Road West	861	215	220	1558	0.553	860	1056	0.8	1.2	5.141	A
3 - Retail Park	889	222	611	1934	0.460	888	468	0.6	0.8	3.440	A
4 - B5101 Plas Coch Road East	486	122	719	1219	0.399	486	780	0.5	0.7	4.904	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	112	28	1449	236	0.476	110	24	0.3	0.9	28.154	D
2 - Plas Coch Road West	1055	264	269	1525	0.692	1051	1291	1.2	2.2	7.530	A
3 - Retail Park	1089	272	747	1821	0.598	1086	572	0.8	1.5	4.885	A
4 - B5101 Plas Coch Road East	596	149	880	1112	0.536	594	954	0.7	1.1	6.923	A

16:30 - 16:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	112	28	1453	234	0.480	112	24	0.9	0.9	29.451	D
2 - Plas Coch Road West	1055	264	270	1524	0.692	1055	1296	2.2	2.2	7.659	A
3 - Retail Park	1089	272	750	1819	0.599	1089	575	1.5	1.5	4.933	A
4 - B5101 Plas Coch Road East	596	149	882	1111	0.536	596	957	1.1	1.1	6.990	A

16:45 - 17:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	92	23	1191	366	0.250	94	20	0.9	0.3	13.315	B
2 - Plas Coch Road West	861	215	221	1557	0.553	865	1063	2.2	1.3	5.231	A
3 - Retail Park	889	222	615	1930	0.461	892	472	1.5	0.9	3.472	A
4 - B5101 Plas Coch Road East	486	122	722	1217	0.400	488	784	1.1	0.7	4.954	A

17:00 - 17:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	77	19	995	465	0.165	77	17	0.3	0.2	9.311	A
2 - Plas Coch Road West	721	180	185	1582	0.456	723	888	1.3	0.8	4.197	A
3 - Retail Park	745	186	514	2014	0.370	746	394	0.9	0.6	2.839	A
4 - B5101 Plas Coch Road East	407	102	604	1296	0.314	408	656	0.7	0.5	4.059	A

2026 Totals, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	9.06	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	Relationship type	Relationship
D21	2026 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D9 + D15

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	26	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1152	100.000
3 - Retail Park		ONE HOUR	✓	1236	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	504	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	17	9	0
	2 - Plas Coch Road West	12	1	948	191
	3 - Retail Park	5	990	0	241
	4 - B5101 Plas Coch Road East	1	265	238	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.21	32.99	0.3	D	24	36
2 - Plas Coch Road West	0.83	14.00	4.8	B	1057	1586
3 - Retail Park	0.60	4.03	1.5	A	1134	1701
4 - B5101 Plas Coch Road East	0.58	8.91	1.4	A	462	694

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1121	401	0.049	19	13	0.0	0.1	9.416	A
2 - Plas Coch Road West	867	217	185	1582	0.548	862	955	0.0	1.2	4.972	A
3 - Retail Park	931	233	153	2315	0.402	928	895	0.0	0.7	2.592	A
4 - B5101 Plas Coch Road East	379	95	757	1194	0.318	378	324	0.0	0.5	4.400	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	1341	290	0.080	23	16	0.1	0.1	13.464	B
2 - Plas Coch Road West	1036	259	222	1557	0.665	1033	1143	1.2	1.9	6.824	A
3 - Retail Park	1111	278	183	2289	0.485	1110	1071	0.7	0.9	3.049	A
4 - B5101 Plas Coch Road East	453	113	905	1095	0.414	452	388	0.5	0.7	5.592	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	29	7	1641	140	0.205	28	20	0.1	0.2	32.024	D
2 - Plas Coch Road West	1268	317	271	1524	0.832	1258	1398	1.9	4.6	13.041	B
3 - Retail Park	1361	340	223	2256	0.603	1359	1306	0.9	1.5	4.001	A
4 - B5101 Plas Coch Road East	555	139	1108	960	0.578	552	473	0.7	1.3	8.718	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	29	7	1645	138	0.208	29	20	0.2	0.3	32.993	D
2 - Plas Coch Road West	1268	317	272	1523	0.833	1268	1402	4.6	4.8	13.996	B
3 - Retail Park	1361	340	224	2255	0.604	1361	1315	1.5	1.5	4.026	A
4 - B5101 Plas Coch Road East	555	139	1110	959	0.579	555	476	1.3	1.4	8.907	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	23	6	1347	287	0.081	24	16	0.3	0.1	13.706	B
2 - Plas Coch Road West	1036	259	223	1556	0.666	1047	1148	4.8	2.0	7.217	A
3 - Retail Park	1111	278	185	2287	0.486	1113	1085	1.5	1.0	3.071	A
4 - B5101 Plas Coch Road East	453	113	908	1093	0.414	456	391	1.4	0.7	5.671	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1127	399	0.049	20	14	0.1	0.1	9.506	A
2 - Plas Coch Road West	867	217	186	1581	0.549	871	960	2.0	1.2	5.091	A
3 - Retail Park	931	233	154	2313	0.402	932	903	1.0	0.7	2.609	A
4 - B5101 Plas Coch Road East	379	95	760	1192	0.318	380	326	0.7	0.5	4.443	A

2036 Totals, Friday AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	5.44	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	Relationship type	Relationship
D22	2036 Totals	Friday AM	ONE HOUR	08:45	10:15	15	✓	Simple	D10 + D13

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	24	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1004	100.000
3 - Retail Park		ONE HOUR	✓	579	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	455	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	18	6	0
	2 - Plas Coch Road West	87	1	691	225
	3 - Retail Park	8	426	3	142
	4 - B5101 Plas Coch Road East	16	275	163	1

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	0	1	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.05	7.89	0.1	A	22	33
2 - Plas Coch Road West	0.70	7.61	2.3	A	921	1382
3 - Retail Park	0.30	2.37	0.4	A	531	797
4 - B5101 Plas Coch Road East	0.38	4.44	0.6	A	418	626

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	652	636	0.028	18	83	0.0	0.0	5.827	A
2 - Plas Coch Road West	756	189	130	1619	0.467	752	541	0.0	0.9	4.135	A
3 - Retail Park	436	109	235	2246	0.194	435	647	0.0	0.2	1.987	A
4 - B5101 Plas Coch Road East	343	86	394	1434	0.239	341	276	0.0	0.3	3.293	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	781	571	0.038	22	100	0.0	0.0	6.547	A
2 - Plas Coch Road West	903	226	155	1602	0.563	901	647	0.9	1.3	5.119	A
3 - Retail Park	521	130	282	2207	0.236	520	775	0.2	0.3	2.133	A
4 - B5101 Plas Coch Road East	409	102	472	1382	0.296	409	330	0.3	0.4	3.695	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	956	483	0.055	26	122	0.0	0.1	7.876	A
2 - Plas Coch Road West	1105	276	190	1578	0.700	1101	792	1.3	2.3	7.486	A
3 - Retail Park	637	159	344	2155	0.296	637	947	0.3	0.4	2.371	A
4 - B5101 Plas Coch Road East	501	125	577	1312	0.382	500	404	0.4	0.6	4.431	A

09:30 - 09:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	26	7	957	483	0.055	26	122	0.1	0.1	7.886	A
2 - Plas Coch Road West	1105	276	190	1578	0.700	1105	793	2.3	2.3	7.608	A
3 - Retail Park	637	159	346	2154	0.296	637	950	0.4	0.4	2.373	A
4 - B5101 Plas Coch Road East	501	125	578	1311	0.382	501	405	0.6	0.6	4.441	A

09:45 - 10:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	22	5	782	571	0.038	22	100	0.1	0.0	6.561	A
2 - Plas Coch Road West	903	226	156	1602	0.564	907	648	2.3	1.3	5.207	A
3 - Retail Park	521	130	284	2206	0.236	521	779	0.4	0.3	2.136	A
4 - B5101 Plas Coch Road East	409	102	473	1382	0.296	410	332	0.6	0.4	3.706	A

10:00 - 10:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	18	5	655	635	0.028	18	84	0.0	0.0	5.842	A
2 - Plas Coch Road West	756	189	130	1619	0.467	758	543	1.3	0.9	4.188	A
3 - Retail Park	436	109	237	2245	0.194	436	651	0.3	0.2	1.990	A
4 - B5101 Plas Coch Road East	343	86	396	1433	0.239	343	277	0.4	0.3	3.303	A

2036 Totals, Friday PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	7.89	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	Relationship type	Relationship
D23	2036 Totals	Friday PM	ONE HOUR	15:45	17:15	15	✓	Simple	D11 + D14

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	108	100.000
2 - Plas Coch Road West		ONE HOUR	✓	973	100.000
3 - Retail Park		ONE HOUR	✓	989	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	570	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	88	15	5
	2 - Plas Coch Road West	12	2	297	662
	3 - Retail Park	8	778	1	202
	4 - B5101 Plas Coch Road East	2	344	224	0

Vehicle Mix

Heavy Vehicle Percentages

From	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
	1 - Wrexham Glyndwr Uni	0	1	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.55	36.69	1.2	E	99	149
2 - Plas Coch Road West	0.70	7.94	2.3	A	893	1339
3 - Retail Park	0.60	4.93	1.5	A	908	1361
4 - B5101 Plas Coch Road East	0.57	7.45	1.3	A	523	785

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	81	20	1012	453	0.180	80	16	0.0	0.2	9.649	A
2 - Plas Coch Road West	733	183	184	1583	0.463	729	909	0.0	0.9	4.199	A
3 - Retail Park	745	186	510	2017	0.369	742	402	0.0	0.6	2.818	A
4 - B5101 Plas Coch Road East	429	107	601	1297	0.331	427	651	0.0	0.5	4.127	A

16:00 - 16:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	97	24	1211	353	0.275	96	20	0.2	0.4	13.989	B
2 - Plas Coch Road West	875	219	220	1558	0.561	873	1088	0.9	1.3	5.241	A
3 - Retail Park	889	222	611	1934	0.460	888	482	0.6	0.8	3.439	A
4 - B5101 Plas Coch Road East	512	128	719	1219	0.420	512	780	0.5	0.7	5.083	A

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	119	30	1481	218	0.545	116	24	0.4	1.1	34.276	D
2 - Plas Coch Road West	1071	268	268	1525	0.702	1067	1329	1.3	2.3	7.788	A
3 - Retail Park	1089	272	747	1821	0.598	1086	589	0.8	1.5	4.884	A
4 - B5101 Plas Coch Road East	628	157	880	1112	0.564	625	953	0.7	1.3	7.365	A

16:30 - 16:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	119	30	1485	216	0.550	119	24	1.1	1.2	36.687	E
2 - Plas Coch Road West	1071	268	270	1524	0.703	1071	1334	2.3	2.3	7.937	A
3 - Retail Park	1089	272	750	1819	0.599	1089	591	1.5	1.5	4.933	A
4 - B5101 Plas Coch Road East	628	157	882	1111	0.565	628	957	1.3	1.3	7.449	A

16:45 - 17:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	97	24	1217	350	0.277	100	20	1.2	0.4	14.566	B
2 - Plas Coch Road West	875	219	222	1557	0.562	879	1095	2.3	1.3	5.339	A
3 - Retail Park	889	222	615	1930	0.461	892	485	1.5	0.9	3.473	A
4 - B5101 Plas Coch Road East	512	128	722	1217	0.421	515	785	1.3	0.7	5.143	A

17:00 - 17:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	81	20	1017	450	0.181	82	17	0.4	0.2	9.802	A
2 - Plas Coch Road West	733	183	185	1582	0.463	734	914	1.3	0.9	4.256	A
3 - Retail Park	745	186	514	2014	0.370	746	405	0.9	0.6	2.841	A
4 - B5101 Plas Coch Road East	429	107	604	1296	0.331	430	656	0.7	0.5	4.163	A

2036 Totals, Saturday Peak

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	Arm order	Junction Delay (s)	Junction LOS
1	RETAIL PARK ROUNDABOUT	Standard Roundabout	1, 2, 3, 4	9.83	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	Relationship type	Relationship
D24	2036 Totals	Saturday Peak	ONE HOUR	11:45	13:15	15	✓	Simple	D12 + D15

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 (Veh/hr)	Scaling Factor (%)
1 - Wrexham Glyndwr Uni		ONE HOUR	✓	27	100.000
2 - Plas Coch Road West		ONE HOUR	✓	1173	100.000
3 - Retail Park		ONE HOUR	✓	1236	100.000
4 - B5101 Plas Coch Road East		ONE HOUR	✓	525	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	17	10	0
	2 - Plas Coch Road West	13	1	948	211
	3 - Retail Park	5	990	0	241
	4 - B5101 Plas Coch Road East	1	286	238	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Wrexham Glyndwr Uni	2 - Plas Coch Road West	3 - Retail Park	4 - B5101 Plas Coch Road East
From	1 - Wrexham Glyndwr Uni	0	0	0	0
	2 - Plas Coch Road West	0	0	0	0
	3 - Retail Park	0	0	0	0
	4 - B5101 Plas Coch Road East	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - Wrexham Glyndwr Uni	0.24	37.34	0.3	E	25	37
2 - Plas Coch Road West	0.85	15.38	5.3	C	1076	1615
3 - Retail Park	0.61	4.11	1.5	A	1134	1701
4 - B5101 Plas Coch Road East	0.60	9.46	1.5	A	482	723

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1136	394	0.052	20	14	0.0	0.1	9.634	A
2 - Plas Coch Road West	883	221	186	1581	0.558	878	971	0.0	1.2	5.084	A
3 - Retail Park	931	233	168	2301	0.404	928	895	0.0	0.7	2.615	A
4 - B5101 Plas Coch Road East	395	99	757	1193	0.331	393	339	0.0	0.5	4.488	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	24	6	1360	281	0.086	24	17	0.1	0.1	14.004	B
2 - Plas Coch Road West	1055	264	222	1556	0.677	1051	1162	1.2	2.1	7.080	A
3 - Retail Park	1111	278	202	2274	0.489	1110	1072	0.7	0.9	3.090	A
4 - B5101 Plas Coch Road East	472	118	906	1094	0.431	471	406	0.5	0.7	5.764	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	30	7	1663	128	0.232	29	21	0.1	0.3	35.954	E
2 - Plas Coch Road West	1291	323	271	1523	0.848	1279	1421	2.1	5.1	14.115	B
3 - Retail Park	1361	340	245	2237	0.608	1359	1305	0.9	1.5	4.085	A
4 - B5101 Plas Coch Road East	578	145	1109	959	0.602	575	495	0.7	1.5	9.298	A

12:30 - 12:45

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	30	7	1668	126	0.236	30	21	0.3	0.3	37.335	E
2 - Plas Coch Road West	1291	323	273	1522	0.848	1291	1425	5.1	5.3	15.376	C
3 - Retail Park	1361	340	248	2236	0.609	1361	1316	1.5	1.5	4.114	A
4 - B5101 Plas Coch Road East	578	145	1111	958	0.603	578	497	1.5	1.5	9.464	A

12:45 - 13:00

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	24	6	1367	278	0.087	25	17	0.3	0.1	14.296	B
2 - Plas Coch Road West	1055	264	225	1555	0.678	1067	1167	5.3	2.2	7.562	A
3 - Retail Park	1111	278	205	2271	0.489	1113	1087	1.5	1.0	3.117	A
4 - B5101 Plas Coch Road East	472	118	909	1092	0.432	475	409	1.5	0.8	5.858	A

13:00 - 13:15

Am	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1 - Wrexham Glyndwr Uni	20	5	1143	391	0.052	20	14	0.1	0.1	9.732	A
2 - Plas Coch Road West	883	221	187	1580	0.559	887	976	2.2	1.3	5.216	A
3 - Retail Park	931	233	170	2300	0.405	932	904	1.0	0.7	2.632	A
4 - B5101 Plas Coch Road East	395	99	761	1191	0.332	396	341	0.8	0.5	4.535	A